WICHITA STATE UNIVERSITY
NATIONAL INSTITUTE for AVIATION RESEARCH

NCAMP
NATIONAL CENTER for ADVANCED MATERIALS PERFORMANCE

Syensqo (Formerly Solvay) EP2190 T650 3K PW Fabric RC 37%
Qualification Material Property Data Report
Phase 1, 2 and 3

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1. Introduction

1.1 Scope

The test methods and results described in this document are intended to provide basic composite properties essential to most methods of analysis and are consistent with CMH-17-1H – Composite Materials Handbook for Polymer Matrix Composites. This report contains material property data of common usefulness to wide range of projects. The lamina and laminate material property data have been generated with NCAMP oversight in accordance with NSP 100 NCAMP Standard Operating Procedures; the test panels and test specimens have been inspected by NCAMP Authorized Inspection Representatives (AIR) and the testing has been witnessed by NCAMP Authorized Engineering Representatives (AER). However, the data may not fulfill all the needs of any specific company's program; specific properties, environments, laminate architecture, and loading situations may require additional testing.

The use of NCAMP material and process specifications does not guarantee material or structural performance. Material users should be actively involved in evaluating material performance and quality including, but not limited to, performing regular purchaser quality control tests, performing periodic equivalency/additional testing, participating in material change management activities, conducting statistical process control, and conducting regular supplier audits.

The applicability of NCAMP material property data, material allowables, and specifications must be evaluated on a case-by-case basis by aircraft companies and certifying agencies. NCAMP assumes no liability whatsoever, expressed or implied, related to the use of the material property data, material allowables, and specifications.

This report contains Phase 1, 2 and 3 material property data only. Statistical analysis of the Phase 1 data including the calculations of b-basis values is given in a separate report, Solvay EP2190 T650 3K PW Fabric RC 37% Material Allowables Statistical Analysis Report Phase 1, 2 and 3, NCP-RP-2022-003 Rev –. The qualification material was procured to a proprietary material specification which is an equivalent to NCAMP Material Specification NMS 219/2 Rev Initial Release dated November 4, 2021. The qualification test panels were fabricated per a proprietary process specification which is an equivalent to NCAMP Process Specification NPS 82190 Rev A dated April 1, 2022 using baseline cure cycle "C". The NCAMP Test Plan NTP 2191Q1 was used for this qualification program.

Part fabricators that wish to utilize the material property data, allowables, and specifications may be able to do so by demonstrating the capability to reproduce the original material properties; a process known as equivalency. More information about this equivalency process including the test statistics and its limitations can be found in Section 6 of DOT/FAA/AR-03/19 and Section 8.4.1 of CMH-17-1H. The applicability of equivalency process must be evaluated on program-by-program basis by the applicant and certifying agency. The applicant and certifying agency must agree that the equivalency test plan along with the equivalency process described in Section 6 of

DOT/FAA/AR-03/19 and Section 8.4.1 of CMH-17-1H are adequate for the given program.

Aircraft companies should not use the data published in this report without specifying NCAMP Material Specification NMS 219/2. NMS 219/2 may have additional requirements that are listed in its prepreg process control document (PCD), fiber specification, fiber PCD, and other raw material specifications and PCDs which impose essential quality controls on the raw materials and raw material manufacturing equipment and processes. *Aircraft companies and certifying agencies should assume that the material property data published in this report is not applicable when the material is not procured to NMS 219/2.* NMS 219/2 is a free, publicly available, non-proprietary aerospace industry material specification.

The data in this report is intended for general distribution to the public, either freely or at a price that does not exceed the cost of reproduction (e.g. printing) and distribution (e.g. postage).

1.2 Symbols Used

ν_{12}^{t}	major Poisson's ratio, tension
$\mu\varepsilon$	micro-strain
E_1^{c}	compressive modulus, longitudinal / warp direction
E_1^{t}	tensile modulus, longitudinal / warp direction
E_2^{c}	compressive modulus, transverse / fill direction
E_2^{t}	tensile modulus, transverse / fill direction
F_1^{cu}	ultimate compressive strength, longitudinal / warp direction
F_1^{tu}	ultimate tensile strength, longitudinal / warp direction
F_2^{cu}	ultimate compressive strength, transverse / fill direction
F_2^{tu}	ultimate tensile strength, transverse / fill direction
ν_{12}^{c}	major Poisson's Ratio, compression
ν_{21}^{c}	minor Poisson's Ratio, compression
$F_{12}^{s5\% \text{ strain}}$	in-plane shear strength at 5% strain
F_{12}^{su}	in-plane shear ultimate peak strength
$F_{12}^{s0.2\%}$	in-plane shear strength at 0.2% offset
G_{12}^{s}	in-plane shear modulus

Superscripts

c	compression
cu	compression ultimate
s	shear
su	shear ultimate
t	tension
tu	tension ultimate

Subscripts

1	axis; longitudinal / warp direction (parallel to warp direction of reinforcement)
2	axis; transverse / fill direction (parallel to fill direction of reinforcement)
12	in-plane

Acronyms and Definitions

ASTM	American Society for Testing and Materials
B – Basis	95% lower confidence limit on the tenth population percentile
CV	Coefficient of Variation
CTA	Cold Temperature Ambient
CPT	Cured Ply Thickness
ETA	Elevated Temperature Ambient
ETW	Elevated Temperature Wet
Gr/Ep	graphite/epoxy
norm	normalized
RTA	Room Temperature Ambient
SACMA	Suppliers of Advanced Composite Materials Association
SRM	SACMA Recommended Method
Tply	thickness divided by the number of plies provides the thickness average per specimen
wet	specimen with an "equilibrium" moisture content
T, RH	Temperature, Relative Humidity

1.3 Specimen Naming Format

Phase 1: All specimens were uniquely identified by a coded reference system. The reference system is described as follows:

Solvay Test Request Number – Test Panel ID – Test Type – Batch ID – Cure Cycle ID – Test Condition – Specimen Number

For example:

TR8097908-P1-WT-A-C1-CTA-1						
Solvay Test Request Number	Test Panel ID	Test Type	Prepreg Batch ID	Cure Cycle ID	Test Condition	Specimen Number

Figure 1-1: Naming Format

Phase 2 and Phase 3: All panels and specimens shall be uniquely identified by a 10 code reference system, cross referenced with descriptive identification information as follows:

This Document Number – Prepregger ID – Material Code – Fabricator ID – Test Type – Batch ID – Cure Cycle ID – Test Panel ID – Test Condition – Specimen Number.

For example:

NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-RTA-3									
Document Number	Prepregger ID	Material Code	Fabricator ID	Test Type	Prepreg Batch ID	Cure Cycle ID	Test Panel ID	Test Condition	Specimen Number

1.4 References

ASTM Standards

All testing was in accordance with nationally recognized standards, methods and procedures. Specific mechanical property test methods applicable to the test program in this document include:

- SACMA SRM 1R-94 – SACMA Recommended Test Method for Compressive Properties of Oriented Fiber-Resin Composites

- ASTM D790-17 – Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

- ASTM D2344/D2344M-16 – Standard Test Method for Short-Beam Strength of Polymer Matrix Composite Materials and Their Laminates

- ASTM D3039/D3039M-17 – Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials

- ASTM D5379/D5379M-19 – Standard Test Method for Shear Properties of Composite Materials by the V-Notched Beam Method

- ASTM D5766/D5766M-11(2018) – Standard Test Method for Open Hole Tensile Strength of Polymer Matrix Composite Laminates

- ASTM D5961/D5961M-17 – Standard Test Method for Bearing Response of Polymer Matrix Composite Laminates

- ASTM D6484/D6484M-14 – Standard Test Method for Open-Hole Compressive Strength of Polymer Matrix Composite Laminates

- ASTM D6742/D6742M-17 – Standard Practice for Filled-Hole Tension and Compression Testing of Polymer Matrix Composite Laminates

- ASTM D7028-07(2015) – Standard Test Method for Glass Transition Temperature (DMA Tg) of Polymer Matrix Composites by Dynamic Mechanical Analysis (DMA)

- ASTM D7136/D7136M-15 – Standard Test Method for Measuring the Damage Resistance of a Fiber-Reinforced Polymer Matrix Composite to a Drop-Weight Impact Event

- ASTM D7137/D7137M-17 – Standard Test Method for Compressive Residual Strength Properties of Damaged Polymer Matrix Composite Plates

1.5 Methodology

1.5.1 Process Definition

For each combination of test, batch and condition, the specimens were selected from the panels cured separately as shown in Figure 1-2 unless otherwise specified.

For Phase 1, the panels 1, 2, and 3 may be cured in a single cure cycle. For Phase 2 and Phase 3, the specimens will be taken from a minimum of two separate panels cured separately. The term "cure cycle" means a single run through the autoclave or oven, with same processing parameters. The specimen selection methodology in Error! Reference source not found. will be presented in "Number of Batches x Number of Cure Process x Number of Specimens" format throughout this document. Specifically, Figure 1-2 depicts a 3x1x6 specimen (Phase 1) and a 1x2x3 specimen (Phase 2) selection methodology. If more than 2 panels are required to obtain the minimum specimens, the additional panel(s) shall be labeled accordingly (see section 1.3) and approximately equal number of specimens should be tested from each panel.

Phase 1: 1x1x6
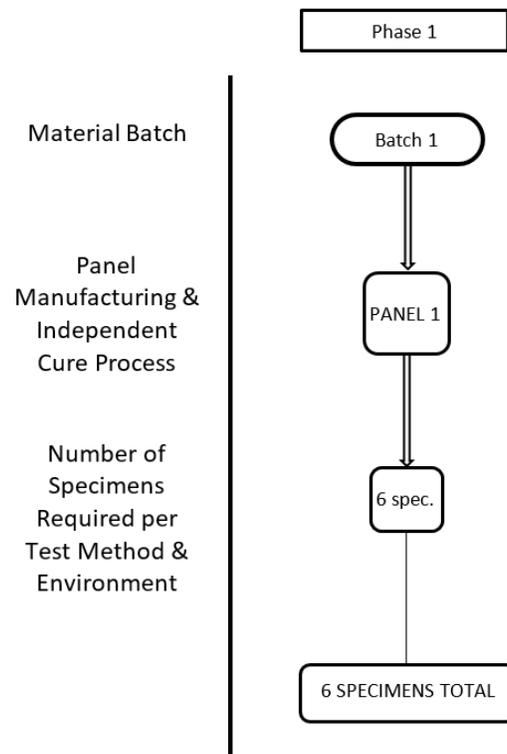
Phase 1: 1x1x6, Phase 2: 1x2x3
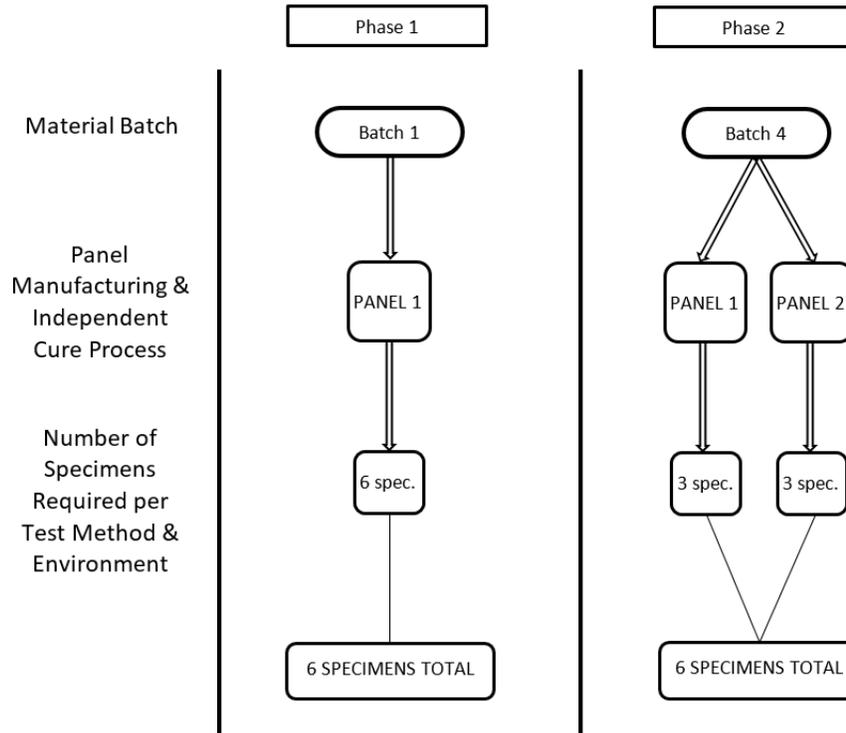
Phase 1: 1x1x6, Phase 2: 2x2x3
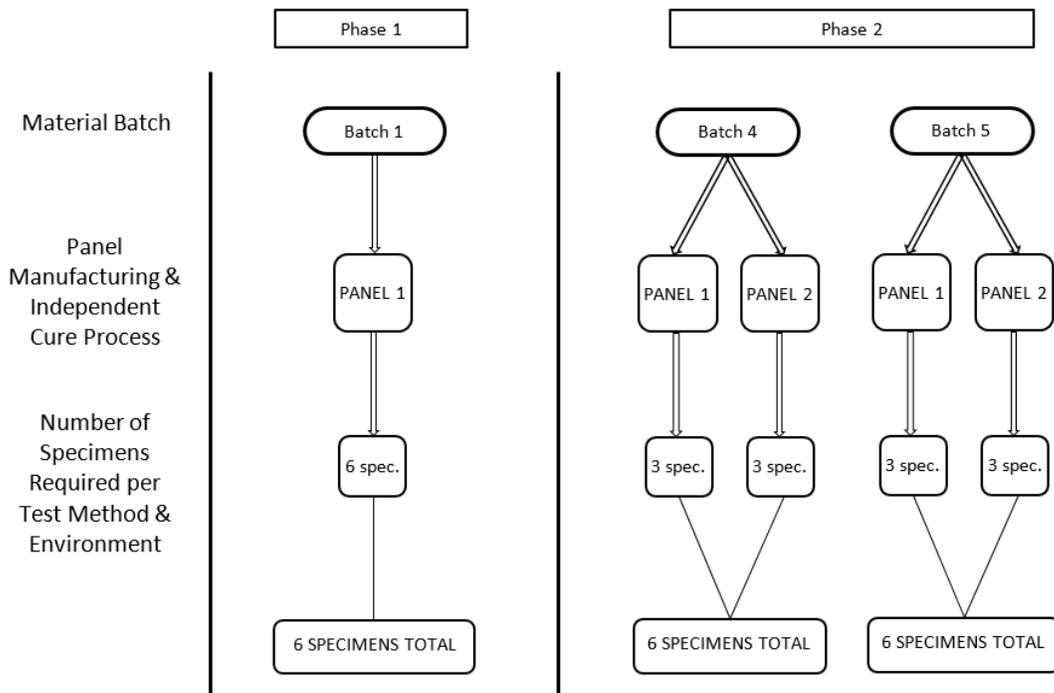
Phase 1: 3x1x6, Phase 2: 1x2x3
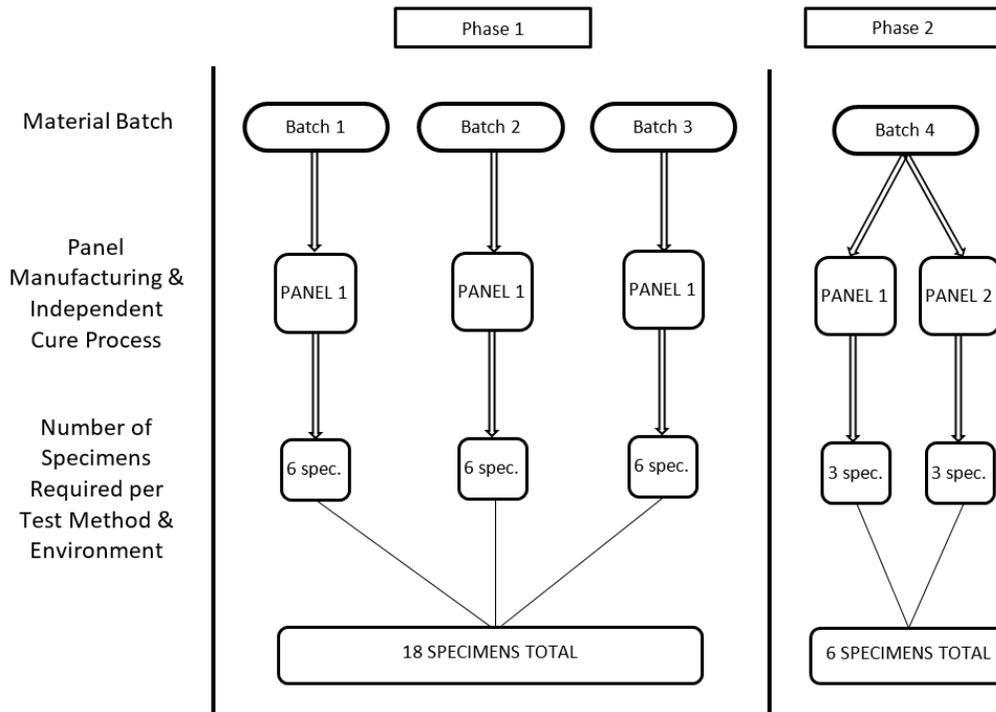
Phase 1: -, Phase 2 or Phase 3: 1x2x3
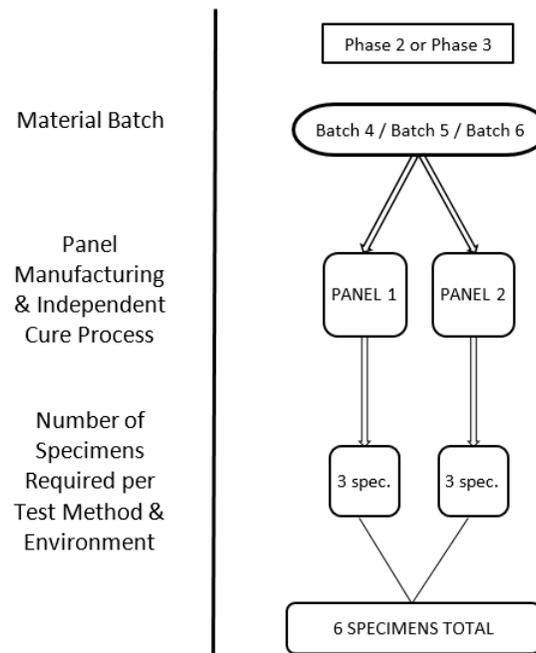
Phase 1: -, Phase 2 or Phase 3: 3x2x3
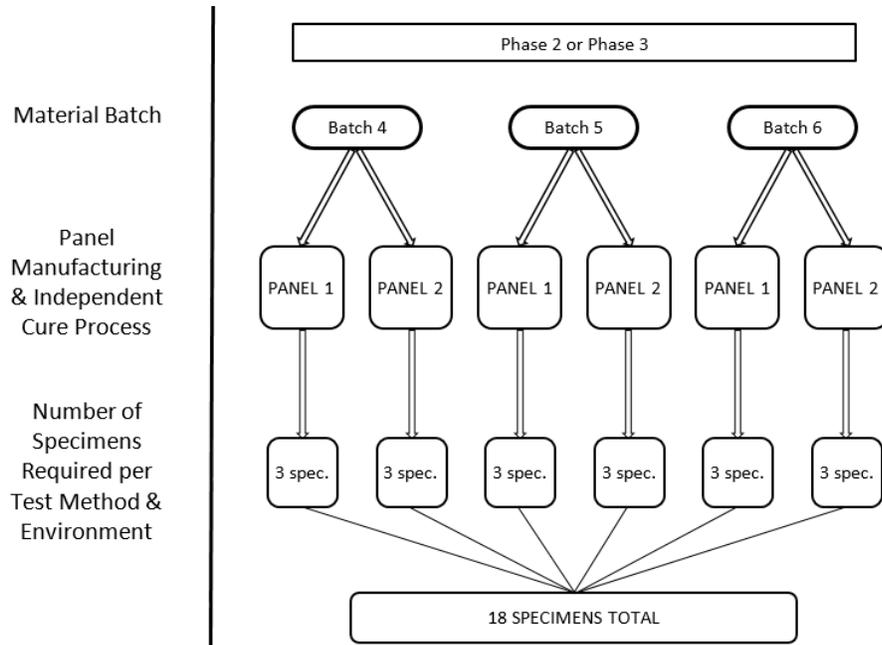
Notes:
P1 – Phase 1 to be completed by Solvay, Anaheim CA.
P2 – Phase 2 to be completed by Solvay, Anaheim CA.
P3 – Phase 3 to be completed by Solvay, Anaheim CA.

Figure 1-2: Specimen Selection Methodology

All panels were fabricated in accordance with NCAMP Process Specification NPS 82190 using baseline cure cycle "C".

In order to facilitate individual specimen trace ability, individual specimen numbering and/or skewed lines were written or drawn across each sub-panel as shown in Figure 1-3.
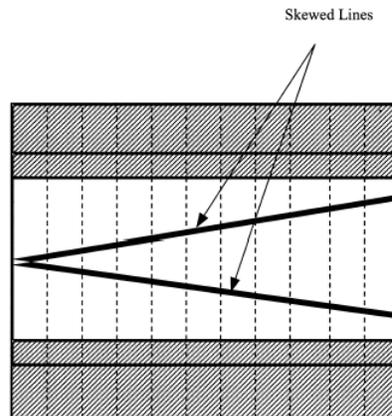
Figure 1-3: Specimen Traceability Line

1.5.2 Specimen & Testing Details

1.5.2.1 Tabbing

Tabs were used for Warp/Fill Tension and Warp/Fill Compression Strength specimens.

1. For Warp/Fill Tension tests:
    - CTA and RTA: G11 tabs material with MB-1113 adhesive cured at 250°F for 1.5hours.
    - ETW1 (180°F): G11 tabs material with FM300-2 adhesive cured at 250°F for 1.5hours.
    - ETA2/ETW2 (225°F): G11 tabs material with FM300-2 adhesive cured at 250°F for 1.5hours.
    - ETA3/ETW3 (250°F): G11 tabs material with FM400 adhesive cured at 350°F for 1.5hours. (Solvay has done preliminary study to show no impact with this tabbing cure temperature and duration)
2. For Warp/Fill Compression Strength tests:
    - CTA and RTA: 970 T300 PW tabs material with MB-1113 adhesive cured at 250°F for 1.5hours.
    - ETW1 (180°F): 970 T300 PW tabs material with FM300-2 adhesive cured at 250°F for 1.5hours.
    - ETA2/ETW2 (225°F): 970 T300 PW tabs material with FM300-2 adhesive cured at 250°F for 1.5hours.
    - ETA3/ETW3 (250°F): 970 T300 PW tabs material with FM400 adhesive cured at 350°F for 1.5hours. (Solvay has done preliminary study to show no impact with this tabbing cure temperature and duration)

1.5.2.2 Specimen Dimensions & Test Configuration

For SBS specimens, a span of 4T was used where T was the average thickness of qualification panels. The same T was used to compute the width and length of the specimen.

For filled-hole tension specimens, the fasteners were installed at a torque of 85±5 in-lb beyond the prevailing torque of the fastener. For bearing specimens, the fasteners were installed 30±5 in-lb beyond the prevailing torque of the fastener. For filled-hole compression specimens, the fasteners were installed 20±5 in-lb (instead of 30±5 in-lb per test plan) beyond the prevailing torque of the fastener. The lower torque value was used for all FHC test method to induce good failures.

For moisture conditioned specimens, fasteners were installed after moisture conditioning.

Unless otherwise specified, a tolerance of ±5°F applied to all temperature conditions specified in this document.

For filled-hole and bearing specimens, the hole diameter was 0.25 in -0.000 +0.0003 in. The fasteners used for filled-hole and bearing testing are listed in Table 1-1 below.

Test Method	Bolt	Countersink Washer (Head-Side)	Flat Washer (Nut-Side)	Nut	Torque (in-lb)
FHT1	NASM21297	MS21206-C4	MS21206-4	MS21084	85 ± 5
FHT2					85 ± 5
FHT3					85 ± 5
FHC1	NASM21297	MS21206-C4	MS21206-4	MS21084	20 ± 5*
FHC2					20 ± 5*
FHC3					20 ± 5*
SSB1	NASM21297	MS21206-C4	MS21206-4	MS21084	30 ± 5
SSB2					30 ± 5
SSB3					30 ± 5

*Lower torque value of 20±5 in-lb (instead of 30±5 in-lb per test plan) was used for all FHC test method to induce good failures.

Table 1-1: Fastener Identifications

1.5.2.3 Specimen Strain Device Used

Corresponding Gage ID can be obtained from Appendix 1 of NTP 2191Q1.

Test Type	Test Method and Direction	Property	Instrumentation Used	Equivalent Instrumentation [1]
WT	ASTM D3039 0° Tension (with tabs)	Strength, Modulus & Poisson's Ratio	**Phase 1** HBM-1-XY31-6/350 (CTA/RTA/ETA3) **Phase 2** HBM-1-XY31-6/350 (CTA, RTA, ETA3, ETW1, ETW2)	HBM-1-LY61-6/350 or Extensometer
WCM	SACMA SRM 1R-94 0° Compression	Modulus	**Phase 1** HBM-1-LY91-6/350 (CTA/RTA/ETA3) **Phase 2** HBM-1-LY91-6/350 (CTA, RTA, ETA2, ETA3, ETW1, ETW2, ETW3)	HBM-1-LY71-3/350 or Extensometer
FT	ASTM D3039 90° Tension (with tabs)	Strength, Modulus & Poisson's Ratio	**Phase 1** HBM-1-XY31-6/350 (CTA/RTA/ETA3) **Phase 2** HBM-1-XY31-6/350 (CTA, RTA, ETA3, ETW1, ETW2)	HBM-1-LY61-6/350 or Extensometer
FCM	SACMA SRM 1R-94 90° Compression	Modulus	**Phase 1** HBM-1-LY91-6/350 (CTA/RTA/ETA3) **Phase 2** HBM-1-LY91-6/350 (CTA, RTA, ETA2, ETA3, ETW1, ETW2)	HBM-1-LY71-3/350 or Extensometer
IPS	ASTM D5379 In-Plane Shear	0.2% Offset Strength, 5% Strain Strength, Ultimate Strength & Modulus	**Phase 1** HBM-1-XY31-6/350 (CTA/RTA/ETA3) **Phase 2** HBM-1-XY31-6/350 (CTA, RTA, ETW1, ETW2, ETW3)	Extensometer
0FLEX	ASTM D790 Proc. A 0° Flexural (32:1)	Strength & Modulus	**Phase 1** Deflectometer (RTA/ETA3) **Phase 2** Deflectometer (RTA, ETA2, ETA3, ETW2)	HBM-1-LY91-3/350
90FLEX	ASTM D790 Proc. A 90° Flexural (32:1)	Strength & Modulus	**Phase 1** Deflectometer (RTA/ETA3) **Phase 2** Deflectometer (RTA, ETA2, ETA3, ETW2)	HBM-1-LY91-3/350

Test Type	Test Method and Direction	Property	Instrumentation Used	Equivalent Instrumentation [1]
UNT1	ASTM D5766 Unnotched Tension	Strength & Modulus	**Phase 1** HBM-1-LY61-6/350 (CTA/RTA/ETA3) **Phase 2** HBM-1-XY31-6/350 (CTA); HBM-1-LY61-6/350 (RTA, ETA2, ETW1, ETW2)	Extensometer
UNT2	ASTM D5766 Unnotched Tension	Strength & Modulus	**Phase 3** HBM-1-LY61-6/350 (CTA, RTA, ETW1, ETW2)	HBM-1-XY31-6/350 or Extensometer
UNT3	ASTM D5766 Unnotched Tension	Strength & Modulus	**Phase 3** HBM-1-LY61-6/350 (CTA, RTA, ETW1, ETW2)	HBM-1-XY31-6/350 or Extensometer
UNC1	ASTM D6484 Unnotched Compression	Strength & Modulus	**Phase 1** HBM-1-LY61-6/350 (CTA/RTA/ETA3) **Phase 2** HBM-1-LY61-6/350 (CTA, RTA, ETA2, ETW1, ETW2, ETW3)	HBM-1-LY71-3/350 or Extensometer
UNC2	ASTM D6484 Unnotched Compression	Strength & Modulus	**Phase 3** HBM-1-LY91-6/350 (RTA, ETA2, ETA3); HBM-1-LY91-6/350 & HBM-1-LY61-6/350 (ETW1, ETW2, ETW3)	HBM-1-LY71-3/350 or Extensometer
UNC3	ASTM D6484 Unnotched Compression	Strength & Modulus	**Phase 3** HBM-1-LY91-6/350 (RTA, ETA2, ETA3, ETW1); HBM-1-LY91-6/350 & HBM-1-L61-6/350 (ETW2, ETW3)	HBM-1-LY71-3/350 or Extensometer
SSB1	ASTM D5961 Proc. C Single Shear Bearing	Strength & Deformation	**Phase 2** Extensometer (CTA, RTA, ETW1, ETW2 & ETW3)	-
SSB2	ASTM D5961 Proc. C Single Shear Bearing	Strength & Deformation	**Phase 3** Extensometer (RTA, ETW1, ETW2 & ETW3)	-
SSB3	ASTM D5961 Proc. C Single Shear Bearing	Strength & Deformation	**Phase 3** Extensometer (RTA, ETW1, ETW2 & ETW3)	-

Note:

(1) "Equivalent" corresponds to equivalent active strain gage grid size. Using different active strain gage size may add variability into the test results that may result in Equivalency failure.

Table 1-2: Strain Instrumentation identifications

1.5.2.4 Additional items

SBS span of 4T was used.

1.5.3 Test Matrix

The tables below show the lay-ups and test matrices used for lamina and laminate level testing.

| Layup | Test Type and Direction | Property | Process/ Testing Phase (P) | Number of Batches x Number of Panels x Number of Test Specimens | | | | | | |
| | | | | Test Temperature/Moisture Condition | | | | | | |
				CTA (-67°F)	RTA (75°F)	ETA2 (225°F)	ETA3 (250°F)	ETW1 (180°F)	ETW2 (225°F)	ETW3 (250°F)
$[0]_{10}$	ASTM D3039 0° Tension (with tabs)[1]	Strength, Modulus and Poisson's Ratio	P1	1x1x6	3x1x6		1x1x6			
			P2	1x2x3	1x2x3		2x2x3	3x2x3	3x2x3	
$[90]_{10}$	ASTM D3039 90° Tension (with tabs)[1]	Strength, Modulus and Poisson's Ratio	P1	3x1x6	3x1x6		1x1x6			
			P2	1x2x3	1x2x3		2x2x3	3x2x3	3x2x3	
$[0]_{16}$	SACMA SRM 1R-94 0° Compression (with tabs)[2]	Strength	P1	1x1x6	3x1x6		1x1x6			
			P2	1x2x3	1x2x3	1x2x3	2x2x3	3x2x3	3x2x3	3x2x3
$[0]_{16}$	SACMA SRM 1R-94 0° Compression	Modulus	P1	1x1x6	3x1x6		1x1x6			
			P2	1x2x3	1x2x3	1x2x3	2x2x3	3x2x3	3x2x3	3x2x3
$[90]_{16}$	SACMA SRM 1R-94 90° Compression (with tabs)[2]	Strength	P1	3x1x6	3x1x6		1x1x6			
			P2	1x2x3	1x2x3	1x2x3	2x2x3	3x2x3	3x2x3	
$[90]_{16}$	SACMA SRM 1R-94 90° Compression	Modulus	P1	3x1x6	3x1x6		1x1x6			
			P2	1x2x3	1x2x3	1x2x3	2x2x3	3x2x3	3x2x3	
$[0/90]_{4S}$	ASTM D5379 In-Plane Shear	0.2% Offset Strength, 5% Strain Strength, Ultimate Strength & Modulus	P1	3x1x6	3x1x6		1x1x6			
			P2	1x2x3	1x2x3			3x2x3	3x2x3	3x2x3
$[0]_{33}$	ASTM D2344 Short Beam Strength	Strength	P1	1x1x6	3x1x6		1x1x6			
			P2	1x2x3	1x2x3	1x2x3	2x2x3	3x2x3	3x2x3	3x2x3
$[0]_{12}$	ASTM D790 Procedure A 0° Flexural (32:1)	Strength and Modulus	P1		3x1x6		1x1x6			
			P2		1x2x3	1x2x3	2x2x3		3x2x3	
$[90]_{12}$	ASTM D790 Procedure A 90° Flexural (32:1)	Strength and Modulus	P1		3x1x6		1x1x6			
			P2		1x2x3	1x2x3	2x2x3		3x2x3	

Notes:
P1 – Phase 1 test matrix to be completed by Solvay, Anaheim CA.
P2 – Phase 2 test matrix to be completed by Solvay, Anaheim CA.
(1) For Tension tests with tabs required:
   CTA and RTA: G11 tabs material with MB-1113 adhesive cured at 250°F for 1.5hours.
   ETW1 (180°F): G11 tabs material with FM300-2 adhesive cured at 250°F for 1.5hours.
   ETA2/ETW2 (225°F): G11 tabs material with FM300-2 adhesive cured at 250°F for 1.5hours.
   ETA3/ETW3 (250°F): G11 tabs material with FM400 adhesive cured at 350°F for 1.5hours. (Solvay has done preliminary study to show no impact with this tabbing cure temperature and duration)
(2) For Compression tests with tabs required:
   CTA and RTA: 970 T300 PW tabs material with MB-1113 adhesive cured at 250°F for 1.5hours.
   ETW1 (180°F): 970 T300 PW tabs material with FM300-2 adhesive cured at 250°F for 1.5hours.
   ETA2/ETW2 (225°F): 970 T300 PW tabs material with FM300-2 adhesive cured at 250°F for 1.5hours.
   ETA3/ETW3 (250°F): 970 T300 PW tabs material with FM400 adhesive cured at 350°F for 1.5hours. (Solvay has done preliminary study to show no impact with this tabbing cure temperature and duration)

Table 1-3: Lamina Level Test Matrix

Table 1-4 below summarizes the laminate level tests carried out. The layup angles 0⁰, 45⁰, -45⁰, and 90⁰ refer to the orientation of the warp/longitudinal fiber direction. The laminate stacking sequences in this program are not specific to any design. Therefore, careful consideration should be given to the validity of properties derived from this program based on the design specific laminates in a structure to be certified.

Table 1-4 also emphasizes those properties and test condition combinations believed to constitute the worst case, which in general is cold dry for tension and hot wet for compression and other matrix dominated properties.

(%0º/%±45º/%90º) Actual Test Type	Test Type and Direction (4)	Property	Process/ Testing Phase (P)	Number of Batches x Number of Panels x Number of Test Specimens						
				Test Temperature/Moisture Condition						
				CTA (-67°F)	RTA (75°F)	ETA2 (225°F)	ETA3 (250°F)	ETW1 (180°F)	ETW2 (225°F)	ETW3 (250°F)
(25/50/25 - QI) UNT1	ASTM D5766 No Hole Tension [45/90/-45/0]S	Strength and Modulus	P1	1x1x6	3x1x6		1x1x6			
			P2	1x2x3	1x2x3	1x2x3		3x2x3	3x2x3	
(10/80/10) UNT2	ASTM D5766 No Hole Tension [45/45/0/45/45]S	Strength and Modulus	P3	3x2x3	3x2x3			3x2x3	3x2x3	
(40/20/40) UNT3	ASTM D5766 No Hole Tension [0/0/45/0/0]S	Strength and Modulus	P3	3x2x3	3x2x3			3x2x3	3x2x3	
(25/50/25 - QI) UNC1	ASTM D6484 No Hole Compression [45/0/-45/90]2S	Strength and Modulus	P1	1x1x6	3x1x6		1x1x6			
			P2	1x2x3	1x2x3	1x2x3		3x2x3	3x2x3	3x2x3
(10/80/10) UNC2	ASTM D6484 No Hole Compression [45/45/0/45/45]2S	Strength and Modulus	P3		3x2x3	1x2x3	1x2x3	3x2x3	3x2x3	3x2x3
(40/20/40) UNC3	ASTM D6484 No Hole Compression [0/0/45/0/0/0/0/45/0/0]S	Strength and Modulus	P3		3x2x3	1x2x3	1x2x3	3x2x3	3x2x3	3x2x3
(25/50/25 - QI) OHT1	ASTM D5766 Open Hole Tension (1) [45/90/-45/0]S	Strength	P1	3x1x6	3x1x6		1x1x6			
			P2	1x2x3	1x2x3	1x2x3	2x2x3	3x2x3	3x2x3	
(10/80/10) OHT2	ASTM D5766 Open Hole Tension (1) [45/45/0/45/45]S	Strength	P3	3x2x3	3x2x3			1x2x3	3x2x3	
(40/20/40) OHT3	ASTM D5766 Open Hole Tension (1) [0/0/45/0/0]S	Strength	P3	3x2x3	3x2x3			1x2x3	3x2x3	
(25/50/25 - QI) FHT1	ASTM D6742 Filled Hole Tension (2) [45/90/-45/0]S	Strength	P2	3x2x3	3x2x3			3x2x3	3x2x3	
(10/80/10) FHT2	ASTM D6742 Filled Hole Tension (2) [45/45/0/45/45]S	Strength	P3	3x2x3	3x2x3			1x2x3	3x2x3	
(40/20/40) FHT3	ASTM D6742 Filled Hole Tension (2) [0/0/45/0/0]S	Strength	P3	3x2x3	3x2x3			1x2x3	3x2x3	
(25/50/25 - QI) OHC1	ASTM D6484 Open Hole Compression (1) [45/90/-45/0]2S	Strength	P1	3x1x6	3x1x6		1x1x6			
			P2	1x2x3	1x2x3	1x2x3	2x2x3	3x2x3	3x2x3	3x2x3
(10/80/10) OHC2	ASTM D6484 Open Hole Compression (1) [45/45/0/45/45]2S	Strength	P3		3x2x3	1x2x3	1x2x3	3x2x3	3x2x3	3x2x3
(40/20/40) OHC3	ASTM D6484 Open Hole Compression (1) [0/0/45/0/0/0/0/45/0/0]S	Strength	P3		3x2x3	1x2x3	1x2x3	3x2x3	3x2x3	3x2x3
(25/50/25 - QI) FHC1	ASTM D6742 Filled Hole Compression (2) [45/90/-45/0]2S	Strength	P2	3x2x3	3x2x3			3x2x3	3x2x3	
(10/80/10) FHC2	ASTM D6742 Filled Hole Compression (2) [45/45/0/45/45]2S	Strength	P3		3x2x3			1x2x3	3x2x3	
(40/20/40) FHC3	ASTM D6742 Filled Hole Compression (2) [0/0/45/0/0/0/0/45/0/0]S	Strength	P3		3x2x3			1x2x3	3x2x3	
(25/50/25 - QI) SSB1	ASTM D5961 Procedure C (3) Single Shear Bearing, e/D=3 [45/90/-45/0]2S	Strength and Deformation	P2	3x2x3	3x2x3			3x2x3	3x2x3	3x2x3
(10/80/10) SSB2	ASTM D5961 Procedure C (3) Single Shear Bearing, e/D=3 [45/45/0/45/45]2S	Strength and Deformation	P3		3x2x3			3x2x3	3x2x3	3x2x3
(40/20/40) SSB3	ASTM D5961 Procedure C (3) Single Shear Bearing, e/D=3 [0/0/45/0/0/0/0/45/0/0]S	Strength and Deformation	P3		3x2x3			3x2x3	3x2x3	3x2x3
(25/50/25 - QI) CAI1	ASTM D7136 & D7137 Compression After Impact (285 in-lb) [45/90/-45/0]3S	Strength	P1		2x1x6					
			P2			1x2x3		3x1x6	3x1x6	
			P3		1X1X6					

Table 1-4: Laminate Level Test Matrix

Notes:

P1 – Phase 1 test matrix to be completed by Solvay, Anaheim CA.
P2 – Phase 2 test matrix to be completed by Solvay, Anaheim CA.
P3 – Phase 3 test matrix to be completed by Solvay, Anaheim CA.
(1) Open-hole configuration: 0.25" hole diameter, 1.5" width.
(2) Filled-hole configuration: 0.25" hole diameter, see section 1.5.2 for fastener callout, 1.5" width.
(3) Single shear bearing test configuration: 0.25" hole diameter, 1.5" width, see section 1.5.2 for fastener callout, e/D=3, ASTM D5961/D5961M-17 Procedure C
(4) Loading direction is generally along the 0-degree direction

1.5.4 Cured Laminate Physical Testing

The properties in Table 1-5 were determined for each panel used for test coupons with the exception of Tg by DMA which were conducted on one laminate per batch from each oven cure conducted where that batch is present. The tests were performed by the Solvay Test Facility, Anaheim CA (Phase 1 – 3 batches of material and Phase 2/Phase 3 – Additional 3 batches of material) under the supervision of NCAMP.

Property	Condition/Method (Note 1)	Min Replicates per panel
Cured Ply Thickness	ASTM D3171-15	All data from mechanical test specimens
Laminate Density	ASTM D792-13	Per Note 5
Fiber Volume, % by Volume	ASTM D3171-15 (Note 2)	Per Note 5
Resin Content, % by Weight	ASTM D3171-15 (Note 2)	Per Note 5
Void Content, % by Volume	ASTM D3171-15	Per Note 5
Ultrasonic Through Transmission, C-Scan	MIL-HDBK-787A (Note 3)	1
Glass Transition Temperature, Tg by DMA flexural loading	Dry and Wet – ASTM D7028-07(2015)	1 Dry, 1 Wet (Note 4)

Table 1-5: Physical Testing Matrix

Notes:
 (1) Where the applicable standard allows variations in specimen form or test method, the specific parameters to be used will be specified in the test work instructions and reported in the final test report.
 (2) Method I, Procedure B for all the panels.
 (3) Five MHz is preferred for solid laminates. Panels with anomaly should be segregated. Microscopy images and void content may be taken from questionable areas. NCAMP must be involved in the review of all C-scans.
 (4) Minimum total of 24 dry and 24 wet for each material system.
      DRY: minimum 3 dry DMA per batch (A, B, C) and minimum 5 dry DMA per batch (D, E, F). One DMA specimen is to be machined from a panel.
      WET: minimum 8 wet DMA per batch (D, E, F). One DMA specimen is to be machined from a panel.
 (5) Phase 1: A minimum of 3 samples per batch (A, B, C).
      Phase 2: A minimum of 3 samples per panel (D, E, F).
      Phase 3: A minimum of 3 samples per panel (D, E, F).

1.5.5 Environmental Conditioning

The following tests were performed by the Solvay Test Facility, Anaheim CA under the supervision of NCAMP.

CTA = -67°F±5°F, ambient
RTA = 75°F±5°F, ambient
ETA2 = 225°F±5°F, ambient
ETA3 = 250°F±5°F, ambient
ETW1 = 180°F±5°F, wet (equilibrium moisture content per section 1.5.5)
ETW2 = 225°F±5°F, wet (equilibrium moisture content per section 1.5.5)
ETW3 = 250°F±5°F, wet (equilibrium moisture content per section 1.5.5)

Within each test method and test environment, the failure mode was evaluated immediately after each test by an NCAMP staff engineer or NCAMP AER. All tested specimens were digitally photographed after each test in order to pictorially document failure modes.

For ambient testing, specimens will be exposed at 60°F to 80°F and 65%RH (maximum) for 48 hours minimum prior to test.

For wet conditioning, the specimens were dried at 160°F±5°F for 120 to 130 hours before being conditioned to equilibrium at 160°F±5°F and 85%±5%RH. Effective moisture equilibrium is achieved when the average moisture content of the traveler specimen changes by less than 0.02% for two consecutive determinations which are 7 ±0.5 days apart and may be expressed by:

$$\frac{W_i - W_{i-1}}{W_b} < 0.0002$$

Where:
W_i = weight at current time
W_{i-1} = weight at previous time
W_b = baseline weight prior to conditioning

When representative specimens could not be measured to determine the moisture content (due to size, fastener and tab effects), traveler coupons of at least 1" by 1" by specimen thickness and weighing at least 15 grams were used to establish weight gain measurements. If the specimens or traveler coupons pass the criteria for two consecutive readings which are 7 ±0.5 days apart, the specimens were kept in the environmental chamber for up to an additional 60 days. Alternatively, the specimens may have been removed from the environmental chamber and placed in a sealed plastic bag along with a moist cotton towel for a maximum of 14 days until mechanical testing. Strain-gaged specimens were removed from the controlled environment for a maximum of 2 hours for application of gages in ambient laboratory conditions.

1.5.6 Non-ambient Testing

The chamber was of adequate size so that all test fixtures and load frame grips were contained within the chamber.

For elevated temperature testing, the temperature chamber, test fixture, and grips were preheated to the specified temperature. Each specimen was heated to the required test temperature as verified by a thermocouple in direct contact with and taped to the specimen gage section.

For elevated temperature ambient (ETA2/ETA3) testing, test specimens were in the elevated temperature environment minimum 5 minutes prior to loading. During the test, the temperature, as measured on the specimen, shall be within ±5°F of the required test temperature

For elevated temperature wet (ETW1/ETW2/ETW3) testing, the heat-up time of the specimen shall not exceed 5 minutes. The test should start 5^{+1}_{-0} minutes after the specimen has reached the test temperature. During the test, the temperature, as measured on the specimen, shall be within ±5°F of the required test temperature.

For subzero temperature testing, each specimen was cooled to the required test temperature as verified by a thermocouple in direct contact with and taped to the specimen gage section. The test started 10 ± 5 minutes after the specimen reached the test temperature. During the test, the temperature, as measured on the specimen, shall be within ±5°F of the required test temperature.

1.5.7 Fluid Sensitivity Screening

Fluid sensitivity screening testing was completed in Phase 2. Solvay fabricated and conformed the panel, machined and conformed the specimens prior shipping it to NIAR. The soak and mechanical testing was performed by NIAR Composites Laboratory, Wichita KS.

Table 1-6 lists the requirements for fluid sensitivity screening, which requires ASTM D2344 Short Beam Strength testing on $[0°]_{33}$ lamina level specimens being subjected to the conditions indicated, five replicates per fluid and one cure cycle. Specimens were cleaned with a dry towel prior to the tests. In addition to short beam strength, load versus displacement curves were plotted to aid in the identification of matrix/resin softening. Since load versus displacement curves are influenced by test machine and fixture compliance, all the tests were performed with the identical machine and fixture, through a single setup. Experience suggests that for the vast majority of epoxy resins, water is the fluid with the most deleterious effect on properties. Should screening tests for fluid sensitivity indicate this to be the case, further testing of this type might be unnecessary since exposure to water moisture to equilibrium level is an inherent part of the multi batch allowables test program. However, users must evaluate the applicability of the exposure conditions and time on case-by-case basis. For example, the exposure condition for jet fuel may not fully represent the condition of integral fuel tanks.

Extended Contact:	Exposure	Test Condition	Code
100 Low Lead Aviation Fuel (ASTM D910)	90 days min. @ 70°F±10°F	70°F	FS11RT
	90 days min. @ 70°F±10°F	180°F	FS11ET
ASTM D1655 Jet A Fuel (other jet fuel may be used but its type must be reported)	90 days min. @ 70°F±10°F	70°F	FS12RT
	90 days min. @ 70°F±10°F	180°F	FS12ET
MIL-PRF-5606 Hydraulic Oil	90 days min. @ 70°F±10°F	70°F	FS13RT
	90 days min. @ 70°F±10°F	180°F	FS13ET
MIL-PRF-83282 Hydraulic Oil	90 days min. @ 70°F±10°F	70°F	FS14RT
	90 days min. @ 70°F±10°F	180°F	FS14ET
MIL-PRF-7808 Engine Oil	90 days min. @ 70°F±10°F	70°F	FS15RT
	90 days min. @ 70°F±10°F	180°F	FS15ET
MIL-PRF-23699, Class STD Engine Oil	90 days min. @ 70°F±10°F	70°F	FS16RT
	90 days min. @ 70°F±10°F	180°F	FS16ET
Salt Water (ASTM D1141 or equiv.)	90 days min. @ 70°F±10°F	70°F	FS17RT
	90 days min. @ 70°F±10°F	180°F	FS17ET
Skydrol 5, (SAE AS1241, Type V)	90 days min. @ 70°F±10°F	70°F	FS18RT
	90 days min. @ 70°F±10°F	180°F	FS18ET
50% Water with 50% Skydrol 5, (SAE AS1241, Type V)	90 days min. @ 70°F±10°F	70°F	FS19RT
	90 days min. @ 70°F±10°F	180°F	FS19ET
Short Duration Contact:			
MEK washing fluid. ASTM D740	90 minutes min. @ 70°F±10°F	70°F	FS21RT
	90 minutes min. @ 70°F±10°F	180°F	FS21ET
Polypropylene Glycol Deicer (Type I) SAE AMS 1424	90 minutes min. @ 70°F±10°F	70°F	FS22RT
	90 minutes min. @ 70°F±10°F	180°F	FS22ET
Isopropyl Alcohol Deicing Agent (TT-I-735)	48±4 hours @70°F±10°F	70°F	FS23RT
	48±4 hours @70°F±10°F	180°F	FS23ET
Control Tests:			
Distilled Water	90 days min. at 70°F±10°F	70°F	FS31RT
	90 days min. at 70°F±10°F	180°F	FS31ET
Dry	Dry per section 6.1 Test Plan NTP 2191Q1	70°F	FS32RT
	Dry per section 6.1 Test Plan NTP 2191Q1	180°F	FS32ET
85% Relative Humidity	Per section 6.1 Test Plan NTP 2191Q1	70°F	FS33RT
	Per section 6.1 Test Plan NTP 2191Q1	180°F	FS33ET

Table 1-6: Fluid Sensitivity Matrix

1.5.8 Normalization Procedures

Most lamina level tension and compression strength and modulus properties, and all laminate level properties were normalized according to nominal cured ply thickness. Lamina level properties that were not normalized include:

- In-plane shear strength and modulus
- Poisson's ratio,
- SBS
- ILT

After normalizing, data scatter reduced or remained the same. If data scatter increased significantly after normalizing, the reason was investigated. Wherever properties are normalized, both measured and normalized data were reported.

The theoretically calculated cured ply thickness of 0.0079 inches has been used as the nominal cured ply thickness (CPT) for normalization purpose. The following normalization formula was used (except for Flexural properties):

Normalized Value = Measured Value x Measured CPT / Nominal CPT

Flexural Test Normalization:

Flexural Normalized Value = Measured Value x (Measured CPT^2) / (Nominal CPT^2)

For Solvay EP2190 T650 3K PW Fabric RC 37% material the anticipated CPT was 0.007900 inches. The average as measured CPT of the qualification for all test panels (Phase 1, 2 and 3) was 0.007947 inches. The lowest and highest CPT measured were 0.007526 inches and 0.008379 inches respectively.

1.5.9 Inspection Verification

The 3-batch qualification for all 3 Phases test panels have been fabricated according to the requirements of the test plan and conformed by an NCAMP AIR. The test specimens and test setup have also been conformed by an NCAMP AIR.

All 3 Phases testing was witnessed by NCAMP AER. Test setup and witnessing was delegated to an NCAMP AER. Mechanical testing was carried out at the Solvay Test Facility, Anaheim CA. The inspection documentation with required approval signatures are stored in hard copy as well as electronically.

1.5.10 Material Pedigree Information

The PMC Data Collection Template includes the material pedigree information required, such as material and batch information, as well as panel fabrication record, environmental conditioning, test equipment, and test procedures. This template is in Microsoft Excel file format.

2. Test Results

Variability between batches was observed in the data and it was investigated, this variability was due to the moisture absorbed by the panels/specimens at ambient laboratory condition. Some of the batches were tested soon after panel fabrication and a few batches were tested months after panel fabrication because of the magnitude of the Qualification program and laboratory capacity, testing laboratory facility processed the panels/specimens by material batch. The variability and trend was also observed in several material properties and DMA data. CTA(-67°F), RTA(75°F), ETA2(225°F) and ETA3(250°F) ambient test temperatures were the test conditions for this Qualification program. The variability in the properties met the ambient requirements per the test plan and it was more conservative therefore it was included and reported.

2.1 Lamina Level Test Summary

Prepreg Material: Solvay EP2190 T650 3K PW Fabric RC 37%	**Solvay EP2190 T650 3K PW Fabric RC 37%**
Material Specification: NMS 219/2	**Lamina Properties Summary**
Process Specification: NPS 82190	
Fiber: T650 3K PW Fabric **Resin:** EP2190	
*Tg(dry): 339.50°F **Tg(wet):** 274.87°F **Tg METHOD:** ASTM D7028	

LAMINA MECHANICAL PROPERTY SUMMARY
Data reported as: Normalized & Measured
(Normalized by CPT=0.007900 inch)

Property	CTA(-67°F) Mean Normalized	Measured	RTA(75°F) Mean Normalized	Measured	ETA2(225°F) Mean Normalized	Measured	ETA3(250°F) Mean Normalized	Measured	ETW1(180°F) Mean Normalized	Measured	ETW2(225°F) Mean Normalized	Measured	ETW3(250°F) Mean Normalized	Measured
F_1^{tu} [ksi]	114.5	113.0	128.2	126.3			126.0	124.2	129.9	128.6	126.0	124.7		
E_1^{t} [Msi]	9.586	9.460	9.539	9.399			9.780	9.641	9.724	9.629	9.525	9.427		
ν_{12}^{t}		0.05971		0.05279				0.05139		0.04833		0.04961		
F_2^{tu} [ksi]	108.2	106.8	122.5	121.0			119.0	116.8	124.4	122.9	120.5	119.0		
E_2^{t} [Msi]	9.528	9.407	9.394	9.283			9.833	9.647	9.731	9.608	9.541	9.417		
ν_{21}^{t}		0.05746		0.04642				0.05550		0.04689		0.04472		
F_1^{cu} [ksi]	131.9	130.3	112.3	110.7	86.55	85.90	77.09	75.82	88.13	87.99	69.80	69.20	61.24	60.98
E_1^{c} [Msi]	8.598	8.508	8.677	8.563	8.981	8.979	8.770	8.633	9.100	9.098	8.979	8.915	8.812	8.779
F_2^{cu} [ksi]	126.6	124.7	112.9	111.2	85.82	85.27	79.75	78.88	89.29	88.10	70.85	69.89		
E_2^{c} [Msi]	8.480	8.419	8.552	8.485	8.796	8.802	8.719	8.616	9.058	8.938	8.905	8.804		
$F_{12}^{s0.2\%}$ [ksi]		10.86		7.061				4.083		4.795		3.631		2.959
$F_{12}^{s5\%strain}$ [ksi]		17.82		13.34				7.388		6.398		4.185		3.182
F_{12}^{su} [ksi]		26.82		21.40				15.62		14.39		12.17		10.80
G_{12}^{s} [Msi]		0.7037		0.6440				0.4203		0.5312		0.4099		0.3272
SBS [ksi]		14.75		12.13		7.907		7.182		7.594		5.776		4.737
0° Flexural Proc. A Strength [ksi]			150.5	148.2	119.3	119.9	109.5	106.1			95.05	93.34		
0° Flexural Proc. A Modulus [Msi]			9.064	9.111	8.668	8.713	8.662	8.399			8.466	8.303		
90° Flexural Proc. A Strength [ksi]			153.8	151.0	123.9	123.9	110.4	107.0			93.79	92.14		
90° Flexural Proc. A Modulus [Msi]			9.278	9.262	8.824	8.827	8.554	8.280			8.481	8.322		

* Specimens might absorb moisture at ambient condition prior to testing which resulted in lower dry Tg, DMA testing took place weeks/months after panel fabrication. Based on Syensqo's batch release historical data, dry Tg is ~ 181°C (359°F) to 202°C (396°F).

Table 2-1: Lamina Summary Data

2.2 Laminate Level Test Summary

Prepreg Material: Solvay EP2190 T650 3K PW Fabric RC 37%	Solvay EP2190 T650 3K PW Fabric RC 37% Laminate Properties Summary
Material Specification: NMS 219/2	
Process Specification: NPS 82190	
Fiber: T650 3K PW Fabric **Resin:** EP2190	
***Tg(dry):** 339.50°F **Tg(wet):** 274.87°F	**Tg METHOD:** ASTM D7028

LAMINATE MECHANICAL PROPERTY SUMMARY
Data reported as: Normalized & Measured
(Normalized by CPT=0.007900 inch)

Property	Layup / Test Condition	25/50/25 Normalized	25/50/25 Measured	10/80/10 Normalized	10/80/10 Measured	40/20/40 Normalized	40/20/40 Measured
OHT Strength [ksi]	CTA (-67°F)	47.84	47.37	50.45	50.01	56.84	56.64
	RTA (75°F)	48.72	48.58	44.17	43.95	57.73	57.74
	ETA2 (225°F)	48.87	48.61				
	ETA3 (250°F)	51.72	50.72				
	ETW1 (180°F)	51.86	51.27	36.30	35.42	62.68	61.36
	ETW2 (225°F)	52.41	51.79	32.66	32.51	62.86	62.74
OHC Strength [ksi]	CTA (-67°F)	52.63	52.14				
	RTA (75°F)	44.93	44.57	40.97	40.79	47.23	46.93
	ETA2 (225°F)	36.45	36.13	33.08	32.37	38.17	37.25
	ETA3 (250°F)	34.11	33.47	30.94	30.27	35.95	35.08
	ETW1 (180°F)	35.50	34.96	31.24	31.08	36.43	36.19
	ETW2 (225°F)	29.84	29.39	26.52	26.34	31.06	30.77
	ETW3 (250°F)	26.62	26.20	22.93	22.79	27.75	27.54
UNT Strength [ksi]	CTA (-67°F)	94.85	93.86	63.59	63.12	118.5	118.1
	RTA (75°F)	96.53	95.87	60.33	59.92	121.3	120.7
	ETA2 (225°F)	98.35	97.63				
	ETA3 (250°F)	89.70	87.67				
	ETW1 (180°F)	94.03	93.09	51.23	50.86	117.3	116.7
	ETW2 (225°F)	89.81	88.84	45.84	45.49	114.6	114.3
UNT Modulus [Msi]	CTA (-67°F)	7.031	6.957	4.556	4.523	8.490	8.462
	RTA (75°F)	6.825	6.778	4.362	4.333	8.554	8.515
	ETA2 (225°F)	6.824	6.774				
	ETA3 (250°F)	6.711	6.559				
	ETW1 (180°F)	6.669	6.601	4.042	4.012	8.533	8.485
	ETW2 (225°F)	6.215	6.146	3.654	3.626	8.365	8.334

Property	Layup	25/50/25		10/80/10		40/20/40	
	Test Condition	Normalized	Measured	Normalized	Measured	Normalized	Measured
UNC Strength [ksi]	CTA (-67°F)	97.52	96.49				
	RTA (75°F)	80.04	79.09	57.57	57.19	87.28	86.67
	ETA2 (225°F)	64.34	64.22	47.89	46.57	71.72	69.95
	ETA3 (250°F)	62.47	61.32	45.29	44.14	66.52	65.02
	ETW1 (180°F)	60.89	60.13	43.90	43.47	67.28	66.81
	ETW2 (225°F)	49.62	49.02	35.22	34.91	54.71	54.37
	ETW3 (250°F)	40.96	40.45	29.04	28.78	46.72	46.48
UNC Modulus [Msi]	CTA (-67°F)	6.370	6.303				
	RTA (75°F)	6.353	6.278	4.184	4.156	7.915	7.860
	ETA2 (225°F)	6.319	6.308	4.110	3.997	8.038	7.841
	ETA3 (250°F)	6.406	6.288	4.032	3.929	8.070	7.890
	ETW1 (180°F)	6.372	6.292	3.753	3.713	7.508	7.450
	ETW2 (225°F)	5.992	5.918	3.748	3.714	7.892	7.844
	ETW3 (250°F)	5.683	5.610	3.434	3.404	7.614	7.575
FHT Strength [ksi]	CTA (-67°F)	55.79	55.18	56.03	55.45	63.67	63.44
	RTA (75°F)	55.94	55.19	48.70	48.34	62.14	61.87
	ETW1 (180°F)	59.32	58.65	42.16	40.91	68.20	66.89
	ETW2 (225°F)	58.15	57.47	37.81	37.54	62.39	62.22
FHC Strength [ksi]	CTA (-67°F)	94.07	93.02				
	RTA (75°F)	76.03	74.87	55.57	55.15	78.80	78.47
	ETW1 (180°F)	55.92	55.03	40.54	39.48	62.11	60.83
	ETW2 (225°F)	44.45	43.79	32.95	32.66	49.13	48.83
SSB Proc. C 2% Offset Strength [ksi]	CTA (-67°F)	139.1	137.1				
	RTA (75°F)	119.4	118.2	111.4	110.7	102.7	102.4
	ETW1 (180°F)	107.0	105.9	100.5	100.0	93.01	92.61
	ETW2 (225°F)	100.2	98.98	93.13	92.65	85.90	85.59
	ETW3 (250°F)	91.75	90.73	86.89	86.47	77.60	77.31
SSB Proc. C Ultimate Strength [ksi]	CTA (-67°F)	158.7	156.5				
	RTA (75°F)	136.1	134.6	129.7	128.8	124.5	124.0
	ETW1 (180°F)	115.6	114.4	112.3	111.7	104.2	103.7
	ETW2 (225°F)	103.7	102.4	101.5	101.0	94.21	93.86
	ETW3 (250°F)	95.16	94.12	93.05	92.59	87.20	86.88
SSB Proc. C Chord Stiffness [Msi]	CTA (-67°F)	1.333	1.280				
	RTA (75°F)	1.539	1.520	1.032	1.024	1.252	1.246
	ETW1 (180°F)	1.159	1.146	0.9103	0.9052	1.161	1.156
	ETW2 (225°F)	1.128	1.114	0.8793	0.8745	1.098	1.094
	ETW3 (250°F)	1.148	1.134	0.8791	0.8747	1.069	1.065
CAI Strength [ksi]	RTA (75°F)	46.44	45.75				
	ETA2 (225°F)	38.40	37.99				
	ETW1 (180°F)	37.28	36.79				
	ETW2 (225°F)	32.50	32.09				

* Specimens might absorb moisture at ambient condition prior to testing which resulted in lower dry Tg, DMA testing took place weeks/months after panel fabrication. Based on Syensqo's batch release historical data, dry Tg is ~ 181°C (359°F) to 202°C (396°F).

Table 2-2: Laminate Summary Data

2.3 Fluid Sensitivity Test Summary

Fluid Sensitivity Screening **Short Beam Strength Properties (FSSBS)--RT(70°F) Strength** Solvay EP2190 T650 3K PW Fabric RC 37%

Exposure	Type of Fluid	Fluid Code	Average Strength [ksi]
90 days min @ 70°F ± 10°F	100 Low Lead Fuel	FS11RT	11.71
	Jet A Fuel	FS12RT	11.36
	MIL-PRF-5606 Hydraulic Oil	FS13RT	11.76
	MIL-PRF-83282 Hydraulic Oil	FS14RT	11.80
	MIL-PRF-7808 Engine Oil	FS15RT	11.59
	MIL-PRF-23699 Engine Oil	FS16RT	11.68
	Salt Water	FS17RT	11.65
	Skydrol LD-4	FS18RT	11.92
	50% Water with 50% Skydrol LD-4	FS19RT	11.54
	Distilled Water	FS31RT	11.55
90 mins @ 70°F ± 10°F	MEK washing fluid	FS21RT	11.83
	Polypropylene Glycol Deicer	FS22RT	11.82
48±4 hrs @ 70°F ± 10°F	Isopropyl Alcohol Deicing	FS23RT	11.73
Per section 6.1 Test Plan NTP 2191Q1	Dry	FS32RT	12.05
	85% Relative Humidity	FS33RT	11.36

Table 2-3: Fluid Sensitivity SBS Summary Data – RT(70°F)

Fluid Sensitivity Screening Short Beam Strength Properties (FSSBS)--ET(180°F) Strength Solvay EP2190 T650 3K PW Fabric RC 37%			

Exposure	Type of Fluid	Fluid Code	Average Strength [ksi]
90 days min @ 70°F ± 10°F	100 Low Lead Fuel	FS11ET	9.235
	Jet A Fuel	FS12ET	9.232
	MIL-PRF-5606 Hydraulic Oil	FS13ET	9.172
	MIL-PRF-83282 Hydraulic Oil	FS14ET	9.396
	MIL-PRF-7808 Engine Oil	FS15ET	9.306
	MIL-PRF-23699 Engine Oil	FS16ET	9.311
	Sea Water	FS17ET	8.440
	Skydrol LD-4	FS18ET	9.763
	50% Water with 50% Skydrol LD-4	FS19ET	8.333
	Distilled Water	FS31ET	8.273
90 mins @ 70°F ± 10°F	MEK washing fluid	FS21ET	9.185
	Polypropylene Glycol Deicer	FS22ET	9.182
48±4 hrs @ 70°F ± 10°F	Isopropyl Alcohol Deicing	FS23ET	9.173
Per section 6.1 Test Plan NTP 2191Q1	Dry	FS32ET	9.394
	85% Relative Humidity	FS33ET	7.975

Table 2-4: Fluid Sensitivity SBS Summary Data – ET(180°F)

2.4 Cured Laminate Physical Test Summary

2.4.1 DMA

DMA Results Summary Solvay EP2190 T650 3K PW Fabric RC 37% Qualification				
	Mean			
Test Temperature	**Onset Storage Modulus**		**Peak of Tangent Delta**	
	T_g [°C]	T_g [°F]	T_g [°C]	T_g [°F]
DMA Tg (Dry)*	170.83	339.50	189.71	373.48
DMA Tg (Wet)	134.93	274.87	153.78	308.80

* Specimens might absorb moisture at ambient condition prior to testing which resulted in lower dry Tg, DMA testing took place weeks/months after panel fabrication. Based on Syensqo's batch release historical data, dry Tg is ~181°C (359°F) to 202°C (396°F).

Table 2-5: DMA Summary Data

2.5 Individual Test Summaries

2.5.1 Warp Tension Properties (WT)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%									**Tension, 1-axis** Solvay EP2190 T650 3K PW Fabric RC 37% [0]10	
Resin content:	37.72 %wt		Comp. density:	1.532 g/cc							
Fiber volume:	53.91 %vol										
Ply count:	10										
Test method:	ASTM D3039-17		Modulus calculation:	1000 to 3000 microstrain							
Normalized by:	0.0079		in. CPT								

		CTA		RTA		ETA3		ETW1		ETW2	
Test Temperature [°F]		-67		75		250		180		225	
Moisture Conditioning		Ambient		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH								160F, 85%RH		160F, 85%RH	
Source code for Phase 1:		TR8XXXXXX-PX-WT-X-CX-CTA-X		TR8XXXXXX-PX-WT-X-CX-RTA-X		TR8XXXXXX-PX-WT-X-CX-ETA3-X					
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		WT-X-CX-1-CTA-X		WT-X-CX-1-RTA-X		WT-X-CX-1-ETA3-X		WT-X-CX-1-ETW1-X		WT-X-CX-1-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
F_1^{tu} [ksi]	Mean	114.5	113.0	128.2	126.3	126.0	124.2	129.9	128.6	126.0	124.7
	Minimum	104.4	103.2	108.1	107.1	117.3	114.7	116.1	116.8	106.7	107.6
	Maximum	125.8	125.0	140.8	136.1	133.0	133.5	138.3	136.4	135.6	136.0
	C.V.(%)	5.009	5.251	5.128	4.875	4.305	4.343	4.221	4.459	5.928	6.300
	No. Specimens	24		24		18		18		18	
	No. Prepreg Lots	4		4		3		3		3	
E_1^t [Msi]	Mean	9.586	9.460	9.539	9.399	9.780	9.641	9.724	9.629	9.525	9.427
	Minimum	9.420	9.227	9.331	9.228	9.511	9.309	9.577	9.228	9.320	9.038
	Maximum	9.803	9.803	9.751	9.610	10.45	10.29	9.905	9.968	9.765	9.815
	C.V.(%)	0.9982	1.754	0.9588	1.215	2.695	2.857	0.8311	2.277	1.482	2.569
	No. Specimens	24		24		18		18		18	
	No. Prepreg Lots	4		4		3		3		3	
ν_{12}^t	Mean		0.05971		0.05279		0.05139		0.04833		0.04961
	No. Specimens	24		24		18		18		18	
	No. Prepreg Lots	4		4		3		3		3	

2.5.2 Fill Tension Properties (FT)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%										
									Tension, 2-axis Solvay EP2190 T650 3K PW Fabric RC 37% [90]10		
Resin content:	36.97 %wt		**Comp. density:** 1.534 g/cc								
Fiber volume:	54.64 %vol										
Ply count:	10										
Test method:	ASTM D3039-17		**Modulus calculation:** 1000 to 3000 microstrain								
Normalized by:	0.0079	in. CPT									

		CTA		RTA		ETA3		ETW1		ETW2	
Test Temperature [°F]		-67		75		250		180		225	
Moisture Conditioning		Ambient		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH								160F, 85%RH		160F, 85%RH	
Source code for Phase 1:		TR8XXXXXX-PX-FT-X-CX-CTA-X		TR8XXXXXX-PX-FT-X-CX-RTA-X		TR8XXXXXX-PX-FT-X-CX-ETA3-X					
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		FT-X-CX-1-CTA-X		FT-X-CX-1-RTA-X		FT-X-CX-1-ETA3-X		FT-X-CX-1-ETW1-X		FT-X-CX-1-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	108.2	106.8	122.5	121.0	119.0	116.8	124.4	122.9	120.5	119.0
	Minimum	93.2	92.0	113.9	111.4	105.4	103.7	111.8	108.1	112.5	109.0
	Maximum	117.5	116.3	131.2	129.1	130.3	129.9	135.5	135.5	132.1	133.1
F_2^{tu} [ksi]	**C.V.(%)**	5.390	5.528	4.276	4.355	6.038	6.558	4.273	5.162	4.958	5.717
	No. Specimens	24		24		18		18		18	
	No. Prepreg Lots	4		4		3		3		3	
	Mean	9.528	9.407	9.394	9.283	9.833	9.647	9.731	9.608	9.541	9.417
	Minimum	9.301	9.105	9.129	8.871	9.417	9.131	9.518	9.296	9.156	9.064
	Maximum	9.787	9.744	9.806	9.708	10.401	10.233	9.968	9.930	9.910	9.798
E_2^t [Msi]	**C.V.(%)**	1.521	2.048	2.004	2.592	3.138	3.742	1.290	1.997	1.935	2.437
	No. Specimens	24		24		18		18		18	
	No. Prepreg Lots	4		4		3		3		3	
	Mean		0.05746		0.04642		0.05550		0.04689		0.04472
ν_{21}^t	**No. Specimens**	24		24		18		18		18	
	No. Prepreg Lots	4		4		3		3		3	

2.5.3 Warp Compression Strength Properties (WCS)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%		**Compression, 1-axis** Solvay EP2190 T650 3K PW Fabric RC 37% [0]16
Resin content:	37.15 %wt **Comp. density:** 1.537 g/cc		
Fiber volume:	54.59 %vol		
Ply count:	16		
Test method:	SACMA SRM 1R-94		
Normalized by:	0.0079 in. CPT		

		CTA		RTA		ETA2		ETA3		ETW1		ETW2		ETW3	
Test Temperature [°F]		-67		75		225		250		180		225		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Ambient		Equilibrium		Equilibrium		Equilibrium	
Equilibrium at T, RH										160F, 85%RH		160F, 85%RH		160F, 85%RH	
Source code for Phase 1:		TR8XXXXXX-PX-WCS-X-CX-RTA-X		TR8XXXXXX-PX-WCS-X-CX-RTA-X				TR8XXXXXX-PX-WCS-X-CX-ETA3-X							
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		WCS-X-CX-1-CTA-X		WCS-X-CX-X-RTA-X		WCS-X-CX-X-ETA2-X		WCS-X-CX-X-ETA3-X		WCS-X-CX-X-ETW1-X		WCS-X-CX-X-ETW2-X		WCS-X-CX-X-ETW3-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
F_1^{cu} [ksi]	**Mean**	131.9	130.3	112.3	110.7	86.55	85.90	77.09	75.82	88.13	87.99	69.80	69.20	61.24	60.98
	Minimum	114.3	111.9	96.36	94.64	80.24	79.30	69.91	68.20	74.38	72.26	59.10	56.94	55.46	52.75
	Maximum	144.2	142.9	123.9	122.0	92.77	92.40	94.78	94.78	96.35	99.91	80.34	81.44	71.36	71.76
	C.V.(%)	6.017	6.441	6.252	6.750	5.59	5.94	9.73	10.56	6.865	8.449	8.256	9.137	6.475	8.115
	No. Specimens	25		24		6		18		18		18		18	
	No. Prepreg Lots	4		4		1		3		3		3		3	

2.5.4 Warp Compression Modulus Properties (WCM)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%	**Compression, 1-axis** Solvay EP2190 T650 3K PW Fabric RC 37% [0]16

Resin content:	36.50 %wt	Comp. density: 1.538 g/cc
Fiber volume:	55.18 %vol	
Ply count:	16	
Test method:	SACMA SRM 1R-94	Modulus calculation: 1000 to 3000 microstrain
Normalized by:	0.0079	in. CPT

		CTA		RTA		ETA2		ETA3		ETW1		ETW2		ETW3	
Test Temperature [°F]		-67		75		225		250		180		225		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Ambient		Equilibrium		Equilibrium		Equilibrium	
Equilibrium at T, RH										160F, 85%RH		160F, 85%RH		160F, 85%RH	
Source code for Phase 1:		TR8XXXXXX-PX-WCM-X-CX-RTA-X		TR8XXXXXX-PX-WCM-X-CX-RTA-X				TR8XXXXXX-PX-WCM-X-CX-ETA3-X							
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		WCM-X-CX-1-CTA-X		WCM-X-CX-1-RTA-X		WCM-X-CX-1-ETA2-X		WCM-X-CX-1-ETA3-X		WCM-X-CX-1-ETW1-X		WCM-X-CX-1-ETW2-X		WCM-X-CX-1-ETW3-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
E_t^c [Msi]	Mean	8.598	8.508	8.677	8.563	8.981	8.979	8.770	8.633	9.100	9.098	8.979	8.915	8.812	8.779
	Minimum	8.326	8.146	8.235	7.989	8.948	8.889	8.099	7.985	8.843	8.837	8.856	8.605	8.584	8.395
	Maximum	8.961	8.971	8.987	9.042	9.033	9.062	9.107	9.035	9.263	9.589	9.199	9.302	9.063	8.989
	C.V.(%)	2.116	2.792	2.484	3.275	0.342	0.797	3.297	3.638	0.963	2.283	1.007	2.418	1.487	1.647
	No. Specimens	24		24		6		18		18		18		18	
	No. Prepreg Lots	3		3		1		1		3		3		3	

2.5.5 Fill Compression Strength Properties (FCS)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%

Compression, 2-axis
Solvay EP2190 T650 3K PW Fabric RC 37%
[90]16

Resin content:	37.32 %wt	Comp. density: 1.534 g/cc
Fiber volume:	54.34 %vol	
Ply count:	16	
Test method:	SACMA SRM 1R-94	
Normalized by:	0.0079	in. CPT

		CTA		RTA		ETA2		ETA3		ETW1		ETW2	
Test Temperature [°F]		-67		75		225		250		180		225	
Moisture Conditioning		Ambient		Ambient		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH										160F, 85%RH		160F, 85%RH	
Source code for Phase 1:		TR8XXXXXX-PX-FCS-X-CX RTA-X		TR8XXXXXX-PX-FCS-X-CX RTA-X				TR8XXXXXX-PX-FCS-X-CX ETA3-X					
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		FCS-X-CX-1-CTA-X		FCS-X-CX-X-RTA-X		FCS-X-CX-X-ETA2-X		FCS-X-CX-X-ETA3-X		FCS-X-CX-X-ETW1-X		FCS-X-CX-X-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
F_2^{cu} [ksi]	Mean	126.6	124.7	112.9	111.2	85.82	85.27	79.75	78.88	89.29	88.10	70.85	69.89
	Minimum	116.1	112.6	105.69	102.53	82.12	81.67	70.61	68.13	82.09	78.90	59.01	57.38
	Maximum	139.8	139.3	121.7	120.9	90.17	89.39	89.81	88.69	95.98	95.12	77.25	77.13
	C.V.(%)	5.662	6.451	3.382	3.985	3.91	3.84	6.90	8.01	5.507	5.998	7.316	8.009
	No. Specimens	24		24		6		18		18		18	
	No. Prepreg Lots	4		4		1		3		3		3	

2.5.6 Fill Compression Modulus Properties (FCM)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%					**Compression, 2-axis** Solvay EP2190 T650 3K PW Fabric RC 37% [90]16	
Resin content:	37.59 %wt	**Comp. density:** 1.517 g/cc					
Fiber volume:	53.50 %vol						
Ply count:	16						
Test method:	SACMA SRM 1R-94	**Modulus calculation:** 1000 to 3000 microstrain					
Normalized by:	0.0079	in. CPT					

		CTA		RTA		ETA2		ETA3		ETW1		ETW2	
Test Temperature [°F]		-67		75		225		250		180		225	
Moisture Conditioning		Ambient		Ambient		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH										160F, 85%RH		160F, 85%RH	
Source code for Phase 1:		TR8XXXXXX-PX-FCM-X-CX-RTA-X		TR8XXXXXX-PX-FCM-X-CX-RTA-X				TR8XXXXXX-PX-FCM-X-CX-ETA3-X					
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		FCM-X-CX-1-CTA-X		FCM-X-CX-1-RTA-X		FCM-X-CX-1-ETA2-X		FCM-X-CX-1-ETA3-X		FCM-X-CX-1-ETW1-X		FCM-X-CX-1-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	8.480	8.419	8.552	8.485	8.796	8.802	8.719	8.616	9.058	8.938	8.905	8.804
	Minimum	8.083	7.982	8.102	7.794	8.617	8.672	7.703	7.619	8.804	8.818	8.553	8.587
	Maximum	8.942	8.900	9.133	9.083	8.949	8.900	9.142	9.015	9.312	9.105	9.301	8.990
E_2^c **[Msi]**	**C.V.(%)**	2.649	3.200	3.200	4.129	1.661	1.079	4.853	4.552	1.909	1.102	2.572	1.580
	No. Specimens	24		24		6		18		18		18	
	No. Prepreg Lots	3		3		1		3		3		3	

2.5.7 In-Plane Shear Properties (IPS)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%					**In-Plane Shear** Solvay EP2190 T650 3K PW Fabric RC 37% [0/90]4S	
Resin content:	36.78 %wt	**Comp. density:** 1.530 g/cc					
Fiber volume:	54.65 %vol						
Ply count:	16						
Test method:	ASTM D 5379-19	**Modulus calculation:** 1500 to 5500 microstrain					
Normalized by:	NA						

		CTA		RTA		ETA3		ETW1		ETW2		ETW3	
Test Temperature [°F]		-67		75		250		180		225		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Equilibrium		Equilibrium		Equilibrium	
Equilibrium at T, RH								160F, 85%RH		160F, 85%RH		160F, 85%RH	
Source code for Phase 1:		TR8XXXXXX-PX-IPS-X-CX-RTA-X		TR8XXXXXX-PX-IPS-X-CX-RTA-X		TR8XXXXXX-PX-IPS-X-CX-ETA3-X							
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		IPS-X-CX-1-CTA-X		IPS-X-CX-1-RTA-X		IPS-X-CX-1-ETA3-X		IPS-X-CX-1-ETW1-X		IPS-X-CX-1-ETW2-X		IPS-X-CX-1-ETW3-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
$F_{12}^{s0.2\%}$ [ksi]	Mean		10.86		7.061		4.083		4.795		3.631		2.959
	Minimum		9.080		6.550		3.820		4.420		3.320		2.360
	Maximum		14.98		7.750		4.280		5.120		3.950		3.340
	C.V.(%)		12.69		3.417		4.811		3.915		5.015		7.616
	No. Specimens		22		24		6		18		18		18
	No. Prepreg Lots		4		4		1		3		3		3
$F_{12}^{s5\% strain}$ [ksi]	Mean		17.82		13.34		7.388		6.398		4.185		3.182
	Minimum		16.46		12.93		7.140		5.430		3.530		2.360
	Maximum		20.01		13.66		7.900		7.770		5.240		3.820
	C.V.(%)		5.533		1.293		3.907		9.434		12.06		11.68
	No. Specimens		22		24		6		18		18		18
	No. Prepreg Lots		4		4		1		3		3		3
F_{12}^{su} [ksi]	Mean		26.82		21.40		15.62		14.39		12.17		10.80
	Minimum		25.29		20.20		14.21		13.18		11.79		10.03
	Maximum		27.70		25.43		16.62		14.92		12.80		11.97
	C.V.(%)		2.220		5.131		6.030		3.051		2.552		4.204
	No. Specimens		22		24		6		18		18		18
	No. Prepreg Lots		4		4		1		3		3		3
G_{12}^{s} [Msi]	Mean		0.7037		0.6440		0.4203		0.5312		0.4099		0.3272
	Minimum		0.5090		0.5740		0.3560		0.4800		0.3680		0.2880
	Maximum		0.7960		0.6960		0.4700		0.5610		0.4450		0.3600
	C.V.(%)		10.70		5.040		10.45		4.370		5.515		5.282
	No. Specimens		22		24		6		18		18		18
	No. Prepreg Lots		4		4		1		3		3		3

2.5.8 0° Flexural Proc. A Properties (0FLEX)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%	**0° Flexural Proc. A**
		Solvay EP2190 T650 3K PW Fabric RC 37% [0]12

Resin content:	38.68 %wt	**Comp. density:** 1.534 g/cc
Fiber volume:	53.14 %vol	
Ply count:	12	

Test method: ASTM D790-17, Procedure A

Normalized by: 0.0079   in. CPT

		RTA		ETA2		ETA3		ETW2	
Test Temperature [°F]		75		225		250		225	
Moisture Conditioning		Ambient		Ambient		Ambient		Equilibrium	
Equilibrium at T, RH								160F, 85%RH	
Source code for Phase 1:		TR8XXXXXX-PX-0FLEX-X-CX-RTA-X				TR7XXXXXX-PX-0FLEX-X-CX-ETA3-X			
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		0FLEX-X-CX-1-RTA-X		0FLEX-X-CX-1-ETA2-X		0FLEX-X-CX-1-ETA3-X		0FLEX-X-CX-1-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	150.5	148.2	119.3	119.9	109.5	106.1	95.05	93.34
	Minimum	134.9	132.1	111.9	113.6	99.60	93.58	88.09	82.43
0° Flexural	Maximum	164.7	159.3	125.4	125.4	117.9	116.0	104.7	105.9
Proc. A	C.V.(%)	5.059	4.790	5.082	3.945	4.687	5.602	5.792	7.242
Strength [ksi]									
	No. Specimens	24		6		18		18	
	No. Prepreg Lots	4		1		3		3	
	Mean	9.064	9.111	8.668	8.713	8.662	8.399	8.466	8.303
	Minimum	8.836	8.725	8.396	8.563	8.456	8.019	8.178	8.020
0° Flexural	Maximum	9.236	9.364	8.932	8.840	8.928	8.645	9.088	8.632
Proc. A	C.V.(%)	2.053	3.083	2.625	1.389	1.936	2.902	3.239	2.073
Modulus [Msi]									
	No. Specimens	6		6		12		18	
	No. Prepreg Lots	1		1		2		3	

2.5.9 90° Flexural Proc. A Properties (90FLEX)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%	**90° Flexural Proc. A**
		Solvay EP2190 T650 3K PW Fabric RC 37% [90]12

Resin content: 37.24 %wt   **Comp. density:** 1.532 g/cc
Fiber volume: 54.33 %vol
Ply count: 12

Test method: ASTM D790-17, Procedure A

Normalized by: 0.0079   in. CPT

		RTA		ETA2		ETA3		ETW2	
Test Temperature [°F]		75		225		250		225	
Moisture Conditioning		Ambient		Ambient		Ambient		Equilibrium	
Equilibrium at T, RH								160F, 85%RH	
Source code for Phase 1:		TR8XXXXXX-PX-90FLEX-X-CX-RTA-X				TR7XXXXXX-PX-90FLEX-X-CX-ETA3-X			
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		90FLEX-X-CX-1-RTA-X		90FLEX-X-CX-1-ETA2-X		90FLEX-X-CX-1-ETA3-X		90FLEX-X-CX-1-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
90° Flexural Proc. A Strength [ksi]	Mean	153.8	151.0	123.9	123.9	110.4	107.0	93.79	92.14
	Minimum	140.6	142.7	114.5	115.0	102.7	97.70	86.04	83.21
	Maximum	163.2	163.9	135.9	135.1	120.0	118.8	100.5	100.8
	C.V.(%)	3.931	3.754	6.771	6.123	4.334	5.201	4.691	5.981
	No. Specimens	24		6		18		18	
	No. Prepreg Lots	4		1		3		3	
90° Flexural Proc. A Modulus [Msi]	Mean	9.278	9.262	8.824	8.827	8.554	8.280	8.481	8.322
	Minimum	9.017	9.036	8.587	8.533	8.356	7.845	7.717	7.816
	Maximum	9.495	9.480	9.630	9.569	8.775	8.677	8.901	8.688
	C.V.(%)	2.060	1.959	4.531	4.239	1.420	3.439	4.332	2.771
	No. Specimens	6		6		12		18	
	No. Prepreg Lots	1		1		2		3	

2.5.10 Lamina Short-Beam Strength Properties (SBS)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%					**Short-Beam Strength** Solvay EP2190 T650 3K PW Fabric RC 37% [0]33		

Resin content:	37.28 %wt		Comp. density: 1.533 g/cc					
Fiber volume:	54.34 %vol							
Ply count:	33							
Test method:	ASTM D 2344-16							
Normalized by:	NA							

		CTA		RTA		ETA2		ETA3		ETW1		ETW2		ETW3	
Test Temperature [°F]		-67		75		225		250		180		225		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Ambient		Equilibrium		Equilibrium		Equilibrium	
Equilibrium at T, RH										160F, 85%RH		160F, 85%RH		160F, 85%RH	
Source code for Phase 1:		TR8XXXXXX-PX-SBS-X-CX-CTA-X		TR8XXXXXX-PX-SBS-X-CX-RTA-X				TR8XXXXXX-PX-SBS-X-CX-ETA3-X							
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		SBS-X-CX-1-CTA-X		SBS-X-CX-1-RTA-X		SBS-X-CX-1-ETA2-X		SBS-X-CX-1-ETA3-X		SBS-X-CX-1-ETW1-X		SBS-X-CX-1-ETW2-X		SBS-X-CX-1-ETW3-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
SBS [ksi]	Mean		14.75		12.13		7.907		7.182		7.594		5.776		4.737
	Minimum		14.01		11.39		7.600		6.520		7.240		5.410		4.460
	Maximum		15.42		12.72		8.180		7.710		7.950		6.100		5.120
	C.V.(%)		2.816		2.964		2.838		4.981		2.485		2.591		3.415
	No. Specimens		12		24		6		18		18		18		18
	No. Prepreg Lots		2		4		1		3		3		3		3

2.5.11 "25/50/25" Unnotched Tension 1 Properties (UNT1)

| Material: | Solvay EP2190 T650 3K PW Fabric RC 37% | | | | | | | | **Unnotched Tension 1** | | | |

Material: Solvay EP2190 T650 3K PW Fabric RC 37%

Resin content: 37.03 %wt   **Comp. density:** 1.537 g/cc

Unnotched Tension 1
Solvay EP2190 T650 3K PW Fabric RC 37%
[45/90/-45/0]S

Fiber volume: 54.69 %vol

Ply count: 8

Test method: ASTM D 5766-11(2018) **Modulus calculation:** 1000 to 3000 microstrain
(No-Hole Tension)

Normalized by: 0.0079   in. CPT

		CTA		RTA		ETA2		ETA3		ETW1		ETW2	
Test Temperature [°F]		-67		75		225		250		180		225	
Moisture Conditioning		Ambient		Ambient		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH										160F, 85%RH		160F, 85%RH	
Source code for Phase 1:		TR8XXXXXX-PX-UNT1-X-CX-CTA-X		TR8XXXXXX-PX-UNT1-X-CX-RTA-X				TR8XXXXXX-PX-UNT1-X-CX-ETA3-X					
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		UNT1-X-CX-1-CTA-X		UNT1-X-CX-1-RTA-X		UNT1-X-CX-1-ETA2-X				UNT1-X-CX-1-ETW1-X		UNT1-X-CX-1-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	94.85	93.86	96.53	95.87	98.35	97.63	89.70	87.67	94.03	93.09	89.81	88.84
	Minimum	91.54	89.83	92.62	90.61	97.78	97.03	85.83	84.10	88.19	85.80	84.91	82.18
	Maximum	98.61	97.31	101.4	101.4	99.52	97.97	92.06	89.93	99.52	99.21	95.13	95.28
UNT1 Strength [ksi]	C.V.(%)	2.707	2.812	2.896	2.934	0.6773	0.4064	2.488	2.382	3.832	4.688	3.285	3.917
	No. Specimens	12		24		6		6		18		18	
	No. Prepreg Lots	2		4		1		1		3		3	
	Mean	7.031	6.957	6.825	6.778	6.824	6.774	6.711	6.559	6.669	6.601	6.215	6.146
	Minimum	6.887	6.790	6.609	6.516	6.602	6.612	6.575	6.423	6.519	6.319	5.435	5.461
	Maximum	7.104	7.085	7.020	7.011	6.976	6.867	6.944	6.804	6.884	6.776	6.605	6.615
UNT1 Modulus [Msi]	C.V.(%)	1.041	1.168	1.651	1.787	1.945	1.362	1.864	1.989	1.231	2.066	6.232	6.114
	No. Specimens	12		24		6		6		18		18	
	No. Prepreg Lots	2		4		1		1		3		3	

2.5.12 "10/80/10" Unnotched Tension 2 Properties (UNT2)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%		**Unnotched Tension 2** Solvay EP2190 T650 3K PW Fabric RC 37% [45/45/0/45/45/]S	
Resin content:	37.53 %wt **Comp. density:** 1.524 g/cc			
Fiber volume:	53.78 %vol			
Ply count:	10			
Test method:	ASTM D 5766-11(2018) **Modulus calculation:** 1000 to 3000 microstrain (No-Hole Tension)			
Normalized by:	0.0079 in. CPT			

		CTA		RTA		ETW1		ETW2	
Test Temperature [°F]		-67		75		180		225	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F, 85%RH		160F, 85%RH	
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		UNT2-X-CX-1-CTA-X		UNT2-X-CX-1-RTA-X		UNT2-X-CX-1-ETW1-X		UNT2-X-CX-1-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
UNT2 Strength [ksi]	Mean	63.59	63.12	60.33	59.92	51.23	50.86	45.84	45.49
	Minimum	59.80	60.03	58.41	57.84	49.17	48.66	43.12	42.47
	Maximum	68.40	68.23	62.94	62.86	52.53	52.85	48.06	47.94
	C.V.(%)	4.047	3.635	1.855	2.312	1.906	2.638	2.504	2.940
	No. Specimens	18		18		18		18	
	No. Prepreg Lots	3		3		3		3	
UNT2 Modulus [Msi]	Mean	4.556	4.523	4.362	4.333	4.042	4.012	3.654	3.626
	Minimum	4.441	4.355	4.276	4.170	3.930	3.920	3.465	3.455
	Maximum	4.680	4.656	4.449	4.431	4.179	4.105	3.778	3.766
	C.V.(%)	1.566	1.758	1.164	1.704	2.053	1.421	2.596	2.332
	No. Specimens	18		18		18		18	
	No. Prepreg Lots	3		3		3		3	

2.5.13 "40/20/40" Unnotched Tension 3 Properties (UNT3)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%		**Unnotched Tension 3** Solvay EP2190 T650 3K PW Fabric RC 37% [0/0/45/0/0]S
Resin content:	37.30 %wt	**Comp. density:** 1.532 g/cc	
Fiber volume:	54.26 %vol		
Ply count:	10		
Test method:	ASTM D 5766-11(2018) (No-hole Tension)	**Modulus calculation:** 1000 to 3000 microstrain	
Normalized by:	0.0079	in. CPT	

		CTA		RTA		ETW1		ETW2	
Test Temperature [°F]		-67		75		180		225	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F, 85%RH		160F, 85%RH	
Source code for Phase 2 & 3, **prefixed by: NTP2191Q1-WRX-PW-SOL-**		UNT3-X-CX-1-CTA-X		UNT3-X-CX-1-RTA-X		UNT3-X-CX-1-ETW1-X		UNT3-X-CX-1-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	118.5	118.1	121.3	120.7	117.3	116.7	114.6	114.3
	Minimum	113.2	111.5	112.7	111.8	110.6	107.7	108.2	106.6
	Maximum	124.5	124.7	131.6	131.5	123.9	123.9	121.7	121.6
UNT3 **Strength [ksi]**	**C.V.(%)**	2.621	3.162	4.509	4.949	3.021	3.606	4.011	4.713
	No. Specimens	18		18		18		18	
	No. Prepreg Lots	3		3		3		3	
	Mean	8.490	8.462	8.554	8.515	8.533	8.485	8.365	8.334
	Minimum	8.176	8.166	8.256	8.340	8.264	8.276	7.882	7.892
	Maximum	8.737	8.633	8.746	8.794	8.784	8.784	8.662	8.722
UNT3 **Modulus [Msi]**	**C.V.(%)**	1.422	1.570	1.392	1.233	2.096	1.708	2.651	2.652
	No. Specimens	18		18		18		18	
	No. Prepreg Lots	3		3		3		3	

2.5.14 "25/50/25" Unnotched Compression 1 Properties (UNC1)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%						**Unnotched Compression 1** Solvay EP2190 T650 3K PW Fabric RC 37% [45/0/-45/90]2S

Resin content: 37.24 %wt   Comp. density: 1.534 g/cc

Fiber volume: 54.39 %vol

Ply count: 16

Test method: ASTM D6484-14 (No hole)   Modulus calculation: 1000 to 3000 microstrain

Normalized by: 0.0079   in. CPT

		CTA		RTA		ETA2		ETA3		ETW1		ETW2		ETW3	
Test Temperature [°F]		-67		75		225		250		180		225		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Ambient		Equilibrium		Equilibrium		Equilibrium	
Equilibrium at T, RH										160F, 85%RH		160F, 85%RH		160F, 85%RH	
Source code for Phase 1:		TR7XXXXXX-PX-UNC1-X-CX-CTA-X		TR7XXXXXX-PX-UNC1-X-CX-RTA-X				TR7XXXXXX-PX-UNC1-X-CX-ETA3-X							
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		UNC1-X-CX-1-CTA-X		UNC1-X-CX-1-RTA-X		UNC1-X-CX-1-ETA2-X		UNC1-X-CX-1-ETA3-X		UNC1-X-CX-1-ETW1-X		UNC1-X-CX-1-ETW2-X		UNC1-X-CX-1-ETW3-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	97.52	96.49	80.04	79.09	64.34	64.22	62.47	61.32	60.89	60.13	49.62	49.02	40.96	40.45
	Minimum	94.75	93.15	72.93	72.53	61.64	61.74	60.53	59.45	58.76	56.57	47.14	45.45	37.95	36.48
UNC1	Maximum	104.6	103.7	84.69	83.83	66.37	66.48	63.67	62.58	63.15	62.68	53.48	53.78	43.44	42.94
Strength [ksi]	C.V.(%)	2.862	3.021	3.455	3.385	3.121	2.716	2.429	2.345	2.156	2.861	4.019	5.219	3.140	3.684
	No. Specimens	12		24		6		6		18		18		18	
	No. Prepreg Lots	2		4		1		1		3		3		3	
	Mean	6.370	6.303	6.353	6.278	6.319	6.308	6.406	6.288	6.372	6.292	5.992	5.918	5.683	5.610
	Minimum	6.294	6.179	6.182	6.083	6.215	6.225	6.285	6.182	6.257	6.109	5.309	5.343	5.036	4.993
UNC1	Maximum	6.482	6.426	6.545	6.403	6.388	6.428	6.490	6.349	6.449	6.441	6.383	6.353	6.131	6.088
Modulus [Msi]	C.V.(%)	0.9267	1.099	1.450	1.393	0.9808	1.139	1.327	1.127	0.8334	1.558	5.757	5.983	7.621	7.170
	No. Specimens	12		24		6		6		18		18		18	
	No. Prepreg Lots	2		4		1		1		3		3		3	

2.5.15 "10/80/10" Unnotched Compression 2 Properties (UNC2)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%												**Unnotched Compression 2** Solvay EP2190 T650 3K PW Fabric RC 37% [45/45/0/45/45]2S	

Resin content:	37.47 %wt	**Comp. density:** 1.529 g/cc
Fiber volume:	54.02 %vol	
Ply count:	20	
Test method:	ASTM D6484-14 (No hole)	**Modulus calculation:** 1000 to 3000 microstrain
Normalized by:	0.0079	in. CPT

		RTA		ETA2		ETA3		ETW1		ETW2		ETW3	
Test Temperature [°F]		75		225		250		180		225		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Equilibrium		Equilibrium		Equilibrium	
Equilibrium at T, RH								160F, 85%RH		160F, 85%RH		160F, 85%RH	
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		UNC2-X-CX-1-RTA-X		UNC2-X-CX-1-ETA2-X		UNC2-X-CX-1-ETA3-X		UNC2-X-CX-1-ETW1-X		UNC2-X-CX-1-ETW2-X		UNC2-X-CX-1-ETW3-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
UNC2 Strength [ksi]	Mean	57.57	57.19	47.89	46.57	45.29	44.14	43.90	43.47	35.22	34.91	29.04	28.78
	Minimum	55.22	55.25	47.41	45.59	43.81	42.16	41.29	41.26	32.40	32.55	22.38	22.44
	Maximum	59.07	58.73	48.70	47.85	47.20	45.78	47.09	46.30	39.78	39.81	35.69	35.96
	C.V.(%)	1.833	1.714	1.066	2.142	2.653	3.162	3.481	3.357	5.430	5.605	12.93	13.15
	No. Specimens	18		6		6		18		18		18	
	No. Prepreg Lots	3		1		1		3		3		3	
UNC2 Modulus [Msi]	Mean	4.184	4.156	4.110	3.997	4.032	3.929	3.753	3.713	3.748	3.714	3.434	3.404
	Minimum	4.091	4.074	4.066	3.934	3.978	3.878	2.962	3.000	3.610	3.598	3.178	3.119
	Maximum	4.289	4.220	4.142	4.072	4.090	3.970	4.115	4.055	3.902	3.904	3.754	3.783
	C.V.(%)	1.587	1.043	0.6700	1.439	1.004	0.944	11.357	10.507	2.349	2.313	4.762	5.336
	No. Specimens	18		6		6		18		18		18	
	No. Prepreg Lots	3		1		1		3		3		3	

2.5.16 "40/20/40" Unnotched Compression 3 Properties (UNC3)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%											

Unnotched Compression 3
Solvay EP2190 T650 3K PW Fabric RC 37%
[0/0/45/0/0/0/0/45/0/0]S

Resin content:	37.01 %wt		**Comp. density:** 1.530 g/cc							
Fiber volume:	54.46 %vol									
Ply count:	20									
Test method:	ASTM D6484-14 (No hole)		**Modulus calculation:** 1000 to 3000 microstrain							
Normalized by:	0.0079	in. CPT								

		RTA		ETA2		ETA3		ETW1		ETW2		ETW3	
Test Temperature [°F]		75		225		250		180		225		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Equilibrium		Equilibrium		Equilibrium	
Equilibrium at T, RH								160F, 85%RH		160F, 85%RH		160F, 85%RH	
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		UNC3-X-CX-1-RTA-X		UNC3-X-CX-1-ETA2-X		UNC3-X-CX-1-ETA3-X		UNC3-X-CX-1-ETW1-X		UNC3-X-CX-1-ETW2-X		UNC3-X-CX-1-ETW3-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
UNC3 Strength [ksi]	**Mean**	87.28	86.67	71.72	69.95	66.52	65.02	67.28	66.81	54.71	54.37	46.72	46.48
	Minimum	80.46	80.66	67.43	66.42	61.76	60.68	61.67	62.06	49.66	49.57	41.34	41.52
	Maximum	97.95	98.83	76.41	74.02	71.43	69.75	71.80	71.79	60.65	60.31	53.35	53.62
	C.V.(%)	4.776	4.738	5.171	4.656	6.068	5.501	4.408	4.153	5.699	5.696	5.568	5.927
	No. Specimens	18		6		6		18		18		18	
	No. Prepreg Lots	3		1		1		3		3		3	
UNC3 Modulus [Msi]	**Mean**	7.915	7.860	8.038	7.841	8.070	7.890	7.508	7.450	7.892	7.844	7.614	7.575
	Minimum	7.824	7.684	7.985	7.811	8.014	7.754	5.862	5.877	7.744	7.564	7.215	7.081
	Maximum	7.984	8.074	8.096	7.866	8.152	8.015	8.252	8.103	8.005	8.192	7.896	7.958
	C.V.(%)	0.5402	1.371	0.5957	0.2927	0.7027	1.138	11.11	10.35	0.9471	1.797	3.260	3.752
	No. Specimens	18		6		6		18		18		18	
	No. Prepreg Lots	3		1		1		3		3		3	

2.5.17 "25/50/25" Open-Hole Tension 1 Properties (OHT1)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%				**Open-Hole Tension 1**	
Resin content:	36.46 %wt	**Comp. density:** 1.535 g/cc			Solvay EP2190 T650 3K PW Fabric RC 37%	
Fiber volume:	55.09 %vol				[45/90/-45/0]S	
Ply count:	8					

Test method:	ASTM D5766-11(2018)

Normalized by:	0.0079	in. CPT

		CTA		RTA		ETA2		ETA3		ETW1		ETW3	
Test Temperature [°F]		-67		75		225		250		180		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH										160F, 90%		160F, 90%RH	
Source code for Phase 1:		TR8XXXXXX-PX-OHT1-X-CX-CTA-X		TR8XXXXXX-PX-OHT1-X-CX-RTA-X				TR8XXXXXX-PX-OHT1-X-CX-ETA3-X					
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		OHT1-X-CX-1-CTA-X		OHT1-X-CX-1-RTA-X		OHT1-X-CX-1-ETA2-X		OHT1-X-CX-1-ETA3-X		OHT1-X-CX-1-ETW1-X		OHT1-X-CX-1-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	47.84	47.37	48.72	48.58	48.87	48.61	51.72	50.72	51.86	51.27	52.41	51.79
	Minimum	43.61	43.61	44.18	43.22	47.14	47.36	48.26	48.18	46.36	45.85	45.68	45.75
	Maximum	52.54	51.72	52.88	52.63	50.78	49.83	56.90	54.57	56.02	55.52	58.00	58.18
OHT1 Strength [ksi]	C.V.(%)	5.221	5.359	5.028	5.419	2.561	1.798	4.207	3.157	5.779	6.088	6.552	6.760
	No. Specimens	24		24		6		18		18		18	
	No. Prepreg Lots	4		4		1		3		3		3	

2.5.18 "10/80/10" Open-Hole Tension 2 Properties (OHT2)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%			**Open-Hole Tension 2** Solvay EP2190 T650 3K PW Fabric RC 37% [45/45/0/45/45]S	
Resin content:	37.24 %wt	**Comp. density:** 1.529 g/cc			
Fiber volume:	54.23 %vol				
Ply count:	10				
Test method:	ASTM D5766-11(2018)				
Normalized by:	0.0079	in. CPT			

		CTA		RTA		ETW1		ETW2	
Test Temperature [°F]		-67		75		180		225	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F, 85%RH		160F, 85%RH	
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		OHT2-X-CX-1-CTA-X		OHT2-X-CX-1-RTA-X		OHT2-X-CX-1-ETW1-X		OHT2-X-CX-1-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	50.45	50.01	44.17	43.95	36.30	35.42	32.66	32.51
	Minimum	47.09	47.27	41.22	41.91	35.53	34.52	31.49	30.80
	Maximum	54.88	54.60	46.30	46.26	37.15	36.46	34.74	34.47
OHT2 Strength [ksi]	C.V.(%)	3.920	3.799	3.169	2.635	1.930	2.259	2.687	3.123
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	

2.5.19 "40/20/40" Open-Hole Tension 3 Properties (OHT3)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%		**Open-Hole Tension 3** Solvay EP2190 T650 3K PW Fabric RC 37% [0/0/45/0/0]S			
Resin content:	37.31 %wt	**Comp. density:** 1.531 g/cc				
Fiber volume:	54.23 %vol					
Ply count:	10					
Test method:	ASTM D5766-11(2018)					
Normalized by:	0.0079	in. CPT				

		CTA		RTA		ETW1		ETW2	
Test Temperature [°F]		-67		75		180		225	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F, 85%RH		160F, 85%RH	
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		OHT3-X-CX-1-CTA-X		OHT3-X-CX-1-RTA-X		OHT3-X-CX-1-ETW1-X		OHT3-X-CX-1-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	56.84	56.64	57.73	57.74	62.68	61.36	62.86	62.74
	Minimum	52.92	53.05	51.23	51.49	57.72	56.50	59.13	57.88
	Maximum	61.10	61.10	63.07	63.55	65.51	64.17	66.65	67.16
OHT3 Strength [ksi]	**C.V.(%)**	4.037	4.150	5.612	5.604	5.078	5.083	3.637	4.030
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	

2.5.20 "25/50/25" Filled-Hole Tension 1 Properties (FHT1)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%		
		Filled-Hole Tension 1	
Resin content: 37.15 %wt	**Comp. density:** 1.534 g/cc	Solvay EP2190 T650 3K PW Fabric RC 37%	
Fiber volume: 54.47 %vol		[45/90/-45/0]S	
Ply count: 8			
Test method: ASTM D6742-12			
Normalized by: 0.0079 in. CPT			

		CTA		RTA		ETW1		ETW2	
Test Temperature [°F]		-67		75		180		225	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F, 85%RH		160F, 85%RH	
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		FHT1-X-CX-CTA-X		FHT1-X-CX-RTA-X		FHT1-X-CX-ETW1-X		FHT1-X-CX-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	55.79	55.18	55.94	55.19	59.32	58.65	58.15	57.47
	Minimum	50.63	48.63	50.77	50.21	56.35	54.89	53.58	52.75
	Maximum	59.70	59.98	62.27	60.27	62.93	63.43	62.04	60.46
FHT1 Strength [ksi]	**C.V.(%)**	4.380	5.667	5.711	5.810	3.178	4.222	4.074	4.252
	No. Specimens	18		18		18		18	
	No. Prepreg Lots	3		3		3		3	

2.5.21 "10/80/10" Filled-Hole Tension 2 Properties (FHT2)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%							

Filled-Hole Tension 2
Solvay EP2190 T650 3K PW Fabric RC 37%
[45/45/0/45/45]S

Resin content:	37.66 %wt		Comp. density: 1.530 g/cc
Fiber volume:	53.89%vol		
Ply count:	10		
Test method:	ASTM D6742-12		
Normalized by:	0.0079	in. CPT	

		CTA		RTA		ETW1		ETW2	
Test Temperature [°F]		-67		75		180		225	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F, 85%RH		160F, 85%RH	
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		FHT2-X-CX-CTA-X		FHT2-X-CX-RTA-X		FHT2-X-CX-ETW1-X		FHT2-X-CX-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	56.03	55.45	48.70	48.34	42.16	40.91	37.81	37.54
	Minimum	53.88	52.37	44.74	45.31	40.42	39.04	34.69	33.46
	Maximum	58.60	58.30	51.77	50.55	44.14	43.10	40.19	40.50
FHT2 Strength [ksi]	C.V.(%)	2.264	2.787	3.098	2.268	3.002	3.422	3.891	4.587
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	

2.5.22 "40/20/40" Filled-Hole Tension 3 Properties (FHT3)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%							

Filled-Hole Tension 3
Solvay EP2190 T650 3K PW Fabric RC 37%
[0/0/45/0/0]S

Resin content:	37.11 %wt	**Comp. density:** 1.533 g/cc
Fiber volume:	54.47 %vol	
Ply count:	10	
Test method:	ASTM D6742-12	
Normalized by:	0.0079	in. CPT

		CTA		RTA		ETW1		ETW2	
Test Temperature [°F]		-67		75		180		225	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F, 85%RH		160F, 85%RH	
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		FHT3-X-CX-CTA-X		FHT3-X-CX-RTA-X		FHT3-X-CX-ETW1-X		FHT3-X-CX-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	63.67	63.44	62.14	61.87	68.20	66.89	62.39	62.22
	Minimum	59.09	58.13	56.52	56.55	66.27	65.20	57.06	58.16
	Maximum	68.40	68.84	68.18	68.53	70.65	69.16	68.62	68.45
FHT3 Strength [ksi]	**C.V.(%)**	3.458	4.107	5.240	5.376	2.626	2.489	4.659	4.222
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	

2.5.23 "25/50/25" Open-Hole Compression 1 Properties (OHC1)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%				**Open-Hole Compression 1** Solvay EP2190 T650 3K PW Fabric RC 37% [45/90/-45/0]2S	

Resin content: 36.46 %wt   **Comp. density:** 1.535 g/cc

Fiber volume: 55.11 %vol

Ply count: 16

Test method: ASTM D6484-14

Normalized by: 0.0079   in. CPT

		CTA		RTA		ETA2		ETA3		ETW1		ETW2		ETW3	
Test Temperature [°F]		-67		75		225		250		180		225		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Ambient		Equilibrium		Equilibrium		Equilibrium	
Equilibrium at T, RH										160F, 85%RH		160F, 85%RH		160F, 85%RH	
Source code for Phase 1:		TR8XXXXXX-PX-OHC1-X-CX-CTA-X		TR8XXXXXX-PX-OHC1-X-CX-RTA-X				TR8XXXXXX-PX-OHC1-X-CX-ETA3-X							
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		OHC1-X-CX-1-CTA-X		OHC1-X-CX-1-RTA-X		OHC1-X-CX-1-ETA2-X		OHC1-X-CX-1-ETA3-X		OHC1-X-CX-1-ETW1-X		OHC1-X-CX-1-ETW2-X		OHC1-X-CX-1-ETW3-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	52.63	52.14	44.93	44.57	36.45	36.13	34.11	33.47	35.50	34.96	29.84	29.39	26.62	26.20
	Minimum	49.84	49.29	42.78	42.42	35.53	35.14	31.73	31.32	33.75	33.09	28.02	27.40	24.68	24.58
	Maximum	54.81	54.34	47.04	46.46	38.15	37.85	35.70	35.39	38.38	37.96	31.95	31.53	29.32	29.00
OHC1 Strength [ksi]	**C.V.(%)**	2.779	2.824	2.776	2.754	2.523	2.676	3.344	3.701	3.399	3.629	3.905	4.473	4.533	4.467
	No. Specimens	24		24		6		18		18		18		18	
	No. Prepreg Lots	4		4		1		3		3		3		3	

2.5.24 "10/80/10" Open-Hole Compression 2 Properties (OHC2)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%					

Open-Hole Compression 2
Solvay EP2190 T650 3K PW Fabric RC 37%
[45/45/0/45/45]2S

Resin content:	36.59 %wt	Comp. density: 1.532 g/cc		
Fiber volume:	54.88 %vol			
Ply count:	20			
Test method:	ASTM D6484-14			
Normalized by:	0.0079	in. CPT		

	RTA	ETA2	ETA3	ETW1	ETW2	ETW3
Test Temperature [°F]	75	225	250	180	225	250
Moisture Conditioning	Ambient	Ambient	Ambient	Equilibrium	Equilibrium	Equilibrium
Equilibrium at T, RH				160F, 85%RH	160F, 85%RH	160F, 85%RH
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-	OHC2-X-CX-1-RTA-X	OHC2-X-CX-1-ETA2-X	OHC2-X-CX-1-ETA3-X	OHC2-X-CX-1-ETW1-X	OHC2-X-CX-1-ETW2-X	OHC2-X-CX-1-ETW3-X

		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	40.97	40.79	33.08	32.37	30.94	30.27	31.24	31.08	26.52	26.34	22.93	22.79
	Minimum	39.44	39.73	32.47	32.08	30.48	29.94	29.63	30.05	24.94	24.83	21.85	21.85
	Maximum	42.52	42.21	33.69	32.68	31.37	30.90	32.30	32.08	29.05	29.01	24.37	23.88
OHC2 Strength [ksi]	C.V.(%)	1.996	1.636	1.574	0.886	1.128	1.222	2.180	1.786	4.134	4.640	3.186	2.824
	No. Specimens	18		6		6		18		18		18	
	No. Prepreg Lots	3		1		1		3		3		3	

2.5.25 "40/20/40" Open-Hole Compression 3 Properties (OHC3)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%	**Open-Hole Compression 3** Solvay EP2190 T650 3K PW Fabric RC 37% [0/0/45/0/0/0/0/45/0/0]S

Resin content:	37.20 %wt **Comp. density:** 1.529 g/cc	
Fiber volume:	54.26 %vol	
Ply count:	20	
Test method:	ASTM D6484-14	
Normalized by:	0.0079 in. CPT	

		RTA		ETA2		ETA3		ETW1		ETW2		ETW3	
Test Temperature [°F]		75		225		250		180		225		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Equilibrium		Equilibrium		Equilibrium	
Equilibrium at T, RH								160F, 85%RH		160F, 85%RH		160F, 85%RH	
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		OHC3-X-CX-1-RTA-X		OHC3-X-CX-1-ETA2-X		OHC3-X-CX-1-ETA3-X		OHC3-X-CX-1-ETW1-X		OHC3-X-CX-1-ETW2-X		OHC3-X-CX-1-ETW3-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	47.23	46.93	38.17	37.25	35.95	35.08	36.43	36.19	31.06	30.77	27.75	27.54
	Minimum	45.88	45.30	37.07	36.00	34.86	33.81	34.09	34.18	27.70	27.56	26.08	25.96
	Maximum	48.50	48.75	39.47	38.66	37.72	37.20	38.14	38.12	33.34	33.15	30.93	31.15
OHC3 Strength [ksi]	**C.V.(%)**	1.804	2.187	2.426	2.729	3.210	3.589	3.146	3.019	5.134	5.428	4.399	4.545
	No. Specimens	18		6		6		18		18		18	
	No. Prepreg Lots	3		1		1		3		3		3	

2.5.26 "25/50/25" Filled-Hole Compression 1 Properties (FHC1)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%							**Filled-Hole Compression 1** Solvay EP2190 T650 3K PW Fabric RC 37% [45/90/-45/0]2S	
Resin content:	36.71 %wt		**Comp. density:** 1.535 g/cc						
Fiber volume:	54.87 %vol								
Ply count:	16								
Test method:	ASTM D6742-12								
Normalized by:	0.0079		in. CPT						

		CTA		RTA		ETW1		ETW2	
Test Temperature [°F]		-67		75		180		225	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F, 85%RH		160F, 85%RH	
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		FHC1-X-CX-1-CTA-X		FHC1-X-CX-1-RTA-X		FHC1-X-CX-1-ETW1-X		FHC1-X-CX-1-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
	Mean	94.07	93.02	76.03	74.87	55.92	55.03	44.45	43.79
	Minimum	86.35	86.69	62.63	62.04	47.53	47.08	34.85	34.71
	Maximum	102.3	102.2	84.04	81.09	63.64	62.94	48.35	48.08
FHC1 Strength [ksi]	C.V.(%)	4.060	4.116	6.732	6.256	7.112	7.506	6.914	7.286
	No. Specimens	19		18		18		18	
	No. Prepreg Lots	3		3		3		3	

2.5.27 "10/80/10" Filled-Hole Compression 2 Properties (FHC2)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%	**Filled-Hole Compression 2** Solvay EP2190 T650 3K PW Fabric RC 37% [45/45/0/45/45]2S

Resin content:	37.39 %wt	**Comp. density:** 1.528 g/cc
Fiber volume:	54.04 %vol	
Ply count:	20	
Test method:	ASTM D6742-17	
Normalized by:	0.0079	in. CPT

		RTA		ETW1		ETW2			
Test Temperature [°F]		75		180		225			
Moisture Conditioning		Ambient		Equilibrium		Equilibrium			
Equilibrium at T, RH				160F, 85%RH		160F, 85%RH			
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		FHC2-X-CX-1-RTA-X		FHC2-X-CX-1-ETW1-X		FHC2-X-CX-1-ETW2-X			
		Normalized	Measured	Normalized	Measured	Normalized	Measured		
	Mean	55.57	55.15	40.54	39.48	32.95	32.66		
	Minimum	52.98	51.96	39.47	38.05	31.16	30.02		
	Maximum	58.42	58.75	41.22	40.54	37.49	37.51		
FHC2 Strength [ksi]	C.V.(%)	2.456	3.293	1.677	2.620	5.341	5.729		
	No. Specimens	18		6		18			
	No. Prepreg Lots	3		1		3			

2.5.28 "40/20/40" Filled-Hole Compression 3 Properties (FHC3)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%						**Filled-Hole Compression 3**	
Resin content:	37.57 %wt		**Comp. density:** 1.529 g/cc				Solvay EP2190 IMS65 Unitape Gr 145 RC 35%	
Fiber volume:	53.94 %vol						[0/0/45/0/0/0/0/45/0/0]S	
Ply count:	20							
Test method:	ASTM D6742-17							
Normalized by:	0.0079		in. CPT					

		RTA		ETW1		ETW2		
Test Temperature [°F]		75		180		225		
Moisture Conditioning		Ambient		Equilibrium		Equilibrium		
Equilibrium at T, RH				160F, 85%RH		160F, 85%RH		
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		FHC3-X-CX-1-RTA-X		FHC3-X-CX-1-ETW1-X		FHC3-X-CX-1-ETW2-X		
		Normalized	Measured	Normalized	Measured	Normalized	Measured	
	Mean	78.80	78.47	62.11	60.83	49.13	48.83	
	Minimum	72.72	72.81	60.22	59.36	42.17	41.67	
	Maximum	83.55	83.66	64.91	63.11	54.05	54.01	
FHC3 Strength [ksi]	C.V.(%)	4.762	4.601	3.361	2.605	6.892	6.641	
	No. Specimens	18		6		18		
	No. Prepreg Lots	3		1		3		

2.5.29 "25/50/25" Single-Shear Bearing 1, Proc. C Properties (SSB1)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%		**Single-Shear Bearing 1, Proc. C**
			Solvay EP2190 T650 3K PW Fabric RC 37%
Resin content:	37.33 %wt	**Comp. density:** 1.532 g/cc	[45/90/-45/0]2S
Fiber volume:	54.29 %vol		
Ply count:	16		
Test method:	ASTM D5961-17, Procedure C		
Normalized by:	0.0079	in. CPT	

		CTA		RTA		ETW1		ETW2		ETW3	
Test Temperature [°F]		-67		75		180		225		250	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F, 85%RH		160F, 85%RH		160F, 85%RH	
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		SSB1-X-CX-1-CTA-X		SSB1-X-CX-1-RTA-X		SSB1-X-CX-1-ETW1-X		SSB1-X-CX-1-ETW2-X		SSB1-X-CX-1-ETW3-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
SSB1, Proc. C 2% Offset Strength [ksi]	Mean	139.1	137.1	119.4	118.2	107.0	105.9	100.2	98.98	91.75	90.73
	Minimum	125.4	125.9	113.2	112.8	96.42	95.51	90.37	89.73	81.16	80.46
	Maximum	152.2	149.9	127.9	123.9	119.9	115.9	106.6	107.2	101.1	101.2
	C.V.(%)	5.368	5.533	3.385	2.712	5.887	5.736	4.255	4.692	4.960	5.264
	No. Specimens	18		18		18		18		18	
	No. Prepreg Lots	3		3		3		3		3	
SSB1, Proc. C Ultimate Strength [ksi]	Mean	158.7	156.5	136.1	134.6	115.6	114.4	103.7	102.4	95.16	94.12
	Minimum	148.1	148.7	127.8	128.8	106.6	103.5	96.88	94.05	88.57	86.74
	Maximum	169.0	167.6	144.9	139.9	123.1	120.4	109.2	108.7	101.6	101.8
	C.V.(%)	3.451	3.479	3.324	2.483	4.246	3.924	3.522	3.851	4.329	4.914
	No. Specimens	18		18		18		18		18	
	No. Prepreg Lots	3		3		3		3		3	
SSB1, Proc. C Chord Stiffness [Msi]	Mean	1.333	1.280	1.539	1.520	1.159	1.146	1.128	1.114	1.148	1.134
	Minimum	1.124	1.128	1.260	1.263	1.014	1.019	1.001	0.964	1.045	1.036
	Maximum	2.122	1.565	1.902	1.837	1.371	1.378	1.231	1.219	1.390	1.343
	C.V.(%)	16.79	8.724	14.27	12.81	8.977	8.441	5.351	6.025	7.344	6.641
	No. Specimens	18		18		18		18		18	
	No. Prepreg Lots	3		3		3		3		3	

2.5.30 "10/80/10" Single-Shear Bearing 2, Proc. C Properties (SSB2)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%		**Single-Shear Bearing 2, Proc. C**
Resin content:	37.54 %wt	**Comp. density:** 1.530 g/cc	Solvay EP2190 T650 3K PW Fabric RC 37%
Fiber volume:	53.98 %vol		[45/45/0/45/45]2S
Ply count:	20		

Test method: ASTM D5961-17, Procedure C

Normalized by: 0.0079 in. CPT

		RTA		ETW1		ETW2		ETW3			
Test Temperature [°F]		75		180		225		250			
Moisture Conditioning		Ambient		Equilibrium		Equilibrium		Equilibrium			
Equilibrium at T, RH				160F, 85%RH		160F, 85%RH		160F, 85%RH			
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		SSB2-X-CX-1-RTA-X		SSB2-X-CX-1-ETW1-X		SSB2-X-CX-1-ETW2-X		SSB2-X-CX-1-ETW3-X			
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured		
SSB2, Proc. C 2% Offset Strength [ksi]	Mean	111.4	110.7	100.5	100.0	93.13	92.65	86.89	86.47		
	Minimum	105.4	105.2	91.74	92.68	88.69	87.57	73.44	71.98		
	Maximum	116.3	116.3	106.2	104.8	99.75	96.81	91.34	91.40		
	C.V.(%)	2.615	3.202	3.530	3.158	3.228	2.923	4.636	5.035		
	No. Specimens	18		18		18		18			
	No. Prepreg Lots	3		3		3		3			
SSB2, Proc. C Ultimate Strength [ksi]	Mean	129.7	128.8	112.3	111.7	101.5	101.0	93.05	92.59		
	Minimum	124.0	124.0	102.4	102.8	95.90	95.08	83.78	82.12		
	Maximum	135.3	133.0	118.3	117.1	108.8	109.0	98.59	100.2		
	C.V.(%)	2.395	2.032	3.203	2.956	2.953	3.050	4.122	4.242		
	No. Specimens	18		18		18		18			
	No. Prepreg Lots	3		3		3		3			
SSB2, Proc. C Chord Stiffness [Msi]	Mean	1.032	1.024	0.9103	0.9052	0.8793	0.8745	0.8791	0.8747		
	Minimum	0.8880	0.8880	0.7485	0.7260	0.7381	0.7390	0.7765	0.7780		
	Maximum	1.218	1.201	1.148	1.130	1.057	1.039	1.312	1.311		
	C.V.(%)	10.53	9.466	10.77	10.46	8.563	8.009	13.61	13.66		
	No. Specimens	18		18		18		18			
	No. Prepreg Lots	3		3		3		3			

2.5.31 "40/20/40" Single-Shear Bearing 3, Proc. C Properties (SSB3)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%		**Single-Shear Bearing 3, Proc. C**
			Solvay EP2190 T650 3K PW Fabric RC 37%
Resin content:	37.38 %wt	**Comp. density:** 1.528 g/cc	[0/0/45/0/0/0/45/0/0]S
Fiber volume:	54.06 %vol		
Ply count:	20		
Test method:	ASTM D5961-17, Procedure C		
Normalized by:	0.0079	in. CPT	

		RTA		ETW1		ETW2		ETW3			
Test Temperature [°F]		75		180		225		250			
Moisture Conditioning		Ambient		Equilibrium		Equilibrium		Equilibrium			
Equilibrium at T, RH				160F, 85%RH		160F, 85%RH		160F, 85%RH			
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		SSB3-X-CX-1-RTA-X		SSB3-X-CX-1-ETW1-X		SSB3-X-CX-1-ETW2-X		SSB3-X-CX-1-ETW3-X			
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured		
SSB3, Proc. C 2% Offset Strength [ksi]	Mean	102.7	102.4	93.01	92.61	85.90	85.59	77.60	77.31		
	Minimum	95.22	93.27	85.79	85.74	79.10	79.50	69.66	69.79		
	Maximum	110.8	111.8	103.8	104.2	93.73	93.85	85.57	86.11		
	C.V.(%)	4.516	5.121	5.444	5.254	4.586	4.749	6.256	5.885		
	No. Specimens	18		18		18		18			
	No. Prepreg Lots	3		3		3		3			
SSB3, Proc. C Ultimate Strength [ksi]	Mean	124.5	124.0	104.2	103.7	94.21	93.86	87.20	86.88		
	Minimum	115.7	116.0	96.41	96.35	90.41	90.82	82.43	82.43		
	Maximum	131.1	130.3	110.1	109.9	97.32	97.00	91.36	91.11		
	C.V.(%)	3.625	3.566	3.496	3.145	2.303	2.111	3.385	2.790		
	No. Specimens	18		18		18		18			
	No. Prepreg Lots	3		3		3		3			
SSB3, Proc. C Chord Stiffness [Msi]	Mean	1.252	1.246	1.161	1.156	1.098	1.094	1.069	1.065		
	Minimum	1.083	1.093	1.003	1.003	0.9593	0.9630	0.9613	0.9680		
	Maximum	1.452	1.422	1.259	1.235	1.191	1.202	1.183	1.194		
	C.V.(%)	9.780	8.645	4.767	4.462	5.559	5.572	5.754	5.488		
	No. Specimens	18		18		18		18			
	No. Prepreg Lots	3		3		3		3			

2.5.32 "25/50/25" Compression After Impact 1 Properties (CAI1)

Material:	Solvay EP2190 T650 3K PW Fabric RC 37%		**Compression After Impact 1** Solvay EP2190 T650 3K PW Fabric RC 37% [45/90/-45/0]3S						
Resin content:	37.37 %wt Comp. density: 1.539 g/cc								
Fiber volume:	54.47 %vol								
Ply count:	24								
Test method:	ASTM D7136-15/ D7137-17								
Normalized by:	0.0079 in. CPT								
		RTA		**ETA2**		**ETW1**		**ETW2**	
Test Temperature [°F]		75		225		180		225	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F, 85%RH		160F, 85%RH	
Source code for Phase 1:		TR8XXXXXX-PX-CAI1-X-CX-RTA-X							
Source code for Phase 2 & 3, prefixed by: NTP2191Q1-WRX-PW-SOL-		CAI1-X-CX-1-RTA-X		CAI1-X-CX-1-ETA2-X		CAI1-X-CX-1-ETW1-X		CAI1-X-CX-1-ETW2-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
CAI1 Strength [ksi]	Mean	46.44	45.75	38.40	37.99	37.28	36.79	32.50	32.09
	Minimum	43.13	42.30	36.64	36.05	34.40	34.47	28.71	28.77
	Maximum	50.68	50.10	39.79	39.21	39.92	38.62	36.29	34.80
	C.V.(%)	4.538	4.756	2.936	2.911	4.283	3.806	5.873	5.685
	No. Specimens	18		6		18		18	
	No. Prepreg Lots	3		1		3		3	

3. Individual Test Charts

The material property test charts display a combination of all three batches of data for a particular property as a function of test temperature for ambient and wet test conditions. The average is plotted for each material property and the minimum to maximum range is represented by vertical bars.

Plots for ETA2 and ETW3 have been offset to 230°F (from 225°F) and 255°F (from 250°F) respectively, to improve clarity and readability.

3.1 Warp Tension Properties (WT)

Warp Tension Properties (WT) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

Warp Tension Properties (WT) Modulus--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

3.2 Fill Tension Properties (FT)

Fill Tension Properties (FT) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

Fill Tension Properties (FT) Modulus--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

3.3 Warp Compression Strength Properties (WCS)

Warp Compression Strength Properties (WCS)--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

☓ Ambient Condition
○ Wet Condition

3.4 Warp Compression Modulus Properties (WCM)

Warp Compression Modulus Properties (WCM)--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

☓ Ambient Condition
○ Wet Condition

3.5 Fill Compression Strength Properties (FCS)

Fill Compression Strength Properties (FCS)--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

3.6 Fill Compression Modulus Properties (FCM)

Fill Compression Modulus Properties (FCM)--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

3.7 In-Plane Shear Properties (IPS)

In-Plane Shear (IPS) Ultimate Strength--Measured
Solvay EP2190 T650 3K PW Fabric RC 37%

X Ambient Condition
O Wet Condition

In-Plane Shear (IPS) Modulus--Measured
Solvay EP2190 T650 3K PW Fabric RC 37%

X Ambient Condition
O Wet Condition

3.8 0° Flexural Proc. A Properties (0FLEX)

0° Flexural Proc. A Properties (0FLEX) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

0° Flexural Proc. A Properties (0FLEX) Modulus--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

3.9 90° Flexural Proc. A Properties (90FLEX)

90° Flexural Proc. A Properties (90FLEX) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

90° Flexural Proc. A Properties (90FLEX) Modulus--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

3.10 Lamina Short-Beam Strength Properties (SBS)

Short-Beam Strength (SBS)--Measured
Solvay EP2190 T650 3K PW Fabric RC 37%

3.11 "25/50/25" Unnotched Tension 1 Properties (UNT1)

Laminate Unnotched Tension (UNT1) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

Laminate Unnotched Tension (UNT1) Modulus--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

3.12 "10/80/10" Unnotched Tension 2 Properties (UNT2)

Laminate Unnotched Tension (UNT2) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

X Ambient Condition
O Wet Condition

Strength [ksi] vs *Temperature [°F]*

Laminate Unnotched Tension (UNT2) Modulus--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

X Ambient Condition
O Wet Condition

Modulus [Msi] vs *Temperature [°F]*

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3.13 "40/20/40" Unnotched Tension 3 Properties (UNT3)

Laminate Unnotched Tension (UNT3) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

Strength [ksi]

Temperature [°F]

Laminate Unnotched Tension (UNT3) Modulus--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

Modulus [Msi]

Temperature [°F]

3.14 "25/50/25" Unnotched Compression 1 Properties (UNC1)

**Laminate Unnotched Compression Properties (UNC1) Strength--
Normalized**
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

**Laminate Unnotched Compression Properties (UNC1) Modulus--
Normalized**
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

3.15 "10/80/10" Unnotched Compression 2 Properties (UNC2)

Laminate Unnotched Compression Properties (UNC2) Strength-- Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

X Ambient Condition
O Wet Condition

Laminate Unnotched Compression Properties (UNC2) Modulus-- Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

X Ambient Condition
O Wet Condition

3.16 "40/20/40" Unnotched Compression 3 Properties (UNC3)

Laminate Unnotched Compression Properties (UNC3) Strength-- Normalized

Solvay EP2190 T650 3K PW Fabric RC 37%

X Ambient Condition
O Wet Condition

Laminate Unnotched Compression Properties (UNC3) Modulus-- Normalized

Solvay EP2190 T650 3K PW Fabric RC 37%

X Ambient Condition
O Wet Condition

3.17 "25/50/25" Open-Hole Tension 1 Properties (OHT1)

Laminate Open-Hole Tension (OHT1) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

X Ambient Condition
O Wet Condition

3.18 "10/80/10" Open-Hole Tension 2 Properties (OHT2)

Laminate Open-Hole Tension (OHT2) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

X Ambient Condition
O Wet Condition

3.19 "40/20/40" Open-Hole Tension 3 Properties (OHT3)

Laminate Open-Hole Tension (OHT 3) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%
×Ambient Condition
○Wet Condition

3.20 "25/50/25" Filled-Hole Tension 1 Properties (FHT1)

Laminate Filled-Hole Tension (FHT 1) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%
×Ambient Condition
○Wet Condition

3.21 "10/80/10" Filled-Hole Tension 2 Properties (FHT2)

Laminate Filled-Hole Tension (FHT2) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

X Ambient Condition
O Wet Condition

3.22 "40/20/40" Filled-Hole Tension 3 Properties (FHT3)

Laminate Filled-Hole Tension (FHT3) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

X Ambient Condition
O Wet Condition

3.23 "25/50/25" Open-Hole Compression 1 Properties (OHC1)

3.24 "10/80/10" Open-Hole Compression 2 Properties (OHC2)
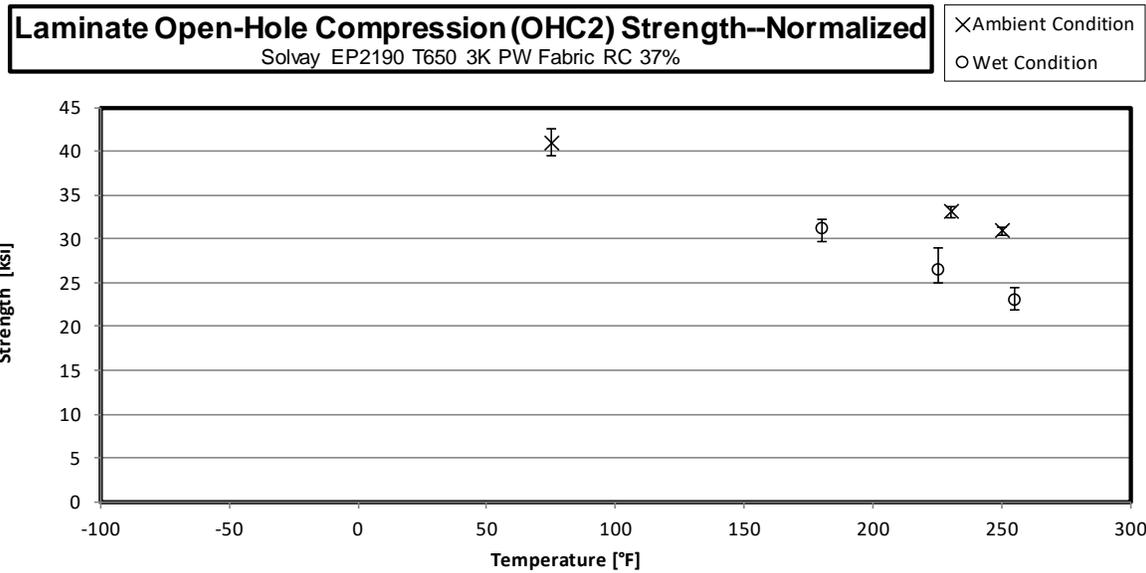
3.25 "40/20/40" Open-Hole Compression 3 Properties (OHC3)

Laminate Open-Hole Compression (OHC3) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

3.26 "25/50/25" Filled-Hole Compression 1 Properties (FHC1)

Laminate Filled-Hole Compression (FHC1) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition
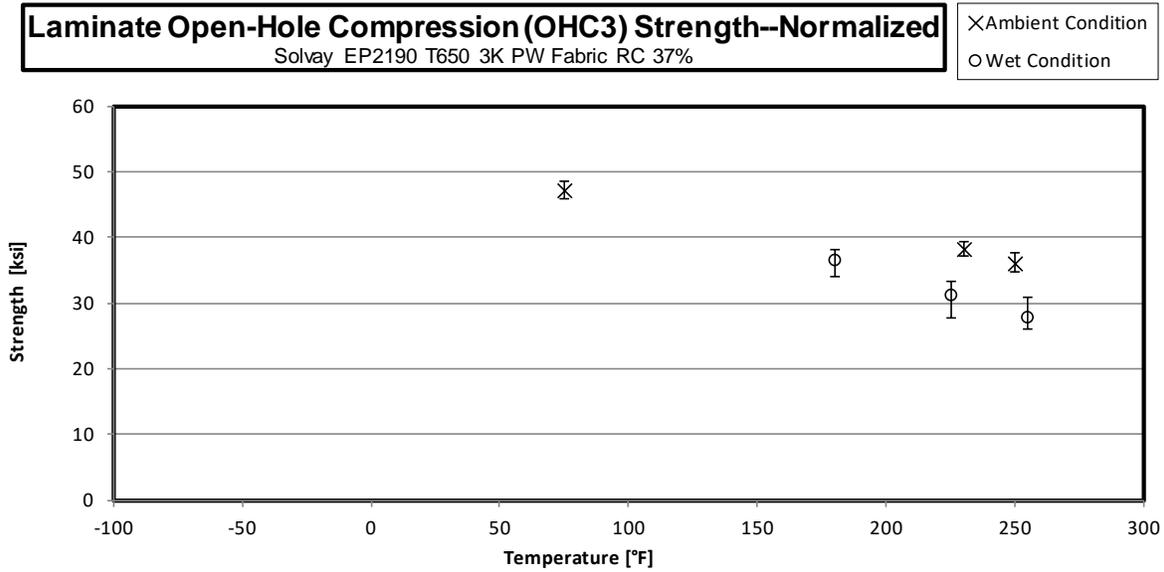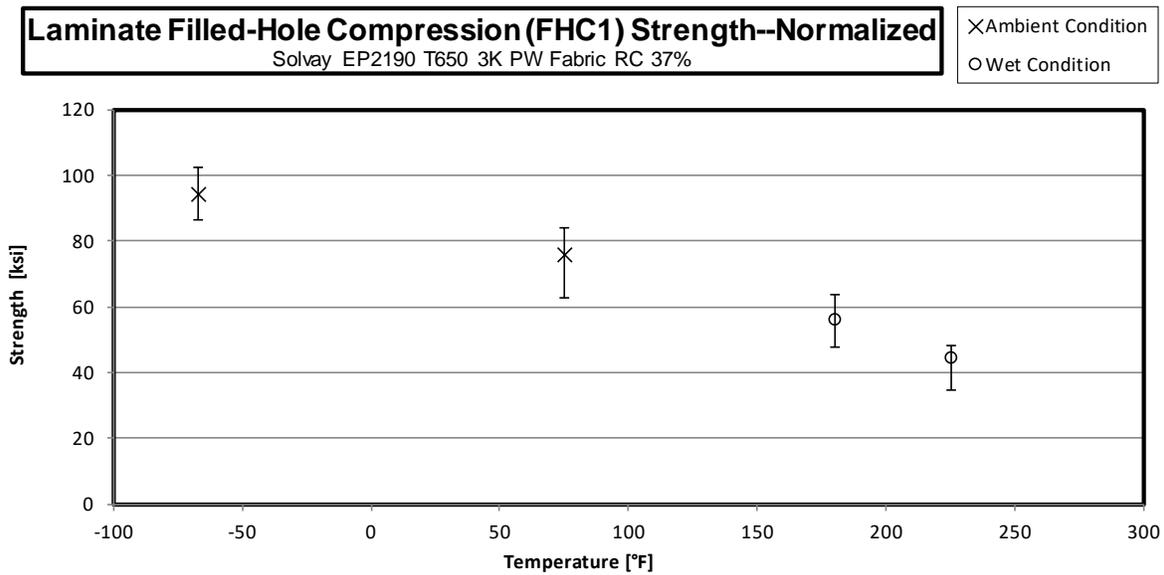
3.27 "10/80/10" Filled-Hole Compression 2 Properties (FHC2)
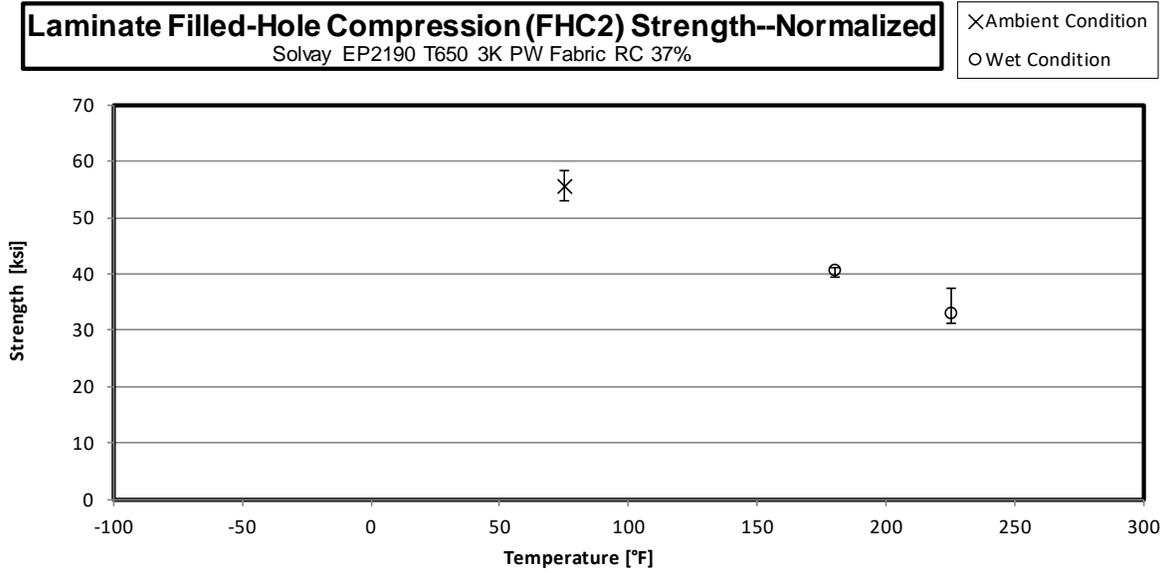
3.28 "40/20/40" Filled-Hole Compression 3 Properties (FHC3)

3.29 "25/50/25" Single-Shear Bearing 1, Proc. C Properties (SSB1)

Laminate Single-Shear Bearing Proc.C Properties (SSB1)
Chord Stiffness--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

3.30 "10/80/10" Single-Shear Bearing 2, Proc. C Properties (SSB2)

Laminate Single-Shear Bearing Proc.C Properties (SSB2)
2% Offset Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

✕ Ambient Condition
○ Wet Condition

Laminate Single-Shear Bearing Proc.C Properties (SSB2)
Ultimate Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

Laminate Single-Shear Bearing Proc.C Properties (SSB2)
Chord Stiffness--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

3.31 "40/20/40" Single-Shear Bearing 3, Proc. C Properties (SSB3)

Laminate Single-Shear Bearing Proc.C Properties (SSB3)
Chord Stiffness--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

X Ambient Condition
O Wet Condition

Chord Stiffness [Msi] vs *Temperature [°F]*

3.32 "25/50/25" Compression After Impact 1 Properties (CAI1)

Laminate Compression After Impact (CAI1) Strength--Normalized
Solvay EP2190 T650 3K PW Fabric RC 37%

X Ambient Condition
O Wet Condition

Strength [ksi] vs *Temperature [°F]*

4. Raw Data

4.1 Warp Tension Properties (WT)

Warp Tension Properties (WT)--CTA(-67°F) Strength & Modulus Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8097908-P3-WT-A-C1-CTA-1	A	C1	1	1	109.8	9.279	0.05900	0.08020	10	LAB		0.0080	111.4	9.420
TR8097908-P3-WT-A-C1-CTA-2	A	C1	1	1	120.0	9.370	0.05300	0.08020	10	LGM		0.0080	121.9	9.512
TR8097908-P3-WT-A-C1-CTA-3	A	C1	1	1	122.9	9.260	0.05200	0.08050	10	LGV		0.0081	125.2	9.436
TR8097908-P3-WT-A-C1-CTA-4	A	C1	1	1	113.1	9.286	0.06200	0.08060	10	LAB		0.0081	115.4	9.474
TR8097908-P3-WT-A-C1-CTA-5	A	C1	1	1	119.1	9.473	0.07100	0.08000	10	LGM		0.0080	120.6	9.593
TR8097908-P3-WT-A-C1-CTA-6	A	C1	1	1	108.5	9.377	0.05700	0.08050	10	LGM		0.0081	110.5	9.555
TR8345607-P2-WT-B-C1-CTA-1	B	C1	2	1	109.0	9.348	0.06600	0.08110	10	LGV		0.0081	111.9	9.596
TR8345607-P2-WT-B-C1-CTA-2	B	C1	2	1	110.2	9.321	0.05600	0.08140	10	LGV		0.0081	113.5	9.604
TR8345607-P2-WT-B-C1-CTA-3	B	C1	2	1	108.0	9.382	0.05700	0.08110	10	LGB		0.0081	110.9	9.631
TR8345607-P2-WT-B-C1-CTA-4	B	C1	2	1	108.2	9.302	0.06800	0.08140	10	LGV		0.0081	111.5	9.585
TR8345607-P2-WT-B-C1-CTA-5	B	C1	2	1	114.5	9.345	0.05600	0.08120	10	LGV		0.0081	117.7	9.605
TR8345607-P2-WT-B-C1-CTA-6	B	C1	2	1	103.2	9.227	0.05600	0.08150	10	LGM		0.0082	106.4	9.519
TR8346132-P2-WT-C-C1-CTA-1	C	C1	3	1	125.0	9.507	0.05700	0.07950	10	LVV		0.0080	125.8	9.567
TR8346132-P2-WT-C-C1-CTA-2	C	C1	3	1	112.5	9.397	0.05700	0.07950	10	LVV		0.0080	113.3	9.456
TR8346132-P2-WT-C-C1-CTA-3	C	C1	3	1	115.8	9.515	0.05800	0.07960	10	LVV		0.0080	116.7	9.587
TR8346132-P1-WT-C-C1-CTA-4	C	C1	3	1	115.8	9.503	0.04900	0.07940	10	LVV		0.0079	116.4	9.551
TR8346132-P1-WT-C-C1-CTA-5	C	C1	3	1	111.3	9.478	0.05600	0.07940	10	LVV		0.0079	111.8	9.526
TR8346132-P1-WT-C-C1-CTA-6	C	C1	3	1	109.6	9.513	0.05600	0.07960	10	LVV		0.0080	110.4	9.585
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-CTA-1	D	C1	4	1	110.0	9.718	0.06000	0.07930	10	LAV		0.0079	110.4	9.755
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-CTA-2	D	C1	4	1	121.6	9.680	0.05900	0.07910	10	LAB		0.0079	121.7	9.692
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-CTA-3	D	C1	4	1	121.2	9.685	0.05900	0.07870	10	LAT		0.0079	120.7	9.648
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-CTA-1	D	C2	4	2	110.6	9.528	0.06900	0.07990	10	LAV		0.0080	111.9	9.637
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-CTA-2	D	C2	4	2	108.1	9.803	0.07300	0.07900	10	LAV		0.0079	108.1	9.803
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-CTA-3	D	C2	4	2	104.7	9.748	0.06700	0.07880	10	LAB		0.0079	104.4	9.723

				Average	113.0	9.460	0.05971			Average$_{norm}$	0.0080	114.5	9.586	
				Standard Dev.	5.935	0.1660	0.006182			Standard Dev.$_{norm}$		5.737	0.09569	
				Coeff. of Var. [%]	5.251	1.754	10.35			Coeff. of Var. [%]$_{norm}$		5.009	0.9982	
				Min.	103.2	9.227	0.04900			Min.	0.0079	104.4	9.420	
				Max.	125.0	9.803	0.07300			Max.	0.0082	125.8	9.803	
				Number of Spec.	24	24	24			Number of Spec.	24	24	24	

Warp Tension Properties (WT)--CTA(-67°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Cure Cycle #
Prepreg Lot #

X-axis: Warp Tension Strength [ksi]
Left Y-axis: Cure Cycle #
Right Y-axis: Prepreg Lot #

Warp Tension Properties (WT)--CTA(-67°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

Cure Cycle #
Prepreg Lot #

X-axis: Warp Tension Modulus [Msi]
Left Y-axis: Cure Cycle #
Right Y-axis: Prepreg Lot #
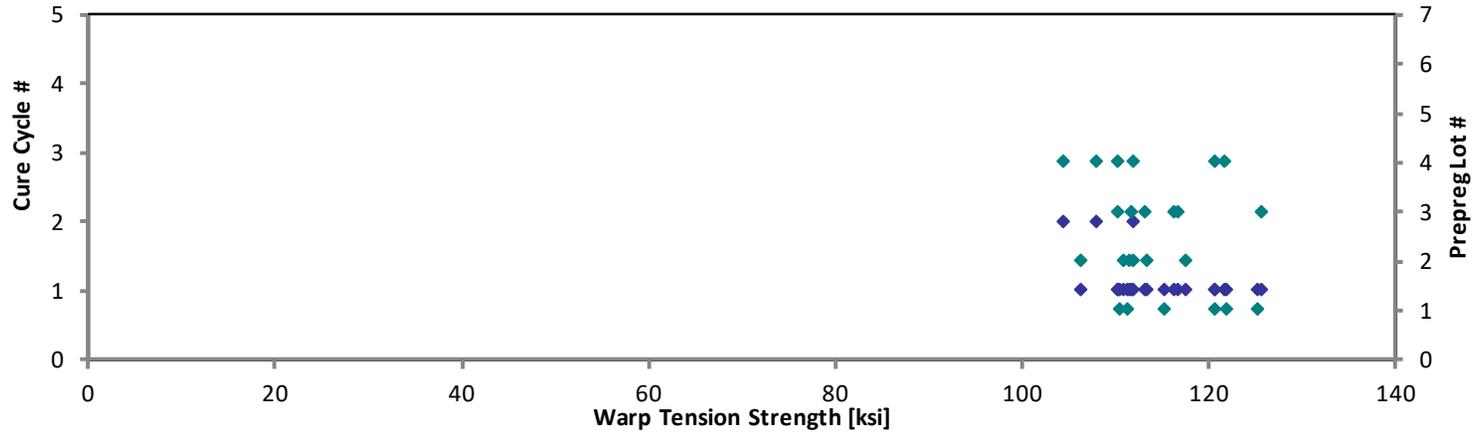
Warp Tension Properties (WT)--RTA(75°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8097908-P3-WT-A-C1-RTA-1	A	C1	1	1	135.6	9.228	0.05400	0.08050	10	LGT	0.0081	138.1	9.403
TR8097908-P3-WT-A-C1-RTA-2	A	C1	1	1	125.6	9.424	0.04800	0.08040	10	LGT	0.0080	127.8	9.591
TR8097908-P3-WT-A-C1-RTA-4	A	C1	1	1	118.8	9.334	0.05200	0.08070	10	LGT	0.0081	121.3	9.535
TR8097908-P3-WT-A-C1-RTA-5	A	C1	1	1	122.9	9.319	0.06800	0.08030	10	LGB	0.0080	124.9	9.472
TR8097908-P3-WT-A-C1-RTA-6	A	C1	1	1	127.2	9.410	0.07000	0.08060	10	LGT	0.0081	129.8	9.601
TR8097908-P3-WT-A-C1-RTA-7	A	C1	1	1	127.0	9.268	0.06100	0.08070	10	LGV	0.0081	129.8	9.467
TR8345607-P2-WT-B-C1-RTA-1	B	C1	2	1	129.5	9.341	0.05100	0.08130	10	LGM	0.0081	133.2	9.613
TR8345607-P1-WT-B-C1-RTA-2	B	C1	2	1	136.1	9.429	0.05300	0.08170	10	LGV	0.0082	140.8	9.751
TR8345607-P1-WT-B-C1-RTA-3	B	C1	2	1	131.1	9.277	0.04900	0.08120	10	LGV	0.0081	134.8	9.535
TR8345607-P1-WT-B-C1-RTA-4	B	C1	2	1	131.1	9.270	0.05900	0.08130	10	LGT	0.0081	134.9	9.540
TR8345607-P1-WT-B-C1-RTA-5	B	C1	2	1	121.7	9.235	0.05700	0.08090	10	LGV	0.0081	124.6	9.457
TR8345607-P1-WT-B-C1-RTA-6	B	C1	2	1	122.7	9.323	0.05700	0.08130	10	LGV	0.0081	126.3	9.594
TR8346132-P2-WT-C-C1-RTA-1	C	C1	3	1	130.5	9.458	0.04600	0.07950	10	LAB/LAT	0.0080	131.3	9.518
TR8346132-P2-WT-C-C1-RTA-2	C	C1	3	1	127.7	9.387	0.04500	0.07950	10	LGT/LGB	0.0080	128.5	9.446
TR8346132-P2-WT-C-C1-RTA-3	C	C1	3	1	107.1	9.432	0.04600	0.07970	10	LGT	0.0080	108.1	9.516
TR8346132-P2-WT-C-C1-RTA-4	C	C1	3	1	130.6	9.552	0.04300	0.07980	10	LGT	0.0080	131.9	9.649
TR8346132-P2-WT-C-C1-RTA-5	C	C1	3	1	122.4	9.455	0.04600	0.08000	10	LGT/LGB	0.0080	124.0	9.575
TR8346132-P1-WT-C-C1-RTA-6	C	C1	3	1	121.8	9.533	0.03900	0.07970	10	LGM	0.0080	122.9	9.617
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-RTA-1	D	C1	4	1	131.1	9.505	0.04500	0.07870	10	LAV	0.0079	130.6	9.469
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-RTA-2	D	C1	4	1	130.9	9.601	0.04600	0.07900	10	LAV	0.0079	130.9	9.601
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-RTA-3	D	C1	4	1	127.4	9.610	0.04300	0.07900	10	LAV	0.0079	127.4	9.610
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-RTA-1	D	C2	4	2	128.1	9.531	0.07100	0.07950	10	LGV	0.0080	128.9	9.591
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-RTA-2	D	C2	4	2	120.1	9.352	0.06800	0.07980	10	LAV	0.0080	121.3	9.447
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-RTA-3	D	C2	4	2	125.1	9.307	0.05000	0.07920	10	LGV	0.0079	125.4	9.331

Average	126.3	9.399	0.05279
Standard Dev.	6.158	0.1142	0.009255
Coeff. of Var. [%]	4.875	1.215	17.53
Min.	107.1	9.228	0.03900
Max.	136.1	9.610	0.07100
Number of Spec.	24	24	24

Average$_{norm}$	0.0080	128.2	9.539
Standard Dev.$_{norm}$		6.575	0.09145
Coeff. of Var. [%]$_{norm}$		5.128	0.9588
Min.	0.0079	108.1	9.331
Max.	0.0082	140.8	9.751
Number of Spec.	24	24	24

Warp Tension Properties (WT)--RTA(75°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Warp Tension Strength [ksi]

Warp Tension Properties (WT)--RTA(75°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%
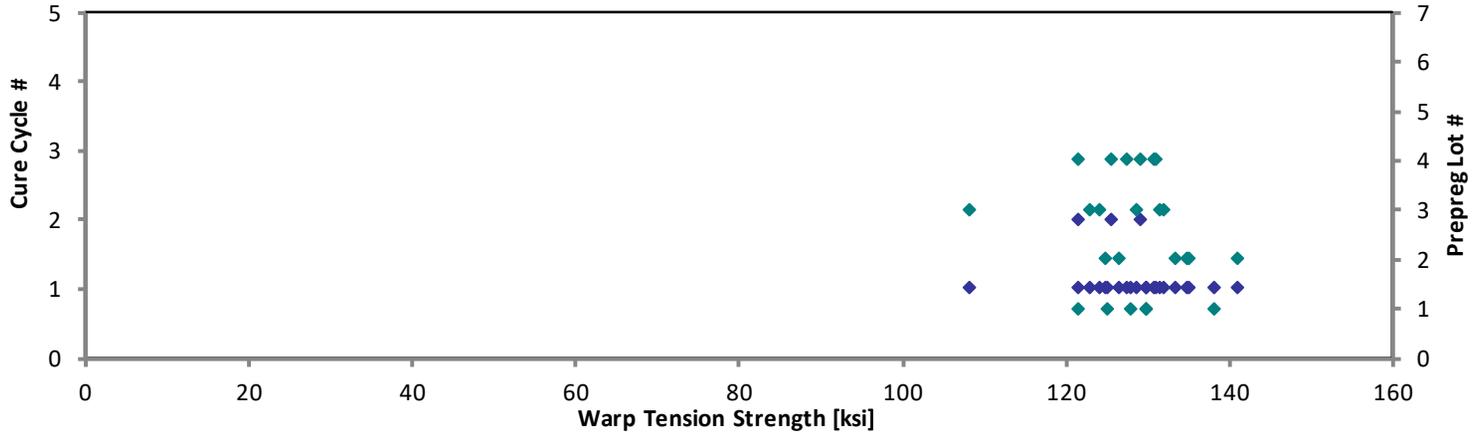
◆ Cure Cycle #

◆ Prepreg Lot #

Warp Tension Modulus [Msi]

<table>
<tr><td colspan="11">**Warp Tension Properties (WT)--ETA3(250°F)**
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td colspan="3">normalizing
t_{ply} [in]
0.0079</td></tr>
</table>

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8097908-P2-WT-A-C1-ETA3-1	A	C1	1	1	119.2	9.610	0.06100	0.08020	10	LGV	0.0080	121.0	9.756
TR8097908-P2-WT-A-C1-ETA3-2	A	C1	1	1	121.5	10.29	0.05100	0.08020	10	LGB	0.0080	123.3	10.45
TR8097908-P2-WT-A-C1-ETA3-3	A	C1	1	1	121.0	10.16	0.05600	0.08020	10	LGV	0.0080	122.9	10.32
TR8097908-P2-WT-A-C1-ETA3-4	A	C1	1	1	116.3	9.777	0.05200	0.08000	10	LGT	0.0080	117.8	9.901
TR8097908-P2-WT-A-C1-ETA3-5	A	C1	1	1	114.7	9.905	0.06900	0.08080	10	LGM	0.0081	117.3	10.13
TR8097908-P2-WT-A-C1-ETA3-6	A	C1	1	1	116.4	9.608	0.05100	0.08040	10	LGV	0.0080	118.4	9.778
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-ETA3-1	D	C1	4	1	133.5	9.745	0.03900	0.07870	10	MGV	0.0079	133.0	9.708
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-ETA3-2	D	C1	4	1	123.6	9.671	0.03300	0.07840	10	MGV	0.0078	122.6	9.598
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-ETA3-3	D	C1	4	1	126.8	9.785	0.03300	0.07830	10	MGM	0.0078	125.7	9.698
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-ETA3-1	D	C2	4	2	122.4	9.584	0.05300	0.07840	10	MGV	0.0078	121.5	9.511
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-ETA3-2	D	C2	4	2	128.8	9.569	0.06600	0.07890	10	MGV	0.0079	128.6	9.557
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-ETA3-3	D	C2	4	2	133.4	9.611	0.08000	0.07870	10	LGV	0.0079	132.9	9.575
NTP2191Q1-WRX-PW-SOL-WT-E-C1-1-ETA3-1	E	C1	5	1	127.1	9.364	0.05100	0.08120	10	MGV	0.0081	130.6	9.625
NTP2191Q1-WRX-PW-SOL-WT-E-C1-1-ETA3-2	E	C1	5	1	125.9	9.317	0.04200	0.08130	10	MGV	0.0081	129.6	9.588
NTP2191Q1-WRX-PW-SOL-WT-E-C1-1-ETA3-3	E	C1	5	1	127.0	9.475	0.05800	0.08120	10	LGT	0.0081	130.6	9.739
NTP2191Q1-WRX-PW-SOL-WT-E-C2-1-ETA3-1	E	C2	5	2	127.9	9.347	0.04400	0.08120	10	LAV	0.0081	131.4	9.607
NTP2191Q1-WRX-PW-SOL-WT-E-C2-1-ETA3-2	E	C2	5	2	124.2	9.403	0.04500	0.08240	10	LAV	0.0082	129.6	9.808
NTP2191Q1-WRX-PW-SOL-WT-E-C2-1-ETA3-3	E	C2	5	2	125.7	9.309	0.04100	0.08230	10	LGM	0.0082	131.0	9.698

