Solvay Cytec Cycom EP 2202 T650 3K-PW Fabric 38% RC
Qualification Material Property Data Report

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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-17G—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 NCAMP Standard Operating Procedures NSP 100; 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 material property data only. Statistical analysis of the data including the calculations of b-basis values is given in a separate report, Solvay Cytec Cycom EP 2202 T650 3K-PW Fabric RC 38% Qualification Statistical Analysis Report NCP-RP-2014-011 N/C. The qualification material was procured to NCAMP Material Specification NMS 220/2 Rev Initial Release dated March 06, 2012. The qualification test panels were cured in accordance with NCAMP Process Specification NPS 82202 Revision - dated January 26, 2012 Baseline Cure Cycle “C”. The NCAMP Test Plan NTP 2202Q1 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-17G. 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-17G are adequate for the given program.

Aircraft companies should not use the data published in this report without specifying NCAMP Material Specification NMS 220/2. NMS 220/2 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 220/2.* NMS 220/2 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}^{smax}	in-plane shear peak strength before 5% strain
$F_{12}^{s0.2\%}$	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
CTD	cold temperature dry
CPT	cured ply thickness
ETD	elevated temperature dry
ETW	elevated temperature wet
Gr/Ep	graphite/epoxy
norm	normalized
RTD	room temperature dry
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 NIAR–Specimen Naming Format

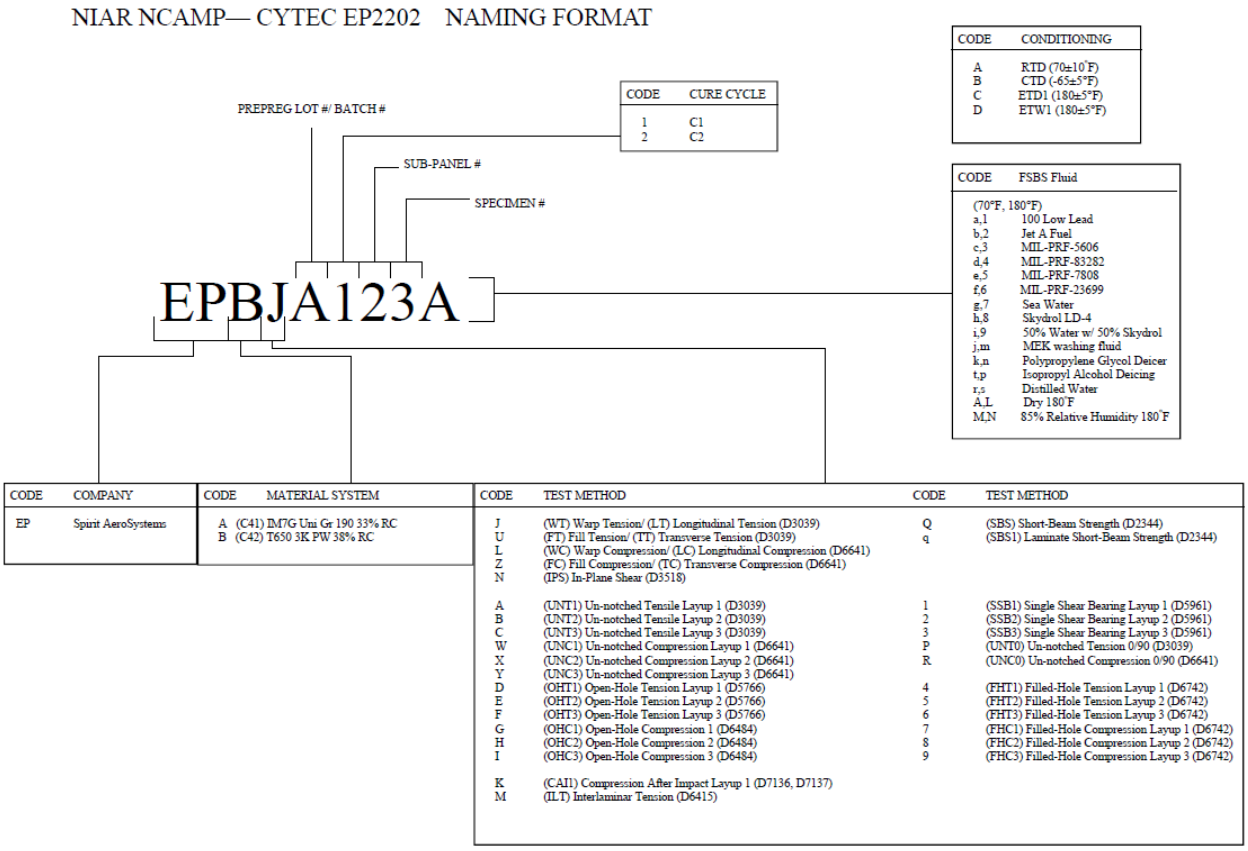


Figure 1-1: Naming Format

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:

- ASTM D2344/D2344M-00(2006) – Standard Test Method for Short-Beam Strength of Polymer Matrix Composite Materials and Their Laminates
- ASTM D3039/D3039M-08 – Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials
- ASTM D3418-08 - Standard Test Method for Transition Temperatures and Enthalpies of Fusion and Crystallization of Polymers by Differential Scanning Calorimetry
- ASTM D3518/D3518M-94(2007) – Standard Test Method for In-Plane Shear Response of Polymer Matrix Composite Materials by Tensile Test of a ± 45º Laminate In-Plane Shear Strength and Modulus
- ASTM D5766/D5766M-11 – Standard Test Method for Open Hole Tensile Strength of Polymer Matrix Composite Laminates
- ASTM D5961/D5961M-10 – Standard Test Method for Bearing Response of Polymer Matrix Composite Laminates
- ASTM D6415-06ae1 – Standard Test Method for Measuring the Curved Beam Strength of a Fiber-Reinforced Polymer-Matrix Composite
- ASTM D6484/D6484M-09 – Standard Test Method for Open-Hole Compressive Strength of Polymer Matrix Composite Laminates
- ASTM D6641/D6641M-09 – Standard Test Method for Determining the Compressive Properties of Polymer Matrix Composite Laminates Using a Combined Loading Compression (CLC) Test Fixture
- ASTM D6742/D6742M-07 – Standard Practice for Filled-Hole Tension and Compression Testing of Polymer Matrix Composite Laminates
- ASTM D7028-07e1 – Standard Test Method for Glass Transition Temperature (DMA Tg) of Polymer Matrix Composites by Dynamic Mechanical Analysis (DMA)
- ASTM D7136/D7136M-07 – Standard Test Method for Measuring the Damage Resistance of a Fiber-Reinforced Polymer Matrix Composite to a Drop-Weight Impact Event
- ASTM D7137/D7137M-07 – 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 minimum two separate panels cured separately as shown in Figure 1-2 unless otherwise specified.

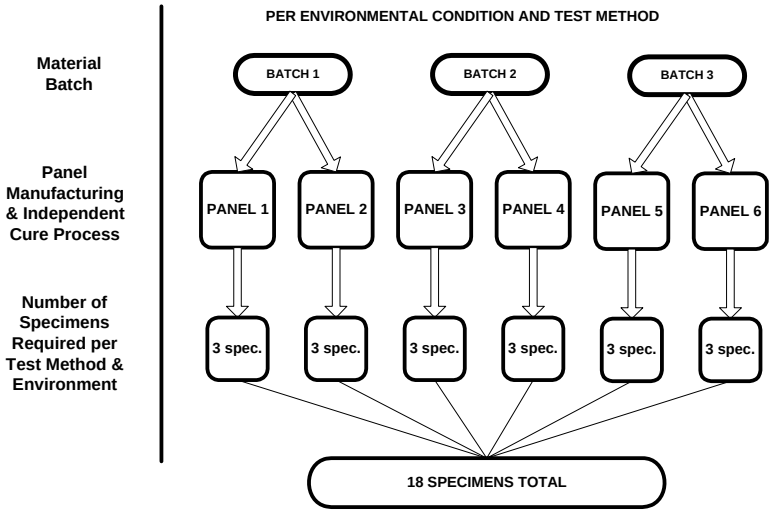


Figure 1-2: Specimen Selection Methodology

All panels were fabricated in accordance with NCAMP Process Specification NPS 82202 “C” Cure Cycle with caul plate.

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.

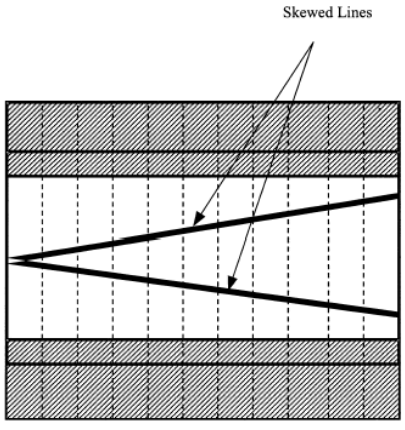


Figure 1-3: Specimen Traceability Line

1.5.2 Specimen & Testing Details

1.5.2.1 Tabbing

No tabs were used for this program.

1.5.2.2 Specimen Dimensions & Test Configuration

For SBS specimens a span of 4T was used for Dry condition testing and 3T was used for Wet condition testing, where T was the average thickness of six qualification panels. The same T was used to compute the width and length of the specimen.

For filled-hole tension tests, the fasteners were installed to 85±5 in-lb above the prevailing torque. For filled-hole compression and bearing tests, the fasteners were installed to 30±5 in-lb above the prevailing torque. 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 tests, the hole diameter was 0.25 in -0.000 +0.003 in. The following fasteners were used:

1) NASM 21297-04003 bolts with MS 21084 nuts and MS 21206 washers for FHT and FHC.
2) NASM 14181-04016 bolts with MS 14182 nuts and MS 14183 washers for SSB.

1.5.2.3 Specimen Strain Device Used

Corresponding Gage ID can be obtained from Appendix 1 of NTP 2202Q1.

Uniaxial gages were used on:

All of CTD Tension specimens except Warp Tension specimens.
Two RTD Tension specimens except Warp Tension for obtaining full stress strain curves.
All conditions of combined loading compression specimens.
Two RTD Open Hole Compression specimens for detecting buckling.
CAI for balancing.

Biaxial gages were used on:

All conditions of IPS specimens.
All of CTD Warp Tension specimens.
Two RTD Warp Tension specimens for obtaining full stress strain curves.

Uniaxial Extensometers were used on:

All of RTD and ETW Tension specimens except Warp Tension specimens.

Biaxial Extensometers were used on:

All of RTD and ETW Warp Tension specimens.

1.5.3 Test Matrix

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

Layup (warp direction)	Test Type and Direction	Property	Number of Batches x Number of Panels x Number of Test Specimens			
			Test Temperature/Moisture Condition			
			CTD	RTD	ETD1	ETW1
$[0]_{15}$	ASTM D3039 Warp Tension	Strength, Modulus, and Poisson's Ratio	3x2x3	3x2x3 (4)		3x2x3
$[0]_{15}$	ASTM D6641 Warp Compression	Strength and Modulus	3x2x3	3x2x3 (1) (4)	1x2x3	3x2x3 (3)
$[90]_{15}$	ASTM D3039 Fill Tension	Strength and Modulus	3x2x3	3x2x3 (4)		3x2x3
$[90]_{15}$	ASTM D6641 Fill Compression	Strength and Modulus	3x2x3	3x2x3 (1) (4)	1x2x3	3x2x3 (3)
$[45/-45]_{3S}$	ASTM D3518 In-Plane Shear (2)	Strength and Modulus	3x2x3	3x2x3 (4)		3x2x3
$[0]_{32}$	ASTM D2344 Short Beam	Strength	3x2x3	3x2x3	1x2x3	3x2x3

Table 1-1: Lamina Level Test Matrix

Note 1: Back-to-back strain gages are needed on the first two specimens of each environment. If no buckling is observed, the remaining modulus specimens will require a strain gage on one side of the specimens only. An appropriate extensometer may be used in place of the strain gage.

Note 2: Gripped (tab) length is 1.5±0.5" on each end of the 10" long specimen. Once the samples have reached the 5% strain level, the actuator/crosshead displacement rate can be increased by four times the initial rate. Continue testing at the higher strain rate until ultimate failure is observed.

Note 3: If strain gage is used for modulus measurement, a separate un-gaged specimen must be used for strength measurement; because the strain gage and its protective coating may prevent moisture absorption in the gage area.

Note 4: At least two specimens must be gaged to obtain full stress-strain curve to failure. An appropriate extensometer may be used in place of the strain gage for the remaining specimens.

Table 1-2 below summarizes the laminate level tests carried out. The layup angles 0º, 45º, -45º, and 90º 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.

(%0º/%±45º/%90º) Actual Test Type	Test Type and Layup (5)	Property	Number of Batches x Number of Panels x Number of Test Specimens		
			Test Temperature/Moisture Condition		
			CTD	RTD	ETW1
(25/50/25 - QI) UNT1	ASTM D3039 Un-notched Tension [45/0/-45/90]2S	Strength & modulus	3x2x3	3x2x3 (7)	3x2x3
(10/80/10) UNT2	ASTM D3039 Un-notched Tension [45/-45/0/45/-45/45/-45/90/45/-45]S	Strength & modulus	3x2x3	3x2x3 (7)	3x2x3
(40/20/40) UNT3	ASTM D3039 Un-notched Tension [0/90/0/45/90/0/90/-45/90/0/90/45/0/90/0]	Strength & modulus	3x2x3	3x2x3 (7)	3x2x3
(25/50/25 - QI) UNC1	ASTM D6641 Un-notched Compression [45/0/-45/90]2S	Strength & modulus		3x2x3 (4&7)	3x2x3 (6)
(10/80/10) UNC2	ASTM D6641 Un-notched Compression [45/-45/0/45/-45/45/-45/90/45/-45]S	Strength & modulus		3x2x3 (4&7)	3x2x3 (6)
(40/20/40) UNC3	ASTM D6641 Un-notched Compression [0/90/45/0/90/0/90/-45/0/90]S	Strength & modulus		3x2x3 (4&7)	3x2x3 (6)
(25/50/25 - QI) SBS1	ASTM D2344 Short Beam [45/0/-45/90/45/0/-45/90/-45/90]S (specimens may be taken from panels of similar layup)	Strength		3x2x3	3x2x3
(25/50/25 - QI) OHT1	ASTM D5766 Open Hole Tension (1) [45/0/-45/90]2S	Strength	3x2x3	3x2x3	3x2x3
(10/80/10) OHT2	ASTM D5766 Open Hole Tension (1) [45/-45/0/45/-45/45/-45/90/45/-45]S	Strength	3x2x3	3x2x3	3x2x3
(40/20/40) OHT3	ASTM D5766 Open Hole Tension (1) [0/90/0/45/90/0/90/-45/90/0/90/45/0/90/0]	Strength	3x2x3	3x2x3	3x2x3
(25/50/25 - QI) FHT1	ASTM D6742 Filled Hole Tension (2) [45/0/-45/90]2S	Strength	3x2x3	3x2x3	3x2x3
(10/80/10) FHT2	ASTM D6742 Filled Hole Tension (2) [45/-45/0/45/-45/45/-45/90/45/-45]S	Strength	3x2x3	3x2x3	3x2x3
(40/20/40) FHT3	ASTM D6742 Filled Hole Tension (2) [0/90/0/45/90/0/90/-45/90/0/90/45/0/90/0]	Strength	3x2x3	3x2x3	3x2x3
(25/50/25 - QI) OHC1	ASTM D6484 Open Hole Compression (1) [45/0/-45/90/45/0/-45/90/-45/90]S	Strength		3x2x3 (4)	3x2x3
(10/80/10) OHC2	ASTM D6484 Open Hole Compression (1) [45/-45/0/45/-45/45/-45/90/45/-45]S	Strength		3x2x3 (4)	3x2x3
(40/20/40) OHC3	ASTM D6484 Open Hole Compression (1) [0/90/45/90/0/0/90/-45/90/0]S	Strength		3x2x3 (4)	3x2x3
(25/50/25 - QI) FHC1	ASTM D6742 Filled Hole Compression (2) [45/0/-45/90/45/0/-45/90/-45/90]S	Strength		3x2x3	3x2x3
(10/80/10) FHC2	ASTM D6742 Filled Hole Compression (2) [45/-45/0/45/-45/45/-45/90/45/-45]S	Strength		3x2x3	3x2x3
(40/20/40) FHC3	ASTM D6742 Filled Hole Compression (2) [0/90/45/90/0/0/90/-45/90/0]S	Strength		3x2x3	3x2x3
(25/50/25 - QI) SSB1	ASTM D5961 Single Shear Bearing (3) [45/0/-45/90]2S	Strength & Deformation		3x2x3	3x2x3
(10/80/10) SSB2	ASTM D5961 Single Shear Bearing (3) [45/-45/90/45/-45]2S	Strength & Deformation		3x2x3	3x2x3
(40/20/40) SSB3	ASTM D5961 Single Shear Bearing (3) [0/90/45/0/90]2S	Strength & Deformation		3x2x3	3x2x3
(50/0/50) ILT	ASTM D6415 Interlaminar Tension [0]21	Strength	1x1x6	1x1x6	1x1x6
(25/50/25 - QI) CAI1	ASTM D7136 & D7137 Compression After Impact (1500 in.lb/in) (8) [45/0/-45/90]3S	Strength		3x1x6	

Table 1-2: Laminate Level Test Matrix

Note 1: Open-hole configuration: 0.25” hole diameter, 1.5 inch width.
Note 2: Filled-hole test configuration: 0.25” diameter, see section 1.5.2.2 for fastener callout, 1.5” width.
Note 3: Single shear bearing test configuration: 0.25: hole diameter, 1.5” width, see section 1.5.2.2 for fastener callout, e/D=3, ASTM D5961-10 Procedure C
Note 4: Back-to-back strain gages needed on the first two specimens of each environment. If no buckling is observed, the remaining modulus specimens will require strain gage on one side of the specimens only. Appropriate extensometer may be used in place of the strain gage.
Note 5: Loading direction is generally along the 0-degree direction
Note 6: If strain gage is used for modulus measurement, a separate un-gaged specimen must be used for strength measurement, because the strain gage and its protective coating may prevent moisture absorption in the gage area.
Note 7: At least two specimens must be gaged to obtain full stress-strain curve to failure. An appropriate extensometer may be used in place of the strain gage for the remaining specimens.
Note 8: Back-to-back strain gages on two locations (a total of four strain gages) are needed on the first specimen. The specimen should be equivalent to the test specimens in terms of material, layup, and geometry, shall be un-damaged. Alternatively, an instrumented metallic plate, equivalent in thickness to the test specimens to within ±.25 mm [±.010 in.], may be used.

Table 1-2 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.

1.5.4 Cured Laminate Physical Testing

The properties in Table 1-3 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 National Institute for Aviation Research (NIAR) Composites Laboratory under the supervision of NCAMP.

Property	**Condition/Method** (Note 1)	**Min Replicates per panel**
Cured Ply Thickness	ASTM D3171-11	All data from mechanical test specimens
Laminate Density	ASTM D792-08	Per Note 5
Fiber Volume, % by Volume	ASTM D3171-11 (Note 2)	3
Resin Content, % by Weight	ASTM D3171-11 (Note 2)	3
Void Content, % by Volume	ASTM D3171-11	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	1 Dry, 1 Wet (Note 4)

Table 1-3: Physical Testing Matrix

Note 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.
Note 2: Method II, except for laminates of materials where actual fiber weight is not accurately known prior to impregnation, as in the case for unidirectional materials. For these materials, in order to verify Method II is accurate, a minimum of 12 samples per batch shall be tested by Method I, Procedure B.
Note 3: Five MHz is preferred for solid laminates. Panels with anomaly should be segregated. Microscopy images may be taken from questionable areas. NCAMP must be involved in the review of all C-scans.
Note 4: Minimum total of 24 dry and 24 wet for each material system.
Note 5: A minimum of 4 panels per batch, 3 specimens per panel.

1.5.5 Environmental Conditioning

The following tests were performed by the NIAR Composites Laboratory under the supervision of NCAMP.

CTD = -65±5°F, dry
RTD = 70±10°F, dry
ETD1 = 180±5°F, dry
ETW1 = 180±5°F, wet

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. Representative photos are included in the CD accompanying this report.

For dry testing, specimens were dried at 250°F±5°F for at least 24 hours. After drying, specimens were kept in a desiccator until mechanical testing. Alternatively, the specimens may have been left ambient laboratory condition for a maximum of 14 days until mechanical testing (no drying was required if specimens were tested within 14 days from the date they were cured). Ambient laboratory condition is defined as 70°F±10°F. Since moisture absorption and desorption rate for epoxy is very slow at ambient temperature, there was no requirement to maintain relative humidity levels.

For wet conditioning, specimens were dried at 250°F±5°F for a minimum of 24 hours before being conditioned to equilibrium at 160°F±5°F and 85% ± 5%. Effective moisture equilibrium was achieved when the average moisture content of the traveler specimen changed by less than 0.02% for two consecutive readings 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. The heat-up time of the specimen did not exceed 5 minutes, unless otherwise specified in individual test summary sheets. The test was started 5^{+1}_{-0} minutes after the specimen reached the test temperature. During the test, the temperature, as measured on the specimen, was 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 5^{+1}_{-0} minutes after the specimen reached the test temperature. During the test, the temperature, as measured on the specimen, was within ±5°F of the required test temperature.

For wet specimens, the moisture loss was determined by subjecting representative specimens to the same amount of time required to heat-up and fail the specimens. For filled-hole or bearing specimens, fasteners were removed prior to conducting moisture loss measurements. For tabbed specimens, representative coupons without tabs and having the same number of plies were used to conduct the moisture loss measurements. A minimum of one specimen or representative coupon was used to measure the moisture loss for every combination of test temperature and stacking sequence.

1.5.7 Fluid Sensitivity Screening

Table 1-4 lists the requirements for fluid sensitivity screening, which requires ASTM D2344 Short Beam Strength testing on $[0°]_{15}$ lamina level specimens dried at 250°F±5°F for 24 hours minimum before 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
Sea 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 LD-4 (SAE AS1241, Type IV, Class 1)	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 LD-4 (SAE AS1241, Type IV, Class 1)	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	70°F	FS32RT
	Dry per section 6.1	180°F	FS32ET
85% Relative Humidity	Per section 6.1	70°F	FS33RT
	Per section 6.1	180°F	FS33ET

Table 1-4: 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 90º tensile strength and modulus (unidirectional only), 90º compressive strength and modulus (unidirectional only), in-plane shear strength and modulus, Poisson's ratio, SBS, and 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 average of as-measured cured ply thickness of 0.00810 inches from the actual qualification panels has been used as the nominal cured ply thickness (CPT) for normalization purpose. The following normalization formula was used:

Normalized Value = Measured Value x Measured CPT / Nominal CPT.

For Solvay Cytec Cycom EP2202 the anticipated CPT was 0.00780 inches. The as measured CPT of the qualification panels was 0.00804 inches while the overall averages with equivalency samples included was 0.00808 inches. The lowest and highest CPT measured were 0.00804 inches and 0.00815 inches respectively. A proposed CPT of 0.00810 inches was suggested and agreed upon by participants of this qualification and equivalency project for use in the normalization procedures.

1.5.9 Inspection Verification

The 3-batch qualification 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.

Testing was witnessed by NCAMP. Witnessing was delegated to an AER. Mechanical testing was carried out at the National Institute for Aviation Research, Wichita State University. The conformity documentation, with required approval signatures, is included in the CD provided with this report.

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 in Microsoft Excel file format is included on the CD provided with this report.

2. Test Results

2.1 Lamina Level Test Summary

Prepreg Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%				**Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% Lamina Properties Summary**
Material Specification:	NMS 220/2				
Process Specification:	NPS 82202				
Fabric:	T650 3K Plain Weave	**Resin:**	Cytec Cycom EP 2202		
Tg(dry):	365.41°F	**Tg(wet):**	287.45°F	**Tg METHOD:**	ASTM D7028

Date of fiber manufacture	May 2012 - May 2013	**Date of testing**	Jan 2014 - Aug 2014
Date of resin manufacture	Jul 2012 - Jul 2013	**Date of data submittal**	January 20, 2015
Date of prepreg manufacture	Oct 2012 - Jul 2013		
Date of composite manufacture	May 2013 - Sept 2013		

LAMINA MECHANICAL PROPERTY SUMMARY
Data reported as: Normalized & Measured
(Normalized by CPT=0.0081 inch)

	CTD Mean		RTD Mean		ETD1 Mean		ETW1 Mean	
	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
F_1^{tu} [ksi]	117.211	118.458	127.349	128.748			130.259	131.366
E_1^t [Msi]	9.250	9.349	9.132	9.232			9.254	9.346
ν_{12}		0.062		0.053				0.053
F_2^{tu} [ksi]	117.425	118.352	122.865	123.999			131.598	132.776
E_2^t [Msi]	9.514	9.590	9.249	9.344			9.389	9.472
F_1^{cu} [ksi]	118.311	118.598	104.851	105.418	95.787	96.235	81.716	81.820
E_1^c [Msi]	8.656	8.676	8.538	8.587	8.530	8.554	8.727	8.750
F_2^{cu} [ksi]	121.409	122.259	105.150	105.937	94.221	94.019	78.835	79.342
E_2^c [Msi]	8.533	8.592	8.525	8.595	8.467	8.453	8.631	8.681
$F_{12}^{s0.2\%}$ [ksi]		9.285		6.977				4.341
$F_{12}^{s5\%strain}$ [ksi]		17.748		13.349				8.079
G_{12}^s [Msi]		0.747		0.646				0.457
SBS [ksi]		13.735		12.783		10.353		8.710

Table 2-1: Lamina Summary Data

2.2 Laminate Level Test Summary

Prepreg Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%			**Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% Laminate Properties Summary**
Material Specification:	NMS 220/2			
Process Specification:	NPS 82202			
Fabric:	T650 3K Plain Weave	**Resin:**	Cytec Cycom EP 2202	
Tg(dry):	365.41°F	**Tg(wet):**	287.45°F	**Tg METHOD:** ASTM D7028

Date of fiber manufacture	May 2012 - May 2013	**Date of testing**	Jan 2014 - Aug 2014
Date of resin manufacture	Jul 2012 - Jul 2013	**Date of data submittal**	January 20, 2015
Date of prepreg manufacture	Oct 2012 - Jul 2013		
Date of composite manufacture	May 2013 - Sept 2013		

LAMINATE MECHANICAL PROPERTY SUMMARY
Data reported as: Normalized & Measured
(Normalized by CPT=0.0081 inch)

	Layup:	25/50/25		10/80/10		40/20/40	
	Test Condition	Normalized	Measured	Normalized	Measured	Normalized	Measured
OHT Strength [ksi]	CTD	41.106	41.575	44.638	45.047	48.321	49.124
	RTD	42.431	42.908	44.774	45.102	50.492	51.501
	ETW1	45.541	45.925	34.886	35.061	55.179	55.982
OHC Strength [ksi]	RTD	45.332	46.113	41.486	41.837	46.052	46.796
	ETW1	35.325	35.940	32.014	32.277	37.233	37.846
UNT Strength [ksi]	CTD	90.783	91.588	59.714	60.138	103.406	105.256
	RTD	93.063	94.140	57.377	57.927	102.020	103.957
	ETW1	95.243	95.741	51.631	52.058	119.059	121.062
UNT Modulus [Msi]	CTD	6.714	6.774	4.427	4.458	8.358	8.509
	RTD	6.494	6.570	4.217	4.258	8.209	8.369
	ETW1	6.308	6.341	3.991	4.024	8.150	8.288
UNC Strength [ksi]	RTD	84.041	84.332	59.541	60.427	88.676	90.093
	ETW1	61.441	61.874	41.658	42.198	69.230	70.288
UNC Modulus [Msi]	RTD	6.065	6.086	4.100	4.162	7.659	7.785
	ETW1	5.955	5.988	3.843	3.890	7.683	7.798
FHT Strength [ksi]	CTD	43.419	43.752	47.042	47.653	49.163	50.013
	RTD	44.772	45.166	47.750	48.309	51.510	52.491
	ETW1	47.667	47.923	37.790	38.204	54.977	55.793
FHC Strength [ksi]	RTD	74.266	75.213	54.699	55.252	66.749	67.733
	ETW1	60.786	61.325	42.951	43.355	62.184	62.962
SBS1 Strength [ksi]	RTD		12.692				
	ETW1		8.126				
SSB Initial Peak Strength [ksi]	RTD	109.719	111.074	109.096	112.918	100.026	101.600
	ETW1	93.821	94.539	90.535	91.228	84.414	85.157
SSB 2% Offset Strength [ksi]	RTD	110.604	112.033	106.607	108.397	99.087	100.931
	ETW1	94.246	94.970	88.982	90.289	84.480	85.572
SSB Ultimate Strength [ksi]	RTD	129.422	131.081	125.921	128.040	118.984	121.192
	ETW1	108.602	109.443	102.965	104.471	97.480	98.735
CBS [lb]	CTD	—	453.902				
	RTD	—	292.539				
	ETW1	—	408.663				
ILT [ksi]	CTD	—	12.115				
	RTD	—	7.603				
	ETW1	—	10.803				
CAI Strength [ksi]	RTD	41.582	42.250				

Table 2-2: Laminate Summary Data

2.3 Individual Test Summaries

2.3.1 Warp Tension Properties (WT)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%							**Tension, 1-axis** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [0]15	
Resin content:	38.45 % wt		**Comp. density:**	1.533 g/cc					
Fiber volume:	53.72 % vol								
Ply count:	15								
Test method:	ASTM D 3039-08		**Modulus calculation:**	1000 to 3000 microstrain					
Normalized by:	0.0081	in. CPT							
			CTD		**RTD**		**ETW1**		
Test Temperature [°F]			-65		70		180		
Moisture Conditioning			Dry		Dry		Equilbrium		
Equilbrium at T, RH							160 F,85%		
Source code			EPBJX XXXB		EPBJX XXXA		EPBJX XXXD		
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
F_1^{tu} [ksi]	**Mean**		117.211	118.458	127.349	128.748	130.259	131.366	
	Minimum		107.314	108.610	118.712	119.367	114.958	115.784	
	Maximum		123.521	125.661	134.741	136.236	139.436	141.671	
	C.V.(%)		3.587	3.833	2.988	3.473	5.013	5.145	
	No. Specimens		21		21		20		
	No. Prepreg Lots		3		3		3		
E_1^t [Msi]	**Mean**		9.250	9.349	9.132	9.232	9.254	9.346	
	Minimum		9.052	9.030	8.972	9.002	9.054	9.119	
	Maximum		9.543	9.670	9.359	9.551	9.541	9.618	
	C.V.(%)		1.223	1.668	1.198	1.656	1.530	1.547	
	No. Specimens		21		22		30		
	No. Prepreg Lots		3		3		3		
ν_{12}	**Mean**			0.062		0.053		0.053	
	No. Specimens		21		22		30		
	No. Prepreg Lots		3		3		3		

2.3.2 Fill Tension Properties (FT)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%							**Tension, 2-axis** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [90]15	
Resin content:	37.69 % wt		**Comp. density:**	1.536 g/cc					
Fiber volume:	54.46 % vol								
Ply count:	15								
Test method:	ASTM D 3039-08		**Modulus calculation:**	1000 to 3000 microstrain					
Normalized by:	0.0081	in. CPT							
			CTD		**RTD**		**ETW1**		
Test Temperature [°F]			-65		70		180		
Moisture Conditioning			Dry		Dry		Equilbrium		
Equilbrium at T, RH							160 F,85%		
Source code			EPBUX XXXB		EPBUX XXXA		EPBUX XXXD		
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
F_2^{tu} [ksi]	**Mean**		117.425	118.352	122.865	123.999	131.598	132.776	
	Minimum		104.917	105.832	110.539	114.529	106.342	106.679	
	Maximum		131.270	134.954	135.842	136.047	149.374	150.282	
	C.V.(%)		6.538	7.078	5.160	4.899	7.826	7.970	
	No. Specimens		21		23		25		
	No. Prepreg Lots		4		4		4		
E_2^t [Msi]	**Mean**		9.514	9.590	9.249	9.344	9.389	9.472	
	Minimum		9.270	9.220	8.970	9.055	9.003	8.960	
	Maximum		9.790	9.953	9.582	9.692	9.770	9.872	
	C.V.(%)		1.973	2.346	1.837	1.940	2.376	2.576	
	No. Specimens		21		24		25		
	No. Prepreg Lots		4		4		4		

2.3.3 Warp Compression Properties (WC)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%							**Compression, 1-axis** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [0]15	
Resin content:	38.44 % wt		**Comp. density:**	1.530 g/cc					
Fiber volume:	53.62 % vol								
Ply count:	15								
Test method:	ASTM D 6641-09		**Modulus calculation:**	1000 to 3000 microstrain					
Normalized by:	0.0081	in. CPT							
			CTD		**RTD**		**ETD1**		**ETW1**	
Test Temperature [°F]			-65		70		180		180	
Moisture Conditioning			Dry		Dry		Dry		Equilbrium	
Equilbrium at T, RH									160 F,85%	
Source code			EPBLX XXXB		EPBLX XXXA		EPBLX XXXC		EPBLX XXXD	
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
F_1^{cu} [ksi]	**Mean**		118.311	118.598	104.851	105.418	95.787	96.235	81.716	81.820
	Minimum		106.048	105.946	94.415	94.350	91.452	91.427	77.988	77.605
	Maximum		128.005	128.836	110.692	112.638	99.322	100.022	86.576	87.090
	C.V.(%)		5.259	5.500	3.625	3.974	2.927	3.003	3.326	3.551
	No. Specimens		21		19		8		21	
	No. Prepreg Lots		3		3		1		3	
E_1^c [Msi]	**Mean**		8.656	8.676	8.538	8.587	8.530	8.554	8.727	8.750
	Minimum		8.372	8.391	8.287	8.304	8.284	8.296	8.347	8.341
	Maximum		9.242	9.269	8.824	8.888	8.672	8.720	9.116	9.124
	C.V.(%)		2.635	2.725	1.804	1.840	1.491	1.546	2.123	2.354
	No. Specimens		21		21		7		21	
	No. Prepreg Lots		3		3		1		3	

2.3.4 Fill Compression Properties (FC)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%							**Compression, 2-axis** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [90]15	
Resin content:	38.35 % wt		**Comp. density:**	1.351 g/cc					
Fiber volume:	53.73 % vol								
Ply count:	15								
Test method:	ASTM D 6641-09		**Modulus calculation:**	1000 to 3000 microstrain					
Normalized by:	0.0081	in. CPT							
			CTD		**RTD**		**ETD1**		**ETW1**	
Test Temperature [°F]			-65		70		180		180	
Moisture Conditioning			Dry		Dry		Dry		Equilbrium	
Equilbrium at T, RH									160 F,85%	
Source code			EPBZX XXXB		EPBZX XXXA		EPBZX XXXC		EPBZX XXXD	
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
F_2^{cu} [ksi]	**Mean**		121.409	122.259	105.150	105.937	94.221	94.019	78.835	79.342
	Minimum		107.260	108.195	100.723	99.542	88.582	89.342	67.725	68.993
	Maximum		130.277	130.654	113.378	114.114	100.765	97.761	88.394	88.600
	C.V.(%)		5.359	5.135	3.057	3.325	4.414	3.578	7.709	7.378
	No. Specimens		22		26		7		21	
	No. Prepreg Lots		3		3		1		3	
E_2^c [Msi]	**Mean**		8.533	8.592	8.525	8.595	8.467	8.453	8.631	8.681
	Minimum		7.674	7.741	8.244	8.240	8.335	8.087	8.236	8.220
	Maximum		8.990	9.059	8.772	8.825	8.672	8.715	9.068	9.121
	C.V.(%)		3.887	3.802	1.621	1.892	1.535	2.443	2.898	3.123
	No. Specimens		21		21		7		21	
	No. Prepreg Lots		3		3		1		3	

2.3.5 In-Plane Shear Properties (IPS)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%						**In-Plane Shear** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/-45]3S		
Resin content:	38.50 % wt	**Comp. density:**	1.536 g/cc						
Fiber volume:	53.79 % vol								
Ply count:	12								
Test method:	ASTM D 3518-07	**Modulus calculation:**	2000 to 6000 microstrain						
Normalized by:	NA								
		CTD		**RTD**		**ETW1**			
Test Temperature [°F]		-65		70		180			
Moisture Conditioning		Dry		Dry		Equilbrium			
Equilbrium at T, RH						160 F,85%			
Source code		EPBNX XXXB		EPBNX XXXA		EPBNX XXXD			
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**		
$F_{12}^{s0.2\%}$ [ksi]	**Mean**		9.285		6.977		4.341		
	Minimum		8.959		6.669		4.165		
	Maximum		9.689		7.254		4.528		
	C.V.(%)		2.212		2.129		2.434		
	No. Specimens		21		21		22		
	No. Prepreg Lots		3		3		3		
$F_{12}^{s5\%strain}$ [ksi]	**Mean**		17.748		13.349		8.079		
	Minimum		16.999		12.651		7.636		
	Maximum		18.631		13.952		8.625		
	C.V.(%)		2.471		3.176		3.327		
	No. Specimens		21		21		22		
	No. Prepreg Lots		3		3		3		
G_{12}^{S} [Msi]	**Mean**		0.747		0.646		0.457		
	Minimum		0.719		0.608		0.433		
	Maximum		0.785		0.672		0.476		
	C.V.(%)		2.554		2.593		2.693		
	No. Specimens		21		21		22		
	No. Prepreg Lots		3		3		3		

2.3.6 "25/50/25" Unnotched Tension 1 Properties (UNT1)

Material: Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Unnotched Tension 1
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
[45/0/-45/90]2S

Resin content: 38.85 % wt **Comp. density:** 1.537 g/cc
Fiber volume: 53.49 % vol
Ply count: 16

Test method: ASTM D 3039-08 **Modulus calculation:** 1000 to 3000 microstrain

Normalized by: 0.0081 in. CPT

		CTD		RTD		ETW1	
Test Temperature [°F]		-65		70		180	
Moisture Conditioning		Dry		Dry		Equilbrium	
Equilbrium at T, RH						160 F,85%	
Source code		EPBAX XXXB		EPBAX XXXA		EPBAX XXXD	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
UNT1 Strength [ksi]	**Mean**	90.783	91.588	93.063	94.140	95.243	95.741
	Minimum	85.525	85.879	85.684	86.846	92.153	92.184
	Maximum	94.836	96.022	98.709	99.852	97.812	99.092
	C.V.(%)	3.098	3.151	3.800	3.782	1.838	1.833
	No. Specimens	21		21		21	
	No. Prepreg Lots	3		3		3	
UNT1 Modulus [Msi]	**Mean**	6.714	6.774	6.494	6.570	6.308	6.341
	Minimum	6.562	6.639	6.326	6.400	6.129	6.192
	Maximum	6.867	6.950	6.637	6.743	6.453	6.550
	C.V.(%)	1.217	1.338	1.261	1.603	1.352	1.372
	No. Specimens	21		21		21	
	No. Prepreg Lots	3		3		3	

2.3.7 "10/80/10" Unnotched Tension 2 Properties (UNT2)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%							**Unnotched Tension 2** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/-45/0/45/-45/45/-45/90/45/-45]S	
Resin content:	38.45 % wt		**Comp. density:**	1.537 g/cc					
Fiber volume:	53.90 % vol								
Ply count:	20								
Test method:	ASTM D 3039-08		**Modulus calculation:** 1000 to 3000 microstrain						
Normalized by:	0.0081	in. CPT							
			CTD		**RTD**		**ETW1**		
Test Temperature [°F]			-65		70		180		
Moisture Conditioning			Dry		Dry		Equilbrium		
Equilbrium at T, RH							160 F,85%		
Source code			EPBBX XXXB		EPBBX XXXA		EPBBX XXXD		
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
UNT2 Strength [ksi]	**Mean**		59.714	60.138	57.377	57.927	51.631	52.058	
	Minimum		58.130	58.053	55.274	55.647	48.534	48.449	
	Maximum		61.988	62.861	60.129	61.841	53.904	54.898	
	C.V.(%)		1.856	2.346	2.224	2.666	2.680	3.119	
	No. Specimens		14		14		14		
	No. Prepreg Lots		2		2		2		
UNT2 Modulus [Msi]	**Mean**		4.427	4.458	4.217	4.258	3.991	4.024	
	Minimum		4.289	4.276	4.037	4.030	3.710	3.736	
	Maximum		4.546	4.610	4.379	4.444	4.474	4.529	
	C.V.(%)		1.969	2.644	2.350	3.163	4.785	4.964	
	No. Specimens		14		14		14		
	No. Prepreg Lots		2		2		2		

2.3.8 "40/20/40" Unnotched Tension 3 Properties (UNT3)

Material: Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Unnotched Tension 3
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
[0/90/0/45/90/0/90/-45/90/0/90/45/0/90/0]S

Resin content: 38.32 % wt **Comp. density:** 1.540 g/cc
Fiber volume: 54.00 % vol
Ply count: 15

Test method: ASTM D 3039-08 **Modulus calculation:** 1000 to 3000 microstrain

Normalized by: 0.0081 in. CPT

		CTD		RTD		ETW1			
Test Temperature [°F]		-65		70		180			
Moisture Conditioning		Dry		Dry		Equilbrium			
Equilbrium at T, RH						160 F,85%			
Source code		EPBCX XXXB		EPBCX XXXA		EPBCX XXXD			
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**		
UNT3 Strength [ksi]	**Mean**	103.406	105.256	102.020	103.957	119.059	121.062		
	Minimum	97.860	99.277	87.299	89.283	112.689	113.577		
	Maximum	109.865	112.614	113.256	115.457	127.250	130.270		
	C.V.(%)	3.774	4.024	6.156	6.199	2.849	3.157		
	No. Specimens	21		20		21			
	No. Prepreg Lots	3		3		3			
UNT3 Modulus [Msi]	**Mean**	8.358	8.509	8.209	8.369	8.150	8.288		
	Minimum	8.196	8.294	8.001	8.081	7.974	8.010		
	Maximum	8.705	8.907	8.477	8.700	8.543	8.805		
	C.V.(%)	1.481	1.977	1.585	2.107	1.771	2.480		
	No. Specimens	22		23		21			
	No. Prepreg Lots	3		3		3			

2.3.9 “25/50/25” Unnotched Compression 1 Properties (UNC1)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%						**Unnotched Compression 1** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/0/-45/90]2S		
Resin content:	38.57 % wt		**Comp. density:**	1.538 g/cc					
Fiber volume:	53.77 % vol								
Ply count:	16								
Test method:	ASTM D 6641-09		**Modulus calculation:**	1000 to 3000 microstrain					
Normalized by:	0.0081	in. CPT							
			RTD		**ETW1**				
Test Temperature [°F]			70		180				
Moisture Conditioning			Dry		Equilbrium				
Equilbrium at T, RH					160 F,85%				
Source code			EPBWX XXXA		EPBWX XXXD				
			Normalized	**Measured**	**Normalized**	**Measured**			
UNC1 Strength [ksi]	**Mean**		84.041	84.332	61.441	61.874			
	Minimum		75.014	75.207	55.905	56.056			
	Maximum		88.518	88.336	66.017	67.289			
	C.V.(%)		4.048	4.119	4.786	5.053			
	No. Specimens		21		21				
	No. Prepreg Lots		3		3				
UNC1 Modulus [Msi]	**Mean**		6.065	6.086	5.955	5.988			
	Minimum		5.906	5.885	5.744	5.756			
	Maximum		6.248	6.264	6.167	6.212			
	C.V.(%)		1.459	1.785	1.514	1.848			
	No. Specimens		21		21				
	No. Prepreg Lots		3		3				

2.3.10 "10/80/10" Unnotched Compression 2 Properties (UNC2)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%						**Unnotched Compression 2** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/-45/0/45/-45/45/-45/90/45/-45]S			
Resin content:	38.38 % wt		**Comp. density:**	1.540 g/cc						
Fiber volume:	53.96 % vol									
Ply count:	20									
Test method:	ASTM D 6641-09		**Modulus calculation:**	1000 to 3000 microstrain						
Normalized by:	0.0081	in. CPT								
			RTD		**ETW1**					
Test Temperature [°F]			70		180					
Moisture Conditioning			Dry		Equilbrium					
Equilbrium at T, RH					160 F,85%					
Source code			EPBXX XXXA		EPBXX XXXD					
			Normalized	**Measured**	**Normalized**	**Measured**				
UNC2 Strength [ksi]	**Mean**		59.541	60.427	41.658	42.198				
	Minimum		54.278	55.244	39.426	39.815				
	Maximum		63.938	65.515	43.846	44.196				
	C.V.(%)		3.505	3.737	2.669	2.841				
	No. Specimens		21		21					
	No. Prepreg Lots		3		3					
UNC2 Modulus [Msi]	**Mean**		4.100	4.162	3.843	3.890				
	Minimum		3.904	3.971	3.655	3.718				
	Maximum		4.269	4.434	4.109	4.212				
	C.V.(%)		2.541	3.000	2.834	3.376				
	No. Specimens		21		21					
	No. Prepreg Lots		3		3					

2.3.11 "40/20/40" Unnotched Compression 3 Properties (UNC3)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%						**Unnotched Compression 3** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [0/90/45/0/90/0/90/-45/0/90]S			
Resin content:	38.16 % wt		**Comp. density:**	1.541 g/cc						
Fiber volume:	54.21 % vol									
Ply count:	20									
Test method:	ASTM D 6641-09		**Modulus calculation:**	1000 to 3000 microstrain						
Normalized by:	0.0081	in. CPT								
			RTD		**ETW1**					
Test Temperature [°F]			70		180					
Moisture Conditioning			Dry		Equilbrium					
Equilbrium at T, RH					160 F,85%					
Source code			EPBYX XXXA		EPBYX XXXD					
			Normalized	**Measured**	**Normalized**	**Measured**				
UNC3 Strength [ksi]	**Mean**		88.676	90.093	69.230	70.288				
	Minimum		80.696	81.552	65.005	65.538				
	Maximum		95.339	97.568	73.485	75.068				
	C.V.(%)		4.555	4.825	3.144	3.353				
	No. Specimens		22		21					
	No. Prepreg Lots		3		3					
UNC3 Modulus [Msi]	**Mean**		7.659	7.785	7.683	7.798				
	Minimum		7.426	7.466	7.489	7.511				
	Maximum		7.929	8.127	7.901	8.003				
	C.V.(%)		2.222	2.868	1.575	2.034				
	No. Specimens		21		21					
	No. Prepreg Lots		3		3					