	Strength [ksi]	Modulus [Msi]	Poisson's Ratio		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
Average	124.2	9.641	0.05139	**Average$_{norm}$**	0.0080	126.0	9.780
Standard Dev.	5.394	0.2754	0.01242	**Standard Dev.$_{norm}$**		5.424	0.2636
Coeff. of Var. [%]	4.343	2.857	24.18	**Coeff. of Var. [%]$_{norm}$**		4.305	2.695
Min.	114.7	9.309	0.03300	**Min.**	0.0078	117.3	9.511
Max.	133.5	10.29	0.08000	**Max.**	0.0082	133.0	10.45
Number of Spec.	18	18	18	**Number of Spec.**	18	18	18

Warp Tension Properties (WT)--ETA3(250°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Warp Tension Properties (WT)--ETA3(250°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Warp Tension Properties (WT)--ETW1(180°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-ETW1-1	D	C1	4	1	129.6	9.817	0.04500	0.07880	10	LGV	0.0079	129.2	9.792
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-ETW1-2	D	C1	4	1	122.5	9.779	0.05200	0.07890	10	LGT	0.0079	122.3	9.767
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-ETW1-3	D	C1	4	1	129.0	9.650	0.07200	0.07860	10	LGV	0.0079	128.3	9.601
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-ETW1-1	D	C2	4	2	129.2	9.481	0.06000	0.07980	10	LGV	0.0080	130.5	9.577
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-ETW1-3	D	C2	4	2	132.9	9.752	0.05900	0.07910	10	LGV	0.0079	133.1	9.764
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-ETW1-4	D	C2	4	2	128.5	9.727	0.05900	0.07860	10	LGT	0.0079	127.9	9.678
NTP2191Q1-WRX-PW-SOL-WT-E-C1-1-ETW1-1	E	C1	5	1	131.7	9.507	0.03600	0.08130	10	LGM	0.0081	135.5	9.784
NTP2191Q1-WRX-PW-SOL-WT-E-C1-1-ETW1-2	E	C1	5	1	134.7	9.478	0.03700	0.08110	10	LGV	0.0081	138.3	9.730
NTP2191Q1-WRX-PW-SOL-WT-E-C1-1-ETW1-3	E	C1	5	1	128.2	9.502	0.03500	0.08150	10	LGV	0.0082	132.2	9.803
NTP2191Q1-WRX-PW-SOL-WT-E-C2-1-ETW1-1	E	C2	5	2	116.8	9.253	0.04900	0.08250	10	MGV	0.0083	121.9	9.663
NTP2191Q1-WRX-PW-SOL-WT-E-C2-1-ETW1-2	E	C2	5	2	124.6	9.228	0.05000	0.08270	10	MGV	0.0083	130.4	9.660
NTP2191Q1-WRX-PW-SOL-WT-E-C2-1-ETW1-3	E	C2	5	2	124.8	9.284	0.04700	0.08250	10	MGV	0.0083	130.3	9.695
NTP2191Q1-WRX-PW-SOL-WT-F-C1-1-ETW1-1	F	C1	6	1	136.1	9.800	0.04800	0.07880	10	MGV	0.0079	135.8	9.775
NTP2191Q1-WRX-PW-SOL-WT-F-C1-1-ETW1-2	F	C1	6	1	136.4	9.725	0.04800	0.07840	10	MGV	0.0078	135.4	9.651
NTP2191Q1-WRX-PW-SOL-WT-F-C1-1-ETW1-3	F	C1	6	1	131.0	9.775	0.04100	0.07830	10	LGM	0.0078	129.8	9.688
NTP2191Q1-WRX-PW-SOL-WT-F-C2-1-ETW1-1	F	C2	6	2	129.3	9.847	0.03700	0.07850	10	MGV	0.0079	128.4	9.785
NTP2191Q1-WRX-PW-SOL-WT-F-C2-1-ETW1-2	F	C2	6	2	133.3	9.752	0.03400	0.07870	10	MGV	0.0079	132.8	9.715
NTP2191Q1-WRX-PW-SOL-WT-F-C2-1-ETW1-3	F	C2	6	2	116.9	9.968	0.06100	0.07850	10	LAT	0.0079	116.1	9.905

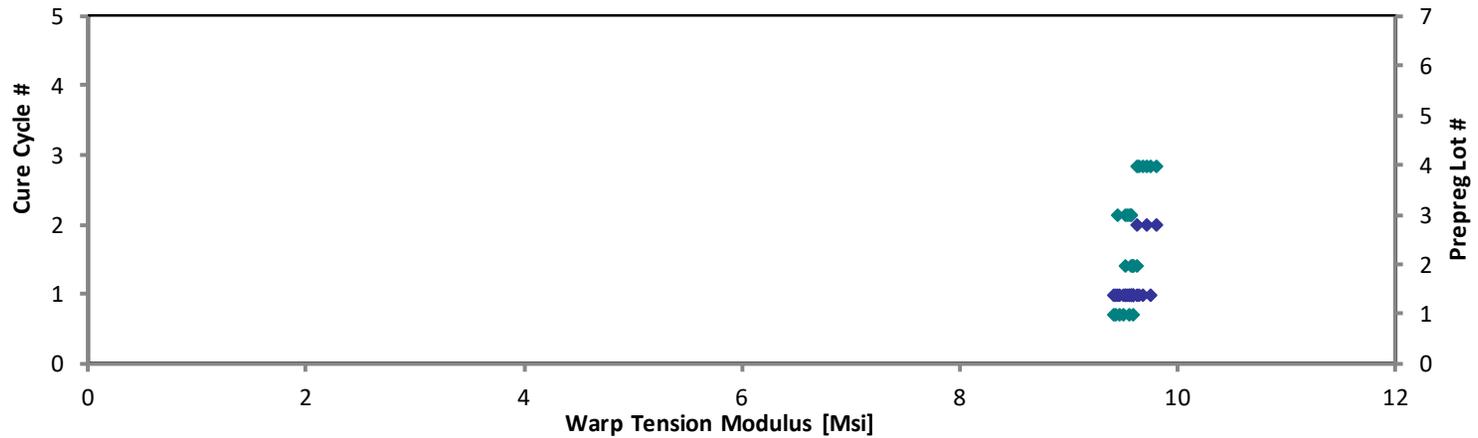|	Strength	Modulus	Poisson's			Avg. t_{ply}	Strength$_{norm}$	Modulus$_{norm}$
Average	128.6	9.629	0.04833	Average$_{norm}$	0.0080	129.9	9.724
Standard Dev.	5.736	0.2193	0.01074	Standard Dev.$_{norm}$		5.484	0.08082
Coeff. of Var. [%]	4.459	2.277	22.22	Coeff. of Var. [%]$_{norm}$		4.221	0.8311
Min.	116.8	9.228	0.03400	Min.	0.0078	116.1	9.577
Max.	136.4	9.968	0.07200	Max.	0.0083	138.3	9.905
Number of Spec.	18	18	18	Number of Spec.	18	18	18

Warp Tension Properties (WT)--ETW1(180°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #
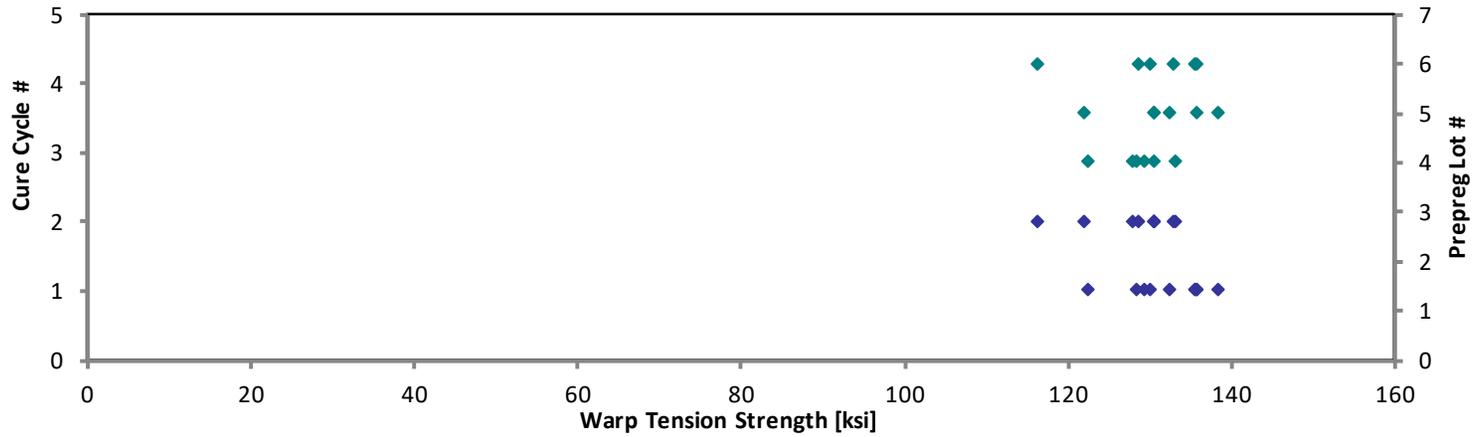
Warp Tension Properties (WT)--ETW1(180°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Warp Tension Properties (WT)--ETW2(225°F)									
Strength & Modulus									
Solvay EP2190 T650 3K PW Fabric RC 37%									

normalizing

t_{ply} [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-ETW2-1	D	C1	4	1	126.0	9.617	0.04100	0.07910	10	LGV	0.0079	126.2	9.629
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-ETW2-2	D	C1	4	1	136.0	9.645	0.05300	0.07880	10	LGV	0.0079	135.6	9.621
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-ETW2-3	D	C1	4	1	120.3	9.815	0.05400	0.07860	10	LGV	0.0079	119.7	9.765
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-ETW2-1	D	C2	4	2	128.9	9.227	0.07700	0.07980	10	LGT	0.0080	130.2	9.320
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-ETW2-2	D	C2	4	2	127.6	9.285	0.03200	0.07930	10	LGV	0.0079	128.1	9.320
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-ETW2-3	D	C2	4	2	133.9	9.605	0.06300	0.07890	10	LGV	0.0079	133.8	9.593
NTP2191Q1-WRX-PW-SOL-WT-E-C1-1-ETW2-1	E	C1	5	1	120.0	9.486	0.02700	0.08120	10	LGT	0.0081	123.3	9.750
NTP2191Q1-WRX-PW-SOL-WT-E-C1-1-ETW2-2	E	C1	5	1	122.9	9.159	0.04100	0.08120	10	LGV	0.0081	126.3	9.414
NTP2191Q1-WRX-PW-SOL-WT-E-C1-1-ETW2-3	E	C1	5	1	129.6	9.120	0.04200	0.08140	10	LGV	0.0081	133.5	9.397
NTP2191Q1-WRX-PW-SOL-WT-E-C2-1-ETW2-1	E	C2	5	2	115.1	9.126	0.07600	0.08280	10	MGV	0.0083	120.7	9.565
NTP2191Q1-WRX-PW-SOL-WT-E-C2-1-ETW2-2	E	C2	5	2	122.5	9.203	0.07000	0.08270	10	MGV	0.0083	128.3	9.634
NTP2191Q1-WRX-PW-SOL-WT-E-C2-1-ETW2-3	E	C2	5	2	116.2	9.038	0.06200	0.08240	10	MGV	0.0082	121.2	9.427
NTP2191Q1-WRX-PW-SOL-WT-F-C1-1-ETW2-1	F	C1	6	1	135.6	9.426	0.04500	0.07840	10	LGT	0.0078	134.6	9.354
NTP2191Q1-WRX-PW-SOL-WT-F-C1-1-ETW2-2	F	C1	6	1	124.2	9.416	0.05200	0.07910	10	MGV	0.0079	124.4	9.428
NTP2191Q1-WRX-PW-SOL-WT-F-C1-1-ETW2-3	F	C1	6	1	130.7	9.491	0.03900	0.07870	10	MGV	0.0079	130.2	9.455
NTP2191Q1-WRX-PW-SOL-WT-F-C2-1-ETW2-1	F	C2	6	2	107.6	9.571	0.03800	0.07840	10	LGT	0.0078	106.7	9.498
NTP2191Q1-WRX-PW-SOL-WT-F-C2-1-ETW2-2	F	C2	6	2	131.6	9.724	0.03200	0.07840	10	MGV	0.0078	130.6	9.650
NTP2191Q1-WRX-PW-SOL-WT-F-C2-1-ETW2-3	F	C2	6	2	116.1	9.737	0.04900	0.07810	10	MGV	0.0078	114.8	9.626

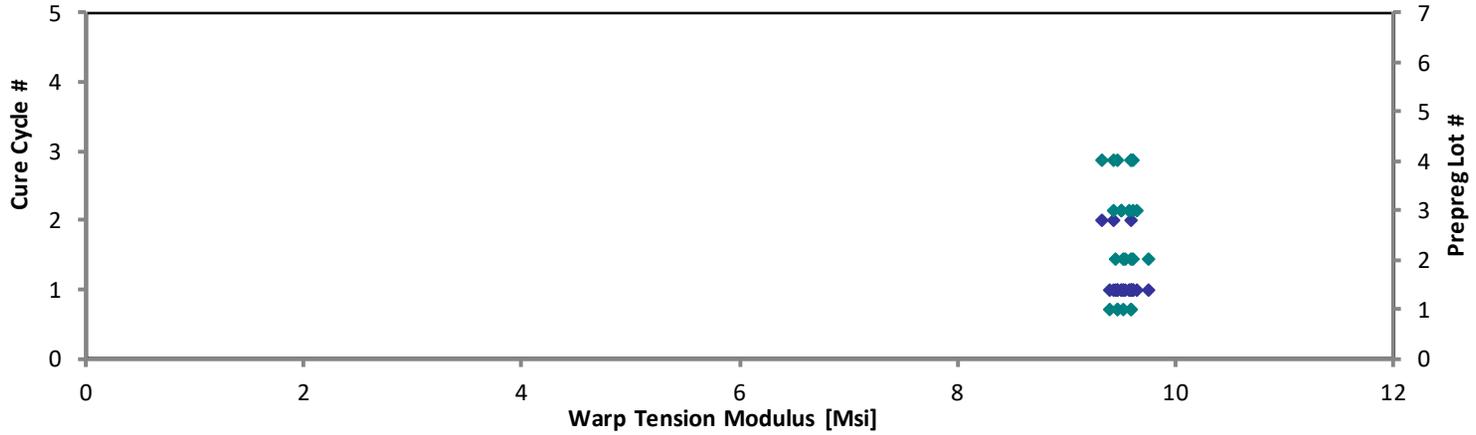|	Strength [ksi]	Modulus [Msi]	Poisson's Ratio			Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
Average	124.7	9.427	0.04961	Average$_{norm}$		0.0080	126.0	9.525
Standard Dev.	7.857	0.2422	0.01503	Standard Dev.$_{norm}$			7.469	0.1411
Coeff. of Var. [%]	6.300	2.569	30.29	Coeff. of Var. [%]$_{norm}$			5.928	1.482
Min.	107.6	9.038	0.02700	Min.		0.0078	106.7	9.320
Max.	136.0	9.815	0.07700	Max.		0.0083	135.6	9.765
Number of Spec.	18	18	18	Number of Spec.		18	18	18

Warp Tension Properties (WT)--ETW2(225°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Warp Tension Properties (WT)--ETW2(225°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #
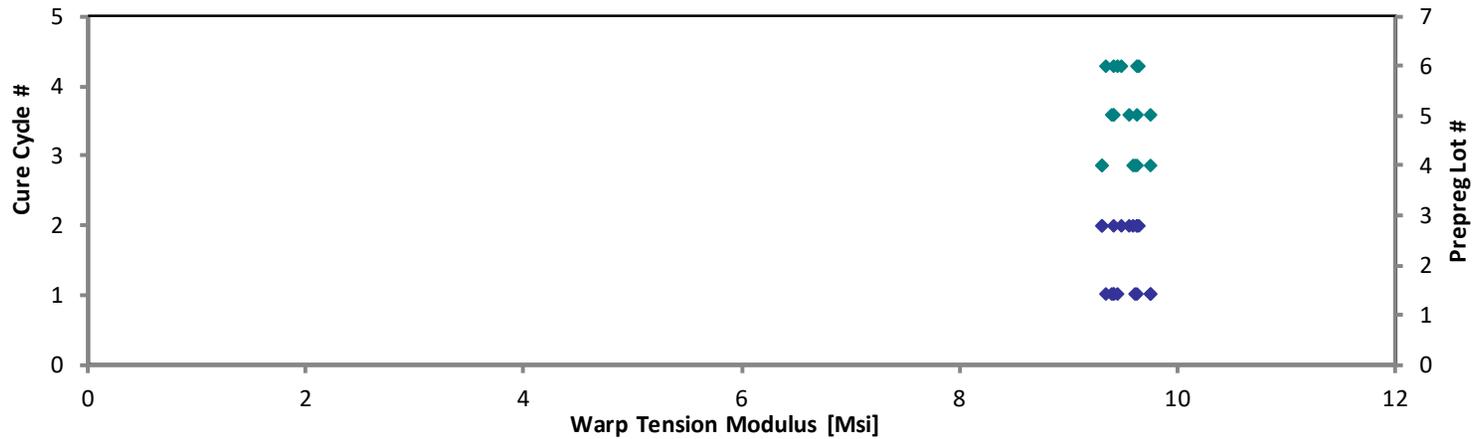
4.2 Fill Tension Properties (FT)

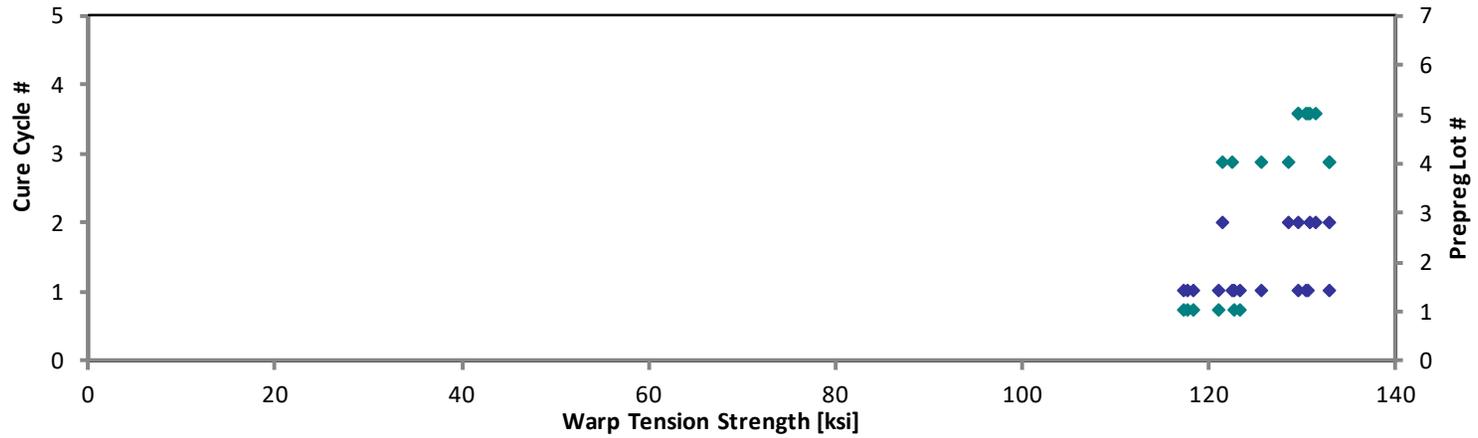| Fill Tension Properties (FT)--CTA(-67°F) |
| :---: |
| Strength & Modulus |
| Solvay EP2190 T650 3K PW Fabric RC 37% |

normalizing

t_{ply} [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8320453-P2-FT-A-C1-CTA-1	A	C1	1	1	109.3	9.194	0.04400	0.08050	10	LGV		0.0081	111.4	9.369
TR8320453-P2-FT-A-C1-CTA-2	A	C1	1	1	103.8	9.416	0.06000	0.07990	10	LAB		0.0080	105.0	9.523
TR8320453-P2-FT-A-C1-CTA-3	A	C1	1	1	103.0	9.293	0.05800	0.08030	10	LGV		0.0080	104.7	9.446
TR8320453-P2-FT-A-C1-CTA-4	A	C1	1	1	111.0	9.300	0.06800	0.08030	10	LAT		0.0080	112.8	9.453
TR8320453-P2-FT-A-C1-CTA-5	A	C1	1	1	102.4	9.134	0.05900	0.08090	10	LGV		0.0081	104.8	9.354
TR8320453-P2-FT-A-C1-CTA-6	A	C1	1	1	103.9	9.228	0.06200	0.08050	10	LGV		0.0081	105.8	9.403
TR8345623-P2-FT-B-C1-CTA-1	B	C1	2	1	100.6	9.234	0.04900	0.08080	10	MVV		0.0081	102.9	9.444
TR8345623-P2-FT-B-C1-CTA-2	B	C1	2	1	106.2	9.128	0.04600	0.08050	10	MVV		0.0081	108.3	9.301
TR8345623-P1-FT-B-C1-CTA-3	B	C1	2	1	112.3	9.316	0.05600	0.08000	10	MVV		0.0080	113.7	9.434
TR8345623-P1-FT-B-C1-CTA-4	B	C1	2	1	110.9	9.324	0.05200	0.08000	10	MVV		0.0080	112.3	9.442
TR8345623-P1-FT-B-C1-CTA-5	B	C1	2	1	111.3	9.253	0.04900	0.08020	10	MVV		0.0080	113.0	9.394
TR8345623-P1-FT-B-C1-CTA-6	B	C1	2	1	107.0	9.105	0.06500	0.08090	10	MVV		0.0081	109.5	9.324
TR8346133-P2-FT-C-C1-CTA-1	C	C1	3	1	110.2	9.458	0.06200	0.07960	10	LGM		0.0080	111.0	9.530
TR8346133-P2-FT-C-C1-CTA-2	C	C1	3	1	110.4	9.522	0.05700	0.08000	10	LGM		0.0080	111.8	9.643
TR8346133-P1-FT-C-C1-CTA-3	C	C1	3	1	115.3	9.528	0.05000	0.07940	10	LGV		0.0079	115.9	9.576
TR8346133-P1-FT-C-C1-CTA-4	C	C1	3	1	116.3	9.576	0.05700	0.07980	10	LAB		0.0080	117.5	9.673
TR8346133-P1-FT-C-C1-CTA-5	C	C1	3	1	105.9	9.549	0.05300	0.07960	10	LAB		0.0080	106.7	9.622
TR8346133-P1-FT-C-C1-CTA-6	C	C1	3	1	112.3	9.612	0.05500	0.07960	10	LAT		0.0080	113.2	9.685
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-CTA-1	D	C1	4	1	105.8	9.725	0.06200	0.07950	10	LAV		0.0080	106.5	9.787
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-CTA-2	D	C1	4	1	110.4	9.744	0.07000	0.07930	10	LAB		0.0079	110.8	9.781
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-CTA-3	D	C1	4	1	106.5	9.699	0.05700	0.07940	10	LAB		0.0079	107.0	9.748
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-CTA-2	D	C2	4	2	96.01	9.513	0.06800	0.07980	10	LAB		0.0080	96.98	9.609
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-CTA-3	D	C2	4	2	99.78	9.419	0.05600	0.07980	10	LAV		0.0080	100.8	9.514
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-CTA-4	D	C2	4	2	91.96	9.491	0.06400	0.08010	10	LAV		0.0080	93.24	9.623

	Strength	Modulus	Poisson's			Avg. t_{ply}	Strength$_{norm}$	Modulus$_{norm}$
Average	106.8	9.407	0.05746	Average$_{norm}$		0.0080	108.2	9.528
Standard Dev.	5.903	0.1927	0.00698	Standard Dev.$_{norm}$			5.829	0.1449
Coeff. of Var. [%]	5.528	2.048	12.16	Coeff. of Var. [%]$_{norm}$			5.390	1.521
Min.	91.96	9.105	0.04400	Min.		0.0079	93.24	9.301
Max.	116.3	9.744	0.07000	Max.		0.0081	117.5	9.787
Number of Spec.	24	24	24	Number of Spec.		24	24	24

Fill Tension Properties (FT)--CTA(-67°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- Cure Cycle #
- Prepreg Lot #

Fill Tension Properties (FT)--CTA(-67°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- Cure Cycle #
- Prepreg Lot #

<table>
<tr><td colspan="11">**Fill Tension Properties (FT)--RTA(75°F)**
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td></td><td colspan="3">normalizing
t_{ply} [in]
0.0079</td></tr>
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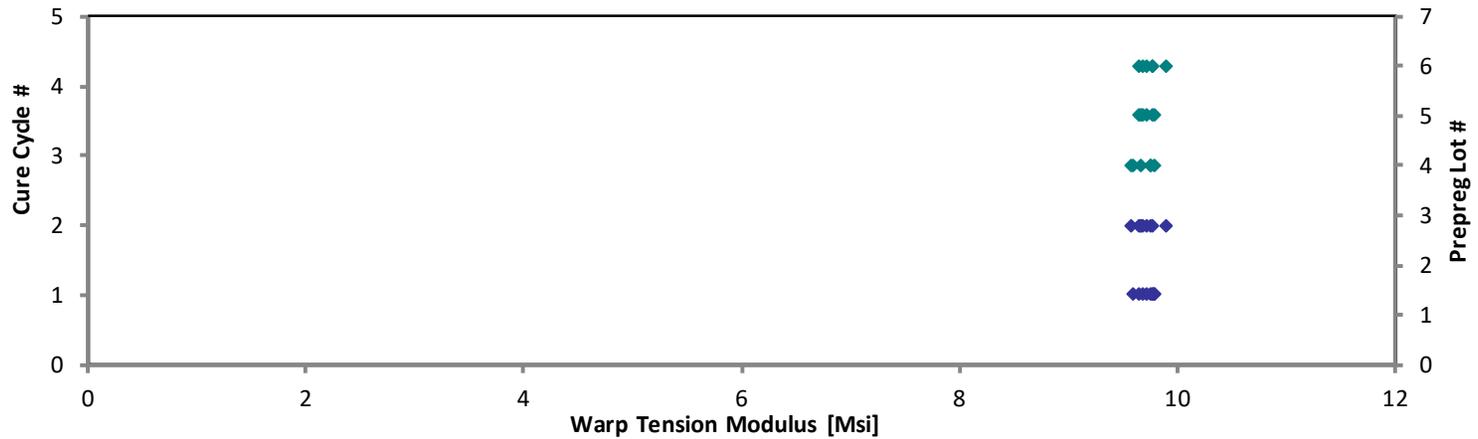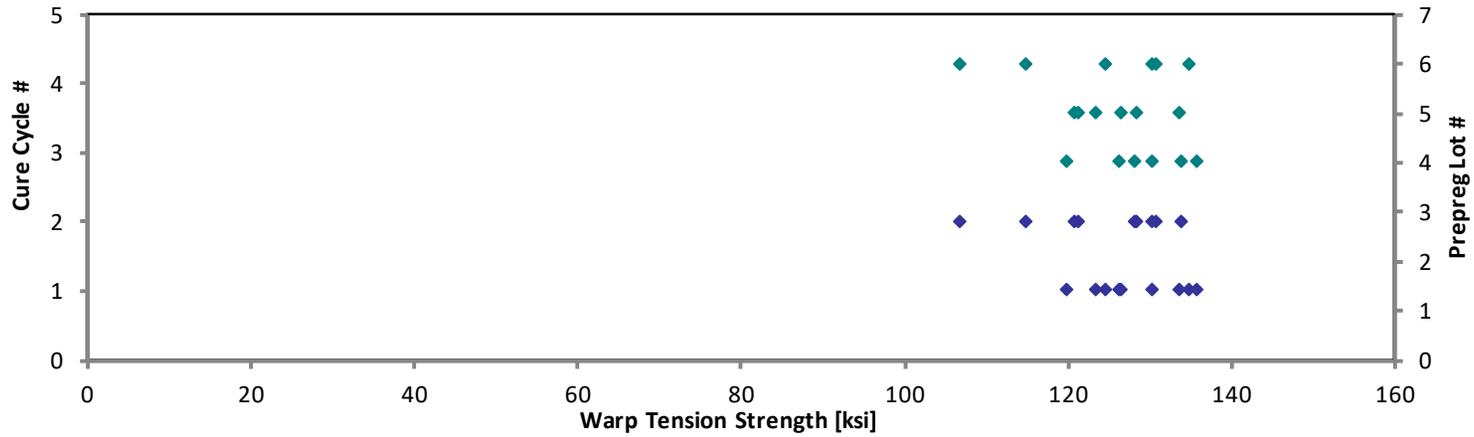| Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8320453-P3-FT-A-C1-RTA-1	A	C1	1	1	119.5	9.143	0.04400	0.07990	10	LGM	0.0080	120.8	9.247
TR8320453-P1-FT-A-C1-RTA-2	A	C1	1	1	129.1	9.066	0.03900	0.08030	10	LGB	0.0080	131.2	9.215
TR8320453-P1-FT-A-C1-RTA-3	A	C1	1	1	124.9	9.144	0.03400	0.08020	10	LGB	0.0080	126.8	9.283
TR8320453-P1-FT-A-C1-RTA-4	A	C1	1	1	120.6	9.046	0.03600	0.07990	10	LAB	0.0080	121.9	9.149
TR8320453-P1-FT-A-C1-RTA-5	A	C1	1	1	122.3	9.169	0.04700	0.07980	10	LGT	0.0080	123.5	9.262
TR8320453-P1-FT-A-C1-RTA-6	A	C1	1	1	115.3	9.147	0.03600	0.07950	10	LGM	0.0080	116.0	9.205
TR8345623-P2-FT-B-C1-RTA-1	B	C1	2	1	117.6	9.038	0.05300	0.08080	10	LGT/LGB	0.0081	120.2	9.244
TR8345623-P2-FT-B-C1-RTA-2	B	C1	2	1	124.8	8.871	0.03700	0.08130	10	LGT/LGB	0.0081	128.5	9.129
TR8345623-P1-FT-B-C1-RTA-3	B	C1	2	1	123.7	9.130	0.03600	0.08120	10	LGT/LGB	0.0081	127.2	9.384
TR8345623-P1-FT-B-C1-RTA-4	B	C1	2	1	111.5	9.117	0.04400	0.08100	10	LGB	0.0081	114.4	9.348
TR8345623-P1-FT-B-C1-RTA-5	B	C1	2	1	111.9	8.923	0.03700	0.08130	10	LGB	0.0081	115.2	9.183
TR8345623-P1-FT-B-C1-RTA-6	B	C1	2	1	111.4	9.022	0.05600	0.08080	10	LGB	0.0081	113.9	9.228
TR8346133-P2-FT-C-C1-RTA-1	C	C1	3	1	122.3	9.520	0.05100	0.07960	10	LGM	0.0080	123.3	9.592
TR8346133-P1-FT-C-C1-RTA-2	C	C1	3	1	122.4	9.363	0.04900	0.07960	10	LGT	0.0080	123.3	9.434
TR8346133-P1-FT-C-C1-RTA-3	C	C1	3	1	123.7	9.396	0.05100	0.07960	10	LGT/LAB	0.0080	124.6	9.467
TR8346133-P1-FT-C-C1-RTA-4	C	C1	3	1	128.0	9.447	0.05100	0.07960	10	LGM	0.0080	129.0	9.519
TR8346133-P1-FT-C-C1-RTA-5	C	C1	3	1	119.3	9.466	0.04200	0.07880	10	LAB	0.0079	119.0	9.442
TR8346133-P1-FT-C-C1-RTA-6	C	C1	3	1	117.6	9.475	0.05900	0.07930	10	LGM	0.0079	118.1	9.511
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-RTA-1	D	C1	4	1	128.9	9.659	0.05000	0.07960	10	LGB	0.0080	129.9	9.732
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-RTA-2	D	C1	4	1	125.5	9.708	0.05400	0.07980	10	LGM	0.0080	126.8	9.806
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-RTA-3	D	C1	4	1	127.4	9.596	0.04200	0.07980	10	LAV	0.0080	128.7	9.693
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-RTA-1	D	C2	4	2	117.9	9.472	0.05000	0.07910	10	LGV	0.0079	118.0	9.484
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-RTA-2	D	C2	4	2	117.2	9.461	0.05000	0.07920	10	LAV	0.0079	117.5	9.485
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-RTA-3	D	C2	4	2	122.4	9.423	0.06600	0.07900	10	LGV	0.0079	122.4	9.423

|	Average	121.0	9.283	0.04642		Average$_{norm}$	0.0080	122.5	9.394
	Standard Dev.	5.272	0.2406	0.008356		Standard Dev.$_{norm}$		5.239	0.1883
	Coeff. of Var. [%]	4.355	2.592	18.002		Coeff. of Var. [%]$_{norm}$		4.276	2.004
	Min.	111.4	8.871	0.03400		Min.	0.0079	113.9	9.129
	Max.	129.1	9.708	0.06600		Max.	0.0081	131.2	9.806
	Number of Spec.	24	24	24		Number of Spec.	24	24	24

Fill Tension Properties (FT)--RTA(75°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Fill Tension Properties (FT)--RTA(75°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #
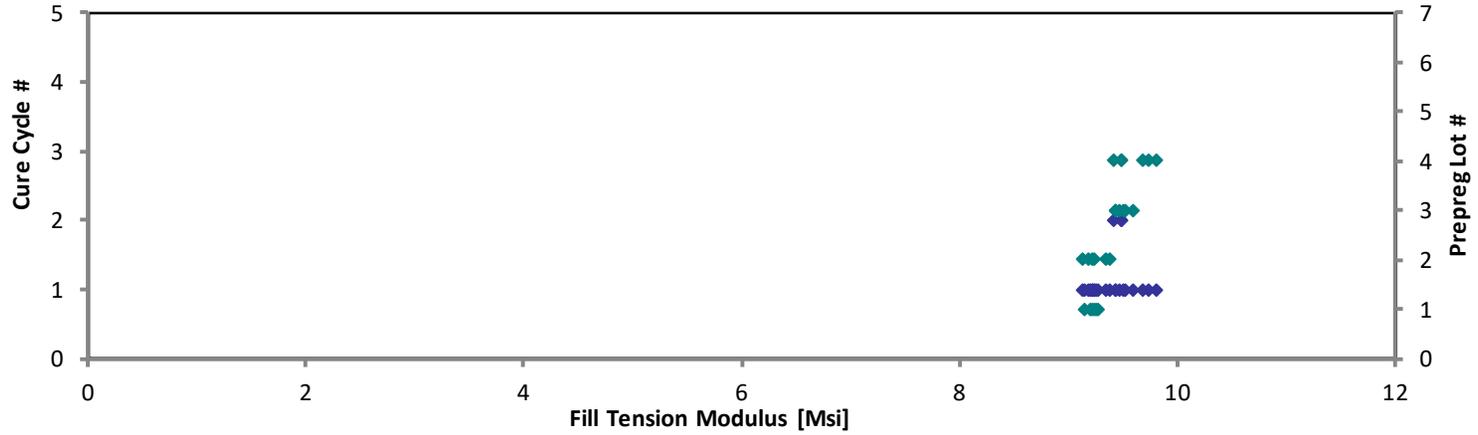
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Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%
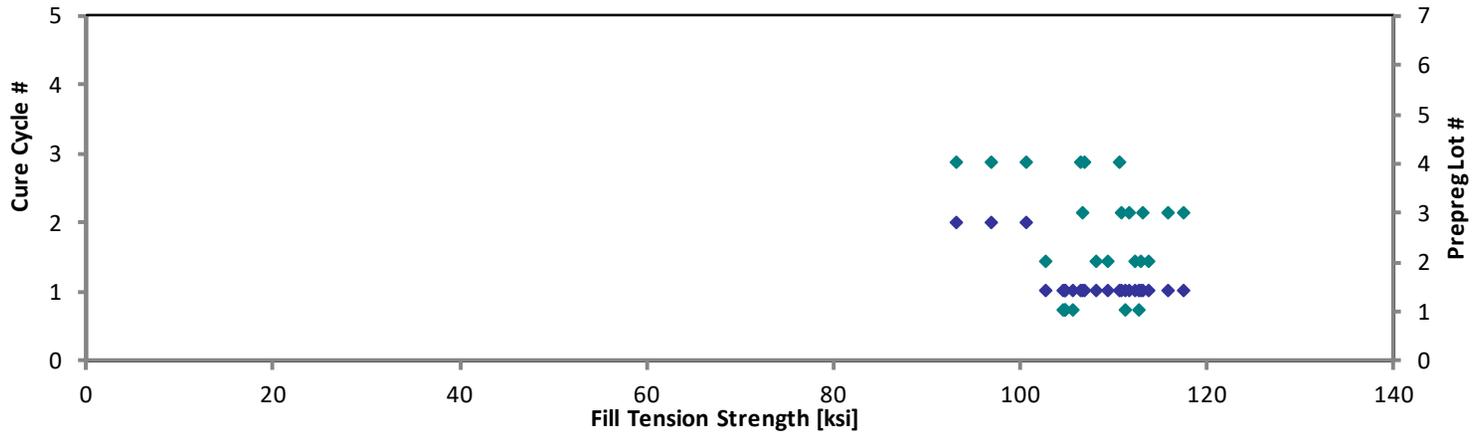
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8320453-P1-FT-A-C1-ETA3-1	A	C1	1	1	119.0	9.964	0.09900	0.08030	10	LGV	0.0080	121.0	10.13
TR8320453-P1-FT-A-C1-ETA3-2	A	C1	1	1	120.6	10.17	0.03200	0.07990	10	LGV	0.0080	121.9	10.28
TR8320453-P1-FT-A-C1-ETA3-3	A	C1	1	1	110.5	9.944	0.06500	0.08000	10	LGM	0.0080	111.9	10.07
TR8320453-P1-FT-A-C1-ETA3-4	A	C1	1	1	110.9	10.14	0.04500	0.08080	10	LGV	0.0081	113.4	10.37
TR8320453-P1-FT-A-C1-ETA3-5	A	C1	1	1	105.1	9.762	0.05400	0.08100	10	LGV	0.0081	107.7	10.01
TR8320453-P1-FT-A-C1-ETA3-6	A	C1	1	1	103.7	10.23	0.05600	0.08030	10	LGT	0.0080	105.4	10.40
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-ETA3-1	D	C1	4	1	124.5	9.688	0.05100	0.07930	10	MGV	0.0079	125.0	9.725
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-ETA3-2	D	C1	4	1	118.5	9.884	0.05700	0.07920	10	MGV	0.0079	118.8	9.909
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-ETA3-3	D	C1	4	1	129.9	9.808	0.04000	0.07920	10	MGV	0.0079	130.3	9.833
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-ETA3-1	D	C2	4	2	120.8	9.563	0.07500	0.08000	10	MGV	0.0080	122.3	9.684
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-ETA3-2	D	C2	4	2	118.6	9.323	0.06100	0.07980	10	MGV	0.0080	119.8	9.417
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-ETA3-3	D	C2	4	2	120.5	9.586	0.04900	0.07940	10	MGV	0.0079	121.2	9.635
NTP2191Q1-WRX-PW-SOL-FT-E-C2-1-ETA3-1	E	C1	5	1	125.1	9.308	0.05400	0.08130	10	LAV	0.0081	128.8	9.579
NTP2191Q1-WRX-PW-SOL-FT-E-C2-1-ETA3-2	E	C1	5	1	123.9	9.307	0.04700	0.08120	10	LAV	0.0081	127.3	9.566
NTP2191Q1-WRX-PW-SOL-FT-E-C2-1-ETA3-3	E	C1	5	1	122.0	9.462	0.05400	0.08110	10	LAV	0.0081	125.2	9.714
NTP2191Q1-WRX-PW-SOL-FT-E-C2-1-ETA3-1	E	C2	5	2	105.9	9.140	0.06000	0.08250	10	LGB	0.0083	110.6	9.545
NTP2191Q1-WRX-PW-SOL-FT-E-C2-1-ETA3-2	E	C2	5	2	110.4	9.232	0.05500	0.08230	10	LAV	0.0082	115.0	9.618
NTP2191Q1-WRX-PW-SOL-FT-E-C2-1-ETA3-3	E	C2	5	2	112.2	9.131	0.04500	0.08230	10	LAV	0.0082	116.9	9.512

	Strength	Modulus	Poisson's				Avg. t_{ply}	Strength$_{norm}$	Modulus$_{norm}$
Average	116.8	9.647	0.05550		Average$_{norm}$		0.0081	119.0	9.833
Standard Dev.	7.659	0.3609	0.01449		Standard Dev.$_{norm}$			7.187	0.3085
Coeff. of Var. [%]	6.558	3.742	26.11		Coeff. of Var. [%]$_{norm}$			6.038	3.138
Min.	103.7	9.131	0.03200		Min.		0.0079	105.4	9.417
Max.	129.9	10.23	0.09900		Max.		0.0083	130.3	10.40
Number of Spec.	18	18	18		Number of Spec.		18	18	18

Fill Tension Properties (FT)--ETA3(250°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Fill Tension Properties (FT)--ETA3(250°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

| Fill Tension Properties (FT)--ETW1(180°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37% | | | |

normalizing

t_{ply} [in]

| 0.0079 |

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-ETW1-1	D	C1	4	1	126.3	9.808	0.04300	0.07940	10	LGV		0.0079	126.9	9.858
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-ETW1-2	D	C1	4	1	124.2	9.848	0.04500	0.07940	10	LGM		0.0079	124.8	9.898
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-ETW1-3	D	C1	4	1	125.7	9.930	0.04400	0.07930	10	LGT		0.0079	126.2	9.968
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-ETW1-1	D	C2	4	2	120.6	9.672	0.04700	0.07940	10	LGV		0.0079	121.2	9.721
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-ETW1-2	D	C2	4	2	119.6	9.625	0.05000	0.07950	10	LGV		0.0080	120.3	9.686
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-ETW1-3	D	C2	4	2	123.2	9.615	0.04400	0.07950	10	LGV		0.0080	123.9	9.676
NTP2191Q1-WRX-PW-SOL-FT-E-C1-1-ETW1-1	E	C1	5	1	123.2	9.296	0.04600	0.08130	10	LGV		0.0081	126.8	9.567
NTP2191Q1-WRX-PW-SOL-FT-E-C1-1-ETW1-2	E	C1	5	1	123.2	9.399	0.04500	0.08120	10	LGV		0.0081	126.6	9.661
NTP2191Q1-WRX-PW-SOL-FT-E-C1-1-ETW1-3	E	C1	5	1	120.6	9.350	0.04600	0.08150	10	LGV		0.0082	124.4	9.646
NTP2191Q1-WRX-PW-SOL-FT-E-C2-1-ETW1-1	E	C2	5	2	112.5	9.410	0.04400	0.08160	10	LGV		0.0082	116.2	9.720
NTP2191Q1-WRX-PW-SOL-FT-E-C2-1-ETW1-2	E	C2	5	2	116.8	9.558	0.03900	0.08140	10	LGV		0.0081	120.3	9.848
NTP2191Q1-WRX-PW-SOL-FT-E-C2-1-ETW1-3	E	C2	5	2	108.1	9.525	0.04800	0.08170	10	LGM		0.0082	111.8	9.851
NTP2191Q1-WRX-PW-SOL-FT-F-C1-1-ETW1-1	F	C1	6	1	130.8	9.929	0.06400	0.07860	10	MGV		0.0079	130.1	9.879
NTP2191Q1-WRX-PW-SOL-FT-F-C1-1-ETW1-2	F	C1	6	1	135.5	9.747	0.04400	0.07900	10	MGV		0.0079	135.5	9.747
NTP2191Q1-WRX-PW-SOL-FT-F-C1-1-ETW1-3	F	C1	6	1	127.1	9.651	0.05400	0.07900	10	MGV		0.0079	127.1	9.651
NTP2191Q1-WRX-PW-SOL-FT-F-C2-1-ETW1-1	F	C2	6	2	123.1	9.423	0.04600	0.07980	10	MGV		0.0080	124.3	9.518
NTP2191Q1-WRX-PW-SOL-FT-F-C2-1-ETW1-2	F	C2	6	2	122.8	9.534	0.05400	0.07960	10	LGM		0.0080	123.7	9.606
NTP2191Q1-WRX-PW-SOL-FT-F-C2-1-ETW1-3	F	C2	6	2	128.9	9.615	0.04100	0.07930	10	MGV		0.0079	129.4	9.652

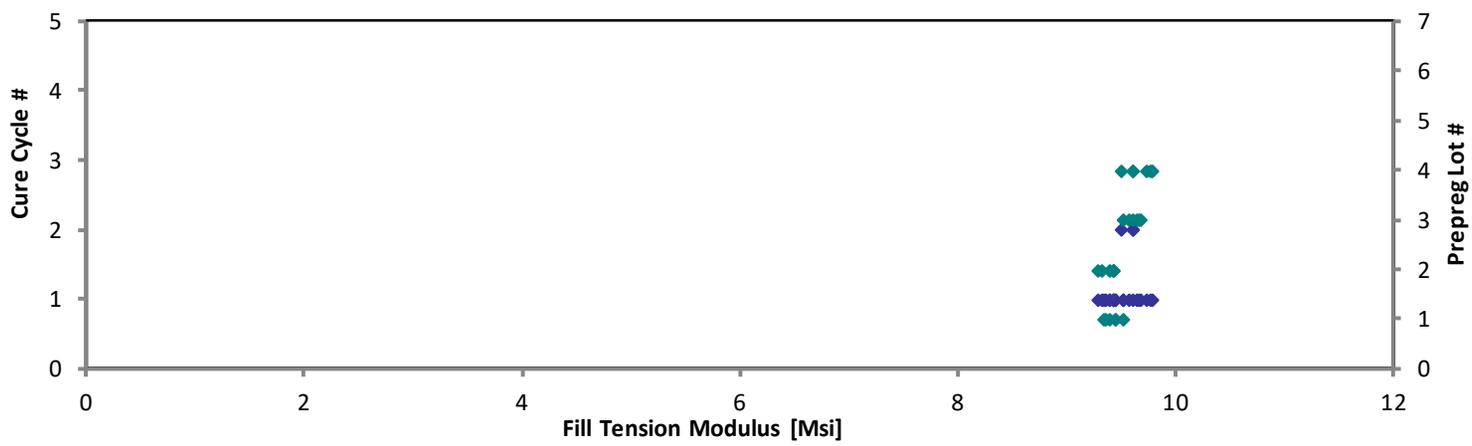|	Strength [ksi]	Modulus [Msi]	Poisson's Ratio			Avg. t_{ply} [in]	Strength$_{norm}$	Modulus$_{norm}$
Average	122.9	9.608	0.04689		Average$_{norm}$	0.0080	124.4	9.731
Standard Dev.	6.344	0.1919	0.005738		Standard Dev.$_{norm}$		5.316	0.1256
Coeff. of Var. [%]	5.162	1.997	12.24		Coeff. of Var. [%]$_{norm}$		4.273	1.290
Min.	108.1	9.296	0.03900		Min.	0.0079	111.8	9.518
Max.	135.5	9.930	0.06400		Max.	0.0082	135.5	9.968
Number of Spec.	18	18	18		Number of Spec.	18	18	18

Fill Tension Properties (FT)--ETW1(180°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Fill Tension Properties (FT)--ETW1(180°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
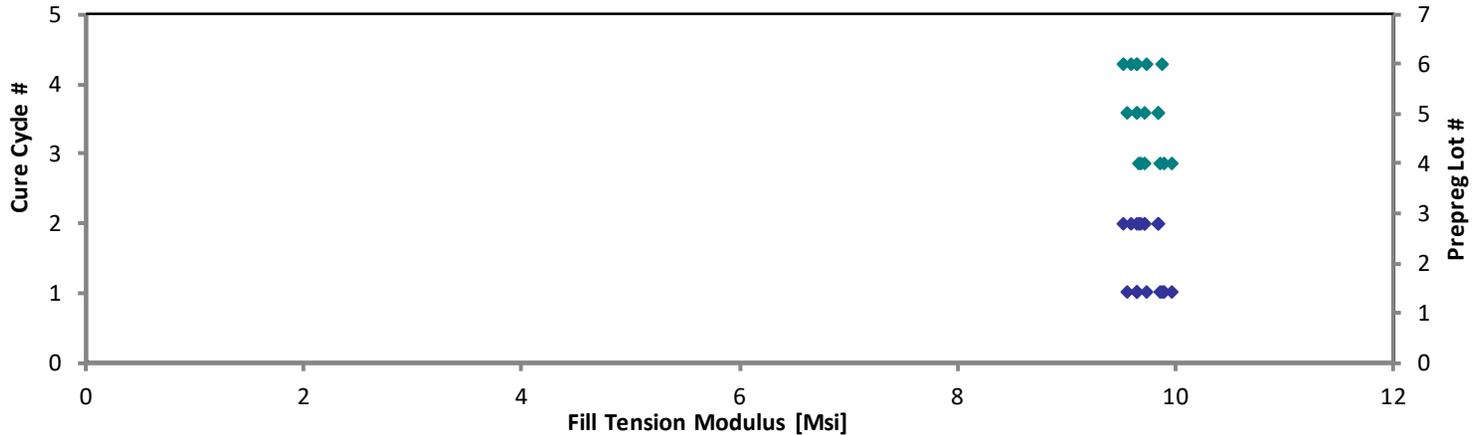
◆ Prepreg Lot #

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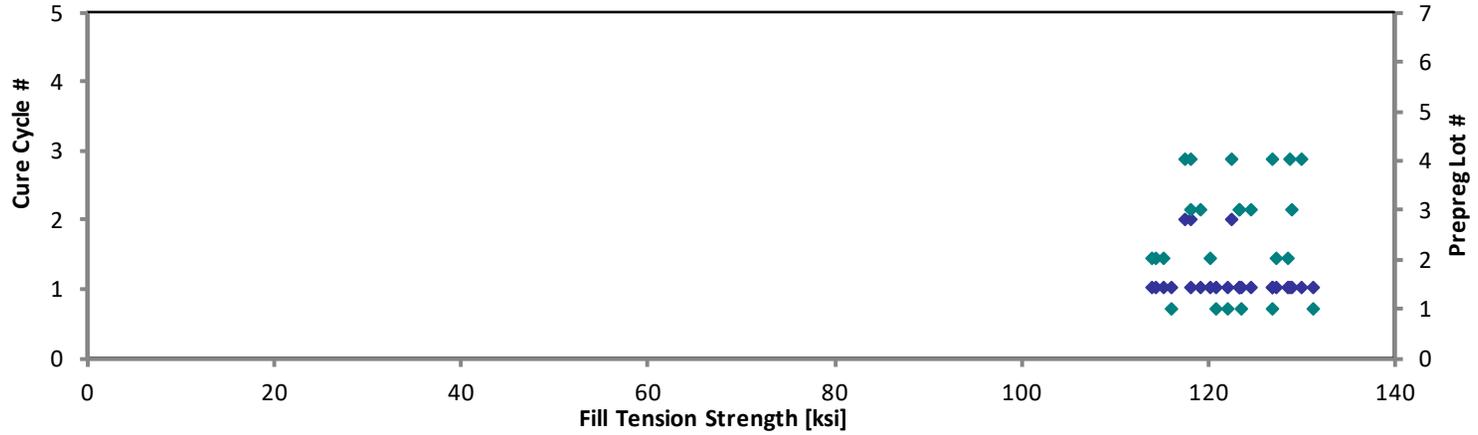<tr><td colspan="3">**Fill Tension Properties (FT)--ETW2(225°F)**
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td>**normalizing**
t_{ply} [in]
0.0079</td></tr>
</table>

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-ETW2-1	D	C1	4	1	115.0	9.484	0.0450	0.07990	10	LGM	0.0080	116.3	9.592
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-ETW2-2	D	C1	4	1	117.8	9.637	0.0470	0.07970	10	LGV	0.0080	118.9	9.722
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-ETW2-3	D	C1	4	1	115.6	9.798	0.0770	0.07990	10	LGT	0.0080	116.9	9.910
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-ETW2-1	D	C2	4	2	116.2	9.589	0.0490	0.07930	10	LGV	0.0079	116.6	9.625
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-ETW2-2	D	C2	4	2	114.3	9.645	0.0440	0.07940	10	LGV	0.0079	114.9	9.694
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-ETW2-3	D	C2	4	2	116.5	9.594	0.0440	0.07930	10	LGV	0.0079	117.0	9.630
NTP2191Q1-WRX-PW-SOL-FT-E-C1-1-ETW2-1	E	C1	5	1	122.8	9.269	0.0560	0.08110	10	LGV	0.0081	126.1	9.515
NTP2191Q1-WRX-PW-SOL-FT-E-C1-1-ETW2-2	E	C1	5	1	121.9	9.236	0.0560	0.08130	10	LGV	0.0081	125.4	9.505
NTP2191Q1-WRX-PW-SOL-FT-E-C1-1-ETW2-3	E	C1	5	1	114.4	9.176	0.0480	0.08130	10	LGV	0.0081	117.7	9.443
NTP2191Q1-WRX-PW-SOL-FT-E-C2-1-ETW2-1	E	C2	5	2	112.3	9.209	0.0300	0.08150	10	LGV	0.0082	115.8	9.500
NTP2191Q1-WRX-PW-SOL-FT-E-C2-1-ETW2-2	E	C2	5	2	109.8	9.268	0.0330	0.08170	10	LGV	0.0082	113.5	9.585
NTP2191Q1-WRX-PW-SOL-FT-E-C2-1-ETW2-3	E	C2	5	2	109.0	9.289	0.0240	0.08150	10	LGV	0.0082	112.5	9.583
NTP2191Q1-WRX-PW-SOL-FT-F-C1-1-ETW2-1	F	C1	6	1	133.1	9.750	0.0470	0.07840	10	MGV	0.0078	132.1	9.676
NTP2191Q1-WRX-PW-SOL-FT-F-C1-1-ETW2-2	F	C1	6	1	126.3	9.587	0.0370	0.07880	10	MGV	0.0079	126.0	9.563
NTP2191Q1-WRX-PW-SOL-FT-F-C1-1-ETW2-3	F	C1	6	1	129.1	9.534	0.0340	0.07910	10	MGV	0.0079	129.3	9.546
NTP2191Q1-WRX-PW-SOL-FT-F-C2-1-ETW2-1	F	C2	6	2	124.6	9.258	0.0520	0.07940	10	MGV	0.0079	125.3	9.305
NTP2191Q1-WRX-PW-SOL-FT-F-C2-1-ETW2-2	F	C2	6	2	116.9	9.064	0.0400	0.07980	10	MGV	0.0080	118.1	9.156
NTP2191Q1-WRX-PW-SOL-FT-F-C2-1-ETW2-3	F	C2	6	2	126.6	9.123	0.0420	0.07950	10	MGV	0.0080	127.4	9.181

|	Strength	Modulus	Poisson's			Avg$_{norm}$ / Std$_{norm}$	t_{ply}	Strength$_{norm}$	Modulus$_{norm}$
Average	119.0	9.417	0.0447			**Average$_{norm}$**	0.0080	120.5	9.541
Standard Dev.	6.804	0.2295	0.01183			**Standard Dev.$_{norm}$**		5.976	0.1846
Coeff. of Var. [%]	5.717	2.437	26.44			**Coeff. of Var. [%]$_{norm}$**		4.958	1.935
Min.	109.0	9.064	0.0240			**Min.**	0.0078	112.5	9.156
Max.	133.1	9.798	0.0770			**Max.**	0.0082	132.1	9.910
Number of Spec.	18	18	18			**Number of Spec.**	18	18	18

**Fill Tension Properties (FT)--ETW2(225°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

**Fill Tension Properties (FT)--ETW2(225°F)
Normalized Modulus**
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

4.3 Warp Compression Strength Properties (WCS)

Warp Compression Strength Properties (WCS)--CTA(-67°F) Strength Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

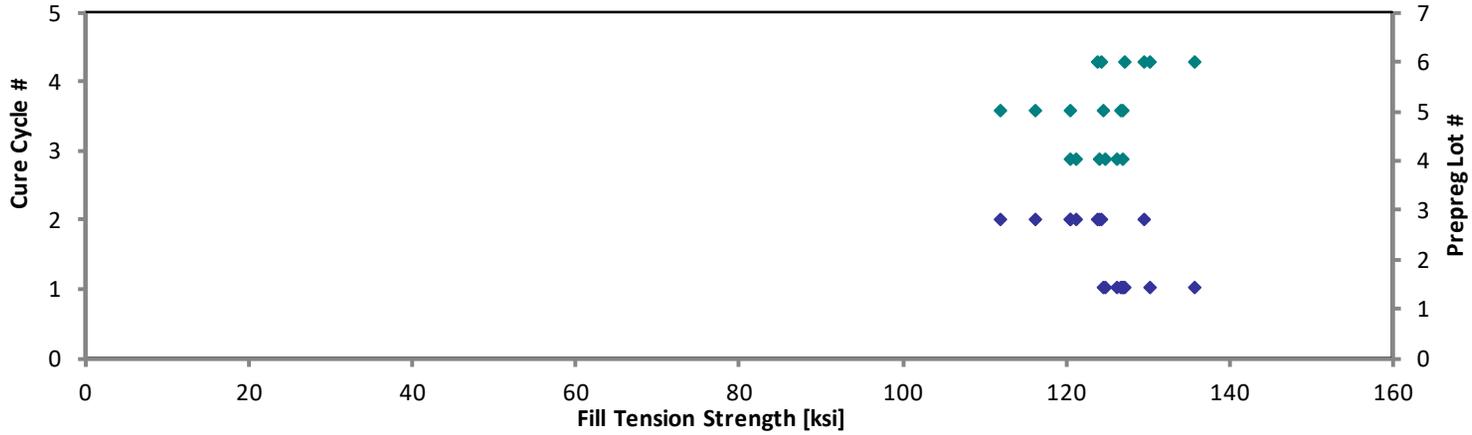| Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
TR8669860-P1-WCS-A-C1-CTA-1	A	C1	1	1	126.4	0.1288	16	HGM	0.0081	128.8
TR8669860-P1-WCS-A-C1-CTA-2	A	C1	1	1	128.9	0.1287	16	HGM	0.0080	131.2
TR8669860-P1-WCS-A-C1-CTA-4	A	C1	1	1	135.4	0.1278	16	HGM	0.0080	136.8
TR8669860-P1-WCS-A-C1-CTA-5	A	C1	1	1	137.5	0.1280	16	HGM	0.0080	139.3
TR8669860-P1-WCS-A-C1-CTA-6	A	C1	1	1	137.4	0.1282	16	HGM	0.0080	139.4
TR8669860-P1-WCS-A-C1-CTA-7	A	C1	1	1	140.7	0.1274	16	HGM	0.0080	141.8
TR8669860-P1-WCS-A-C1-CTA-8	A	C1	1	1	139.1	0.1277	16	HGM	0.0080	140.6
TR8345661-P1-WCS-B-C1-CTA-1	B	C1	2	1	120.8	0.1295	16	BGM	0.0081	123.8
TR8345661-P1-WCS-B-C1-CTA-2	B	C1	2	1	111.9	0.1291	16	BGT	0.0081	114.3
TR8345661-P1-WCS-B-C1-CTA-3	B	C1	2	1	124.9	0.1287	16	BGM	0.0080	127.1
TR8345661-P1-WCS-B-C1-CTA-5	B	C1	2	1	121.6	0.1295	16	BGM	0.0081	124.5
TR8345661-P1-WCS-B-C1-CTA-7	B	C1	2	1	119.3	0.1296	16	BGM	0.0081	122.3
TR8345661-P1-WCS-B-C1-CTA-8	B	C1	2	1	122.0	0.1302	16	BGM	0.0081	125.7
TR8346134-P1-WCS-C-C1-CTA-1	C	C1	3	1	127.8	0.1281	16	MGM	0.0080	129.5
TR8346134-P1-WCS-C-C1-CTA-2	C	C1	3	1	128.5	0.1283	16	MGM	0.0080	130.4
TR8346134-P1-WCS-C-C1-CTA-3	C	C1	3	1	130.2	0.1273	16	MGB	0.0080	131.1
TR8346134-P1-WCS-C-C1-CTA-4	C	C1	3	1	122.2	0.1275	16	BGM	0.0080	123.3
TR8346134-P1-WCS-C-C1-CTA-5	C	C1	3	1	128.2	0.1265	16	HAT	0.0079	128.3
TR8346134-P1-WCS-C-C1-CTA-6	C	C1	3	1	123.2	0.1269	16	HGM	0.0079	123.7
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-CTA-1	D	C1	4	1	132.9	0.1265	16	BGM	0.0079	133.0
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-CTA-2	D	C1	4	1	135.5	0.1263	16	BGM	0.0079	135.4
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-CTA-3	D	C1	4	1	142.6	0.1268	16	BGM	0.0079	143.1
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-CTA-1	D	C2	4	2	142.9	0.1275	16	BGM	0.0080	144.2
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-CTA-2	D	C2	4	2	137.0	0.1277	16	BGM	0.0080	138.4
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-CTA-3	D	C2	4	2	141.0	0.1279	16	BGM	0.0080	142.6

Average	130.3	Average$_{norm}$	0.0080	131.9
Standard Dev.	8.394	Standard Dev.$_{norm}$		7.939
Coeff. of Var. [%]	6.441	Coeff. of Var. [%]$_{norm}$		6.017
Min.	111.9	Min.	0.0079	114.3
Max.	142.9	Max.	0.0081	144.2
Number of Spec.	25	Number of Spec.	25	25

Warp Compression Strength Properties (WCS)--CTA(-67°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Warp Compression Strength Properties (WCS)--RTA(75°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
TR8669860-P1-WCS-A-C1-RTA-1	A	C1	1	1	96.59	0.1289	16	BGM	0.0081	98.50
TR8669860-P1-WCS-A-C1-RTA-2	A	C1	1	1	94.64	0.1287	16	BGM	0.0080	96.36
TR8669860-P1-WCS-A-C1-RTA-3	A	C1	1	1	103.0	0.1284	16	BGM	0.0080	104.6
TR8669860-P1-WCS-A-C1-RTA-4	A	C1	1	1	108.6	0.1283	16	BGM	0.0080	110.2
TR8669860-P1-WCS-A-C1-RTA-5	A	C1	1	1	106.6	0.1279	16	BGM	0.0080	107.9
TR8669860-P1-WCS-A-C1-RTA-6	A	C1	1	1	107.3	0.1280	16	BGM	0.0080	108.7
TR8345661-P1-WCS-B-C1-RTA-1	B	C1	2	1	108.2	0.1301	16	MGM	0.0081	111.4
TR8345661-P1-WCS-B-C1-RTA-2	B	C1	2	1	102.7	0.1301	16	MGM	0.0081	105.7
TR8345661-P1-WCS-B-C1-RTA-3	B	C1	2	1	106.2	0.1306	16	MGM	0.0082	109.7
TR8345661-P1-WCS-B-C1-RTA-4	B	C1	2	1	106.6	0.1298	16	MGM	0.0081	109.5
TR8345661-P1-WCS-B-C1-RTA-5	B	C1	2	1	107.8	0.1298	16	BGM	0.0081	110.7
TR8345661-P1-WCS-B-C1-RTA-6	B	C1	2	1	105.4	0.1294	16	BGM	0.0081	107.9
TR8346134-P1-WCS-C-C1-RTA-1	C	C1	3	1	117.1	0.1278	16	BGM	0.0080	118.4
TR8346134-P1-WCS-C-C1-RTA-2	C	C1	3	1	122.0	0.1282	16	BGM	0.0080	123.7
TR8346134-P1-WCS-C-C1-RTA-4	C	C1	3	1	113.4	0.1273	16	MGM	0.0080	114.2
TR8346134-P1-WCS-C-C1-RTA-5	C	C1	3	1	113.3	0.1275	16	MGT	0.0080	114.3
TR8346134-P1-WCS-C-C1-RTA-6	C	C1	3	1	111.8	0.1281	16	MGM	0.0080	113.3
TR8346134-P1-WCS-C-C1-RTA-7	C	C1	3	1	121.6	0.1288	16	HAT	0.0081	123.9
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-RTA-1	D	C1	4	1	117.8	0.1263	16	BGM	0.0079	117.7
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-RTA-2	D	C1	4	1	119.4	0.1269	16	BGT	0.0079	119.9
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-RTA-3	D	C1	4	1	120.6	0.1266	16	BGM	0.0079	120.8
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-RTA-1	D	C2	4	2	114.4	0.1277	16	BGM	0.0080	115.5
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-RTA-2	D	C2	4	2	117.0	0.1270	16	BGT	0.0079	117.5
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-RTA-3	D	C2	4	2	114.0	0.1268	16	BGM	0.0079	114.4

Average	110.7	$Average_{norm}$	0.0080	112.3
Standard Dev.	7.470	$Standard\ Dev._{norm}$		7.020
Coeff. of Var. [%]	6.750	$Coeff.\ of\ Var.\ [\%]_{norm}$		6.252
Min.	94.64	Min.	0.0079	96.36
Max.	122.0	Max.	0.0082	123.9
Number of Spec.	24	Number of Spec.	24	24

Warp Compression Strength Properties (WCS)--RTA(75°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Warp Compression Strength Properties (WCS)--ETA2(225°F) Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETA2-1	D	C1	4	1	89.38	0.1271	16	BGM	0.0079	89.87
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETA2-2	D	C1	4	1	92.40	0.1269	16	HGM	0.0079	92.77
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETA2-3	D	C1	4	1	89.05	0.1269	16	BGM	0.0079	89.40
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETA2-1	D	C2	4	2	79.30	0.1279	16	HGM	0.0080	80.24
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETA2-2	D	C2	4	2	83.38	0.1277	16	HGT	0.0080	84.24
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETA2-3	D	C2	4	2	81.90	0.1278	16	HGM	0.0080	82.81

Average	85.90	Average$_{norm}$	0.0080 86.55
Standard Dev.	5.103	Standard Dev.$_{norm}$	4.837
Coeff. of Var. [%]	5.940	Coeff. of Var. [%]$_{norm}$	5.588
Min.	79.30	Min.	0.0079 80.24
Max.	92.40	Max.	0.0080 92.77
Number of Spec.	6	Number of Spec.	6 6

Warp Compression Strength Properties (WCS)--ETA2(225°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

<table>
<tr><td colspan="10">**Warp Compression Strength Properties (WCS)--ETA3(250°F)**
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td colspan="2">**normalizing**
t_{ply} [in]
0.0079</td></tr>
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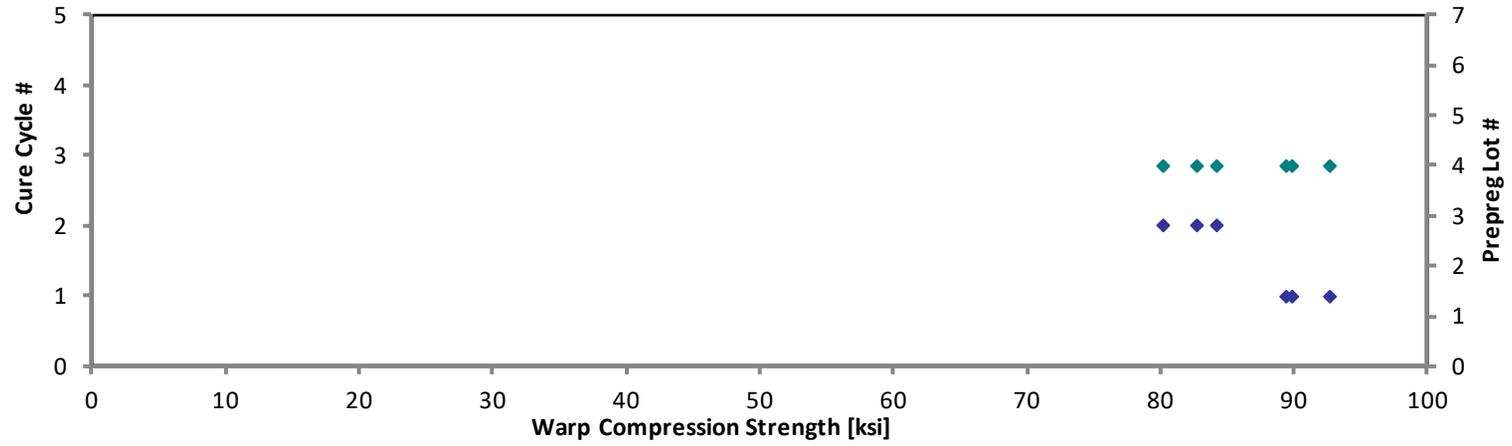
Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
TR8669860-P1-WCS-A-C1-ETA3-1	A	C1	1	1	68.66	0.1287	16	BGM		0.0080	69.91
TR8669860-P1-WCS-A-C1-ETA3-2	A	C1	1	1	79.08	0.1289	16	AGM		0.0081	80.64
TR8669860-P1-WCS-A-C1-ETA3-3	A	C1	1	1	71.48	0.1285	16	AGM		0.0080	72.67
TR8669860-P1-WCS-A-C1-ETA3-4	A	C1	1	1	71.31	0.1285	16	AGM		0.0080	72.49
TR8669860-P1-WCS-A-C1-ETA3-5	A	C1	1	1	71.30	0.1279	16	BGM		0.0080	72.15
TR8669860-P1-WCS-A-C1-ETA3-6	A	C1	1	1	70.04	0.1277	16	AGM		0.0080	70.76
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETA3-1	D	C1	4	1	86.32	0.1262	16	BGM		0.0079	86.18
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETA3-2	D	C1	4	1	94.78	0.1264	16	HGM		0.0079	94.78
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETA3-3	D	C1	4	1	94.35	0.1264	16	BGM		0.0079	94.35
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETA3-1	D	C2	4	2	73.45	0.1275	16	HGM		0.0080	74.09
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETA3-2	D	C2	4	2	73.10	0.1275	16	HGM		0.0080	73.74
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETA3-3	D	C2	4	2	76.48	0.1275	16	HGM		0.0080	77.15
NTP2191Q1-WRX-PW-SOL-WCS-E-C1-1-ETA3-2	E	C1	5	1	74.62	0.1312	16	BGM		0.0082	77.45
NTP2191Q1-WRX-PW-SOL-WCS-E-C1-1-ETA3-3	E	C1	5	1	71.70	0.1313	16	BGM		0.0082	74.48
NTP2191Q1-WRX-PW-SOL-WCS-E-C1-1-ETA3-4	E	C1	5	1	71.20	0.1311	16	BGM		0.0082	73.85
NTP2191Q1-WRX-PW-SOL-WCS-E-C2-1-ETA3-1	E	C2	5	2	68.20	0.1300	16	BGM		0.0081	70.14
NTP2191Q1-WRX-PW-SOL-WCS-E-C2-1-ETA3-2	E	C2	5	2	72.53	0.1298	16	BGM		0.0081	74.48
NTP2191Q1-WRX-PW-SOL-WCS-E-C2-1-ETA3-3	E	C2	5	2	76.14	0.1299	16	BGM		0.0081	78.25

Average	75.82	Average$_{norm}$	0.0080 77.09
Standard Dev.	8.008	Standard Dev.$_{norm}$	7.503
Coeff. of Var. [%]	10.56	Coeff. of Var. [%]$_{norm}$	9.733
Min.	68.20	Min.	0.0079 69.91
Max.	94.78	Max.	0.0082 94.78
Number of Spec.	18	Number of Spec.	18 18

Warp Compression Strength Properties (WCS)--ETA3(250°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

	Warp Compression Strength Properties (WCS)--ETW1(180°F) Strength
	Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETW1-1	D	C1	4	1	93.41	0.1268	16	BGM		0.0079	93.71
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETW1-3	D	C1	4	1	87.33	0.1271	16	HAB		0.0079	87.81
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETW1-4	D	C1	4	1	89.77	0.1272	16	BGM		0.0080	90.34
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETW1-1	D	C2	4	2	84.74	0.1277	16	HAT		0.0080	85.61
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETW1-2	D	C2	4	2	84.18	0.1275	16	HAT		0.0080	84.91
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETW1-3	D	C2	4	2	93.20	0.1276	16	BGM		0.0080	94.08
NTP2191Q1-WRX-PW-SOL-WCS-E-C1-1-ETW1-1	E	C1	5	1	80.61	0.1310	16	BGM		0.0082	83.54
NTP2191Q1-WRX-PW-SOL-WCS-E-C1-1-ETW1-2	E	C1	5	1	89.68	0.1309	16	BGM		0.0082	92.87
NTP2191Q1-WRX-PW-SOL-WCS-E-C1-1-ETW1-3	E	C1	5	1	90.10	0.1306	16	HAB		0.0082	93.09
NTP2191Q1-WRX-PW-SOL-WCS-E-C2-1-ETW1-1	E	C2	5	2	72.26	0.1301	16	BGM		0.0081	74.38
NTP2191Q1-WRX-PW-SOL-WCS-E-C2-1-ETW1-2	E	C2	5	2	78.58	0.1302	16	BGM		0.0081	80.94
NTP2191Q1-WRX-PW-SOL-WCS-E-C2-1-ETW1-3	E	C2	5	2	76.24	0.1306	16	BGM		0.0082	78.77
NTP2191Q1-WRX-PW-SOL-WCS-F-C1-1-ETW1-1	F	C1	6	1	89.62	0.1222	16	HAT		0.0076	86.64
NTP2191Q1-WRX-PW-SOL-WCS-F-C1-1-ETW1-2	F	C1	6	1	89.39	0.1226	16	BGM		0.0077	86.70
NTP2191Q1-WRX-PW-SOL-WCS-F-C1-1-ETW1-3	F	C1	6	1	90.83	0.1237	16	BGT		0.0077	88.89
NTP2191Q1-WRX-PW-SOL-WCS-F-C2-1-ETW1-2	F	C2	6	2	98.16	0.1214	16	BGM		0.0076	94.28
NTP2191Q1-WRX-PW-SOL-WCS-F-C2-1-ETW1-3	F	C2	6	2	99.91	0.1219	16	BGM		0.0076	96.35
NTP2191Q1-WRX-PW-SOL-WCS-F-C2-1-ETW1-4	F	C2	6	2	95.76	0.1232	16	BGM		0.0077	93.34

Average	87.99	Average$_{norm}$	0.0079	88.13
Standard Dev.	7.434	Standard Dev.$_{norm}$		6.049
Coeff. of Var. [%]	8.449	Coeff. of Var. [%]$_{norm}$		6.865
Min.	72.26	Min.	0.0076	74.38
Max.	99.91	Max.	0.0082	96.35
Number of Spec.	18	Number of Spec.	18	18

Warp Compression Strength Properties (WCS)--ETW1(180°F) Normalized Strength
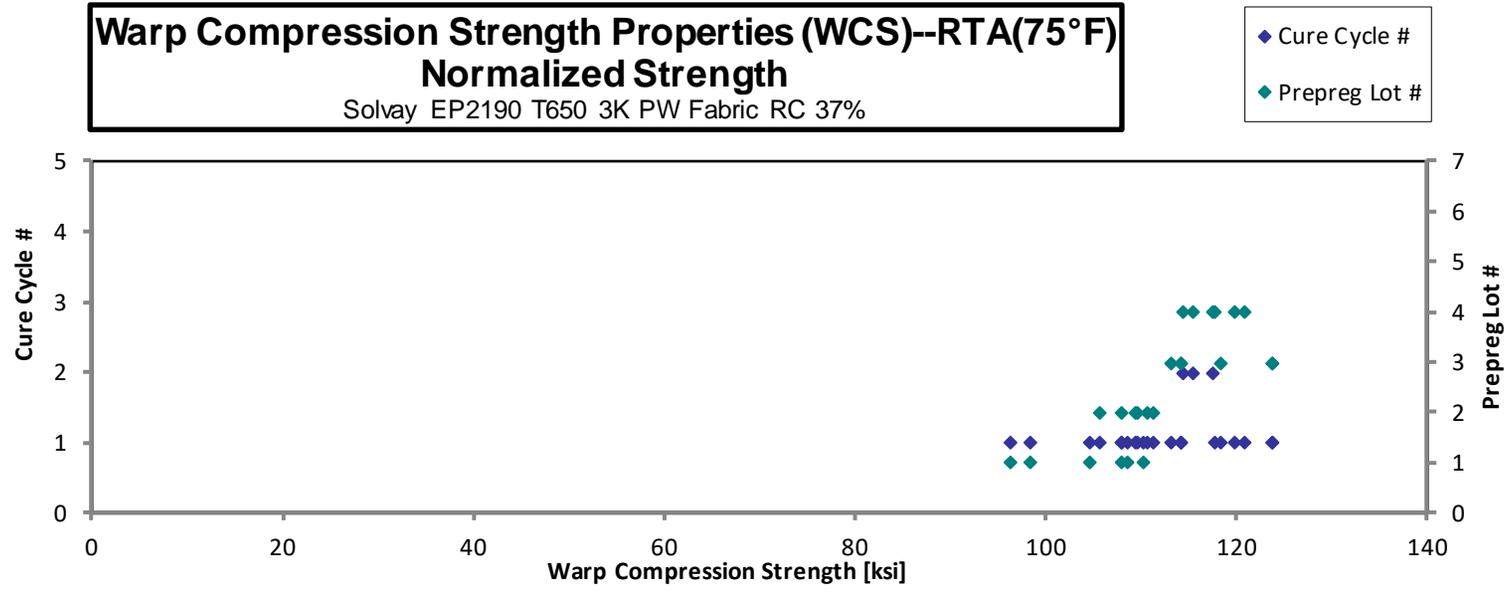
Solvay EP2190 T650 3K PW Fabric RC 37%

Warp Compression Strength Properties (WCS)--ETW2(225°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETW2-1	D	C1	4	1	78.24	0.1277	16	BGM	0.0080	79.04
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETW2-2	D	C1	4	1	77.34	0.1275	16	BGM	0.0080	78.01
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETW2-3	D	C1	4	1	72.49	0.1271	16	BGM	0.0079	72.89
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETW2-1	D	C2	4	2	62.53	0.1276	16	BGT	0.0080	63.12
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETW2-2	D	C2	4	2	69.52	0.1280	16	BGM	0.0080	70.40
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETW2-3	D	C2	4	2	73.59	0.1280	16	BGM	0.0080	74.52
NTP2191Q1-WRX-PW-SOL-WCS-E-C1-1-ETW2-1	E	C1	5	1	56.94	0.1312	16	BGB	0.0082	59.10
NTP2191Q1-WRX-PW-SOL-WCS-E-C1-1-ETW2-2	E	C1	5	1	65.12	0.1313	16	BGB	0.0082	67.64
NTP2191Q1-WRX-PW-SOL-WCS-E-C1-1-ETW2-3	E	C1	5	1	63.48	0.1314	16	BGB	0.0082	65.99
NTP2191Q1-WRX-PW-SOL-WCS-E-C2-1-ETW2-1	E	C2	5	2	66.65	0.1303	16	AGM	0.0081	68.71
NTP2191Q1-WRX-PW-SOL-WCS-E-C2-1-ETW2-2	E	C2	5	2	65.28	0.1303	16	AGM	0.0081	67.29
NTP2191Q1-WRX-PW-SOL-WCS-E-C2-1-ETW2-3	E	C2	5	2	65.29	0.1304	16	BGM	0.0082	67.36
NTP2191Q1-WRX-PW-SOL-WCS-F-C1-1-ETW2-1	F	C1	6	1	63.67	0.1245	16	HAB	0.0078	62.71
NTP2191Q1-WRX-PW-SOL-WCS-F-C1-1-ETW2-2	F	C1	6	1	69.31	0.1242	16	AGM	0.0078	68.10
NTP2191Q1-WRX-PW-SOL-WCS-F-C1-1-ETW2-3	F	C1	6	1	67.69	0.1242	16	BGM	0.0078	66.51
NTP2191Q1-WRX-PW-SOL-WCS-F-C2-1-ETW2-1	F	C2	6	2	73.24	0.1243	16	BGM	0.0078	72.02
NTP2191Q1-WRX-PW-SOL-WCS-F-C2-1-ETW2-2	F	C2	6	2	73.80	0.1243	16	BGB	0.0078	72.57
NTP2191Q1-WRX-PW-SOL-WCS-F-C2-1-ETW2-3	F	C2	6	2	81.44	0.1247	16	BGM	0.0078	80.34

Average	69.20	Average$_{norm}$	0.0080	69.80
Standard Dev.	6.323	Standard Dev.$_{norm}$		5.762
Coeff. of Var. [%]	9.137	Coeff. of Var. [%]$_{norm}$		8.256
Min.	56.94	Min.	0.0078	59.10
Max.	81.44	Max.	0.0082	80.34
Number of Spec.	18	Number of Spec.	18	18

Warp Compression Strength Properties (WCS)--ETW2(225°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Warp Compression Strength Properties (WCS)--ETW3(250°F)
Strength
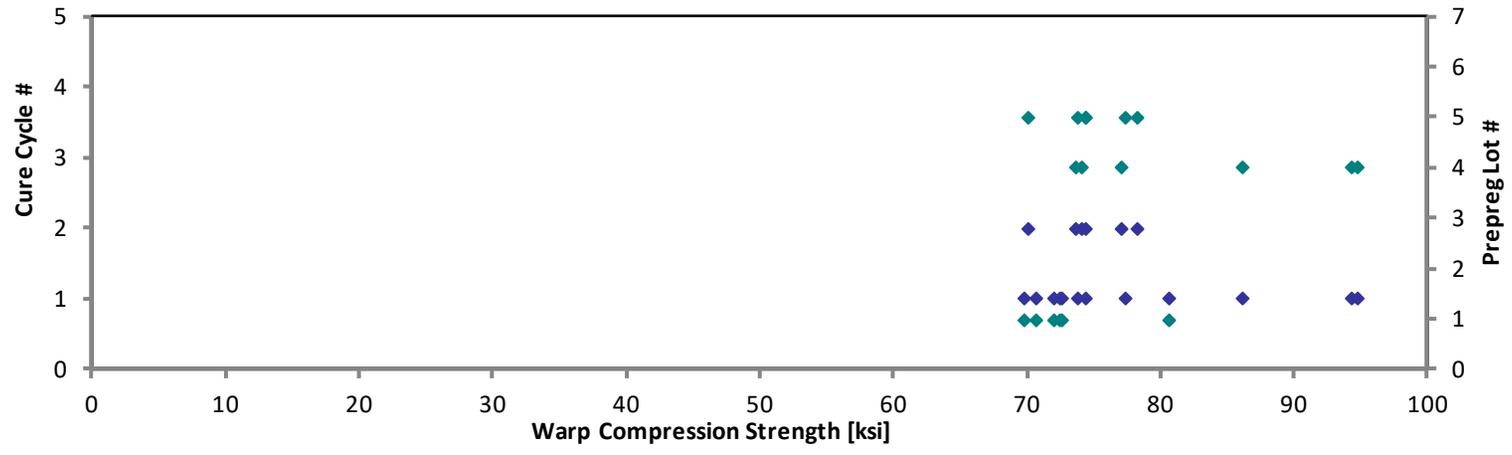Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETW3-1	D	C1	4	1	61.75	0.1265	16	BGM	0.0079	61.80
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETW3-3	D	C1	4	1	66.33	0.1267	16	BGM	0.0079	66.49
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-ETW3-4	D	C1	4	1	71.76	0.1257	16	BGM	0.0079	71.36
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETW3-1	D	C2	4	2	61.37	0.1278	16	BGM	0.0080	62.05
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETW3-2	D	C2	4	2	62.19	0.1275	16	BGM	0.0080	62.73
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-ETW3-3	D	C2	4	2	61.16	0.1270	16	BGB	0.0079	61.45
NTP2191Q1-WRX-PW-SOL-WCS-E-C1-1-ETW3-1	E	C1	5	1	56.54	0.1312	16	HGM	0.0082	58.69
NTP2191Q1-WRX-PW-SOL-WCS-E-C1-1-ETW3-2	E	C1	5	1	56.10	0.1307	16	HGM	0.0082	58.01
NTP2191Q1-WRX-PW-SOL-WCS-E-C1-1-ETW3-3	E	C1	5	1	58.79	0.1300	16	HGM	0.0081	60.46
NTP2191Q1-WRX-PW-SOL-WCS-E-C2-1-ETW3-1	E	C2	5	2	52.75	0.1329	16	HGM	0.0083	55.46
NTP2191Q1-WRX-PW-SOL-WCS-E-C2-1-ETW3-2	E	C2	5	2	54.90	0.1303	16	HGM	0.0081	56.59
NTP2191Q1-WRX-PW-SOL-WCS-E-C2-1-ETW3-3	E	C2	5	2	54.61	0.1301	16	HGM	0.0081	56.21
NTP2191Q1-WRX-PW-SOL-WCS-F-C1-1-ETW3-1	F	C1	6	1	60.48	0.1242	16	HGM	0.0078	59.43
NTP2191Q1-WRX-PW-SOL-WCS-F-C1-1-ETW3-2	F	C1	6	1	63.44	0.1242	16	HGM	0.0078	62.34
NTP2191Q1-WRX-PW-SOL-WCS-F-C1-1-ETW3-3	F	C1	6	1	64.60	0.1241	16	HGT	0.0078	63.42
NTP2191Q1-WRX-PW-SOL-WCS-F-C2-1-ETW3-1	F	C2	6	2	59.05	0.1242	16	HGM	0.0078	58.02
NTP2191Q1-WRX-PW-SOL-WCS-F-C2-1-ETW3-2	F	C2	6	2	64.63	0.1228	16	HGM	0.0077	62.79
NTP2191Q1-WRX-PW-SOL-WCS-F-C2-1-ETW3-3	F	C2	6	2	67.24	0.1222	16	HGM	0.0076	65.01

Average	60.98	Average$_{norm}$	0.0079	61.24
Standard Dev.	4.949	Standard Dev.$_{norm}$		3.965
Coeff. of Var. [%]	8.115	Coeff. of Var. [%]$_{norm}$		6.475
Min.	52.75	Min.	0.0076	55.46
Max.	71.76	Max.	0.0083	71.36
Number of Spec.	18	Number of Spec.	18	18

Warp Compression Strength Properties (WCS)--ETW3(250°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

4.4 Warp Compression Modulus Properties (WCM)

<table>
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Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%</td></tr>
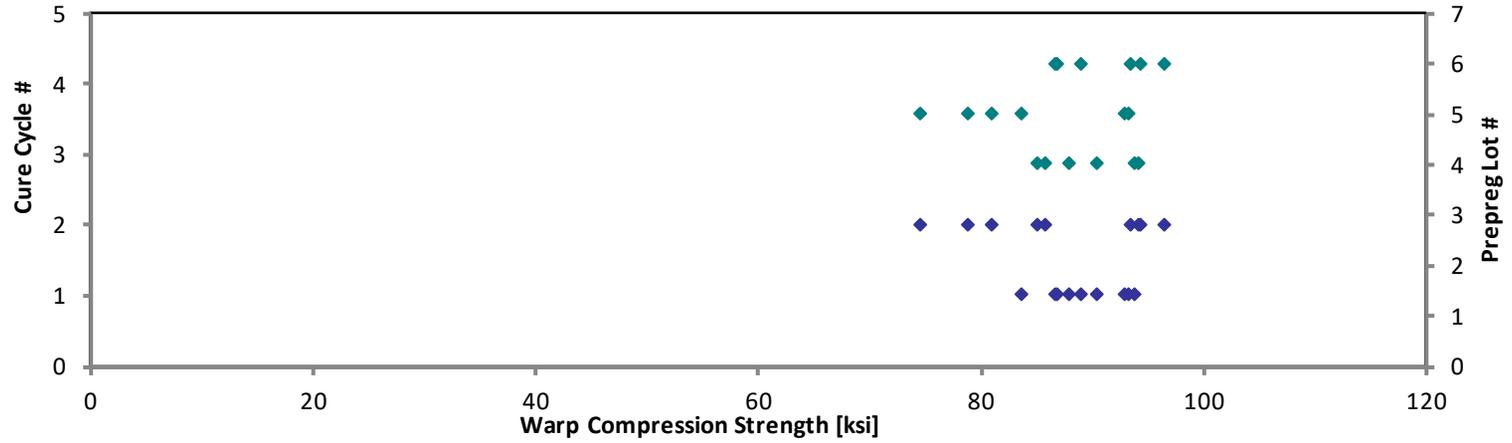</table>

normalizing t_{ply} [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Modulus$_{norm}$ [Msi]
TR8669859-P1-WCM-A-C1-CTA-1	A	C1	1	1	8.496	0.1281	16	0.0080	8.610
TR8669859-P1-WCM-A-C1-CTA-2	A	C1	1	1	8.338	0.1285	16	0.0080	8.477
TR8669859-P1-WCM-A-C1-CTA-3	A	C1	1	1	8.443	0.1284	16	0.0080	8.577
TR8669859-P1-WCM-A-C1-CTA-4	A	C1	1	1	8.338	0.1285	16	0.0080	8.477
TR8669859-P1-WCM-A-C1-CTA-5	A	C1	1	1	8.357	0.1282	16	0.0080	8.476
TR8669859-P1-WCM-A-C1-CTA-6	A	C1	1	1	8.579	0.1283	16	0.0080	8.708
TR8651626-P1-WCM-B-C1-CTA-1	B	C1	2	1	8.444	0.1278	16	0.0080	8.538
TR8651626-P1-WCM-B-C1-CTA-2	B	C1	2	1	8.499	0.1287	16	0.0080	8.654
TR8651626-P1-WCM-B-C1-CTA-3	B	C1	2	1	8.146	0.1292	16	0.0081	8.326
TR8651626-P1-WCM-B-C1-CTA-4	B	C1	2	1	8.248	0.1292	16	0.0081	8.431
TR8651626-P1-WCM-B-C1-CTA-5	B	C1	2	1	8.207	0.1292	16	0.0081	8.389
TR8651626-P1-WCM-B-C1-CTA-6	B	C1	2	1	8.239	0.1290	16	0.0081	8.408
TR8346135-P1-WCM-C-C1-CTA-1	C	C1	3	1	8.366	0.1274	16	0.0080	8.432
TR8346135-P1-WCM-C-C1-CTA-2	C	C1	3	1	8.430	0.1273	16	0.0080	8.490
TR8346135-P1-WCM-C-C1-CTA-3	C	C1	3	1	8.477	0.1276	16	0.0080	8.557
TR8346135-P1-WCM-C-C1-CTA-4	C	C1	3	1	8.842	0.1281	16	0.0080	8.961
TR8346135-P1-WCM-C-C1-CTA-5	C	C1	3	1	8.699	0.1278	16	0.0080	8.795
TR8346135-P1-WCM-C-C1-CTA-6	C	C1	3	1	8.271	0.1274	16	0.0080	8.336
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-CTA-1	D	C1	4	1	8.971	0.1244	16	0.0078	8.829
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-CTA-3	D	C1	4	1	8.824	0.1262	16	0.0079	8.810
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-CTA-4	D	C1	4	1	8.715	0.1264	16	0.0079	8.715
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-CTA-1	D	C2	4	2	8.953	0.1253	16	0.0078	8.875
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-CTA-2	D	C2	4	2	8.738	0.1273	16	0.0080	8.800
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-CTA-3	D	C2	4	2	8.561	0.1281	16	0.0080	8.676

Modulus calculation is obtained from 1000 - 3000 microstrain.

Average	8.508		Average$_{norm}$	0.0080	8.598
Standard Dev.	0.2376		Standard Dev.$_{norm}$		0.1819
Coeff. of Var. [%]	2.792		Coeff. of Var. [%]$_{norm}$		2.116
Min.	8.146		Min.	0.0078	8.326
Max.	8.971		Max.	0.0081	8.961
Number of Spec.	24		Number of Spec.	24	24

Warp Compression Modulus Properties (WCM)--CTA(-67°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

Warp Compression Modulus Properties (WCM)--RTA(75°F)
Modulus
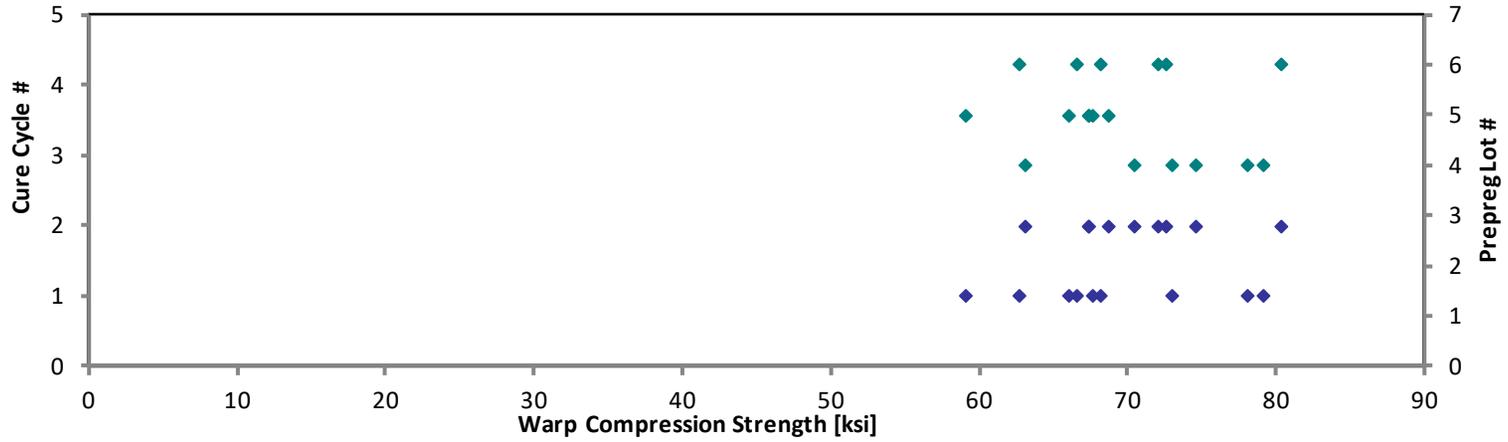Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Modulus$_{norm}$ [Msi]
TR8669859-P1-WCM-A-C1-RTA-1	A	C1	1	1	8.666	0.1283	16	0.0080	8.796
TR8669859-P1-WCM-A-C1-RTA-2	A	C1	1	1	8.630	0.1283	16	0.0080	8.760
TR8669859-P1-WCM-A-C1-RTA-3	A	C1	1	1	8.123	0.1282	16	0.0080	8.239
TR8669859-P1-WCM-A-C1-RTA-4	A	C1	1	1	8.567	0.1287	16	0.0080	8.723
TR8669859-P1-WCM-A-C1-RTA-5	A	C1	1	1	8.344	0.1282	16	0.0080	8.463
TR8669859-P1-WCM-A-C1-RTA-6	A	C1	1	1	8.529	0.1277	16	0.0080	8.617
TR8651626-P1-WCM-B-C1-RTA-1	B	C1	2	1	8.276	0.1304	16	0.0082	8.538
TR8651626-P1-WCM-B-C1-RTA-2	B	C1	2	1	7.989	0.1303	16	0.0081	8.235
TR8651626-P1-WCM-B-C1-RTA-3	B	C1	2	1	8.351	0.1300	16	0.0081	8.589
TR8651626-P1-WCM-B-C1-RTA-4	B	C1	2	1	8.140	0.1297	16	0.0081	8.353
TR8651626-P1-WCM-B-C1-RTA-5	B	C1	2	1	8.530	0.1300	16	0.0081	8.773
TR8651626-P1-WCM-B-C1-RTA-6	B	C1	2	1	8.508	0.1303	16	0.0081	8.771
TR8346135-P1-WCM-C-C1-RTA-1	C	C1	3	1	8.502	0.1275	16	0.0080	8.576
TR8346135-P1-WCM-C-C1-RTA-2	C	C1	3	1	8.493	0.1276	16	0.0080	8.574
TR8346135-P1-WCM-C-C1-RTA-3	C	C1	3	1	8.729	0.1278	16	0.0080	8.826
TR8346135-P1-WCM-C-C1-RTA-4	C	C1	3	1	8.587	0.1280	16	0.0080	8.696
TR8346135-P1-WCM-C-C1-RTA-5	C	C1	3	1	8.441	0.1279	16	0.0080	8.541
TR8346135-P1-WCM-C-C1-RTA-6	C	C1	3	1	8.527	0.1276	16	0.0080	8.608
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-RTA-1	D	C1	4	1	8.958	0.1254	16	0.0078	8.887
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-RTA-2	D	C1	4	1	9.042	0.1252	16	0.0078	8.956
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-RTA-3	D	C1	4	1	9.037	0.1243	16	0.0078	8.887
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-RTA-1	D	C2	4	2	8.762	0.1281	16	0.0080	8.880
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-RTA-2	D	C2	4	2	8.890	0.1276	16	0.0080	8.974
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-RTA-3	D	C2	4	2	8.882	0.1279	16	0.0080	8.987

Modulus calculation is obtained from 1000 - 3000 microstrain.

Average	8.563	Average$_{norm}$	0.0080	8.677
Standard Dev.	0.2805	Standard Dev.$_{norm}$		0.2156
Coeff. of Var. [%]	3.275	Coeff. of Var. [%]$_{norm}$		2.484
Min.	7.989	Min.	0.0078	8.235
Max.	9.042	Max.	0.0082	8.987
Number of Spec.	24	Number of Spec.	24	24

Warp Compression Modulus Properties (WCM)--RTA(75°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

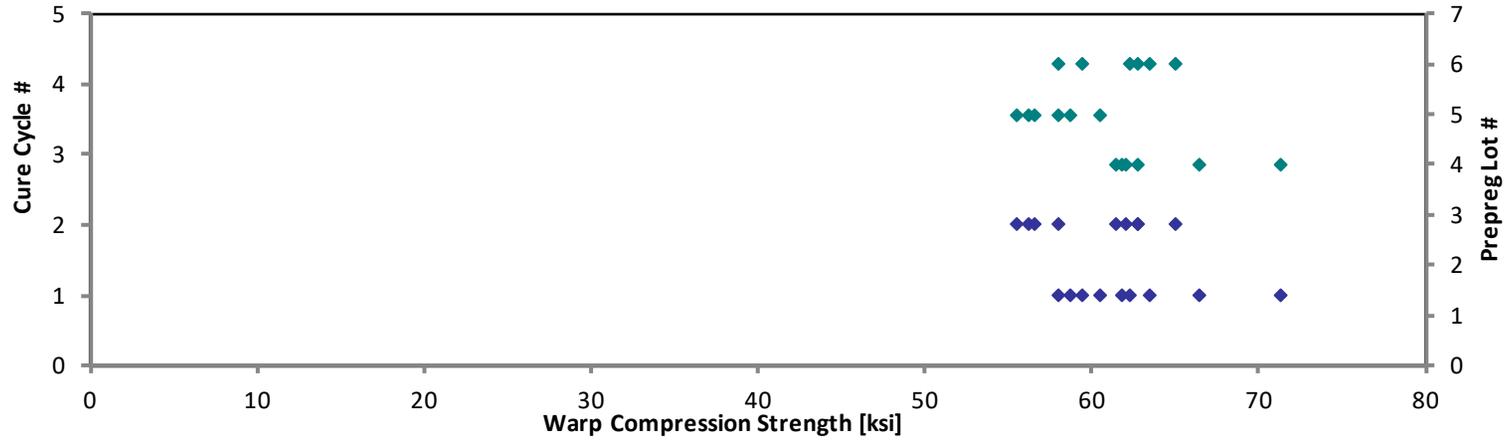| Warp Compression Modulus Properties (WCM)--ETA2(225°F) Modulus Solvay EP2190 T650 3K PW Fabric RC 37% |
| --- |

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate		Avg. t_{ply} [in]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETA2-1	D	C1	4	1	8.984	0.1259	16		0.0079	8.948
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETA2-2	D	C1	4	1	9.062	0.1260	16		0.0079	9.033
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETA2-3	D	C1	4	1	9.003	0.1261	16		0.0079	8.982
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETA2-1	D	C2	4	2	9.039	0.1256	16		0.0079	8.982
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETA2-2	D	C2	4	2	8.889	0.1273	16		0.0080	8.952
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETA2-3	D	C2	4	2	8.899	0.1277	16		0.0080	8.991

Modulus calculation is obtained from 1000 - 3000 microstrain.

Average	8.979	Average$_{norm}$	0.0079	8.981
Standard Dev.	0.07154	Standard Dev.$_{norm}$		0.03070
Coeff. of Var. [%]	0.7967	Coeff. of Var. [%]$_{norm}$		0.3418
Min.	8.889	Min.	0.0079	8.948
Max.	9.062	Max.	0.0080	9.033
Number of Spec.	6	Number of Spec.	6	6

Warp Compression Modulus Properties (WCM)--ETA2(225°F)
Normalized Modulus

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Warp Compression Modulus [Msi]

<table>
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Warp Compression Modulus Properties (WCM)--ETA3(250°F)
Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

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normalizing
t_{ply} [in]
0.0079

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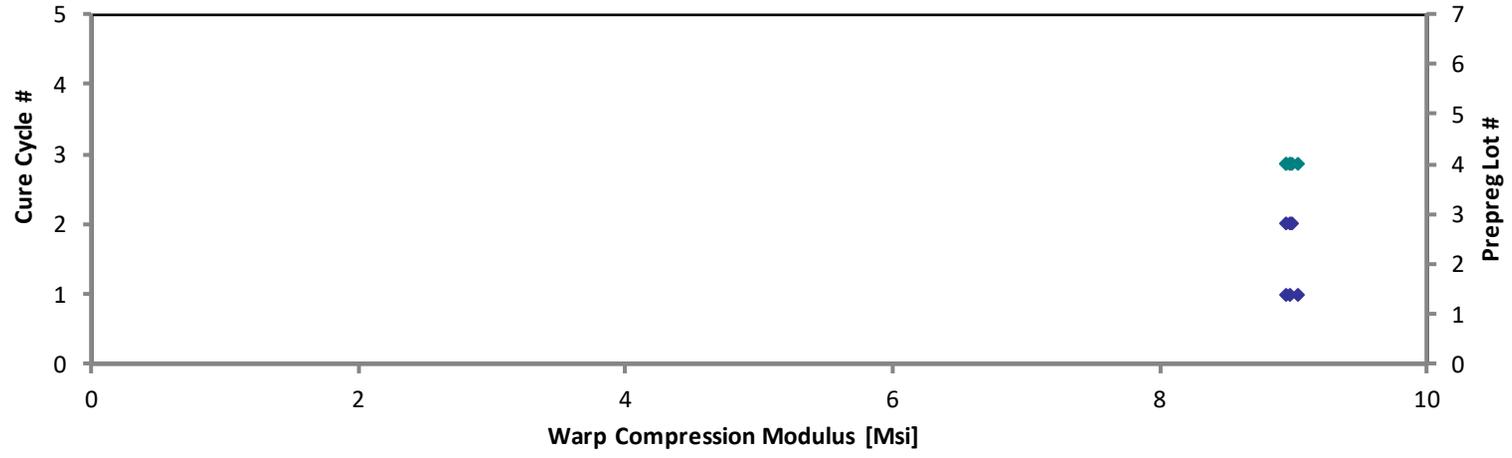
Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Modulus$_{norm}$ [Msi]
TR8669859-P1-WCM-A-C1-ETA3-1	A	C1	1	1	7.985	0.1282	16	0.0080	8.099
TR8669859-P1-WCM-A-C1-ETA3-2	A	C1	1	1	8.479	0.1288	16	0.0081	8.640
TR8669859-P1-WCM-A-C1-ETA3-3	A	C1	1	1	8.563	0.1280	16	0.0080	8.671
TR8669859-P1-WCM-A-C1-ETA3-4	A	C1	1	1	8.258	0.1282	16	0.0080	8.376
TR8669859-P1-WCM-A-C1-ETA3-5	A	C1	1	1	8.311	0.1284	16	0.0080	8.443
TR8669859-P1-WCM-A-C1-ETA3-6	A	C1	1	1	8.148	0.1287	16	0.0080	8.296
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETA3-1	D	C1	4	1	8.981	0.1263	16	0.0079	8.974
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETA3-2	D	C1	4	1	9.035	0.1260	16	0.0079	9.006
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETA3-3	D	C1	4	1	8.956	0.1261	16	0.0079	8.935
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETA3-1	D	C2	4	2	9.028	0.1275	16	0.0080	9.107
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETA3-2	D	C2	4	2	8.954	0.1277	16	0.0080	9.046
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETA3-3	D	C2	4	2	8.862	0.1278	16	0.0080	8.960
NTP2191Q1-WRX-PW-SOL-WCM-E-C1-1-ETA3-1	E	C1	5	1	8.773	0.1291	16	0.0081	8.960
NTP2191Q1-WRX-PW-SOL-WCM-E-C1-1-ETA3-2	E	C1	5	1	8.706	0.1300	16	0.0081	8.954
NTP2191Q1-WRX-PW-SOL-WCM-E-C1-1-ETA3-3	E	C1	5	1	8.603	0.1305	16	0.0082	8.882
NTP2191Q1-WRX-PW-SOL-WCM-E-C2-1-ETA3-1	E	C2	5	2	8.493	0.1305	16	0.0082	8.768
NTP2191Q1-WRX-PW-SOL-WCM-E-C2-1-ETA3-2	E	C2	5	2	8.577	0.1301	16	0.0081	8.828
NTP2191Q1-WRX-PW-SOL-WCM-E-C2-1-ETA3-3	E	C2	5	2	8.673	0.1299	16	0.0081	8.913

Modulus calculation is obtained from 1000 - 3000 microstrain.

Average	8.633	Average$_{norm}$	0.0080	8.770
Standard Dev.	0.3141	Standard Dev.$_{norm}$		0.2891
Coeff. of Var. [%]	3.638	Coeff. of Var. [%]$_{norm}$		3.297
Min.	7.985	Min.	0.0079	8.099
Max.	9.035	Max.	0.0082	9.107
Number of Spec.	18	Number of Spec.	18	18

**Warp Compression Modulus Properties (WCM)--ETA3(250°F)
Normalized Modulus**
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

X-axis: Warp Compression Modulus [Msi]

Left Y-axis: Cure Cycle #

Right Y-axis: Prepreg Lot #

Warp Compression Modulus Properties (WCM)--ETW1(180°F)
Modulus
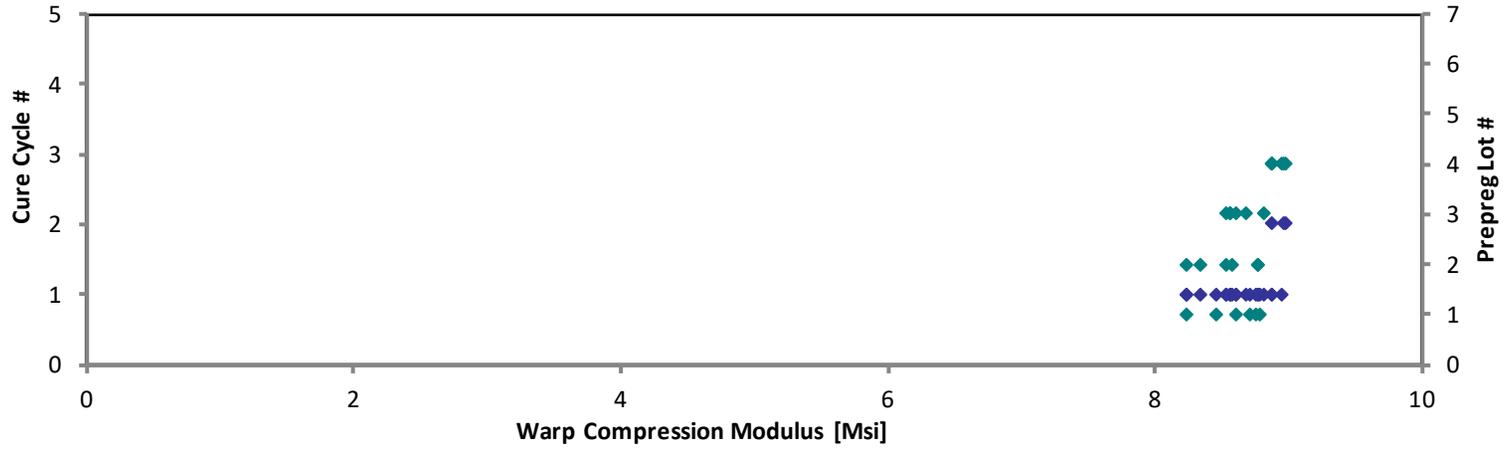Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETW1-2	D	C1	4	1	9.348	0.1235	16	0.0077	9.134
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETW1-3	D	C1	4	1	8.928	0.1252	16	0.0078	8.843
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETW1-4	D	C1	4	1	9.102	0.1253	16	0.0078	9.023
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETW1-1	D	C2	4	2	9.065	0.1274	16	0.0080	9.137
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETW1-2	D	C2	4	2	9.112	0.1274	16	0.0080	9.184
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETW1-3	D	C2	4	2	9.099	0.1272	16	0.0080	9.157
NTP2191Q1-WRX-PW-SOL-WCM-E-C1-1-ETW1-1	E	C1	5	1	8.929	0.1292	16	0.0081	9.127
NTP2191Q1-WRX-PW-SOL-WCM-E-C1-1-ETW1-2	E	C1	5	1	8.925	0.1301	16	0.0081	9.186
NTP2191Q1-WRX-PW-SOL-WCM-E-C1-1-ETW1-3	E	C1	5	1	8.837	0.1304	16	0.0082	9.117
NTP2191Q1-WRX-PW-SOL-WCM-E-C2-1-ETW1-1	E	C2	5	2	8.915	0.1293	16	0.0081	9.120
NTP2191Q1-WRX-PW-SOL-WCM-E-C2-1-ETW1-2	E	C2	5	2	8.894	0.1296	16	0.0081	9.119
NTP2191Q1-WRX-PW-SOL-WCM-E-C2-1-ETW1-3	E	C2	5	2	8.863	0.1299	16	0.0081	9.108
NTP2191Q1-WRX-PW-SOL-WCM-F-C1-1-ETW1-1	F	C1	6	1	9.203	0.1246	16	0.0078	9.072
NTP2191Q1-WRX-PW-SOL-WCM-F-C1-1-ETW1-2	F	C1	6	1	9.121	0.1252	16	0.0078	9.034
NTP2191Q1-WRX-PW-SOL-WCM-F-C1-1-ETW1-3	F	C1	6	1	9.122	0.1257	16	0.0079	9.071
NTP2191Q1-WRX-PW-SOL-WCM-F-C2-1-ETW1-1	F	C2	6	2	9.589	0.1221	16	0.0076	9.263
NTP2191Q1-WRX-PW-SOL-WCM-F-C2-1-ETW1-2	F	C2	6	2	9.363	0.1222	16	0.0076	9.052
NTP2191Q1-WRX-PW-SOL-WCM-F-C2-1-ETW1-3	F	C2	6	2	9.344	0.1225	16	0.0077	9.056

Modulus calculation is obtained from 1000 - 3000 microstrain.

Average	9.098	Average$_{norm}$	0.0079	9.100
Standard Dev.	0.2077	Standard Dev.$_{norm}$		0.08764
Coeff. of Var. [%]	2.283	Coeff. of Var. [%]$_{norm}$		0.9630
Min.	8.837	Min.	0.0076	8.843
Max.	9.589	Max.	0.0082	9.263
Number of Spec.	18	Number of Spec.	18	18

Warp Compression Modulus Properties (WCM)--ETW1(180°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

Warp Compression Modulus Properties (WCM)--ETW2(225°F)
Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%
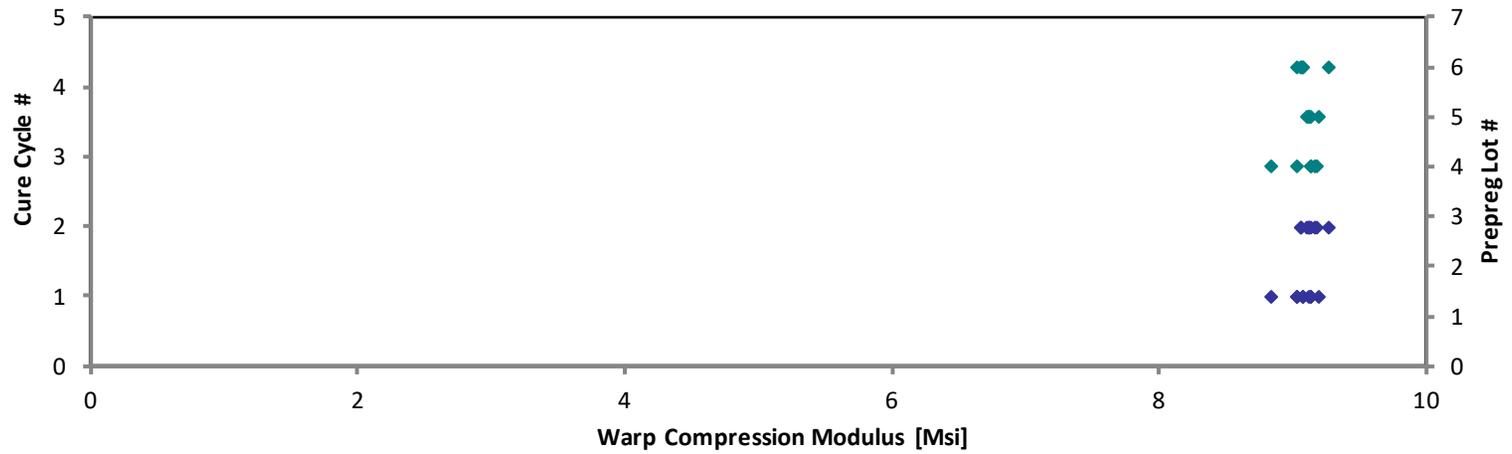
normalizing
t_{ply} [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate		Avg. t_{ply} [in]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETW2-1	D	C1	4	1	8.934	0.1253	16		0.0078	8.856
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETW2-2	D	C1	4	1	9.099	0.1251	16		0.0078	9.005
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETW2-3	D	C1	4	1	9.059	0.1249	16		0.0078	8.951
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETW2-1	D	C2	4	2	8.858	0.1277	16		0.0080	8.949
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETW2-2	D	C2	4	2	8.953	0.1277	16		0.0080	9.045
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETW2-3	D	C2	4	2	8.846	0.1280	16		0.0080	8.958
NTP2191Q1-WRX-PW-SOL-WCM-E-C1-1-ETW2-1	E	C1	5	1	8.708	0.1300	16		0.0081	8.956
NTP2191Q1-WRX-PW-SOL-WCM-E-C1-1-ETW2-2	E	C1	5	1	8.666	0.1300	16		0.0081	8.913
NTP2191Q1-WRX-PW-SOL-WCM-E-C1-1-ETW2-3	E	C1	5	1	8.800	0.1299	16		0.0081	9.044
NTP2191Q1-WRX-PW-SOL-WCM-E-C2-1-ETW2-1	E	C2	5	2	8.649	0.1301	16		0.0081	8.902
NTP2191Q1-WRX-PW-SOL-WCM-E-C2-1-ETW2-2	E	C2	5	2	8.605	0.1304	16		0.0082	8.877
NTP2191Q1-WRX-PW-SOL-WCM-E-C2-1-ETW2-3	E	C2	5	2	8.614	0.1303	16		0.0081	8.880
NTP2191Q1-WRX-PW-SOL-WCM-F-C1-1-ETW2-1	F	C1	6	1	8.920	0.1264	16		0.0079	8.920
NTP2191Q1-WRX-PW-SOL-WCM-F-C1-1-ETW2-2	F	C1	6	1	8.966	0.1262	16		0.0079	8.952
NTP2191Q1-WRX-PW-SOL-WCM-F-C1-1-ETW2-3	F	C1	6	1	9.085	0.1261	16		0.0079	9.063
NTP2191Q1-WRX-PW-SOL-WCM-F-C2-1-ETW2-1	F	C2	6	2	9.302	0.1250	16		0.0078	9.199
NTP2191Q1-WRX-PW-SOL-WCM-F-C2-1-ETW2-2	F	C2	6	2	9.242	0.1246	16		0.0078	9.110
NTP2191Q1-WRX-PW-SOL-WCM-F-C2-1-ETW2-3	F	C2	6	2	9.163	0.1248	16		0.0078	9.047

Modulus calculation is obtained from 1000 - 3000 microstrain.

Average	8.915	**Average$_{norm}$**	0.0080	8.979
Standard Dev.	0.2155	**Standard Dev.$_{norm}$**		0.09043
Coeff. of Var. [%]	2.418	**Coeff. of Var. [%]$_{norm}$**		1.007
Min.	8.605	**Min.**	0.0078	8.856
Max.	9.302	**Max.**	0.0082	9.199
Number of Spec.	18	**Number of Spec.**	18	18

**Warp Compression Modulus Properties (WCM)--ETW2(225°F)
Normalized Modulus**
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
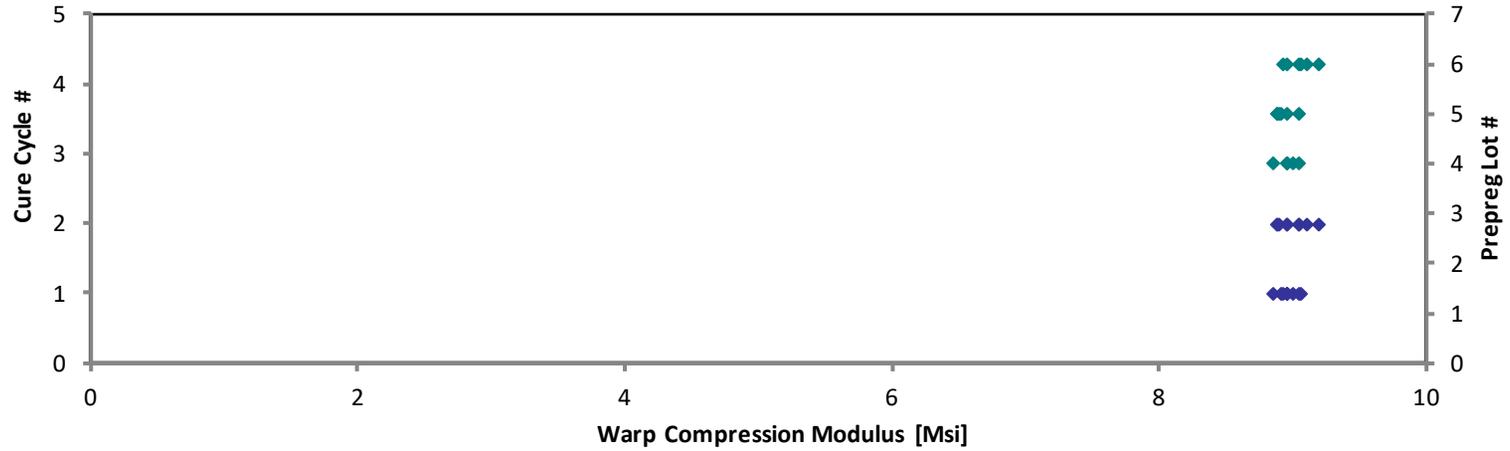
◆ Prepreg Lot #

Warp Compression Modulus Properties (WCM)--ETW3(250°F)
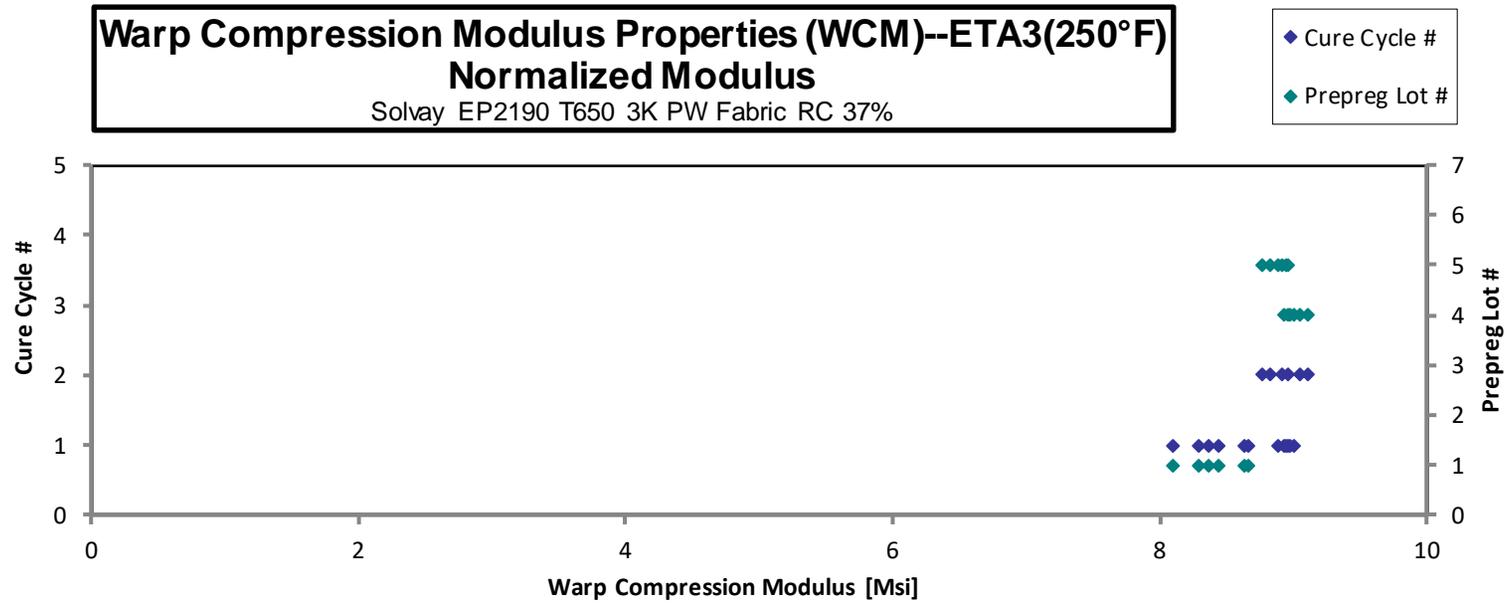**Modulus**
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETW3-1	D	C1	4	1	8.963	0.1250	16	0.0078	8.864
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETW3-3	D	C1	4	1	8.832	0.1250	16	0.0078	8.734
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-ETW3-4	D	C1	4	1	8.902	0.1254	16	0.0078	8.832
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETW3-1	D	C2	4	2	8.743	0.1278	16	0.0080	8.840
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETW3-2	D	C2	4	2	8.753	0.1276	16	0.0080	8.836
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-ETW3-3	D	C2	4	2	8.674	0.1276	16	0.0080	8.756
NTP2191Q1-WRX-PW-SOL-WCM-E-C1-1-ETW3-1	E	C1	5	1	8.755	0.1300	16	0.0081	9.004
NTP2191Q1-WRX-PW-SOL-WCM-E-C1-1-ETW3-2	E	C1	5	1	8.805	0.1301	16	0.0081	9.063
NTP2191Q1-WRX-PW-SOL-WCM-E-C1-1-ETW3-3	E	C1	5	1	8.711	0.1304	16	0.0082	8.987
NTP2191Q1-WRX-PW-SOL-WCM-E-C2-1-ETW3-1	E	C2	5	2	8.632	0.1271	16	0.0079	8.680
NTP2191Q1-WRX-PW-SOL-WCM-E-C2-1-ETW3-2	E	C2	5	2	8.618	0.1291	16	0.0081	8.802
NTP2191Q1-WRX-PW-SOL-WCM-E-C2-1-ETW3-3	E	C2	5	2	8.395	0.1300	16	0.0081	8.634
NTP2191Q1-WRX-PW-SOL-WCM-F-C1-1-ETW3-1	F	C1	6	1	8.782	0.1266	16	0.0079	8.796
NTP2191Q1-WRX-PW-SOL-WCM-F-C1-1-ETW3-2	F	C1	6	1	8.848	0.1261	16	0.0079	8.827
NTP2191Q1-WRX-PW-SOL-WCM-F-C1-1-ETW3-3	F	C1	6	1	8.989	0.1261	16	0.0079	8.968
NTP2191Q1-WRX-PW-SOL-WCM-F-C2-1-ETW3-1	F	C2	6	2	8.862	0.1243	16	0.0078	8.715
NTP2191Q1-WRX-PW-SOL-WCM-F-C2-1-ETW3-2	F	C2	6	2	8.800	0.1233	16	0.0077	8.584
NTP2191Q1-WRX-PW-SOL-WCM-F-C2-1-ETW3-3	F	C2	6	2	8.962	0.1227	16	0.0077	8.700

Modulus calculation is obtained from 1000 - 3000 microstrain.

Average	8.779	Average$_{norm}$	0.0079	8.812
Standard Dev.	0.1446	Standard Dev.$_{norm}$		0.1310
Coeff. of Var. [%]	1.647	Coeff. of Var. [%]$_{norm}$		1.487
Min.	8.395	Min.	0.0077	8.584
Max.	8.989	Max.	0.0082	9.063
Number of Spec.	18	Number of Spec.	18	18

Warp Compression Modulus Properties (WCM)--ETW3(250°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

Legend:
- ◆ Cure Cycle #
- ◆ Prepreg Lot #

X-axis: Warp Compression Modulus [Msi]
Left Y-axis: Cure Cycle #
Right Y-axis: Prepreg Lot #
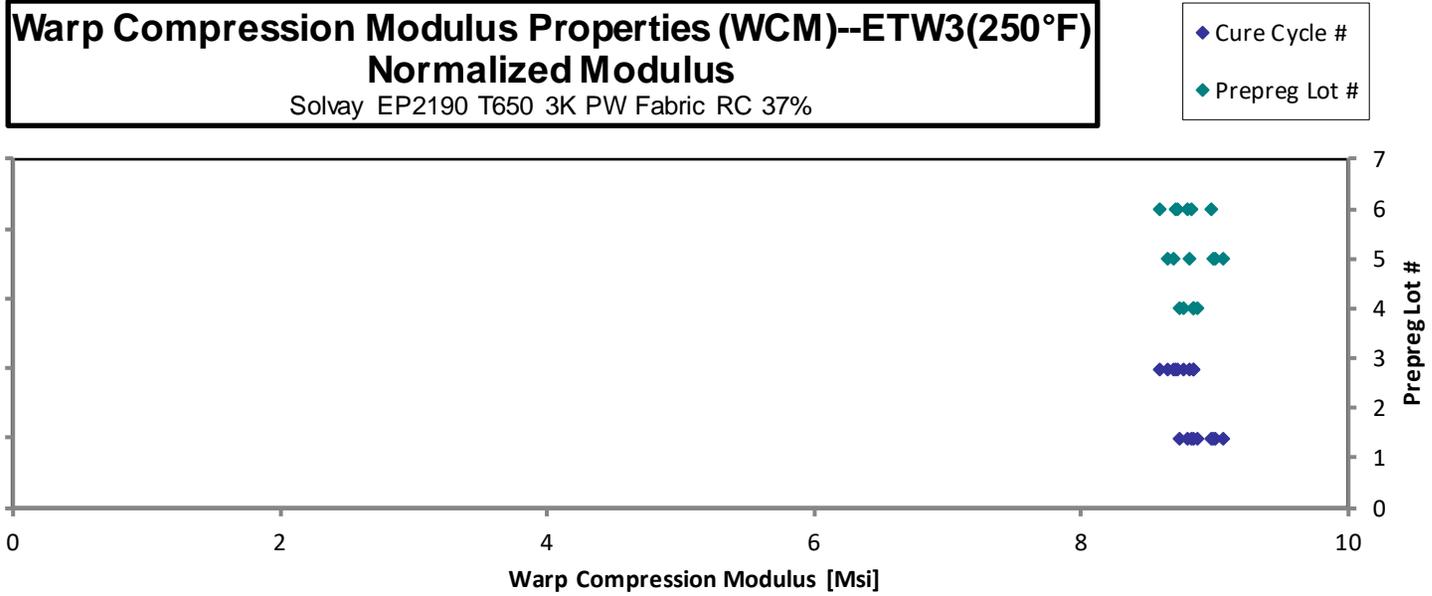
4.5 Fill Compression Strength Properties (FCS)

Fill Compression Strength Properties (FCS)--CTA(-67°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
TR8677658-P1-FCS-A-C1-CTA-1	A	C1	1	1	128.6	0.1281	16	BGM	0.0080	130.4
TR8677658-P1-FCS-A-C1-CTA-2	A	C1	1	1	130.8	0.1279	16	BGM	0.0080	132.4
TR8677658-P1-FCS-A-C1-CTA-3	A	C1	1	1	128.3	0.1284	16	BGM	0.0080	130.3
TR8677658-P1-FCS-A-C1-CTA-4	A	C1	1	1	123.9	0.1286	16	BGM	0.0080	126.0
TR8677658-P1-FCS-A-C1-CTA-5	A	C1	1	1	127.7	0.1281	16	BGM	0.0080	129.4
TR8677658-P1-FCS-A-C1-CTA-6	A	C1	1	1	121.2	0.1287	16	BGM	0.0080	123.4
TR8345664-P2-FCS-B-C1-CTA-1	B	C1	2	1	114.1	0.1312	16	MGB	0.0082	118.4
TR8345664-P2-FCS-B-C1-CTA-2	B	C1	2	1	115.5	0.1301	16	BGM	0.0081	118.9
TR8345664-P2-FCS-B-C1-CTA-3	B	C1	2	1	117.2	0.1303	16	BGM	0.0081	120.8
TR8345664-P2-FCS-B-C1-CTA-4	B	C1	2	1	112.6	0.1310	16	BGM	0.0082	116.7
TR8345664-P2-FCS-B-C1-CTA-5	B	C1	2	1	113.3	0.1308	16	BGM	0.0082	117.2
TR8345664-P2-FCS-B-C1-CTA-6	B	C1	2	1	119.9	0.1312	16	BGM	0.0082	124.4
TR8346141-P1-FCS-C-C1-CTA-1	C	C1	3	1	118.7	0.1276	16	MGT	0.0080	119.8
TR8346141-P1-FCS-C-C1-CTA-2	C	C1	3	1	127.1	0.1266	16	MGT	0.0079	127.3
TR8346141-P1-FCS-C-C1-CTA-3	C	C1	3	1	125.2	0.1269	16	HAB	0.0079	125.7
TR8346141-P1-FCS-C-C1-CTA-4	C	C1	3	1	122.8	0.1275	16	BGM	0.0080	123.8
TR8346141-P1-FCS-C-C1-CTA-5	C	C1	3	1	123.0	0.1279	16	BGM	0.0080	124.5
TR8346141-P1-FCS-C-C1-CTA-6	C	C1	3	1	114.6	0.1280	16	BGM	0.0080	116.1
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-CTA-1	D	C1	4	1	131.9	0.1269	16	BGM	0.0079	132.4
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-CTA-2	D	C1	4	1	128.8	0.1265	16	BGM	0.0079	128.9
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-CTA-3	D	C1	4	1	136.3	0.1271	16	BGM	0.0079	137.0
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-CTA-2	D	C2	4	2	137.2	0.1278	16	BGM	0.0080	138.8
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-CTA-3	D	C2	4	2	135.8	0.1277	16	BGM	0.0080	137.2
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-CTA-4	D	C2	4	2	139.3	0.1268	16	BGM	0.0079	139.8

Average	124.7	$Average_{norm}$	0.0080 126.6
Standard Dev.	8.046	$Standard\ Dev._{norm}$	7.171
Coeff. of Var. [%]	6.451	$Coeff.\ of\ Var.\ [\%]_{norm}$	5.662
Min.	112.6	Min.	0.0079 116.1
Max.	139.3	Max.	0.0082 139.8
Number of Spec.	24	Number of Spec.	24 24

Fill Compression Strength Properties (FCS)--CTA(-67°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Fill Compression Strength Properties (FCS)--RTA(75°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
TR8677658-P1-FCS-A-C1-RTA-1	A	C1	1	1	110.5	0.1279	16	HAT	0.0080	111.8
TR8677658-P1-FCS-A-C1-RTA-2	A	C1	1	1	111.5	0.1277	16	HGM	0.0080	112.6
TR8677658-P1-FCS-A-C1-RTA-3	A	C1	1	1	113.7	0.1283	16	HGM	0.0080	115.4
TR8677658-P1-FCS-A-C1-RTA-4	A	C1	1	1	114.6	0.1284	16	HAT	0.0080	116.4
TR8677658-P1-FCS-A-C1-RTA-5	A	C1	1	1	113.3	0.1281	16	HGM	0.0080	114.9
TR8677658-P1-FCS-A-C1-RTA-6	A	C1	1	1	109.0	0.1283	16	HAT	0.0080	110.6
TR8345664-P2-FCS-B-C1-RTA-1	B	C1	2	1	102.5	0.1303	16	BGM	0.0081	105.7
TR8345664-P2-FCS-B-C1-RTA-2	B	C1	2	1	104.5	0.1300	16	BGM	0.0081	107.5
TR8345664-P2-FCS-B-C1-RTA-3	B	C1	2	1	106.0	0.1302	16	BGM	0.0081	109.1
TR8345664-P2-FCS-B-C1-RTA-4	B	C1	2	1	106.9	0.1306	16	BGM	0.0082	110.4
TR8345664-P2-FCS-B-C1-RTA-5	B	C1	2	1	109.2	0.1305	16	BGM	0.0082	112.7
TR8345664-P2-FCS-B-C1-RTA-6	B	C1	2	1	106.3	0.1313	16	BGM	0.0082	110.4
TR8346141-P1-FCS-C-C1-RTA-1	C	C1	3	1	113.0	0.1267	16	BGM	0.0079	113.2
TR8346141-P1-FCS-C-C1-RTA-2	C	C1	3	1	112.6	0.1275	16	MGM	0.0080	113.6
TR8346141-P1-FCS-C-C1-RTA-3	C	C1	3	1	112.4	0.1274	16	BGM	0.0080	113.3
TR8346141-P1-FCS-C-C1-RTA-4	C	C1	3	1	109.4	0.1271	16	MGM	0.0079	110.0
TR8346141-P1-FCS-C-C1-RTA-5	C	C1	3	1	110.1	0.1277	16	MGM	0.0080	111.3
TR8346141-P1-FCS-C-C1-RTA-6	C	C1	3	1	109.4	0.1283	16	BGM	0.0080	111.0
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-RTA-1	D	C1	4	1	117.0	0.1274	16	BGM	0.0080	117.9
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-RTA-2	D	C1	4	1	109.4	0.1274	16	BGM	0.0080	110.3
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-RTA-3	D	C1	4	1	119.8	0.1276	16	BGM	0.0080	120.9
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-RTA-1	D	C2	4	2	114.5	0.1279	16	BGM	0.0080	115.8
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-RTA-2	D	C2	4	2	111.5	0.1279	16	BGM	0.0080	112.9
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-RTA-3	D	C2	4	2	120.9	0.1273	16	BGM	0.0080	121.7

Average	111.2	**Average$_{norm}$** 0.0080	112.9
Standard Dev.	4.430	**Standard Dev.$_{norm}$**	3.818
Coeff. of Var. [%]	3.985	**Coeff. of Var. [%]$_{norm}$**	3.382
Min.	102.5	**Min.** 0.0079	105.7
Max.	120.9	**Max.** 0.0082	121.7
Number of Spec.	24	**Number of Spec.** 24	24

Fill Compression Strength Properties (FCS)--RTA(75°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Fill Compression Strength Properties (FCS)--ETA2(225°F) Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-ETA2-1	D	C1	4	1	84.08	0.1270	16	HGT	0.0079	84.48
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-ETA2-2	D	C1	4	1	89.24	0.1272	16	HGT	0.0080	89.80
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-ETA2-3	D	C1	4	1	89.39	0.1275	16	BGM	0.0080	90.17
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-ETA2-1	D	C2	4	2	84.35	0.1270	16	HGM	0.0079	84.75
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-ETA2-2	D	C2	4	2	81.67	0.1271	16	HGM	0.0079	82.12
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-ETA2-3	D	C2	4	2	82.87	0.1275	16	HGM	0.0080	83.59

Average	85.27	Average$_{norm}$	0.0080	85.82
Standard Dev.	3.278	Standard Dev.$_{norm}$		3.358
Coeff. of Var. [%]	3.844	Coeff. of Var. [%]$_{norm}$		3.912
Min.	81.67	Min.	0.0079	82.12
Max.	89.39	Max.	0.0080	90.17
Number of Spec.	6	Number of Spec.	6	6

Fill Compression Strength Properties (FCS)--ETA2(225°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

Fill Compression Strength Properties (FCS)--ETA3(250°F)
Strength
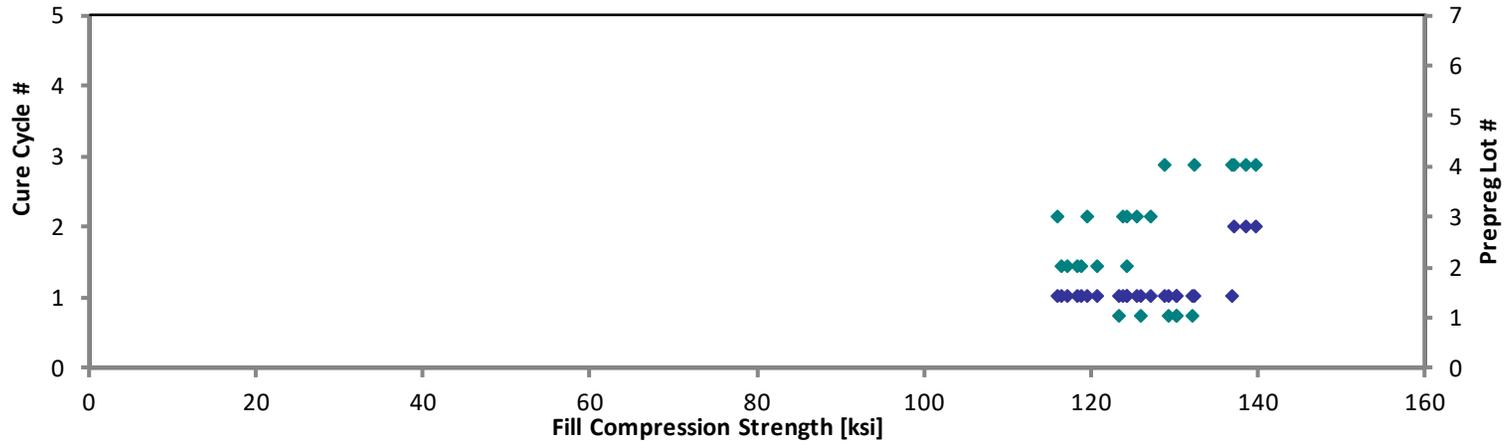Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
TR8677658-P3-FCS-A-C1-ETA3-1	A	C1	1	1	83.50	0.1256	16	HGM	0.0079	82.97
TR8677658-P3-FCS-A-C1-ETA3-2	A	C1	1	1	77.68	0.1258	16	HGM	0.0079	77.31
TR8677658-P3-FCS-A-C1-ETA3-3	A	C1	1	1	79.20	0.1253	16	HGM	0.0078	78.51
TR8677658-P3-FCS-A-C1-ETA3-4	A	C1	1	1	83.60	0.1256	16	HGM	0.0079	83.07
TR8677658-P3-FCS-A-C1-ETA3-5	A	C1	1	1	81.95	0.1256	16	HAT	0.0079	81.43
TR8677658-P3-FCS-A-C1-ETA3-6	A	C1	1	1	79.34	0.1262	16	HGM	0.0079	79.21
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-1-ETA3-1	D	C1	4	1	87.36	0.1266	16	HGT	0.0079	87.50
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-1-ETA3-2	D	C1	4	1	80.04	0.1269	16	HGT	0.0079	80.36
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-1-ETA3-3	D	C1	4	1	79.05	0.1270	16	BGM	0.0079	79.43
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-ETA3-1	D	C2	4	2	85.43	0.1274	16	BGM	0.0080	86.11
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-ETA3-2	D	C2	4	2	84.35	0.1274	16	BGM	0.0080	85.02
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-ETA3-3	D	C2	4	2	88.69	0.1280	16	BGM	0.0080	89.81
NTP2191Q1-WRX-PW-SOL-FCS-E-C1-1-ETA3-1	E	C1	5	1	69.46	0.1317	16	AGM	0.0082	72.37
NTP2191Q1-WRX-PW-SOL-FCS-E-C1-1-ETA3-2	E	C1	5	1	68.13	0.1310	16	BGM	0.0082	70.61
NTP2191Q1-WRX-PW-SOL-FCS-E-C1-1-ETA3-3	E	C1	5	1	73.99	0.1308	16	BGM	0.0082	76.57
NTP2191Q1-WRX-PW-SOL-FCS-E-C2-1-ETA3-1	E	C2	5	2	68.48	0.1306	16	BGM	0.0082	70.76
NTP2191Q1-WRX-PW-SOL-FCS-E-C2-1-ETA3-2	E	C2	5	2	72.40	0.1308	16	BGM	0.0082	74.92
NTP2191Q1-WRX-PW-SOL-FCS-E-C2-1-ETA3-3	E	C2	5	2	77.22	0.1301	16	BGM	0.0081	79.48

Average	78.88	Average$_{norm}$	0.0080	79.75
Standard Dev.	6.316	Standard Dev.$_{norm}$		5.500
Coeff. of Var. [%]	8.008	Coeff. of Var. [%]$_{norm}$		6.897
Min.	68.13	Min.	0.0078	70.61
Max.	88.69	Max.	0.0082	89.81
Number of Spec.	18	Number of Spec.	18	18

**Fill Compression Strength Properties (FCS)--ETA3(250°F)
Normalized Strength**
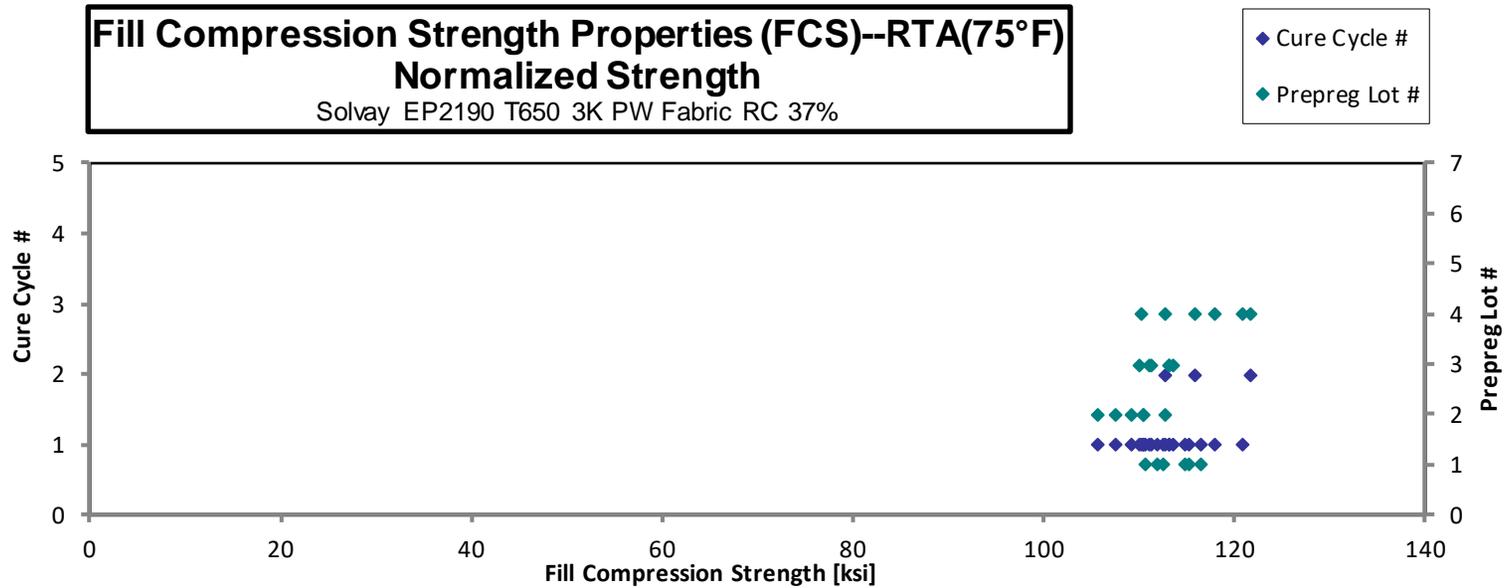Solvay EP2190 T650 3K PW Fabric RC 37%

Fill Compression Strength Properties (FCS)--ETW1(180°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-ETW1-1	D	C1	4	1	94.51	0.1268	16	BGM	0.0079	94.81
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-ETW1-2	D	C1	4	1	85.86	0.1270	16	BGM	0.0079	86.27
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-ETW1-3	D	C1	4	1	90.41	0.1271	16	BGM	0.0079	90.91
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-ETW1-1	D	C2	4	2	82.58	0.1279	16	BGM	0.0080	83.56
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-ETW1-2	D	C2	4	2	81.73	0.1277	16	BGM	0.0080	82.57
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-ETW1-3	D	C2	4	2	81.25	0.1277	16	BGM	0.0080	82.09
NTP2191Q1-WRX-PW-SOL-FCS-E-C1-1-ETW1-1	E	C1	5	1	78.90	0.1316	16	HGT	0.0082	82.15
NTP2191Q1-WRX-PW-SOL-FCS-E-C1-1-ETW1-2	E	C1	5	1	88.67	0.1314	16	HGM	0.0082	92.18
NTP2191Q1-WRX-PW-SOL-FCS-E-C1-1-ETW1-4	E	C1	5	1	92.33	0.1298	16	HGT	0.0081	94.81
NTP2191Q1-WRX-PW-SOL-FCS-E-C2-1-ETW1-1	E	C2	5	2	82.81	0.1298	16	HGT	0.0081	85.04
NTP2191Q1-WRX-PW-SOL-FCS-E-C2-1-ETW1-2	E	C2	5	2	87.92	0.1295	16	HGM	0.0081	90.08
NTP2191Q1-WRX-PW-SOL-FCS-E-C2-1-ETW1-3	E	C2	5	2	84.54	0.1290	16	HGB	0.0081	86.28
NTP2191Q1-WRX-PW-SOL-FCS-F-C1-1-ETW1-1	F	C1	6	1	87.02	0.1274	16	HAB	0.0080	87.71
NTP2191Q1-WRX-PW-SOL-FCS-F-C1-1-ETW1-2	F	C1	6	1	90.31	0.1271	16	HAT	0.0079	90.81
NTP2191Q1-WRX-PW-SOL-FCS-F-C1-1-ETW1-4	F	C1	6	1	95.00	0.1277	16	BGB	0.0080	95.98
NTP2191Q1-WRX-PW-SOL-FCS-F-C2-1-ETW1-1	F	C2	6	2	92.17	0.1263	16	HAT	0.0079	92.10
NTP2191Q1-WRX-PW-SOL-FCS-F-C2-1-ETW1-2	F	C2	6	2	95.12	0.1266	16	BGM	0.0079	95.27
NTP2191Q1-WRX-PW-SOL-FCS-F-C2-1-ETW1-3	F	C2	6	2	94.59	0.1264	16	BGM	0.0079	94.59

Average	88.10	Average$_{norm}$	0.0080	89.29
Standard Dev.	5.284	Standard Dev.$_{norm}$		4.917
Coeff. of Var. [%]	5.998	Coeff. of Var. [%]$_{norm}$		5.507
Min.	78.90	Min.	0.0079	82.09
Max.	95.12	Max.	0.0082	95.98
Number of Spec.	18	Number of Spec.	18	18

Fill Compression Strength Properties (FCS)--ETW1(180°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Fill Compression Strength Properties (FCS)--ETW2(225°F)
Strength
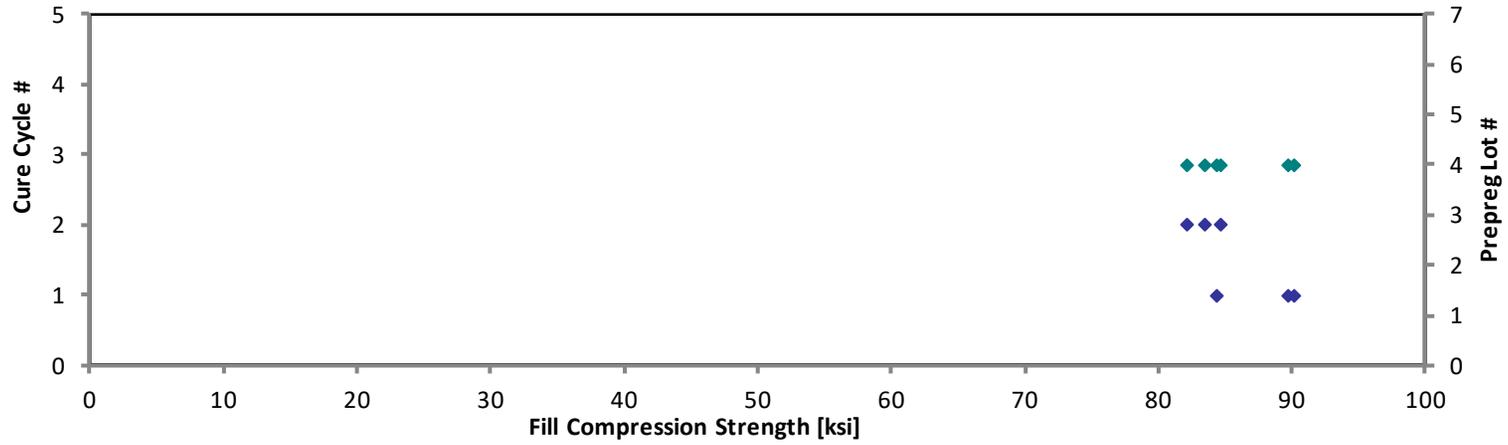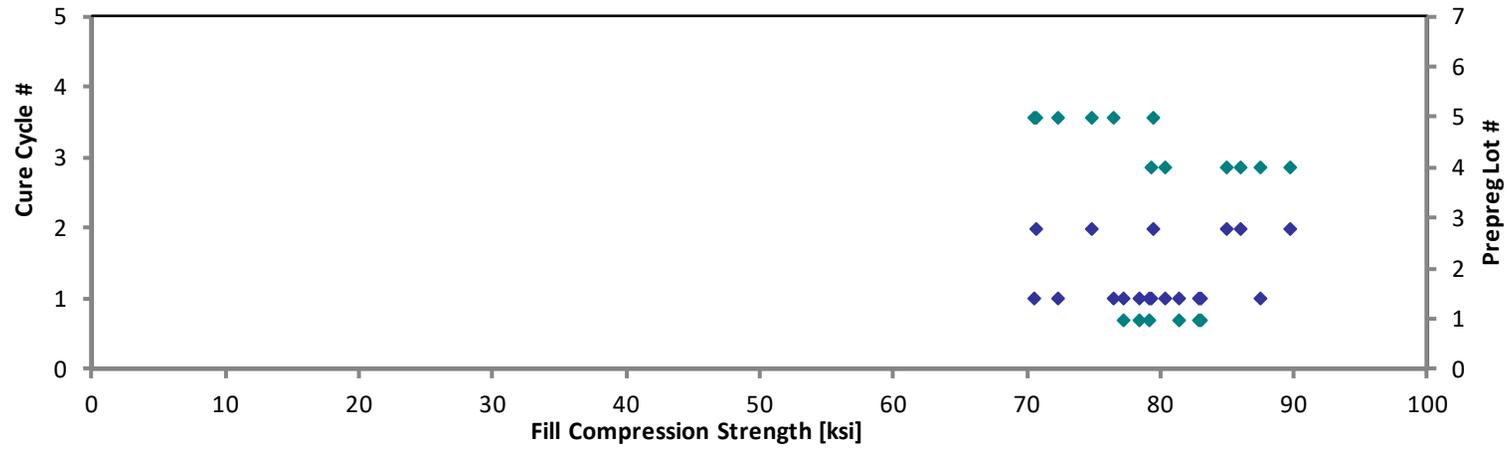Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-ETW2-1	D	C1	4	1	74.57	0.1268	16	BGM	0.0079	74.81
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-ETW2-2	D	C1	4	1	73.08	0.1272	16	BGM	0.0080	73.54
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-ETW2-3	D	C1	4	1	72.54	0.1273	16	BGM	0.0080	73.06
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-ETW2-1	D	C2	4	2	67.03	0.1271	16	BGM	0.0079	67.40
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-ETW2-2	D	C2	4	2	67.45	0.1277	16	BGM	0.0080	68.14
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-ETW2-3	D	C2	4	2	64.52	0.1275	16	BGM	0.0080	65.08
NTP2191Q1-WRX-PW-SOL-FCS-E-C1-1-ETW2-1	E	C1	5	1	67.41	0.1322	16	HGM	0.0083	70.50
NTP2191Q1-WRX-PW-SOL-FCS-E-C1-1-ETW2-2	E	C1	5	1	66.46	0.1323	16	HGM	0.0083	69.56
NTP2191Q1-WRX-PW-SOL-FCS-E-C1-1-ETW2-3	E	C1	5	1	72.97	0.1320	16	HGM	0.0083	76.20
NTP2191Q1-WRX-PW-SOL-FCS-E-C2-1-ETW2-1	E	C2	5	2	57.38	0.1300	16	HGM	0.0081	59.01
NTP2191Q1-WRX-PW-SOL-FCS-E-C2-1-ETW2-2	E	C2	5	2	66.69	0.1297	16	HGM	0.0081	68.43
NTP2191Q1-WRX-PW-SOL-FCS-E-C2-1-ETW2-3	E	C2	5	2	60.40	0.1297	16	HGM	0.0081	61.98
NTP2191Q1-WRX-PW-SOL-FCS-F-C1-1-ETW2-1	F	C1	6	1	75.19	0.1261	16	BGT	0.0079	75.01
NTP2191Q1-WRX-PW-SOL-FCS-F-C1-1-ETW2-2	F	C1	6	1	69.55	0.1261	16	BGM	0.0079	69.38
NTP2191Q1-WRX-PW-SOL-FCS-F-C1-1-ETW2-3	F	C1	6	1	74.62	0.1266	16	BGB	0.0079	74.74
NTP2191Q1-WRX-PW-SOL-FCS-F-C2-1-ETW2-1	F	C2	6	2	77.13	0.1266	16	BGM	0.0079	77.25
NTP2191Q1-WRX-PW-SOL-FCS-F-C2-1-ETW2-2	F	C2	6	2	75.37	0.1266	16	BGM	0.0079	75.49
NTP2191Q1-WRX-PW-SOL-FCS-F-C2-1-ETW2-3	F	C2	6	2	75.66	0.1266	16	BGM	0.0079	75.78

Average	69.89	Average$_{norm}$	0.0080	70.85
Standard Dev.	5.597	Standard Dev.$_{norm}$		5.183
Coeff. of Var. [%]	8.009	Coeff. of Var. [%]$_{norm}$		7.316
Min.	57.38	Min.	0.0079	59.01
Max.	77.13	Max.	0.0083	77.25
Number of Spec.	18	Number of Spec.	18	18

Fill Compression Strength Properties (FCS)--ETW2(225°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

4.6 Fill Compression Modulus Properties (FCM)

Fill Compression Modulus Properties (FCM)--CTA(-67°F) Modulus Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	$Modulus_{norm}$ [Msi]
TR8695752-P1-FCM-A-C1-CTA-1	A	C1	1	1	8.430	0.1290	16	0.0081	8.603
TR8695752-P1-FCM-A-C1-CTA-2	A	C1	1	1	7.982	0.1280	16	0.0080	8.083
TR8695752-P1-FCM-A-C1-CTA-3	A	C1	1	1	8.068	0.1276	16	0.0080	8.145
TR8695752-P1-FCM-A-C1-CTA-4	A	C1	1	1	8.418	0.1274	16	0.0080	8.485
TR8695752-P1-FCM-A-C1-CTA-5	A	C1	1	1	8.273	0.1272	16	0.0080	8.325
TR8695752-P1-FCM-A-C1-CTA-6	A	C1	1	1	8.177	0.1278	16	0.0080	8.268
TR8345667-P2-FCM-B-C1-CTA-1	B	C1	2	1	8.700	0.1250	16	0.0078	8.604
TR8345667-P2-FCM-B-C1-CTA-2	B	C1	2	1	8.278	0.1292	16	0.0081	8.461
TR8345667-P2-FCM-B-C1-CTA-3	B	C1	2	1	8.199	0.1291	16	0.0081	8.374
TR8345667-P2-FCM-B-C1-CTA-4	B	C1	2	1	8.330	0.1294	16	0.0081	8.528
TR8345667-P2-FCM-B-C1-CTA-5	B	C1	2	1	8.149	0.1298	16	0.0081	8.368
TR8345667-P2-FCM-B-C1-CTA-6	B	C1	2	1	8.078	0.1301	16	0.0081	8.314
TR8346142-P1-FCM-C-C1-CTA-1	C	C1	3	1	8.166	0.1266	16	0.0079	8.179
TR8346142-P1-FCM-C-C1-CTA-2	C	C1	3	1	8.733	0.1262	16	0.0079	8.719
TR8346142-P1-FCM-C-C1-CTA-3	C	C1	3	1	8.422	0.1266	16	0.0079	8.435
TR8346142-P1-FCM-C-C1-CTA-4	C	C1	3	1	8.295	0.1269	16	0.0079	8.328
TR8346142-P1-FCM-C-C1-CTA-5	C	C1	3	1	8.900	0.1270	16	0.0079	8.942
TR8346142-P1-FCM-C-C1-CTA-6	C	C1	3	1	8.307	0.1270	16	0.0079	8.346
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-CTA-1	D	C1	4	1	8.562	0.1256	16	0.0079	8.508
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-CTA-2	D	C1	4	1	8.582	0.1252	16	0.0078	8.501
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-CTA-3	D	C1	4	1	8.739	0.1247	16	0.0078	8.621
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-CTA-1	D	C2	4	2	8.852	0.1269	16	0.0079	8.887
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-CTA-2	D	C2	4	2	8.735	0.1269	16	0.0079	8.770
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-CTA-3	D	C2	4	2	8.688	0.1270	16	0.0079	8.729

Modulus calculation is obtained from 1000 - 3000 microstrain.