2.3.12 Lamina Short-Beam Strength Properties (SBS)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%							
Resin content:	38.22 % wt	**Comp. density:**	1.539 g/cc					
Fiber volume:	54.14 % vol							
Ply count:	32							
Test method:	ASTM D 2344-06							
Normalized by:	NA							

Short-Beam Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
[0]32

		CTD		RTD		ETD1		ETW1	
Test Temperature [°F]		-65		70		180		180	
Moisture Conditioning		Dry		Dry		Dry		Equilbrium	
Equilbrium at T, RH								160 F,85%	
Source code		EPBQX XXXB		EPBQX XXXA		EPBQX XXXC		EPBQX XXXD	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
SBS Strength [ksi]	**Mean**		13.735		12.783		10.353		8.710
	Minimum		13.028		12.343		9.978		8.213
	Maximum		14.462		14.185		10.555		9.074
	C.V.(%)		3.134		2.871		2.054		2.732
	No. Specimens		21		22		7		22
	No. Prepreg Lots		3		3		1		3

2.3.13 Laminate Short-Beam Strength Properties (SBS1)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%					**Laminate Short-Beam Strength** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/0/-45/90/45/0/-45/90/-45/90]S		
Resin content:	38.18 % wt	**Comp. density:**	1.537 g/cc					
Fiber volume:	54.03 % vol							
Ply count:	20							
Test method:	ASTM D 2344-06							
Normalized by:	NA							
		RTD		**ETW1**				
Test Temperature [°F]		70		180				
Moisture Conditioning		Dry		Equilbrium				
Equilbrium at T, RH				160 F,85%				
Source code		EPBqX XXXA		EPBqX XXXD				
		Normalized	**Measured**	**Normalized**	**Measured**			
SBS1 Strength [ksi]	**Mean**		12.692		8.126			
	Minimum		12.289		7.860			
	Maximum		13.001		8.455			
	C.V.(%)		1.565		1.937			
	No. Specimens		22		21			
	No. Prepreg Lots		3		3			

2.3.14 "25/50/25" Open-Hole Tension 1 Properties (OHT1)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%							**Open-Hole Tension 1** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/0/-45/90]2S	
Resin content:	39.06 % wt		**Comp. density:**	1.543 g/cc					
Fiber volume:	53.54 % vol								
Ply count:	16								
Test method:	ASTM D 5766-11								
Normalized by:	0.0081	in. CPT							
			CTD		**RTD**		**ETW1**		
Test Temperature [°F]			-65		70		180		
Moisture Conditioning			Dry		Dry		Equilbrium		
Equilbrium at T, RH							160 F,85%		
Source code			EPBDX XXXB		EPBDX XXXA		EPBDX XXXD		
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
OHT1 Strength [ksi]	**Mean**		41.106	41.575	42.431	42.908	45.541	45.925	
	Minimum		39.474	39.792	39.555	39.760	42.311	42.629	
	Maximum		44.241	45.046	44.363	45.510	48.965	49.655	
	C.V.(%)		3.152	3.746	3.027	3.549	3.382	3.732	
	No. Specimens		21		21		21		
	No. Prepreg Lots		3		3		3		

2.3.15 "10/80/10" Open-Hole Tension 2 Properties (OHT2)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%							**Open-Hole Tension 2** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/-45/0/45/-45/45/-45/90/45/-45]S	
Resin content:	38.89 % wt		**Comp. density:**	1.536 g/cc					
Fiber volume:	53.44 % vol								
Ply count:	20								
Test method:	ASTM D 5766-11								
Normalized by:	0.0081	in. CPT							
			CTD		**RTD**		**ETW1**		
Test Temperature [°F]			-65		70		180		
Moisture Conditioning			Dry		Dry		Equilbrium		
Equilbrium at T, RH							160 F,85%		
Source code			EPBEX XXXB		EPBEX XXXA		EPBEX XXXD		
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
OHT2 Strength [ksi]	**Mean**		44.638	45.047	44.774	45.102	34.886	35.061	
	Minimum		42.558	42.896	42.605	42.467	33.741	33.599	
	Maximum		48.585	47.798	47.519	47.446	36.911	36.602	
	C.V.(%)		3.629	3.280	3.353	3.505	2.400	2.666	
	No. Specimens		21		21		21		
	No. Prepreg Lots		3		3		3		

2.3.16 "40/20/40" Open-Hole Tension 3 Properties (OHT3)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%							**Open-Hole Tension 3** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [0/90/0/45/90/0/90/-45/90/0/90/45/0/90/0]S	
Resin content:	38.71 % wt		**Comp. density:**	1.545 g/cc					
Fiber volume:	53.85 % vol								
Ply count:	15								
Test method:	ASTM D 5766-11								
Normalized by:	0.0081	in. CPT							
			CTD		**RTD**		**ETW1**		
Test Temperature [°F]			-65		70		180		
Moisture Conditioning			Dry		Dry		Equilbrium		
Equilbrium at T, RH							160 F,85%		
Source code			EPBFX XXXB		EPBFX XXXA		EPBFX XXXD		
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
OHT3 Strength [ksi]	**Mean**		48.321	49.124	50.492	51.501	55.179	55.982	
	Minimum		42.410	42.561	46.130	46.688	52.007	52.716	
	Maximum		51.499	53.026	53.991	55.509	58.419	60.109	
	C.V.(%)		4.755	5.117	5.116	5.527	3.318	3.285	
	No. Specimens		21		21		21		
	No. Prepreg Lots		3		3		3		

2.3.17 "25/50/25" Filled-Hole Tension 1 Properties (FHT1)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%							**Filled-Hole Tension 1** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/0/-45/90]2S	
Resin content:	38.80 % wt		**Comp. density:**	1.538 g/cc					
Fiber volume:	53.57 % vol								
Ply count:	16								
Test method:	ASTM D 6742-07								
Normalized by:	0.0081	in. CPT							
			CTD		**RTD**		**ETW1**		
Test Temperature [°F]			-65		70		180		
Moisture Conditioning			Dry		Dry		Equilbrium		
Equilbrium at T, RH							160 F,85%		
Source code			EPB4X XXXB		EPB4X XXXA		EPB4X XXXD		
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
FHT1 Strength [ksi]	**Mean**		43.419	43.752	44.772	45.166	47.667	47.923	
	Minimum		41.150	41.214	42.389	42.697	45.749	45.567	
	Maximum		45.790	46.786	47.482	47.814	50.422	50.409	
	C.V.(%)		2.564	2.993	3.308	3.290	2.743	3.079	
	No. Specimens		21		21		21		
	No. Prepreg Lots		3		3		3		

2.3.18 "10/80/10" Filled-Hole Tension 2 Properties (FHT2)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%							**Filled-Hole Tension 2** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/-45/0/45/-45/45/-45/90/45/-45]S	
Resin content:	38.53 % wt		**Comp. density:**	1.541 g/cc					
Fiber volume:	53.89 % vol								
Ply count:	20								
Test method:	ASTM D 6742-07								
Normalized by:	0.0081	in. CPT							
			CTD		**RTD**		**ETW1**		
Test Temperature [°F]			-65		70		180		
Moisture Conditioning			Dry		Dry		Equilbrium		
Equilbrium at T, RH							160 F,85%		
Source code			EPB5X XXXB		EPB5X XXXA		EPB5X XXXD		
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
FHT2 Strength [ksi]	**Mean**		47.042	47.653	47.750	48.309	37.790	38.204	
	Minimum		44.907	45.649	45.935	46.876	35.790	35.647	
	Maximum		48.944	50.335	49.221	50.521	39.152	39.422	
	C.V.(%)		2.515	2.792	1.871	1.854	2.409	2.633	
	No. Specimens		21		21		21		
	No. Prepreg Lots		4		4		4		

2.3.19 "40/20/40" Filled-Hole Tension 3 Properties (FHT3)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%							**Filled-Hole Tension 3** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [0/90/0/45/90/0/90/-45/90/0/90/45/0/90/0]	
Resin content:	38.30 % wt		**Comp. density:**	1.539 g/cc					
Fiber volume:	54.02 % vol								
Ply count:	15								
Test method:	ASTM D 6742-07								
Normalized by:	0.0081	in. CPT							
			CTD		**RTD**		**ETW1**		
Test Temperature [°F]			-65		70		180		
Moisture Conditioning			Dry		Dry		Equilbrium		
Equilbrium at T, RH							160 F,85%		
Source code			EPB6X XXXB		EPB6X XXXA		EPB6X XXXD		
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
FHT3 Strength [ksi]	**Mean**		49.163	50.013	51.510	52.491	54.977	55.793	
	Minimum		45.264	46.131	45.829	46.850	49.985	50.829	
	Maximum		54.879	55.938	57.190	59.500	57.758	58.275	
	C.V.(%)		5.085	5.217	5.046	5.455	3.934	3.865	
	No. Specimens		21		21		21		
	No. Prepreg Lots		3		3		3		

2.3.20 "25/50/25" Open-Hole Compression 1 Properties (OHC1)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%					**Open-Hole Compression 1** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/0/-45/90/45/0/-45/90/-45/90]S			
Resin content:	38.18 % wt		**Comp. density:**	1.537 g/cc					
Fiber volume:	54.03 % vol								
Ply count:	20								
Test method:	ASTM D 6484-09								
Normalized by:	0.0081	in. CPT							
			RTD		**ETW1**				
Test Temperature [°F]			70		180				
Moisture Conditioning			Dry		Equilbrium				
Equilbrium at T, RH					160 F,85%				
Source code			EPBGX XXXA		EPBGX XXXD				
			Normalized	**Measured**	**Normalized**	**Measured**			
OHC1 Strength [ksi]	**Mean**		45.332	46.113	35.325	35.940			
	Minimum		42.668	42.712	33.750	34.455			
	Maximum		46.880	48.559	36.467	37.809			
	C.V.(%)		2.621	3.327	1.724	2.484			
	No. Specimens		21		21				
	No. Prepreg Lots		3		3				

2.3.21 "10/80/10" Open-Hole Compression 2 Properties (OHC2)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%					**Open-Hole Compression 2** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/-45/0/45/-45/45/-45/90/45/-45]S			
Resin content:	38.54 % wt		**Comp. density:**	1.537 g/cc					
Fiber volume:	53.76 % vol								
Ply count:	20								
Test method:	ASTM D 6484-09								
Normalized by:	0.0081	in. CPT							
			RTD		**ETW1**				
Test Temperature [°F]			70		180				
Moisture Conditioning			Dry		Equilbrium				
Equilbrium at T, RH					160 F,85%				
Source code			EPBHX XXXA		EPBHX XXXD				
			Normalized	**Measured**	**Normalized**	**Measured**			
	Mean		41.486	41.837	32.014	32.277			
	Minimum		40.259	40.388	30.656	30.600			
	Maximum		42.536	44.158	32.778	33.590			
OHC2 Strength [ksi]	**C.V.(%)**		1.517	2.192	1.362	1.930			
	No. Specimens		21		21				
	No. Prepreg Lots		4		4				

2.3.22 "40/20/40" Open-Hole Compression 3 Properties (OHC3)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%					**Open-Hole Compression 3** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [0/90/45/90/0/0/90/-45/90/0]S			
Resin content:	38.44 % wt		**Comp. density:**	1.540 g/cc					
Fiber volume:	53.90 % vol								
Ply count:	20								
Test method:	ASTM D 6484-09								
Normalized by:	0.0081	in. CPT							
			RTD		**ETW1**				
Test Temperature [°F]			70		180				
Moisture Conditioning			Dry		Equilbrium				
Equilbrium at T, RH					160 F,85%				
Source code			EPBIX XXXA		EPBIX XXXD				
			Normalized	**Measured**	**Normalized**	**Measured**			
	Mean		46.052	46.796	37.233	37.846			
	Minimum		44.338	44.602	35.543	36.466			
	Maximum		47.876	48.465	38.775	40.038			
OHC3 Strength [ksi]	**C.V.(%)**		1.969	1.884	3.045	2.681			
	No. Specimens		21		21				
	No. Prepreg Lots		3		3				

2.3.23 "25/50/25" Filled-Hole Compression 1 Properties (FHC1)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%					**Filled-Hole Compression 1** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/0/-45/90/45/0/-45/90/-45/90]S			
Resin content:	38.73 % wt		**Comp. density:**	1.536 g/cc					
Fiber volume:	53.56 % vol								
Ply count:	20								
Test method:	ASTM D 6742-07								
Normalized by:	0.0081	in. CPT							
			RTD		**ETW1**				
Test Temperature [°F]			70		180				
Moisture Conditioning			Dry		Equilbrium				
Equilbrium at T, RH					160 F,85%				
Source code			EPB7X XXXA		EPB7X XXXD				
			Normalized	**Measured**	**Normalized**	**Measured**			
	Mean		74.266	75.213	60.786	61.325			
	Minimum		62.569	62.965	55.848	56.688			
	Maximum		82.908	84.322	64.270	64.450			
FHC1 Strength [ksi]	**C.V.(%)**		8.778	9.074	3.513	3.589			
	No. Specimens		16		17				
	No. Prepreg Lots		4		4				

2.3.24 "10/80/10" Filled-Hole Compression 2 Properties (FHC2)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%						**Filled-Hole Compression 2** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/-45/0/45/-45/45/-45/90/45/-45]S			
Resin content:	34.48 % wt		**Comp. density:**	1.530 g/cc						
Fiber volume:	53.62 % vol									
Ply count:	20									
Test method:	ASTM D 6742-07									
Normalized by:	0.0081	in. CPT								
			RTD		**ETW1**					
Test Temperature [°F]			70		180					
Moisture Conditioning			Dry		Equilbrium					
Equilbrium at T, RH					160 F,85%					
Source code			EPB8X XXXA		EPB8X XXXD					
			Normalized	**Measured**	**Normalized**	**Measured**				
	Mean		54.699	55.252	42.951	43.355				
	Minimum		50.146	49.992	39.133	38.952				
	Maximum		56.737	57.276	45.441	46.313				
FHC2 Strength [ksi]	**C.V.(%)**		3.874	4.523	4.526	5.176				
	No. Specimens		14		14					
	No. Prepreg Lots		2		2					

2.3.25 "40/20/40" Filled-Hole Compression 3 Properties (FHC3)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%					**Filled-Hole Compression 3** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [0/90/45/90/0/0/90/-45/90/0]S			
Resin content:	38.57 % wt		**Comp. density:**	1.537 g/cc					
Fiber volume:	53.72 % vol								
Ply count:	20								
Test method:	ASTM D 6742-07								
Normalized by:	0.0081	in. CPT							
			RTD		**ETW1**				
Test Temperature [°F]			70		180				
Moisture Conditioning			Dry		Equilbrium				
Equilbrium at T, RH					160 F,85%				
Source code			EPB9X XXXA		EPB9X XXXD				
			Normalized	**Measured**	**Normalized**	**Measured**			
FHC3 Strength [ksi]	**Mean**		66.749	67.733	62.184	62.962			
	Minimum		59.278	59.895	55.155	56.284			
	Maximum		80.680	81.519	67.424	67.850			
	C.V.(%)		6.828	6.624	4.914	4.878			
	No. Specimens		21		18				
	No. Prepreg Lots		3		3				

2.3.26 "25/50/25" Single-Shear Bearing 1 Properties (SSB1)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%						**Single-Shear Bearing 1** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/0/-45/90]2S			
Resin content:	38.31 % wt		**Comp. density:**	1.530 g/cc						
Fiber volume:	53.73 % vol									
Ply count:	16									
Test method:	ASTM D 5961-10									
Normalized by:	0.0081	in. CPT								
			RTD		**ETW1**					
Test Temperature [°F]			70		180					
Moisture Conditioning			Dry		Equilbrium					
Equilbrium at T, RH					160 F,85%					
Source code			EPB1X XXXA		EPB1X XXXD					
			Normalized	**Measured**	**Normalized**	**Measured**				
	Mean		109.719	111.074	93.821	94.539				
	Minimum		99.878	100.746	88.448	90.580				
	Maximum		117.780	118.604	96.844	96.994				
SSB1 Initial Peak Bearing Strength [ksi]	**C.V.(%)**		5.294	5.283	3.931	2.940				
	No. Specimens		6		4					
	No. Prepreg Lots		3		3					
	Mean		110.604	112.033	94.246	94.970				
	Minimum		98.420	99.276	82.200	83.795				
	Maximum		117.317	120.685	101.679	102.770				
SSB1 2% Offset Strength [ksi]	**C.V.(%)**		4.162	4.312	4.994	4.885				
	No. Specimens		21		22					
	No. Prepreg Lots		3		3					
	Mean		129.422	131.081	108.602	109.443				
	Minimum		123.348	125.867	101.033	103.481				
	Maximum		136.916	139.719	120.016	120.465				
SSB1 Ultimate Strength [ksi]	**C.V.(%)**		2.741	2.599	3.645	3.630				
	No. Specimens		21		22					
	No. Prepreg Lots		3		3					

2.3.27 "10/80/10" Single-Shear Bearing 2 Properties (SSB2)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%						**Single-Shear Bearing 2** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/-45/90/45/-45]2S			
Resin content:	38.06 % wt		**Comp. density:**	1.532 g/cc						
Fiber volume:	53.96 % vol									
Ply count:	20									
Test method:	ASTM D 5961-10									
Normalized by:	0.0081	in. CPT								
			RTD		**ETW1**					
Test Temperature [°F]			70		180					
Moisture Conditioning			Dry		Equilbrium					
Equilbrium at T, RH					160 F,85%					
Source code			EPB2X XXXA		EPB2X XXXD					
			Normalized	**Measured**	**Normalized**	**Measured**				
	Mean		109.096	112.918	90.535	91.228				
	Minimum		108.670	112.346	86.161	87.165				
	Maximum		109.521	113.490	94.909	95.291				
SSB2 Initial Peak Bearing Strength [ksi]	**C.V.(%)**		0.551	0.717	6.832	6.298				
	No. Specimens			2		2				
	No. Prepreg Lots			3		3				
	Mean		106.607	108.397	88.982	90.289				
	Minimum		102.617	103.275	81.600	81.466				
	Maximum		111.243	114.542	94.055	97.309				
SSB2 2% Offset Strength [ksi]	**C.V.(%)**		2.323	2.923	3.767	4.121				
	No. Specimens			21		21				
	No. Prepreg Lots			3		3				
	Mean		125.921	128.040	102.965	104.471				
	Minimum		121.000	121.932	97.941	99.232				
	Maximum		131.323	135.764	107.286	109.253				
SSB2 Ultimate Strength [ksi]	**C.V.(%)**		2.532	3.225	2.400	2.708				
	No. Specimens			21		21				
	No. Prepreg Lots			3		3				

2.3.28 "40/20/40" Single-Shear Bearing 3 Properties (SSB3)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%						**Single-Shear Bearing 3** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [0/90/45/0/90]2S		
Resin content:	38.18 % wt		**Comp. density:**	1.536 g/cc					
Fiber volume:	54.00 % vol								
Ply count:	20								
Test method:	ASTM D 5961-10								
Normalized by:	0.0081	in. CPT							
			RTD		**ETW1**				
Test Temperature [°F]			70		180				
Moisture Conditioning			Dry		Equilbrium				
Equilbrium at T, RH					160 F,85%				
Source code			EPB3X XXXA		EPB3X XXXD				
			Normalized	**Measured**	**Normalized**	**Measured**			
	Mean		100.026	101.600	84.414	85.157			
	Minimum		97.667	99.751	78.030	78.304			
	Maximum		101.465	103.578	89.917	92.116			
SSB3 Initial Peak Bearing Strength [ksi]	**C.V.(%)**		1.758	1.652	5.031	5.571			
	No. Specimens			4		7			
	No. Prepreg Lots			3		3			
	Mean		99.087	100.931	84.480	85.572			
	Minimum		92.765	93.710	73.630	73.888			
	Maximum		106.475	109.240	90.600	92.535			
SSB3 2% Offset Strength [ksi]	**C.V.(%)**		3.459	3.871	5.195	5.614			
	No. Specimens			21		21			
	No. Prepreg Lots			3		3			
	Mean		118.984	121.192	97.480	98.735			
	Minimum		110.490	112.245	91.198	91.669			
	Maximum		126.896	129.794	108.119	110.810			
SSB3 Ultimate Strength [ksi]	**C.V.(%)**		3.082	3.406	3.728	4.218			
	No. Specimens			21		21			
	No. Prepreg Lots			3		3			

2.3.29 "25/50/25" Compression After Impact 1 Properties (CAI1)

Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%									**Compression After Impact 1** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [45/0/-45/90]3S	
Resin content:	38.26 % wt		**Comp. density:**	1.542 g/cc							
Fiber volume:	54.15 % vol										
Ply count:	24										
Test method:	ASTM D7136/7137-07										
Normalized by:	0.0081	in. CPT									
			RTD								
Test Temperature [°F]			70								
Moisture Conditioning			Dry								
Equilbrium at T, RH											
Source code			EPBKX XXXA								
			Normalized	**Measured**							
CAI Strength [ksi]	**Mean**		41.582	42.250							
	Minimum		37.609	37.889							
	Maximum		47.401	48.435							
	C.V.(%)		6.411	6.755							
	No. Specimens			19							
	No. Prepreg Lots			3							

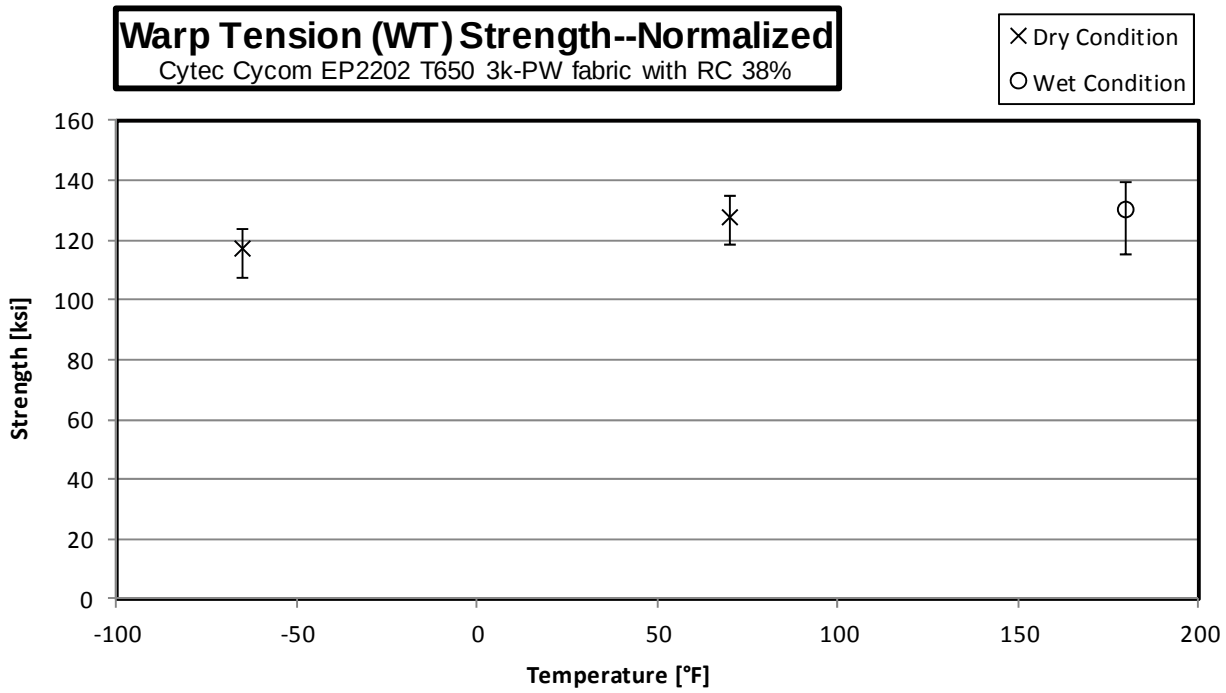
2.3.30 "50/0/50" Interlaminar Tension Properties (ILT)

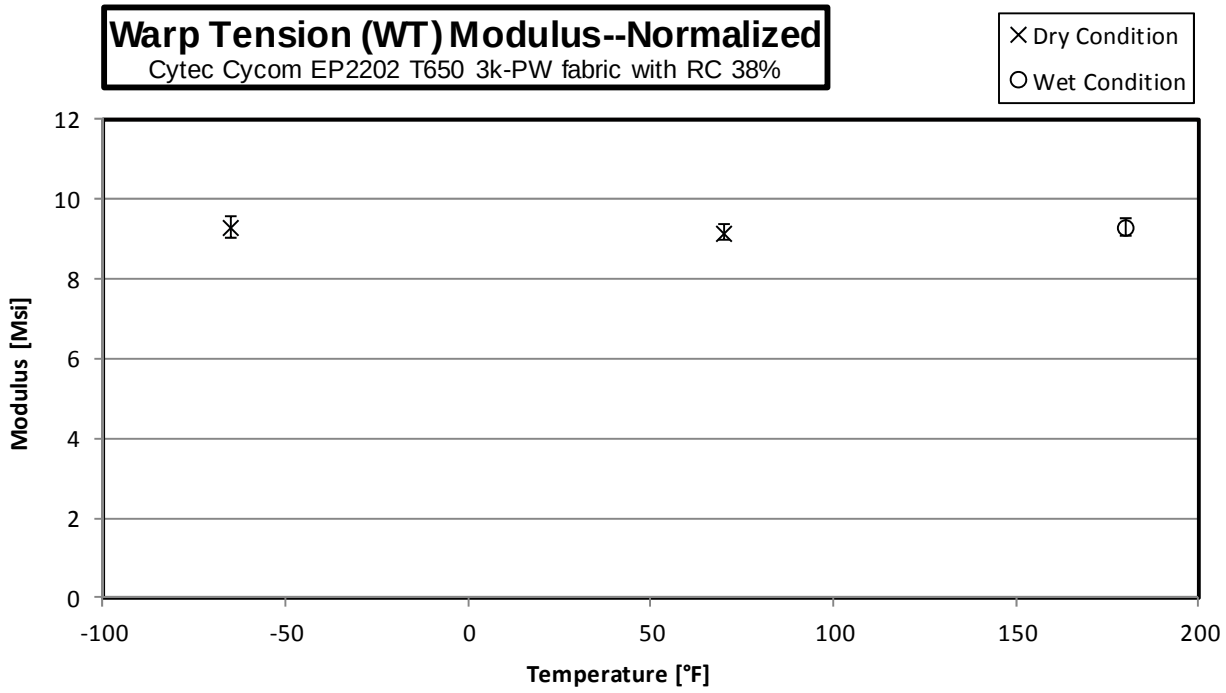
Material:	Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%					**Interlaminar Tension** Cytec Cycom EP2202 T650 3k-PW fabric with RC 38% [0]21			
Resin content:	38.05 % wt	**Comp. density:**	1.532 g/cc						
Fiber volume:	54.24 % vol								
Ply count:	21								
Test method:	ASTM D 6415-06								
Normalized by:	NA								
		CTD		**RTD**		**ETW1**			
Test Temperature [°F]		-65		70		180			
Moisture Conditioning		Dry		Dry		Equilbrium			
Equilbrium at T, RH						160 F,85%			
Source code		EPBMX XXXB		EPBMX XXXA		EPBMX XXXD			
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**		
CBS [lb]	**Mean**		453.902		292.539		408.663		
	Minimum		399.216		237.177		320.086		
	Maximum		520.781		328.729		465.712		
	C.V.(%)		9.816		11.402		14.368		
	No. Specimens		8		6		6		
	No. Prepreg Lots		1		1		1		
ILT [ksi]	**Mean**		12.115		7.603		10.803		
	Minimum		10.691		6.200		8.536		
	Maximum		13.985		8.554		12.383		
	C.V.(%)		9.959		11.696		14.484		
	No. Specimens		8		6		6		
	No. Prepreg Lots		1		1		1		

3 Individual Test Charts

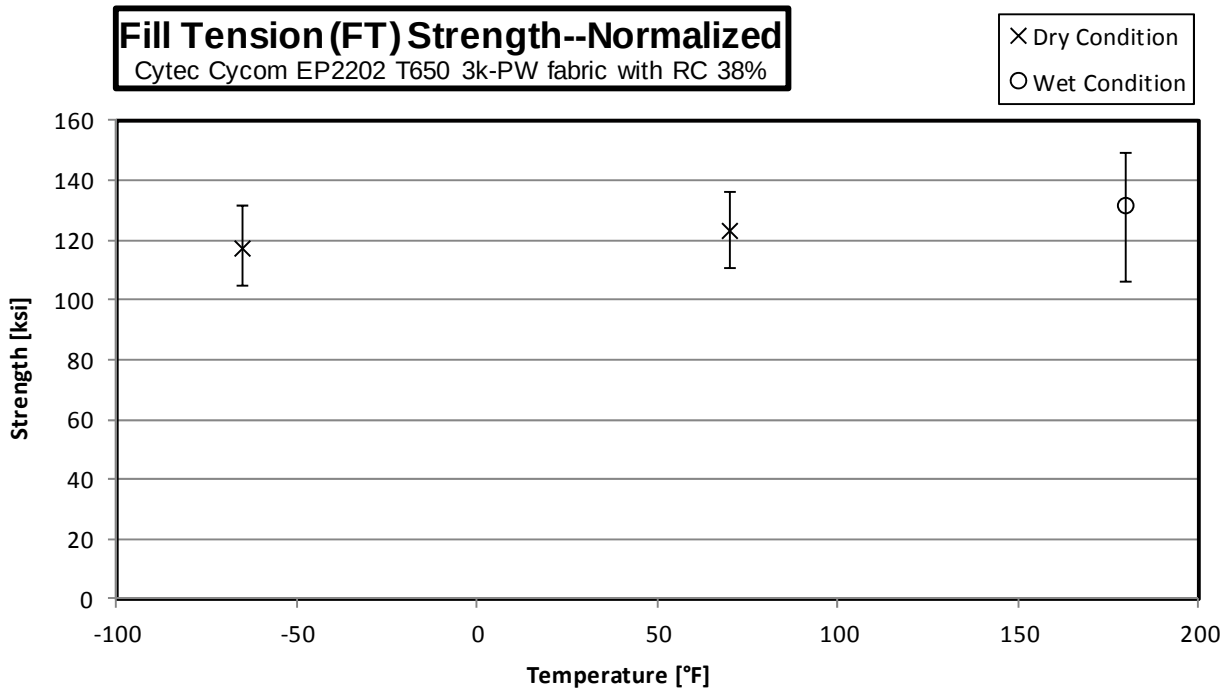
These charts combine all three batches of data and plot the minimum and maximum modulus and strength range based on the test temperature.

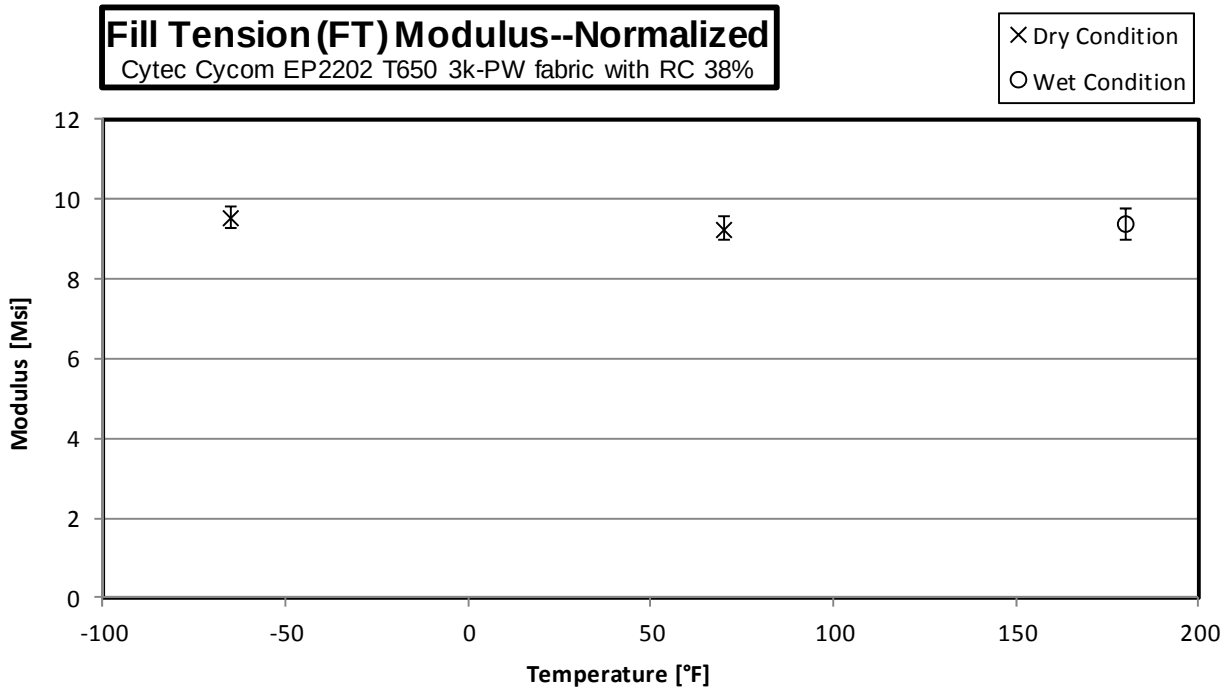
3.1 Warp Tension Properties (WT)



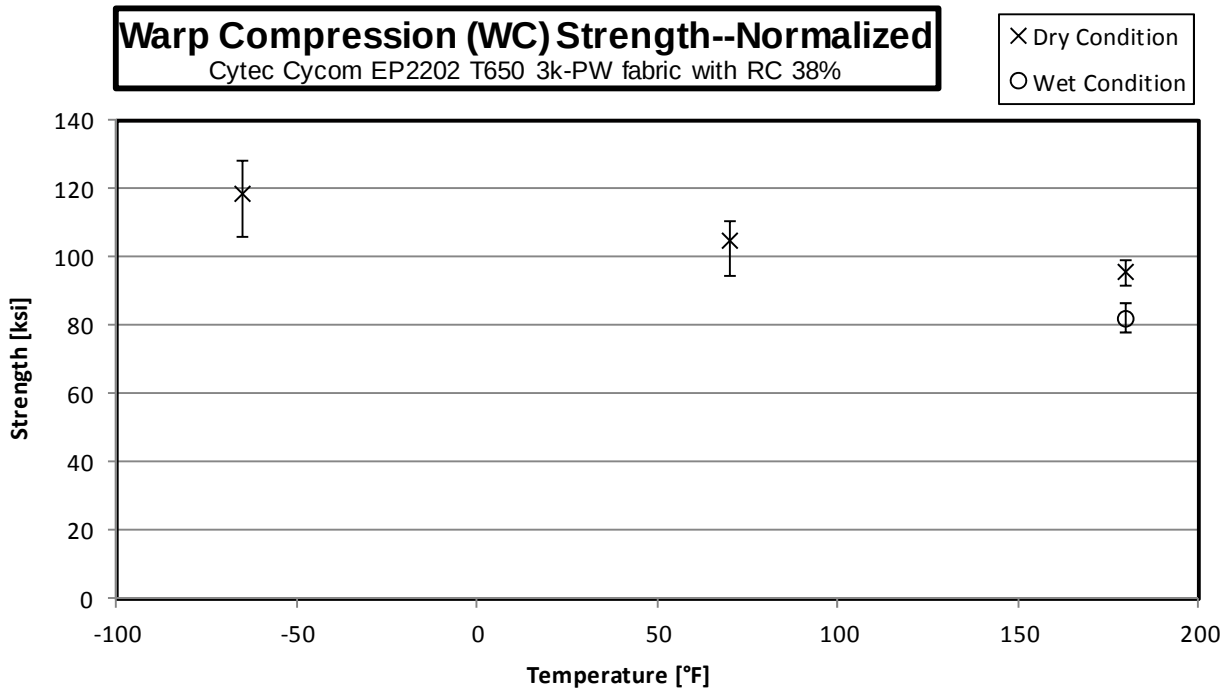


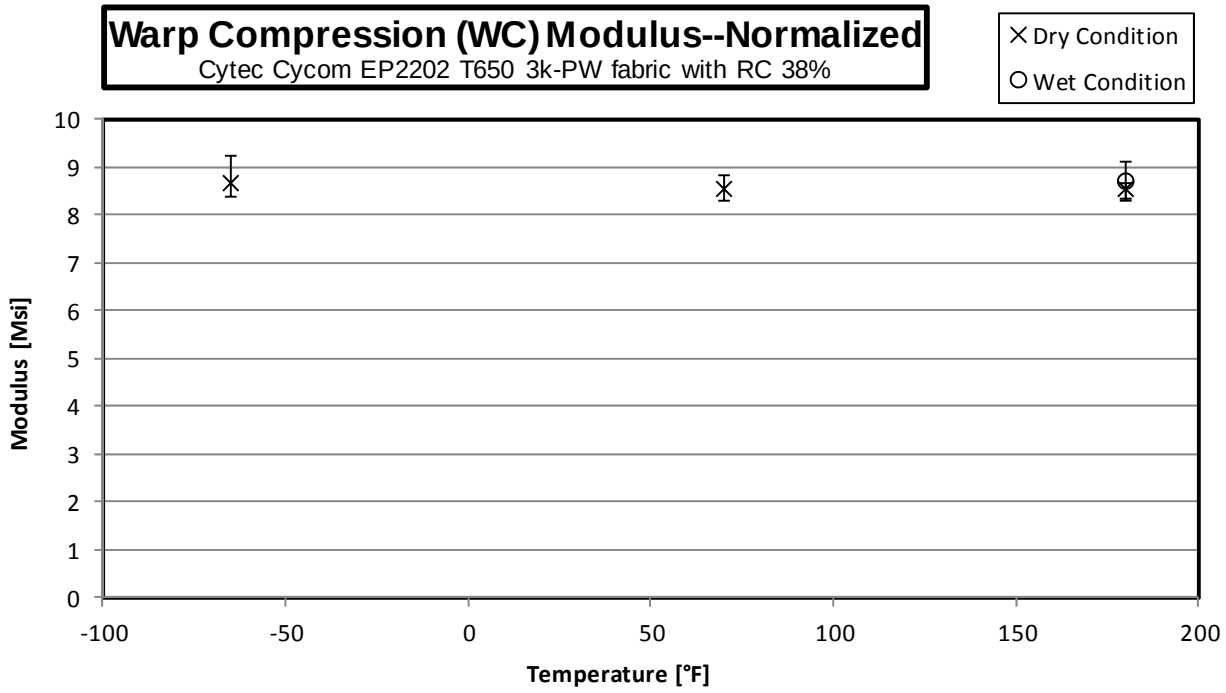
3.2 Fill Tension Properties (FT)



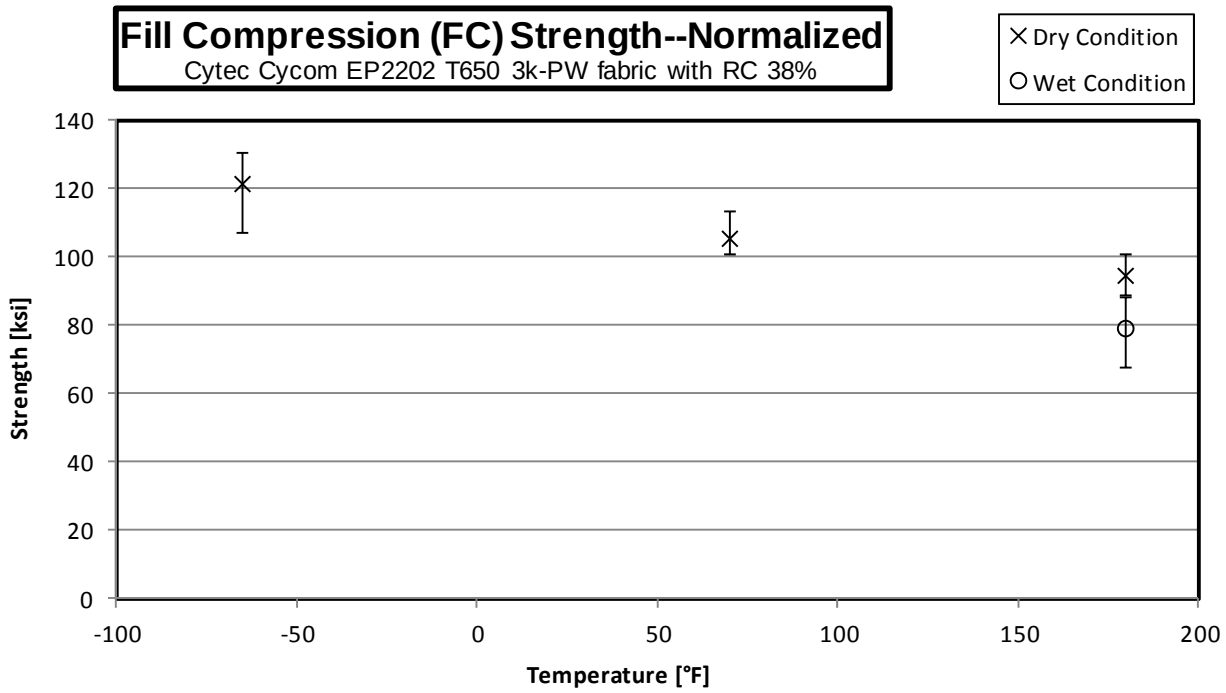


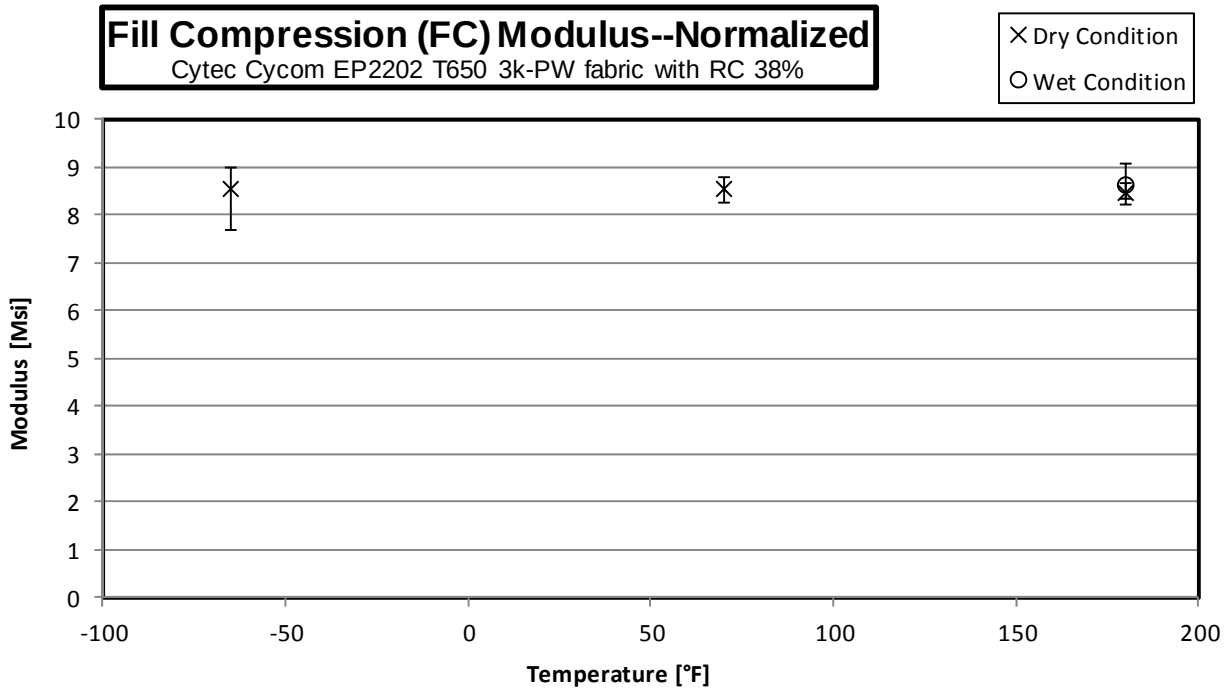
3.3 Warp Compression Properties (WC)



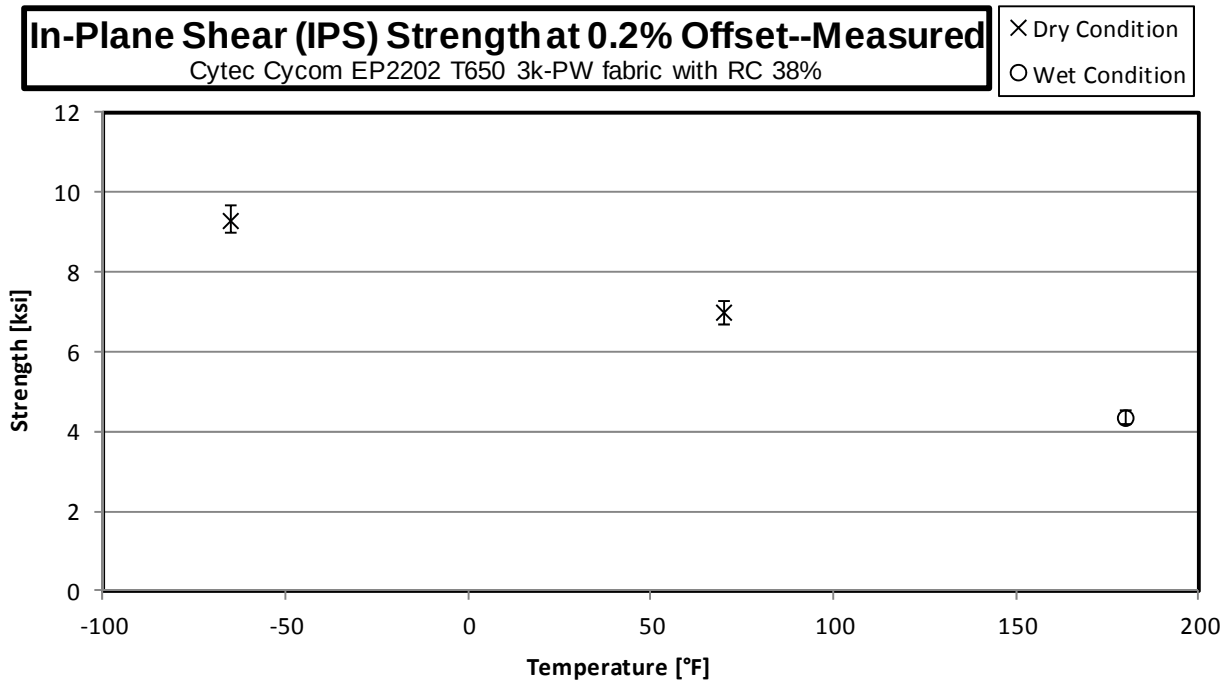


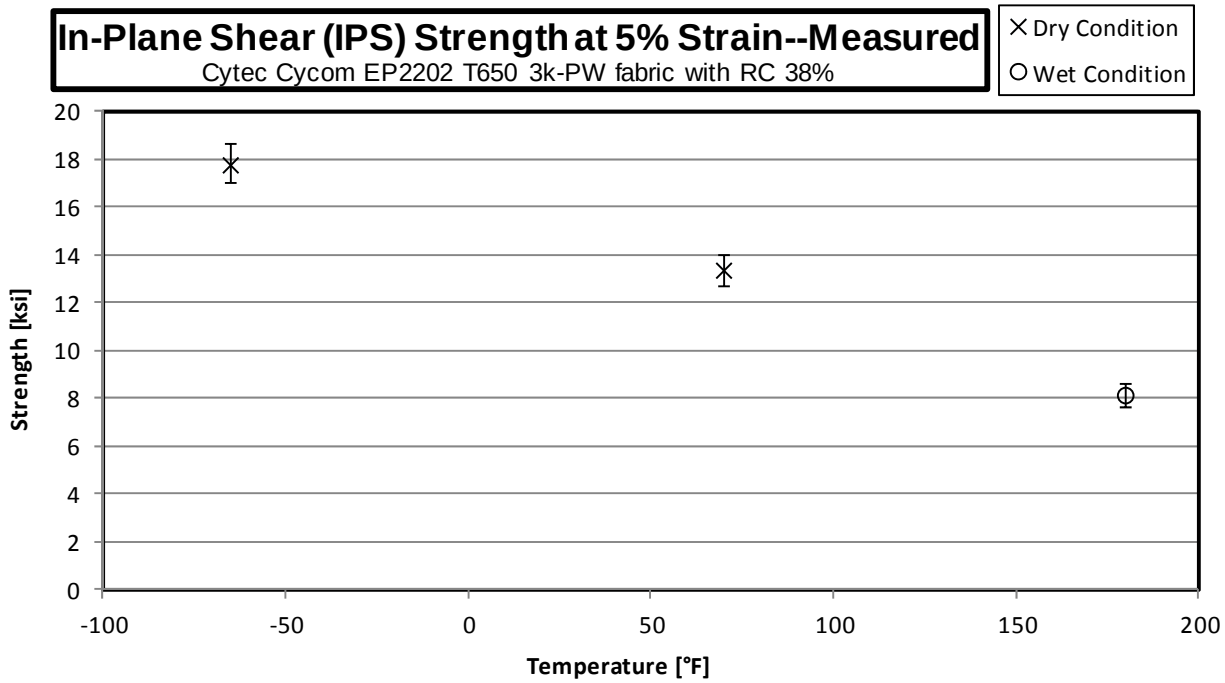
3.4 Fill Compression Properties (FC)

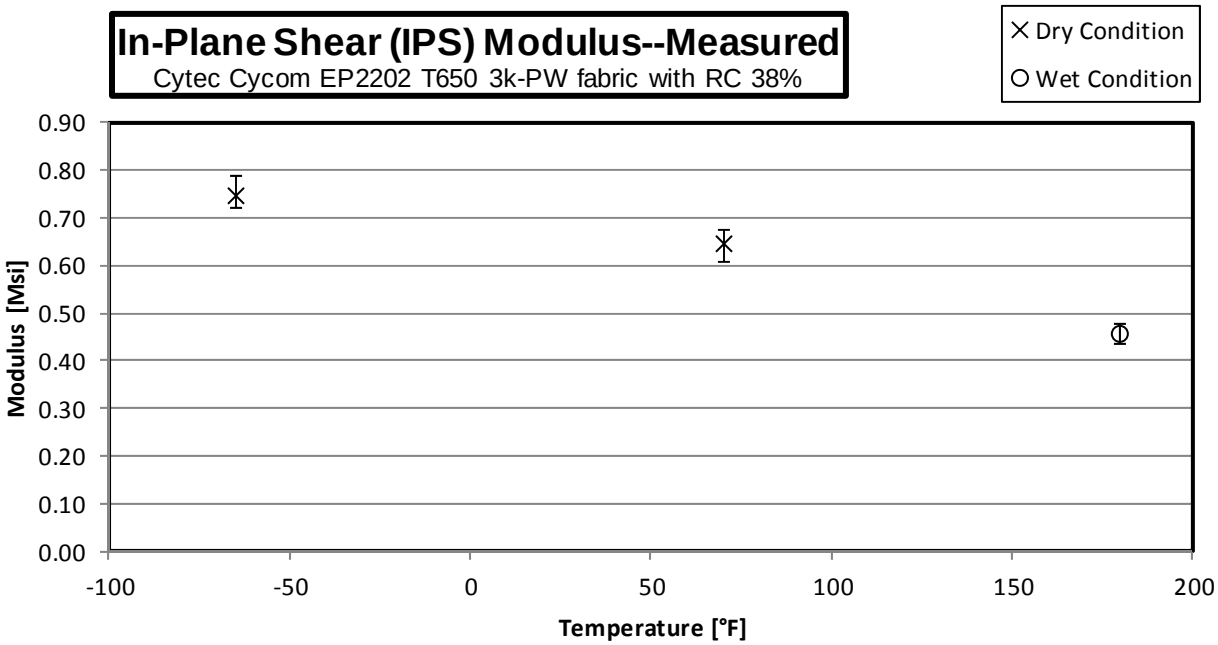




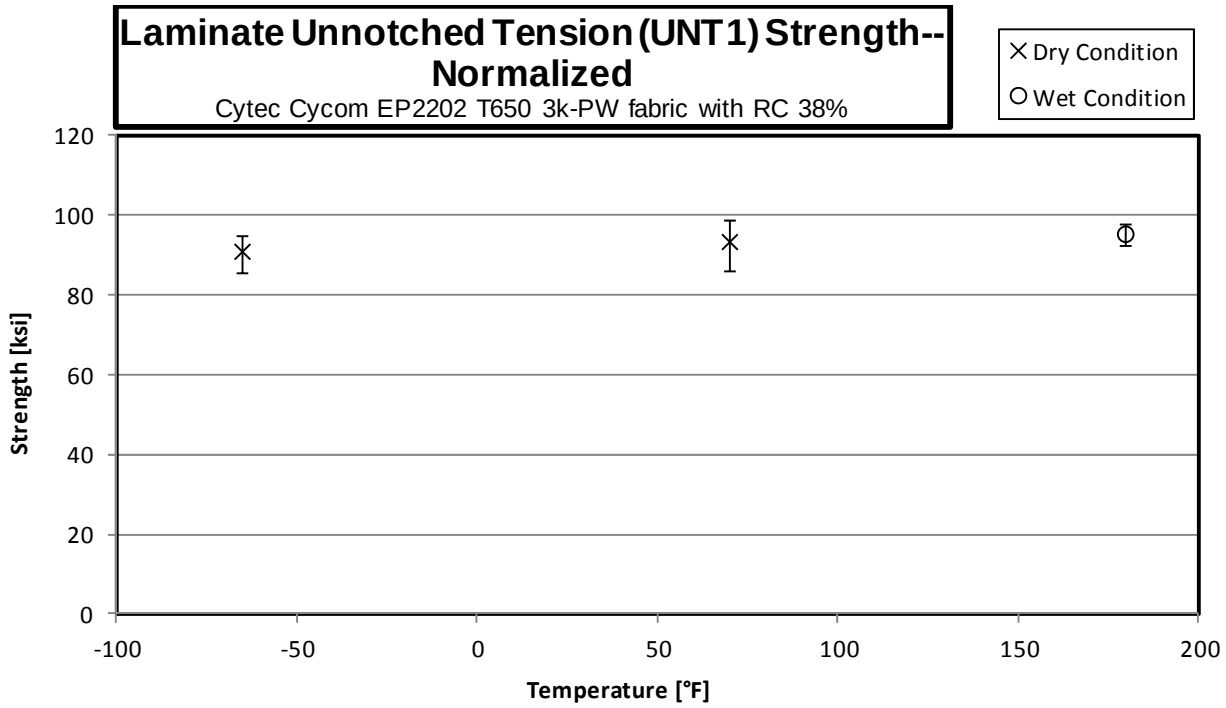
3.5 In-Plane Shear Properties (IPS)

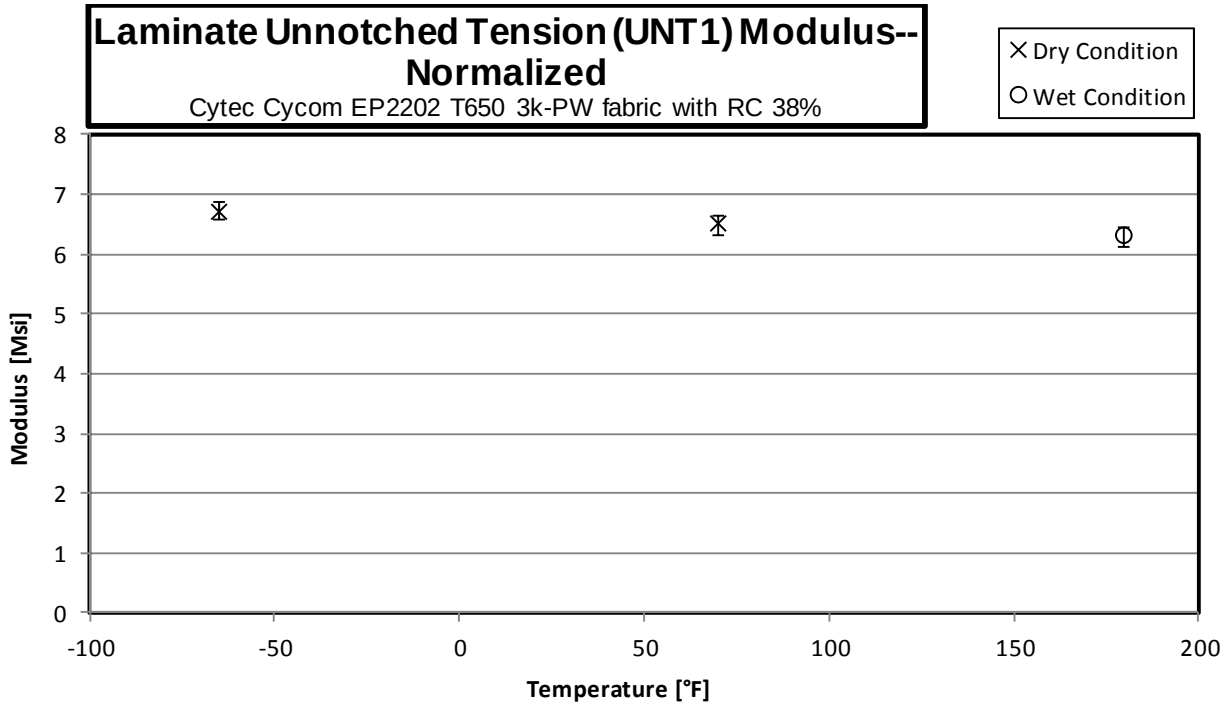




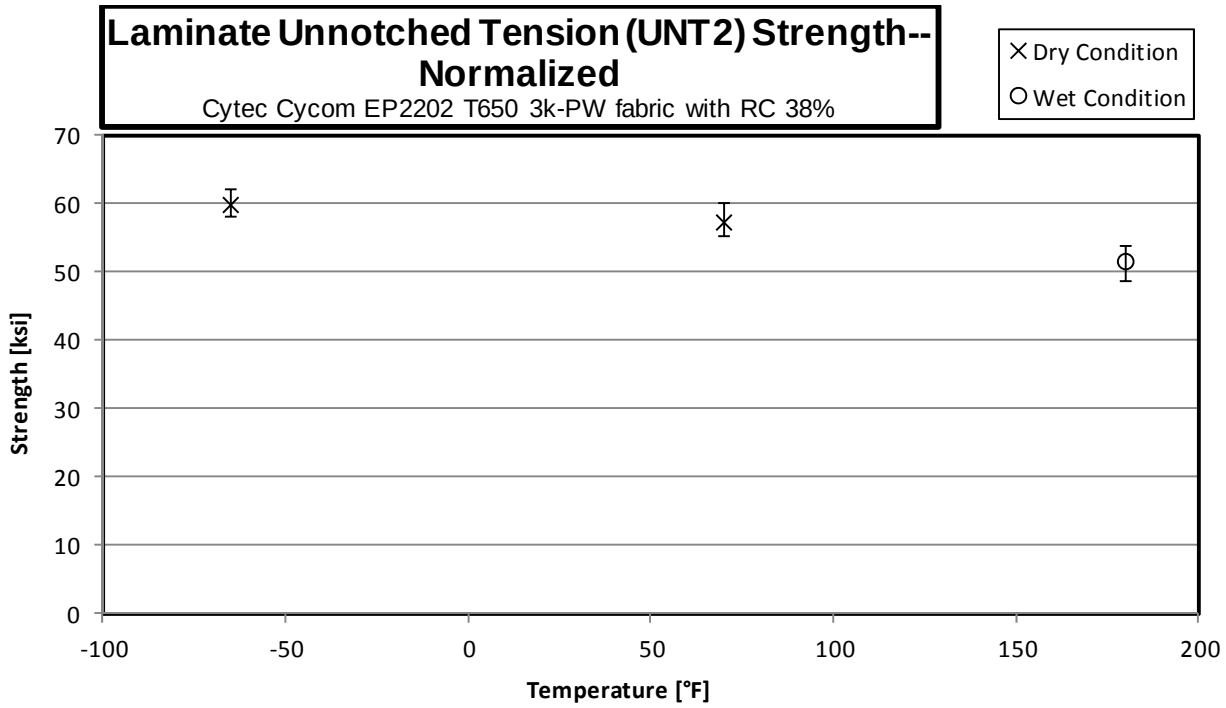

In-Plane Shear (IPS) Modulus--Measured
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Dry Condition
Wet Condition
Modulus [Msi]
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
-100
-50
0
50
100
150
200
Temperature [°F]

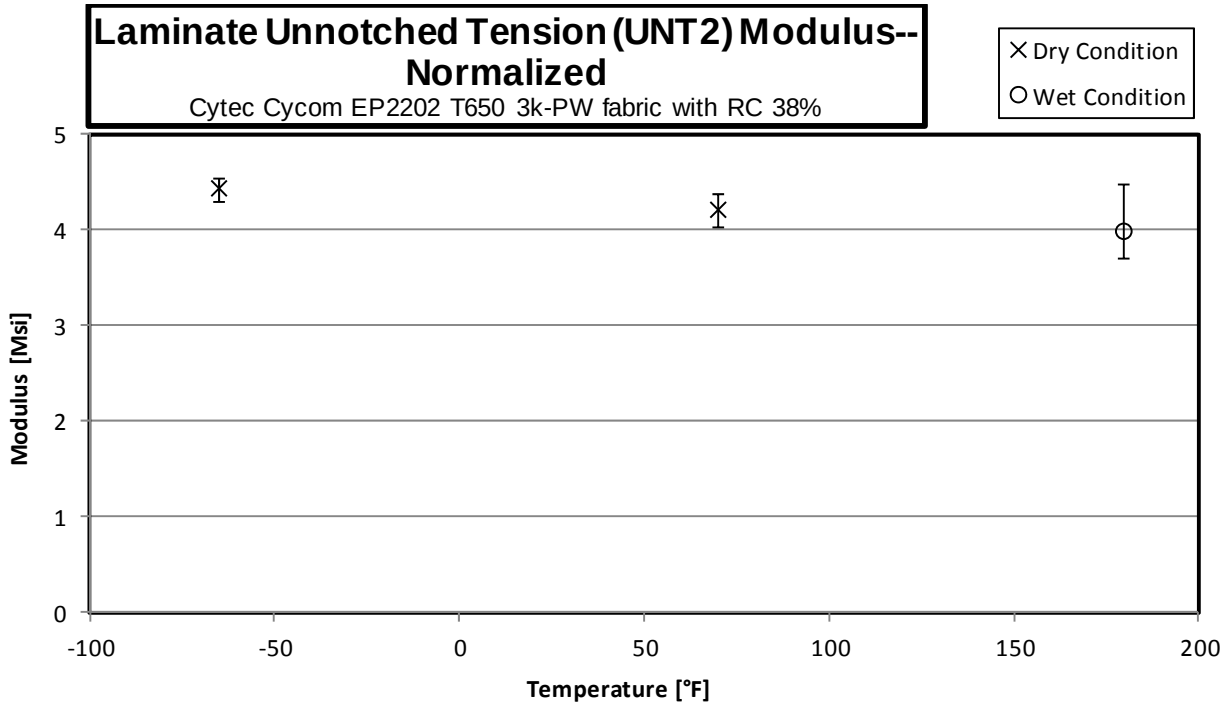
3.6 "25/50/25" Unnotched Tension 1 Properties (UNT1)



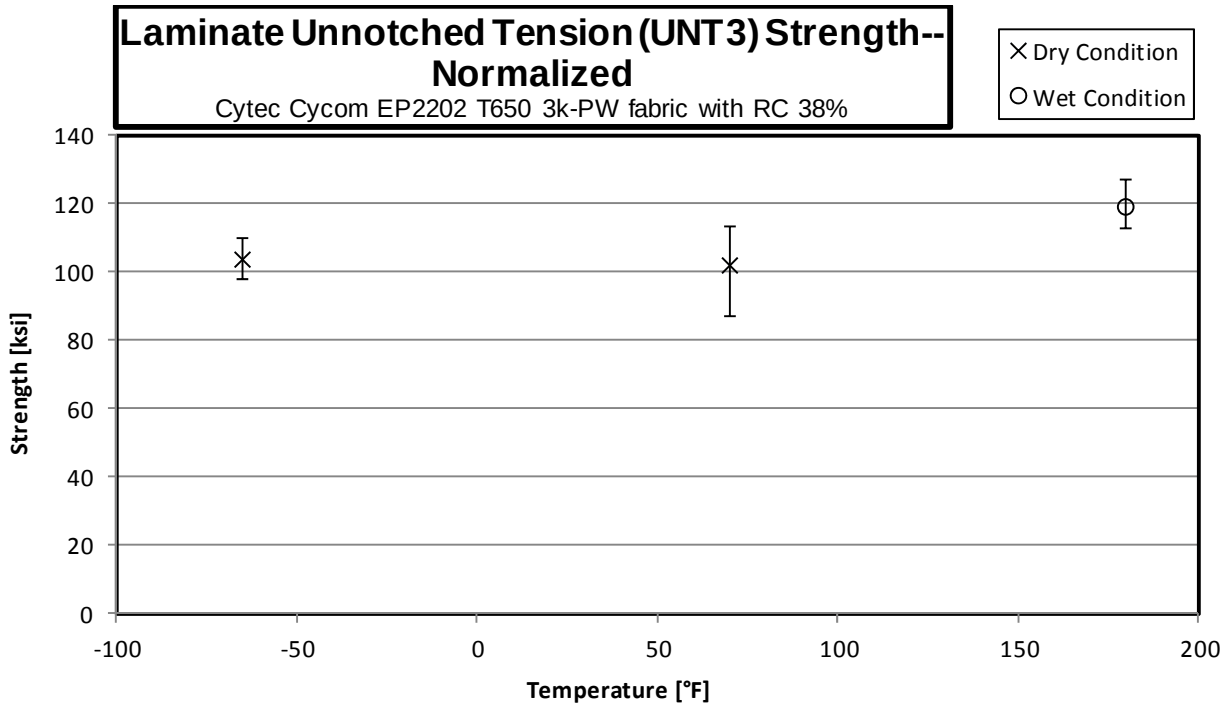


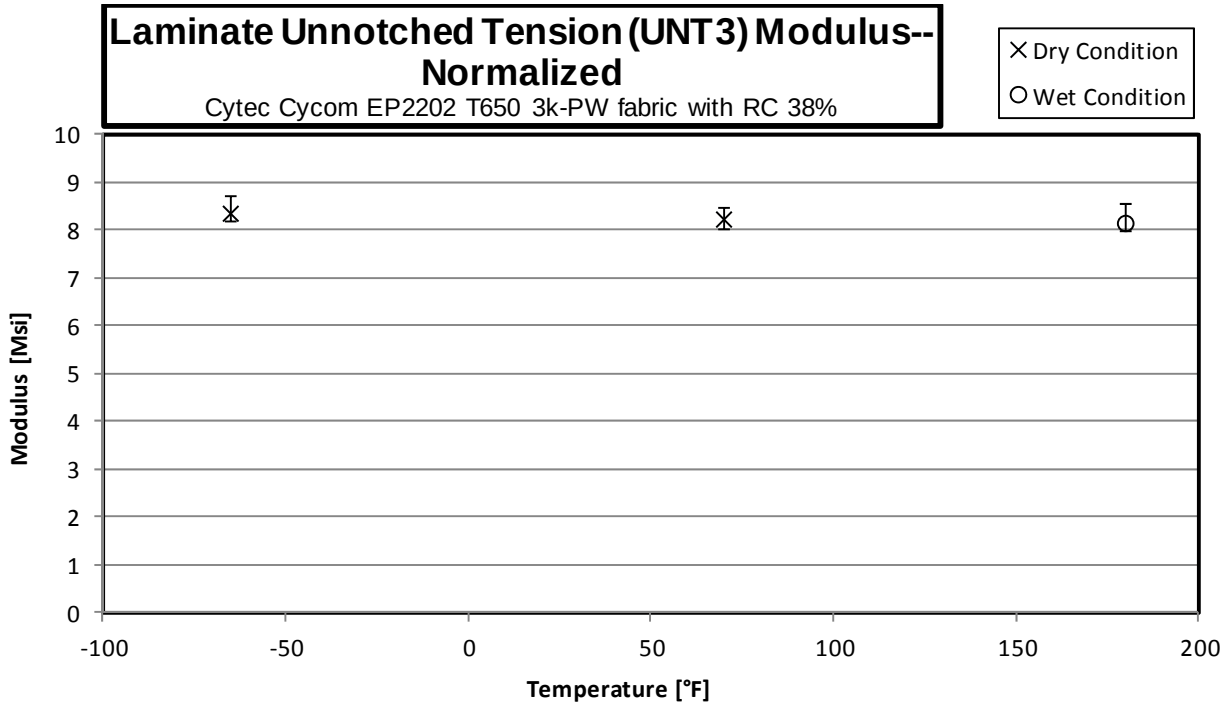
3.7 "10/80/10" Unnotched Tension 2 Properties (UNT2)



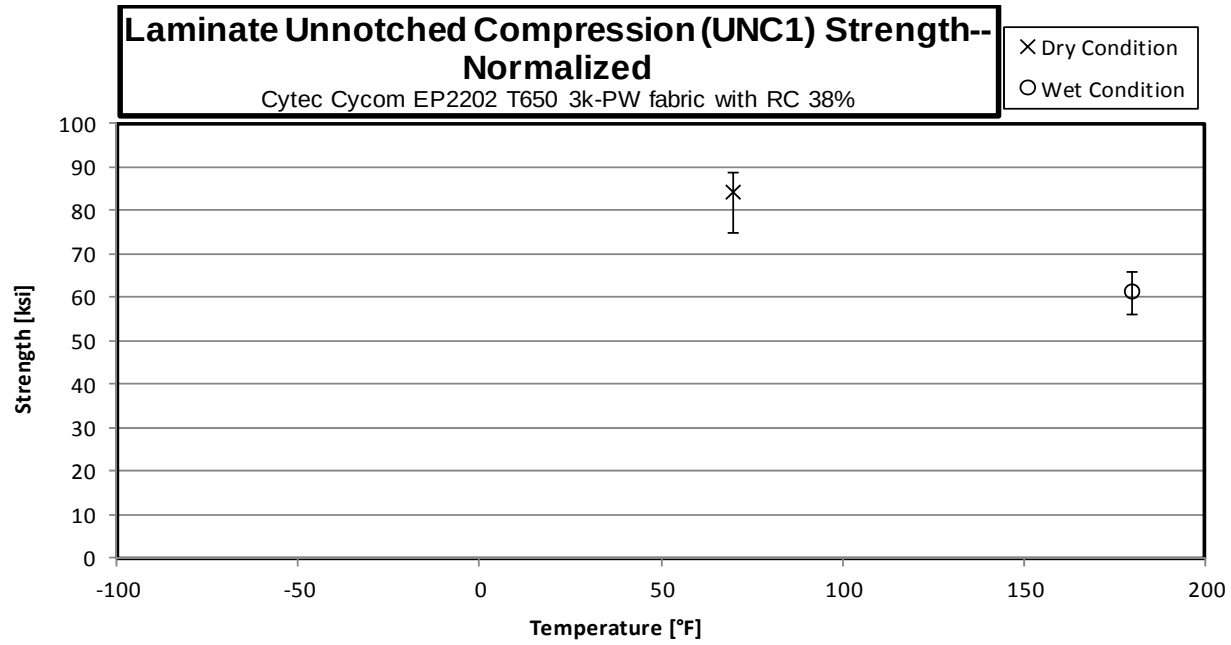


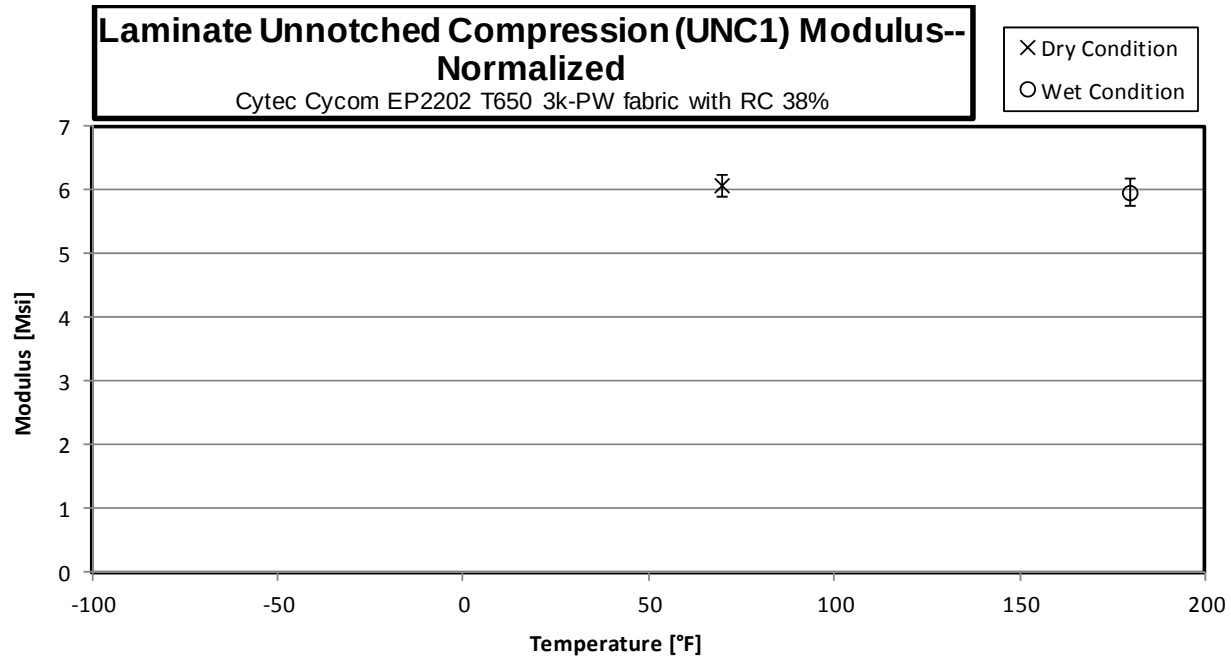
3.8 "40/20/40" Unnotched Tension 3 Properties (UNT3)



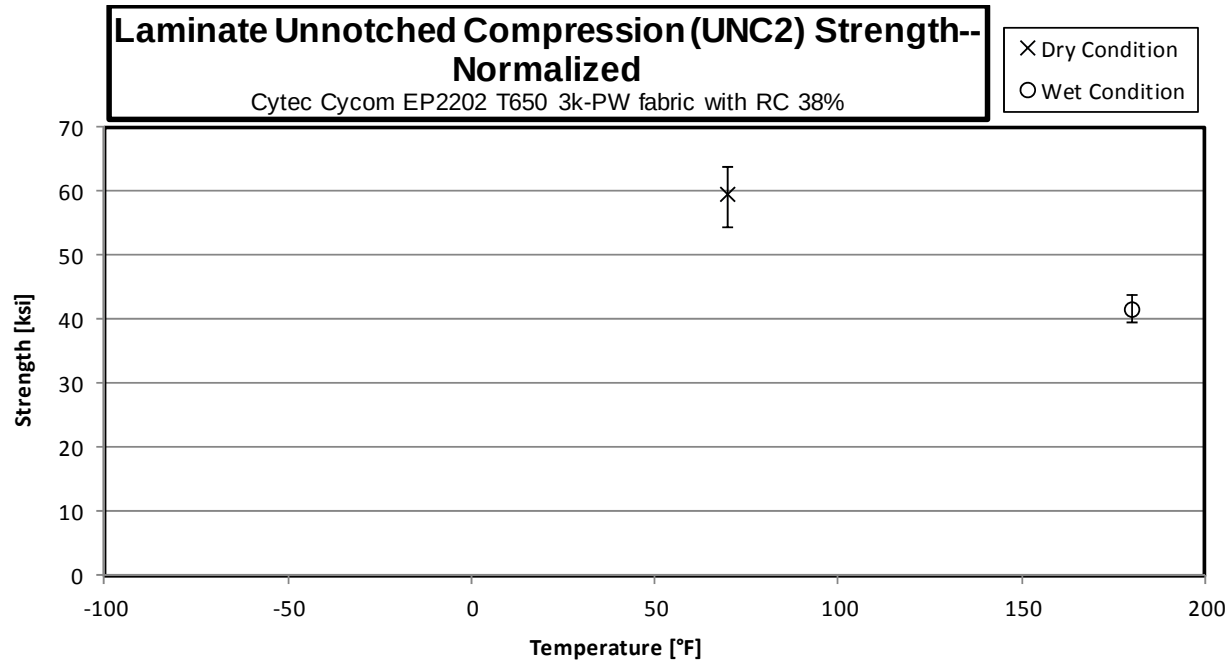


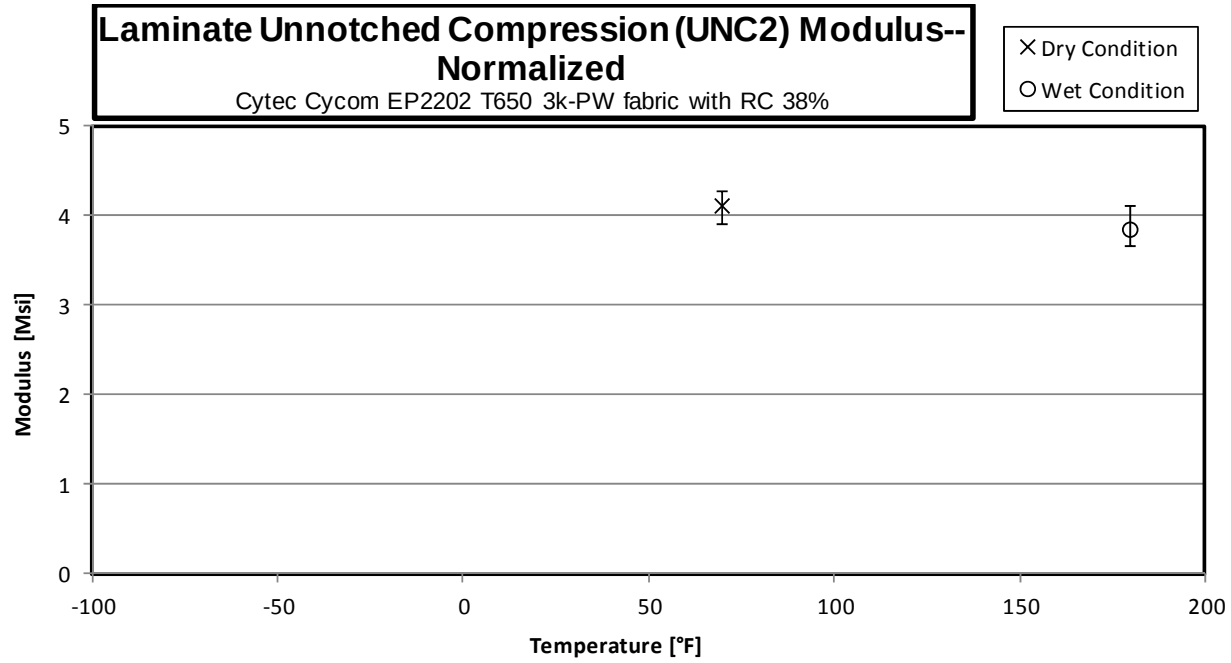
3.9 “25/50/25” Unnotched Compression 1 Properties (UNC1)



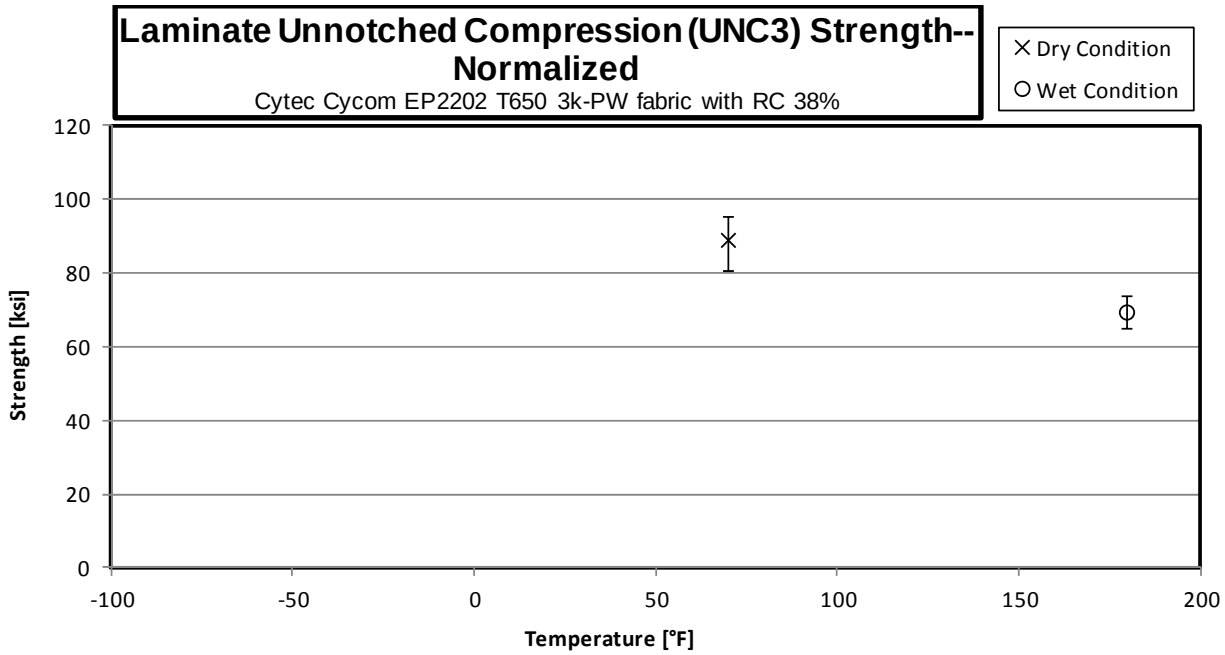


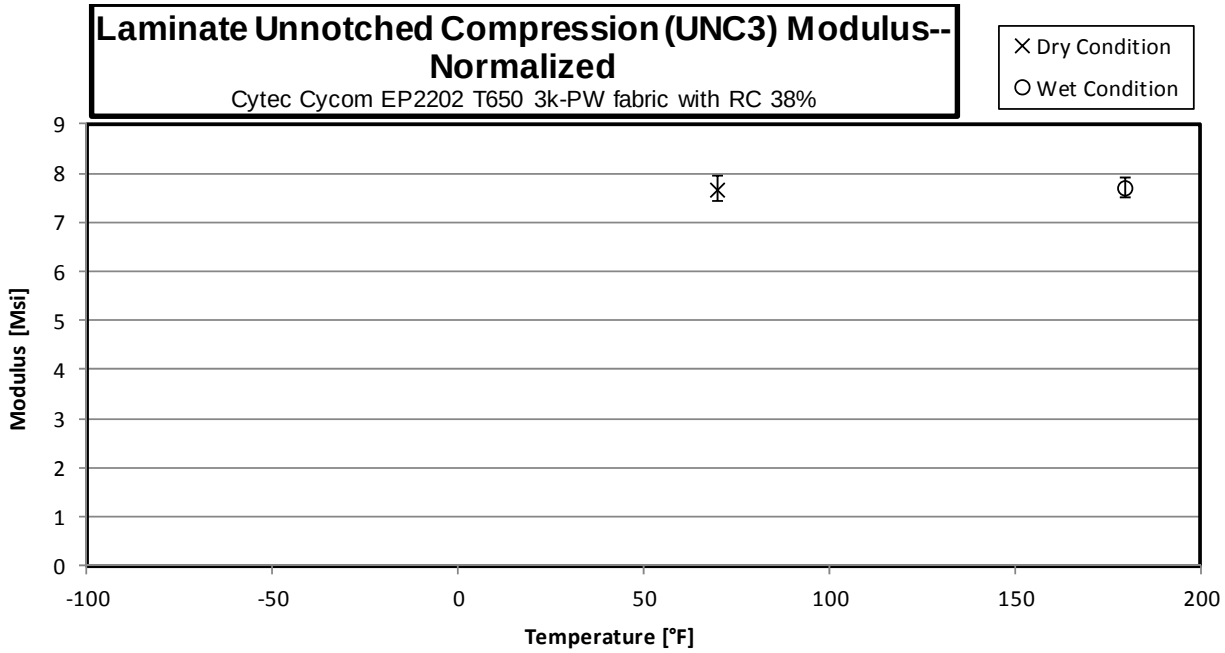
3.10 "10/80/10" Unnotched Compression 2 Properties (UNC2)



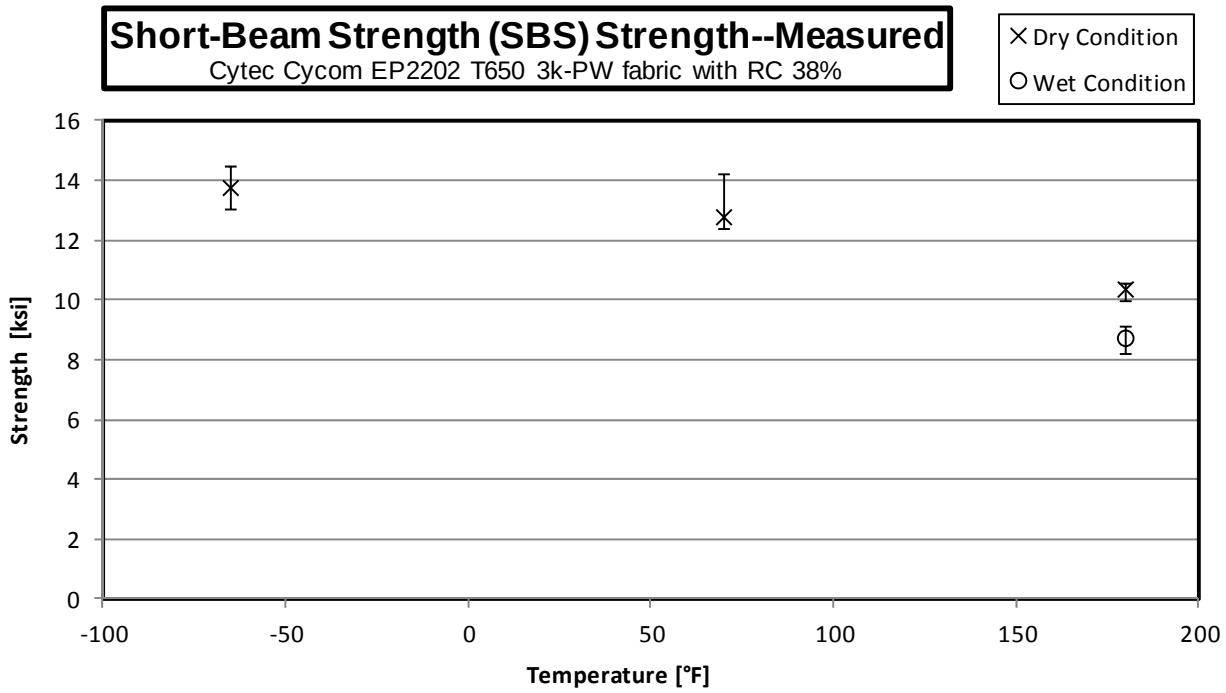


3.11 "40/20/40" Unnotched Compression 3 Properties (UNC3)

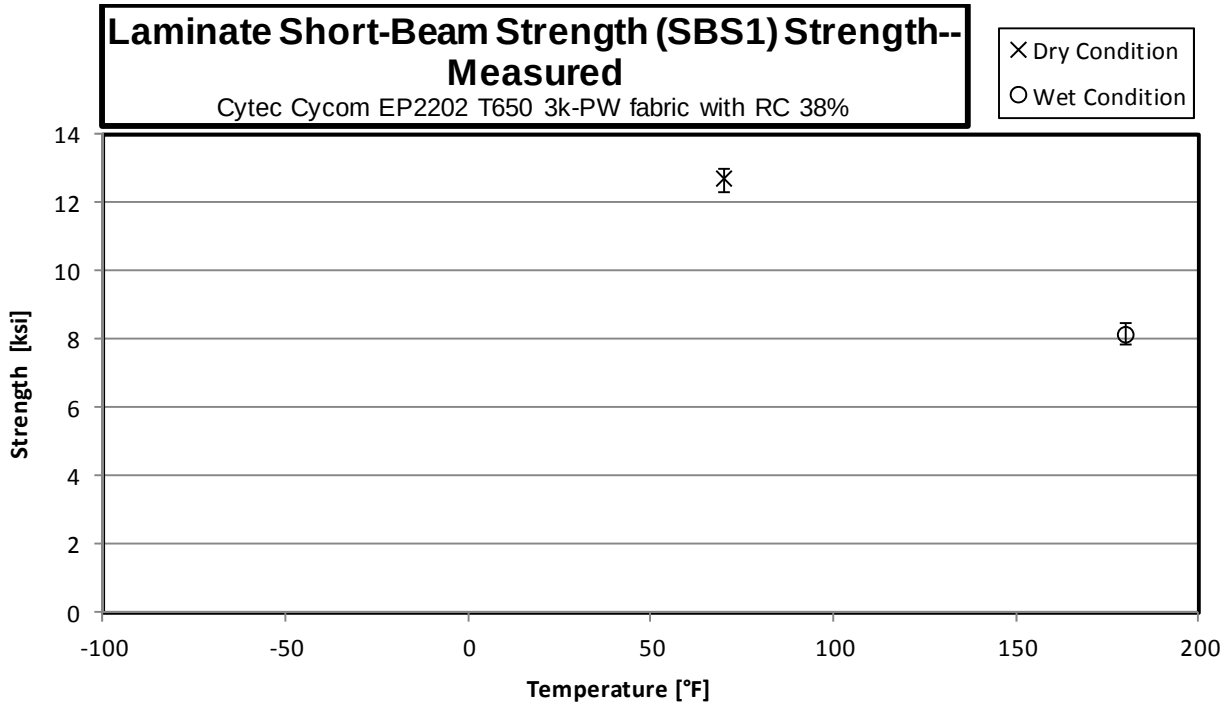




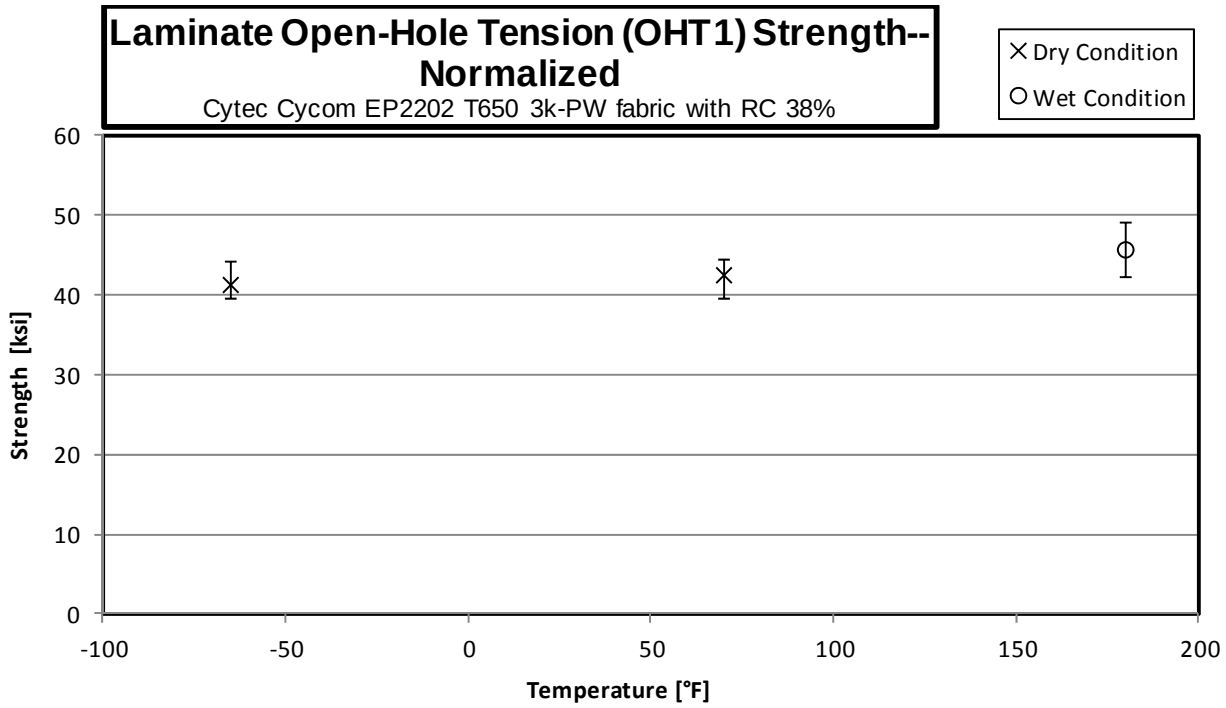
3.12 Lamina Short-Beam Strength Properties (SBS)