Average	8.419	$Average_{norm}$	0.0080	8.480
Standard Dev.	0.2694	$Standard Dev._{norm}$		0.2246
Coeff. of Var. [%]	3.200	$Coeff. of Var. [\%]_{norm}$		2.649
Min.	7.982	Min.	0.0078	8.083
Max.	8.900	Max.	0.0081	8.942
Number of Spec.	24	Number of Spec.	24	24

**Fill Compression Modulus Properties (FCM)--CTA(-67°F)
Normalized Modulus**
Solvay EP2190 T650 3K PW Fabric RC 37%

Fill Compression Modulus Properties (FCM)--RTA(75°F)
Modulus
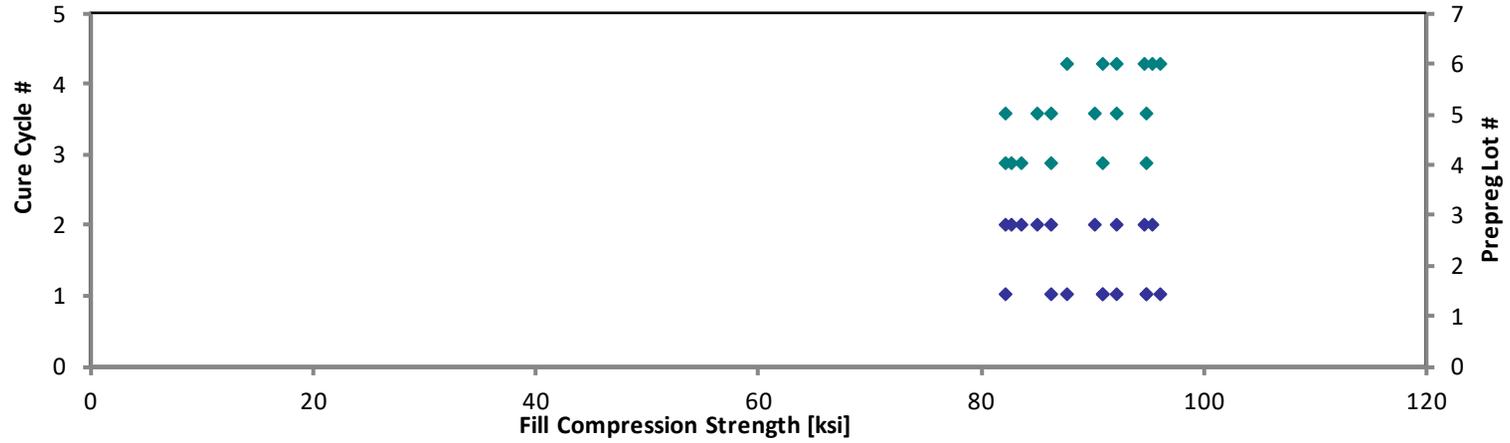Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Modulus$_{norm}$ [Msi]
TR8695752-P1-FCM-A-C1-RTA-1	A	C1	1	1	8.834	0.1280	16	0.0080	8.946
TR8695752-P1-FCM-A-C1-RTA-2	A	C1	1	1	8.658	0.1276	16	0.0080	8.740
TR8695752-P1-FCM-A-C1-RTA-3	A	C1	1	1	8.848	0.1274	16	0.0080	8.918
TR8695752-P1-FCM-A-C1-RTA-4	A	C1	1	1	9.083	0.1271	16	0.0079	9.133
TR8695752-P1-FCM-A-C1-RTA-5	A	C1	1	1	8.655	0.1275	16	0.0080	8.730
TR8695752-P1-FCM-A-C1-RTA-6	A	C1	1	1	8.841	0.1225	16	0.0077	8.568
TR8345667-P2-FCM-B-C1-RTA-1	B	C1	2	1	8.051	0.1299	16	0.0081	8.274
TR8345667-P2-FCM-B-C1-RTA-2	B	C1	2	1	7.981	0.1299	16	0.0081	8.202
TR8345667-P2-FCM-B-C1-RTA-3	B	C1	2	1	8.280	0.1297	16	0.0081	8.496
TR8345667-P2-FCM-B-C1-RTA-4	B	C1	2	1	7.958	0.1301	16	0.0081	8.191
TR8345667-P2-FCM-B-C1-RTA-5	B	C1	2	1	8.078	0.1309	16	0.0082	8.366
TR8345667-P2-FCM-B-C1-RTA-6	B	C1	2	1	7.794	0.1314	16	0.0082	8.102
TR8346142-P1-FCM-C-C1-RTA-1	C	C1	3	1	8.318	0.1273	16	0.0080	8.377
TR8346142-P1-FCM-C-C1-RTA-2	C	C1	3	1	8.515	0.1270	16	0.0079	8.555
TR8346142-P1-FCM-C-C1-RTA-3	C	C1	3	1	8.261	0.1266	16	0.0079	8.274
TR8346142-P1-FCM-C-C1-RTA-4	C	C1	3	1	8.377	0.1267	16	0.0079	8.397
TR8346142-P1-FCM-C-C1-RTA-5	C	C1	3	1	8.197	0.1265	16	0.0079	8.203
TR8346142-P1-FCM-C-C1-RTA-6	C	C1	3	1	8.418	0.1264	16	0.0079	8.418
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-RTA-1	D	C1	4	1	8.834	0.1240	16	0.0078	8.666
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-RTA-2	D	C1	4	1	8.780	0.1251	16	0.0078	8.690
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-RTA-3	D	C1	4	1	8.805	0.1254	16	0.0078	8.735
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-RTA-1	D	C2	4	2	8.660	0.1274	16	0.0080	8.729
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-RTA-2	D	C2	4	2	8.689	0.1273	16	0.0080	8.751
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-RTA-3	D	C2	4	2	8.728	0.1271	16	0.0079	8.776

Modulus calculation is obtained from 1000 - 3000 microstrain.

Average	8.485	Average$_{norm}$	0.0080	8.552
Standard Dev.	0.3503	Standard Dev.$_{norm}$		0.2737
Coeff. of Var. [%]	4.129	Coeff. of Var. [%]$_{norm}$		3.200
Min.	7.794	Min.	0.0077	8.102
Max.	9.083	Max.	0.0082	9.133
Number of Spec.	24	Number of Spec.	24	24

**Fill Compression Modulus Properties (FCM)--RTA(75°F)
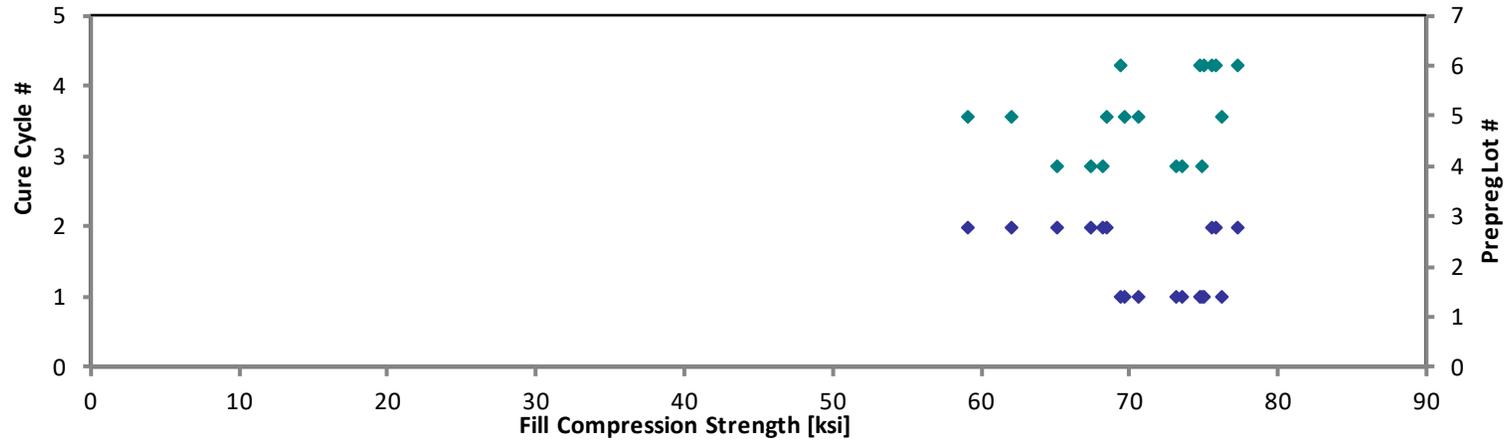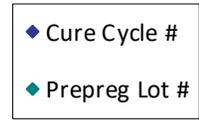Normalized Modulus**
Solvay EP2190 T650 3K PW Fabric RC 37%

Fill Compression Modulus Properties (FCM)--ETA2(225°F)
Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-ETA2-1	D	C1	4	1	8.754	0.1257	16	0.0079	8.706
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-ETA2-2	D	C1	4	1	8.672	0.1256	16	0.0079	8.617
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-ETA2-3	D	C1	4	1	8.730	0.1256	16	0.0079	8.675
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-ETA2-1	D	C2	4	2	8.875	0.1270	16	0.0079	8.917
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-ETA2-2	D	C2	4	2	8.900	0.1271	16	0.0079	8.949
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-ETA2-3	D	C2	4	2	8.878	0.1269	16	0.0079	8.913

Modulus calculation is obtained from 1000 - 3000 microstrain.

Average	**8.802**	**Average$_{norm}$**	**0.0079**	**8.796**
Standard Dev.	**0.09497**	**Standard Dev.$_{norm}$**		**0.1461**
Coeff. of Var. [%]	**1.079**	**Coeff. of Var. [%]$_{norm}$**		**1.661**
Min.	**8.672**	**Min.**	**0.0079**	**8.617**
Max.	**8.900**	**Max.**	**0.0079**	**8.949**
Number of Spec.	**6**	**Number of Spec.**	**6**	**6**

Fill Compression Modulus Properties (FCM)--ETA2(225°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%
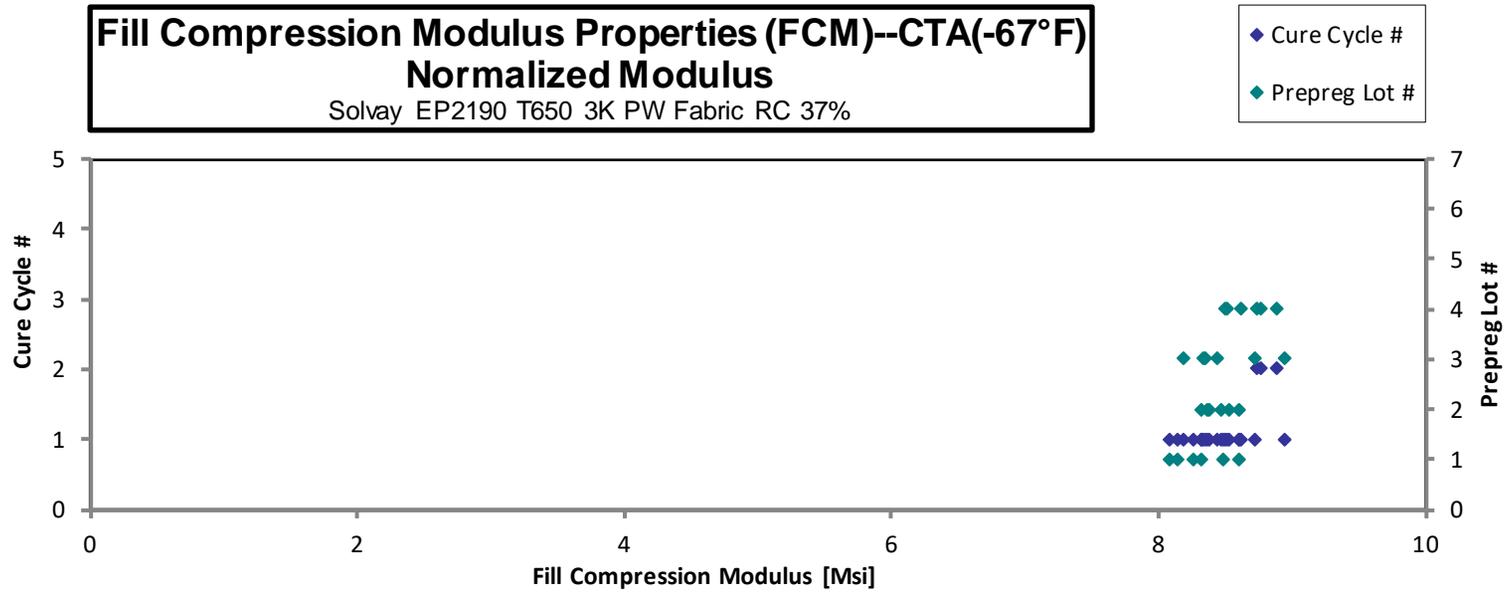
◆ Cure Cycle #

◆ Prepreg Lot #

Fill Compression Modulus Properties (FCM)--ETA3(250°F)
Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%
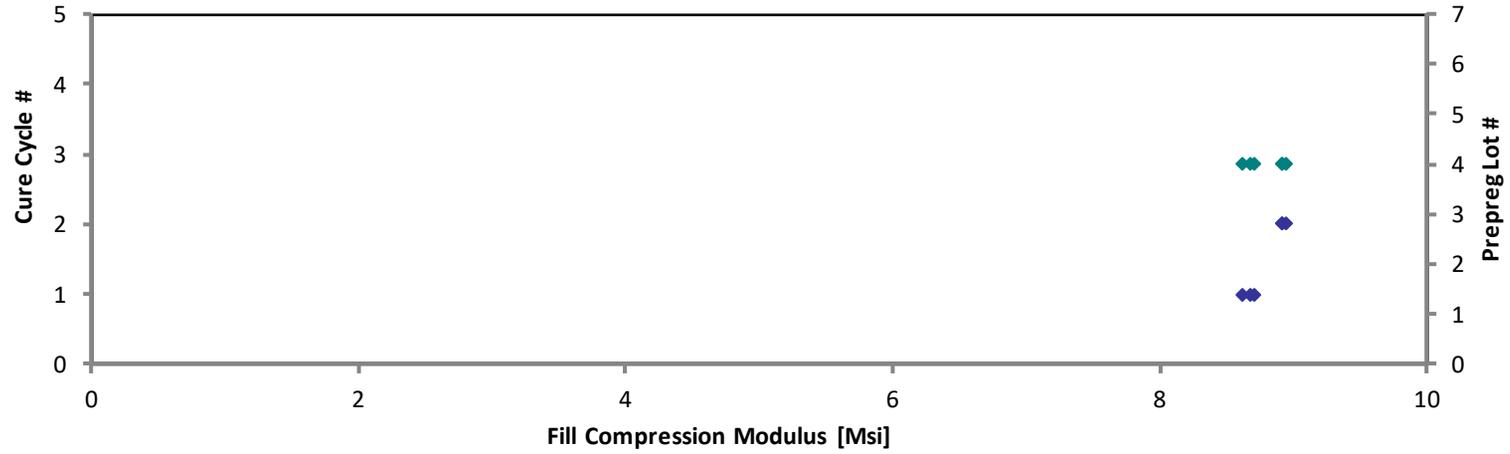
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate		Avg. t_{ply} [in]	Modulus$_{norm}$ [Msi]
TR8695752-P1-FCM-A-C1-ETA3-1	A	C1	1	1	8.373	0.1235	16		0.0077	8.181
TR8695752-P1-FCM-A-C1-ETA3-2	A	C1	1	1	8.590	0.1258	16		0.0079	8.549
TR8695752-P1-FCM-A-C1-ETA3-3	A	C1	1	1	8.559	0.1273	16		0.0080	8.620
TR8695752-P1-FCM-A-C1-ETA3-4	A	C1	1	1	7.893	0.1277	16		0.0080	7.974
TR8695752-P1-FCM-A-C1-ETA3-5	A	C1	1	1	7.619	0.1278	16		0.0080	7.703
TR8695752-P1-FCM-A-C1-ETA3-6	A	C1	1	1	8.170	0.1279	16		0.0080	8.267
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-ETA3-1	D	C1	4	1	8.908	0.1256	16		0.0079	8.852
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-ETA3-2	D	C1	4	1	8.996	0.1248	16		0.0078	8.882
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-ETA3-3	D	C1	4	1	8.960	0.1241	16		0.0078	8.797
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-ETA3-1	D	C2	4	2	8.945	0.1269	16		0.0079	8.980
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-ETA3-2	D	C2	4	2	9.015	0.1270	16		0.0079	9.058
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-ETA3-3	D	C2	4	2	8.933	0.1272	16		0.0080	8.990
NTP2191Q1-WRX-PW-SOL-FCM-E-C1-1-ETA3-1	E	C1	5	1	8.806	0.1312	16		0.0082	9.140
NTP2191Q1-WRX-PW-SOL-FCM-E-C1-1-ETA3-2	E	C1	5	1	8.814	0.1311	16		0.0082	9.142
NTP2191Q1-WRX-PW-SOL-FCM-E-C1-1-ETA3-3	E	C1	5	1	8.794	0.1309	16		0.0082	9.107
NTP2191Q1-WRX-PW-SOL-FCM-E-C2-1-ETA3-1	E	C2	5	2	8.644	0.1314	16		0.0082	8.986
NTP2191Q1-WRX-PW-SOL-FCM-E-C2-1-ETA3-2	E	C2	5	2	8.545	0.1311	16		0.0082	8.863
NTP2191Q1-WRX-PW-SOL-FCM-E-C2-1-ETA3-3	E	C2	5	2	8.528	0.1313	16		0.0082	8.859

Modulus calculation is obtained from 1000 - 3000 microstrain.

Average	8.616		Average$_{norm}$	0.0080	8.719
Standard Dev.	0.3922		Standard Dev.$_{norm}$		0.4231
Coeff. of Var. [%]	4.552		Coeff. of Var. [%]$_{norm}$		4.853
Min.	7.619		Min.	0.0077	7.703
Max.	9.015		Max.	0.0082	9.142
Number of Spec.	18		Number of Spec.	18	18

Fill Compression Modulus Properties (FCM)--ETA3(250°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- Cure Cycle #
- Prepreg Lot #

<table>
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Fill Compression Modulus Properties (FCM)--ETW1(180°F)
Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

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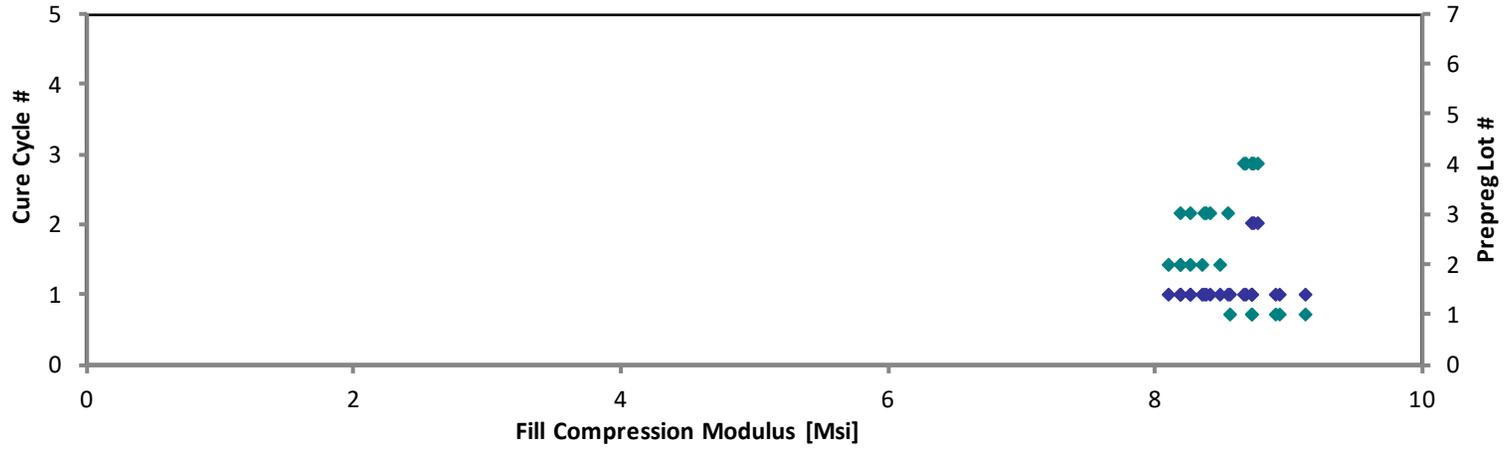**normalizing**
t_{ply} [in]
0.0079

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Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate		Avg. t_{ply} [in]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-ETW1-1	D	C1	4	1	8.846	0.1258	16		0.0079	8.804
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-ETW1-2	D	C1	4	1	8.856	0.1257	16		0.0079	8.807
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-ETW1-3	D	C1	4	1	8.859	0.1258	16		0.0079	8.817
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-ETW1-1	D	C2	4	2	8.979	0.1269	16		0.0079	9.015
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-ETW1-2	D	C2	4	2	8.940	0.1272	16		0.0080	8.997
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-ETW1-3	D	C2	4	2	8.997	0.1271	16		0.0079	9.047
NTP2191Q1-WRX-PW-SOL-FCM-E-C1-1-ETW1-1	E	C1	5	1	9.006	0.1307	16		0.0082	9.312
NTP2191Q1-WRX-PW-SOL-FCM-E-C1-1-ETW1-2	E	C1	5	1	9.006	0.1303	16		0.0081	9.284
NTP2191Q1-WRX-PW-SOL-FCM-E-C1-1-ETW1-4	E	C1	5	1	9.008	0.1304	16		0.0082	9.293
NTP2191Q1-WRX-PW-SOL-FCM-E-C2-1-ETW1-1	E	C2	5	2	8.819	0.1313	16		0.0082	9.161
NTP2191Q1-WRX-PW-SOL-FCM-E-C2-1-ETW1-2	E	C2	5	2	8.910	0.1311	16		0.0082	9.241
NTP2191Q1-WRX-PW-SOL-FCM-E-C2-1-ETW1-3	E	C2	5	2	8.838	0.1311	16		0.0082	9.167
NTP2191Q1-WRX-PW-SOL-FCM-F-C1-1-ETW1-1	F	C1	6	1	9.103	0.1266	16		0.0079	9.117
NTP2191Q1-WRX-PW-SOL-FCM-F-C1-1-ETW1-2	F	C1	6	1	9.105	0.1271	16		0.0079	9.155
NTP2191Q1-WRX-PW-SOL-FCM-F-C1-1-ETW1-3	F	C1	6	1	9.060	0.1271	16		0.0079	9.110
NTP2191Q1-WRX-PW-SOL-FCM-F-C2-1-ETW1-1	F	C2	6	2	8.910	0.1273	16		0.0080	8.973
NTP2191Q1-WRX-PW-SOL-FCM-F-C2-1-ETW1-2	F	C2	6	2	8.820	0.1272	16		0.0080	8.876
NTP2191Q1-WRX-PW-SOL-FCM-F-C2-1-ETW1-3	F	C2	6	2	8.818	0.1272	16		0.0080	8.874

Modulus calculation is obtained from 1000 - 3000 microstrain.

Average	8.938	**Average$_{norm}$**	0.0080	9.058
Standard Dev.	0.09846	**Standard Dev.$_{norm}$**		0.1729
Coeff. of Var. [%]	1.102	**Coeff. of Var. [%]$_{norm}$**		1.909
Min.	8.818	**Min.**	0.0079	8.804
Max.	9.105	**Max.**	0.0082	9.312
Number of Spec.	18	**Number of Spec.**	18	18

Fill Compression Modulus Properties (FCM)--ETW1(180°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

Fill Compression Modulus Properties (FCM)--ETW2(225°F)
Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]
0.0079

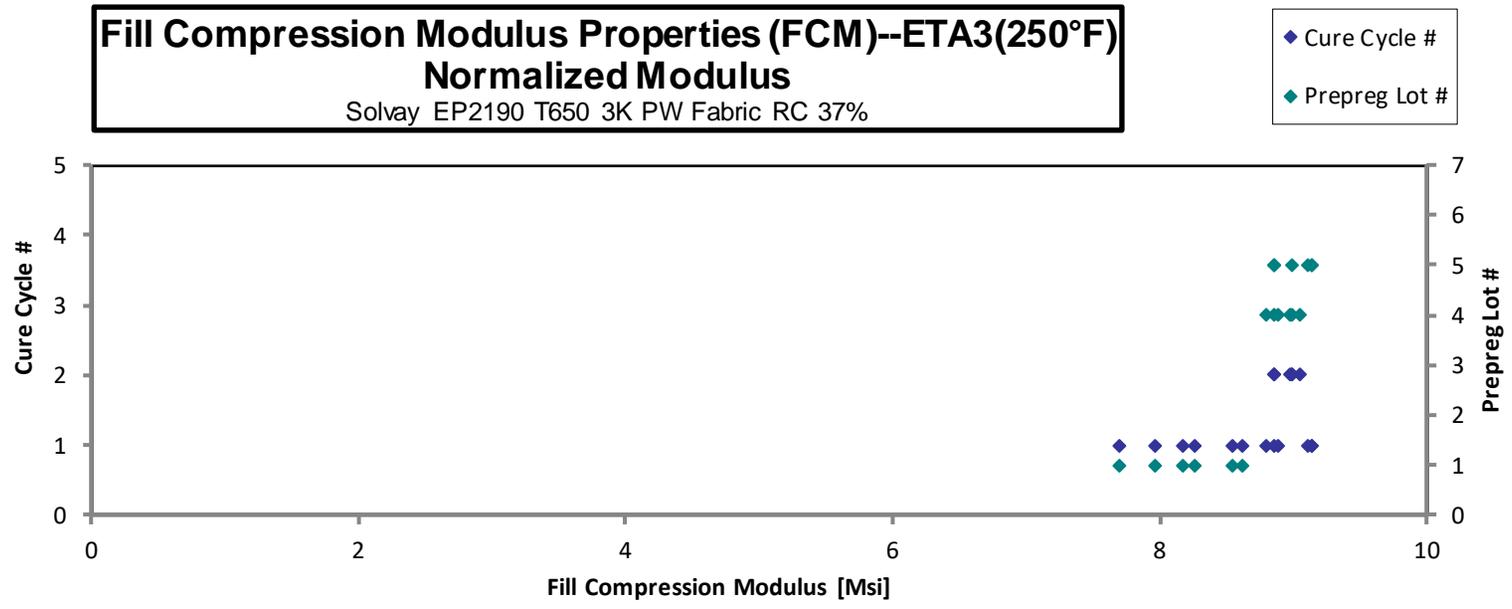| Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-ETW2-1	D	C1	4	1	8.682	0.1257	16	0.0079	8.634
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-ETW2-2	D	C1	4	1	8.587	0.1259	16	0.0079	8.553
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-ETW2-3	D	C1	4	1	8.620	0.1260	16	0.0079	8.593
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-ETW2-1	D	C2	4	2	8.741	0.1271	16	0.0079	8.789
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-ETW2-2	D	C2	4	2	8.686	0.1263	16	0.0079	8.679
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-ETW2-4	D	C2	4	2	8.748	0.1271	16	0.0079	8.796
NTP2191Q1-WRX-PW-SOL-FCM-E-C1-1-ETW2-1	E	C1	5	1	8.985	0.1307	16	0.0082	9.291
NTP2191Q1-WRX-PW-SOL-FCM-E-C1-1-ETW2-2	E	C1	5	1	8.981	0.1309	16	0.0082	9.301
NTP2191Q1-WRX-PW-SOL-FCM-E-C1-1-ETW2-3	E	C1	5	1	8.976	0.1303	16	0.0081	9.253
NTP2191Q1-WRX-PW-SOL-FCM-E-C2-1-ETW2-1	E	C2	5	2	8.661	0.1308	16	0.0082	8.962
NTP2191Q1-WRX-PW-SOL-FCM-E-C2-1-ETW2-2	E	C2	5	2	8.640	0.1309	16	0.0082	8.948
NTP2191Q1-WRX-PW-SOL-FCM-E-C2-1-ETW2-3	E	C2	5	2	8.766	0.1313	16	0.0082	9.106
NTP2191Q1-WRX-PW-SOL-FCM-F-C1-1-ETW2-1	F	C1	6	1	8.879	0.1251	16	0.0078	8.788
NTP2191Q1-WRX-PW-SOL-FCM-F-C1-1-ETW2-2	F	C1	6	1	8.990	0.1250	16	0.0078	8.890
NTP2191Q1-WRX-PW-SOL-FCM-F-C1-1-ETW2-3	F	C1	6	1	8.882	0.1250	16	0.0078	8.784
NTP2191Q1-WRX-PW-SOL-FCM-F-C2-1-ETW2-1	F	C2	6	2	8.888	0.1276	16	0.0080	8.972
NTP2191Q1-WRX-PW-SOL-FCM-F-C2-1-ETW2-2	F	C2	6	2	8.833	0.1278	16	0.0080	8.931
NTP2191Q1-WRX-PW-SOL-FCM-F-C2-1-ETW2-3	F	C2	6	2	8.929	0.1278	16	0.0080	9.028

Modulus calculation is obtained from 1000 - 3000 microstrain.

Average	8.804		Average$_{norm}$	0.0080	8.905
Standard Dev.	0.1391		Standard Dev.$_{norm}$		0.2291
Coeff. of Var. [%]	1.580		Coeff. of Var. [%]$_{norm}$		2.572
Min.	8.587		Min.	0.0078	8.553
Max.	8.990		Max.	0.0082	9.301
Number of Spec.	18		Number of Spec.	18	18

Fill Compression Modulus Properties (FCM)--ETW2(225°F) Normalized Modulus
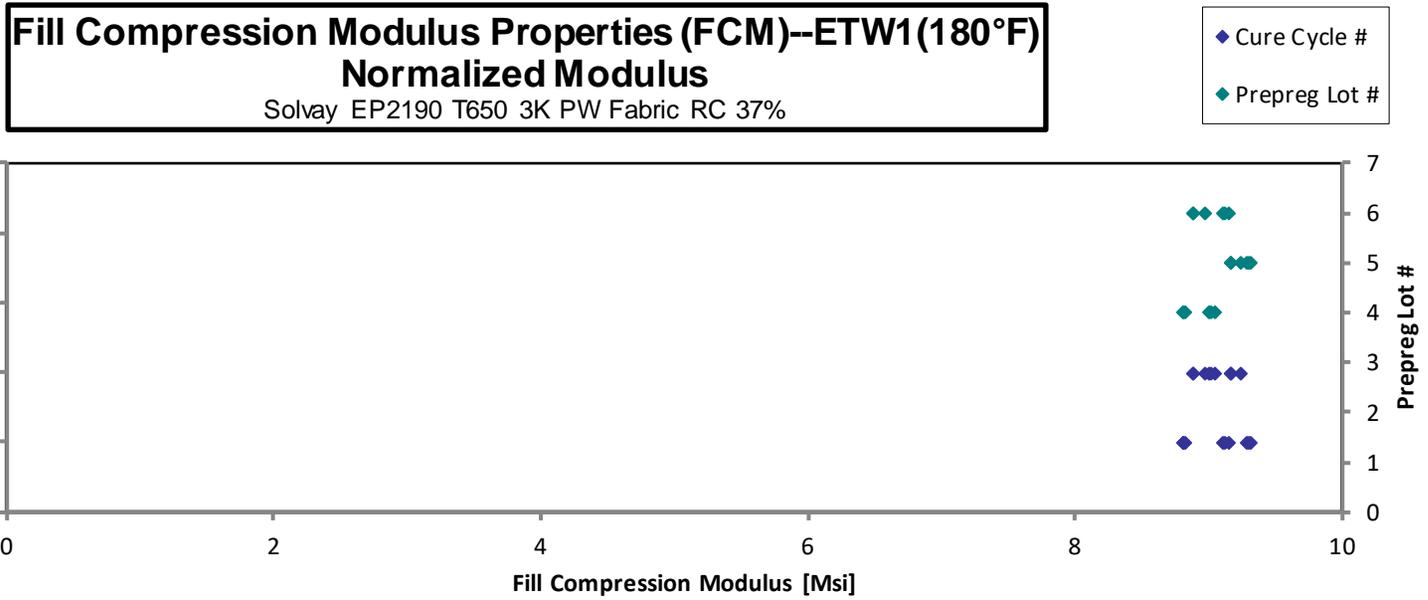
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
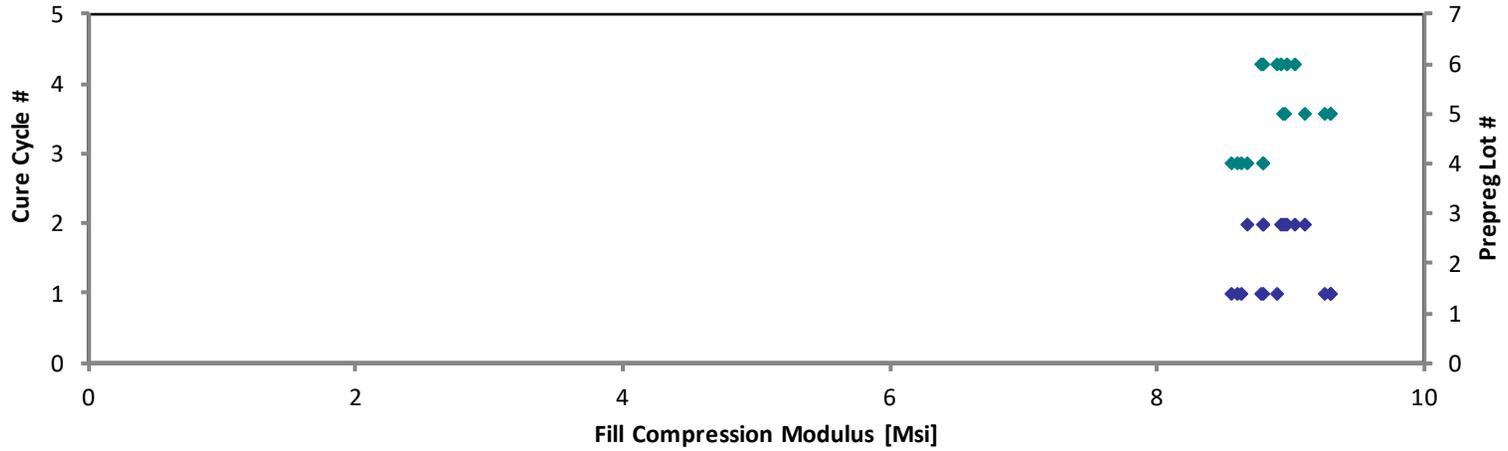
◆ Prepreg Lot #

4.7 In-Plane Shear Properties (IPS)

In-Plane Shear Properties (IPS)--CTA(-67°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Ultimate Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
TR8331112-P1-IPS-A-C1-CTA-1	A	C1	1	1	9.780	17.51	27.50	0.7300	0.1289	16	0.0081	M(hv)GN
TR8331112-P1-IPS-A-C1-CTA-2	A	C1	1	1	9.920	16.63	27.17	0.7200	0.1289	16	0.0081	M(hv)GN
TR8331112-P1-IPS-A-C1-CTA-3	A	C1	1	1	9.720	17.69	27.26	0.7430	0.1284	16	0.0080	M(hv)GN
TR8331112-P1-IPS-A-C1-CTA-5	A	C1	1	1	9.190	16.46	27.09	0.6760	0.1294	16	0.0081	M(hv)GN
TR8331112-P1-IPS-A-C1-CTA-6	A	C1	1	1	10.37	16.62	27.39	0.7410	0.1286	16	0.0080	M(hv)GN
TR8345678-P2-IPS-B-C1-CTA-1	B	C1	2	1	12.59	16.50	27.19	0.6330	0.1294	16	0.0081	M(hv)GN
TR8345678-P2-IPS-B-C1-CTA-2	B	C1	2	1	9.080	17.55	27.70	0.7700	0.1298	16	0.0081	M(hv)GN
TR8345678-P2-IPS-B-C1-CTA-3	B	C1	2	1	12.83	18.01	26.50	0.5790	0.1300	16	0.0081	M(hv)GN
TR8345678-P2-IPS-B-C1-CTA-4	B	C1	2	1	14.98	19.14	26.89	0.5090	0.1302	16	0.0081	M(hv)GN
TR8345678-P2-IPS-B-C1-CTA-5	B	C1	2	1	10.61	16.53	27.05	0.7150	0.1306	16	0.0082	M(hv)GN
TR8346144-P1-IPS-C-C1-CTA-1	C	C1	3	1	9.750	17.82	25.29	0.7790	0.1279	16	0.0080	M(hv)GN
TR8346144-P1-IPS-C-C1-CTA-2	C	C1	3	1	10.54	18.49	26.47	0.6320	0.1280	16	0.0080	M(hv)GN
TR8346144-P1-IPS-C-C1-CTA-3	C	C1	3	1	12.25	18.33	27.12	0.7030	0.1277	16	0.0080	M(hv)GN
TR8346144-P1-IPS-C-C1-CTA-4	C	C1	3	1	10.06	16.67	26.89	0.6900	0.1279	16	0.0080	M(hv)GN
TR8346144-P1-IPS-C-C1-CTA-5	C	C1	3	1	11.37	18.25	26.89	0.6860	0.1275	16	0.0080	M(hv)GN
TR8346144-P1-IPS-C-C1-CTA-6	C	C1	3	1	11.77	18.26	27.20	0.5900	0.1273	16	0.0080	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-CTA-1	D	C1	4	1	10.14	18.63	26.11	0.7680	0.1254	16	0.0078	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-CTA-2	D	C1	4	1	10.98	18.86	26.87	0.7560	0.1244	16	0.0078	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-CTA-3	D	C1	4	1	10.87	20.01	27.11	0.7740	0.1257	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-CTA-1	D	C2	4	2	10.34	17.56	25.64	0.7860	0.1270	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-CTA-2	D	C2	4	2	10.35	17.49	26.29	0.7960	0.1267	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-CTA-3	D	C2	4	2	11.45	18.92	26.35	0.7060	0.1269	16	0.0079	M(hv)GN

Modulus calculation is obtain from 1500-5500 microstrain.

Average	10.86	17.82	26.82	0.7037	Average	0.0080
Standard Dev.	1.378	0.9858	0.5952	0.07527	Standard Dev.	
Coeff. of Var. [%]	12.69	5.533	2.220	10.70	Coeff. of Var. [%]	
Min.	9.080	16.46	25.29	0.5090	Min.	0.0078
Max.	14.98	20.01	27.70	0.7960	Max.	0.0082
Number of Spec.	22	22	22	22	Number of Spec.	22

In-Plane Shear Properties (IPS)--CTA(-67°F)
Measured Strength at 0.2% Offset
Solvay EP2190 T650 3K PW Fabric RC 37%

In-Plane Shear Properties (IPS)--CTA(-67°F)
Measured Strength at 5% Strain
Solvay EP2190 T650 3K PW Fabric RC 37%

In-Plane Shear Properties (IPS)--CTA(-67°F)
Measured Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

In-Plane Shear Properties (IPS)--CTA(-67°F)
Measured Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

In-Plane Shear Properties (IPS)--RTA(75°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

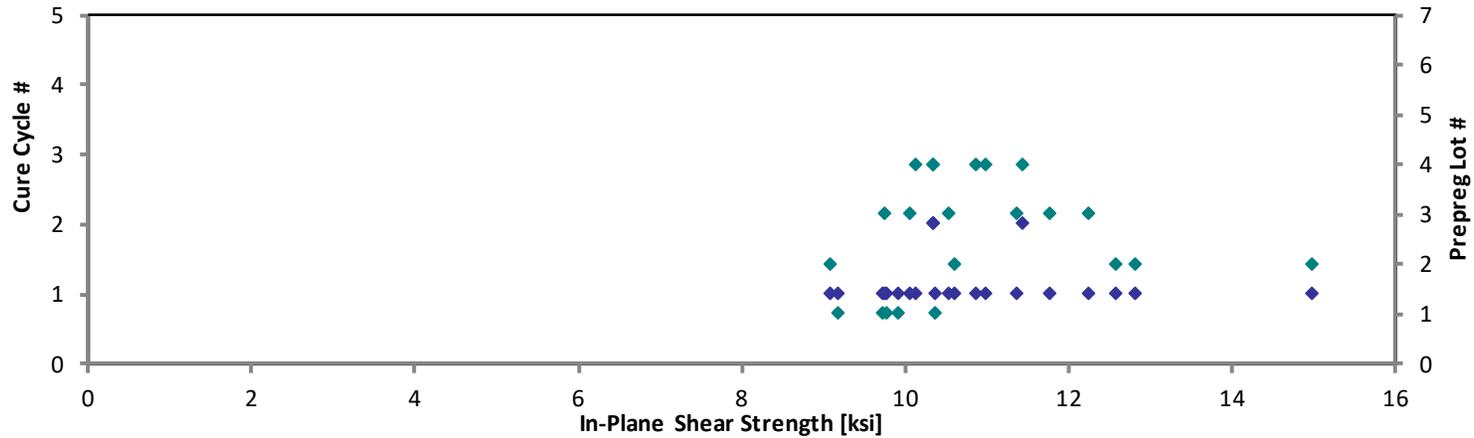| Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Ultimate Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
TR8331112-P1-IPS-A-C1-RTA-1	A	C1	1	1	7.100	13.66	21.96	0.6500	0.1275	16	0.0080	M(hv)GN
TR8331112-P1-IPS-A-C1-RTA-2	A	C1	1	1	7.170	13.38	22.34	0.6120	0.1284	16	0.0080	M(hv)GN
TR8331112-P1-IPS-A-C1-RTA-3	A	C1	1	1	7.050	13.40	22.19	0.6270	0.1282	16	0.0080	M(hv)GN
TR8331112-P1-IPS-A-C1-RTA-4	A	C1	1	1	7.090	13.44	22.28	0.6470	0.1281	16	0.0080	M(hv)GN
TR8331112-P1-IPS-A-C1-RTA-5	A	C1	1	1	6.990	13.39	22.24	0.6600	0.1285	16	0.0080	M(hv)GN
TR8331112-P1-IPS-A-C1-RTA-6	A	C1	1	1	6.880	13.46	21.97	0.6540	0.1286	16	0.0080	M(hv)GN
TR8345678-P2-IPS-B-C1-RTA-1	B	C1	2	1	7.070	13.39	25.43	0.6890	0.1300	16	0.0081	M(hv)GN
TR8345678-P2-IPS-B-C1-RTA-2	B	C1	2	1	6.980	13.33	20.85	0.6940	0.1304	16	0.0082	M(hv)GN
TR8345678-P2-IPS-B-C1-RTA-4	B	C1	2	1	6.550	12.93	20.23	0.6630	0.1305	16	0.0082	M(hv)GN
TR8345678-P2-IPS-B-C1-RTA-5	B	C1	2	1	6.760	13.13	20.43	0.6660	0.1296	16	0.0081	M(hv)GN
TR8345678-P2-IPS-B-C1-RTA-6	B	C1	2	1	6.730	13.09	20.82	0.6960	0.1296	16	0.0081	M(hv)GN
TR8345678-P2-IPS-B-C1-RTA-7	B	C1	2	1	6.800	13.12	20.53	0.6880	0.1277	16	0.0080	M(hv)GN
TR8346144-P1-IPS-C-C1-RTA-1	C	C1	3	1	7.210	13.54	21.63	0.6620	0.1282	16	0.0080	M(hv)GN
TR8346144-P1-IPS-C-C1-RTA-2	C	C1	3	1	6.940	13.26	21.34	0.6240	0.1285	16	0.0080	M(hv)GN
TR8346144-P1-IPS-C-C1-RTA-3	C	C1	3	1	7.050	13.45	21.21	0.6410	0.1269	16	0.0079	M(hv)GN
TR8346144-P1-IPS-C-C1-RTA-4	C	C1	3	1	7.350	13.64	21.28	0.6210	0.1239	16	0.0077	M(hv)GN
TR8346144-P1-IPS-C-C1-RTA-5	C	C1	3	1	7.280	13.39	21.30	0.5960	0.1273	16	0.0080	M(hv)GN
TR8346144-P1-IPS-C-C1-RTA-6	C	C1	3	1	7.190	13.42	21.14	0.6290	0.1274	16	0.0080	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-RTA-1	D	C1	4	1	7.230	13.38	21.11	0.6390	0.1261	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-RTA-3	D	C1	4	1	7.000	13.17	21.49	0.6400	0.1252	16	0.0078	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-RTA-4	D	C1	4	1	7.750	13.34	20.59	0.5740	0.1240	16	0.0078	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-RTA-1	D	C2	4	2	7.080	13.44	20.20	0.6680	0.1268	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-RTA-2	D	C2	4	2	6.940	13.21	20.62	0.6270	0.1273	16	0.0080	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-RTA-3	D	C2	4	2	7.270	13.24	20.32	0.5900	0.1272	16	0.0080	M(hv)GN

Modulus calculation is obtain from 1500-5500 microstrain.

Average	7.061	13.34	21.40	0.6440
Standard Dev.	0.2413	0.1726	1.098	0.0325
Coeff. of Var. [%]	3.417	1.293	5.131	5.040
Min.	6.550	12.93	20.20	0.5740
Max.	7.750	13.66	25.43	0.6960
Number of Spec.	24	24	24	24

Average	0.0080
Standard Dev.	
Coeff. of Var. [%]	
Min.	0.0077
Max.	0.0082
Number of Spec.	24

In-Plane Shear Properties (IPS)--RTA(75°F)
Measured Strength at 0.2% Offset
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

In-Plane Shear Properties (IPS)--RTA(75°F)
Measured Strength at 5% Strain
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #
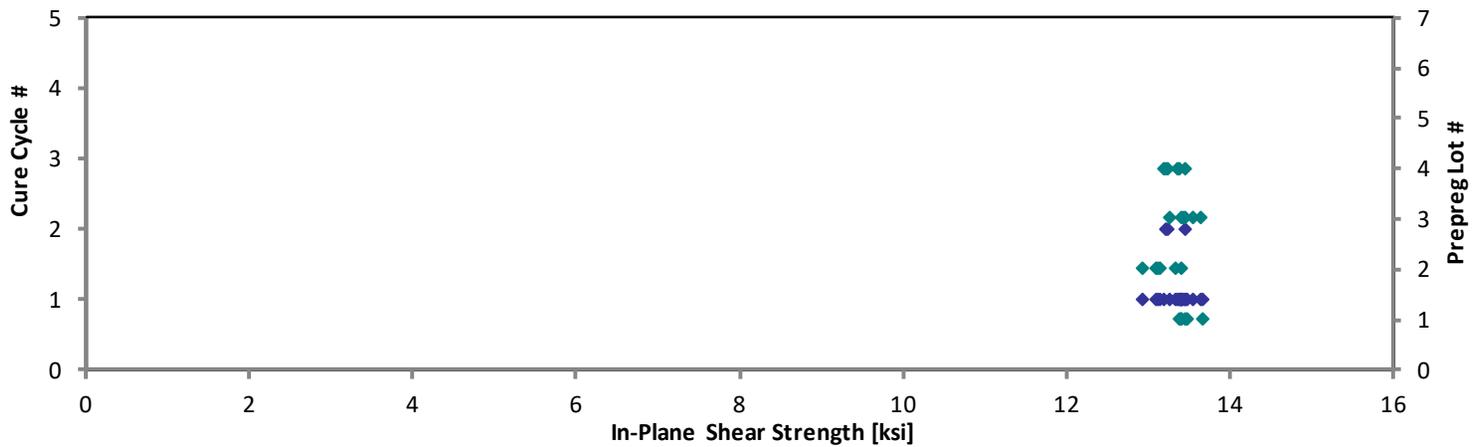
In-Plane Shear Properties (IPS)--RTA(75°F)
Measured Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

In-Plane Shear Properties (IPS)--RTA(75°F)
Measured Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

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In-Plane Shear Properties (IPS)--ETA3(250°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Ultimate Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
TR8331112-P1-IPS-A-C1-ETA3-1	A	C1	1	1	4.200	7.900	14.21	0.4700	0.1279	16	0.0080	M(hv)GN
TR8331112-P1-IPS-A-C1-ETA3-2	A	C1	1	1	4.170	7.490	14.93	0.4310	0.1281	16	0.0080	M(hv)GN
TR8331112-P1-IPS-A-C1-ETA3-3	A	C1	1	1	3.820	7.420	16.62	0.4530	0.1285	16	0.0080	M(hv)GN
TR8331112-P1-IPS-A-C1-ETA3-4	A	C1	1	1	4.180	7.140	15.73	0.3560	0.1284	16	0.0080	M(hv)GN
TR8331112-P1-IPS-A-C1-ETA3-5	A	C1	1	1	4.280	7.230	16.60	0.3790	0.1283	16	0.0080	M(hv)GN
TR8331112-P1-IPS-A-C1-ETA3-6	A	C1	1	1	3.850	7.150	15.64	0.4330	0.1282	16	0.0080	M(hv)GN

Modulus calculation is obtain from 1500-5500 microstrain.

Average	4.083	7.388	15.62	0.4203	Average	0.0080
Standard Dev.	0.1964	0.2887	0.9420	0.04394	Standard Dev.	
Coeff. of Var. [%]	4.811	3.907	6.030	10.45	Coeff. of Var. [%]	
Min.	3.820	7.140	14.21	0.3560	Min.	0.0080
Max.	4.280	7.900	16.62	0.4700	Max.	0.0080
Number of Spec.	6	6	6	6	Number of Spec.	6

In-Plane Shear Properties (IPS)--ETA3(250°F)
Measured Strength at 0.2% Offset
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

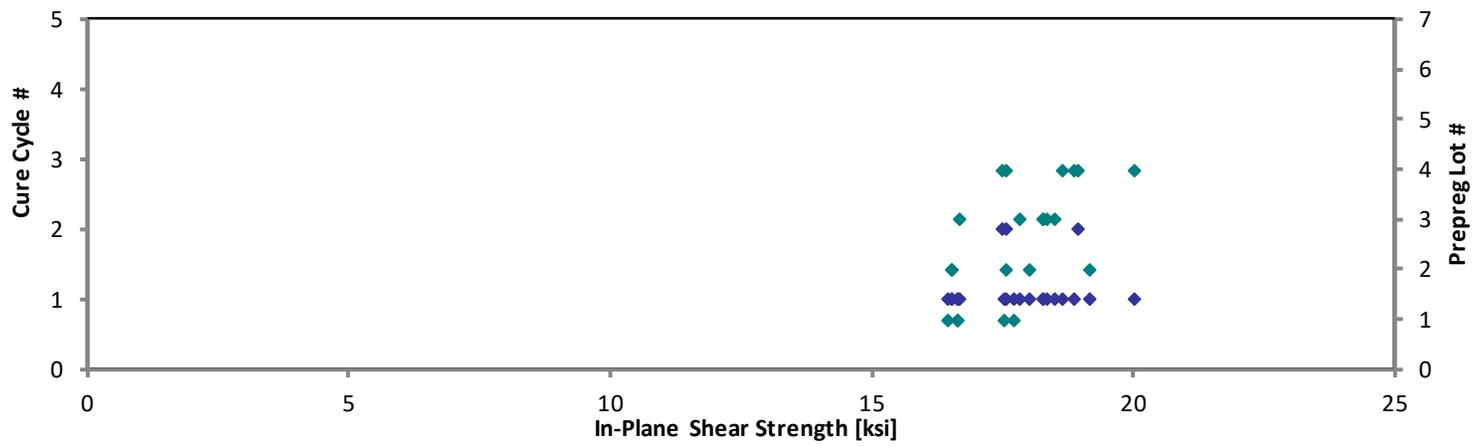**In-Plane Shear Properties (IPS)--ETA3(250°F)**
Measured Strength at 5% Strain
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #
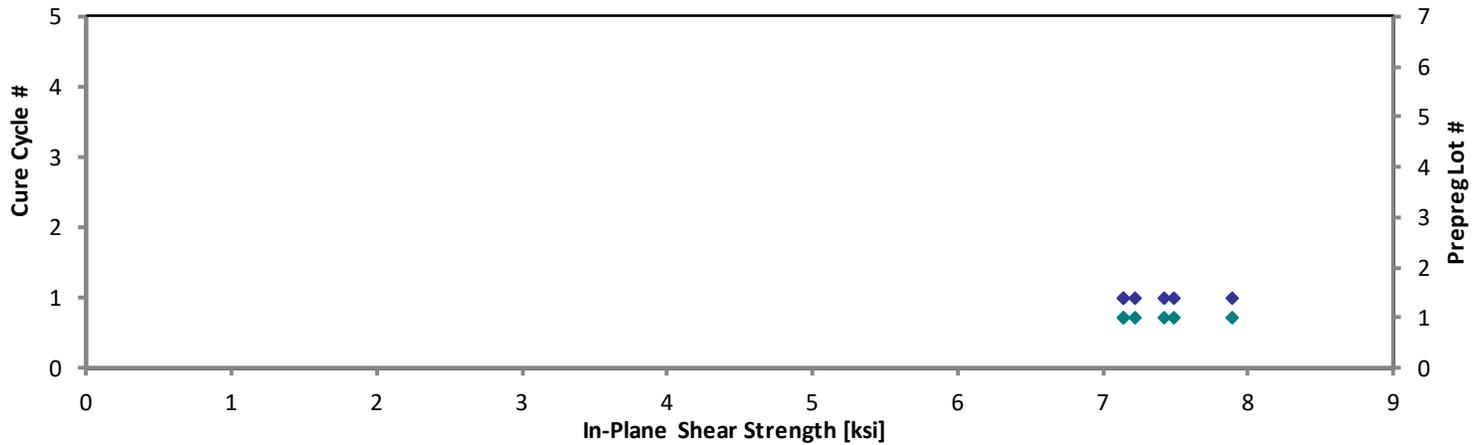
In-Plane Shear Properties (IPS)--ETA3(250°F)
Measured Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

In-Plane Shear Properties (IPS)--ETA3(250°F)
Measured Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

In-Plane Shear Properties (IPS)--ETW1(180°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Ultimate Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-ETW1-3	D	C1	4	1	4.420	6.100	13.18	0.4800	0.1257	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-ETW1-4	D	C1	4	1	4.620	5.600	13.95	0.5140	0.1259	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-ETW1-5	D	C1	4	1	4.770	6.840	14.27	0.5610	0.1261	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-ETW1-1	D	C2	4	2	5.120	7.470	14.80	0.5320	0.1266	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-ETW1-2	D	C2	4	2	5.010	7.770	14.92	0.5600	0.1273	16	0.0080	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-ETW1-3	D	C2	4	2	4.960	7.110	14.86	0.5470	0.1270	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C1-1-ETW1-1	E	C1	5	1	4.780	6.400	14.77	0.5270	0.1306	16	0.0082	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C1-1-ETW1-2	E	C1	5	1	4.790	5.820	14.85	0.5420	0.1303	16	0.0081	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C1-1-ETW1-3	E	C1	5	1	4.850	6.380	14.87	0.5370	0.1303	16	0.0081	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C2-1-ETW1-1	E	C2	5	2	4.960	6.180	14.33	0.5350	0.1308	16	0.0082	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C2-1-ETW1-2	E	C2	5	2	5.010	6.090	14.11	0.5200	0.1312	16	0.0082	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C2-1-ETW1-3	E	C2	5	2	4.940	6.150	14.30	0.5280	0.1311	16	0.0082	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C1-1-ETW1-2	F	C1	6	1	4.760	6.370	14.65	0.5580	0.1251	16	0.0078	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C1-1-ETW1-3	F	C1	6	1	4.700	6.640	14.25	0.5510	0.1254	16	0.0078	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C1-1-ETW1-4	F	C1	6	1	4.580	6.530	14.27	0.5450	0.1247	16	0.0078	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C2-1-ETW1-1	F	C2	6	2	4.870	6.310	14.04	0.4830	0.1282	16	0.0080	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C2-1-ETW1-2	F	C2	6	2	4.580	5.980	14.21	0.5290	0.1283	16	0.0080	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C2-1-ETW1-3	F	C2	6	2	4.590	5.430	14.35	0.5130	0.1286	16	0.0080	M(hv)GN

Modulus calculation is obtain from 1500-5500 microstrain.

Average	4.795	6.398	14.39	0.5312
Standard Dev.	0.1877	0.6036	0.4390	0.02322
Coeff. of Var. [%]	3.915	9.434	3.051	4.370
Min.	4.420	5.430	13.18	0.4800
Max.	5.120	7.770	14.92	0.5610
Number of Spec.	18	18	18	18

Average	0.0080
Standard Dev.	
Coeff. of Var. [%]	
Min.	0.0078
Max.	0.0082
Number of Spec.	18

In-Plane Shear Properties (IPS)--ETW1 (180°F)
Measured Strength at 0.2% Offset
Solvay EP2190 T650 3K PW Fabric RC 37%
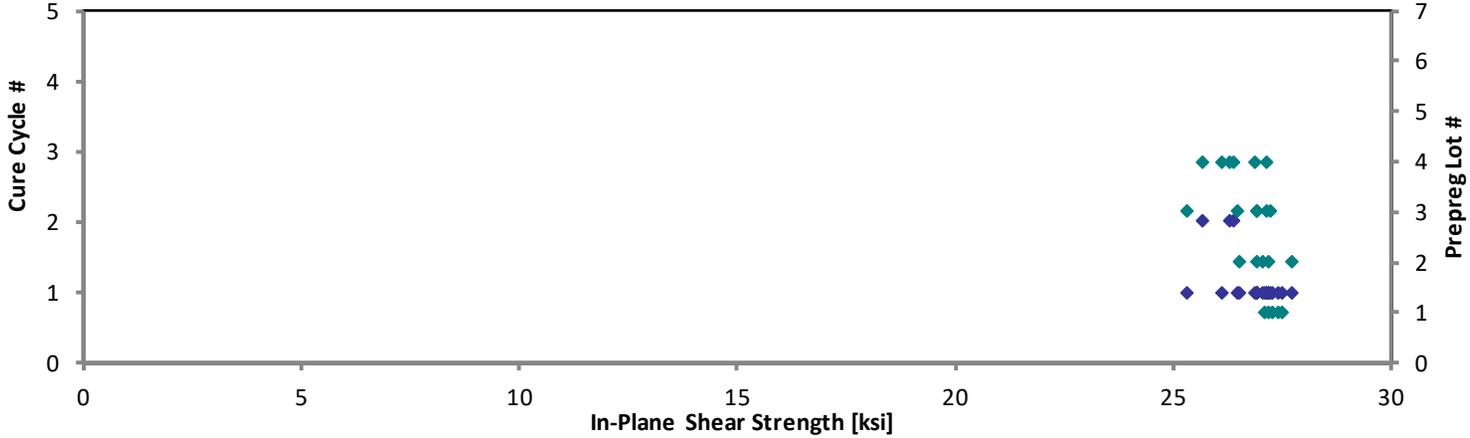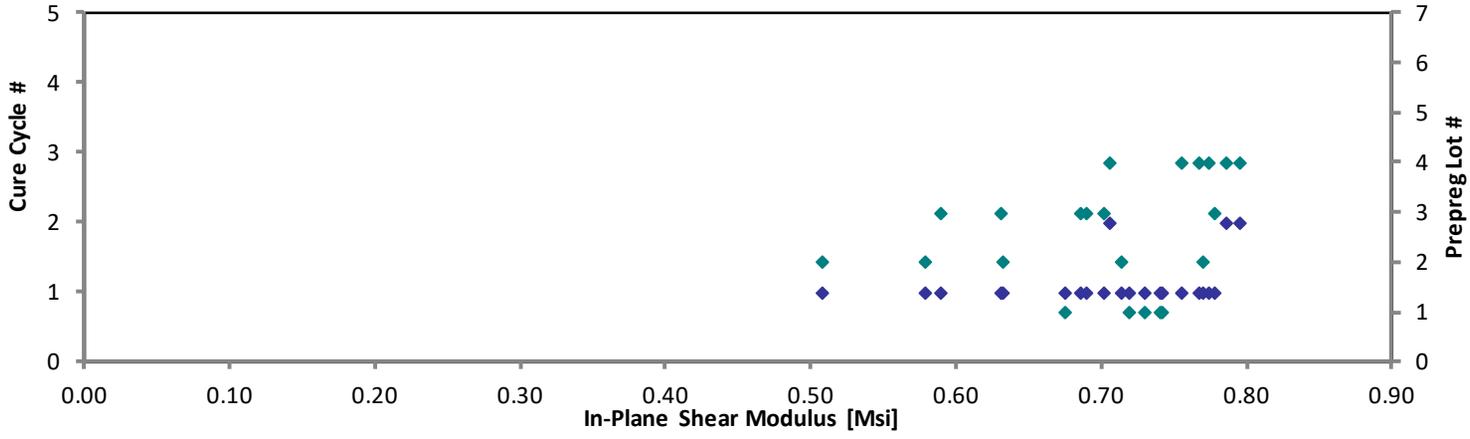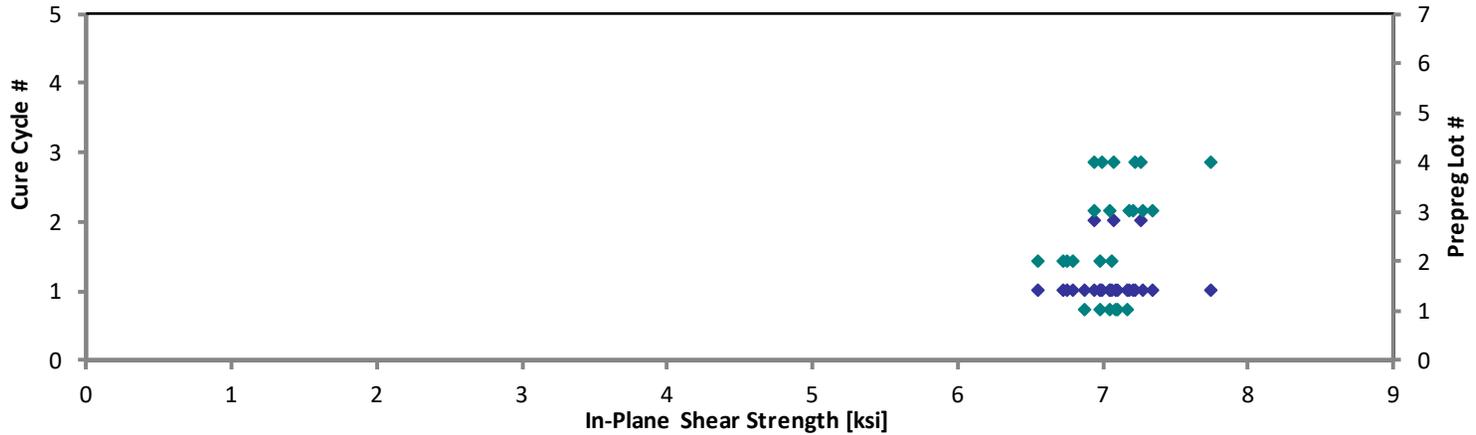
◆ Cure Cycle #
◆ Prepreg Lot #

In-Plane Shear Properties (IPS)--ETW1 (180°F)
Measured Strength at 5% Strain
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

**In-Plane Shear Properties (IPS)--ETW1 (180°F)
Measured Ultimate Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

- ♦ Cure Cycle #
- ♦ Prepreg Lot #

**In-Plane Shear Properties (IPS)--ETW1 (180°F)
Measured Modulus**
Solvay EP2190 T650 3K PW Fabric RC 37%

- ♦ Cure Cycle #
- ♦ Prepreg Lot #

In-Plane Shear Properties (IPS)--ETW2(225°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Ultimate Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-ETW2-1	D	C1	4	1	3.950	5.240	12.37	0.4200	0.1245	16	0.0078	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-ETW2-2	D	C1	4	1	3.860	5.080	12.80	0.4240	0.1249	16	0.0078	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-ETW2-3	D	C1	4	1	3.800	4.480	12.14	0.4200	0.1250	16	0.0078	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-ETW2-1	D	C2	4	2	3.890	4.810	12.19	0.4450	0.1265	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-ETW2-2	D	C2	4	2	3.730	4.300	12.48	0.4250	0.1270	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-ETW2-3	D	C2	4	2	3.740	4.470	11.80	0.4300	0.1270	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C1-1-ETW2-2	E	C1	5	1	3.630	3.870	12.78	0.4060	0.1304	16	0.0082	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C1-1-ETW2-3	E	C1	5	1	3.540	3.730	12.32	0.3730	0.1301	16	0.0081	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C1-1-ETW2-4	E	C1	5	1	3.440	3.530	12.14	0.4320	0.1307	16	0.0082	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C2-1-ETW2-1	E	C2	5	2	3.540	3.590	11.88	0.3940	0.1310	16	0.0082	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C2-1-ETW2-2	E	C2	5	2	3.620	3.690	12.05	0.3680	0.1306	16	0.0082	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C2-1-ETW2-3	E	C2	5	2	3.500	3.970	11.89	0.4270	0.1310	16	0.0082	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C1-1-ETW2-1	F	C1	6	1	3.650	4.210	12.30	0.4140	0.1265	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C1-1-ETW2-3	F	C1	6	1	3.360	3.880	11.80	0.3810	0.1261	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C1-1-ETW2-5	F	C1	6	1	3.770	4.610	12.34	0.4260	0.1235	16	0.0077	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C2-1-ETW2-1	F	C2	6	2	3.510	3.990	11.79	0.3780	0.1285	16	0.0080	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C2-1-ETW2-2	F	C2	6	2	3.500	4.070	11.99	0.4000	0.1282	16	0.0080	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C2-1-ETW2-3	F	C2	6	2	3.320	3.810	11.98	0.4150	0.1284	16	0.0080	M(hv)GN

Modulus calculation is obtain from 1500-5500 microstrain.

Average	3.631	4.185	12.17	0.4099
Standard Dev.	0.1821	0.5049	0.3105	0.02260
Coeff. of Var. [%]	5.015	12.063	2.552	5.515
Min.	3.320	3.530	11.79	0.3680
Max.	3.950	5.240	12.80	0.4450
Number of Spec.	18	18	18	18

|	
Average	0.0080
Standard Dev.	
Coeff. of Var. [%]	
Min.	0.0077
Max.	0.0082
Number of Spec.	18

In-Plane Shear Properties (IPS)--ETW2(225°F)
Measured Strength at 0.2% Offset
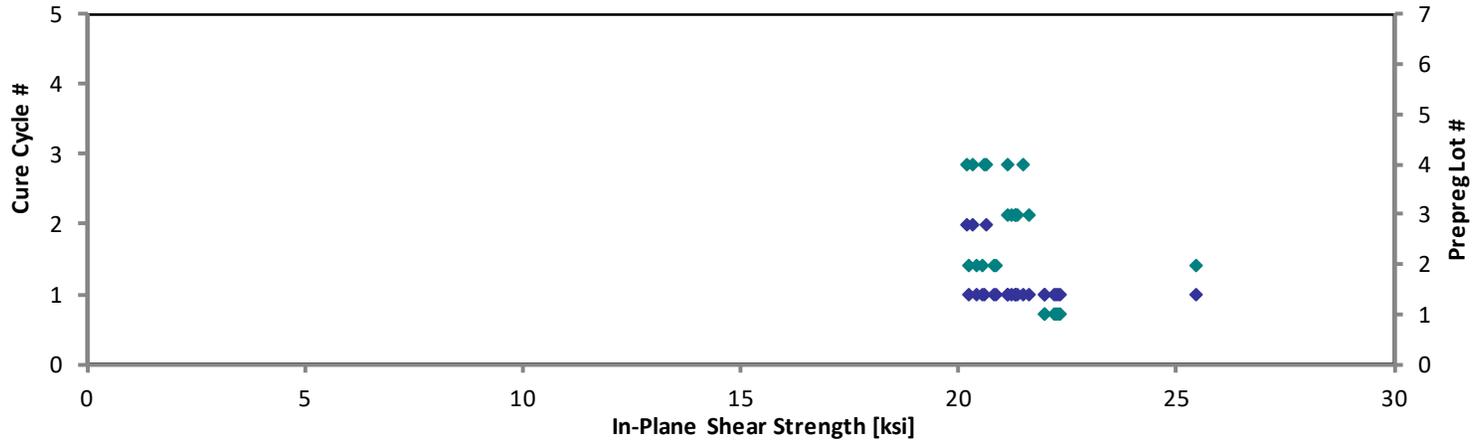Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

In-Plane Shear Strength [ksi]

Cure Cycle # / **Prepreg Lot #**

In-Plane Shear Properties (IPS)--ETW2(225°F)
Measured Strength at 5% Strain
Solvay EP2190 T650 3K PW Fabric RC 37%
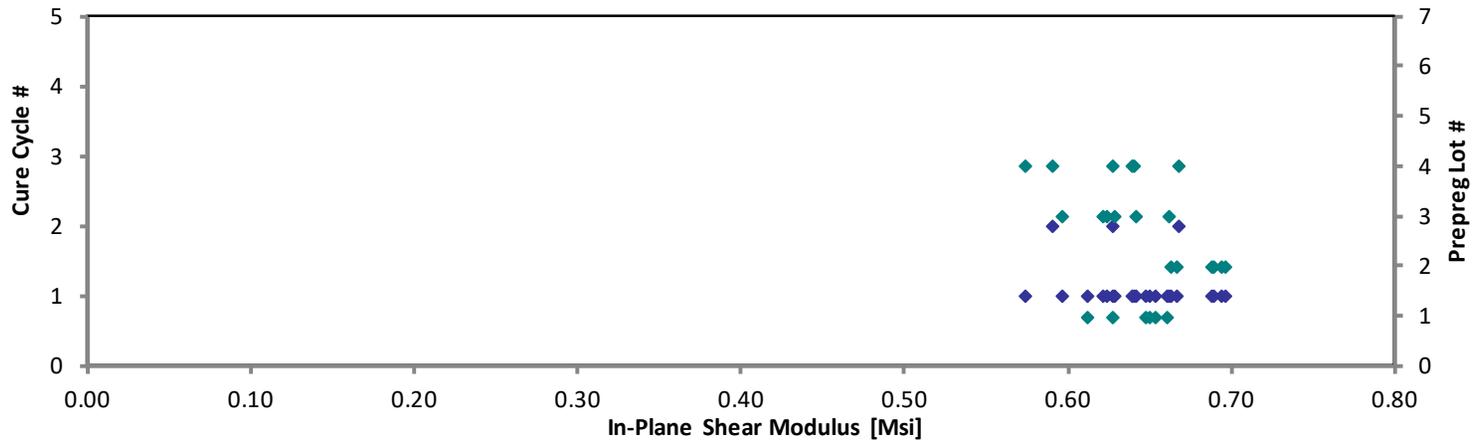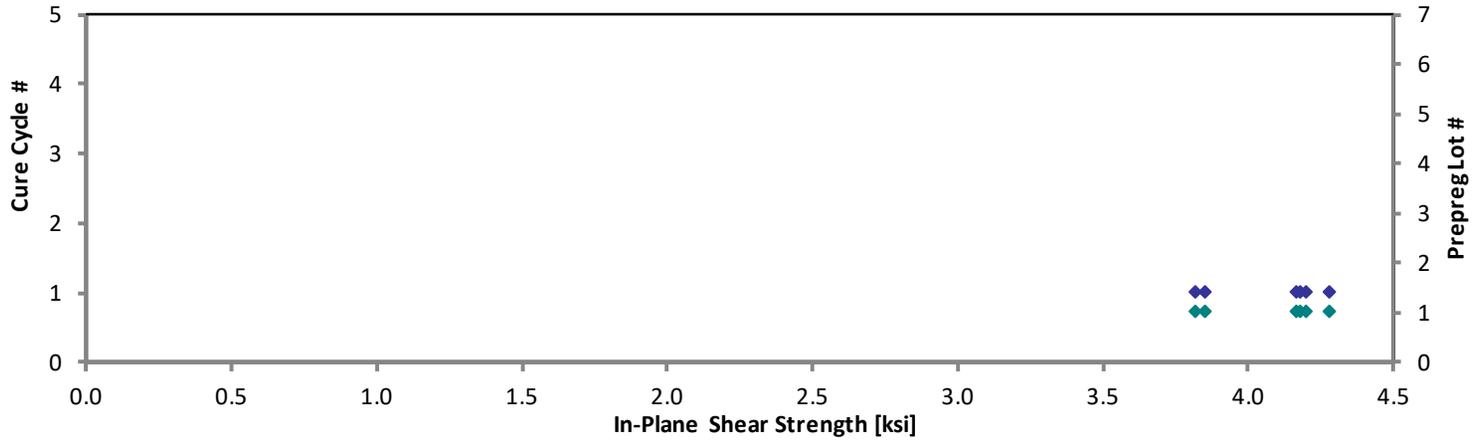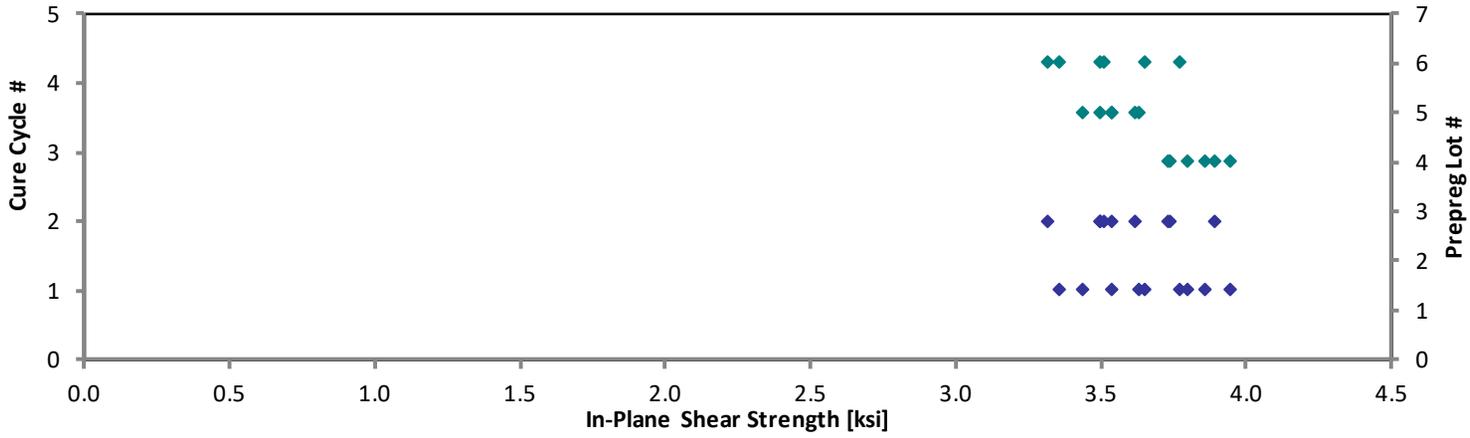
- ◆ Cure Cycle #
- ◆ Prepreg Lot #

In-Plane Shear Strength [ksi]

Cure Cycle # / **Prepreg Lot #**

In-Plane Shear Properties (IPS)--ETW2(225°F)
Measured Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
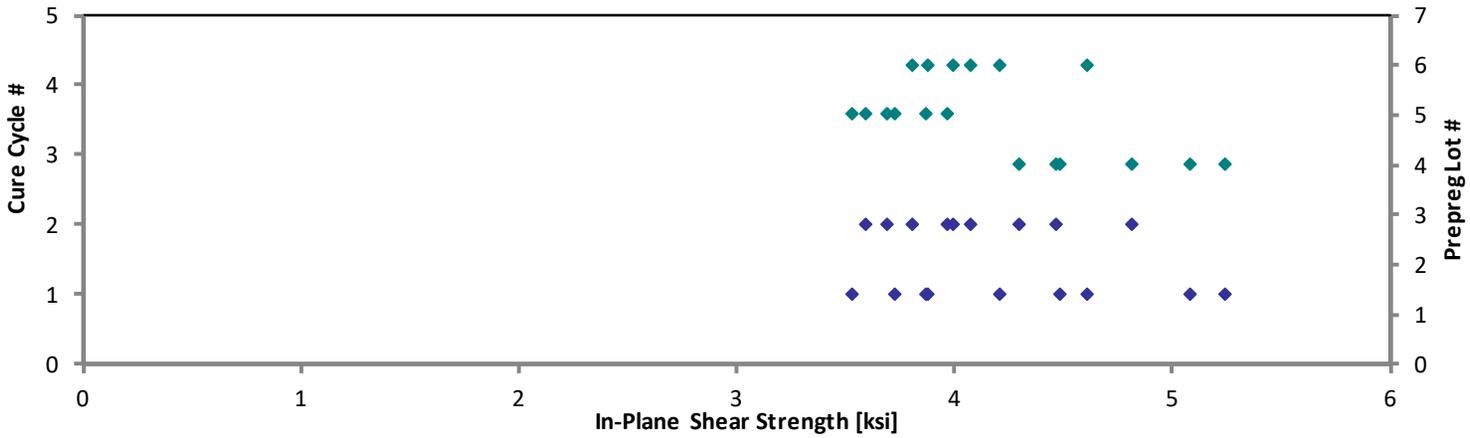
In-Plane Shear Properties (IPS)--ETW2(225°F)
Measured Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

In-Plane Shear Properties (IPS)--ETW3(250°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Ultimate Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-ETW3-1	D	C1	4	1	3.340	3.820	10.59	0.3330	0.1262	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-ETW3-2	D	C1	4	1	3.160	3.300	11.16	0.3350	0.1260	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-ETW3-3	D	C1	4	1	2.860	3.240	10.87	0.3270	0.1264	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-ETW3-1	D	C2	4	2	3.130	3.460	11.13	0.3320	0.1272	16	0.0080	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-ETW3-2	D	C2	4	2	3.130	3.650	11.23	0.3600	0.1260	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-ETW3-3	D	C2	4	2	3.230	3.500	11.97	0.3380	0.1271	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C1-1-ETW3-1	E	C1	5	1	2.880	2.880	10.85	0.3240	0.1300	16	0.0081	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C1-1-ETW3-2	E	C1	5	1	2.970	3.180	10.52	0.3100	0.1303	16	0.0081	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C1-1-ETW3-3	E	C1	5	1	3.040	3.190	10.22	0.3160	0.1300	16	0.0081	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C2-1-ETW3-2	E	C2	5	2	2.990	3.140	11.00	0.3380	0.1306	16	0.0082	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C2-1-ETW3-3	E	C2	5	2	2.840	2.840	11.13	0.3270	0.1307	16	0.0082	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-E-C2-1-ETW3-4	E	C2	5	2	2.780	2.850	10.48	0.3090	0.1307	16	0.0082	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C1-1-ETW3-1	F	C1	6	1	3.130	3.530	10.75	0.3220	0.1255	16	0.0078	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C1-1-ETW3-2	F	C1	6	1	2.360	2.360	10.20	0.2880	0.1258	16	0.0079	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C1-1-ETW3-3	F	C1	6	1	2.680	2.750	10.03	0.3070	0.1255	16	0.0078	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C2-1-ETW3-1	F	C2	6	2	2.970	3.580	10.91	0.3550	0.1276	16	0.0080	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C2-1-ETW3-2	F	C2	6	2	2.870	2.980	10.70	0.3390	0.1282	16	0.0080	M(hv)GN
NTP2191Q1-WRX-PW-SOL-IPS-F-C2-1-ETW3-3	F	C2	6	2	2.910	3.030	10.67	0.3290	0.1275	16	0.0080	M(hv)GN

Modulus calculation is obtain from 1500-5500 microstrain.

|						
Average	2.959	3.182	10.80	0.3272	Average	0.0080
Standard Dev.	0.2254	0.3716	0.4540	0.01728	Standard Dev.	
Coeff. of Var. [%]	7.616	11.68	4.204	5.28	Coeff. of Var. [%]	
Min.	2.360	2.360	10.03	0.2880	Min.	0.0078
Max.	3.340	3.820	11.97	0.3600	Max.	0.0082
Number of Spec.	18	18	18	18	Number of Spec.	18

In-Plane Shear Properties (IPS)--ETW3(250°F)
Measured Strength at 0.2% Offset
Solvay EP2190 T650 3K PW Fabric RC 37%
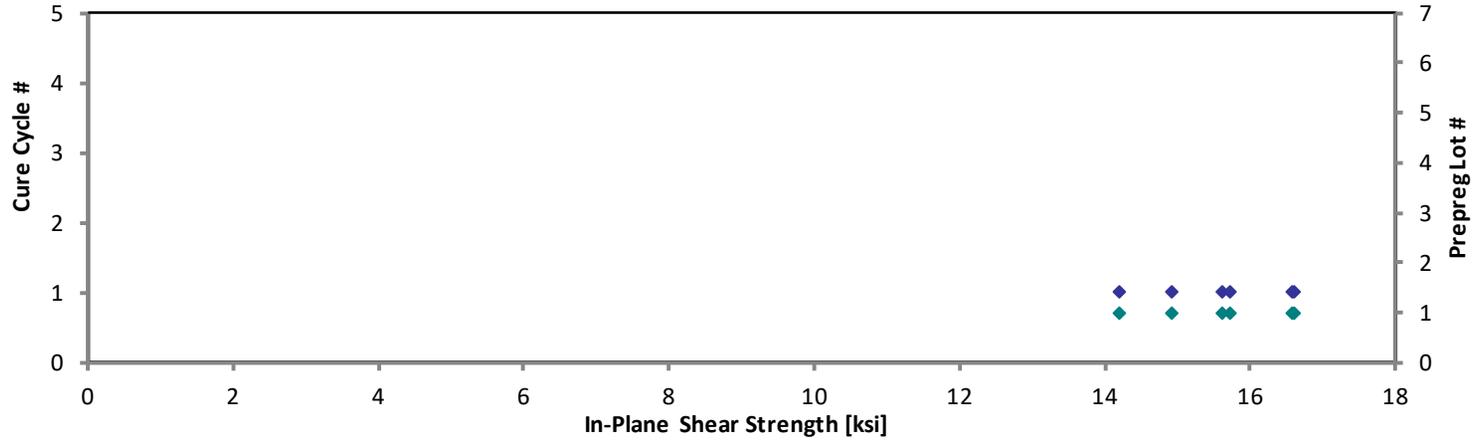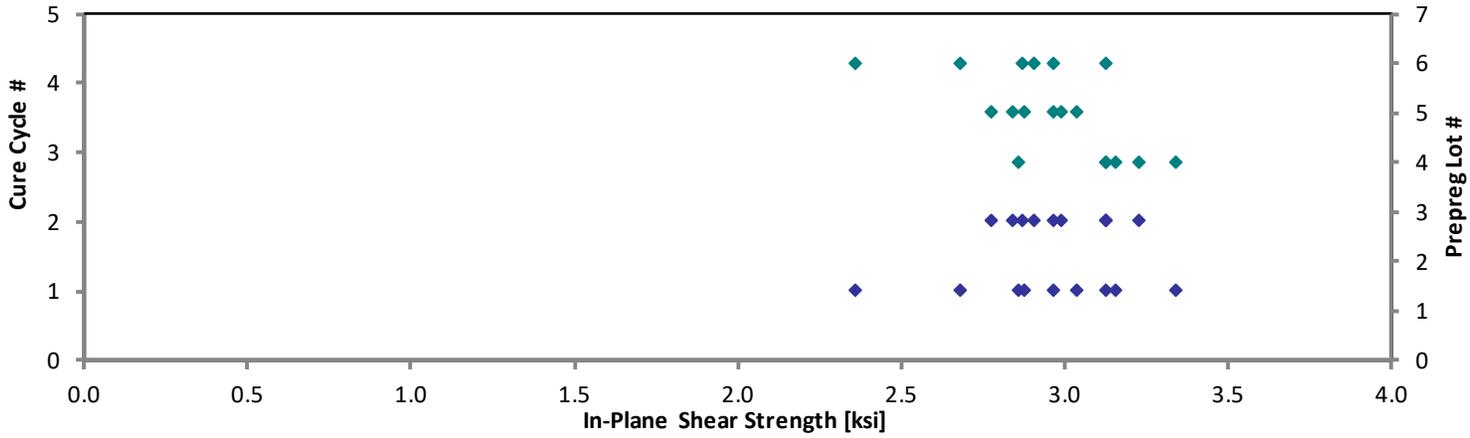
- ◆ Cure Cycle #
- ◆ Prepreg Lot #

In-Plane Shear Properties (IPS)--ETW3(250°F)
Measured Strength at 5% Strain
Solvay EP2190 T650 3K PW Fabric RC 37%
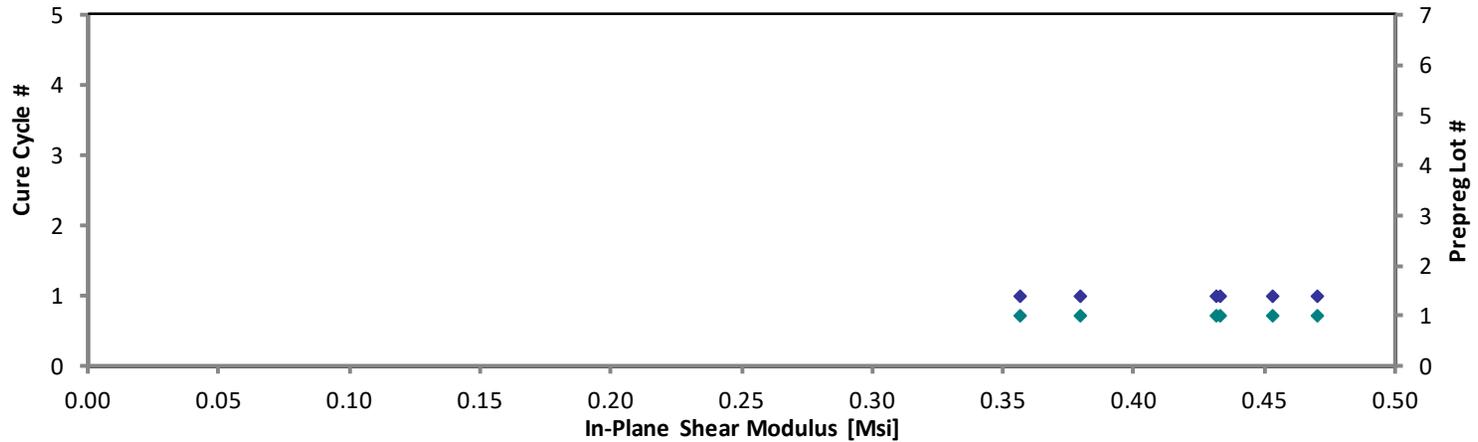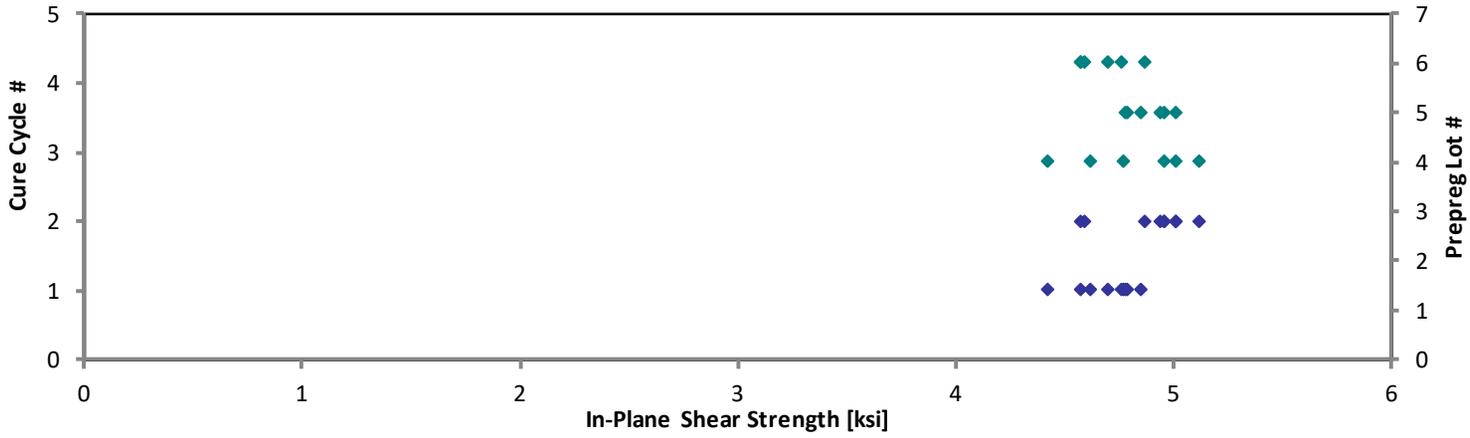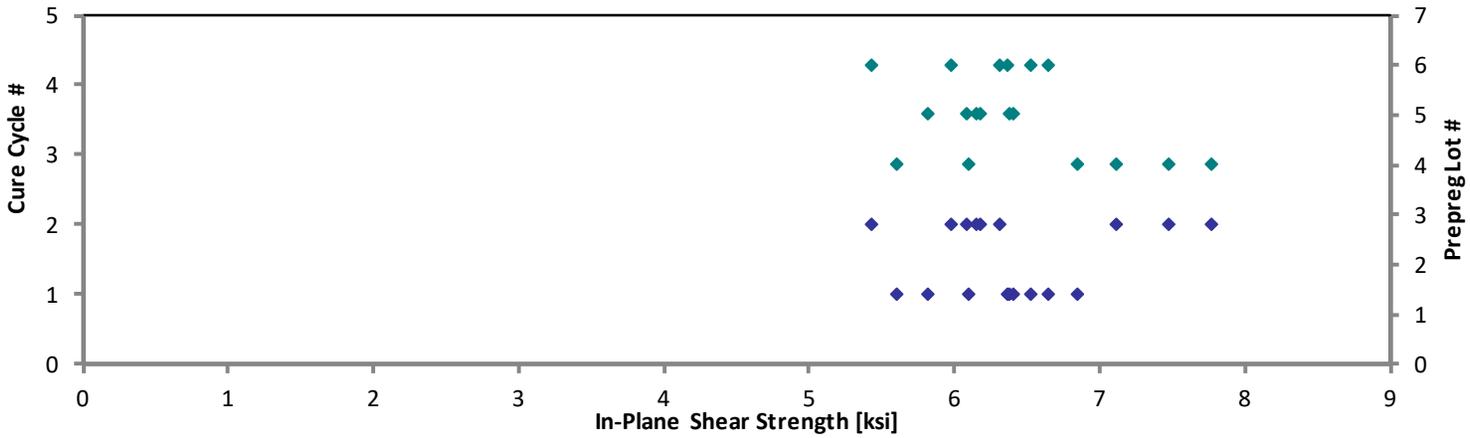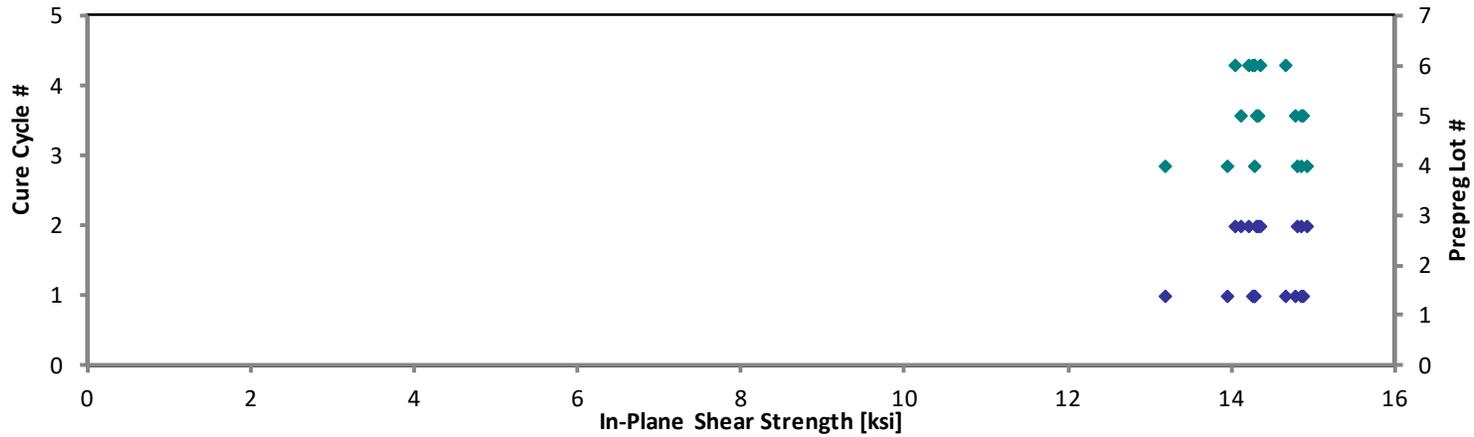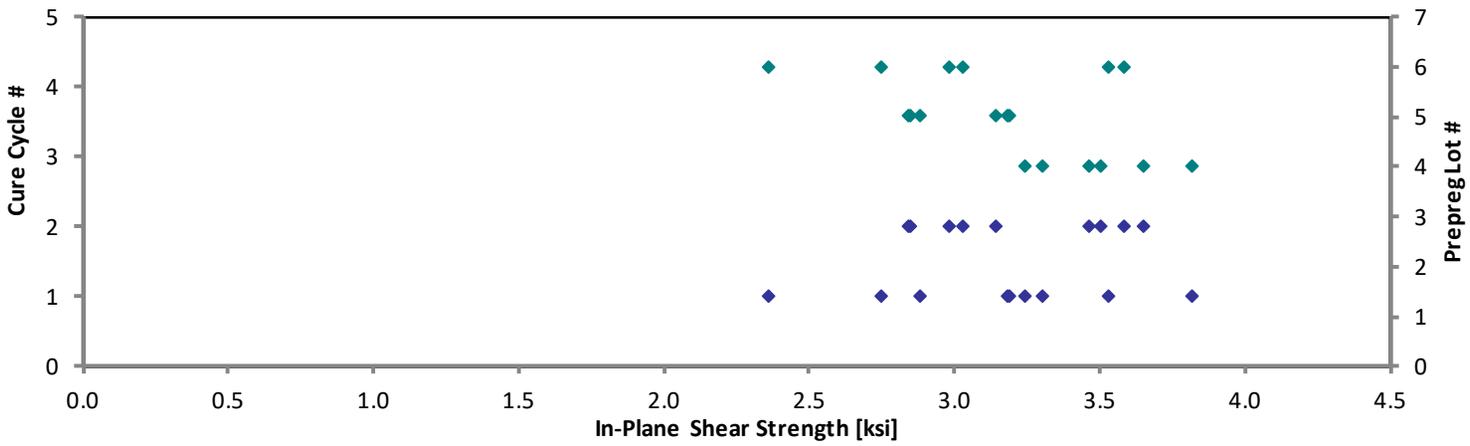
- ◆ Cure Cycle #
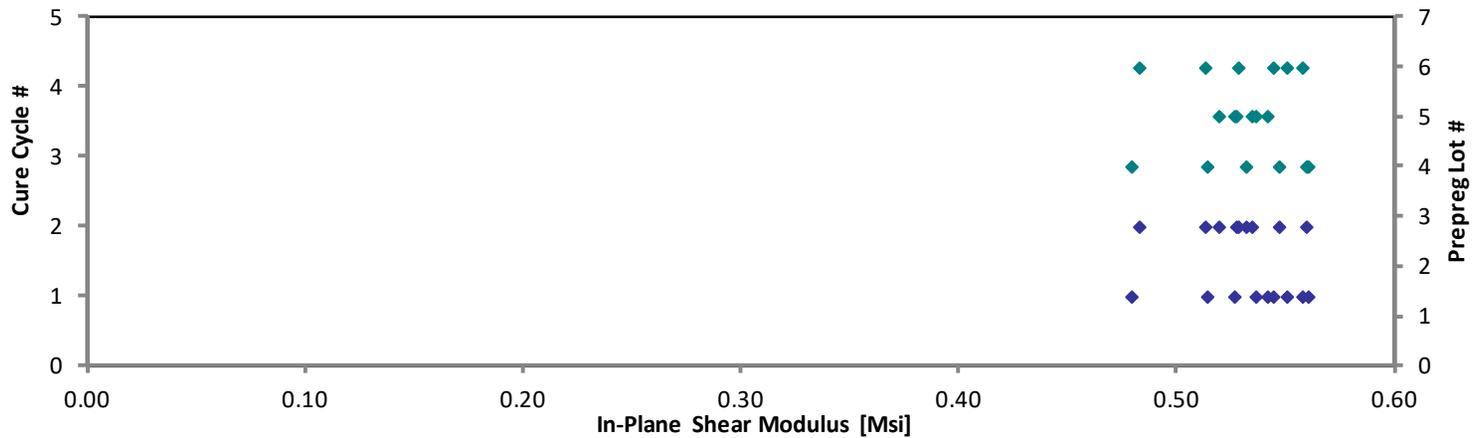- ◆ Prepreg Lot #

In-Plane Shear Properties (IPS)--ETW3(250°F) Measured Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
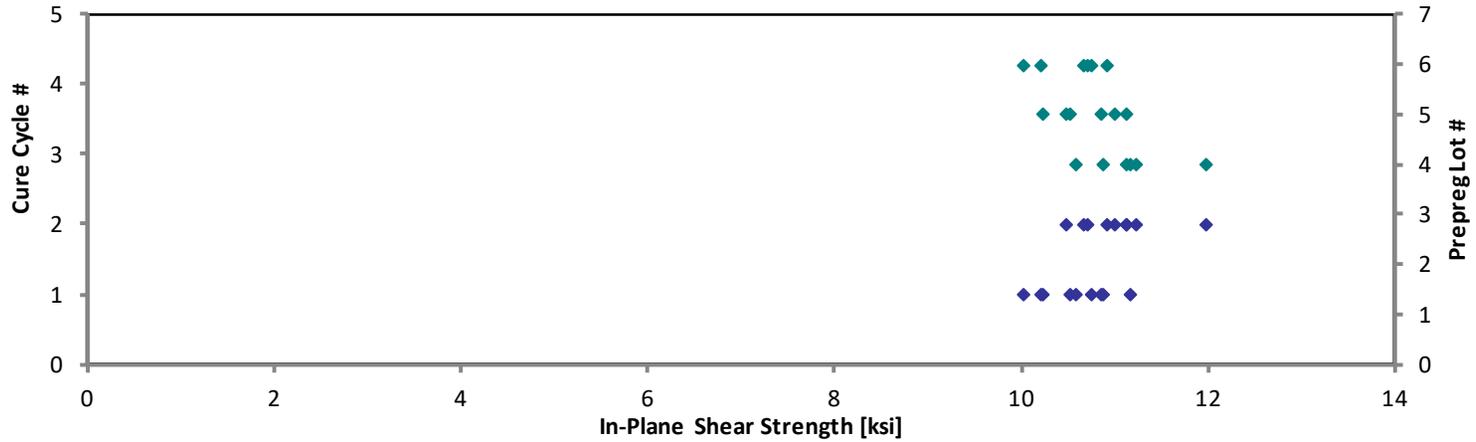
In-Plane Shear Properties (IPS)--ETW3(250°F) Measured Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

4.8 0° Flexural Proc. A Properties (0FLEX)

0° Flexural Proc. A Properties (0FLEX)--RTA(75°F) Strength & Modulus Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8340120-P1-0FLEX-A-C1-RTA-1	A	C1	1	1	142.0		0.09620	12	TAM		0.0080	146.2	
TR8340120-P1-0FLEX-A-C1-RTA-2	A	C1	1	1	159.0		0.09560	12	TAM		0.0080	161.7	
TR8340120-P1-0FLEX-A-C1-RTA-3	A	C1	1	1	149.7		0.09560	12	M(xyz)AM		0.0080	152.2	
TR8340120-P1-0FLEX-A-C1-RTA-4	A	C1	1	1	147.3		0.09450	12	TAM		0.0079	146.4	
TR8340120-P1-0FLEX-A-C1-RTA-5	A	C1	1	1	147.3		0.09580	12	TAM		0.0080	150.4	
TR8340120-P1-0FLEX-A-C1-RTA-6	A	C1	1	1	159.1		0.09630	12	TAM		0.0080	164.1	
TR8345685-P1-0FLEX-B-C1-RTA-1	B	C1	2	1	152.9		0.09700	12	OLM		0.0081	160.1	
TR8345685-P1-0FLEX-B-C1-RTA-2	B	C1	2	1	143.0		0.09680	12	OLM		0.0081	149.1	
TR8345685-P1-0FLEX-B-C1-RTA-3	B	C1	2	1	157.0		0.09710	12	OLM		0.0081	164.7	
TR8345685-P1-0FLEX-B-C1-RTA-4	B	C1	2	1	139.0		0.09620	12	OLM		0.0080	143.2	
TR8345685-P1-0FLEX-B-C1-RTA-5	B	C1	2	1	150.4		0.09560	12	OLM		0.0080	152.9	
TR8345685-P1-0FLEX-B-C1-RTA-6	B	C1	2	1	139.5		0.09780	12	OLM		0.0082	148.4	
TR8346146-P1-0FLEX-C-C1-RTA-1	C	C1	3	1	132.1		0.09580	12	TAM		0.0080	134.9	
TR8346146-P1-0FLEX-C-C1-RTA-2	C	C1	3	1	143.5		0.09490	12	TAM		0.0079	143.8	
TR8346146-P1-0FLEX-C-C1-RTA-3	C	C1	3	1	147.3		0.09480	12	TAM		0.0079	147.3	
TR8346146-P1-0FLEX-C-C1-RTA-4	C	C1	3	1	152.5		0.09520	12	TAM		0.0079	153.8	
TR8346146-P1-0FLEX-C-C1-RTA-5	C	C1	3	1	151.1		0.09480	12	TAM		0.0079	151.1	
TR8346146-P1-0FLEX-C-C1-RTA-6	C	C1	3	1	159.3		0.09510	12	TAM		0.0079	160.3	
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C1-1-RTA-1	D	C1	1	1	151.5	9.364	0.09410	12	M(c,t)		0.0078	149.2	9.226
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C1-1-RTA-2	D	C1	1	1	140.4	9.354	0.09420	12	M(c,t)		0.0079	138.6	9.236
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C1-1-RTA-3	D	C1	1	1	150.2	9.328	0.09430	12	M(c,t)		0.0079	148.6	9.230
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C2-1-RTA-1	D	C2	2	1	140.5	8.725	0.09540	12	M(c,t)BM		0.0080	142.3	8.836
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C2-1-RTA-2	D	C2	2	1	152.2	9.051	0.09410	12	M(c,t)BM		0.0078	150.0	8.918
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C2-1-RTA-3	D	C2	2	1	150.9	8.843	0.09530	12	M(c,t)BM		0.0079	152.5	8.937

Note: Normalized = Measured * (Avg. t_{ply})^2 / (Normalizing t_{ply})^2

Average	148.2	9.111	**Average$_{norm}$**	0.0080	150.5	9.064
Standard Dev.	7.100	0.2809	**Standard Dev.$_{norm}$**		7.613	0.1861
Coeff. of Var. [%]	4.790	3.083	**Coeff. of Var. [%]$_{norm}$**		5.059	2.053
Min.	132.1	8.725	**Min.**	0.0078	134.9	8.836
Max.	159.3	9.364	**Max.**	0.0082	164.7	9.236
Number of Spec.	24	6	**Number of Spec.**	24	24	6

0° Flexural Proc. A Properties (0FLEX)--RTA(75°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- Cure Cycle #
- Prepreg Lot #

0° Flexural Proc. A Properties (0FLEX)--RTA(75°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- Cure Cycle #
- Prepreg Lot #

0° Flexural Proc. A Properties (0FLEX)--ETA2(225°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C1-1-ETA2-1	D	C1	1	1	117.1	8.563	0.09430	12	M(c,t)AL	0.0079	115.8	8.473
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C1-1-ETA2-2	D	C1	1	1	116.7	8.594	0.09370	12	M(c,t)AL	0.0078	114.0	8.396
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C1-1-ETA2-3	D	C1	1	1	113.6	8.665	0.09410	12	M(c,t)AL	0.0078	111.9	8.538
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C2-1-ETA2-1	D	C2	2	1	123.4	8.820	0.09540	12	TAM	0.0080	125.0	8.932
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C2-1-ETA2-2	D	C2	2	1	123.2	8.840	0.09500	12	TAM	0.0079	123.7	8.877
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C2-1-ETA2-3	D	C2	2	1	125.4	8.795	0.09480	12	TAM	0.0079	125.4	8.795

Note: Normalized = Measured * (Avg. t_{ply})^2 / (Normalizing t_{ply})^2

Average	119.9	8.713	Average$_{norm}$	0.0079	119.3	8.668
Standard Dev.	4.730	0.1211	Standard Dev.$_{norm}$		6.063	0.2275
Coeff. of Var. [%]	3.945	1.389	Coeff. of Var. [%]$_{norm}$		5.082	2.625
Min.	113.6	8.563	Min.	0.0078	111.9	8.396
Max.	125.4	8.840	Max.	0.0080	125.4	8.932
Number of Spec.	6	6	Number of Spec.	6	6	6

0° Flexural Proc. A Properties (0FLEX)--ETA2(225°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

0° Flexural Proc. A Properties (0FLEX)--ETA2(225°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

0° Flexural Proc. A Properties (0FLEX)--ETA3(250°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8340120-P1-0FLEX-A-C1-ETA3-1	A	C1	1	1	110.4		0.09710	12	M(t,c)AM	0.0081	115.8	
TR8340120-P1-0FLEX-A-C1-ETA3-2	A	C1	1	1	108.4		0.09640	12	M(t,c)AM	0.0080	112.1	
TR8340120-P1-0FLEX-A-C1-ETA3-3	A	C1	1	1	109.2		0.09620	12	M(t,c)AM	0.0080	112.4	
TR8340120-P1-0FLEX-A-C1-ETA3-4	A	C1	1	1	103.8		0.09600	12	M(t,c)AM	0.0080	106.4	
TR8340120-P1-0FLEX-A-C1-ETA3-5	A	C1	1	1	107.6		0.09640	12	M(t,c)AM	0.0080	111.2	
TR8340120-P1-0FLEX-A-C1-ETA3-6	A	C1	1	1	110.8		0.09640	12	CAM	0.0080	114.6	
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C1-1-ETA3-1	D	C1	4	1	109.9	8.557	0.09480	12	CAM	0.0079	109.9	8.557
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C1-1-ETA3-2	D	C1	4	1	107.3	8.605	0.09460	12	CAM	0.0079	106.9	8.569
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C1-1-ETA3-3	D	C1	4	1	108.0	8.546	0.09430	12	M(xyz)AV	0.0079	106.9	8.456
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C2-1-ETA3-1	D	C2	4	2	113.4	8.629	0.09580	12	CAM	0.0080	115.8	8.812
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C2-1-ETA3-2	D	C2	4	2	106.7	8.545	0.09580	12	M(xyz)AM	0.0080	108.9	8.726
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C2-1-ETA3-3	D	C2	4	2	116.0	8.645	0.09560	12	CAM	0.0080	117.9	8.792
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C1-1-ETA3-1	E	C1	5	1	99.57	8.055	0.09740	12	CLR	0.0081	105.1	8.503
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C1-1-ETA3-2	E	C1	5	1	95.16	8.019	0.09740	12	CAM	0.0081	100.5	8.465
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C1-1-ETA3-3	E	C1	5	1	93.58	8.025	0.09780	12	CAM	0.0082	99.6	8.541
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C2-1-ETA3-1	E	C2	5	2	100.7	8.264	0.09730	12	CAM	0.0081	106.1	8.706
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C2-1-ETA3-2	E	C2	5	2	102.0	8.493	0.09720	12	CAM	0.0081	107.3	8.928
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C2-1-ETA3-3	E	C2	5	2	106.8	8.405	0.09750	12	CAM	0.0081	113.0	8.891

Note: Normalized = Measured * (Avg. t_{ply})^2 / (Normalizing t_{ply})^2

Average	106.1	8.399	**Average$_{norm}$**	0.0080	109.5	8.662
Standard Dev.	5.942	0.2437	**Standard Dev.$_{norm}$**		5.130	0.1677
Coeff. of Var. [%]	5.602	2.902	**Coeff. of Var. [%]$_{norm}$**		4.687	1.936
Min.	93.58	8.019	**Min.**	0.0079	99.60	8.456
Max.	116.0	8.645	**Max.**	0.0082	117.9	8.928
Number of Spec.	18	12	**Number of Spec.**	18	18	12

0° Flexural Proc. A Properties (0FLEX)--ETA3(250°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- Cure Cycle #
- Prepreg Lot #

0° Flexural Proc. A Properties (0FLEX)--ETA3(250°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%
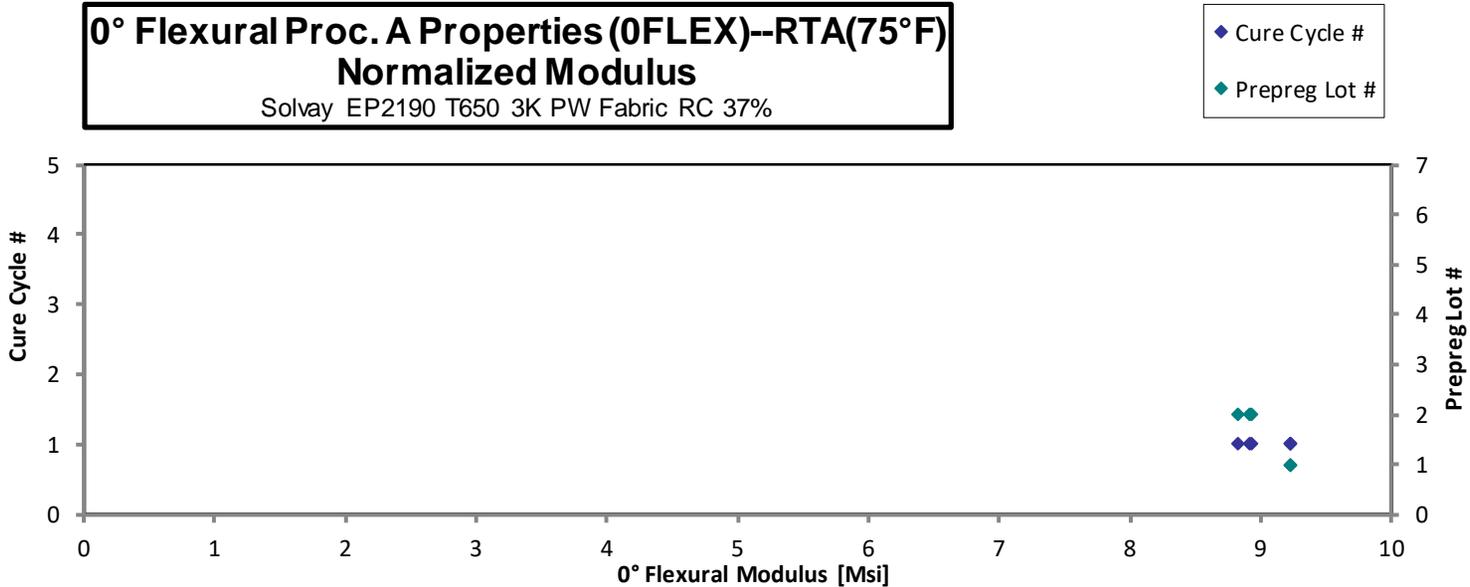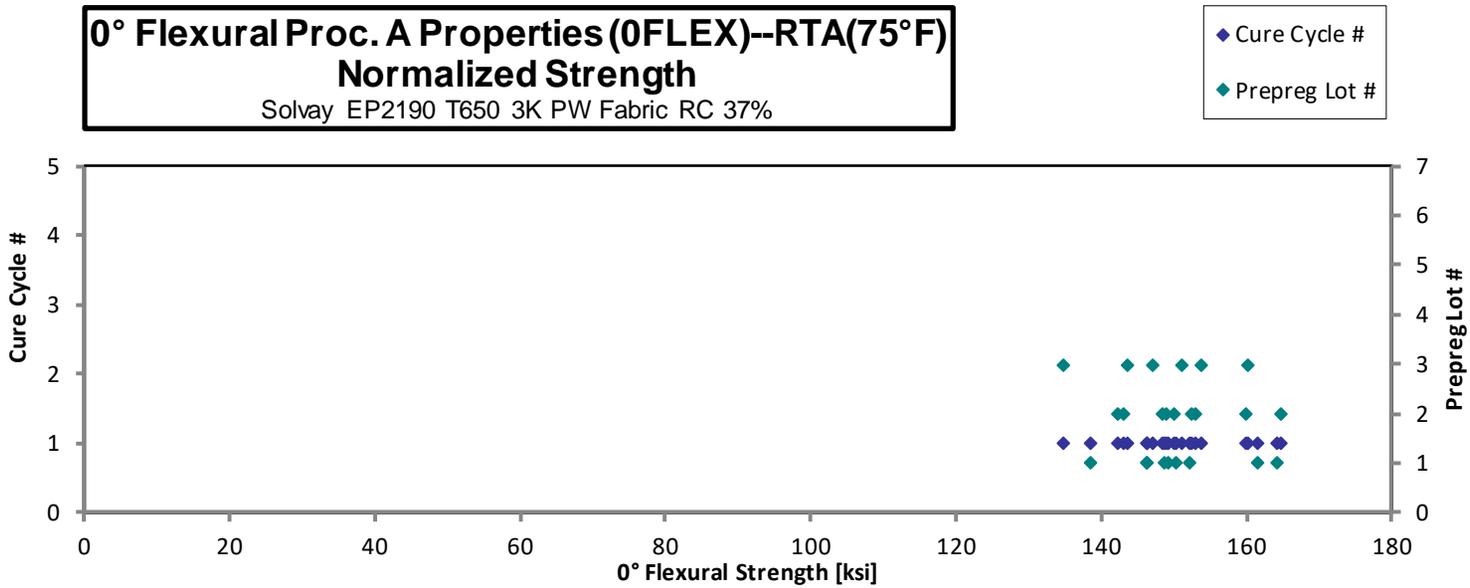
- Cure Cycle #
- Prepreg Lot #

0° Flexural Proc. A Properties (0FLEX)--ETW2(225°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
| 0.0079 |

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C1-1-ETW2-1	D	C1	4	1	96.68	8.329	0.09410	12	CAM	0.0078	95.26	8.206
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C1-1-ETW2-2	D	C1	4	1	91.79	8.523	0.09390	12	CAM	0.0078	90.06	8.362
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C1-1-ETW2-3	D	C1	4	1	105.9	8.632	0.09380	12	CAM	0.0078	103.7	8.451
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C2-1-ETW2-1	D	C2	4	2	101.6	8.229	0.09560	12	CAM	0.0080	103.3	8.368
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C2-1-ETW2-2	D	C2	4	2	89.81	8.020	0.09580	12	CAM	0.0080	91.71	8.190
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C2-1-ETW2-3	D	C2	4	2	88.08	8.196	0.09540	12	CAM	0.0080	89.20	8.300
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C1-1-ETW2-1	E	C1	5	1	90.23	8.348	0.09720	12	CAM	0.0081	94.86	8.776
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C1-1-ETW2-2	E	C1	5	1	84.36	8.181	0.09810	12	CAM	0.0082	90.34	8.760
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C1-1-ETW2-3	E	C1	5	1	82.43	8.206	0.09800	12	CAM	0.0082	88.09	8.769
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C2-1-ETW2-1	E	C2	5	2	92.45	8.539	0.09780	12	CAT	0.0082	98.39	9.088
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C2-1-ETW2-2	E	C2	5	2	89.36	8.235	0.09780	12	CAT	0.0082	95.11	8.764
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C2-1-ETW2-3	E	C2	5	2	84.93	8.205	0.09790	12	CAT	0.0082	90.58	8.750
NTP2191Q1-WRX-PW-SOL-0FLEX-F-C1-1-ETW2-1	F	C1	6	1	95.60	8.475	0.09380	12	CAT	0.0078	93.59	8.297
NTP2191Q1-WRX-PW-SOL-0FLEX-F-C1-1-ETW2-2	F	C1	6	1	90.36	8.398	0.09400	12	CAT	0.0078	88.84	8.257
NTP2191Q1-WRX-PW-SOL-0FLEX-F-C1-1-ETW2-3	F	C1	6	1	95.06	8.485	0.09390	12	CAT	0.0078	93.26	8.325
NTP2191Q1-WRX-PW-SOL-0FLEX-F-C2-1-ETW2-1	F	C2	6	2	101.4	8.075	0.09540	12	TAM	0.0080	102.7	8.178
NTP2191Q1-WRX-PW-SOL-0FLEX-F-C2-1-ETW2-2	F	C2	6	2	103.8	8.243	0.09520	12	TAM	0.0079	104.7	8.313
NTP2191Q1-WRX-PW-SOL-0FLEX-F-C2-1-ETW2-3	F	C2	6	2	96.24	8.143	0.09530	12	TAM	0.0079	97.26	8.229

Note: Normalized = Measured * (Avg. tply)^2 / (Normalizing t_{ply})^2

Average	93.34	8.303		Average$_{norm}$	0.0080	95.05	8.466
Standard Dev.	6.759	0.1721		Standard Dev.$_{norm}$		5.505	0.2742
Coeff. of Var. [%]	7.242	2.073		Coeff. of Var. [%]$_{norm}$		5.792	3.239
Min.	82.43	8.020		Min.	0.0078	88.09	8.178
Max.	105.9	8.632		Max.	0.0082	104.7	9.088
Number of Spec.	18	18		Number of Spec.	18	18	18

0° Flexural Proc. A Properties (0FLEX)--ETW2(225°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

0° Flexural Proc. A Properties (0FLEX)--ETW2(225°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

4.9 90° Flexural Proc. A Properties (90FLEX)

90° Flexural Proc. A Properties (90FLEX)--RTA(75°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]

| 0.0079 |

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8340158-P1-90FLEX-A-C1-RTA-1	A	C1	1	1	144.8		0.09610	12	M(xyz)AM	0.0080	148.8	
TR8340158-P1-90FLEX-A-C1-RTA-2	A	C1	1	1	157.0		0.09570	12	M(xyz)AM	0.0080	160.0	
TR8340158-P1-90FLEX-A-C1-RTA-3	A	C1	1	1	149.4		0.09580	12	M(xyz)AM	0.0080	152.6	
TR8340158-P1-90FLEX-A-C1-RTA-4	A	C1	1	1	145.3		0.09590	12	TAM	0.0080	148.6	
TR8340158-P1-90FLEX-A-C1-RTA-5	A	C1	1	1	144.8		0.09620	12	M(xyz)AM	0.0080	149.1	
TR8340158-P1-90FLEX-A-C1-RTA-6	A	C1	1	1	155.3		0.09630	12	TAM	0.0080	160.3	
TR8345687-P1-90FLEX-B-C1-RTA-1	B	C1	2	1	152.0		0.09760	12	OLM	0.0081	161.2	
TR8345687-P1-90FLEX-B-C1-RTA-2	B	C1	2	1	148.6		0.09700	12	OLM	0.0081	155.6	
TR8345687-P1-90FLEX-B-C1-RTA-4	B	C1	2	1	153.8		0.09560	12	OLM	0.0080	156.4	
TR8345687-P1-90FLEX-B-C1-RTA-5	B	C1	2	1	149.2		0.09710	12	OLM	0.0081	156.6	
TR8345687-P1-90FLEX-B-C1-RTA-6	B	C1	2	1	148.5		0.09740	12	OLM	0.0081	156.8	
TR8345687-P1-90FLEX-B-C1-RTA-7	B	C1	2	1	151.3		0.09720	12	OLM	0.0081	159.0	
TR8346147-P1-90FLEX-C-C1-RTA-1	C	C1	3	1	148.1		0.09510	12	TAM	0.0079	149.1	
TR8346147-P1-90FLEX-C-C1-RTA-2	C	C1	3	1	150.8		0.09500	12	CAM	0.0079	151.4	
TR8346147-P1-90FLEX-C-C1-RTA-3	C	C1	3	1	161.6		0.09510	12	TAM	0.0079	162.6	
TR8346147-P1-90FLEX-C-C1-RTA-4	C	C1	3	1	162.1		0.09500	12	TAM	0.0079	162.8	
TR8346147-P1-90FLEX-C-C1-RTA-5	C	C1	3	1	152.7		0.09470	12	TAM	0.0079	152.4	
TR8346147-P1-90FLEX-C-C1-RTA-6	C	C1	3	1	163.9		0.09460	12	TAM	0.0079	163.2	
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C1-1-RTA-1	D	C1	1	1	147.8	9.067	0.09480	12	M(c,t)	0.0079	147.8	9.067
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C1-1-RTA-2	D	C1	1	1	151.8	9.036	0.09470	12	M(c,t)	0.0079	151.5	9.017
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C1-1-RTA-3	D	C1	1	1	150.1	9.410	0.09470	12	M(c,t)	0.0079	149.8	9.390
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C2-1-RTA-1	D	C2	2	1	145.0	9.240	0.09540	12	M(c,t)BM	0.0080	146.9	9.357
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C2-1-RTA-2	D	C2	2	1	142.7	9.480	0.09410	12	M(c,t)BM	0.0078	140.6	9.341
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C2-1-RTA-3	D	C2	2	1	146.6	9.337	0.09560	12	M(c,t)BM	0.0080	149.1	9.495

Note: Normalized = Measured * (Avg. t_{ply})^2 / (Normalizing t_{ply})^2

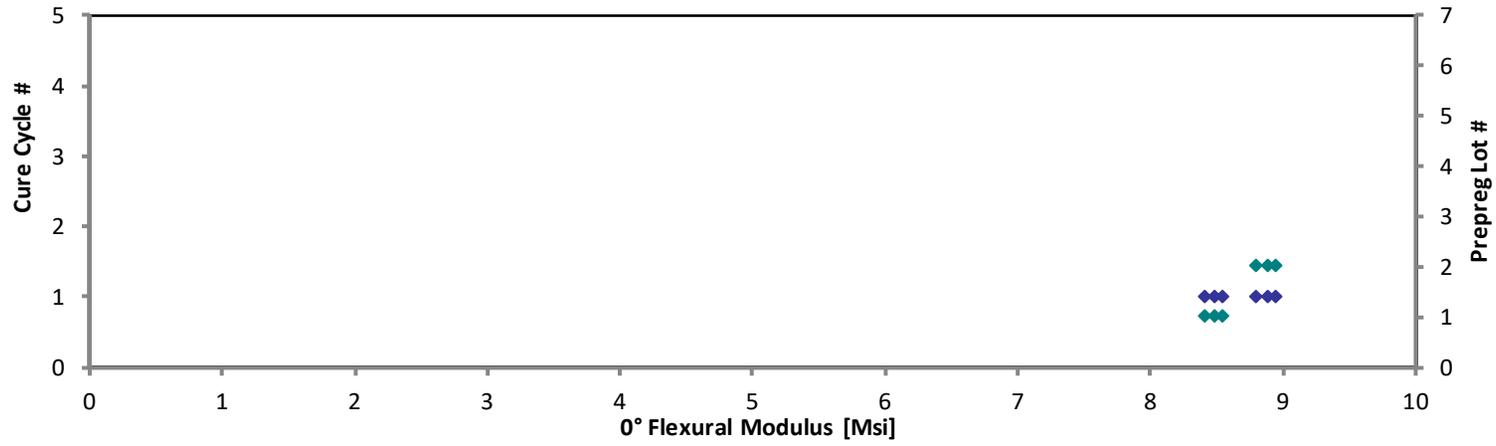|						
Average	151.0	9.262	**Average$_{norm}$**	0.0080	153.8	9.278
Standard Dev.	5.667	0.1815	**Standard Dev.$_{norm}$**		6.048	0.1911
Coeff. of Var. [%]	3.754	1.959	**Coeff. of Var. [%]$_{norm}$**		3.931	2.060
Min.	142.7	9.036	**Min.**	0.0078	140.6	9.017
Max.	163.9	9.480	**Max.**	0.0081	163.2	9.495
Number of Spec.	24	6	**Number of Spec.**	24	24	6

90° Flexural Proc. A Properties (90FLEX)--RTA(75°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Legend: ◆ Cure Cycle # ◆ Prepreg Lot #

90° Flexural Proc. A Properties (90FLEX)--RTA(75°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

Legend: ◆ Cure Cycle # ◆ Prepreg Lot #

90° Flexural Proc. A Properties (90FLEX)--ETA2(225°F)
Strength & Modulus
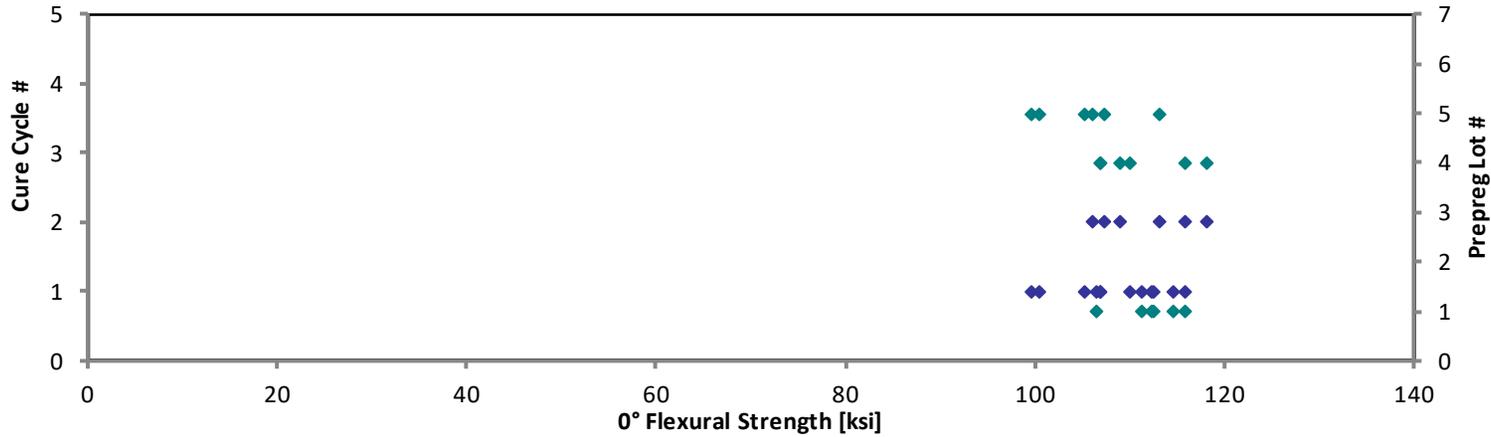Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C1-1-ETA2-1	D	C1	1	1	119.4	8.710	0.09440	12	M(c,t)AL		0.0079	118.4	8.637
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C1-1-ETA2-2	D	C1	1	1	115.0	8.792	0.09460	12	CAT		0.0079	114.5	8.755
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C1-1-ETA2-3	D	C1	1	1	120.1	8.723	0.09420	12	CAT		0.0079	118.6	8.613
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C2-1-ETA2-1	D	C2	2	1	123.0	8.634	0.09530	12	OAM		0.0079	124.3	8.725
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C2-1-ETA2-2	D	C2	2	1	135.1	8.533	0.09510	12	OAM		0.0079	135.9	8.587
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C2-1-ETA2-3	D	C2	2	1	130.8	9.569	0.09510	12	OAM		0.0079	131.6	9.630

Note: Normalized = Measured * (Avg. t_{ply})^2 / (Normalizing t_{ply})^2

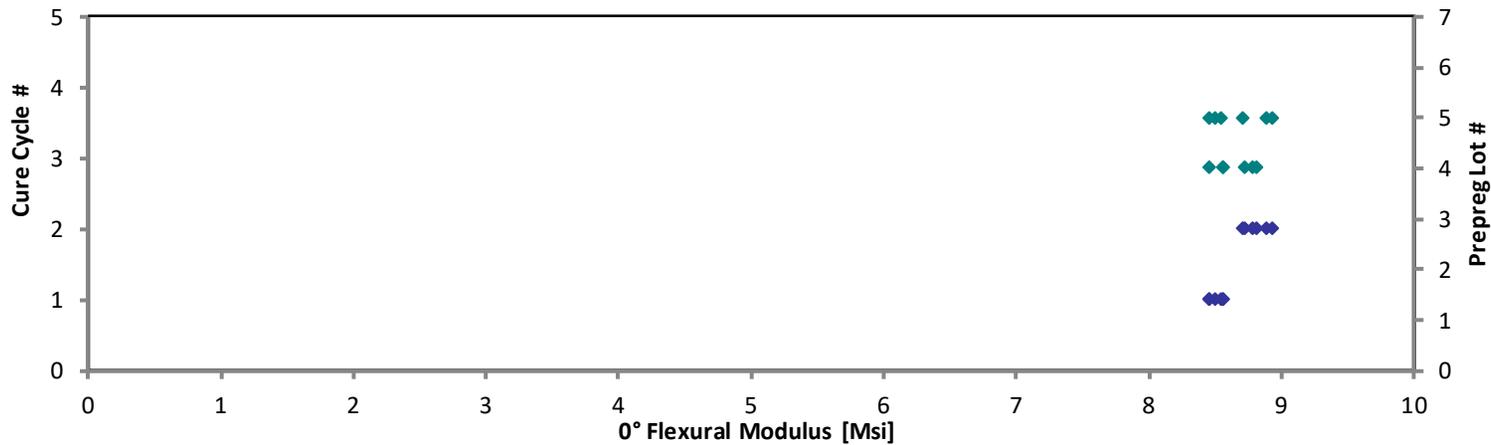|					
Average	123.9	8.827	Average$_{norm}$	0.0079	123.9	8.824
Standard Dev.	7.586	0.3742	Standard Dev.$_{norm}$		8.388	0.3998
Coeff. of Var. [%]	6.123	4.239	Coeff. of Var. [%]$_{norm}$		6.771	4.531
Min.	115.0	8.533	Min.	0.0079	114.5	8.587
Max.	135.1	9.569	Max.	0.0079	135.9	9.630
Number of Spec.	6	6	Number of Spec.	6	6	6

90° Flexural Proc. A Properties (90FLEX)--ETA2(225°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

90° Flexural Proc. A Properties (90FLEX)--ETA2(225°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

90° Flexural Proc. A Properties (90FLEX)--ETA3(250°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8340158-P1-90FLEX-A-C1-ETA3-1	A	C1	1	1	105.6		0.09650	12	M(t,c)AM	0.0080	109.4	
TR8340158-P1-90FLEX-A-C1-ETA3-2	A	C1	1	1	103.7		0.09620	12	M(t,c)AM	0.0080	106.7	
TR8340158-P1-90FLEX-A-C1-ETA3-3	A	C1	1	1	100.2		0.09600	12	M(t,c)AM	0.0080	102.7	
TR8340158-P1-90FLEX-A-C1-ETA3-4	A	C1	1	1	107.3		0.09590	12	CAM	0.0080	109.8	
TR8340158-P1-90FLEX-A-C1-ETA3-5	A	C1	1	1	109.1		0.09620	12	CAM	0.0080	112.3	
TR8340158-P1-90FLEX-A-C1-ETA3-6	A	C1	1	1	101.7		0.09640	12	M(t,c)AM	0.0080	105.2	
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C1-1-ETA3-1	D	C1	4	1	105.0	8.600	0.09450	12	CAM	0.0079	104.4	8.546
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C1-1-ETA3-2	D	C1	4	1	117.2	8.521	0.09460	12	CAM	0.0079	116.7	8.485
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C1-1-ETA3-3	D	C1	4	1	110.4	8.677	0.09430	12	CAM	0.0079	109.2	8.586
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C2-1-ETA3-1	D	C2	4	2	118.8	8.476	0.09530	12	TAM	0.0079	120.0	8.566
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C2-1-ETA3-2	D	C2	4	2	108.8	8.388	0.09520	12	CAM	0.0079	109.7	8.459
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C2-1-ETA3-3	D	C2	4	2	112.5	8.464	0.09500	12	TAM	0.0079	113.0	8.500
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C1-1-ETA3-1	E	C1	5	1	97.70	8.182	0.09790	12	CAM	0.0082	104.2	8.726
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C1-1-ETA3-2	E	C1	5	1	107.5	8.211	0.09800	12	CAM	0.0082	114.9	8.775
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C1-1-ETA3-3	E	C1	5	1	107.5	8.176	0.09760	12	CAM	0.0081	113.9	8.666
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C2-1-ETA3-1	E	C2	5	2	106.3	7.937	0.09840	12	CAM	0.0082	114.5	8.551
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C2-1-ETA3-2	E	C2	5	2	106.9	7.883	0.09760	12	CAM	0.0081	113.3	8.356
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C2-1-ETA3-3	E	C2	5	2	99.51	7.845	0.09830	12	CAM	0.0082	107.0	8.435

Note: Normalized = Measured * (Avg. t_{ply})^2 / (Normalizing t_{ply})^2

	Strength	Modulus			Avg. t_{ply}	Strength$_{norm}$	Modulus$_{norm}$
Average	107.0	8.280	Average$_{norm}$		0.0080	110.4	8.554
Standard Dev.	5.564	0.2847	Standard Dev.$_{norm}$			4.784	0.1215
Coeff. of Var. [%]	5.201	3.439	Coeff. of Var. [%]$_{norm}$			4.334	1.420
Min.	97.70	7.845	Min.		0.0079	102.7	8.356
Max.	118.8	8.677	Max.		0.0082	120.0	8.775
Number of Spec.	18	12	Number of Spec.		18	18	12

90° Flexural Proc. A Properties (90FLEX)--ETA3(250°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

90° Flexural Proc. A Properties (90FLEX)--ETA3(250°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

90° Flexural Proc. A Properties (90FLEX)--ETW2(225°F)
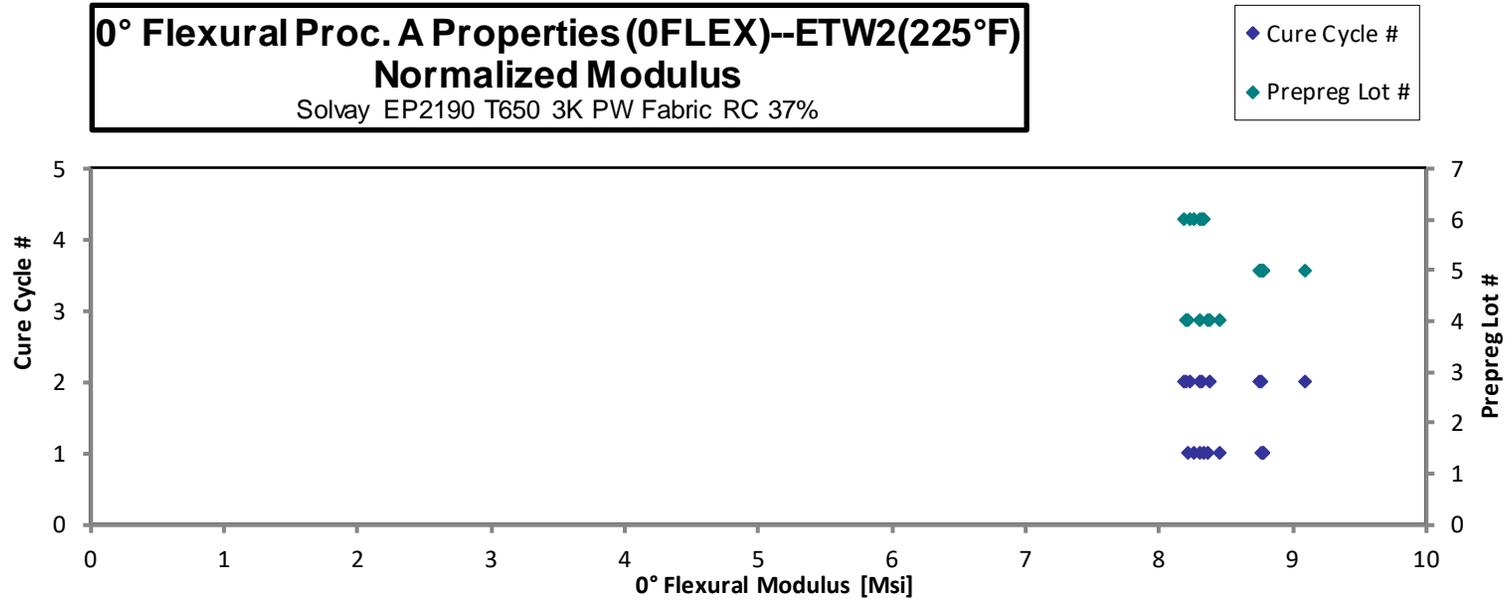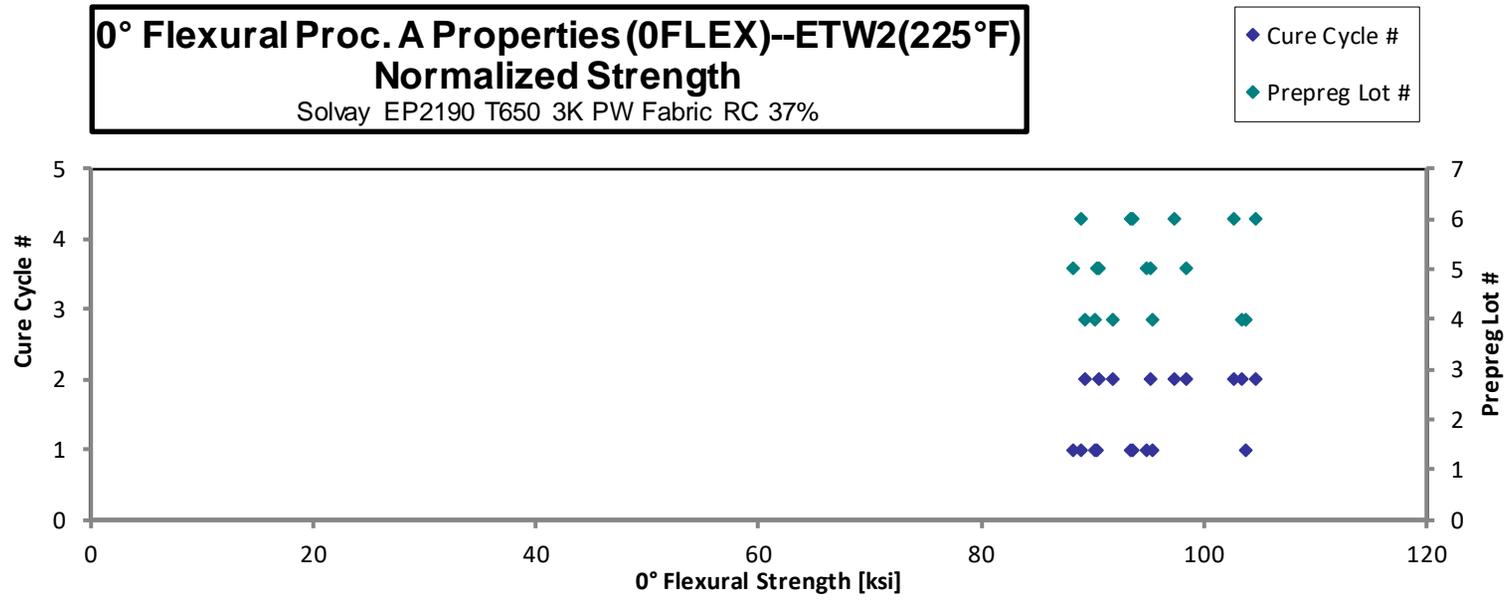**Strength & Modulus**
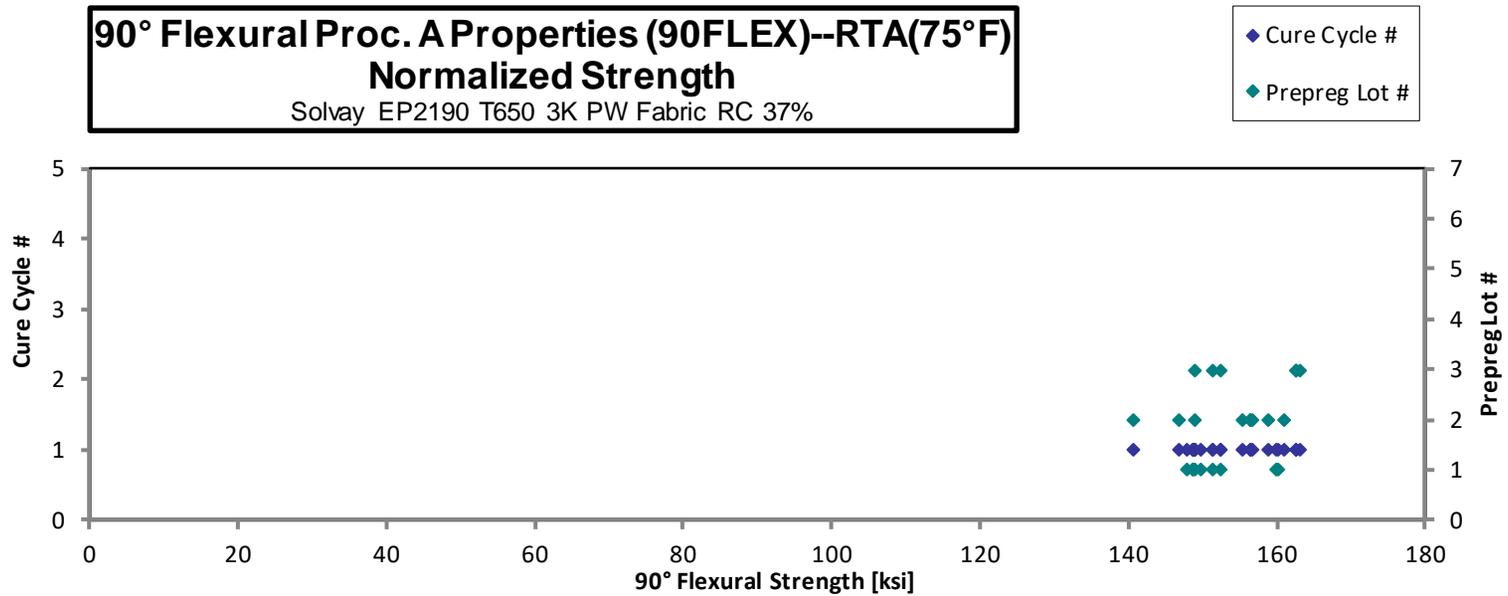Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C1-1-ETW2-1	D	C1	4	1	96.66	8.307	0.09460	12	CAM	0.0079	96.25	8.272
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C1-1-ETW2-2	D	C1	4	1	96.38	8.419	0.09480	12	CAM	0.0079	96.38	8.419
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C1-1-ETW2-3	D	C1	4	1	100.8	8.443	0.09460	12	CAM	0.0079	100.4	8.407
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C2-1-ETW2-1	D	C2	4	2	99.46	8.502	0.09530	12	CAM	0.0079	100.5	8.592
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C2-1-ETW2-2	D	C2	4	2	99.67	8.605	0.09500	12	CAM	0.0079	100.1	8.641
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C2-1-ETW2-3	D	C2	4	2	97.74	8.566	0.09490	12	CAM	0.0079	97.95	8.584
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C1-1-ETW2-1	E	C1	5	1	92.46	8.590	0.09640	12	CAM	0.0080	95.61	8.882
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C1-1-ETW2-2	E	C1	5	1	86.87	8.311	0.09750	12	CAM	0.0081	91.89	8.791
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C1-1-ETW2-3	E	C1	5	1	84.55	8.264	0.09810	12	CAM	0.0082	90.54	8.849
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C2-1-ETW2-1	E	C2	5	2	83.21	8.370	0.09640	12	CAM	0.0080	86.04	8.655
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C2-1-ETW2-2	E	C2	5	2	84.91	8.229	0.09840	12	CAM	0.0082	91.48	8.866
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C2-1-ETW2-3	E	C2	5	2	88.68	8.346	0.09790	12	CAM	0.0082	94.57	8.901
NTP2191Q1-WRX-PW-SOL-90FLEX-F-C1-1-ETW2-1	F	C1	6	1	89.96	7.816	0.09420	12	TAM	0.0079	88.82	7.717
NTP2191Q1-WRX-PW-SOL-90FLEX-F-C1-1-ETW2-2	F	C1	6	1	90.15	8.058	0.09410	12	TAM	0.0078	88.82	7.939
NTP2191Q1-WRX-PW-SOL-90FLEX-F-C1-1-ETW2-3	F	C1	6	1	92.50	8.031	0.09390	12	TAM	0.0078	90.75	7.879
NTP2191Q1-WRX-PW-SOL-90FLEX-F-C2-1-ETW2-1	F	C2	6	2	95.18	8.113	0.09550	12	TAM	0.0080	96.59	8.233
NTP2191Q1-WRX-PW-SOL-90FLEX-F-C2-1-ETW2-2	F	C2	6	2	88.69	8.688	0.09530	12	TAM	0.0079	89.63	8.780
NTP2191Q1-WRX-PW-SOL-90FLEX-F-C2-1-ETW2-3	F	C2	6	2	90.72	8.140	0.09540	12	TAM	0.0080	91.87	8.243

Note: Normalized = Measured * (Avg. tply)^2 / (Normalizing t_{ply})^2

Average	92.14	8.322	Average$_{norm}$	0.0080	93.79	8.481
Standard Dev.	5.511	0.2306	Standard Dev.$_{norm}$		4.399	0.3674
Coeff. of Var. [%]	5.981	2.771	Coeff. of Var. [%]$_{norm}$		4.691	4.332
Min.	83.21	7.816	Min.	0.0078	86.04	7.717
Max.	100.8	8.688	Max.	0.0082	100.5	8.901
Number of Spec.	18	18	Number of Spec.	18	18	18

90° Flexural Proc. A Properties (90FLEX)--ETW2(225°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- Cure Cycle #
- Prepreg Lot #

90° Flexural Proc. A Properties (90FLEX)--ETW2(225°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- Cure Cycle #
- Prepreg Lot #
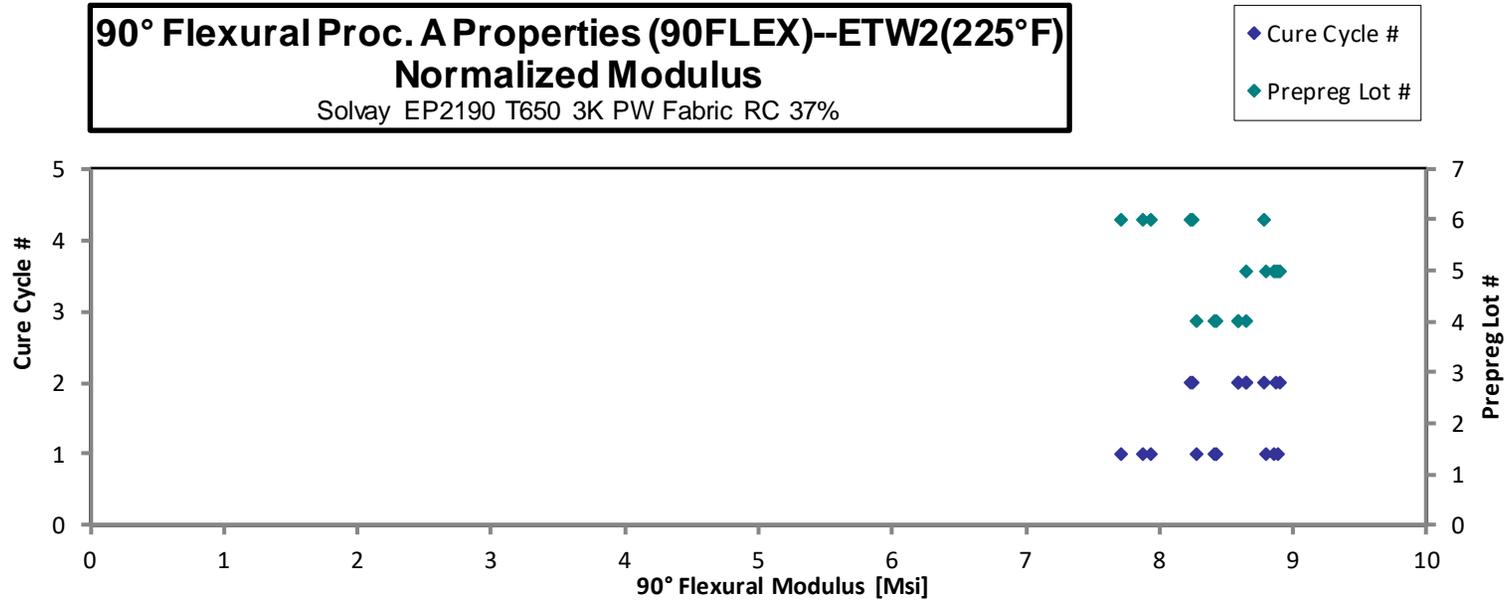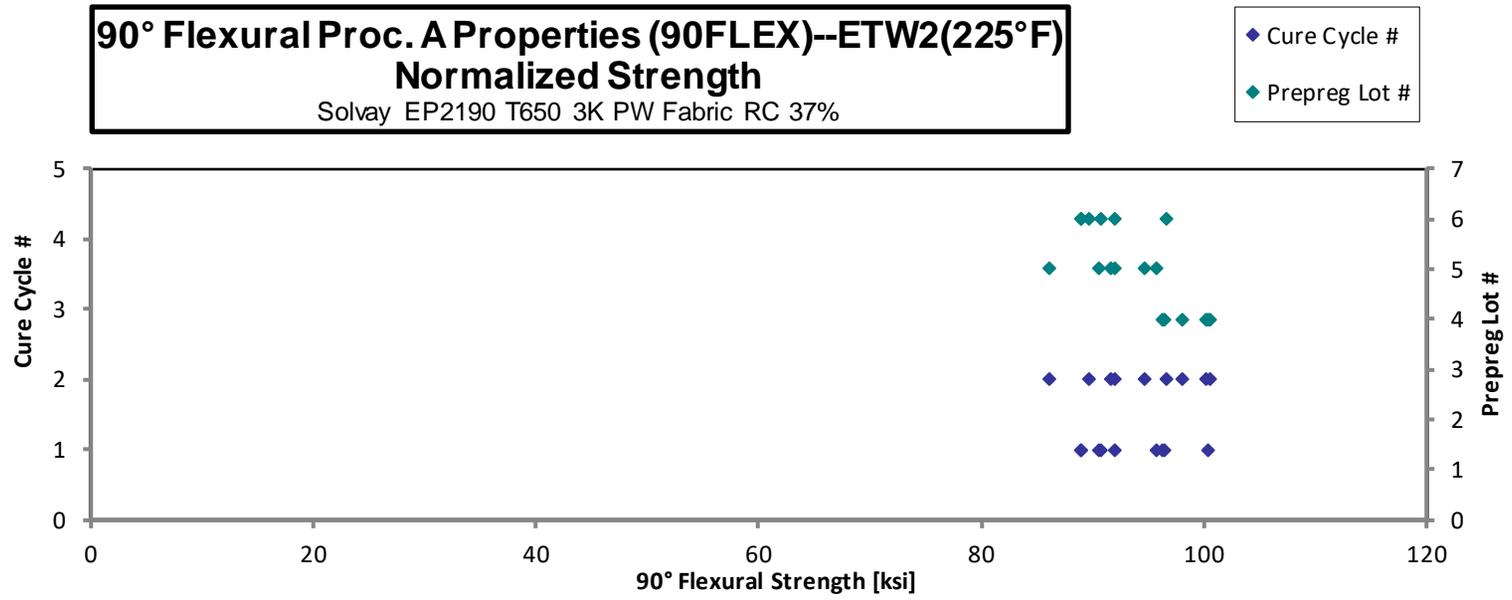
4.10 Lamina Short-Beam Strength Properties (SBS)

Short-Beam Strength Properties (SBS)--CTA(-67°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
TR8676374-P1-SBS-A-C1-CTA-1	A	C1	1	1	14.85	0.2620	33	0.0079	Tension
TR8676374-P1-SBS-A-C1-CTA-2	A	C1	1	1	14.01	0.2627	33	0.0080	ILS
TR8676374-P1-SBS-A-C1-CTA-3	A	C1	1	1	15.42	0.2624	33	0.0080	Tension
TR8676374-P1-SBS-A-C1-CTA-4	A	C1	1	1	14.57	0.2631	33	0.0080	ILS
TR8676374-P1-SBS-A-C1-CTA-5	A	C1	1	1	15.18	0.2629	33	0.0080	ILS
TR8676374-P1-SBS-A-C1-CTA-7	A	C1	1	1	14.90	0.2636	33	0.0080	Compression
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1-CTA-1	D	C1	4	1	14.06	0.2567	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1-CTA-2	D	C1	4	1	14.54	0.2581	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1-CTA-3	D	C1	4	1	14.72	0.2536	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1-CTA-1	D	C2	4	2	14.84	0.2592	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1-CTA-2	D	C2	4	2	15.08	0.2588	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1-CTA-3	D	C2	4	2	14.87	0.2579	33	0.0080	ILS

Average	14.75	Average	0.0080
Standard Dev.	0.4155		
Coeff. of Var. [%]	2.816		
Min.	14.01	Min.	0.0079
Max.	15.42	Max.	0.0080
Number of Spec.	12	Number of Spec.	12

Short-Beam Strength Properties (SBS)--CTA(-67°F)
Measured Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #
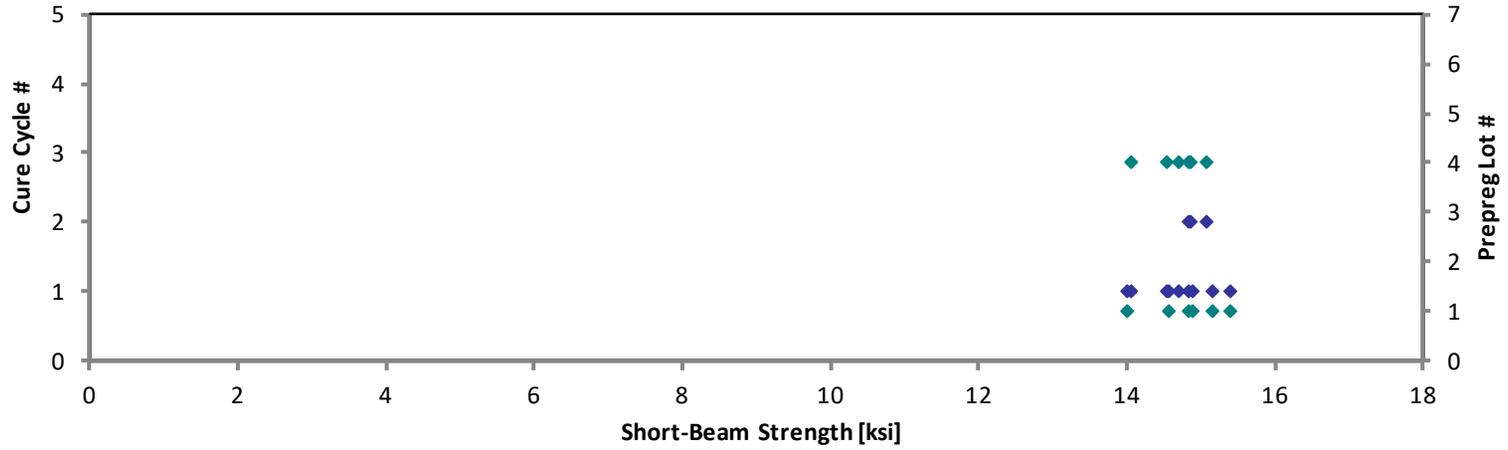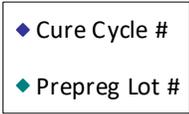
Short-Beam Strength Properties (SBS)--RTA(75°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
TR8676374-P1-SBS-A-C1-RTA-1	A	C1	1	1	12.28	0.2585	33	0.0078	ILS
TR8676374-P1-SBS-A-C1-RTA-2	A	C1	1	1	11.82	0.2581	33	0.0078	ILS
TR8676374-P1-SBS-A-C1-RTA-3	A	C1	1	1	12.15	0.2595	33	0.0079	ILS
TR8676374-P1-SBS-A-C1-RTA-4	A	C1	1	1	12.32	0.2614	33	0.0079	ILS
TR8676374-P1-SBS-A-C1-RTA-5	A	C1	1	1	12.62	0.2610	33	0.0079	ILS
TR8676374-P1-SBS-A-C1-RTA-6	A	C1	1	1	12.39	0.2628	33	0.0080	ILS
TR8676391-P1-SBS-B-C1-RTA-1	B	C1	2	1	12.20	0.2640	33	0.0080	ILS
TR8676391-P1-SBS-B-C1-RTA-2	B	C1	2	1	12.12	0.2661	33	0.0081	ILS
TR8676391-P1-SBS-B-C1-RTA-3	B	C1	2	1	12.15	0.2676	33	0.0081	ILS
TR8676391-P1-SBS-B-C1-RTA-4	B	C1	2	1	11.41	0.2685	33	0.0081	ILS
TR8676391-P1-SBS-B-C1-RTA-5	B	C1	2	1	11.47	0.2697	33	0.0082	ILS
TR8676391-P1-SBS-B-C1-RTA-6	B	C1	2	1	12.25	0.2688	33	0.0081	ILS
TR8676394-P1-SBS-C-C1-RTA-1	C	C1	3	1	12.35	0.2573	33	0.0078	ILS
TR8676394-P1-SBS-C-C1-RTA-2	C	C1	3	1	11.69	0.2594	33	0.0079	ILS
TR8676394-P1-SBS-C-C1-RTA-3	C	C1	3	1	12.72	0.2607	33	0.0079	ILS
TR8676394-P1-SBS-C-C1-RTA-4	C	C1	3	1	12.18	0.2649	33	0.0080	ILS
TR8676394-P1-SBS-C-C1-RTA-5	C	C1	3	1	12.19	0.2611	33	0.0079	ILS
TR8676394-P1-SBS-C-C1-RTA-6	C	C1	3	1	12.45	0.2628	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1-RTA-1	D	C1	4	1	11.95	0.2577	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1-RTA-2	D	C1	4	1	11.39	0.2570	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1-RTA-3	D	C1	4	1	11.96	0.2554	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1-RTA-1	D	C2	4	2	12.59	0.2608	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1-RTA-2	D	C2	4	2	12.26	0.2601	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1-RTA-3	D	C2	4	2	12.14	0.2596	33	0.0080	ILS

Average	12.13	Average	0.0080
Standard Dev.	0.3595		
Coeff. of Var. [%]	2.964		
Min.	11.39	Min.	0.0078
Max.	12.72	Max.	0.0082
Number of Spec.	24	Number of Spec.	24

Short-Beam Strength Properties (SBS)--RTA(75°F) Measured Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Short-Beam Strength Properties (SBS)--ETA2(225°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1-ETA2-4	D	C1	4	1	7.690	0.2542	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1-ETA2-5	D	C1	4	1	7.600	0.2530	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1-ETA2-6	D	C1	4	1	7.890	0.2540	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1-ETA2-4	D	C2	4	2	8.180	0.2593	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1-ETA2-5	D	C2	4	2	8.050	0.2587	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1-ETA2-6	D	C2	4	2	8.030	0.2595	33	0.0080	ILS

Average	7.907	Average	0.0080
Standard Dev.	0.2244		
Coeff. of Var. [%]	2.838		
Min.	7.600	Min.	0.0080
Max.	8.180	Max.	0.0080
Number of Spec.	6	Number of Spec.	6

Short-Beam Strength Properties (SBS)--ETA2(225°F) Measured Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