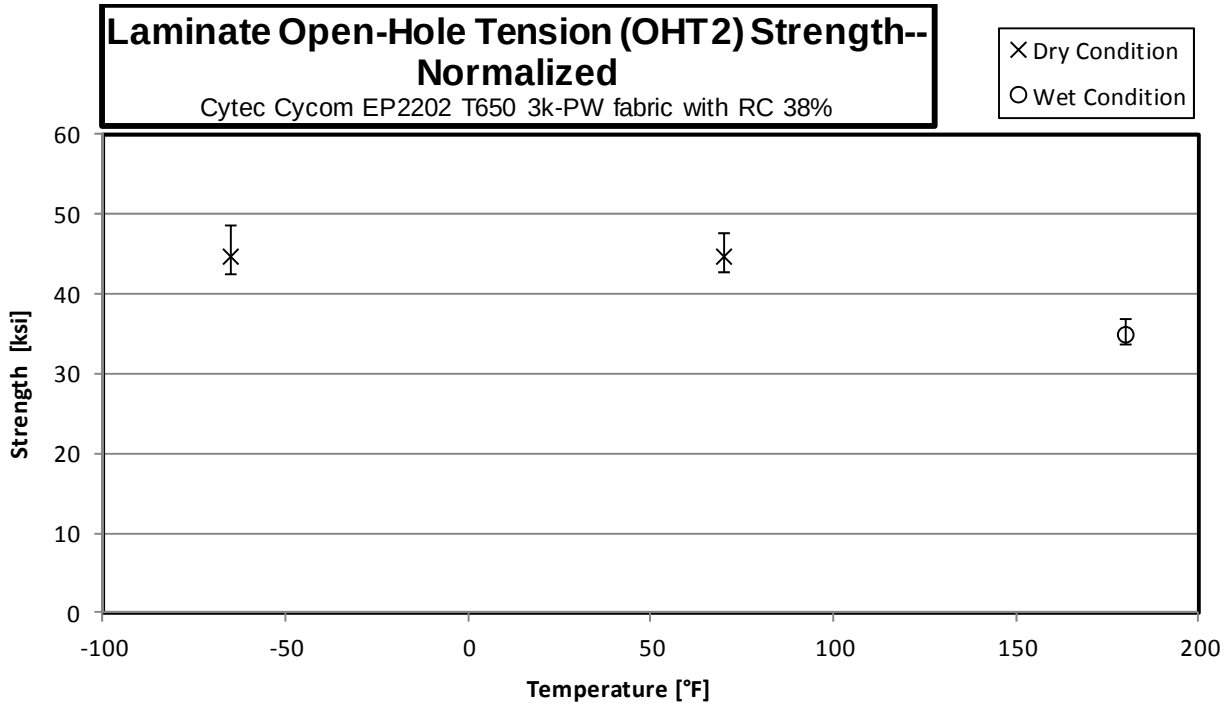
3.13 Laminate Short-Beam Strength Properties (SBS1)



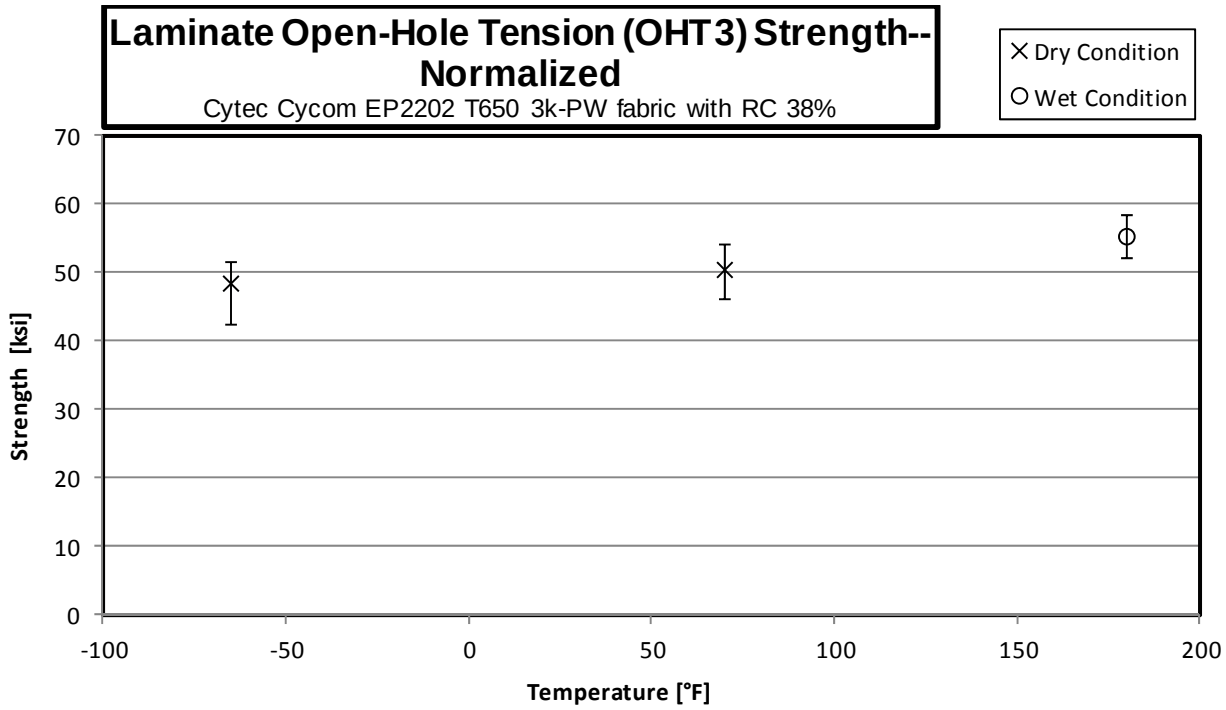
3.14 "25/50/25" Open-Hole Tension 1 Properties (OHT1)



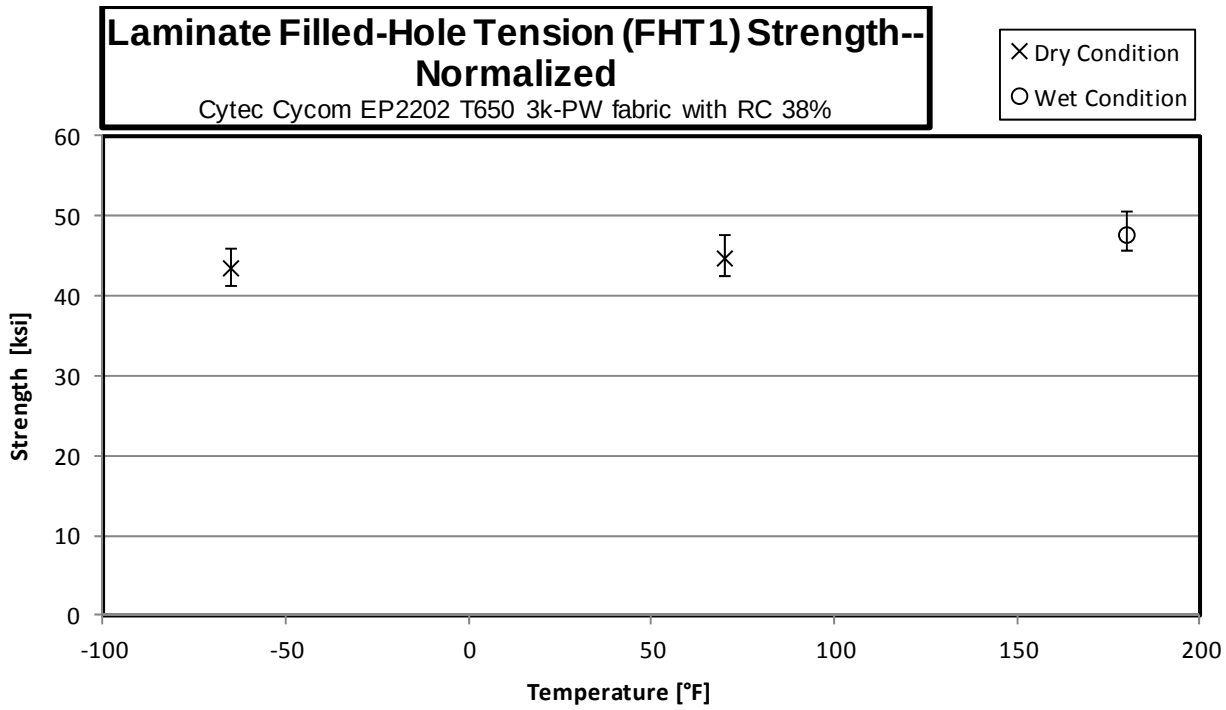
3.15 "10/80/10" Open-Hole Tension 2 Properties (OHT2)



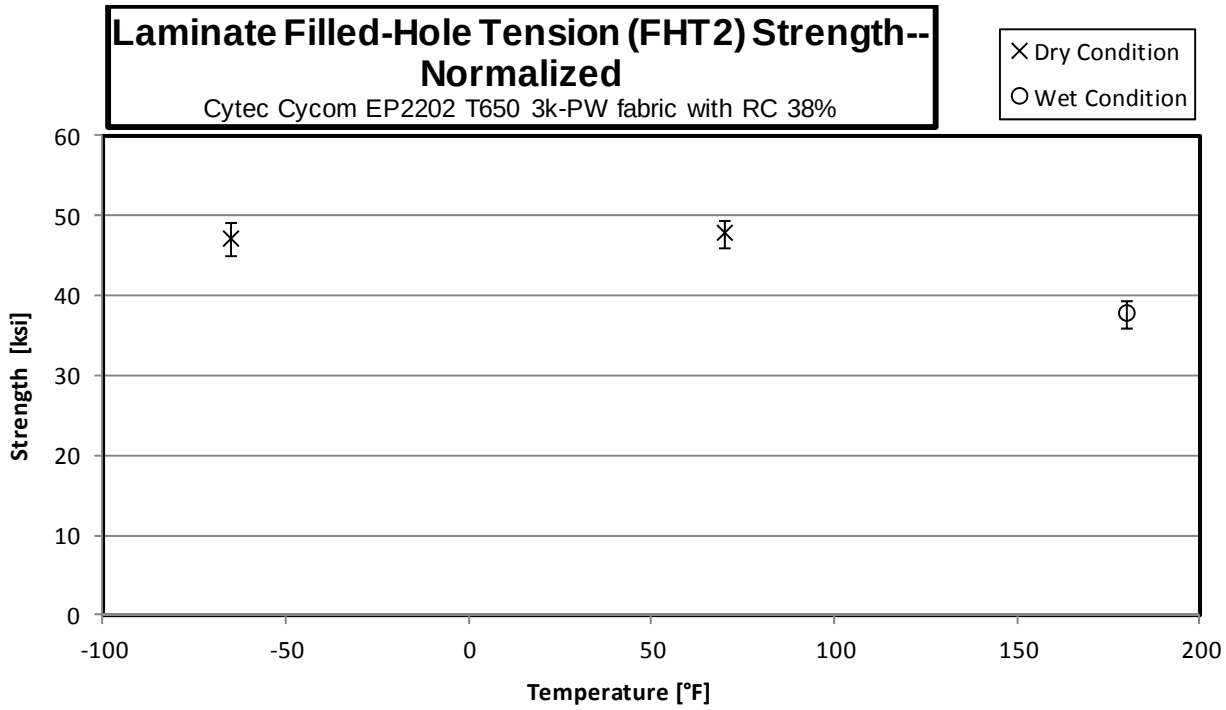
3.16 "40/20/40" Open-Hole Tension 3 Properties (OHT3)



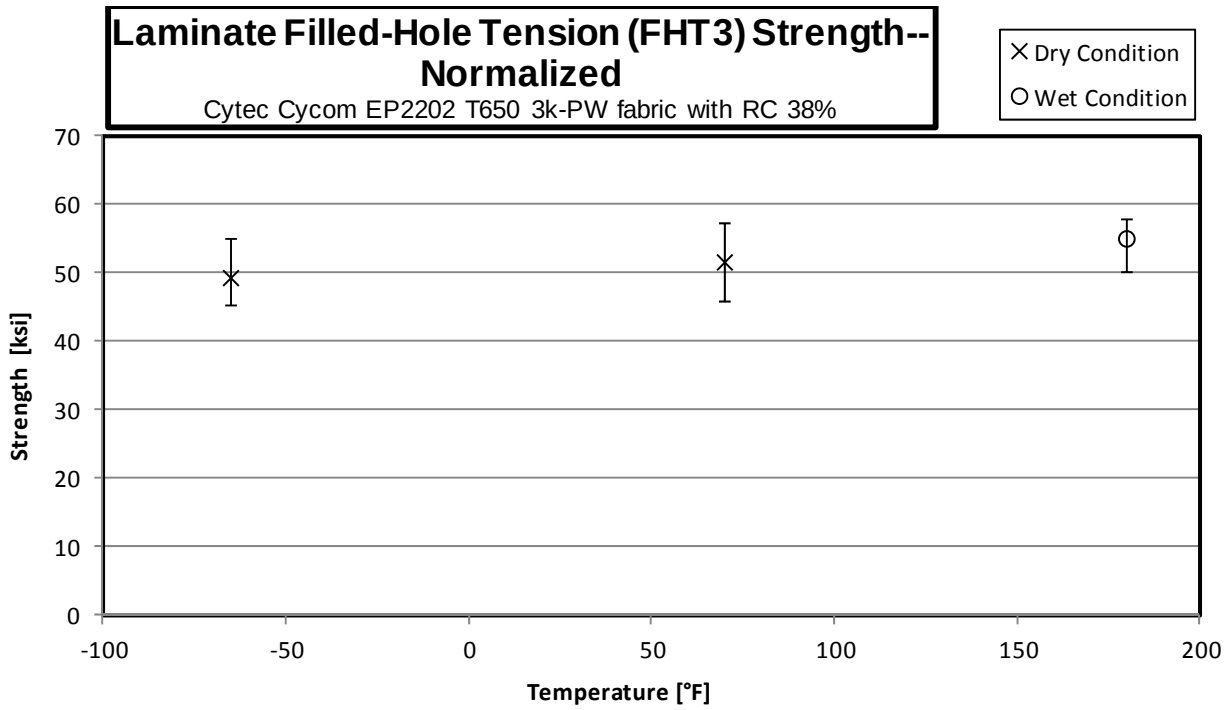
3.17 "25/50/25" Filled-Hole Tension 1 Properties (FHT1)



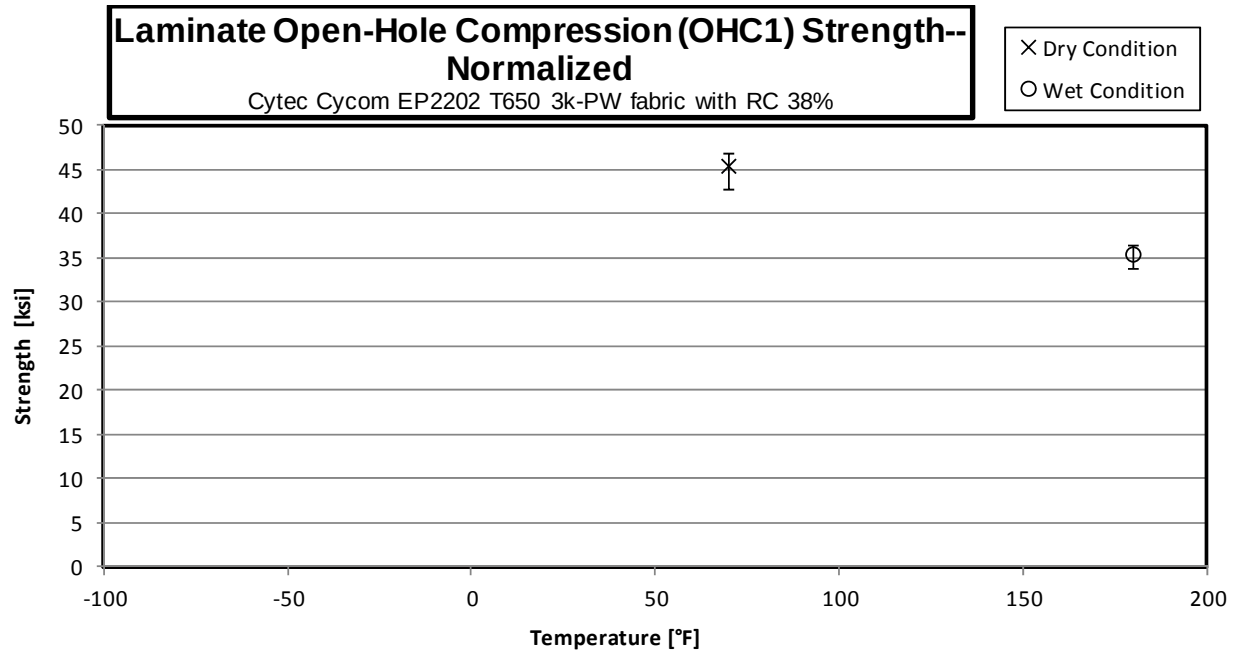
3.18 "10/80/10" Filled-Hole Tension 2 Properties (FHT2)



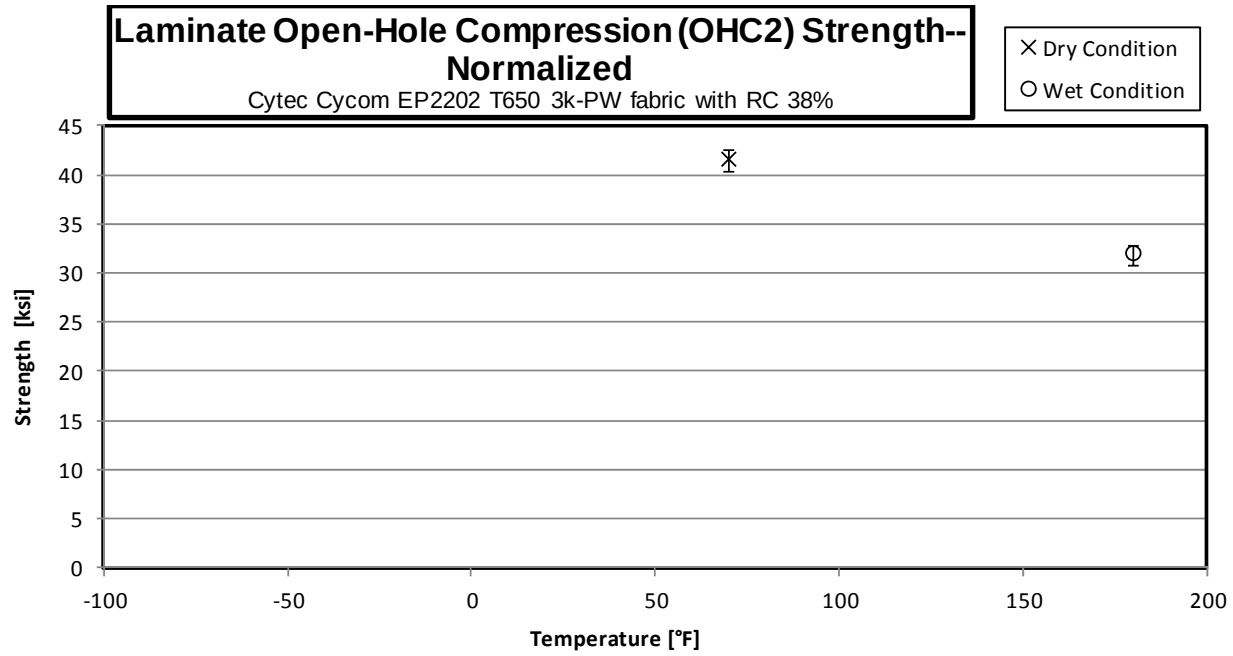
3.19 "40/20/40" Filled-Hole Tension 3 Properties (FHT3)



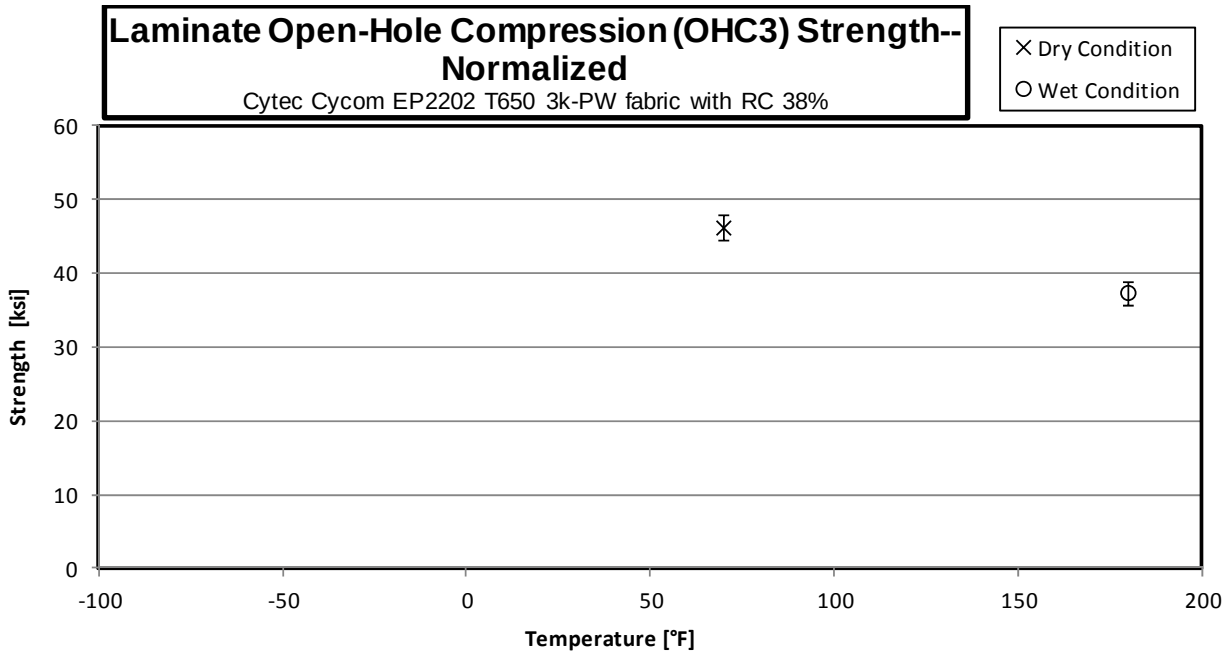
3.20 "25/50/25" Open-Hole Compression 1 Properties (OHC1)



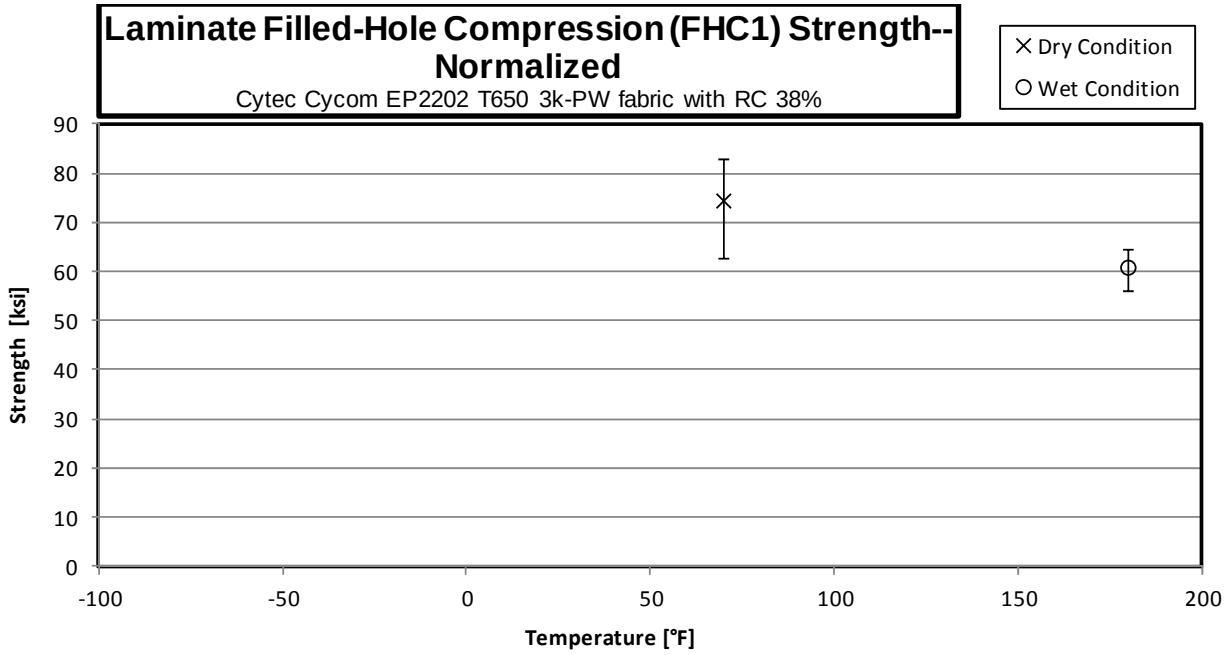
3.21 "10/80/10" Open-Hole Compression 2 Properties (OHC2)



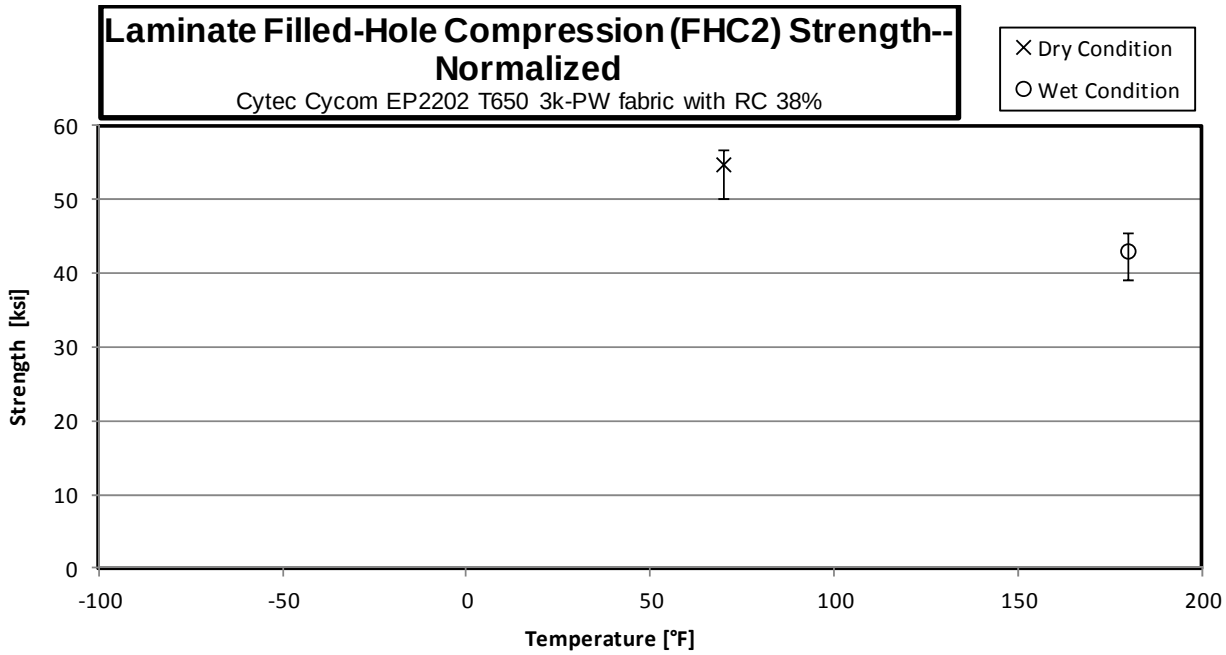
3.22 "40/20/40" Open-Hole Compression 3 Properties (OHC3)



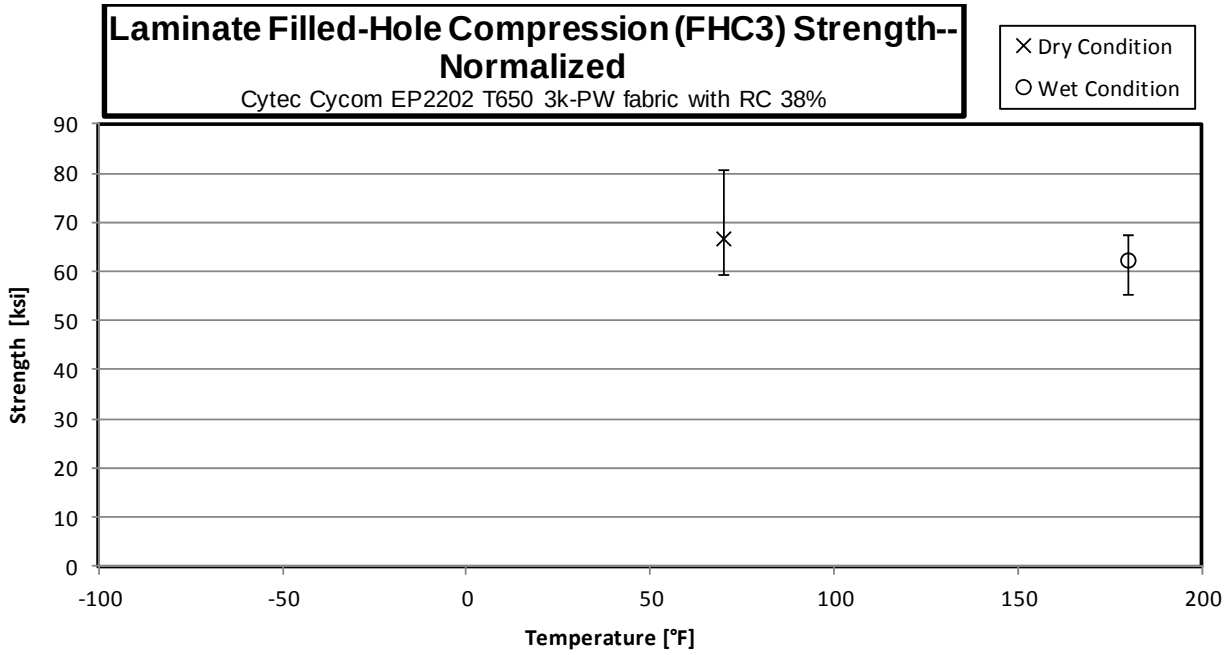
3.23 "25/50/25" Filled-Hole Compression 1 Properties (FHC1)



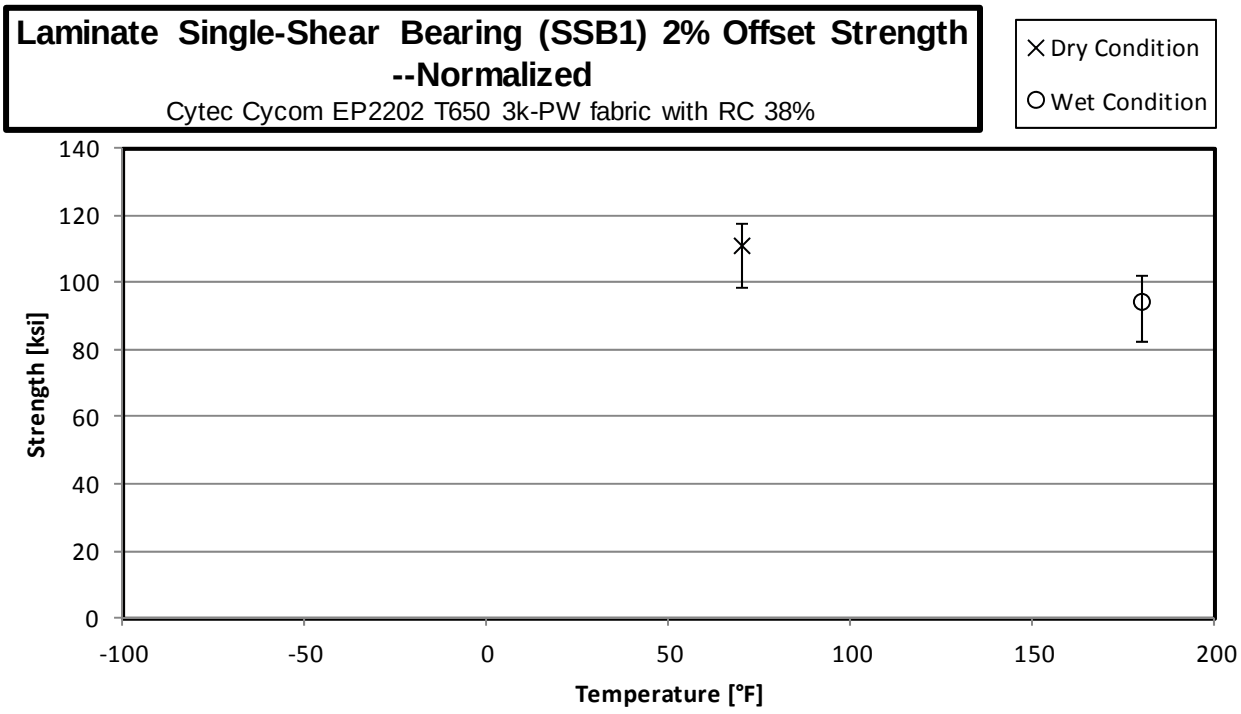
3.24 "10/80/10" Filled-Hole Compression 2 Properties (FHC2)

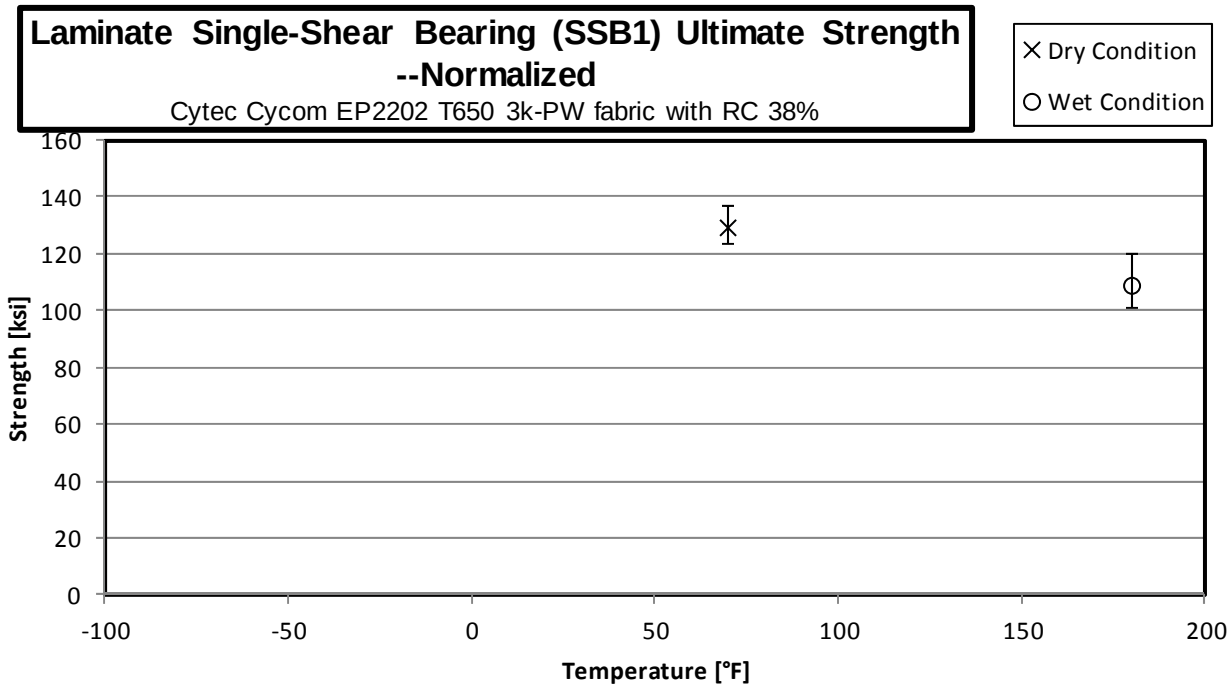


3.25 "40/20/40" Filled-Hole Compression 3 Properties (FHC3)

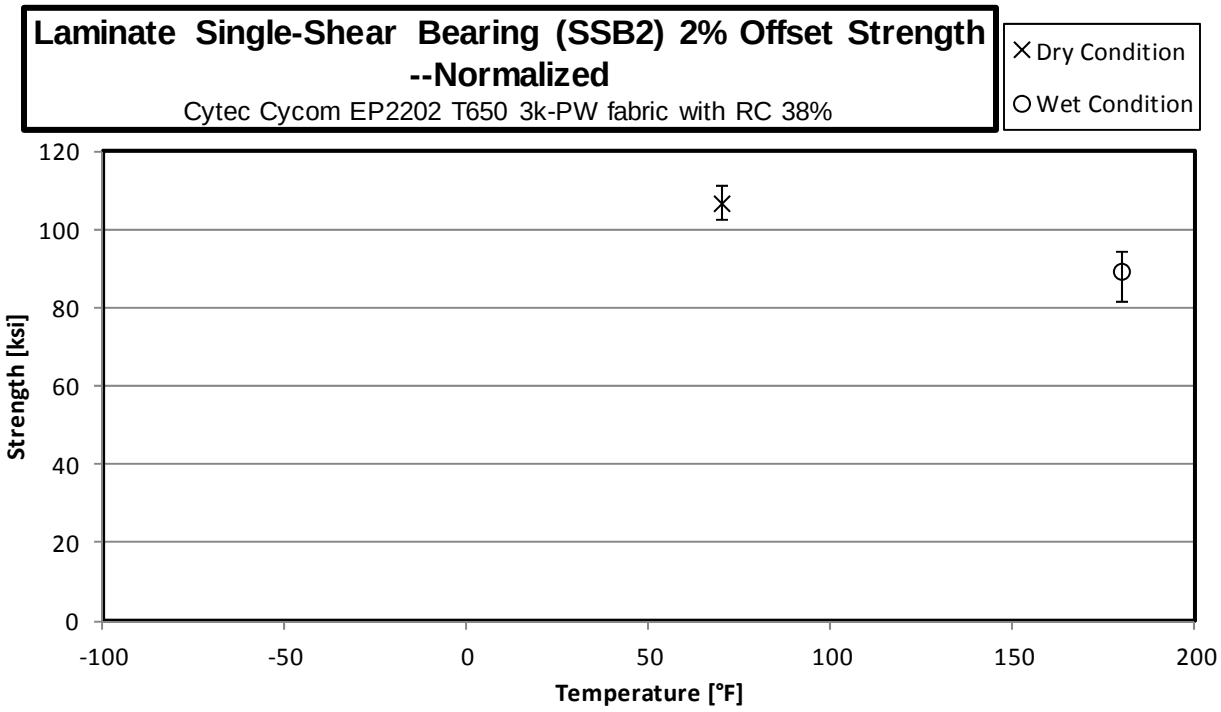


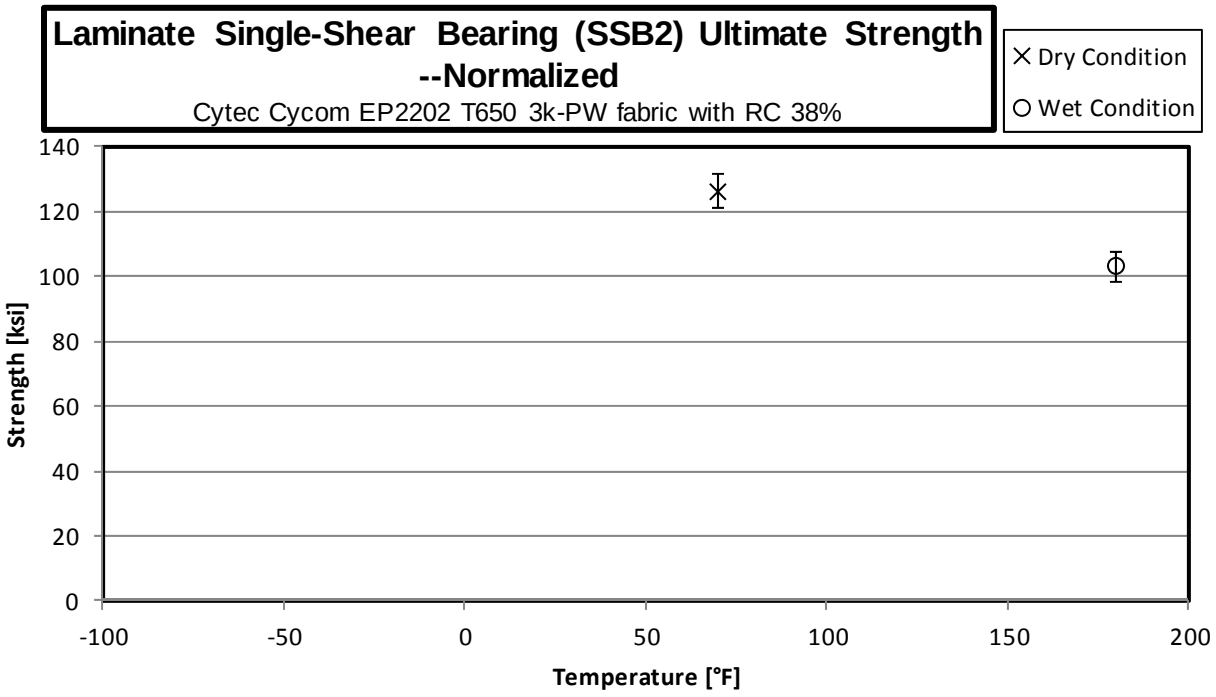
3.26 "25/50/25" Single-Shear Bearing 1 Properties (SSB1)



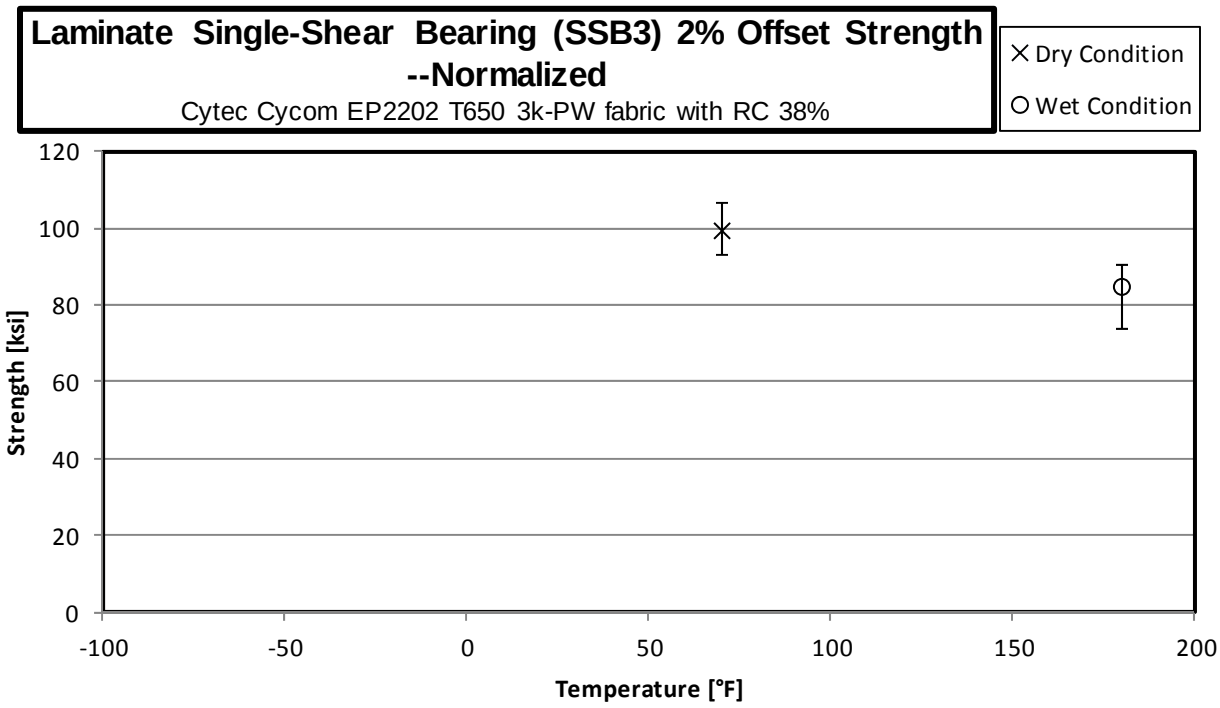


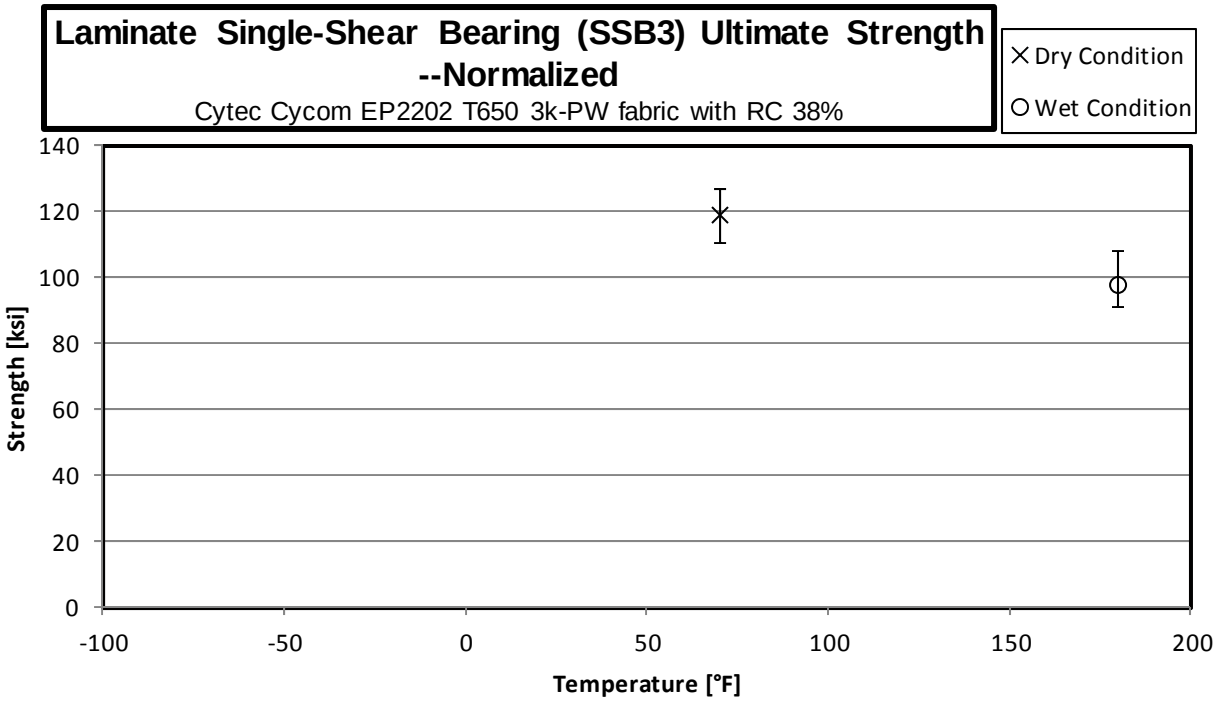
3.27 "10/80/10" Single-Shear Bearing 2 Properties (SSB2)



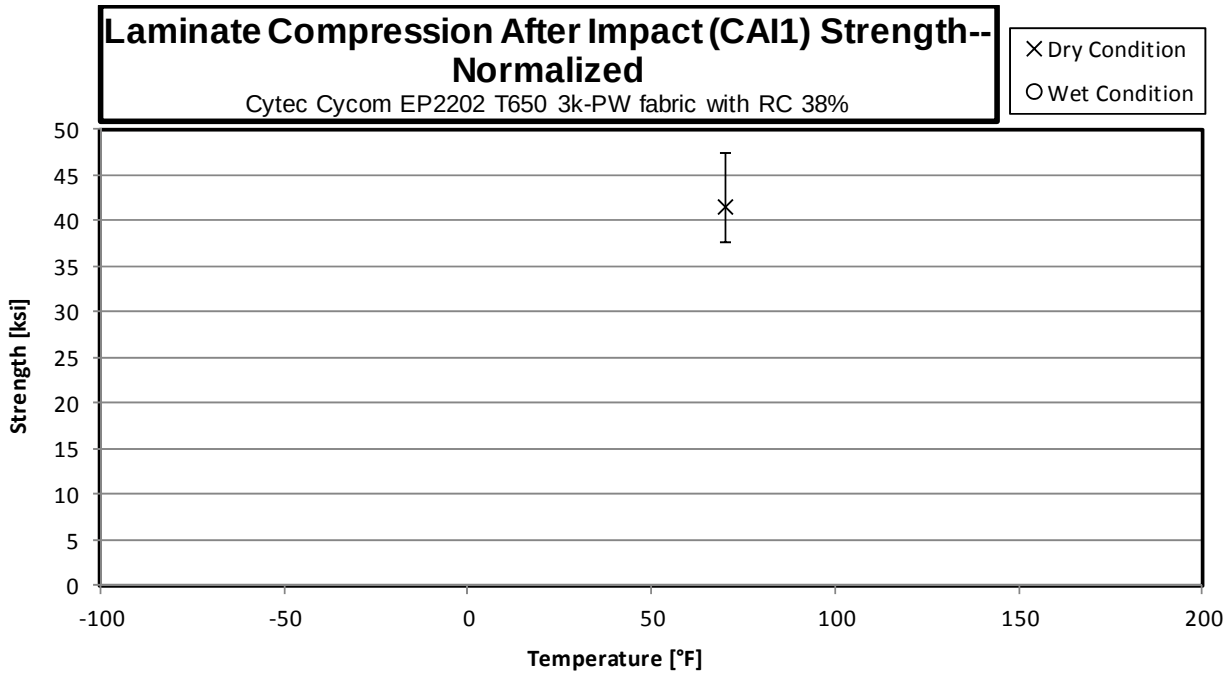


3.28 "40/20/40" Single-Shear Bearing 3 Properties (SSB3)

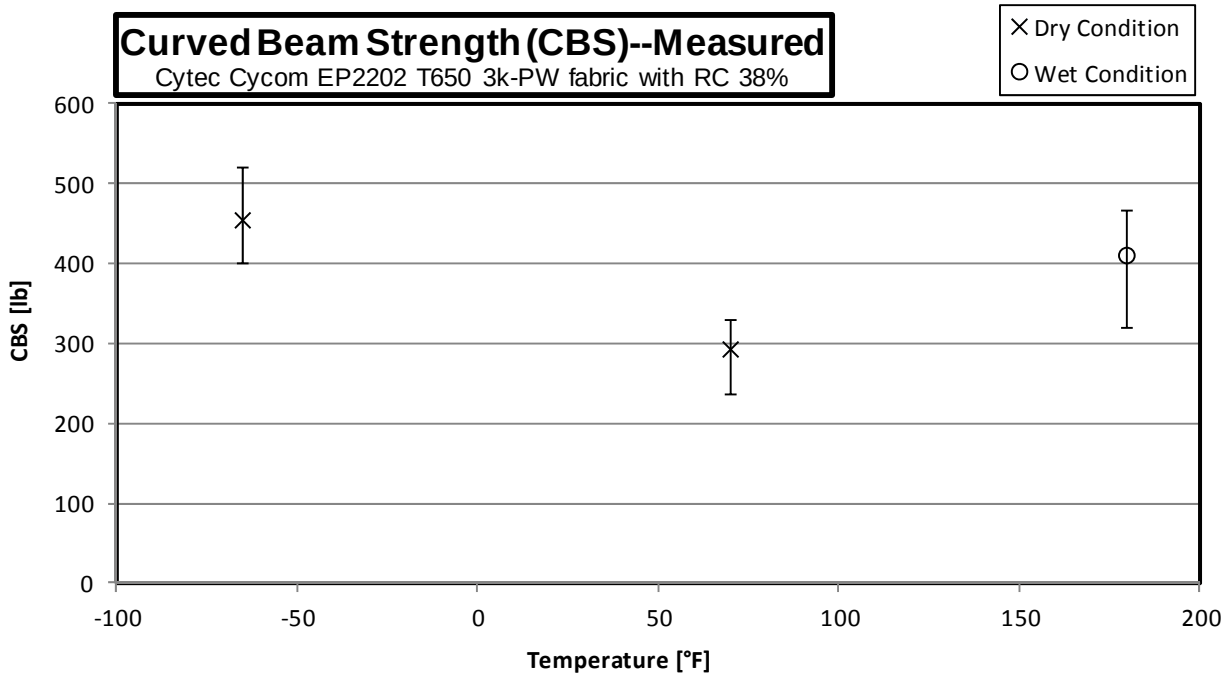


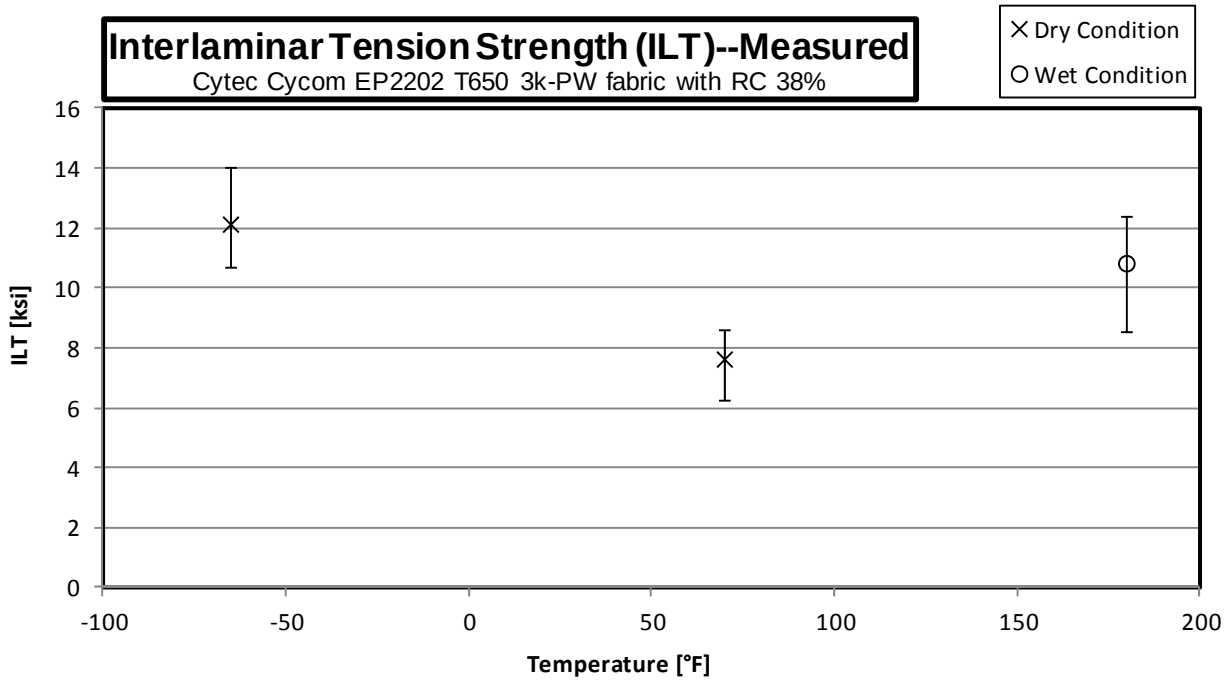


3.29 "25/50/25" Compression After Impact 1 Properties (CAI1)



3.30 "50/0/50" Interlaminar Tension Properties (ILT)





4 Raw Data

4.1 Warp Tension Properties (WT)

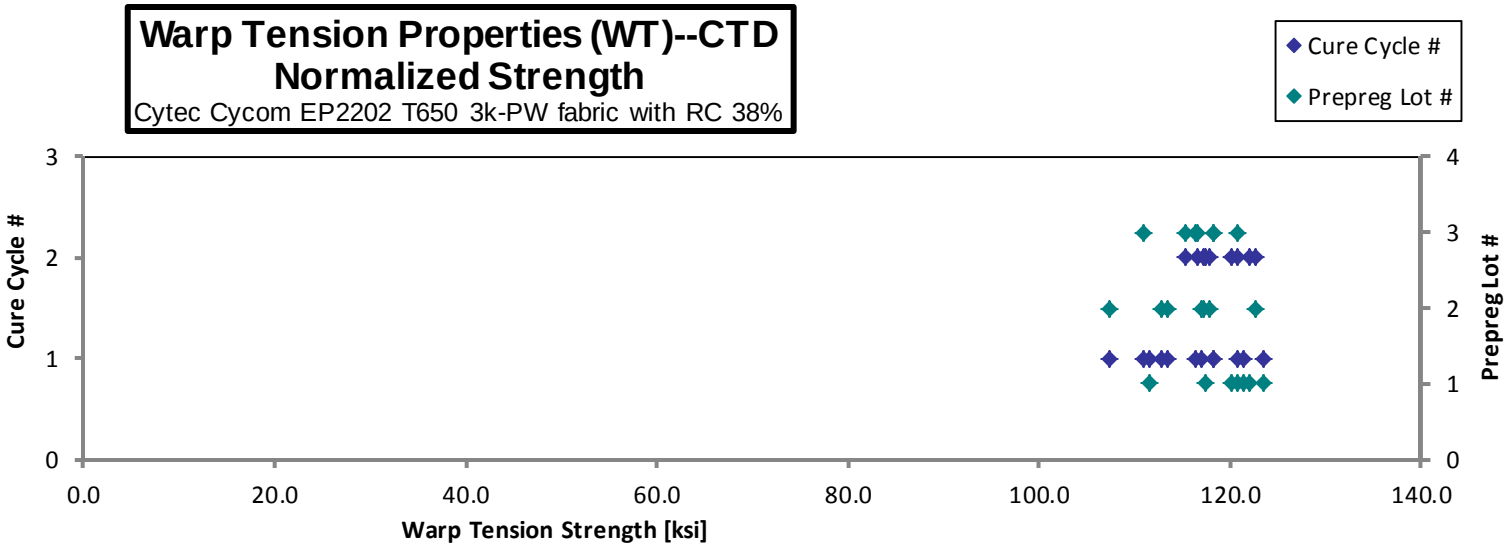
Warp Tension Properties (WT)--CTD
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

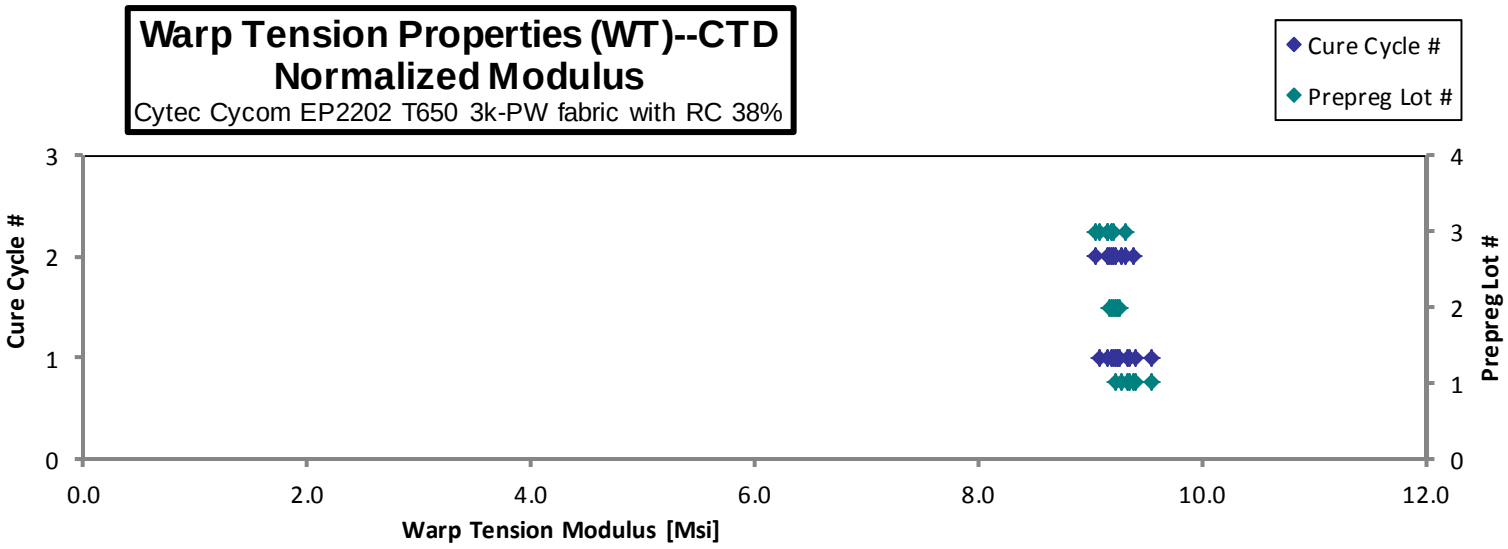
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBJA116B	A	C1	1	1	122.704	9.647	0.063	0.120	15	LGM	0.0080	121.391	9.543
EPBJA117B	A	C1	1	1	112.499	9.432	0.057	0.121	15	LAB	0.0080	111.619	9.358
EPBJA118B	A	C1	1	1	124.408	9.475	0.058	0.121	15	LAB	0.0080	123.521	9.407
EPBJA119B	A	C1	1	1	122.700	9.477	0.063	0.120	15	LAB	0.0080	120.798	9.330
EPBJA215B	A	C2	1	2	119.571	9.388	0.075	0.119	15	LWB	0.0080	117.471	9.223
EPBJA216B	A	C2	1	2	122.469	9.465	0.065	0.119	15	LGM, LWT	0.0079	120.134	9.284
EPBJA217B	A	C2	1	2	125.661	9.670	0.080	0.118	15	LGM	0.0079	122.093	9.395
EPBJB116B	B	C1	2	1	108.610	9.340	0.065	0.120	15	LGM	0.0080	107.314	9.229
EPBJB117B	B	C1	2	1	114.830	9.366	0.067	0.120	15	LWB	0.0080	113.349	9.245
EPBJB118B	B	C1	2	1	114.480	9.383	0.068	0.120	15	LAB	0.0080	112.752	9.241
EPBJB119B	B	C1	2	1	117.661	9.303	0.057	0.121	15	LWT	0.0081	117.064	9.256
EPBJB215B	B	C2	2	2	120.131	9.370	0.054	0.119	15	LAB	0.0079	117.774	9.186
EPBJB216B	B	C2	2	2	124.633	9.371	0.059	0.119	15	LAB	0.0080	122.548	9.214
EPBJB217B	B	C2	2	2	119.716	9.373	0.061	0.119	15	LAB	0.0079	117.253	9.180
EPBJC116B	C	C1	3	1	118.579	9.238	0.054	0.121	15	LGM	0.0081	118.205	9.208
EPBJC117B	C	C1	3	1	116.380	9.194	0.065	0.121	15	LWT	0.0081	116.284	9.187
EPBJC118B	C	C1	3	1	119.070	9.221	0.059	0.121	15	LWB	0.0080	118.237	9.157
EPBJC119B*	C	C1	3	1		9.157	0.059	0.120	15	LIB	0.0080		9.081
EPBJC11AB	C	C1	3	1	111.783			0.121	15	LAB	0.0080	110.925	
EPBJC215B	C	C2	3	2	120.182	9.273	0.061	0.122	15	LGM	0.0081	120.693	9.312
EPBJC216B	C	C2	3	2	116.312	9.030	0.062	0.122	15	LWB	0.0081	116.599	9.052
EPBJC217B	C	C2	3	2	115.247	9.152	0.057	0.122	15	LGM	0.0081	115.405	9.164

*Strength is not reported due to prominent bad failure mode

Average	**118.458**	**9.349**	**0.062**	**Average$_{norm}$**	**0.0080**	**117.211**	**9.250**
Standard Dev.	**4.541**	**0.156**	**0.006**	**Standard Dev.$_{norm}$**		**4.205**	**0.113**
Coeff. of Var. [%]	**3.833**	**1.668**	**10.313**	**Coeff. of Var. [%]$_{norm}$**		**3.587**	**1.223**
Min.	**108.610**	**9.030**	**0.054**	**Min.**	**0.0079**	**107.314**	**9.052**
Max.	**125.661**	**9.670**	**0.080**	**Max.**	**0.0081**	**123.521**	**9.543**
Number of Spec.	**21**	**21**	**21**	**Number of Spec.**	**22**	**21**	**21**


Warp Tension Properties (WT)--CTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Warp Tension Strength [ksi]


Warp Tension Properties (WT)--CTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Warp Tension Modulus [Msi]

Warp Tension Properties (WT)--RTD
Strength & Modulus

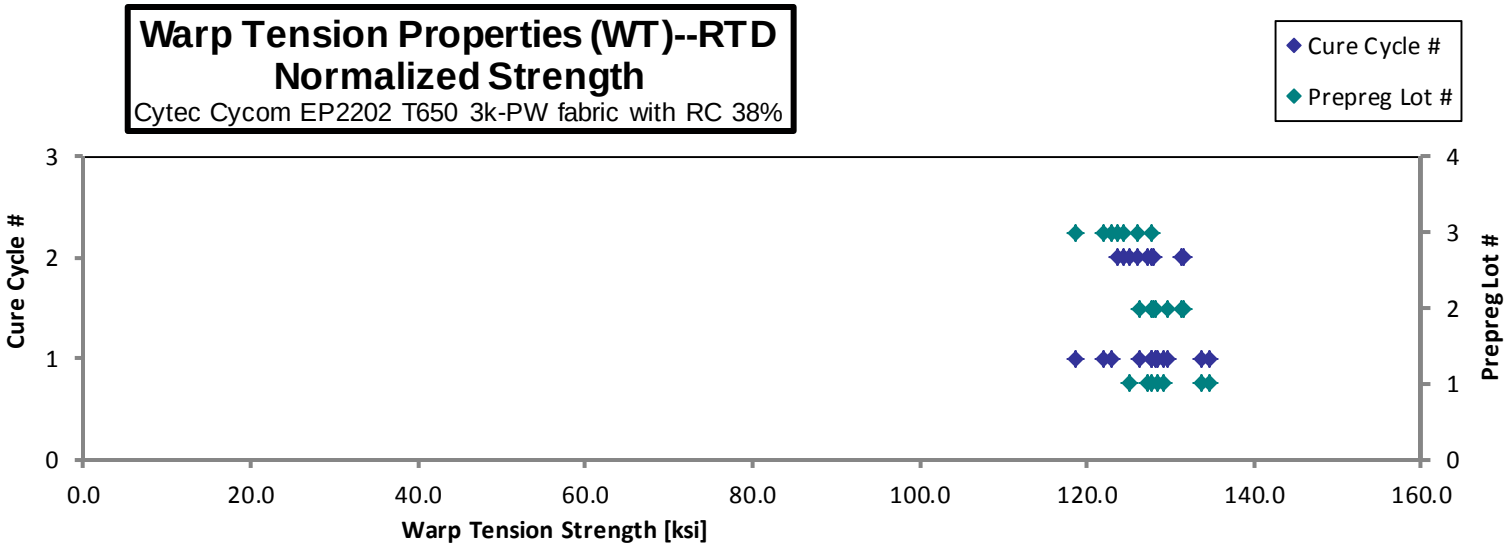
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

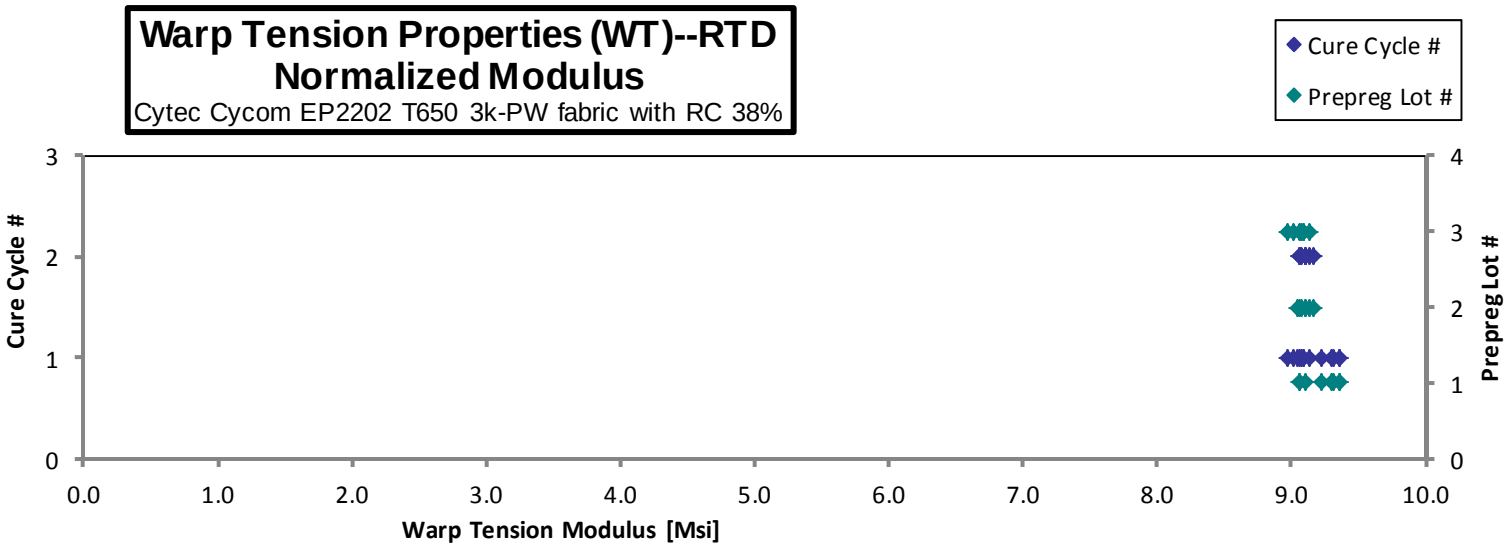
normalizing t_{ply} [in]: 0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBJA111A	A	C1	1	1	131.264	9.551	0.048	0.119	15	LGM	0.0079	128.528	9.352
EPBJA112A	A	C1	1	1	136.236	9.463	0.050	0.120	15	LWT	0.0080	134.741	9.359
EPBJA113A	A	C1	1	1	130.803	9.343	0.051	0.120	15	LGM	0.0080	129.134	9.224
EPBJA114A*	A	C1	1	1		9.407	0.053	0.120	15	LIT	0.0080		9.310
EPBJA115A	A	C1	1	1	135.222	9.415	0.054	0.120	15	LAB	0.0080	133.627	9.304
EPBJA211A	A	C2	1	2	128.418	9.350	0.058	0.118	15	LWT	0.0079	125.141	9.112
EPBJA212A	A	C2	1	2	129.547	9.217	0.057	0.119	15	LAB	0.0080	127.326	9.059
EPBJA213A	A	C2	1	2	130.591	9.258	0.056	0.119	15	LAB	0.0079	127.743	9.056
EPBJB111A	B	C1	2	1	127.188	9.108	0.053	0.121	15	LWT	0.0080	126.298	9.045
EPBJB112A	B	C1	2	1	129.500	9.231	0.053	0.120	15	LAT	0.0080	128.132	9.133
EPBJB113A	B	C1	2	1	131.208	9.188	0.053	0.120	15	LAB	0.0080	129.516	9.070
EPBJB114A	B	C1	2	1	129.251	9.166	0.056	0.120	15	LGM	0.0080	127.761	9.060
EPBJB211A	B	C2	2	2	130.264	9.275	0.050	0.119	15	LAB	0.0080	127.941	9.110
EPBJB212A	B	C2	2	2	134.404	9.359	0.051	0.119	15	LAT	0.0079	131.546	9.160
EPBJB213A	B	C2	2	2	133.761	9.275	0.050	0.119	15	LAT	0.0080	131.339	9.107
EPBJC111A	C	C1	3	1	123.806	9.066	0.054	0.121	15	LAB	0.0081	123.042	9.010
EPBJC112A	C	C1	3	1	119.367	9.141	0.058	0.121	15	LAB	0.0081	118.712	9.091
EPBJC113A	C	C1	3	1	128.124	9.002	0.054	0.121	15	LWT,LAB	0.0081	127.702	8.972
EPBJC114A	C	C1	3	1	122.767	9.149	0.055	0.121	15	LAT	0.0081	122.059	9.096
EPBJC211A	C	C2	3	2	123.883	9.029	0.051	0.122	15	LGM	0.0081	124.392	9.066
EPBJC212A	C	C2	3	2	123.037	9.026	0.046	0.122	15	LWT,LAB	0.0081	123.678	9.073
EPBJC213A*	C	C2	3	2		9.081	0.054	0.122	15	LIT	0.0082		9.142
EPBJC214A	C	C2	3	2	125.076			0.122	15	LAT	0.0082	125.968	

* Strength is not reported due to prominent bad failure mode

	Strength [ksi]	Modulus [Msi]	Poisson's Ratio		$Average_{norm}$	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	**128.748**	**9.232**	**0.053**		**0.0080**	**127.349**	**9.132**
Standard Dev.	**4.471**	**0.153**	**0.003**			**3.805**	**0.109**
Coeff. of Var. [%]	**3.473**	**1.656**	**5.753**			**2.988**	**1.198**
Min.	**119.367**	**9.002**	**0.046**		**0.0079**	**118.712**	**8.972**
Max.	**136.236**	**9.551**	**0.058**		**0.0082**	**134.741**	**9.359**
Number of Spec.	**21**	**22**	**22**		**23**	**21**	**22**


Warp Tension Properties (WT)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Warp Tension Strength [ksi]
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0


Warp Tension Properties (WT)--RTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Warp Tension Modulus [Msi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0

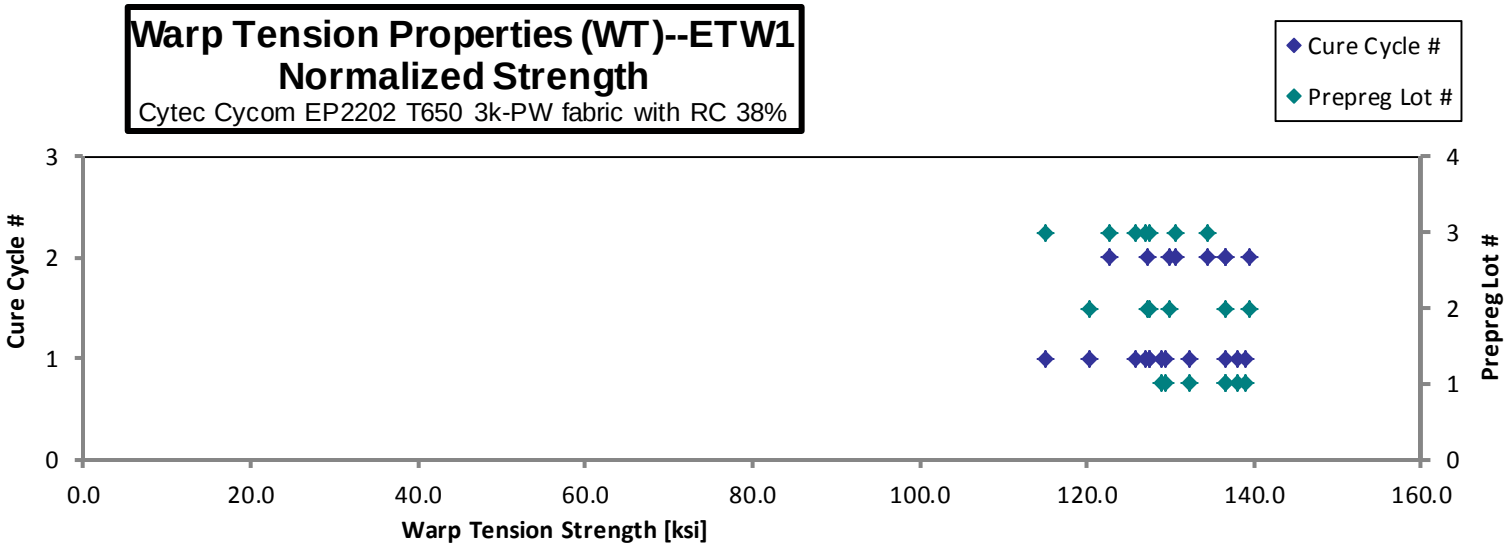
Warp Tension Properties (WT)--ETW1
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

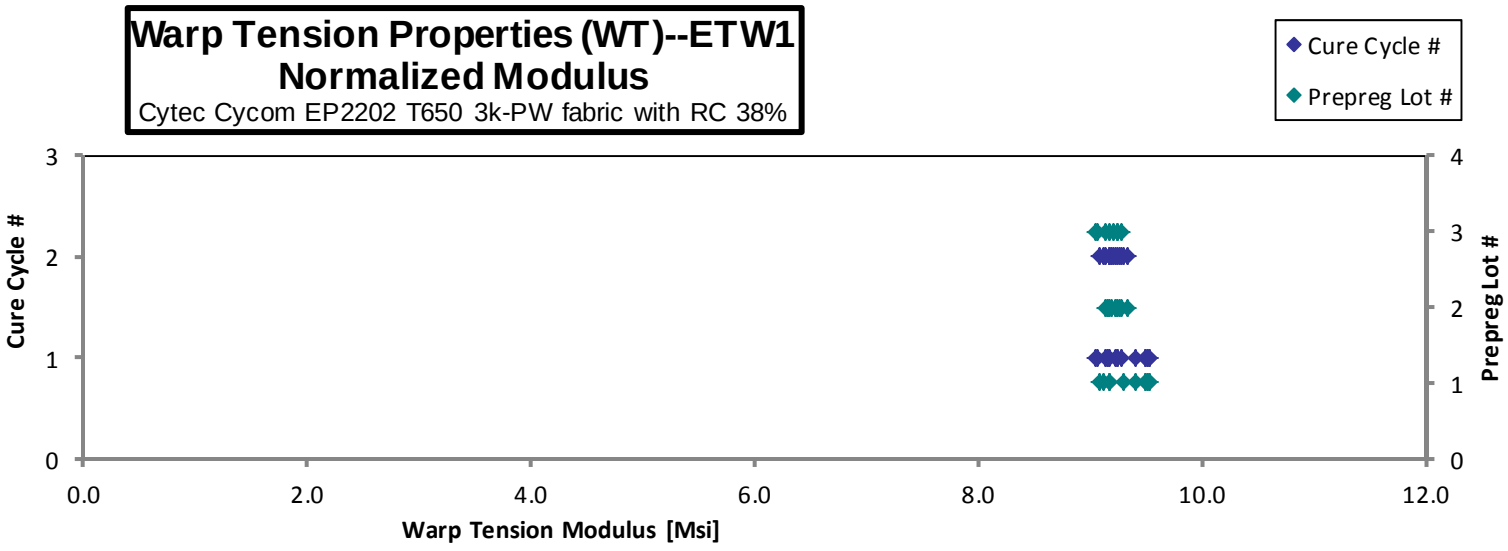
normalizing t_{ply} [in]: 0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBJA11BD	A	C1	1	1	140.171	9.481	0.052	0.121	15	LWT,LAB	0.0080	139.017	9.403
EPBJA11CD	A	C1	1	1	137.385	9.593	0.049	0.121	15	LAT	0.0081	136.556	9.535
EPBJA11DD	A	C1	1	1	130.171	9.545	0.049	0.121	15	LWT	0.0081	129.492	9.495
EPBJA11ED	A	C1	1	1	138.861	9.593	0.051	0.121	15	LGB,LAT	0.0081	138.099	9.541
EPBJA11FD	A	C1	1	1	130.173	9.618	0.056	0.120	15	LWT,LAB	0.0080	128.852	9.520
EPBJA11GD	A	C1	1	1	133.803	9.598	0.053	0.120	15	LWB	0.0080	132.371	9.495
EPBJA219D*	A	C2	1	2		9.285	0.060	0.119	15	LWT,LIT	0.0079		9.085
EPBJA21AD*	A	C2	1	2		9.307	0.057	0.119	15	LIB	0.0079		9.113
EPBJA21BD*	A	C2	1	2		9.365	0.053	0.119	15	LIB	0.0079		9.175
EPBJA21CD*	A	C2	1	2		9.336	0.053	0.119	15	LWT,LIB	0.0080		9.173
EPBJA21DD	A	C2	1	2	138.914	9.454	0.051	0.119	15	LAT	0.0080	136.570	9.294
EPBJB11BD*	B	C1	2	1		9.228	0.056	0.120	15	LIB	0.0080		9.148
EPBJB11CD*	B	C1	2	1		9.231	0.054	0.121	15	LWT,LIB	0.0081		9.176
EPBJB11DD	B	C1	2	1	121.491	9.240	0.051	0.120	15	LWT	0.0080	120.341	9.153
EPBJB11ED*	B	C1	2	1		9.301	0.055	0.120	15	LIB	0.0080		9.224
EPBJB11FD*	B	C1	2	1		9.350	0.050	0.120	15	LWT,LIB	0.0080		9.237
EPBJB11GD	B	C1	2	1	128.962	9.390	0.052	0.120	15	LAB	0.0080	127.405	9.276
EPBJB219D*	B	C2	2	2		9.379	0.050	0.119	15	LWT,LIB	0.0079		9.199
EPBJB21AD	B	C2	2	2	132.146	9.292	0.049	0.119	15	LAT	0.0080	129.934	9.137
EPBJB21BD	B	C2	2	2	129.320	9.370	0.054	0.120	15	LAB	0.0080	127.280	9.222
EPBJB21CD	B	C2	2	2	141.671	9.477	0.048	0.120	15	LAB	0.0080	139.436	9.328
EPBJB21DD	B	C2	2	2	138.642	9.401	0.051	0.120	15	LAT	0.0080	136.607	9.263
EPBJC11BD	C	C1	3	1	128.784	9.155	0.052	0.120	15	LWT	0.0080	127.565	9.068
EPBJC11CD	C	C1	3	1	127.958	9.216	0.055	0.121	15	LGM	0.0080	126.905	9.140
EPBJC11DD	C	C1	3	1	115.784	9.119	0.059	0.121	15	LGM	0.0080	114.958	9.054
EPBJC11ED	C	C1	3	1	126.681	9.304	0.051	0.121	15	LGM	0.0080	125.864	9.244
EPBJC219D*	C	C2	3	2		9.229	0.055	0.122	15	LIT	0.0081		9.279
EPBJC21AD	C	C2	3	2	133.508	9.188	0.050	0.122	15	LAB	0.0082	134.442	9.252
EPBJC21BD	C	C2	3	2	130.253	9.183	0.053	0.122	15	LAT	0.0081	130.699	9.214
EPBJC21CD	C	C2	3	2	122.639	9.166	0.052	0.122	15	LAT	0.0081	122.790	9.177

*Strength is not reported due to prominent bad failure mode

Average	**131.366**	**9.346**	**0.053**	**$Average_{norm}$**	**0.0080**	**130.259**	**9.254**
Standard Dev.	**6.759**	**0.145**	**0.003**	**$Standard\ Dev._{norm}$**		**6.530**	**0.142**
Coeff. of Var. [%]	**5.145**	**1.547**	**5.741**	**Coeff. of Var. $[\%]_{norm}$**		**5.013**	**1.530**
Min.	**115.784**	**9.119**	**0.048**	**Min.**	**0.0079**	**114.958**	**9.054**
Max.	**141.671**	**9.618**	**0.060**	**Max.**	**0.0082**	**139.436**	**9.541**
Number of Spec.	**20**	**30**	**30**	**Number of Spec.**	**30**	**20**	**30**


Warp Tension Properties (WT)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Warp Tension Strength [ksi]
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0


Warp Tension Properties (WT)--ETW1
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Warp Tension Modulus [Msi]
0.0
2.0
4.0
6.0
8.0
10.0
12.0

4.2 Fill Tension Properties (FT)

Fill Tension Properties (FT)--CTD
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

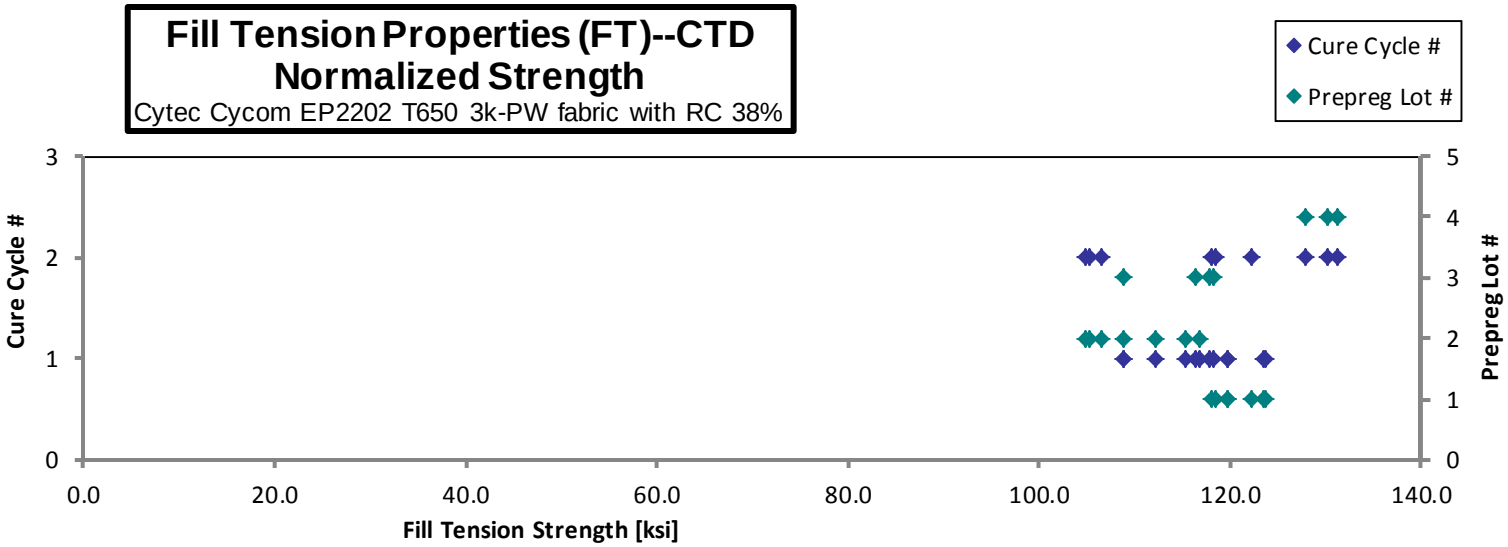
normalizing t_{ply} [in]
0.0081

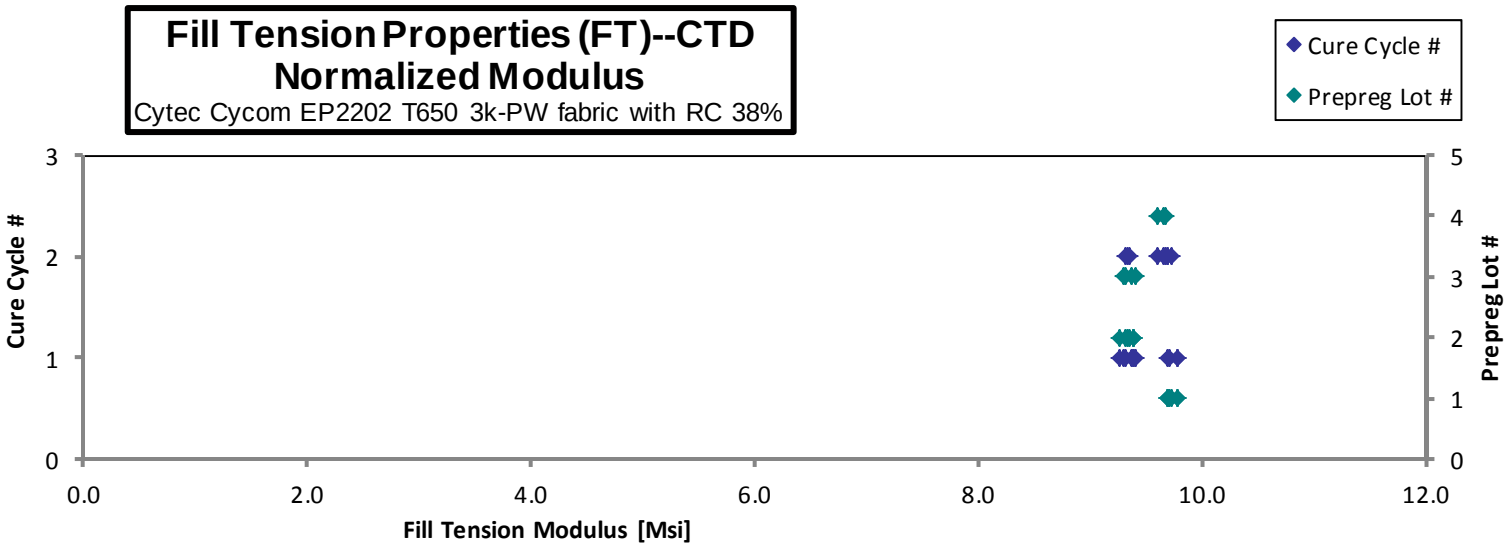
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
EPBUA116B	A	C1	1	1	124.403	9.785	0.121	15	LGM	0.0080	123.430	9.709
EPBUA117B	A	C1	1	1	124.585	9.843	0.121	15	LGM	0.0080	123.765	9.778
EPBUA118B	A	C1	1	1	120.472	9.746	0.121	15	LWT	0.0081	119.745	9.687
EPBUA119B	A	C1	1	1	120.486	9.860	0.121	15	LGM	0.0080	119.626	9.790
EPBUA215B	A	C2	1	2	118.364	9.712	0.122	15	LWB	0.0081	118.542	9.727
EPBUA216B	A	C2	1	2	121.920	9.678	0.122	15	LGM	0.0081	122.138	9.695
EPBUA217B	A	C2	1	2	117.805	9.672	0.122	15	LGM	0.0081	117.967	9.685
EPBUB116B	B	C1	2	1	109.678	9.445	0.121	15	LAT	0.0080	108.925	9.380
EPBUB117B	B	C1	2	1	113.091	9.341	0.121	15	LAB	0.0080	112.222	9.270
EPBUB118B	B	C1	2	1	117.440	9.437	0.121	15	LGM	0.0081	116.828	9.388
EPBUB119B	B	C1	2	1	116.267	9.466	0.120	15	LGM,LWB	0.0080	115.214	9.380
EPBUB215B	B	C2	2	2	106.338	9.291	0.122	15	LGM	0.0081	106.572	9.312
EPBUB216B	B	C2	2	2	105.832	9.432	0.120	15	LGM	0.0080	104.917	9.350
EPBUB217B	B	C2	2	2	106.334	9.421	0.120	15	LGM	0.0080	105.298	9.329
EPBUC116B	C	C1	3	1	119.054	9.422	0.120	15	LAT	0.0080	117.747	9.318
EPBUC117B	C	C1	3	1	115.422	9.220	0.123	15	LAB	0.0082	116.451	9.302
EPBUC118B	C	C1	3	1	109.463	9.462	0.121	15	LGM	0.0081	108.832	9.408
EPBUC119B	C	C1	3	1	119.005	9.424	0.121	15	LWT	0.0080	118.237	9.363
EPBUD215B*	D	C2	4	2		9.953	0.118	15	LIB	0.0079		9.671
EPBUD216B	D	C2	4	2	131.166	9.841	0.119	15	LAB	0.0079	127.945	9.600
EPBUD217B	D	C2	4	2	134.954	9.930	0.118	15	LAB	0.0079	131.270	9.659
EPBUD218B	D	C2	4	2	133.312		0.119	15	LAT	0.0079	130.258	