<table>
<tr><td colspan="11">Short-Beam Strength Properties (SBS)--ETA3(250°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td></tr>
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Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
TR8676374-P1-SBS-A-C1-ETA3-1	A	C1	1	1	7.610	0.2637	33	0.0080	ILS
TR8676374-P1-SBS-A-C1-ETA3-2	A	C1	1	1	7.710	0.2635	33	0.0080	ILS
TR8676374-P1-SBS-A-C1-ETA3-3	A	C1	1	1	7.560	0.2622	33	0.0079	ILS
TR8676374-P1-SBS-A-C1-ETA3-4	A	C1	1	1	7.430	0.2640	33	0.0080	ILS
TR8676374-P1-SBS-A-C1-ETA3-5	A	C1	1	1	7.480	0.2630	33	0.0080	ILS
TR8676374-P1-SBS-A-C1-ETA3-6	A	C1	1	1	7.350	0.2634	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1-ETA3-1	D	C1	4	1	6.990	0.2578	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1-ETA3-2	D	C1	4	1	6.970	0.2570	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1-ETA3-3	D	C1	4	1	6.960	0.2557	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1-ETA3-1	D	C2	4	2	7.200	0.2613	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1-ETA3-2	D	C2	4	2	7.650	0.2605	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1-ETA3-3	D	C2	4	2	7.130	0.2600	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C1-1-ETA3-1	E	C1	5	1	6.720	0.2684	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C1-1-ETA3-2	E	C1	5	1	6.520	0.2678	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C1-1-ETA3-3	E	C1	5	1	6.570	0.2674	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C2-1-ETA3-1	E	C2	5	2	7.100	0.2694	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C2-1-ETA3-2	E	C2	5	2	7.210	0.2686	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C2-1-ETA3-3	E	C2	5	2	7.110	0.2689	33	0.0080	ILS

Average	7.182	Average	0.0080
Standard Dev.	0.3577		
Coeff. of Var. [%]	4.981		
Min.	6.520	Min.	0.0079
Max.	7.710	Max.	0.0080
Number of Spec.	18	Number of Spec.	18

Short-Beam Strength Properties (SBS)--ETA3(250°F)
Measured Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Short-Beam Strength Properties (SBS)--ETW1(180°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1 ETW1-1	D	C1	4	1	7.750	0.2576	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1 ETW1-2	D	C1	4	1	7.720	0.2565	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1 ETW1-3	D	C1	4	1	7.560	0.2553	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1 ETW1-1	D	C2	4	2	7.890	0.2616	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1 ETW1-2	D	C2	4	2	7.950	0.2611	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1 ETW1-3	D	C2	4	2	7.800	0.2603	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C1-1-ETW1-1	E	C1	5	1	7.440	0.2682	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C1-1-ETW1-2	E	C1	5	1	7.440	0.2683	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C1-1-ETW1-3	E	C1	5	1	7.490	0.2670	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C2-1-ETW1-1	E	C2	5	2	7.420	0.2657	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C2-1-ETW1-2	E	C2	5	2	7.240	0.2658	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C2-1-ETW1-3	E	C2	5	2	7.320	0.2657	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C1-1-ETW1-1	F	C1	6	1	7.560	0.2567	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C1-1-ETW1-2	F	C1	6	1	7.610	0.2560	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C1-1-ETW1-3	F	C1	6	1	7.620	0.2558	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C2-1-ETW1-1	F	C2	6	2	7.640	0.2576	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C2-1-ETW1-2	F	C2	6	2	7.540	0.2576	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C2-1-ETW1-3	F	C2	6	2	7.700	0.2581	33	0.0080	ILS

Average	7.594		Average	0.0080
Standard Dev.	0.1887			
Coeff. of Var. [%]	2.485			
Min.	7.240		Min.	0.0080
Max.	7.950		Max.	0.0080
Number of Spec.	18		Number of Spec.	18

Short-Beam Strength Properties (SBS)--ETW1 (180°F) Measured Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
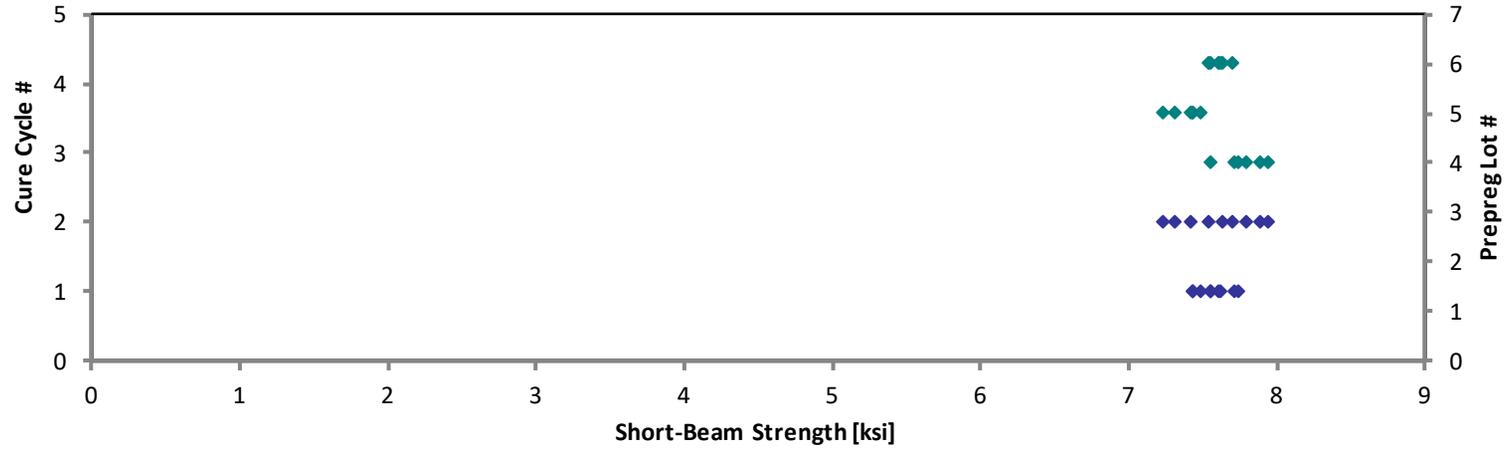
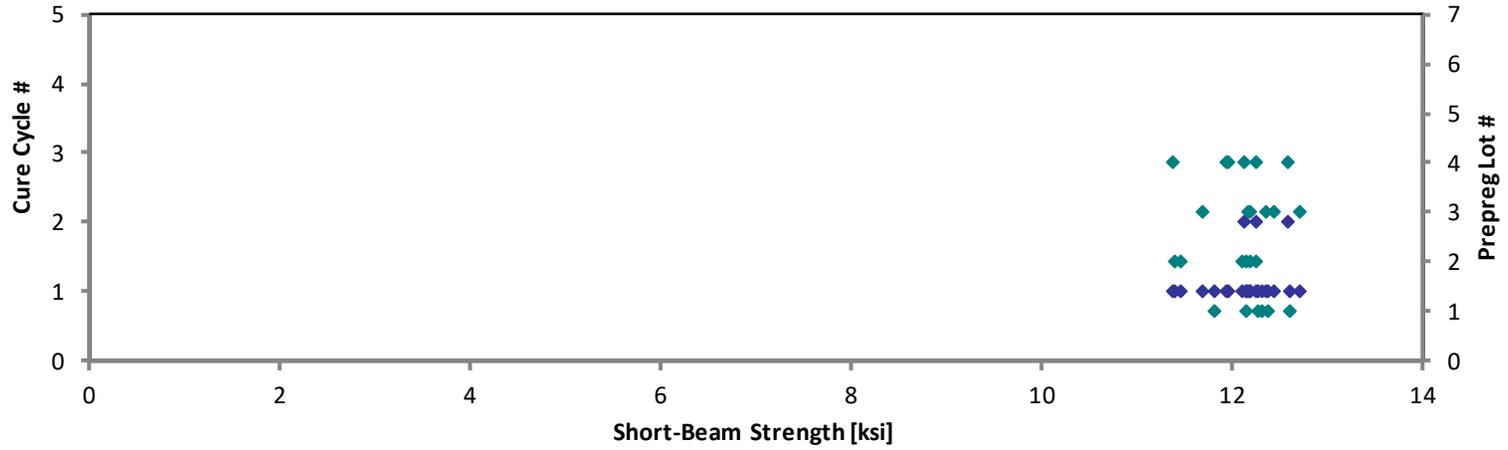**Short-Beam Strength Properties (SBS)--ETW2(225°F)**
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1 ETW2-1	D	C1	4	1	5.690	0.2538	33	0.0077	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1 ETW2-2	D	C1	4	1	5.780	0.2579	33	0.0078	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1 ETW2-3	D	C1	4	1	5.800	0.2567	33	0.0078	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1 ETW2-1	D	C2	4	2	5.810	0.2618	33	0.0079	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1 ETW2-2	D	C2	4	2	5.790	0.2604	33	0.0079	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1 ETW2-3	D	C2	4	2	5.750	0.2602	33	0.0079	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C1-1-ETW2-1	E	C1	5	1	5.820	0.2679	33	0.0081	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C1-1-ETW2-2	E	C1	5	1	5.760	0.2674	33	0.0081	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C1-1-ETW2-3	E	C1	5	1	5.830	0.2668	33	0.0081	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C2-1-ETW2-1	E	C2	5	2	6.100	0.2697	33	0.0082	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C2-1-ETW2-2	E	C2	5	2	5.410	0.2692	33	0.0082	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C2-1-ETW2-3	E	C2	5	2	5.490	0.2689	33	0.0081	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C1-1-ETW2-1	F	C1	6	1	5.940	0.2574	33	0.0078	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C1-1-ETW2-2	F	C1	6	1	5.890	0.2566	33	0.0078	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C1-1-ETW2-3	F	C1	6	1	5.760	0.2565	33	0.0078	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C2-1-ETW2-1	F	C2	6	2	5.800	0.2584	33	0.0078	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C2-1-ETW2-2	F	C2	6	2	5.820	0.2590	33	0.0078	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C2-1-ETW2-3	F	C2	6	2	5.730	0.2588	33	0.0078	ILS

Average	5.776	Average	0.0079
Standard Dev.	0.1496		
Coeff. of Var. [%]	2.591		
Min.	5.410	Min.	0.0077
Max.	6.100	Max.	0.0082
Number of Spec.	18	Number of Spec.	18

Short-Beam Strength Properties (SBS)--ETW2(225°F) Measured Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Short-Beam Strength Properties (SBS)--ETW3(250°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1 ETW3-1	D	C1	4	1	4.770	0.2582	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1 ETW3-2	D	C1	4	1	4.750	0.2575	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1 ETW3-3	D	C1	4	1	4.800	0.2560	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1 ETW3-1	D	C2	4	2	4.870	0.2608	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1 ETW3-2	D	C2	4	2	4.760	0.2603	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1 ETW3-3	D	C2	4	2	4.660	0.2597	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C1-1-ETW3-1	E	C1	5	1	4.570	0.2690	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C1-1-ETW3-2	E	C1	5	1	4.460	0.2683	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C1-1-ETW3-3	E	C1	5	1	4.540	0.2677	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C2-1-ETW3-1	E	C2	5	2	4.870	0.2693	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C2-1-ETW3-2	E	C2	5	2	4.760	0.2686	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-E-C2-1-ETW3-3	E	C2	5	2	4.670	0.2687	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C1-1-ETW3-1	F	C1	6	1	4.970	0.2579	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C1-1-ETW3-2	F	C1	6	1	4.830	0.2567	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C1-1-ETW3-3	F	C1	6	1	5.120	0.2567	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C2-1-ETW3-1	F	C2	6	2	4.610	0.2594	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C2-1-ETW3-2	F	C2	6	2	4.610	0.2592	33	0.0080	ILS
NTP2191Q1-WRX-PW-SOL-SBS-F-C2-1-ETW3-3	F	C2	6	2	4.650	0.2584	33	0.0080	ILS

Average	4.737	Average	0.0080
Standard Dev.	0.1618		
Coeff. of Var. [%]	3.415		
Min.	4.460	Min.	0.0080
Max.	5.120	Max.	0.0080
Number of Spec.	18	Number of Spec.	18

Short-Beam Strength Properties (SBS)--ETW3(250°F)
Measured Strength
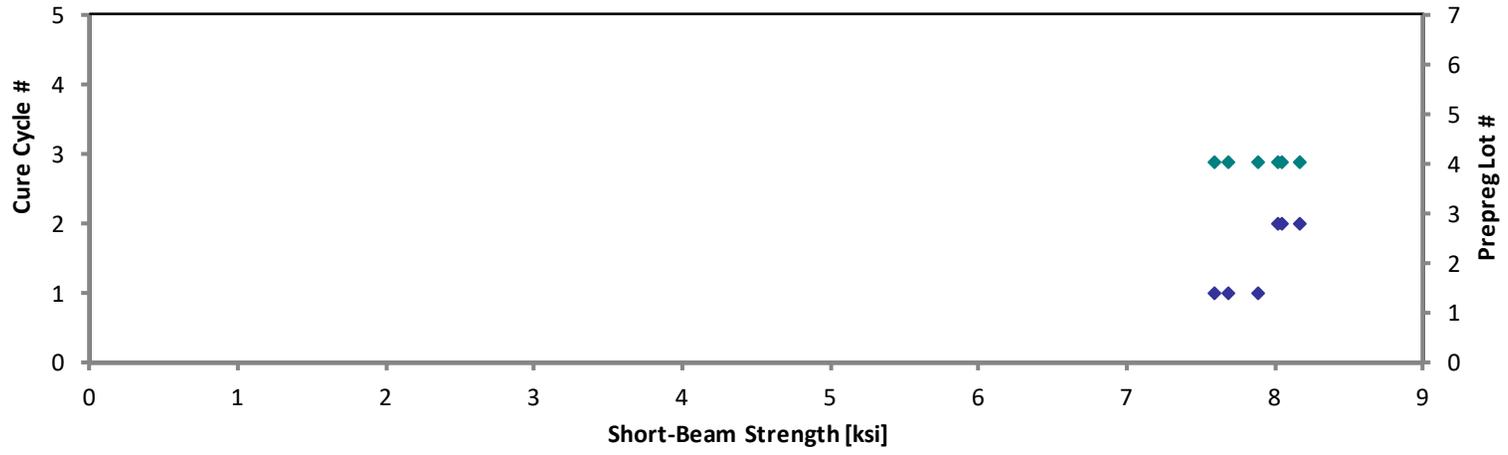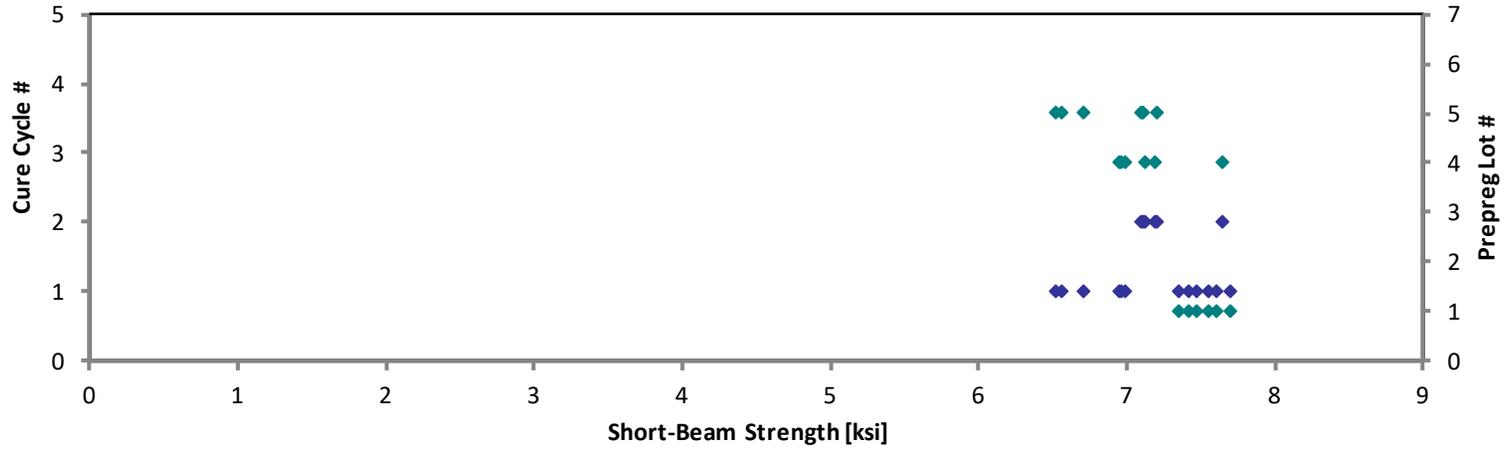Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
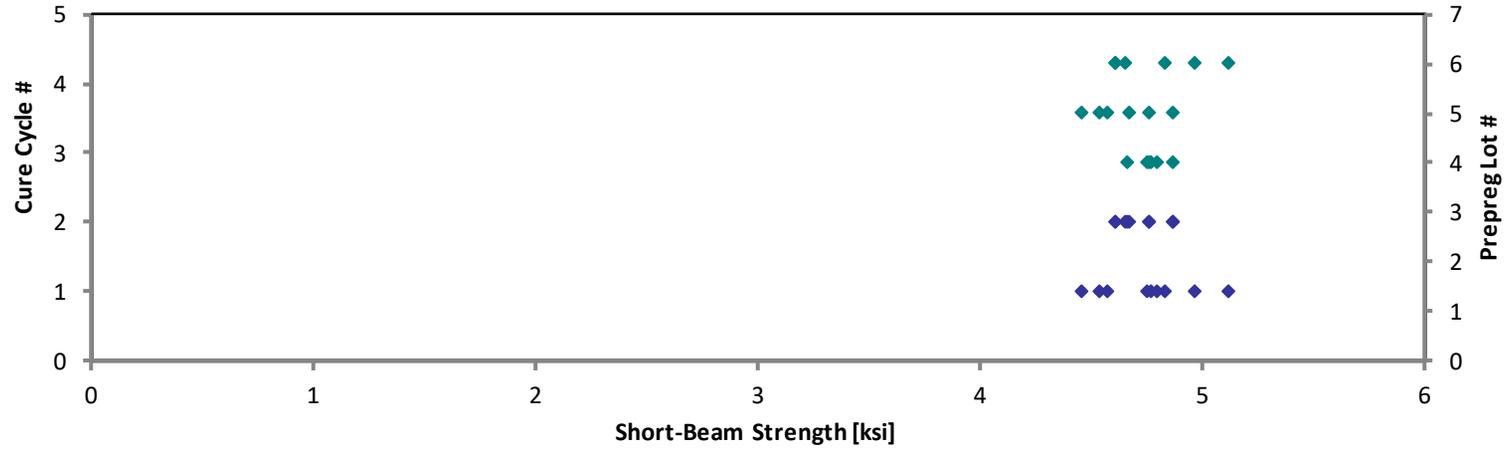
◆ Prepreg Lot #

4.11 "25/50/25" Unnotched Tension 1 Properties (UNT1)

Laminate Unnotched Tension Properties (UNT1)--CTA(-67°F) Strength & Modulus Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8340160-P7-UNT1-A-C1-CTA-1	A	C1	1	1	96.41	7.048	0.06360	8	MGV		0.0080	97.02	7.093
TR8340160-P7-UNT1-A-C1-CTA-2	A	C1	1	1	96.22	6.964	0.06380	8	MGT		0.0080	97.13	7.030
TR8340160-P7-UNT1-A-C1-CTA-3	A	C1	1	1	94.29	6.844	0.06380	8	LGB		0.0080	95.19	6.909
TR8340160-P7-UNT1-A-C1-CTA-4	A	C1	1	1	90.52	6.790	0.06410	8	LGT		0.0080	91.81	6.887
TR8340160-P7-UNT1-A-C1-CTA-5	A	C1	1	1	97.31	6.917	0.06360	8	LGB		0.0080	97.93	6.961
TR8340160-P7-UNT1-A-C1-CTA-6	A	C1	1	1	95.49	6.973	0.06410	8	MGT		0.0080	96.85	7.072
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-CTA-1	D	C1	4	1	89.83	6.972	0.06440	8	LGT		0.0081	91.54	7.104
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-CTA-2	D	C1	4	1	91.37	6.936	0.06430	8	MGV		0.0080	92.96	7.057
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-CTA-3	D	C1	4	1	96.92	6.954	0.06430	8	MGM		0.0080	98.61	7.075
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-CTA-1	D	C2	4	2	92.34	6.981	0.06370	8	LGM		0.0080	93.07	7.036
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-CTA-2	D	C2	4	2	93.83	7.085	0.06330	8	LGM		0.0079	93.98	7.096
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-CTA-3	D	C2	4	2	91.73	7.021	0.06350	8	LGT		0.0079	92.17	7.054

	Strength	Modulus			Strength	Modulus
Average	93.86	6.957	Average$_{norm}$	0.0080	94.85	7.031
Standard Dev.	2.639	0.08123	Standard Dev.$_{norm}$		2.568	0.07321
Coeff. of Var. [%]	2.812	1.168	Coeff. of Var. [%]$_{norm}$		2.707	1.041
Min.	89.83	6.790	Min.	0.0079	91.54	6.887
Max.	97.31	7.085	Max.	0.0081	98.61	7.104
Number of Spec.	12	12	Number of Spec.	12	12	12

Laminate Unnotched Tension Properties (UNT1)--CTA(-67°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT1)--CTA(-67°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT1)--RTA(75°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength_norm [ksi]	Modulus_norm [Msi]
TR8340160-P6-UNT1-A-C1-RTA-1	A	C1	1	1	96.58	6.796	0.06320	8	LGB	0.0079	96.58	6.796
TR8340160-P6-UNT1-A-C1-RTA-2	A	C1	1	1	91.50	6.756	0.06410	8	LGV	0.0080	92.80	6.852
TR8340160-P6-UNT1-A-C1-RTA-3	A	C1	1	1	95.63	6.670	0.06380	8	MGV	0.0080	96.54	6.733
TR8340160-P6-UNT1-A-C1-RTA-4	A	C1	1	1	95.67	6.619	0.06400	8	LGM	0.0080	96.88	6.703
TR8340160-P6-UNT1-A-C1-RTA-5	A	C1	1	1	92.34	6.516	0.06410	8	LGB	0.0080	93.65	6.609
TR8340160-P6-UNT1-A-C1-RTA-6	A	C1	1	1	93.25	6.566	0.06390	8	LGV	0.0080	94.28	6.639
TR8346106-P3-UNT1-B-C1-RTA-1	B	C1	2	1	97.24	6.888	0.06440	8	LGV	0.0081	99.09	7.019
TR8346106-P3-UNT1-B-C1-RTA-2	B	C1	2	1	99.28	6.754	0.06420	8	LGV	0.0080	100.9	6.861
TR8346106-P3-UNT1-B-C1-RTA-3	B	C1	2	1	94.86	6.747	0.06450	8	LGV	0.0081	96.81	6.886
TR8346106-P3-UNT1-B-C1-RTA-4	B	C1	2	1	90.61	6.760	0.06460	8	LGV	0.0081	92.62	6.910
TR8346106-P3-UNT1-B-C1-RTA-5	B	C1	2	1	94.51	6.730	0.06410	8	LGV	0.0080	95.86	6.826
TR8346106-P3-UNT1-B-C1-RTA-6	B	C1	2	1	99.80	6.754	0.06420	8	LGV	0.0080	101.4	6.861
TR8347597-P3-UNT1-C-C1-RTA-1	C	C1	3	1	101.4	6.836	0.06290	8	LGV	0.0079	100.9	6.804
TR8347597-P3-UNT1-C-C1-RTA-2	C	C1	3	1	95.03	6.922	0.06280	8	LGB	0.0079	94.43	6.878
TR8347597-P3-UNT1-C-C1-RTA-3	C	C1	3	1	93.52	6.817	0.06280	8	LGB	0.0079	92.93	6.774
TR8347597-P3-UNT1-C-C1-RTA-4	C	C1	3	1	93.91	6.700	0.06280	8	LGM	0.0079	93.32	6.658
TR8347597-P3-UNT1-C-C1-RTA-5	C	C1	3	1	98.54	6.822	0.06280	8	LGB	0.0079	97.92	6.779
TR8347597-P3-UNT1-C-C1-RTA-6	C	C1	3	1	95.82	6.757	0.06280	8	LGT	0.0079	95.21	6.714
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-RTA-1	D	C1	4	1	93.73	6.781	0.06400	8	LGT	0.0080	94.92	6.867
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-RTA-2	D	C1	4	1	97.18	6.829	0.06390	8	LGT	0.0080	98.26	6.905
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-RTA-3	D	C1	4	1	98.92	6.713	0.06390	8	LGB	0.0080	100.0	6.787
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-RTA-1	D	C2	4	2	100.4	6.998	0.06340	8	LGT	0.0079	100.7	7.020
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-RTA-2	D	C2	4	2	95.38	6.938	0.06330	8	MGT	0.0079	95.53	6.949
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-RTA-3	D	C2	4	2	95.76	7.011	0.06290	8	LGB	0.0079	95.31	6.978

	Strength	Modulus			Avg. t_{ply}	Strength_norm	Modulus_norm
Average	95.87	6.778	Average_norm		0.0080	96.53	6.825
Standard Dev.	2.813	0.1211	Standard Dev._norm			2.796	0.1127
Coeff. of Var. [%]	2.934	1.787	Coeff. of Var. [%]_norm			2.896	1.651
Min.	90.61	6.516	Min.		0.0079	92.62	6.609
Max.	101.4	7.011	Max.		0.0081	101.4	7.020
Number of Spec.	24	24	Number of Spec.		24	24	24

Laminate Unnotched Tension Properties (UNT1)--RTA(75°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT1)--RTA(75°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT1)--ETA2(225°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-ETA2-1	D	C1	4	1	97.97	6.867	0.06420	8	LGV	0.0080	99.52	6.976
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-ETA2-2	D	C1	4	1	97.03	6.754	0.06410	8	LGV	0.0080	98.41	6.850
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-ETA2-3	D	C1	4	1	97.23	6.818	0.06410	8	LGV	0.0080	98.61	6.915
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-ETA2-1	D	C2	4	2	97.79	6.842	0.06330	8	LGV	0.0079	97.94	6.853
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-ETA2-2	D	C2	4	2	97.82	6.748	0.06320	8	LGV	0.0079	97.82	6.748
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-ETA2-3	D	C2	4	2	97.93	6.612	0.06310	8	LGB	0.0079	97.78	6.602

	Strength	Modulus			Avg. t_{ply}	Strength$_{norm}$	Modulus$_{norm}$
Average	97.63	6.774	Average$_{norm}$	0.0080	98.35	6.824
Standard Dev.	0.3968	0.09223	Standard Dev.$_{norm}$		0.6662	0.1327
Coeff. of Var. [%]	0.4064	1.362	Coeff. of Var. [%]$_{norm}$		0.6773	1.945
Min.	97.03	6.612	Min.	0.0079	97.78	6.602
Max.	97.97	6.867	Max.	0.0080	99.52	6.976
Number of Spec.	6	6	Number of Spec.	6	6	6
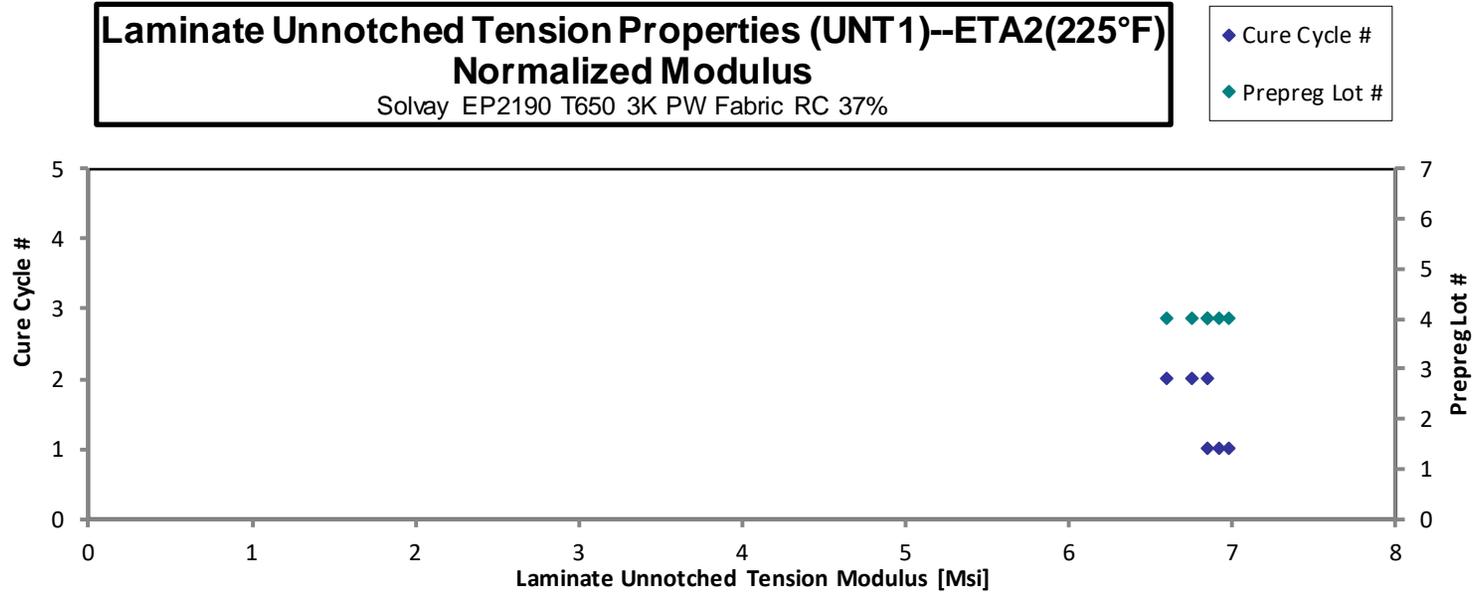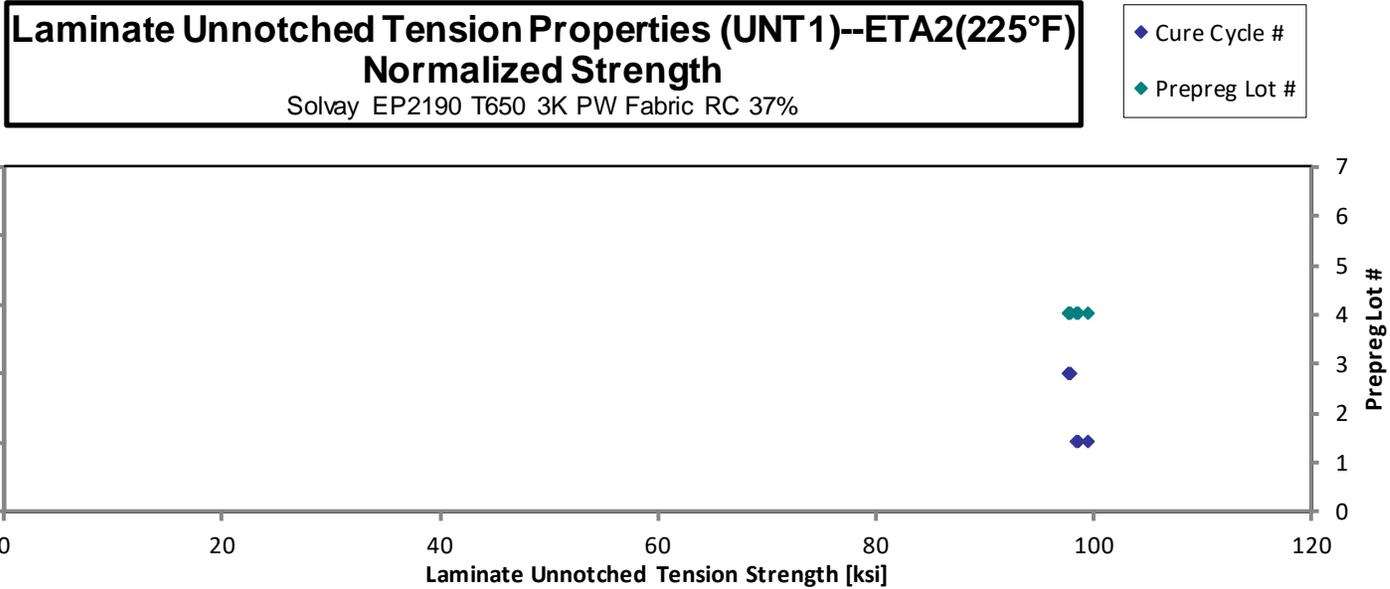
Laminate Unnotched Tension Properties (UNT1)--ETA2(225°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT1)--ETA2(225°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT1)--ETA3(250°F) Strength & Modulus Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8340160-P3-UNT1-A-C1-ETA3-1	A	C1	1	1	86.40	6.520	0.06470	8	LGV		0.0081	88.45	6.675
TR8340160-P3-UNT1-A-C1-ETA3-2	A	C1	1	1	84.10	6.804	0.06450	8	LGV		0.0081	85.83	6.944
TR8340160-P3-UNT1-A-C1-ETA3-3	A	C1	1	1	88.38	6.541	0.06480	8	LGV		0.0081	90.62	6.707
TR8340160-P3-UNT1-A-C1-ETA3-4	A	C1	1	1	88.85	6.423	0.06470	8	LGV		0.0081	90.96	6.575
TR8340160-P3-UNT1-A-C1-ETA3-5	A	C1	1	1	89.93	6.492	0.06470	8	LGV		0.0081	92.06	6.646
TR8340160-P3-UNT1-A-C1-ETA3-6	A	C1	1	1	88.33	6.575	0.06460	8	LGV		0.0081	90.29	6.721

Average	87.67	6.559	
Standard Dev.	2.088	0.1305	
Coeff. of Var. [%]	2.382	1.989	
Min.	84.10	6.423	
Max.	89.93	6.804	
Number of Spec.	6	6	

Average$_{norm}$	0.0081	89.70	6.711
Standard Dev.$_{norm}$		2.232	0.1251
Coeff. of Var. [%]$_{norm}$		2.488	1.864
Min.	0.0081	85.83	6.575
Max.	0.0081	92.06	6.944
Number of Spec.	6	6	6

Laminate Unnotched Tension Properties (UNT1)--ETA3(250°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT1)--ETA3(250°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT1)--ETW1(180°F)
Strength & Modulus
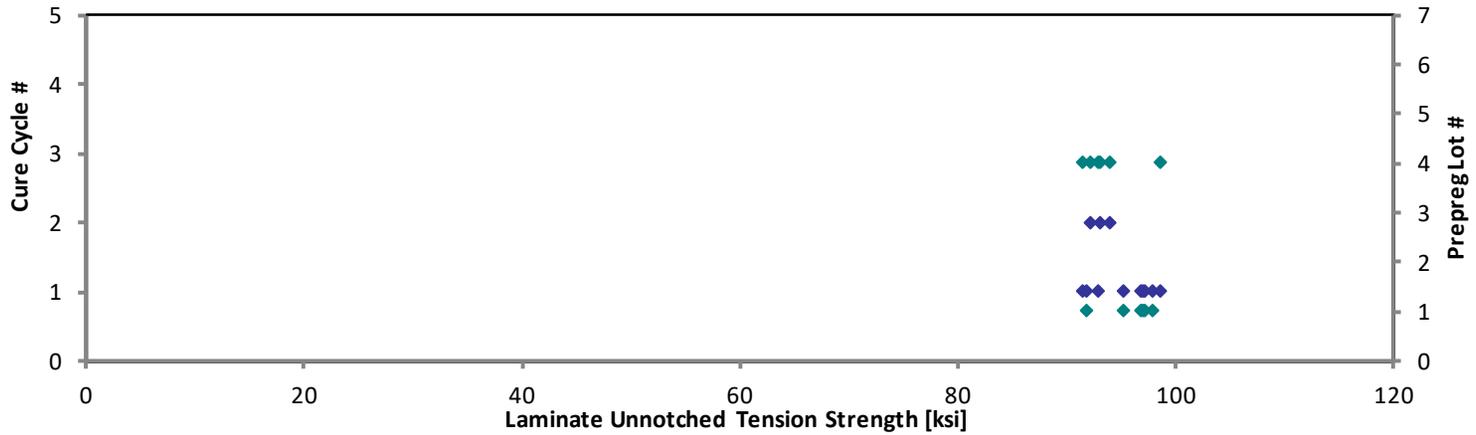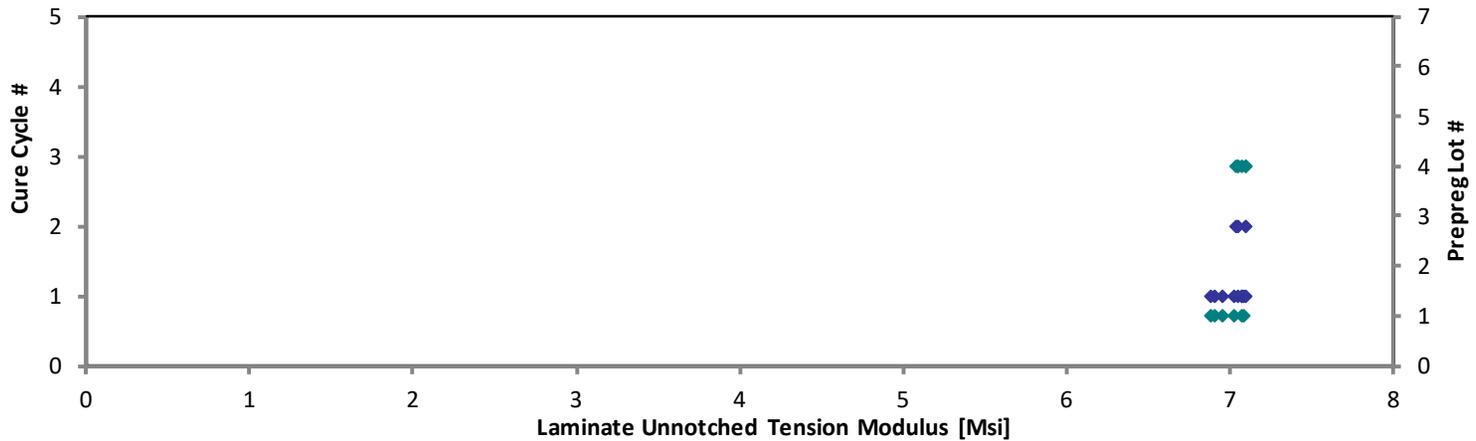Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-ETW1-1	D	C1	4	1	87.45	6.577	0.06440	8	LGB	0.0081	89.11	6.702
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-ETW1-2	D	C1	4	1	92.01	6.557	0.06410	8	LGV	0.0080	93.32	6.650
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-ETW1-3	D	C1	4	1	95.08	6.651	0.06390	8	LGM	0.0080	96.13	6.725
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-ETW1-1	D	C2	4	2	93.40	6.621	0.06320	8	LGT	0.0079	93.40	6.621
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-ETW1-2	D	C2	4	2	94.83	6.767	0.06310	8	LGM	0.0079	94.68	6.756
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-ETW1-3	D	C2	4	2	99.21	6.564	0.06340	8	LGB	0.0079	99.52	6.585
NTP2191Q1-WRX-PW-SOL-UNT1-E-C1-1-ETW1-1	E	C1	5	1	94.02	6.533	0.06460	8	LGV	0.0081	96.10	6.678
NTP2191Q1-WRX-PW-SOL-UNT1-E-C1-1-ETW1-2	E	C1	5	1	95.37	6.525	0.06510	8	LGT	0.0081	98.24	6.721
NTP2191Q1-WRX-PW-SOL-UNT1-E-C1-1-ETW1-3	E	C1	5	1	89.38	6.714	0.06480	8	LGV	0.0081	91.64	6.884
NTP2191Q1-WRX-PW-SOL-UNT1-E-C2-1-ETW1-1	E	C2	5	2	85.80	6.344	0.06550	8	LGT	0.0082	88.92	6.575
NTP2191Q1-WRX-PW-SOL-UNT1-E-C2-1-ETW1-2	E	C2	5	2	86.78	6.319	0.06520	8	LGM	0.0082	89.53	6.519
NTP2191Q1-WRX-PW-SOL-UNT1-E-C2-1-ETW1-3	E	C2	5	2	87.88	6.414	0.06530	8	LGB	0.0082	90.80	6.627
NTP2191Q1-WRX-PW-SOL-UNT1-F-C1-1-ETW1-1	F	C1	6	1	95.35	6.776	0.06290	8	MGV	0.0079	94.90	6.744
NTP2191Q1-WRX-PW-SOL-UNT1-F-C1-1-ETW1-2	F	C1	6	1	98.21	6.675	0.06300	8	MGV	0.0079	97.90	6.654
NTP2191Q1-WRX-PW-SOL-UNT1-F-C1-1-ETW1-3	F	C1	6	1	97.02	6.629	0.06290	8	MGV	0.0079	96.56	6.598
NTP2191Q1-WRX-PW-SOL-UNT1-F-C2-1-ETW1-1	F	C2	6	2	96.21	6.731	0.06260	8	LGB	0.0078	95.30	6.667
NTP2191Q1-WRX-PW-SOL-UNT1-F-C2-1-ETW1-2	F	C2	6	2	88.89	6.724	0.06270	8	LGV	0.0078	88.19	6.671
NTP2191Q1-WRX-PW-SOL-UNT1-F-C2-1-ETW1-3	F	C2	6	2	98.77	6.697	0.06290	8	LGV	0.0079	98.30	6.665

Average	93.09	6.601	Average$_{norm}$	0.0080	94.03	6.669
Standard Dev.	4.365	0.1364	Standard Dev.$_{norm}$		3.603	0.08212
Coeff. of Var. [%]	4.688	2.066	Coeff. of Var. [%]$_{norm}$		3.832	1.231
Min.	85.80	6.319	Min.	0.0078	88.19	6.519
Max.	99.21	6.776	Max.	0.0082	99.52	6.884
Number of Spec.	18	18	Number of Spec.	18	18	18

Laminate Unnotched Tension Properties (UNT1)--ETW1(180°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT1)--ETW1(180°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT1)--ETW2(225°F)
Strength & Modulus
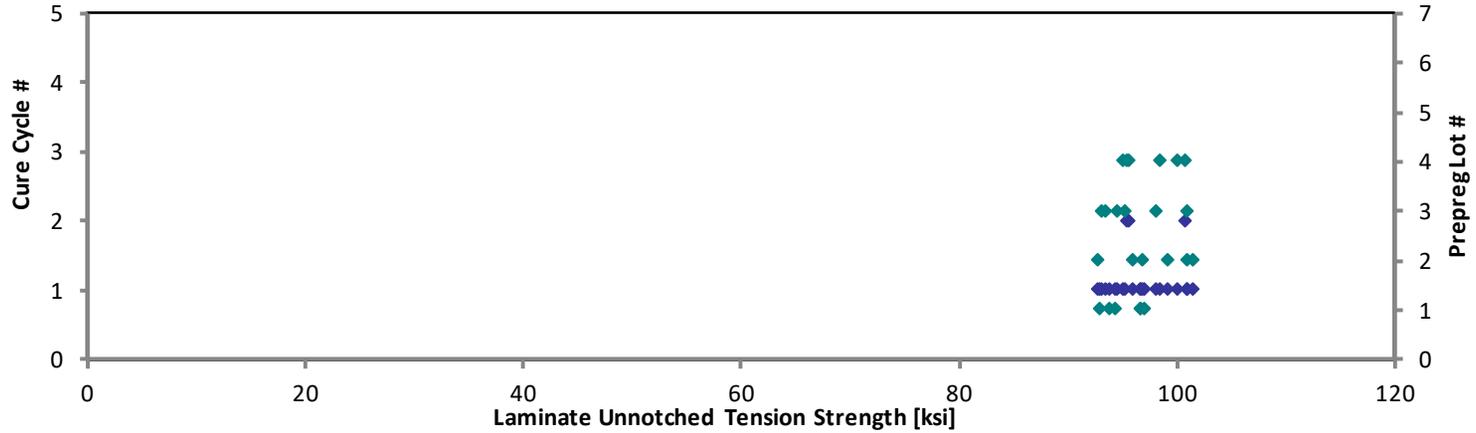Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-ETW2-1	D	C1	4	1	85.24	6.516	0.06370	8	LGB	0.0080	85.91	6.568
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-ETW2-2	D	C1	4	1	86.82	5.771	0.06400	8	MGM	0.0080	87.92	5.844
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-ETW2-3	D	C1	4	1	89.65	5.709	0.06410	8	MGM	0.0080	90.93	5.790
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-ETW2-1	D	C2	4	2	89.98	5.551	0.06280	8	MGM	0.0079	89.41	5.516
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-ETW2-2	D	C2	4	2	86.69	5.694	0.06300	8	LGM	0.0079	86.42	5.676
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-ETW2-3	D	C2	4	2	92.73	5.461	0.06290	8	LGM	0.0079	92.29	5.435
NTP2191Q1-WRX-PW-SOL-UNT1-E-C1-1-ETW2-1	E	C1	5	1	86.94	6.307	0.06480	8	LGT	0.0081	89.14	6.467
NTP2191Q1-WRX-PW-SOL-UNT1-E-C1-1-ETW2-2	E	C1	5	1	90.05	6.067	0.06520	8	MGV	0.0082	92.90	6.259
NTP2191Q1-WRX-PW-SOL-UNT1-E-C1-1-ETW2-3	E	C1	5	1	90.71	6.143	0.06490	8	LGV	0.0081	93.15	6.308
NTP2191Q1-WRX-PW-SOL-UNT1-E-C2-1-ETW2-1	E	C2	5	2	84.95	6.310	0.06500	8	LGV	0.0081	87.37	6.490
NTP2191Q1-WRX-PW-SOL-UNT1-E-C2-1-ETW2-2	E	C2	5	2	83.57	5.960	0.06530	8	LGB	0.0082	86.35	6.158
NTP2191Q1-WRX-PW-SOL-UNT1-E-C2-1-ETW2-3	E	C2	5	2	82.18	6.140	0.06530	8	LGB	0.0082	84.91	6.344
NTP2191Q1-WRX-PW-SOL-UNT1-F-C1-1-ETW2-1	F	C1	6	1	93.10	6.517	0.06340	8	MGV	0.0079	93.39	6.538
NTP2191Q1-WRX-PW-SOL-UNT1-F-C1-1-ETW2-2	F	C1	6	1	90.79	6.498	0.06320	8	LGM	0.0079	90.79	6.498
NTP2191Q1-WRX-PW-SOL-UNT1-F-C1-1-ETW2-3	F	C1	6	1	89.37	6.314	0.06320	8	MGV	0.0079	89.37	6.314
NTP2191Q1-WRX-PW-SOL-UNT1-F-C2-1-ETW2-1	F	C2	6	2	91.49	6.453	0.06350	8	LGM	0.0079	91.92	6.484
NTP2191Q1-WRX-PW-SOL-UNT1-F-C2-1-ETW2-2	F	C2	6	2	89.61	6.601	0.06300	8	LGV	0.0079	89.33	6.580
NTP2191Q1-WRX-PW-SOL-UNT1-F-C2-1-ETW2-3	F	C2	6	2	95.28	6.615	0.06310	8	LGV	0.0079	95.13	6.605

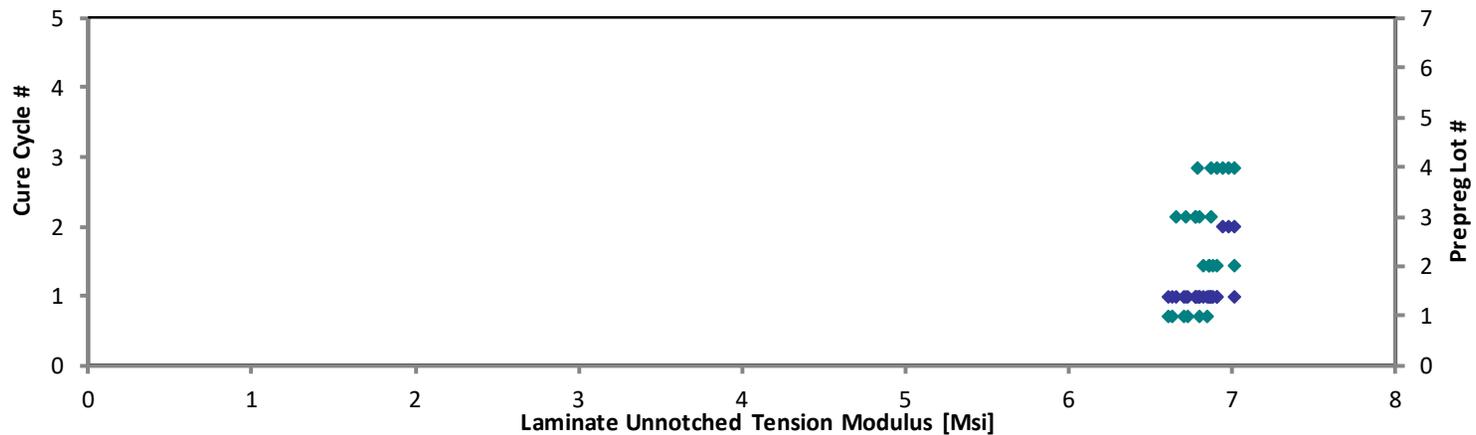|						
Average	88.84	6.146	Average$_{norm}$	0.0080	89.81	6.215
Standard Dev.	3.480	0.3758	Standard Dev.$_{norm}$		2.950	0.3873
Coeff. of Var. [%]	3.917	6.114	Coeff. of Var. [%]$_{norm}$		3.285	6.232
Min.	82.18	5.461	Min.	0.0079	84.91	5.435
Max.	95.28	6.615	Max.	0.0082	95.13	6.605
Number of Spec.	18	18	Number of Spec.	18	18	18

Laminate Unnotched Tension Properties (UNT1)--ETW2(225°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT1)--ETW2(225°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #
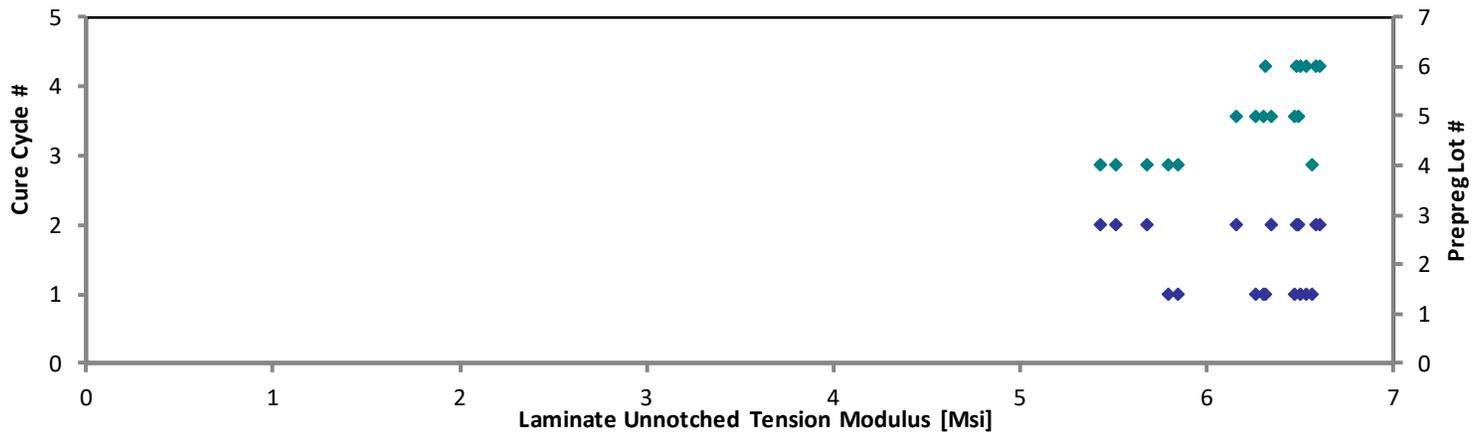
4.12 "10/80/10" Unnotched Tension 2 Properties (UNT2)

Laminate Unnotched Tension Properties (UNT2)--CTA(-67°F) Strength & Modulus Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

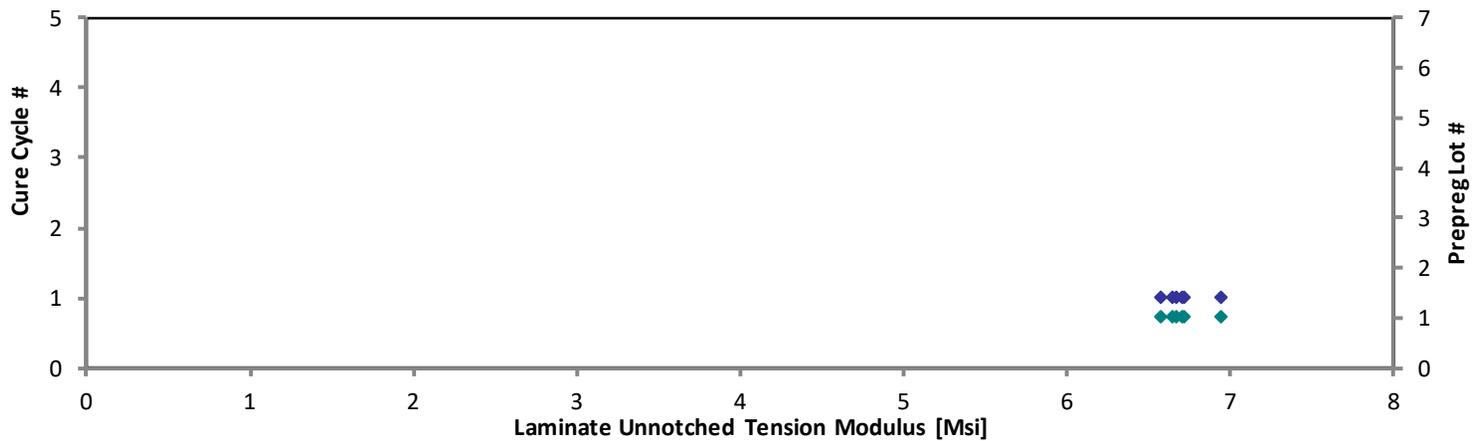| Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNT2-D-C1-1-CTA-1	D	C1	4	1	62.47	4.536	0.0805	10	AGT		0.0081	63.66	4.622
NTP2191Q1-WRX-PW-SOL-UNT2-D-C1-1-CTA-2	D	C1	4	1	60.11	4.501	0.0805	10	AGT		0.0081	61.25	4.586
NTP2191Q1-WRX-PW-SOL-UNT2-D-C1-1-CTA-3	D	C1	4	1	64.69	4.540	0.0805	10	AGT		0.0081	65.92	4.626
NTP2191Q1-WRX-PW-SOL-UNT2-D-C2-1-CTA-1	D	C2	4	2	64.41	4.440	0.0808	10	AGT		0.0081	65.88	4.541
NTP2191Q1-WRX-PW-SOL-UNT2-D-C2-1-CTA-2	D	C2	4	2	62.99	4.429	0.0816	10	AGB		0.0082	65.06	4.575
NTP2191Q1-WRX-PW-SOL-UNT2-D-C2-1-CTA-3	D	C2	4	2	63.84	4.355	0.0813	10	AGT		0.0081	65.70	4.482
NTP2191Q1-WRX-PW-SOL-UNT2-E-C1-1-CTA-1	E	C1	5	1	67.06	4.656	0.0794	10	AGT		0.0079	67.40	4.680
NTP2191Q1-WRX-PW-SOL-UNT2-E-C1-1-CTA-2	E	C1	5	1	68.23	4.635	0.0792	10	AGT		0.0079	68.40	4.647
NTP2191Q1-WRX-PW-SOL-UNT2-E-C1-1-CTA-3	E	C1	5	1	64.92	4.630	0.0793	10	AGT		0.0079	65.17	4.648
NTP2191Q1-WRX-PW-SOL-UNT2-E-C2-1-CTA-1	E	C2	5	2	62.69	4.504	0.0779	10	AGT		0.0078	61.82	4.441
NTP2191Q1-WRX-PW-SOL-UNT2-E-C2-1-CTA-2	E	C2	5	2	63.91	4.502	0.0791	10	AGT		0.0079	63.99	4.508
NTP2191Q1-WRX-PW-SOL-UNT2-E-C2-1-CTA-3	E	C2	5	2	64.33	4.413	0.0795	10	AGB		0.0080	64.74	4.441
NTP2191Q1-WRX-PW-SOL-UNT2-F-C3-1-CTA-1	F	C3	6	3	61.13	4.504	0.0786	10	AGB		0.0079	60.82	4.481
NTP2191Q1-WRX-PW-SOL-UNT2-F-C3-1-CTA-2	F	C3	6	3	60.03	4.555	0.0787	10	AGM		0.0079	59.80	4.538
NTP2191Q1-WRX-PW-SOL-UNT2-F-C3-1-CTA-3	F	C3	6	3	61.65	4.504	0.0789	10	AGB		0.0079	61.57	4.498
NTP2191Q1-WRX-PW-SOL-UNT2-F-C4-1-CTA-1	F	C4	6	4	62.17	4.567	0.0788	10	MGM		0.0079	62.01	4.555
NTP2191Q1-WRX-PW-SOL-UNT2-F-C4-1-CTA-2	F	C4	6	4	61.19	4.574	0.0790	10	MGM		0.0079	61.19	4.574
NTP2191Q1-WRX-PW-SOL-UNT2-F-C4-1-CTA-3	F	C4	6	4	60.31	4.564	0.0790	10	MGM		0.0079	60.31	4.564

Average	63.12	4.523	Average$_{norm}$	0.0080	63.59	4.556
Standard Dev.	2.294	0.0795	Standard Dev.$_{norm}$		2.574	0.0714
Coeff. of Var. [%]	3.635	1.758	Coeff. of Var. [%]$_{norm}$		4.047	1.566
Min.	60.03	4.355	Min.	0.0078	59.80	4.441
Max.	68.23	4.656	Max.	0.0082	68.40	4.680
Number of Spec.	18	18	Number of Spec.	18	18	18

Laminate Unnotched Tension Properties (UNT2)--CTA(-67°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

X-axis: Laminate Unnotched Tension Strength [ksi]
Left Y-axis: Cure Cycle #
Right Y-axis: Prepreg Lot #

Laminate Unnotched Tension Properties (UNT2)--CTA(-67°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

X-axis: Laminate Unnotched Tension Modulus [Msi]
Left Y-axis: Cure Cycle #
Right Y-axis: Prepreg Lot #

Laminate Unnotched Tension Properties (UNT2)--RTA(75°F)
Strength & Modulus
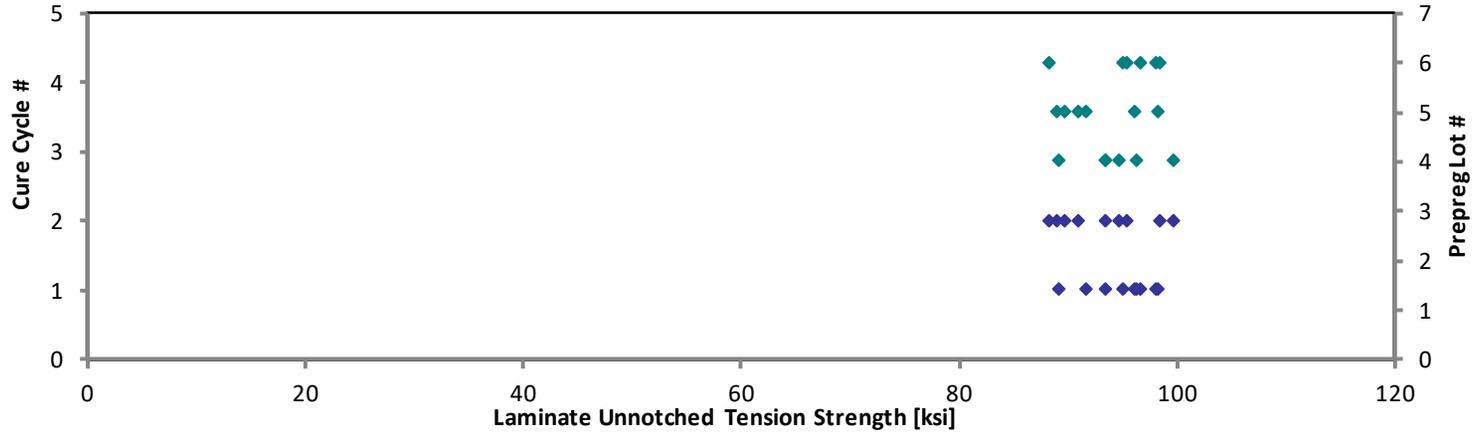Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNT2-D-C1-1-RTA-1	D	C1	4	1	60.97	4.337	0.0805	10	AGT	0.0081	62.13	4.419
NTP2191Q1-WRX-PW-SOL-UNT2-D-C1-1-RTA-2	D	C1	4	1	59.67	4.352	0.0801	10	AGB	0.0080	60.50	4.413
NTP2191Q1-WRX-PW-SOL-UNT2-D-C1-1-RTA-3	D	C1	4	1	58.44	4.377	0.0803	10	AGT	0.0080	59.40	4.449
NTP2191Q1-WRX-PW-SOL-UNT2-D-C2-1-RTA-1	D	C2	4	2	58.47	4.170	0.0810	10	AGT	0.0081	59.95	4.276
NTP2191Q1-WRX-PW-SOL-UNT2-D-C2-1-RTA-2	D	C2	4	2	57.84	4.192	0.0817	10	AGB	0.0082	59.82	4.335
NTP2191Q1-WRX-PW-SOL-UNT2-D-C2-1-RTA-3	D	C2	4	2	59.12	4.205	0.0813	10	AGT	0.0081	60.84	4.327
NTP2191Q1-WRX-PW-SOL-UNT2-E-C1-1-RTA-1	E	C1	5	1	59.99	4.326	0.0784	10	AGT	0.0078	59.53	4.293
NTP2191Q1-WRX-PW-SOL-UNT2-E-C1-1-RTA-2	E	C1	5	1	58.79	4.302	0.0797	10	AGB	0.0080	59.31	4.340
NTP2191Q1-WRX-PW-SOL-UNT2-E-C1-1-RTA-3	E	C1	5	1	57.97	4.381	0.0796	10	AGB	0.0080	58.41	4.414
NTP2191Q1-WRX-PW-SOL-UNT2-E-C2-1-RTA-1	E	C2	5	2	61.79	4.407	0.0781	10	AGB	0.0078	61.09	4.357
NTP2191Q1-WRX-PW-SOL-UNT2-E-C2-1-RTA-2	E	C2	5	2	61.11	4.376	0.0792	10	AGT	0.0079	61.26	4.387
NTP2191Q1-WRX-PW-SOL-UNT2-E-C2-1-RTA-3	E	C2	5	2	62.86	4.431	0.0791	10	AGB	0.0079	62.94	4.437
NTP2191Q1-WRX-PW-SOL-UNT2-F-C3-1-RTA-1	F	C3	6	3	59.14	4.397	0.0789	10	AGM	0.0079	59.07	4.391
NTP2191Q1-WRX-PW-SOL-UNT2-F-C3-1-RTA-2	F	C3	6	3	60.90	4.345	0.0787	10	AGM	0.0079	60.67	4.329
NTP2191Q1-WRX-PW-SOL-UNT2-F-C3-1-RTA-2	F	C3	6	3	59.87	4.342	0.0787	10	AGM	0.0079	59.64	4.326
NTP2191Q1-WRX-PW-SOL-UNT2-F-C4-1-RTA-1	F	C4	6	4	61.27	4.352	0.0788	10	AGT	0.0079	61.11	4.341
NTP2191Q1-WRX-PW-SOL-UNT2-F-C4-1-RTA-2	F	C4	6	4	60.28	4.380	0.0789	10	AGB	0.0079	60.20	4.374
NTP2191Q1-WRX-PW-SOL-UNT2-F-C4-1-RTA-3	F	C4	6	4	60.13	4.313	0.0789	10	AGT	0.0079	60.05	4.308

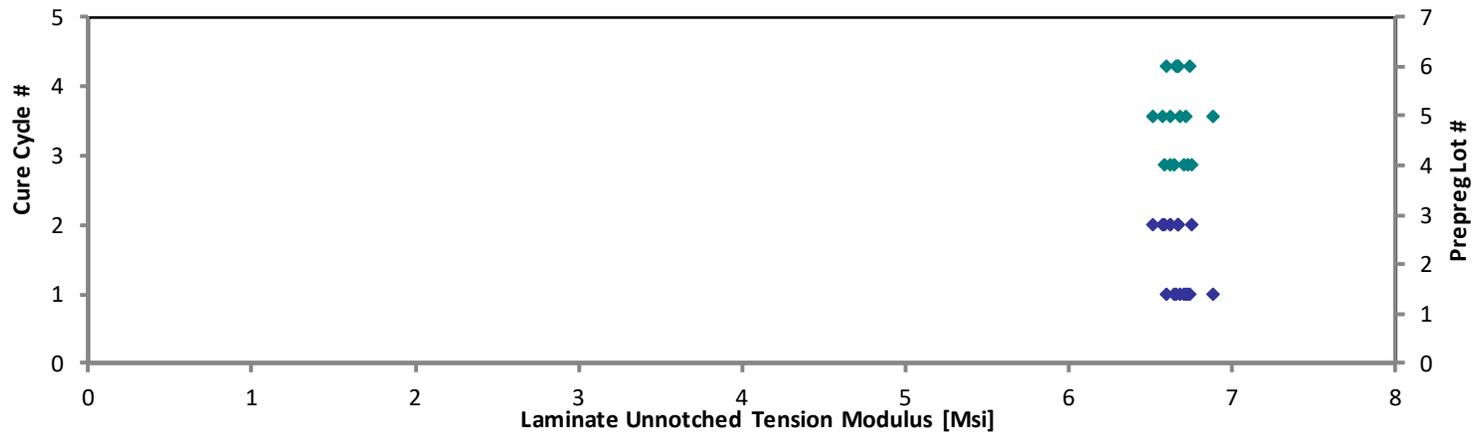|	Strength	Modulus			Avg. t_{ply}	Strength	Modulus
Average	59.92	4.333		Average$_{norm}$	0.0080	60.33	4.362
Standard Dev.	1.385	0.07383		Standard Dev.$_{norm}$		1.119	0.05079
Coeff. of Var. [%]	2.312	1.704		Coeff. of Var. [%]$_{norm}$		1.855	1.164
Min.	57.84	4.170		Min.	0.0078	58.41	4.276
Max.	62.86	4.431		Max.	0.0082	62.94	4.449
Number of Spec.	18	18		Number of Spec.	18	18	18

Laminate Unnotched Tension Properties (UNT2)--RTA(75°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Tension Strength [ksi]

Laminate Unnotched Tension Properties (UNT2)--RTA(75°F) Normalized Modulus

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Tension Modulus [Msi]

Laminate Unnotched Tension Properties (UNT2)--ETW1(180°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%
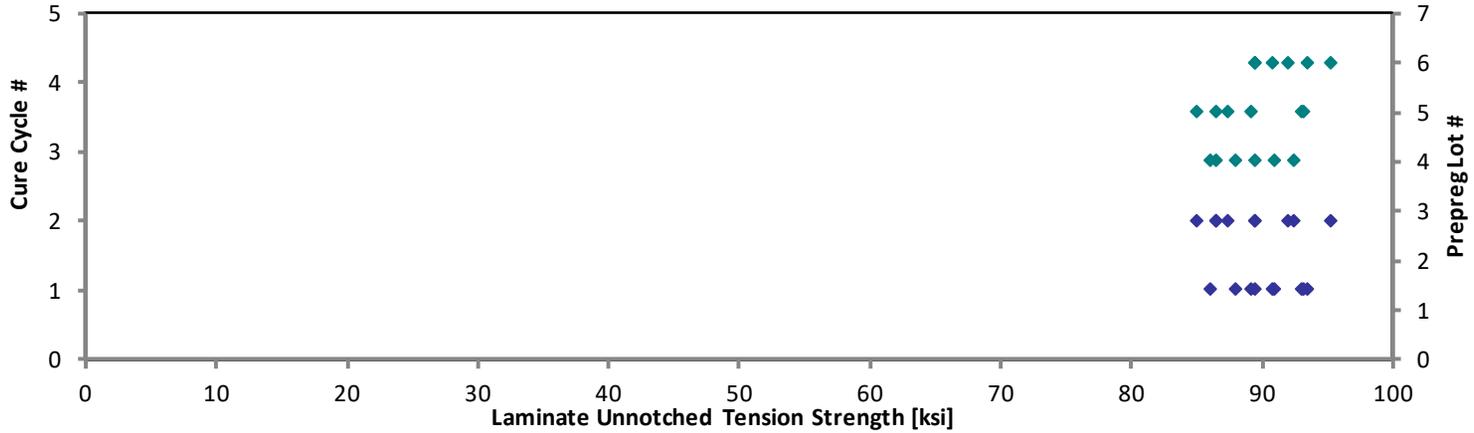
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNT2-D-C1-1-ETW1-1	D	C1	4	1	50.79	4.096	0.0806	10	AGT	0.0081	51.82	4.179
NTP2191Q1-WRX-PW-SOL-UNT2-D-C1-1-ETW1-2	D	C1	4	1	50.02	4.077	0.0802	10	AGB	0.0080	50.78	4.139
NTP2191Q1-WRX-PW-SOL-UNT2-D-C1-1-ETW1-3	D	C1	4	1	50.25	4.105	0.0803	10	AGB	0.0080	51.08	4.173
NTP2191Q1-WRX-PW-SOL-UNT2-D-C2-1-ETW1-1	D	C2	4	2	48.66	3.973	0.0814	10	AGB	0.0081	50.14	4.094
NTP2191Q1-WRX-PW-SOL-UNT2-D-C2-1-ETW1-2	D	C2	4	2	49.37	3.995	0.0815	10	AGB	0.0082	50.93	4.121
NTP2191Q1-WRX-PW-SOL-UNT2-D-C2-1-ETW1-3	D	C2	4	2	49.95	3.987	0.0813	10	AGB	0.0081	51.40	4.103
NTP2191Q1-WRX-PW-SOL-UNT2-E-C1-1-ETW1-1	E	C1	5	1	52.15	3.983	0.0781	10	AGT	0.0078	51.56	3.938
NTP2191Q1-WRX-PW-SOL-UNT2-E-C1-1-ETW1-2	E	C1	5	1	49.30	3.920	0.0792	10	AGB	0.0079	49.42	3.930
NTP2191Q1-WRX-PW-SOL-UNT2-E-C1-1-ETW1-3	E	C1	5	1	50.41	3.922	0.0792	10	AGT	0.0079	50.54	3.932
NTP2191Q1-WRX-PW-SOL-UNT2-E-C2-1-ETW1-1	E	C2	5	2	52.23	4.058	0.0791	10	MGB	0.0079	52.30	4.063
NTP2191Q1-WRX-PW-SOL-UNT2-E-C2-1-ETW1-2	E	C2	5	2	48.86	4.044	0.0795	10	MGM	0.0080	49.17	4.070
NTP2191Q1-WRX-PW-SOL-UNT2-E-C2-1-ETW1-3	E	C2	5	2	50.84	4.061	0.0793	10	MGM	0.0079	51.03	4.076
NTP2191Q1-WRX-PW-SOL-UNT2-F-C3-1-ETW1-1	F	C3	6	3	52.52	4.003	0.0789	10	AGM	0.0079	52.45	3.998
NTP2191Q1-WRX-PW-SOL-UNT2-F-C3-1-ETW1-2	F	C3	6	3	51.17	4.019	0.0791	10	AGB	0.0079	51.23	4.024
NTP2191Q1-WRX-PW-SOL-UNT2-F-C3-1-ETW1-3	F	C3	6	3	51.92	3.981	0.0793	10	AGB	0.0079	52.12	3.996
NTP2191Q1-WRX-PW-SOL-UNT2-F-C4-1-ETW1-1	F	C4	6	4	52.85	4.068	0.0781	10	AGB	0.0078	52.25	4.022
NTP2191Q1-WRX-PW-SOL-UNT2-F-C4-1-ETW1-2	F	C4	6	4	51.56	3.948	0.0788	10	AGT	0.0079	51.43	3.938
NTP2191Q1-WRX-PW-SOL-UNT2-F-C4-1-ETW1-3	F	C4	6	4	52.60	3.972	0.0789	10	AGM	0.0079	52.53	3.967

|					
Average	50.86	4.012	Average$_{norm}$	0.0080	51.23	4.042
Standard Dev.	1.342	0.05700	Standard Dev.$_{norm}$		0.976	0.08299
Coeff. of Var. [%]	2.638	1.421	Coeff. of Var. [%]$_{norm}$		1.906	2.053
Min.	48.66	3.920	Min.	0.0078	49.17	3.930
Max.	52.85	4.105	Max.	0.0082	52.53	4.179
Number of Spec.	18	18	Number of Spec.	18	18	18

Laminate Unnotched Tension Properties (UNT2)--ETW1 (180°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT2)--ETW1 (180°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT2)--ETW2(225°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%
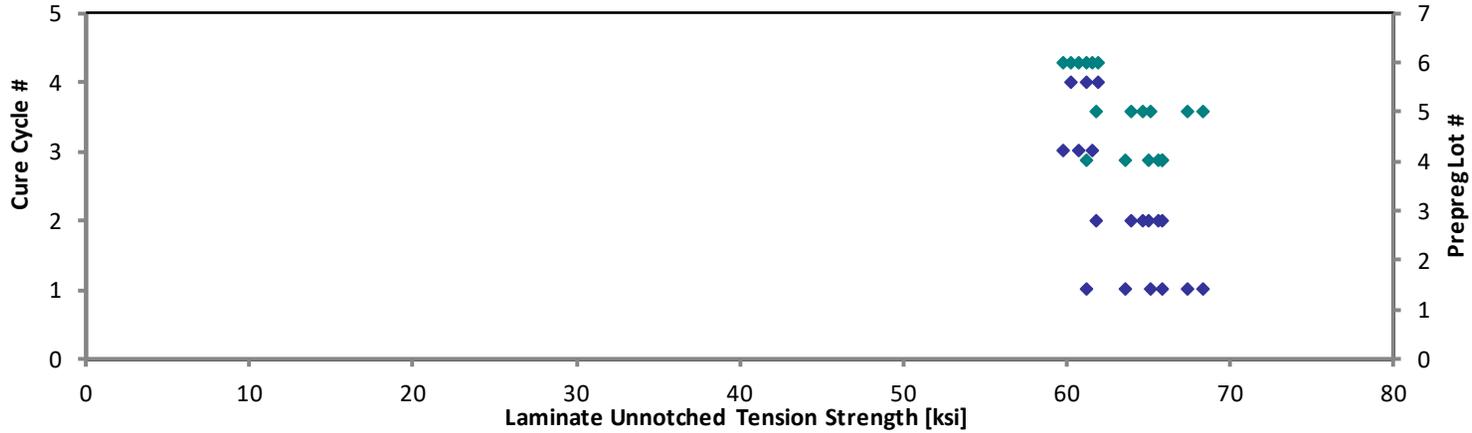
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t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNT2-D-C1-1-ETW2-1	D	C1	4	1	42.47	3.721	0.0802	10	AGB	0.0080	43.12	3.778
NTP2191Q1-WRX-PW-SOL-UNT2-D-C1-1-ETW2-2	D	C1	4	1	45.03	3.692	0.0806	10	AGM	0.0081	45.94	3.767
NTP2191Q1-WRX-PW-SOL-UNT2-D-C1-1-ETW2-3	D	C1	4	1	44.80	3.659	0.0807	10	AGT	0.0081	45.76	3.738
NTP2191Q1-WRX-PW-SOL-UNT2-D-C2-1-ETW2-1	D	C2	4	2	44.11	3.597	0.0812	10	AGB	0.0081	45.34	3.697
NTP2191Q1-WRX-PW-SOL-UNT2-D-C2-1-ETW2-2	D	C2	4	2	44.46	3.554	0.0819	10	AGT	0.0082	46.09	3.684
NTP2191Q1-WRX-PW-SOL-UNT2-D-C2-1-ETW2-3	D	C2	4	2	45.28	3.582	0.0814	10	AGT	0.0081	46.66	3.691
NTP2191Q1-WRX-PW-SOL-UNT2-E-C1-1-ETW2-1	E	C1	5	1	45.48	3.469	0.0789	10	AGB	0.0079	45.42	3.465
NTP2191Q1-WRX-PW-SOL-UNT2-E-C1-1-ETW2-2	E	C1	5	1	43.81	3.526	0.0792	10	AGM	0.0079	43.92	3.535
NTP2191Q1-WRX-PW-SOL-UNT2-E-C1-1-ETW2-3	E	C1	5	1	45.47	3.455	0.0793	10	AGM	0.0079	45.64	3.468
NTP2191Q1-WRX-PW-SOL-UNT2-E-C2-1-ETW2-1	E	C2	5	2	46.55	3.699	0.0792	10	AGB	0.0079	46.67	3.708
NTP2191Q1-WRX-PW-SOL-UNT2-E-C2-1-ETW2-2	E	C2	5	2	46.11	3.695	0.0794	10	AGB	0.0079	46.34	3.714
NTP2191Q1-WRX-PW-SOL-UNT2-E-C2-1-ETW2-3	E	C2	5	2	47.94	3.766	0.0792	10	AGB	0.0079	48.06	3.776
NTP2191Q1-WRX-PW-SOL-UNT2-F-C3-1-ETW2-1	F	C3	6	3	44.74	3.651	0.0785	10	AGT	0.0079	44.46	3.628
NTP2191Q1-WRX-PW-SOL-UNT2-F-C3-1-ETW2-2	F	C3	6	3	45.86	3.652	0.0788	10	AGM	0.0079	45.74	3.643
NTP2191Q1-WRX-PW-SOL-UNT2-F-C3-1-ETW2-3	F	C3	6	3	45.83	3.642	0.0789	10	AGM	0.0079	45.77	3.637
NTP2191Q1-WRX-PW-SOL-UNT2-F-C4-1-ETW2-1	F	C4	6	4	46.99	3.679	0.0784	10	AGT	0.0078	46.63	3.651
NTP2191Q1-WRX-PW-SOL-UNT2-F-C4-1-ETW2-2	F	C4	6	4	46.74	3.592	0.0789	10	AGT	0.0079	46.68	3.587
NTP2191Q1-WRX-PW-SOL-UNT2-F-C4-1-ETW2-3	F	C4	6	4	47.11	3.628	0.0785	10	AGT	0.0079	46.81	3.605

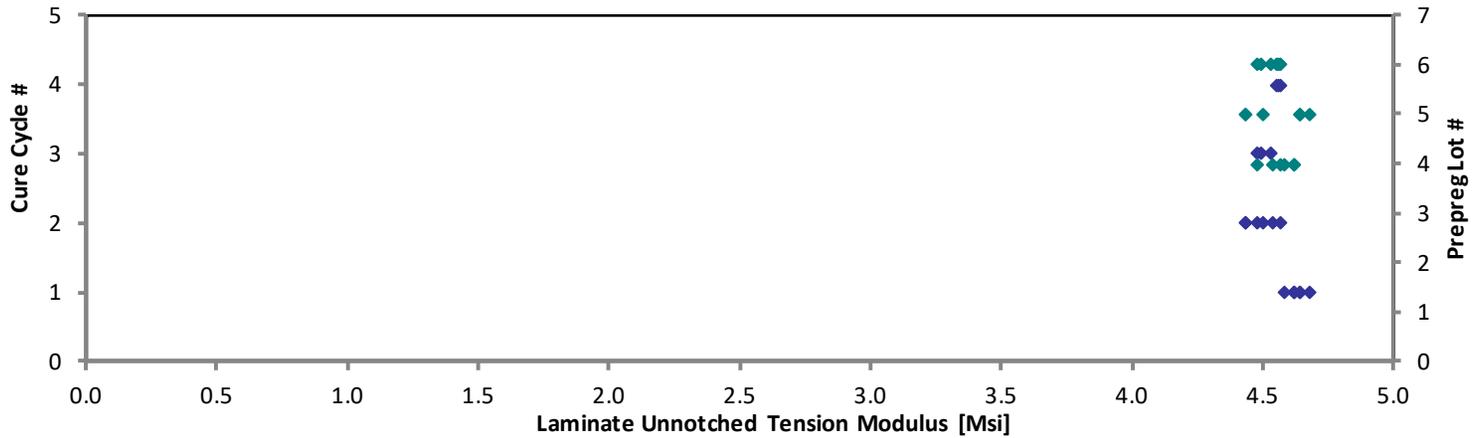|	Strength	Modulus			Avg. t_{ply}	Strength$_{norm}$	Modulus$_{norm}$
Average	45.49	3.626		Average$_{norm}$	0.0080	45.84	3.654
Standard Dev.	1.337	0.08455		Standard Dev.$_{norm}$		1.148	0.09485
Coeff. of Var. [%]	2.940	2.332		Coeff. of Var. [%]$_{norm}$		2.504	2.596
Min.	42.47	3.455		Min.	0.0078	43.12	3.465
Max.	47.94	3.766		Max.	0.0082	48.06	3.778
Number of Spec.	18	18		Number of Spec.	18	18	18

Laminate Unnotched Tension Properties (UNT2)--ETW2(225°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT2)--ETW2(225°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

4.13 "40/20/40" Unnotched Tension 3 Properties (UNT3)

Laminate Unnotched Tension Properties (UNT3)--CTA(-67°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
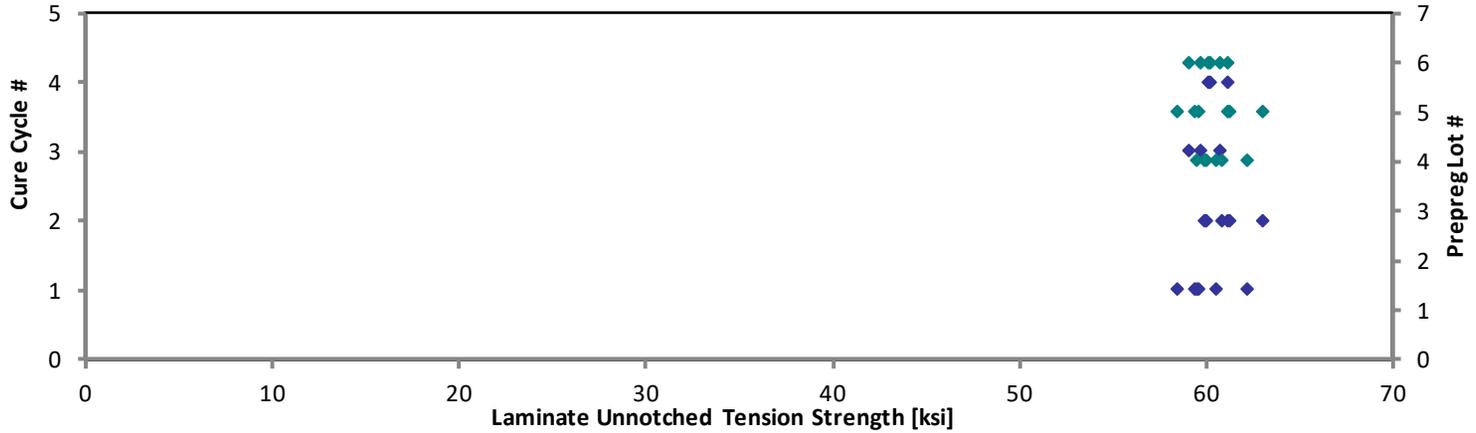t_{ply} **[in]**

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNT3-D-C1-1-CTA-1	D	C1	4	1	116.5	8.471	0.0802	10	MGM		0.0080	118.3	8.600
NTP2191Q1-WRX-PW-SOL-UNT3-D-C1-1-CTA-2	D	C1	4	1	117.2	8.628	0.0800	10	MGM		0.0080	118.6	8.737
NTP2191Q1-WRX-PW-SOL-UNT3-D-C1-1-CTA-3	D	C1	4	1	113.3	8.389	0.0802	10	MGV		0.0080	115.0	8.516
NTP2191Q1-WRX-PW-SOL-UNT3-D-C2-1-CTA-1	D	C2	4	2	118.7	8.229	0.0802	10	MGM		0.0080	120.5	8.354
NTP2191Q1-WRX-PW-SOL-UNT3-D-C2-1-CTA-2	D	C2	4	2	116.1	8.410	0.0808	10	MGM		0.0081	118.8	8.602
NTP2191Q1-WRX-PW-SOL-UNT3-D-C2-1-CTA-3	D	C2	4	2	111.5	8.324	0.0807	10	MGV		0.0081	113.9	8.503
NTP2191Q1-WRX-PW-SOL-UNT3-E-C1-1-CTA-1	E	C1	5	1	120.6	8.629	0.0784	10	MGM		0.0078	119.7	8.563
NTP2191Q1-WRX-PW-SOL-UNT3-E-C1-1-CTA-2	E	C1	5	1	118.6	8.426	0.0790	10	MGV		0.0079	118.6	8.426
NTP2191Q1-WRX-PW-SOL-UNT3-E-C1-1-CTA-3	E	C1	5	1	118.2	8.166	0.0791	10	MGT		0.0079	118.3	8.176
NTP2191Q1-WRX-PW-SOL-UNT3-E-C2-1-CTA-1	E	C2	5	2	123.4	8.633	0.0771	10	LGB		0.0077	120.4	8.425
NTP2191Q1-WRX-PW-SOL-UNT3-E-C2-1-CTA-2	E	C2	5	2	123.2	8.579	0.0783	10	MGM		0.0078	122.1	8.503
NTP2191Q1-WRX-PW-SOL-UNT3-E-C2-1-CTA-3	E	C2	5	2	124.7	8.377	0.0789	10	MGV		0.0079	124.5	8.366
NTP2191Q1-WRX-PW-SOL-UNT3-F-C3-1-CTA-1	F	C3	6	3	118.7	8.539	0.0787	10	LGM		0.0079	118.2	8.507
NTP2191Q1-WRX-PW-SOL-UNT3-F-C3-1-CTA-2	F	C3	6	3	122.7	8.541	0.0793	10	LGT		0.0079	123.2	8.573
NTP2191Q1-WRX-PW-SOL-UNT3-F-C3-1-CTA-3	F	C3	6	3	113.4	8.426	0.0789	10	MGV		0.0079	113.2	8.415
NTP2191Q1-WRX-PW-SOL-UNT3-F-C4-1-CTA-1	F	C4	6	4	118.9	8.474	0.0793	10	MGM		0.0079	119.3	8.506
NTP2191Q1-WRX-PW-SOL-UNT3-F-C4-1-CTA-2	F	C4	6	4	114.5	8.546	0.0788	10	MGM		0.0079	114.2	8.524
NTP2191Q1-WRX-PW-SOL-UNT3-F-C4-1-CTA-3	F	C4	6	4	116.5	8.520	0.0790	10	MGM		0.0079	116.5	8.520

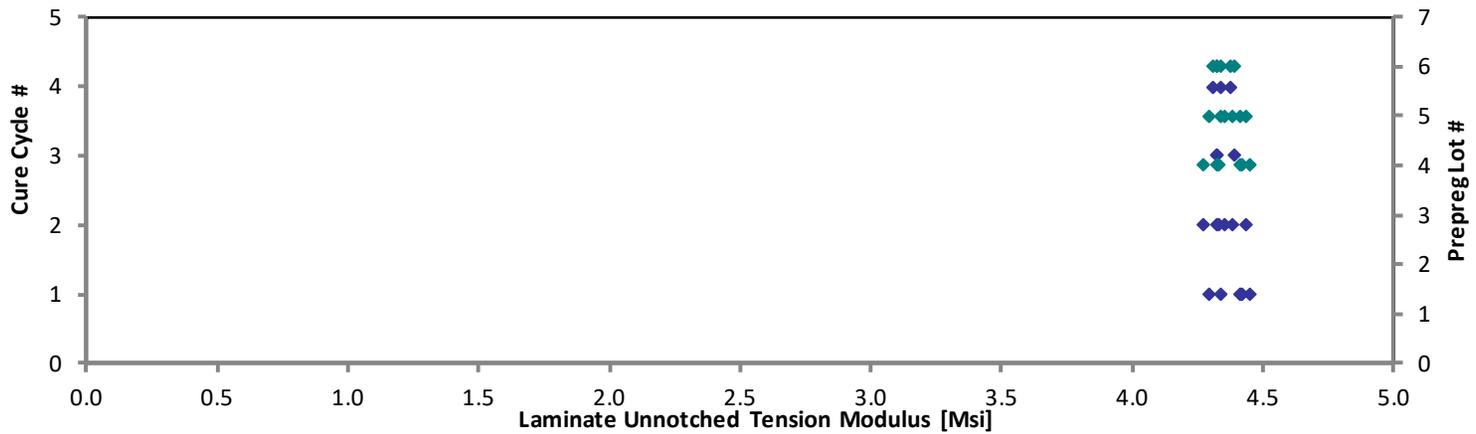|						
Average	118.1	8.462	Average$_{norm}$	0.0079	118.5	8.490
Standard Dev.	3.736	0.1328	Standard Dev.$_{norm}$		3.106	0.1207
Coeff. of Var. [%]	3.162	1.570	Coeff. of Var. [%]$_{norm}$		2.621	1.422
Min.	111.5	8.166	Min.	0.0077	113.2	8.176
Max.	124.7	8.633	Max.	0.0081	124.5	8.737
Number of Spec.	18	18	Number of Spec.	18	18	18

Laminate Unnotched Tension Properties (UNT3)--CTA(-67°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT3)--CTA(-67°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #
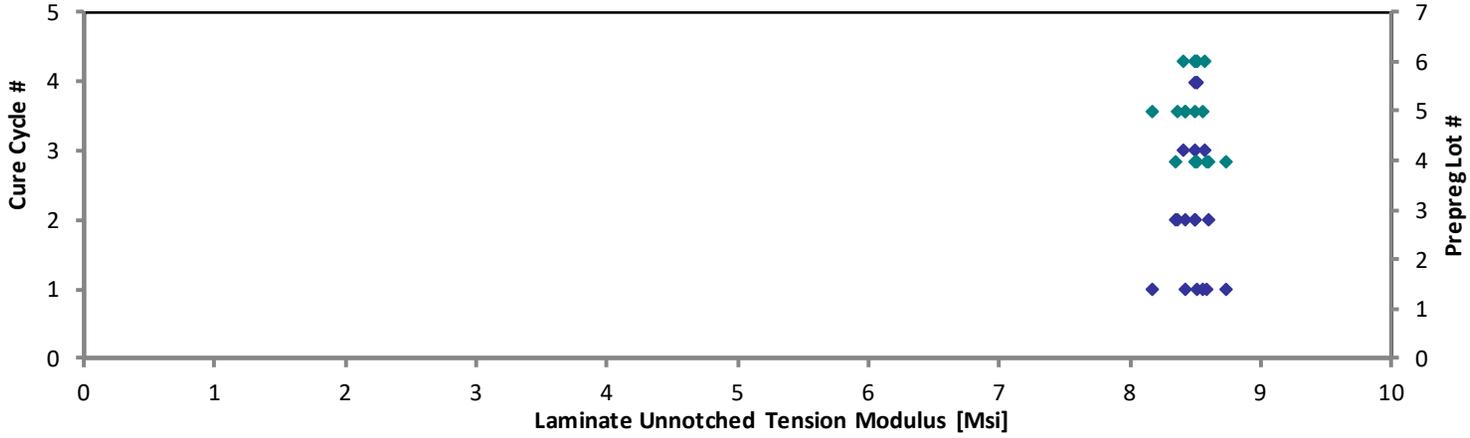
Laminate Unnotched Tension Properties (UNT3)--RTA(75°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNT3-D-C1-1-RTA-1	D	C1	4	1	116.3	8.438	0.0801	10	MGV	0.0080	117.9	8.555
NTP2191Q1-WRX-PW-SOL-UNT3-D-C1-1-RTA-2	D	C1	4	1	112.5	8.669	0.0797	10	MGV	0.0080	113.5	8.746
NTP2191Q1-WRX-PW-SOL-UNT3-D-C1-1-RTA-3	D	C1	4	1	111.8	8.502	0.0804	10	MGV	0.0080	113.8	8.653
NTP2191Q1-WRX-PW-SOL-UNT3-D-C2-1-RTA-1	D	C2	4	2	113.2	8.448	0.0804	10	MGT	0.0080	115.2	8.598
NTP2191Q1-WRX-PW-SOL-UNT3-D-C2-1-RTA-2	D	C2	4	2	121.5	8.476	0.0803	10	MGT	0.0080	123.5	8.615
NTP2191Q1-WRX-PW-SOL-UNT3-D-C2-1-RTA-3	D	C2	4	2	117.7	8.520	0.0806	10	MGM	0.0081	120.1	8.693
NTP2191Q1-WRX-PW-SOL-UNT3-E-C1-1-RTA-1	E	C1	5	1	125.0	8.340	0.0782	10	LGV	0.0078	123.8	8.256
NTP2191Q1-WRX-PW-SOL-UNT3-E-C1-1-RTA-2	E	C1	5	1	120.4	8.522	0.0790	10	LGV	0.0079	120.4	8.522
NTP2191Q1-WRX-PW-SOL-UNT3-E-C1-1-RTA-3	E	C1	5	1	123.8	8.466	0.0791	10	LGV	0.0079	124.0	8.477
NTP2191Q1-WRX-PW-SOL-UNT3-E-C2-1-RTA-1	E	C2	5	2	122.1	8.794	0.0778	10	LGM	0.0078	120.2	8.660
NTP2191Q1-WRX-PW-SOL-UNT3-E-C2-1-RTA-2	E	C2	5	2	121.1	8.502	0.0786	10	LGB	0.0079	120.4	8.459
NTP2191Q1-WRX-PW-SOL-UNT3-E-C2-1-RTA-3	E	C2	5	2	131.5	8.387	0.0791	10	MGV	0.0079	131.6	8.398
NTP2191Q1-WRX-PW-SOL-UNT3-F-C3-1-RTA-1	F	C3	6	3	126.9	8.598	0.0793	10	MGV	0.0079	127.4	8.631
NTP2191Q1-WRX-PW-SOL-UNT3-F-C3-1-RTA-2	F	C3	6	3	124.4	8.480	0.0796	10	MGM	0.0080	125.4	8.544
NTP2191Q1-WRX-PW-SOL-UNT3-F-C3-1-RTA-3	F	C3	6	3	125.1	8.630	0.0791	10	MGV	0.0079	125.2	8.641
NTP2191Q1-WRX-PW-SOL-UNT3-F-C4-1-RTA-1	F	C4	6	4	112.0	8.527	0.0795	10	MGM	0.0080	112.7	8.581
NTP2191Q1-WRX-PW-SOL-UNT3-F-C4-1-RTA-2	F	C4	6	4	129.5	8.507	0.0788	10	MGV	0.0079	129.2	8.485
NTP2191Q1-WRX-PW-SOL-UNT3-F-C4-1-RTA-3	F	C4	6	4	118.4	8.466	0.0789	10	MGM	0.0079	118.3	8.455

	Strength [ksi]	Modulus [Msi]		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
Average	120.7	8.515	Average$_{norm}$	0.0079	121.3	8.554
Standard Dev.	5.975	0.1050	Standard Dev.$_{norm}$		5.47	0.1191
Coeff. of Var. [%]	4.949	1.233	Coeff. of Var. [%]$_{norm}$		4.509	1.392
Min.	111.8	8.340	Min.	0.0078	112.7	8.256
Max.	131.5	8.794	Max.	0.0081	131.6	8.746
Number of Spec.	18	18	Number of Spec.	18	18	18

Laminate Unnotched Tension Properties (UNT3)--RTA(75°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT3)--RTA(75°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

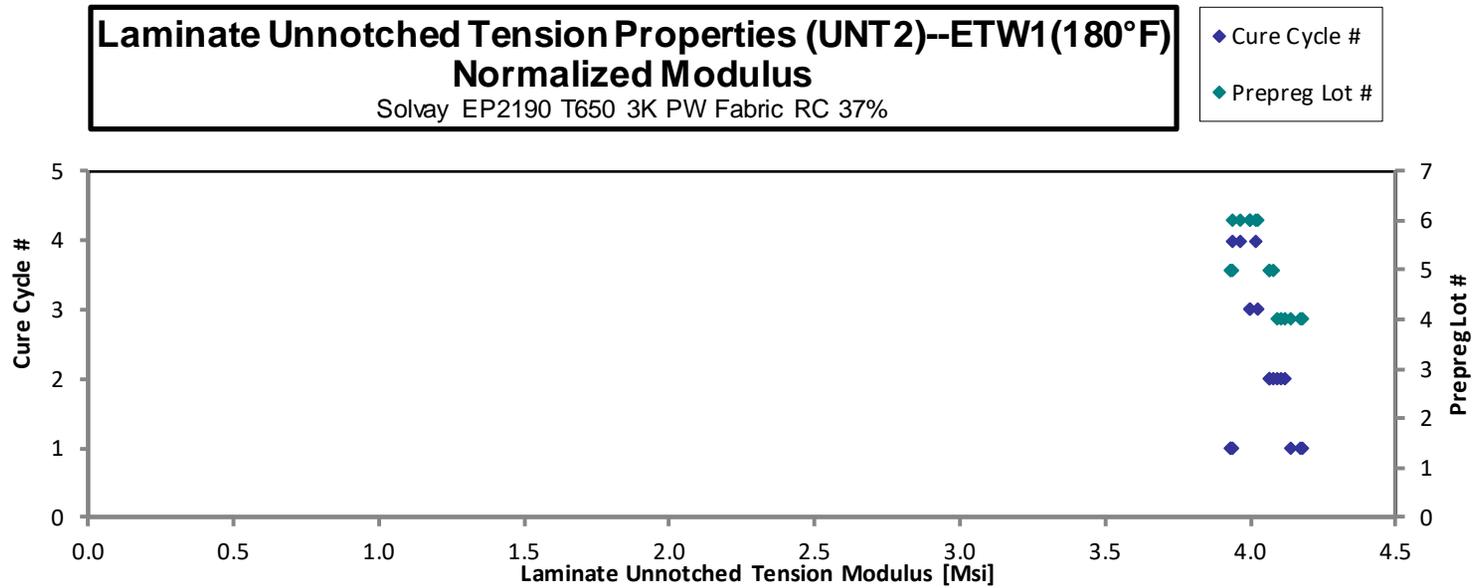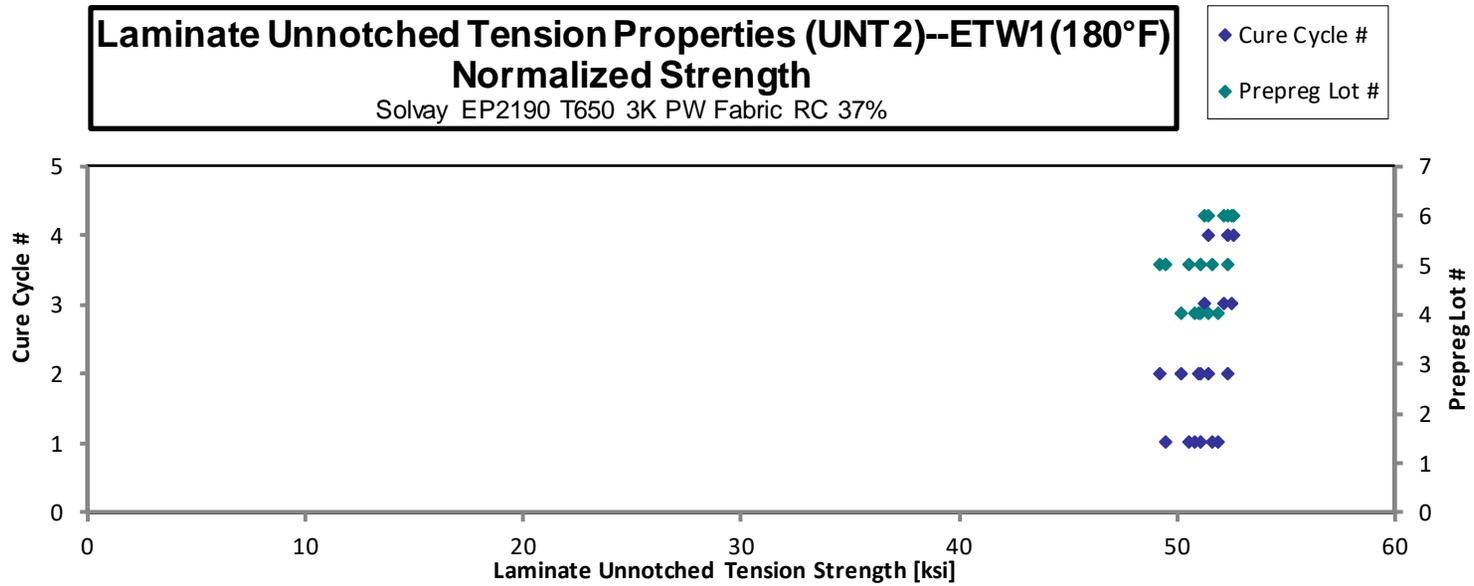- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT3)--ETW1(180°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%
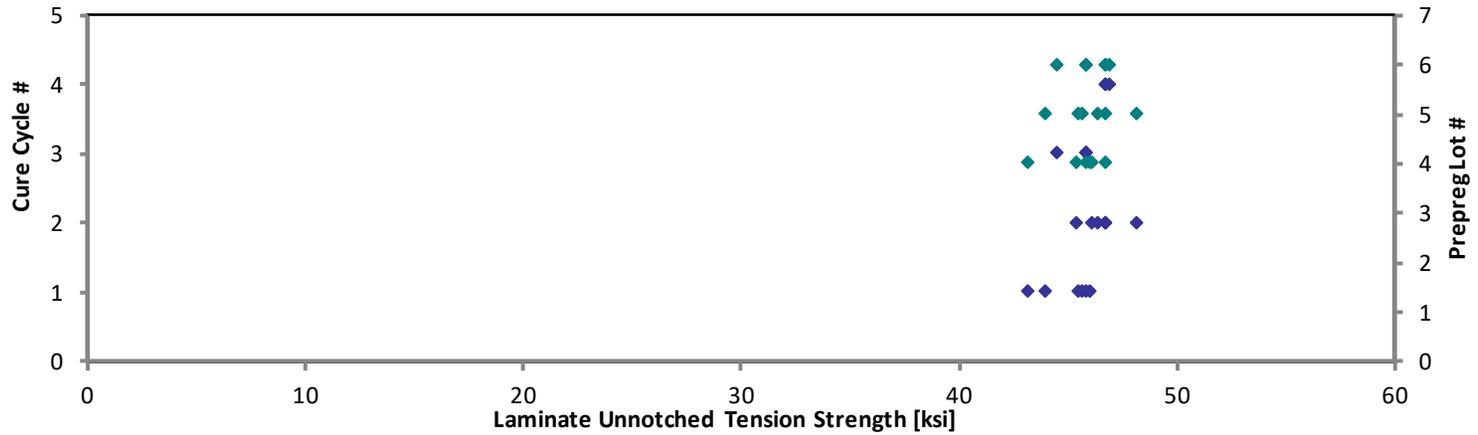
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNT3-D-C1-1-ETW1-1	D	C1	4	1	118.2	8.379	0.0803	10	MGV	0.0080	120.1	8.517
NTP2191Q1-WRX-PW-SOL-UNT3-D-C1-1-ETW1-2	D	C1	4	1	115.1	8.496	0.0798	10	MGV	0.0080	116.3	8.582
NTP2191Q1-WRX-PW-SOL-UNT3-D-C1-1-ETW1-3	D	C1	4	1	109.8	8.461	0.0799	10	MGT	0.0080	111.0	8.557
NTP2191Q1-WRX-PW-SOL-UNT3-D-C2-1-ETW1-1	D	C2	4	2	107.7	8.519	0.0811	10	MGV	0.0081	110.6	8.745
NTP2191Q1-WRX-PW-SOL-UNT3-D-C2-1-ETW1-2	D	C2	4	2	113.3	8.546	0.0807	10	MGM	0.0081	115.7	8.730
NTP2191Q1-WRX-PW-SOL-UNT3-D-C2-1-ETW1-3	D	C2	4	2	111.2	8.559	0.0808	10	MGV	0.0081	113.7	8.754
NTP2191Q1-WRX-PW-SOL-UNT3-E-C1-1-ETW1-1	E	C1	5	1	123.9	8.703	0.0790	10	MGM	0.0079	123.9	8.703
NTP2191Q1-WRX-PW-SOL-UNT3-E-C1-1-ETW1-2	E	C1	5	1	119.2	8.369	0.0795	10	MGV	0.0080	120.0	8.422
NTP2191Q1-WRX-PW-SOL-UNT3-E-C1-1-ETW1-3	E	C1	5	1	117.5	8.528	0.0795	10	MGV	0.0080	118.2	8.582
NTP2191Q1-WRX-PW-SOL-UNT3-E-C2-1-ETW1-1	E	C2	5	2	119.3	8.582	0.0790	10	MGV	0.0079	119.3	8.582
NTP2191Q1-WRX-PW-SOL-UNT3-E-C2-1-ETW1-2	E	C2	5	2	114.8	8.599	0.0792	10	MGM	0.0079	115.1	8.621
NTP2191Q1-WRX-PW-SOL-UNT3-E-C2-1-ETW1-3	E	C2	5	2	118.3	8.784	0.0790	10	MGM	0.0079	118.3	8.784
NTP2191Q1-WRX-PW-SOL-UNT3-F-C3-1-ETW1-1	F	C3	6	3	115.3	8.576	0.0785	10	MGV	0.0079	114.5	8.522
NTP2191Q1-WRX-PW-SOL-UNT3-F-C3-1-ETW1-2	F	C3	6	3	120.2	8.300	0.0788	10	MGV	0.0079	119.9	8.279
NTP2191Q1-WRX-PW-SOL-UNT3-F-C3-1-ETW1-3	F	C3	6	3	119.8	8.276	0.0789	10	MGM	0.0079	119.6	8.266
NTP2191Q1-WRX-PW-SOL-UNT3-F-C4-1-ETW1-1	F	C4	6	4	115.9	8.473	0.0783	10	MGM	0.0078	114.8	8.398
NTP2191Q1-WRX-PW-SOL-UNT3-F-C4-1-ETW1-2	F	C4	6	4	120.8	8.290	0.0789	10	MGV	0.0079	120.6	8.280
NTP2191Q1-WRX-PW-SOL-UNT3-F-C4-1-ETW1-3	F	C4	6	4	120.3	8.296	0.0787	10	MGV	0.0079	119.9	8.264

Average	116.7	8.485			**Average$_{norm}$**	0.0079	117.3	8.533
Standard Dev.	4.21	0.1449			**Standard Dev.$_{norm}$**		3.54	0.1788
Coeff. of Var. [%]	3.606	1.708			**Coeff. of Var. [%]$_{norm}$**		3.021	2.096
Min.	107.7	8.276			**Min.**	0.0078	110.6	8.264
Max.	123.9	8.784			**Max.**	0.0081	123.9	8.784
Number of Spec.	18	18			**Number of Spec.**	18	18	18

Laminate Unnotched Tension Properties (UNT3)--ETW1(180°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT3)--ETW1(180°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT3)--ETW2(225°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%
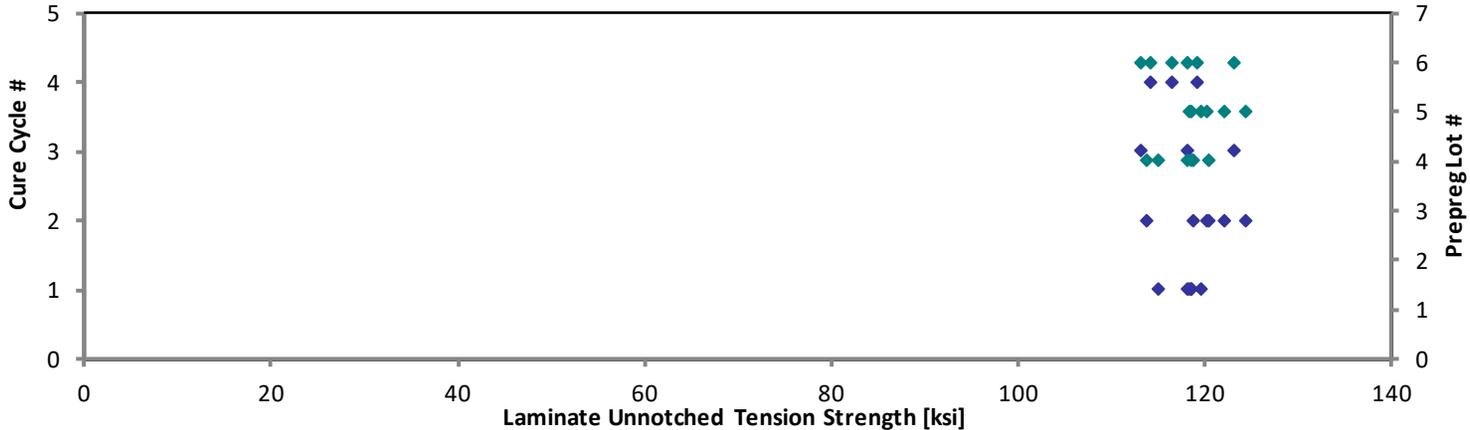
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNT3-D-C1-1-ETW2-1	D	C1	4	1	106.6	8.093	0.0802	10	LGB	0.0080	108.2	8.216
NTP2191Q1-WRX-PW-SOL-UNT3-D-C1-1-ETW2-2	D	C1	4	1	108.5	8.354	0.0795	10	MGM	0.0080	109.2	8.407
NTP2191Q1-WRX-PW-SOL-UNT3-D-C1-1-ETW2-3	D	C1	4	1	108.5	8.197	0.0801	10	MGB	0.0080	110.1	8.311
NTP2191Q1-WRX-PW-SOL-UNT3-D-C2-1-ETW2-1	D	C2	4	2	108.9	8.280	0.0808	10	MGV	0.0081	111.4	8.469
NTP2191Q1-WRX-PW-SOL-UNT3-D-C2-1-ETW2-2	D	C2	4	2	107.4	8.453	0.0809	10	MGT	0.0081	110.0	8.656
NTP2191Q1-WRX-PW-SOL-UNT3-D-C2-1-ETW2-3	D	C2	4	2	108.3	8.395	0.0809	10	MGV	0.0081	110.9	8.597
NTP2191Q1-WRX-PW-SOL-UNT3-E-C1-1-ETW2-1	E	C1	5	1	119.4	8.422	0.0790	10	MGV	0.0079	119.4	8.422
NTP2191Q1-WRX-PW-SOL-UNT3-E-C1-1-ETW2-2	E	C1	5	1	114.1	8.175	0.0792	10	MGV	0.0079	114.4	8.196
NTP2191Q1-WRX-PW-SOL-UNT3-E-C1-1-ETW2-3	E	C1	5	1	110.3	8.559	0.0790	10	MGV	0.0079	110.3	8.559
NTP2191Q1-WRX-PW-SOL-UNT3-E-C2-1-ETW2-1	E	C2	5	2	119.4	8.379	0.0787	10	MGM	0.0079	118.9	8.347
NTP2191Q1-WRX-PW-SOL-UNT3-E-C2-1-ETW2-2	E	C2	5	2	117.8	8.314	0.0791	10	MGM	0.0079	118.0	8.325
NTP2191Q1-WRX-PW-SOL-UNT3-E-C2-1-ETW2-3	E	C2	5	2	116.7	8.260	0.0788	10	MGV	0.0079	116.4	8.239
NTP2191Q1-WRX-PW-SOL-UNT3-F-C3-1-ETW2-1	F	C3	6	3	119.3	8.097	0.0782	10	MGV	0.0078	118.1	8.015
NTP2191Q1-WRX-PW-SOL-UNT3-F-C3-1-ETW2-2	F	C3	6	3	120.9	7.892	0.0789	10	MGV	0.0079	120.7	7.882
NTP2191Q1-WRX-PW-SOL-UNT3-F-C3-1-ETW2-3	F	C3	6	3	121.6	8.131	0.0791	10	MGV	0.0079	121.7	8.141
NTP2191Q1-WRX-PW-SOL-UNT3-F-C4-1-ETW2-1	F	C4	6	4	111.6	8.722	0.0777	10	MGM	0.0078	109.8	8.578
NTP2191Q1-WRX-PW-SOL-UNT3-F-C4-1-ETW2-2	F	C4	6	4	118.2	8.673	0.0789	10	MGV	0.0079	118.1	8.662
NTP2191Q1-WRX-PW-SOL-UNT3-F-C4-1-ETW2-3	F	C4	6	4	119.3	8.622	0.0783	10	MGV	0.0078	118.2	8.546

|				
Average	114.3	8.334	**Average$_{norm}$**	0.0079	114.6	8.365
Standard Dev.	5.385	0.2211	**Standard Dev.$_{norm}$**		4.599	0.2217
Coeff. of Var. [%]	4.713	2.652	**Coeff. of Var. [%]$_{norm}$**		4.011	2.651
Min.	106.6	7.892	**Min.**	0.0078	108.2	7.882
Max.	121.6	8.722	**Max.**	0.0081	121.7	8.662
Number of Spec.	18	18	**Number of Spec.**	18	18	18

Laminate Unnotched Tension Properties (UNT3)--ETW2(225°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Tension Properties (UNT3)--ETW2(225°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

4.14 "25/50/25" Unnotched Compression 1 Properties (UNC1)

Laminate Unnotched Compression Properties (UNC1)--CTA(-67°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%
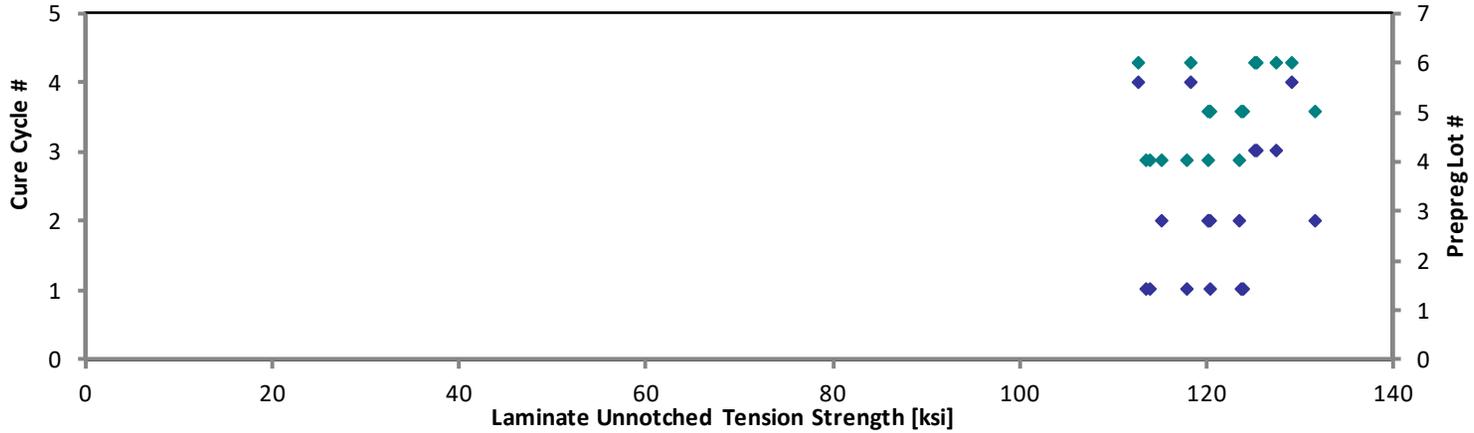
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8343315-P2-UNC1-A-C1-CTA-1	A	C1	1	1	96.54	6.294	0.1276	16	MGM	0.0080	97.46	6.354
TR8343315-P2-UNC1-A-C1-CTA-2	A	C1	1	1	94.56	6.179	0.1295	16	MGM	0.0081	96.88	6.331
TR8343315-P2-UNC1-A-C1-CTA-3	A	C1	1	1	96.64	6.191	0.1290	16	MGM	0.0081	98.63	6.318
TR8343315-P2-UNC1-A-C1-CTA-4	A	C1	1	1	93.15	6.324	0.1287	16	MGT	0.0080	94.84	6.439
TR8343315-P2-UNC1-A-C1-CTA-5	A	C1	1	1	96.45	6.272	0.1288	16	MGB	0.0081	98.28	6.391
TR8343315-P2-UNC1-A-C1-CTA-6	A	C1	1	1	93.89	6.291	0.1284	16	MGT	0.0080	95.38	6.391
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-CTA-1	D	C1	4	1	95.03	6.294	0.1264	16	MGM	0.0079	95.03	6.294
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-CTA-2	D	C1	4	1	97.03	6.336	0.1259	16	MGB	0.0079	96.65	6.311
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-CTA-4	D	C1	4	1	100.0	6.331	0.1265	16	MGT	0.0079	100.1	6.336
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-CTA-1	D	C2	4	2	103.7	6.381	0.1276	16	MGM	0.0080	104.6	6.442
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-CTA-2	D	C2	4	2	96.86	6.426	0.1275	16	MGM	0.0080	97.70	6.482
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-CTA-3	D	C2	4	2	94.08	6.313	0.1273	16	MGT	0.0080	94.75	6.358

	Strength	Modulus			Strength	Modulus
Average	96.49	6.303	Average$_{norm}$	0.0080	97.52	6.370
Standard Dev.	2.915	0.06929	Standard Dev.$_{norm}$		2.791	0.05904
Coeff. of Var. [%]	3.021	1.099	Coeff. of Var. [%]$_{norm}$		2.862	0.9267
Min.	93.15	6.179	Min.	0.0079	94.75	6.294
Max.	103.7	6.426	Max.	0.0081	104.6	6.482
Number of Spec.	12	12	Number of Spec.	12	12	12

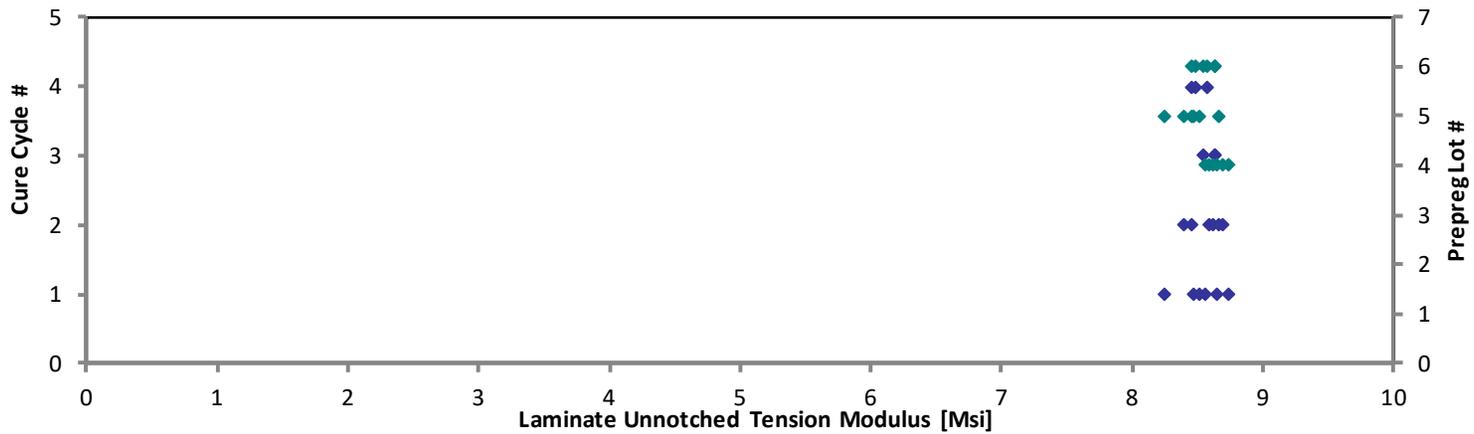## Laminate Unnotched Compression Properties (UNC1)--CTA(-67°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC1)--CTA(-67°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #
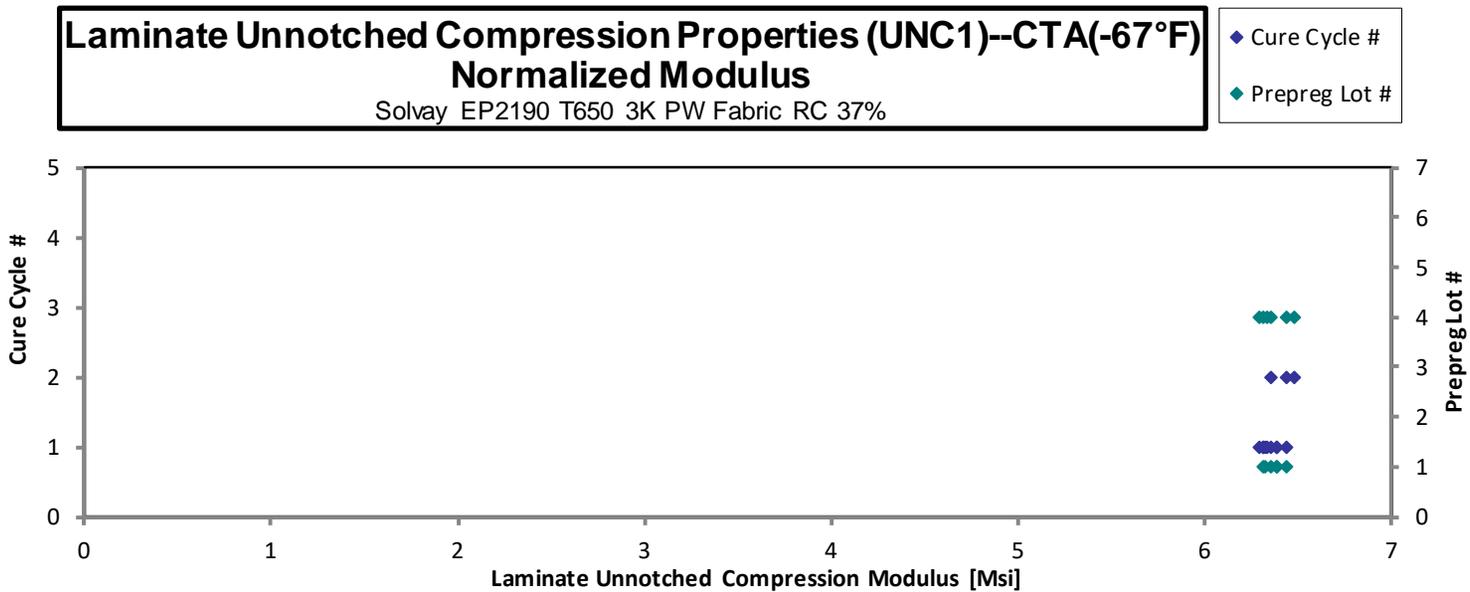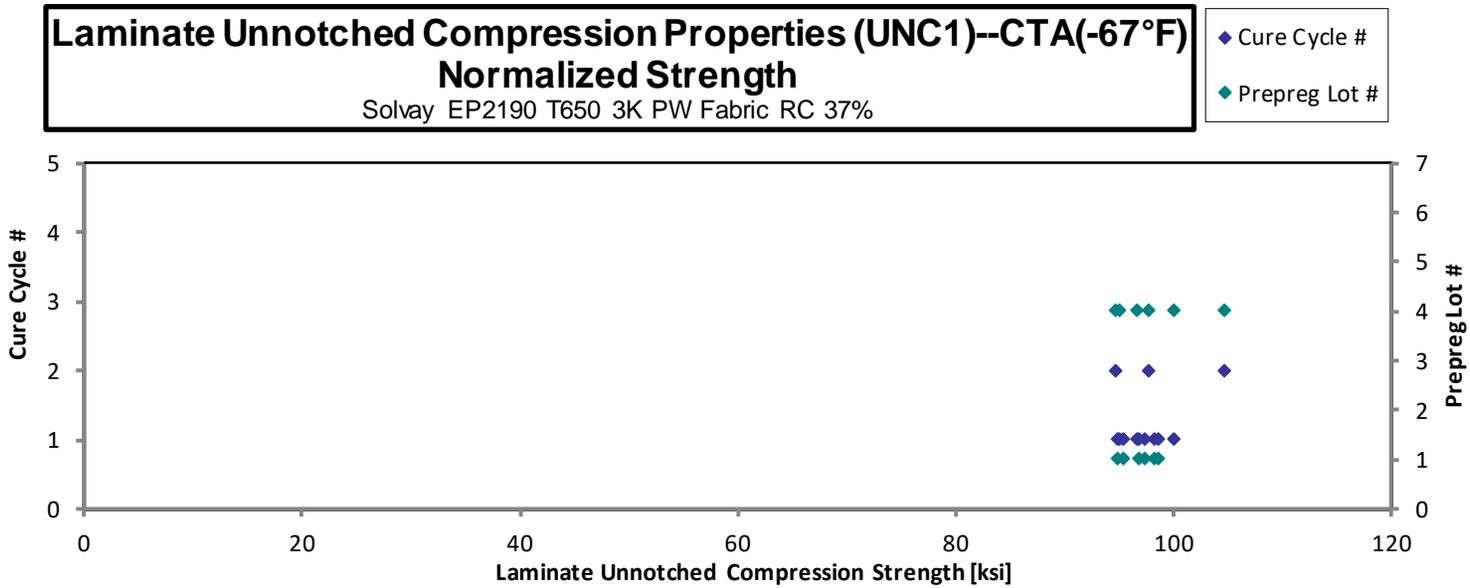
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<tr><td colspan="3">**Laminate Unnotched Compression Properties (UNC1)--RTA(75°F)**
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td></td><td>normalizing
t_{ply} [in]
0.0079</td></tr>
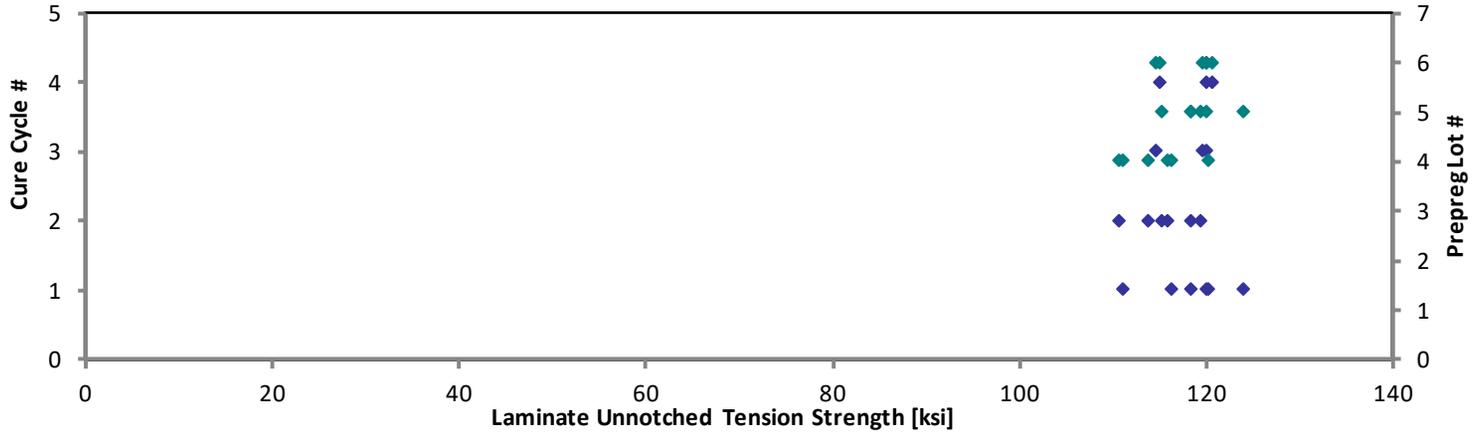</table>

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8343315-P4-UNC1-A-C1-RTA-1	A	C1	1	1	75.88	6.086	0.1284	16	AGT		0.0080	77.08	6.182
TR8343315-P4-UNC1-A-C1-RTA-2	A	C1	1	1	76.53	6.145	0.1299	16	AGT		0.0081	78.65	6.315
TR8343315-P4-UNC1-A-C1-RTA-3	A	C1	1	1	79.73	6.282	0.1291	16	AGM		0.0081	81.43	6.416
TR8343315-P4-UNC1-A-C1-RTA-4	A	C1	1	1	78.94	6.083	0.1294	16	AGB		0.0081	80.81	6.227
TR8343315-P4-UNC1-A-C1-RTA-5	A	C1	1	1	78.49	6.271	0.1289	16	AGT		0.0081	80.04	6.395
TR8343315-P4-UNC1-A-C1-RTA-6	A	C1	1	1	77.59	6.403	0.1292	16	AGT		0.0081	79.31	6.545
TR8346110-P1-UNC1-B-C1-RTA-1	B	C1	2	1	79.23	6.358	0.1279	16	MGM		0.0080	80.17	6.433
TR8346110-P1-UNC1-B-C1-RTA-2	B	C1	2	1	83.10	6.347	0.1287	16	MGT		0.0080	84.61	6.462
TR8346110-P1-UNC1-B-C1-RTA-3	B	C1	2	1	82.32	6.377	0.1285	16	MGB		0.0080	83.69	6.483
TR8346110-P1-UNC1-B-C1-RTA-4	B	C1	2	1	77.59	6.322	0.1281	16	MGT		0.0080	78.63	6.407
TR8346110-P1-UNC1-B-C1-RTA-5	B	C1	2	1	80.31	6.327	0.1281	16	MGM		0.0080	81.39	6.412
TR8346110-P1-UNC1-B-C1-RTA-6	B	C1	2	1	81.09	6.229	0.1290	16	MGT		0.0081	82.76	6.357
TR8347612-P1-UNC1-C-C1-RTA-1	C	C1	3	1	78.92	6.219	0.1272	16	MGM		0.0080	79.42	6.258
TR8347612-P3-UNC1-C-C1-RTA-3	C	C1	3	1	80.02	6.338	0.1274	16	MGM		0.0080	80.65	6.388
TR8347612-P3-UNC1-C-C1-RTA-4	C	C1	3	1	81.51	6.290	0.1273	16	MGM		0.0080	82.09	6.335
TR8347612-P3-UNC1-C-C1-RTA-5	C	C1	3	1	73.53	6.280	0.1274	16	MGM		0.0080	74.11	6.330
TR8347612-P3-UNC1-C-C1-RTA-6	C	C1	3	1	78.13	6.183	0.1281	16	MGM		0.0080	79.18	6.266
TR8347612-P3-UNC1-C-C1-RTA-7	C	C1	3	1	80.17	6.308	0.1274	16	MGM		0.0080	80.80	6.358
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-RTA-1	D	C1	4	1	81.23	6.335	0.1259	16	MGM		0.0079	80.91	6.310
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-RTA-2	D	C1	4	1	79.68	6.210	0.1262	16	MGM		0.0079	79.55	6.200
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-RTA-3	D	C1	4	1	79.35	6.252	0.1259	16	MGM		0.0079	79.04	6.227
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-RTA-1	D	C2	4	2	83.83	6.298	0.1277	16	MGM		0.0080	84.69	6.363
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-RTA-2	D	C2	4	2	78.43	6.345	0.1273	16	MGM		0.0080	78.99	6.390
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-RTA-4	D	C2	4	2	72.53	6.375	0.1271	16	MGM		0.0079	72.93	6.410

Average	79.09	6.278	Average$_{norm}$	0.0080	80.04	6.353
Standard Dev.	2.677	0.08747	Standard Dev.$_{norm}$		2.765	0.09210
Coeff. of Var. [%]	3.385	1.393	Coeff. of Var. [%]$_{norm}$		3.455	1.450
Min.	72.53	6.083	Min.	0.0079	72.93	6.182
Max.	83.83	6.403	Max.	0.0081	84.69	6.545
Number of Spec.	24	24	Number of Spec.	24	24	24

Laminate Unnotched Compression Properties (UNC1)--RTA(75°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

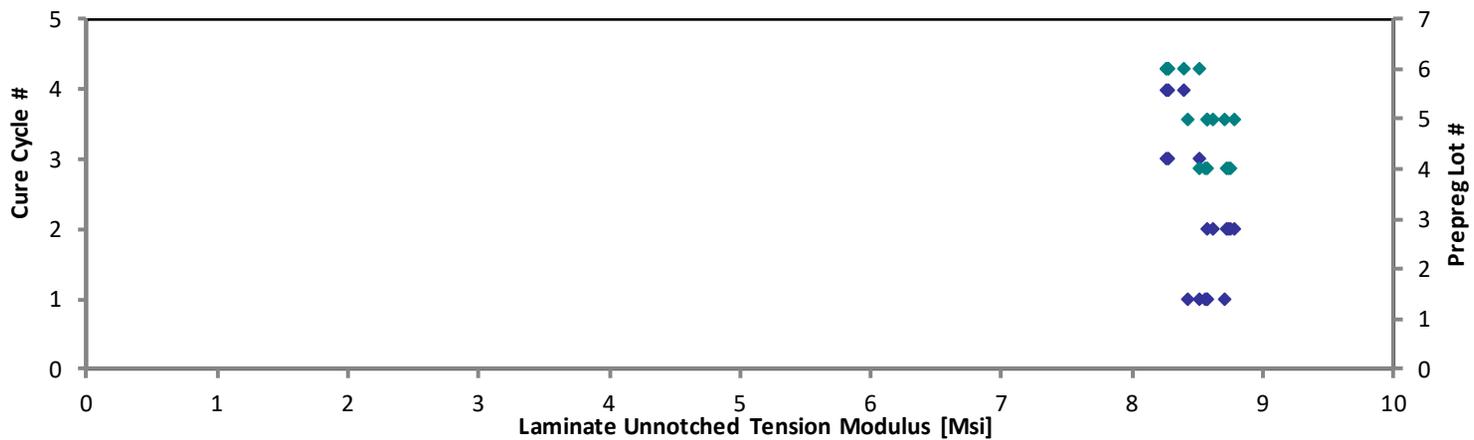
Laminate Unnotched Compression Properties (UNC1)--RTA(75°F) Normalized Modulus

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC1)--ETA2(225°F)
Strength & Modulus
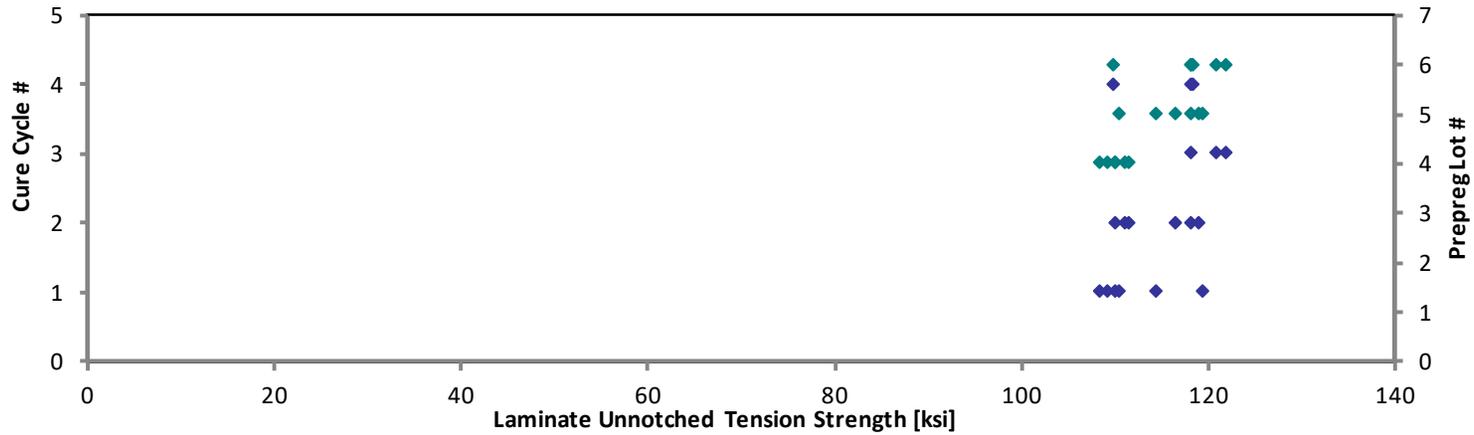Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-ETA2-1	D	C1	4	1	62.74	6.428	0.1250	16	MGM		0.0078	62.05	6.357
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-ETA2-2	D	C1	4	1	61.74	6.291	0.1262	16	MGM		0.0079	61.64	6.281
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-ETA2-3	D	C1	4	1	66.48	6.225	0.1262	16	MGM		0.0079	66.37	6.215
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-ETA2-1	D	C2	4	2	65.25	6.353	0.1271	16	MGM		0.0079	65.61	6.388
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-ETA2-2	D	C2	4	2	64.04	6.280	0.1277	16	MGM		0.0080	64.70	6.345
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-ETA2-3	D	C2	4	2	65.04	6.270	0.1276	16	MGM		0.0080	65.66	6.330

	Strength	Modulus			Avg. t_{ply}	Strength	Modulus
Average	64.22	6.308	Average$_{norm}$	0.0079	64.34	6.319
Standard Dev.	1.744	0.07188	Standard Dev.$_{norm}$		2.008	0.06198
Coeff. of Var. [%]	2.716	1.139	Coeff. of Var. [%]$_{norm}$		3.121	0.9808
Min.	61.74	6.225	Min.	0.0078	61.64	6.215
Max.	66.48	6.428	Max.	0.0080	66.37	6.388
Number of Spec.	6	6	Number of Spec.	6	6	6

Laminate Unnotched Compression Properties (UNC1)--ETA2(225°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC1)--ETA2(225°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC1)--ETA3(250°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
TR8343315-P5-UNC1-A-C1-ETA3-1	A	C1	1	1	59.59	6.218	0.1284	16	LGT		0.0080	60.53	6.316
TR8343315-P5-UNC1-A-C1-ETA3-2	A	C1	1	1	62.24	6.349	0.1292	16	LGB		0.0081	63.62	6.490
TR8343315-P5-UNC1-A-C1-ETA3-3	A	C1	1	1	61.59	6.343	0.1289	16	LGB		0.0081	62.81	6.468
TR8343315-P5-UNC1-A-C1-ETA3-4	A	C1	1	1	62.48	6.333	0.1288	16	LGM		0.0081	63.67	6.453
TR8343315-P5-UNC1-A-C1-ETA3-5	A	C1	1	1	59.45	6.302	0.1288	16	LGT		0.0081	60.58	6.422
TR8343315-P5-UNC1-A-C1-ETA3-6	A	C1	1	1	62.58	6.182	0.1285	16	LGT		0.0080	63.62	6.285

Average					61.32	6.288			Average$_{norm}$	0.0080		62.47	6.406
Standard Dev.					1.438	0.07086			Standard Dev.$_{norm}$			1.518	0.08499
Coeff. of Var. [%]					2.345	1.127			Coeff. of Var. [%]$_{norm}$			2.429	1.327
Min.					59.45	6.182			Min.	0.0080		60.53	6.285
Max.					62.58	6.349			Max.	0.0081		63.67	6.490
Number of Spec.					6	6			Number of Spec.	6		6	6

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Laminate Unnotched Compression Properties (UNC1)--ETA3(250°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC1)--ETA3(250°F) Normalized Modulus

Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

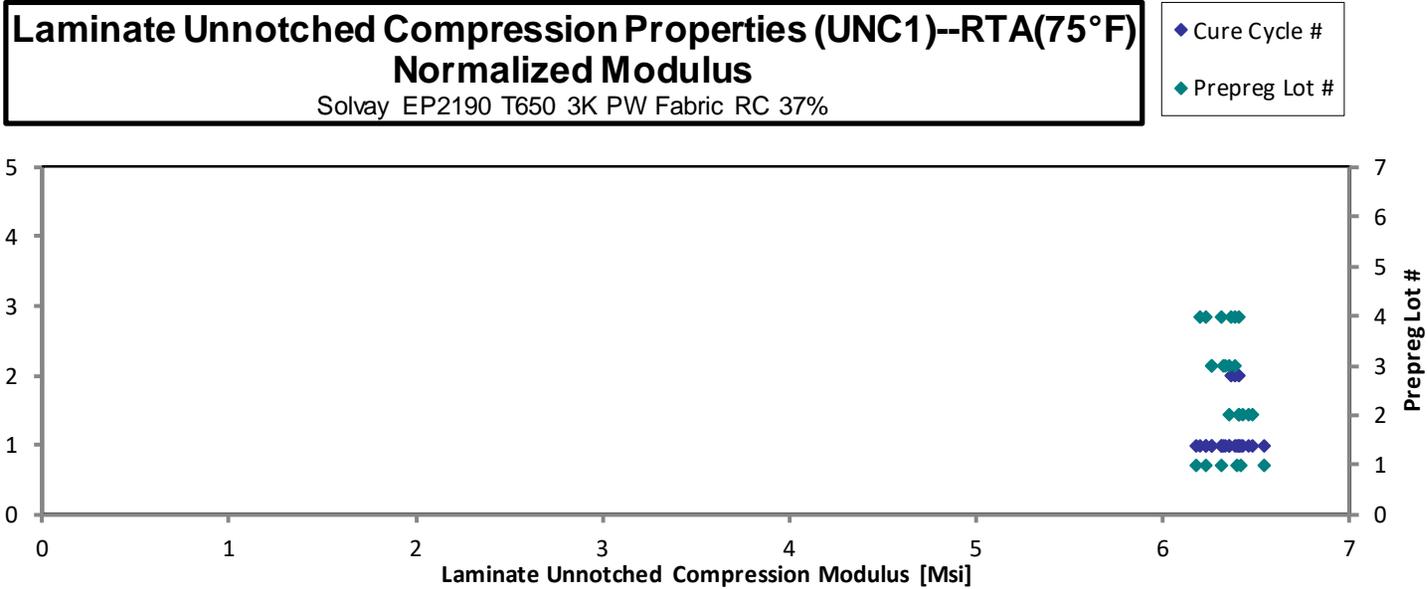| Laminate Unnotched Compression Properties (UNC1)--ETW1(180°F) Strength & Modulus Solvay EP2190 T650 3K PW Fabric RC 37% |
|---|

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-ETW1-1	D	C1	4	1	60.54	6.356	0.1261	16	MGM	0.0079	60.40	6.341
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-ETW1-2	D	C1	4	1	60.38	6.391	0.1260	16	MGM	0.0079	60.19	6.371
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-ETW1-3	D	C1	4	1	62.68	6.377	0.1262	16	MGM	0.0079	62.58	6.367
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-ETW1-1	D	C2	4	2	61.32	6.375	0.1274	16	MGM	0.0080	61.81	6.425
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-ETW1-2	D	C2	4	2	59.85	6.309	0.1274	16	MGM	0.0080	60.32	6.359
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-ETW1-3	D	C2	4	2	59.56	6.340	0.1278	16	MGM	0.0080	60.22	6.410
NTP2191Q1-WRX-PW-SOL-UNC1-E-C1-1-ETW1-1	E	C1	5	1	59.96	6.182	0.1308	16	MGM	0.0082	62.05	6.397
NTP2191Q1-WRX-PW-SOL-UNC1-E-C1-1-ETW1-2	E	C1	5	1	56.57	6.109	0.1313	16	MGT	0.0082	58.76	6.346
NTP2191Q1-WRX-PW-SOL-UNC1-E-C1-1-ETW1-3	E	C1	5	1	60.41	6.208	0.1313	16	MGB	0.0082	62.75	6.449
NTP2191Q1-WRX-PW-SOL-UNC1-E-C2-1-ETW1-1	E	C2	5	2	57.43	6.226	0.1306	16	MGM	0.0082	59.34	6.433
NTP2191Q1-WRX-PW-SOL-UNC1-E-C2-1-ETW1-2	E	C2	5	2	56.92	6.157	0.1312	16	MGM	0.0082	59.08	6.391
NTP2191Q1-WRX-PW-SOL-UNC1-E-C2-1-ETW1-3	E	C2	5	2	59.23	6.166	0.1311	16	MGM	0.0082	61.43	6.395
NTP2191Q1-WRX-PW-SOL-UNC1-F-C1-1-ETW1-2	F	C1	6	1	60.50	6.322	0.1251	16	MGM	0.0078	59.88	6.257
NTP2191Q1-WRX-PW-SOL-UNC1-F-C1-1-ETW1-3	F	C1	6	1	61.78	6.367	0.1247	16	MGM	0.0078	60.95	6.281
NTP2191Q1-WRX-PW-SOL-UNC1-F-C1-1-ETW1-4	F	C1	6	1	60.40	6.382	0.1254	16	MGM	0.0078	59.92	6.332
NTP2191Q1-WRX-PW-SOL-UNC1-F-C2-1-ETW1-1	F	C2	6	2	61.08	6.441	0.1262	16	MGM	0.0079	60.98	6.431
NTP2191Q1-WRX-PW-SOL-UNC1-F-C2-1-ETW1-2	F	C2	6	2	62.41	6.324	0.1279	16	MGT	0.0080	63.15	6.399
NTP2191Q1-WRX-PW-SOL-UNC1-F-C2-1-ETW1-3	F	C2	6	2	61.37	6.230	0.1281	16	MGM	0.0080	62.20	6.314

Average	60.13	6.292		Average$_{norm}$	0.0080	60.89	6.372
Standard Dev.	1.720	0.09804		Standard Dev.$_{norm}$		1.313	0.05310
Coeff. of Var. [%]	2.861	1.558		Coeff. of Var. [%]$_{norm}$		2.156	0.8334
Min.	56.57	6.109		Min.	0.0078	58.76	6.257
Max.	62.68	6.441		Max.	0.0082	63.15	6.449
Number of Spec.	18	18		Number of Spec.	18	18	18

Laminate Unnotched Compression Properties (UNC1)--ETW1 (180°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC1)--ETW1 (180°F) Normalized Modulus

Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC1)--ETW2(225°F)
Strength & Modulus
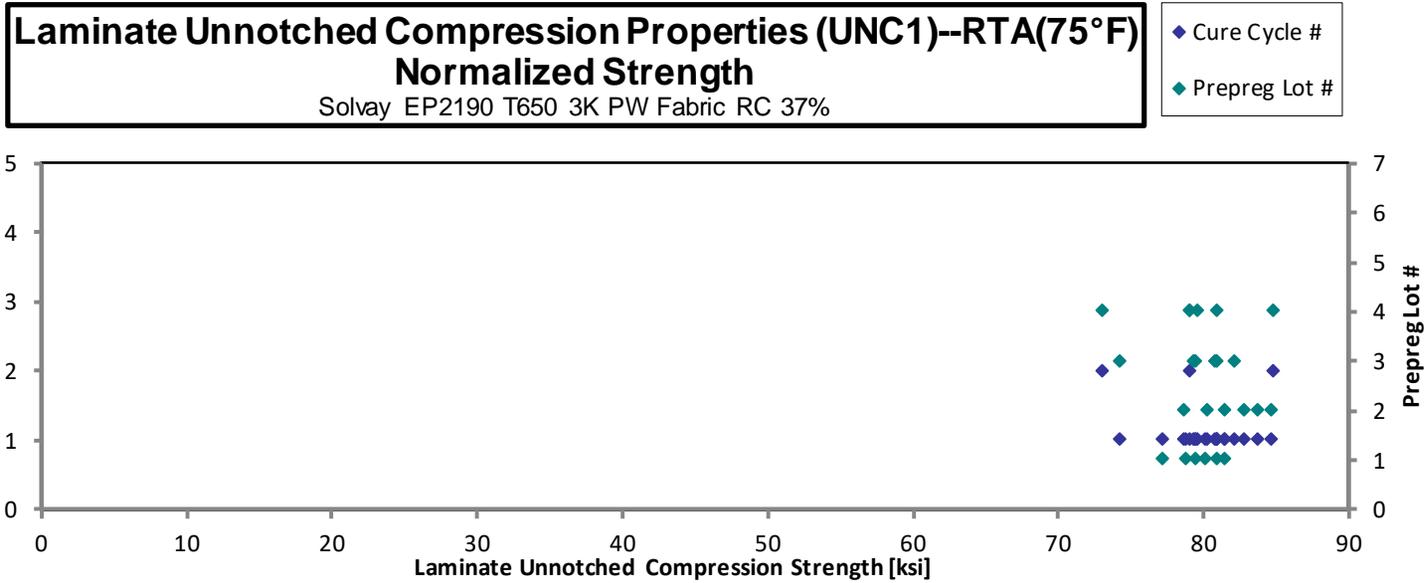Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-ETW2-1	D	C1	4	1	53.78	6.198	0.1257	16	MGM	0.0079	53.48	6.164
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-ETW2-2	D	C1	4	1	50.62	6.139	0.1260	16	MGM	0.0079	50.46	6.120
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-ETW2-3	D	C1	4	1	52.93	6.241	0.1259	16	MGM	0.0079	52.72	6.216
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-ETW2-1	D	C2	4	2	52.60	6.206	0.1271	16	MGM	0.0079	52.89	6.240
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-ETW2-2	D	C2	4	2	50.90	6.205	0.1273	16	MGM	0.0080	51.26	6.249
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-ETW2-3	D	C2	4	2	48.80	6.228	0.1276	16	MGM	0.0080	49.26	6.287
NTP2191Q1-WRX-PW-SOL-UNC1-E-C1-1-ETW2-1	E	C1	5	1	46.96	5.856	0.1308	16	MGM	0.0082	48.59	6.060
NTP2191Q1-WRX-PW-SOL-UNC1-E-C1-1-ETW2-2	E	C1	5	1	46.05	5.896	0.1315	16	MGM	0.0082	47.91	6.134
NTP2191Q1-WRX-PW-SOL-UNC1-E-C1-1-ETW2-3	E	C1	5	1	45.45	5.869	0.1311	16	MGM	0.0082	47.14	6.087
NTP2191Q1-WRX-PW-SOL-UNC1-E-C2-1-ETW2-3	E	C2	5	2	45.70	5.588	0.1313	16	MGT	0.0082	47.47	5.805
NTP2191Q1-WRX-PW-SOL-UNC1-E-C2-1-ETW2-1	E	C2	5	2	47.55	5.539	0.1311	16	MGM	0.0082	49.32	5.745
NTP2191Q1-WRX-PW-SOL-UNC1-E-C2-1-ETW2-2	E	C2	5	2	47.01	5.562	0.1312	16	MGM	0.0082	48.80	5.773
NTP2191Q1-WRX-PW-SOL-UNC1-F-C1-1-ETW2-1	F	C1	6	1	48.12	5.450	0.1258	16	MGT	0.0079	47.89	5.424
NTP2191Q1-WRX-PW-SOL-UNC1-F-C1-1-ETW2-2	F	C1	6	1	48.31	5.343	0.1256	16	MGT	0.0079	48.00	5.309
NTP2191Q1-WRX-PW-SOL-UNC1-F-C1-1-ETW2-3	F	C1	6	1	49.68	5.368	0.1256	16	MGT	0.0079	49.37	5.334
NTP2191Q1-WRX-PW-SOL-UNC1-F-C2-1-ETW2-1	F	C2	6	2	51.08	6.195	0.1263	16	MGM	0.0079	51.04	6.190
NTP2191Q1-WRX-PW-SOL-UNC1-F-C2-1-ETW2-2	F	C2	6	2	46.90	6.284	0.1275	16	MGM	0.0080	47.31	6.339
NTP2191Q1-WRX-PW-SOL-UNC1-F-C2-1-ETW2-3	F	C2	6	2	49.94	6.353	0.1270	16	MGT	0.0079	50.18	6.383

Average	49.02	5.918	Average$_{norm}$	0.0080	49.62	5.992
Standard Dev.	2.558	0.3541	Standard Dev.$_{norm}$		1.994	0.3450
Coeff. of Var. [%]	5.219	5.983	Coeff. of Var. [%]$_{norm}$		4.019	5.757
Min.	45.45	5.343	Min.	0.0079	47.14	5.309
Max.	53.78	6.353	Max.	0.0082	53.48	6.383
Number of Spec.	18	18	Number of Spec.	18	18	18

Laminate Unnotched Compression Properties (UNC1)--ETW2(225°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Legend: ◆ Cure Cycle # ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC1)--ETW2(225°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

Legend: ◆ Cure Cycle # ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC1)--ETW3(250°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

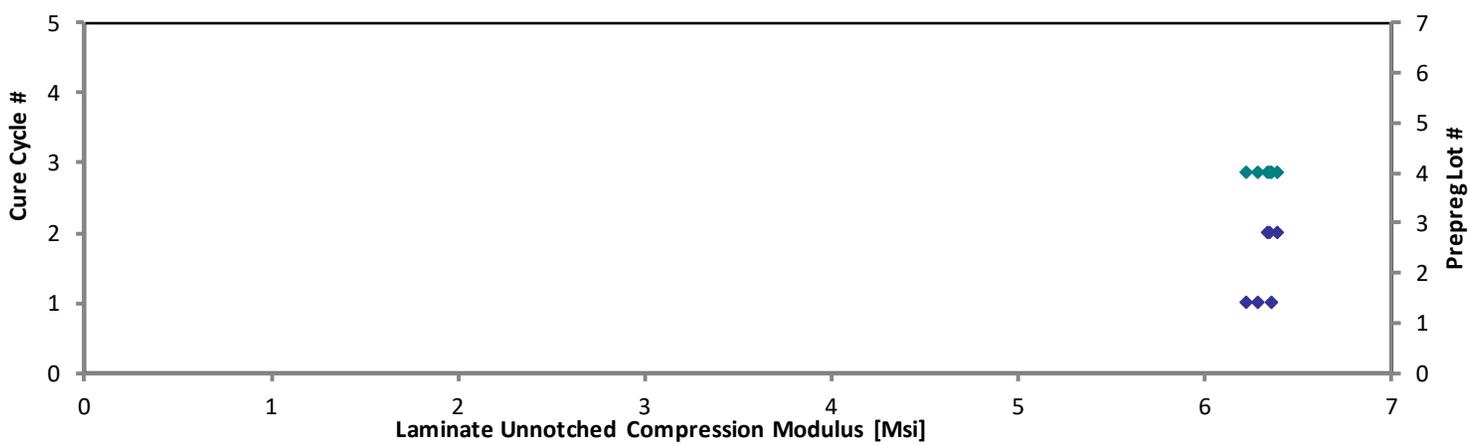| Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-ETW3-1	D	C1	4	1	42.39	6.074	0.1250	16	MGM	0.0078	41.92	6.007
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-ETW3-3	D	C1	4	1	41.85	5.975	0.1259	16	MGM	0.0079	41.68	5.951
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-ETW3-2	D	C1	4	1	40.11	5.977	0.1259	16	MGM	0.0079	39.95	5.953
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-ETW3-1	D	C2	4	2	40.83	6.010	0.1273	16	MGM	0.0080	41.12	6.053
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-ETW3-2	D	C2	4	2	39.69	6.022	0.1278	16	MGM	0.0080	40.13	6.089
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-ETW3-3	D	C2	4	2	40.98	6.088	0.1273	16	MGM	0.0080	41.27	6.131
NTP2191Q1-WRX-PW-SOL-UNC1-E-C1-1-ETW3-1	E	C1	5	1	41.79	5.796	0.1314	16	MGT	0.0082	43.44	6.025
NTP2191Q1-WRX-PW-SOL-UNC1-E-C1-1-ETW3-2	E	C1	5	1	39.60	5.708	0.1314	16	MGB	0.0082	41.17	5.934
NTP2191Q1-WRX-PW-SOL-UNC1-E-C1-1-ETW3-3	E	C1	5	1	36.48	5.531	0.1315	16	MGT	0.0082	37.95	5.754
NTP2191Q1-WRX-PW-SOL-UNC1-E-C2-1-ETW3-1	E	C2	5	2	39.28	5.649	0.1306	16	MGM	0.0082	40.59	5.837
NTP2191Q1-WRX-PW-SOL-UNC1-E-C2-1-ETW3-2	E	C2	5	2	39.94	5.725	0.1308	16	MGM	0.0082	41.33	5.924
NTP2191Q1-WRX-PW-SOL-UNC1-E-C2-1-ETW3-3	E	C2	5	2	40.71	5.835	0.1308	16	MGT	0.0082	42.13	6.038
NTP2191Q1-WRX-PW-SOL-UNC1-F-C1-1-ETW3-1	F	C1	6	1	42.94	5.131	0.1259	16	LGM	0.0079	42.77	5.111
NTP2191Q1-WRX-PW-SOL-UNC1-F-C1-1-ETW3-2	F	C1	6	1	42.04	5.180	0.1254	16	LGM	0.0078	41.71	5.139
NTP2191Q1-WRX-PW-SOL-UNC1-F-C1-1-ETW3-3	F	C1	6	1	40.38	5.156	0.1253	16	LGM	0.0078	40.03	5.111
NTP2191Q1-WRX-PW-SOL-UNC1-F-C2-1-ETW3-1	F	C2	6	2	39.12	5.047	0.1275	16	MGT	0.0080	39.46	5.091
NTP2191Q1-WRX-PW-SOL-UNC1-F-C2-1-ETW3-2	F	C2	6	2	40.10	4.993	0.1275	16	MGT	0.0080	40.45	5.036
NTP2191Q1-WRX-PW-SOL-UNC1-F-C2-1-ETW3-3	F	C2	6	2	39.89	5.085	0.1271	16	MGT	0.0079	40.11	5.113

Average	40.45	5.610	Average$_{norm}$	0.0080	40.96	5.683
Standard Dev.	1.490	0.4023	Standard Dev.$_{norm}$		1.286	0.4331
Coeff. of Var. [%]	3.684	7.170	Coeff. of Var. [%]$_{norm}$		3.140	7.621
Min.	36.48	4.993	Min.	0.0078	37.95	5.036
Max.	42.94	6.088	Max.	0.0082	43.44	6.131
Number of Spec.	18	18	Number of Spec.	18	18	18

Laminate Unnotched Compression Properties (UNC1)--ETW3(250°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
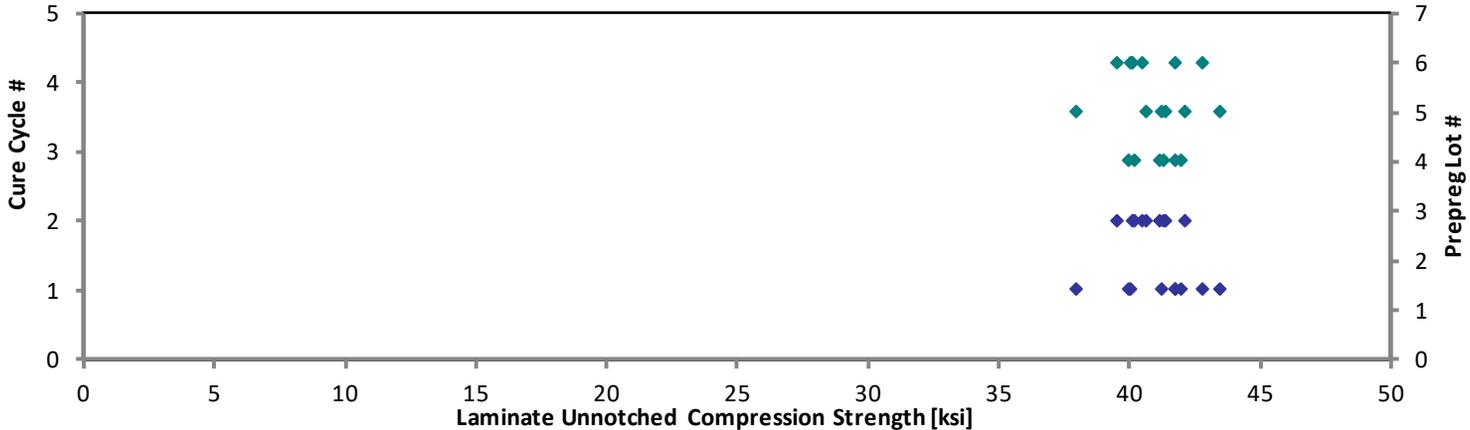
Laminate Unnotched Compression Properties (UNC1)--ETW3(250°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

4.15 "10/80/10" Unnotched Compression 2 Properties (UNC2)