* Strength is not reported due to prominent bad failure mode

Average	**118.352**	**9.590**	
Standard Dev.	**8.377**	**0.225**	
Coeff. of Var. [%]	**7.078**	**2.346**	
Min.	**105.832**	**9.220**	
Max.	**134.954**	**9.953**	
Number of Spec.	**21**	**21**	

$Average_{norm}$	**0.0080**	**117.425**	**9.514**
Standard $Dev._{norm}$		**7.677**	**0.188**
Coeff. of Var. $[\%]_{norm}$		**6.538**	**1.973**
Min.	**0.0079**	**104.917**	**9.270**
Max.	**0.0082**	**131.270**	**9.790**
Number of Spec.	**22**	**21**	**21**


Fill Tension Properties (FT)--CTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Tension Strength [ksi]
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
0
1
2
3
0
1
2
3
4
5


Fill Tension Properties (FT)--CTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Tension Modulus [Msi]
0.0
2.0
4.0
6.0
8.0
10.0
12.0
0
1
2
3
0
1
2
3
4
5

Fill Tension Properties (FT)--RTD
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

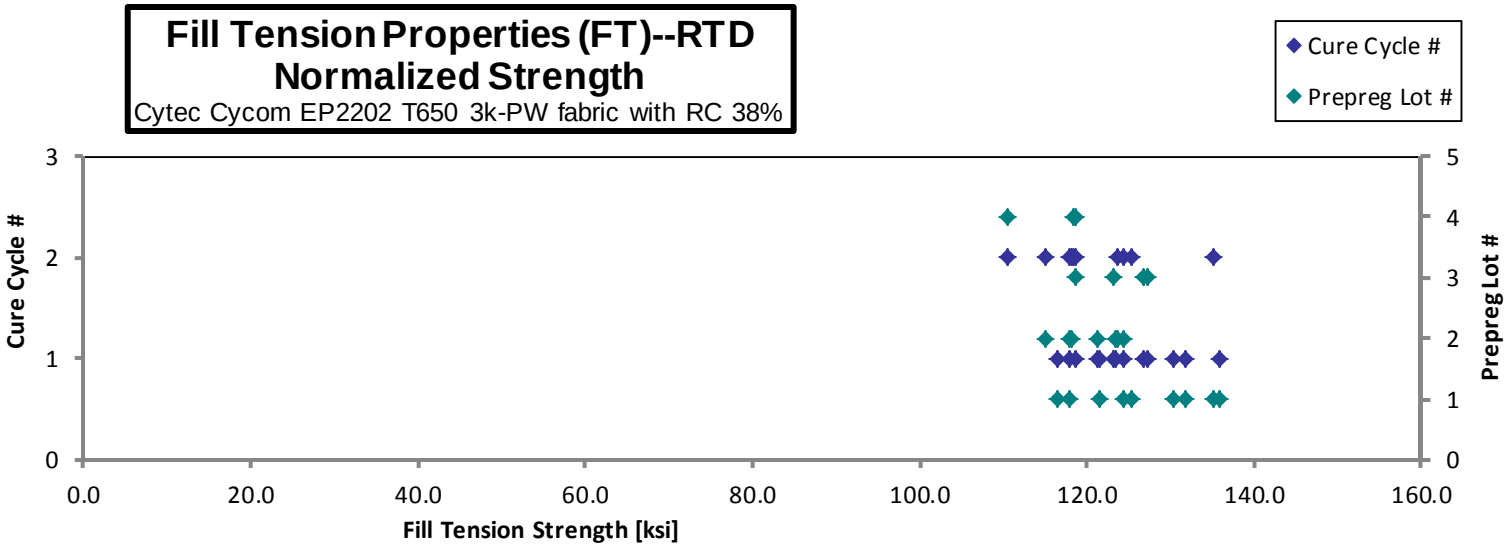
normalizing t_{ply} [in]: 0.0081

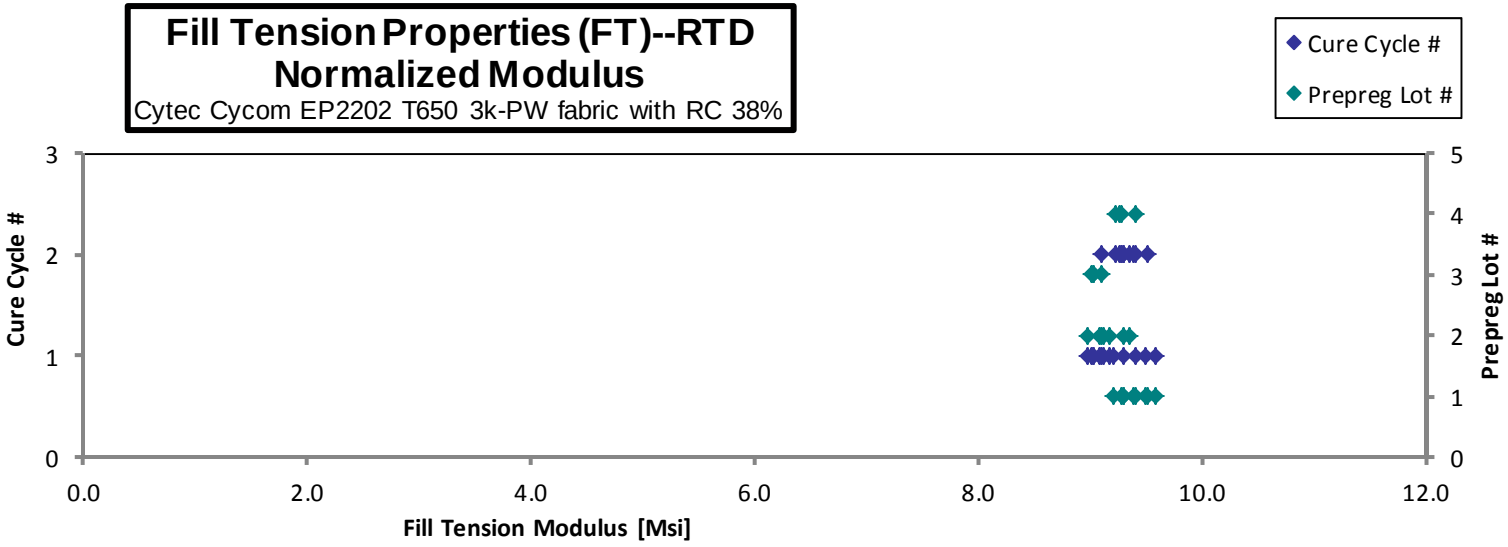
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
EPBUA111A	A	C1	1	1	122.563	9.577	0.121	15	LAB	0.0080	121.571	9.499
EPBUA112A	A	C1	1	1	130.633	9.606	0.121	15	LAB	0.0081	130.311	9.582
EPBUA113A	A	C1	1	1	136.047	9.320	0.121	15	LWB	0.0081	135.842	9.306
EPBUA114A	A	C1	1	1	132.594	9.459	0.121	15	LAT	0.0081	131.903	9.410
EPBUA115A	A	C1	1	1	117.446	9.286	0.120	15	LAT	0.0080	116.366	9.201
EPBUA211A	A	C2	1	2	116.981	9.326	0.122	15	LAT	0.0082	117.799	9.391
EPBUA212A	A	C2	1	2	124.333	9.221	0.122	15	LWT	0.0082	125.220	9.287
EPBUA213A	A	C2	1	2	134.871	9.295	0.122	15	LWT	0.0081	135.019	9.305
EPBUA214A	A	C2	1	2	124.437	9.525	0.121	15	LAB	0.0081	124.335	9.517
EPBUB111A	B	C1	2	1	125.194	9.308	0.120	15	LAB	0.0080	123.459	9.179
EPBUB112A	B	C1	2	1	124.110	9.070	0.122	15	LAB	0.0081	124.382	9.090
EPBUB113A	B	C1	2	1	118.098	9.128	0.121	15	LGM	0.0081	117.985	9.120
EPBUB114A	B	C1	2	1	122.490	9.055	0.120	15	LWT,LAB	0.0080	121.331	8.970
EPBUB211A	B	C2	2	2	115.163	9.300	0.121	15	LAB	0.0081	115.116	9.296
EPBUB212A	B	C2	2	2	123.472	9.345	0.122	15	LAB	0.0081	123.658	9.360
EPBUB213A	B	C2	2	2	118.831	9.160	0.121	15	LAT,LAB	0.0081	118.130	9.106
EPBUC111A	C	C1	3	1	131.187	9.312	0.118	15	LAT,LAB	0.0079	127.282	9.035
EPBUC112A	C	C1	3	1	120.298	9.216	0.120	15	LAT,LAB	0.0080	118.730	9.096
EPBUC113A	C	C1	3	1	129.227	9.206	0.119	15	LAB	0.0079	126.710	9.027
EPBUC114A	C	C1	3	1	125.471	9.179	0.119	15	LAT,LAB	0.0080	123.234	9.015
EPBUD211A	D	C2	4	2	114.529	9.600	0.117	15	LAB	0.0078	110.539	9.265
EPBUD212A	D	C2	4	2	*	9.561	0.118	15	LIB	0.0079		9.275
EPBUD213A	D	C2	4	2	121.949	9.504	0.118	15	LAB	0.0079	118.419	9.229
EPBUD214A	D	C2	4	2	122.061	9.692	0.118	15	LAB	0.0079	118.562	9.414

* Strength is not reported due to prominent bad failure mode

Average	**123.999**	**9.344**	
Standard Dev.	**6.075**	**0.181**	
Coeff. of Var. [%]	**4.899**	**1.940**	
Min.	**114.529**	**9.055**	
Max.	**136.047**	**9.692**	
Number of Spec.	**23**	**24**	

$Average_{norm}$	**0.0080**	**122.865**	**9.249**
Standard $Dev._{norm}$		**6.340**	**0.170**
Coeff. of Var. $[\%]_{norm}$		**5.160**	**1.837**
Min.	**0.0078**	**110.539**	**8.970**
Max.	**0.0082**	**135.842**	**9.582**
Number of Spec.	**24**	**23**	**24**


Fill Tension Properties (FT)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Tension Strength [ksi]
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
0
1
2
3
0
1
2
3
4
5


Fill Tension Properties (FT)--RTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Tension Modulus [Msi]
0.0
2.0
4.0
6.0
8.0
10.0
12.0
0
1
2
3
0
1
2
3
4
5

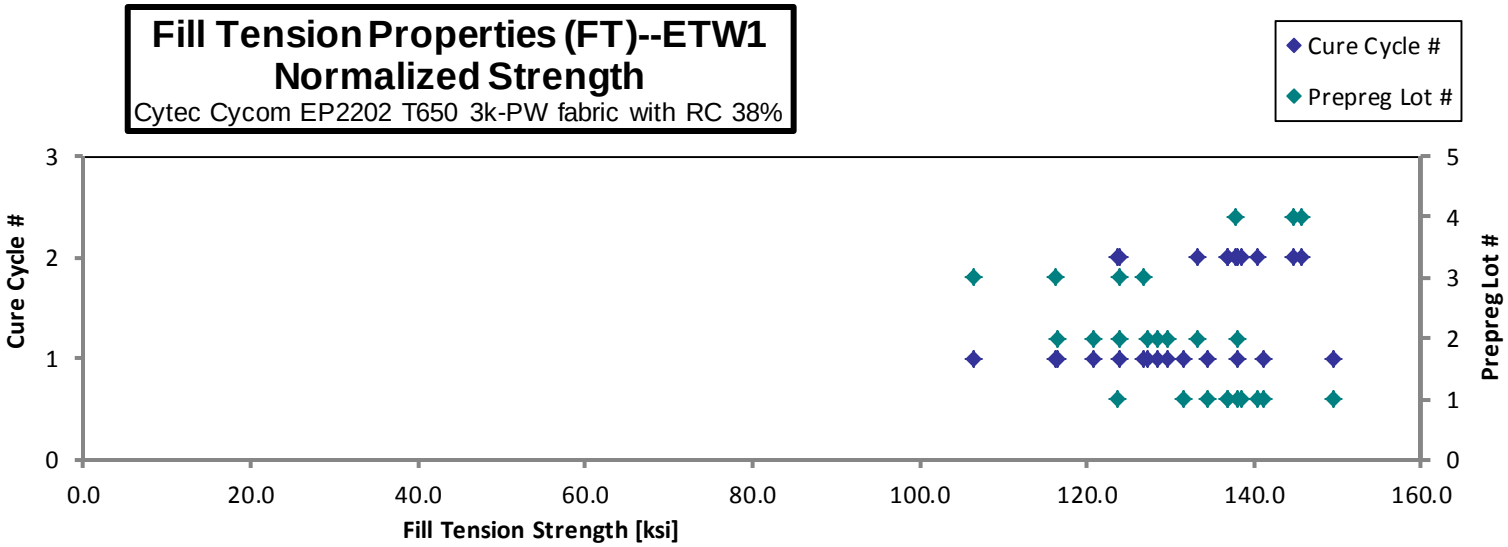
Fill Tension Properties (FT)--ETW1
Strength & Modulus

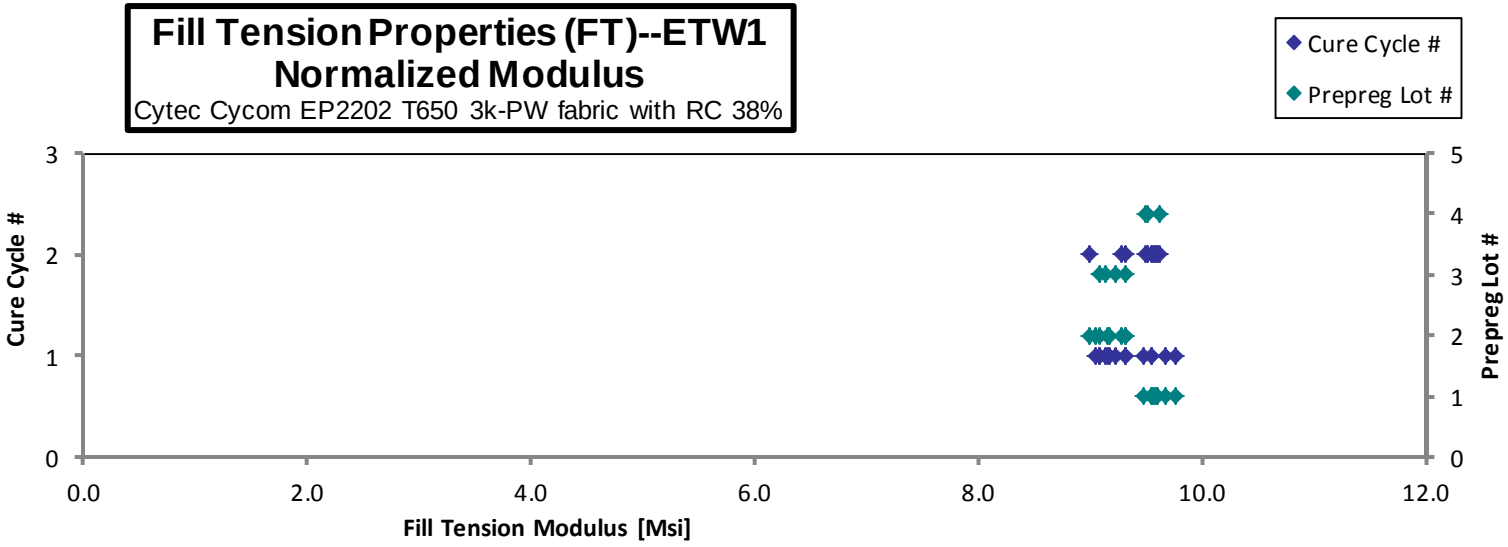
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBUA11BD	A	C1	1	1	141.971	9.824	0.121	15	LGM	0.0081	141.192	9.770
EPBUA11CD	A	C1	1	1	150.282	9.535	0.121	15	LGM	0.0081	149.374	9.478
EPBUA11DD	A	C1	1	1	138.960	9.743	0.121	15	LWT, LAB	0.0080	137.950	9.673
EPBUA11ED	A	C1	1	1	135.353	9.617	0.121	15	LAB	0.0080	134.350	9.546
EPBUA11FD	A	C1	1	1	132.451	9.620	0.121	15	LAT	0.0080	131.525	9.552
EPBUA219D	A	C2	1	2	136.806	9.565	0.121	15	LWT	0.0081	136.694	9.557
EPBUA21AD	A	C2	1	2	140.902	9.623	0.121	15	LWT	0.0081	140.497	9.595
EPBUA21BD	A	C2	1	2	138.836	9.603	0.121	15	LAT	0.0081	138.531	9.582
EPBUA21CD	A	C2	1	2	124.715	9.634	0.121	15	LGM	0.0080	123.740	9.559
EPBUA21DD	A	C2	1	2	137.961	9.658	0.121	15	LGM	0.0080	136.882	9.583
EPBUB11BD	B	C1	2	1	129.909	9.163	0.120	15	LGM	0.0080	128.412	9.057
EPBUB11CD	B	C1	2	1	118.431	9.314	0.120	15	LGM	0.0080	116.530	9.164
EPBUB11DD	B	C1	2	1	128.891	9.294	0.120	15	LGT	0.0080	127.176	9.170
EPBUB11ED	B	C1	2	1	131.634	9.235	0.120	15	LWT	0.0080	129.575	9.091
EPBUB11FD	B	C1	2	1	122.949	9.486	0.119	15	LWT, LWB	0.0080	120.858	9.325
EPBUB219D	B	C2	2	2	138.977	9.347	0.121	15	LWT, LWB	0.0081	138.120	9.289
EPBUB21AD	B	C2	2	2	126.086	9.472	0.119	15	LAB	0.0080	123.924	9.310
EPBUB21BD	B	C2	2	2	132.601	8.960	0.122	15	LWT, LAB	0.0081	133.238	9.003
EPBUC11BD	C	C1	3	1	127.317	9.283	0.121	15	LWT	0.0081	126.653	9.235
EPBUC11CD	C	C1	3	1	106.679	9.162	0.121	15	LWT	0.0081	106.342	9.133
EPBUC11DD	C	C1	3	1	116.046	9.303	0.122	15	LWT	0.0081	116.285	9.322
EPBUC11ED	C	C1	3	1	123.671	9.073	0.122	15	LGB, LWT	0.0081	123.858	9.087
EPBUD219D	D	C2	4	2	141.325	9.872	0.119	15	LAB	0.0079	137.835	9.628
EPBUD21AD	D	C2	4	2	148.871	9.705	0.119	15	LGT	0.0079	145.664	9.496
EPBUD213D	D	C2	4	2	147.775	9.707	0.119	15	LGM	0.0079	144.755	9.509

Average	**132.776**	**9.472**	**Average$_{norm}$**	**0.0080**	**131.598**	**9.389**
Standard Dev.	**10.583**	**0.244**	**Standard Dev.$_{norm}$**		**10.299**	**0.223**
Coeff. of Var. [%]	**7.970**	**2.576**	**Coeff. of Var. [%]$_{norm}$**		**7.826**	**2.376**
Min.	**106.679**	**8.960**	**Min.**	**0.0079**	**106.342**	**9.003**
Max.	**150.282**	**9.872**	**Max.**	**0.0081**	**149.374**	**9.770**
Number of Spec.	**25**	**25**	**Number of Spec.**	**25**	**25**	**25**


Fill Tension Properties (FT)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Tension Strength [ksi]
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
0
1
2
3
0
1
2
3
4
5


Fill Tension Properties (FT)--ETW1
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Tension Modulus [Msi]
0.0
2.0
4.0
6.0
8.0
10.0
12.0
0
1
2
3
0
1
2
3
4
5

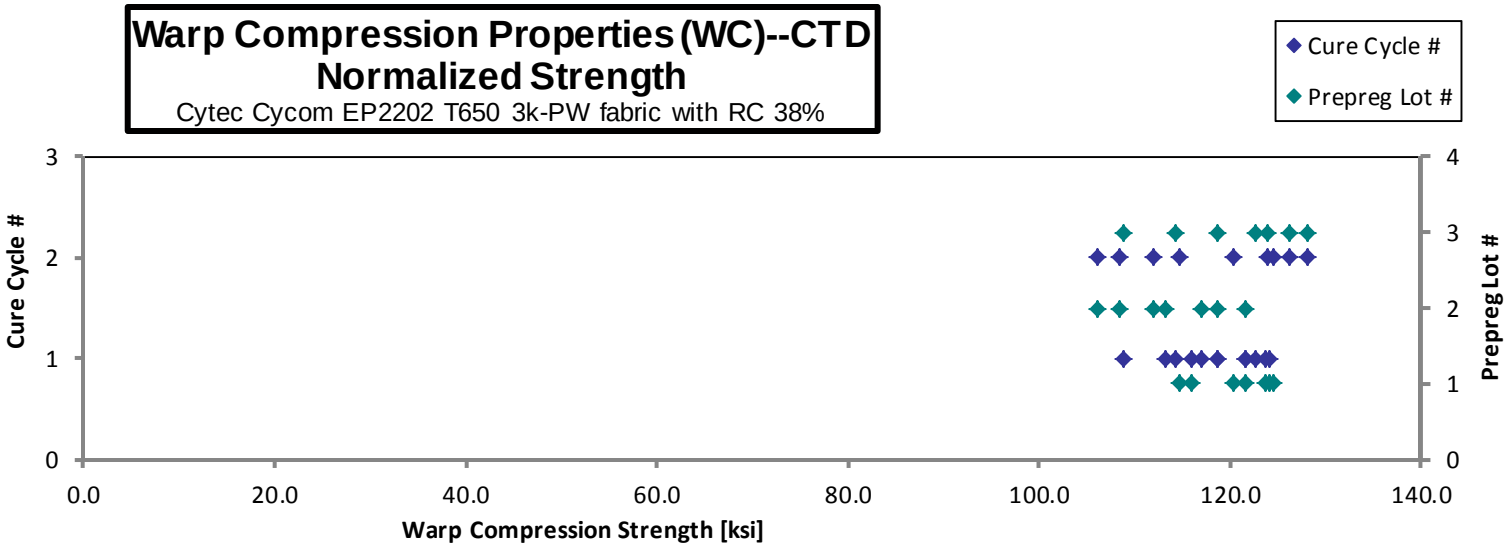
4.3 Warp Compression Properties (WC)

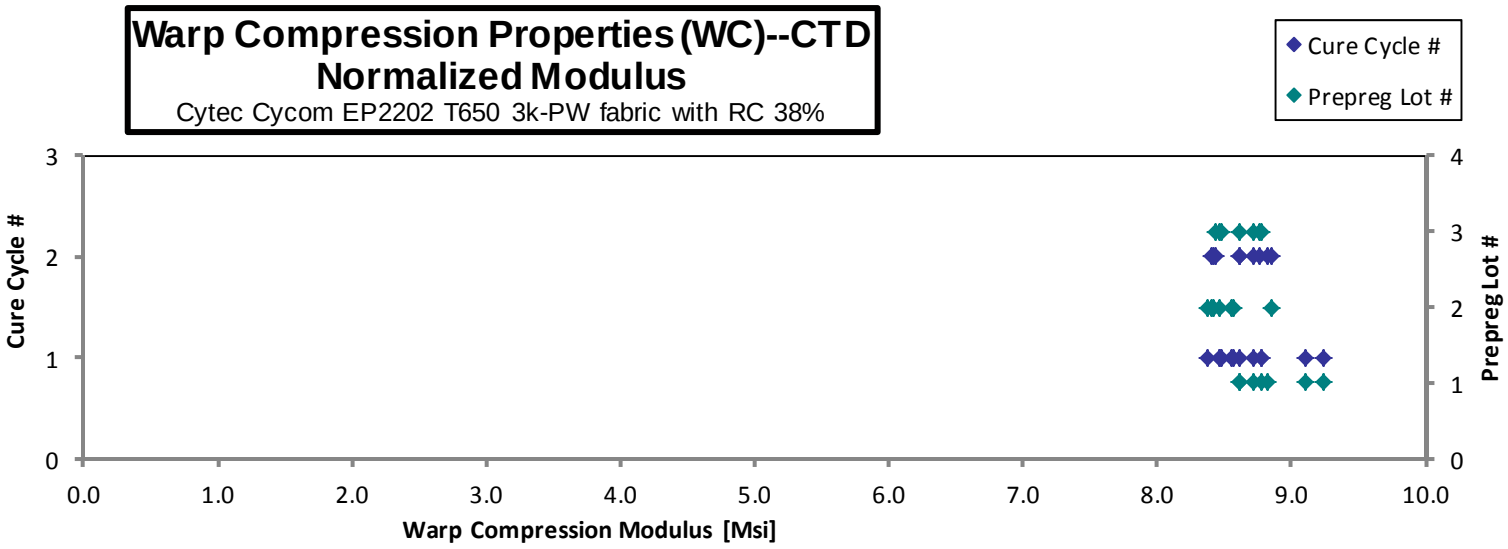
Warp Compression Properties (WC)--CTD
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBLA116B	A	C1	1	1	122.155	9.144	0.121	15	BAB	0.0081	121.669	9.108
EPBLA117B	A	C1	1	1	116.281	9.269	0.121	15	BGM	0.0081	115.946	9.242
EPBLA118B	A	C1	1	1	124.664	8.845	0.121	15	BGM	0.0080	123.741	8.779
EPBLA119B	A	C1	1	1	125.529	8.709	0.120	15	BAT	0.0080	124.203	8.617
EPBLA215B	A	C2	1	2	120.280	8.818	0.122	15	BGM	0.0081	120.346	8.823
EPBLA216B	A	C2	1	2	124.555	8.630	0.121	15	BGM	0.0081	124.418	8.621
EPBLA217B	A	C2	1	2	114.980	8.738	0.121	15	BGM	0.0081	114.665	8.714
EPBLB116B	B	C1	2	1	118.872	8.391	0.121	15	BGM	0.0081	118.594	8.372
EPBLB117B	B	C1	2	1	113.189	8.548	0.122	15	BGM	0.0081	113.313	8.558
EPBLB118B	B	C1	2	1	121.643	8.460	0.122	15	HGM, HAT	0.0081	121.676	8.462
EPBLB119B	B	C1	2	1	117.022	8.574	0.121	15	BGM	0.0081	116.974	8.570
EPBLB215B	B	C2	2	2	108.616	8.870	0.121	15	BAB	0.0081	108.452	8.857
EPBLB216B	B	C2	2	2	111.992	8.399	0.122	15	BGM	0.0081	112.008	8.400
EPBLB217B	B	C2	2	2	105.946	8.410	0.122	15	BGM	0.0081	106.048	8.418
EPBLC116B	C	C1	3	1	108.651	8.756	0.122	15	BGM	0.0081	108.875	8.774
EPBLC117B	C	C1	3	1	114.051	8.460	0.122	15	BGM	0.0081	114.177	8.469
EPBLC118B	C	C1	3	1	118.701	8.718	0.121	15	BAB	0.0081	118.619	8.712
EPBLC119B	C	C1	3	1	122.727	8.475	0.121	15	BGM	0.0081	122.710	8.474
EPBLC215B	C	C2	3	2	127.191	8.825	0.121	15	BGM	0.0080	126.214	8.757
EPBLC216B	C	C2	3	2	124.678	8.492	0.121	15	BGM	0.0080	123.875	8.437
EPBLC217B	C	C2	3	2	128.836	8.667	0.121	15	BGM	0.0080	128.005	8.611

	Strength [ksi]	Modulus [Msi]		$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	**118.598**	**8.676**	**$Average_{norm}$**	**0.0081**	**118.311**	**8.656**
Standard Dev.	**6.523**	**0.236**	**Standard $Dev._{norm}$**		**6.222**	**0.228**
Coeff. of Var. [%]	**5.500**	**2.725**	**Coeff. of Var. $[\%]_{norm}$**		**5.259**	**2.635**
Min.	**105.946**	**8.391**	**Min.**	**0.0080**	**106.048**	**8.372**
Max.	**128.836**	**9.269**	**Max.**	**0.0081**	**128.005**	**9.242**
Number of Spec.	**21**	**21**	**Number of Spec.**	**21**	**21**	**21**


Warp Compression Properties (WC)--CTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Warp Compression Strength [ksi]


Warp Compression Properties (WC)--CTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Warp Compression Modulus [Msi]

Warp Compression Properties (WC)--RTD
Strength & Modulus

Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

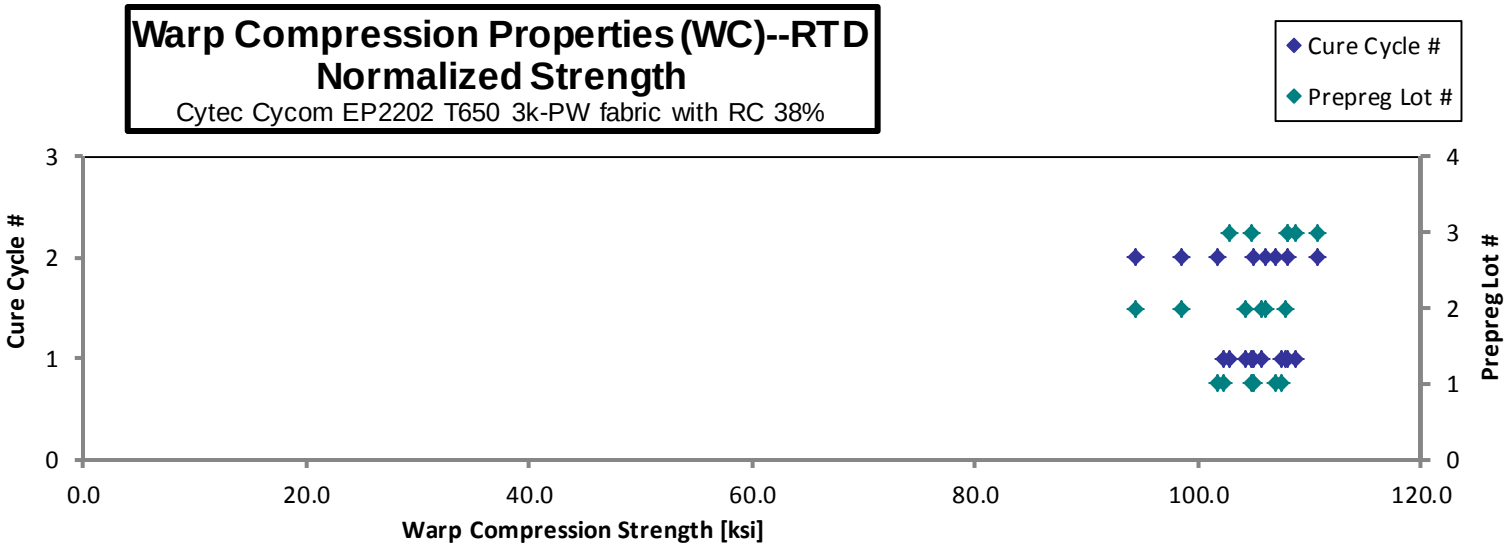
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
EPBLA111A*	A	C1	1	1	108.722	8.650	0.120	15	BAT	0.0080	107.380	8.543
EPBLA112A*	A	C1	1	1	105.074	8.599	0.121	15	BGM,HAT	0.0081	104.671	8.565
EPBLA113A	A	C1	1	1	102.537	8.829	0.121	15	BGM	0.0081	102.185	8.798
EPBLA114A	A	C1	1	1	105.673	8.888	0.121	15	BGM	0.0080	104.919	8.824
EPBLA211A	A	C2	1	2	109.111	8.822	0.119	15	BGM	0.0079	106.941	8.646
EPBLA212A	A	C2	1	2	105.489	8.488	0.121	15	BGM	0.0081	104.939	8.443
EPBLA213A	A	C2	1	2	101.630	8.558	0.122	15	BGM	0.0081	101.699	8.564
EPBLB111A**	B	C1	2	1		8.560	0.121	15	BGM,HAT,HIT	0.0081		8.512
EPBLB112A**	B	C1	2	1		8.315	0.121	15	HIT	0.0081		8.311
EPBLB112A	B	C1	2	1	105.774	8.658	0.121	15	BAT	0.0081	105.615	8.645
EPBLB114A	B	C1	2	1	104.694	8.455	0.121	15	BGM,HAT	0.0081	104.191	8.414
EPBLB115A	B	C1	2	1	108.473		0.121	15	BGM	0.0081	107.893	
EPBLB211A	B	C2	2	2	107.697	8.653	0.120	15	BAT	0.0080	106.042	8.520
EPBLB212A	B	C2	2	2	98.757	8.304	0.121	15	BGM	0.0081	98.554	8.287
EPBLB213A	B	C2	2	2	94.350	8.454	0.122	15	BGM	0.0081	94.415	8.460
EPBLC111A	C	C1	3	1		8.576	0.120	15	CIT	0.0080		8.468
EPBLC112A	C	C1	3	1	104.753	8.623	0.121	15	BGM	0.0081	104.709	8.619
EPBLC113A	C	C1	3	1	102.570	8.700	0.122	15	BGM	0.0081	102.781	8.718
EPBLC114A	C	C1	3	1	108.498	8.591	0.122	15	BGM	0.0081	108.632	8.601
EPBLC115A	C	C1	3	1	107.862		0.122	15	BGM	0.0081	107.906	
EPBLC211A	C	C2	3	2	112.638	8.439	0.119	15	HAT,BGM	0.0080	110.692	8.293
EPBLC212A**	C	C2	3	2		8.435	0.121	15	BAT,HAT,HIT	0.0080		8.375
EPBLC213A**	C	C2	3	2		8.735	0.121	15	BAT,HAT,HIT	0.0080		8.680
EPBLC214A	C	C2	3	2	108.643		0.121	15	BGM	0.0081	108.002	

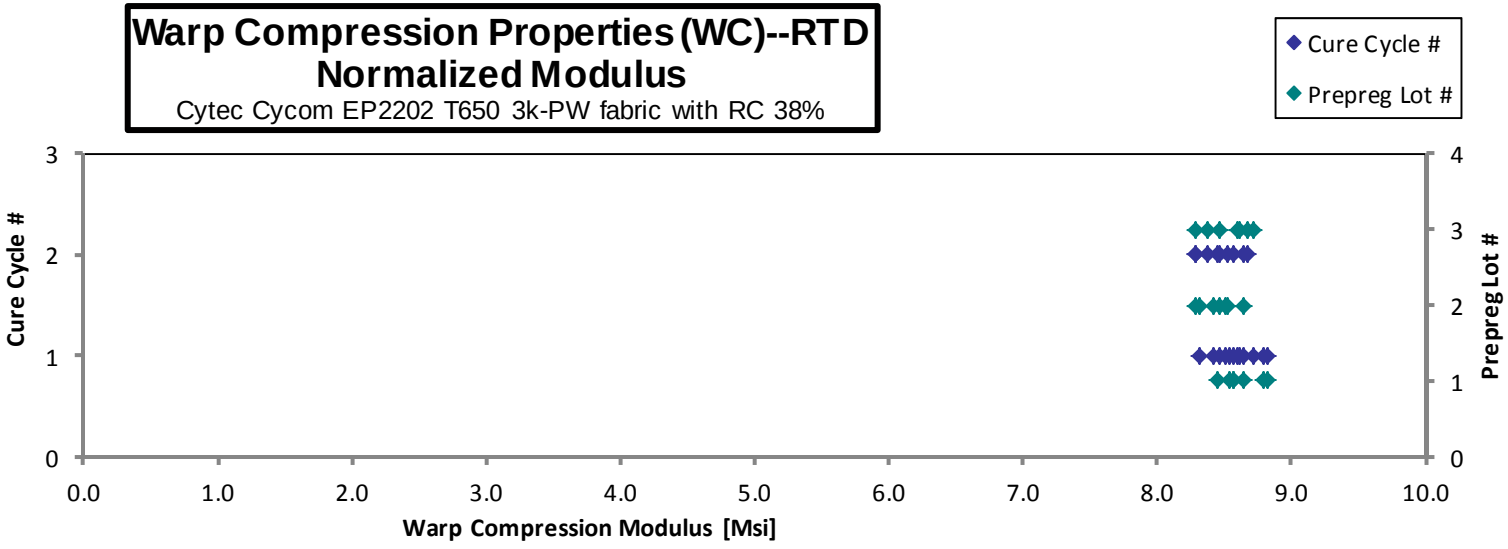
* Modulus are averaged values of 2 strain gages.

** Strength is not reported due to prominent bad failure mode

	Strength	Modulus
Average	**105.418**	**8.587**
Standard Dev.	**4.190**	**0.158**
Coeff. of Var. [%]	**3.974**	**1.840**
Min.	**94.350**	**8.304**
Max.	**112.638**	**8.888**
Number of Spec.	**19**	**21**

		$Strength_{norm}$	$Modulus_{norm}$
$Average_{norm}$	**0.0081**	**104.851**	**8.538**
Standard $Dev._{norm}$		**3.801**	**0.154**
Coeff. of Var. $[\%]_{norm}$		**3.625**	**1.804**
Min.	**0.0079**	**94.415**	**8.287**
Max.	**0.0081**	**110.692**	**8.824**
Number of Spec.	**24**	**19**	**21**


Warp Compression Properties (WC)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Warp Compression Strength [ksi]


Warp Compression Properties (WC)--RTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Warp Compression Modulus [Msi]

Warp Compression Properties (WC)--ETD1
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

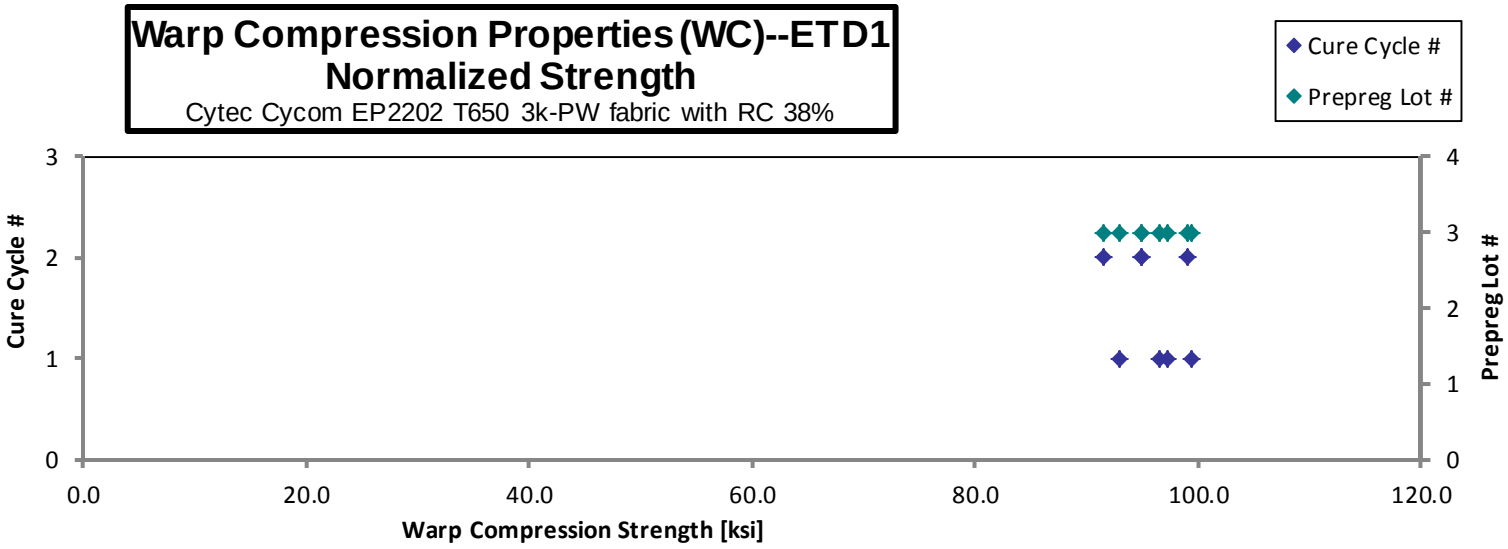
normalizing t_{ply} [in]
0.0081

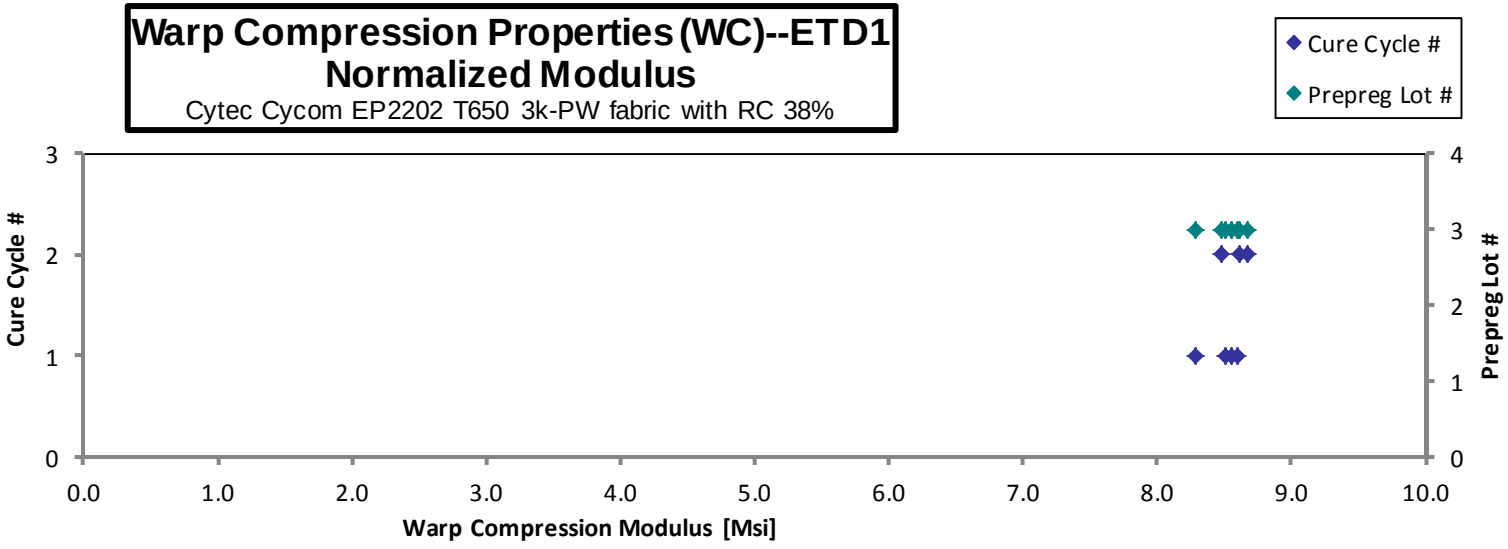
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
EPBLC11BC*	C	C1	3	1		8.604	0.121	15	HIT	0.0081		8.597
EPBLC11CC	C	C1	3	1	96.631	8.296	0.121	15	BGM	0.0081	96.498	8.284
EPBLC11DC	C	C1	3	1	93.108	8.576	0.121	15	HAB,HIB	0.0081	92.878	8.555
EPBLC11EC	C	C1	3	1	100.022	8.569	0.121	15	BAT	0.0080	99.322	8.509
EPBLC11FC	C	C1	3	1	96.996		0.122	15	BAT,HAT	0.0081	97.289	
EPBLC219C	C	C2	3	2	91.427	8.617	0.122	15	BGM	0.0081	91.452	8.620
EPBLC21AC	C	C2	3	2	99.314	8.494	0.121	15	BGM	0.0081	99.083	8.474
EPBLC21BC	C	C2	3	2	95.481	8.720	0.121	15	BAB,HAB,HIB	0.0081	94.957	8.672
EPBLC21CC	C	C2	3	2	96.903		0.119	15	BGM,HAT	0.0079	94.817	

* Strength is not reported due to prominent bad failure mode

	Strength [ksi]	Modulus [Msi]
Average	**96.235**	**8.554**
Standard Dev.	**2.890**	**0.132**
Coeff. of Var. [%]	**3.003**	**1.546**
Min.	**91.427**	**8.296**
Max.	**100.022**	**8.720**
Number of Spec.	**8**	**7**

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	**0.0081**	**95.787**	**8.530**
Standard $Dev._{norm}$		**2.803**	**0.127**
Coeff. of Var. $[\%]_{norm}$		**2.927**	**1.491**
Min.	**0.0079**	**91.452**	**8.284**
Max.	**0.0081**	**99.322**	**8.672**
Number of Spec.	**9**	**8**	**7**


Warp Compression Properties (WC)--ETD1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Warp Compression Strength [ksi]


Warp Compression Properties (WC)--ETD1
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Warp Compression Modulus [Msi]

Warp Compression Properties (WC)--ETW1
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

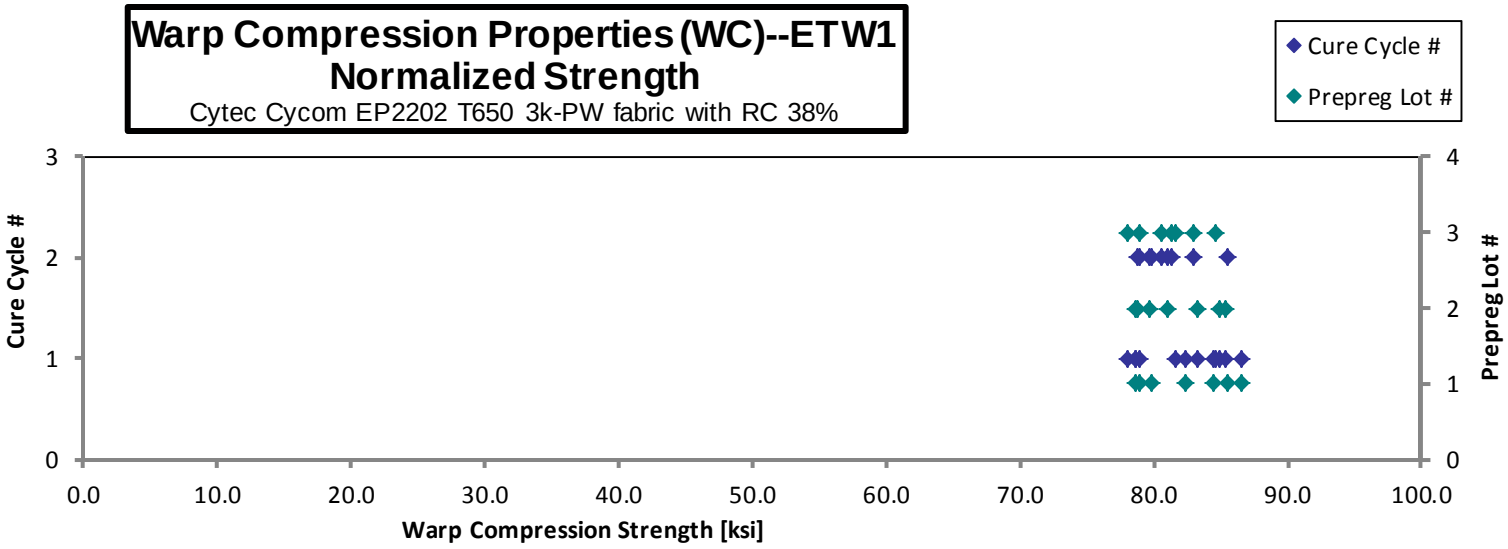
normalizing t_{ply} [in]
0.0081

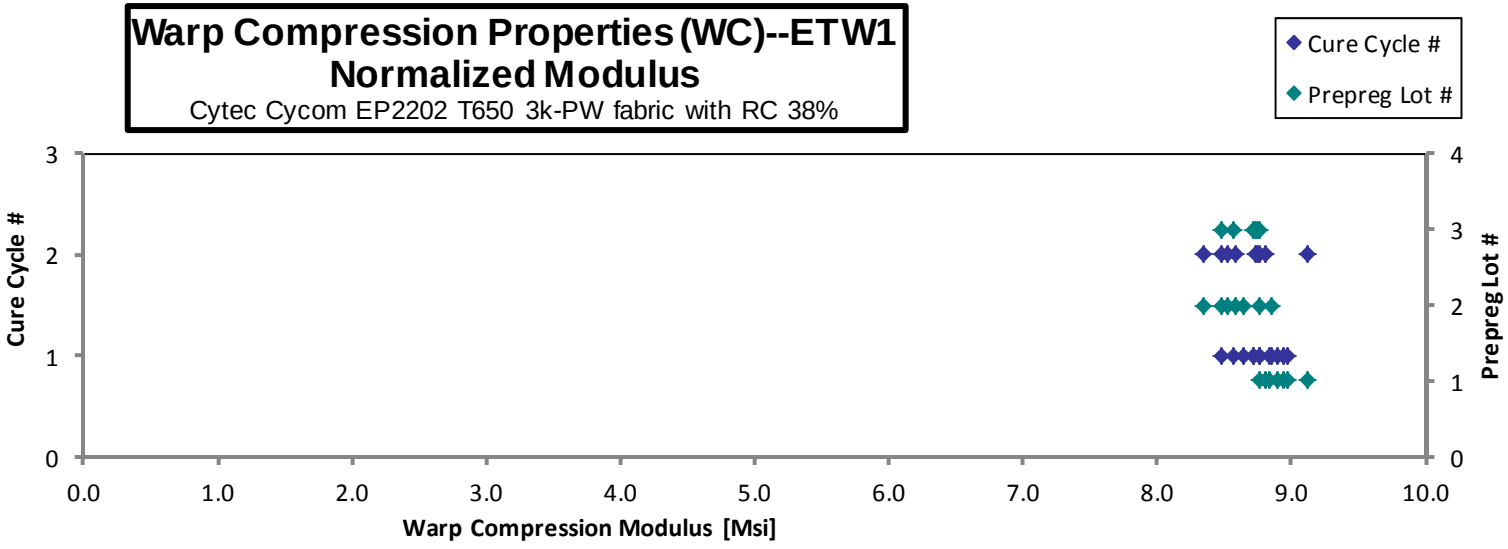
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
EPBLA11BD	A	C1	1	1		8.994	0.121	15	BAB,HAB	0.0081		8.944
EPBLA11CD	A	C1	1	1		8.970	0.121	15	BGM	0.0080		8.903
EPBLA11DD	A	C1	1	1		9.107	0.120	15	HAB,BGM	0.0080		8.973
EPBLA11ED	A	C1	1	1		8.848	0.121	15	HAB,BGM	0.0081		8.830
EPBLA11FD	A	C1	1	1	78.932		0.121	15	BAT,HAB	0.0081	78.629	
EPBLA11GD	A	C1	1	1	83.085		0.121	15	HAB,BAB	0.0080	82.402	
EPBLA11HD	A	C1	1	1	87.090		0.121	15	HIT,BAT	0.0081	86.576	
EPBLA11ID	A	C1	1	1	84.822		0.121	15	HAT,BGM	0.0081	84.426	
EPBLA219D	A	C2	1	2		9.124	0.121	15	BAB,HIB	0.0081		9.116
EPBLA21AD	A	C2	1	2		8.812	0.121	15	BGM	0.0081		8.809
EPBLA21BD	A	C2	1	2		8.760	0.122	15	BAB,HAB	0.0081		8.767
EPBLA21CD	A	C2	1	2	85.682		0.121	15	BAB,HIB	0.0081	85.576	
EPBLA21DD	A	C2	1	2	78.660		0.122	15	BAB,HIB	0.0081	78.951	
EPBLA21ED	A	C2	1	2	79.549		0.122	15	BGM,HAT,HAB	0.0081	79.789	
EPBLB11BD	B	C1	2	1		8.855	0.120	15	BAT,HIT	0.0080		8.761
EPBLB11CD	B	C1	2	1		8.648	0.121	15	BGM	0.0081		8.647
EPBLB11DD	B	C1	2	1		8.827	0.122	15	BGM	0.0081		8.851
EPBLB11ED	B	C1	2	1		8.506	0.121	15	BAB,HIB	0.0081		8.482
EPBLB11FD	B	C1	2	1	85.235		0.121	15	BAB	0.0081	84.837	
EPBLB11GD	B	C1	2	1	85.455		0.121	15	BAB,HIT	0.0081	85.326	
EPBLB11HD	B	C1	2	1	78.599		0.121	15	BGM	0.0081	78.567	
EPBLB11ID	B	C1	2	1	83.285		0.121	15	BGM	0.0081	83.217	
EPBLB219D	B	C2	2	2		8.580	0.122	15	BGM,HIB	0.0081		8.582
EPBLB21AD	B	C2	2	2		8.513	0.122	15	BGM	0.0081		8.521
EPBLB21BD	B	C2	2	2		8.341	0.122	15	BAB,HIB	0.0081		8.347
EPBLB21CD	B	C2	2	2	80.875		0.122	15	BAB	0.0081	81.052	
EPBLB21DD	B	C2	2	2	79.573		0.122	15	BGM	0.0081	79.725	
EPBLB21ED*	B	C2	2	2			0.122	15	BGM,HIT	0.0081		
EPBLB21FD	B	C2	2	2	78.625		0.122	15	BGM	0.0081	78.765	
EPBLC11GD	C	C1	3	1		8.710	0.122	15	HAT,BGM	0.0082		8.767
EPBLC11HD	C	C1	3	1		8.679	0.122	15	BGM,HIB	0.0081		8.712
EPBLC11ID	C	C1	3	1		8.667	0.122	15	BAT,HIT	0.0082		8.723
EPBLC11JD	C	C1	3	1		8.522	0.122	15	BGM	0.0081		8.572
EPBLC11KD	C	C1	3	1	84.055		0.122	15	BGM	0.0082	84.574	
EPBLC11LD	C	C1	3	1	77.605		0.122	15	BGM	0.0081	77.988	
EPBLC11MD	C	C1	3	1	81.086		0.122	15	BGM	0.0082	81.620	
EPBLC11ND	C	C1	3	1	78.393		0.122	15	BGM,HAT	0.0082	78.995	
EPBLC21DD	C	C2	3	2		8.572	0.120	15	BGM,HIB	0.0080		8.482
EPBLC21ED	C	C2	3	2		8.835	0.120	15	BGM	0.0080		8.732
EPBLC21FD	C	C2	3	2		8.873	0.120	15	BGM	0.0080		8.752
EPBLC21GD	C	C2	3	2	81.715		0.120	15	BGM	0.0080	80.639	
EPBLC21HD*	C	C2	3	2			0.120	15	BAT,HIT	0.0080		
EPBLC21ID	C	C2	3	2	82.284		0.120	15	BAB,HIB	0.0080	81.381	
EPBLC21JD	C	C2	3	2	83.613		0.121	15	BGM	0.0080	83.005	

* Strength is not reported due to prominent bad failure mode

Average	**81.820**	**8.750**	
Standard Dev.	**2.905**	**0.206**	
Coeff. of Var. [%]	**3.551**	**2.354**	
Min.	**77.605**	**8.341**	
Max.	**87.090**	**9.124**	
Number of Spec.	**21**	**21**	

$Average_{norm}$	**0.0081**	**81.716**	**8.727**
Standard $Dev._{norm}$		**2.718**	**0.185**
Coeff. of Var. $[\%]_{norm}$		**3.326**	**2.123**
Min.	**0.0080**	**77.988**	**8.347**
Max.	**0.0082**	**86.576**	**9.116**
Number of Spec.	**44**	**21**	**21**


Warp Compression Properties (WC)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
Warp Compression Strength [ksi]


Warp Compression Properties (WC)--ETW1
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Warp Compression Modulus [Msi]

4.4 Fill Compression Properties (FC)

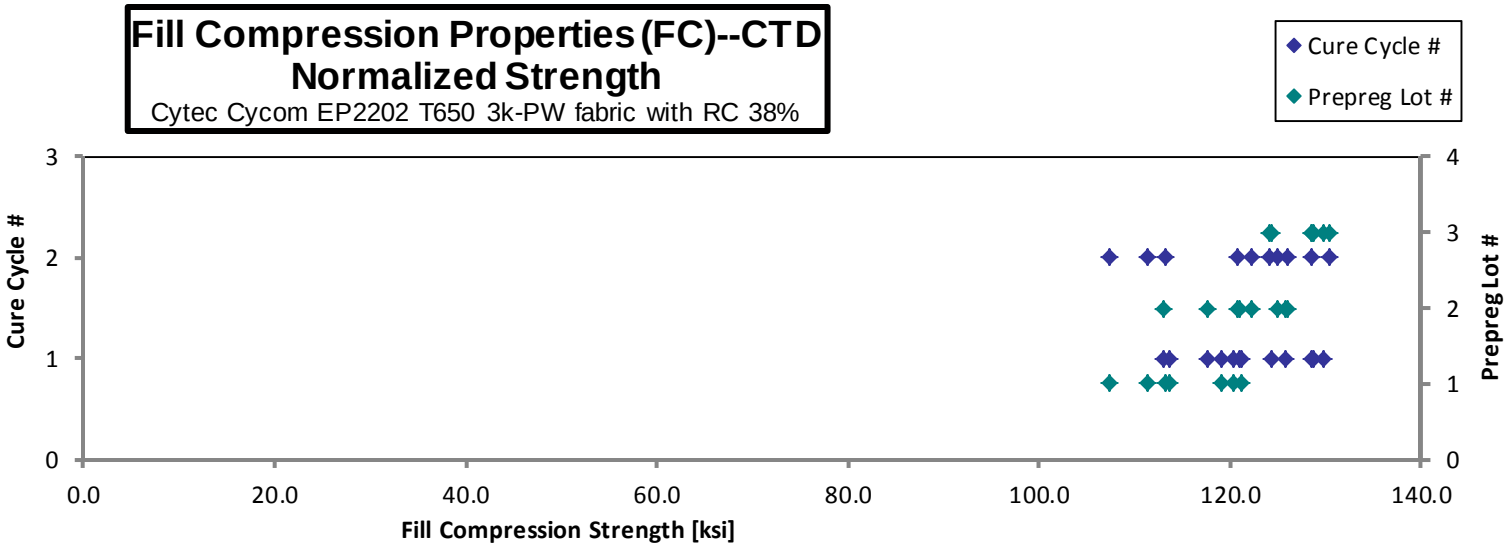
Fill Compression Properties (FC)--CTD
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

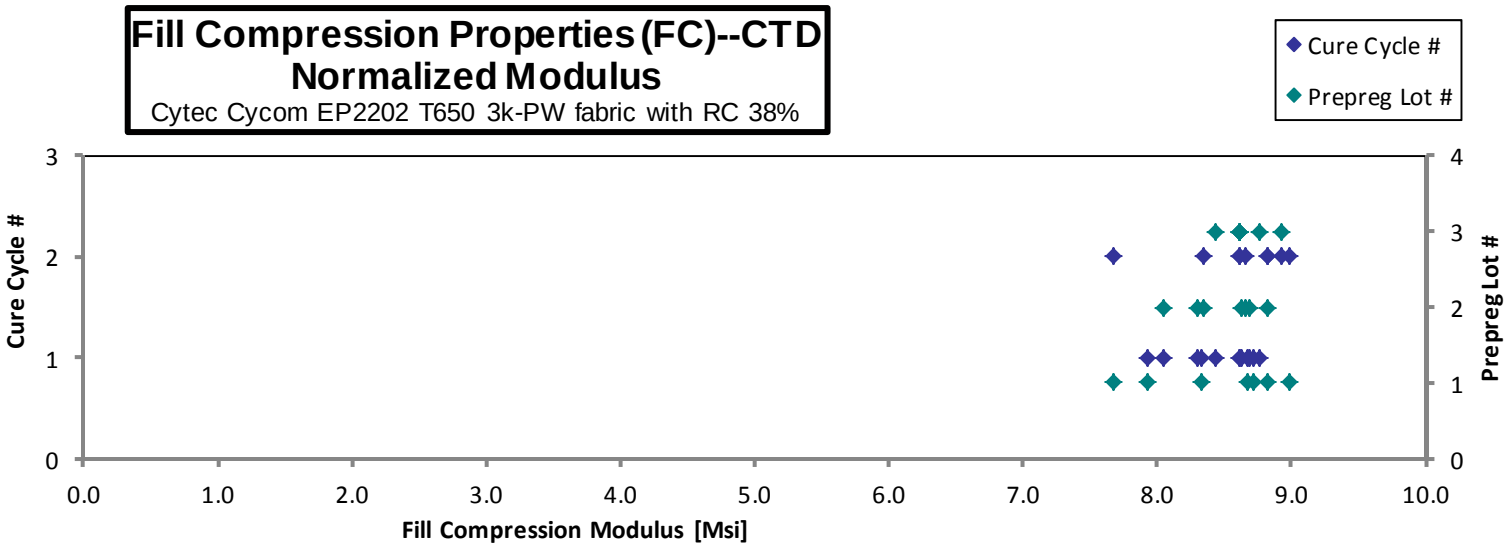
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBZA117B	A	C1	1	1	121.797	8.715	0.121	15	BAB	0.0081	121.162	8.670
EPBZA118B	A	C1	1	1	119.697	8.761	0.121	15	BAT	0.0081	119.041	8.713
EPBZA119B	A	C1	1	1	120.788	7.955	0.121	15	BGM	0.0081	120.308	7.923
EPBZA11AB	A	C1	1	1	114.090	8.361	0.121	15	BGM	0.0081	113.621	8.327
EPBZA216B	A	C2	1	2	108.195	7.741	0.120	15	BGM	0.0080	107.260	7.674
EPBZA217B	A	C2	1	2	112.157	9.059	0.121	15	BGM	0.0080	111.295	8.990
EPBZA218B	A	C2	1	2	114.263	8.909	0.120	15	BGM	0.0080	113.244	8.829
EPBZB117B	B	C1	2	1	119.578	8.172	0.120	15	BGM	0.0080	117.708	8.044
EPBZB118B	B	C1	2	1	123.052	8.440	0.120	15	BGM, HAT	0.0080	121.060	8.303
EPBZB119B	B	C1	2	1	114.742	8.761	0.120	15	BGM	0.0080	112.916	8.621
EPBZB11AB	B	C1	2	1	127.782	8.826	0.120	15	BGM	0.0080	125.696	8.682
EPBZB216B	B	C2	2	2	126.332	8.927	0.120	15	BGM	0.0080	124.893	8.825
EPBZB217B	B	C2	2	2	127.555	8.773	0.120	15	BAB	0.0080	125.946	8.662
EPBZB218B	B	C2	2	2	123.733	8.453	0.120	15	HAB, HIB	0.0080	122.205	8.349
EPBZB219B	B	C2	2	2	121.954		0.120	15	BGM	0.0080	120.700	
EPBZC117B	C	C1	3	1	128.452	8.442	0.121	15	BGM	0.0081	128.399	8.438
EPBZC118B	C	C1	3	1	129.734	8.622	0.121	15	BGM	0.0081	129.698	8.620
EPBZC119B	C	C1	3	1	124.097	8.754	0.122	15	BGM	0.0081	124.267	8.766
EPBZC11AB	C	C1	3	1	128.763	8.616	0.121	15	BGM	0.0081	128.692	8.612
EPBZC216B	C	C2	3	2	127.881	8.887	0.122	15	HAT, BAT	0.0081	128.407	8.923
EPBZC217B	C	C2	3	2	130.654	8.633	0.121	15	BGM	0.0081	130.277	8.608
EPBZC218B	C	C2	3	2	124.398	8.627	0.121	15	BGM	0.0081	124.194	8.613

Average	**122.259**	**8.592**	
Standard Dev.	**6.278**	**0.327**	
Coeff. of Var. [%]	**5.135**	**3.802**	
Min.	**108.195**	**7.741**	
Max.	**130.654**	**9.059**	
Number of Spec.	**22**	**21**	

$Average_{norm}$	**0.0080**	**121.409**	**8.533**
Standard $Dev._{norm}$		**6.507**	**0.332**
Coeff. of Var. $[\%]_{norm}$		**5.359**	**3.887**
Min.	**0.0080**	**107.260**	**7.674**
Max.	**0.0081**	**130.277**	**8.990**
Number of Spec.	**22**	**22**	**21**


Fill Compression Properties (FC)--CTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Compression Strength [ksi]
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0


Fill Compression Properties (FC)--CTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Compression Modulus [Msi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0

Fill Compression Properties (FC)--RTD
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

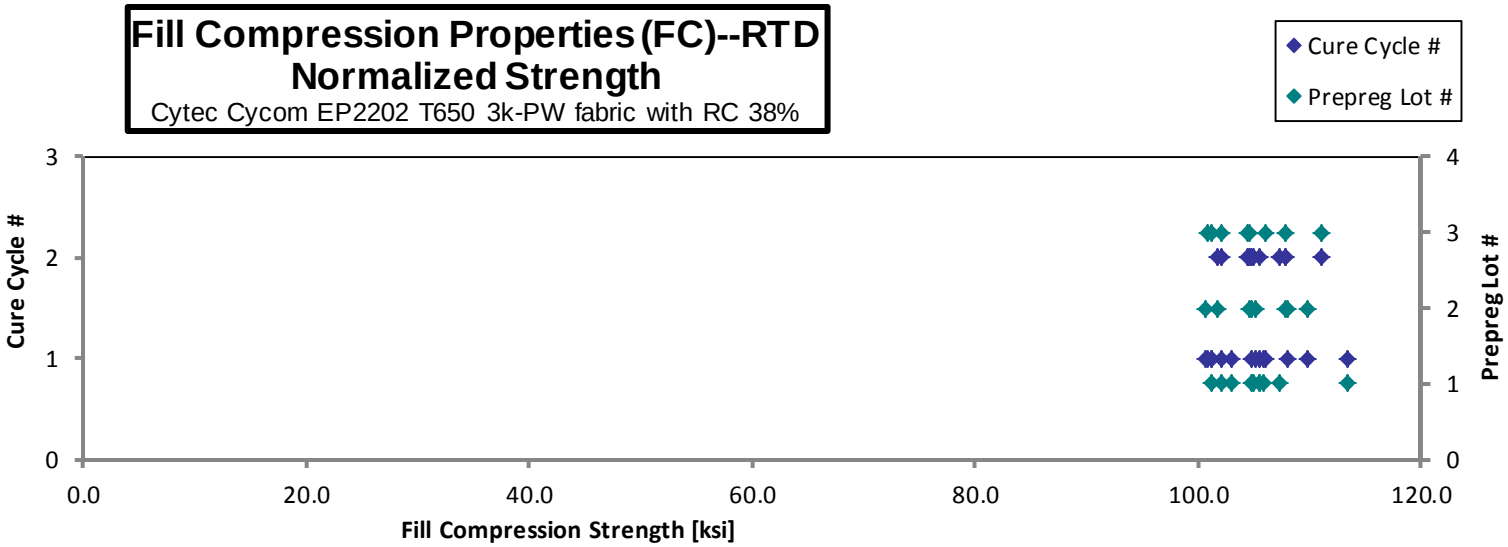
normalizing t_{ply} [in]: 0.0081

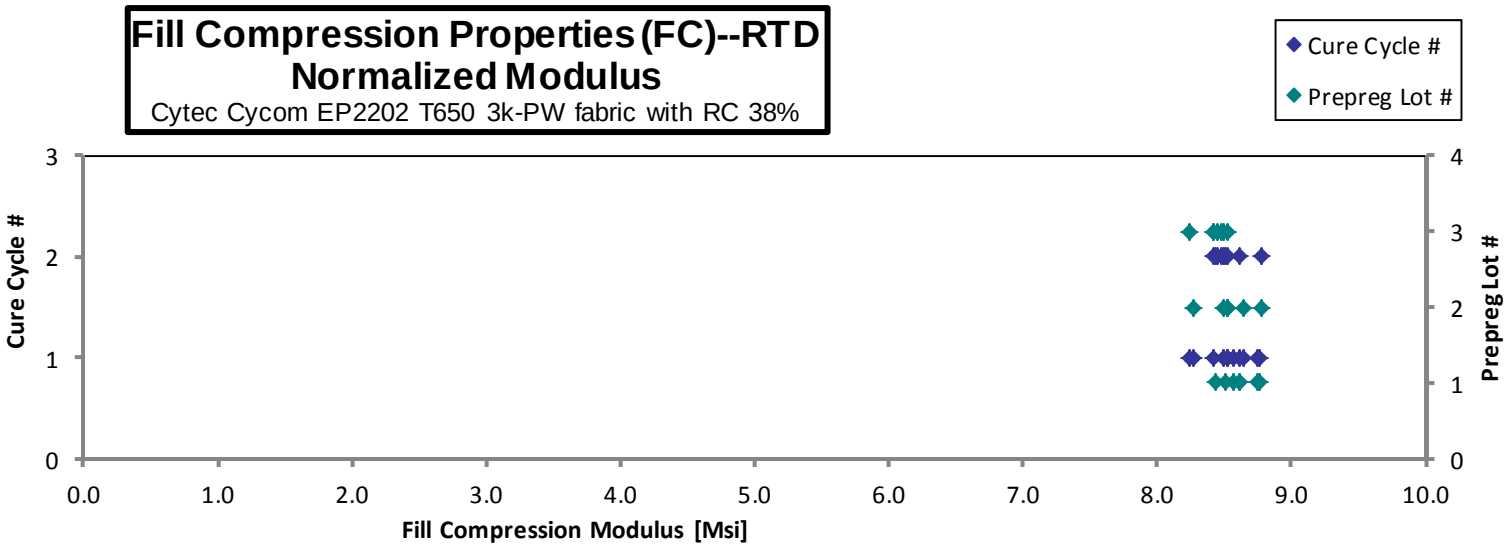
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
EPBZA111A*	A	C1	1	1		8.667	0.121	15	BAT,HIT	0.0081		8.613
EPBZA112A	A	C1	1	1	114.114	8.816	0.121	15	BAB,HAB	0.0080	113.378	8.759
EPBZA113A	A	C1	1	1	106.151	8.594	0.121	15	BAB,HIB	0.0081	105.772	8.563
EPBZA114A	A	C1	1	1	106.237	8.814	0.121	15	BAB,HIB	0.0080	105.523	8.755
EPBZA115A	A	C1	1	1	101.989		0.121	15	HAT,HIT	0.0080	101.177	
EPBZA116A	A	C1	1	1	103.279		0.121	15	BAB	0.0081	102.953	
EPBZA211A	A	C2	1	2	108.129	8.825	0.119	15	BAB,HIB	0.0079	105.504	8.610
EPBZA212A	A	C2	1	2	108.646	8.533	0.120	15	BAB	0.0080	107.304	8.428
EPBZA213A	A	C2	1	2	102.844	8.576	0.121	15	BAT	0.0080	102.068	8.511
EPBZA214A	A	C2	1	2	105.242		0.121	15	BAB	0.0081	104.723	
EPBZA215A	A	C2	1	2	105.608		0.121	15	BAB	0.0081	104.956	
EPBZB111A	B	C1	2	1	110.719	8.489	0.118	15	HIB, BAB	0.0079	107.955	8.277
EPBZB112A	B	C1	2	1	106.547	8.635	0.120	15	BAB	0.0080	105.130	8.520
EPBZB113A	B	C1	2	1	101.671	8.606	0.120	15	BAB	0.0080	100.723	8.526
EPBZB114A	B	C1	2	1	105.967	8.745	0.120	15	BAB	0.0080	104.804	8.649
EPBZB115A	B	C1	2	1	111.119		0.120	15	HGM, HAT	0.0080	109.701	
EPBZB211A	B	C2	2	2	103.712	8.659	0.119	15	BAT	0.0079	101.706	8.491
EPBZB212A	B	C2	2	2	108.614	8.593	0.121	15	BAB	0.0080	107.824	8.530
EPBZB213A	B	C2	2	2	105.014	8.807	0.121	15	BAB	0.0081	104.597	8.772
EPBZC111A	C	C1	3	1	99.542	8.273	0.125	15	BAT	0.0083	102.136	8.489
EPBZC112A	C	C1	3	1	100.966	8.535	0.121	15	BAB	0.0081	100.841	8.525
EPBZC113A	C	C1	3	1	102.280	8.507	0.120	15	BAB	0.0080	101.213	8.418
EPBZC114A	C	C1	3	1	105.903	8.240	0.122	15	BAT	0.0081	105.961	8.244
EPBZC211A	C	C2	3	2	111.083	8.426	0.122	15	BGM	0.0081	111.083	8.426
EPBZC212A	C	C2	3	2	106.783	8.665	0.119	15	BAT, HAT	0.0079	104.527	8.482
EPBZC213A	C	C2	3	2	108.431	8.489	0.121	15	BAB, HIB	0.0081	107.881	8.446
EPBZC214A	C	C2	3	2	103.784		0.122	15	BAB, HAB	0.0082	104.453	

* Modulus are averaged values of 2 strain gages; Strength is not reported due to prominent bad failure mode.

	Strength	Modulus
Average	**105.937**	**8.595**
Standard Dev.	**3.523**	**0.163**
Coeff. of Var. [%]	**3.325**	**1.892**
Min.	**99.542**	**8.240**
Max.	**114.114**	**8.825**
Number of Spec.	**26**	**21**

		$Strength_{norm}$	$Modulus_{norm}$
$Average_{norm}$	**0.0080**	**105.150**	**8.525**
Standard $Dev._{norm}$		**3.214**	**0.138**
Coeff. of Var. $[\%]_{norm}$		**3.057**	**1.621**
Min.	**0.0079**	**100.723**	**8.244**
Max.	**0.0083**	**113.378**	**8.772**
Number of Spec.	**27**	**26**	**21**


Fill Compression Properties (FC)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Compression Strength [ksi]
0.0
20.0
40.0
60.0
80.0
100.0
120.0


Fill Compression Properties (FC)--RTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Compression Modulus [Msi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0

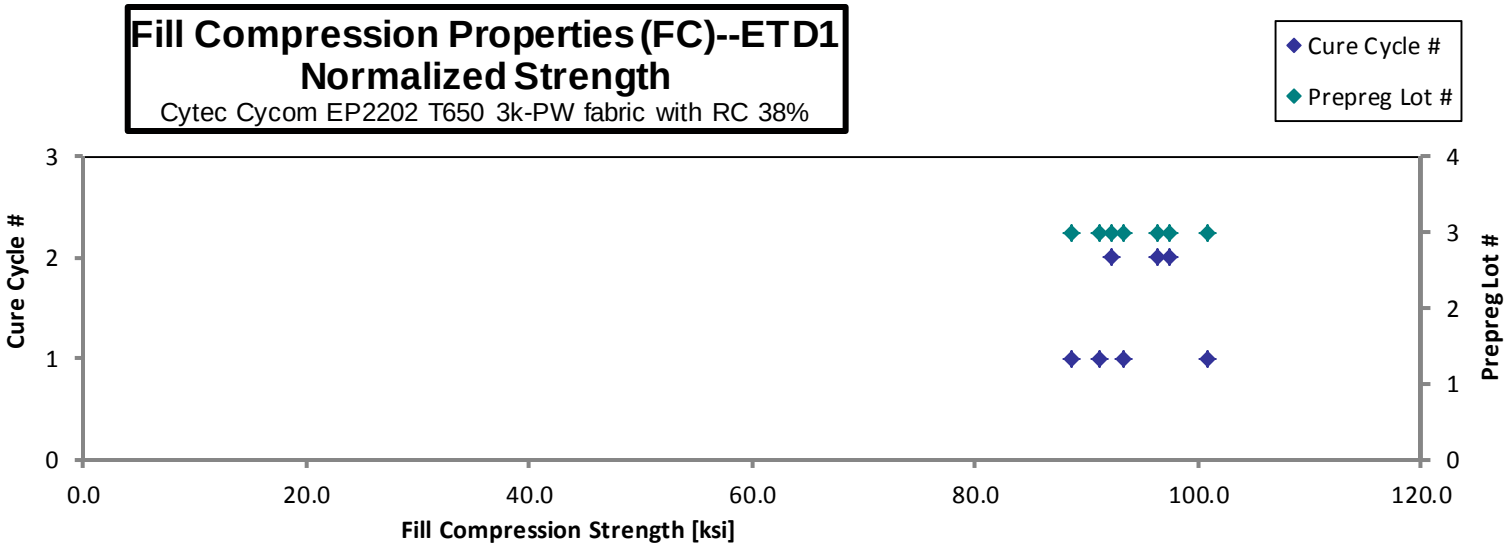
Fill Compression Properties (FC)--ETD1
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

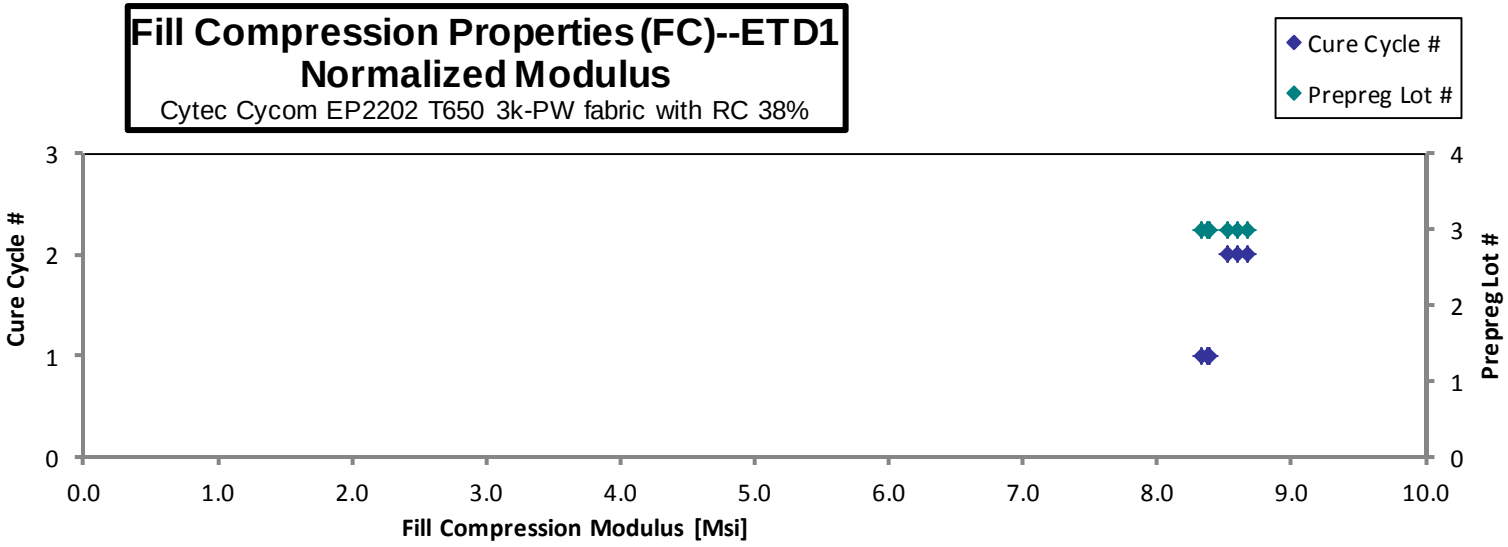
normalizing t_{ply} [in]: 0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBZC11FC	C	C1	3	1	97.761	8.087	0.125	15	BAB, HIB	0.0083	100.765	8.335
EPBZC11GC	C	C1	3	1	93.130	8.363	0.122	15	BAB, HAB	0.0081	93.335	8.382
EPBZC11HC	C	C1	3	1	89.342	8.450	0.120	15	BAT, HAT	0.0080	88.582	8.378
EPBZC11IC	C	C1	3	1	90.982	8.379	0.122	15	BGM	0.0081	91.044	8.385
EPBZC21BC	C	C2	3	2	97.657	8.627	0.121	15	BGM	0.0081	97.322	8.597
EPBZC21CC	C	C2	3	2	92.628	8.715	0.121	15	BAT, HIT	0.0081	92.171	8.672
EPBZC21DC	C	C2	3	2	96.632	8.549	0.121	15	BAT, HAT	0.0081	96.327	8.522

	Strength [ksi]	Modulus [Msi]
Average	**94.019**	**8.453**
Standard Dev.	**3.364**	**0.207**
Coeff. of Var. [%]	**3.578**	**2.443**
Min.	**89.342**	**8.087**
Max.	**97.761**	**8.715**
Number of Spec.	**7**	**7**

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	**0.0081**	**94.221**	**8.467**
Standard $Dev._{norm}$		**4.158**	**0.130**
Coeff. of Var. $[\%]_{norm}$		**4.414**	**1.535**
Min.	**0.0080**	**88.582**	**8.335**
Max.	**0.0083**	**100.765**	**8.672**
Number of Spec.	**7**	**7**	**7**


Fill Compression Properties (FC)--ETD1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Compression Strength [ksi]
0.0
20.0
40.0
60.0
80.0
100.0
120.0
0
1
2
3
4


Fill Compression Properties (FC)--ETD1
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Compression Modulus [Msi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
0
1
2
3
4

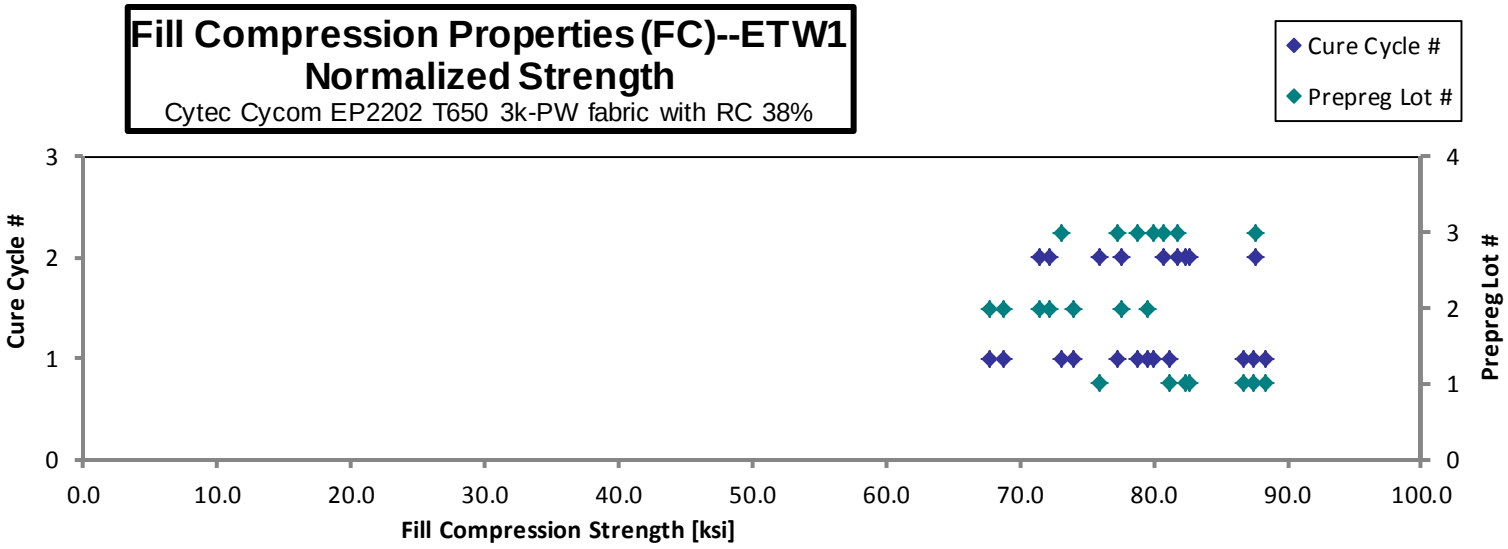
Fill Compression Properties (FC)--ETW1
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

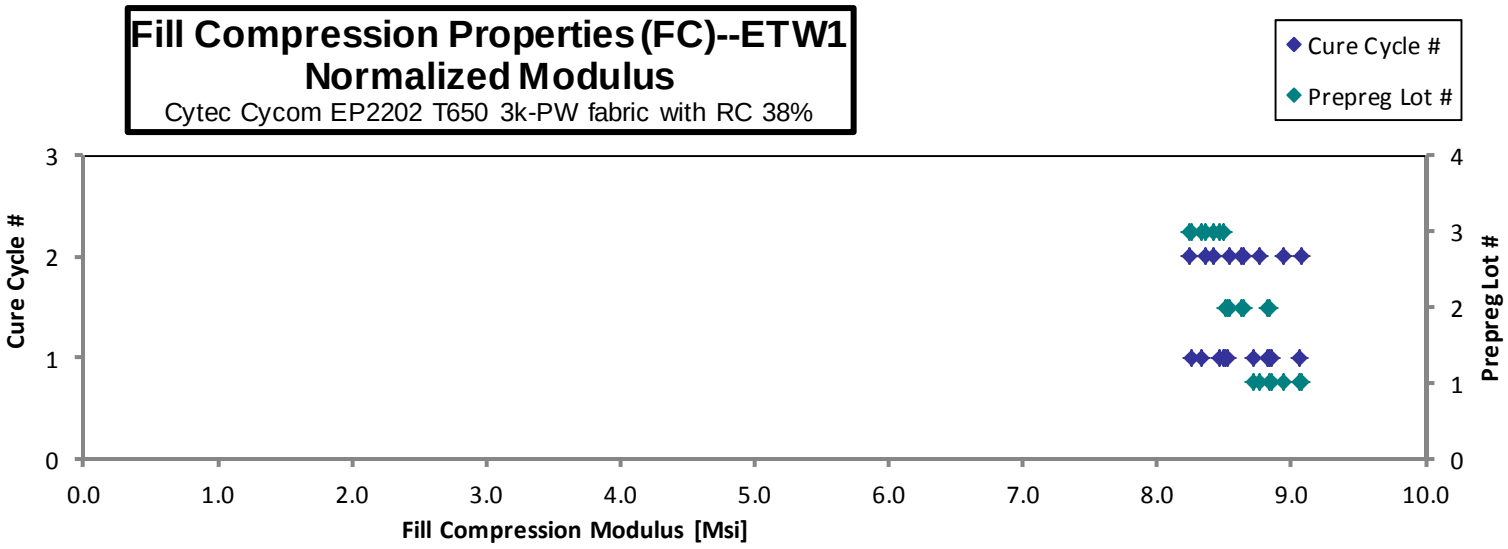
normalizing t_{ply} [in]: 0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBZA11DD	A	C1	1	1		9.074	0.121	15	BAB, HAB	0.0081		9.057
EPBZA11ED	A	C1	1	1		8.742	0.121	15	BGM, HIB	0.0081		8.716
EPBZA11FD	A	C1	1	1		8.858	0.121	15	BGM	0.0081		8.853
EPBZA11GD	A	C1	1	1		8.809	0.122	15	HGB, HIB	0.0081		8.830
EPBZA11HD	A	C1	1	1	81.524		0.121	15	BAB, HIB	0.0081	81.189	
EPBZA11ID	A	C1	1	1	88.600		0.121	15	BAT, HIT	0.0081	88.394	
EPBZA11JD	A	C1	1	1	86.829		0.121	15	BAB, HAB	0.0081	86.686	
EPBZA11KD	A	C1	1	1	87.397		0.122	15	BAB, HIB	0.0081	87.397	
EPBZA21BD	A	C2	1	2		8.995	0.121	15	BGM	0.0080		8.938
EPBZA21CD	A	C2	1	2		9.121	0.121	15	BAT, HIT	0.0081		9.068
EPBZA21DD	A	C2	1	2		8.765	0.121	15	BAT, HIT	0.0081		8.758
EPBZA21ED	A	C2	1	2	82.224		0.122	15	BAT, HAT	0.0081	82.348	
EPBZA21FD	A	C2	1	2	76.422		0.121	15	BGM	0.0081	75.971	
EPBZA21GD	A	C2	1	2	83.587		0.120	15	BAT, HIT	0.0080	82.681	
EPBZB11DD	B	C1	2	1		8.667	0.119	15	BGM	0.0080		8.514
EPBZB11ED	B	C1	2	1		8.967	0.120	15	BGM	0.0080		8.820
EPBZB11FD	B	C1	2	1		8.662	0.120	15	BGM	0.0080		8.520
EPBZB11GD	B	C1	2	1		8.994	0.119	15	BGM	0.0080		8.833
EPBZB11HD	B	C1	2	1	69.906		0.120	15	BGM	0.0080	68.823	
EPBZB11ID	B	C1	2	1	80.617		0.120	15	HGM	0.0080	79.489	
EPBZB11JD	B	C1	2	1	75.406		0.119	15	BGM, HIB	0.0080	74.051	
EPBZB11KD	B	C1	2	1	68.993		0.119	15	HGM	0.0080	67.725	
EPBZB21DD	B	C2	2	2		8.610	0.120	15	BAT	0.0080		8.532
EPBZB21CD	B	C2	2	2		8.750	0.120	15	BAT	0.0080		8.624
EPBZB21BD	B	C2	2	2		8.755	0.120	15	BGM	0.0080		8.647
EPBZB21ED	B	C2	2	2	72.039		0.121	15	BAB	0.0080	71.486	
EPBZB21FD	B	C2	2	2	73.064		0.120	15	BGM	0.0080	72.272	
EPBZB21GD	B	C2	2	2	78.823		0.120	15	BAB	0.0080	77.645	
EPBZC11JD	C	C1	3	1		8.416	0.122	15	BAT, HIT	0.0081		8.464
EPBZC11KD	C	C1	3	1		8.478	0.122	15	BAT, HIT	0.0081		8.496
EPBZC11LD	C	C1	3	1		8.304	0.122	15	HAB, HIB	0.0081		8.325
EPBZC11MD	C	C1	3	1		8.220	0.122	15	BAT, HIT	0.0081		8.250
EPBZC11ND	C	C1	3	1	79.950		0.122	15	BGM	0.0081	80.038	
EPBZC11OD	C	C1	3	1	77.225		0.122	15	BGM, HIB	0.0081	77.225	
EPBZC11PD	C	C1	3	1	78.641		0.122	15	BGM	0.0081	78.748	
EPBZC11QD	C	C1	3	1	73.159		0.122	15	BAB	0.0081	73.159	
EPBZC21GD	C	C2	3	2		8.447	0.121	15	HIB	0.0081		8.413
EPBZC21HD	C	C2	3	2		8.397	0.121	15	BGM	0.0081		8.365
EPBZC21ID	C	C2	3	2		8.271	0.121	15	BGM	0.0081		8.236
EPBZC21JD	C	C2	3	2	82.314		0.121	15	BGM	0.0081	81.806	
EPBZC21KD	C	C2	3	2	88.067		0.121	15	BGM	0.0081	87.620	
EPBZC21LD	C	C2	3	2	81.387		0.121	15	BGM	0.0080	80.784	