Laminate Unnotched Compression Properties (UNC2)--RTA(75°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-RTA-1	D	C1	4	1	57.29	4.216	0.1601	20	MGM	0.0080	58.05	4.272
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-RTA-2	D	C1	4	1	56.83	4.214	0.1608	20	MGM	0.0080	57.84	4.289
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-RTA-3	D	C1	4	1	58.11	4.220	0.1606	20	MGM	0.0080	59.07	4.289
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-RTA-1	D	C2	4	2	55.60	4.144	0.1630	20	MGM	0.0082	57.36	4.275
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-RTA-2	D	C2	4	2	56.48	4.086	0.1641	20	MGT	0.0082	58.66	4.244
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-RTA-3	D	C2	4	2	56.58	4.074	0.1644	20	MGM	0.0082	58.87	4.239
NTP2191Q1-WRX-PW-SOL-UNC2-E-C1-1-RTA-1	E	C1	5	1	57.29	4.174	0.1559	20	MGM	0.0078	56.53	4.119
NTP2191Q1-WRX-PW-SOL-UNC2-E-C1-1-RTA-2	E	C1	5	1	57.89	4.152	0.1577	20	MGM	0.0079	57.78	4.144
NTP2191Q1-WRX-PW-SOL-UNC2-E-C1-1-RTA-3	E	C1	5	1	58.32	4.107	0.1583	20	MGM	0.0079	58.43	4.115
NTP2191Q1-WRX-PW-SOL-UNC2-E-C2-1-RTA-1	E	C2	5	2	57.38	4.174	0.1553	20	MGM	0.0078	56.40	4.103
NTP2191Q1-WRX-PW-SOL-UNC2-E-C2-1-RTA-2	E	C2	5	2	57.28	4.179	0.1569	20	MGM	0.0078	56.88	4.150
NTP2191Q1-WRX-PW-SOL-UNC2-E-C2-1-RTA-3	E	C2	5	2	57.26	4.177	0.1569	20	MGM	0.0078	56.86	4.148
NTP2191Q1-WRX-PW-SOL-UNC2-F-C3-1-RTA-1	F	C3	6	3	58.73	4.169	0.1577	20	AGM	0.0079	58.62	4.161
NTP2191Q1-WRX-PW-SOL-UNC2-F-C3-1-RTA-2	F	C3	6	3	55.25	4.187	0.1579	20	MGM	0.0079	55.22	4.184
NTP2191Q1-WRX-PW-SOL-UNC2-F-C3-1-RTA-3	F	C3	6	3	57.23	4.168	0.1577	20	AGM	0.0079	57.12	4.160
NTP2191Q1-WRX-PW-SOL-UNC2-F-C4-1-RTA-1	F	C4	6	4	58.68	4.101	0.1576	20	AGM	0.0079	58.53	4.091
NTP2191Q1-WRX-PW-SOL-UNC2-F-C4-1-RTA-2	F	C4	6	4	55.87	4.135	0.1594	20	AGM	0.0080	56.37	4.172
NTP2191Q1-WRX-PW-SOL-UNC2-F-C4-1-RTA-3	F	C4	6	4	57.36	4.137	0.1589	20	AGM	0.0079	57.69	4.161

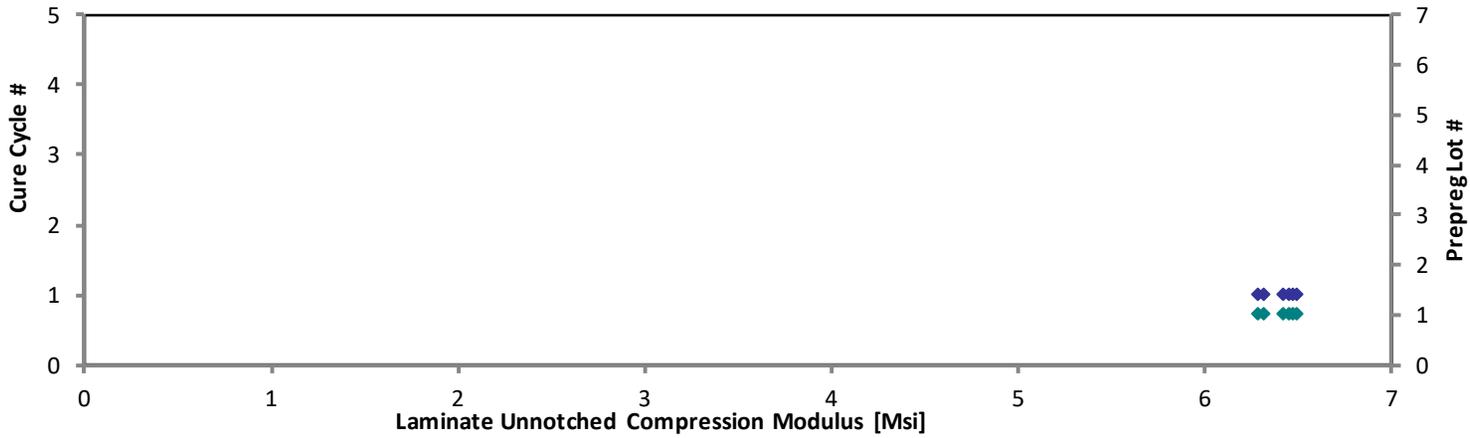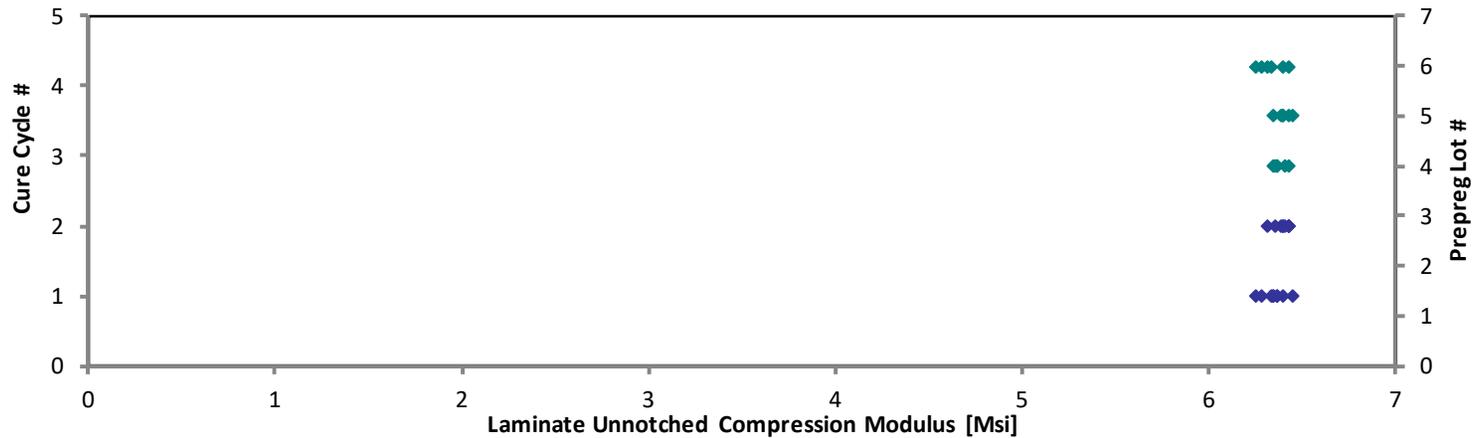|	Strength	Modulus			Avg. t_{ply}	Strength$_{norm}$	Modulus$_{norm}$
Average	57.19	4.156		Average$_{norm}$	0.0080	57.57	4.184
Standard Dev.	0.981	0.04336		Standard Dev.$_{norm}$		1.055	0.06642
Coeff. of Var. [%]	1.714	1.043		Coeff. of Var. [%]$_{norm}$		1.83	1.587
Min.	55.25	4.074		Min.	0.0078	55.22	4.091
Max.	58.73	4.220		Max.	0.0082	59.07	4.289
Number of Spec.	18	18		Number of Spec.	18	18	18

Laminate Unnotched Compression Properties (UNC2)--RTA(75°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC2)--RTA(75°F) Normalized Modulus

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC2)--ETA2(225°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%
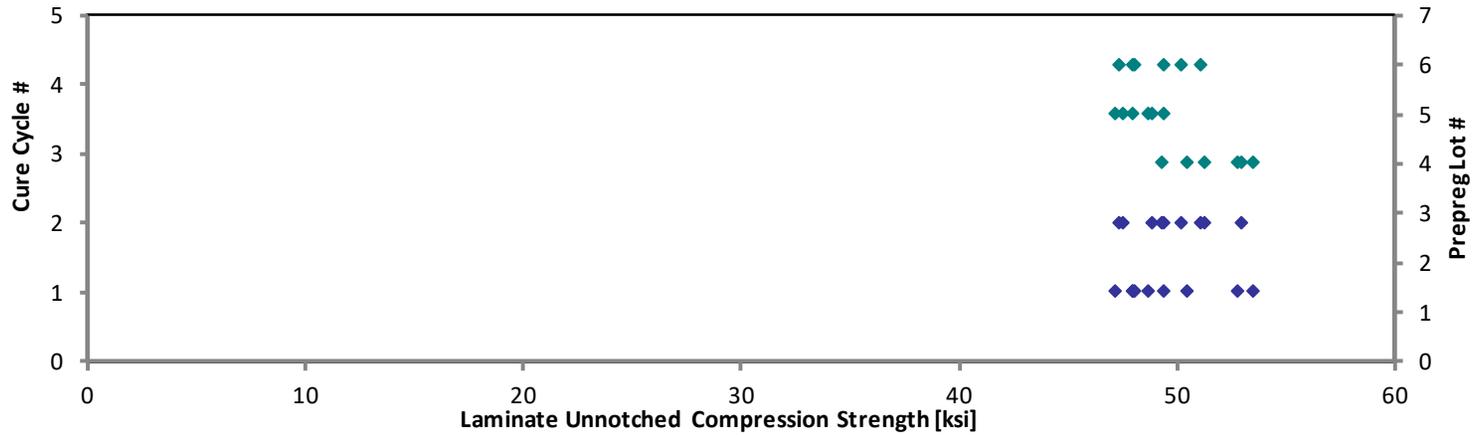
normalizing
t_{ply} [in]
| 0.0079 |

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETA2-1	D	C1	4	1	47.00	4.003	0.1605	20	MGM		0.0080	47.74	4.066
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETA2-2	D	C1	4	1	47.48	4.072	0.1607	20	MGM		0.0080	48.29	4.142
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETA2-3	D	C1	4	1	47.85	4.058	0.1608	20	MGM		0.0080	48.70	4.130
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETA2-1	D	C2	4	2	45.60	3.934	0.1643	20	MGM		0.0082	47.42	4.091
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETA2-2	D	C2	4	2	45.59	3.963	0.1643	20	MGM		0.0082	47.41	4.121
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETA2-3	D	C2	4	2	45.92	3.952	0.1644	20	MGM		0.0082	47.78	4.112

	Strength	Modulus				Avg. t_{ply}	Strength	Modulus
Average	46.57	3.997		Average$_{norm}$	0.0081	47.89	4.110
Standard Dev.	0.998	0.05750		Standard Dev.$_{norm}$		0.510	0.02754
Coeff. of Var. [%]	2.142	1.439		Coeff. of Var. [%]$_{norm}$		1.066	0.670
Min.	45.59	3.934		Min.	0.0080	47.41	4.066
Max.	47.85	4.072		Max.	0.0082	48.70	4.142
Number of Spec.	6	6		Number of Spec.	6	6	6

Laminate Unnotched Compression Properties (UNC2)--ETA2(225°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

Legend: ◆ Cure Cycle #　◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC2)--ETA2(225°F) Normalized Modulus

Solvay EP2190 T650 3K PW Fabric RC 37%

Legend: ◆ Cure Cycle #　◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC2)--ETA3(250°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETA3-1	D	C1	4	1	43.89	3.916	0.1605	20	MGM		0.0080	44.58	3.978
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETA3-3	D	C1	4	1	45.46	3.943	0.1602	20	MGM		0.0080	46.09	3.998
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETA3-4	D	C1	4	1	44.51	3.970	0.1606	20	MGM		0.0080	45.24	4.035
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETA3-1	D	C2	4	2	45.78	3.967	0.1629	20	MGM		0.0081	47.20	4.090
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETA3-2	D	C2	4	2	42.16	3.878	0.1642	20	MGM		0.0082	43.81	4.030
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETA3-3	D	C2	4	2	43.05	3.901	0.1644	20	MGM		0.0082	44.79	4.059

	Strength	Modulus			Avg. t_{ply}	Strength$_{norm}$	Modulus$_{norm}$
Average	44.14	3.929	Average$_{norm}$		0.0081	45.29	4.032
Standard Dev.	1.396	0.03708	Standard Dev.$_{norm}$			1.201	0.04048
Coeff. of Var. [%]	3.162	0.944	Coeff. of Var. [%]$_{norm}$			2.653	1.004
Min.	42.16	3.878	Min.		0.0080	43.81	3.978
Max.	45.78	3.970	Max.		0.0082	47.20	4.090
Number of Spec.	6	6	Number of Spec.		6	6	6

Laminate Unnotched Compression Properties (UNC2)--ETA3(250°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC2)--ETA3(250°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC2)--ETW1(180°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETW1-1	D	C1	4	1	44.19	4.053	0.1604	20	MGM	0.0080	44.86	4.115
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETW1-2	D	C1	4	1	46.30	4.040	0.1607	20	MGM	0.0080	47.09	4.109
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETW1-3	D	C1	4	1	45.25	4.055	0.1601	20	MGM	0.0080	45.85	4.109
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETW1-1	D	C2	4	2	42.76	3.904	0.1642	20	MGM	0.0082	44.44	4.057
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETW1-2	D	C2	4	2	41.67	3.893	0.1648	20	MGM	0.0082	43.46	4.061
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETW1-3	D	C2	4	2	42.33	3.912	0.1644	20	MGM	0.0082	44.04	4.070
NTP2191Q1-WRX-PW-SOL-UNC2-E-C1-1-ETW1-1	E	C1	5	1	41.26	3.375	0.1581	20	MGM	0.0079	41.29	3.377
NTP2191Q1-WRX-PW-SOL-UNC2-E-C1-1-ETW1-2	E	C1	5	1	42.27	3.378	0.1588	20	MGM	0.0079	42.48	3.395
NTP2191Q1-WRX-PW-SOL-UNC2-E-C1-1-ETW1-3	E	C1	5	1	41.42	3.383	0.1578	20	MGM	0.0079	41.37	3.379
NTP2191Q1-WRX-PW-SOL-UNC2-E-C2-1-ETW1-1	E	C2	5	2	44.30	3.000	0.1560	20	MGM	0.0078	43.74	2.962
NTP2191Q1-WRX-PW-SOL-UNC2-E-C2-1-ETW1-2	E	C2	5	2	42.83	3.046	0.1573	20	MGM	0.0079	42.64	3.033
NTP2191Q1-WRX-PW-SOL-UNC2-E-C2-1-ETW1-3	E	C2	5	2	44.16	3.026	0.1574	20	MGM	0.0079	43.99	3.015
NTP2191Q1-WRX-PW-SOL-UNC2-F-C3-1-ETW1-1	F	C3	6	3	44.48	3.960	0.1583	20	MGM	0.0079	44.56	3.968
NTP2191Q1-WRX-PW-SOL-UNC2-F-C3-1-ETW1-2	F	C3	6	3	42.17	3.903	0.1584	20	MGM	0.0079	42.28	3.913
NTP2191Q1-WRX-PW-SOL-UNC2-F-C3-1-ETW1-3	F	C3	6	3	43.14	3.971	0.1581	20	MGM	0.0079	43.17	3.974
NTP2191Q1-WRX-PW-SOL-UNC2-F-C4-1-ETW1-1	F	C4	6	4	45.07	4.014	0.1590	20	MGM	0.0080	45.36	4.039
NTP2191Q1-WRX-PW-SOL-UNC2-F-C4-1-ETW1-2	F	C4	6	4	44.46	4.008	0.1590	20	MGM	0.0080	44.74	4.033
NTP2191Q1-WRX-PW-SOL-UNC2-F-C4-1-ETW1-3	F	C4	6	4	44.47	3.905	0.1595	20	MGM	0.0080	44.89	3.942

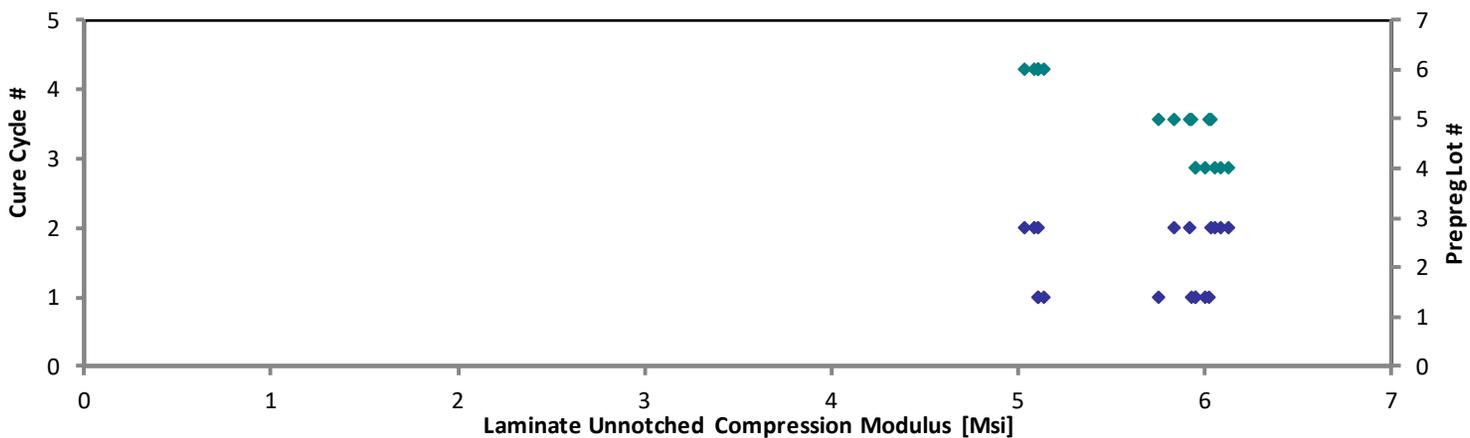|	Strength	Modulus			Avg. t_{ply}	Strength	Modulus
Average	43.47	3.713	Average$_{norm}$	0.0080	43.90	3.753	
Standard Dev.	1.459	0.3901	Standard Dev.$_{norm}$		1.528	0.4262	
Coeff. of Var. [%]	3.357	10.507	Coeff. of Var. [%]$_{norm}$		3.481	11.357	
Min.	41.26	3.000	Min.	0.0078	41.29	2.962	
Max.	46.30	4.055	Max.	0.0082	47.09	4.115	
Number of Spec.	18	18	Number of Spec.	18	18	18	

Laminate Unnotched Compression Properties (UNC2)--ETW1(180°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC2)--ETW1(180°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%
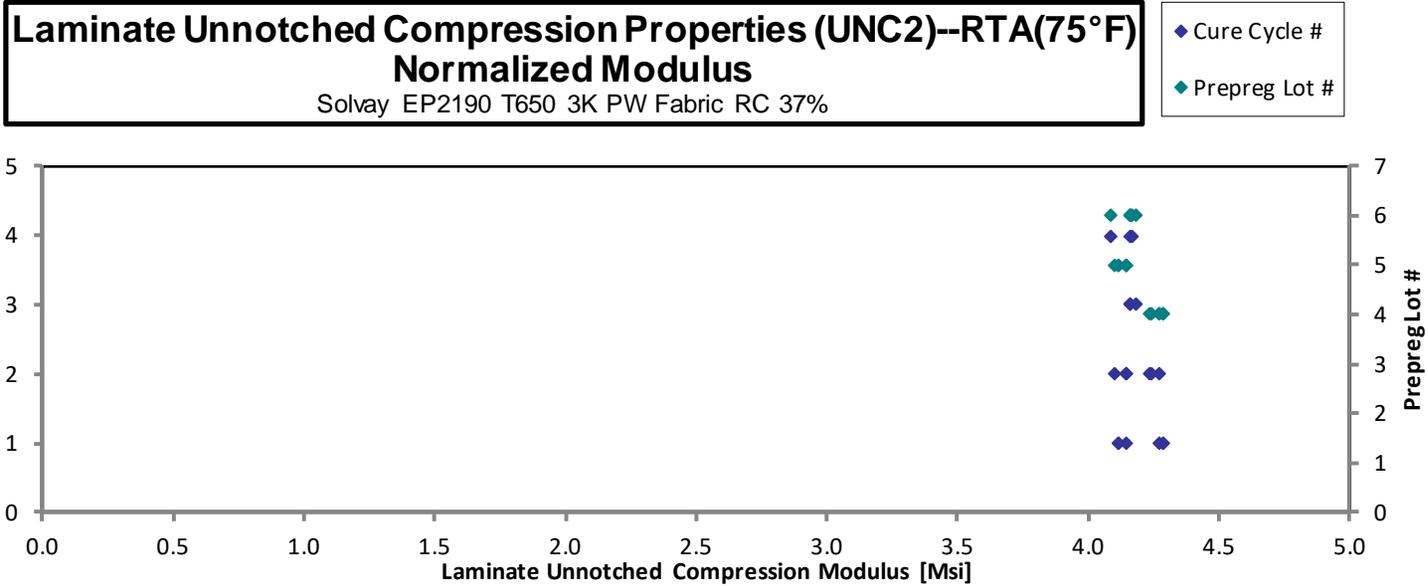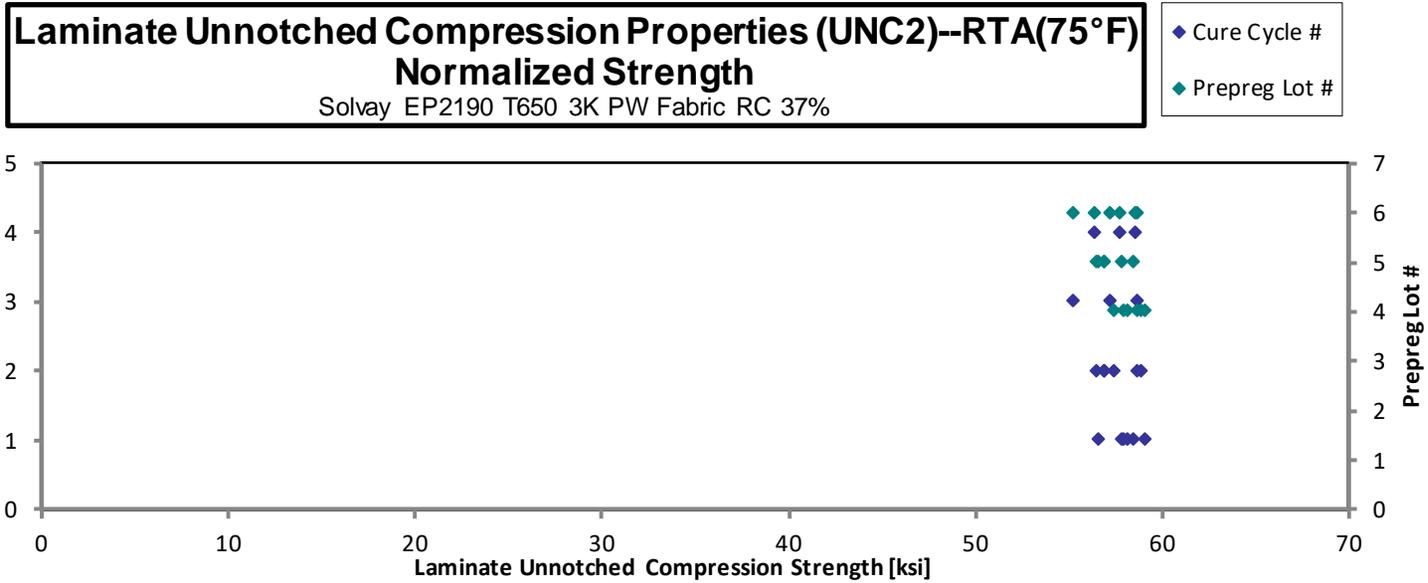
- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC2)--ETW2(225°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETW2-1	D	C1	4	1	35.48	3.693	0.1605	20	MGM	0.0080	36.04	3.751
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETW2-2	D	C1	4	1	35.89	3.788	0.1606	20	MGM	0.0080	36.48	3.850
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETW2-3	D	C1	4	1	35.51	3.824	0.1607	20	MGM	0.0080	36.12	3.889
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETW2-1	D	C2	4	2	35.28	3.679	0.1645	20	MGM	0.0082	36.73	3.830
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETW2-2	D	C2	4	2	32.55	3.598	0.1647	20	MGM	0.0082	33.93	3.773
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETW2-3	D	C2	4	2	33.52	3.626	0.1644	20	MGM	0.0082	34.88	3.773
NTP2191Q1-WRX-PW-SOL-UNC2-E-C1-1-ETW2-1	E	C1	5	1	32.67	3.640	0.1567	20	MGM	0.0078	32.40	3.610
NTP2191Q1-WRX-PW-SOL-UNC2-E-C1-1-ETW2-2	E	C1	5	1	32.59	3.665	0.1585	20	MGM	0.0079	32.69	3.677
NTP2191Q1-WRX-PW-SOL-UNC2-E-C1-1-ETW2-3	E	C1	5	1	34.77	3.792	0.1587	20	MGM	0.0079	34.92	3.809
NTP2191Q1-WRX-PW-SOL-UNC2-E-C2-1-ETW2-1	E	C2	5	2	33.24	3.631	0.1579	20	MGM	0.0079	33.22	3.629
NTP2191Q1-WRX-PW-SOL-UNC2-E-C2-1-ETW2-2	E	C2	5	2	34.62	3.709	0.1577	20	MGM	0.0079	34.55	3.702
NTP2191Q1-WRX-PW-SOL-UNC2-E-C2-1-ETW2-3	E	C2	5	2	34.05	3.693	0.1577	20	MGM	0.0079	33.99	3.686
NTP2191Q1-WRX-PW-SOL-UNC2-F-C3-1-ETW2-1	F	C3	6	3	39.04	3.865	0.1570	20	MGM	0.0079	38.79	3.841
NTP2191Q1-WRX-PW-SOL-UNC2-F-C3-1-ETW2-2	F	C3	6	3	35.37	3.702	0.1582	20	MGM	0.0079	35.41	3.707
NTP2191Q1-WRX-PW-SOL-UNC2-F-C3-1-ETW2-3	F	C3	6	3	39.81	3.904	0.1579	20	MGM	0.0079	39.78	3.902
NTP2191Q1-WRX-PW-SOL-UNC2-F-C4-1-ETW2-1	F	C4	6	4	34.91	3.705	0.1578	20	LGM	0.0079	34.87	3.700
NTP2191Q1-WRX-PW-SOL-UNC2-F-C4-1-ETW2-2	F	C4	6	4	34.23	3.658	0.1584	20	LGM	0.0079	34.32	3.667
NTP2191Q1-WRX-PW-SOL-UNC2-F-C4-1-ETW2-3	F	C4	6	4	34.78	3.677	0.1586	20	AGM	0.0079	34.91	3.691

Average	34.91	3.714	Average$_{norm}$	0.0080	35.22	3.748
Standard Dev.	1.956	0.08588	Standard Dev.$_{norm}$		1.913	0.08804
Coeff. of Var. [%]	5.605	2.313	Coeff. of Var. [%]$_{norm}$		5.430	2.349
Min.	32.55	3.598	Min.	0.0078	32.40	3.610
Max.	39.81	3.904	Max.	0.0082	39.78	3.902
Number of Spec.	18	18	Number of Spec.	18	18	18

Laminate Unnotched Compression Properties (UNC2)--ETW2(225°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC2)--ETW2(225°F) Normalized Modulus

Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC2)--ETW3(250°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETW3-1	D	C1	4	1	26.89	3.197	0.1604	20	MGM	0.0080	27.30	3.246
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETW3-2	D	C1	4	1	25.47	3.119	0.1610	20	MGM	0.0081	25.95	3.178
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-ETW3-3	D	C1	4	1	26.81	3.152	0.1606	20	MGM	0.0080	27.25	3.204
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETW3-1	D	C2	4	2	28.32	3.333	0.1637	20	MGM	0.0082	29.34	3.453
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETW3-2	D	C2	4	2	27.90	3.291	0.1642	20	MGM	0.0082	28.99	3.420
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-ETW3-3	D	C2	4	2	29.49	3.388	0.1638	20	MGM	0.0082	30.57	3.512
NTP2191Q1-WRX-PW-SOL-UNC2-E-C1-1-ETW3-1	E	C1	5	1	28.18	3.414	0.1584	20	MGM	0.0079	28.25	3.423
NTP2191Q1-WRX-PW-SOL-UNC2-E-C1-1-ETW3-2	E	C1	5	1	27.82	3.408	0.1576	20	MGM	0.0079	27.75	3.399
NTP2191Q1-WRX-PW-SOL-UNC2-E-C1-1-ETW3-3	E	C1	5	1	27.36	3.380	0.1579	20	MGM	0.0079	27.34	3.378
NTP2191Q1-WRX-PW-SOL-UNC2-E-C2-1-ETW3-1	E	C2	5	2	25.71	3.423	0.1574	20	MGM	0.0079	25.61	3.410
NTP2191Q1-WRX-PW-SOL-UNC2-E-C2-1-ETW3-2	E	C2	5	2	22.44	3.194	0.1576	20	MGM	0.0079	22.38	3.186
NTP2191Q1-WRX-PW-SOL-UNC2-E-C2-1-ETW3-3	E	C2	5	2	23.21	3.500	0.1578	20	MGM	0.0079	23.18	3.496
NTP2191Q1-WRX-PW-SOL-UNC2-F-C3-1-ETW3-1	F	C3	6	3	35.96	3.783	0.1568	20	MGM	0.0078	35.69	3.754
NTP2191Q1-WRX-PW-SOL-UNC2-F-C3-1-ETW3-2	F	C3	6	3	32.78	3.629	0.1575	20	MGM	0.0079	32.68	3.618
NTP2191Q1-WRX-PW-SOL-UNC2-F-C3-1-ETW3-3	F	C3	6	3	35.01	3.685	0.1576	20	MGM	0.0079	34.92	3.676
NTP2191Q1-WRX-PW-SOL-UNC2-F-C4-1-ETW3-1	F	C4	6	4	30.67	3.420	0.1591	20	MGM	0.0080	30.88	3.444
NTP2191Q1-WRX-PW-SOL-UNC2-F-C4-1-ETW3-2	F	C4	6	4	34.13	3.569	0.1595	20	MGM	0.0080	34.45	3.603
NTP2191Q1-WRX-PW-SOL-UNC2-F-C4-1-ETW3-3	F	C4	6	4	29.89	3.388	0.1593	20	MGM	0.0080	30.14	3.416

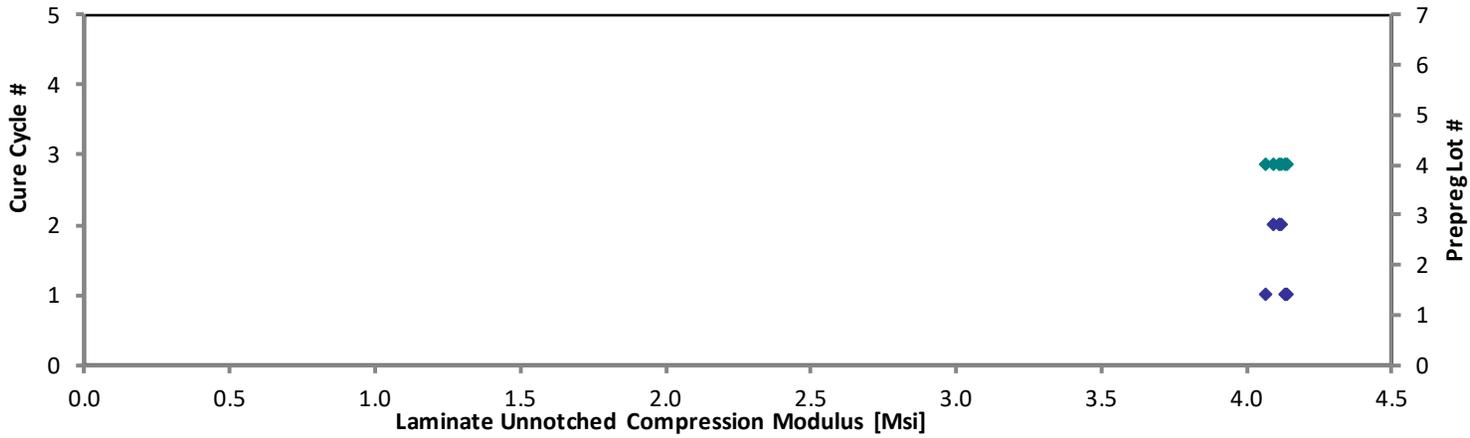|				
Average	28.78	3.404	Average$_{norm}$	0.0080	29.04	3.434
Standard Dev.	3.786	0.1817	Standard Dev.$_{norm}$		3.755	0.1635
Coeff. of Var. [%]	13.15	5.336	Coeff. of Var. [%]$_{norm}$		12.93	4.762
Min.	22.44	3.119	Min.	0.0078	22.38	3.178
Max.	35.96	3.783	Max.	0.0082	35.69	3.754
Number of Spec.	18	18	Number of Spec.	18	18	18

Laminate Unnotched Compression Properties (UNC2)--ETW3(250°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC2)--ETW3(250°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #
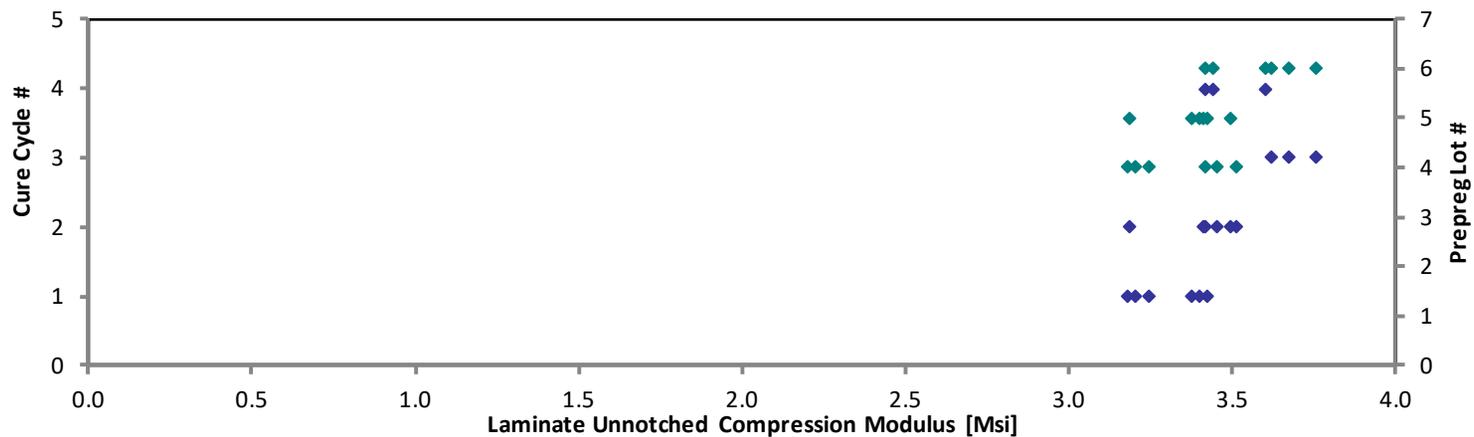
4.16 "40/20/40" Unnotched Compression 3 Properties (UNC3)

Laminate Unnotched Compression Properties (UNC3)--RTA(75°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-RTA-1	D	C1	4	1	87.08	7.802	0.1599	20	MGM	0.0080	88.13	7.896
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-RTA-2	D	C1	4	1	90.31	7.764	0.1608	20	MGM	0.0080	91.91	7.902
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-RTA-3	D	C1	4	1	84.48	7.810	0.1606	20	MGM	0.0080	85.87	7.939
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-RTA-1	D	C2	4	2	89.43	7.697	0.1633	20	MGM	0.0082	92.43	7.955
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-RTA-2	D	C2	4	2	83.09	7.703	0.1628	20	MGM	0.0081	85.61	7.937
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-RTA-3	D	C2	4	2	88.02	7.684	0.1629	20	MGM	0.0081	90.75	7.922
NTP2191Q1-WRX-PW-SOL-UNC3-E-C1-1-RTA-1	E	C1	5	1	87.97	7.884	0.1589	20	MGM	0.0079	88.47	7.929
NTP2191Q1-WRX-PW-SOL-UNC3-E-C1-1-RTA-2	E	C1	5	1	84.86	7.920	0.1590	20	MGM	0.0080	85.40	7.970
NTP2191Q1-WRX-PW-SOL-UNC3-E-C1-1-RTA-3	E	C1	5	1	87.24	7.944	0.1588	20	MGM	0.0079	87.68	7.984
NTP2191Q1-WRX-PW-SOL-UNC3-E-C2-1-RTA-1	E	C2	5	2	89.74	8.074	0.1551	20	AGT	0.0078	88.09	7.926
NTP2191Q1-WRX-PW-SOL-UNC3-E-C2-1-RTA-2	E	C2	5	2	98.83	8.005	0.1566	20	AGT	0.0078	97.95	7.934
NTP2191Q1-WRX-PW-SOL-UNC3-E-C2-1-RTA-3	E	C2	5	2	87.04	7.969	0.1576	20	AGT	0.0079	86.82	7.949
NTP2191Q1-WRX-PW-SOL-UNC3-F-C3-1-RTA-1	F	C3	6	3	80.66	7.844	0.1576	20	MGM	0.0079	80.46	7.824
NTP2191Q1-WRX-PW-SOL-UNC3-F-C3-1-RTA-2	F	C3	6	3	87.24	7.908	0.1572	20	MGM	0.0079	86.80	7.868
NTP2191Q1-WRX-PW-SOL-UNC3-F-C3-1-RTA-3	F	C3	6	3	82.19	7.935	0.1571	20	MGB	0.0079	81.72	7.890
NTP2191Q1-WRX-PW-SOL-UNC3-F-C4-1-RTA-1	F	C4	6	4	84.84	7.867	0.1589	20	MGM	0.0079	85.32	7.912
NTP2191Q1-WRX-PW-SOL-UNC3-F-C4-1-RTA-2	F	C4	6	4	84.88	7.858	0.1589	20	MGB	0.0079	85.36	7.903
NTP2191Q1-WRX-PW-SOL-UNC3-F-C4-1-RTA-3	F	C4	6	4	82.15	7.817	0.1583	20	MGM	0.0079	82.31	7.832

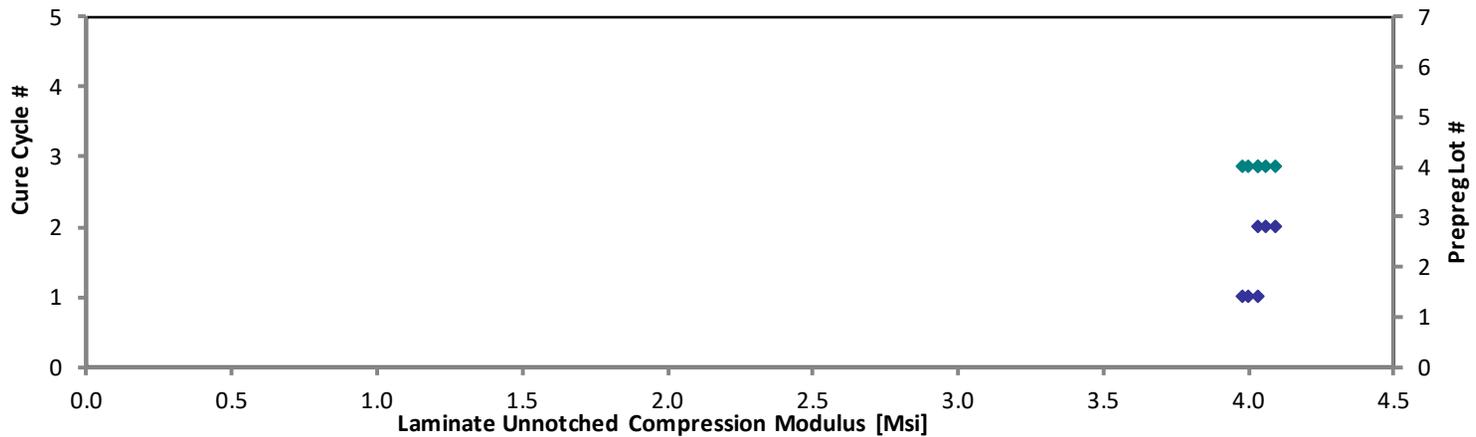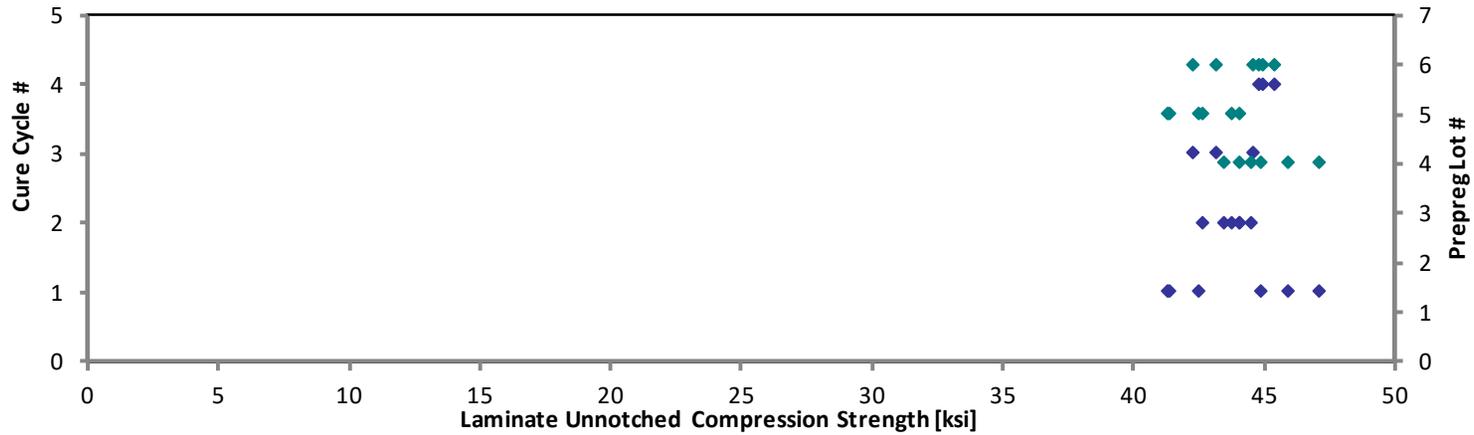|	Strength	Modulus			Avg. t_{ply}	Strength	Modulus
Average	86.67	7.860	Average$_{norm}$	0.0080	87.28	7.915
Standard Dev.	4.107	0.1077	Standard Dev.$_{norm}$		4.168	0.04276
Coeff. of Var. [%]	4.738	1.371	Coeff. of Var. [%]$_{norm}$		4.776	0.5402
Min.	80.66	7.684	Min.	0.0078	80.46	7.824
Max.	98.83	8.074	Max.	0.0082	97.95	7.984
Number of Spec.	18	18	Number of Spec.	18	18	18

Laminate Unnotched Compression Properties (UNC3)--RTA(75°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC3)--RTA(75°F) Normalized Modulus

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC3)--ETA2(225°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-ETA2-1	D	C1	4	1	68.99	7.840	0.1610	20	MGM		0.0081	70.30	7.989
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-ETA2-2	D	C1	4	1	66.42	7.866	0.1604	20	MGM		0.0080	67.43	7.985
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-ETA2-3	D	C1	4	1	69.06	7.865	0.1610	20	MGM		0.0081	70.37	8.014
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETA2-1	D	C2	4	2	74.02	7.843	0.1631	20	MGM		0.0082	76.41	8.096
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETA2-2	D	C2	4	2	73.87	7.818	0.1630	20	MGM		0.0082	76.21	8.065
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETA2-3	D	C2	4	2	67.32	7.811	0.1634	20	MGM		0.0082	69.62	8.078

	Strength	Modulus			Avg. t_{ply}	Strength	Modulus
Average	69.95	7.841	Average$_{norm}$		0.0081	71.72	8.038
Standard Dev.	3.256	0.02295	Standard Dev.$_{norm}$			3.709	0.04788
Coeff. of Var. [%]	4.656	0.2927	Coeff. of Var. [%]$_{norm}$			5.171	0.5957
Min.	66.42	7.811	Min.		0.0080	67.43	7.985
Max.	74.02	7.866	Max.		0.0082	76.41	8.096
Number of Spec.	6	6	Number of Spec.		6	6	6

Laminate Unnotched Compression Properties (UNC3)--ETA2(225°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC3)--ETA2(225°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC3)--ETA3(250°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%
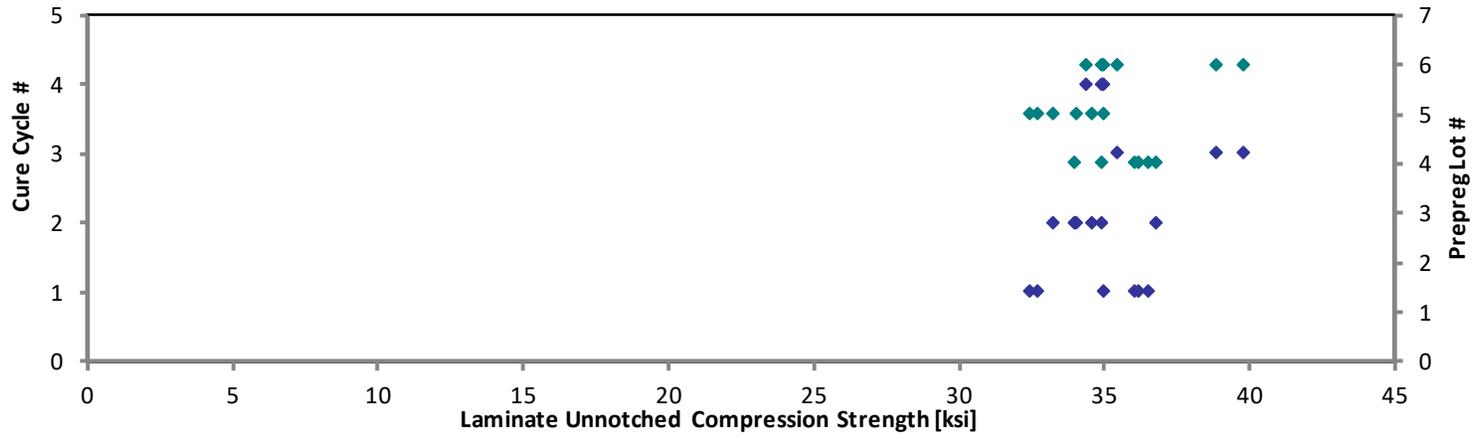
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-ETA3-1	D	C1	4	1	62.48	7.920	0.1604	20	MGM		0.0080	63.43	8.040
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-ETA3-2	D	C1	4	1	60.68	7.931	0.1608	20	MGM		0.0080	61.76	8.072
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-ETA3-3	D	C1	4	1	62.65	8.015	0.1607	20	MGM		0.0080	63.72	8.152
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETA3-1	D	C2	4	2	66.85	7.892	0.1626	20	MGM		0.0081	68.80	8.122
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETA3-2	D	C2	4	2	67.73	7.754	0.1633	20	MGM		0.0082	70.00	8.014
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETA3-3	D	C2	4	2	69.75	7.830	0.1618	20	MGM		0.0081	71.43	8.018

Average	65.02	7.890		Average$_{norm}$	0.0081	66.52	8.070
Standard Dev.	3.577	0.08978		Standard Dev.$_{norm}$		4.037	0.05671
Coeff. of Var. [%]	5.501	1.1379		Coeff. of Var. [%]$_{norm}$		6.068	0.7027
Min.	60.68	7.754		Min.	0.0080	61.76	8.014
Max.	69.75	8.015		Max.	0.0082	71.43	8.152
Number of Spec.	6	6		Number of Spec.	6	6	6

Laminate Unnotched Compression Properties (UNC3)--ETA3(250°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC3)--ETA3(250°F)
Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC3)--ETW1(180°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

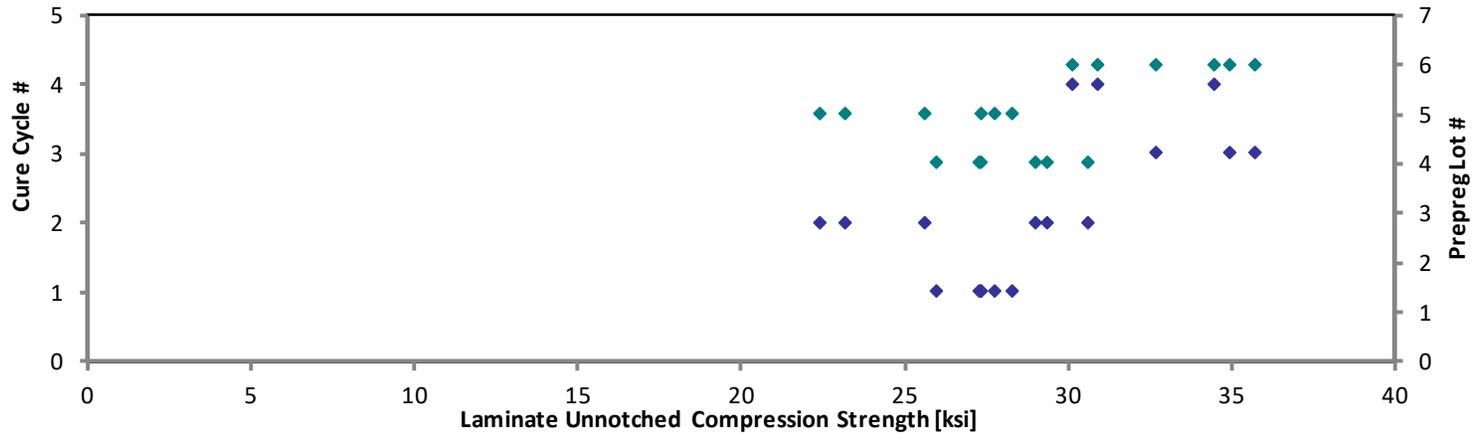| Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-ETW1-1	D	C1	4	1	67.64	8.103	0.1609	20	MGM	0.0080	68.88	8.252
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-ETW1-2	D	C1	4	1	68.55	7.971	0.1608	20	MGM	0.0080	69.76	8.112
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-ETW1-3	D	C1	4	1	70.33	7.931	0.1613	20	MGM	0.0081	71.80	8.097
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETW1-1	D	C2	4	2	66.68	7.854	0.1632	20	MGM	0.0082	68.87	8.112
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETW1-2	D	C2	4	2	64.56	7.861	0.1628	20	MGB	0.0081	66.52	8.100
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETW1-3	D	C2	4	2	67.82	7.848	0.1626	20	MGT	0.0081	69.79	8.076
NTP2191Q1-WRX-PW-SOL-UNC3-E-C1-1-ETW1-1	E	C1	5	1	71.79	7.018	0.1573	20	MGM	0.0079	71.47	6.987
NTP2191Q1-WRX-PW-SOL-UNC3-E-C1-1-ETW1-2	E	C1	5	1	67.99	6.834	0.1585	20	MGM	0.0079	68.21	6.856
NTP2191Q1-WRX-PW-SOL-UNC3-E-C1-1-ETW1-3	E	C1	5	1	69.15	6.852	0.1579	20	MGM	0.0079	69.11	6.848
NTP2191Q1-WRX-PW-SOL-UNC3-E-C2-1-ETW1-1	E	C2	5	2	67.62	6.211	0.1555	20	MGT	0.0078	66.55	6.113
NTP2191Q1-WRX-PW-SOL-UNC3-E-C2-1-ETW1-2	E	C2	5	2	69.56	5.976	0.1570	20	MGM	0.0079	69.12	5.938
NTP2191Q1-WRX-PW-SOL-UNC3-E-C2-1-ETW1-3	E	C2	5	2	64.54	5.877	0.1576	20	MGM	0.0079	64.38	5.862
NTP2191Q1-WRX-PW-SOL-UNC3-F-C3-1-ETW1-1	F	C3	6	3	68.50	8.007	0.1573	20	LGT	0.0079	68.20	7.972
NTP2191Q1-WRX-PW-SOL-UNC3-F-C3-1-ETW1-2	F	C3	6	3	64.13	7.961	0.1570	20	LGM	0.0079	63.72	7.911
NTP2191Q1-WRX-PW-SOL-UNC3-F-C3-1-ETW1-3	F	C3	6	3	62.06	8.013	0.1570	20	LGM	0.0079	61.67	7.962
NTP2191Q1-WRX-PW-SOL-UNC3-F-C4-1-ETW1-1	F	C4	6	4	65.78	7.899	0.1591	20	LGM	0.0080	66.24	7.954
NTP2191Q1-WRX-PW-SOL-UNC3-F-C4-1-ETW1-2	F	C4	6	4	62.73	7.976	0.1592	20	LGM	0.0080	63.21	8.037
NTP2191Q1-WRX-PW-SOL-UNC3-F-C4-1-ETW1-3	F	C4	6	4	63.16	7.909	0.1589	20	LGM	0.0079	63.52	7.954

Average	66.81	7.450		Average$_{norm}$	0.0080	67.28	7.508
Standard Dev.	2.775	0.7709		Standard Dev.$_{norm}$		2.966	0.8338
Coeff. of Var. [%]	4.153	10.35		Coeff. of Var. [%]$_{norm}$		4.408	11.11
Min.	62.06	5.877		Min.	0.0078	61.67	5.862
Max.	71.79	8.103		Max.	0.0082	71.80	8.252
Number of Spec.	18	18		Number of Spec.	18	18	18

Laminate Unnotched Compression Properties (UNC3)--ETW1(180°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC3)--ETW1(180°F) Normalized Modulus

Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC3)--ETW2(225°F)
Strength & Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

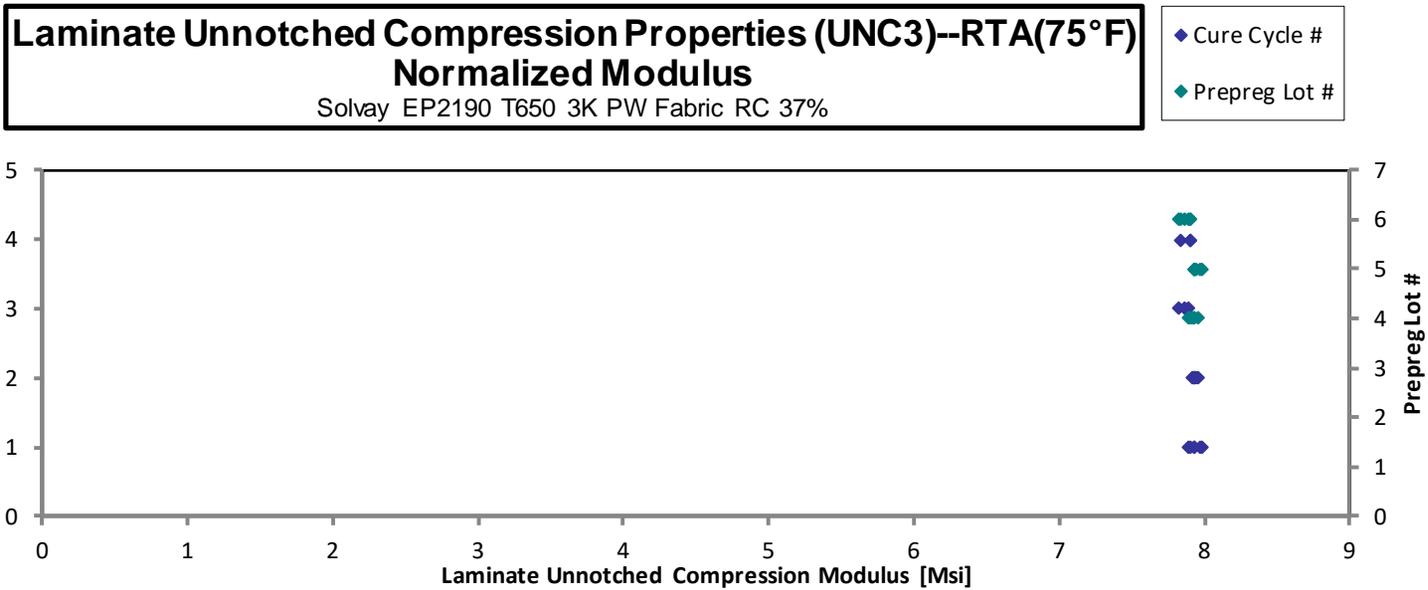| Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-ETW2-1	D	C1	4	1	52.45	7.798	0.1607	20	MGB	0.0080	53.35	7.931
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-ETW2-2	D	C1	4	1	52.76	7.820	0.1611	20	MGM	0.0081	53.80	7.973
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-ETW2-3	D	C1	4	1	57.80	7.875	0.1600	20	MGM	0.0080	58.53	7.975
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETW2-1	D	C2	4	2	56.34	7.685	0.1628	20	MGT	0.0081	58.05	7.918
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETW2-2	D	C2	4	2	53.55	7.564	0.1629	20	MGM	0.0081	55.21	7.799
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETW2-3	D	C2	4	2	54.82	7.579	0.1630	20	MGB	0.0082	56.55	7.819
NTP2191Q1-WRX-PW-SOL-UNC3-E-C1-1-ETW2-1	E	C1	5	1	55.06	7.893	0.1592	20	MGM	0.0080	55.48	7.953
NTP2191Q1-WRX-PW-SOL-UNC3-E-C1-1-ETW2-2	E	C1	5	1	55.24	7.942	0.1584	20	MGT	0.0079	55.38	7.962
NTP2191Q1-WRX-PW-SOL-UNC3-E-C1-1-ETW2-3	E	C1	5	1	60.31	7.903	0.1589	20	MGM	0.0079	60.65	7.948
NTP2191Q1-WRX-PW-SOL-UNC3-E-C2-1-ETW2-1	E	C2	5	2	51.05	7.896	0.1577	20	MGM	0.0079	50.95	7.881
NTP2191Q1-WRX-PW-SOL-UNC3-E-C2-1-ETW2-2	E	C2	5	2	54.88	7.928	0.1577	20	MGM	0.0079	54.78	7.913
NTP2191Q1-WRX-PW-SOL-UNC3-E-C2-1-ETW2-3	E	C2	5	2	53.96	7.927	0.1573	20	MGM	0.0079	53.72	7.892
NTP2191Q1-WRX-PW-SOL-UNC3-F-C3-1-ETW2-1	F	C3	6	3	59.49	8.192	0.1544	20	LGM	0.0077	58.13	8.005
NTP2191Q1-WRX-PW-SOL-UNC3-F-C3-1-ETW2-2	F	C3	6	3	56.06	7.828	0.1563	20	LGM	0.0078	55.46	7.744
NTP2191Q1-WRX-PW-SOL-UNC3-F-C3-1-ETW2-3	F	C3	6	3	55.45	7.856	0.1568	20	LGB	0.0078	55.03	7.796
NTP2191Q1-WRX-PW-SOL-UNC3-F-C4-1-ETW2-1	F	C4	6	4	49.80	7.888	0.1579	20	LGM	0.0079	49.77	7.883
NTP2191Q1-WRX-PW-SOL-UNC3-F-C4-1-ETW2-2	F	C4	6	4	49.57	7.843	0.1583	20	LGM	0.0079	49.66	7.858
NTP2191Q1-WRX-PW-SOL-UNC3-F-C4-1-ETW2-3	F	C4	6	4	50.11	7.775	0.1586	20	LGM	0.0079	50.30	7.805

Average	54.37	7.844		**Average$_{norm}$**	0.0080	54.71	7.892
Standard Dev.	3.097	0.1410		**Standard Dev.$_{norm}$**		3.118	0.07475
Coeff. of Var. [%]	5.696	1.797		**Coeff. of Var. [%]$_{norm}$**		5.699	0.9471
Min.	49.57	7.564		**Min.**	0.0077	49.66	7.744
Max.	60.31	8.192		**Max.**	0.0082	60.65	8.005
Number of Spec.	18	18		**Number of Spec.**	18	18	18

Laminate Unnotched Compression Properties (UNC3)--ETW2(225°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC3)--ETW2(225°F) Normalized Modulus

Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
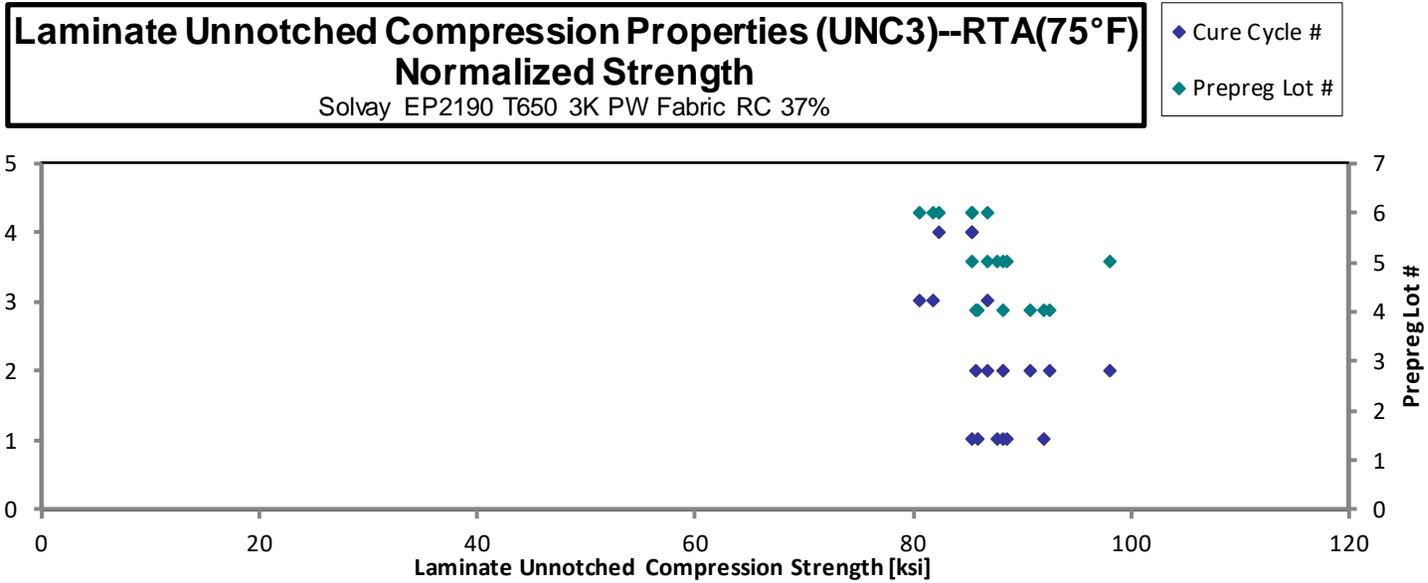- ◆ Prepreg Lot #

Laminate Unnotched Compression Properties (UNC3)--ETW3(250°F) **Strength & Modulus** Solvay EP2190 T650 3K PW Fabric RC 37%		**normalizing** **t_{ply} [in]** 0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-2-ETW3-1	D	C1	4	1	46.82	7.081	0.1610	20	MGM	0.0081	47.71	7.215
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-2-ETW3-2	D	C1	4	1	44.59	7.174	0.1611	20	MGM	0.0081	45.46	7.315
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-2-ETW3-3	D	C1	4	1	45.37	7.226	0.1600	20	MGM	0.0080	45.94	7.317
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETW3-1	D	C2	4	2	45.83	7.489	0.1631	20	MGT	0.0082	47.31	7.731
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETW3-2	D	C2	4	2	44.94	7.564	0.1627	20	MGT	0.0081	46.28	7.789
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-ETW3-3	D	C2	4	2	46.32	7.634	0.1629	20	MGM	0.0081	47.76	7.871
NTP2191Q1-WRX-PW-SOL-UNC3-E-C1-1-ETW3-1	E	C1	5	1	41.52	7.277	0.1573	20	MGM	0.0079	41.34	7.245
NTP2191Q1-WRX-PW-SOL-UNC3-E-C1-1-ETW3-2	E	C1	5	1	44.99	7.368	0.1577	20	MGM	0.0079	44.90	7.354
NTP2191Q1-WRX-PW-SOL-UNC3-E-C1-1-ETW3-3	E	C1	5	1	46.40	7.358	0.1584	20	MGM	0.0079	46.52	7.377
NTP2191Q1-WRX-PW-SOL-UNC3-E-C2-1-ETW3-1	E	C2	5	2	44.33	7.723	0.1575	20	MGM	0.0079	44.19	7.699
NTP2191Q1-WRX-PW-SOL-UNC3-E-C2-1-ETW3-2	E	C2	5	2	48.70	7.721	0.1578	20	MGM	0.0079	48.64	7.711
NTP2191Q1-WRX-PW-SOL-UNC3-E-C2-1-ETW3-3	E	C2	5	2	45.82	7.926	0.1574	20	MGM	0.0079	45.65	7.896
NTP2191Q1-WRX-PW-SOL-UNC3-F-C3-1-ETW3-1	F	C3	6	3	48.59	7.958	0.1545	20	LGM	0.0077	47.51	7.782
NTP2191Q1-WRX-PW-SOL-UNC3-F-C3-1-ETW3-2	F	C3	6	3	51.32	7.880	0.1564	20	LGM	0.0078	50.80	7.800
NTP2191Q1-WRX-PW-SOL-UNC3-F-C3-1-ETW3-3	F	C3	6	3	53.62	7.930	0.1572	20	LGM	0.0079	53.35	7.890
NTP2191Q1-WRX-PW-SOL-UNC3-F-C4-1-ETW3-1	F	C4	6	4	47.52	7.755	0.1574	20	LGM	0.0079	47.34	7.726
NTP2191Q1-WRX-PW-SOL-UNC3-F-C4-1-ETW3-2	F	C4	6	4	45.10	7.443	0.1584	20	LGM	0.0079	45.21	7.462
NTP2191Q1-WRX-PW-SOL-UNC3-F-C4-1-ETW3-3	F	C4	6	4	44.86	7.849	0.1586	20	LGM	0.0079	45.03	7.879

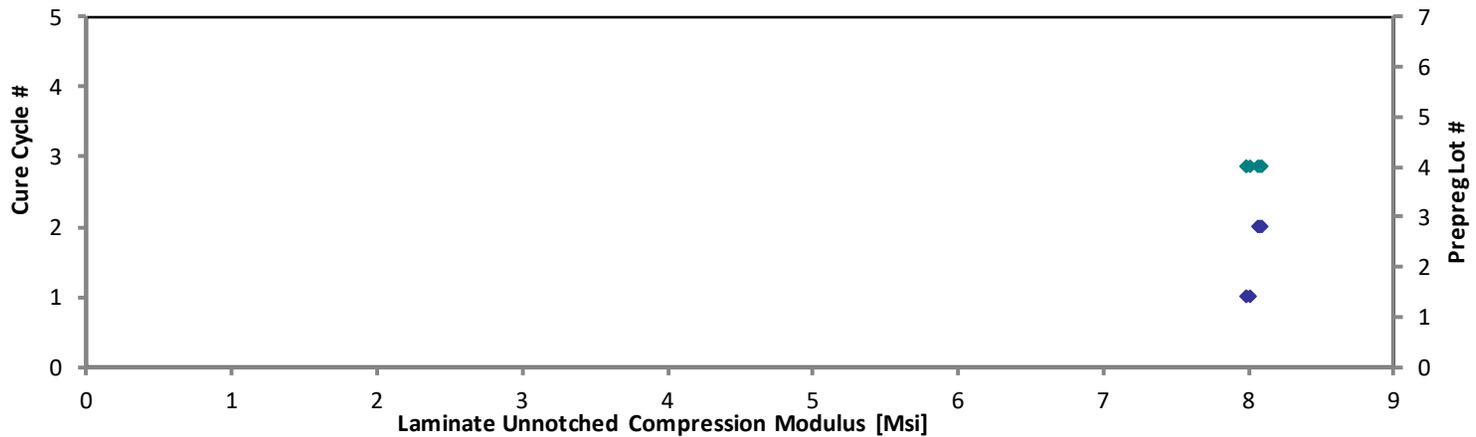|					
Average	46.48	7.575	**Average$_{norm}$** 0.0079	46.72	7.614
Standard Dev.	2.755	0.2842	**Standard Dev.$_{norm}$**	2.602	0.2482
Coeff. of Var. [%]	5.927	3.752	**Coeff. of Var. [%]$_{norm}$**	5.568	3.260
Min.	41.52	7.081	**Min.** 0.0077	41.34	7.215
Max.	53.62	7.958	**Max.** 0.0082	53.35	7.896
Number of Spec.	18	18	**Number of Spec.** 18	18	18

Laminate Unnotched Compression Properties (UNC3)--ETW3(250°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Legend: ◆ Cure Cycle #　◆ Prepreg Lot #
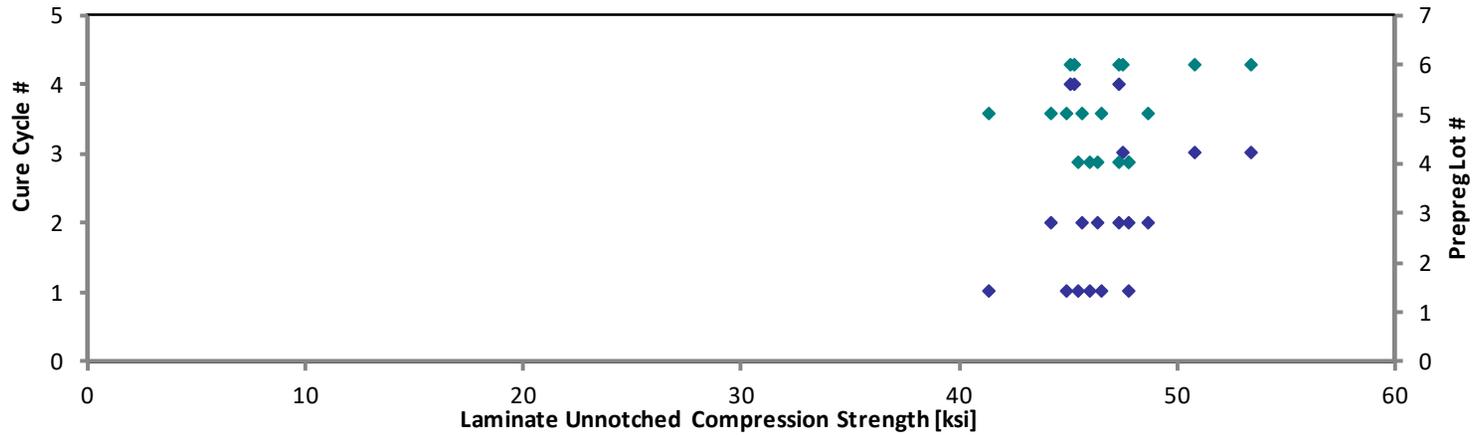
Laminate Unnotched Compression Properties (UNC3)--ETW3(250°F) Normalized Modulus
Solvay EP2190 T650 3K PW Fabric RC 37%

Legend: ◆ Cure Cycle #　◆ Prepreg Lot #

4.17 "25/50/25" Open-Hole Tension 1 Properties (OHT1)

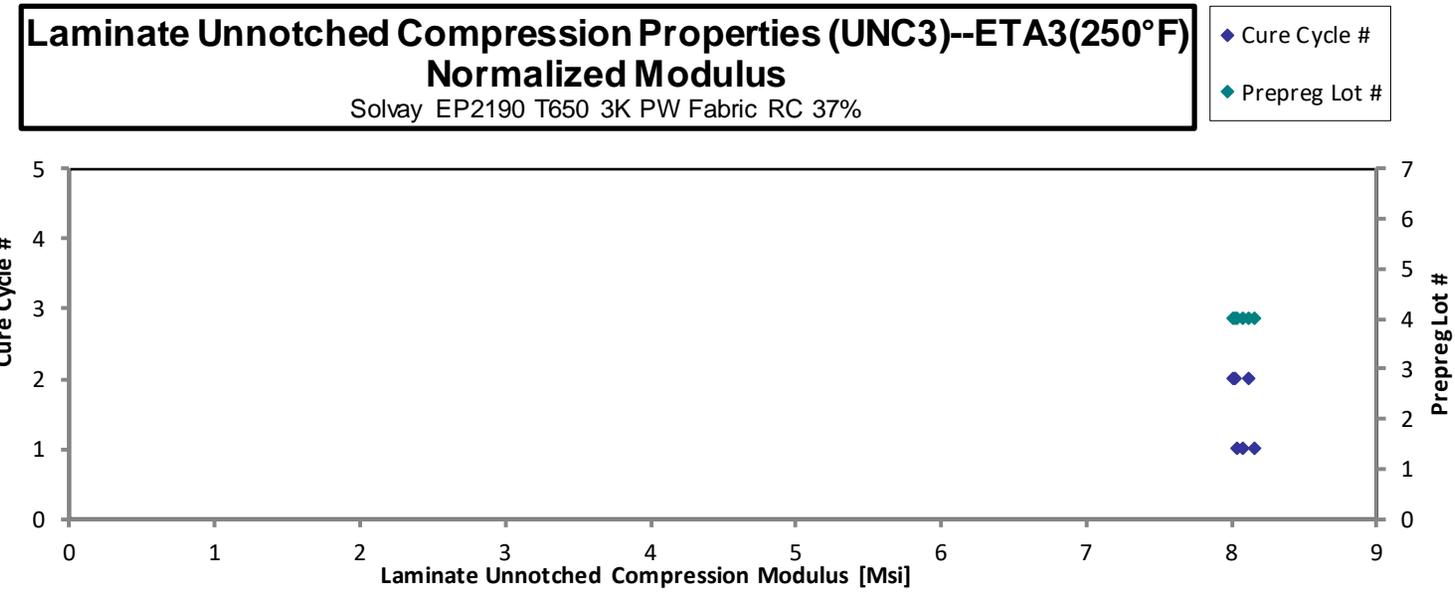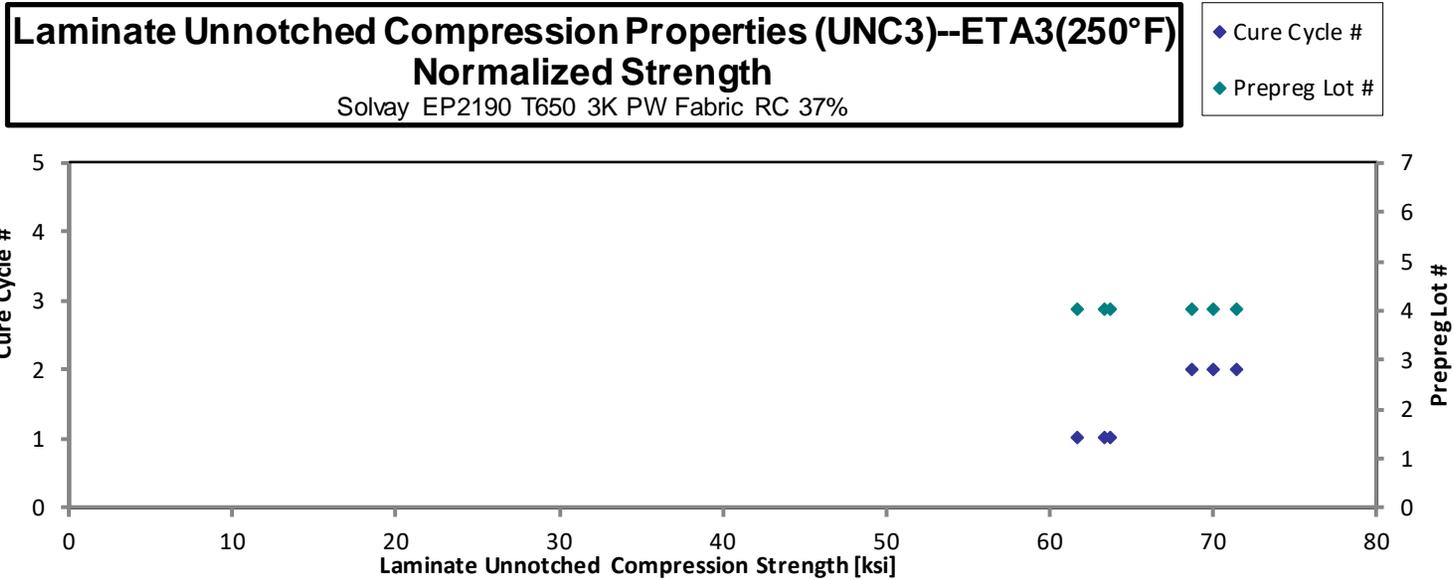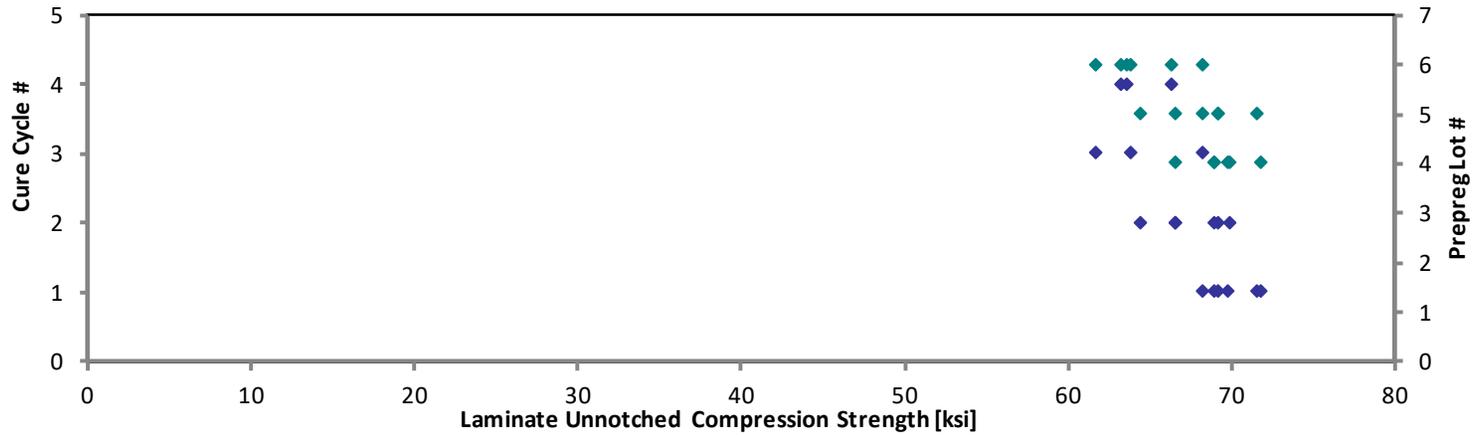| Laminate Open-Hole Tension Properties (OHT1)--CTA(-67°F) |
|---|
| **Strength** |
| Solvay EP2190 T650 3K PW Fabric RC 37% |

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
TR8343047-P1-OHT1-A-C1-CTA-1	A	C1	1	1	51.44	0.06310	8	LGM	0.0079	51.36
TR8343047-P1-OHT1-A-C1-CTA-2	A	C1	1	1	49.57	0.06400	8	LGM	0.0080	50.20
TR8343047-P1-OHT1-A-C1-CTA-3	A	C1	1	1	50.07	0.06380	8	LGM	0.0080	50.55
TR8343047-P1-OHT1-A-C1-CTA-4	A	C1	1	1	51.72	0.06360	8	LGM	0.0080	52.05
TR8343047-P1-OHT1-A-C1-CTA-5	A	C1	1	1	51.72	0.06420	8	LGM	0.0080	52.54
TR8343047-P1-OHT1-A-C1-CTA-6	A	C1	1	1	50.96	0.06250	8	LGM	0.0078	50.40
TR8346109-P1-OHT1-B-C1-CTA-1	B	C1	2	1	45.60	0.06400	8	LGM	0.0080	46.18
TR8346109-P1-OHT1-B-C1-CTA-3	B	C1	2	1	46.49	0.06480	8	LGM	0.0081	47.67
TR8346109-P4-OHT1-B-C1-CTA-4	B	C1	2	1	45.52	0.06450	8	LGM	0.0081	46.46
TR8346109-P4-OHT1-B-C1-CTA-5	B	C1	2	1	43.89	0.06450	8	LGM	0.0081	44.79
TR8346109-P4-OHT1-B-C1-CTA-6	B	C1	2	1	45.75	0.06410	8	LGM	0.0080	46.40
TR8346109-P4-OHT1-B-C1-CTA-7	B	C1	2	1	45.99	0.06410	8	LGM	0.0080	46.64
TR8347598-P3-OHT1-C-C1-CTA-1	C	C1	3	1	48.60	0.06410	8	LGM	0.0080	49.29
TR8347598-P3-OHT1-C-C1-CTA-2	C	C1	3	1	49.43	0.06390	8	LGM	0.0080	49.98
TR8347598-P3-OHT1-C-C1-CTA-3	C	C1	3	1	46.76	0.06350	8	LGM	0.0079	46.98
TR8347598-P3-OHT1-C-C1-CTA-4	C	C1	3	1	46.43	0.06410	8	LGM	0.0080	47.09
TR8347598-P3-OHT1-C-C1-CTA-5	C	C1	3	1	46.19	0.06350	8	LGM	0.0079	46.41
TR8347598-P3-OHT1-C-C1-CTA-6	C	C1	3	1	49.22	0.06410	8	LGM	0.0080	49.92
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-CTA-1	D	C1	4	1	45.63	0.06390	8	LGM	0.0080	46.14
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-CTA-2	D	C1	4	1	44.89	0.06400	8	LGM	0.0080	45.46
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-CTA-3	D	C1	4	1	46.52	0.06400	8	LGM	0.0080	47.11
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-CTA-1	D	C2	4	2	44.58	0.06320	8	LGM	0.0079	44.58
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-CTA-2	D	C2	4	2	46.29	0.06320	8	LGM	0.0079	46.29
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-CTA-3	D	C2	4	2	43.61	0.06320	8	LGM	0.0079	43.61

Average	47.37	Average$_{norm}$ 0.0080	47.84
Standard Dev.	2.539	Standard Dev.$_{norm}$	2.497
Coeff. of Var. [%]	5.359	Coeff. of Var. [%]$_{norm}$	5.221
Min.	43.61	Min. 0.0078	43.61
Max.	51.72	Max. 0.0081	52.54
Number of Spec.	24	Number of Spec. 24	24

Laminate Open-Hole Tension Properties (OHT1)--CTA(-67°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Open-Hole Tension Properties (OHT1)--RTA(75°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]

| 0.0079 |

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
TR8343047-P7-OHT1-A-C1-RTA-1	A	C1	1	1	51.49	0.06300	8	LGM	0.0079	51.33
TR8343047-P7-OHT1-A-C1-RTA-2	A	C1	1	1	50.92	0.06400	8	LGM	0.0080	51.56
TR8343047-P7-OHT1-A-C1-RTA-3	A	C1	1	1	49.27	0.06420	8	LGM	0.0080	50.05
TR8343047-P7-OHT1-A-C1-RTA-4	A	C1	1	1	52.03	0.06360	8	LGM	0.0080	52.36
TR8343047-P7-OHT1-A-C1-RTA-5	A	C1	1	1	51.44	0.06390	8	LGT	0.0080	52.01
TR8343047-P7-OHT1-A-C1-RTA-6	A	C1	1	1	52.63	0.06350	8	LGM	0.0079	52.88
TR8346109-P3-OHT1-B-C1-RTA-1	B	C1	2	1	49.07	0.06400	8	LGM	0.0080	49.69
TR8346109-P3-OHT1-B-C1-RTA-2	B	C1	2	1	46.97	0.06410	8	LGM	0.0080	47.64
TR8346109-P3-OHT1-B-C1-RTA-3	B	C1	2	1	47.58	0.06410	8	LGM	0.0080	48.26
TR8346109-P3-OHT1-B-C1-RTA-4	B	C1	2	1	49.17	0.06430	8	LGM	0.0080	50.03
TR8346109-P3-OHT1-B-C1-RTA-5	B	C1	2	1	43.22	0.06460	8	LGM	0.0081	44.18
TR8346109-P3-OHT1-B-C1-RTA-6	B	C1	2	1	43.56	0.06430	8	LGM	0.0080	44.32
TR8347598-P4-OHT1-C-C1-RTA-1	C	C1	3	1	48.12	0.06220	8	LGM	0.0078	47.36
TR8347598-P4-OHT1-C-C1-RTA-2	C	C1	3	1	50.13	0.06190	8	LGM	0.0077	49.10
TR8347598-P4-OHT1-C-C1-RTA-3	C	C1	3	1	49.04	0.06180	8	LGM	0.0077	47.95
TR8347598-P4-OHT1-C-C1-RTA-4	C	C1	3	1	50.67	0.06190	8	LGM	0.0077	49.63
TR8347598-P4-OHT1-C-C1-RTA-5	C	C1	3	1	50.20	0.06170	8	LGM	0.0077	49.01
TR8347598-P4-OHT1-C-C1-RTA-6	C	C1	3	1	51.14	0.06260	8	LGM	0.0078	50.65
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-RTA-1	D	C1	4	1	44.17	0.06380	8	LGM	0.0080	44.59
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-RTA-2	D	C1	4	1	46.84	0.06390	8	LGM	0.0079	47.06
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-RTA-3	D	C1	4	1	46.31	0.06420	8	LGM	0.0080	47.04
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-RTA-1	D	C2	4	2	47.69	0.06350	8	LGM	0.0079	47.92
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-RTA-2	D	C2	4	2	46.26	0.06350	8	LGM	0.0079	46.48
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-RTA-3	D	C2	4	2	48.09	0.06320	8	LGM	0.0079	48.09

Average	48.58	Average$_{norm}$	0.0079 48.72
Standard Dev.	2.633	Standard Dev.$_{norm}$	2.449
Coeff. of Var. [%]	5.419	Coeff. of Var. [%]$_{norm}$	5.028
Min.	43.22	Min.	0.0077 44.18
Max.	52.63	Max.	0.0081 52.88
Number of Spec.	24	Number of Spec.	24 24

Laminate Open-Hole Tension Properties (OHT1)--RTA(75°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Open-Hole Tension Properties (OHT1)--ETA2(225°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
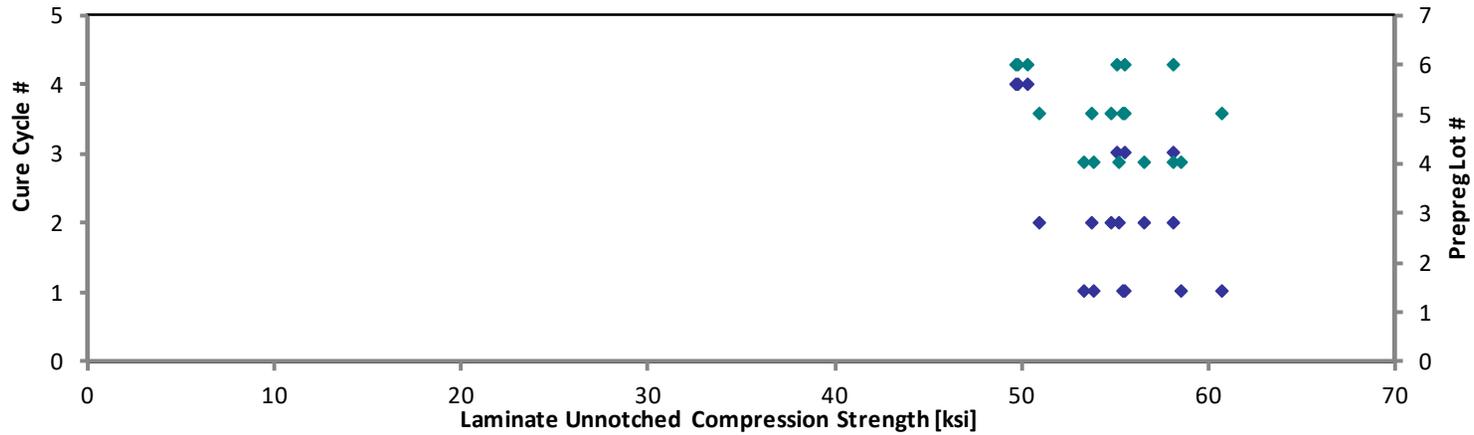
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-ETA2-1	D	C1	4	1	48.30	0.06390	8	LGM		0.0080	48.83
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-ETA2-2	D	C1	4	1	49.83	0.06440	8	LGM		0.0081	50.78
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-ETA2-3	D	C1	4	1	48.97	0.06390	8	LGM		0.0080	49.51
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-ETA2-1	D	C2	4	2	47.36	0.06290	8	LGM		0.0079	47.14
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-ETA2-2	D	C2	4	2	48.07	0.06310	8	LGM		0.0079	47.99
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-ETA2-3	D	C2	4	2	49.11	0.06300	8	LGM		0.0079	48.95

Average	48.61	**Average$_{norm}$** 0.0079	48.87
Standard Dev.	0.874	**Standard Dev.$_{norm}$**	1.252
Coeff. of Var. [%]	1.798	**Coeff. of Var. [%]$_{norm}$**	2.561
Min.	47.36	**Min.** 0.0079	47.14
Max.	49.83	**Max.** 0.0081	50.78
Number of Spec.	6	**Number of Spec.** 6	6

Laminate Open-Hole Tension Properties (OHT1)--ETA2(225°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
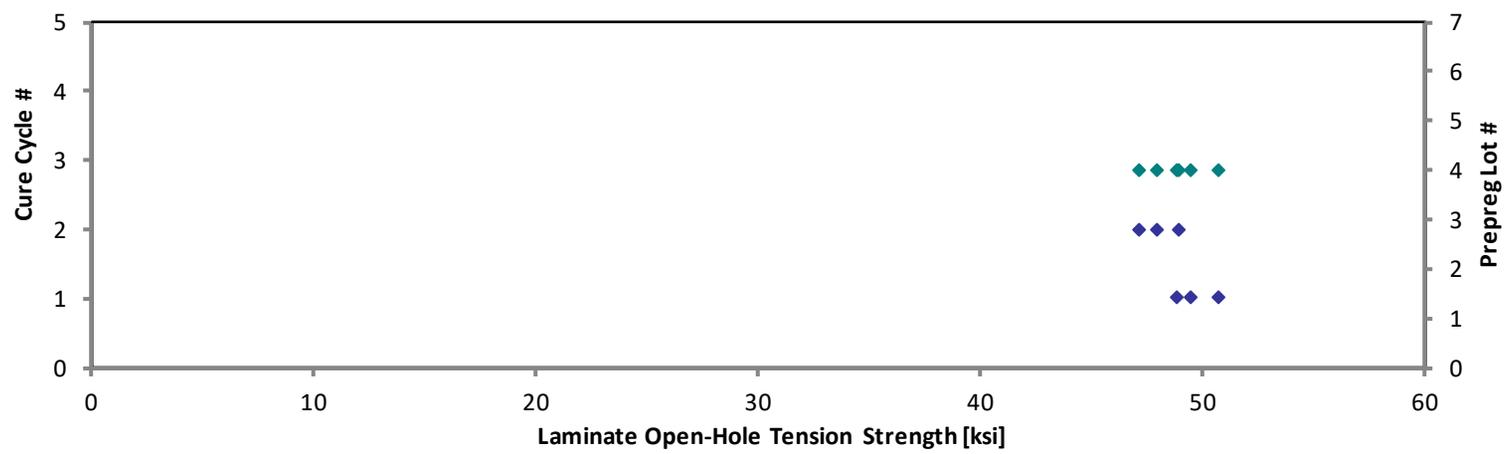
◆ Prepreg Lot #

Laminate Open-Hole Tension Properties (OHT1)--ETA3(250°F) Strength Solvay EP2190 T650 3K PW Fabric RC 37%

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
TR8343047-P4-OHT1-A-C1-ETA3-1	A	C1	1	1	50.82	0.06440	8	LGM	0.0081	51.78
TR8343047-P4-OHT1-A-C1-ETA3-2	A	C1	1	1	51.38	0.06450	8	LGM	0.0081	52.44
TR8343047-P4-OHT1-A-C1-ETA3-3	A	C1	1	1	51.52	0.06490	8	LGM	0.0081	52.91
TR8343047-P4-OHT1-A-C1-ETA3-4	A	C1	1	1	51.63	0.06440	8	LGM	0.0081	52.61
TR8343047-P4-OHT1-A-C1-ETA3-5	A	C1	1	1	50.25	0.06420	8	LGM	0.0080	51.05
TR8343047-P4-OHT1-A-C1-ETA3-6	A	C1	1	1	50.05	0.06460	8	LGM	0.0081	51.16
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-ETA3-1	D	C1	4	1	48.64	0.06390	8	LGM	0.0080	49.18
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-ETA3-2	D	C1	4	1	50.32	0.06380	8	LGM	0.0080	50.80
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-ETA3-3	D	C1	4	1	49.90	0.06390	8	LGM	0.0080	50.45
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-ETA3-1	D	C2	4	2	49.17	0.06280	8	LGM	0.0079	48.86
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-ETA3-2	D	C2	4	2	50.02	0.06330	8	LGM	0.0079	50.10
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-ETA3-3	D	C2	4	2	48.18	0.06330	8	LGM	0.0079	48.26
NTP2191Q1-WRX-PW-SOL-OHT1-E-C1-1-ETA3-1	E	C1	5	1	52.84	0.06510	8	MGM	0.0081	54.43
NTP2191Q1-WRX-PW-SOL-OHT1-E-C1-1-ETA3-2	E	C1	5	1	49.52	0.06510	8	MGM	0.0081	51.01
NTP2191Q1-WRX-PW-SOL-OHT1-E-C1-1-ETA3-3	E	C1	5	1	52.35	0.06500	8	MGM	0.0081	53.84
NTP2191Q1-WRX-PW-SOL-OHT1-E-C2-1-ETA3-1	E	C2	5	2	49.66	0.06500	8	MGM	0.0081	51.07
NTP2191Q1-WRX-PW-SOL-OHT1-E-C2-1-ETA3-2	E	C2	5	2	52.12	0.06560	8	MGM	0.0082	54.10
NTP2191Q1-WRX-PW-SOL-OHT1-E-C2-1-ETA3-3	E	C2	5	2	54.57	0.06590	8	MGM	0.0082	56.90

Average	50.72	Average$_{norm}$	0.0081	51.72
Standard Dev.	1.601	Standard Dev.$_{norm}$		2.176
Coeff. of Var. [%]	3.157	Coeff. of Var. [%]$_{norm}$		4.207
Min.	48.18	Min.	0.0079	48.26
Max.	54.57	Max.	0.0082	56.90
Number of Spec.	18	Number of Spec.	18	18

Laminate Open-Hole Tension Properties (OHT1)--ETA3(250°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

<table>
<tr><td colspan="9">**Laminate Open-Hole Tension Properties (OHT1)--ETW1(180°F)**
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td colspan="2">**normalizing**
t_{ply} [in]
0.0079</td></tr>
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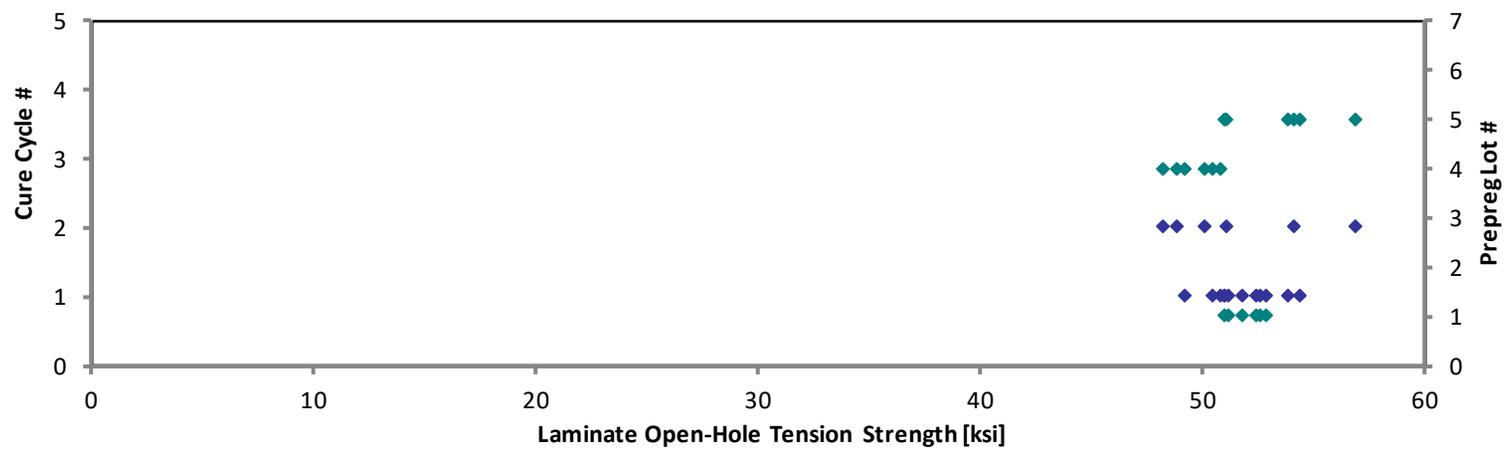
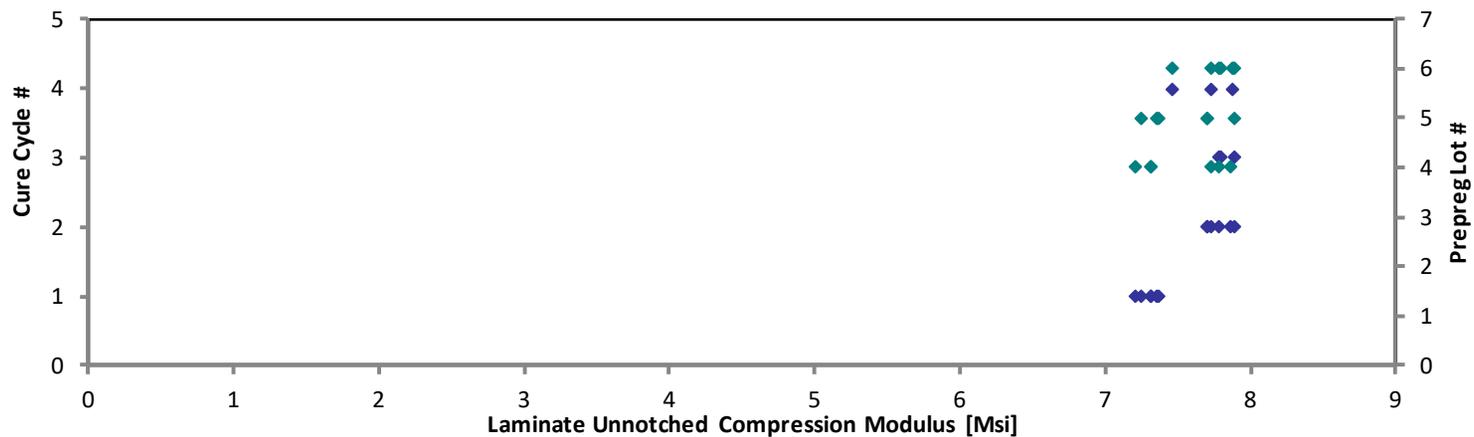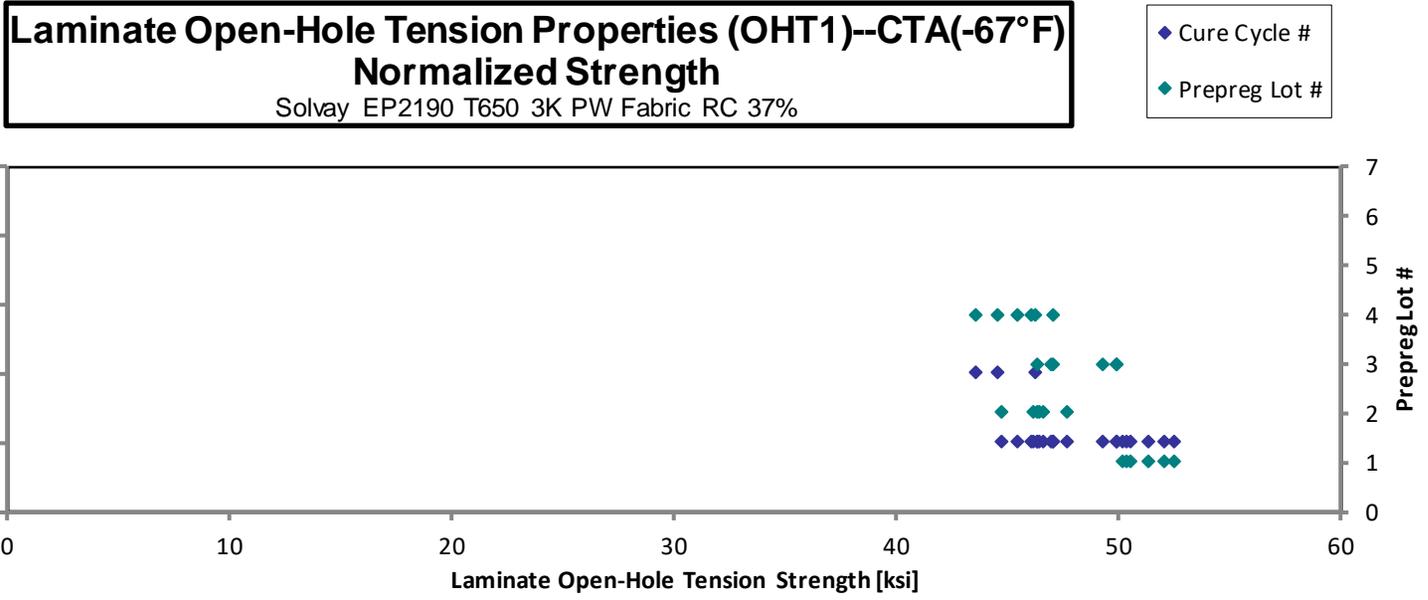| Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-ETW1-1	D	C1	4	1	47.73	0.06380	8	LGM	0.0080	48.18
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-ETW1-2	D	C1	4	1	47.92	0.06400	8	LGM	0.0080	48.53
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-ETW1-3	D	C1	4	1	52.16	0.06380	8	LGM	0.0080	52.66
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-ETW1-1	D	C2	4	2	47.07	0.06370	8	LGM	0.0080	47.44
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-ETW1-2	D	C2	4	2	45.85	0.06390	8	LGM	0.0080	46.36
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-ETW1-3	D	C2	4	2	49.98	0.06370	8	LGM	0.0080	50.38
NTP2191Q1-WRX-PW-SOL-OHT1-E-C1-1-ETW1-1	E	C1	5	1	51.15	0.06500	8	LGM	0.0081	52.61
NTP2191Q1-WRX-PW-SOL-OHT1-E-C1-1-ETW1-2	E	C1	5	1	53.77	0.06490	8	LGM	0.0081	55.22
NTP2191Q1-WRX-PW-SOL-OHT1-E-C1-1-ETW1-3	E	C1	5	1	54.47	0.06500	8	LGM	0.0081	56.02
NTP2191Q1-WRX-PW-SOL-OHT1-E-C2-1-ETW1-1	E	C2	5	2	49.31	0.06540	8	LGM	0.0082	51.03
NTP2191Q1-WRX-PW-SOL-OHT1-E-C2-1-ETW1-2	E	C2	5	2	50.96	0.06490	8	LGM	0.0081	52.33
NTP2191Q1-WRX-PW-SOL-OHT1-E-C2-1-ETW1-3	E	C2	5	2	49.50	0.06600	8	LGM	0.0083	51.69
NTP2191Q1-WRX-PW-SOL-OHT1-F-C1-1-ETW1-1	F	C1	6	1	55.52	0.06250	8	LGM	0.0078	54.91
NTP2191Q1-WRX-PW-SOL-OHT1-F-C1-1-ETW1-2	F	C1	6	1	49.07	0.06280	8	LGM	0.0079	48.76
NTP2191Q1-WRX-PW-SOL-OHT1-F-C1-1-ETW1-3	F	C1	6	1	55.29	0.06280	8	LGM	0.0079	54.94
NTP2191Q1-WRX-PW-SOL-OHT1-F-C2-1-ETW1-1	F	C1	6	2	54.22	0.06240	8	LGM	0.0078	53.53
NTP2191Q1-WRX-PW-SOL-OHT1-F-C2-1-ETW1-2	F	C1	6	2	53.99	0.06320	8	LGM	0.0079	53.99
NTP2191Q1-WRX-PW-SOL-OHT1-F-C2-1-ETW1-3	F	C1	6	2	54.97	0.06320	8	LGM	0.0079	54.97

Average	51.27	Average$_{norm}$ 0.0080	51.86
Standard Dev.	3.122	Standard Dev.$_{norm}$	2.997
Coeff. of Var. [%]	6.088	Coeff. of Var. [%]$_{norm}$	5.779
Min.	45.85	Min. 0.0078	46.36
Max.	55.52	Max. 0.0083	56.02
Number of Spec.	18	Number of Spec. 18	18

Laminate Open-Hole Tension Properties (OHT1)--ETW1(180°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

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<tr><td colspan="10">**Laminate Open-Hole Tension Properties (OHT1)--ETW2(225°F)**
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td colspan="2">normalizing
t_{ply} [in]
0.0079</td></tr>
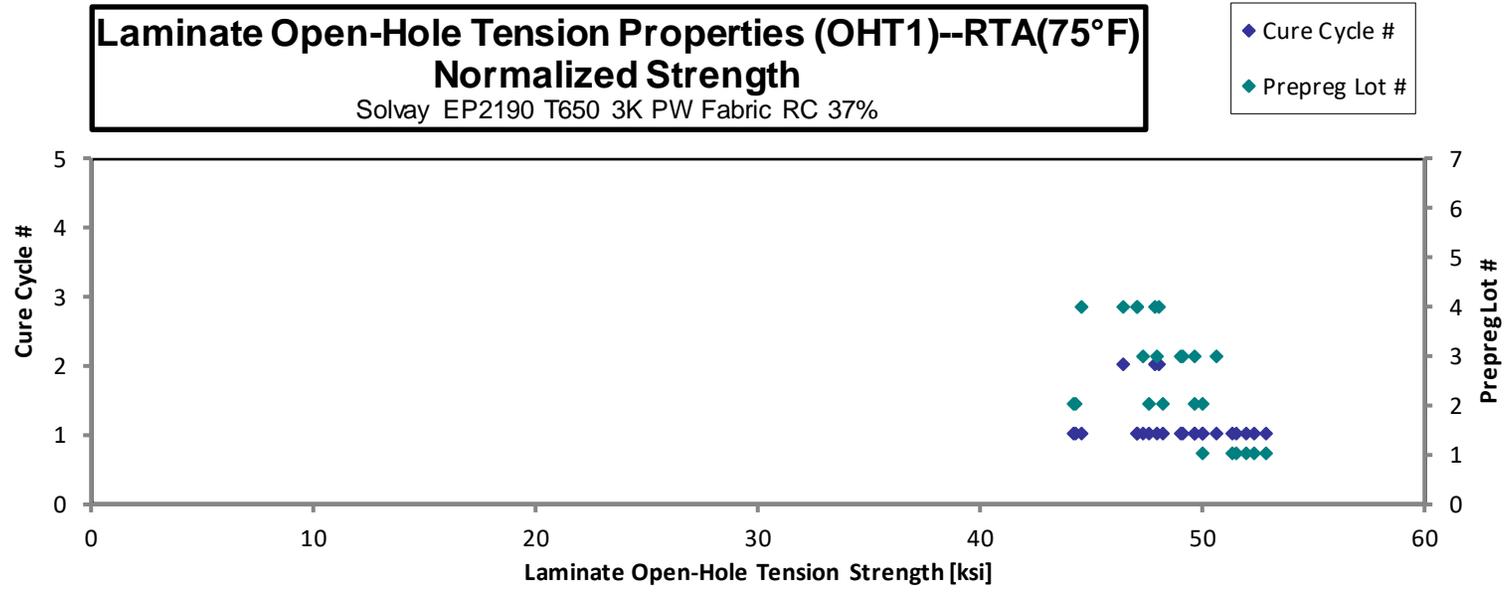</table>

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-ETW2-2	D	C1	4	1	49.97	0.06360	8	LGM	0.0080	50.29
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-ETW2-3	D	C1	4	1	49.00	0.06400	8	LGM	0.0080	49.62
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-ETW2-4	D	C1	4	1	48.89	0.06380	8	LGM	0.0080	49.35
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-ETW2-1	D	C2	4	2	45.75	0.06310	8	LGM	0.0079	45.68
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-ETW2-2	D	C2	4	2	47.80	0.06350	8	LGM	0.0079	48.03
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-ETW2-3	D	C2	4	2	46.93	0.06340	8	LGM	0.0079	47.08
NTP2191Q1-WRX-PW-SOL-OHT1-E-C1-1-ETW2-1	E	C1	5	1	52.72	0.06490	8	LGM	0.0081	54.14
NTP2191Q1-WRX-PW-SOL-OHT1-E-C1-1-ETW2-2	E	C1	5	1	50.24	0.06490	8	LGM	0.0081	51.59
NTP2191Q1-WRX-PW-SOL-OHT1-E-C1-1-ETW2-3	E	C1	5	1	52.63	0.06490	8	LGM	0.0081	54.05
NTP2191Q1-WRX-PW-SOL-OHT1-E-C2-1-ETW2-1	E	C2	5	2	51.36	0.06570	8	LGM	0.0082	53.39
NTP2191Q1-WRX-PW-SOL-OHT1-E-C2-1-ETW2-2	E	C2	5	2	51.83	0.06530	8	LGM	0.0082	53.55
NTP2191Q1-WRX-PW-SOL-OHT1-E-C2-1-ETW2-3	E	C2	5	2	50.73	0.06550	8	LGM	0.0082	52.58
NTP2191Q1-WRX-PW-SOL-OHT1-F-C1-1-ETW2-1	F	C1	6	1	54.21	0.06320	8	LGM	0.0079	54.21
NTP2191Q1-WRX-PW-SOL-OHT1-F-C1-1-ETW2-2	F	C1	6	1	58.18	0.06300	8	LGM	0.0079	58.00
NTP2191Q1-WRX-PW-SOL-OHT1-F-C1-1-ETW2-3	F	C1	6	1	57.19	0.06330	8	LGM	0.0079	57.28
NTP2191Q1-WRX-PW-SOL-OHT1-F-C2-1-ETW2-1	F	C1	6	2	55.86	0.06260	8	LGM	0.0078	55.33
NTP2191Q1-WRX-PW-SOL-OHT1-F-C2-1-ETW2-2	F	C1	6	2	53.79	0.06350	8	LGM	0.0079	54.05
NTP2191Q1-WRX-PW-SOL-OHT1-F-C2-1-ETW2-3	F	C1	6	2	55.13	0.06330	8	LGM	0.0079	55.22

Average	51.79	Average$_{norm}$ 0.0080	52.41
Standard Dev.	3.501	Standard Dev.$_{norm}$	3.434
Coeff. of Var. [%]	6.760	Coeff. of Var. [%]$_{norm}$	6.552
Min.	45.75	Min. 0.0078	45.68
Max.	58.18	Max. 0.0082	58.00
Number of Spec.	18	Number of Spec. 18	18

Laminate Open-Hole Tension Properties (OHT1)--ETW2(225°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

4.18 "10/80/10" Open-Hole Tension 2 Properties (OHT2)

Laminate Open-Hole Tension Properties (OHT2)--CTA(-67°F) Strength Solvay EP2190 T650 3K PW Fabric RC 37%		normalizing t_{ply} [in] 0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHT2-D-C1-1-CTA-1	D	C1	4	1	50.61	0.0802	10	MGM	0.0080	51.38
NTP2191Q1-WRX-PW-SOL-OHT2-D-C1-1-CTA-2	D	C1	4	1	48.72	0.0818	10	MGM	0.0082	50.45
NTP2191Q1-WRX-PW-SOL-OHT2-D-C1-1-CTA-3	D	C1	4	1	50.25	0.0804	10	MGM	0.0080	51.14
NTP2191Q1-WRX-PW-SOL-OHT2-D-C2-1-CTA-1	D	C2	4	2	50.06	0.0807	10	MGM	0.0081	51.14
NTP2191Q1-WRX-PW-SOL-OHT2-D-C2-1-CTA-2	D	C2	4	2	48.53	0.0818	10	MGM	0.0082	50.25
NTP2191Q1-WRX-PW-SOL-OHT2-D-C2-1-CTA-3	D	C2	4	2	49.46	0.0816	10	MGM	0.0082	51.09
NTP2191Q1-WRX-PW-SOL-OHT2-E-C1-1-CTA-1	E	C1	5	1	50.03	0.0790	10	MGM	0.0079	50.03
NTP2191Q1-WRX-PW-SOL-OHT2-E-C1-1-CTA-2	E	C1	5	1	50.97	0.0793	10	MGM	0.0079	51.16
NTP2191Q1-WRX-PW-SOL-OHT2-E-C1-1-CTA-3	E	C1	5	1	51.74	0.0787	10	MGM	0.0079	51.54
NTP2191Q1-WRX-PW-SOL-OHT2-E-C2-1-CTA-1	E	C2	5	2	54.60	0.0794	10	MGM	0.0079	54.88
NTP2191Q1-WRX-PW-SOL-OHT2-E-C2-1-CTA-2	E	C2	5	2	52.40	0.0796	10	MGM	0.0080	52.80
NTP2191Q1-WRX-PW-SOL-OHT2-E-C2-1-CTA-3	E	C2	5	2	52.47	0.0792	10	MGM	0.0079	52.60
NTP2191Q1-WRX-PW-SOL-OHT2-F-C3-1-CTA-1	F	C3	6	3	47.27	0.0787	10	AGM	0.0079	47.09
NTP2191Q1-WRX-PW-SOL-OHT2-F-C3-1-CTA-2	F	C3	6	3	47.56	0.0789	10	AGM	0.0079	47.50
NTP2191Q1-WRX-PW-SOL-OHT2-F-C3-1-CTA-3	F	C3	6	3	48.25	0.0784	10	AGM	0.0078	47.88
NTP2191Q1-WRX-PW-SOL-OHT2-F-C4-1-CTA-1	F	C4	6	4	48.37	0.0795	10	MGM	0.0080	48.68
NTP2191Q1-WRX-PW-SOL-OHT2-F-C4-1-CTA-2	F	C4	6	4	49.49	0.0787	10	MGM	0.0079	49.30
NTP2191Q1-WRX-PW-SOL-OHT2-F-C4-1-CTA-3	F	C4	6	4	49.32	0.0788	10	MGM	0.0079	49.20

Average	50.01	**Average$_{norm}$**	0.0080	50.45
Standard Dev.	1.900	**Standard Dev.$_{norm}$**		1.978
Coeff. of Var. [%]	3.799	**Coeff. of Var. [%]$_{norm}$**		3.920
Min.	47.27	**Min.**	0.0078	47.09
Max.	54.60	**Max.**	0.0082	54.88
Number of Spec.	18	**Number of Spec.**	18	18

Laminate Open-Hole Tension Properties (OHT2)--CTA(-67°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Legend:
- ◆ Cure Cycle #
- ◆ Prepreg Lot #

X-axis: Laminate Open-Hole Tension Strength [ksi]
Left Y-axis: Cure Cycle #
Right Y-axis: Prepreg Lot #

<table>
<tr><td colspan="10">**Laminate Open-Hole Tension Properties (OHT2)--RTA(75°F)**
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td></td><td>**normalizing**
t_{ply} [in]
0.0079</td></tr>
</table>

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHT2-D-C1-1-RTA-1	D	C1	4	1	45.61	0.0802	10	MGM		0.0080	46.30
NTP2191Q1-WRX-PW-SOL-OHT2-D-C1-1-RTA-2	D	C1	4	1	45.06	0.0804	10	MGM		0.0080	45.86
NTP2191Q1-WRX-PW-SOL-OHT2-D-C1-1-RTA-3	D	C1	4	1	43.84	0.0805	10	MGM		0.0081	44.67
NTP2191Q1-WRX-PW-SOL-OHT2-D-C2-1-RTA-1	D	C2	4	2	43.33	0.0807	10	MGM		0.0081	44.26
NTP2191Q1-WRX-PW-SOL-OHT2-D-C2-1-RTA-2	D	C2	4	2	42.63	0.0820	10	MGM		0.0082	44.25
NTP2191Q1-WRX-PW-SOL-OHT2-D-C2-1-RTA-3	D	C2	4	2	44.83	0.0813	10	MGM		0.0081	46.14
NTP2191Q1-WRX-PW-SOL-OHT2-E-C1-1-RTA-1	E	C1	5	1	43.48	0.0781	10	AGM		0.0078	42.98
NTP2191Q1-WRX-PW-SOL-OHT2-E-C1-1-RTA-2	E	C1	5	1	42.74	0.0790	10	AGM		0.0079	42.74
NTP2191Q1-WRX-PW-SOL-OHT2-E-C1-1-RTA-3	E	C1	5	1	44.34	0.0788	10	AGM		0.0079	44.23
NTP2191Q1-WRX-PW-SOL-OHT2-E-C2-1-RTA-1	E	C2	5	2	44.20	0.0781	10	AGM		0.0078	43.70
NTP2191Q1-WRX-PW-SOL-OHT2-E-C2-1-RTA-2	E	C2	5	2	44.90	0.0786	10	AGM		0.0079	44.67
NTP2191Q1-WRX-PW-SOL-OHT2-E-C2-1-RTA-3	E	C2	5	2	43.17	0.0794	10	AGM		0.0079	43.39
NTP2191Q1-WRX-PW-SOL-OHT2-F-C3-1-RTA-1	F	C3	6	3	41.91	0.0777	10	AGM		0.0078	41.22
NTP2191Q1-WRX-PW-SOL-OHT2-F-C3-1-RTA-2	F	C3	6	3	42.87	0.0789	10	AGM		0.0079	42.82
NTP2191Q1-WRX-PW-SOL-OHT2-F-C3-1-RTA-3	F	C3	6	3	42.93	0.0787	10	AGM		0.0079	42.77
NTP2191Q1-WRX-PW-SOL-OHT2-F-C4-1-RTA-1	F	C4	6	4	44.29	0.0786	10	AGM		0.0079	44.07
NTP2191Q1-WRX-PW-SOL-OHT2-F-C4-1-RTA-2	F	C4	6	4	44.77	0.0790	10	AGM		0.0079	44.77
NTP2191Q1-WRX-PW-SOL-OHT2-F-C4-1-RTA-3	F	C4	6	4	46.26	0.0790	10	AGM		0.0079	46.26

Average	43.95	**Average$_{norm}$** 0.0079	44.17
Standard Dev.	1.1582	**Standard Dev.$_{norm}$**	1.3998
Coeff. of Var. [%]	2.635	**Coeff. of Var. [%]$_{norm}$**	3.169
Min.	41.91	**Min.** 0.0078	41.22
Max.	46.26	**Max.** 0.0082	46.30
Number of Spec.	18	**Number of Spec.** 18	18

**Laminate Open-Hole Tension Properties (OHT2)--RTA(75°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

<table>
<tr><td colspan="10">**Laminate Open-Hole Tension Properties (OHT2)--ETW1(180°F)**
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td colspan="2">**normalizing**
t_{ply} [in]
0.0079</td></tr>
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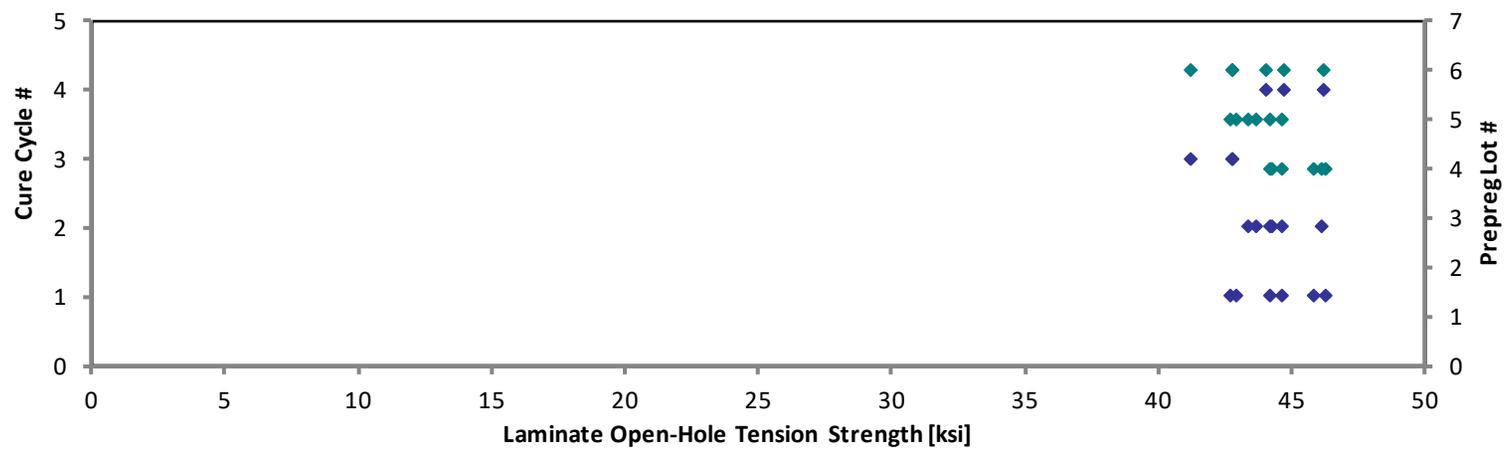
Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHT2-D-C1-1-ETW1-1	D	C1	4	1	36.11	0.0805	10	AGM	0.0081	36.80
NTP2191Q1-WRX-PW-SOL-OHT2-D-C1-1-ETW1-2	D	C1	4	1	35.16	0.0805	10	AGM	0.0081	35.83
NTP2191Q1-WRX-PW-SOL-OHT2-D-C1-1-ETW1-3	D	C1	4	1	36.46	0.0805	10	AGM	0.0081	37.15
NTP2191Q1-WRX-PW-SOL-OHT2-D-C2-1-ETW1-1	D	C2	4	2	35.70	0.0815	10	AGM	0.0082	36.83
NTP2191Q1-WRX-PW-SOL-OHT2-D-C2-1-ETW1-2	D	C2	4	2	34.59	0.0815	10	AGM	0.0082	35.68
NTP2191Q1-WRX-PW-SOL-OHT2-D-C2-1-ETW1-3	D	C2	4	2	34.52	0.0813	10	AGM	0.0081	35.53

Average	35.42	Average$_{norm}$	0.0081 36.30
Standard Dev.	0.8003	Standard Dev.$_{norm}$	0.7007
Coeff. of Var. [%]	2.259	Coeff. of Var. [%]$_{norm}$	1.930
Min.	34.52	Min.	0.0081 35.53
Max.	36.46	Max.	0.0082 37.15
Number of Spec.	6	Number of Spec.	6 6

Laminate Open-Hole Tension Properties (OHT2)--ETW1(180°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

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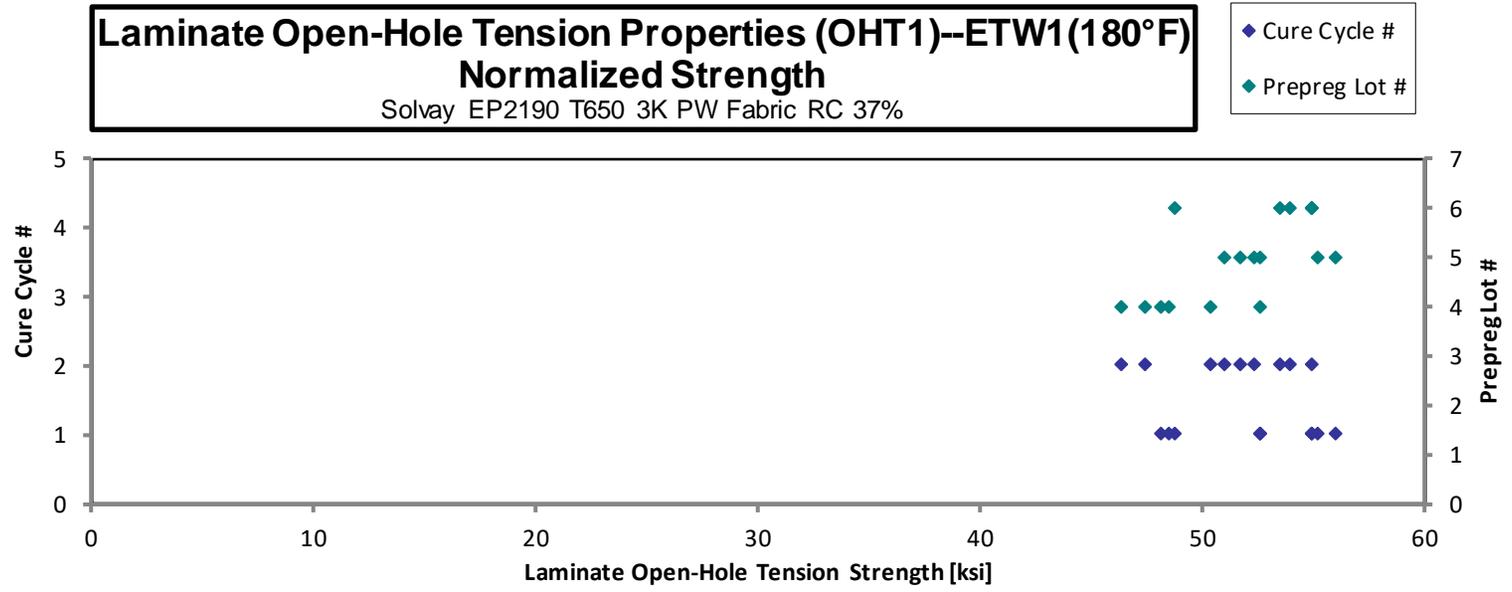<tr><td colspan="9">Laminate Open-Hole Tension Properties (OHT2)--ETW2(225°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td colspan="2">normalizing
t_{ply} [in]
0.0079</td></tr>
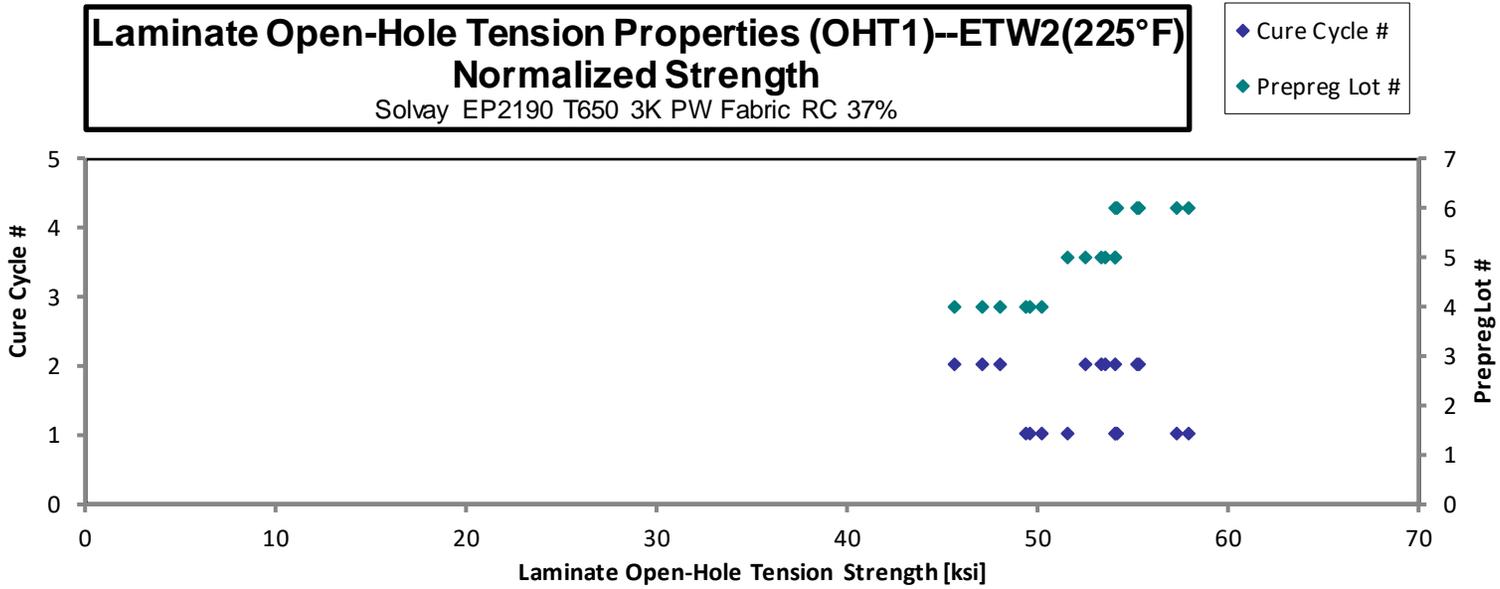</table>
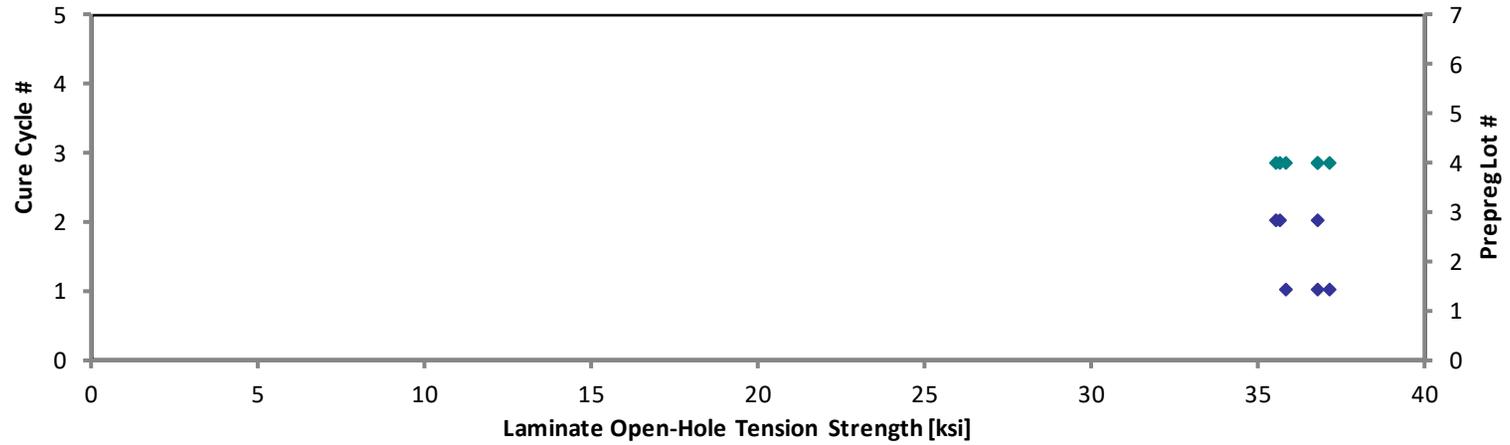
Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHT2-D-C1-1-ETW2-1	D	C1	4	1	34.01	0.0807	10	AGM	0.0081	34.74
NTP2191Q1-WRX-PW-SOL-OHT2-D-C1-1-ETW2-2	D	C1	4	1	31.35	0.0806	10	AGM	0.0081	31.98
NTP2191Q1-WRX-PW-SOL-OHT2-D-C1-1-ETW2-3	D	C1	4	1	31.84	0.0802	10	AGM	0.0080	32.32
NTP2191Q1-WRX-PW-SOL-OHT2-D-C2-1-ETW2-1	D	C2	4	2	31.39	0.0816	10	AGM	0.0082	32.42
NTP2191Q1-WRX-PW-SOL-OHT2-D-C2-1-ETW2-2	D	C2	4	2	31.76	0.0810	10	AGM	0.0081	32.56
NTP2191Q1-WRX-PW-SOL-OHT2-D-C2-1-ETW2-3	D	C2	4	2	30.80	0.0816	10	AGM	0.0082	31.81
NTP2191Q1-WRX-PW-SOL-OHT2-E-C1-1-ETW2-1	E	C1	5	1	33.07	0.0790	10	AGM	0.0079	33.07
NTP2191Q1-WRX-PW-SOL-OHT2-E-C1-1-ETW2-2	E	C1	5	1	31.91	0.0784	10	AGM	0.0078	31.67
NTP2191Q1-WRX-PW-SOL-OHT2-E-C1-1-ETW2-3	E	C1	5	1	32.38	0.0792	10	AGM	0.0079	32.46
NTP2191Q1-WRX-PW-SOL-OHT2-E-C2-1-ETW2-1	E	C2	5	2	32.22	0.0787	10	MGM	0.0079	32.10
NTP2191Q1-WRX-PW-SOL-OHT2-E-C2-1-ETW2-2	E	C2	5	2	33.21	0.0788	10	MGM	0.0079	33.13
NTP2191Q1-WRX-PW-SOL-OHT2-E-C2-1-ETW2-3	E	C2	5	2	34.47	0.0788	10	MGM	0.0079	34.38
NTP2191Q1-WRX-PW-SOL-OHT2-F-C3-1-ETW2-1	F	C3	6	3	32.82	0.0776	10	MGM	0.0078	32.24
NTP2191Q1-WRX-PW-SOL-OHT2-F-C3-1-ETW2-2	F	C3	6	3	33.65	0.0782	10	MGM	0.0078	33.31
NTP2191Q1-WRX-PW-SOL-OHT2-F-C3-1-ETW2-3	F	C3	6	3	32.98	0.0788	10	MGM	0.0079	32.90
NTP2191Q1-WRX-PW-SOL-OHT2-F-C4-1-ETW2-1	F	C4	6	4	33.55	0.0782	10	AGM	0.0078	33.21
NTP2191Q1-WRX-PW-SOL-OHT2-F-C4-1-ETW2-2	F	C4	6	4	31.61	0.0787	10	AGM	0.0079	31.49
NTP2191Q1-WRX-PW-SOL-OHT2-F-C4-1-ETW2-3	F	C4	6	4	32.16	0.0787	10	AGM	0.0079	32.04

Average	32.51	Average$_{norm}$ 0.0079	32.66
Standard Dev.	1.015	Standard Dev.$_{norm}$	0.8776
Coeff. of Var. [%]	3.123	Coeff. of Var. [%]$_{norm}$	2.687
Min.	30.80	Min. 0.0078	31.49
Max.	34.47	Max. 0.0082	34.74
Number of Spec.	18	Number of Spec. 18	18

**Laminate Open-Hole Tension Properties (OHT2)--ETW2(225°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
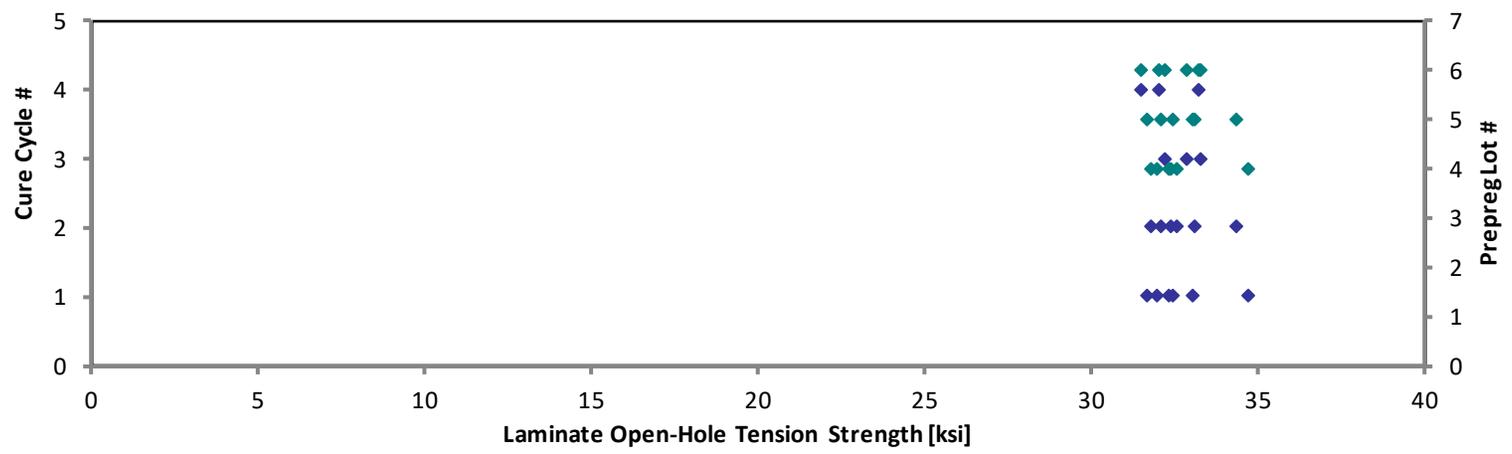
◆ Prepreg Lot #

4.19 "40/20/40" Open-Hole Tension 3 Properties (OHT3)

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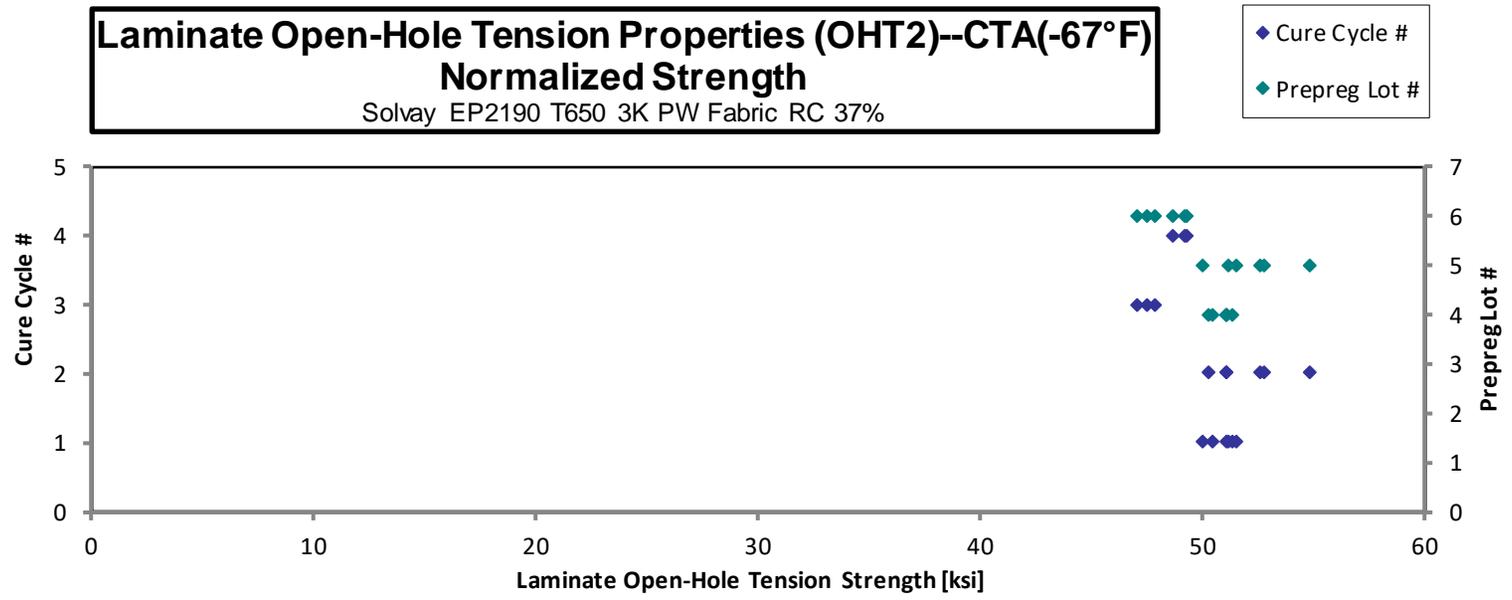<tr><td colspan="2">Laminate Open-Hole Tension Properties (OHT3)--CTA(-67°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td>normalizing t_{ply} [in]
0.0079</td></tr>
</table>

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHT3-D-C1-1-CTA-1	D	C1	4	1	58.21	0.0805	10	LGM	0.0081	59.32
NTP2191Q1-WRX-PW-SOL-OHT3-D-C1-1-CTA-2	D	C1	4	1	56.07	0.0804	10	LGM	0.0080	57.06
NTP2191Q1-WRX-PW-SOL-OHT3-D-C1-1-CTA-3	D	C1	4	1	58.35	0.0803	10	LGM	0.0080	59.31
NTP2191Q1-WRX-PW-SOL-OHT3-D-C2-1-CTA-1	D	C2	4	2	53.05	0.0798	10	LGM	0.0080	53.59
NTP2191Q1-WRX-PW-SOL-OHT3-D-C2-1-CTA-2	D	C2	4	2	54.83	0.0800	10	LGM	0.0080	55.52
NTP2191Q1-WRX-PW-SOL-OHT3-D-C2-1-CTA-3	D	C2	4	2	55.10	0.0803	10	LGM	0.0080	56.01
NTP2191Q1-WRX-PW-SOL-OHT3-E-C1-1-CTA-1	E	C1	5	1	55.20	0.0796	10	LGM	0.0080	55.62
NTP2191Q1-WRX-PW-SOL-OHT3-E-C1-1-CTA-2	E	C1	5	1	61.10	0.0790	10	LGM	0.0079	61.10
NTP2191Q1-WRX-PW-SOL-OHT3-E-C1-1-CTA-3	E	C1	5	1	54.49	0.0788	10	LGM	0.0079	54.35
NTP2191Q1-WRX-PW-SOL-OHT3-E-C2-1-CTA-1	E	C2	5	2	58.64	0.0783	10	LGM	0.0078	58.12
NTP2191Q1-WRX-PW-SOL-OHT3-E-C2-1-CTA-2	E	C2	5	2	59.19	0.0786	10	LGM	0.0079	58.89
NTP2191Q1-WRX-PW-SOL-OHT3-E-C2-1-CTA-3	E	C2	5	2	59.57	0.0785	10	LGM	0.0079	59.19
NTP2191Q1-WRX-PW-SOL-OHT3-F-C3-1-CTA-1	F	C3	6	3	54.92	0.0790	10	LGM	0.0079	54.92
NTP2191Q1-WRX-PW-SOL-OHT3-F-C3-1-CTA-2	F	C3	6	3	53.26	0.0785	10	LGM	0.0079	52.92
NTP2191Q1-WRX-PW-SOL-OHT3-F-C3-1-CTA-3	F	C3	6	3	57.72	0.0790	10	LGM	0.0079	57.72
NTP2191Q1-WRX-PW-SOL-OHT3-F-C4-1-CTA-1	F	C4	6	4	54.80	0.0792	10	MGM	0.0079	54.94
NTP2191Q1-WRX-PW-SOL-OHT3-F-C4-1-CTA-2	F	C4	6	4	58.83	0.0786	10	MGM	0.0079	58.53
NTP2191Q1-WRX-PW-SOL-OHT3-F-C4-1-CTA-3	F	C4	6	4	56.12	0.0788	10	MGM	0.0079	55.98

Average	56.64	**Average$_{norm}$** 0.0079	56.84
Standard Dev.	2.351	**Standard Dev.$_{norm}$**	2.295
Coeff. of Var. [%]	4.150	**Coeff. of Var. [%]$_{norm}$**	4.037
Min.	53.05	**Min.** 0.0078	52.92
Max.	61.10	**Max.** 0.0081	61.10
Number of Spec.	18	**Number of Spec.** 18	18

Laminate Open-Hole Tension Properties (OHT3)--CTA(-67°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Laminate Open-Hole Tension Properties (OHT3)--RTA(75°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHT3-D-C1-1-RTA-1	D	C1	4	1	53.56	0.0809	10	LGM		0.0081	54.85
NTP2191Q1-WRX-PW-SOL-OHT3-D-C1-1-RTA-2	D	C1	4	1	61.00	0.0805	10	LGM		0.0081	62.16
NTP2191Q1-WRX-PW-SOL-OHT3-D-C1-1-RTA-3	D	C1	4	1	59.69	0.0800	10	LGM		0.0080	60.45
NTP2191Q1-WRX-PW-SOL-OHT3-D-C2-1-RTA-1	D	C2	4	2	58.27	0.0801	10	LGM		0.0080	59.08
NTP2191Q1-WRX-PW-SOL-OHT3-D-C2-1-RTA-2	D	C2	4	2	58.46	0.0802	10	LGM		0.0080	59.35
NTP2191Q1-WRX-PW-SOL-OHT3-D-C2-1-RTA-3	D	C2	4	2	53.40	0.0802	10	LGM		0.0080	54.21
NTP2191Q1-WRX-PW-SOL-OHT3-E-C1-1-RTA-1	E	C1	5	1	57.63	0.0788	10	LGM		0.0079	57.48
NTP2191Q1-WRX-PW-SOL-OHT3-E-C1-1-RTA-2	E	C1	5	1	61.06	0.0787	10	LGM		0.0079	60.83
NTP2191Q1-WRX-PW-SOL-OHT3-E-C1-1-RTA-3	E	C1	5	1	56.87	0.0787	10	LGM		0.0079	56.65
NTP2191Q1-WRX-PW-SOL-OHT3-E-C2-1-RTA-1	E	C2	5	2	61.90	0.0778	10	LGM		0.0078	60.96
NTP2191Q1-WRX-PW-SOL-OHT3-E-C2-1-RTA-2	E	C2	5	2	63.55	0.0784	10	LGM		0.0078	63.07
NTP2191Q1-WRX-PW-SOL-OHT3-E-C2-1-RTA-3	E	C2	5	2	57.17	0.0784	10	LGM		0.0078	56.74
NTP2191Q1-WRX-PW-SOL-OHT3-F-C3-1-RTA-1	F	C3	6	3	54.68	0.0776	10	LGM		0.0078	53.71
NTP2191Q1-WRX-PW-SOL-OHT3-F-C3-1-RTA-2	F	C3	6	3	60.84	0.0783	10	LGM		0.0078	60.30
NTP2191Q1-WRX-PW-SOL-OHT3-F-C3-1-RTA-3	F	C3	6	3	51.49	0.0786	10	LGM		0.0079	51.23
NTP2191Q1-WRX-PW-SOL-OHT3-F-C4-1-RTA-1	F	C4	6	4	55.79	0.0779	10	LGM		0.0078	55.01
NTP2191Q1-WRX-PW-SOL-OHT3-F-C4-1-RTA-2	F	C4	6	4	56.66	0.0783	10	LGM		0.0078	56.16
NTP2191Q1-WRX-PW-SOL-OHT3-F-C4-1-RTA-3	F	C4	6	4	57.23	0.0785	10	LGM		0.0079	56.87

Average	57.74	**Average$_{norm}$**	0.0079	57.73
Standard Dev.	3.236	**Standard Dev.$_{norm}$**		3.240
Coeff. of Var. [%]	5.604	**Coeff. of Var. [%]$_{norm}$**		5.612
Min.	51.49	**Min.**	0.0078	51.23
Max.	63.55	**Max.**	0.0081	63.07
Number of Spec.	18	**Number of Spec.**	18	18

Laminate Open-Hole Tension Properties (OHT3)--RTA(75°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Open-Hole Tension Properties (OHT3)--ETW1(180°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHT3-D-C1-1-ETW1-1	D	C1	4	1	63.24	0.0808	10	LGM		0.0081	64.68
NTP2191Q1-WRX-PW-SOL-OHT3-D-C1-1-ETW1-2	D	C1	4	1	63.97	0.0809	10	LGM		0.0081	65.51
NTP2191Q1-WRX-PW-SOL-OHT3-D-C1-1-ETW1-3	D	C1	4	1	58.76	0.0808	10	LGM		0.0081	60.10
NTP2191Q1-WRX-PW-SOL-OHT3-D-C2-1-ETW1-2	D	C2	4	2	56.50	0.0807	10	LGM		0.0081	57.72
NTP2191Q1-WRX-PW-SOL-OHT3-D-C2-1-ETW1-3	D	C2	4	2	64.17	0.0805	10	LGM		0.0081	65.39
NTP2191Q1-WRX-PW-SOL-OHT3-D-C2-1-ETW1-4	D	C2	4	2	61.49	0.0805	10	LGM		0.0081	62.66

Average	61.36	Average$_{norm}$ 0.0081	62.68
Standard Dev.	3.119	Standard Dev.$_{norm}$	3.183
Coeff. of Var. [%]	5.083	Coeff. of Var. [%]$_{norm}$	5.078
Min.	56.50	Min. 0.0081	57.72
Max.	64.17	Max. 0.0081	65.51
Number of Spec.	6	Number of Spec. 6	6

Laminate Open-Hole Tension Properties (OHT3)--ETW1(180°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Open-Hole Tension Properties (OHT3)--ETW2(225°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
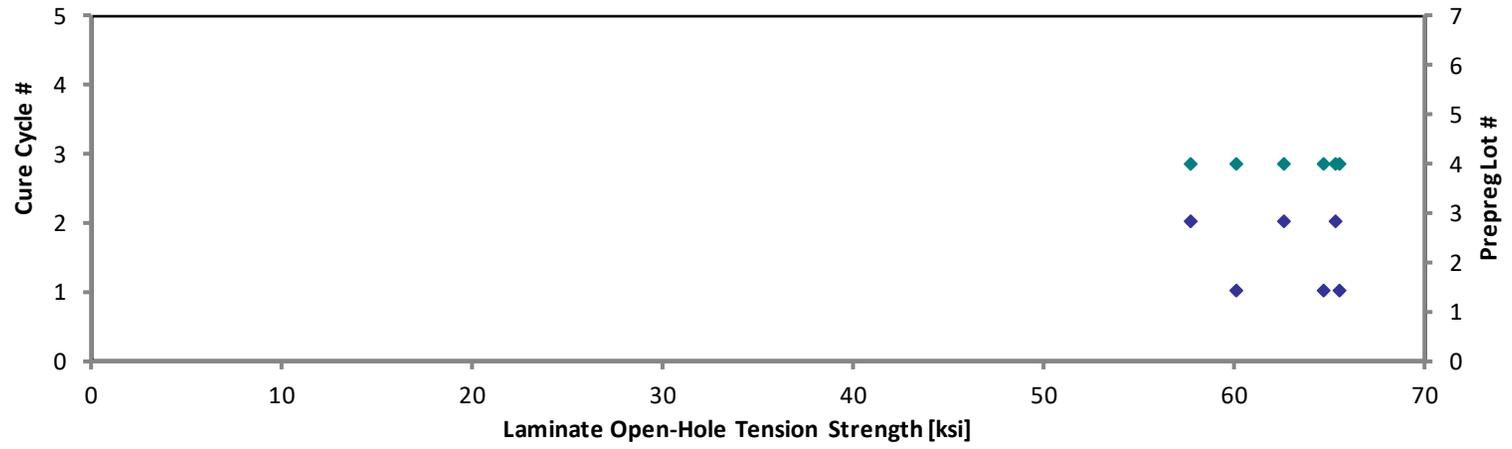
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHT3-D-C1-1-ETW2-1	D	C1	4	1	62.53	0.0809	10	LGM	0.0081	64.03
NTP2191Q1-WRX-PW-SOL-OHT3-D-C1-1-ETW2-2	D	C1	4	1	63.83	0.0812	10	LGM	0.0081	65.61
NTP2191Q1-WRX-PW-SOL-OHT3-D-C1-1-ETW2-3	D	C1	4	1	60.26	0.0807	10	LGM	0.0081	61.56
NTP2191Q1-WRX-PW-SOL-OHT3-D-C2-1-ETW2-1	D	C2	4	2	57.88	0.0807	10	LGM	0.0081	59.13
NTP2191Q1-WRX-PW-SOL-OHT3-D-C2-1-ETW2-2	D	C2	4	2	61.10	0.0804	10	LGM	0.0080	62.18
NTP2191Q1-WRX-PW-SOL-OHT3-D-C2-1-ETW2-3	D	C2	4	2	62.65	0.0803	10	LGM	0.0080	63.68
NTP2191Q1-WRX-PW-SOL-OHT3-E-C1-1-ETW2-1	E	C1	5	1	65.54	0.0785	10	MGM	0.0079	65.13
NTP2191Q1-WRX-PW-SOL-OHT3-E-C1-1-ETW2-2	E	C1	5	1	61.31	0.0785	10	LGM	0.0079	60.92
NTP2191Q1-WRX-PW-SOL-OHT3-E-C1-1-ETW2-3	E	C1	5	1	64.00	0.0784	10	LGM	0.0078	63.51
NTP2191Q1-WRX-PW-SOL-OHT3-E-C2-1-ETW2-1	E	C2	5	2	65.55	0.0776	10	MGM	0.0078	64.39
NTP2191Q1-WRX-PW-SOL-OHT3-E-C2-1-ETW2-2	E	C2	5	2	67.16	0.0784	10	MGM	0.0078	66.65
NTP2191Q1-WRX-PW-SOL-OHT3-E-C2-1-ETW2-3	E	C2	5	2	66.23	0.0786	10	MGM	0.0079	65.89
NTP2191Q1-WRX-PW-SOL-OHT3-F-C3-1-ETW2-1	F	C3	6	3	63.12	0.0780	10	LGM	0.0078	62.32
NTP2191Q1-WRX-PW-SOL-OHT3-F-C3-1-ETW2-2	F	C3	6	3	63.41	0.0784	10	LGM	0.0078	62.93
NTP2191Q1-WRX-PW-SOL-OHT3-F-C3-1-ETW2-3	F	C3	6	3	59.19	0.0791	10	LGM	0.0079	59.26
NTP2191Q1-WRX-PW-SOL-OHT3-F-C4-1-ETW2-1	F	C4	6	4	64.16	0.0785	10	LGM	0.0079	63.75
NTP2191Q1-WRX-PW-SOL-OHT3-F-C4-1-ETW2-2	F	C4	6	4	60.32	0.0783	10	MGM	0.0078	59.79
NTP2191Q1-WRX-PW-SOL-OHT3-F-C4-1-ETW2-3	F	C4	6	4	61.06	0.0786	10	MGM	0.0079	60.75

Average	62.74	$Average_{norm}$	0.0079	62.86
Standard Dev.	2.528	$Standard\ Dev._{norm}$		2.286
Coeff. of Var. [%]	4.030	$Coeff.\ of\ Var.\ [\%]_{norm}$		3.637
Min.	57.88	Min.	0.0078	59.13
Max.	67.16	Max.	0.0081	66.65
Number of Spec.	18	Number of Spec.	18	18

**Laminate Open-Hole Tension Properties (OHT3)--ETW2(225°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

Legend:
- ◆ Cure Cycle #
- ◆ Prepreg Lot #

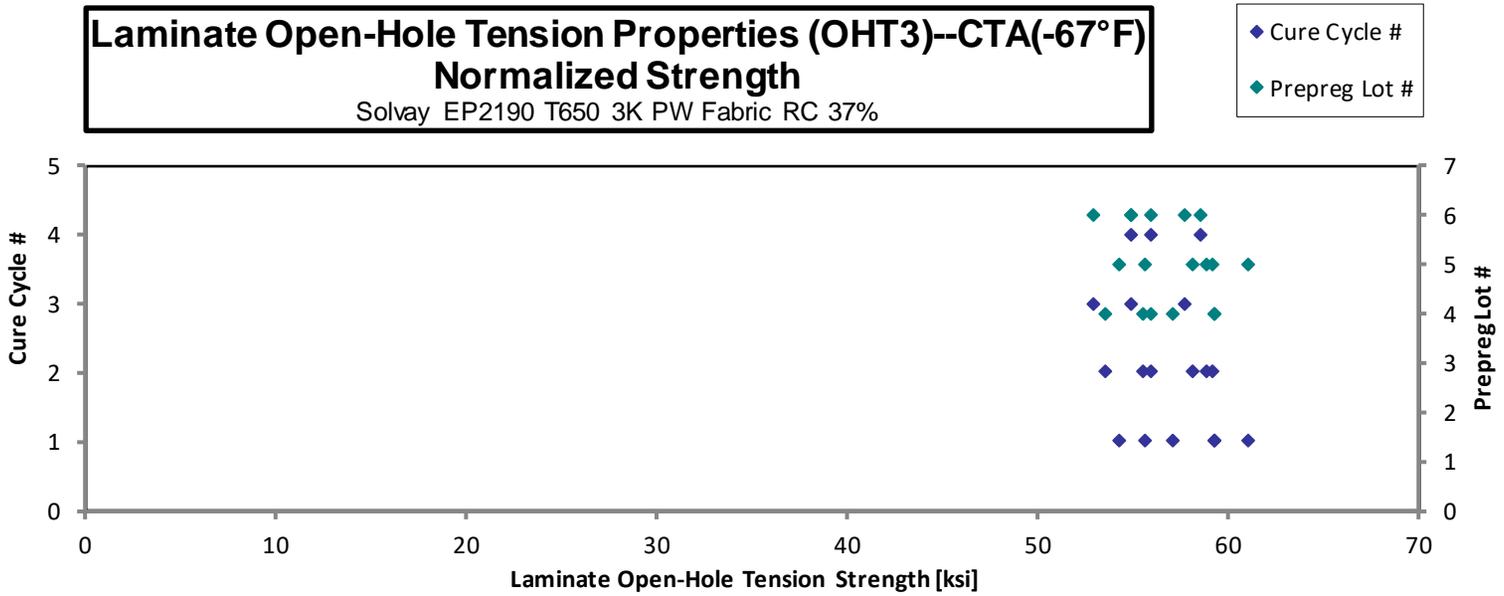X-axis: Laminate Open-Hole Tension Strength [ksi]
Left Y-axis: Cure Cycle #
Right Y-axis: Prepreg Lot #
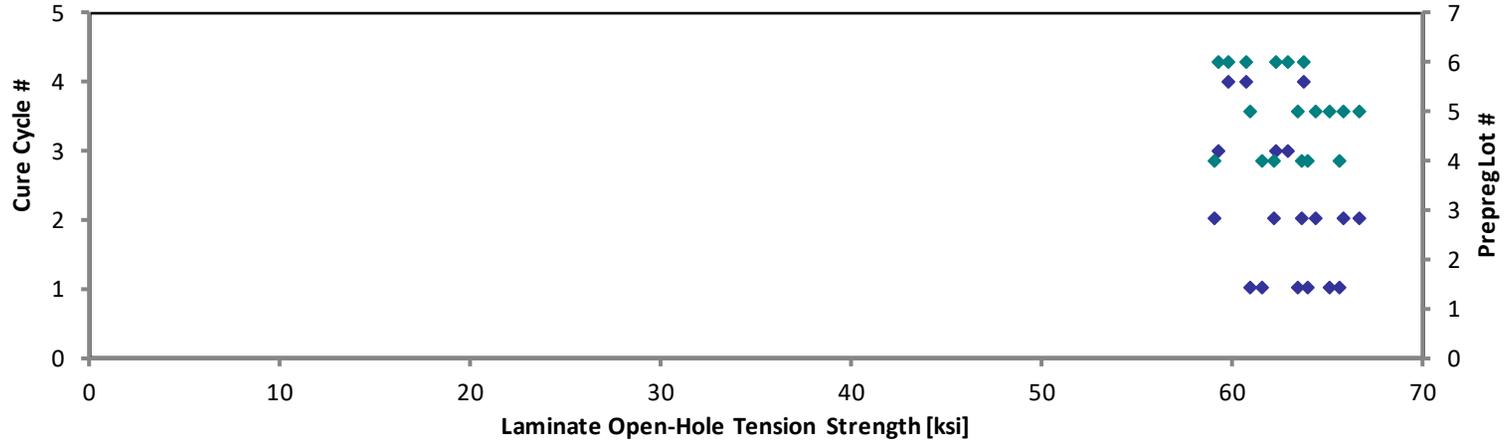
4.20 "25/50/25" Filled-Hole Tension 1 Properties (FHT1)

Laminate Filled-Hole Tension Properties (FHT1)--CTA(-67°F) Strength								
Solvay EP2190 T650 3K PW Fabric RC 37%								

normalizing t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHT1-D-C1-1-CTA-1	D	C1	4	1	56.86	0.06320	8	LGM	0.0079	56.86
NTP2191Q1-WRX-PW-SOL-FHT1-D-C1-1-CTA-2	D	C1	4	1	58.73	0.06330	8	LGM	0.0079	58.82
NTP2191Q1-WRX-PW-SOL-FHT1-D-C1-1-CTA-3	D	C1	4	1	54.10	0.06360	8	LGM	0.0080	54.44
NTP2191Q1-WRX-PW-SOL-FHT1-D-C2-1-CTA-1	D	C2	4	2	55.30	0.06310	8	LGM	0.0079	55.21
NTP2191Q1-WRX-PW-SOL-FHT1-D-C2-1-CTA-2	D	C2	4	2	57.18	0.06290	8	LGM	0.0079	56.91
NTP2191Q1-WRX-PW-SOL-FHT1-D-C2-1-CTA-3	D	C2	4	2	57.54	0.06330	8	LGM	0.0079	57.63
NTP2191Q1-WRX-PW-SOL-FHT1-E-C1-1-CTA-1	E	C1	5	1	52.78	0.06510	8	LGM	0.0081	54.37
NTP2191Q1-WRX-PW-SOL-FHT1-E-C1-1-CTA-2	E	C1	5	1	53.01	0.06530	8	LGM	0.0082	54.77
NTP2191Q1-WRX-PW-SOL-FHT1-E-C1-1-CTA-3	E	C1	5	1	50.71	0.06530	8	LGM	0.0082	52.39
NTP2191Q1-WRX-PW-SOL-FHT1-E-C2-1-CTA-1	E	C2	5	2	55.99	0.06550	8	LGM	0.0082	58.03
NTP2191Q1-WRX-PW-SOL-FHT1-E-C2-1-CTA-2	E	C2	5	2	48.63	0.06580	8	LGM	0.0082	50.63
NTP2191Q1-WRX-PW-SOL-FHT1-E-C2-1-CTA-3	E	C2	5	2	50.71	0.06600	8	LGM	0.0083	52.96
NTP2191Q1-WRX-PW-SOL-FHT1-F-C1-1-CTA-1	F	C1	6	1	58.61	0.06270	8	LGM	0.0078	58.15
NTP2191Q1-WRX-PW-SOL-FHT1-F-C1-1-CTA-2	F	C1	6	1	59.98	0.06290	8	LGM	0.0079	59.70
NTP2191Q1-WRX-PW-SOL-FHT1-F-C1-1-CTA-3	F	C1	6	1	55.69	0.06290	8	LGM	0.0079	55.43
NTP2191Q1-WRX-PW-SOL-FHT1-F-C2-1-CTA-1	F	C2	6	2	54.86	0.06350	8	LGM	0.0079	55.12
NTP2191Q1-WRX-PW-SOL-FHT1-F-C2-1-CTA-2	F	C2	6	2	54.16	0.06350	8	LGM	0.0079	54.42
NTP2191Q1-WRX-PW-SOL-FHT1-F-C2-1-CTA-3	F	C2	6	2	58.32	0.06330	8	LGM	0.0079	58.41

Average	55.18	Average$_{norm}$	0.0080	55.79
Standard Dev.	3.127	Standard Dev.$_{norm}$		2.444
Coeff. of Var. [%]	5.667	Coeff. of Var. [%]$_{norm}$		4.380
Min.	48.63	Min.	0.0078	50.63
Max.	59.98	Max.	0.0083	59.70
Number of Spec.	18	Number of Spec.	18	18

Laminate Filled-Hole Tension Properties (FHT1)--CTA(-67°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

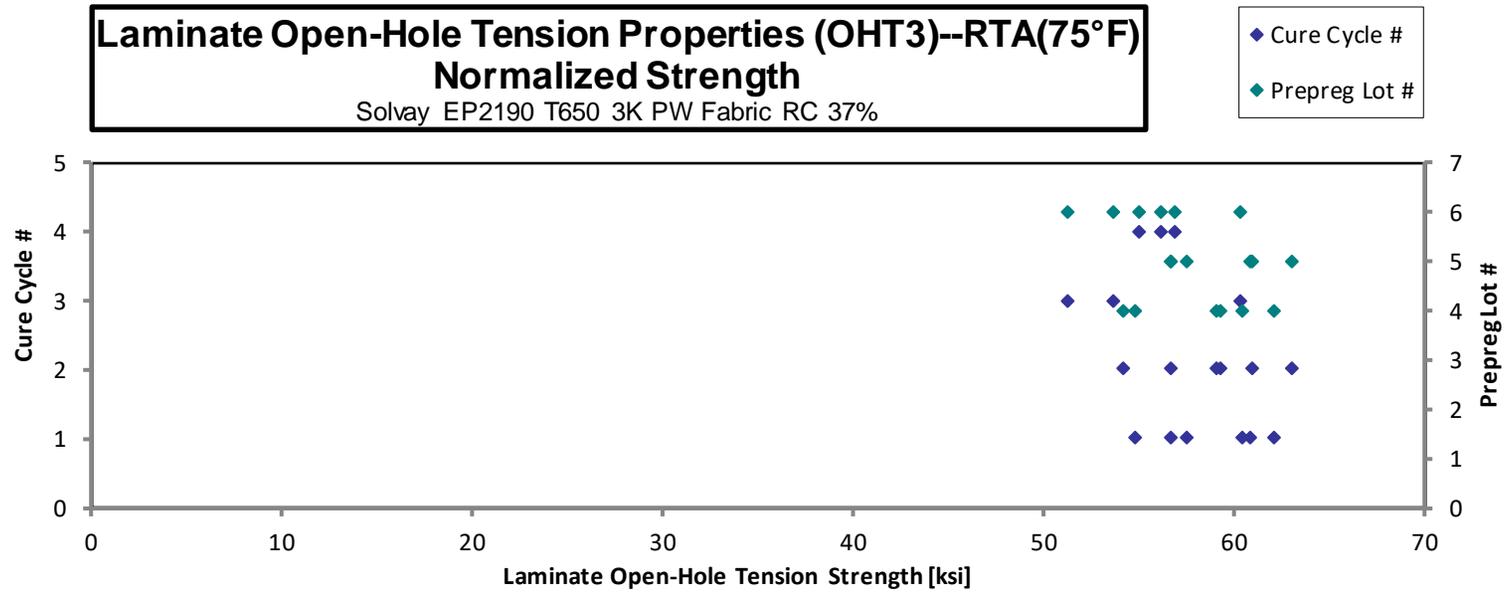| Laminate Filled-Hole Tension Properties (FHT1)--RTA(75°F) |
| :---: |
| **Strength** |
| Solvay EP2190 T650 3K PW Fabric RC 37% |

normalizing
t_{ply} [in]

| 0.0079 |

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHT1-D-C1-1-RTA-1	D	C1	4	1	50.86	0.06340	8	LGM		0.0079	51.02
NTP2191Q1-WRX-PW-SOL-FHT1-D-C1-1-RTA-2	D	C1	4	1	50.21	0.06390	8	LGM		0.0080	50.77
NTP2191Q1-WRX-PW-SOL-FHT1-D-C1-1-RTA-3	D	C1	4	1	50.41	0.06370	8	LGM		0.0080	50.81
NTP2191Q1-WRX-PW-SOL-FHT1-D-C2-1-RTA-1	D	C2	4	2	52.05	0.06350	8	LGM		0.0079	52.30
NTP2191Q1-WRX-PW-SOL-FHT1-D-C2-1-RTA-2	D	C2	4	2	55.70	0.06320	8	LGM		0.0079	55.70
NTP2191Q1-WRX-PW-SOL-FHT1-D-C2-1-RTA-3	D	C2	4	2	57.49	0.06310	8	LGM		0.0079	57.40
NTP2191Q1-WRX-PW-SOL-FHT1-E-C1-1-RTA-1	E	C1	5	1	60.27	0.06530	8	LGM		0.0082	62.27
NTP2191Q1-WRX-PW-SOL-FHT1-E-C1-1-RTA-2	E	C1	5	1	53.66	0.06550	8	LGM		0.0082	55.61
NTP2191Q1-WRX-PW-SOL-FHT1-E-C1-1-RTA-3	E	C1	5	1	57.55	0.06550	8	LGM		0.0082	59.64
NTP2191Q1-WRX-PW-SOL-FHT1-E-C2-1-RTA-1	E	C2	5	2	52.54	0.06580	8	LGM		0.0082	54.70
NTP2191Q1-WRX-PW-SOL-FHT1-E-C2-1-RTA-2	E	C2	5	2	52.91	0.06590	8	LGM		0.0082	55.17
NTP2191Q1-WRX-PW-SOL-FHT1-E-C2-1-RTA-3	E	C2	5	2	54.40	0.06590	8	LGM		0.0082	56.72
NTP2191Q1-WRX-PW-SOL-FHT1-F-C1-1-RTA-1	F	C1	6	1	60.01	0.06270	8	LGM		0.0078	59.54
NTP2191Q1-WRX-PW-SOL-FHT1-F-C1-1-RTA-2	F	C1	6	1	58.09	0.06310	8	LGM		0.0079	58.00
NTP2191Q1-WRX-PW-SOL-FHT1-F-C1-1-RTA-3	F	C1	6	1	55.44	0.06360	8	LGM		0.0080	55.79
NTP2191Q1-WRX-PW-SOL-FHT1-F-C2-1-RTA-1	F	C2	6	2	56.50	0.06280	8	LGM		0.0079	56.14
NTP2191Q1-WRX-PW-SOL-FHT1-F-C2-1-RTA-2	F	C2	6	2	57.05	0.06330	8	LGM		0.0079	57.14
NTP2191Q1-WRX-PW-SOL-FHT1-F-C2-1-RTA-3	F	C2	6	2	58.28	0.06320	8	LGM		0.0079	58.28

Average	55.19	**Average$_{norm}$** 0.0080	55.94
Standard Dev.	3.207	**Standard Dev.$_{norm}$**	3.195
Coeff. of Var. [%]	5.810	**Coeff. of Var. [%]$_{norm}$**	5.711
Min.	50.21	**Min.** 0.0078	50.77
Max.	60.27	**Max.** 0.0082	62.27
Number of Spec.	18	**Number of Spec.** 18	18

**Laminate Filled-Hole Tension Properties (FHT1)--RTA(75°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Filled-Hole Tension Properties (FHT1)--ETW1(180°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHT1-D-C1-1-ETW1-1	D	C1	4	1	56.64	0.06330	8	LGM	0.0079	56.73
NTP2191Q1-WRX-PW-SOL-FHT1-D-C1-1-ETW1-2	D	C1	4	1	56.00	0.06360	8	LGM	0.0080	56.35
NTP2191Q1-WRX-PW-SOL-FHT1-D-C1-1-ETW1-3	D	C1	4	1	57.91	0.06350	8	LGM	0.0079	58.18
NTP2191Q1-WRX-PW-SOL-FHT1-D-C2-1-ETW1-1	D	C2	4	2	58.79	0.06280	8	LGM	0.0079	58.42
NTP2191Q1-WRX-PW-SOL-FHT1-D-C2-1-ETW1-2	D	C2	4	2	59.46	0.06310	8	LGM	0.0079	59.37
NTP2191Q1-WRX-PW-SOL-FHT1-D-C2-1-ETW1-3	D	C2	4	2	59.85	0.06310	8	LFM	0.0079	59.76
NTP2191Q1-WRX-PW-SOL-FHT1-E-C1-1-ETW1-1	E	C1	5	1	58.65	0.06490	8	LGM	0.0081	60.23
NTP2191Q1-WRX-PW-SOL-FHT1-E-C1-1-ETW1-2	E	C1	5	1	57.51	0.06530	8	LGM	0.0082	59.42
NTP2191Q1-WRX-PW-SOL-FHT1-E-C1-1-ETW1-3	E	C1	5	1	56.34	0.06570	8	LGM	0.0082	58.57
NTP2191Q1-WRX-PW-SOL-FHT1-E-C2-1-ETW1-1	E	C2	5	2	57.34	0.06600	8	LGM	0.0083	59.88
NTP2191Q1-WRX-PW-SOL-FHT1-E-C2-1-ETW1-2	E	C2	5	2	54.89	0.06570	8	LGM	0.0082	57.06
NTP2191Q1-WRX-PW-SOL-FHT1-E-C2-1-ETW1-3	E	C2	5	2	55.69	0.06570	8	LGM	0.0082	57.89
NTP2191Q1-WRX-PW-SOL-FHT1-F-C1-1-ETW1-1	F	C1	6	1	63.43	0.06270	8	MGM	0.0078	62.93
NTP2191Q1-WRX-PW-SOL-FHT1-F-C1-1-ETW1-2	F	C1	6	1	62.25	0.06280	8	MGM	0.0079	61.86
NTP2191Q1-WRX-PW-SOL-FHT1-F-C1-1-ETW1-3	F	C1	6	1	63.03	0.06280	8	MGM	0.0079	62.63
NTP2191Q1-WRX-PW-SOL-FHT1-F-C2-1-ETW1-1	F	C2	6	2	59.67	0.06300	8	MGM	0.0079	59.48
NTP2191Q1-WRX-PW-SOL-FHT1-F-C2-1-ETW1-2	F	C2	6	2	60.30	0.06370	8	MGM	0.0080	60.78
NTP2191Q1-WRX-PW-SOL-FHT1-F-C2-1-ETW1-3	F	C2	6	2	57.94	0.06350	8	MGM	0.0079	58.22

Average	58.65	Average$_{norm}$	0.0080 59.32
Standard Dev.	2.476	Standard Dev.$_{norm}$	1.885
Coeff. of Var. [%]	4.222	Coeff. of Var. [%]$_{norm}$	3.178
Min.	54.89	Min.	0.0078 56.35
Max.	63.43	Max.	0.0083 62.93
Number of Spec.	18	Number of Spec.	18 18

Laminate Filled-Hole Tension Properties (FHT1)--ETW1(180°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Filled-Hole Tension Properties (FHT1)--ETW2(225°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
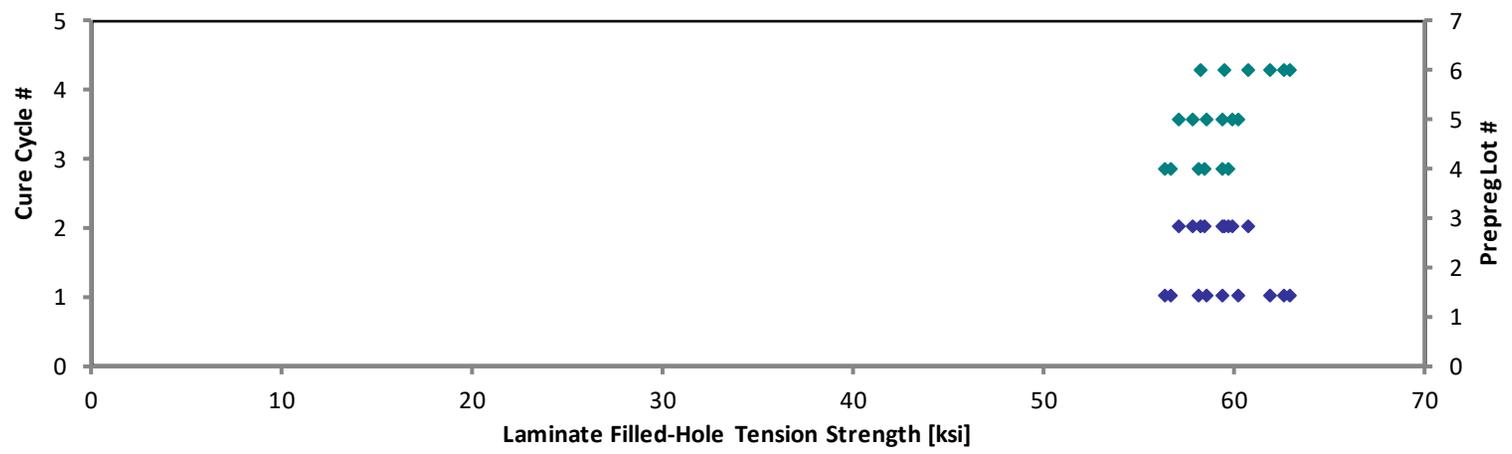
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHT1-D-C1-1-ETW2-1	D	C1	4	1	54.26	0.06340	8	LGM	0.0079	54.43
NTP2191Q1-WRX-PW-SOL-FHT1-D-C1-1-ETW2-2	D	C1	4	1	52.75	0.06420	8	LGM	0.0080	53.58
NTP2191Q1-WRX-PW-SOL-FHT1-D-C1-1-ETW2-3	D	C1	4	1	55.08	0.06350	8	LGM	0.0079	55.34
NTP2191Q1-WRX-PW-SOL-FHT1-D-C2-1-ETW2-1	D	C2	4	2	58.69	0.06250	8	LGM	0.0078	58.04
NTP2191Q1-WRX-PW-SOL-FHT1-D-C2-1-ETW2-2	D	C2	4	2	55.85	0.06250	8	LGM	0.0078	55.23
NTP2191Q1-WRX-PW-SOL-FHT1-D-C2-1-ETW2-3	D	C2	4	2	56.85	0.06290	8	LGM	0.0079	56.58
NTP2191Q1-WRX-PW-SOL-FHT1-E-C1-1-ETW2-1	E	C1	5	1	58.31	0.06560	8	MGM	0.0082	60.52
NTP2191Q1-WRX-PW-SOL-FHT1-E-C1-1-ETW2-2	E	C1	5	1	55.71	0.06570	8	MGM	0.0082	57.91
NTP2191Q1-WRX-PW-SOL-FHT1-E-C1-1-ETW2-3	E	C1	5	1	59.68	0.06570	8	LGM	0.0082	62.04
NTP2191Q1-WRX-PW-SOL-FHT1-E-C2-1-ETW2-1	E	C2	5	2	55.45	0.06590	8	MGM	0.0082	57.82
NTP2191Q1-WRX-PW-SOL-FHT1-E-C2-1-ETW2-2	E	C2	5	2	55.72	0.06580	8	MGM	0.0082	58.01
NTP2191Q1-WRX-PW-SOL-FHT1-E-C2-1-ETW2-3	E	C2	5	2	55.99	0.06570	8	MGM	0.0082	58.20
NTP2191Q1-WRX-PW-SOL-FHT1-F-C1-1-ETW2-1	F	C1	6	1	60.28	0.06260	8	MGM	0.0078	59.71
NTP2191Q1-WRX-PW-SOL-FHT1-F-C1-1-ETW2-2	F	C1	6	1	58.82	0.06250	8	MGM	0.0078	58.17
NTP2191Q1-WRX-PW-SOL-FHT1-F-C1-1-ETW2-3	F	C1	6	1	60.43	0.06270	8	MGM	0.0078	59.95
NTP2191Q1-WRX-PW-SOL-FHT1-F-C2-1-ETW2-1	F	C2	6	2	59.77	0.06360	8	MGM	0.0080	60.15
NTP2191Q1-WRX-PW-SOL-FHT1-F-C2-1-ETW2-2	F	C2	6	2	60.46	0.06320	8	MGM	0.0079	60.46
NTP2191Q1-WRX-PW-SOL-FHT1-F-C2-1-ETW2-3	F	C2	6	2	60.29	0.06350	8	MGM	0.0079	60.58

Average	57.47	Average$_{norm}$	0.0080	58.15
Standard Dev.	2.443	Standard Dev.$_{norm}$		2.369
Coeff. of Var. [%]	4.252	Coeff. of Var. [%]$_{norm}$		4.074
Min.	52.75	Min.	0.0078	53.58
Max.	60.46	Max.	0.0082	62.04
Number of Spec.	18	Number of Spec.	18	18

Laminate Filled-Hole Tension Properties (FHT1)--ETW2(225°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
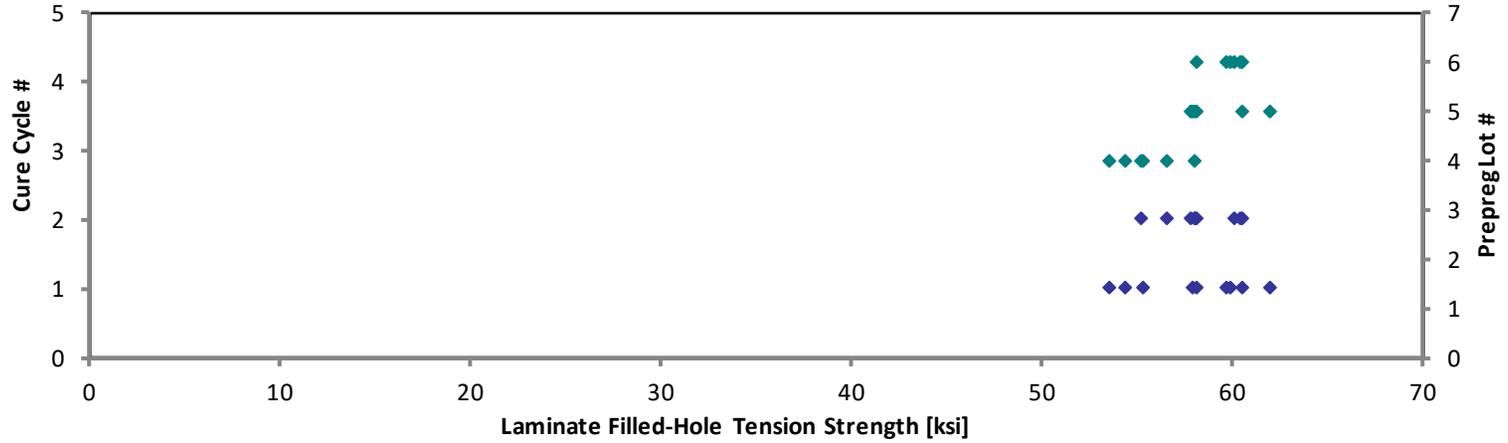
◆ Prepreg Lot #

4.21 "10/80/10" Filled-Hole Tension 2 Properties (FHT2)

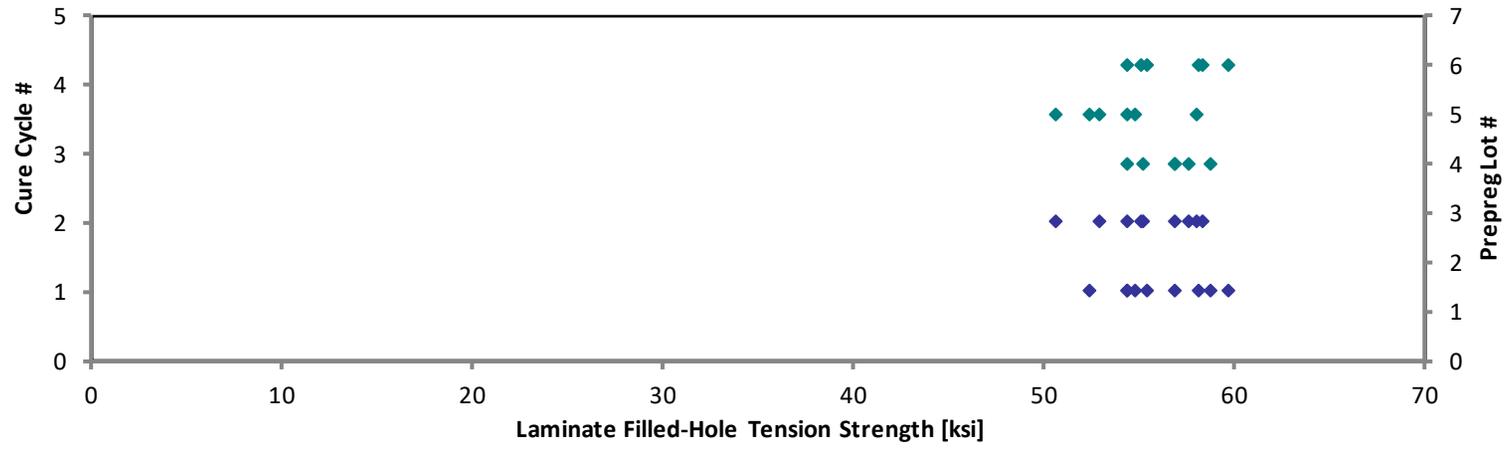| Laminate Filled-Hole Tension Properties (FHT2)--CTA(-67°F) Strength Solvay EP2190 T650 3K PW Fabric RC 37% |
|---|

normalizing t$_{ply}$ [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t$_{ply}$ [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHT2-D-C1-1-CTA-1	D	C1	4	1	52.94	0.0804	10	MGM		0.0080	53.88
NTP2191Q1-WRX-PW-SOL-FHT2-D-C1-1-CTA-2	D	C1	4	1	55.92	0.0807	10	MGM		0.0081	57.12
NTP2191Q1-WRX-PW-SOL-FHT2-D-C1-1-CTA-3	D	C1	4	1	54.47	0.0811	10	MGM		0.0081	55.92
NTP2191Q1-WRX-PW-SOL-FHT2-D-C2-1-CTA-1	D	C2	4	2	54.03	0.0813	10	MGM		0.0081	55.60
NTP2191Q1-WRX-PW-SOL-FHT2-D-C2-1-CTA-2	D	C2	4	2	52.37	0.0817	10	MGM		0.0082	54.16
NTP2191Q1-WRX-PW-SOL-FHT2-D-C2-1-CTA-3	D	C2	4	2	53.98	0.0821	10	MGM		0.0082	56.10
NTP2191Q1-WRX-PW-SOL-FHT2-E-C1-1-CTA-1	E	C1	5	1	56.50	0.0791	10	MGM		0.0079	56.57
NTP2191Q1-WRX-PW-SOL-FHT2-E-C1-1-CTA-2	E	C1	5	1	57.72	0.0798	10	MGM		0.0080	58.30
NTP2191Q1-WRX-PW-SOL-FHT2-E-C1-1-CTA-3	E	C1	5	1	58.30	0.0794	10	MGM		0.0079	58.60
NTP2191Q1-WRX-PW-SOL-FHT2-E-C2-1-CTA-1	E	C2	5	2	54.92	0.0797	10	MGM		0.0080	55.41
NTP2191Q1-WRX-PW-SOL-FHT2-E-C2-1-CTA-2	E	C2	5	2	57.09	0.0795	10	MGM		0.0080	57.45
NTP2191Q1-WRX-PW-SOL-FHT2-E-C2-1-CTA-3	E	C2	5	2	56.64	0.0792	10	MGM		0.0079	56.78
NTP2191Q1-WRX-PW-SOL-FHT2-F-C3-1-CTA-1	F	C3	6	3	55.49	0.0786	10	MGM		0.0079	55.21
NTP2191Q1-WRX-PW-SOL-FHT2-F-C3-1-CTA-2	F	C3	6	3	56.09	0.0789	10	MGM		0.0079	56.02
NTP2191Q1-WRX-PW-SOL-FHT2-F-C3-1-CTA-3	F	C3	6	3	55.56	0.0788	10	MGM		0.0079	55.42
NTP2191Q1-WRX-PW-SOL-FHT2-F-C4-1-CTA-1	F	C4	6	4	55.01	0.0790	10	MGM		0.0079	55.01
NTP2191Q1-WRX-PW-SOL-FHT2-F-C4-1-CTA-2	F	C4	6	4	55.42	0.0788	10	MGM		0.0079	55.28
NTP2191Q1-WRX-PW-SOL-FHT2-F-C4-1-CTA-3	F	C4	6	4	55.71	0.0789	10	MGM		0.0079	55.64

Average	55.45	Average$_{norm}$	0.0080	56.03
Standard Dev.	1.545	Standard Dev.$_{norm}$		1.268
Coeff. of Var. [%]	2.787	Coeff. of Var. [%]$_{norm}$		2.264
Min.	52.37	Min.	0.0079	53.88
Max.	58.30	Max.	0.0082	58.60
Number of Spec.	18	Number of Spec.	18	18

**Laminate Filled-Hole Tension Properties (FHT2)--CTA(-67°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

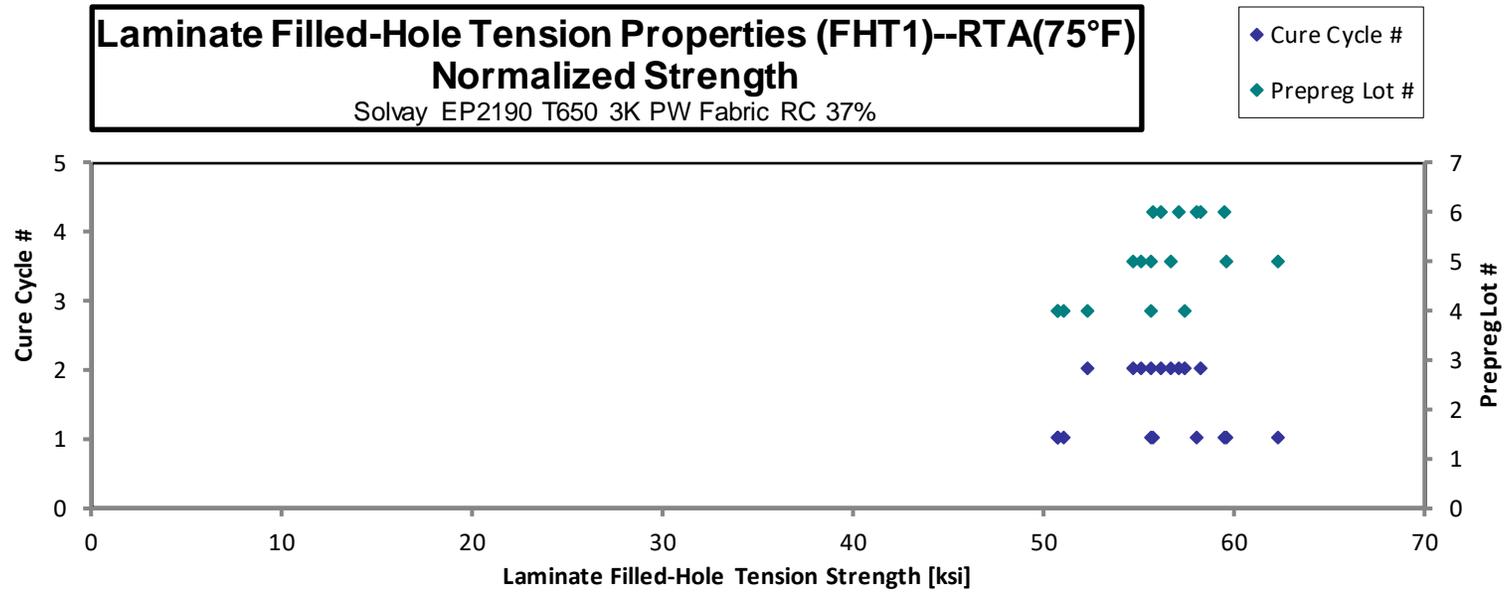**Laminate Filled-Hole Tension Properties (FHT2)--RTA(75°F)**
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHT2-D-C1-1-RTA-1	D	C1	4	1	48.49	0.0802	10	MGM	0.0080	49.23
NTP2191Q1-WRX-PW-SOL-FHT2-D-C1-1-RTA-2	D	C1	4	1	48.14	0.0807	10	MGM	0.0081	49.18
NTP2191Q1-WRX-PW-SOL-FHT2-D-C1-1-RTA-3	D	C1	4	1	50.55	0.0809	10	MGM	0.0081	51.77
NTP2191Q1-WRX-PW-SOL-FHT2-D-C2-1-RTA-1	D	C2	4	2	47.55	0.0809	10	MGM	0.0081	48.69
NTP2191Q1-WRX-PW-SOL-FHT2-D-C2-1-RTA-2	D	C2	4	2	48.46	0.0817	10	MGM	0.0082	50.12
NTP2191Q1-WRX-PW-SOL-FHT2-D-C2-1-RTA-3	D	C2	4	2	48.65	0.0819	10	MGM	0.0082	50.44
NTP2191Q1-WRX-PW-SOL-FHT2-E-C1-1-RTA-1	E	C1	5	1	48.78	0.0781	10	AGM	0.0078	48.22
NTP2191Q1-WRX-PW-SOL-FHT2-E-C1-1-RTA-2	E	C1	5	1	49.14	0.0789	10	AGM	0.0079	49.08
NTP2191Q1-WRX-PW-SOL-FHT2-E-C1-1-RTA-3	E	C1	5	1	46.96	0.0794	10	AGM	0.0079	47.20
NTP2191Q1-WRX-PW-SOL-FHT2-E-C2-1-RTA-1	E	C2	5	2	48.25	0.0780	10	AGM	0.0078	47.64
NTP2191Q1-WRX-PW-SOL-FHT2-E-C2-1-RTA-2	E	C2	5	2	49.14	0.0796	10	AGM	0.0080	49.51
NTP2191Q1-WRX-PW-SOL-FHT2-E-C2-1-RTA-3	E	C2	5	2	49.08	0.0795	10	AGM	0.0080	49.39
NTP2191Q1-WRX-PW-SOL-FHT2-F-C3-1-RTA-1	F	C3	6	3	48.64	0.0790	10	MGM	0.0079	48.64
NTP2191Q1-WRX-PW-SOL-FHT2-F-C3-1-RTA-2	F	C3	6	3	49.20	0.0791	10	MGM	0.0079	49.26
NTP2191Q1-WRX-PW-SOL-FHT2-F-C3-1-RTA-3	F	C3	6	3	48.15	0.0790	10	MGM	0.0079	48.15
NTP2191Q1-WRX-PW-SOL-FHT2-F-C4-1-RTA-1	F	C4	6	4	45.31	0.0780	10	MGM	0.0078	44.74
NTP2191Q1-WRX-PW-SOL-FHT2-F-C4-1-RTA-2	F	C4	6	4	47.47	0.0786	10	MGM	0.0079	47.23
NTP2191Q1-WRX-PW-SOL-FHT2-F-C4-1-RTA-3	F	C4	6	4	48.20	0.0788	10	MGM	0.0079	48.08

Average	48.34	Average$_{norm}$	0.0080	48.70
Standard Dev.	1.096	Standard Dev.$_{norm}$		1.509
Coeff. of Var. [%]	2.268	Coeff. of Var. [%]$_{norm}$		3.098
Min.	45.31	Min.	0.0078	44.74
Max.	50.55	Max.	0.0082	51.77
Number of Spec.	18	Number of Spec.	18	18

**Laminate Filled-Hole Tension Properties (FHT2)--RTA(75°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Filled-Hole Tension Properties (FHT2)--ETW1(180°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHT2-D-C1-1-ETW1-1	D	C1	4	1	41.08	0.0806	10	AGM	0.0081	41.91
NTP2191Q1-WRX-PW-SOL-FHT2-D-C1-1-ETW1-2	D	C1	4	1	43.10	0.0809	10	AGM	0.0081	44.14
NTP2191Q1-WRX-PW-SOL-FHT2-D-C1-1-ETW1-3	D	C1	4	1	41.29	0.0809	10	AGM	0.0081	42.28
NTP2191Q1-WRX-PW-SOL-FHT2-D-C2-1-ETW1-1	D	C2	4	2	41.14	0.0822	10	MGM	0.0082	42.81
NTP2191Q1-WRX-PW-SOL-FHT2-D-C2-1-ETW1-2	D	C2	4	2	39.78	0.0822	10	MGM	0.0082	41.39
NTP2191Q1-WRX-PW-SOL-FHT2-D-C2-1-ETW1-3	D	C2	4	2	39.04	0.0818	10	MGM	0.0082	40.42

Average	40.91	Average$_{norm}$	0.0081	42.16
Standard Dev.	1.400	Standard Dev.$_{norm}$		1.265
Coeff. of Var. [%]	3.422	Coeff. of Var. [%]$_{norm}$		3.002
Min.	39.04	Min.	0.0081	40.42
Max.	43.10	Max.	0.0082	44.14
Number of Spec.	6	Number of Spec.	6	6

**Laminate Filled-Hole Tension Properties (FHT2)--ETW1(180°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

Laminate Filled-Hole Tension Properties (FHT2)--ETW2(225°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHT2-D-C1-1-ETW2-1	D	C1	4	1	37.04	0.0806	10	AGM	0.0081	37.79
NTP2191Q1-WRX-PW-SOL-FHT2-D-C1-1-ETW2-2	D	C1	4	1	38.05	0.0809	10	MGM	0.0081	38.97
NTP2191Q1-WRX-PW-SOL-FHT2-D-C1-1-ETW2-3	D	C1	4	1	38.46	0.0807	10	AGM	0.0081	39.29
NTP2191Q1-WRX-PW-SOL-FHT2-D-C2-1-ETW2-1	D	C2	4	2	35.20	0.0820	10	MGM	0.0082	36.54
NTP2191Q1-WRX-PW-SOL-FHT2-D-C2-1-ETW2-2	D	C2	4	2	33.46	0.0819	10	MGM	0.0082	34.69
NTP2191Q1-WRX-PW-SOL-FHT2-D-C2-1-ETW2-3	D	C2	4	2	38.49	0.0817	10	MGM	0.0082	39.81
NTP2191Q1-WRX-PW-SOL-FHT2-E-C1-1-ETW2-1	E	C1	5	1	37.38	0.0785	10	AGM	0.0079	37.14
NTP2191Q1-WRX-PW-SOL-FHT2-E-C1-1-ETW2-2	E	C1	5	1	36.34	0.0793	10	AGM	0.0079	36.48
NTP2191Q1-WRX-PW-SOL-FHT2-E-C1-1-ETW2-3	E	C1	5	1	37.27	0.0791	10	AGM	0.0079	37.32
NTP2191Q1-WRX-PW-SOL-FHT2-E-C2-1-ETW2-1	E	C2	5	2	40.50	0.0784	10	AGM	0.0078	40.19
NTP2191Q1-WRX-PW-SOL-FHT2-E-C2-1-ETW2-2	E	C2	5	2	37.35	0.0797	10	AGM	0.0080	37.68
NTP2191Q1-WRX-PW-SOL-FHT2-E-C2-1-ETW2-3	E	C2	5	2	37.21	0.0797	10	AGM	0.0080	37.54
NTP2190Q1-WRX-PW-SOL-FHT2-F-C3-1-ETW2-1	F	C3	6	3	37.83	0.0782	10	AGM	0.0078	37.45
NTP2190Q1-WRX-PW-SOL-FHT2-F-C3-1-ETW2-2	F	C3	6	3	36.54	0.0789	10	AGM	0.0079	36.49
NTP2190Q1-WRX-PW-SOL-FHT2-F-C3-1-ETW2-3	F	C3	6	3	36.16	0.0792	10	AGM	0.0079	36.25
NTP2190Q1-WRX-PW-SOL-FHT2-F-C4-1-ETW2-1	F	C4	6	4	39.44	0.0773	10	AGM	0.0077	38.59
NTP2190Q1-WRX-PW-SOL-FHT2-F-C4-1-ETW2-2	F	C4	6	4	40.26	0.0783	10	AGM	0.0078	39.90
NTP2190Q1-WRX-PW-SOL-FHT2-F-C4-1-ETW2-3	F	C4	6	4	38.80	0.0783	10	AGM	0.0078	38.46

Average	37.54	Average$_{norm}$ 0.0080	37.81
Standard Dev.	1.722	Standard Dev.$_{norm}$	1.471
Coeff. of Var. [%]	4.587	Coeff. of Var. [%]$_{norm}$	3.891
Min.	33.46	Min. 0.0077	34.69
Max.	40.50	Max. 0.0082	40.19
Number of Spec.	18	Number of Spec. 18	18

**Laminate Filled-Hole Tension Properties (FHT2)--ETW2(225°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

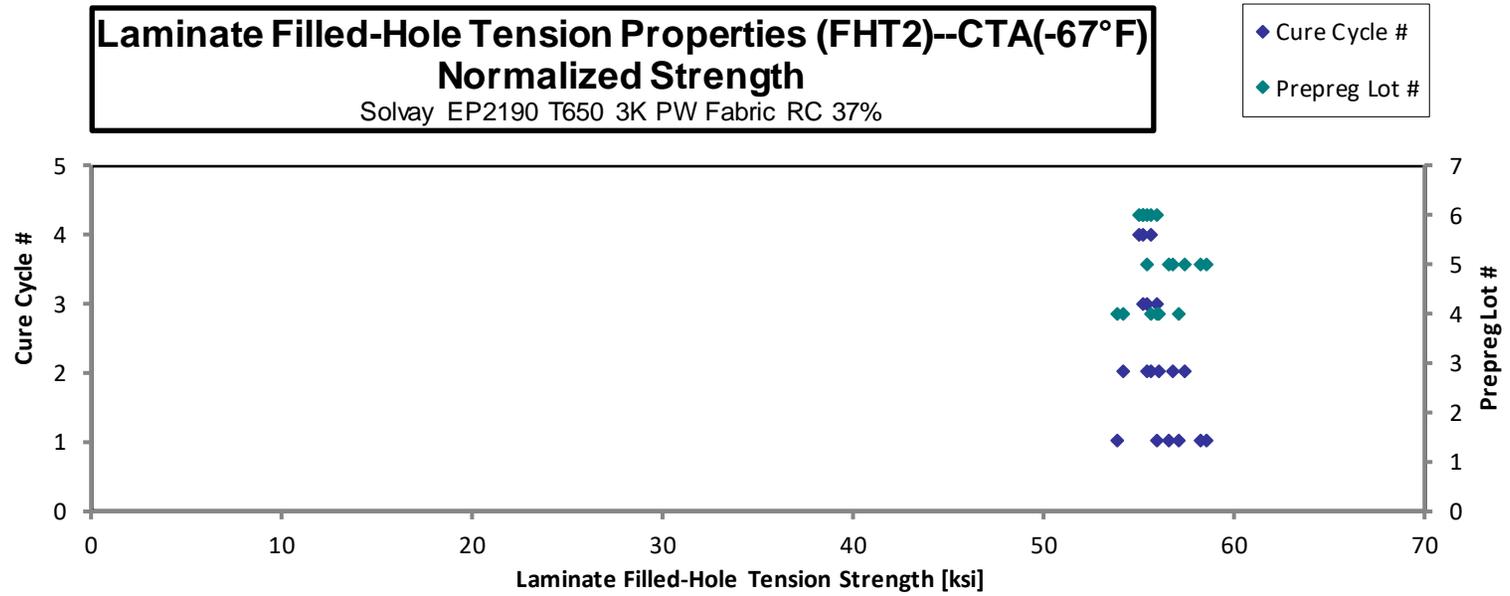## 4.22 "40/20/40" Filled-Hole Tension 3 Properties (FHT3)

Laminate Filled-Hole Tension Properties (FHT3)--CTA(-67°F) Strength Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t$_{ply}$ [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t$_{ply}$ [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHT3-D-C1-1-CTA-1	D	C1	4	1	60.53	0.0801	10	LGM	0.0080	61.37
NTP2191Q1-WRX-PW-SOL-FHT3-D-C1-1-CTA-2	D	C1	4	1	58.13	0.0803	10	LGM	0.0080	59.09
NTP2191Q1-WRX-PW-SOL-FHT3-D-C1-1-CTA-3	D	C1	4	1	62.43	0.0802	10	LGM	0.0080	63.38
NTP2191Q1-WRX-PW-SOL-FHT3-D-C2-1-CTA-1	D	C2	4	2	61.01	0.0810	10	LGM	0.0081	62.55
NTP2191Q1-WRX-PW-SOL-FHT3-D-C2-1-CTA-2	D	C2	4	2	63.00	0.0804	10	LGM	0.0080	64.12
NTP2191Q1-WRX-PW-SOL-FHT3-D-C2-1-CTA-3	D	C2	4	2	63.32	0.0810	10	LGM	0.0081	64.92
NTP2191Q1-WRX-PW-SOL-FHT3-E-C1-1-CTA-1	E	C1	5	1	65.39	0.0785	10	LGM	0.0079	64.98
NTP2191Q1-WRX-PW-SOL-FHT3-E-C1-1-CTA-2	E	C1	5	1	62.04	0.0790	10	LGM	0.0079	62.04
NTP2191Q1-WRX-PW-SOL-FHT3-E-C1-1-CTA-3	E	C1	5	1	66.12	0.0784	10	LGM	0.0078	65.62
NTP2191Q1-WRX-PW-SOL-FHT3-E-C2-1-CTA-1	E	C2	5	2	61.09	0.0793	10	LGM	0.0079	61.32
NTP2191Q1-WRX-PW-SOL-FHT3-E-C2-1-CTA-2	E	C2	5	2	61.58	0.0790	10	XGM	0.0079	61.58
NTP2191Q1-WRX-PW-SOL-FHT3-E-C2-1-CTA-3	E	C2	5	2	64.29	0.0791	10	LGM	0.0079	64.37
NTP2191Q1-WRX-PW-SOL-FHT3-F-C3-1-CTA-1	F	C3	6	3	67.00	0.0780	10	LGM	0.0078	66.15
NTP2191Q1-WRX-PW-SOL-FHT3-F-C3-1-CTA-2	F	C3	6	3	64.37	0.0783	10	LGM	0.0078	63.80
NTP2191Q1-WRX-PW-SOL-FHT3-F-C3-1-CTA-3	F	C3	6	3	64.88	0.0792	10	LGM	0.0079	65.04
NTP2191Q1-WRX-PW-SOL-FHT3-F-C4-1-CTA-1	F	C4	6	4	68.84	0.0785	10	LGM	0.0079	68.40
NTP2191Q1-WRX-PW-SOL-FHT3-F-C4-1-CTA-2	F	C4	6	4	65.32	0.0787	10	LGM	0.0079	65.07
NTP2191Q1-WRX-PW-SOL-FHT3-F-C4-1-CTA-3	F	C4	6	4	62.63	0.0785	10	LGM	0.0079	62.23

Average	63.44	**Average$_{norm}$**	0.0079	63.67
Standard Dev.	2.606	**Standard Dev.$_{norm}$**		2.202
Coeff. of Var. [%]	4.107	**Coeff. of Var. [%]$_{norm}$**		3.458
Min.	58.13	**Min.**	0.0078	59.09
Max.	68.84	**Max.**	0.0081	68.40
Number of Spec.	18	**Number of Spec.**	18	18

**Laminate Filled-Hole Tension Properties (FHT3)--CTA(-67°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

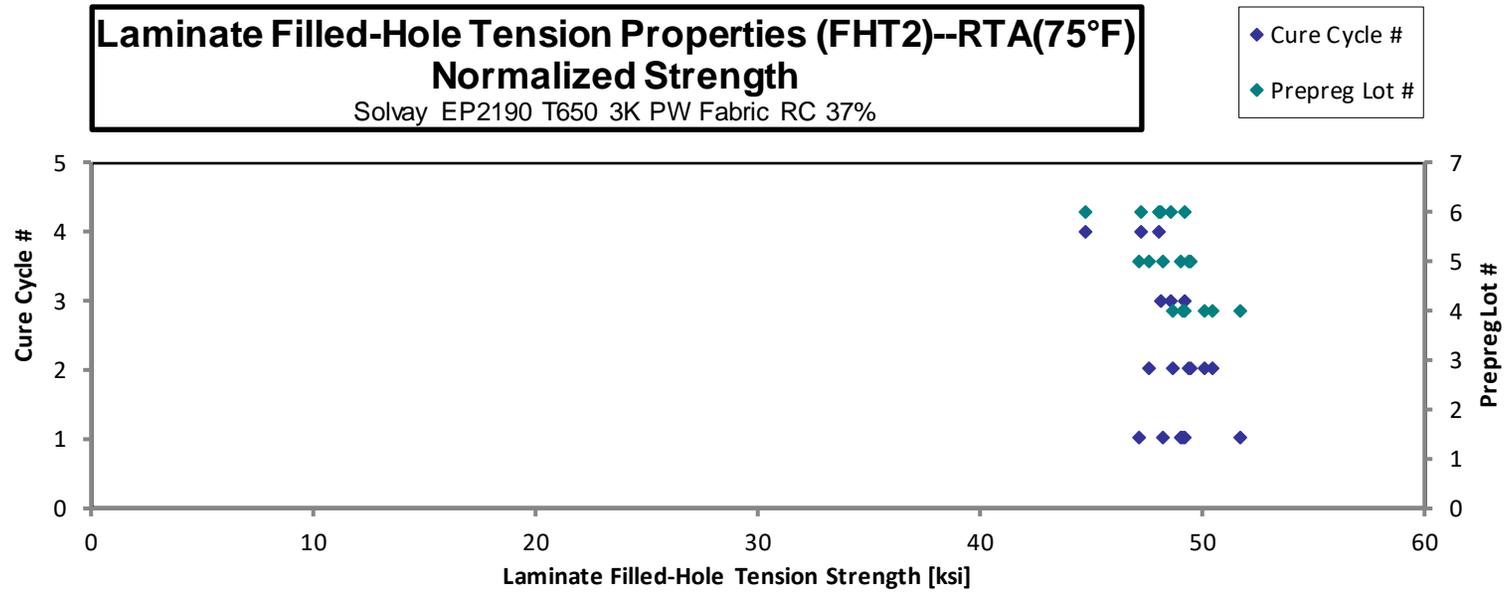**Laminate Filled-Hole Tension Properties (FHT3)--RTA(75°F)**
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHT3-D-C1-1-RTA-1	D	C1	4	1	61.36	0.0803	10	LGM	0.0080	62.37
NTP2191Q1-WRX-PW-SOL-FHT3-D-C1-1-RTA-2	D	C1	4	1	62.31	0.0802	10	LGM	0.0080	63.26
NTP2191Q1-WRX-PW-SOL-FHT3-D-C1-1-RTA-3	D	C1	4	1	57.50	0.0805	10	LGM	0.0081	58.59
NTP2191Q1-WRX-PW-SOL-FHT3-D-C2-1-RTA-1	D	C2	4	2	60.33	0.0808	10	LGM	0.0081	61.70
NTP2191Q1-WRX-PW-SOL-FHT3-D-C2-1-RTA-2	D	C2	4	2	56.55	0.0807	10	LGM	0.0081	57.77
NTP2191Q1-WRX-PW-SOL-FHT3-D-C2-1-RTA-3	D	C2	4	2	64.10	0.0805	10	LGM	0.0081	65.32
NTP2191Q1-WRX-PW-SOL-FHT3-E-C1-1-RTA-1	E	C1	5	1	68.53	0.0786	10	LGM	0.0079	68.18
NTP2191Q1-WRX-PW-SOL-FHT3-E-C1-1-RTA-2	E	C1	5	1	62.24	0.0789	10	LGM	0.0079	62.16
NTP2191Q1-WRX-PW-SOL-FHT3-E-C1-1-RTA-3	E	C1	5	1	63.45	0.0786	10	LGM	0.0079	63.13
NTP2191Q1-WRX-PW-SOL-FHT3-E-C2-1-RTA-1	E	C2	5	2	61.11	0.0779	10	LGM	0.0078	60.26
NTP2191Q1-WRX-PW-SOL-FHT3-E-C2-1-RTA-2	E	C2	5	2	64.93	0.0792	10	LGM	0.0079	65.09
NTP2191Q1-WRX-PW-SOL-FHT3-E-C2-1-RTA-3	E	C2	5	2	61.31	0.0789	10	LGM	0.0079	61.23
NTP2191Q1-WRX-PW-SOL-FHT3-F-C3-1-RTA-1	F	C3	6	3	59.27	0.0794	10	LGM	0.0079	59.57
NTP2191Q1-WRX-PW-SOL-FHT3-F-C3-1-RTA-2	F	C3	6	3	65.75	0.0792	10	LGM	0.0079	65.92
NTP2191Q1-WRX-PW-SOL-FHT3-F-C3-1-RTA-3	F	C3	6	3	66.16	0.0791	10	LGM	0.0079	66.24
NTP2191Q1-WRX-PW-SOL-FHT3-F-C4-1-RTA-1	F	C4	6	4	63.18	0.0789	10	LGM	0.0079	63.10
NTP2191Q1-WRX-PW-SOL-FHT3-F-C4-1-RTA-2	F	C4	6	4	57.10	0.0782	10	LGM	0.0078	56.52
NTP2191Q1-WRX-PW-SOL-FHT3-F-C4-1-RTA-3	F	C4	6	4	58.56	0.0784	10	LGM	0.0078	58.12

Average	61.87	$Average_{norm}$	0.0079 62.14
Standard Dev.	3.326	$Standard Dev._{norm}$	3.256
Coeff. of Var. [%]	5.376	$Coeff. of Var. [\%]_{norm}$	5.240
Min.	56.55	Min.	0.0078 56.52
Max.	68.53	Max.	0.0081 68.18
Number of Spec.	18	Number of Spec.	18 18

Laminate Filled-Hole Tension Properties (FHT3)--RTA(75°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

<table>
<tr><td colspan="9">**Laminate Filled-Hole Tension Properties (FHT3)--ETW1(180°F)**
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td></td><td colspan="2">**normalizing**
t_{ply} [in]
0.0079</td></tr>
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Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHT3-D-C1-1-ETW1-1	D	C1	4	1	65.20	0.0803	10	LGM		0.0080	66.27
NTP2191Q1-WRX-PW-SOL-FHT3-D-C1-1-ETW1-2	D	C1	4	1	68.48	0.0805	10	LGM		0.0081	69.78
NTP2191Q1-WRX-PW-SOL-FHT3-D-C1-1-ETW1-3	D	C1	4	1	69.16	0.0807	10	LGM		0.0081	70.65
NTP2191Q1-WRX-PW-SOL-FHT3-D-C2-1-ETW1-1	D	C2	4	2	65.56	0.0806	10	MGM		0.0081	66.89
NTP2191Q1-WRX-PW-SOL-FHT3-D-C2-1-ETW1-2	D	C2	4	2	65.69	0.0804	10	MGM		0.0080	66.85
NTP2191Q1-WRX-PW-SOL-FHT3-D-C2-1-ETW1-3	D	C2	4	2	67.22	0.0808	10	MGM		0.0081	68.75

Average	66.89	Average$_{norm}$ 0.0081	68.20
Standard Dev.	1.665	Standard Dev.$_{norm}$	1.791
Coeff. of Var. [%]	2.489	Coeff. of Var. [%]$_{norm}$	2.626
Min.	65.20	Min. 0.0080	66.27
Max.	69.16	Max. 0.0081	70.65
Number of Spec.	6	Number of Spec. 6	6

Laminate Filled-Hole Tension Properties (FHT3)--ETW1 (180°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Filled-Hole Tension Properties (FHT3)--ETW2(225°F)
Strength
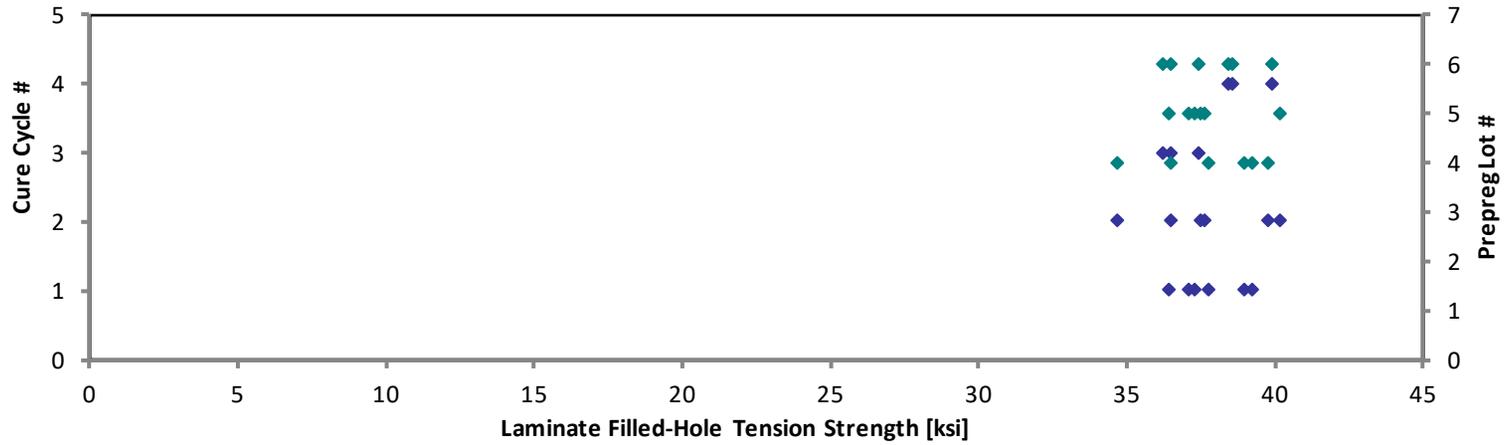Solvay EP2190 T650 3K PW Fabric RC 37%
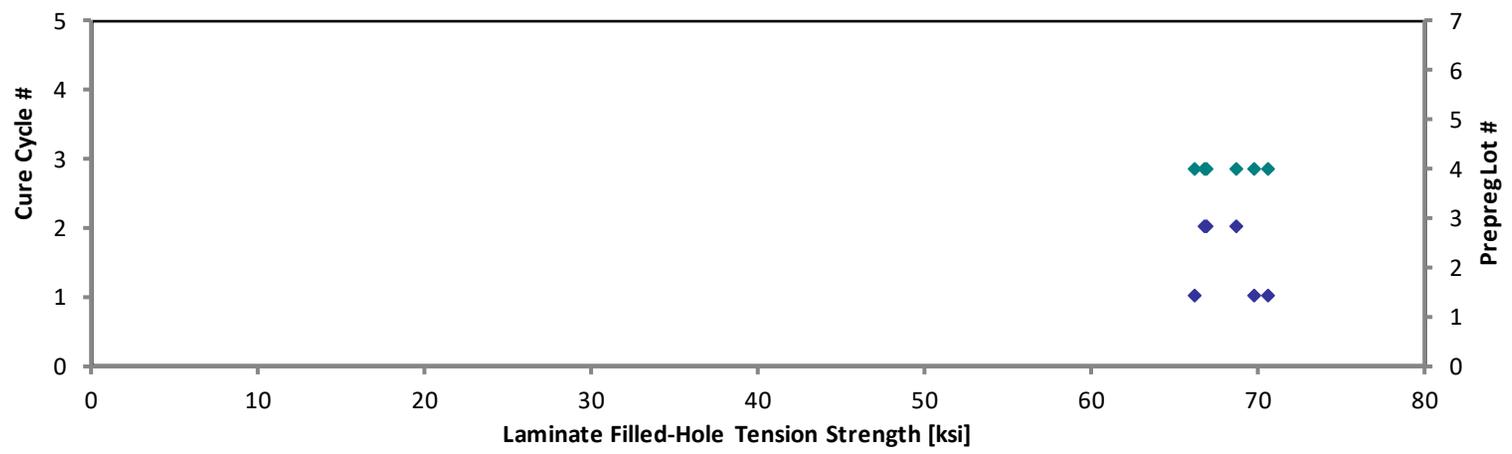
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHT3-D-C1-1-ETW2-1	D	C1	4	1	62.55	0.0803	10	LGM	0.0080	63.58
NTP2191Q1-WRX-PW-SOL-FHT3-D-C1-1-ETW2-2	D	C1	4	1	66.15	0.0809	10	XGM	0.0081	67.74
NTP2191Q1-WRX-PW-SOL-FHT3-D-C1-1-ETW2-3	D	C1	4	1	61.80	0.0808	10	LGM	0.0081	63.21
NTP2191Q1-WRX-PW-SOL-FHT3-D-C2-1-ETW2-1	D	C2	4	2	62.99	0.0803	10	MGM	0.0080	64.03
NTP2191Q1-WRX-PW-SOL-FHT3-D-C2-1-ETW2-2	D	C2	4	2	61.55	0.0804	10	MGM	0.0080	62.64
NTP2191Q1-WRX-PW-SOL-FHT3-D-C2-1-ETW2-3	D	C2	4	2	59.49	0.0806	10	MGM	0.0081	60.69
NTP2191Q1-WRX-PW-SOL-FHT3-E-C1-1-ETW2-1	E	C1	5	1	68.45	0.0792	10	MGM	0.0079	68.62
NTP2191Q1-WRX-PW-SOL-FHT3-E-C1-1-ETW2-2	E	C1	5	1	59.48	0.0792	10	MGM	0.0079	59.63
NTP2191Q1-WRX-PW-SOL-FHT3-E-C1-1-ETW2-3	E	C1	5	1	61.80	0.0791	10	MGM	0.0079	61.88
NTP2191Q1-WRX-PW-SOL-FHT3-E-C2-1-ETW2-1	E	C2	5	2	65.40	0.0781	10	MGM	0.0078	64.65
NTP2191Q1-WRX-PW-SOL-FHT3-E-C2-1-ETW2-2	E	C2	5	2	62.68	0.0790	10	MGM	0.0079	62.68
NTP2191Q1-WRX-PW-SOL-FHT3-E-C2-1-ETW2-3	E	C2	5	2	64.77	0.0787	10	LGM	0.0079	64.52
NTP2191Q1-WRX-PW-SOL-FHT3-F-C3-1-ETW2-1	F	C3	6	3	62.17	0.0780	10	LGM	0.0078	61.38
NTP2191Q1-WRX-PW-SOL-FHT3-F-C3-1-ETW2-2	F	C3	6	3	60.41	0.0784	10	LGM	0.0078	59.95
NTP2191Q1-WRX-PW-SOL-FHT3-F-C3-1-ETW2-3	F	C3	6	3	59.59	0.0789	10	LGM	0.0079	59.51
NTP2191Q1-WRX-PW-SOL-FHT3-F-C4-1-ETW2-1	F	C4	6	4	58.16	0.0775	10	LGM	0.0078	57.06
NTP2191Q1-WRX-PW-SOL-FHT3-F-C4-1-ETW2-2	F	C4	6	4	60.46	0.0783	10	LGM	0.0078	59.92
NTP2191Q1-WRX-PW-SOL-FHT3-F-C4-1-ETW2-3	F	C4	6	4	62.14	0.0780	10	LGM	0.0078	61.35

Average	62.22	
Standard Dev.	2.627	
Coeff. of Var. [%]	4.222	
Min.	58.16	
Max.	68.45	
Number of Spec.	18	

Average$_{norm}$	0.0079	62.39	
Standard Dev.$_{norm}$		2.907	
Coeff. of Var. [%]$_{norm}$		4.659	
Min.	0.0078	57.06	
Max.	0.0081	68.62	
Number of Spec.	18	18	

Laminate Filled-Hole Tension Properties (FHT3)--ETW2(225°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #
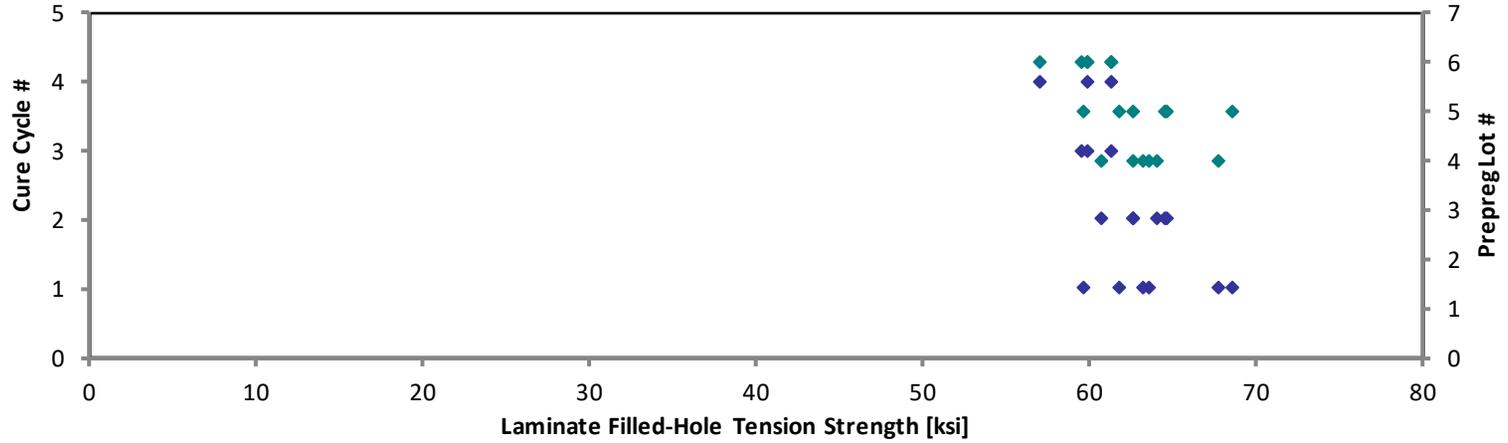
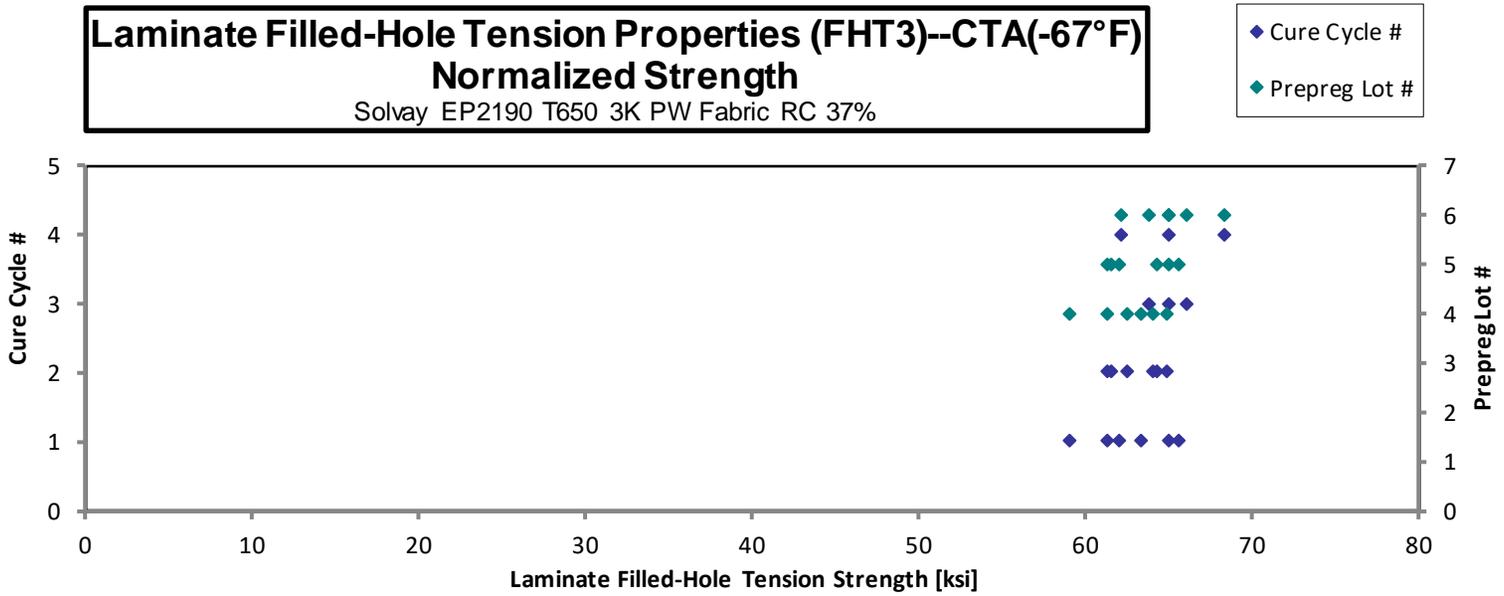## 4.23 "25/50/25" Open-Hole Compression 1 Properties (OHC1)

Laminate Open-Hole Compression Properties (OHC1)--CTA(-67°F)
Strength
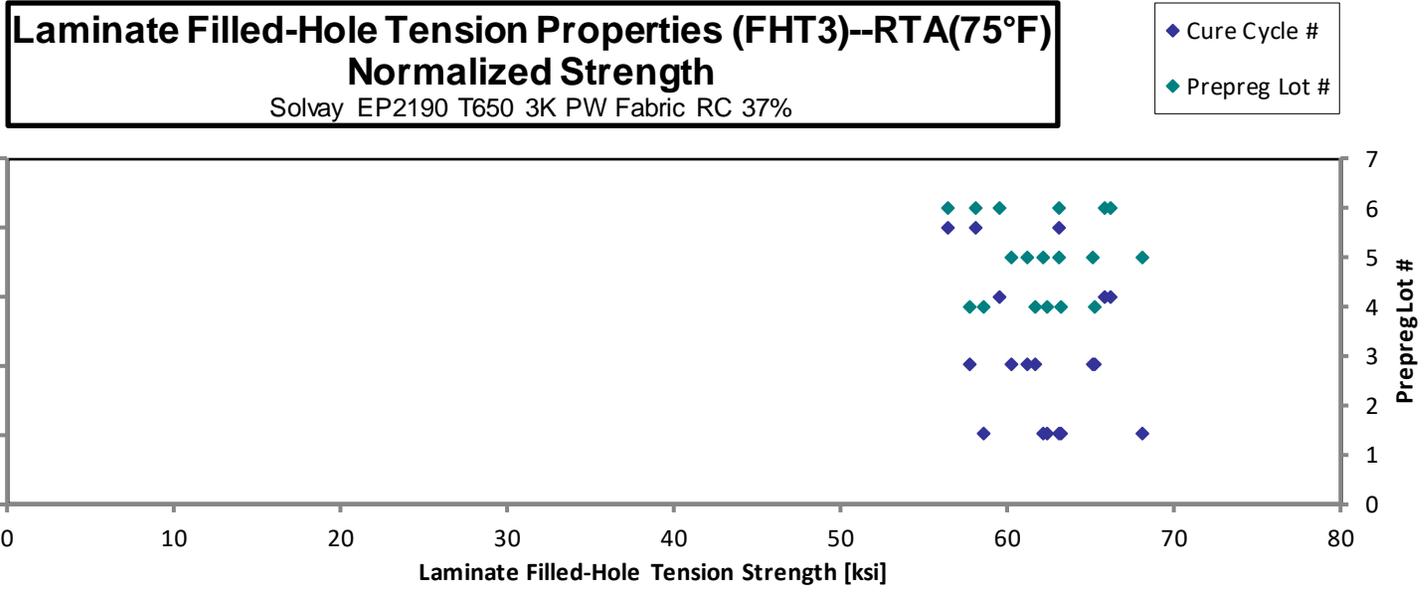Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
TR8695763-P1-OHC1-A-C1-CTA-1	A	C1	1	1	52.53	0.1266	16	LGM	0.0079	52.61
TR8695763-P1-OHC1-A-C1-CTA-2	A	C1	1	1	50.12	0.1276	16	LGM	0.0080	50.60
TR8695763-P1-OHC1-A-C1-CTA-3	A	C1	1	1	52.92	0.1273	16	LGM	0.0080	53.30
TR8695763-P1-OHC1-A-C1-CTA-4	A	C1	1	1	51.50	0.1279	16	LGM	0.0080	52.11
TR8695763-P1-OHC1-A-C1-CTA-5	A	C1	1	1	50.56	0.1286	16	LGM	0.0080	51.44
TR8695763-P1-OHC1-A-C1-CTA-6	A	C1	1	1	53.75	0.1256	16	LGM	0.0079	53.41
TR8346113-P3-OHC1-B-C1-CTA-1	B	C1	2	1	49.53	0.1272	16	MGM	0.0080	49.84
TR8346113-P3-OHC1-B-C1-CTA-2	B	C1	2	1	52.02	0.1281	16	MGM	0.0080	52.72
TR8346113-P3-OHC1-B-C1-CTA-3	B	C1	2	1	53.40	0.1283	16	MGM	0.0080	54.20
TR8346113-P3-OHC1-B-C1-CTA-4	B	C1	2	1	51.42	0.1282	16	MGM	0.0080	52.15
TR8346113-P3-OHC1-B-C1-CTA-5	B	C1	2	1	49.29	0.1279	16	MGM	0.0080	49.87
TR8346113-P3-OHC1-B-C1-CTA-6	B	C1	2	1	51.46	0.1279	16	MGM	0.0080	52.07
TR8347613-P3-OHC1-C-C1-CTA-1	C	C1	3	1	53.26	0.1263	16	MGM	0.0079	53.22
TR8347613-P3-OHC1-C-C1-CTA-2	C	C1	3	1	50.64	0.1271	16	MGM	0.0079	50.92
TR8347613-P3-OHC1-C-C1-CTA-3	C	C1	3	1	54.34	0.1275	16	MGM	0.0080	54.81
TR8347613-P3-OHC1-C-C1-CTA-4	C	C1	3	1	52.18	0.1277	16	MGM	0.0080	52.72
TR8347613-P3-OHC1-C-C1-CTA-5	C	C1	3	1	53.29	0.1276	16	MGM	0.0080	53.80
TR8347613-P3-OHC1-C-C1-CTA-6	C	C1	3	1	53.31	0.1276	16	MGM	0.0080	53.82
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-CTA-1	D	C1	4	1	50.10	0.1272	16	LGM	0.0080	50.42
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-CTA-2	D	C1	4	1	53.26	0.1279	16	LGM	0.0080	53.89
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-CTA-3	D	C1	4	1	53.25	0.1278	16	LGM	0.0080	53.84
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-CTA-1	D	C2	4	2	52.59	0.1280	16	LGM	0.0080	53.26
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-CTA-2	D	C2	4	2	52.61	0.1280	16	LGM	0.0080	53.28
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-CTA-3	D	C2	4	2	54.12	0.1278	16	LGM	0.0080	54.72

Average	52.14	Average$_{norm}$	0.0080	52.63
Standard Dev.	1.473	Standard Dev.$_{norm}$		1.462
Coeff. of Var. [%]	2.824	Coeff. of Var. [%]$_{norm}$		2.779
Min.	49.29	Min.	0.0079	49.84
Max.	54.34	Max.	0.0080	54.81
Number of Spec.	24	Number of Spec.	24	24

Laminate Open-Hole Compression Properties (OHC1)--CTA(-67°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Laminate Open-Hole Compression Properties (OHC1)--RTA(75°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
TR8695763-P5-OHC1-A-C1-RTA-1	A	C1	1	1	44.22	0.1256	16	LGM	0.0079	43.94
TR8695763-P5-OHC1-A-C1-RTA-2	A	C1	1	1	45.84	0.1283	16	LGM	0.0080	46.53
TR8695763-P5-OHC1-A-C1-RTA-3	A	C1	1	1	45.05	0.1244	16	LGM	0.0078	44.34
TR8695763-P5-OHC1-A-C1-RTA-4	A	C1	1	1	45.25	0.1269	16	LGM	0.0079	45.43
TR8695763-P5-OHC1-A-C1-RTA-5	A	C1	1	1	42.51	0.1272	16	LGM	0.0080	42.78
TR8695763-P5-OHC1-A-C1-RTA-6	A	C1	1	1	45.68	0.1280	16	LGM	0.0080	46.26
TR8346113-P4-OHC1-B-C1-RTA-1	B	C1	2	1	44.40	0.1270	16	LGM	0.0079	44.61
TR8346113-P4-OHC1-B-C1-RTA-2	B	C1	2	1	42.42	0.1283	16	LGM	0.0080	43.06
TR8346113-P4-OHC1-B-C1-RTA-3	B	C1	2	1	46.27	0.1285	16	LGM	0.0080	47.04
TR8346113-P4-OHC1-B-C1-RTA-4	B	C1	2	1	43.65	0.1285	16	LGM	0.0080	44.38
TR8346113-P4-OHC1-B-C1-RTA-5	B	C1	2	1	42.56	0.1279	16	LGM	0.0080	43.07
TR8346113-P4-OHC1-B-C1-RTA-6	B	C1	2	1	43.43	0.1285	16	LGM	0.0080	44.15
TR8347613-P4-OHC1-C-C1-RTA-1	C	C1	3	1	44.90	0.1270	16	LGM	0.0079	45.11
TR8347613-P4-OHC1-C-C1-RTA-2	C	C1	3	1	45.07	0.1281	16	LGM	0.0080	45.68
TR8347613-P4-OHC1-C-C1-RTA-3	C	C1	3	1	43.51	0.1274	16	LGM	0.0080	43.85
TR8347613-P4-OHC1-C-C1-RTA-4	C	C1	3	1	46.46	0.1273	16	LGM	0.0080	46.79
TR8347613-P4-OHC1-C-C1-RTA-5	C	C1	3	1	44.88	0.1275	16	LGM	0.0080	45.27
TR8347613-P4-OHC1-C-C1-RTA-6	C	C1	3	1	42.66	0.1279	16	LGM	0.0080	43.17
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-RTA-1	D	C1	4	1	44.23	0.1272	16	MGM	0.0080	44.51
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-RTA-2	D	C1	4	1	45.28	0.1274	16	MGM	0.0080	45.64
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-RTA-3	D	C1	4	1	46.12	0.1277	16	MGM	0.0080	46.59
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-RTA-1	D	C2	4	2	44.59	0.1277	16	LGM	0.0080	45.05
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-RTA-2	D	C2	4	2	45.46	0.1271	16	LGM	0.0079	45.71
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-RTA-3	D	C2	4	2	45.20	0.1272	16	LGM	0.0080	45.49

Average	44.57	**Average$_{norm}$** 0.0080	44.93
Standard Dev.	1.227	**Standard Dev.$_{norm}$**	1.247
Coeff. of Var. [%]	2.754	**Coeff. of Var. [%]$_{norm}$**	2.776
Min.	42.42	**Min.** 0.0078	42.78
Max.	46.46	**Max.** 0.0080	47.04
Number of Spec.	24	**Number of Spec.** 24	24

**Laminate Open-Hole Compression Properties (OHC1)--RTA(75°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

Laminate Open-Hole Compression Properties (OHC1)--ETA2(225°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETA2-1	D	C1	4	1	35.14	0.1278	16	LGM	0.0080	35.53
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETA2-2	D	C1	4	1	36.19	0.1274	16	LGM	0.0080	36.48
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETA2-3	D	C1	4	1	35.28	0.1281	16	LGM	0.0080	35.75
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETA2-1	D	C2	4	2	36.21	0.1272	16	LGM	0.0080	36.44
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETA2-2	D	C2	4	2	37.85	0.1274	16	LGM	0.0080	38.15
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETA2-3	D	C2	4	2	36.08	0.1274	16	LGM	0.0080	36.37

Average	36.13	Average$_{norm}$	0.0080	36.45
Standard Dev.	0.967	Standard Dev.$_{norm}$		0.920
Coeff. of Var. [%]	2.676	Coeff. of Var. [%]$_{norm}$		2.523
Min.	35.14	Min.	0.0080	35.53
Max.	37.85	Max.	0.0080	38.15
Number of Spec.	6	Number of Spec.	6	6

Laminate Open-Hole Compression Properties (OHC1)--ETA2(225°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%
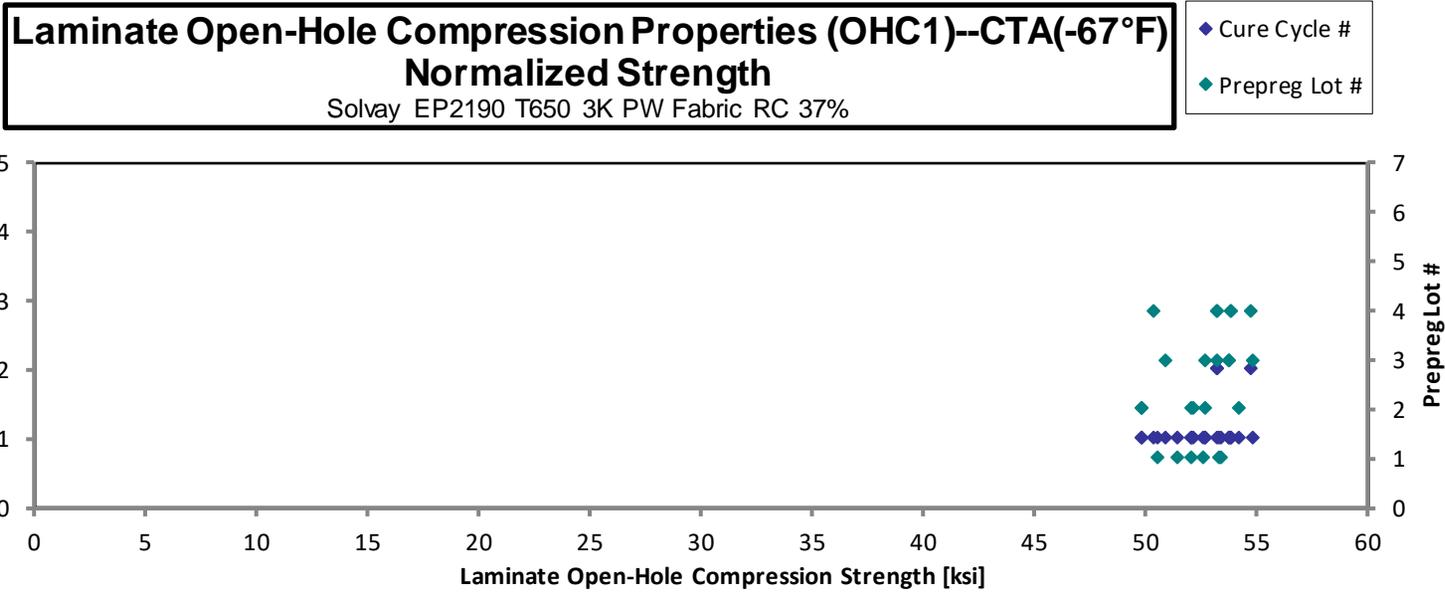
◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Open-Hole Compression Properties (OHC1)--ETA3(250°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
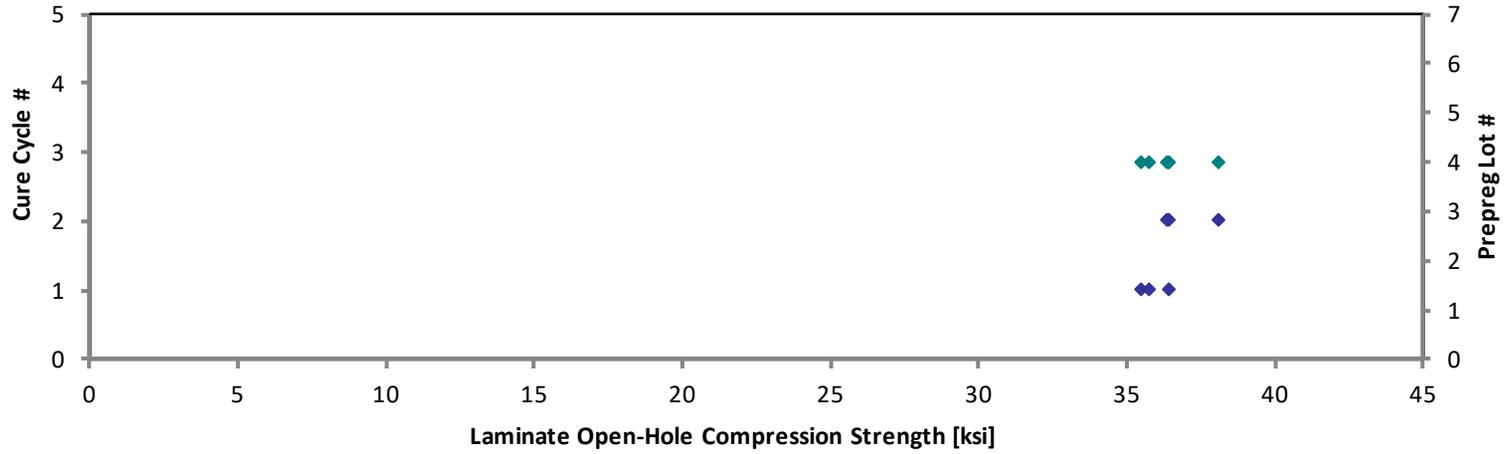
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
TR8695763-P2-OHC1-A-C1-ETA3-2	A	C1	1	1	34.89	0.1279	16	LGM	0.0080	35.30
TR8695763-P2-OHC1-A-C1-ETA3-3	A	C1	1	1	35.13	0.1273	16	LGM	0.0080	35.38
TR8695763-P2-OHC1-A-C1-ETA3-4	A	C1	1	1	35.08	0.1278	16	LGM	0.0080	35.47
TR8695763-P2-OHC1-A-C1-ETA3-5	A	C1	1	1	33.74	0.1275	16	LGM	0.0080	34.03
TR8695763-P2-OHC1-A-C1-ETA3-6	A	C1	1	1	31.48	0.1274	16	LGM	0.0080	31.73
TR8695763-P2-OHC1-A-C1-ETA3-7	A	C1	1	1	33.38	0.1286	16	LGM	0.0080	33.96
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETA3-1	D	C1	4	1	33.72	0.1274	16	LGM	0.0080	33.99
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETA3-2	D	C1	4	1	35.39	0.1275	16	LGM	0.0080	35.70
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETA3-3	D	C1	4	1	34.42	0.1275	16	LGM	0.0080	34.72
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETA3-1	D	C2	4	2	32.97	0.1277	16	LGM	0.0080	33.31
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETA3-2	D	C2	4	2	33.86	0.1276	16	LGM	0.0080	34.18
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETA3-3	D	C2	4	2	31.50	0.1279	16	LGM	0.0080	31.87
NTP2191Q1-WRX-PW-SOL-OHC1-E-C1-1-ETA3-1	E	C1	5	1	32.97	0.1309	16	LGM	0.0082	34.14
NTP2191Q1-WRX-PW-SOL-OHC1-E-C1-1-ETA3-2	E	C1	5	1	32.97	0.1314	16	LGM	0.0082	34.27
NTP2191Q1-WRX-PW-SOL-OHC1-E-C1-1-ETA3-3	E	C1	5	1	32.92	0.1313	16	LGM	0.0082	34.20
NTP2191Q1-WRX-PW-SOL-OHC1-E-C2-1-ETA3-1	E	C2	5	2	33.78	0.1303	16	MGM	0.0081	34.82
NTP2191Q1-WRX-PW-SOL-OHC1-E-C2-1-ETA3-2	E	C2	5	2	32.99	0.1314	16	MGM	0.0082	34.29
NTP2191Q1-WRX-PW-SOL-OHC1-E-C2-1-ETA3-3	E	C2	5	2	31.32	0.1314	16	MGM	0.0082	32.56

Average	33.47	Average$_{norm}$	0.0081	34.11
Standard Dev.	1.239	Standard Dev.$_{norm}$		1.141
Coeff. of Var. [%]	3.701	Coeff. of Var. [%]$_{norm}$		3.344
Min.	31.32	Min.	0.0080	31.73
Max.	35.39	Max.	0.0082	35.70
Number of Spec.	18	Number of Spec.	18	18

Laminate Open-Hole Compression Properties (OHC1)--ETA3(250°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Open-Hole Compression Strength [ksi]

<table>
<tr><td colspan="3">**Laminate Open-Hole Compression Properties (OHC1)--ETW1(180°F)**
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td>normalizing
t_{ply} [in]
0.0079</td></tr>
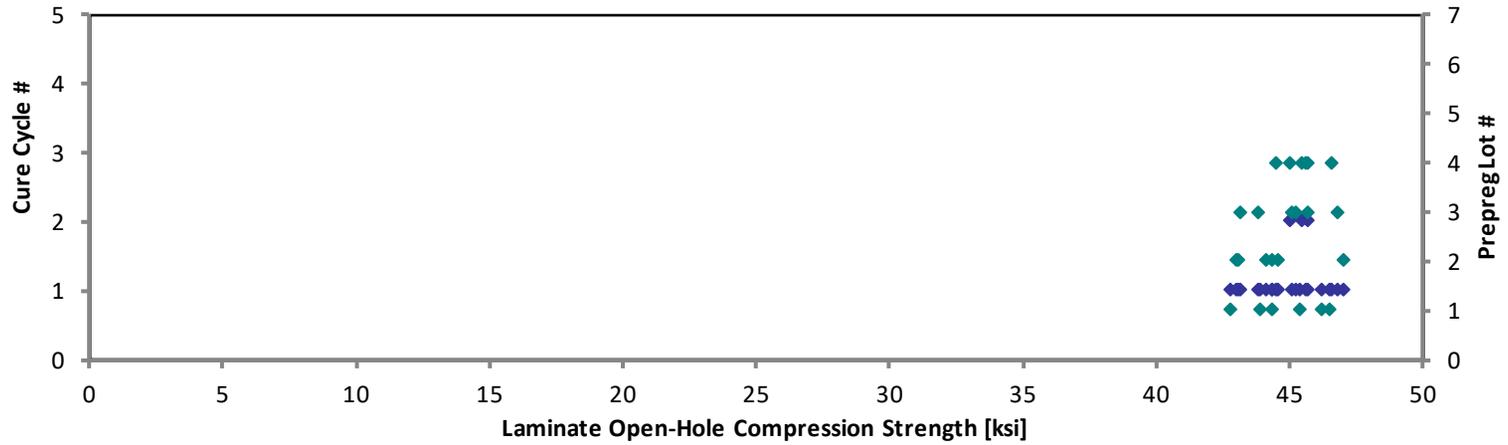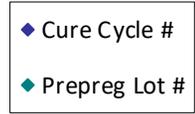</table>

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETW1-1	D	C1	4	1	35.81	0.1274	16	MGM		0.0080	36.09
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETW1-2	D	C1	4	1	37.96	0.1278	16	MGM		0.0080	38.38
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETW1-3	D	C1	4	1	37.17	0.1277	16	MGM		0.0080	37.55
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETW1-1	D	C2	4	2	34.99	0.1277	16	MGM		0.0080	35.35
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETW1-2	D	C2	4	2	35.65	0.1279	16	MGM		0.0080	36.07
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETW1-3	D	C2	4	2	35.32	0.1279	16	MGM		0.0080	35.74
NTP2191Q1-WRX-PW-SOL-OHC1-E-C1-1-ETW1-1	E	C1	5	1	33.09	0.1304	16	LGM		0.0082	34.14
NTP2191Q1-WRX-PW-SOL-OHC1-E-C1-1-ETW1-2	E	C1	5	1	34.01	0.1312	16	LGM		0.0082	35.30
NTP2191Q1-WRX-PW-SOL-OHC1-E-C1-1-ETW1-3	E	C1	5	1	34.71	0.1312	16	LGM		0.0082	36.03
NTP2191Q1-WRX-PW-SOL-OHC1-E-C2-1-ETW1-1	E	C2	5	2	35.26	0.1304	16	MGM		0.0082	36.38
NTP2191Q1-WRX-PW-SOL-OHC1-E-C2-1-ETW1-2	E	C2	5	2	33.73	0.1314	16	MGM		0.0082	35.06
NTP2191Q1-WRX-PW-SOL-OHC1-E-C2-1-ETW1-3	E	C2	5	2	33.54	0.1314	16	MGM		0.0082	34.87
NTP2191Q1-WRX-PW-SOL-OHC1-F-C1-1-ETW1-1	F	C1	6	1	34.10	0.1254	16	MGM		0.0078	33.83
NTP2191Q1-WRX-PW-SOL-OHC1-F-C1-1-ETW1-2	F	C1	6	1	33.94	0.1257	16	MGM		0.0079	33.75
NTP2191Q1-WRX-PW-SOL-OHC1-F-C1-1-ETW1-3	F	C1	6	1	35.96	0.1248	16	MGM		0.0078	35.50
NTP2191Q1-WRX-PW-SOL-OHC1-F-C2-1-ETW1-1	F	C2	6	2	33.93	0.1273	16	LGM		0.0080	34.17
NTP2191Q1-WRX-PW-SOL-OHC1-F-C2-1-ETW1-2	F	C2	6	2	35.35	0.1278	16	LGM		0.0080	35.74
NTP2191Q1-WRX-PW-SOL-OHC1-F-C2-1-ETW1-3	F	C2	6	2	34.70	0.1274	16	LGM		0.0080	34.97

Average	34.96	Average$_{norm}$	0.0080	35.50
Standard Dev.	1.269	Standard Dev.$_{norm}$		1.206
Coeff. of Var. [%]	3.629	Coeff. of Var. [%]$_{norm}$		3.399
Min.	33.09	Min.	0.0078	33.75
Max.	37.96	Max.	0.0082	38.38
Number of Spec.	18	Number of Spec.	18	18

Laminate Open-Hole Compression Properties (OHC1)--ETW1(180°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Open-Hole Compression Properties (OHC1)--ETW2(225°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
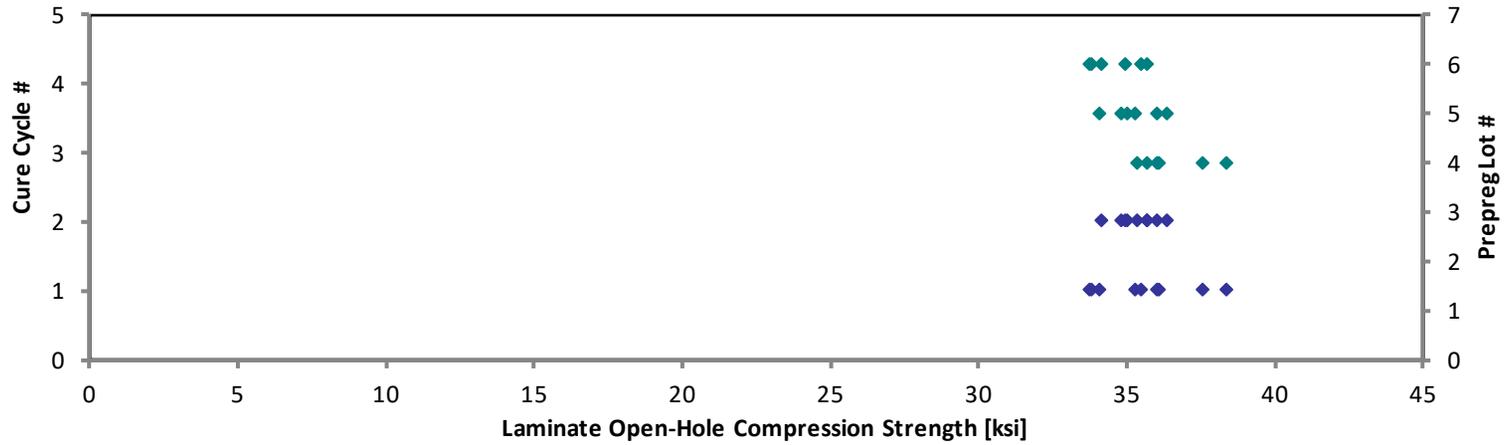
normalizing t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETW2-1	D	C1	4	1	30.37	0.1275	16	MGM	0.0080	30.63
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETW2-2	D	C1	4	1	31.53	0.1281	16	MGM	0.0080	31.95
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETW2-3	D	C1	4	1	31.42	0.1274	16	MGM	0.0080	31.67
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETW2-1	D	C2	4	2	31.07	0.1270	16	MGM	0.0079	31.22
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETW2-2	D	C2	4	2	31.27	0.1266	16	MGM	0.0079	31.32
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETW2-3	D	C2	4	2	30.52	0.1273	16	MGM	0.0080	30.74
NTP2191Q1-WRX-PW-SOL-OHC1-E-C1-1-ETW2-1	E	C1	5	1	27.71	0.1313	16	MGM	0.0082	28.78
NTP2191Q1-WRX-PW-SOL-OHC1-E-C1-1-ETW2-2	E	C1	5	1	28.31	0.1316	16	LGM	0.0082	29.47
NTP2191Q1-WRX-PW-SOL-OHC1-E-C1-1-ETW2-3	E	C1	5	1	27.40	0.1316	16	LGM	0.0082	28.53
NTP2191Q1-WRX-PW-SOL-OHC1-E-C2-1-ETW2-1	E	C2	5	2	28.87	0.1309	16	MGM	0.0082	29.90
NTP2191Q1-WRX-PW-SOL-OHC1-E-C2-1-ETW2-2	E	C2	5	2	28.80	0.1312	16	MGM	0.0082	29.89
NTP2191Q1-WRX-PW-SOL-OHC1-E-C2-1-ETW2-3	E	C2	5	2	28.31	0.1311	16	MGM	0.0082	29.36
NTP2191Q1-WRX-PW-SOL-OHC1-F-C1-1-ETW2-1	F	C1	6	1	28.74	0.1258	16	MGM	0.0079	28.60
NTP2191Q1-WRX-PW-SOL-OHC1-F-C1-1-ETW2-2	F	C1	6	1	28.18	0.1257	16	MGM	0.0079	28.02
NTP2191Q1-WRX-PW-SOL-OHC1-F-C1-1-ETW2-3	F	C1	6	1	28.93	0.1260	16	MGM	0.0079	28.84
NTP2191Q1-WRX-PW-SOL-OHC1-F-C2-1-ETW2-1	F	C2	6	2	29.07	0.1275	16	LGM	0.0080	29.32
NTP2191Q1-WRX-PW-SOL-OHC1-F-C2-1-ETW2-2	F	C2	6	2	29.02	0.1273	16	LGM	0.0080	29.23
NTP2191Q1-WRX-PW-SOL-OHC1-F-C2-1-ETW2-3	F	C2	6	2	29.42	0.1271	16	LGM	0.0079	29.58

Average	29.39	**Average$_{norm}$**	0.0080	29.84
Standard Dev.	1.314	**Standard Dev.$_{norm}$**		1.165
Coeff. of Var. [%]	4.473	**Coeff. of Var. [%]$_{norm}$**		3.905
Min.	27.40	**Min.**	0.0079	28.02
Max.	31.53	**Max.**	0.0082	31.95
Number of Spec.	18	**Number of Spec.**	18	18

Laminate Open-Hole Compression Properties (OHC1)--ETW2(225°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

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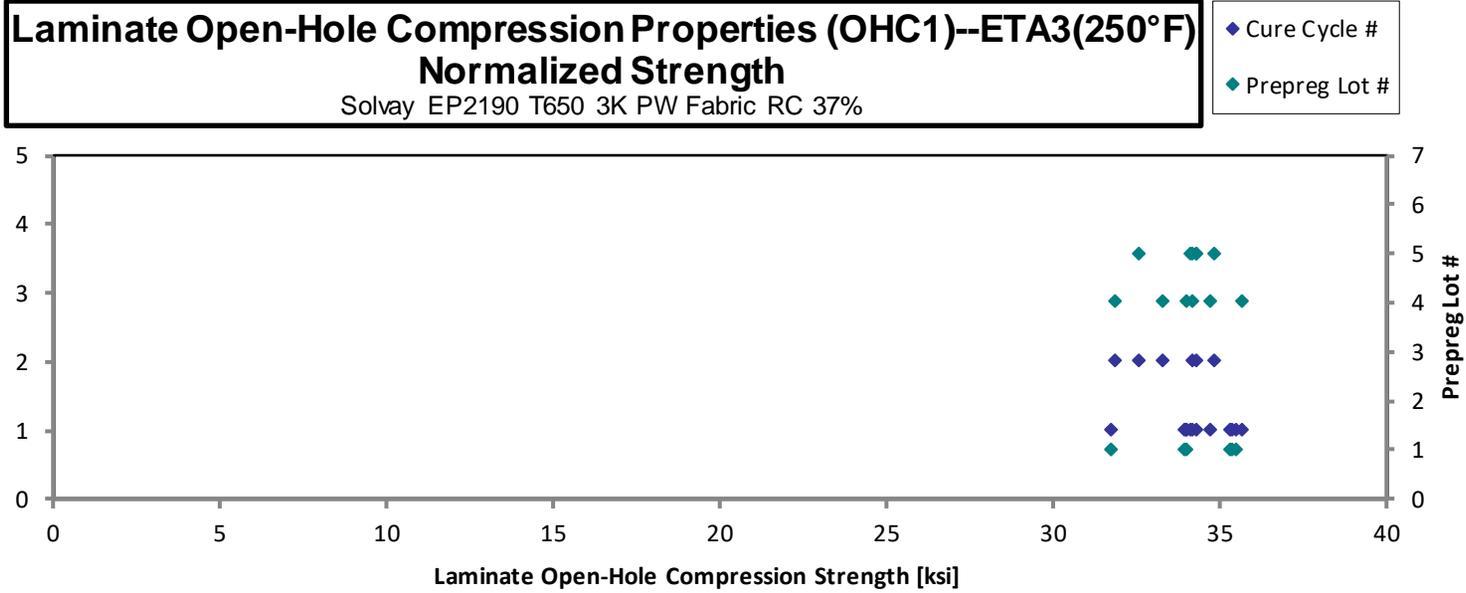<tr><td colspan="3">**Laminate Open-Hole Compression Properties (OHC1)--ETW3(250°F)**
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td>normalizing
t_{ply} [in]
0.0079</td></tr>
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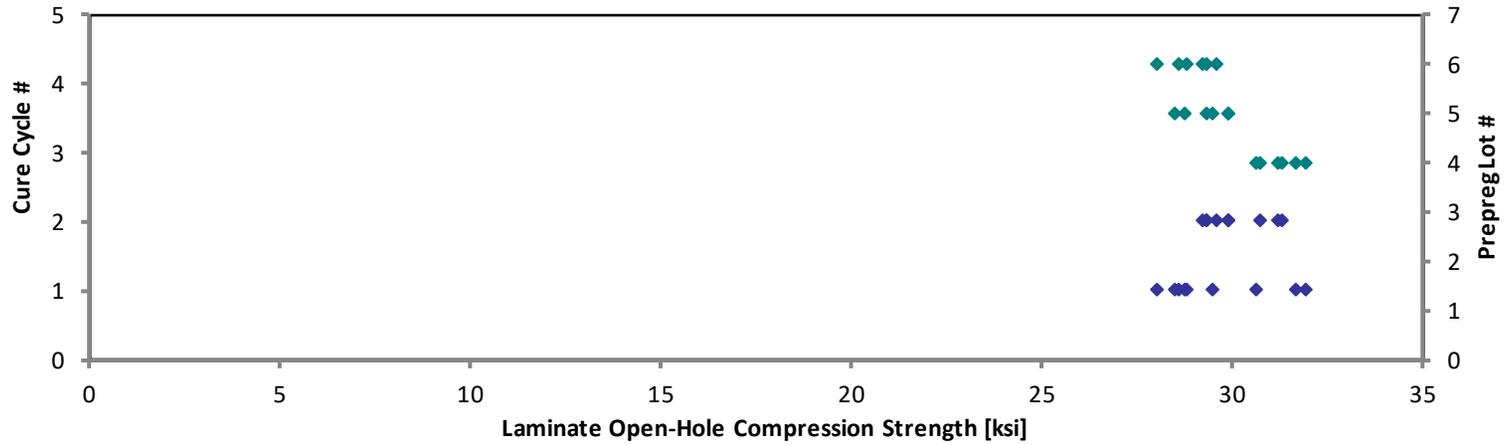
Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETW3-1	D	C1	4	1	29.00	0.1278	16	MGM	0.0080	29.32
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETW3-2	D	C1	4	1	28.05	0.1278	16	MGM	0.0080	28.36
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-ETW3-3	D	C1	4	1	27.21	0.1278	16	MGM	0.0080	27.51
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETW3-1	D	C2	4	2	27.24	0.1272	16	MGM	0.0080	27.41
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETW3-2	D	C2	4	2	26.83	0.1270	16	MGM	0.0079	26.96
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-ETW3-3	D	C2	4	2	27.21	0.1272	16	MGM	0.0080	27.38
NTP2191Q1-WRX-PW-SOL-OHC1-E-C1-1-ETW3-1	E	C1	5	1	25.81	0.1314	16	LGM	0.0082	26.83
NTP2191Q1-WRX-PW-SOL-OHC1-E-C1-1-ETW3-2	E	C1	5	1	25.89	0.1318	16	LGM	0.0082	27.00
NTP2191Q1-WRX-PW-SOL-OHC1-E-C1-1-ETW3-3	E	C1	5	1	25.46	0.1315	16	LGM	0.0082	26.49
NTP2191Q1-WRX-PW-SOL-OHC1-E-C2-1-ETW3-1	E	C2	5	2	25.56	0.1312	16	LGM	0.0082	26.53
NTP2191Q1-WRX-PW-SOL-OHC1-E-C2-1-ETW3-2	E	C2	5	2	25.56	0.1314	16	LGM	0.0082	26.57
NTP2191Q1-WRX-PW-SOL-OHC1-E-C2-1-ETW3-3	E	C2	5	2	26.00	0.1315	16	LGM	0.0082	27.05
NTP2191Q1-WRX-PW-SOL-OHC1-F-C1-1-ETW3-1	F	C1	6	1	25.59	0.1255	16	LGM	0.0078	25.41
NTP2191Q1-WRX-PW-SOL-OHC1-F-C1-1-ETW3-2	F	C1	6	1	25.42	0.1254	16	LGM	0.0078	25.22
NTP2191Q1-WRX-PW-SOL-OHC1-F-C1-1-ETW3-3	F	C1	6	1	26.32	0.1258	16	LGM	0.0079	26.20
NTP2191Q1-WRX-PW-SOL-OHC1-F-C2-1-ETW3-1	F	C2	6	2	24.58	0.1269	16	LGM	0.0079	24.68
NTP2191Q1-WRX-PW-SOL-OHC1-F-C2-1-ETW3-2	F	C2	6	2	24.90	0.1272	16	LGM	0.0080	25.06
NTP2191Q1-WRX-PW-SOL-OHC1-F-C2-1-ETW3-3	F	C2	6	2	24.96	0.1275	16	LGM	0.0080	25.18

Average	26.20	$Average_{norm}$	0.0080	26.62
Standard Dev.	1.170	$Standard\ Dev._{norm}$		1.207
Coeff. of Var. [%]	4.467	$Coeff.\ of\ Var.\ [\%]_{norm}$		4.533
Min.	24.58	Min.	0.0078	24.68
Max.	29.00	Max.	0.0082	29.32
Number of Spec.	18	Number of Spec.	18	18

Laminate Open-Hole Compression Properties (OHC1)--ETW3(250°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #
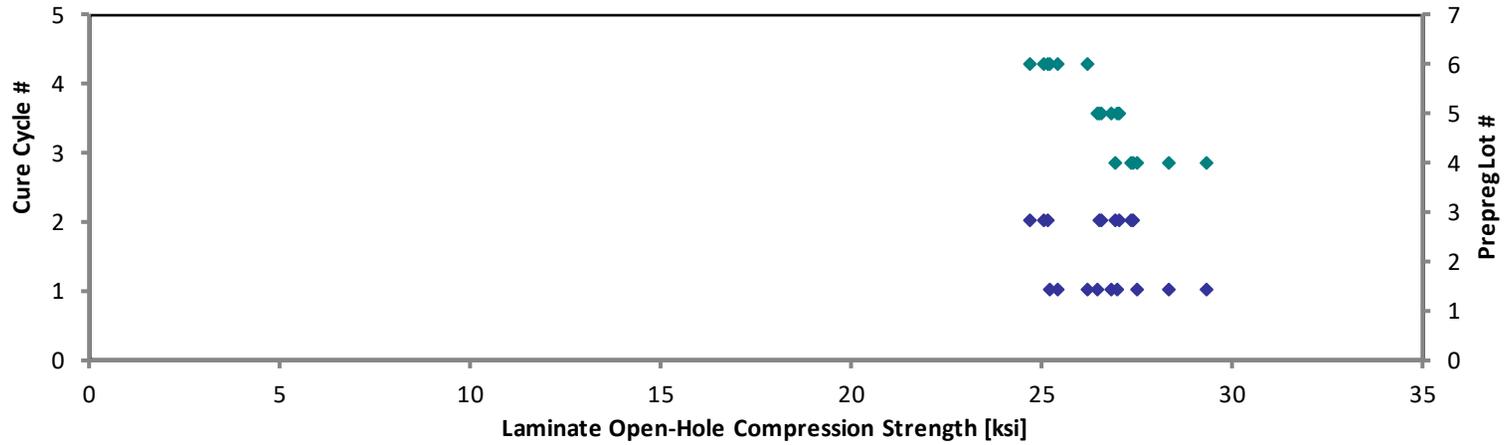
4.24 "10/80/10" Open-Hole Compression 2 Properties (OHC2)

Laminate Open-Hole Compression Properties (OHC2)--RTA(75°F) Strength Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-RTA-1	D	C1	4	1	39.84	0.1605	20	MGM		0.0080	40.47
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-RTA-2	D	C1	4	1	39.98	0.1602	20	MGM		0.0080	40.54
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-RTA-3	D	C1	4	1	40.78	0.1603	20	MGM		0.0080	41.37
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-RTA-1	D	C2	4	2	40.83	0.1626	20	MGM		0.0081	42.02
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-RTA-2	D	C2	4	2	40.60	0.1628	20	MGM		0.0081	41.83
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-RTA-3	D	C2	4	2	41.17	0.1632	20	MGM		0.0082	42.52
NTP2191Q1-WRX-PW-SOL-OHC2-E-C1-1-RTA-1	E	C1	5	1	41.63	0.1555	20	MGM		0.0078	40.97
NTP2191Q1-WRX-PW-SOL-OHC2-E-C1-1-RTA-2	E	C1	5	1	42.21	0.1579	20	MGM		0.0079	42.18
NTP2191Q1-WRX-PW-SOL-OHC2-E-C1-1-RTA-3	E	C1	5	1	41.12	0.1585	20	MGM		0.0079	41.25
NTP2191Q1-WRX-PW-SOL-OHC2-E-C2-1-RTA-1	E	C2	5	2	39.82	0.1565	20	LGM		0.0078	39.44
NTP2191Q1-WRX-PW-SOL-OHC2-E-C2-1-RTA-2	E	C2	5	2	39.73	0.1574	20	LGM		0.0079	39.58
NTP2191Q1-WRX-PW-SOL-OHC2-E-C2-1-RTA-3	E	C2	5	2	40.48	0.1573	20	MGM		0.0079	40.30
NTP2191Q1-WRX-PW-SOL-OHC2-F-C3-1-RTA-1	F	C3	6	3	41.08	0.1569	20	LGM		0.0078	40.79
NTP2191Q1-WRX-PW-SOL-OHC2-F-C3-1-RTA-2	F	C3	6	3	41.33	0.1566	20	MGM		0.0078	40.96
NTP2191Q1-WRX-PW-SOL-OHC2-F-C3-1-RTA-3	F	C3	6	3	41.24	0.1568	20	MGM		0.0078	40.93
NTP2191Q1-WRX-PW-SOL-OHC2-F-C4-1-RTA-1	F	C4	6	4	41.15	0.1569	20	MGM		0.0078	40.86
NTP2191Q1-WRX-PW-SOL-OHC2-F-C4-1-RTA-2	F	C4	6	4	40.44	0.1584	20	MGM		0.0079	40.54
NTP2191Q1-WRX-PW-SOL-OHC2-F-C4-1-RTA-3	F	C4	6	4	40.71	0.1587	20	MGM		0.0079	40.89

Average	40.79	**Average$_{norm}$** 0.0079	40.97
Standard Dev.	0.6672	**Standard Dev.$_{norm}$**	0.8176
Coeff. of Var. [%]	1.636	**Coeff. of Var. [%]$_{norm}$**	1.996
Min.	39.73	**Min.** 0.0078	39.44
Max.	42.21	**Max.** 0.0082	42.52
Number of Spec.	18	**Number of Spec.** 18	18

Laminate Open-Hole Compression Properties (OHC2)--RTA(75°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

Legend:
- ◆ Cure Cycle #
- ◆ Prepreg Lot #

X-axis: Laminate Open-Hole Compression Strength [ksi]

Left Y-axis: Cure Cycle #

Right Y-axis: Prepreg Lot #

Laminate Open-Hole Compression Properties (OHC2)--ETA2(225°F) Strength								
Solvay EP2190 T650 3K PW Fabric RC 37%								

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETA2-1	D	C1	4	1	32.08	0.1599	20	MGM
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETA2-2	D	C1	4	1	32.60	0.1602	20	MGM
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETA2-3	D	C1	4	1	32.14	0.1602	20	MGM
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETA2-1	D	C2	4	2	32.62	0.1631	20	MGM
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETA2-2	D	C2	4	2	32.68	0.1629	20	MGM
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETA2-3	D	C2	4	2	32.12	0.1623	20	MGM

Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
0.0080	32.47
0.0080	33.05
0.0080	32.59
0.0082	33.67
0.0081	33.69
0.0081	32.99

Average	32.37	Average$_{norm}$ 0.0081	33.08
Standard Dev.	0.2867	Standard Dev.$_{norm}$	0.5207
Coeff. of Var. [%]	0.886	Coeff. of Var. [%]$_{norm}$	1.574
Min.	32.08	Min. 0.0080	32.47
Max.	32.68	Max. 0.0082	33.69
Number of Spec.	6	Number of Spec. 6	6

Laminate Open-Hole Compression Properties (OHC2)--ETA2(225°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

| ◆ Cure Cycle # |
| ◆ Prepreg Lot # |

Laminate Open-Hole Compression Properties (OHC2)--ETA3(250°F) Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETA3-1	D	C1	4	1	30.04	0.1603	20	MGM		0.0080	30.48
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETA3-2	D	C1	4	1	30.90	0.1602	20	MGM		0.0080	31.33
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETA3-3	D	C1	4	1	30.26	0.1604	20	MGM		0.0080	30.72
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETA3-1	D	C2	4	2	30.00	0.1625	20	MGM		0.0081	30.85
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETA3-2	D	C2	4	2	29.94	0.1630	20	MGM		0.0082	30.89
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETA3-3	D	C2	4	2	30.50	0.1625	20	MGM		0.0081	31.37

Average	30.27	Average$_{norm}$	0.0081	30.94
Standard Dev.	0.3700	Standard Dev.$_{norm}$		0.3489
Coeff. of Var. [%]	1.222	Coeff. of Var. [%]$_{norm}$		1.128
Min.	29.94	Min.	0.0080	30.48
Max.	30.90	Max.	0.0082	31.37
Number of Spec.	6	Number of Spec.	6	6

Laminate Open-Hole Compression Properties (OHC2)--ETA3(250°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #
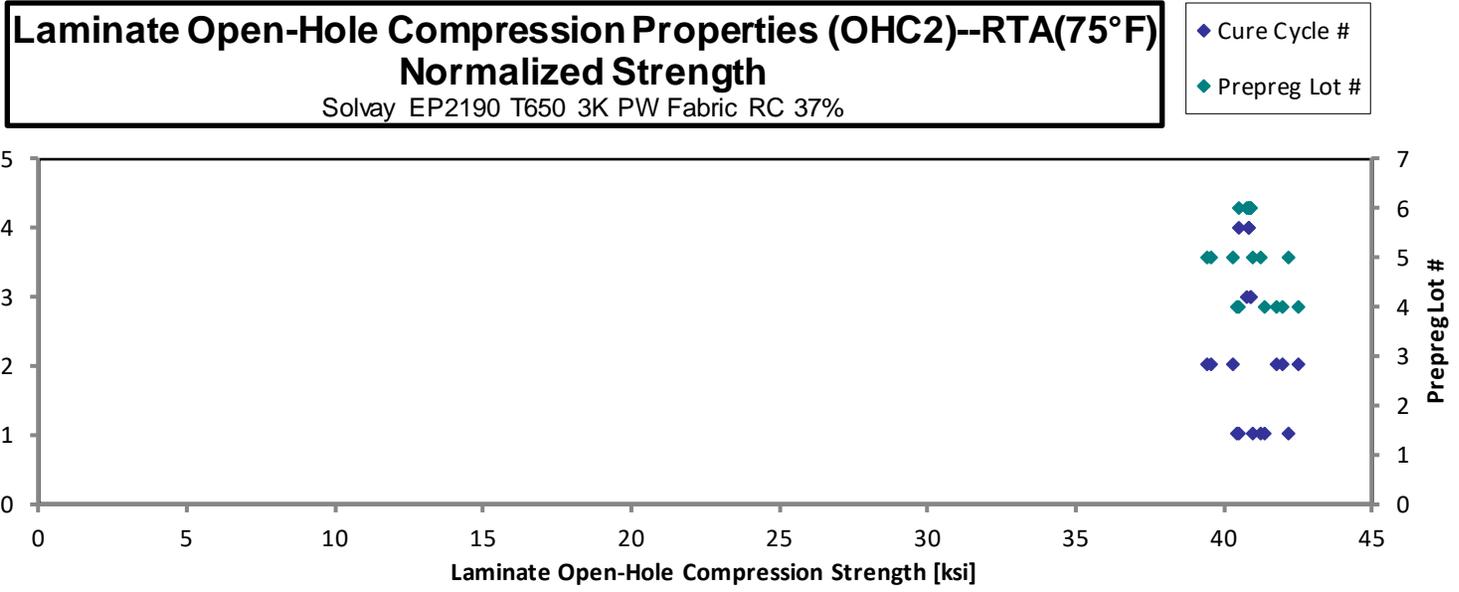
Laminate Open-Hole Compression Properties (OHC2)--ETW1(180°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETW1-1	D	C1	4	1	31.86	0.1602	20	LGM	0.0080	32.30
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETW1-2	D	C1	4	1	30.56	0.1600	20	LGM	0.0080	30.95
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETW1-3	D	C1	4	1	31.24	0.1601	20	LGM	0.0080	31.66
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETW1-1	D	C2	4	2	31.13	0.1628	20	LGM	0.0081	32.08
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETW1-2	D	C2	4	2	30.43	0.1631	20	LGM	0.0082	31.41
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETW1-3	D	C2	4	2	31.23	0.1631	20	LGM	0.0082	32.24
NTP2191Q1-WRX-PW-SOL-OHC2-E-C1-1-ETW1-1	E	C1	5	1	30.05	0.1558	20	LGM	0.0078	29.63
NTP2191Q1-WRX-PW-SOL-OHC2-E-C1-1-ETW1-2	E	C1	5	1	30.20	0.1585	20	LGM	0.0079	30.30
NTP2191Q1-WRX-PW-SOL-OHC2-E-C1-1-ETW1-3	E	C1	5	1	30.50	0.1589	20	LGM	0.0079	30.67
NTP2191Q1-WRX-PW-SOL-OHC2-E-C2-1-ETW1-1	E	C2	5	2	31.53	0.1568	20	MGM	0.0078	31.29
NTP2191Q1-WRX-PW-SOL-OHC2-E-C2-1-ETW1-2	E	C2	5	2	31.03	0.1578	20	MGM	0.0079	30.99
NTP2191Q1-WRX-PW-SOL-OHC2-E-C2-1-ETW1-3	E	C2	5	2	31.60	0.1578	20	MGM	0.0079	31.56
NTP2191Q1-WRX-PW-SOL-OHC2-F-C3-1-ETW1-1	F	C3	6	3	32.08	0.1558	20	LGM	0.0078	31.63
NTP2191Q1-WRX-PW-SOL-OHC2-F-C3-1-ETW1-2	F	C3	6	3	31.24	0.1562	20	LGM	0.0078	30.88
NTP2191Q1-WRX-PW-SOL-OHC2-F-C3-1-ETW1-3	F	C3	6	3	30.94	0.1565	20	LGM	0.0078	30.65
NTP2191Q1-WRX-PW-SOL-OHC2-F-C4-1-ETW1-1	F	C4	6	4	30.99	0.1584	20	MGM	0.0079	31.07
NTP2191Q1-WRX-PW-SOL-OHC2-F-C4-1-ETW1-2	F	C4	6	4	31.36	0.1586	20	MGM	0.0079	31.48
NTP2191Q1-WRX-PW-SOL-OHC2-F-C4-1-ETW1-3	F	C4	6	4	31.41	0.1586	20	MGM	0.0079	31.53

Average	31.08	Average$_{norm}$	0.0079	31.24
Standard Dev.	0.5552	Standard Dev.$_{norm}$		0.6810
Coeff. of Var. [%]	1.786	Coeff. of Var. [%]$_{norm}$		2.180
Min.	30.05	Min.	0.0078	29.63
Max.	32.08	Max.	0.0082	32.30
Number of Spec.	18	Number of Spec.	18	18

Laminate Open-Hole Compression Properties (OHC2)--ETW1(180°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Open-Hole Compression Strength [ksi]

<table>
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Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td>normalizing
t_{ply} [in]
0.0079</td></tr>
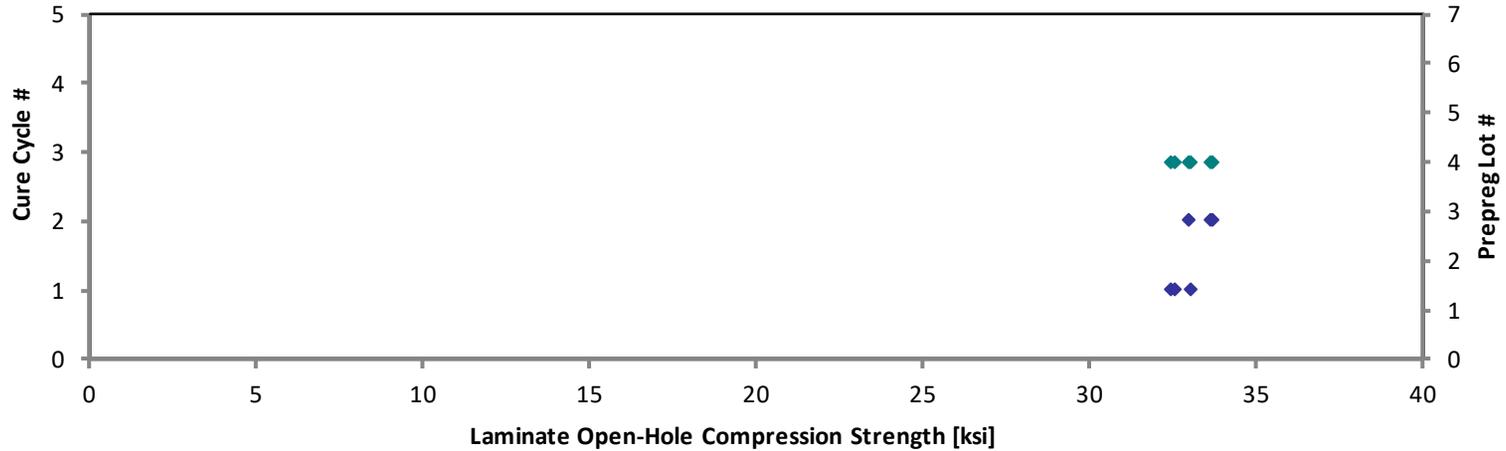</table>

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETW2-1	D	C1	4	1	26.08	0.1603	20	MGM	0.0080	26.46
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETW2-2	D	C1	4	1	25.37	0.1604	20	LGM	0.0080	25.76
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETW2-3	D	C1	4	1	25.67	0.1604	20	MGM	0.0080	26.06
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETW2-1	D	C2	4	2	25.78	0.1629	20	MGM	0.0081	26.58
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETW2-2	D	C2	4	2	25.96	0.1632	20	MGM	0.0082	26.81
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETW2-3	D	C2	4	2	25.52	0.1631	20	MGM	0.0082	26.34
NTP2191Q1-WRX-PW-SOL-OHC2-E-C1-1-ETW2-1	E	C1	5	1	24.95	0.1589	20	MGM	0.0079	25.09
NTP2191Q1-WRX-PW-SOL-OHC2-E-C1-1-ETW2-2	E	C1	5	1	24.83	0.1587	20	MGM	0.0079	24.94
NTP2191Q1-WRX-PW-SOL-OHC2-E-C1-1-ETW2-3	E	C1	5	1	24.92	0.1583	20	MGM	0.0079	24.97
NTP2191Q1-WRX-PW-SOL-OHC2-E-C2-1-ETW2-1	E	C2	5	2	26.32	0.1587	20	MGM	0.0079	26.44
NTP2191Q1-WRX-PW-SOL-OHC2-E-C2-1-ETW2-2	E	C2	5	2	26.20	0.1585	20	MGM	0.0079	26.28
NTP2191Q1-WRX-PW-SOL-OHC2-E-C2-1-ETW2-3	E	C2	5	2	26.26	0.1579	20	MGM	0.0079	26.24
NTP2191Q1-WRX-PW-SOL-OHC2-F-C3-1-ETW2-1	F	C3	6	3	28.77	0.1559	20	LGM	0.0078	28.39
NTP2191Q1-WRX-PW-SOL-OHC2-F-C3-1-ETW2-2	F	C3	6	3	27.32	0.1560	20	MGM	0.0078	26.97
NTP2191Q1-WRX-PW-SOL-OHC2-F-C3-1-ETW2-3	F	C3	6	3	26.30	0.1563	20	MGM	0.0078	26.02
NTP2191Q1-WRX-PW-SOL-OHC2-F-C4-1-ETW2-1	F	C4	6	4	27.74	0.1583	20	MGM	0.0079	27.79
NTP2191Q1-WRX-PW-SOL-OHC2-F-C4-1-ETW2-2	F	C4	6	4	27.11	0.1586	20	MGM	0.0079	27.21
NTP2191Q1-WRX-PW-SOL-OHC2-F-C4-1-ETW2-3	F	C4	6	4	29.01	0.1582	20	MGM	0.0079	29.05

Average	26.34	$Average_{norm}$	0.0080	26.52
Standard Dev.	1.2221	$Standard Dev._{norm}$		1.0965
Coeff. of Var. [%]	4.640	$Coeff. of Var. [\%]_{norm}$		4.134
Min.	24.83	Min.	0.0078	24.94
Max.	29.01	Max.	0.0082	29.05
Number of Spec.	18	Number of Spec.	18	18

Laminate Open-Hole Compression Properties (OHC2)--ETW2(225°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Legend:
- Cure Cycle #
- Prepreg Lot #

X-axis: Laminate Open-Hole Compression Strength [ksi]
Left Y-axis: Cure Cycle #
Right Y-axis: Prepreg Lot #

Laminate Open-Hole Compression Properties (OHC2)--ETW3(250°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

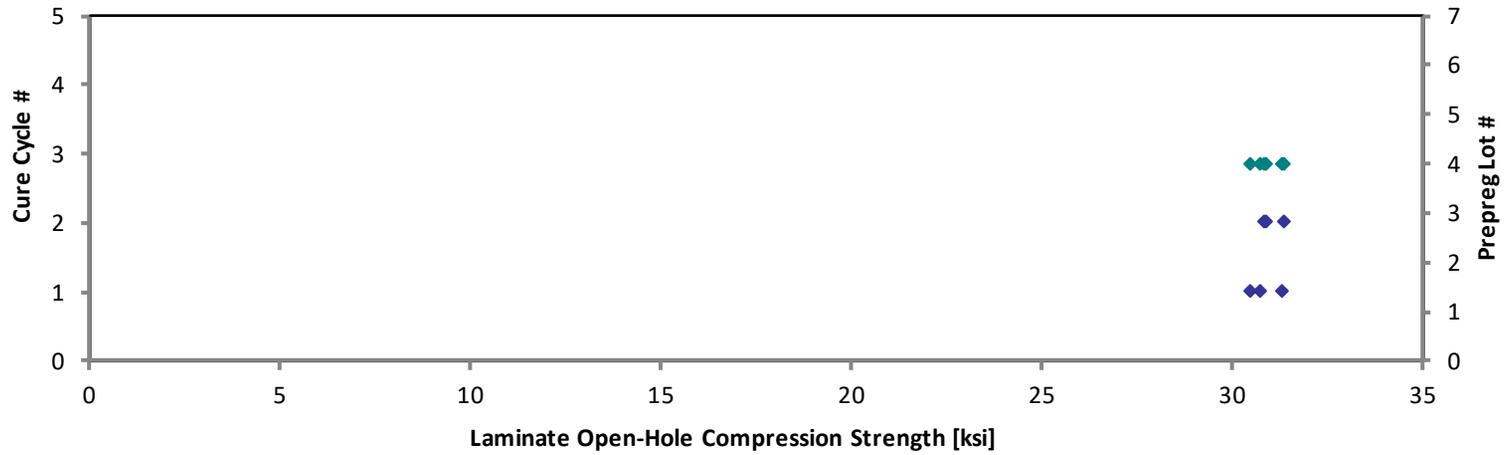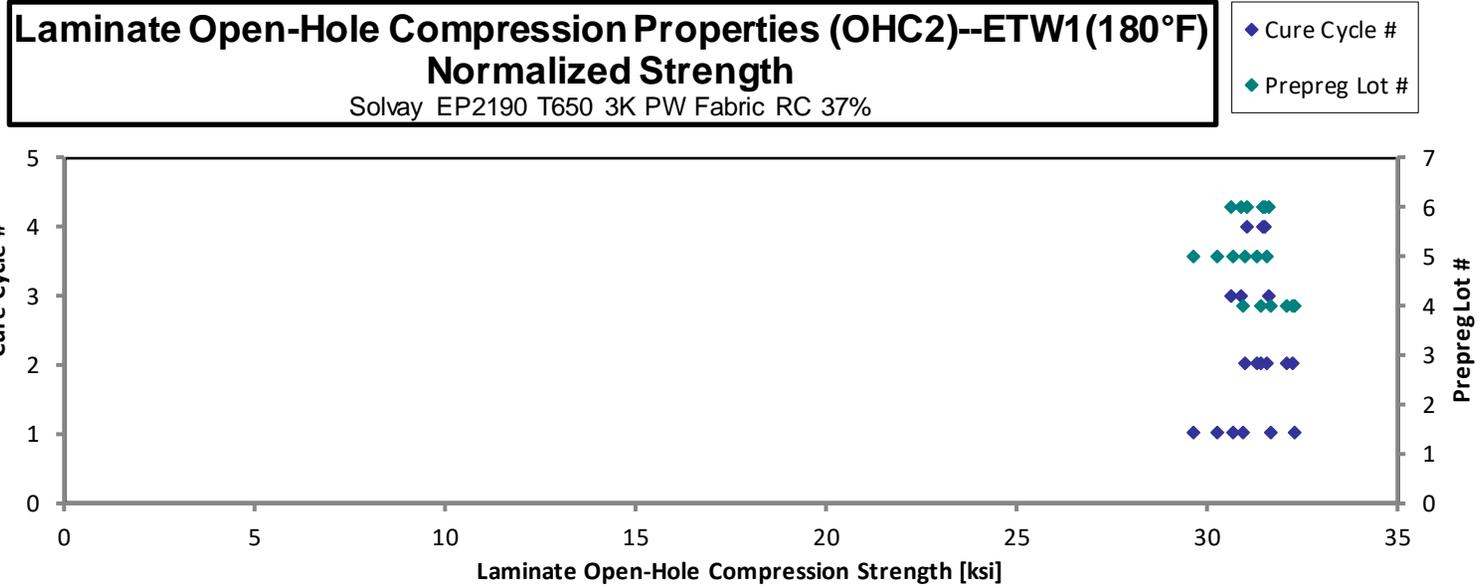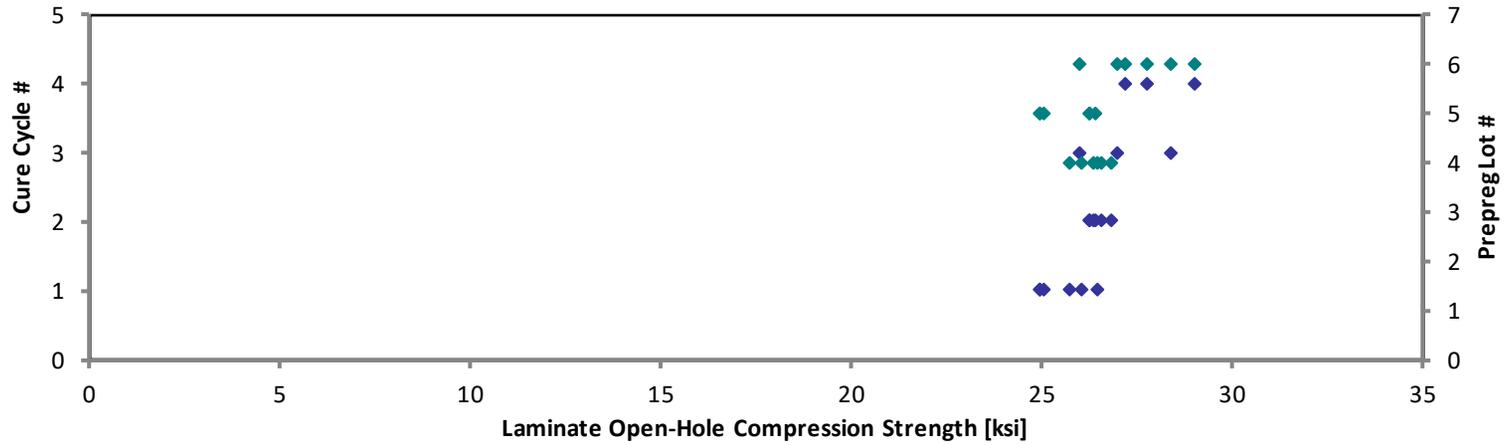normalizing t_{ply} [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETW3-1	D	C1	4	1	22.51	0.1601	20	MGM	0.0080	22.81
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETW3-2	D	C1	4	1	22.21	0.1599	20	MGM	0.0080	22.48
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-ETW3-3	D	C1	4	1	22.54	0.1594	20	MGM	0.0080	22.74
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETW3-1	D	C2	4	2	23.62	0.1630	20	LGM	0.0082	24.37
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETW3-2	D	C2	4	2	22.82	0.1631	20	LGM	0.0082	23.56
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-ETW3-3	D	C2	4	2	23.17	0.1630	20	LGM	0.0082	23.90
NTP2191Q1-WRX-PW-SOL-OHC2-E-C1-1-ETW3-1	E	C1	5	1	22.02	0.1583	20	LGM	0.0079	22.06
NTP2191Q1-WRX-PW-SOL-OHC2-E-C1-1-ETW3-2	E	C1	5	1	22.07	0.1583	20	LGM	0.0079	22.11
NTP2191Q1-WRX-PW-SOL-OHC2-E-C1-1-ETW3-3	E	C1	5	1	21.85	0.1580	20	LGM	0.0079	21.85
NTP2191Q1-WRX-PW-SOL-OHC2-E-C2-1-ETW3-1	E	C2	5	2	21.86	0.1580	20	LGM	0.0079	21.86
NTP2191Q1-WRX-PW-SOL-OHC2-E-C2-1-ETW3-2	E	C2	5	2	22.42	0.1579	20	LGM	0.0079	22.41
NTP2191Q1-WRX-PW-SOL-OHC2-E-C2-1-ETW3-3	E	C2	5	2	22.68	0.1578	20	LGM	0.0079	22.65
NTP2191Q1-WRX-PW-SOL-OHC2-F-C3-1-ETW3-1	F	C3	6	3	23.08	0.1567	20	MGM	0.0078	22.89
NTP2191Q1-WRX-PW-SOL-OHC2-F-C3-1-ETW3-2	F	C3	6	3	23.40	0.1569	20	MGM	0.0078	23.24
NTP2191Q1-WRX-PW-SOL-OHC2-F-C3-1-ETW3-3	F	C3	6	3	23.31	0.1572	20	MGM	0.0079	23.19
NTP2191Q1-WRX-PW-SOL-OHC2-F-C4-1-ETW3-1	F	C4	6	4	23.88	0.1569	20	MGM	0.0078	23.71
NTP2191Q1-WRX-PW-SOL-OHC2-F-C4-1-ETW3-2	F	C4	6	4	23.53	0.1584	20	MGM	0.0079	23.59
NTP2191Q1-WRX-PW-SOL-OHC2-F-C4-1-ETW3-3	F	C4	6	4	23.30	0.1577	20	MGM	0.0079	23.26

Average	22.79	**Average$_{norm}$**	0.0079	22.93
Standard Dev.	0.6436	**Standard Dev.$_{norm}$**		0.7304
Coeff. of Var. [%]	2.824	**Coeff. of Var. [%]$_{norm}$**		3.186
Min.	21.85	**Min.**	0.0078	21.85
Max.	23.88	**Max.**	0.0082	24.37
Number of Spec.	18	**Number of Spec.**	18	18

Laminate Open-Hole Compression Properties (OHC2)--ETW3(250°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
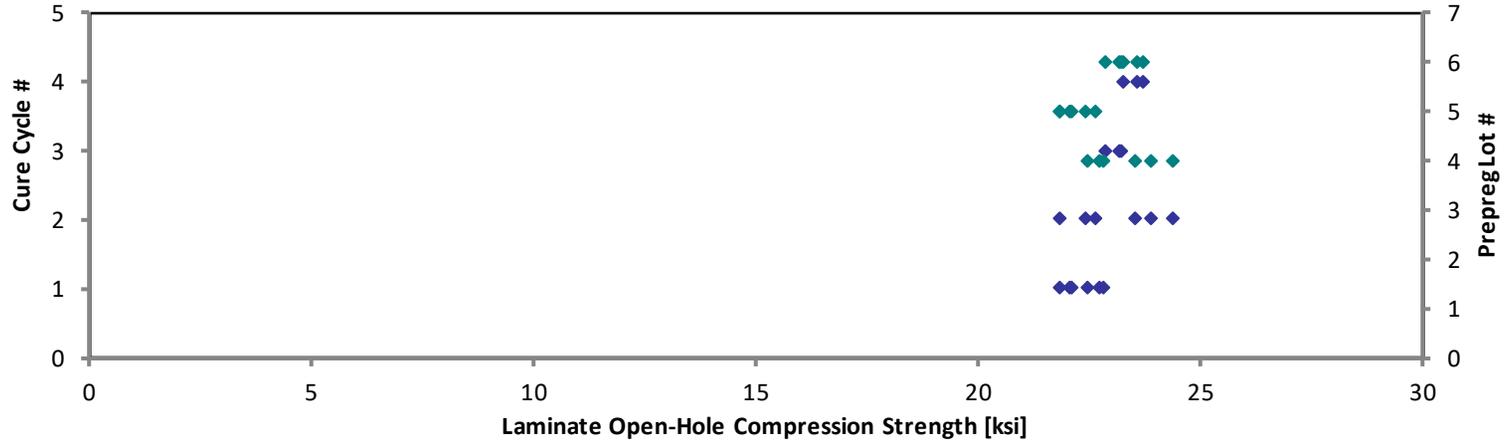
◆ Prepreg Lot #

4.25 "40/20/40" Open-Hole Compression 3 Properties (OHC3)

Laminate Open-Hole Compression Properties (OHC3)--RTA(75°F) Strength Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t$_{ply}$ [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t$_{ply}$ [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-RTA-1	D	C1	4	1	47.67	0.1599	20	MGM		0.0080	48.24
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-RTA-2	D	C1	4	1	46.74	0.1604	20	MGM		0.0080	47.45
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-RTA-3	D	C1	4	1	45.75	0.1609	20	MGM		0.0080	46.59
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-RTA-1	D	C2	4	2	46.45	0.1623	20	MGM		0.0081	47.71
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-RTA-2	D	C2	4	2	45.30	0.1634	20	MGM		0.0082	46.85
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-RTA-3	D	C2	4	2	45.63	0.1630	20	MGM		0.0082	47.07
NTP2191Q1-WRX-PW-SOL-OHC3-E-C1-1-RTA-1	E	C1	5	1	46.72	0.1570	20	MGM		0.0079	46.42
NTP2191Q1-WRX-PW-SOL-OHC3-E-C1-1-RTA-2	E	C1	5	1	47.60	0.1578	20	MGM		0.0079	47.54
NTP2191Q1-WRX-PW-SOL-OHC3-E-C1-1-RTA-3	E	C1	5	1	48.47	0.1576	20	MGM		0.0079	48.35
NTP2191Q1-WRX-PW-SOL-OHC3-E-C2-1-RTA-1	E	C2	5	2	46.51	0.1560	20	LGM		0.0078	45.92
NTP2191Q1-WRX-PW-SOL-OHC3-E-C2-1-RTA-2	E	C2	5	2	47.55	0.1578	20	LGM		0.0079	47.49
NTP2191Q1-WRX-PW-SOL-OHC3-E-C2-1-RTA-3	E	C2	5	2	48.14	0.1580	20	LGM		0.0079	48.14
NTP2191Q1-WRX-PW-SOL-OHC3-F-C3-1-RTA-1	F	C3	6	3	47.14	0.1561	20	LGM		0.0078	46.57
NTP2191Q1-WRX-PW-SOL-OHC3-F-C3-1-RTA-2	F	C3	6	3	48.75	0.1572	20	LGM		0.0079	48.50
NTP2191Q1-WRX-PW-SOL-OHC3-F-C3-1-RTA-3	F	C3	6	3	46.64	0.1567	20	LGM		0.0078	46.26
NTP2191Q1-WRX-PW-SOL-OHC3-F-C4-1-RTA-1	F	C4	6	4	47.71	0.1596	20	MGM		0.0080	48.19
NTP2191Q1-WRX-PW-SOL-OHC3-F-C4-1-RTA-2	F	C4	6	4	46.45	0.1596	20	MGM		0.0080	46.92
NTP2191Q1-WRX-PW-SOL-OHC3-F-C4-1-RTA-3	F	C4	6	4	45.45	0.1595	20	MGM		0.0080	45.88

Average	46.93	Average$_{norm}$	0.0080	47.23
Standard Dev.	1.0265	Standard Dev.$_{norm}$		0.8518
Coeff. of Var. [%]	2.187	Coeff. of Var. [%]$_{norm}$		1.804
Min.	45.30	Min.	0.0078	45.88
Max.	48.75	Max.	0.0082	48.50
Number of Spec.	18	Number of Spec.	18	18

**Laminate Open-Hole Compression Properties (OHC3)--RTA(75°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

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Laminate Open-Hole Compression Properties (OHC3)--ETA2(225°F) Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

</td><td>

normalizing t_{ply} [in]
0.0079

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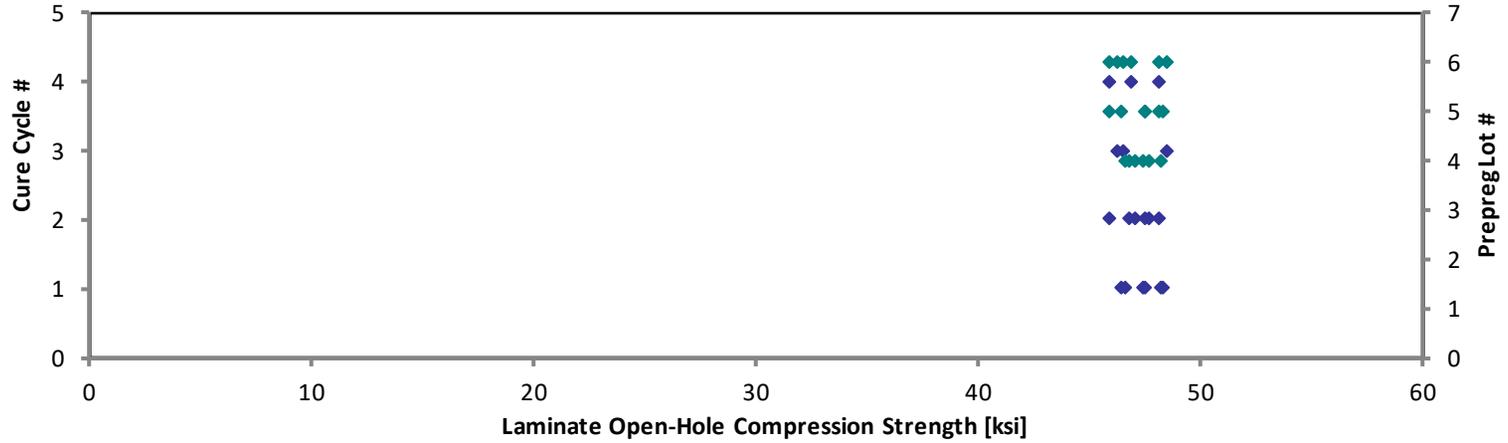
Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETA2-1	D	C1	4	1	37.49	0.1605	20	MGM	0.0080	38.08
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETA2-2	D	C1	4	1	38.66	0.1613	20	MGM	0.0081	39.47
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETA2-3	D	C1	4	1	37.63	0.1613	20	MGM	0.0081	38.42
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETA2-1	D	C2	4	2	36.11	0.1628	20	MGM	0.0081	37.21
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETA2-2	D	C2	4	2	37.59	0.1631	20	MGM	0.0082	38.80
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETA2-3	D	C2	4	2	36.00	0.1627	20	MGM	0.0081	37.07

Average	37.25	**$Average_{norm}$**	0.0081	38.17
Standard Dev.	1.0166	**$Standard\ Dev._{norm}$**		0.9260
Coeff. of Var. [%]	2.729	**$Coeff.\ of\ Var.\ [\%]_{norm}$**		2.426
Min.	36.00	**Min.**	0.0080	37.07
Max.	38.66	**Max.**	0.0082	39.47
Number of Spec.	6	**Number of Spec.**	6	6

Laminate Open-Hole Compression Properties (OHC3)--ETA2(225°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

<table>
<tr><td colspan="10">**Laminate Open-Hole Compression Properties (OHC3)--ETA3(250°F)**
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td colspan="2">normalizing
t_{ply} [in]
0.0079</td></tr>
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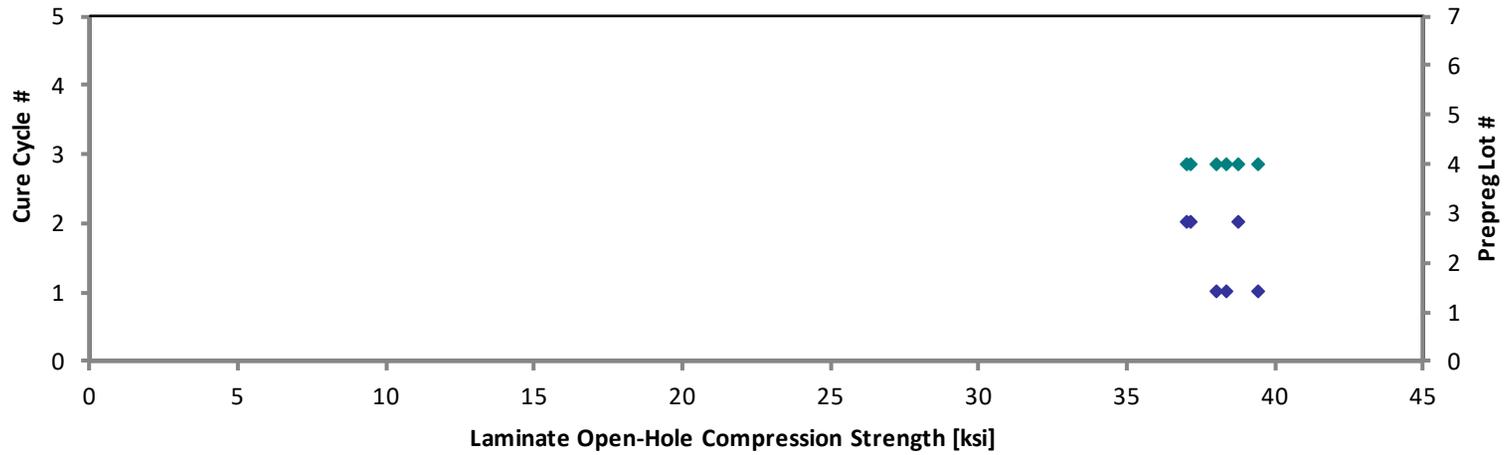
Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETA3-1	D	C1	4	1	37.20	0.1602	20	MGM		0.0080	37.72
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETA3-2	D	C1	4	1	34.75	0.1607	20	MGM		0.0080	35.34
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETA3-3	D	C1	4	1	35.07	0.1609	20	MGM		0.0080	35.71
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETA3-1	D	C2	4	2	33.81	0.1629	20	MGM		0.0081	34.86
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETA3-2	D	C2	4	2	35.72	0.1637	20	MGM		0.0082	37.01
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETA3-3	D	C2	4	2	33.94	0.1632	20	MGM		0.0082	35.06

Average	35.08	$Average_{norm}$	0.0081	35.95
Standard Dev.	1.2590	$Standard Dev._{norm}$		1.1540
Coeff. of Var. [%]	3.589	$Coeff. of Var. [\%]_{norm}$		3.210
Min.	33.81	Min.	0.0080	34.86
Max.	37.20	Max.	0.0082	37.72
Number of Spec.	6	Number of Spec.	6	6

Laminate Open-Hole Compression Properties (OHC3)--ETA3(250°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Open-Hole Compression Properties (OHC3)--ETW1(180°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
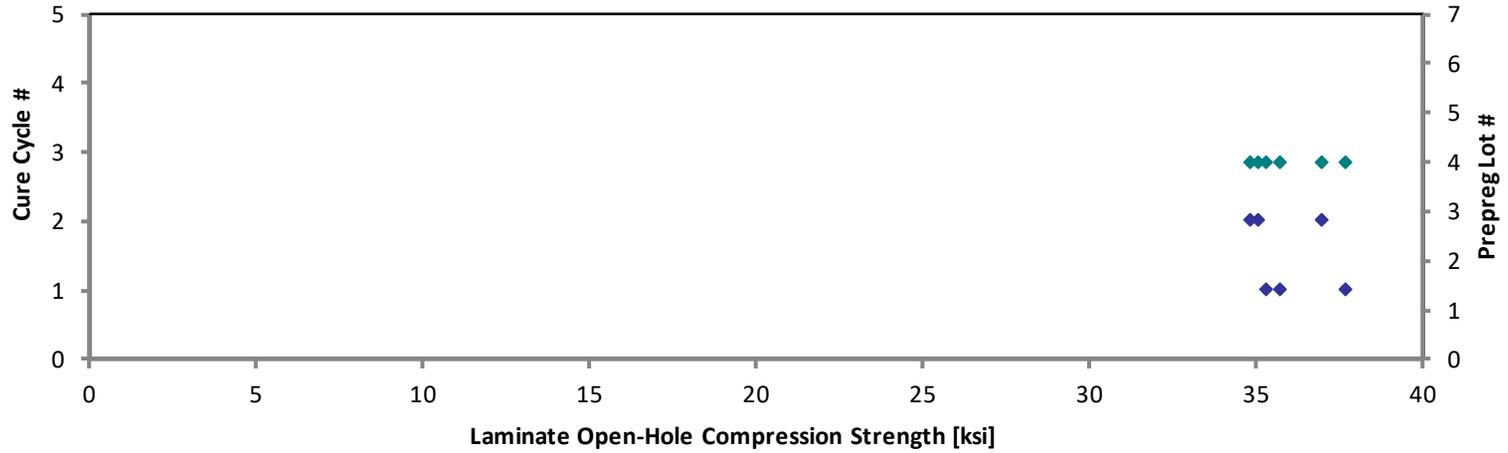
normalizing t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETW1-1	D	C1	4	1	36.74	0.1609	20	LGM		0.0080	37.41
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETW1-2	D	C1	4	1	34.92	0.1611	20	LGM		0.0081	35.61
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETW1-3	D	C1	4	1	36.50	0.1605	20	LGM		0.0080	37.08
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETW1-1	D	C2	4	2	35.23	0.1636	20	LGM		0.0082	36.48
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETW1-2	D	C2	4	2	35.56	0.1629	20	LGM		0.0081	36.66
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETW1-3	D	C2	4	2	36.75	0.1631	20	LGM		0.0082	37.94
NTP2191Q1-WRX-PW-SOL-OHC3-E-C1-1-ETW1-1	E	C1	5	1	35.40	0.1571	20	MGM		0.0079	35.20
NTP2191Q1-WRX-PW-SOL-OHC3-E-C1-1-ETW1-2	E	C1	5	1	36.79	0.1581	20	MGM		0.0079	36.81
NTP2191Q1-WRX-PW-SOL-OHC3-E-C1-1-ETW1-3	E	C1	5	1	34.42	0.1580	20	MGM		0.0079	34.42
NTP2191Q1-WRX-PW-SOL-OHC3-F-C2-1-ETW1-1	E	C2	5	2	36.08	0.1558	20	LGM		0.0078	35.58
NTP2191Q1-WRX-PW-SOL-OHC3-E-C2-1-ETW1-2	E	C2	5	2	38.05	0.1576	20	LGM		0.0079	37.95
NTP2191Q1-WRX-PW-SOL-OHC3-E-C2-1-ETW1-3	E	C2	5	2	38.12	0.1581	20	LGM		0.0079	38.14
NTP2190Q1-WRX-PW-SOL-OHC3-F-C3-1-ETW1-1	F	C3	6	3	36.17	0.1576	20	LGM		0.0079	36.08
NTP2190Q1-WRX-PW-SOL-OHC3-F-C3-1-ETW1-2	F	C3	6	3	36.21	0.1572	20	LGM		0.0079	36.03
NTP2190Q1-WRX-PW-SOL-OHC3-F-C3-1-ETW1-3	F	C3	6	3	34.18	0.1576	20	LGM		0.0079	34.09
NTP2191Q1-WRX-PW-SOL-OHC3-F-C4-1-ETW1-1	F	C4	6	4	37.07	0.1569	20	LGM		0.0078	36.81
NTP2191Q1-WRX-PW-SOL-OHC3-F-C4-1-ETW1-2	F	C4	6	4	36.39	0.1581	20	LGM		0.0079	36.41
NTP2191Q1-WRX-PW-SOL-OHC3-F-C4-1-ETW1-3	F	C4	6	4	36.89	0.1586	20	LGM		0.0079	37.03

Average	36.19		Average$_{norm}$	0.0080	36.43
Standard Dev.	1.0928		Standard Dev.$_{norm}$		1.1463
Coeff. of Var. [%]	3.019		Coeff. of Var. [%]$_{norm}$		3.146
Min.	34.18		Min.	0.0078	34.09
Max.	38.12		Max.	0.0082	38.14
Number of Spec.	18		Number of Spec.	18	18

Laminate Open-Hole Compression Properties (OHC3)--ETW1(180°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Open-Hole Compression Properties (OHC3)--ETW2(225°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
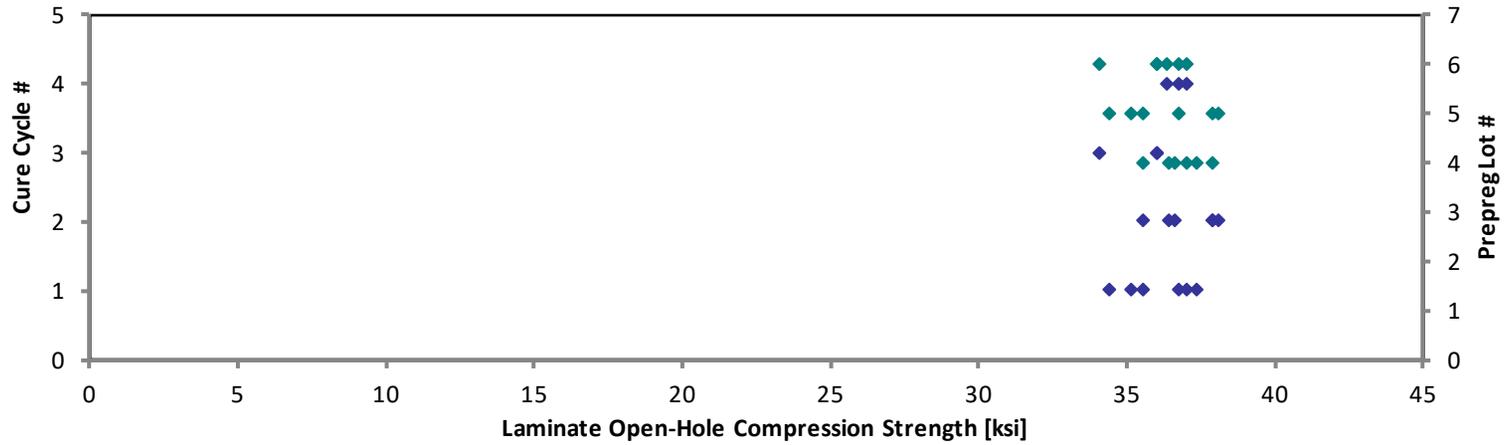
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETW2-1	D	C1	4	1	32.39	0.1612	20	LGM	0.0081	33.05
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETW2-2	D	C1	4	1	31.76	0.1612	20	LGM	0.0081	32.40
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETW2-3	D	C1	4	1	31.25	0.1610	20	LGM	0.0081	31.84
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETW2-1	D	C2	4	2	29.02	0.1629	20	MGM	0.0081	29.92
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETW2-2	D	C2	4	2	29.65	0.1630	20	MGM	0.0082	30.59
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETW2-3	D	C2	4	2	29.06	0.1638	20	MGM	0.0082	30.13
NTP2191Q1-WRX-PW-SOL-OHC3-E-C1-1-ETW2-1	E	C1	5	1	29.42	0.1585	20	MGM	0.0079	29.51
NTP2191Q1-WRX-PW-SOL-OHC3-E-C1-1-ETW2-2	E	C1	5	1	27.56	0.1588	20	MGM	0.0079	27.70
NTP2191Q1-WRX-PW-SOL-OHC3-E-C1-1-ETW2-3	E	C1	5	1	28.51	0.1583	20	MGM	0.0079	28.56
NTP2191Q1-WRX-PW-SOL-OHC3-E-C2-1-ETW2-1	E	C2	5	2	31.78	0.1587	20	LGM	0.0079	31.92
NTP2191Q1-WRX-PW-SOL-OHC3-E-C2-1-ETW2-2	E	C2	5	2	30.37	0.1587	20	LGM	0.0079	30.50
NTP2191Q1-WRX-PW-SOL-OHC3-E-C2-1-ETW2-3	E	C2	5	2	29.37	0.1586	20	LGM	0.0079	29.48
NTP2190Q1-WRX-PW-SOL-OHC3-F-C3-1-ETW2-1	F	C3	6	3	32.93	0.1560	20	LGM	0.0078	32.51
NTP2190Q1-WRX-PW-SOL-OHC3-F-C3-1-ETW2-2	F	C3	6	3	31.89	0.1568	20	LGM	0.0078	31.65
NTP2190Q1-WRX-PW-SOL-OHC3-F-C3-1-ETW2-3	F	C3	6	3	31.88	0.1566	20	MGM	0.0078	31.60
NTP2191Q1-WRX-PW-SOL-OHC3-F-C4-1-ETW2-1	F	C4	6	4	32.41	0.1593	20	LGM	0.0080	32.68
NTP2191Q1-WRX-PW-SOL-OHC3-F-C4-1-ETW2-2	F	C4	6	4	31.45	0.1595	20	LGM	0.0080	31.75
NTP2191Q1-WRX-PW-SOL-OHC3-F-C4-1-ETW2-3	F	C4	6	4	33.15	0.1589	20	LGM	0.0079	33.34

Average	30.77	**Average$_{norm}$** 0.0080	31.06
Standard Dev.	1.6701	**Standard Dev.$_{norm}$**	1.5948
Coeff. of Var. [%]	5.428	**Coeff. of Var. [%]$_{norm}$**	5.134
Min.	27.56	**Min.** 0.0078	27.70
Max.	33.15	**Max.** 0.0082	33.34
Number of Spec.	18	**Number of Spec.** 18	18

Laminate Open-Hole Compression Properties (OHC3)--ETW2(225°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

Laminate Open-Hole Compression Properties (OHC3)--ETW3(250°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
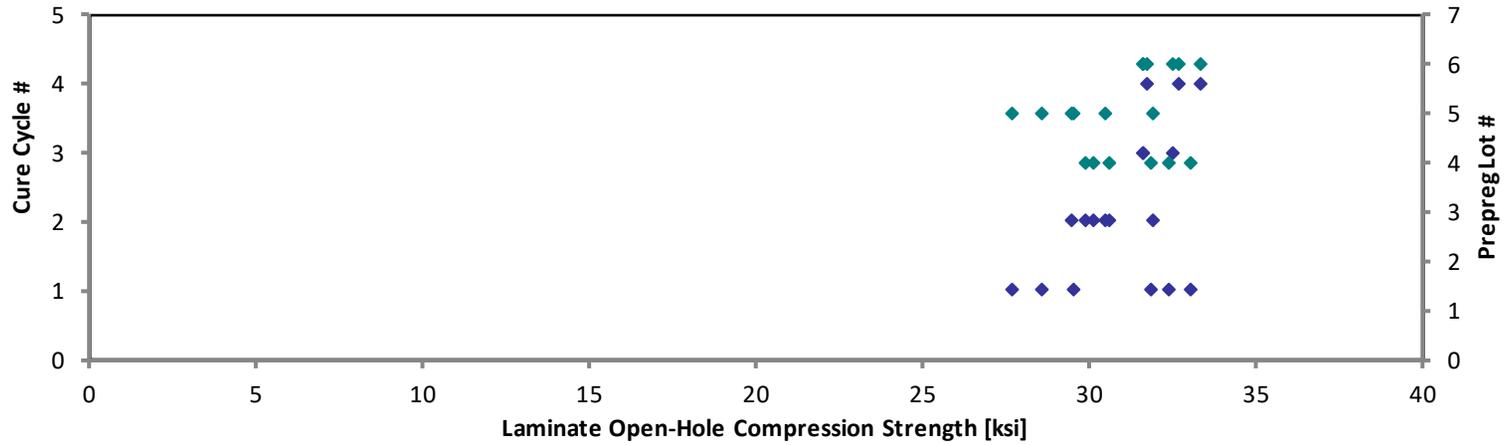
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETW3-1	D	C1	4	1	28.14	0.1580	20	MGM		0.0079	28.14
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETW3-2	D	C1	4	1	27.06	0.1613	20	MGM		0.0081	27.63
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-ETW3-3	D	C1	4	1	27.28	0.1617	20	MGM		0.0081	27.92
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETW3-1	D	C2	4	2	28.14	0.1626	20	LGM		0.0081	28.96
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETW3-2	D	C2	4	2	27.22	0.1629	20	LGM		0.0081	28.06
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-ETW3-3	D	C2	4	2	27.26	0.1632	20	LGM		0.0082	28.16
NTP2191Q1-WRX-PW-SOL-OHC3-E-C1-1-ETW3-1	E	C1	5	1	26.08	0.1590	20	LGM		0.0080	26.25
NTP2191Q1-WRX-PW-SOL-OHC3-E-C1-1-ETW3-2	E	C1	5	1	25.96	0.1587	20	LGM		0.0079	26.08
NTP2191Q1-WRX-PW-SOL-OHC3-E-C1-1-ETW3-3	E	C1	5	1	26.07	0.1586	20	LGM		0.0079	26.17
NTP2191Q1-WRX-PW-SOL-OHC3-E-C2-1-ETW3-1	E	C2	5	2	27.52	0.1582	20	LGM		0.0079	27.55
NTP2191Q1-WRX-PW-SOL-OHC3-E-C2-1-ETW3-2	E	C2	5	2	27.31	0.1584	20	LGM		0.0079	27.38
NTP2191Q1-WRX-PW-SOL-OHC3-E-C2-1-ETW3-3	E	C2	5	2	27.52	0.1578	20	LGM		0.0079	27.49
NTP2191Q1-WRX-PW-SOL-OHC3-F-C3-1-ETW3-1	F	C3	6	3	27.97	0.1579	20	LGM		0.0079	27.95
NTP2191Q1-WRX-PW-SOL-OHC3-F-C3-1-ETW3-2	F	C3	6	3	26.88	0.1572	20	LGM		0.0079	26.74
NTP2191Q1-WRX-PW-SOL-OHC3-F-C3-1-ETW3-3	F	C3	6	3	28.59	0.1572	20	LGM		0.0079	28.45
NTP2191Q1-WRX-PW-SOL-OHC3-F-C4-1-ETW3-1	F	C4	6	4	31.15	0.1569	20	LGM		0.0078	30.93
NTP2191Q1-WRX-PW-SOL-OHC3-F-C4-1-ETW3-2	F	C4	6	4	26.45	0.1581	20	LGM		0.0079	26.47
NTP2191Q1-WRX-PW-SOL-OHC3-F-C4-1-ETW3-3	F	C4	6	4	29.17	0.1585	20	LGM		0.0079	29.26

Average	27.54	Average$_{norm}$ 0.0080	27.75
Standard Dev.	1.2519	Standard Dev.$_{norm}$	1.2209
Coeff. of Var. [%]	4.545	Coeff. of Var. [%]$_{norm}$	4.399
Min.	25.96	Min. 0.0078	26.08
Max.	31.15	Max. 0.0082	30.93
Number of Spec.	18	Number of Spec. 18	18

Laminate Open-Hole Compression Properties (OHC3)--ETW3(250°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Legend:
- ◆ Cure Cycle #
- ◆ Prepreg Lot #

X-axis: Laminate Open-Hole Compression Strength [ksi]
Left Y-axis: Cure Cycle #
Right Y-axis: Prepreg Lot #

4.26 "25/50/25" Filled-Hole Compression 1 Properties (FHC1)

Laminate Filled-Hole Compression Properties (FHC1)--CTA(-67°F) Strength Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-CTA-1	D	C1	4	1	94.56	0.1269	16	MGT away form hole	0.0079	94.93
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-CTA-2	D	C1	4	1	95.89	0.1274	16	MGT away form hole	0.0080	96.65
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-CTA-3	D	C1	4	1	95.05	0.1273	16	MGB away form hole	0.0080	95.73
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-CTA-4	D	C1	4	1	92.03	0.1274	16	MGB	0.0080	92.76
NTP2191Q1-WRX-PW-SOL-FHC1-D-C2-1-CTA-1	D	C2	4	2	96.13	0.1270	16	Away from hole	0.0079	96.59
NTP2191Q1-WRX-PW-SOL-FHC1-D-C2-1-CTA-2	D	C2	4	2	93.60	0.1269	16	MGO & Away from hole	0.0079	93.97
NTP2191Q1-WRX-PW-SOL-FHC1-D-C2-1-CTA-3	D	C2	4	2	91.59	0.1272	16	Away from hole	0.0080	92.17
NTP2191Q1-WRX-PW-SOL-FHC1-E-C1-1-CTA-1	E	C1	5	1	87.46	0.1313	16	MGF	0.0082	90.85
NTP2191Q1-WRX-PW-SOL-FHC1-E-C1-1-CTA-2	E	C1	5	1	98.60	0.1312	16	MGF	0.0082	102.3
NTP2191Q1-WRX-PW-SOL-FHC1-E-C1-1-CTA-3	E	C1	5	1	92.55	0.1310	16	MGF	0.0082	95.92
NTP2191Q1-WRX-PW-SOL-FHC1-E-C2-1-CTA-1	E	C2	5	2	91.39	0.1331	16	MGT away form hole	0.0083	96.23
NTP2191Q1-WRX-PW-SOL-FHC1-E-C2-1-CTA-2	E	C2	5	2	90.42	0.1331	16	MGF	0.0083	95.21
NTP2191Q1-WRX-PW-SOL-FHC1-E-C2-1-CTA-3	E	C2	5	2	102.2	0.1232	16	MGF	0.0077	99.59
NTP2191Q1-WRX-PW-SOL-FHC1-F-C1-1-CTA-1	F	C1	6	1	91.01	0.1266	16	MGT away form hole	0.0079	91.15
NTP2191Q1-WRX-PW-SOL-FHC1-F-C1-1-CTA-2	F	C1	6	1	92.54	0.1256	16	MGF	0.0079	91.95
NTP2191Q1-WRX-PW-SOL-FHC1-F-C1-1-CTA-3	F	C1	6	1	87.53	0.1261	16	MGF	0.0079	87.32
NTP2191Q1-WRX-PW-SOL-FHC1-F-C2-1-CTA-1	F	C2	6	2	86.69	0.1259	16	MGF	0.0079	86.35
NTP2191Q1-WRX-PW-SOL-FHC1-F-C2-1-CTA-2	F	C2	6	2	92.75	0.1260	16	MGT away form hole	0.0079	92.46
NTP2191Q1-WRX-PW-SOL-FHC1-F-C2-1-CTA-3	F	C2	6	2	95.45	0.1261	16	MGF	0.0079	95.22

Average	93.02		Average$_{norm}$	0.0080	94.07
Standard Dev.	3.828		Standard Dev.$_{norm}$		3.820
Coeff. of Var. [%]	4.116		Coeff. of Var. [%]$_{norm}$		4.060
Min.	86.69		Min.	0.0077	86.35
Max.	102.2		Max.	0.0083	102.3
Number of Spec.	19		Number of Spec.	19	19

**Laminate Filled-Hole Compression Properties (FHC1)--CTA(-67°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

Laminate Filled-Hole Compression Properties (FHC1)--RTA(75°F)
Strength
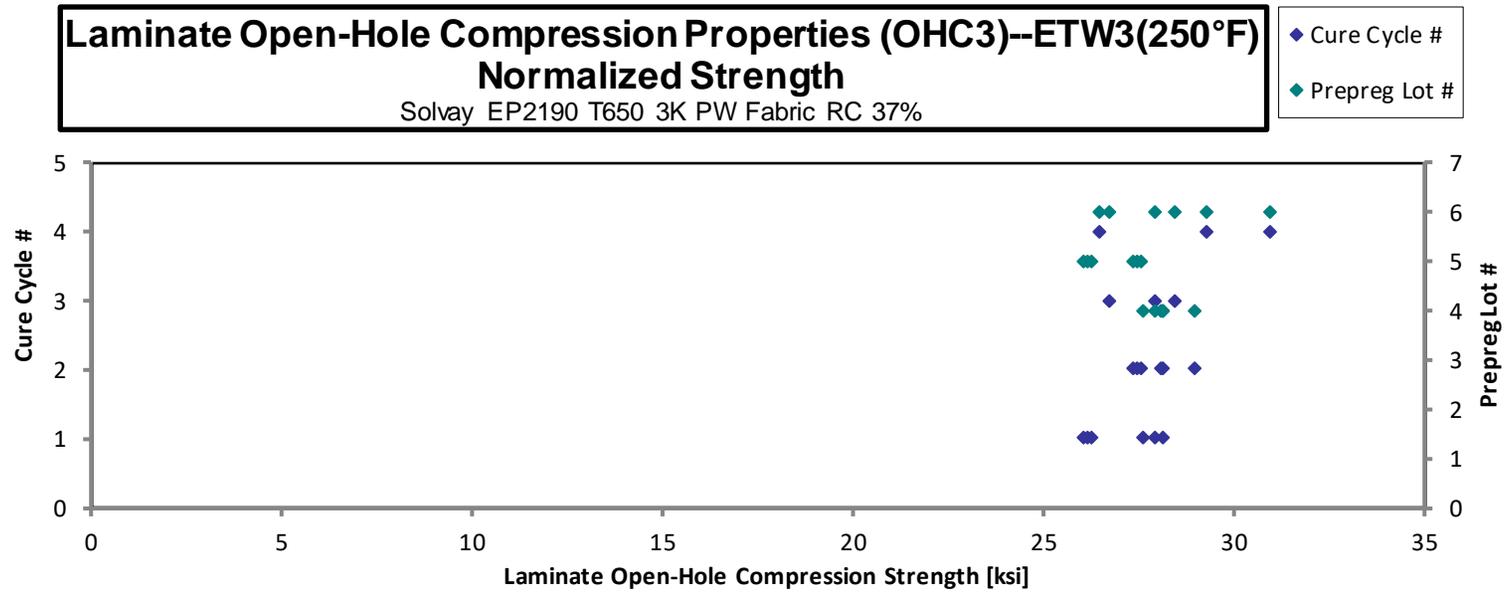Solvay EP2190 T650 3K PW Fabric RC 37%
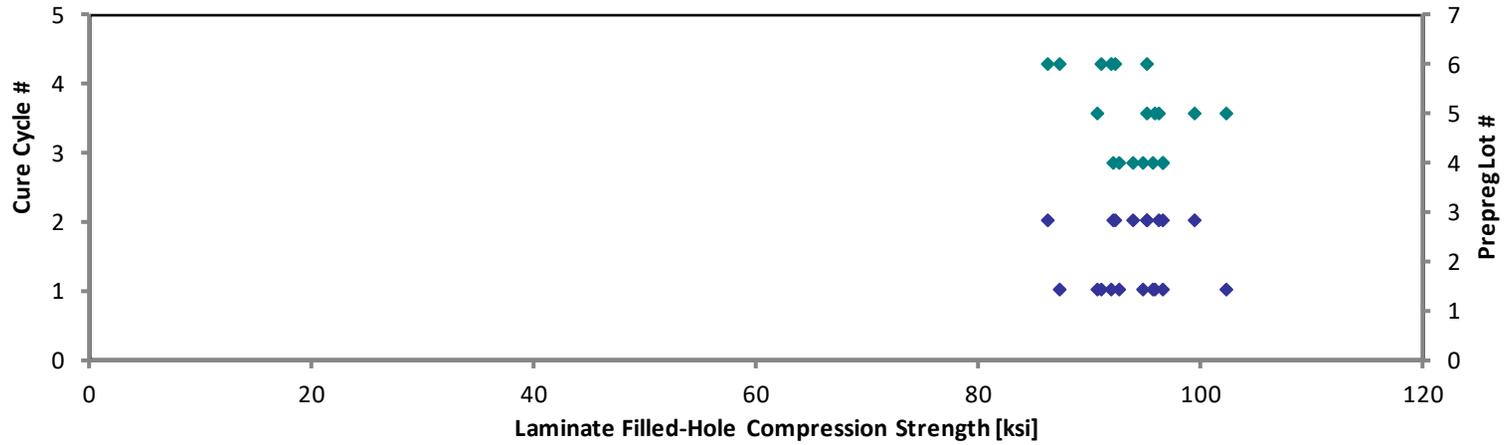
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-RTA-4	D	C1	4	1	72.82	0.1273	16	MGM	0.0080	73.34
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-RTA-5	D	C1	4	1	72.79	0.1270	16	MGM	0.0079	73.14
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-RTA-6	D	C1	4	1	75.61	0.1277	16	MGM	0.0080	76.39
NTP2191Q1-WRX-PW-SOL-FHC1-D-C2-1-RTA-2	D	C2	4	2	75.99	0.1272	16	LGF	0.0080	76.47
NTP2191Q1-WRX-PW-SOL-FHC1-D-C2-1-RTA-4	D	C2	4	2	77.41	0.1276	16	MGM	0.0080	78.14
NTP2191Q1-WRX-PW-SOL-FHC1-D-C2-1-RTA-5	D	C2	4	2	62.04	0.1276	16	MGM	0.0080	62.63
NTP2191Q1-WRX-PW-SOL-FHC1-E-C1-1-RTA-1	E	C1	5	1	76.05	0.1299	16	LGF	0.0081	78.16
NTP2191Q1-WRX-PW-SOL-FHC1-E-C1-1-RTA-2	E	C1	5	1	74.42	0.1309	16	LGF	0.0082	77.07
NTP2191Q1-WRX-PW-SOL-FHC1-E-C1-1-RTA-4	E	C1	5	1	81.09	0.1310	16	LGF	0.0082	84.04
NTP2191Q1-WRX-PW-SOL-FHC1-E-C2-1-RTA-1	E	C2	5	2	74.36	0.1327	16	LGF	0.0083	78.07
NTP2191Q1-WRX-PW-SOL-FHC1-E-C2-1-RTA-2	E	C2	5	2	75.38	0.1329	16	LGF	0.0083	79.26
NTP2191Q1-WRX-PW-SOL-FHC1-E-C2-1-RTA-3	E	C2	5	2	76.19	0.1327	16	LGF	0.0083	79.99
NTP2191Q1-WRX-PW-SOL-FHC1-F-C1-1-RTA-1	F	C1	6	1	76.57	0.1249	16	MGM	0.0078	75.66
NTP2191Q1-WRX-PW-SOL-FHC1-F-C1-1-RTA-2	F	C1	6	1	78.54	0.1265	16	MGM	0.0079	78.60
NTP2191Q1-WRX-PW-SOL-FHC1-F-C1-1-RTA-3	F	C1	6	1	64.73	0.1263	16	MGM	0.0079	64.68
NTP2191Q1-WRX-PW-SOL-FHC1-F-C2-1-RTA-1	F	C2	6	2	76.67	0.1262	16	MGM	0.0079	76.55
NTP2191Q1-WRX-PW-SOL-FHC1-F-C2-1-RTA-3	F	C2	6	2	78.42	0.1261	16	MGM	0.0079	78.23
NTP2191Q1-WRX-PW-SOL-FHC1-F-C2-1-RTA-4	F	C2	6	2	78.61	0.1257	16	MGM	0.0079	78.17

Average	74.87	
Standard Dev.	4.684	
Coeff. of Var. [%]	6.256	
Min.	62.04	
Max.	81.09	
Number of Spec.	18	

Average$_{norm}$	0.0080	76.03
Standard Dev.$_{norm}$		5.118
Coeff. of Var. [%]$_{norm}$		6.732
Min.	0.0078	62.63
Max.	0.0083	84.04
Number of Spec.	18	18

Laminate Filled-Hole Compression Properties (FHC1)--RTA(75°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Filled-Hole Compression Properties (FHC1)--ETW1(180°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
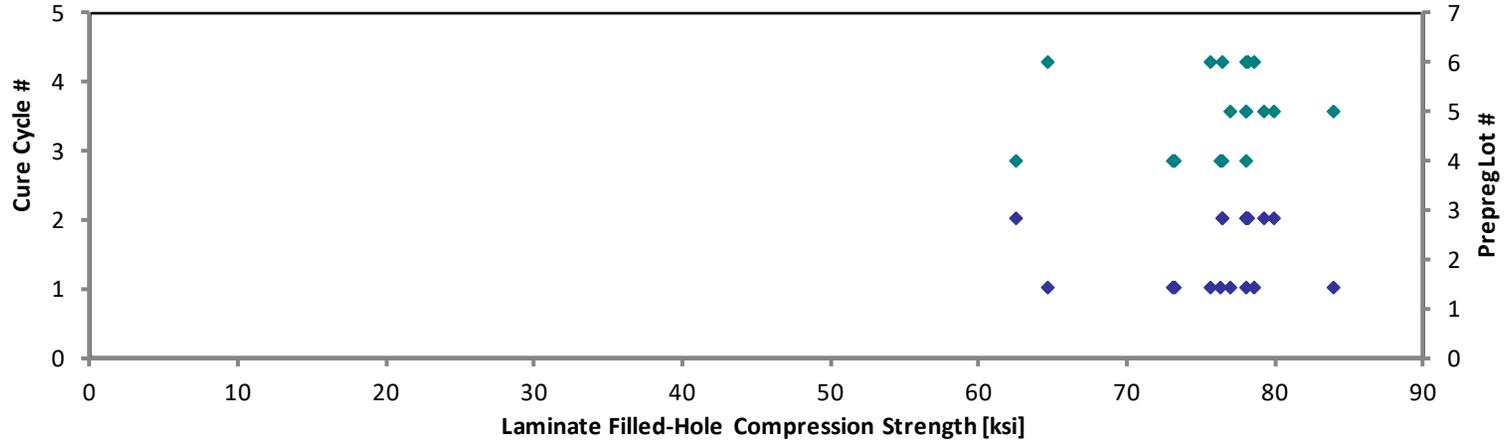
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-ETW1-2	D	C1	4	1	62.94	0.1278	16	LGO		0.0080	63.64
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-ETW1-3	D	C1	4	1	47.08	0.1276	16	LGO		0.0080	47.53
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-ETW1-5	D	C1	4	1	56.99	0.1275	16	LGO		0.0080	57.49
NTP2191Q1-WRX-PW-SOL-FHC1-D-C2-1-ETW1-1	D	C2	4	2	59.62	0.1275	16	LGM		0.0080	60.14
NTP2191Q1-WRX-PW-SOL-FHC1-D-C2-1-ETW1-2	D	C2	4	2	57.78	0.1276	16	LGM		0.0080	58.33
NTP2191Q1-WRX-PW-SOL-FHC1-D-C2-1-ETW1-4	D	C2	4	2	52.70	0.1278	16	LGM		0.0080	53.28
NTP2191Q1-WRX-PW-SOL-FHC1-E-C1-1-ETW1-1	E	C1	5	1	51.21	0.1308	16	MGM		0.0082	52.99
NTP2191Q1-WRX-PW-SOL-FHC1-E-C1-1-ETW1-2	E	C1	5	1	55.84	0.1310	16	MGM		0.0082	57.87
NTP2191Q1-WRX-PW-SOL-FHC1-E-C1-1-ETW1-5	E	C1	5	1	53.56	0.1307	16	MGM		0.0082	55.38
NTP2191Q1-WRX-PW-SOL-FHC1-E-C2-1-ETW1-2	E	C2	5	2	56.27	0.1326	16	MGM		0.0083	59.03
NTP2191Q1-WRX-PW-SOL-FHC1-E-C2-1-ETW1-3	E	C2	5	2	55.10	0.1323	16	MGF		0.0083	57.67
NTP2191Q1-WRX-PW-SOL-FHC1-E-C2-1-ETW1-4	E	C2	5	2	48.23	0.1331	16	MGM		0.0083	50.79
NTP2191Q1-WRX-PW-SOL-FHC1-F-C1-1-ETW1-1	F	C1	6	1	57.68	0.1260	16	MGM		0.0079	57.50
NTP2191Q1-WRX-PW-SOL-FHC1-F-C1-1-ETW1-2	F	C1	6	1	60.34	0.1254	16	MGM		0.0078	59.86
NTP2191Q1-WRX-PW-SOL-FHC1-F-C1-1-ETW1-3	F	C1	6	1	57.46	0.1257	16	MGM		0.0079	57.14
NTP2191Q1-WRX-PW-SOL-FHC1-F-C2-1-ETW1-1	F	C2	6	2	53.85	0.1265	16	MGM		0.0079	53.89
NTP2191Q1-WRX-PW-SOL-FHC1-F-C2-1-ETW1-3	F	C2	6	2	51.78	0.1264	16	MGM		0.0079	51.78
NTP2191Q1-WRX-PW-SOL-FHC1-F-C2-1-ETW1-4	F	C2	6	2	52.18	0.1266	16	MGM		0.0079	52.26

Average	55.03		Average_norm	0.0080	55.92
Standard Dev.	4.131		Standard Dev._norm		3.977
Coeff. of Var. [%]	7.506		Coeff. of Var. [%]_norm		7.112
Min.	47.08		Min.	0.0078	47.53
Max.	62.94		Max.	0.0083	63.64
Number of Spec.	18		Number of Spec.	18	18

**Laminate Filled-Hole Compression Properties (FHC1)--ETW1(180°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

Laminate Filled-Hole Compression Properties (FHC1)--ETW2(225°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
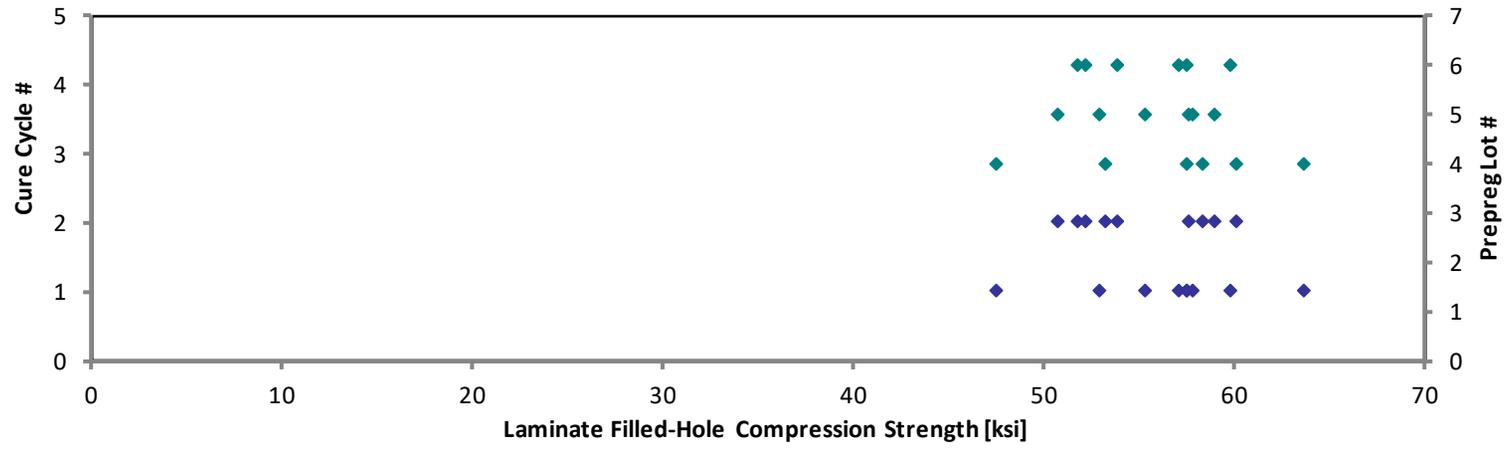
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-ETW2-1	D	C1	4	1	46.57	0.1271	16	LGO	0.0079	46.83
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-ETW2-2	D	C1	4	1	46.74	0.1278	16	LGO	0.0080	47.26
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-ETW2-4	D	C1	4	1	40.41	0.1276	16	LGO	0.0080	40.79
NTP2191Q1-WRX-PW-SOL-FHC1-D-C2-1-ETW2-1	D	C2	4	2	47.46	0.1277	16	LGO	0.0080	47.95
NTP2191Q1-WRX-PW-SOL-FHC1-D-C2-1-ETW2-2	D	C2	4	2	48.08	0.1271	16	LGO	0.0079	48.35
NTP2191Q1-WRX-PW-SOL-FHC1-D-C2-1-ETW2-3	D	C2	4	2	46.47	0.1277	16	LGO	0.0080	46.95
NTP2191Q1-WRX-PW-SOL-FHC1-E-C1-1-ETW2-1	E	C1	5	1	42.77	0.1298	16	MGM	0.0081	43.92
NTP2191Q1-WRX-PW-SOL-FHC1-E-C1-1-ETW2-2	E	C1	5	1	42.14	0.1307	16	MGM	0.0082	43.57
NTP2191Q1-WRX-PW-SOL-FHC1-E-C1-1-ETW2-3	E	C1	5	1	42.82	0.1308	16	MGM	0.0082	44.31
NTP2191Q1-WRX-PW-SOL-FHC1-E-C2-1-ETW2-1	E	C2	5	2	42.93	0.1329	16	MGM	0.0083	45.14
NTP2191Q1-WRX-PW-SOL-FHC1-E-C2-1-ETW2-2	E	C2	5	2	41.36	0.1328	16	MGM	0.0083	43.45
NTP2191Q1-WRX-PW-SOL-FHC1-E-C2-1-ETW2-3	E	C2	5	2	42.58	0.1325	16	MGM	0.0083	44.63
NTP2191Q1-WRX-PW-SOL-FHC1-F-C1-1-ETW2-1	F	C1	6	1	46.87	0.1248	16	MGM	0.0078	46.28
NTP2191Q1-WRX-PW-SOL-FHC1-F-C1-1-ETW2-2	F	C1	6	1	43.92	0.1262	16	MGM	0.0079	43.85
NTP2191Q1-WRX-PW-SOL-FHC1-F-C1-1-ETW2-3	F	C1	6	1	44.94	0.1257	16	MGO	0.0079	44.69
NTP2191Q1-WRX-PW-SOL-FHC1-F-C2-1-ETW2-1	F	C2	6	2	43.57	0.1263	16	MGM	0.0079	43.54
NTP2191Q1-WRX-PW-SOL-FHC1-F-C2-1-ETW2-2	F	C2	6	2	43.81	0.1260	16	MGM	0.0079	43.67
NTP2191Q1-WRX-PW-SOL-FHC1-F-C2-1-ETW2-4	F	C2	6	2	34.71	0.1269	16	MGM	0.0079	34.85

Average	43.79	Average$_{norm}$	0.0080	44.45
Standard Dev.	3.190	Standard Dev.$_{norm}$		3.073
Coeff. of Var. [%]	7.286	Coeff. of Var. [%]$_{norm}$		6.914
Min.	34.71	Min.	0.0078	34.85
Max.	48.08	Max.	0.0083	48.35
Number of Spec.	18	Number of Spec.	18	18

Laminate Filled-Hole Compression Properties (FHC1)--ETW2(225°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
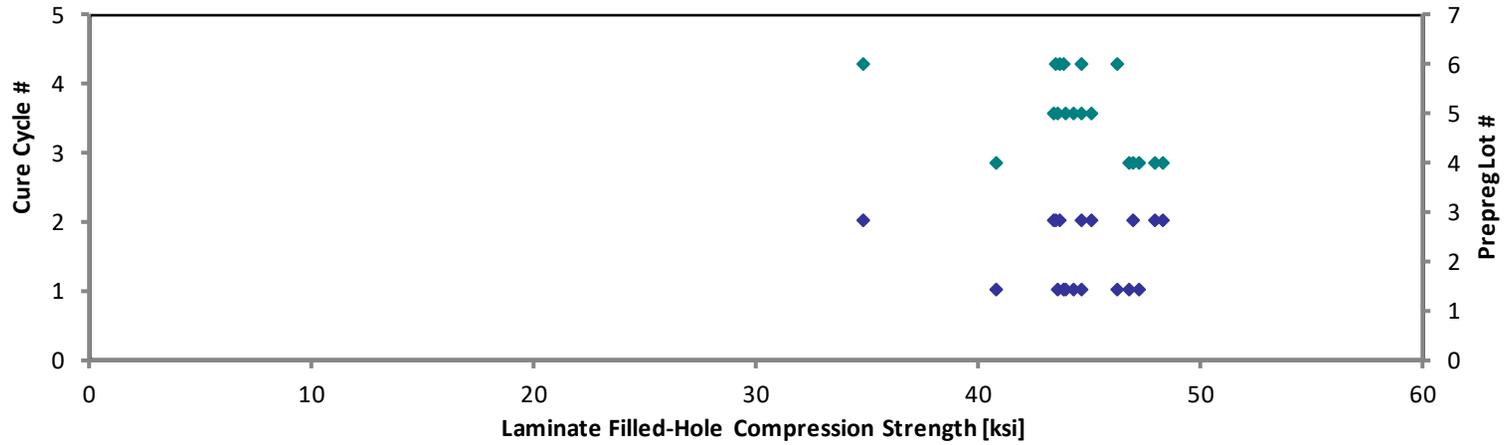
4.27 "10/80/10" Filled-Hole Compression 2 Properties (FHC2)

Laminate Filled-Hole Compression Properties (FHC2)--RTA(75°F) Strength Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t$_{ply}$ [in]

0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t$_{ply}$ [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHC2-D-C1-1-RTA-1	D	C1	4	1	56.18	0.1609	20	MGM		0.0080	57.21
NTP2191Q1-WRX-PW-SOL-FHC2-D-C1-1-RTA-2	D	C1	4	1	53.82	0.1607	20	MGM		0.0080	54.74
NTP2191Q1-WRX-PW-SOL-FHC2-D-C1-1-RTA-3	D	C1	4	1	51.96	0.1611	20	MGM		0.0081	52.98
NTP2191Q1-WRX-PW-SOL-FHC2-D-C2-1-RTA-2	D	C2	4	2	51.97	0.1631	20	MGM		0.0082	53.65
NTP2191Q1-WRX-PW-SOL-FHC2-D-C2-1-RTA-3	D	C2	4	2	54.01	0.1627	20	MGF		0.0081	55.62
NTP2191Q1-WRX-PW-SOL-FHC2-D-C2-1-RTA-4	D	C2	4	2	53.57	0.1640	20	MGF		0.0082	55.60
NTP2191Q1-WRX-PW-SOL-FHC2-E-C1-1-RTA-1	E	C1	5	1	55.55	0.1572	20	MGF		0.0079	55.27
NTP2191Q1-WRX-PW-SOL-FHC2-E-C1-1-RTA-2	E	C1	5	1	55.03	0.1583	20	MGF		0.0079	55.13
NTP2191Q1-WRX-PW-SOL-FHC2-E-C1-1-RTA-3	E	C1	5	1	55.38	0.1588	20	MGF		0.0079	55.66
NTP2191Q1-WRX-PW-SOL-FHC2-E-C2-1-RTA-1	E	C2	5	2	57.01	0.1567	20	MGF		0.0078	56.54
NTP2191Q1-WRX-PW-SOL-FHC2-E-C2-1-RTA-2	E	C2	5	2	55.58	0.1587	20	MGF		0.0079	55.83
NTP2191Q1-WRX-PW-SOL-FHC2-E-C2-1-RTA-3	E	C2	5	2	53.53	0.1587	20	MGF		0.0079	53.77
NTP2191Q1-WRX-PW-SOL-FHC2-F-C3-1-RTA-1	F	C3	6	3	57.51	0.1566	20	MGM		0.0078	57.00
NTP2191Q1-WRX-PW-SOL-FHC2-F-C3-1-RTA-2	F	C3	6	3	58.75	0.1571	20	MGM		0.0079	58.42
NTP2191Q1-WRX-PW-SOL-FHC2-F-C3-1-RTA-3	F	C3	6	3	56.34	0.1579	20	MGM		0.0079	56.30
NTP2191Q1-WRX-PW-SOL-FHC2-F-C4-1-RTA-1	F	C4	6	4	55.25	0.1575	20	MGF		0.0079	55.08
NTP2191Q1-WRX-PW-SOL-FHC2-F-C4-1-RTA-2	F	C4	6	4	54.54	0.1583	20	MGF		0.0079	54.64
NTP2191Q1-WRX-PW-SOL-FHC2-F-C4-1-RTA-3	F	C4	6	4	56.67	0.1584	20	MGM		0.0079	56.81

Average	55.15	Average$_{norm}$	0.0080	55.57
Standard Dev.	1.816	Standard Dev.$_{norm}$		1.365
Coeff. of Var. [%]	3.293	Coeff. of Var. [%]$_{norm}$		2.456
Min.	51.96	Min.	0.0078	52.98
Max.	58.75	Max.	0.0082	58.42
Number of Spec.	18	Number of Spec.	18	18

Laminate Filled-Hole Compression Properties (FHC2)--RTA(75°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Filled-Hole Compression Properties (FHC2)--ETW1(180°F) Strength
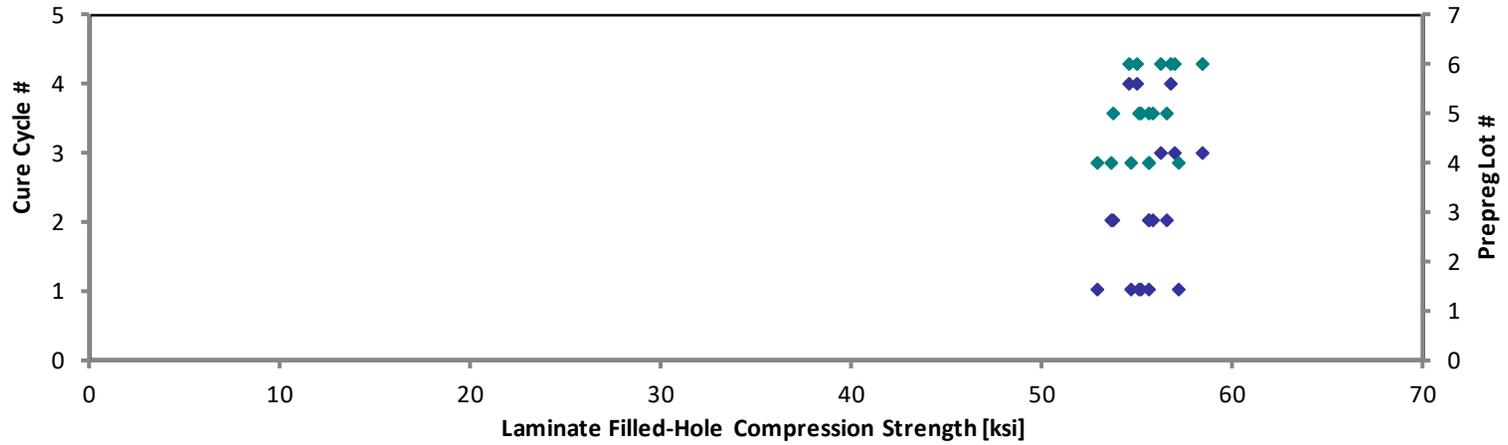
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHC2-D-C1-1-ETW1-1	D	C1	4	1	40.54	0.1604	20	AGO		0.0080	41.16
NTP2191Q1-WRX-PW-SOL-FHC2-D-C1-1-ETW1-2	D	C1	4	1	40.50	0.1608	20	AGO		0.0080	41.22
NTP2191Q1-WRX-PW-SOL-FHC2-D-C1-1-ETW1-3	D	C1	4	1	39.99	0.1608	20	AGO		0.0080	40.70
NTP2191Q1-WRX-PW-SOL-FHC2-D-C2-1-ETW1-1	D	C2	4	2	38.05	0.1639	20	AGM		0.0082	39.47
NTP2191Q1-WRX-PW-SOL-FHC2-D-C2-1-ETW1-2	D	C2	4	2	38.57	0.1639	20	AGM		0.0082	40.01
NTP2191Q1-WRX-PW-SOL-FHC2-D-C2-1-ETW1-3	D	C2	4	2	39.25	0.1638	20	AGM		0.0082	40.69

Average	39.48	$Average_{norm}$	0.0081 40.54
Standard Dev.	1.034	$Standard\ Dev._{norm}$	0.680
Coeff. of Var. [%]	2.620	$Coeff.\ of\ Var.\ [\%]_{norm}$	1.677
Min.	38.05	Min.	0.0080 39.47
Max.	40.54	Max.	0.0082 41.22
Number of Spec.	6	Number of Spec.	6 6

Laminate Filled-Hole Compression Properties (FHC2)--ETW1(180°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Filled-Hole Compression Properties (FHC2)--ETW2(225°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHC2-D-C1-1-ETW2-1	D	C1	4	1	32.81	0.1601	20	AGF	0.0080	33.25
NTP2191Q1-WRX-PW-SOL-FHC2-D-C1-1-ETW2-2	D	C1	4	1	32.61	0.1608	20	MGO	0.0080	33.19
NTP2191Q1-WRX-PW-SOL-FHC2-D-C1-1-ETW2-3	D	C1	4	1	32.62	0.1610	20	MGO	0.0081	33.24
NTP2191Q1-WRX-PW-SOL-FHC2-D-C2-1-ETW2-1	D	C2	4	2	33.81	0.1640	20	AGM	0.0082	35.09
NTP2191Q1-WRX-PW-SOL-FHC2-D-C2-1-ETW2-2	D	C2	4	2	30.29	0.1642	20	MGM	0.0082	31.48
NTP2191Q1-WRX-PW-SOL-FHC2-D-C2-1-ETW2-3	D	C2	4	2	30.02	0.1641	20	MGM	0.0082	31.18
NTP2191Q1-WRX-PW-SOL-FHC2-E-C1-1-ETW2-1	E	C1	5	1	31.98	0.1576	20	MGO	0.0079	31.90
NTP2191Q1-WRX-PW-SOL-FHC2-E-C1-1-ETW2-2	E	C1	5	1	31.55	0.1587	20	AGO	0.0079	31.69
NTP2191Q1-WRX-PW-SOL-FHC2-E-C1-1-ETW2-3	E	C1	5	1	32.01	0.1593	20	MGO	0.0080	32.27
NTP2191Q1-WRX-PW-SOL-FHC2-E-C2-1-ETW2-1	E	C2	5	2	31.73	0.1579	20	MGM	0.0079	31.71
NTP2191Q1-WRX-PW-SOL-FHC2-E-C2-1-ETW2-2	E	C2	5	2	31.12	0.1582	20	MGM	0.0079	31.16
NTP2191Q1-WRX-PW-SOL-FHC2-E-C2-1-ETW2-3	E	C2	5	2	31.65	0.1584	20	MGM	0.0079	31.73
NTP2191Q1-WRX-PW-SOL-FHC2-F-C3-1-ETW2-1	F	C3	6	3	36.33	0.1577	20	MGM	0.0079	36.26
NTP2191Q1-WRX-PW-SOL-FHC2-F-C3-1-ETW2-2	F	C3	6	3	37.51	0.1579	20	MGM	0.0079	37.49
NTP2191Q1-WRX-PW-SOL-FHC2-F-C3-1-ETW2-3	F	C3	6	3	33.69	0.1579	20	MGM	0.0079	33.67
NTP2191Q1-WRX-PW-SOL-FHC2-F-C4-1-ETW2-1	F	C4	6	4	33.37	0.1567	20	MGM	0.0078	33.10
NTP2191Q1-WRX-PW-SOL-FHC2-F-C4-1-ETW2-2	F	C4	6	4	32.83	0.1576	20	MGM	0.0079	32.75
NTP2191Q1-WRX-PW-SOL-FHC2-F-C4-1-ETW2-3	F	C4	6	4	31.88	0.1583	20	MGM	0.0079	31.94

Average	32.66	Average$_{norm}$ 0.0080	32.95
Standard Dev.	1.871	Standard Dev.$_{norm}$	1.760
Coeff. of Var. [%]	5.729	Coeff. of Var. [%]$_{norm}$	5.341
Min.	30.02	Min. 0.0078	31.16
Max.	37.51	Max. 0.0082	37.49
Number of Spec.	18	Number of Spec. 18	18

Laminate Filled-Hole Compression Properties (FHC2)--ETW2(225°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
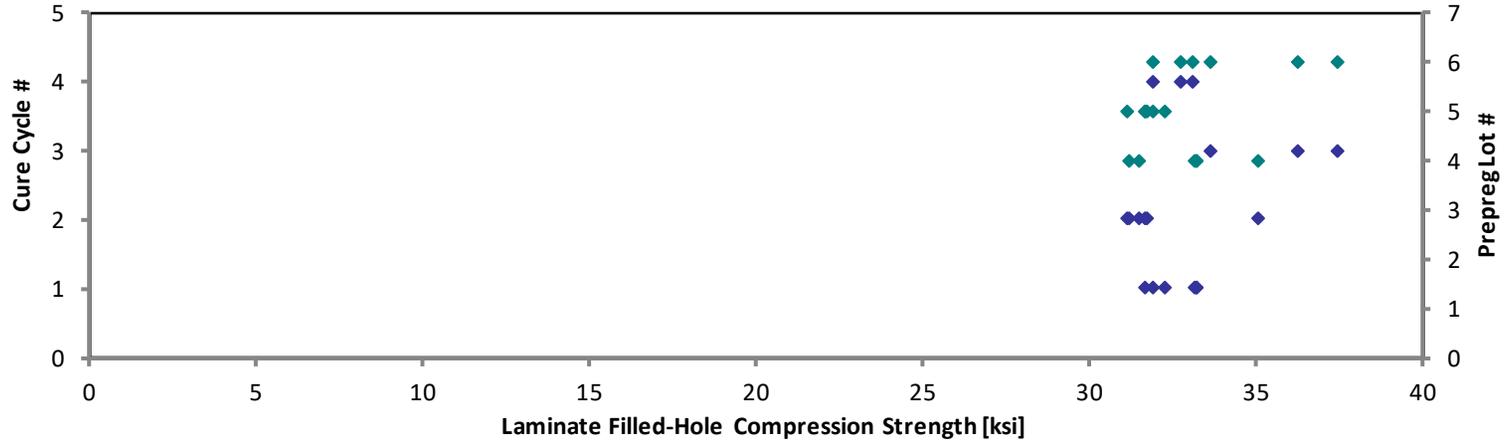
4.28 "40/20/40" Filled-Hole Compression 3 Properties (FHC3)

Laminate Filled-Hole Compression Properties (FHC3)--RTA(75°F) Strength Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHC3-D-C1-1-RTA-1	D	C1	4	1	78.89	0.1599	20	MGM	0.0080	79.84
NTP2191Q1-WRX-PW-SOL-FHC3-D-C1-1-RTA-2	D	C1	4	1	81.39	0.1595	20	MGM	0.0080	82.16
NTP2191Q1-WRX-PW-SOL-FHC3-D-C1-1-RTA-3	D	C1	4	1	75.25	0.1587	20	MGM	0.0079	75.58
NTP2191Q1-WRX-PW-SOL-FHC3-D-C2-1-RTA-1	D	C2	4	2	79.54	0.1615	20	MGM	0.0081	81.30
NTP2191Q1-WRX-PW-SOL-FHC3-D-C2-1-RTA-2	D	C2	4	2	81.29	0.1624	20	MGM	0.0081	83.55
NTP2191Q1-WRX-PW-SOL-FHC3-D-C2-1-RTA-3	D	C2	4	2	79.50	0.1627	20	MGM	0.0081	81.86
NTP2191Q1-WRX-PW-SOL-FHC3-E-C1-1-RTA-1	E	C1	5	1	74.45	0.1587	20	MGM	0.0079	74.78
NTP2191Q1-WRX-PW-SOL-FHC3-E-C1-1-RTA-2	E	C1	5	1	73.08	0.1583	20	MGM	0.0079	73.22
NTP2191Q1-WRX-PW-SOL-FHC3-E-C1-1-RTA-3	E	C1	5	1	75.64	0.1584	20	MGM	0.0079	75.83
NTP2191Q1-WRX-PW-SOL-FHC3-E-C2-1-RTA-1	E	C2	5	2	73.71	0.1580	20	LGM	0.0079	73.71
NTP2191Q1-WRX-PW-SOL-FHC3-E-C2-1-RTA-2	E	C2	5	2	77.23	0.1577	20	MGM	0.0079	77.08
NTP2191Q1-WRX-PW-SOL-FHC3-E-C2-1-RTA-3	E	C2	5	2	72.81	0.1578	20	MGM	0.0079	72.72
NTP2191Q1-WRX-PW-SOL-FHC3-F-C3-1-RTA-1	F	C3	6	3	82.47	0.1557	20	LGM	0.0078	81.27
NTP2191Q1-WRX-PW-SOL-FHC3-F-C3-1-RTA-3	F	C3	6	3	81.74	0.1569	20	LGM	0.0078	81.17
NTP2191Q1-WRX-PW-SOL-FHC3-F-C3-1-RTA-4	F	C3	6	3	81.84	0.1569	20	LGM	0.0078	81.27
NTP2191Q1-WRX-PW-SOL-FHC3-F-C4-1-RTA-2	F	C4	6	4	82.56	0.1581	20	MGM	0.0079	82.61
NTP2191Q1-WRX-PW-SOL-FHC3-F-C4-1-RTA-4	F	C4	6	4	83.66	0.1575	20	MGM	0.0079	83.40
NTP2191Q1-WRX-PW-SOL-FHC3-F-C4-1-RTA-5	F	C4	6	4	77.37	0.1574	20	MGM	0.0079	77.08

Average	78.47	Average$_{norm}$	0.0079	78.80
Standard Dev.	3.610	Standard Dev.$_{norm}$		3.753
Coeff. of Var. [%]	4.601	Coeff. of Var. [%]$_{norm}$		4.762
Min.	72.81	Min.	0.0078	72.72
Max.	83.66	Max.	0.0081	83.55
Number of Spec.	18	Number of Spec.	18	18

Laminate Filled-Hole Compression Properties (FHC3)--RTA(75°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Laminate Filled-Hole Compression Properties (FHC3)--ETW1(180°F)
Strength
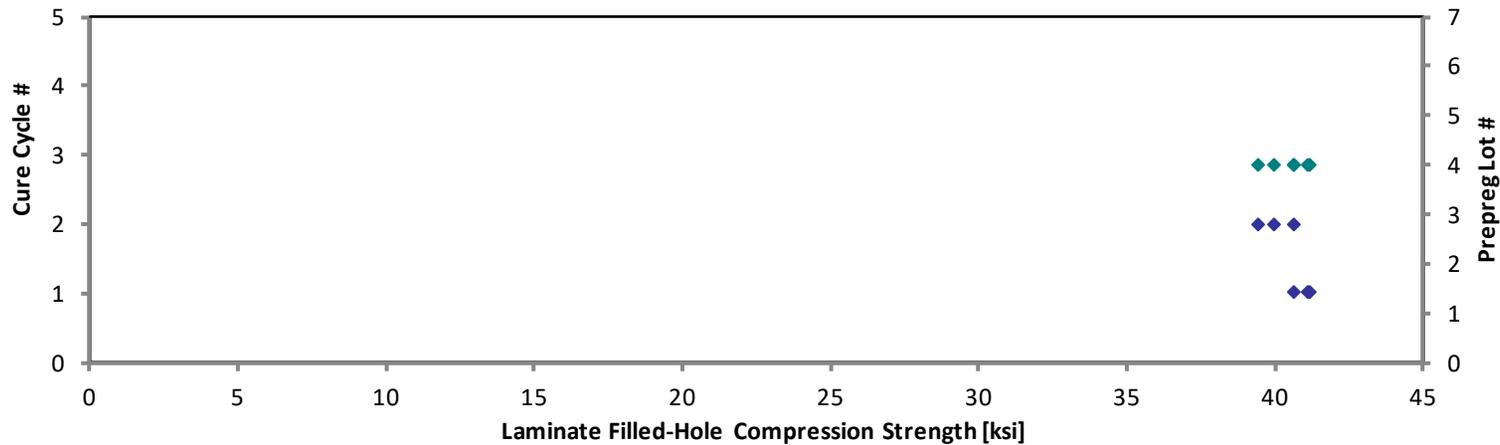Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHC3-D-C1-1-ETW1-1	D	C1	4	1	59.36	0.1603	20	LGO	0.0080	60.22
NTP2191Q1-WRX-PW-SOL-FHC3-D-C1-1-ETW1-2	D	C1	4	1	59.61	0.1600	20	MGO	0.0080	60.36
NTP2191Q1-WRX-PW-SOL-FHC3-D-C1-1-ETW1-3	D	C1	4	1	59.89	0.1598	20	MGO	0.0080	60.57
NTP2191Q1-WRX-PW-SOL-FHC3-D-C2-1-ETW1-1	D	C2	4	2	63.11	0.1625	20	LGM	0.0081	64.91
NTP2191Q1-WRX-PW-SOL-FHC3-D-C2-1-ETW1-3	D	C2	4	2	60.52	0.1626	20	LGM	0.0081	62.28
NTP2191Q1-WRX-PW-SOL-FHC3-D-C2-1-ETW1-4	D	C2	4	2	62.48	0.1627	20	LGM	0.0081	64.34

Average	60.83	Average$_{norm}$	0.0081 62.11
Standard Dev.	1.584	Standard Dev.$_{norm}$	2.088
Coeff. of Var. [%]	2.605	Coeff. of Var. [%]$_{norm}$	3.361
Min.	59.36	Min.	0.0080 60.22
Max.	63.11	Max.	0.0081 64.91
Number of Spec.	6	Number of Spec.	6 6

Laminate Filled-Hole Compression Properties (FHC3)--ETW1 (180°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Laminate Filled-Hole Compression Properties (FHC3)--ETW2(225°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
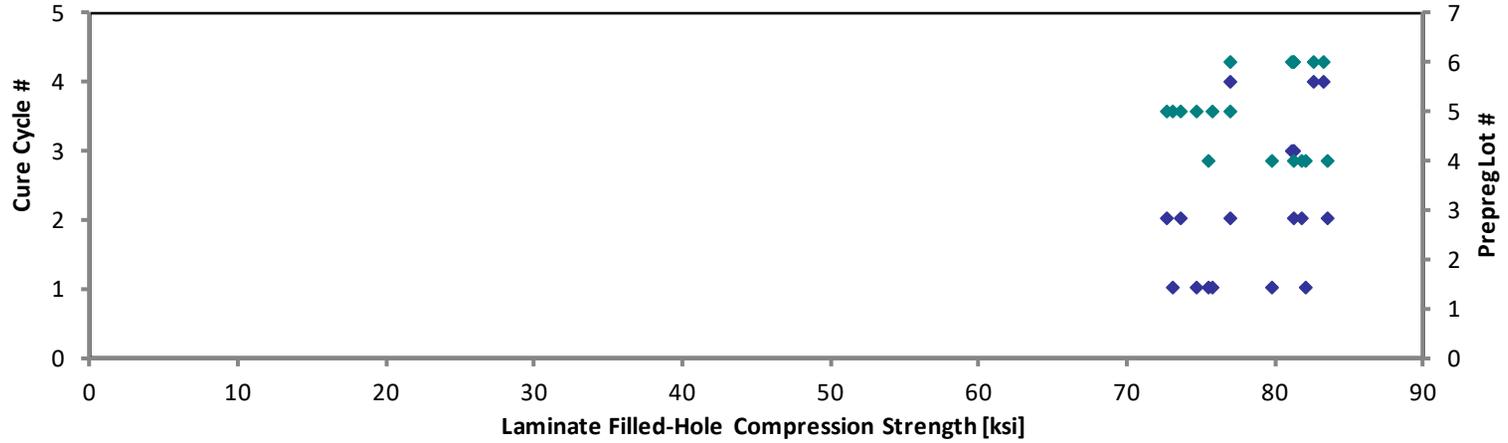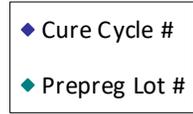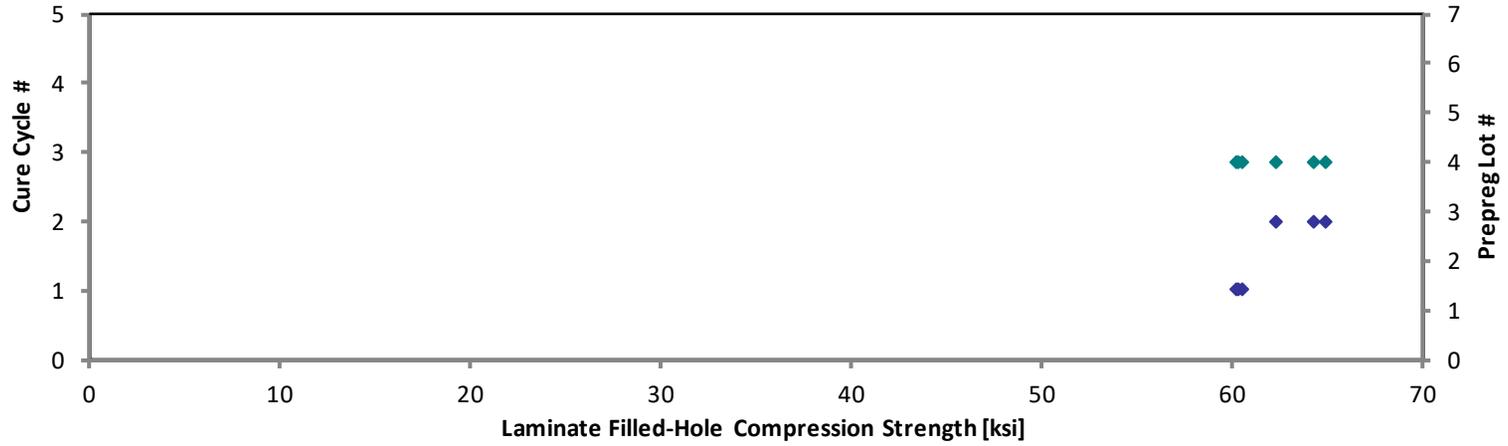
normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-FHC3-D-C1-1-ETW2-2	D	C1	4	1	41.67	0.1599	20	LGF	0.0080	42.17
NTP2191Q1-WRX-PW-SOL-FHC3-D-C1-1-ETW2-3	D	C1	4	1	47.61	0.1602	20	LGF	0.0080	48.27
NTP2191Q1-WRX-PW-SOL-FHC3-D-C1-1-ETW2-1	D	C1	4	1	46.25	0.1600	20	LGF	0.0080	46.84
NTP2191Q1-WRX-PW-SOL-FHC3-D-C2-1-ETW2-1	D	C2	4	2	53.01	0.1611	20	LGM	0.0081	54.05
NTP2191Q1-WRX-PW-SOL-FHC3-D-C2-1-ETW2-2	D	C2	4	2	51.80	0.1623	20	LGM	0.0081	53.21
NTP2191Q1-WRX-PW-SOL-FHC3-D-C2-1-ETW2-3	D	C2	4	2	51.14	0.1625	20	LGM	0.0081	52.60
NTP2191Q1-WRX-PW-SOL-FHC3-E-C1-1-ETW2-1	E	C1	5	1	50.43	0.1589	20	LUT	0.0079	50.72
NTP2191Q1-WRX-PW-SOL-FHC3-E-C1-1-ETW2-2	E	C1	5	1	48.47	0.1589	20	LUT	0.0079	48.75
NTP2191Q1-WRX-PW-SOL-FHC3-E-C1-1-ETW2-3	E	C1	5	1	43.87	0.1584	20	LUB	0.0079	43.98
NTP2191Q1-WRX-PW-SOL-FHC3-E-C2-1-ETW2-1	E	C2	5	2	49.11	0.1581	20	MGM	0.0079	49.14
NTP2191Q1-WRX-PW-SOL-FHC3-E-C2-1-ETW2-2	E	C2	5	2	48.30	0.1581	20	LGF	0.0079	48.33
NTP2191Q1-WRX-PW-SOL-FHC3-E-C2-1-ETW2-3	E	C2	5	2	50.71	0.1583	20	MGM	0.0079	50.81
NTP2191Q1-WRX-PW-SOL-FHC3-F-C3-1-ETW2-1	F	C3	6	3	54.01	0.1569	20	LGM	0.0078	53.63
NTP2191Q1-WRX-PW-SOL-FHC3-F-C3-1-ETW2-2	F	C3	6	3	45.86	0.1572	20	LGM	0.0079	45.63
NTP2191Q1-WRX-PW-SOL-FHC3-F-C3-1-ETW2-3	F	C3	6	3	46.75	0.1570	20	LGM	0.0079	46.45
NTP2191Q1-WRX-PW-SOL-FHC3-F-C4-1-ETW2-1	F	C4	6	4	52.53	0.1580	20	MGM	0.0079	52.53
NTP2191Q1-WRX-PW-SOL-FHC3-F-C4-1-ETW2-2	F	C4	6	4	49.87	0.1579	20	MGM	0.0079	49.84
NTP2191Q1-WRX-PW-SOL-FHC3-F-C4-1-ETW2-3	F	C4	6	4	47.50	0.1575	20	MGM	0.0079	47.35

Average	48.83	Average$_{norm}$	0.0079 49.13
Standard Dev.	3.243	Standard Dev.$_{norm}$	3.386
Coeff. of Var. [%]	6.641	Coeff. of Var. [%]$_{norm}$	6.892
Min.	41.67	Min.	0.0078 42.17
Max.	54.01	Max.	0.0081 54.05
Number of Spec.	18	Number of Spec.	18 18

Laminate Filled-Hole Compression Properties (FHC3)--ETW2(225°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%
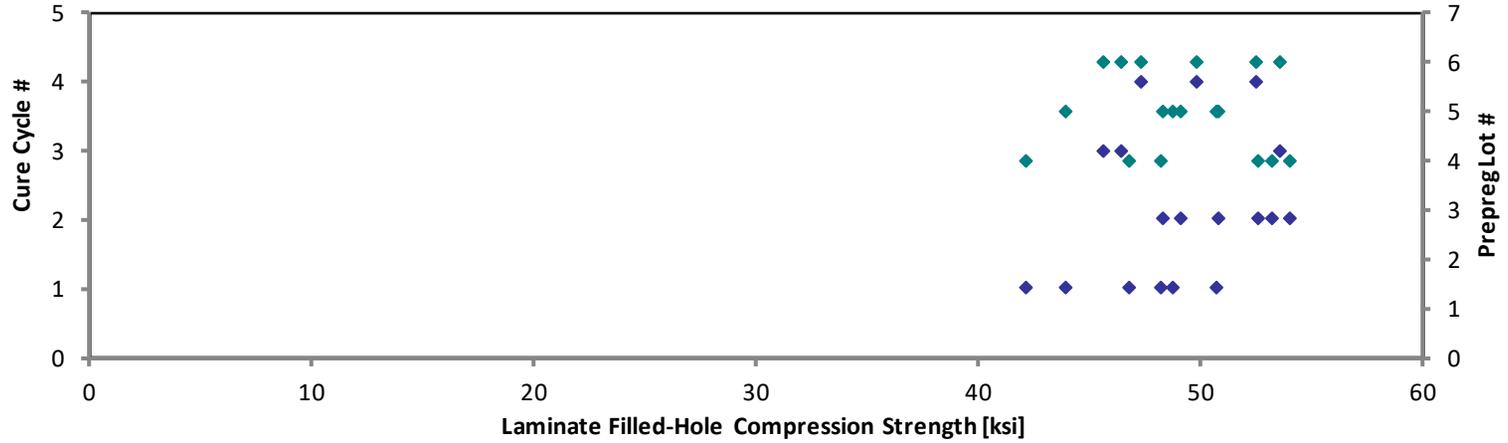
4.29 "25/50/25" Single-Shear Bearing 1, Proc. C Properties (SSB1)

Laminate Single-Shear Bearing Proc.C Properties (SSB1)--CTA(-67°F)
Strength & Deformation
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-CTA-1	D	C1	4	1	137.9	167.6	1.565	0.1275	16	B1I	0.0080	139.1	169.0	1.579
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-CTA-2	D	C1	4	1	142.6	156.6	1.407	0.1278	16	B1I	0.0057	152.2	166.3	2.122
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-CTA-3	D	C1	4	1	145.3	163.3	1.386	0.1270	16	B1I	0.0079	146.0	164.0	1.393
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-CTA-1	D	C2	4	2	146.5	157.7	1.345	0.1263	16	B1I	0.0079	146.4	157.6	1.344
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-CTA-2	D	C2	4	2	148.2	165.4	1.158	0.1266	16	B1I	0.0079	148.5	165.6	1.160
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-CTA-3	D	C2	4	2	136.5	162.9	1.402	0.1263	16	B1I	0.0079	136.4	162.7	1.401
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-CTA-1	E	C1	5	1	131.8	155.1	1.317	0.1301	16	B1I	0.0081	135.7	159.6	1.356
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-CTA-2	E	C1	5	1	127.2	149.8	1.255	0.1303	16	B1I	0.0081	131.1	154.4	1.294
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-CTA-3	E	C1	5	1	130.5	149.9	1.200	0.1301	16	B1I	0.0081	134.3	154.3	1.235
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-CTA-1	E	C2	5	2	136.1	154.8	1.216	0.1312	16	B1I	0.0082	141.3	160.7	1.262
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-CTA-2	E	C2	5	2	136.7	156.4	1.188	0.1310	16	B1I	0.0082	141.7	162.1	1.231
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-CTA-3	E	C2	5	2	127.3	150.9	1.211	0.1310	16	B1I	0.0082	131.9	156.4	1.255
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-CTA-1	F	C1	6	1	138.2	158.9	1.128	0.1259	16	B1I	0.0079	137.7	158.3	1.124
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-CTA-2	F	C1	6	1	125.9	148.7	1.169	0.1259	16	B1I	0.0079	125.4	148.1	1.164
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-CTA-3	F	C1	6	1	144.2	157.0	1.204	0.1256	16	B1I	0.0079	143.2	156.0	1.196
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-CTA-1	F	C1	6	2	131.2	152.2	1.323	0.1262	16	B1I	0.0079	131.0	151.9	1.321
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-CTA-2	F	C1	6	2	149.9	156.0	1.298	0.1258	16	B1I	0.0079	149.2	155.2	1.292
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-CTA-3	F	C1	6	2	132.1	154.6	1.264	0.1267	16	B1I	0.0079	132.4	155.0	1.267

	2% Offset Strength	Ultimate Strength	Chord Stiffness		Avg. t_{ply}	2% Offset Strength$_{norm}$	Ultimate Strength$_{norm}$	Chord Stiffness$_{norm}$
Average	137.1	156.5	1.280	Average$_{norm}$	0.0079	139.1	158.7	1.333
Standard Dev.	7.586	5.446	0.1117	Standard Dev.$_{norm}$		7.465	5.478	0.2239
Coeff. of Var. [%]	5.533	3.479	8.724	Coeff. of Var. [%]$_{norm}$		5.368	3.451	16.79
Min.	125.9	148.7	1.128	Min.	0.0057	125.4	148.1	1.124
Max.	149.9	167.6	1.565	Max.	0.0082	152.2	169.0	2.122
Number of Spec.	18	18	18	Number of Spec.	18	18	18	18

Laminate Single-Shear Bearing Proc.C Properties (SSB1)--CTA(-67°F)
Normalized 2% Offset Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB1)--CTA(-67°F)
Normalized Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB1)--CTA(-67°F)
Normalized Chord Stiffness
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

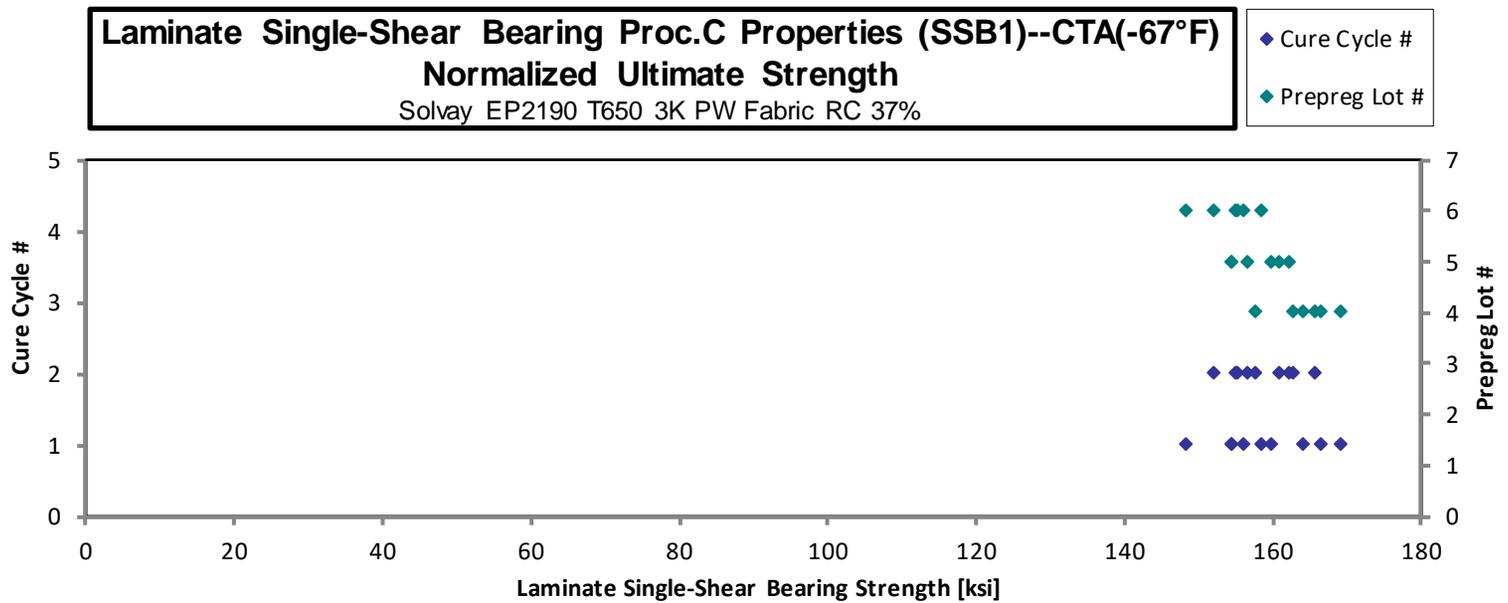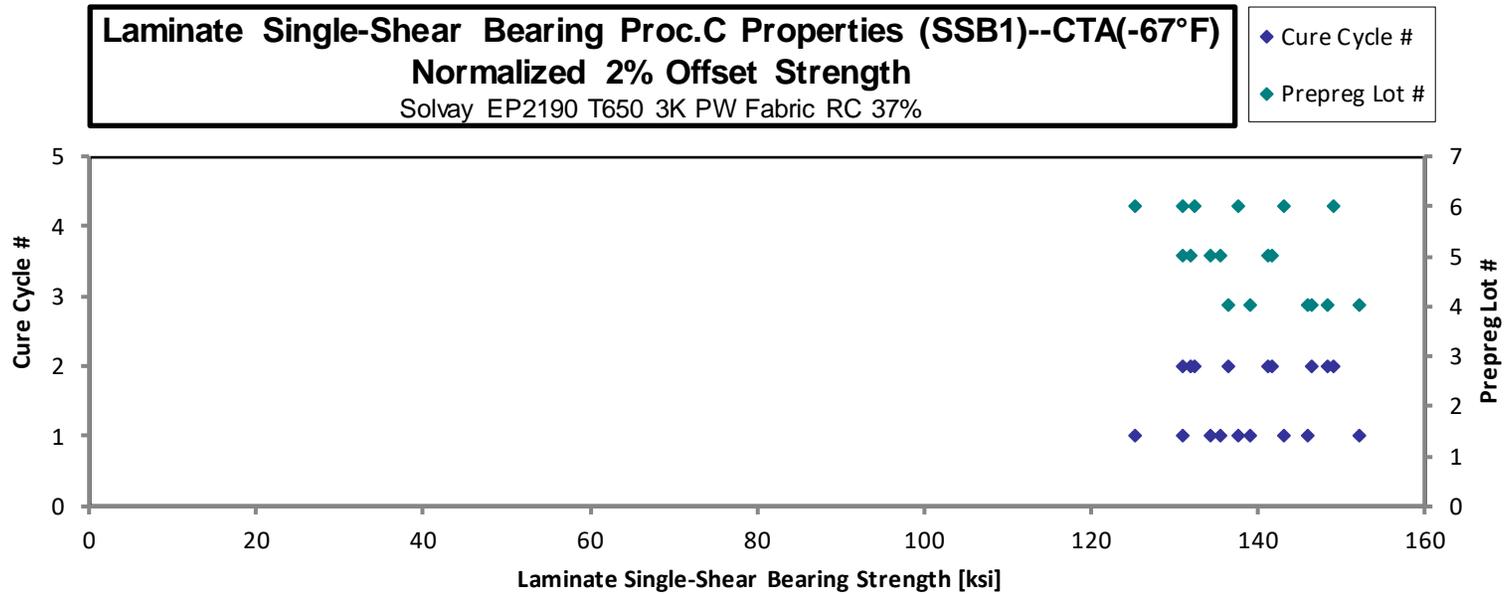Laminate Single-Shear Bearing Chord Stiffness [Msi]
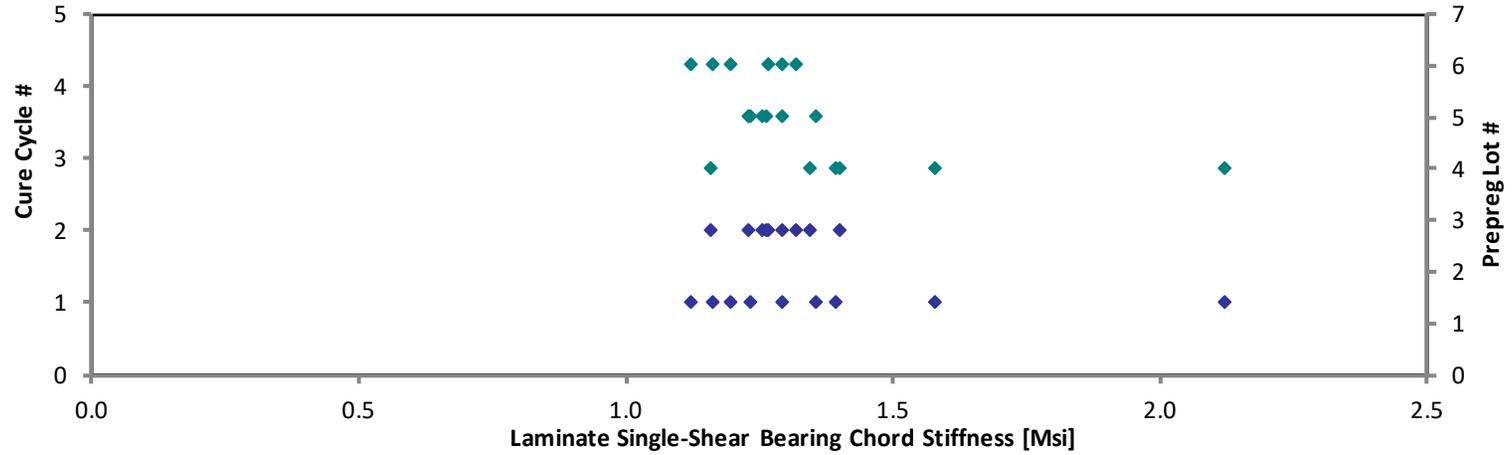
Laminate Single-Shear Bearing Proc.C Properties (SSB1)--RTA(75°F)
Strength & Deformation
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-RTA-1	D	C1	4	1	117.1	136.7	1.415	0.1277	16	B1I	0.0080	118.3	138.1	1.430
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-RTA-2	D	C1	4	1	115.9	136.3	1.527	0.1273	16	B1I	0.0080	116.7	137.3	1.538
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-RTA-3	D	C1	4	1	112.8	132.2	1.453	0.1276	16	B1I	0.0080	113.9	133.5	1.467
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-RTA-1	D	C2	4	2	115.6	129.2	1.353	0.1267	16	B1I	0.0079	115.9	129.5	1.356
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-RTA-2	D	C2	4	2	118.5	129.6	1.623	0.1269	16	B1I	0.0079	118.9	130.1	1.629
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-RTA-3	D	C2	4	2	123.9	132.1	1.496	0.1265	16	B1I	0.0079	124.0	132.2	1.497
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-RTA-1	E	C1	5	1	119.3	134.6	1.837	0.1297	16	B1I	0.0081	122.4	138.1	1.885
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-RTA-2	E	C1	5	1	119.7	131.9	1.602	0.1304	16	B1I	0.0082	123.4	136.1	1.653
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-RTA-3	E	C1	5	1	119.7	135.8	1.788	0.1300	16	B1I	0.0081	123.1	139.7	1.839
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-RTA-1	E	C2	5	2	114.4	135.3	1.672	0.1305	16	B1I	0.0082	118.2	139.7	1.726
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-RTA-2	E	C2	5	2	123.9	138.3	1.759	0.1305	16	B1I	0.0082	127.9	142.8	1.816
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-RTA-3	E	C2	5	2	118.3	139.9	1.835	0.1310	16	B1I	0.0082	122.6	144.9	1.902
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-RTA-1	F	C1	6	1	114.2	128.8	1.324	0.1254	16	B1I	0.0078	113.2	127.8	1.314
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-RTA-2	F	C1	6	1	115.8	134.0	1.325	0.1249	16	B1I	0.0078	114.5	132.4	1.309
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-RTA-4	F	C1	6	1	119.2	138.2	1.466	0.1253	16	B1I	0.0078	118.2	137.0	1.453
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-RTA-1	F	C1	6	2	120.0	135.3	1.329	0.1264	16	B1I	0.0079	120.0	135.3	1.329
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-RTA-2	F	C1	6	2	116.6	138.4	1.263	0.1261	16	B1I	0.0079	116.3	138.1	1.260
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-RTA-3	F	C1	6	2	122.5	136.7	1.297	0.1261	16	B1I	0.0079	122.2	136.4	1.294

Average	118.2	134.6	1.520	
Standard Dev.	3.205	3.342	0.1947	
Coeff. of Var. [%]	2.712	2.483	12.81	
Min.	112.8	128.8	1.263	
Max.	123.9	139.9	1.837	
Number of Spec.	18	18	18	

Average$_{norm}$	0.0080	119.4	136.1	1.539
Standard Dev.$_{norm}$		4.043	4.522	0.2196
Coeff. of Var. [%]$_{norm}$		3.385	3.324	14.27
Min.	0.0078	113.2	127.8	1.260
Max.	0.0082	127.9	144.9	1.902
Number of Spec.	18	18	18	18

Laminate Single-Shear Bearing Proc.C Properties (SSB1)--RTA(75°F)
Normalized 2% Offset Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- Cure Cycle #
- Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB1)--RTA(75°F)
Normalized Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- Cure Cycle #
- Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB1)--RTA(75°F)
Normalized Chord Stiffness
Solvay EP2190 T650 3K PW Fabric RC 37%
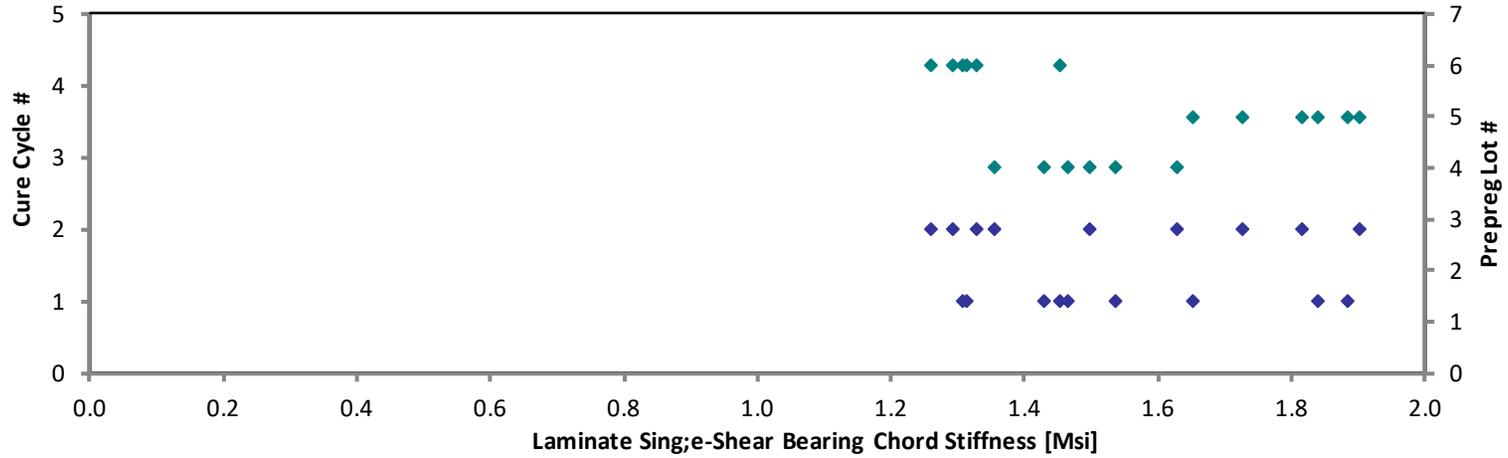
Laminate Single-Shear Bearing Proc.C Properties (SSB1)--ETW1(180°F)
Strength & Deformation
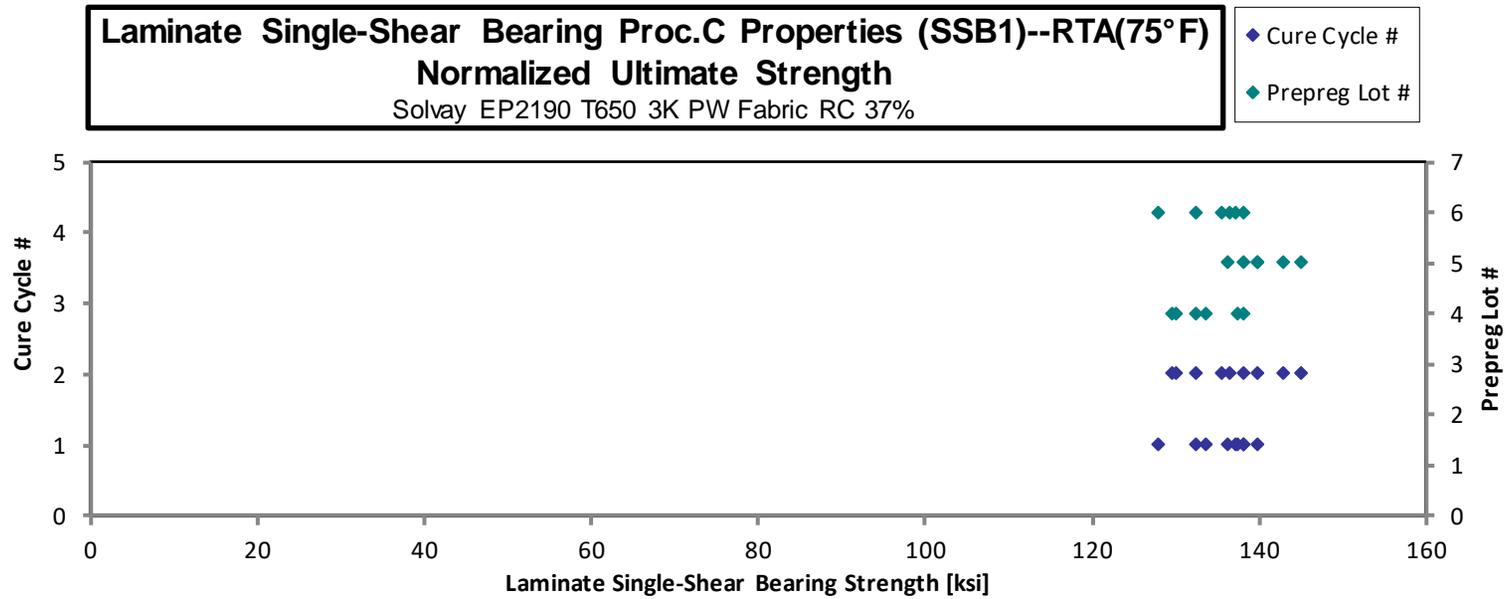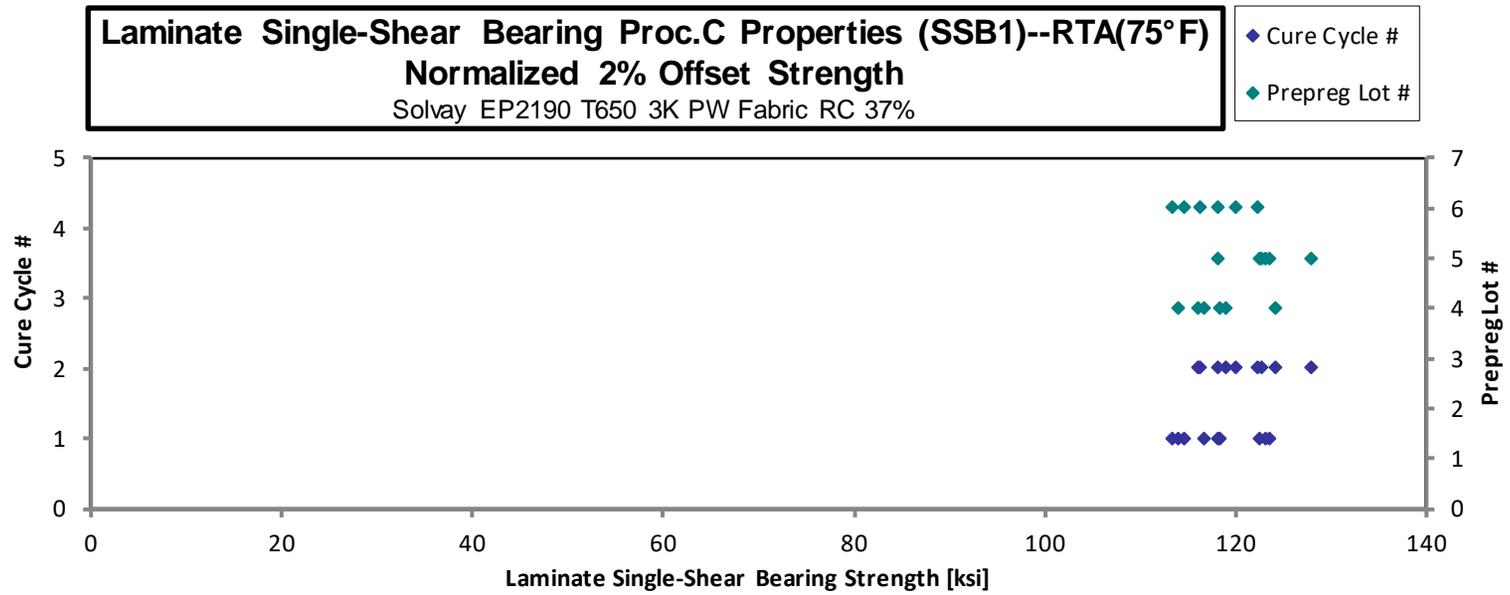Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-ETW1-2	D	C1	4	1	98.97	115.6	1.187	0.1275	16	B1I	0.0080	99.83	116.6	1.197
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-ETW1-3	D	C1	4	1	104.2	114.1	1.184	0.1276	16	B1I	0.0080	105.2	115.2	1.195
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-ETW1-4	D	C1	4	1	95.51	111.3	1.166	0.1276	16	B1I	0.0080	96.42	112.3	1.177
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-ETW1-1	D	C2	4	2	105.3	118.9	1.066	0.1259	16	B1I	0.0079	104.8	118.4	1.062
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-ETW1-2	D	C2	4	2	102.5	107.8	1.134	0.1267	16	B1I	0.0079	102.7	108.0	1.137
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-ETW1-3	D	C2	4	2	104.3	110.3	1.157	0.1266	16	B1I	0.0079	104.4	110.5	1.159
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-ETW1-1	E	C1	5	1	103.4	118.8	1.253	0.1301	16	B1I	0.0081	106.4	122.3	1.290
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-ETW1-2	E	C1	5	1	102.9	112.3	1.041	0.1300	16	B1I	0.0081	105.9	115.5	1.071
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-ETW1-3	E	C1	5	1	95.62	103.5	1.168	0.1301	16	B1I	0.0081	98.42	106.6	1.202
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-ETW1-1	E	C2	5	2	115.7	116.3	1.316	0.1310	16	B1I	0.0082	119.9	120.5	1.364
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-ETW1-2	E	C2	5	2	108.2	117.5	1.172	0.1311	16	B1I	0.0082	112.2	121.8	1.216
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-ETW1-3	E	C2	5	2	110.9	118.8	1.046	0.1310	16	B1I	0.0082	115.0	123.1	1.084
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-ETW1-1	F	C1	6	1	115.9	119.0	1.019	0.1258	16	B1I	0.0079	115.3	118.4	1.014
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-ETW1-2	F	C1	6	1	110.9	111.4	1.110	0.1260	16	B1I	0.0079	110.6	111.0	1.106
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-ETW1-3	F	C1	6	1	106.3	114.7	1.378	0.1258	16	B1I	0.0079	105.8	114.1	1.371
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-ETW1-1	F	C1	6	2	110.2	112.2	1.093	0.1259	16	B1I	0.0079	109.7	111.8	1.089
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-ETW1-2	F	C1	6	2	113.0	120.4	1.080	0.1254	16	B1I	0.0078	112.1	119.4	1.071
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-ETW1-3	F	C1	6	2	102.2	116.7	1.057	0.1256	16	B1I	0.0079	101.6	116.0	1.050

Average					105.9	114.4	1.146				**Average$_{norm}$**	0.0080	107.0	115.6	1.159
Standard Dev.					6.074	4.489	0.09673				**Standard Dev.$_{norm}$**		6.300	4.910	0.1040
Coeff. of Var. [%]					5.736	3.924	8.441				**Coeff. of Var. [%]$_{norm}$**		5.887	4.246	8.977
Min.					95.51	103.5	1.019				**Min.**	0.0078	96.42	106.6	1.014
Max.					115.9	120.4	1.378				**Max.**	0.0082	119.9	123.1	1.371
Number of Spec.					18	18	18				**Number of Spec.**	18	18	18	18

**Laminate Single-Shear Bearing Proc.C Properties (SSB1)--ETW1(180°F)
Normalized 2% Offset Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

♦ Cure Cycle #

♦ Prepreg Lot #

**Laminate Single-Shear Bearing Proc.C Properties (SSB1)--ETW1(180°F)
Normalized Ultimate Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%
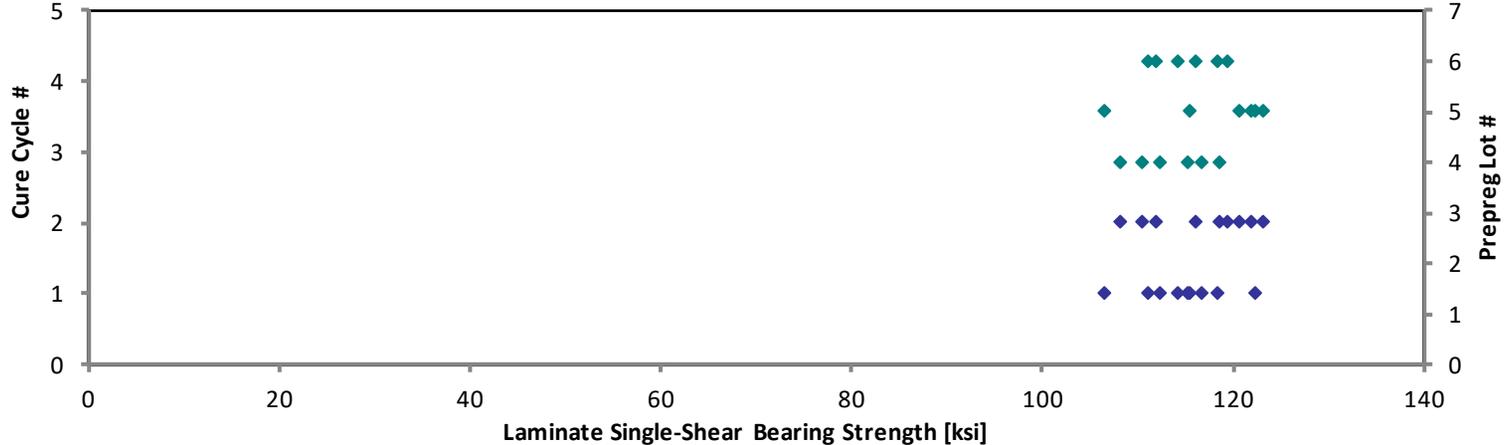
♦ Cure Cycle #

♦ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB1)--ETW1(180°F) Normalized Chord Stiffness

Solvay EP2190 T650 3K PW Fabric RC 37%

Laminate Single-Shear Bearing Proc.C Properties (SSB1)--ETW2(225°F)
Strength & Deformation
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
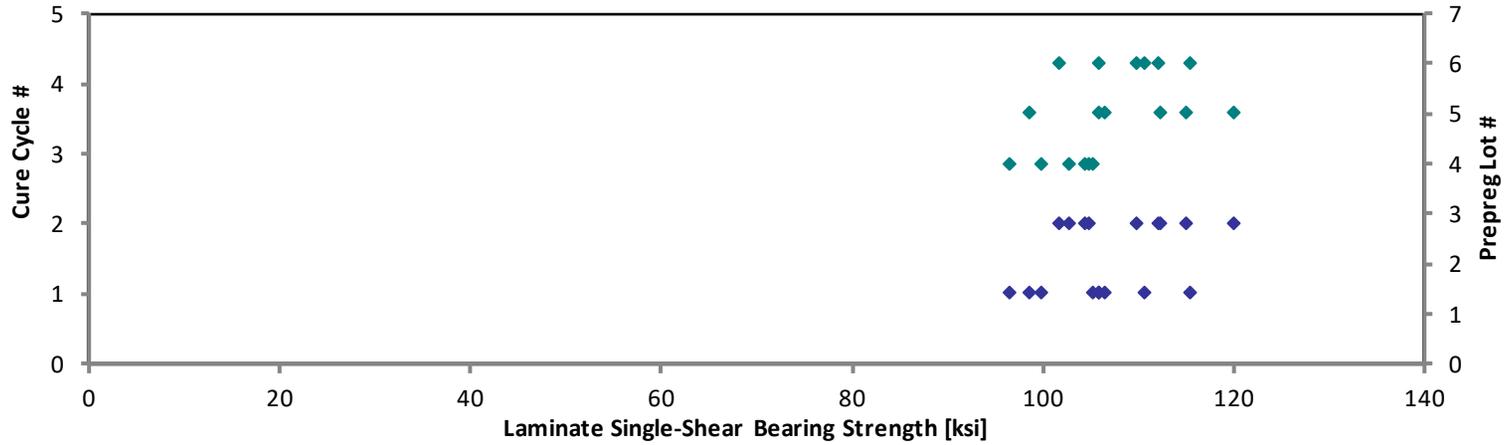t_{ply} [in]
0.0079

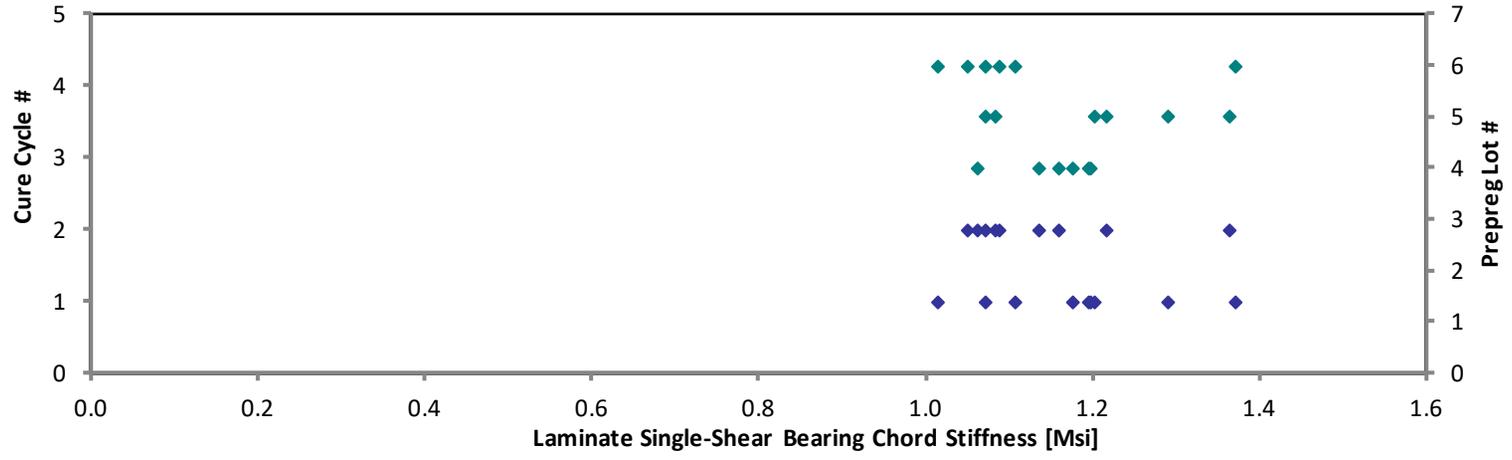| Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-ETW2-1	D	C1	4	1	95.69	98.90	1.154	0.1277	16	B1I	0.0080	96.67	99.92	1.166
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-ETW2-2	D	C1	4	1	89.73	98.19	1.153	0.1273	16	B1I	0.0080	90.37	98.89	1.161
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-ETW2-3	D	C1	4	1	96.56	102.5	1.152	0.1273	16	B1I	0.0080	97.2	103.2	1.160
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-ETW2-1	D	C2	4	2	104.0	106.6	1.140	0.1260	16	B1I	0.0079	103.7	106.2	1.136
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-ETW2-2	D	C2	4	2	103.5	104.1	1.080	0.1272	16	B1I	0.0080	104.1	104.8	1.087
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-ETW2-3	D	C2	4	2	98.92	101.3	1.067	0.1271	16	B1I	0.0079	99.47	101.8	1.073
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-ETW2-1	E	C1	5	1	100.0	104.3	1.195	0.1302	16	B1I	0.0081	103.0	107.4	1.231
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-ETW2-2	E	C1	5	1	90.01	94.05	1.136	0.1302	16	B1I	0.0081	92.72	96.88	1.170
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-ETW2-3	E	C1	5	1	98.38	101.0	1.077	0.1300	16	B1I	0.0081	101.2	103.9	1.108
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-ETW2-1	E	C2	5	2	95.19	102.7	0.9860	0.1311	16	B1I	0.0082	98.73	106.5	1.023
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-ETW2-2	E	C2	5	2	95.32	96.06	0.9640	0.1312	16	B1I	0.0082	98.94	99.71	1.001
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-ETW2-3	E	C2	5	2	101.6	104.1	1.072	0.1311	16	B1I	0.0082	105.4	108.0	1.112
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-ETW2-1	F	C1	6	1	99.02	101.5	1.117	0.1257	16	B1I	0.0079	98.47	100.9	1.111
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-ETW2-2	F	C1	6	1	99.65	101.5	1.176	0.1257	16	B1I	0.0079	99.10	100.9	1.169
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-ETW2-3	F	C1	6	1	107.2	108.3	1.219	0.1258	16	B1I	0.0079	106.6	107.8	1.213
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-ETW2-1	F	C1	6	2	103.3	108.7	1.074	0.1269	16	B1I	0.0079	103.7	109.2	1.078
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-ETW2-2	F	C1	6	2	101.3	103.0	1.154	0.1268	16	B1I	0.0079	101.6	103.4	1.158
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-ETW2-3	F	C1	6	2	102.4	106.5	1.144	0.1273	16	B1I	0.0080	103.1	107.2	1.152

			2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]			Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
Average			99.0	102.4	1.114	Average$_{norm}$		0.0080	100.2	103.7	1.128
Standard Dev.			4.644	3.943	0.06714	Standard Dev.$_{norm}$			4.265	3.653	0.06037
Coeff. of Var. [%]			4.692	3.851	6.025	Coeff. of Var. [%]$_{norm}$			4.255	3.522	5.351
Min.			89.73	94.05	0.9640	Min.		0.0079	90.37	96.88	1.001
Max.			107.2	108.7	1.219	Max.		0.0082	106.6	109.2	1.231
Number of Spec.			18	18	18	Number of Spec.		18	18	18	18

Laminate Single-Shear Bearing Proc.C Properties (SSB1)--ETW2(225°F) Normalized 2% Offset Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- Cure Cycle #
- Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB1)--ETW2(225°F) Normalized Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- Cure Cycle #
- Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB1)--ETW2(225°F)
Normalized Chord Stiffness
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Single-Shear Bearing Chord Stiffness [Msi]
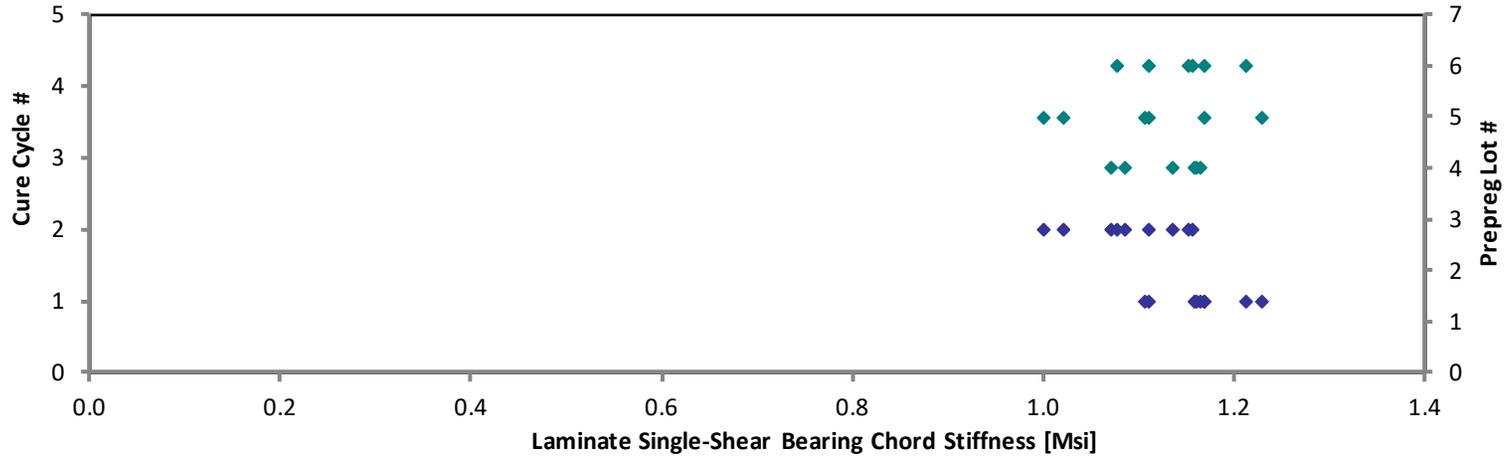
Laminate Single-Shear Bearing Proc.C Properties (SSB1)--ETW3(250°F)
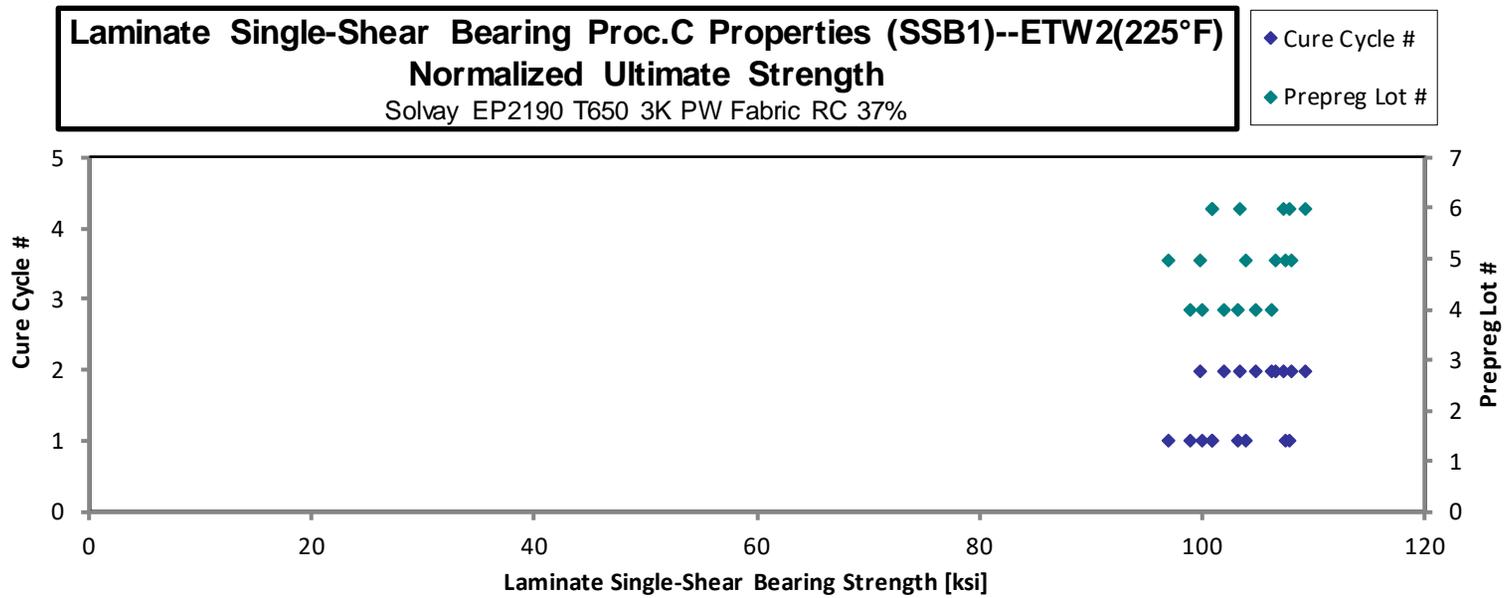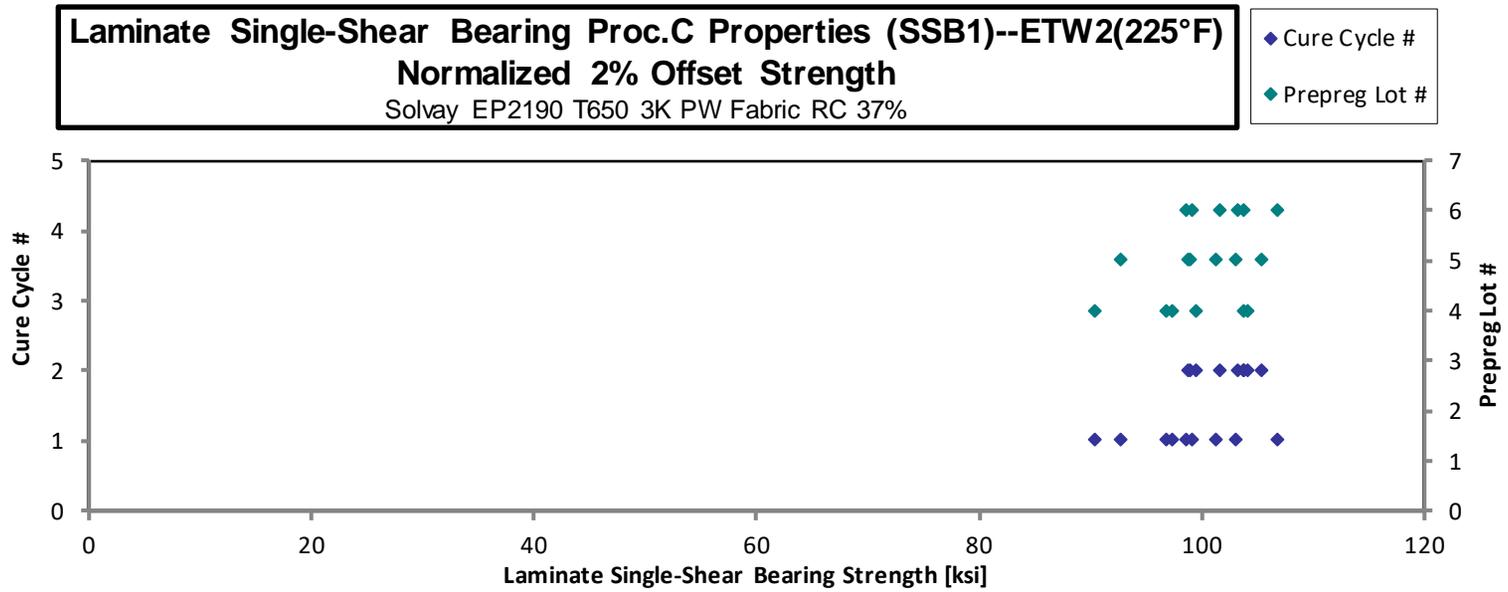**Strength & Deformation**
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-ETW3-1	D	C1	4	1	88.01	94.57	1.153	0.1282	16	B1I	0.0080	89.26	95.92	1.169
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-ETW3-2	D	C1	4	1	85.21	87.67	1.108	0.1277	16	B1I	0.0080	86.09	88.57	1.119
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-ETW3-3	D	C1	4	1	80.46	88.01	1.036	0.1275	16	B1I	0.0080	81.16	88.78	1.045
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-ETW3-1	D	C2	4	2	91.45	92.74	1.075	0.1259	16	B1I	0.0079	91.09	92.37	1.071
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-ETW3-2	D	C2	4	2	89.74	91.11	1.101	0.1267	16	B1I	0.0079	89.95	91.33	1.104
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-ETW3-3	D	C2	4	2	88.33	92.83	1.093	0.1268	16	B1I	0.0079	88.61	93.12	1.096
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-ETW3-1	E	C1	5	1	87.12	89.82	1.065	0.1302	16	B1I	0.0081	89.74	92.52	1.097
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-ETW3-2	E	C1	5	1	93.96	96.68	1.118	0.1300	16	B1I	0.0081	96.64	99.43	1.150
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-ETW3-3	E	C1	5	1	86.07	86.74	1.091	0.1299	16	B1I	0.0081	88.45	89.14	1.121
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-ETW3-1	E	C2	5	2	91.11	92.13	1.116	0.1310	16	B1I	0.0082	94.43	95.48	1.157
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-ETW3-2	E	C2	5	2	90.84	91.59	1.343	0.1308	16	B1I	0.0082	94.00	94.78	1.390
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-ETW3-3	E	C2	5	2	91.34	95.24	1.261	0.1308	16	B1I	0.0082	94.52	98.56	1.305
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-ETW3-1	F	C1	6	1	95.44	101.83	1.234	0.1253	16	B1I	0.0078	94.61	100.9	1.223
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-ETW3-2	F	C1	6	1	92.68	99.73	1.129	0.1257	16	B1I	0.0079	92.17	99.18	1.123
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-ETW3-3	F	C1	6	1	98.10	98.36	1.102	0.1255	16	B1I	0.0078	97.40	97.66	1.094
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-ETW3-1	F	C1	6	2	91.74	97.18	1.148	0.1269	16	B1I	0.0079	92.10	97.56	1.153
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-ETW3-2	F	C1	6	2	101.2	101.8	1.099	0.1262	16	B1I	0.0079	101.1	101.6	1.097
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-ETW3-3	F	C1	6	2	90.36	96.06	1.144	0.1262	16	B1I	0.0079	90.22	95.91	1.142

Average					90.73	94.12	1.134			Average$_{norm}$	0.0080	91.75	95.16	1.148
Standard Dev.					4.776	4.625	0.07533			Standard Dev.$_{norm}$		4.551	4.119	0.08428
Coeff. of Var. [%]					5.264	4.914	6.641			Coeff. of Var. [%]$_{norm}$		4.960	4.329	7.344
Min.					80.46	86.74	1.036			Min.	0.0078	81.16	88.57	1.045
Max.					101.2	101.8	1.343			Max.	0.0082	101.1	101.6	1.390
Number of Spec.					18	18	18			Number of Spec.	18	18	18	18

Laminate Single-Shear Bearing Proc.C Properties (SSB1)--ETW3(250°F)
Normalized 2% Offset Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB1)--ETW3(250°F)
Normalized Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #
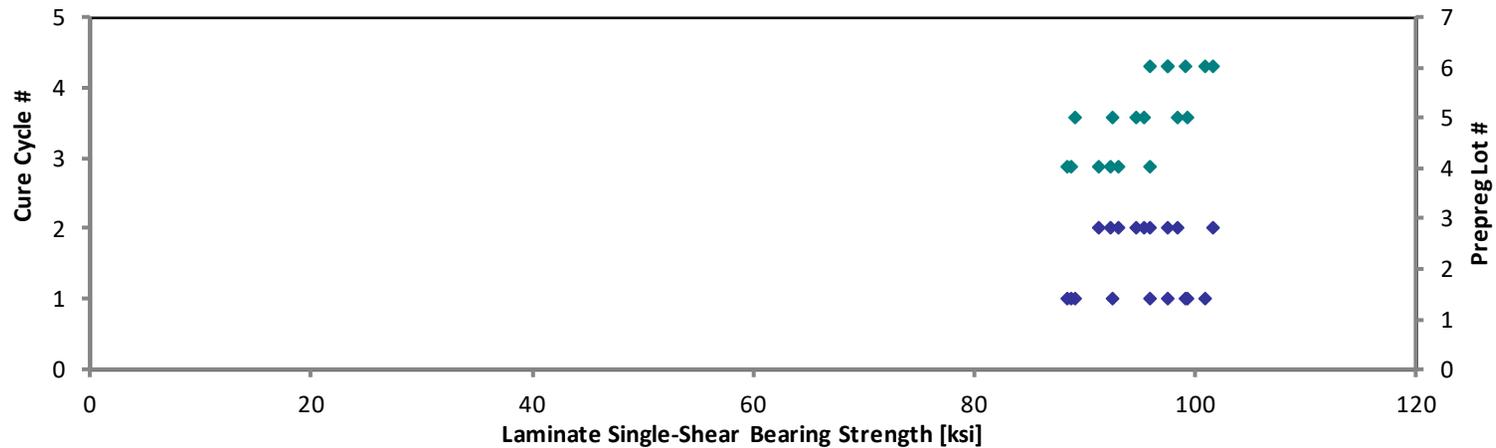
Laminate Single-Shear Bearing Proc.C Properties (SSB1)--ETW3(250°F)
Normalized Chord Stiffness
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

4.30 "10/80/10" Single-Shear Bearing 2, Proc. C Properties (SSB2)

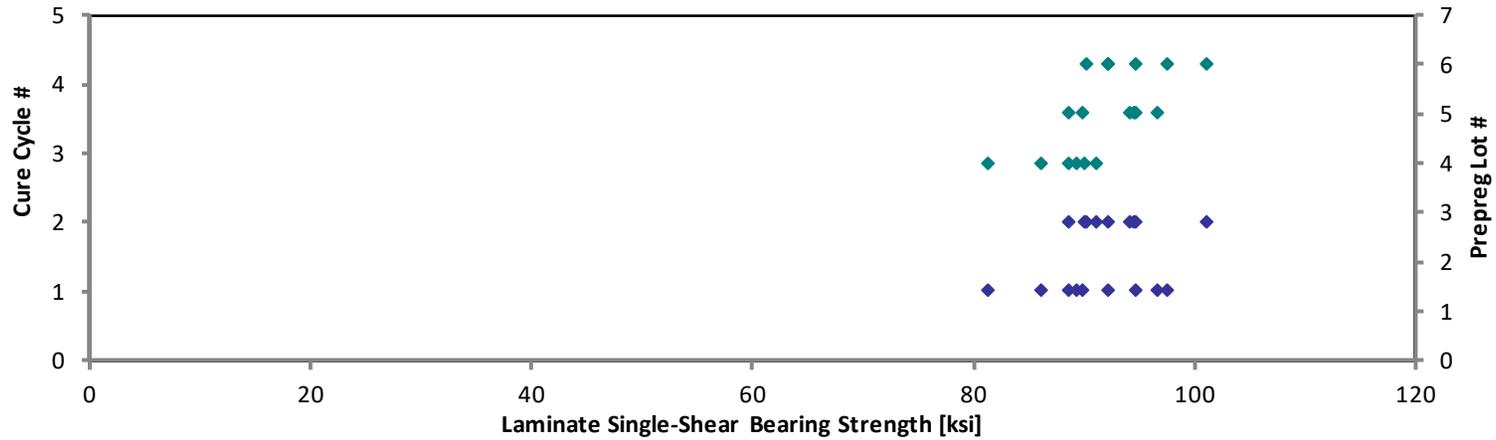| Laminate Single-Shear Bearing Proc.C Properties (SSB2)--RTA(75°F) Strength & Deformation Solvay EP2190 T650 3K PW Fabric RC 37% |
| --- |

normalizing
t_{ply} [in]
| 0.0079 |

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-SSB2-D-C1-1-RTA-1	D	C1	4	1	106.8	126.8	1.099	0.1607	20	B1I		0.0080	108.6	129.0	1.118
NTP2191Q1-WRX-PW-SOL-SSB2-D-C1-1-RTA-2	D	C1	4	1	105.6	126.6	1.142	0.1612	20	B1I		0.0081	107.7	129.2	1.165
NTP2191Q1-WRX-PW-SOL-SSB2-D-C1-1-RTA-3	D	C1	4	1	105.9	129.3	1.096	0.1616	20	B1I		0.0081	108.3	132.2	1.121
NTP2191Q1-WRX-PW-SOL-SSB2-D-C2-1-RTA-1	D	C2	4	2	108.4	131.6	1.201	0.1602	20	B1I		0.0080	109.9	133.4	1.218
NTP2191Q1-WRX-PW-SOL-SSB2-D-C2-1-RTA-2	D	C2	4	2	111.6	131.5	1.142	0.1626	20	B1I		0.0081	114.9	135.3	1.175
NTP2191Q1-WRX-PW-SOL-SSB2-D-C2-1-RTA-3	D	C2	4	2	106.5	128.5	1.173	0.1628	20	B1I		0.0081	109.7	132.4	1.209
NTP2191Q1-WRX-PW-SOL-SSB2-E-C1-1-RTA-1	E	C1	5	1	110.4	133.0	0.9730	0.1580	20	B1I		0.0079	110.4	133.0	0.9730
NTP2191Q1-WRX-PW-SOL-SSB2-E-C1-1-RTA-2	E	C1	5	1	105.2	130.5	0.9770	0.1584	20	B1I		0.0079	105.4	130.8	0.9795
NTP2191Q1-WRX-PW-SOL-SSB2-E-C1-1-RTA-3	E	C1	5	1	115.8	129.5	0.9740	0.1578	20	B1I		0.0079	115.6	129.4	0.9728
NTP2191Q1-WRX-PW-SOL-SSB2-E-C2-1-RTA-1	E	C2	5	2	112.9	131.6	0.9250	0.1579	20	B1I		0.0079	112.9	131.5	0.9244
NTP2191Q1-WRX-PW-SOL-SSB2-E-C2-1-RTA-2	E	C2	5	2	111.3	130.8	1.039	0.1572	20	B1I		0.0079	110.7	130.2	1.034
NTP2191Q1-WRX-PW-SOL-SSB2-E-C2-1-RTA-3	E	C2	5	2	110.0	125.7	0.9450	0.1585	20	B1I		0.0079	110.3	126.1	0.9480
NTP2191Q1-WRX-PW-SOL-SSB2-F-C3-1-RTA-1	F	C3	6	3	112.0	128.6	0.9420	0.1570	20	B1I		0.0079	111.3	127.8	0.9360
NTP2190Q1-WRX-PW-SOL-SSB2-F-C3-1-RTA-2	F	C3	6	3	113.7	131.4	1.032	0.1577	20	B1I		0.0079	113.5	131.2	1.030
NTP2190Q1-WRX-PW-SOL-SSB2-F-C3-1-RTA-3	F	C3	6	3	113.8	125.7	1.029	0.1579	20	B1I		0.0079	113.7	125.6	1.028
NTP2191Q1-WRX-PW-SOL-SSB2-F-C4-1-RTA-1	F	C4	6	4	112.9	128.5	0.9070	0.1572	20	B1I		0.0079	112.3	127.9	0.9024
NTP2191Q1-WRX-PW-SOL-SSB2-F-C4-1-RTA-2	F	C4	6	4	113.2	125.5	0.9530	0.1580	20	B1I		0.0079	113.2	125.5	0.9530
NTP2191Q1-WRX-PW-SOL-SSB2-F-C4-1-RTA-3	F	C4	6	4	116.3	124.0	0.8880	0.1580	20	B1I		0.0079	116.3	124.0	0.8880

	2% Offset	Ultimate	Chord			Avg. t_{ply}	2% Offset	Ultimate	Chord
Average	110.7	128.8	1.024		Average$_{norm}$	0.0080	111.4	129.7	1.032
Standard Dev.	3.544	2.618	0.09695		Standard Dev.$_{norm}$		2.912	3.106	0.1086
Coeff. of Var. [%]	3.202	2.032	9.47		Coeff. of Var. [%]$_{norm}$		2.615	2.395	10.53
Min.	105.2	124.0	0.8880		Min.	0.0079	105.4	124.0	0.8880
Max.	116.3	133.0	1.201		Max.	0.0081	116.3	135.3	1.218
Number of Spec.	18	18	18		Number of Spec.	18	18	18	18

Laminate Single-Shear Bearing Proc.C Properties (SSB2)--RTA(75°F)
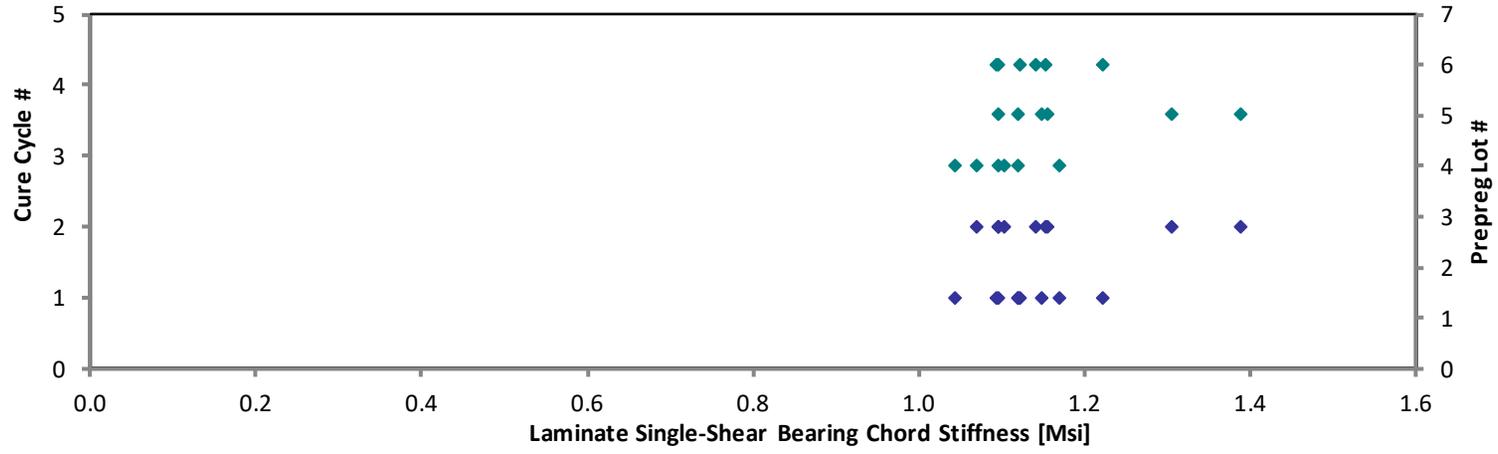**Normalized 2% Offset Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB2)--RTA(75°F)
Normalized Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #
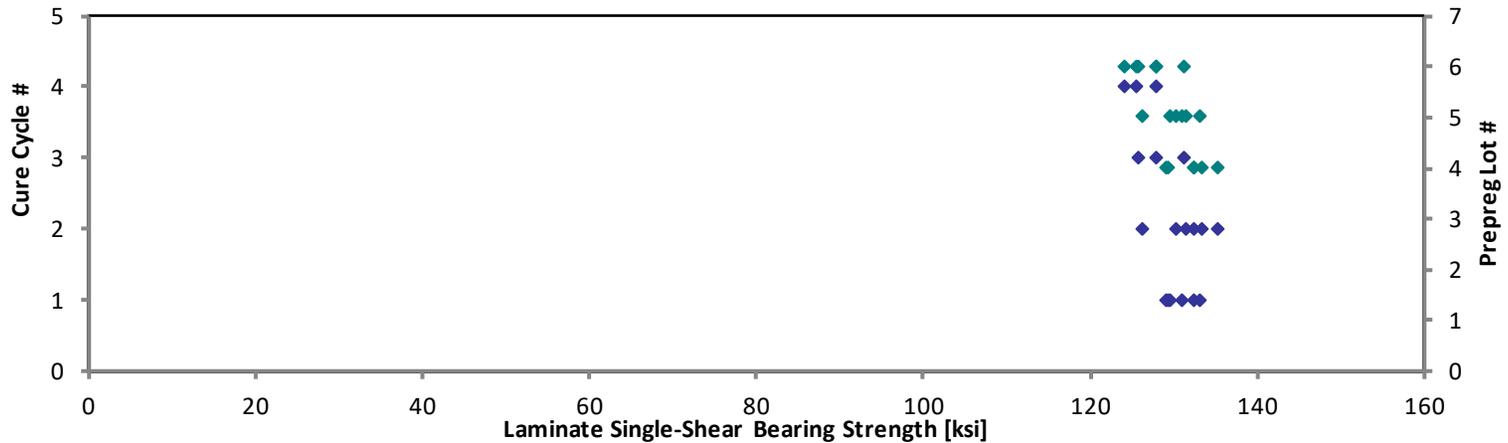
Laminate Single-Shear Bearing Proc.C Properties (SSB2)--RTA(75°F)
Normalized Chord Stiffness
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB2)--ETW1(180°F)
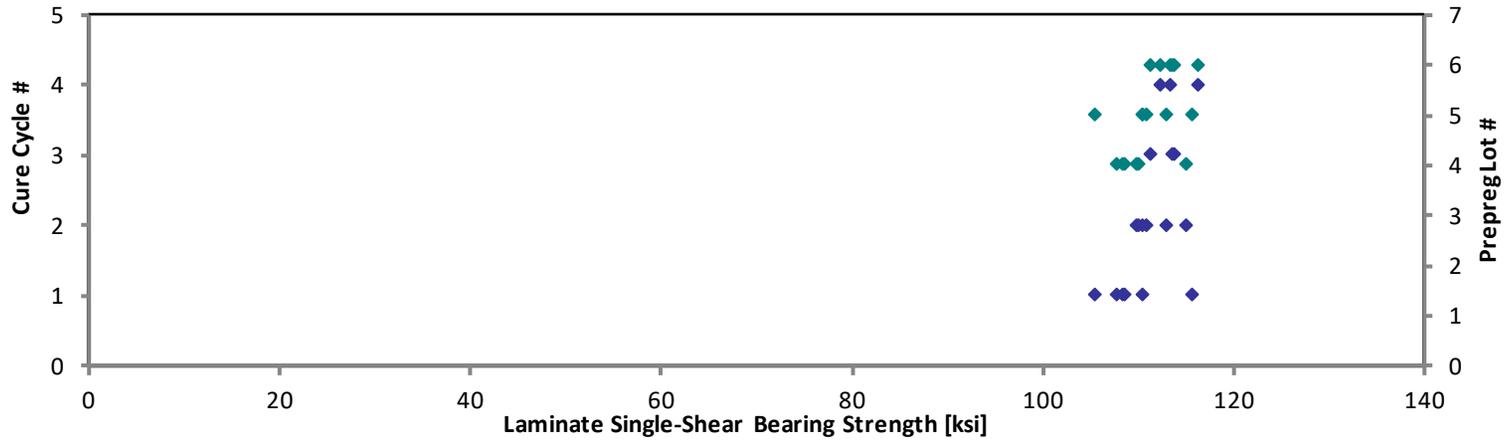**Strength & Deformation**
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-SSB2-D-C1-1-ETW1-1	D	C1	4	1	96.78	112.0	1.058	0.1612	20	B1I	0.0081	98.74	114.2	1.079
NTP2191Q1-WRX-PW-SOL-SSB2-D-C1-1-ETW1-2	D	C1	4	1	96.49	109.6	1.130	0.1605	20	B1I	0.0080	98.02	111.3	1.148
NTP2191Q1-WRX-PW-SOL-SSB2-D-C1-1-ETW1-3	D	C1	4	1	104.0	115.9	0.9450	0.1613	20	B1I	0.0081	106.2	118.3	0.965
NTP2191Q1-WRX-PW-SOL-SSB2-D-C2-1-ETW1-1	D	C2	4	2	100.1	108.4	0.9120	0.1618	20	B1I	0.0081	102.5	111.0	0.9339
NTP2191Q1-WRX-PW-SOL-SSB2-D-C2-1-ETW1-2	D	C2	4	2	98.38	111.3	0.8900	0.1626	20	B1I	0.0081	101.2	114.6	0.9159
NTP2191Q1-WRX-PW-SOL-SSB2-D-C2-1-ETW1-3	D	C2	4	2	100.9	108.6	0.7260	0.1629	20	B1I	0.0081	104.0	112.0	0.7485
NTP2191Q1-WRX-PW-SOL-SSB2-E-C1-1-ETW1-1	E	C1	5	1	101.3	112.4	0.8250	0.1572	20	B1I	0.0079	100.8	111.9	0.8208
NTP2191Q1-WRX-PW-SOL-SSB2-E-C1-1-ETW1-2	E	C1	5	1	100.8	113.1	0.9030	0.1578	20	B1I	0.0079	100.7	113.0	0.9019
NTP2191Q1-WRX-PW-SOL-SSB2-E-C1-1-ETW1-3	E	C1	5	1	104.1	114.4	0.9010	0.1585	20	B1I	0.0079	104.4	114.8	0.9039
NTP2191Q1-WRX-PW-SOL-SSB2-E-C2-1-ETW1-1	E	C2	5	2	97.30	111.4	0.8650	0.1578	20	B1I	0.0079	97.18	111.2	0.8639
NTP2191Q1-WRX-PW-SOL-SSB2-E-C2-1-ETW1-2	E	C2	5	2	101.0	117.1	0.8970	0.1583	20	B1I	0.0079	101.2	117.3	0.8987
NTP2191Q1-WRX-PW-SOL-SSB2-E-C2-1-ETW1-3	E	C2	5	2	104.8	115.4	0.8900	0.1584	20	B1I	0.0079	105.0	115.7	0.8923
NTP2191Q1-WRX-PW-SOL-SSB2-F-C3-1-ETW1-1	F	C3	6	3	97.94	109.4	0.9650	0.1557	20	B1I	0.0078	96.51	107.8	0.9510
NTP2191Q1-WRX-PW-SOL-SSB2-F-C3-1-ETW1-2	F	C3	6	3	102.8	111.5	0.9690	0.1572	20	B1I	0.0079	102.3	110.9	0.9641
NTP2191Q1-WRX-PW-SOL-SSB2-F-C3-1-ETW1-3	F	C3	6	3	100.7	113.5	0.9680	0.1573	20	B1I	0.0079	100.2	113.0	0.9637
NTP2191Q1-WRX-PW-SOL-SSB2-F-C4-1-ETW1-1	F	C4	6	4	92.68	110.5	0.8040	0.1564	20	B1I	0.0078	91.74	109.4	0.7959
NTP2191Q1-WRX-PW-SOL-SSB2-F-C4-1-ETW1-2	F	C4	6	4	102.2	112.6	0.8430	0.1571	20	B1I	0.0079	101.6	112.0	0.8382
NTP2191Q1-WRX-PW-SOL-SSB2-F-C4-1-ETW1-3	F	C4	6	4	97.47	102.8	0.8030	0.1575	20	B1I	0.0079	97.16	102.4	0.8005

	2% Offset	Ultimate	Chord				2% Offset	Ultimate	Chord
Average	100.0	111.7	0.9052		Average$_{norm}$	0.0079	100.5	112.3	0.9103
Standard Dev.	3.158	3.301	0.09467		Standard Dev.$_{norm}$		3.549	3.596	0.09800
Coeff. of Var. [%]	3.158	2.956	10.46		Coeff. of Var. [%]$_{norm}$		3.530	3.203	10.77
Min.	92.68	102.8	0.7260		Min.	0.0078	91.74	102.4	0.7485
Max.	104.8	117.1	1.130		Max.	0.0081	106.2	118.3	1.148
Number of Spec.	18	18	18		Number of Spec.	18	18	18	18

Laminate Single-Shear Bearing Proc.C Properties (SSB2)--ETW1(180°F)
Normalized 2% Offset Strength
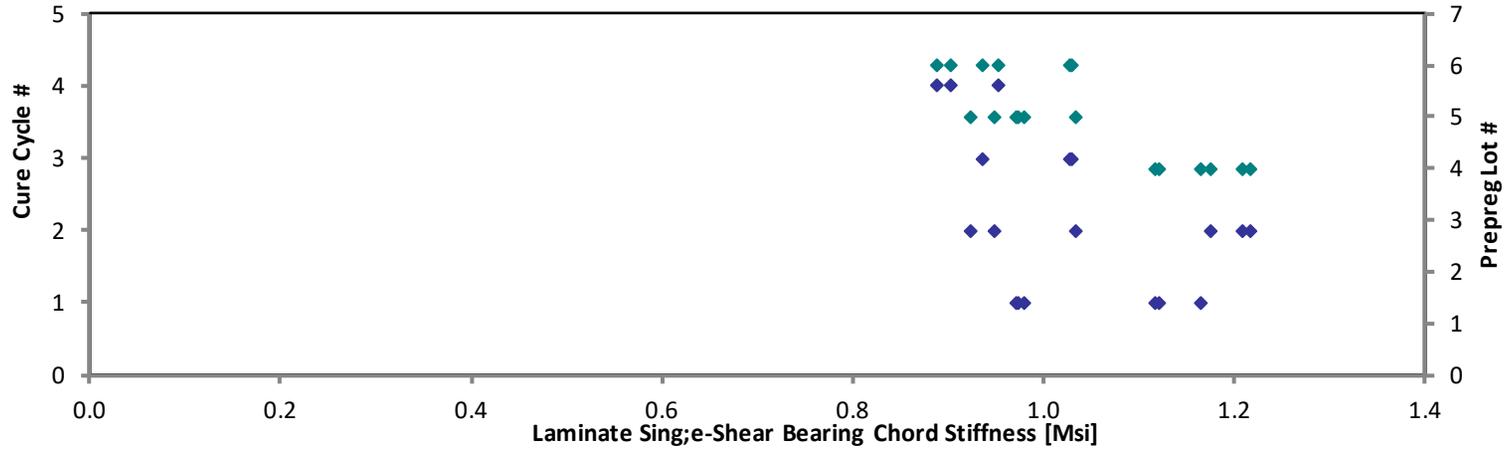Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB2)--ETW1(180°F)
Normalized Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #
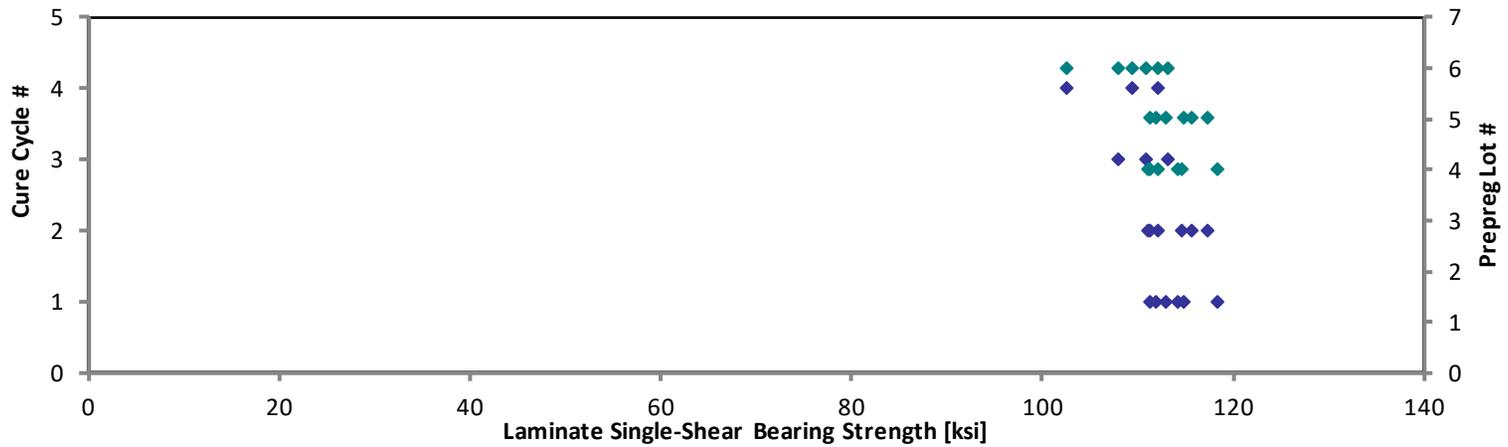
Laminate Single-Shear Bearing Proc.C Properties (SSB2)--ETW1(180°F) Normalized Chord Stiffness
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB2)--ETW2(225°F)
Strength & Deformation
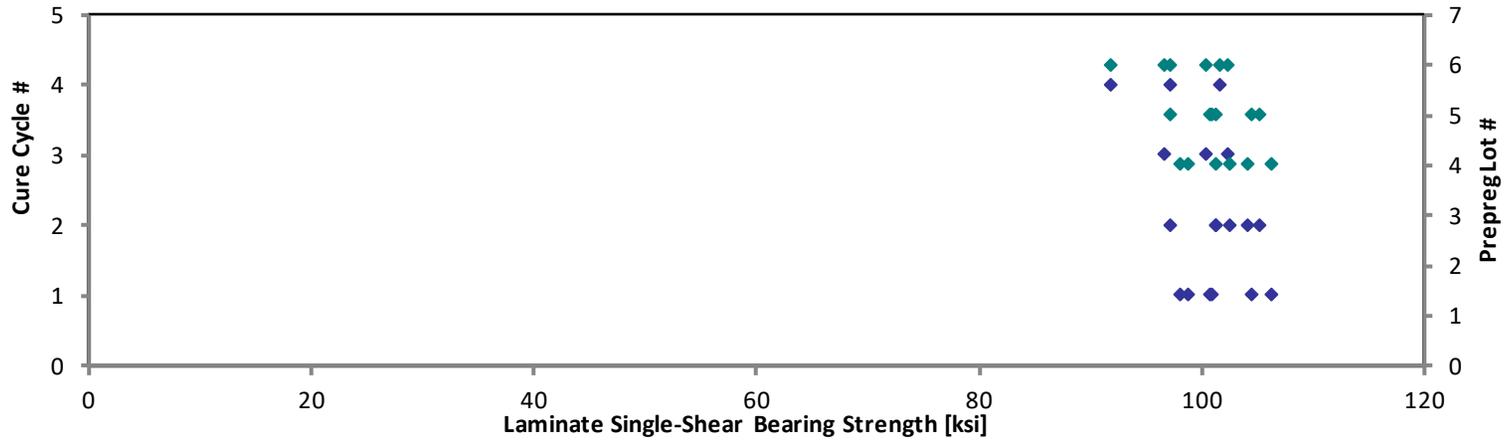Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-SSB2-D-C1-1-ETW2-1	D	C1	4	1	94.74	100.1	0.8690	0.1609	20	B1I	0.0080	96.48	101.9	0.8850
NTP2191Q1-WRX-PW-SOL-SSB2-D-C1-1-ETW2-2	D	C1	4	1	87.57	97.56	1.039	0.1608	20	B1I	0.0080	89.12	99.29	1.057
NTP2191Q1-WRX-PW-SOL-SSB2-D-C1-1-ETW2-3	D	C1	4	1	92.57	101.5	1.015	0.1614	20	B1I	0.0081	94.56	103.7	1.037
NTP2191Q1-WRX-PW-SOL-SSB2-D-C2-1-ETW2-1	D	C2	4	2	88.41	95.08	0.8630	0.1608	20	B1I	0.0080	89.98	96.76	0.8783
NTP2191Q1-WRX-PW-SOL-SSB2-D-C2-1-ETW2-2	D	C2	4	2	96.81	102.9	0.8780	0.1628	20	B1I	0.0081	99.75	106.0	0.9047
NTP2191Q1-WRX-PW-SOL-SSB2-D-C2-1-ETW2-3	D	C2	4	2	93.29	99.87	0.8480	0.1626	20	B1I	0.0081	96.01	102.8	0.8727
NTP2191Q1-WRX-PW-SOL-SSB2-E-C1-1-ETW2-1	E	C1	5	1	89.20	101.7	0.8620	0.1571	20	B1I	0.0079	88.69	101.2	0.8571
NTP2191Q1-WRX-PW-SOL-SSB2-E-C1-1-ETW2-2	E	C1	5	1	95.50	101.3	0.8620	0.1571	20	B1I	0.0079	94.96	100.7	0.8571
NTP2191Q1-WRX-PW-SOL-SSB2-E-C1-1-ETW2-3	E	C1	5	1	91.21	102.0	0.8730	0.1576	20	B1I	0.0079	90.98	101.7	0.8708
NTP2191Q1-WRX-PW-SOL-SSB2-E-C2-1-ETW2-1	E	C2	5	2	93.14	101.9	0.8750	0.1579	20	B1I	0.0079	93.08	101.8	0.8744
NTP2191Q1-WRX-PW-SOL-SSB2-E-C2-1-ETW2-2	E	C2	5	2	91.70	98.83	0.7550	0.1580	20	B1I	0.0079	91.70	98.83	0.7550
NTP2191Q1-WRX-PW-SOL-SSB2-E-C2-1-ETW2-3	E	C2	5	2	92.85	95.96	0.8620	0.1579	20	B1I	0.0079	92.79	95.90	0.8615
NTP2191Q1-WRX-PW-SOL-SSB2-F-C3-1-ETW2-1	F	C3	6	3	96.55	104.0	0.9150	0.1568	20	B1I	0.0078	95.82	103.2	0.9081
NTP2191Q1-WRX-PW-SOL-SSB2-F-C3-1-ETW2-2	F	C3	6	3	90.71	102.6	0.8960	0.1571	20	B1I	0.0079	90.19	102.0	0.8909
NTP2191Q1-WRX-PW-SOL-SSB2-F-C3-1-ETW2-3	F	C3	6	3	93.52	109.0	0.8720	0.1577	20	B1I	0.0079	93.34	108.8	0.8703
NTP2191Q1-WRX-PW-SOL-SSB2-F-C4-1-ETW2-1	F	C4	6	4	90.23	101.0	0.8560	0.1570	20	B1I	0.0079	89.66	100.3	0.8506
NTP2191Q1-WRX-PW-SOL-SSB2-F-C4-1-ETW2-2	F	C4	6	4	94.87	101.2	0.8620	0.1573	20	B1I	0.0079	94.45	100.7	0.8582
NTP2191Q1-WRX-PW-SOL-SSB2-F-C4-1-ETW2-3	F	C4	6	4	94.90	101.1	0.7390	0.1578	20	B1I	0.0079	94.78	101.0	0.7381

	2% Offset Strength	Ultimate Strength	Chord Stiffness			Avg. t_{ply}	2% Offset Strength$_{norm}$	Ultimate Strength$_{norm}$	Chord Stiffness$_{norm}$
Average	92.65	101.0	0.8745		**Average$_{norm}$**	0.0079	93.13	101.5	0.8793
Standard Dev.	2.709	3.080	0.07004		**Standard Dev.$_{norm}$**		3.006	2.997	0.07529
Coeff. of Var. [%]	2.923	3.050	8.009		**Coeff. of Var. [%]$_{norm}$**		3.228	2.953	8.563
Min.	87.57	95.08	0.7390		**Min.**	0.0078	88.69	95.90	0.7381
Max.	96.81	109.0	1.039		**Max.**	0.0081	99.75	108.8	1.057
Number of Spec.	18	18	18		**Number of Spec.**	18	18	18	18

Laminate Single-Shear Bearing Proc.C Properties (SSB2)--ETW2(225°F)
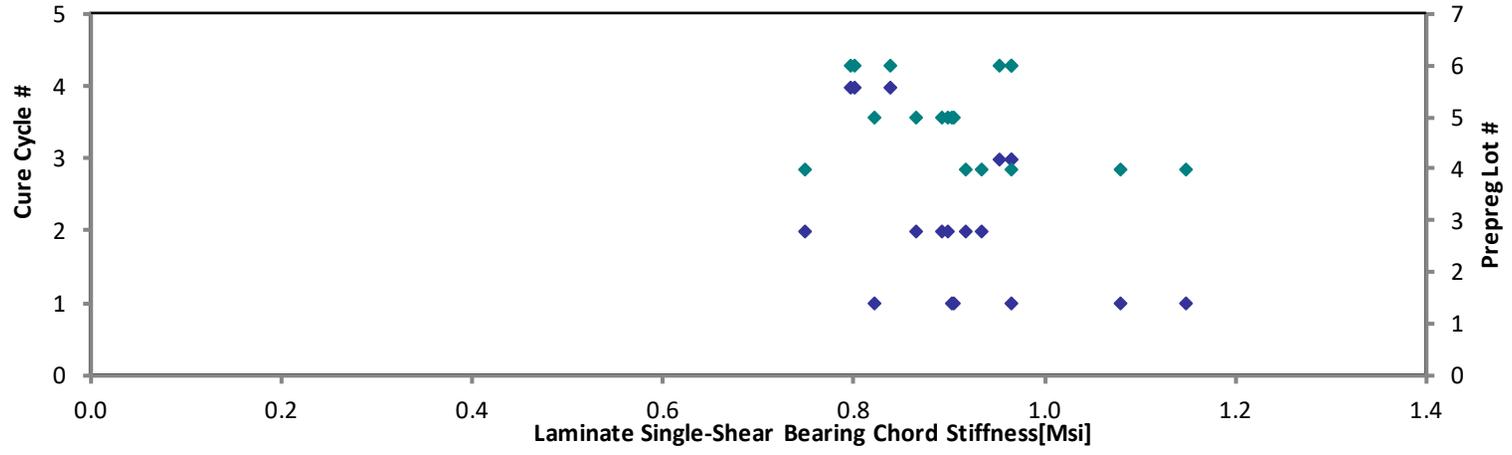**Normalized 2% Offset Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

- Cure Cycle #
- Prepreg Lot #

X-axis: Laminate Single-Shear Bearing Strength [ksi]
Left Y-axis: Cure Cycle #
Right Y-axis: Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB2)--ETW2(225°F)
Normalized Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
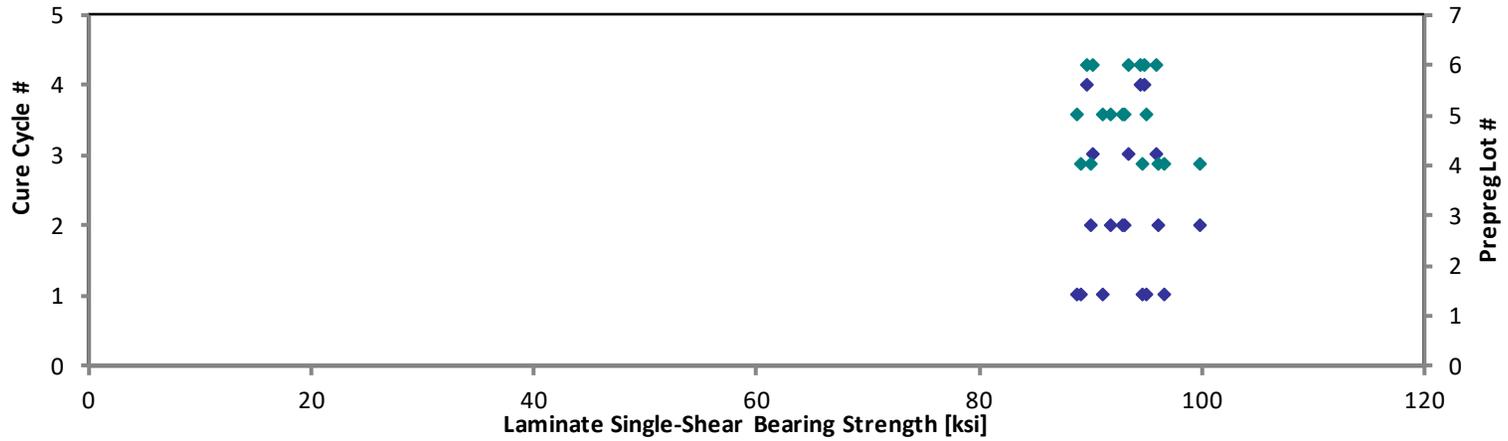
- Cure Cycle #
- Prepreg Lot #

X-axis: Laminate Single-Shear Bearing Strength [ksi]
Left Y-axis: Cure Cycle #
Right Y-axis: Prepreg Lot #
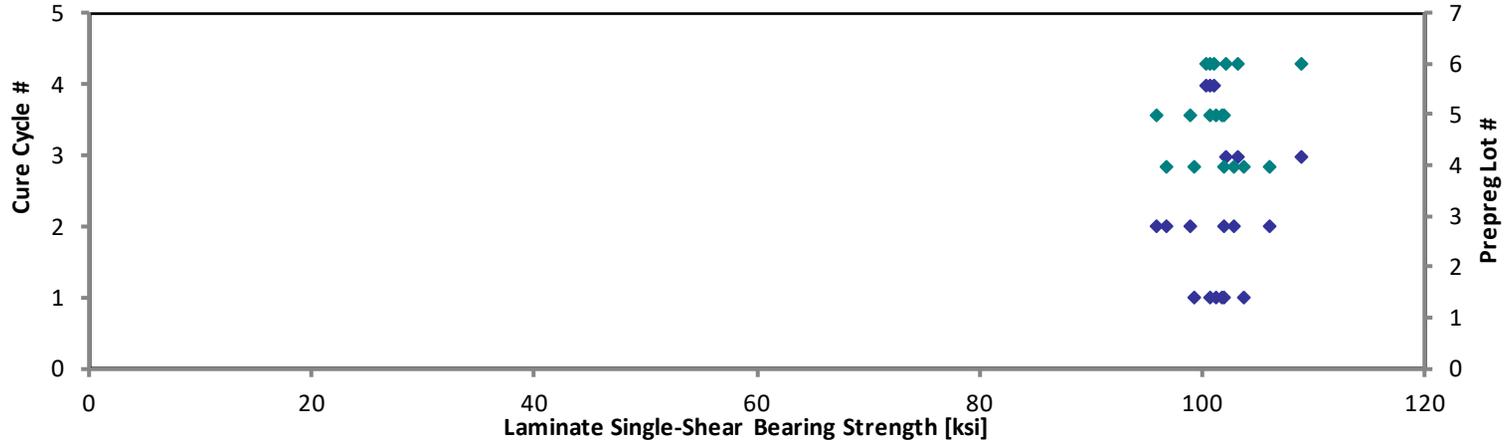
Laminate Single-Shear Bearing Proc.C Properties (SSB2)--ETW2(225°F)
Normalized Chord Stiffness
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

<table>
<tr><td colspan="11">Laminate Single-Shear Bearing Proc.C Properties (SSB2)--ETW3(250°F)
Strength & Deformation
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td colspan="4">normalizing
t_{ply} [in]
0.0079</td></tr>
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Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-SSB2-D-C1-1-ETW3-1	D	C1	4	1	88.29	94.98	0.9200	0.1613	20	B1I	0.0081	90.13	96.96	0.9392
NTP2191Q1-WRX-PW-SOL-SSB2-D-C1-1-ETW3-2	D	C1	4	1	81.02	87.03	0.9200	0.1609	20	B1I	0.0080	82.51	88.63	0.9369
NTP2191Q1-WRX-PW-SOL-SSB2-D-C1-1-ETW3-3	D	C1	4	1	71.98	82.12	0.8300	0.1612	20	B1I	0.0081	73.44	83.78	0.8468
NTP2191Q1-WRX-PW-SOL-SSB2-D-C2-1-ETW3-1	D	C2	4	2	86.92	93.67	0.8660	0.1626	20	B1I	0.0081	89.45	96.40	0.8912
NTP2191Q1-WRX-PW-SOL-SSB2-D-C2-1-ETW3-2	D	C2	4	2	84.89	93.16	0.8370	0.1628	20	B1I	0.0081	87.47	95.99	0.8624
NTP2191Q1-WRX-PW-SOL-SSB2-D-C2-1-ETW3-3	D	C2	4	2	86.78	95.26	0.8120	0.1625	20	B1I	0.0081	89.25	97.97	0.8351
NTP2191Q1-WRX-PW-SOL-SSB2-E-C1-1-ETW3-1	E	C1	5	1	87.79	91.87	0.8750	0.1574	20	B1I	0.0079	87.46	91.52	0.8717
NTP2191Q1-WRX-PW-SOL-SSB2-E-C1-1-ETW3-2	E	C1	5	1	84.53	89.08	0.8520	0.1577	20	B1I	0.0079	84.37	88.91	0.8504
NTP2191Q1-WRX-PW-SOL-SSB2-E-C1-1-ETW3-3	E	C1	5	1	86.64	91.85	0.8670	0.1589	20	B1I	0.0079	87.13	92.37	0.8719
NTP2191Q1-WRX-PW-SOL-SSB2-E-C2-1-ETW3-1	E	C2	5	2	86.30	90.02	0.8690	0.1570	20	B1I	0.0079	85.75	89.45	0.8635
NTP2191Q1-WRX-PW-SOL-SSB2-E-C2-1-ETW3-2	E	C2	5	2	90.59	95.02	1.311	0.1581	20	B1I	0.0079	90.65	95.08	1.312
NTP2191Q1-WRX-PW-SOL-SSB2-E-C2-1-ETW3-3	E	C2	5	2	86.63	92.75	0.7970	0.1566	20	B1I	0.0078	85.86	91.93	0.7899
NTP2191Q1-WRX-PW-SOL-SSB2-F-C3-1-ETW3-1	F	C3	6	3	90.03	100.2	0.9540	0.1554	20	B1I	0.0078	88.55	98.59	0.9383
NTP2191Q1-WRX-PW-SOL-SSB2-F-C3-1-ETW3-2	F	C3	6	3	87.93	94.81	0.8320	0.1570	20	B1I	0.0079	87.37	94.21	0.8267
NTP2191Q1-WRX-PW-SOL-SSB2-F-C3-1-ETW3-3	F	C3	6	3	87.89	92.39	0.8540	0.1571	20	B1I	0.0079	87.39	91.86	0.8491
NTP2191Q1-WRX-PW-SOL-SSB2-F-C4-1-ETW3-1	F	C4	6	4	90.03	94.42	0.7910	0.1569	20	B1I	0.0078	89.40	93.76	0.7855
NTP2191Q1-WRX-PW-SOL-SSB2-F-C4-1-ETW3-2	F	C4	6	4	86.84	91.59	0.7790	0.1575	20	B1I	0.0079	86.57	91.30	0.7765
NTP2191Q1-WRX-PW-SOL-SSB2-F-C4-1-ETW3-3	F	C4	6	4	91.40	96.27	0.7780	0.1579	20	B1I	0.0079	91.34	96.21	0.7775

Average	86.47	92.59	0.8747		
Standard Dev.	4.354	3.927	0.1195		
Coeff. of Var. [%]	5.035	4.242	13.66		
Min.	71.98	82.12	0.7780		
Max.	91.40	100.2	1.311		
Number of Spec.	18	18	18		

|				
Average$_{norm}$	0.0079	86.89	93.05	0.8791
Standard Dev.$_{norm}$		4.028	3.836	0.1197
Coeff. of Var. [%]$_{norm}$		4.636	4.122	13.61
Min.	0.0078	73.44	83.78	0.7765
Max.	0.0081	91.34	98.59	1.312
Number of Spec.	18	18	18	18

Laminate Single-Shear Bearing Proc.C Properties (SSB2)--ETW3(250°F) Normalized 2% Offset Strength
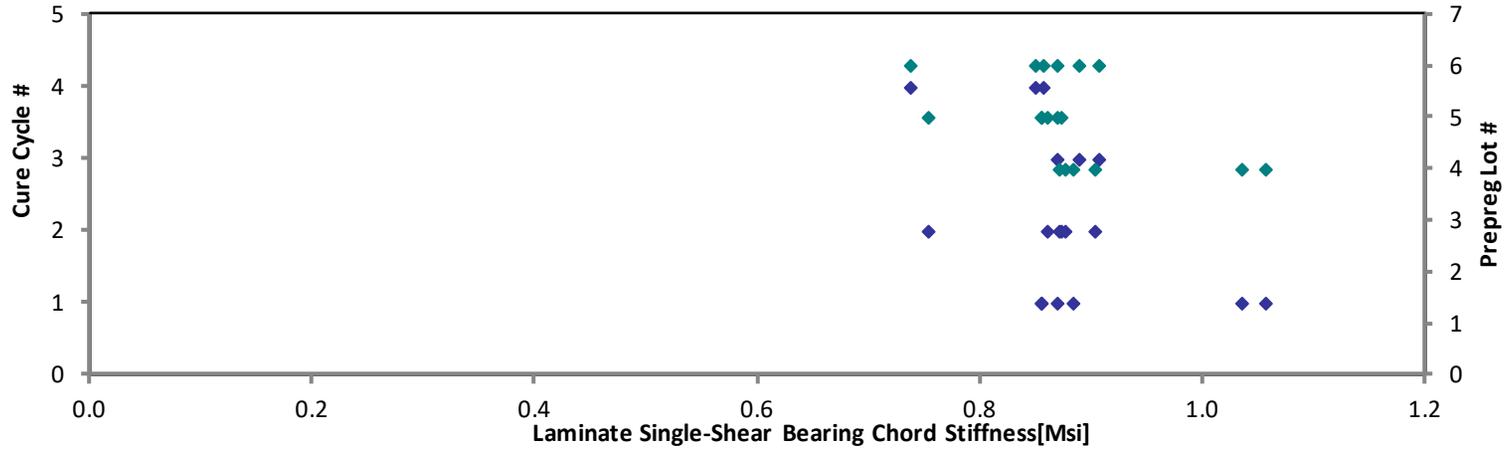Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB2)--ETW3(250°F) Normalized Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB2)--ETW3(250°F)
Normalized Chord Stiffness
Solvay EP2190 T650 3K PW Fabric RC 37%
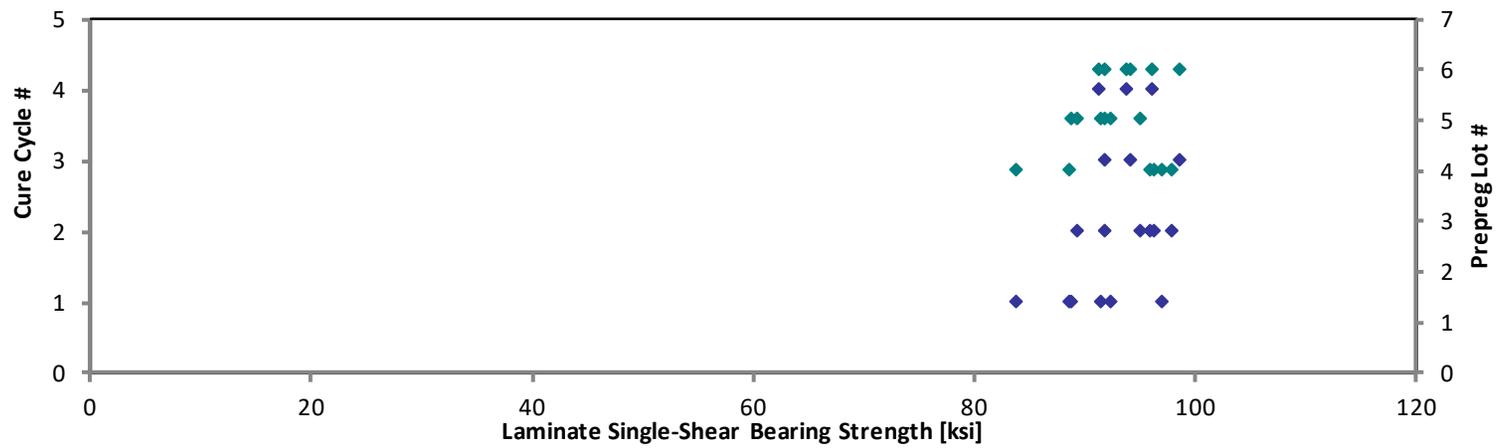
4.31 "40/20/40" Single-Shear Bearing 3, Proc. C Properties (SSB3)

> **Laminate Single-Shear Bearing Proc.C Properties (SSB3)--RTA(75°F)**
> **Strength & Deformation**
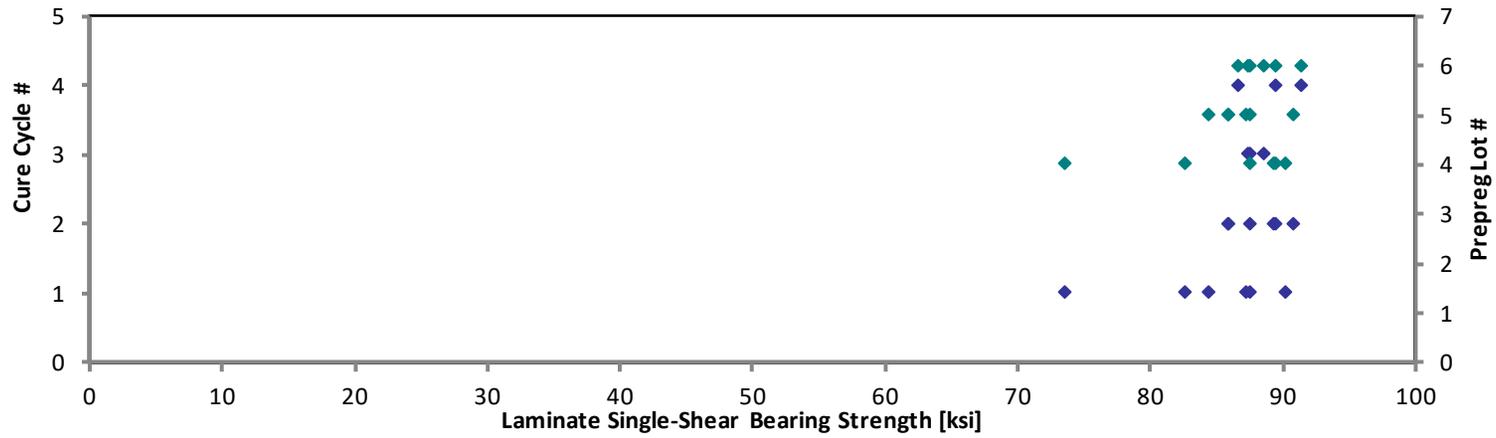> Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing t_{ply} [in]
0.0079

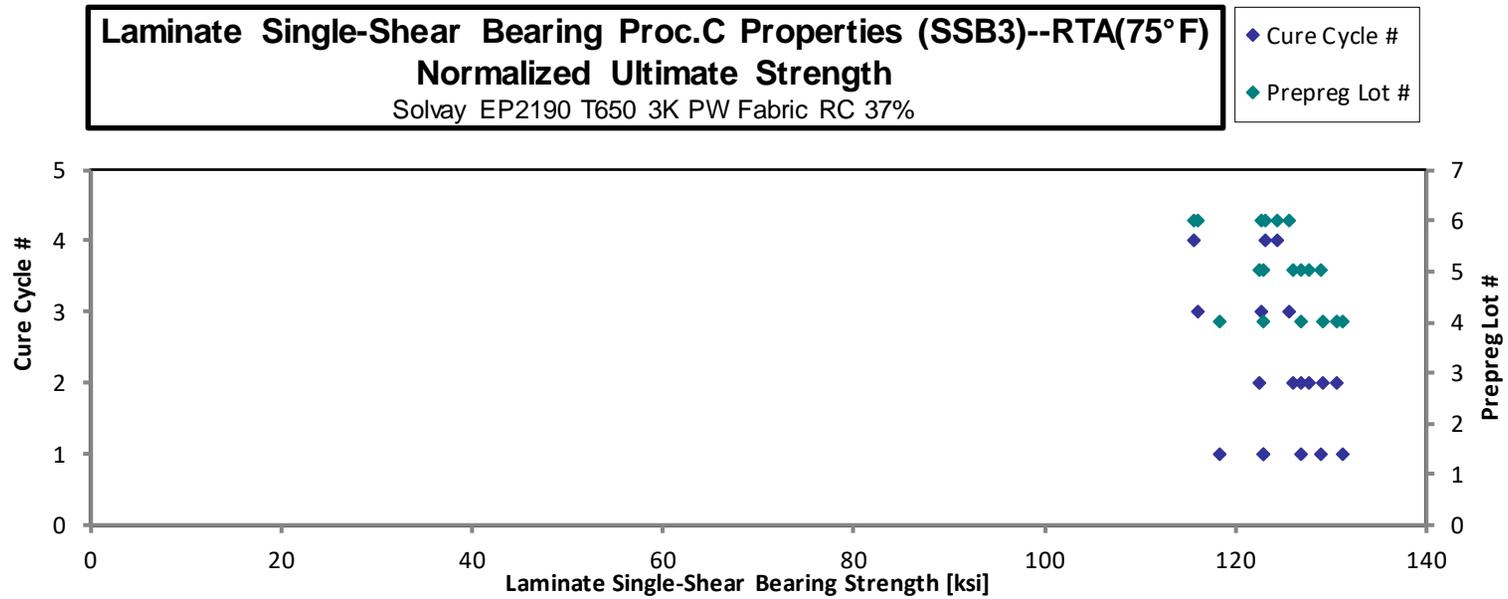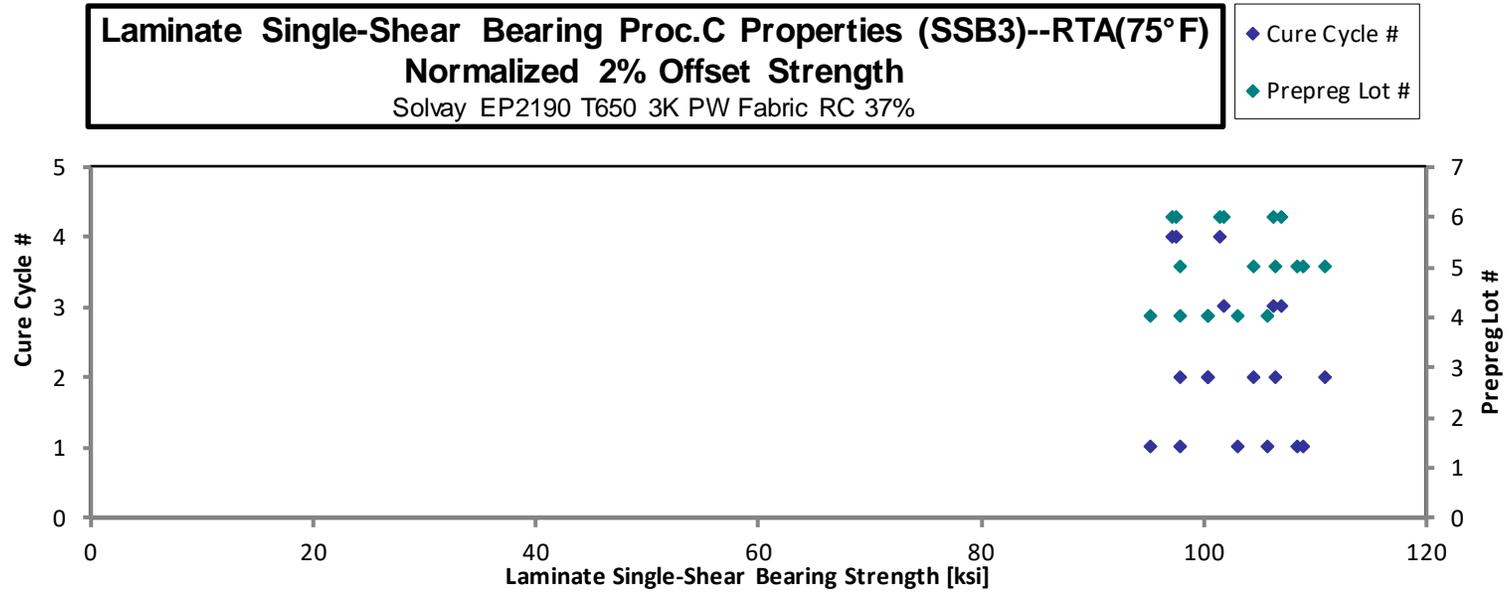| Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-SSB3-D-C1-1-RTA-1	D	C1	4	1	101.0	116.0	1.399	0.1610	20	B1I	0.0081	102.9	118.2	1.426
NTP2191Q1-WRX-PW-SOL-SSB3-D-C1-1-RTA-2	D	C1	4	1	103.7	128.7	1.310	0.1610	20	B1I	0.0081	105.7	131.1	1.335
NTP2191Q1-WRX-PW-SOL-SSB3-D-C1-1-RTA-3	D	C1	4	1	93.27	120.4	1.422	0.1613	20	B1I	0.0081	95.22	122.9	1.452
NTP2191Q1-WRX-PW-SOL-SSB3-D-C2-1-RTA-1	D	C2	4	2	96.03	128.1	1.422	0.1610	20	B1I	0.0081	97.85	130.5	1.449
NTP2191Q1-WRX-PW-SOL-SSB3-D-C2-1-RTA-2	D	C2	4	2	98.35	124.4	1.351	0.1611	20	B1I	0.0081	100.3	126.8	1.378
NTP2191Q1-WRX-PW-SOL-SSB3-D-C2-1-RTA-3	D	C2	4	2	98.36	126.6	1.353	0.1611	20	B1I	0.0081	100.3	129.1	1.380
NTP2191Q1-WRX-PW-SOL-SSB3-E-C1-1-RTA-1	E	C1	5	1	109.1	127.8	1.116	0.1569	20	B1I	0.0078	108.3	126.9	1.108
NTP2191Q1-WRX-PW-SOL-SSB3-E-C1-1-RTA-2	E	C1	5	1	98.90	130.3	1.213	0.1563	20	B1I	0.0078	97.84	128.8	1.200
NTP2191Q1-WRX-PW-SOL-SSB3-E-C1-1-RTA-3	E	C1	5	1	108.5	122.5	1.212	0.1585	20	B1I	0.0079	108.9	122.9	1.216
NTP2191Q1-WRX-PW-SOL-SSB3-E-C2-1-RTA-1	E	C2	5	2	111.8	127.2	1.228	0.1565	20	B1I	0.0078	110.8	126.0	1.216
NTP2191Q1-WRX-PW-SOL-SSB3-E-C2-1-RTA-2	E	C2	5	2	107.1	128.6	1.128	0.1569	20	B1I	0.0078	106.3	127.7	1.120
NTP2191Q1-WRX-PW-SOL-SSB3-E-C2-1-RTA-3	E	C2	5	2	104.3	122.4	1.193	0.1581	20	B1I	0.0079	104.4	122.4	1.194
NTP2191Q1-WRX-PW-SOL-SSB3-F-C3-1-RTA-1	F	C3	6	3	107.1	126.6	1.093	0.1566	20	B1I	0.0078	106.2	125.5	1.083
NTP2191Q1-WRX-PW-SOL-SSB3-F-C3-1-RTA-2	F	C3	6	3	107.2	116.5	1.247	0.1575	20	B1I	0.0079	106.8	116.1	1.243
NTP2191Q1-WRX-PW-SOL-SSB3-F-C3-1-RTA-3	F	C3	6	3	101.5	122.4	1.180	0.1584	20	B1I	0.0079	101.8	122.7	1.183
NTP2191Q1-WRX-PW-SOL-SSB3-F-C4-1-RTA-1	F	C4	6	4	102.3	116.7	1.106	0.1566	20	B1I	0.0078	101.4	115.7	1.096
NTP2191Q1-WRX-PW-SOL-SSB3-F-C4-1-RTA-2	F	C4	6	4	97.78	124.7	1.205	0.1574	20	B1I	0.0079	97.4	124.2	1.200
NTP2191Q1-WRX-PW-SOL-SSB3-F-C4-1-RTA-3	F	C4	6	4	96.82	122.8	1.246	0.1584	20	B1I	0.0079	97.1	123.1	1.249

	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]		Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
Average	102.4	124.0	1.246	Average$_{norm}$	0.0079	102.7	124.5	1.252
Standard Dev.	5.244	4.422	0.1077	Standard Dev.$_{norm}$		4.640	4.513	0.1224
Coeff. of Var. [%]	5.121	3.566	8.65	Coeff. of Var. [%]$_{norm}$		4.516	3.625	9.78
Min.	93.3	116.0	1.093	Min.	0.0078	95.2	115.7	1.083
Max.	111.8	130.3	1.422	Max.	0.0081	110.8	131.1	1.452
Number of Spec.	18	18	18	Number of Spec.	18	18	18	18

Laminate Single-Shear Bearing Proc.C Properties (SSB3)--RTA(75°F)
Normalized 2% Offset Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB3)--RTA(75°F)
Normalized Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB3)--RTA(75°F)
Normalized Chord Stiffness
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Sing;e-Shear Bearing Chord Stiffness [Msi]
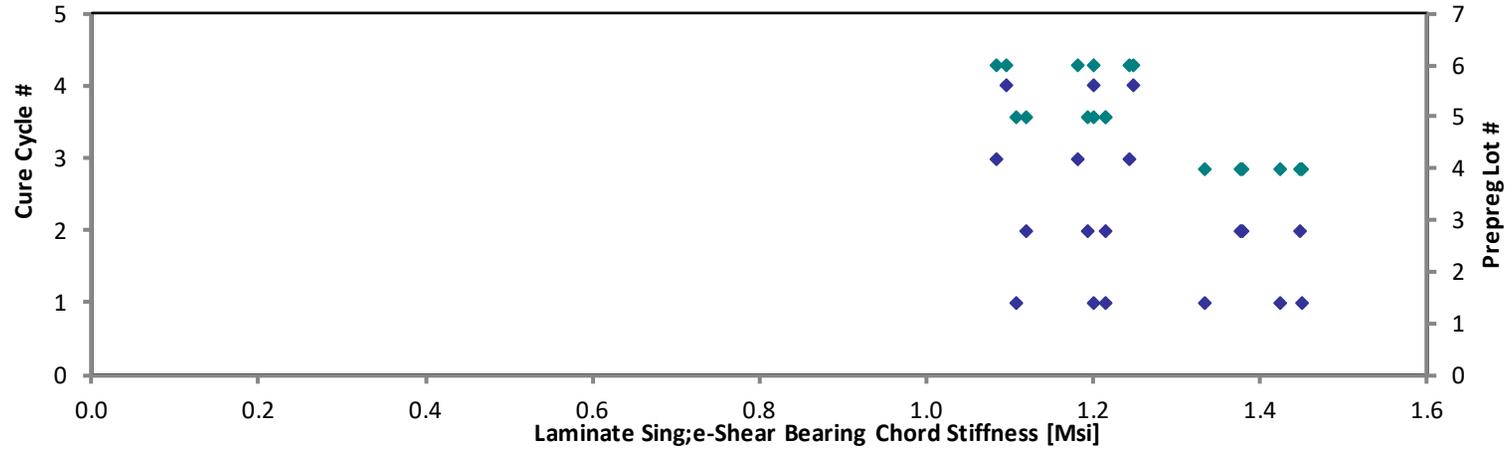
Laminate Single-Shear Bearing Proc.C Properties (SSB3)--ETW1(180°F)
Strength & Deformation
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

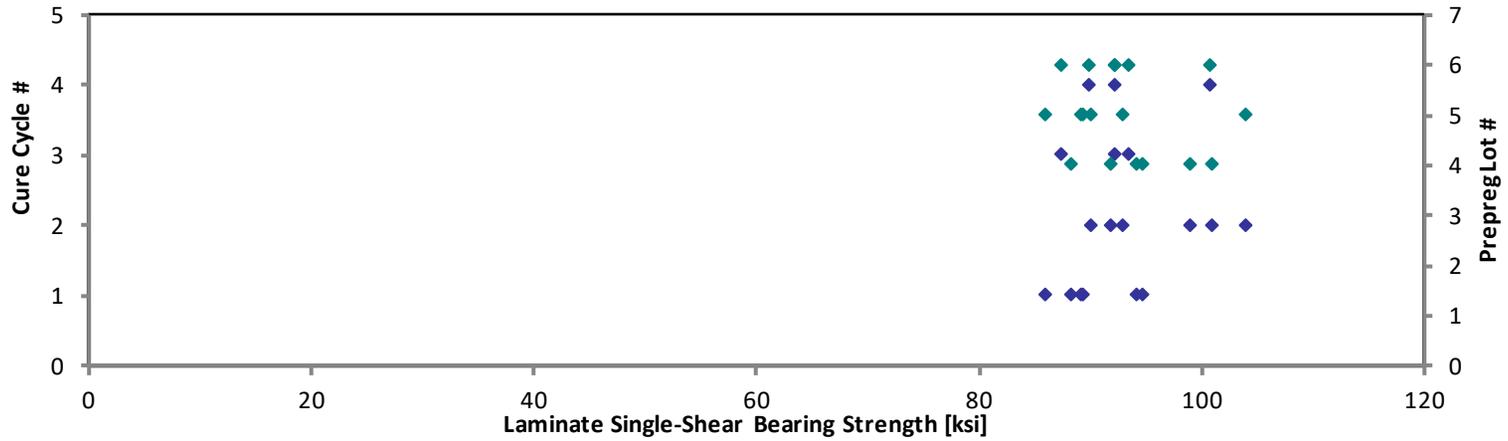| Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-SSB3-D-C1-1-ETW1-1	D	C1	4	1	86.65	101.4	1.142	0.1609	20	B1I	0.0080	88.24	103.3	1.163
NTP2191Q1-WRX-PW-SOL-SSB3-D-C1-1-ETW1-2	D	C1	4	1	92.07	105.1	1.170	0.1613	20	B1I	0.0081	93.99	107.3	1.194
NTP2191Q1-WRX-PW-SOL-SSB3-D-C1-1-ETW1-3	D	C1	4	1	92.64	103.8	1.145	0.1612	20	B1I	0.0081	94.52	105.9	1.168
NTP2191Q1-WRX-PW-SOL-SSB3-D-C2-1-ETW1-1	D	C2	4	2	89.93	100.3	1.149	0.1611	20	B1I	0.0081	91.69	102.3	1.172
NTP2191Q1-WRX-PW-SOL-SSB3-D-C2-1-ETW1-2	D	C2	4	2	97.22	108.2	1.223	0.1608	20	B1I	0.0080	98.94	110.1	1.245
NTP2191Q1-WRX-PW-SOL-SSB3-D-C2-1-ETW1-3	D	C2	4	2	98.90	107.2	1.235	0.1611	20	B1I	0.0081	100.8	109.3	1.259
NTP2191Q1-WRX-PW-SOL-SSB3-E-C1-1-ETW1-1	E	C1	5	1	85.74	96.35	1.132	0.1581	20	B1I	0.0079	85.79	96.41	1.133
NTP2191Q1-WRX-PW-SOL-SSB3-E-C1-1-ETW1-2	E	C1	5	1	89.71	106.0	1.200	0.1572	20	B1I	0.0079	89.26	105.4	1.194
NTP2191Q1-WRX-PW-SOL-SSB3-E-C1-1-ETW1-3	E	C1	5	1	89.56	102.4	1.183	0.1571	20	B1I	0.0079	89.05	101.8	1.176
NTP2191Q1-WRX-PW-SOL-SSB3-E-C2-1-ETW1-1	E	C2	5	2	90.62	101.6	1.170	0.1570	20	B1I	0.0079	90.05	101.0	1.163
NTP2191Q1-WRX-PW-SOL-SSB3-E-C2-1-ETW1-2	E	C2	5	2	104.2	105.0	1.112	0.1574	20	B1I	0.0079	103.8	104.6	1.108
NTP2191Q1-WRX-PW-SOL-SSB3-E-C2-1-ETW1-3	E	C2	5	2	92.77	109.9	1.125	0.1580	20	B1I	0.0079	92.77	109.9	1.125
NTP2191Q1-WRX-PW-SOL-SSB3-F-C3-1-ETW1-1	F	C3	6	3	87.81	102.1	1.192	0.1570	20	B1I	0.0079	87.25	101.5	1.184
NTP2191Q1-WRX-PW-SOL-SSB3-F-C3-1-ETW1-2	F	C3	6	3	92.32	100.9	1.138	0.1577	20	B1I	0.0079	92.14	100.7	1.136
NTP2191Q1-WRX-PW-SOL-SSB3-F-C3-1-ETW1-3	F	C3	6	3	93.46	104.6	1.163	0.1577	20	B1I	0.0079	93.28	104.4	1.161
NTP2191Q1-WRX-PW-SOL-SSB3-F-C4-1-ETW1-1	F	C4	6	4	92.87	102.8	1.196	0.1566	20	B1I	0.0078	92.05	101.9	1.185
NTP2191Q1-WRX-PW-SOL-SSB3-F-C4-1-ETW1-2	F	C4	6	4	89.86	102.5	1.003	0.1580	20	B1I	0.0079	89.86	102.5	1.003
NTP2191Q1-WRX-PW-SOL-SSB3-F-C4-1-ETW1-3	F	C4	6	4	100.6	106.9	1.126	0.1582	20	B1I	0.0079	100.7	107.0	1.127

Average	92.61	103.7	1.156	**Average$_{norm}$**	0.0079	93.01	104.2	1.161
Standard Dev.	4.866	3.262	0.05157	**Standard Dev.$_{norm}$**		5.064	3.642	0.05533
Coeff. of Var. [%]	5.254	3.145	4.462	**Coeff. of Var. [%]$_{norm}$**		5.444	3.496	4.767
Min.	85.74	96.35	1.003	**Min.**	0.0078	85.79	96.41	1.003
Max.	104.2	109.9	1.235	**Max.**	0.0081	103.8	110.1	1.259
Number of Spec.	18	18	18	**Number of Spec.**	18	18	18	18

Laminate Single-Shear Bearing Proc.C Properties (SSB3)--ETW1(180°F)
Normalized 2% Offset Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB3)--ETW1(180°F)
Normalized Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
◆ Prepreg Lot #
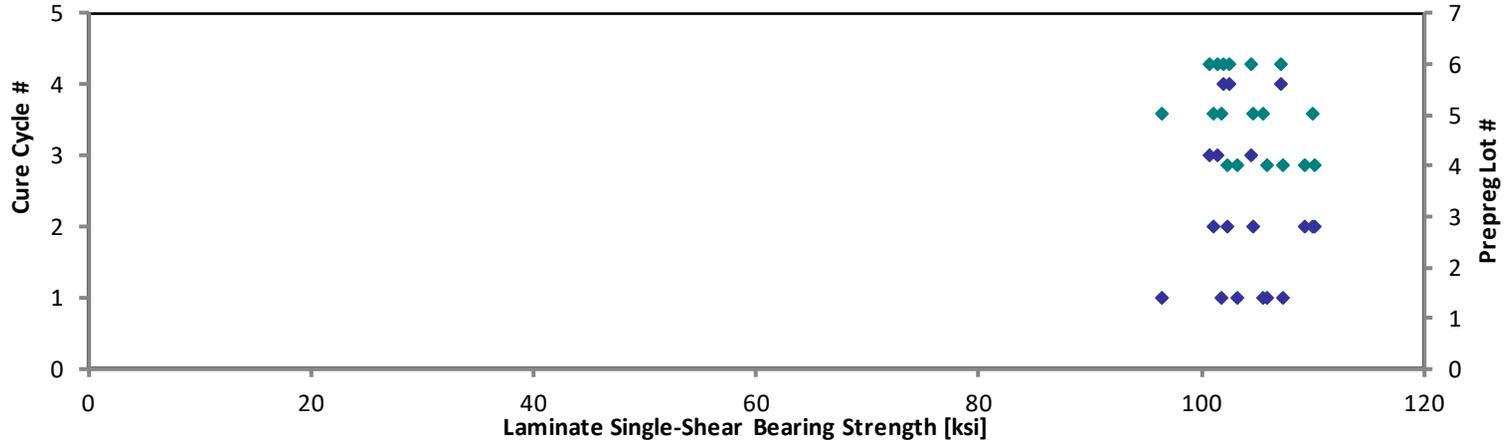
Laminate Single-Shear Bearing Proc.C Properties (SSB3)--ETW1(180°F)
Normalized Chord Stiffness
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB3)--ETW2(225°F)
Strength & Deformation
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-SSB3-D-C1-1-ETW2-1	D	C1	4	1	81.75	95.45	1.142	0.1611	20	B1I	0.0081	83.354	97.323	1.164
NTP2191Q1-WRX-PW-SOL-SSB3-D-C1-1-ETW2-2	D	C1	4	1	85.65	92.97	1.154	0.1610	20	B1I	0.0081	87.276	94.735	1.176
NTP2191Q1-WRX-PW-SOL-SSB3-D-C1-1-ETW2-3	D	C1	4	1	83.12	90.82	1.151	0.1609	20	B1I	0.0080	84.646	92.487	1.172
NTP2191Q1-WRX-PW-SOL-SSB3-D-C2-1-ETW2-1	D	C2	4	2	82.75	95.21	0.976	0.1612	20	B1I	0.0081	84.426	97.138	0.996
NTP2191Q1-WRX-PW-SOL-SSB3-D-C2-1-ETW2-2	D	C2	4	2	88.98	93.44	1.041	0.1606	20	B1I	0.0080	90.444	94.978	1.058
NTP2191Q1-WRX-PW-SOL-SSB3-D-C2-1-ETW2-3	D	C2	4	2	82.00	91.52	1.049	0.1608	20	B1I	0.0080	83.453	93.142	1.068
NTP2191Q1-WRX-PW-SOL-SSB3-E-C1-1-ETW2-1	E	C1	5	1	79.50	92.73	1.043	0.1572	20	B1I	0.0079	79.097	92.260	1.038
NTP2191Q1-WRX-PW-SOL-SSB3-E-C1-1-ETW2-2	E	C1	5	1	83.18	94.66	1.111	0.1579	20	B1I	0.0079	83.127	94.600	1.110
NTP2191Q1-WRX-PW-SOL-SSB3-E-C1-1-ETW2-3	E	C1	5	1	89.75	96.80	1.105	0.1582	20	B1I	0.0079	89.864	96.923	1.106
NTP2191Q1-WRX-PW-SOL-SSB3-E-C2-1-ETW2-1	E	C2	5	2	80.76	90.99	1.089	0.1570	20	B1I	0.0079	80.249	90.414	1.082
NTP2191Q1-WRX-PW-SOL-SSB3-E-C2-1-ETW2-2	E	C2	5	2	81.46	93.42	1.096	0.1573	20	B1I	0.0079	81.099	93.006	1.091
NTP2191Q1-WRX-PW-SOL-SSB3-E-C2-1-ETW2-3	E	C2	5	2	89.90	93.10	1.133	0.1581	20	B1I	0.0079	89.957	93.159	1.134
NTP2191Q1-WRX-PW-SOL-SSB3-F-C3-1-ETW2-1	F	C3	6	3	90.44	95.03	1.202	0.1565	20	B1I	0.0078	89.581	94.128	1.191
NTP2191Q1-WRX-PW-SOL-SSB3-F-C3-1-ETW2-2	F	C3	6	3	87.99	97.00	0.963	0.1574	20	B1I	0.0079	87.656	96.632	0.959
NTP2191Q1-WRX-PW-SOL-SSB3-F-C3-1-ETW2-3	F	C3	6	3	93.85	96.85	1.101	0.1578	20	B1I	0.0079	93.731	96.727	1.100
NTP2191Q1-WRX-PW-SOL-SSB3-F-C4-1-ETW2-1	F	C4	6	4	88.63	91.66	1.122	0.1562	20	B1I	0.0078	87.620	90.616	1.109
NTP2191Q1-WRX-PW-SOL-SSB3-F-C4-1-ETW2-2	F	C4	6	4	84.56	92.89	1.086	0.1574	20	B1I	0.0079	84.239	92.537	1.082
NTP2191Q1-WRX-PW-SOL-SSB3-F-C4-1-ETW2-3	F	C4	6	4	86.32	94.94	1.125	0.1581	20	B1I	0.0079	86.375	95.000	1.126

	2% Offset	Ultimate	Chord			2% Offset	Ultimate	Chord
Average	85.59	93.86	1.094	**Average$_{norm}$**	0.0079	85.900	94.211	1.098
Standard Dev.	4.064	1.981	0.06095	**Standard Dev.$_{norm}$**		3.939	2.170	0.06103
Coeff. of Var. [%]	4.749	2.111	5.572	**Coeff. of Var. [%]$_{norm}$**		4.586	2.303	5.559
Min.	79.50	90.82	0.9630	**Min.**	0.0078	79.097	90.414	0.9593
Max.	93.85	97.00	1.202	**Max.**	0.0081	93.731	97.323	1.191
Number of Spec.	18	18	18	**Number of Spec.**	18	18	18	18

Laminate Single-Shear Bearing Proc.C Properties (SSB3)--ETW2(225°F)
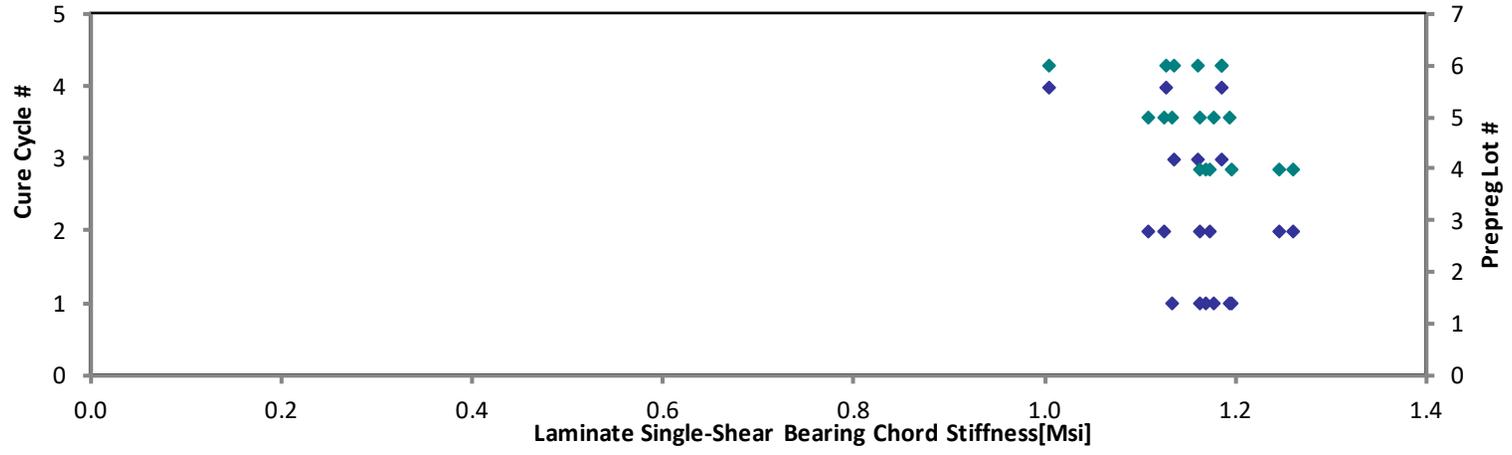**Normalized 2% Offset Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
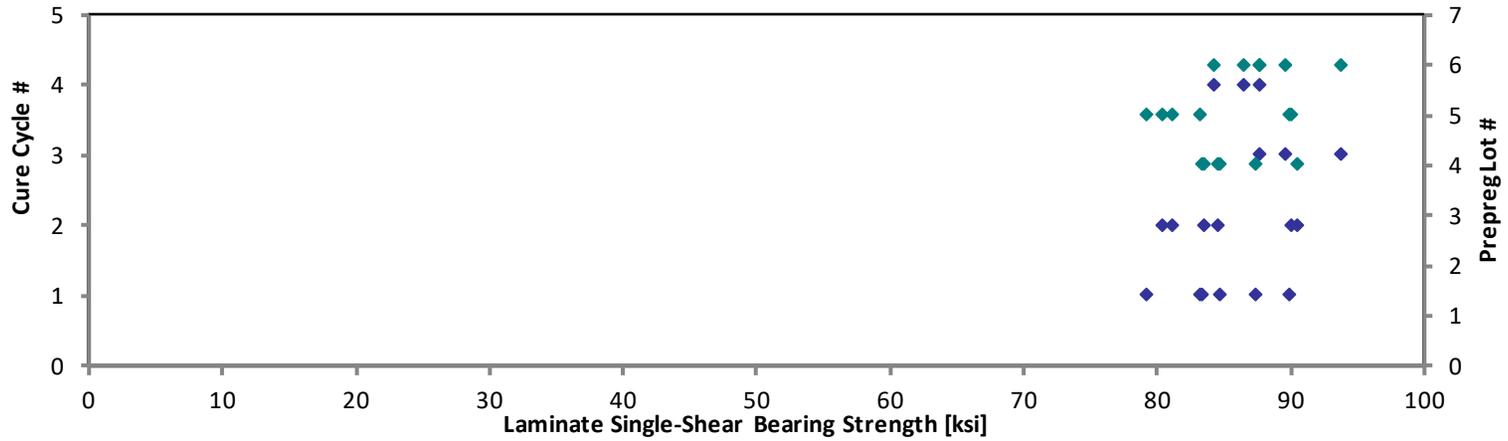
◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB3)--ETW2(225°F)
Normalized Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
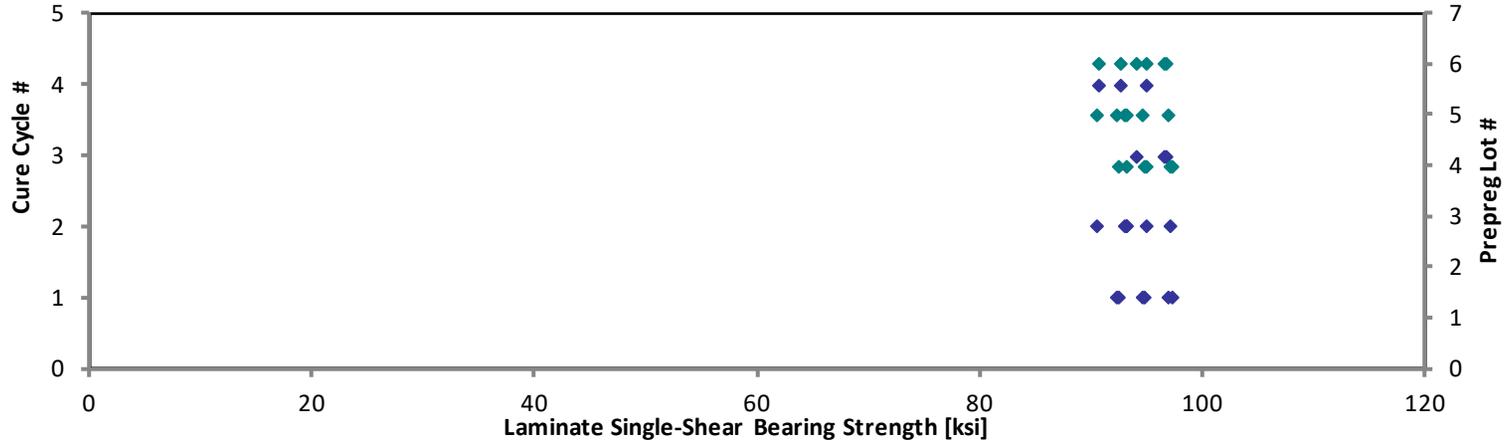
◆ Prepreg Lot #

**Laminate Single-Shear Bearing Proc.C Properties (SSB3)--ETW2(225°F)
Normalized Chord Stiffness**
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB3)--ETW3(250°F)
Strength & Deformation
Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_{ply} [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Stiffness [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]	Chord Stiffness$_{norm}$ [Msi]
NTP2191Q1-WRX-PW-SOL-SSB3-D-C1-1-ETW3-1	D	C1	4	1	83.59	89.55	1.115	0.1612	20	B1I	0.0081	85.28	91.36	1.138
NTP2191Q1-WRX-PW-SOL-SSB3-D-C1-1-ETW3-2	D	C1	4	1	78.33	86.59	1.114	0.1612	20	B1I	0.0081	79.92	88.34	1.137
NTP2191Q1-WRX-PW-SOL-SSB3-D-C1-1-ETW3-3	D	C1	4	1	76.68	86.50	1.073	0.1611	20	B1I	0.0081	78.18	88.20	1.094
NTP2191Q1-WRX-PW-SOL-SSB3-D-C2-1-ETW3-1	D	C2	4	2	78.07	88.96	1.090	0.1614	20	B1I	0.0081	79.75	90.87	1.113
NTP2191Q1-WRX-PW-SOL-SSB3-D-C2-1-ETW3-2	D	C2	4	2	79.39	88.81	1.032	0.1610	20	B1I	0.0081	80.90	90.50	1.052
NTP2191Q1-WRX-PW-SOL-SSB3-D-C2-1-ETW3-3	D	C2	4	2	80.25	88.63	1.000	0.1612	20	B1I	0.0081	81.88	90.43	1.020
NTP2191Q1-WRX-PW-SOL-SSB3-E-C1-1-ETW3-1	E	C1	5	1	72.95	83.57	0.9680	0.1569	20	B1I	0.0078	72.44	82.99	0.9613
NTP2191Q1-WRX-PW-SOL-SSB3-E-C1-1-ETW3-2	E	C1	5	1	73.11	87.41	1.059	0.1577	20	B1I	0.0079	72.97	87.24	1.057
NTP2191Q1-WRX-PW-SOL-SSB3-E-C1-1-ETW3-3	E	C1	5	1	73.30	85.64	1.057	0.1581	20	B1I	0.0079	73.35	85.69	1.058
NTP2191Q1-WRX-PW-SOL-SSB3-E-C2-1-ETW3-1	E	C2	5	2	76.43	84.03	1.063	0.1568	20	B1I	0.0078	75.85	83.39	1.055
NTP2191Q1-WRX-PW-SOL-SSB3-E-C2-1-ETW3-2	E	C2	5	2	72.99	85.93	1.013	0.1569	20	B1I	0.0078	72.48	85.33	1.006
NTP2191Q1-WRX-PW-SOL-SSB3-E-C2-1-ETW3-3	E	C2	5	2	70.79	82.43	1.132	0.1580	20	B1I	0.0079	70.79	82.43	1.132
NTP2191Q1-WRX-PW-SOL-SSB3-F-C3-1-ETW3-1	F	C3	6	3	79.31	86.95	1.194	0.1566	20	B1I	0.0078	78.61	86.18	1.183
NTP2191Q1-WRX-PW-SOL-SSB3-F-C3-1-ETW3-2	F	C3	6	3	82.84	90.78	1.095	0.1575	20	B1I	0.0079	82.58	90.49	1.092
NTP2191Q1-WRX-PW-SOL-SSB3-F-C3-1-ETW3-3	F	C3	6	3	76.69	85.26	1.116	0.1575	20	B1I	0.0079	76.45	84.99	1.112
NTP2191Q1-WRX-PW-SOL-SSB3-F-C4-1-ETW3-1	F	C4	6	4	81.03	91.11	0.9870	0.1564	20	B1I	0.0078	80.21	90.19	0.9770
NTP2191Q1-WRX-PW-SOL-SSB3-F-C4-1-ETW3-2	F	C4	6	4	86.11	86.74	1.000	0.1570	20	B1I	0.0079	85.57	86.19	0.994
NTP2191Q1-WRX-PW-SOL-SSB3-F-C4-1-ETW3-3	F	C4	6	4	69.79	84.87	1.061	0.1577	20	B1I	0.0079	69.66	84.71	1.059

|							
Average	77.31	86.88	1.065	**Average$_{norm}$**	0.0079	77.60	87.20	1.069
Standard Dev.	4.550	2.424	0.05845	**Standard Dev.$_{norm}$**		4.855	2.951	0.06150
Coeff. of Var. [%]	5.885	2.790	5.488	**Coeff. of Var. [%]$_{norm}$**		6.256	3.385	5.754
Min.	69.79	82.43	0.9680	**Min.**	0.0078	69.66	82.43	0.9613
Max.	86.11	91.11	1.194	**Max.**	0.0081	85.57	91.36	1.183
Number of Spec.	18	18	18	**Number of Spec.**	18	18	18	18

Laminate Single-Shear Bearing Proc.C Properties (SSB3)--ETW3(250°F)
Normalized 2% Offset Strength
Solvay EP2190 T650 3K PW Fabric RC 37%
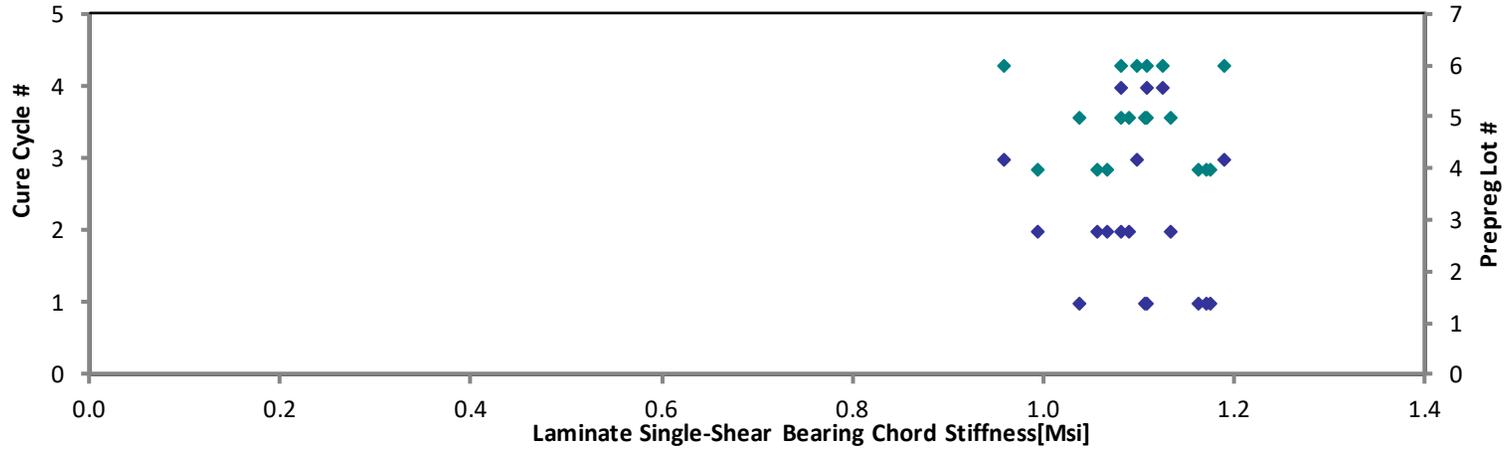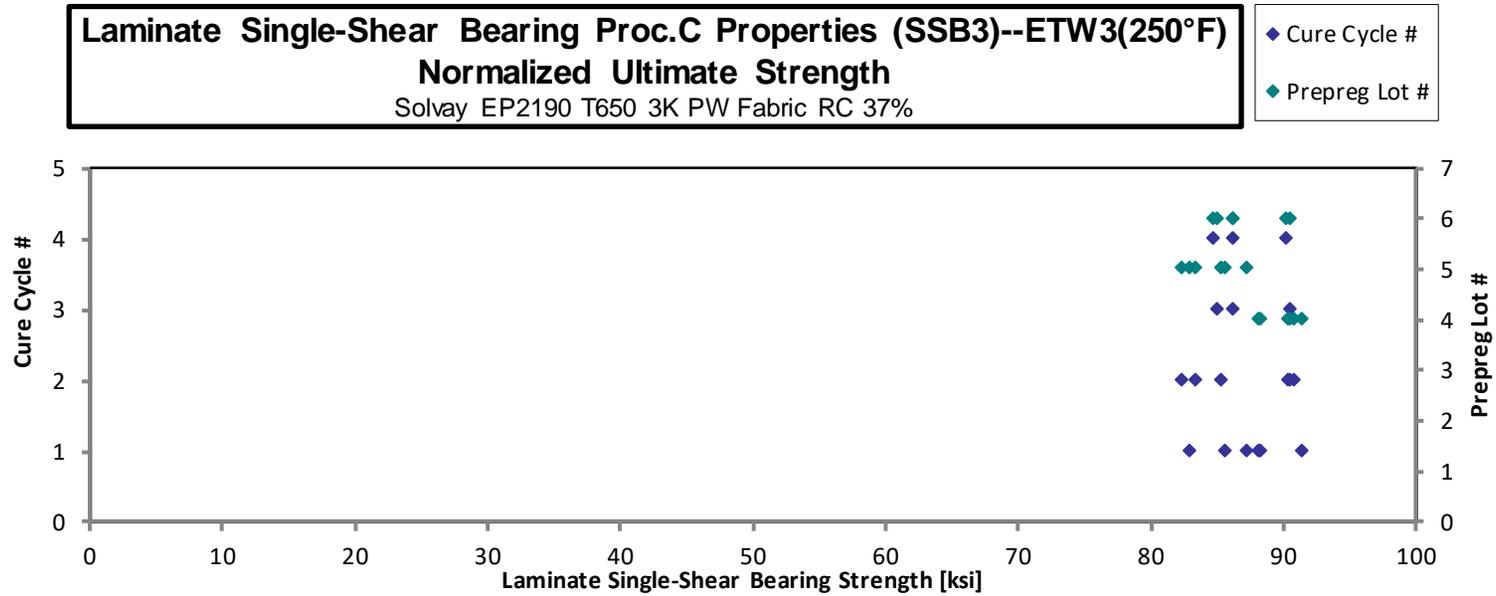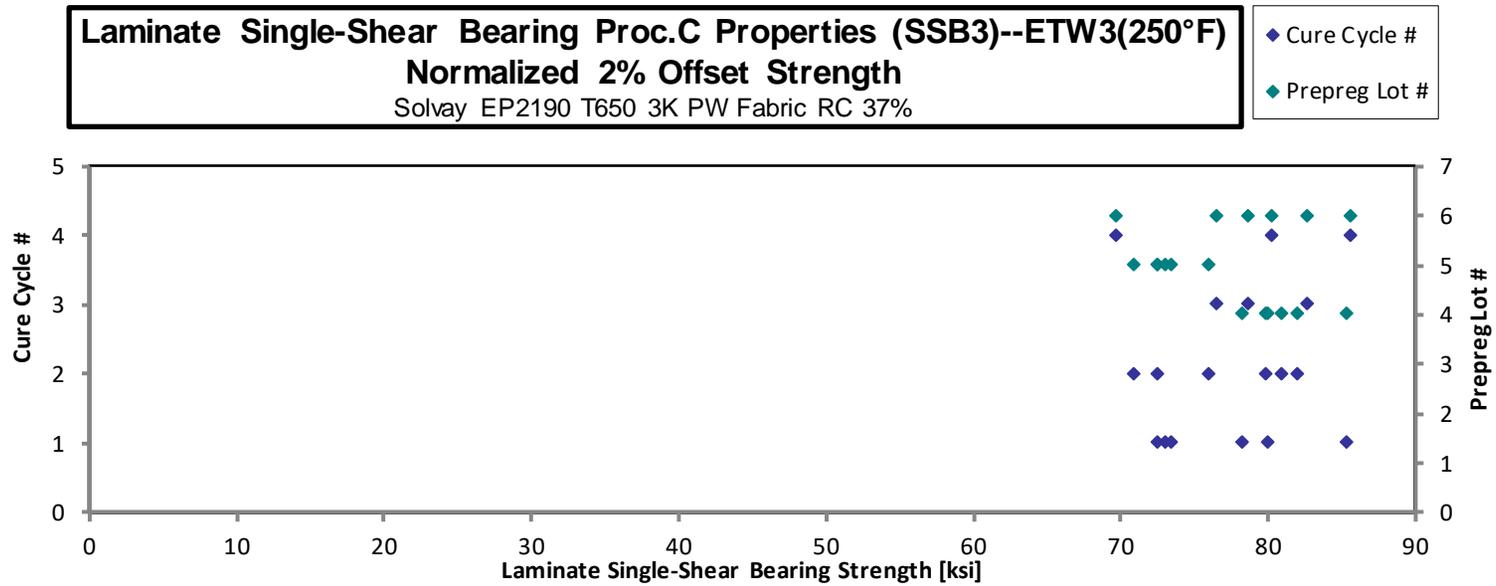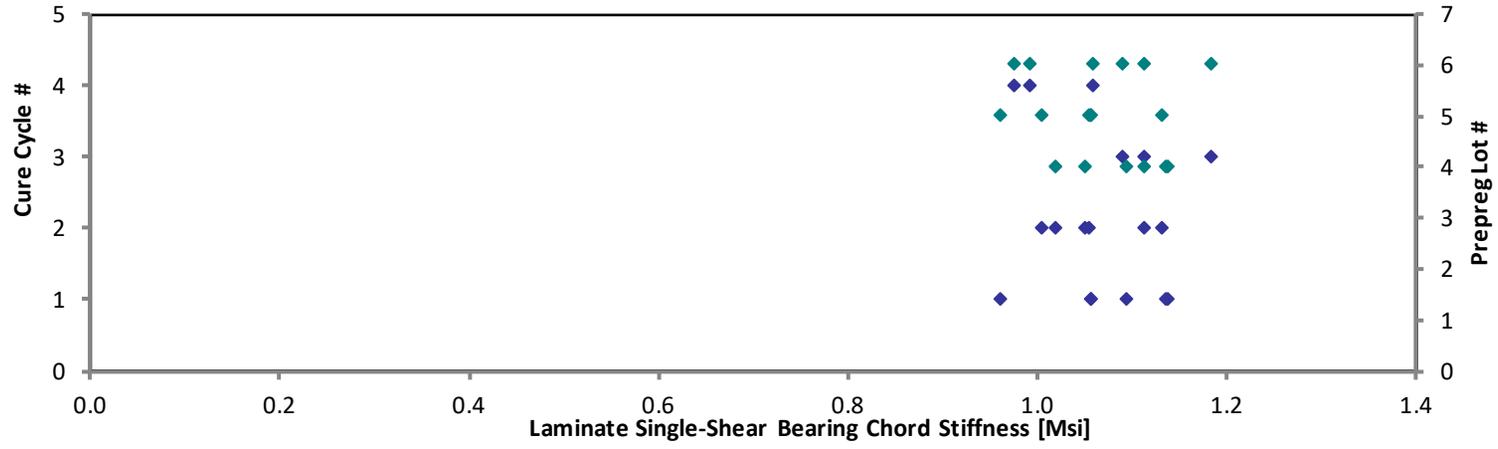
- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB3)--ETW3(250°F)
Normalized Ultimate Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

- ◆ Cure Cycle #
- ◆ Prepreg Lot #

Laminate Single-Shear Bearing Proc.C Properties (SSB3)--ETW3(250°F)
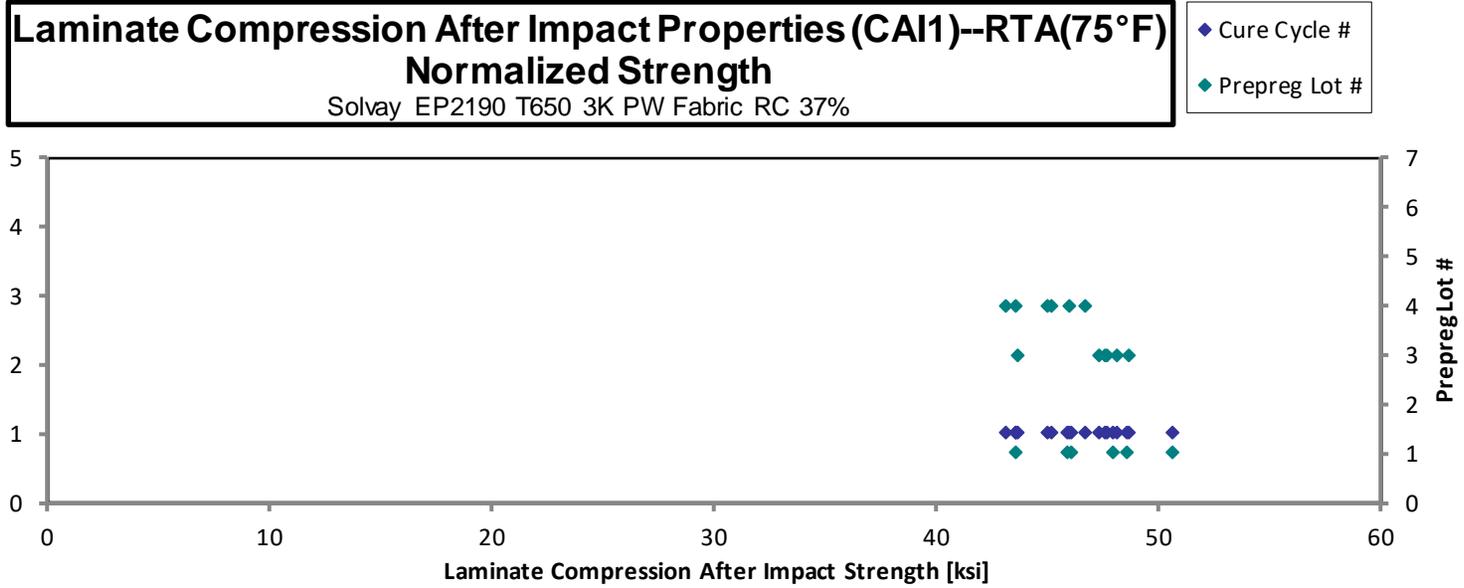Normalized Chord Stiffness
Solvay EP2190 T650 3K PW Fabric RC 37%

4.32 "25/50/25" Compression After Impact 1 Properties (CAI1)

Laminate Compression After Impact Properties (CAI1)--RTA(75°F) Strength Solvay EP2190 T650 3K PW Fabric RC 37%

normalizing
t_ply [in]
0.0079

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Target Impact Energy [in-lbf]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
TR8695740-P1-CAI1-A-C1-RTA-1	A	C1	1	1	45.15	284.5	0.1930	24	BDM	0.0080	45.96
TR8695740-P1-CAI1-A-C1-RTA-2	A	C1	1	1	47.90	284.5	0.1925	24	BDM	0.0080	48.63
TR8695740-P1-CAI1-A-C1-RTA-3	A	C1	1	1	47.50	284.5	0.1916	24	BDM	0.0080	48.00
TR8695740-P1-CAI1-A-C1-RTA-4	A	C1	1	1	45.60	284.5	0.1917	24	BDM	0.0080	46.11
TR8695740-P1-CAI1-A-C1-RTA-5	A	C1	1	1	43.13	284.5	0.1918	24	BDM	0.0080	43.63
TR8695740-P1-CAI1-A-C1-RTA-6	A	C1	1	1	50.10	284.5	0.1918	24	BDM	0.0080	50.68
TR8676393-P1-CAI1-C-C1-RTA-1	C	C1	3	1	47.56	284.5	0.1918	24	BDM	0.0080	48.11
TR8676393-P1-CAI1-C-C1-RTA-2	C	C1	3	1	48.10	284.5	0.1919	24	BDM	0.0080	48.68
TR8676393-P1-CAI1-C-C1-RTA-3	C	C1	3	1	46.69	284.5	0.1923	24	BDM	0.0080	47.35
TR8676393-P1-CAI1-C-C1-RTA-4	C	C1	3	1	47.41	284.5	0.1909	24	BDM	0.0080	47.74
TR8676393-P1-CAI1-C-C1-RTA-5	C	C1	3	1	43.31	284.5	0.1914	24	BDM	0.0080	43.72
TR8676393-P1-CAI1-C-C1-RTA-6	C	C1	3	1	47.01	284.5	0.1922	24	BDM	0.0080	47.65
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-RTA-1	D	C1	4	1	42.71	284.5	0.1936	24	LDM	0.0081	43.61
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-RTA-2	D	C1	4	1	42.30	284.5	0.1933	24	LDM	0.0081	43.13
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-RTA-3	D	C1	4	1	44.26	284.5	0.1936	24	LDM	0.0081	45.19
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-RTA-4	D	C1	4	1	45.72	284.5	0.1937	24	LDM	0.0081	46.71
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-RTA-5	D	C1	4	1	44.12	284.5	0.1935	24	LDM	0.0081	45.03
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-RTA-6	D	C1	4	1	44.95	284.5	0.1940	24	LDM	0.0081	45.99

Average	45.75	**Average$_{norm}$** 0.0080	46.44
Standard Dev.	2.176	**Standard Dev.$_{norm}$**	2.107
Coeff. of Var. [%]	4.756	**Coeff. of Var. [%]$_{norm}$**	4.538
Min.	42.30	**Min.** 0.0080	43.13
Max.	50.10	**Max.** 0.0081	50.68
Number of Spec.	18	**Number of Spec.** 18	18

Laminate Compression After Impact Properties (CAI1)--RTA(75°F) Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

<table>
<tr><td colspan="11">**Laminate Compression After Impact Properties (CAI1)--ETA2(225°F)**
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td></td><td>normalizing
t_{ply} **[in]**
0.0079</td></tr>
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Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Target Impact Energy [in-lbf]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETA2-1	D	C1	4	1	38.25	284.5	0.1898	24	LDM		0.0079	38.29
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETA2-2	D	C1	4	1	38.03	284.5	0.1919	24	LDM		0.0080	38.49
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETA2-3	D	C1	4	1	37.60	284.5	0.1907	24	LDM		0.0079	37.82
NTP2191Q1-WRX-PW-SOL-CAI1-D-C2-1-ETA2-1	D	C2	4	2	39.21	284.5	0.1924	24	LDM		0.0080	39.79
NTP2191Q1-WRX-PW-SOL-CAI1-D-C2-1-ETA2-2	D	C2	4	2	38.79	284.5	0.1925	24	LDM		0.0080	39.38
NTP2191Q1-WRX-PW-SOL-CAI1-D-C2-1-ETA2-3	D	C2	4	2	36.05	284.5	0.1927	24	LDM		0.0080	36.64

Average	37.99	Average$_{norm}$	0.0080	38.40
Standard Dev.	1.106	Standard Dev.$_{norm}$		1.127
Coeff. of Var. [%]	2.911	Coeff. of Var. [%]$_{norm}$		2.936
Min.	36.05	Min.	0.0079	36.64
Max.	39.21	Max.	0.0080	39.79
Number of Spec.	6	Number of Spec.	6	6

Laminate Compression After Impact Properties (CAI1)--ETA2(225°F)
Normalized Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #
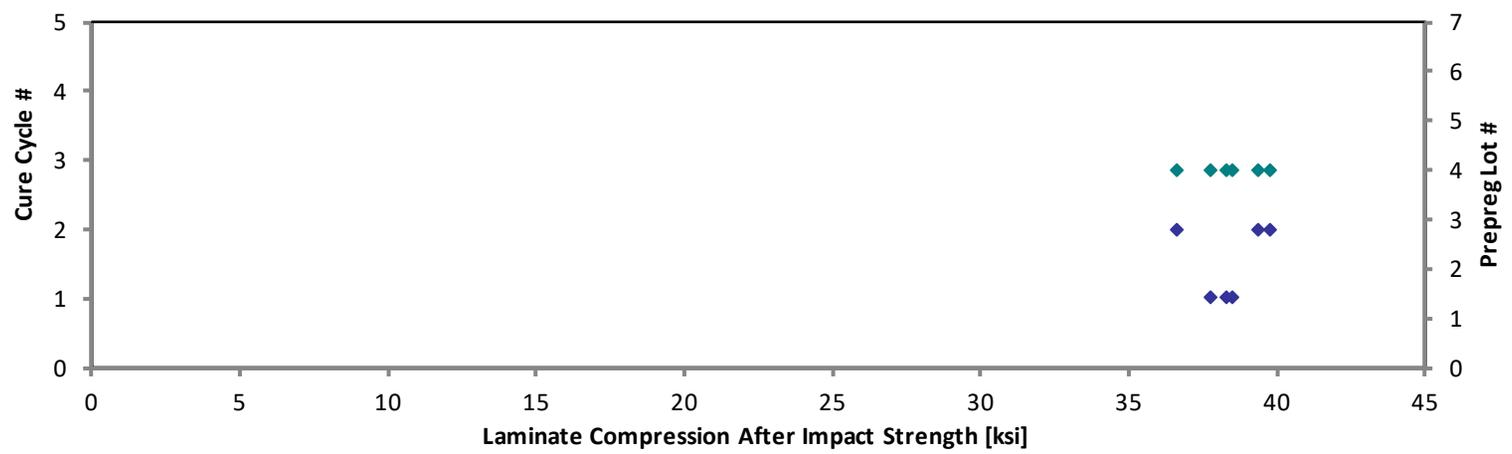
◆ Prepreg Lot #

<table>
<tr><td colspan="2">**Laminate Compression After Impact Properties (CAI1)--ETW1(180°F)**
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%</td><td>normalizing
t_{ply} [in]
0.0079</td></tr>
</table>

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Target Impact Energy [in-lbf]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW1-1	D	C1	4	1	34.74	284.5	0.1910	24	LDM		0.0080	35.00
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW1-2	D	C1	4	1	35.91	284.5	0.1902	24	LDM		0.0079	36.02
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW1-3	D	C1	4	1	34.95	284.5	0.1902	24	LDM		0.0079	35.06
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW1-4	D	C1	4	1	36.82	284.5	0.1899	24	LDM		0.0079	36.88
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW1-5	D	C1	4	1	34.47	284.5	0.1892	24	LDM		0.0079	34.40
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW1-6	D	C1	4	1	35.17	284.5	0.1895	24	LDM		0.0079	35.15
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW1-2	E	C1	5	1	37.16	284.5	0.1986	24	LDM		0.0083	38.92
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW1-3	E	C1	5	1	36.36	284.5	0.1984	24	LDM		0.0083	38.05
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW1-4	E	C1	5	1	36.09	284.5	0.1978	24	LDM		0.0082	37.65
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW1-5	E	C1	5	1	38.32	284.5	0.1975	24	LDM		0.0082	39.92
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW1-6	E	C1	5	1	37.82	284.5	0.1985	24	LDM		0.0083	39.60
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW1-7	E	C1	5	1	35.69	284.5	0.1983	24	LDM		0.0083	37.33
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW1-1	F	C1	6	1	38.62	284.5	0.1887	24	LDM		0.0079	38.44
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW1-2	F	C1	6	1	38.09	284.5	0.1878	24	LDM		0.0078	37.73
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW1-3	F	C1	6	1	38.56	284.5	0.1884	24	LDM		0.0079	38.32
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW1-4	F	C1	6	1	37.81	284.5	0.1882	24	LDM		0.0078	37.53
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW1-5	F	C1	6	1	37.71	284.5	0.1875	24	LDM		0.0078	37.29
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW1-6	F	C1	6	1	38.01	284.5	0.1882	24	LDM		0.0078	37.73

Average	36.79	Average$_{norm}$	0.0080	37.28
Standard Dev.	1.400	Standard Dev.$_{norm}$		1.597
Coeff. of Var. [%]	3.806	Coeff. of Var. [%]$_{norm}$		4.283
Min.	34.47	Min.	0.0078	34.40
Max.	38.62	Max.	0.0083	39.92
Number of Spec.	18	Number of Spec.	18	18

Laminate Compression After Impact Properties (CAI1)--ETW1 (180°F) Normalized Strength

Solvay EP2190 T650 3K PW Fabric RC 37%

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Laminate Compression After Impact Properties (CAI1)--ETW2(225°F)
Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

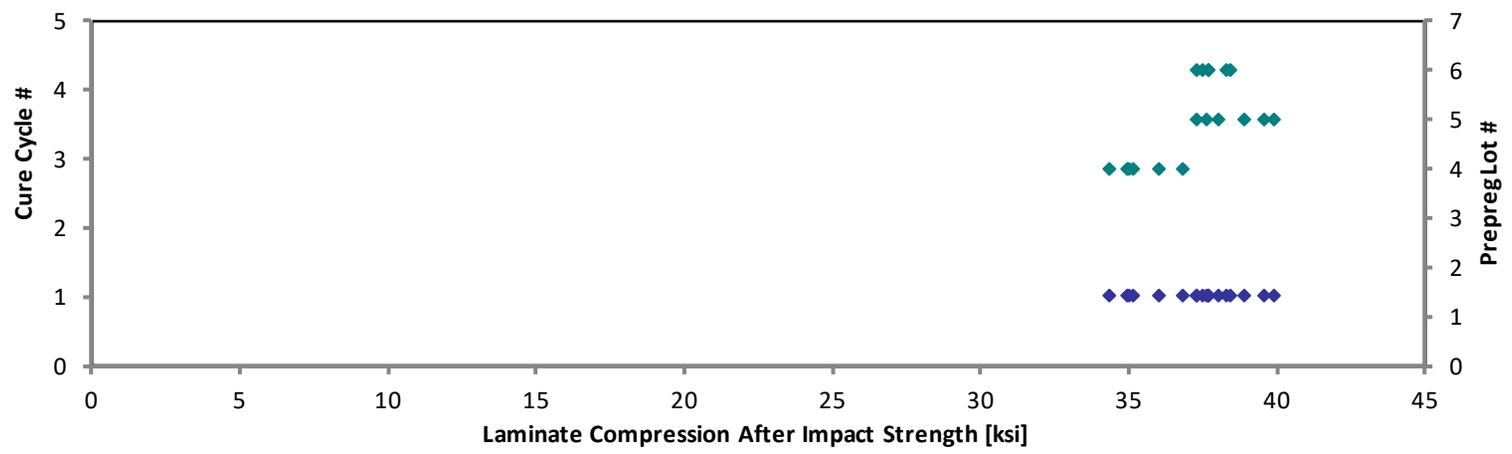</td><td>

normalizing
t_{ply} [in]

0.0079

</td></tr>
</table>

Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Target Impact Energy [in-lbf]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode		Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW2-1	D	C1	4	1	30.15	284.5	0.1904	24	LDM		0.0079	30.28
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW2-2	D	C1	4	1	33.82	284.5	0.1903	24	LDM		0.0079	33.94
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW2-3	D	C1	4	1	30.75	284.5	0.1903	24	LDM		0.0079	30.86
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW2-4	D	C1	4	1	28.77	284.5	0.1892	24	LDM		0.0079	28.71
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW2-5	D	C1	4	1	31.84	284.5	0.1901	24	LDM		0.0079	31.92
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW2-6	D	C1	4	1	32.00	284.5	0.1906	24	LDM		0.0079	32.17
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW2-1	E	C1	5	1	32.25	284.5	0.1979	24	LDM		0.0082	33.66
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW2-2	E	C1	5	1	30.36	284.5	0.1982	24	LDM		0.0083	31.74
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW2-3	E	C1	5	1	29.73	284.5	0.1983	24	LDM		0.0083	31.09
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW2-4	E	C1	5	1	34.80	284.5	0.1977	24	LDM		0.0082	36.29
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW2-5	E	C1	5	1	32.87	284.5	0.1973	24	LDM		0.0082	34.20
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW2-6	E	C1	5	1	32.19	284.5	0.1981	24	LDM		0.0083	33.63
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW2-1	F	C1	6	1	34.62	284.5	0.1882	24	LDM		0.0078	34.36
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW2-2	F	C1	6	1	33.91	284.5	0.1880	24	LDM		0.0078	33.62
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW2-3	F	C1	6	1	34.30	284.5	0.1879	24	LDM		0.0078	33.99
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW2-4	F	C1	6	1	29.94	284.5	0.1884	24	LDM		0.0079	29.75
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW2-5	F	C1	6	1	32.09	284.5	0.1886	24	LDM		0.0079	31.92
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW2-6	F	C1	6	1	33.16	284.5	0.1879	24	LDM		0.0078	32.86

Average	32.09	Average$_{norm}$	0.0080	32.50
Standard Dev.	1.824	Standard Dev.$_{norm}$		1.909
Coeff. of Var. [%]	5.685	Coeff. of Var. [%]$_{norm}$		5.873
Min.	28.77	Min.	0.0078	28.71
Max.	34.80	Max.	0.0083	36.29
Number of Spec.	18	Number of Spec.	18	18

**Laminate Compression After Impact Properties (CAI1)--ETW2(225°F)
Normalized Strength**
Solvay EP2190 T650 3K PW Fabric RC 37%

◆ Cure Cycle #

◆ Prepreg Lot #
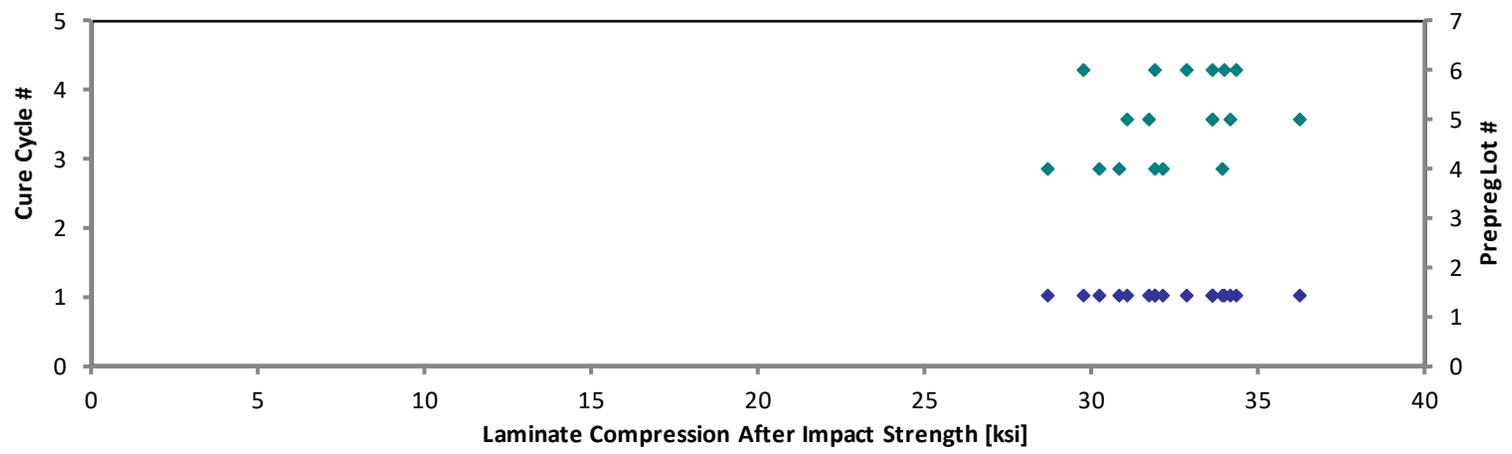
5. Additional Compression After Impact Data

Target Impact Energy Level: 285 in-lb

Impactor Diameter: 0.625"

Damage Area and Dent Depth Summary:

Specimen ID	Dent Depth (inch)
TR8695740-P1-A-C1-RTA-1	0.01429
TR8695740-P1-A-C1-RTA-2	0.01424
TR8695740-P1-A-C1-RTA-3	0.01373
TR8695740-P1-A-C1-RTA-4	0.01345
TR8695740-P1-A-C1-RTA-5	0.01584
TR8695740-P1-A-C1-RTA-6	0.01660
TR8676393-P1-C-C1-RTA-1	0.01410
TR8676393-P1-C-C1-RTA-2	0.01440
TR8676393-P1-C-C1-RTA-3	0.01480
TR8676393-P1-C-C1-RTA-4	0.01470
TR8676393-P1-C-C1-RTA-5	0.01530
TR8676393-P1-C-C1-RTA-6	0.01480
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-RTA-1	0.0178
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-RTA-2	0.0183
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-RTA-3	0.0174
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-RTA-4	0.0158
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-RTA-5	0.0169
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-RTA-6	0.0164
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETA2-1	0.0172
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETA2-2	0.0168
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETA2-3	0.0163
NTP2191Q1-WRX-PW-SOL-CAI1-D-C2-1-ETA2-1	0.0152
NTP2191Q1-WRX-PW-SOL-CAI1-D-C2-1-ETA2-2	0.0160
NTP2191Q1-WRX-PW-SOL-CAI1-D-C2-1-ETA2-3	0.0160
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW1-1	0.0173
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW1-2	0.0173
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW1-3	0.0165
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW1-4	0.0166
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW1-5	0.0169
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW1-6	0.0172

NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW1-2	0.0146
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW1-3	0.0138
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW1-4	0.0152
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW1-5	0.0157
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW1-6	0.0139
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW1-7	0.0143
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW1-1	0.0134
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW1-2	0.0135
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW1-3	0.0146
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW1-4	0.0142
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW1-5	0.0144
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW1-6	0.0143
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW2-1	0.0160
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW2-2	0.0168
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW2-3	0.0168
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW2-4	0.0170
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW2-5	0.0170
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-ETW2-6	0.0171
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW2-1	0.0155
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW2-2	0.0157
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW2-3	0.0164
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW2-4	0.0143
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW2-5	0.0161
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-ETW2-6	0.0149
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW2-1	0.0134
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW2-2	0.0140
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW2-3	0.0149
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW2-4	0.0156
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW2-5	0.0140
NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-ETW2-6	0.0148

6. Fluid Sensitivity Comparison

6.1 Room Temperature Test Data

Code	Type of Fluid	Exposure
FS11RT	100 Low Lead Fuel	90 days min @ 70°F ± 10F
FS12RT	Jet A Fuel	
FS13RT	MIL-PRF-5606 Hydraulic Oil	
FS14RT	MIL-PRF-83282 Hydraulic Oil	
FS15RT	MIL-PRF-7808 Engine Oil	
FS16RT	MIL-PRF-23699 Engine Oil	
FS17RT	Salt Water	
FS18RT	Skydrol LD-4	
FS19RT	50% Water w/ 50% Skydrol	
FS31RT	Distilled Water	
FS21RT	MEK washing fluid	90 mins @ 70°F ± 10F
FS22RT	Polypropylene Glycol Deicer	
FS23RT	Isopropyl Alcohol Deicing	48±4 hrs @ 70°F ± 10F
FS32RT	Dry	Per section 6.1 Test Plan
FS33RT	85% Relative Humidity	

RT(70°F) SBS Fluid Sensitivity Comparison

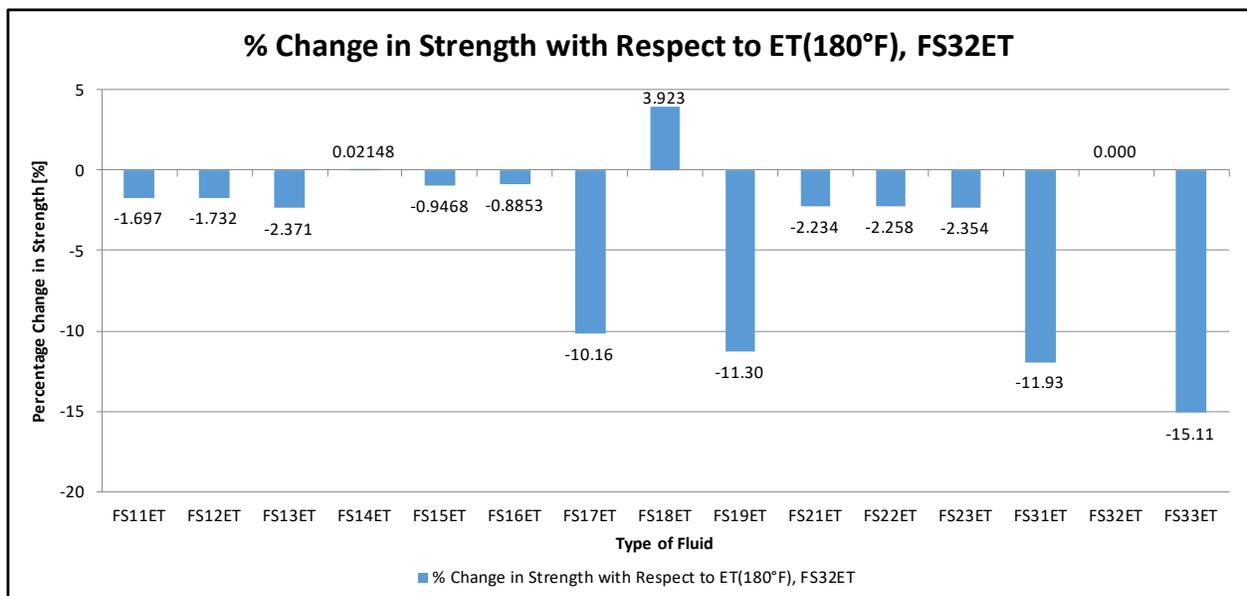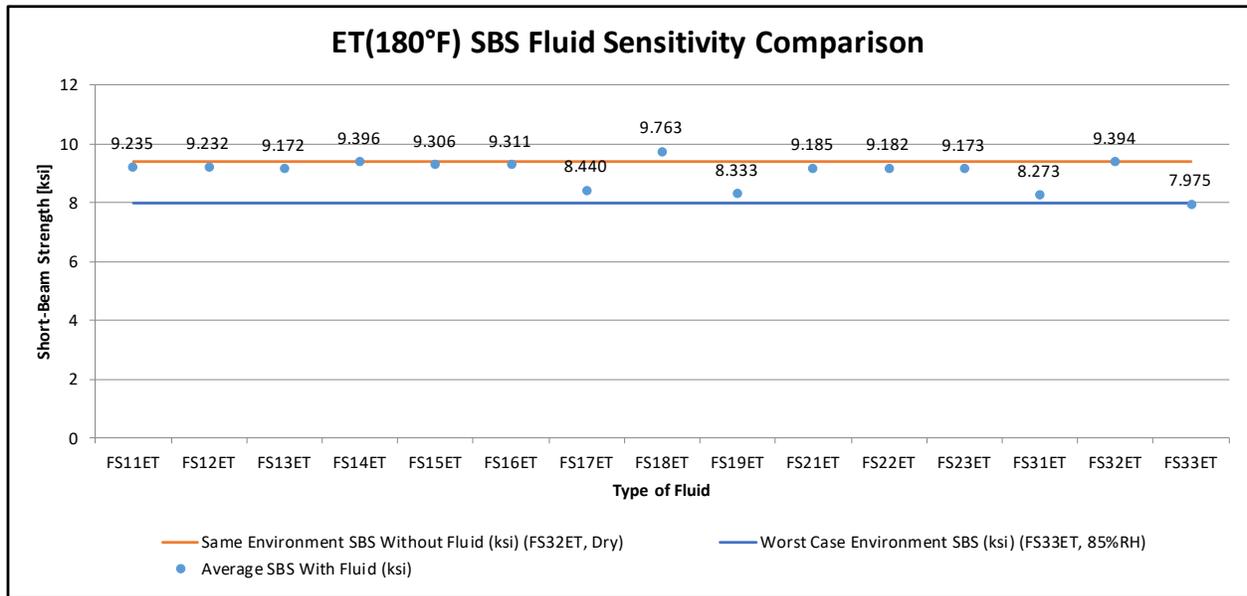### % Change in Strength with Respect to RT(70°F), FS32RT

Fluid Sensitivity Screening
Short-Beam Strength Properties (FSSBS)--RT(70°F) Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

Fluid Code	Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode	Average Strength [ksi]
FS11RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS11RT-1	D	C1	4	1	11.84	0.2578	33	0.007812	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS11RT-2	D	C1	4	1	11.56	0.2587	33	0.007838	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS11RT-3	D	C1	4	1	11.67	0.2597	33	0.007868	COMPRESSION, TENSION	11.71
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS11RT-4	D	C1	4	1	11.56	0.2604	33	0.007891	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS11RT-5	D	C1	4	1	11.92	0.2607	33	0.007898	ILS, COMPRESSION, TENSION	
FS12RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS12RT-1	D	C1	4	1	11.41	0.2625	33	0.007953	COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS12RT-2	D	C1	4	1	11.27	0.2621	33	0.007942	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS12RT-3	D	C1	4	1	11.35	0.2612	33	0.007915	ILS, COMPRESSION, TENSION	11.36
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS12RT-4	D	C1	4	1	11.48	0.2600	33	0.007877	COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS12RT-5	D	C1	4	1	11.31	0.2592	33	0.007853	ILS, COMPRESSION, TENSION	
FS13RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS13RT-1	D	C1	4	1	11.78	0.2625	33	0.007953	TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS13RT-2	D	C1	4	1	11.77	0.2628	33	0.007964	TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS13RT-3	D	C1	4	1	11.67	0.2629	33	0.007965	TENSION	11.76
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS13RT-4	D	C1	4	1	11.91	0.2630	33	0.007970	TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS13RT-5	D	C1	4	1	11.67	0.2627	33	0.007959	TENSION, COMPRESSION	
FS14RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS14RT-1	D	C1	4	1	11.95	0.2629	33	0.007965	TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS14RT-2	D	C1	4	1	11.61	0.2628	33	0.007962	TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS14RT-3	D	C1	4	1	11.86	0.2624	33	0.007952	TENSION	11.80
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS14RT-4	D	C1	4	1	11.94	0.2628	33	0.007964	TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS14RT-5	D	C1	4	1	11.67	0.2627	33	0.007961	TENSION, COMPRESSION	
FS15RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS15RT-1	D	C1	4	1	11.68	0.2618	33	0.007932	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS15RT-2	D	C1	4	1	11.64	0.2618	33	0.007933	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS15RT-3	D	C1	4	1	11.68	0.2609	33	0.007906	COMPRESSION, TENSION	11.59
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS15RT-4	D	C1	4	1	11.38	0.2607	33	0.007900	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS15RT-5	D	C1	4	1	11.58	0.2598	33	0.007873	COMPRESSION, TENSION	
FS16RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS16RT-1	D	C1	4	1	11.68	0.2620	33	0.007938	COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS16RT-2	D	C1	4	1	11.48	0.2623	33	0.007948	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS16RT-3	D	C1	4	1	11.99	0.2625	33	0.007953	COMPRESSION, TENSION	11.68
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS16RT-4	D	C1	4	1	11.43	0.2619	33	0.007936	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS16RT-5	D	C1	4	1	11.81	0.2625	33	0.007955	ILS, COMPRESSION, TENSION	
FS17RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS17RT-1	D	C1	4	1	11.34	0.2618	33	0.007932	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS17RT-2	D	C1	4	1	11.76	0.2623	33	0.007947	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS17RT-3	D	C1	4	1	11.81	0.2623	33	0.007947	COMPRESSION, TENSION	11.65
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS17RT-4	D	C1	4	1	11.69	0.2614	33	0.007920	COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS17RT-5	D	C1	4	1	11.65	0.2614	33	0.007921	COMPRESSION, TENSION	
FS18RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS18RT-1	D	C1	4	1	12.09	0.2614	33	0.007921	COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS18RT-2	D	C1	4	1	11.52	0.2616	33	0.007927	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS18RT-3	D	C1	4	1	11.79	0.2623	33	0.007948	ILS, COMPRESSION, TENSION	11.92
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS18RT-4	D	C1	4	1	12.04	0.2622	33	0.007944	COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS18RT-5	D	C1	4	1	12.19	0.2620	33	0.007938	COMPRESSION, TENSION	
FS19RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS19RT-1	D	C1	4	1	11.42	0.2618	33	0.007933	COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS19RT-2	D	C1	4	1	11.35	0.2620	33	0.007939	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS19RT-3	D	C1	4	1	11.68	0.2615	33	0.007923	COMPRESSION, TENSION	11.54
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS19RT-4	D	C1	4	1	11.51	0.2605	33	0.007894	COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS19RT-5	D	C1	4	1	11.72	0.2604	33	0.007891	ILS, COMPRESSION, TENSION	
FS21RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS21RT-1	D	C1	4	1	11.46	0.2596	33	0.007867	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS21RT-2	D	C1	4	1	11.61	0.2595	33	0.007862	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS21RT-3	D	C1	4	1	11.90	0.2595	33	0.007862	COMPRESSION, TENSION	11.83
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS21RT-4	D	C1	4	1	12.19	0.2589	33	0.007844	COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS21RT-5	D	C1	4	1	11.98	0.2586	33	0.007835	COMPRESSION, TENSION	
FS22RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS22RT-1	D	C1	4	1	11.65	0.2596	33	0.007865	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS22RT-2	D	C1	4	1	11.72	0.2593	33	0.007856	COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS22RT-3	D	C1	4	1	12.07	0.2596	33	0.007867	COMPRESSION, TENSION	11.82
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS22RT-4	D	C1	4	1	11.67	0.2600	33	0.007879	COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS22RT-5	D	C1	4	1	12.01	0.2608	33	0.007902	COMPRESSION, TENSION	
FS23RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS23RT-1	D	C1	4	1	11.81	0.2619	33	0.007935	ILS, TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS23RT-2	D	C1	4	1	11.78	0.2623	33	0.007948	TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS23RT-3	D	C1	4	1	11.62	0.2616	33	0.007926	ILS, TENSION, COMPRESSION	11.73
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS23RT-4	D	C1	4	1	11.80	0.2615	33	0.007923	ILS, TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS23RT-5	D	C1	4	1	11.66	0.2615	33	0.007923	ILS, TENSION, COMPRESSION	
FS31RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS31RT-1	D	C1	4	1	11.60	0.2619	33	0.007936	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS31RT-2	D	C1	4	1	11.75	0.2622	33	0.007945	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS31RT-3	D	C1	4	1	11.80	0.2613	33	0.007918	COMPRESSION, TENSION	11.55
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS31RT-4	D	C1	4	1	11.30	0.2613	33	0.007917	COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS31RT-5	D	C1	4	1	11.28	0.2606	33	0.007895	COMPRESSION, TENSION	
FS32RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS32RT-1	D	C1	4	1	11.99	0.2618	33	0.007932	ILS, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS32RT-2	D	C1	4	1	11.77	0.2625	33	0.007953	COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS32RT-3	D	C1	4	1	12.28	0.2622	33	0.007945	COMPRESSION, TENSION	12.05
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS32RT-4	D	C1	4	1	12.05	0.2622	33	0.007944	COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS32RT-5	D	C1	4	1	12.16	0.2622	33	0.007945	ILS, COMPRESSION, TENSION	
FS33RT	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS33RT-1	D	C1	4	1	11.58	0.2620	33	0.007939	ILS, TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS33RT-2	D	C1	4	1	11.36	0.2617	33	0.007930	TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS33RT-3	D	C1	4	1	11.49	0.2621	33	0.007942	TENSION, COMPRESSION	11.36
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS33RT-4	D	C1	4	1	11.27	0.2621	33	0.007942	TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS33RT-5	D	C1	4	1	11.08	0.2619	33	0.007935	TENSION, COMPRESSION	

6.2 Elevated Temperature Test Data

Code	Type of Fluid	Exposure
FS11ET	100 Low lead Fuel	90 days min @ 70°F ± 10F
FS12ET	Jet A Fuel	
FS13ET	MIL-PRF-5606 Hydraulic Oil	
FS14ET	MIL-PRF-83282 Hydraulic Oil	
FS15ET	MIL-PRF-7808 Engine Oil	
FS16ET	MIL-PRF-23699 Engine Oil	
FS17ET	Sea Water	
FS18ET	Skydrol LD-4	
FS19ET	50% Water w/ 50% Skydrol	
FS31ET	Distilled Water	
FS21ET	MEK washing fluid	90 mins @ 70°F ± 10F
FS22ET	Polypropylene Glycol Deicer	
FS23ET	Isopropyl Alcohol Deicing	48±4 hrs @ 70°F ± 10F
FS32ET	Dry	Per section 6.1 Test Plan
FS33ET	85% Relative Humidity	

ET(180°F) SBS Fluid Sensitivity Comparison

% Change in Strength with Respect to ET(180°F), FS32ET

Fluid Sensitivity Screening
Short-Beam Strength Properties (FSSBS)--ET(180°F) Strength
Solvay EP2190 T650 3K PW Fabric RC 37%

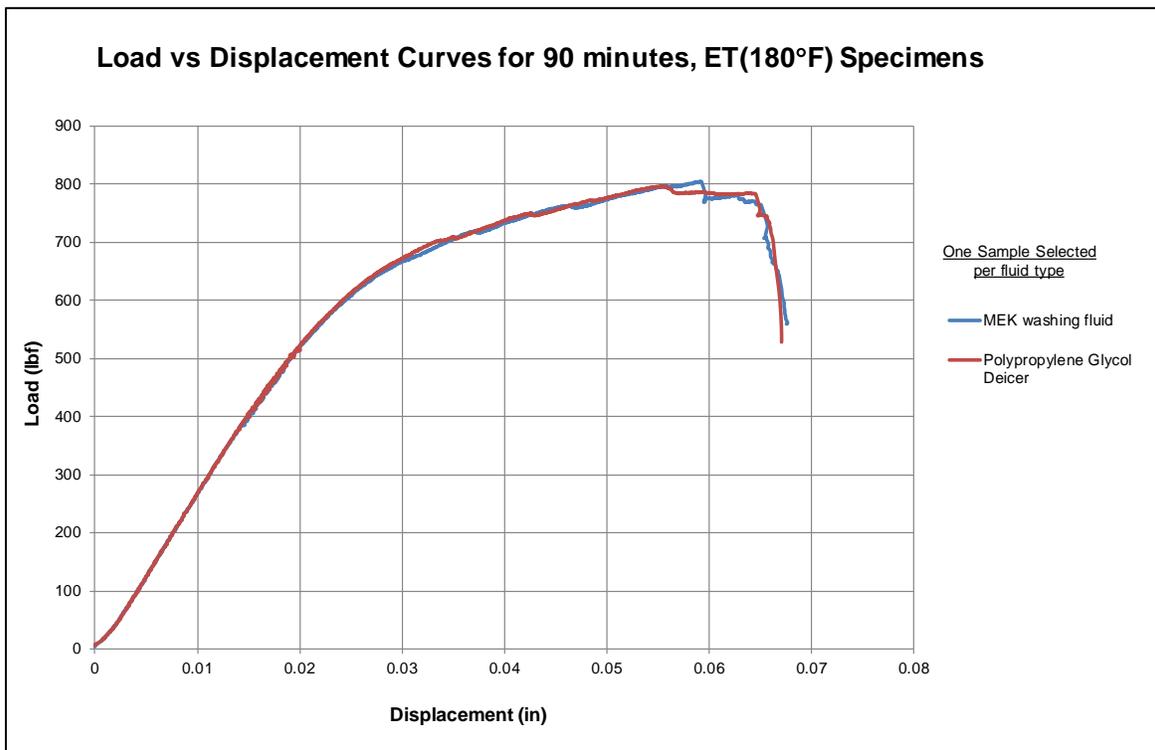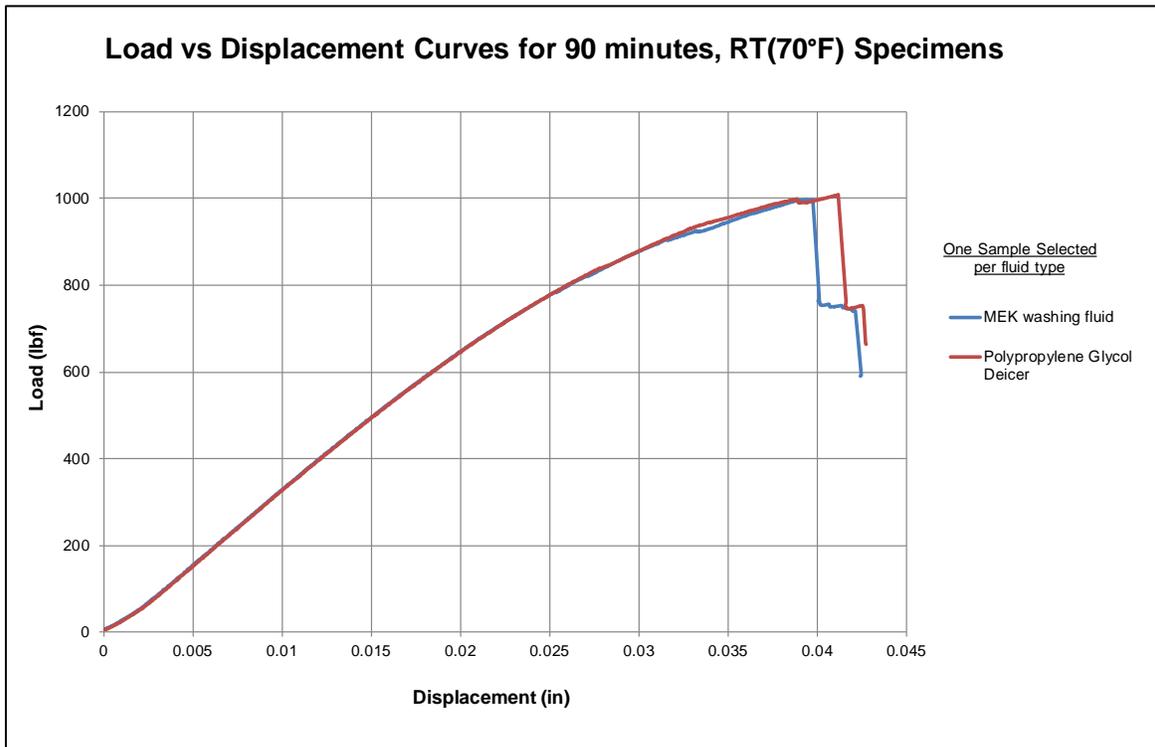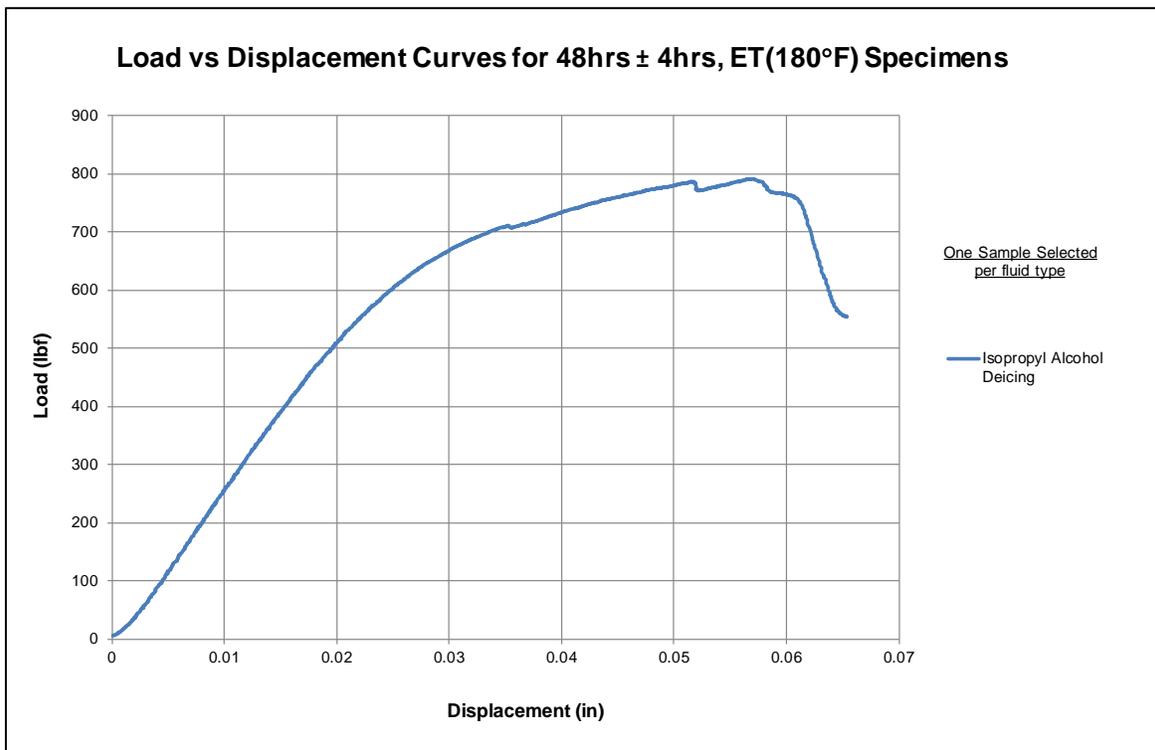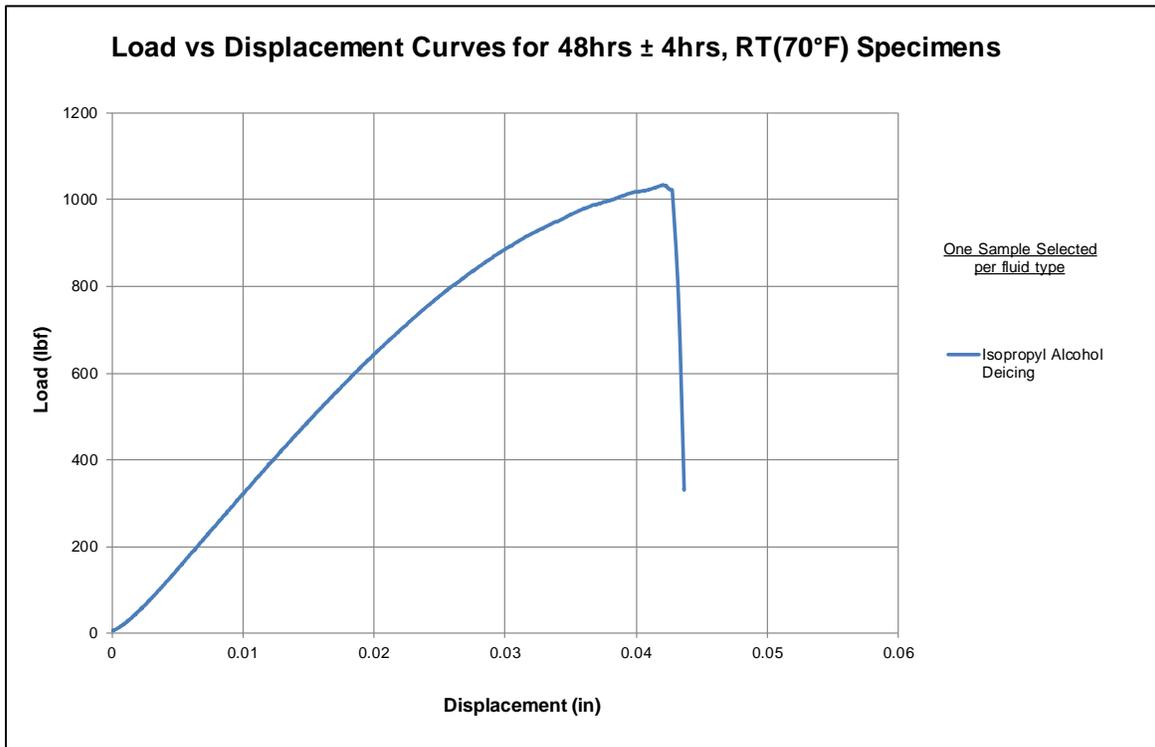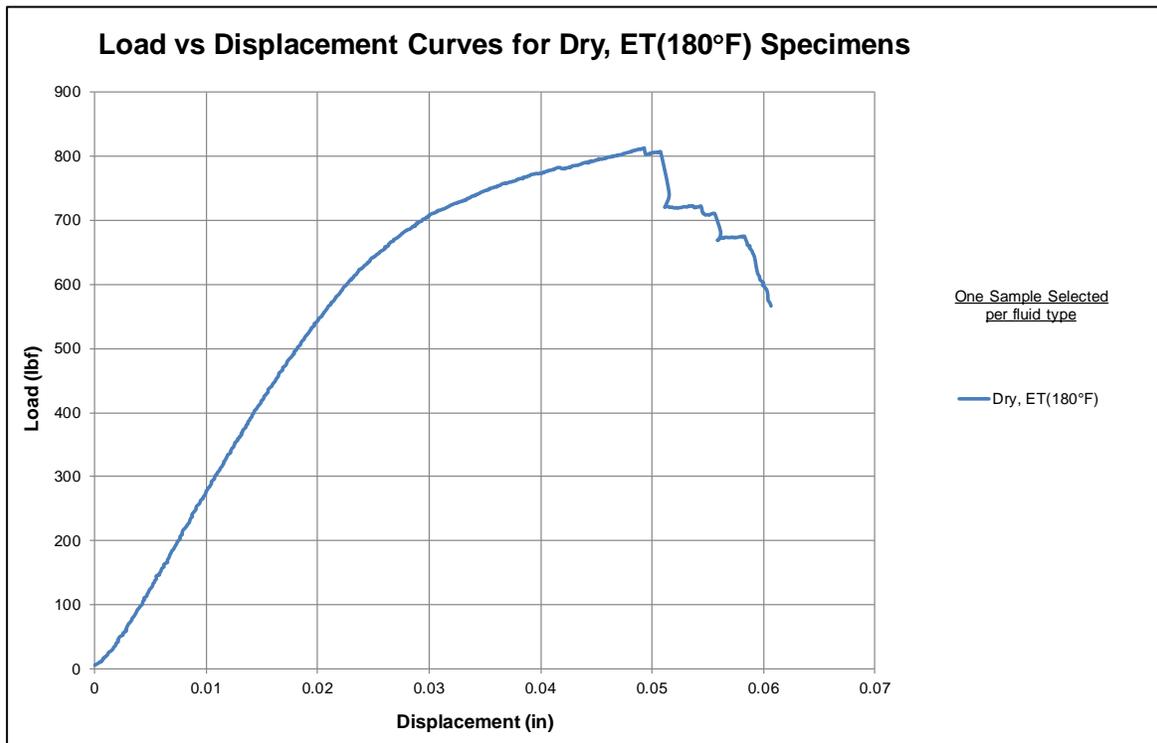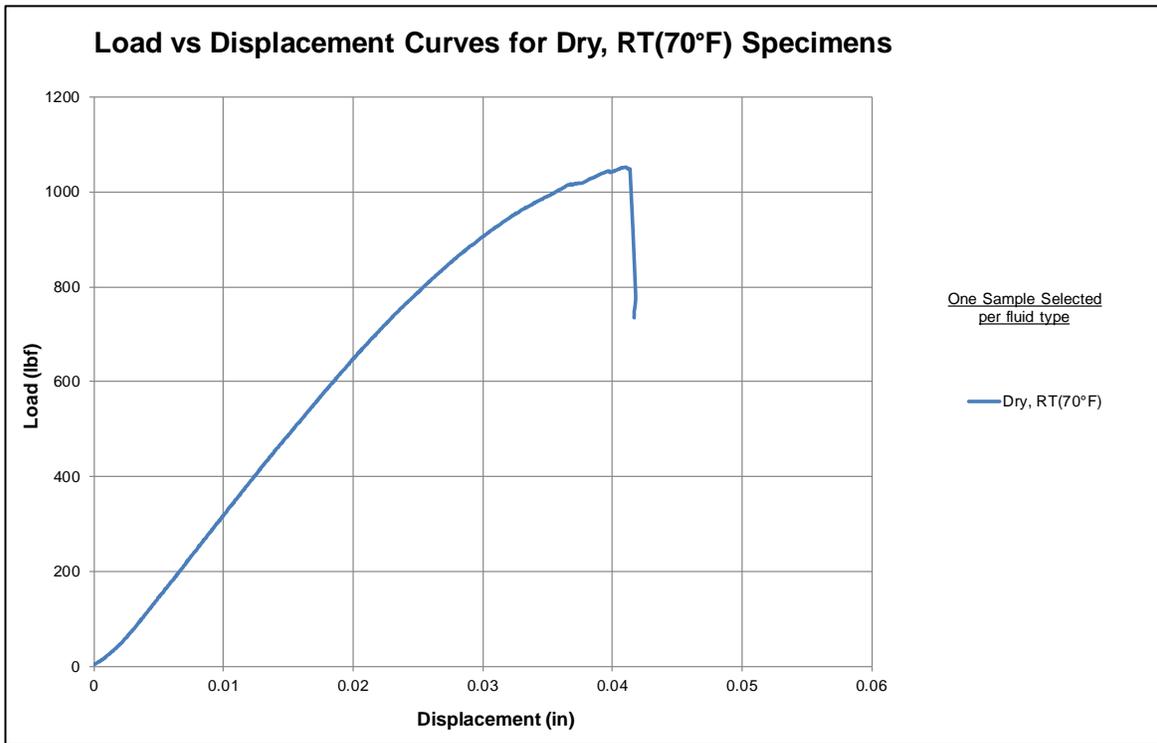| Fluid Code	Specimen Number	Solvay Batch #	Solvay Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode	Average Strength [ksi]
FS11ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS11ET-1	D	C1	4	1	9.250	0.2631	33	0.007973	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS11ET-2	D	C1	4	1	9.176	0.2630	33	0.007968	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS11ET-3	D	C1	4	1	9.315	0.2629	33	0.007967	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	9.235
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS11ET-4	D	C1	4	1	9.143	0.2629	33	0.007965	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS11ET-5	D	C1	4	1	9.292	0.2630	33	0.007970	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
FS12ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS12ET-1	D	C1	4	1	9.209	0.2600	33	0.007879	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS12ET-2	D	C1	4	1	9.343	0.2606	33	0.007897	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS12ET-3	D	C1	4	1	9.231	0.2607	33	0.007898	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	9.232
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS12ET-4	D	C1	4	1	8.961	0.2612	33	0.007914	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS12ET-5	D	C1	4	1	9.416	0.2612	33	0.007915	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
FS13ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS13ET-1	D	C1	4	1	9.230	0.2601	33	0.007880	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS13ET-2	D	C1	4	1	9.261	0.2603	33	0.007888	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS13ET-3	D	C1	4	1	9.423	0.2608	33	0.007902	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	9.172
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS13ET-4	D	C1	4	1	8.962	0.2609	33	0.007905	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS13ET-5	D	C1	4	1	8.983	0.2613	33	0.007917	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
FS14ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS14ET-1	D	C1	4	1	9.418	0.2619	33	0.007935	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS14ET-2	D	C1	4	1	9.450	0.2623	33	0.007948	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS14ET-3	D	C1	4	1	9.343	0.2619	33	0.007935	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	9.396
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS14ET-4	D	C1	4	1	9.424	0.2620	33	0.007938	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS14ET-5	D	C1	4	1	9.347	0.2620	33	0.007939	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
FS15ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS15ET-1	D	C1	4	1	9.275	0.2587	33	0.007839	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS15ET-2	D	C1	4	1	9.319	0.2597	33	0.007870	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS15ET-3	D	C1	4	1	9.374	0.2596	33	0.007865	ILS, INELASTIC DEFORMATION, COMPRESSION	9.306
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS15ET-4	D	C1	4	1	9.373	0.2607	33	0.007898	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS15ET-5	D	C1	4	1	9.187	0.2609	33	0.007905	ILS, INELASTIC DEFORMATION, COMPRESSION	
FS16ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS16ET-1	D	C1	4	1	9.245	0.2623	33	0.007947	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS16ET-2	D	C1	4	1	9.413	0.2619	33	0.007936	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS16ET-3	D	C1	4	1	9.326	0.2624	33	0.007950	ILS, INELASTIC DEFORMATION, TENSION	9.311
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS16ET-4	D	C1	4	1	9.415	0.2618	33	0.007932	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS16ET-5	D	C1	4	1	9.158	0.2620	33	0.007938	ILS, INELASTIC DEFORMATION, COMPRESSION, TENSION	
FS17ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS17ET-1	D	C1	4	1	8.403	0.2590	33	0.007847	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS17ET-2	D	C1	4	1	8.563	0.2594	33	0.007859	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS17ET-3	D	C1	4	1	8.382	0.2602	33	0.007883	ILS, INELASTIC DEFORMATION, COMPRESSION	8.440
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS17ET-4	D	C1	4	1	8.492	0.2603	33	0.007888	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS17ET-5	D	C1	4	1	8.361	0.2607	33	0.007898	ILS, INELASTIC DEFORMATION, COMPRESSION	
FS18ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS18ET-1	D	C1	4	1	9.784	0.2624	33	0.007950	ILS, INELASTIC DEFORMATION, TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS18ET-2	D	C1	4	1	9.763	0.2615	33	0.007924	ILS, INELASTIC DEFORMATION, TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS18ET-3	D	C1	4	1	9.751	0.2622	33	0.007944	ILS, INELASTIC DEFORMATION, TENSION, COMPRESSION	9.763
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS18ET-4	D	C1	4	1	9.740	0.2618	33	0.007932	ILS, INELASTIC DEFORMATION, TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS18ET-5	D	C1	4	1	9.777	0.2620	33	0.007938	ILS, INELASTIC DEFORMATION, TENSION, COMPRESSION	
FS19ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS19ET-1	D	C1	4	1	8.208	0.2561	33	0.007759	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS19ET-2	D	C1	4	1	8.346	0.2571	33	0.007791	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS19ET-3	D	C1	4	1	8.276	0.2577	33	0.007808	ILS, INELASTIC DEFORMATION, COMPRESSION	8.333
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS19ET-4	D	C1	4	1	8.453	0.2584	33	0.007829	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS19ET-5	D	C1	4	1	8.384	0.2593	33	0.007856	ILS, INELASTIC DEFORMATION, COMPRESSION	
FS21ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS21ET-1	D	C1	4	1	8.721	0.2589	33	0.007844	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS21ET-2	D	C1	4	1	9.251	0.2592	33	0.007853	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS21ET-3	D	C1	4	1	9.362	0.2584	33	0.007829	ILS, INELASTIC DEFORMATION, COMPRESSION	9.185
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS21ET-4	D	C1	4	1	9.267	0.2589	33	0.007844	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS21ET-5	D	C1	4	1	9.322	0.2580	33	0.007817	ILS, INELASTIC DEFORMATION, COMPRESSION	
FS22ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS22ET-1	D	C1	4	1	9.221	0.2583	33	0.007826	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS22ET-2	D	C1	4	1	9.221	0.2579	33	0.007814	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS22ET-3	D	C1	4	1	9.215	0.2579	33	0.007814	ILS, INELASTIC DEFORMATION, COMPRESSION	9.182
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS22ET-4	D	C1	4	1	9.122	0.2580	33	0.007818	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS22ET-5	D	C1	4	1	9.133	0.2576	33	0.007806	ILS, INELASTIC DEFORMATION, COMPRESSION	
FS23ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS23ET-1	D	C1	4	1	9.082	0.2612	33	0.007914	ILS, INELASTIC DEFORMATION, TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS23ET-2	D	C1	4	1	9.138	0.2620	33	0.007938	ILS, INELASTIC DEFORMATION, TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS23ET-3	D	C1	4	1	9.017	0.2625	33	0.007953	ILS, INELASTIC DEFORMATION, TENSION	9.173
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS23ET-4	D	C1	4	1	9.269	0.2620	33	0.007939	ILS, INELASTIC DEFORMATION, TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS23ET-5	D	C1	4	1	9.360	0.2621	33	0.007942	ILS, INELASTIC DEFORMATION, TENSION, COMPRESSION	
FS31ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS31ET-1	D	C1	4	1	8.335	0.2619	33	0.007935	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS31ET-2	D	C1	4	1	8.195	0.2623	33	0.007947	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS31ET-3	D	C1	4	1	8.194	0.2626	33	0.007956	ILS, INELASTIC DEFORMATION, COMPRESSION	8.273
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS31ET-4	D	C1	4	1	8.272	0.2625	33	0.007955	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS31ET-5	D	C1	4	1	8.369	0.2580	33	0.007818	ILS, INELASTIC DEFORMATION, COMPRESSION	
FS32ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS32ET-1	D	C1	4	1	9.420	0.2586	33	0.007835	ILS, INELASTIC DEFORMATION, TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS32ET-2	D	C1	4	1	9.390	0.2594	33	0.007859	ILS, INELASTIC DEFORMATION, TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS32ET-3	D	C1	4	1	9.440	0.2593	33	0.007858	ILS, INELASTIC DEFORMATION, TENSION, COMPRESSION	9.394
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS32ET-4	D	C1	4	1	9.323	0.2601	33	0.007880	ILS, INELASTIC DEFORMATION, TENSION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS32ET-5	D	C1	4	1	9.399	0.2605	33	0.007894	ILS, INELASTIC DEFORMATION, TENSION, COMPRESSION	
FS33ET	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS33ET-1	D	C1	4	1	7.787	0.2626	33	0.007958	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS33ET-2	D	C1	4	1	7.998	0.2621	33	0.007941	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS33ET-3	D	C1	4	1	8.073	0.2621	33	0.007941	ILS, INELASTIC DEFORMATION, COMPRESSION	7.975
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS33ET-4	D	C1	4	1	7.899	0.2624	33	0.007950	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP2191Q1-WRX-PW-SOL-SBSFS-D-C1-1-FS33ET-5	D	C1	4	1	8.119	0.2611	33	0.007912	ILS, INELASTIC DEFORMATION, COMPRESSION	

6.3 Load Displacement Curve

Load vs Displacement Curves for 90 Day, RT(70°F) Specimens

Load vs Displacement Curves for 90 Day, ET(180°F) Specimens

Load vs Displacement Curves for 90 minutes, RT(70°F) Specimens

Load vs Displacement Curves for 90 minutes, ET(180°F) Specimens

Load vs Displacement Curves for 48hrs ± 4hrs, RT(70°F) Specimens

One Sample Selected
per fluid type

—— Isopropyl Alcohol
Deicing

Load vs Displacement Curves for 48hrs ± 4hrs, ET(180°F) Specimens

One Sample Selected
per fluid type

—— Isopropyl Alcohol
Deicing

Load vs Displacement Curves for Dry, RT(70°F) Specimens

One Sample Selected
per fluid type

—— Dry, RT(70°F)

Load vs Displacement Curves for Dry, ET(180°F) Specimens

One Sample Selected
per fluid type

—— Dry, ET(180°F)

Load vs Displacement Curves for 85%RH, RT(70°F) Specimens
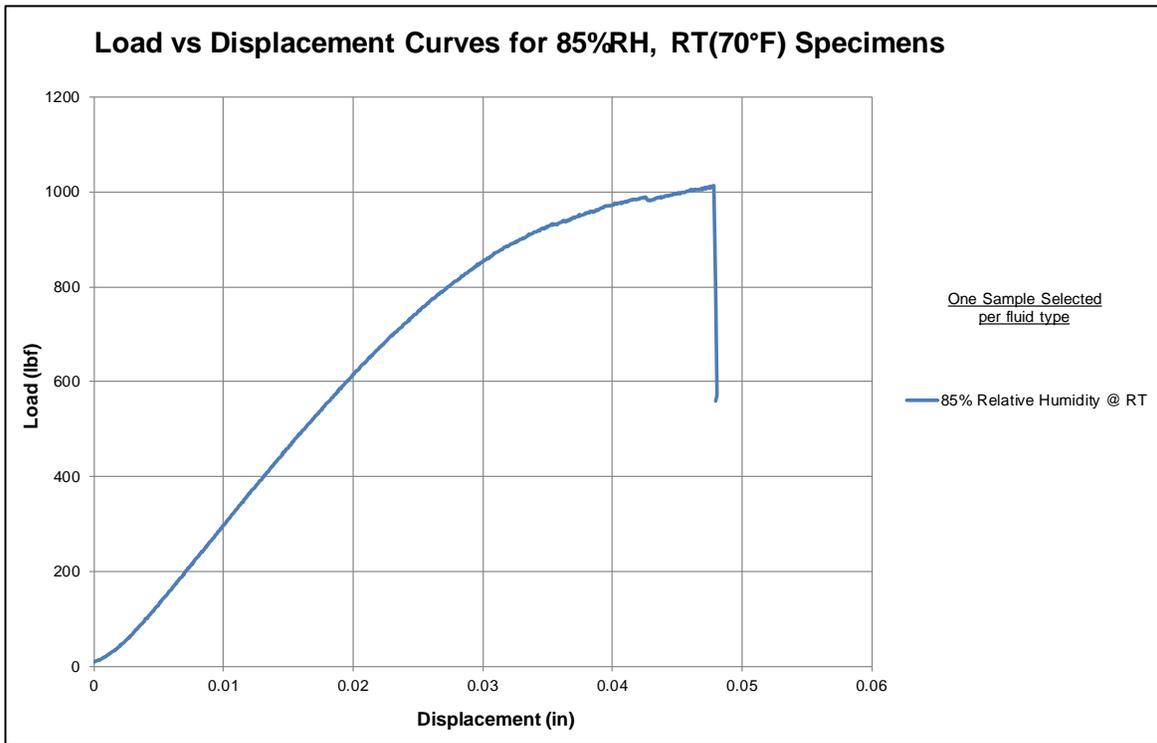

Load vs Displacement Curves for 85%RH, ET(180°F) Specimens

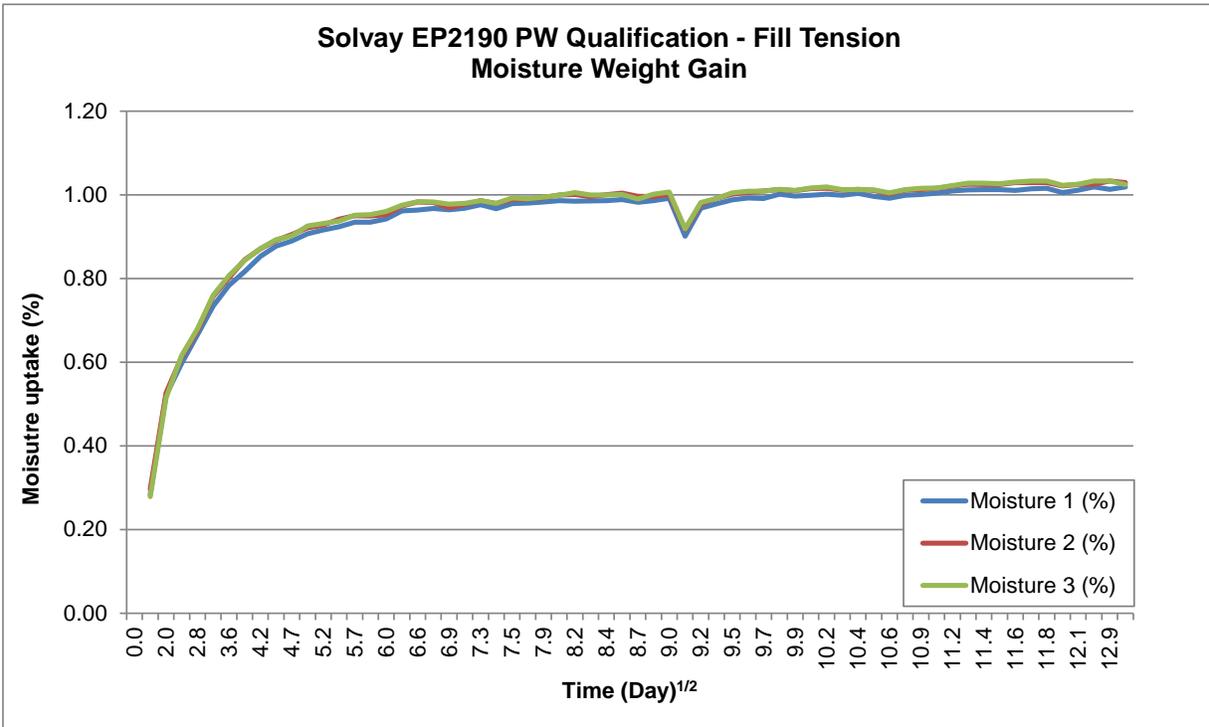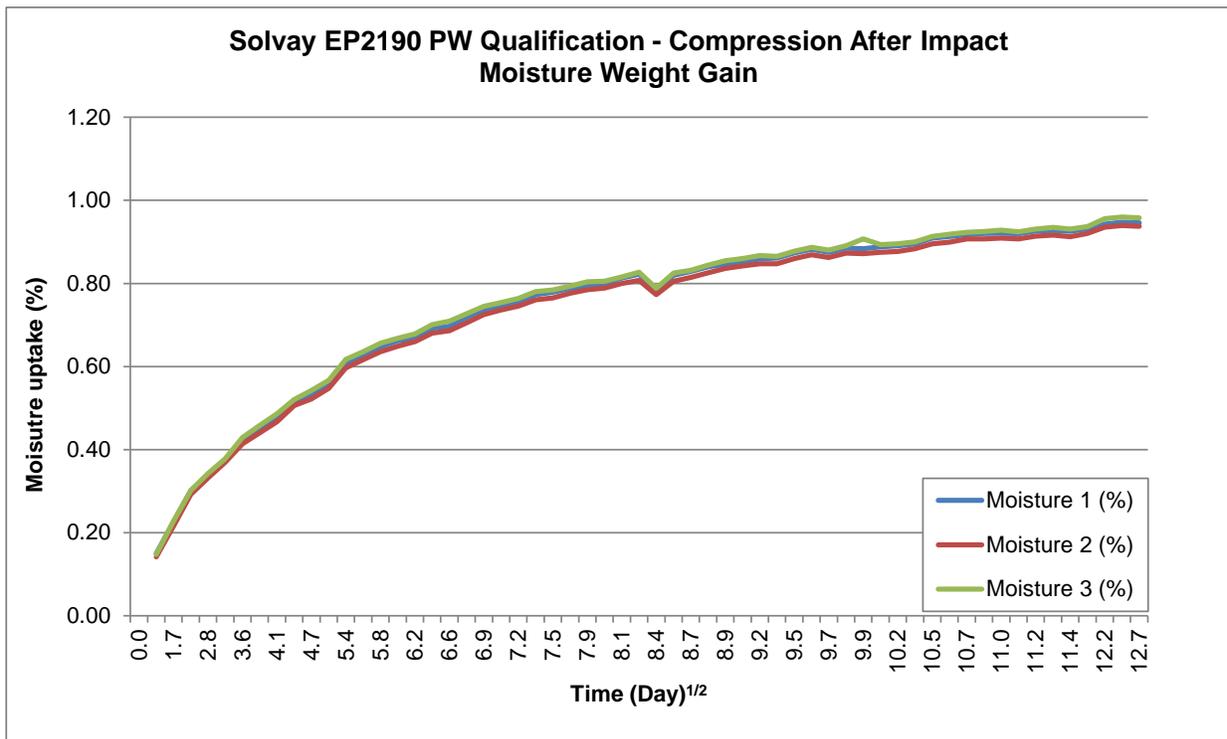## 7. Moisture Conditioning Charts

7.1 Fill Tension – Thinnest Panel

7.2 Compression After Impact – Thickest Panel

8. DMA Results

8.1 DMA Dry Test Data

<div align="center">

DMA Results Summary

Solvay EP2190 PW Qualification DMA Dry

</div>

Sample #	Onset Storage Modulus		Peak of Tangent Delta	
	T_g [°C]	T_g [°F]	T_g [°C]	T_g [°F]
QB1-870801859-D-1	183.40	362.12	197.65	387.77
QB1-870801859-D-2	182.83	361.09	197.00	386.60
QB1-870801859-D-3	182.61	360.70	196.71	386.08
QB2-870801860-D-1	181.82	359.28	196.28	385.30
QB2-870801860-D-2	181.55	358.79	195.73	384.31
QB2-870801860-D-3	181.84	359.31	196.04	384.87
QB3-870801861-D-1	188.25	370.85	201.02	393.84
QB3-870801861-D-2	188.00	370.40	200.61	393.10
QB3-870801861-D-3	188.76	371.77	201.20	394.16
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-DRY	175.23	347.41	193.50	380.30
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-DRY	183.63	362.53	202.24	396.03
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-DRY	178.05	352.49	198.71	389.68
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-DRY	175.14	347.25	193.33	379.99
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-DRY	172.22	342.00	195.52	383.94
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-DRY	177.65	351.77	197.70	387.86
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-DRY	178.39	353.10	197.87	388.17
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1-DRY	180.62	357.12	200.22	392.40
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C1-1-DRY	176.19	349.14	194.68	382.42
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C1-1-DRY	176.38	349.48	195.38	383.68
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-DRY	171.20	340.16	188.77	371.79
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-DRY	178.68	353.62	198.37	389.07
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-DRY	172.03	341.65	189.47	373.05
NTP2191Q1-WRX-PW-SOL-FHT1-D-C1-1-DRY	173.84	344.91	190.75	375.35
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-DRY	179.73	355.51	199.55	391.19
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-DRY	179.11	354.40	199.72	391.50
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-DRY	177.01	350.62	197.03	386.65
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-DRY	180.57	357.03	199.72	391.50
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-DRY	164.85	328.73	182.74	360.93
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-DRY	176.09	348.96	196.02	384.84
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-DRY	176.12	349.02	195.85	384.53
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-DRY	165.11	329.20	183.08	361.54
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-DRY	179.43	354.97	199.89	391.80
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-DRY	177.75	351.95	198.54	389.37
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-DRY	179.18	354.52	200.22	392.40
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1-DRY	178.56	353.41	198.04	388.47
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C2-1-DRY	173.04	343.47	192.49	378.48
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C2-1-DRY	176.74	350.13	196.02	384.84
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-DRY	169.30	336.74	186.10	366.98
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-DRY	179.48	355.06	199.55	391.19
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-DRY	167.86	334.15	185.26	365.47
NTP2191Q1-WRX-PW-SOL-FHT1-D-C2-2-DRY	169.40	336.92	186.27	367.29
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-DRY	171.86	341.35	194.34	381.81
NTP2191Q1-WRX-PW-SOL-FHC1-D-C2-1-DRY	179.93	355.87	200.06	392.11

NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-DRY	177.97	352.35	198.04	388.47
NTP2191Q1-WRX-PW-SOL-CAI1-D-C2-1-DRY	172.80	343.04	196.69	386.04
NTP2191Q1-WRX-PW-SOL-WT-E-C1-1-DRY	168.41	335.14	185.10	365.18
NTP2191Q1-WRX-PW-SOL-WCS-E-C1-1-DRY	177.00	350.60	196.19	385.14
NTP2191Q1-WRX-PW-SOL-WCM-E-C1-1-DRY	176.45	349.61	196.36	385.45
NTP2191Q1-WRX-PW-SOL-FT-E-C1-1-DRY	170.06	338.11	187.62	369.72
NTP2191Q1-WRX-PW-SOL-FCS-E-C1-1-DRY	177.53	351.55	196.69	386.04
NTP2191Q1-WRX-PW-SOL-FCM-E-C1-1-DRY	175.00	347.00	195.35	383.63
NTP2191Q1-WRX-PW-SOL-IPS-E-C1-1-DRY	175.06	347.11	195.01	383.02
NTP2191Q1-WRX-PW-SOL-SBS-E-C1-1-DRY	180.28	356.50	198.88	389.98
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C1-1-DRY	171.80	341.24	190.47	374.85
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C1-1-DRY	171.73	341.11	189.97	373.95
NTP2191Q1-WRX-PW-SOL-UNT1-E-C1-1-DRY	166.85	332.33	183.25	361.85
NTP2191Q1-WRX-PW-SOL-UNC1-E-C1-1-DRY	177.35	351.23	197.03	386.65
NTP2191Q1-WRX-PW-SOL-OHT1-E-C1-1-DRY	168.08	334.54	184.09	363.36
NTP2191Q1-WRX-PW-SOL-FHT1-E-C1-1-DRY	165.69	330.24	181.90	359.42
NTP2191Q1-WRX-PW-SOL-OHC1-E-C1-1-DRY	175.84	348.51	195.85	384.53
NTP2191Q1-WRX-PW-SOL-FHC1-E-C1-1-DRY	175.71	348.28	196.19	385.14
NTP2191Q1-WRX-PW-SOL-SSB1-E-C1-1-DRY	176.21	349.18	196.53	385.75
NTP2191Q1-WRX-PW-SOL-CAI1-E-C1-1-DRY	182.48	360.46	201.23	394.21
NTP2191Q1-WRX-PW-SOL-WT-E-C2-1-DRY	162.79	325.02	180.05	356.09
NTP2191Q1-WRX-PW-SOL-WCS-E-C2-1-DRY	169.27	336.69	189.47	373.05
NTP2191Q1-WRX-PW-SOL-WCM-E-C2-1-DRY	168.13	334.63	188.12	370.62
NTP2191Q1-WRX-PW-SOL-FT-E-C2-1-DRY	161.14	322.05	176.69	350.04
NTP2191Q1-WRX-PW-SOL-FCS-E-C2-1-DRY	168.24	334.83	188.79	371.82
NTP2191Q1-WRX-PW-SOL-FCM-E-C2-1-DRY	168.97	336.15	188.63	371.53
NTP2191Q1-WRX-PW-SOL-IPS-E-C2-1-DRY	165.49	329.88	185.77	366.39
NTP2191Q1-WRX-PW-SOL-SBS-E-C2-1-DRY	172.93	343.27	195.18	383.32
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C2-1-DRY	163.53	326.35	180.22	356.40
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C2-1-DRY	165.34	329.61	182.07	359.73
NTP2191Q1-WRX-PW-SOL-UNT1-E-C2-1-DRY	157.60	315.68	173.66	344.59
NTP2191Q1-WRX-PW-SOL-UNC1-E-C2-1-DRY	168.80	335.84	188.63	371.53
NTP2191Q1-WRX-PW-SOL-OHT1-E-C2-1-DRY	157.60	315.68	173.66	344.59
NTP2191Q1-WRX-PW-SOL-FHT1-E-C2-2-DRY	157.90	316.22	172.99	343.38
NTP2191Q1-WRX-PW-SOL-OHC1-E-C2-1-DRY	168.58	335.44	188.79	371.82
NTP2191Q1-WRX-PW-SOL-FHC1-E-C2-1-DRY	168.32	334.98	188.46	371.23
NTP2191Q1-WRX-PW-SOL-SSB1-E-C2-1-DRY	166.67	332.01	186.10	366.98
NTP2191Q1-WRX-PW-SOL-WT-F-C1-1-DRY	162.19	323.94	179.38	354.88
NTP2191Q1-WRX-PW-SOL-WCS-F-C1-1-DRY	169.78	337.60	190.47	374.85
NTP2191Q1-WRX-PW-SOL-WCM-F-C1-1-DRY	169.99	337.98	190.81	375.46
NTP2191Q1-WRX-PW-SOL-FT-F-C1-1-DRY	162.74	324.93	180.05	356.09
NTP2191Q1-WRX-PW-SOL-FCS-F-C1-1-DRY	169.13	336.43	189.97	373.95
NTP2191Q1-WRX-PW-SOL-FCM-F-C1-1-DRY	169.12	336.42	190.47	374.85
NTP2191Q1-WRX-PW-SOL-IPS-F-C1-1-DRY	171.10	339.98	191.99	377.58
NTP2191Q1-WRX-PW-SOL-SBS-F-C1-1-DRY	175.76	348.37	195.85	384.53
NTP2191Q1-WRX-PW-SOL-0FLEX-F-C1-1-DRY	166.89	332.40	185.43	365.77
NTP2191Q1-WRX-PW-SOL-90FLEX-F-C1-1-DRY	165.55	329.99	183.41	362.14
NTP2191Q1-WRX-PW-SOL-UNT1-F-C1-1-DRY	161.89	323.40	178.37	353.07
NTP2191Q1-WRX-PW-SOL-UNC1-F-C1-1-DRY	170.27	338.49	191.15	376.07
NTP2191Q1-WRX-PW-SOL-OHT1-F-C1-1-DRY	161.21	322.18	177.19	350.94
NTP2191Q1-WRX-PW-SOL-FHT1-F-C1-1-DRY	159.60	319.28	176.02	348.84
NTP2191Q1-WRX-PW-SOL-OHC1-F-C1-1-DRY	171.37	340.47	192.16	377.89
NTP2191Q1-WRX-PW-SOL-FHC1-F-C1-1-DRY	170.16	338.29	191.15	376.07
NTP2191Q1-WRX-PW-SOL-SSB1-F-C1-1-DRY	169.70	337.46	190.81	375.46

NTP2191Q1-WRX-PW-SOL-CAI1-F-C1-1-DRY	176.15	349.07	197.37	387.27
NTP2191Q1-WRX-PW-SOL-WT-F-C2-1-DRY	166.57	331.83	183.58	362.44
NTP2191Q1-WRX-PW-SOL-WCS-F-C2-1-DRY	172.29	342.12	193.33	379.99
NTP2191Q1-WRX-PW-SOL-WCM-F-C2-1-DRY	171.43	340.57	192.49	378.48
NTP2191Q1-WRX-PW-SOL-FT-F-C2-1-DRY	165.11	329.20	182.41	360.34
NTP2191Q1-WRX-PW-SOL-FCS-F-C2-1-DRY	173.32	343.98	194.68	382.42
NTP2191Q1-WRX-PW-SOL-FCM-F-C2-1-DRY	172.16	341.89	193.67	380.61
NTP2191Q1-WRX-PW-SOL-IPS-F-C2-1-DRY	171.92	341.46	193.00	379.40
NTP2191Q1-WRX-PW-SOL-SBS-F-C2-1-DRY	178.75	353.75	197.53	387.55
NTP2191Q1-WRX-PW-SOL-0FLEX-F-C2-1-DRY	168.12	334.62	186.27	367.29
NTP2191Q1-WRX-PW-SOL-90FLEX-F-C2-1-DRY	169.99	337.98	188.46	371.23
NTP2191Q1-WRX-PW-SOL-UNT1-F-C2-1-DRY	163.71	326.68	179.55	355.19
NTP2191Q1-WRX-PW-SOL-UNC1-F-C2-1-DRY	172.78	343.00	193.00	379.40
NTP2191Q1-WRX-PW-SOL-OHT1-F-C2-1-DRY	162.34	324.21	178.04	352.47
NTP2191Q1-WRX-PW-SOL-FHT1-F-C2-2-DRY	160.00	320.00	176.02	348.84
NTP2191Q1-WRX-PW-SOL-OHC1-F-C2-1-DRY	171.55	340.79	192.83	379.09
NTP2191Q1-WRX-PW-SOL-FHC1-F-C2-1-DRY	172.78	343.00	194.00	381.20
NTP2191Q1-WRX-PW-SOL-SSB1-F-C2-1-DRY	173.63	344.53	194.68	382.42
NTP2191Q1-WRX-PW-SOL-UNT2-D-C1-1-DRY	169.59	337.26	188.63	371.53
NTP2191Q1-WRX-PW-SOL-UNT3-D-C1-1-DRY	168.70	335.66	186.94	368.49
NTP2191Q1-WRX-PW-SOL-UNC2-D-C1-1-DRY	176.07	348.93	197.53	387.55
NTP2191Q1-WRX-PW-SOL-UNC3-D-C1-1-DRY	175.36	347.65	196.02	384.84
NTP2191Q1-WRX-PW-SOL-OHT2-D-C1-1-DRY	170.40	338.72	189.13	372.43
NTP2191Q1-WRX-PW-SOL-OHT3-D-C1-1-DRY	168.43	335.17	186.27	367.29
NTP2191Q1-WRX-PW-SOL-FHT2-D-C1-1-DRY	167.52	333.54	187.11	368.80
NTP2191Q1-WRX-PW-SOL-FHT3-D-C1-1-DRY	168.37	335.07	186.78	368.20
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-DRY	174.18	345.52	195.85	384.53
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-DRY	177.15	350.87	197.53	387.55
NTP2191Q1-WRX-PW-SOL-FHC2-D-C1-1-DRY	177.81	352.06	199.20	390.56
NTP2191Q1-WRX-PW-SOL-FHC3-D-C1-1-DRY	175.35	347.63	195.85	384.53
NTP2191Q1-WRX-PW-SOL-SSB2-D-C1-1-DRY	176.56	349.81	198.04	388.47
NTP2191Q1-WRX-PW-SOL-SSB3-D-C1-1-DRY	175.12	347.22	196.02	384.84
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-2-DRY	178.53	353.35	198.88	389.98
NTP2191Q1-WRX-PW-SOL-UNT2-D-C2-1-DRY	160.64	321.15	177.70	351.86
NTP2191Q1-WRX-PW-SOL-UNT3-D-C2-1-DRY	161.78	323.20	178.54	353.37
NTP2191Q1-WRX-PW-SOL-UNC2-D-C2-1-DRY	168.96	336.13	190.14	374.25
NTP2191Q1-WRX-PW-SOL-UNC3-D-C2-1-DRY	167.79	334.02	188.96	372.13
NTP2191Q1-WRX-PW-SOL-OHT2-D-C2-1-DRY	161.06	321.91	177.53	351.55
NTP2191Q1-WRX-PW-SOL-OHT3-D-C2-1-DRY	162.13	323.83	177.36	351.25
NTP2191Q1-WRX-PW-SOL-FHT2-D-C2-1-DRY	161.46	322.63	179.04	354.27
NTP2191Q1-WRX-PW-SOL-FHT3-D-C2-1-DRY	161.79	323.22	178.20	352.76
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-DRY	167.59	333.66	190.98	375.76
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-DRY	171.17	340.11	191.48	376.66
NTP2191Q1-WRX-PW-SOL-FHC2-D-C2-1-DRY	169.58	337.24	190.47	374.85
NTP2191Q1-WRX-PW-SOL-FHC3-D-C2-1-DRY	171.62	340.92	192.16	377.89
NTP2191Q1-WRX-PW-SOL-SSB2-D-C2-1-DRY	168.72	335.70	189.80	373.64
NTP2191Q1-WRX-PW-SOL-SSB3-D-C2-1-DRY	166.76	332.17	187.45	369.41
NTP2191Q1-WRX-PW-SOL-UNT2-E-C1-1-DRY	159.00	318.20	175.06	347.11
NTP2191Q1-WRX-PW-SOL-UNT3-E-C1-1-DRY	157.75	315.95	173.39	344.10
NTP2191Q1-WRX-PW-SOL-UNC2-E-C1-1-DRY	164.21	327.58	185.65	366.17
NTP2191Q1-WRX-PW-SOL-UNC3-E-C1-1-DRY	165.87	330.57	187.46	369.43
NTP2191Q1-WRX-PW-SOL-OHT2-E-C1-1-DRY	159.21	318.58	175.21	347.38
NTP2191Q1-WRX-PW-SOL-OHT3-E-C1-1-DRY	159.73	319.51	175.68	348.22
NTP2191Q1-WRX-PW-SOL-FHT2-E-C1-1-DRY	159.32	318.78	176.02	348.84
NTP2191Q1-WRX-PW-SOL-FHT3-E-C1-1-DRY	159.40	318.92	175.68	348.22
NTP2191Q1-WRX-PW-SOL-OHC2-E-C1-1-DRY	167.61	333.70	188.79	371.82
NTP2191Q1-WRX-PW-SOL-OHC3-E-C1-1-DRY	166.28	331.30	186.78	368.20
NTP2191Q1-WRX-PW-SOL-FHC2-E-C1-1-DRY	165.90	330.62	187.78	370.00
NTP2191Q1-WRX-PW-SOL-FHC3-E-C1-1-DRY	167.71	333.88	187.95	370.31

NTP2191Q1-WRX-PW-SOL-SSB2-E-C1-1-DRY	167.24	333.03	188.37	371.07
NTP2191Q1-WRX-PW-SOL-SSB3-E-C1-1-DRY	166.42	331.56	187.16	368.89
NTP2191Q1-WRX-PW-SOL-UNT2-E-C2-1-DRY	161.56	322.81	177.78	352.00
NTP2191Q1-WRX-PW-SOL-UNT3-E-C2-1-DRY	159.49	319.08	174.76	346.57
NTP2191Q1-WRX-PW-SOL-UNC2-E-C2-1-DRY	165.55	329.99	187.46	369.43
NTP2191Q1-WRX-PW-SOL-UNC3-E-C2-1-DRY	167.81	334.06	188.83	371.89
NTP2191Q1-WRX-PW-SOL-OHT2-E-C2-1-DRY	160.04	320.07	176.52	349.74
NTP2191Q1-WRX-PW-SOL-OHT3-E-C2-1-DRY	159.66	319.39	175.36	347.65
NTP2191Q1-WRX-PW-SOL-FHT2-E-C2-1-DRY	159.72	319.50	176.19	349.14
NTP2191Q1-WRX-PW-SOL-FHT3-E-C2-1-DRY	159.45	319.01	175.18	347.32
NTP2191Q1-WRX-PW-SOL-OHC2-E-C2-1-DRY	167.25	333.05	188.12	370.62
NTP2191Q1-WRX-PW-SOL-OHC3-E-C2-1-DRY	169.66	337.39	189.47	373.05
NTP2191Q1-WRX-PW-SOL-FHC2-E-C2-1-DRY	169.43	336.97	191.31	376.36
NTP2191Q1-WRX-PW-SOL-FHC3-E-C2-1-DRY	167.95	334.31	189.13	372.43
NTP2191Q1-WRX-PW-SOL-SSB2-E-C2-1-DRY	167.45	333.41	188.79	371.82
NTP2191Q1-WRX-PW-SOL-SSB3-E-C2-1-DRY	167.72	333.90	188.37	371.07
NTP2191Q1-WRX-PW-SOL-UNT2-F-C1-1-DRY	177.08	350.74	195.01	383.02
NTP2191Q1-WRX-PW-SOL-UNT3-F-C1-1-DRY	176.28	349.30	193.84	380.91
NTP2191Q1-WRX-PW-SOL-UNC2-F-C1-1-DRY	184.59	364.26	203.42	398.16
NTP2191Q1-WRX-PW-SOL-UNT2-F-C2-1-DRY	179.17	354.51	197.20	386.96
NTP2191Q1-WRX-PW-SOL-UNT3-F-C2-1-DRY	179.98	355.96	196.53	385.75
Average	170.83	339.50	189.71	373.48
Standard Deviation	7.01	12.61	7.71	13.87

Specimens might absorb moisture at ambient condition prior to testing which resulted in lower dry Tg, DMA testing took place weeks/months after panel fabrication. Based on Syensqo's batch release historical data, dry Tg is ~181°C (359°F) to 202°C (396°F).

8.2 DMA Wet Test Data

DMA Results Summary				
Solvay EP2190 PW Qualification DMA Wet				
Sample #	**Onset Storage Modulus**		**Peak of Tangent Delta**	
	T_g [°C]	T_g [°F]	T_g [°C]	T_g [°F]
NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-WET	134.84	274.71	153.32	307.98
NTP2191Q1-WRX-PW-SOL-WCS-D-C1-2-WET	137.90	280.22	157.09	314.76
NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-WET	134.61	274.30	154.00	309.20
NTP2191Q1-WRX-PW-SOL-FT-D-C1-1-WET	135.37	275.67	153.72	308.70
NTP2191Q1-WRX-PW-SOL-FCS-D-C1-2-WET	137.69	279.84	156.55	313.79
NTP2191Q1-WRX-PW-SOL-FCM-D-C1-1-WET	134.04	273.27	153.32	307.98
NTP2191Q1-WRX-PW-SOL-IPS-D-C1-1-WET	134.16	273.49	153.66	308.59
NTP2191Q1-WRX-PW-SOL-SBS-D-C1-1-WET	137.84	280.11	156.41	313.54
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C1-1-WET	135.28	275.50	153.83	308.89
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C1-1-WET	135.70	276.26	154.50	310.10
NTP2191Q1-WRX-PW-SOL-UNT1-D-C1-1-WET	135.36	275.65	154.40	309.92
NTP2191Q1-WRX-PW-SOL-UNC1-D-C1-1-WET	135.56	276.01	154.67	310.41
NTP2191Q1-WRX-PW-SOL-OHT1-D-C1-1-WET	135.36	275.65	154.17	309.51
NTP2191Q1-WRX-PW-SOL-FHT1-D-C1-1-WET	136.34	277.41	155.34	311.61
NTP2191Q1-WRX-PW-SOL-OHC1-D-C1-1-WET	135.31	275.56	154.33	309.79
NTP2191Q1-WRX-PW-SOL-FHC1-D-C1-1-WET	134.04	273.27	153.32	307.98
NTP2191Q1-WRX-PW-SOL-SSB1-D-C1-1-WET	133.92	273.06	153.46	308.23
NTP2191Q1-WRX-PW-SOL-CAI1-D-C1-1-WET	134.07	273.33	153.73	308.71
NTP2191Q1-WRX-PW-SOL-WT-D-C2-1-WET	137.46	279.43	155.07	311.13
NTP2191Q1-WRX-PW-SOL-WCS-D-C2-1-WET	130.44	266.79	149.82	301.68
NTP2191Q1-WRX-PW-SOL-WCM-D-C2-1-WET	130.35	266.63	150.80	303.44
NTP2191Q1-WRX-PW-SOL-FT-D-C2-1-WET	137.78	280.00	155.34	311.61
NTP2191Q1-WRX-PW-SOL-FCS-D-C2-1-WET	135.40	275.72	155.47	311.85
NTP2191Q1-WRX-PW-SOL-FCM-D-C2-1-WET	134.70	274.46	154.17	309.51
NTP2191Q1-WRX-PW-SOL-IPS-D-C2-1-WET	135.09	275.16	154.67	310.41
NTP2191Q1-WRX-PW-SOL-SBS-D-C2-1-WET	130.82	267.48	150.97	303.75
NTP2191Q1-WRX-PW-SOL-0FLEX-D-C2-1-WET	131.99	269.58	151.17	304.11
NTP2191Q1-WRX-PW-SOL-90FLEX-D-C2-1-WET	137.24	279.03	155.74	312.33
NTP2191Q1-WRX-PW-SOL-UNT1-D-C2-1-WET	137.20	278.96	155.34	311.61
NTP2191Q1-WRX-PW-SOL-UNC1-D-C2-1-WET	135.15	275.27	154.50	310.10
NTP2191Q1-WRX-PW-SOL-OHT1-D-C2-1-WET	135.06	275.11	153.99	309.18
NTP2191Q1-WRX-PW-SOL-FHT1-D-C2-2-WET	137.45	279.41	155.07	311.13
NTP2191Q1-WRX-PW-SOL-OHC1-D-C2-1-WET	137.55	279.59	155.74	312.33
NTP2191Q1-WRX-PW-SOL-FHC1-D-C2-1-WET	135.81	276.46	154.84	310.71
NTP2191Q1-WRX-PW-SOL-SSB1-D-C2-1-WET	134.06	273.31	153.66	308.59
NTP2191Q1-WRX-PW-SOL-CAI1-D-C2-1-WET	132.55	270.59	152.38	306.28
NTP2191Q1-WRX-PW-SOL-WCS-E-C1-1-WET	134.49	274.08	153.49	308.28
NTP2191Q1-WRX-PW-SOL-SBS-E-C1-1-WET	135.11	275.20	153.83	308.89
NTP2191Q1-WRX-PW-SOL-UNC1-E-C1-1-WET	135.27	275.49	154.00	309.20
NTP2191Q1-WRX-PW-SOL-WCS-E-C2-1-WET	136.94	278.49	155.34	311.61
NTP2191Q1-WRX-PW-SOL-0FLEX-E-C2-1-WET	136.61	277.90	154.53	310.15
NTP2191Q1-WRX-PW-SOL-90FLEX-E-C2-1-WET	138.28	280.90	156.01	312.82
NTP2191Q1-WRX-PW-SOL-UNT1-E-C2-1-WET	136.37	277.47	154.67	310.41
NTP2191Q1-WRX-PW-SOL-FHC1-E-C2-1-WET	134.60	274.28	152.92	307.26

NTP2191Q1-WRX-PW-SOL-WT-F-C1-1-WET	135.57	276.03	152.78	307.00
NTP2191Q1-WRX-PW-SOL-WCS-F-C1-1-WET	135.62	276.12	153.72	308.70
NTP2191Q1-WRX-PW-SOL-FT-F-C1-1-WET	136.05	276.89	153.05	307.49
NTP2191Q1-WRX-PW-SOL-FCS-F-C1-1-WET	134.49	274.08	153.32	307.98
NTP2191Q1-WRX-PW-SOL-IPS-F-C1-1-WET	135.54	275.97	154.13	309.43
NTP2191Q1-WRX-PW-SOL-WCS-F-C2-1-WET	136.10	276.98	154.40	309.92
NTP2191Q1-WRX-PW-SOL-FCS-F-C2-1-WET	139.07	282.33	156.82	314.28
NTP2191Q1-WRX-PW-SOL-SBS-F-C2-1-WET	136.24	277.23	154.93	310.87
NTP2191Q1-WRX-PW-SOL-FHC1-F-C2-1-WET	138.52	281.34	155.47	311.85
NTP2191Q1-WRX-PW-SOL-OHC2-D-C1-1-WET	133.38	272.08	151.71	305.08
NTP2191Q1-WRX-PW-SOL-OHC3-D-C1-1-WET	132.75	270.95	152.51	306.52
NTP2191Q1-WRX-PW-SOL-FHC2-D-C1-1-WET	133.89	273.00	153.66	308.59
NTP2191Q1-WRX-PW-SOL-FHC3-D-C1-1-WET	132.78	271.00	152.32	306.18
NTP2191Q1-WRX-PW-SOL-OHC2-D-C2-1-WET	131.87	269.37	151.98	305.56
NTP2191Q1-WRX-PW-SOL-OHC3-D-C2-1-WET	134.03	273.25	153.32	307.98
NTP2191Q1-WRX-PW-SOL-SSB2-D-C2-1-WET	135.09	275.16	154.13	309.43
NTP2191Q1-WRX-PW-SOL-SSB3-D-C2-1-WET	130.56	267.01	149.69	301.44
NTP2191Q1-WRX-PW-SOL-OHC2-E-C1-1-WET	129.65	265.37	148.62	299.52
NTP2191Q1-WRX-PW-SOL-OHC3-E-C1-1-WET	128.07	262.53	147.27	297.09
NTP2191Q1-WRX-PW-SOL-FHC2-E-C1-1-WET	128.87	263.97	147.78	298.00
NTP2191Q1-WRX-PW-SOL-FHC3-E-C1-1-WET	128.19	262.74	147.78	298.00
NTP2191Q1-WRX-PW-SOL-OHC2-E-C2-1-WET	133.15	271.67	151.46	304.63
NTP2191Q1-WRX-PW-SOL-OHC3-E-C2-1-WET	131.26	268.27	149.56	301.21
NTP2191Q1-WRX-PW-SOL-FHC2-E-C2-1-WET	133.33	271.99	152.32	306.18
NTP2191Q1-WRX-PW-SOL-FHC3-E-C2-1-WET	132.75	270.95	151.48	304.66
NTP2191Q1-WRX-PW-SOL-UNT2-F-C3-1-WET	134.80	274.64	154.70	310.46
NTP2191Q1-WRX-PW-SOL-UNC3-F-C3-1-WET	139.02	282.24	157.84	316.11
NTP2191Q1-WRX-PW-SOL-OHT3-F-C3-1-WET	137.06	278.71	155.19	311.34
NTP2191Q1-WRX-PW-SOL-FHT3-F-C3-1-WET	136.56	277.81	155.19	311.34
NTP2191Q1-WRX-PW-SOL-UNT2-F-C4-1-WET	137.61	279.70	156.68	314.02
NTP2191Q1-WRX-PW-SOL-UNC3-F-C4-1-WET	137.92	280.26	157.22	315.00
NTP2191Q1-WRX-PW-SOL-OHC3-F-C4-1-WET	138.36	281.05	157.98	316.36
NTP2191Q1-WRX-PW-SOL-SSB3-F-C4-1-WET	140.00	284.00	158.70	317.66
Average	134.93	274.87	153.78	308.80
Standard Deviation	2.57	4.63	2.30	4.14

8.3 DMA Dry Batch D

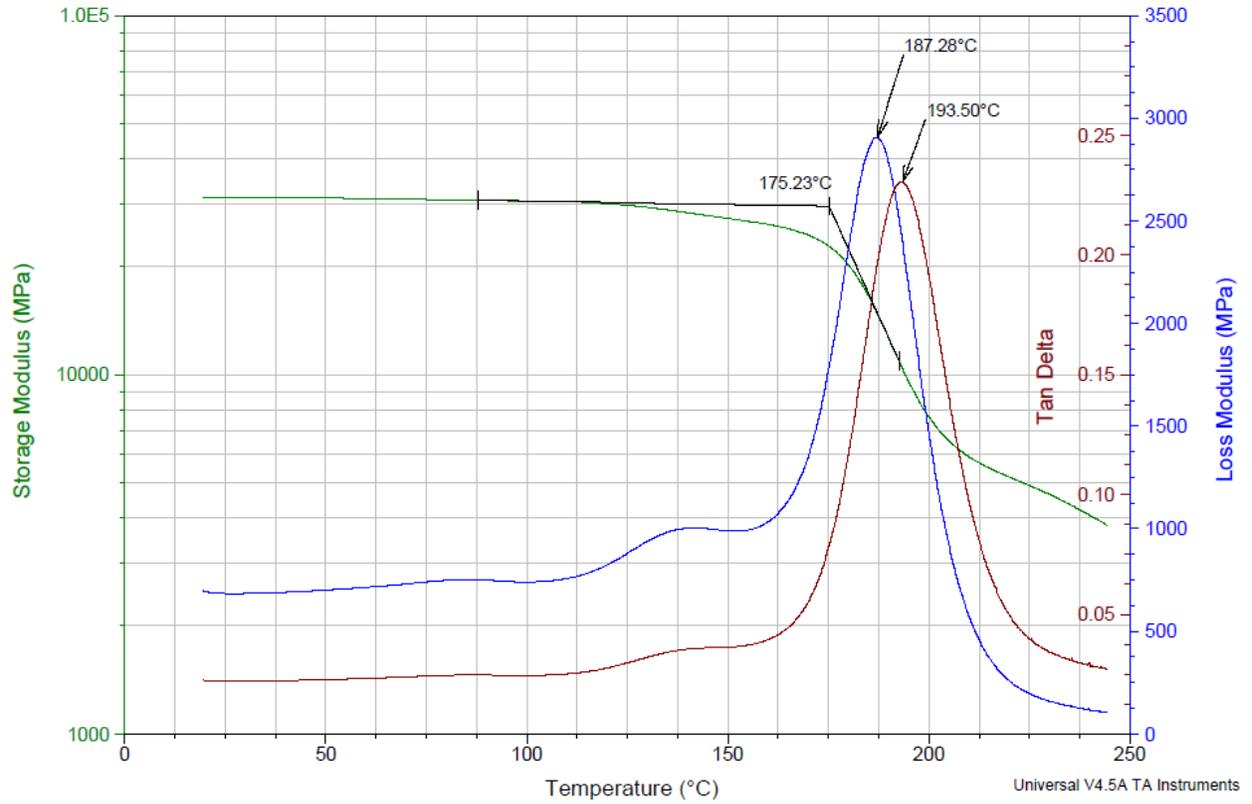A representative of DMA Dry profile from Batch D is provided below.
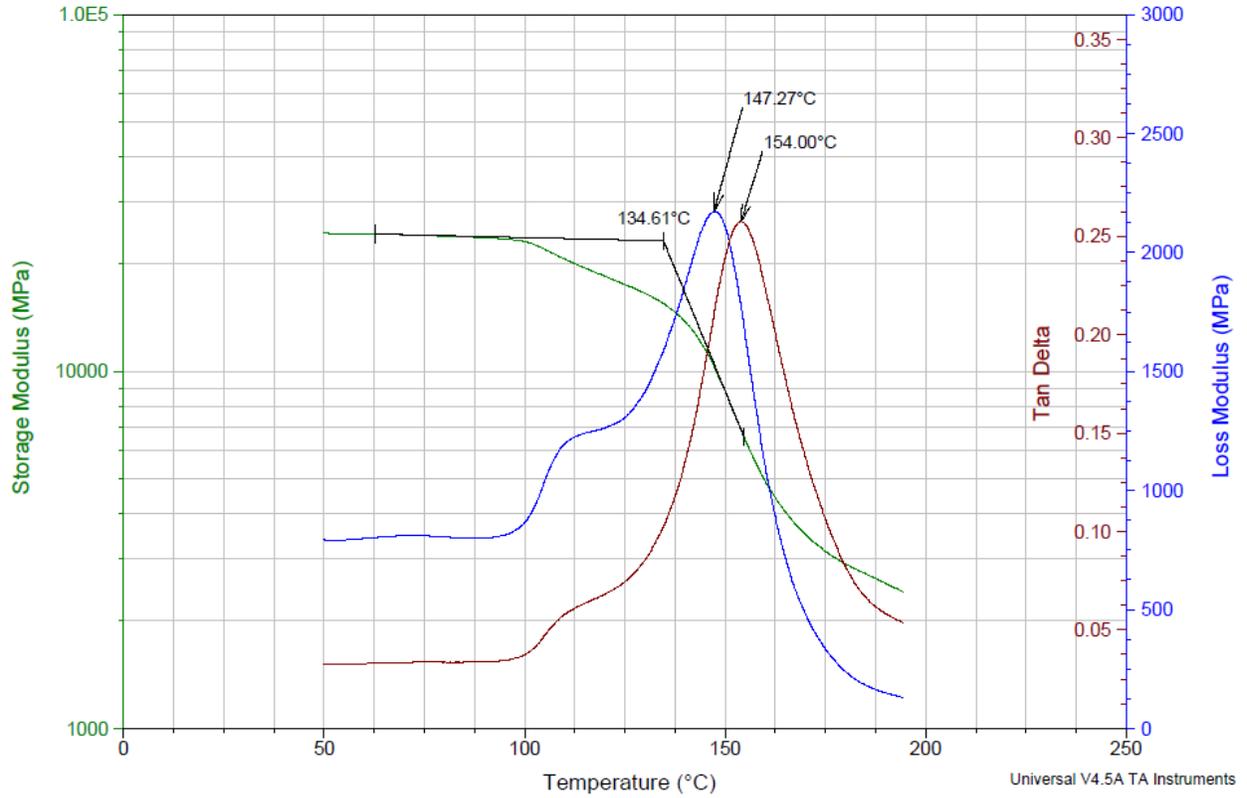
DMA Sample ID: NTP2191Q1-WRX-PW-SOL-WT-D-C1-1-DRY

8.4 DMA Wet Batch D

A representative of DMA Wet profile from Batch D is provided below.

DMA Sample ID: NTP2191Q1-WRX-PW-SOL-WCM-D-C1-1-WET

9. Composite Material Data Collection

9.1 Fiber, Resin, Prepreg Manufacturing Dates

9.1.1 Phase 1

	Lot 1 (Batch A)	Lot 2 (Batch B)	Lot 3 (Batch C)
Fiber Lot ID	98089328 (RG3Q1101)	98089475 (B3Q1114)	98089486 (RG3P0403)
Date of Fiber Manufacture	11/5/2018	11/14/2018	4/24/2017
Resin Lot ID	870801908	870801826	87081827
Date of Resin Manufacture	12/7/2018	10/18/2018	10/30/2018
Prepreg Lot ID	870801859	870801860	870801861
Date of Prepreg Manufacture	1/15/2019	1/16/2019	1/17/2019

9.1.2 Phase 2

	Lot 1 (Batch D)	Lot 2 (Batch E)	Lot 3 (Batch F)
Fiber Lot ID	3035154	XXG085	XM0001S
Date of Fiber Manufacture	-	-	-
Resin Lot ID	WX02YT	XXM09Y	XXM0A4
Date of Resin Manufacture	3/30/2021	1/21/2021	9/27/2021
Prepreg Lot ID	XXM04K	XXM0CT	XXM08V
Date of Prepreg Manufacture	4/8/2021	1/31/2022	10/4/2021

9.1.3 Phase 3

	Lot 1 (Batch D)	Lot 2 (Batch E)	Lot 3 (Batch F)
Fiber Lot ID	XXG085	XM0001S	RM00MEN
Date of Fiber Manufacture	-	-	-
Resin Lot ID	XXM09V	XXM0A4	WX0653
Date of Resin Manufacture	12/6/2021	9/8/2021	9/23/2022
Prepreg Lot ID	XXM08D	XXM08V	WX06M7
Date of Prepreg Manufacture	12/23/2021	10/4/2021	10/26/2022

9.2 Prepreg, Testing and Data Submission Dates

	Start Date	End Date
Date of Composite Manufacture	P1: 10/1/2019 P2: 3/23/2022 P3: 6/14/2022	P1: 6/19/2020 P2: 5/11/2022 P3: 2/8/2023
Date of Testing	P1: 10/18/2019 P2: 7/19/2022 P3: 9/22/2022	P1: 8/15/2020 P2: 9/18/2023 P3: 11/9/2023

	Phase 1	Phase 2	Phase 3
Date of Data Submission to NCAMP	December 2021	June 2024	June 2024

10. Deviations

N/A