Average	**79.342**	**8.681**	
Standard Dev.	**5.853**	**0.271**	
Coeff. of Var. [%]	**7.378**	**3.123**	
Min.	**68.993**	**8.220**	
Max.	**88.600**	**9.121**	
Number of Spec.	**21**	**21**	

$Average_{norm}$	**0.0081**	**78.835**	**8.631**
$Standard\ Dev._{norm}$		**6.078**	**0.250**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**7.709**	**2.898**
Min.	**0.0080**	**67.725**	**8.236**
Max.	**0.0081**	**88.394**	**9.068**
Number of Spec.	**42**	**21**	**21**


Fill Compression Properties (FC)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Compression Strength [ksi]
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0

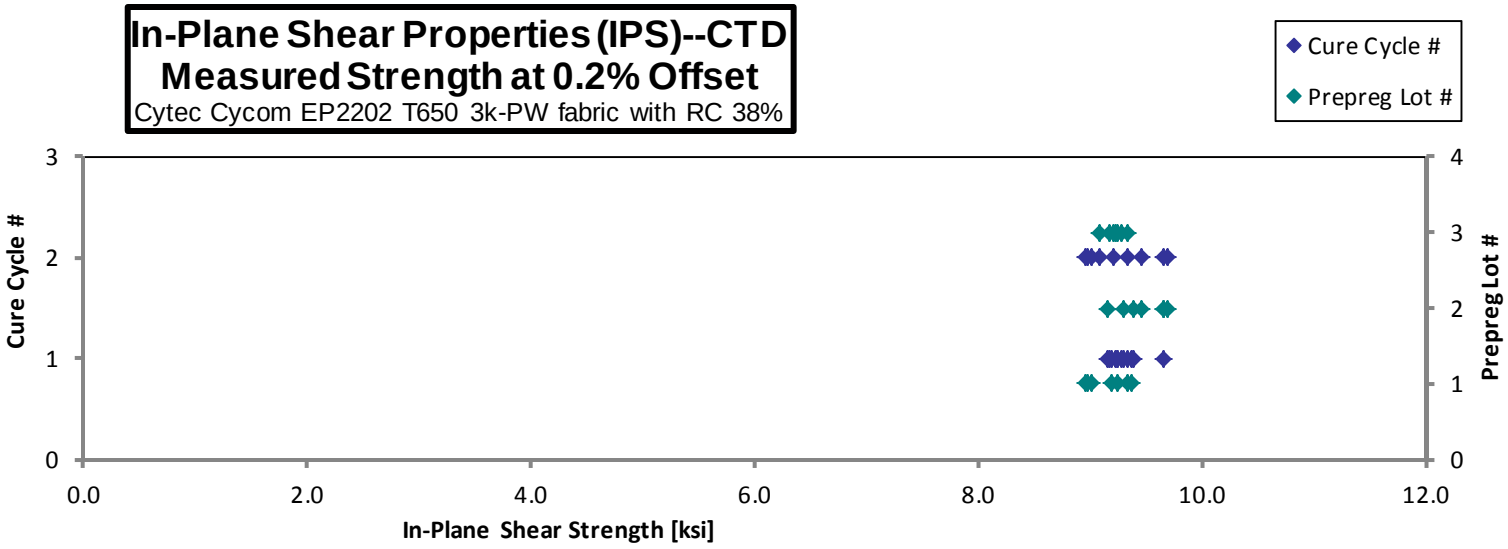

Fill Compression Properties (FC)--ETW1
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Compression Modulus [Msi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0

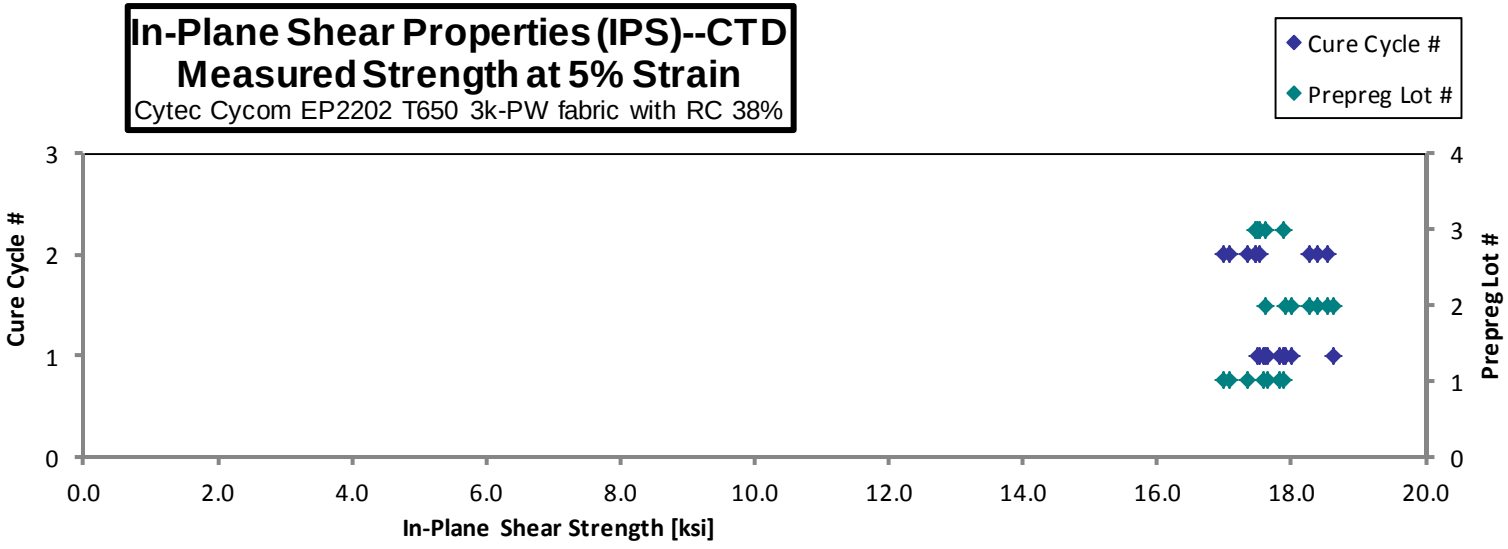
4.5 In-Plane Shear Properties (IPS)

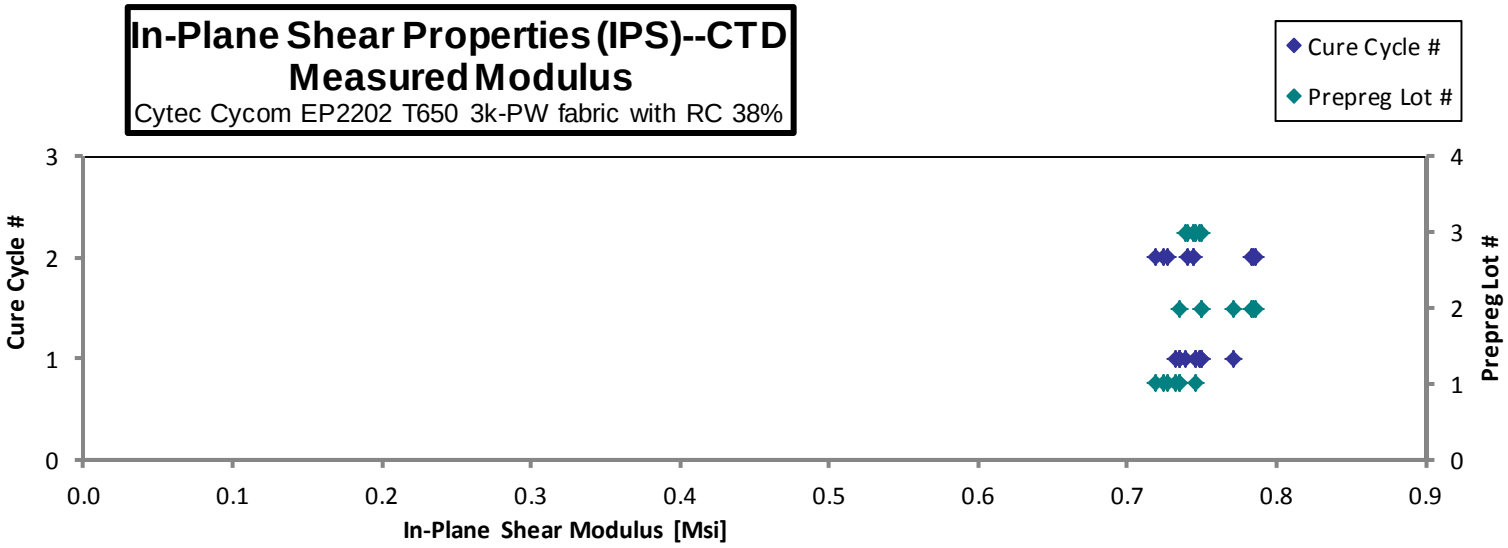
In-Plane Shear Properties (IPS)--CTD
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]
EPBNA116B	A	C1	1	1	9.247	17.647	0.735	0.098	12	0.0081
EPBNA117B	A	C1	1	1	9.343	17.812	0.734	0.097	12	0.0081
EPBNA118B	A	C1	1	1	9.191	17.591	0.732	0.097	12	0.0081
EPBNA119B	A	C1	1	1	9.366	17.886	0.746	0.097	12	0.0081
EPBNA215B	A	C2	1	2	8.980	17.351	0.727	0.097	12	0.0080
EPBNA216B	A	C2	1	2	8.959	17.071	0.724	0.097	12	0.0080
EPBNA217B	A	C2	1	2	9.021	16.999	0.719	0.096	12	0.0080
EPBNB116B	B	C1	2	1	9.397	18.016	0.749	0.095	12	0.0079
EPBNB117B	B	C1	2	1	9.296	17.920	0.750	0.095	12	0.0079
EPBNB118B	B	C1	2	1	9.153	17.608	0.735	0.097	12	0.0080
EPBNB119B	B	C1	2	1	9.654	18.631	0.771	0.094	12	0.0078
EPBNB215B	B	C2	2	2	9.648	18.285	0.784	0.095	12	0.0079
EPBNB216B	B	C2	2	2	9.459	18.401	0.785	0.095	12	0.0079
EPBNB217B	B	C2	2	2	9.689	18.544	0.783	0.094	12	0.0078
EPBNC116B	C	C1	3	1	9.175	17.529	0.749	0.097	12	0.0081
EPBNC117B	C	C1	3	1	9.272	17.625	0.750	0.097	12	0.0081
EPBNC118B	C	C1	3	1	9.230	17.482	0.738	0.097	12	0.0081
EPBNC119B	C	C1	3	1	9.253	17.872	0.746	0.097	12	0.0081
EPBNC215B	C	C2	3	2	9.207	17.455	0.740	0.097	12	0.0081
EPBNC216B	C	C2	3	2	9.343	17.512	0.745	0.097	12	0.0081
EPBNC217B	C	C2	3	2	9.092	17.479	0.744	0.097	12	0.0081

Average	**9.285**	**17.748**	**0.747**	**Average**	**0.0080**
Standard Dev.	**0.205**	**0.439**	**0.019**	**Standard Dev.**	
Coeff. of Var. [%]	**2.212**	**2.471**	**2.554**	**Coeff. of Var. [%]**	
Min.	**8.959**	**16.999**	**0.719**	**Min.**	**0.0078**
Max.	**9.689**	**18.631**	**0.785**	**Max.**	**0.0081**
Number of Spec.	**21**	**21**	**21**	**Number of Spec.**	**21**


In-Plane Shear Properties (IPS)--CTD
Measured Strength at 0.2% Offset
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Strength [ksi]
0.0
2.0
4.0
6.0
8.0
10.0
12.0

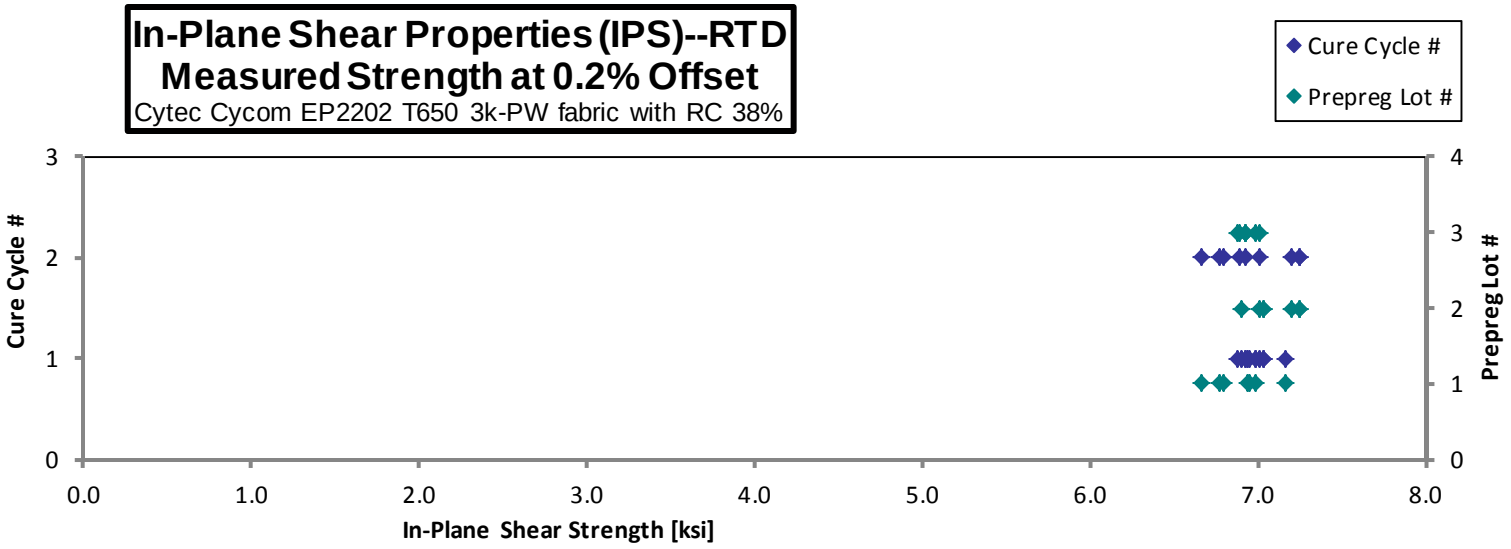

In-Plane Shear Properties (IPS)--CTD
Measured Strength at 5% Strain
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Strength [ksi]
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
20.0

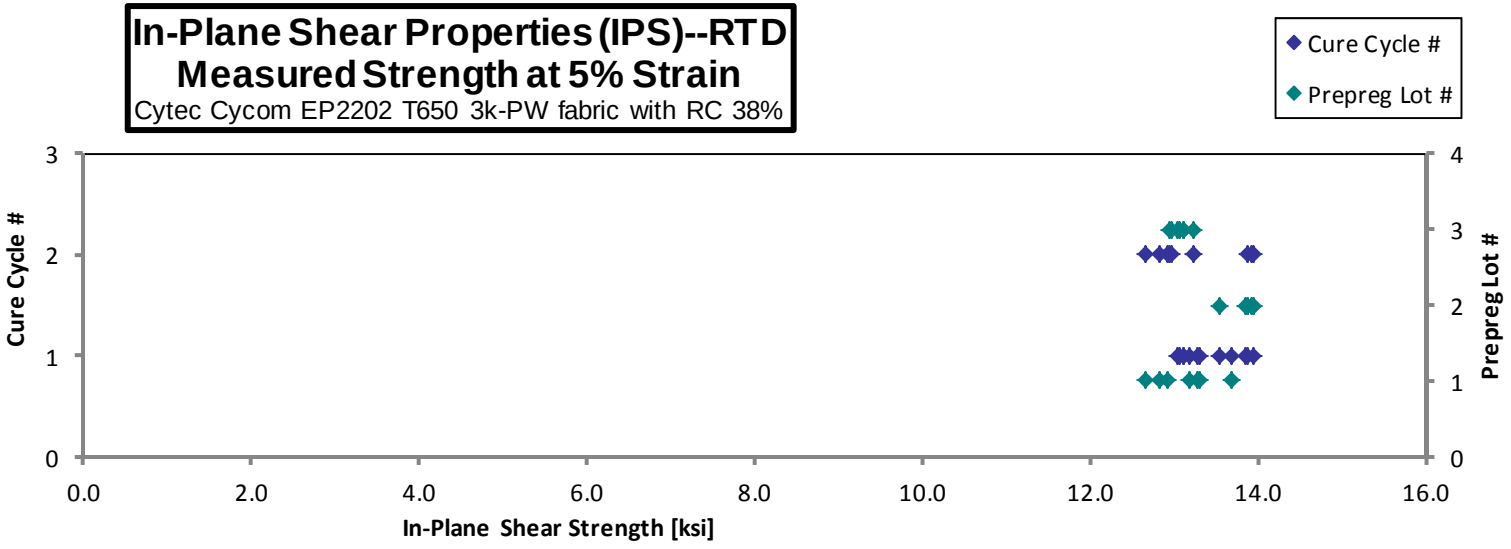

In-Plane Shear Properties (IPS)--CTD
Measured Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Modulus [Msi]
0
1
2
3
4
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9

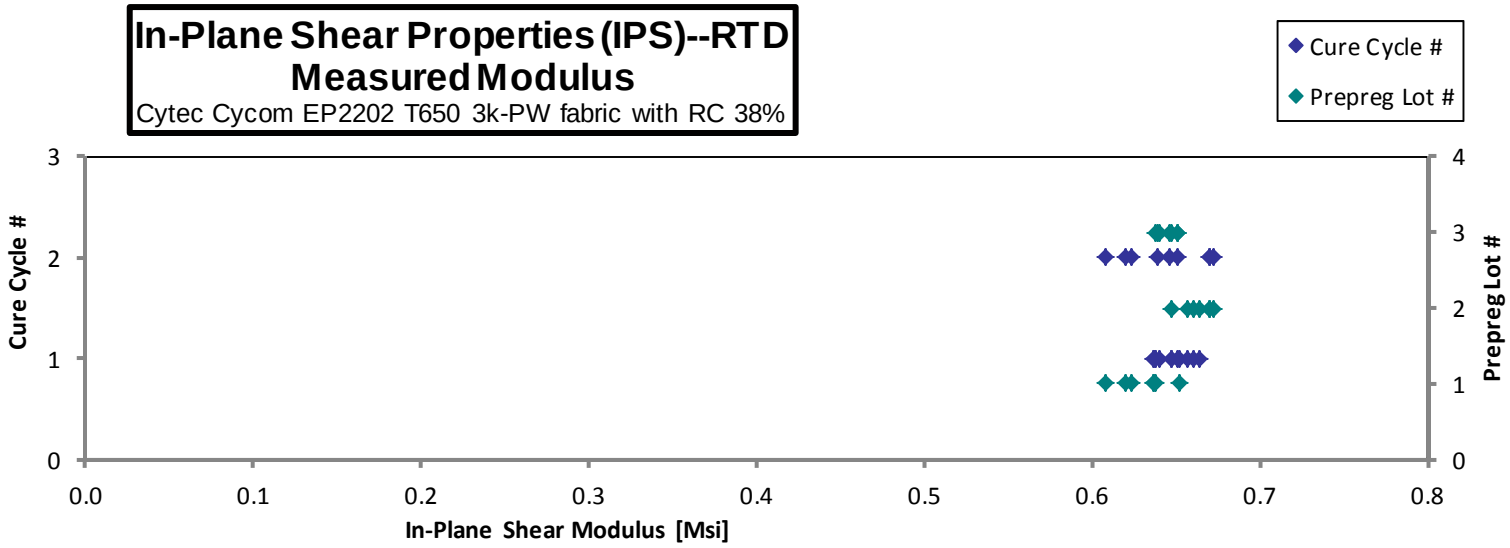
In-Plane Shear Properties (IPS)--RTD
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]
EPBNA111A	A	C1	1	1	7.159	13.682	0.652	0.097	12	0.0081
EPBNA112A	A	C1	1	1	6.946	13.177	0.636	0.098	12	0.0081
EPBNA113A	A	C1	1	1	6.981	13.309	0.637	0.098	12	0.0081
EPBNA114A	A	C1	1	1	6.938	13.288	0.637	0.098	12	0.0081
EPBNA211A	A	C2	1	2	6.801	12.917	0.620	0.097	12	0.0080
EPBNA212A	A	C2	1	2	6.669	12.651	0.608	0.097	12	0.0081
EPBNA213A	A	C2	1	2	6.775	12.835	0.624	0.096	12	0.0080
EPBNB111A	B	C1	2	1	7.037	13.854	0.661	0.095	12	0.0079
EPBNB112A	B	C1	2	1	7.034	13.952	0.664	0.094	12	0.0079
EPBNB113A	B	C1	2	1	7.011	13.876	0.657	0.095	12	0.0079
EPBNB114A	B	C1	2	1	6.904	13.551	0.647	0.095	12	0.0079
EPBNB211A	B	C2	2	2	7.204	13.886	0.670	0.095	12	0.0080
EPBNB212A	B	C2	2	2	7.254	13.937	0.671	0.095	12	0.0079
EPBNB213A	B	C2	2	2	7.248	13.929	0.672	0.095	12	0.0079
EPBNC111A	C	C1	3	1	6.983	13.109	0.651	0.097	12	0.0080
EPBNC112A	C	C1	3	1	6.930	13.112	0.648	0.097	12	0.0081
EPBNC113A	C	C1	3	1	6.923	13.063	0.638	0.097	12	0.0080
EPBNC114A	C	C1	3	1	6.884	13.045	0.641	0.097	12	0.0081
EPBNC211A	C	C2	3	2	7.010	13.244	0.651	0.096	12	0.0080
EPBNC212A	C	C2	3	2	6.895	12.952	0.639	0.098	12	0.0081
EPBNC213A	C	C2	3	2	6.922	12.966	0.646	0.097	12	0.0081

Average	**6.977**	**13.349**	**0.646**	**Average**	**0.0080**
Standard Dev.	**0.149**	**0.424**	**0.017**	**Standard Dev.**	
Coeff. of Var. [%]	**2.129**	**3.176**	**2.593**	**Coeff. of Var. [%]**	
Min.	**6.669**	**12.651**	**0.608**	**Min.**	**0.0079**
Max.	**7.254**	**13.952**	**0.672**	**Max.**	**0.0081**
Number of Spec.	**21**	**21**	**21**	**Number of Spec.**	**21**


In-Plane Shear Properties (IPS)--RTD
Measured Strength at 0.2% Offset
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Strength [ksi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0

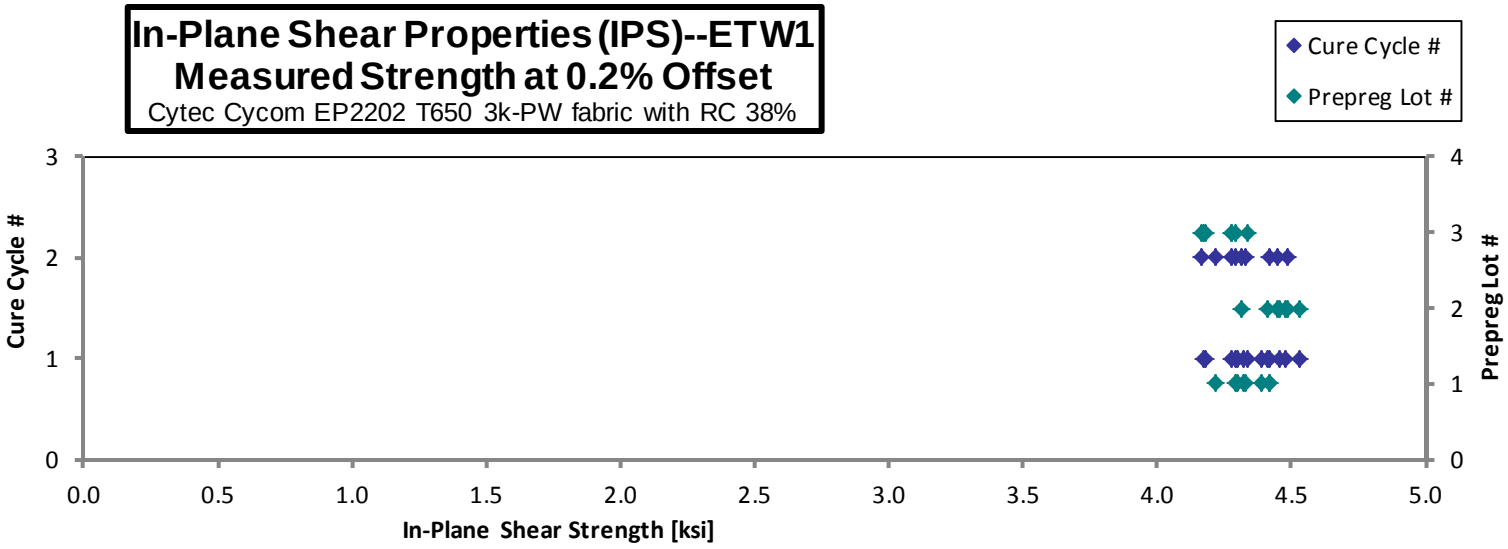

In-Plane Shear Properties (IPS)--RTD
Measured Strength at 5% Strain
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Strength [ksi]
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0

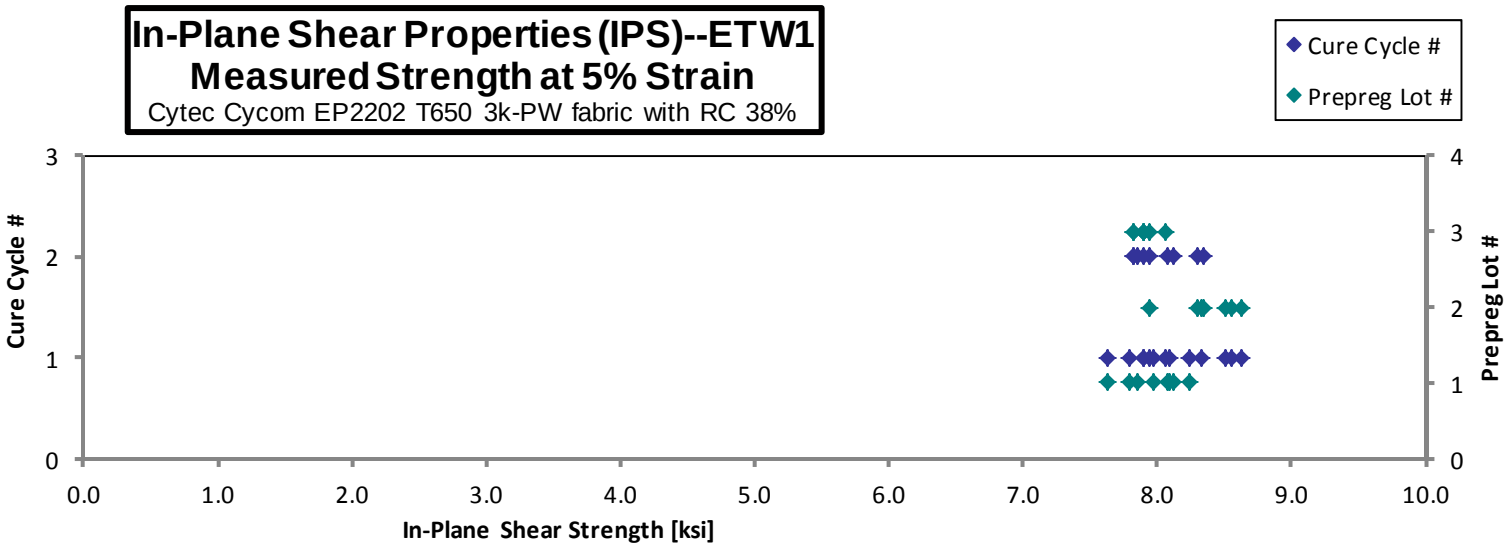

In-Plane Shear Properties (IPS)--RTD
Measured Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Modulus [Msi]
0
1
2
3
4
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

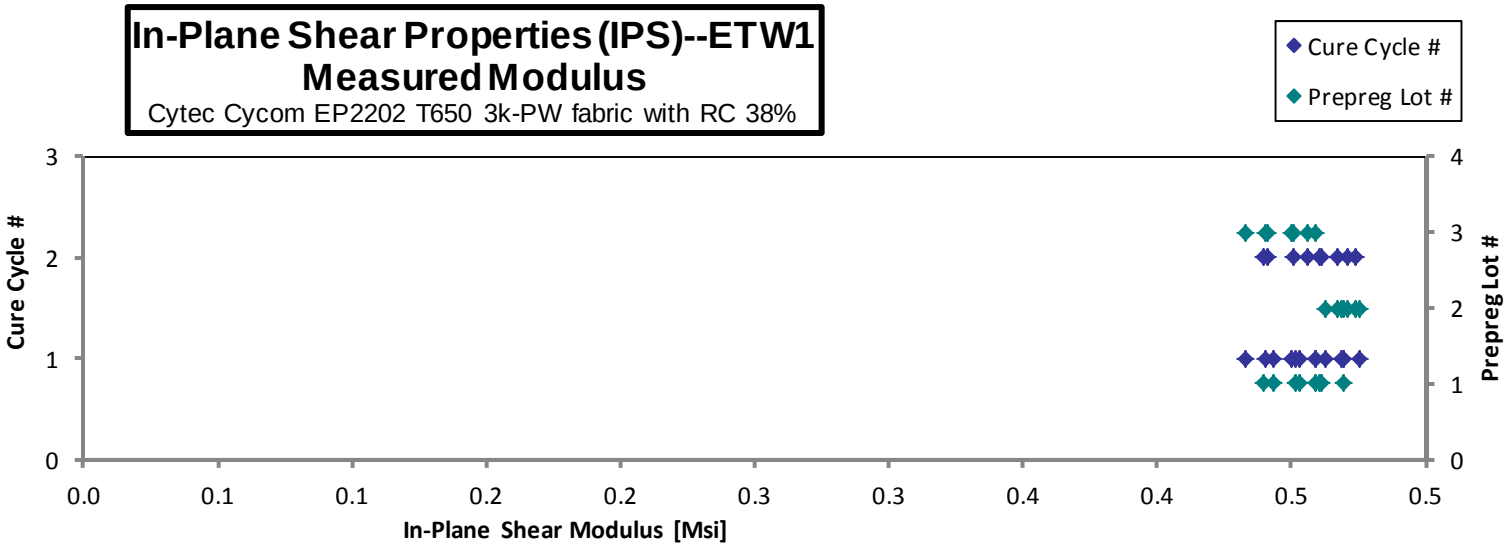
In-Plane Shear Properties (IPS)--ETW1
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]
EPBNA11BD	A	C1	1	1	4.386	8.236	0.459	0.097	12	0.0081
EPBNA11CD	A	C1	1	1	4.298	7.636	0.443	0.098	12	0.0081
EPBNA11DD	A	C1	1	1	4.324	7.970	0.451	0.098	12	0.0081
EPBNA11ED	A	C1	1	1	4.293	7.796	0.453	0.098	12	0.0081
EPBNA11FD	A	C1	1	1	4.419	8.093	0.469	0.098	12	0.0081
EPBNA219D	A	C2	1	2	4.215	7.854	0.439	0.097	12	0.0081
EPBNA21AD	A	C2	1	2	4.416	8.127	0.461	0.096	12	0.0080
EPBNA21BD	A	C2	1	2	4.330	8.081	0.460	0.097	12	0.0081
EPBNB11BD	B	C1	2	1	4.410	8.325	0.463	0.095	12	0.0080
EPBNB11CD	B	C1	2	1	4.456	8.625	0.469	0.095	12	0.0079
EPBNB11DD	B	C1	2	1	4.477	8.508	0.469	0.097	12	0.0080
EPBNB11ED	B	C1	2	1	4.528	8.548	0.476	0.095	12	0.0079
EPBNB21AD	B	C2	2	2	4.451	8.295	0.471	0.096	12	0.0080
EPBNB21BD	B	C2	2	2	4.483	8.351	0.474	0.096	12	0.0080
EPBNB21CD	B	C2	2	2	4.313	7.936	0.467	0.097	12	0.0080
EPBNC11BD	C	C1	3	1	4.178	7.950	0.440	0.097	12	0.0081
EPBNC11CD	C	C1	3	1	4.337	8.065	0.459	0.097	12	0.0081
EPBNC11DD	C	C1	3	1	4.175	7.899	0.433	0.097	12	0.0081
EPBNC11ED	C	C1	3	1	4.274	7.891	0.450	0.098	12	0.0081
EPBNC219D	C	C2	3	2	4.165	7.816	0.441	0.097	13	0.0075
EPBNC21AD	C	C2	3	2	4.279	7.829	0.456	0.097	12	0.0081
EPBNC21BD	C	C2	3	2	4.294	7.898	0.451	0.097	12	0.0081

Average	**4.341**	**8.079**	**0.457**	**Average**	**0.0080**
Standard Dev.	**0.106**	**0.269**	**0.012**	**Standard Dev.**	
Coeff. of Var. [%]	**2.434**	**3.327**	**2.693**	**Coeff. of Var. [%]**	
Min.	**4.165**	**7.636**	**0.433**	**Min.**	**0.0075**
Max.	**4.528**	**8.625**	**0.476**	**Max.**	**0.0081**
Number of Spec.	**22**	**22**	**22**	**Number of Spec.**	**22**


In-Plane Shear Properties (IPS)--ETW1
Measured Strength at 0.2% Offset
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Strength [ksi]
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0
0 1 2 3
0 1 2 3 4


In-Plane Shear Properties (IPS)--ETW1
Measured Strength at 5% Strain
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Strength [ksi]
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0
0 1 2 3
0 1 2 3 4


In-Plane Shear Properties (IPS)--ETW1
Measured Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Modulus [Msi]
0
1
2
3
4
0.0
0.1
0.1
0.2
0.2
0.3
0.3
0.4
0.4
0.5
0.5

4.6 "25/50/25" Unnotched Tension 1 Properties (UNT1)

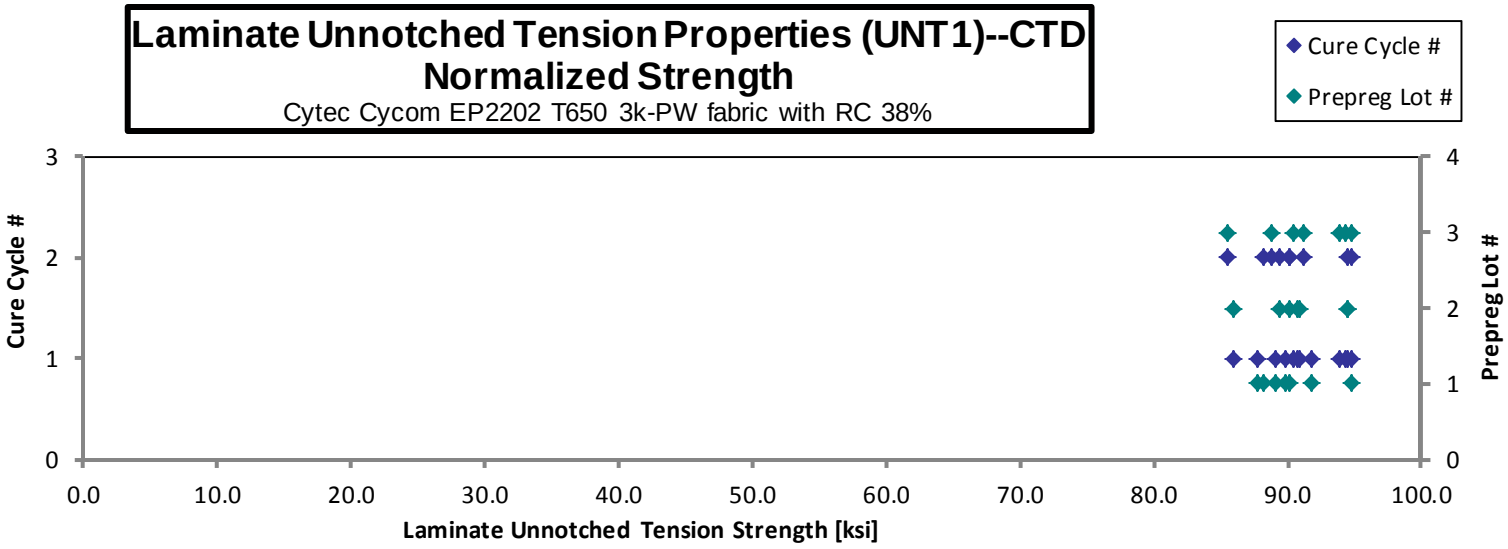
Laminate Unnotched Tension Properties (UNT1)--CTD
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

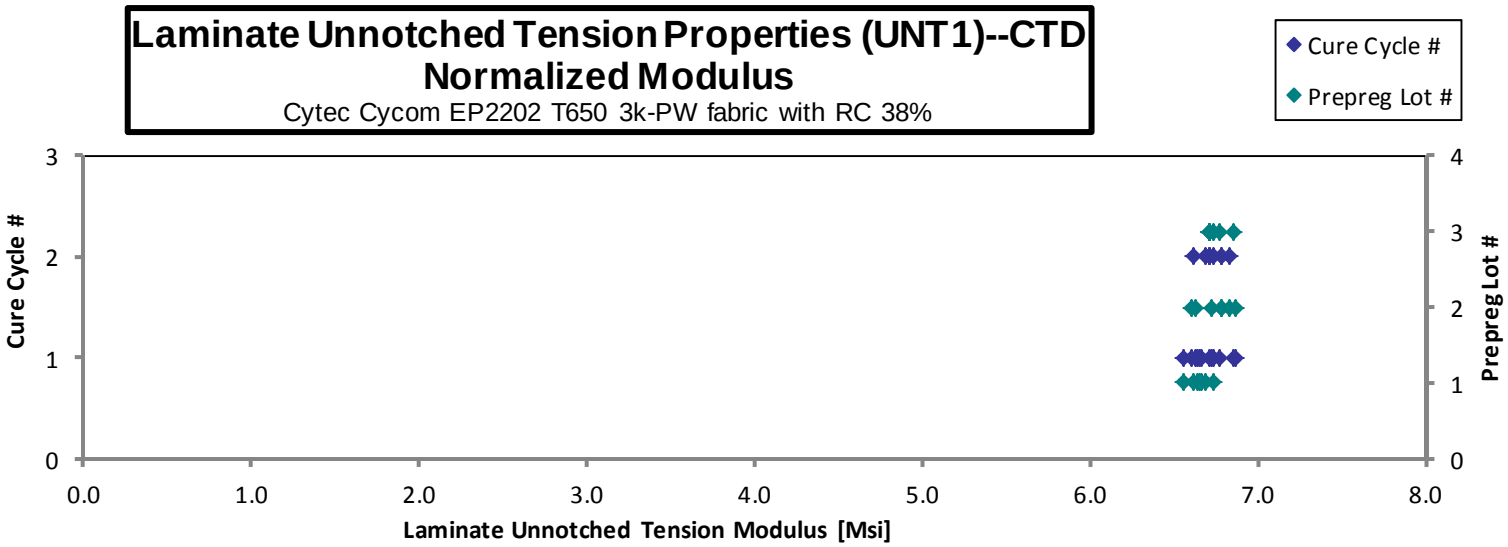
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBAA116B	A	C1	1	1	92.819	6.740	0.128	16	LWT,LAB	0.0080	91.721	6.660
EPBAA117B	A	C1	1	1	90.803	6.719	0.128	16	LGT	0.0080	89.881	6.651
EPBAA118B	A	C1	1	1	90.149	6.728	0.128	16	LGT	0.0080	89.036	6.645
EPBAA119B	A	C1	1	1	88.818	6.640	0.128	16	LGM	0.0080	87.767	6.562
EPBAA215B	A	C2	1	2	96.022	6.768	0.128	16	LGM	0.0080	94.836	6.684
EPBAA216B	A	C2	1	2	90.886	6.793	0.129	16	LWB	0.0080	90.150	6.738
EPBAA217B	A	C2	1	2	88.577	6.639	0.129	16	LGM	0.0081	88.270	6.616
EPBAB116B	B	C1	2	1	91.839	6.811	0.128	16	LGM	0.0080	90.740	6.729
EPBAB117B	B	C1	2	1	87.169	6.720	0.128	16	LGM	0.0080	86.026	6.632
EPBAB118B	B	C1	2	1	92.173	6.698	0.128	16	LGM	0.0080	90.952	6.609
EPBAB119B	B	C1	2	1	95.631	6.950	0.128	16	LGM	0.0080	94.487	6.867
EPBAB215B	B	C2	2	2	95.705	6.918	0.128	16	LGM	0.0080	94.437	6.826
EPBAB216B	B	C2	2	2	91.251	6.928	0.127	16	LWB	0.0079	89.326	6.782
EPBAB217B	B	C2	2	2	91.181	6.861	0.128	16	LGM	0.0080	90.161	6.784
EPBAC116B	C	C1	3	1	94.759	6.801	0.129	16	LGM	0.0081	94.272	6.766
EPBAC117B	C	C1	3	1	95.066	6.742	0.129	16	LGM	0.0081	94.724	6.718
EPBAC118B	C	C1	3	1	90.805	6.769	0.129	16	LGM	0.0081	90.432	6.742
EPBAC119B	C	C1	3	1	94.309	6.893	0.129	16	LGM	0.0081	93.824	6.858
EPBAC215B	C	C2	3	2	85.879	6.735	0.129	16	LWB	0.0081	85.525	6.707
EPBAC216B	C	C2	3	2	88.641	6.708	0.130	16	LGM	0.0081	88.744	6.716
EPBAC217B	C	C2	3	2	90.874	6.692	0.130	16	LGM	0.0081	91.131	6.711

Average	**91.588**	**6.774**	
Standard Dev.	**2.886**	**0.091**	
Coeff. of Var. [%]	**3.151**	**1.338**	
Min.	**85.879**	**6.639**	
Max.	**96.022**	**6.950**	
Number of Spec.	**21**	**21**	

$Average_{norm}$	**0.0080**	**90.783**	**6.714**
$Standard\ Dev._{norm}$		**2.813**	**0.082**
Coeff. of Var. $[\%]_{norm}$		**3.098**	**1.217**
Min.	**0.0079**	**85.525**	**6.562**
Max.	**0.0081**	**94.836**	**6.867**
Number of Spec.	**21**	**21**	**21**


Laminate Unnotched Tension Properties (UNT1)--CTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
Laminate Unnotched Tension Strength [ksi]


Laminate Unnotched Tension Properties (UNT1)--CTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
Laminate Unnotched Tension Modulus [Msi]

Laminate Unnotched Tension Properties (UNT1)--RTD
Strength & Modulus

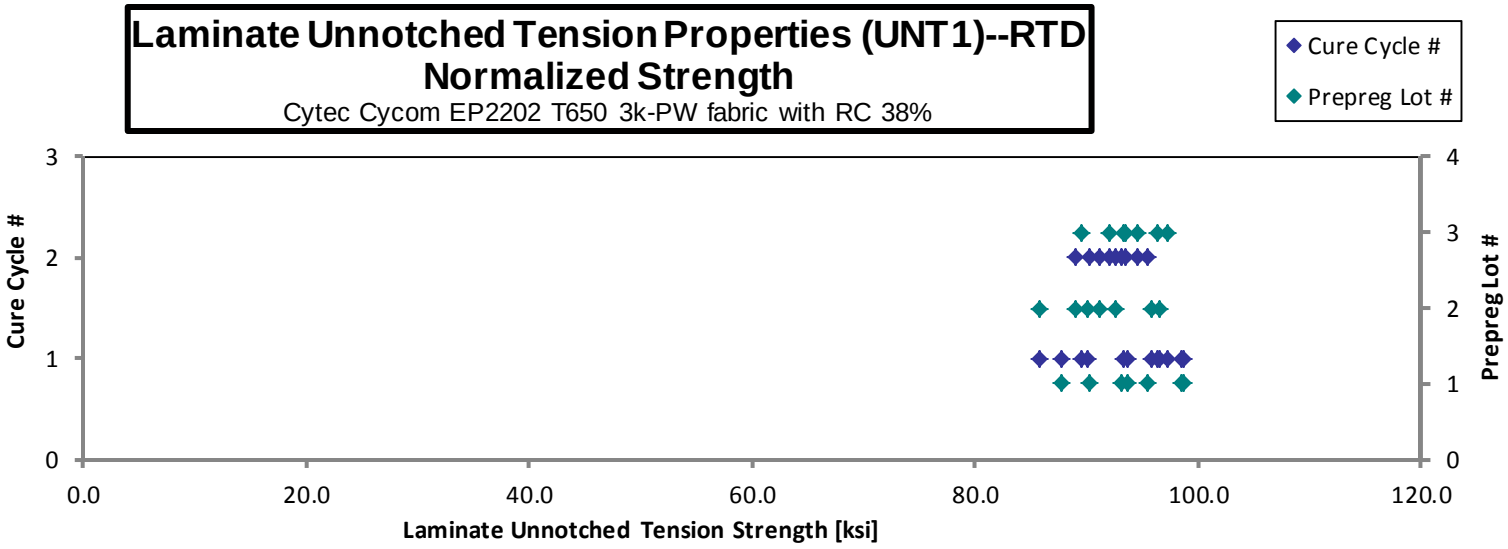
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

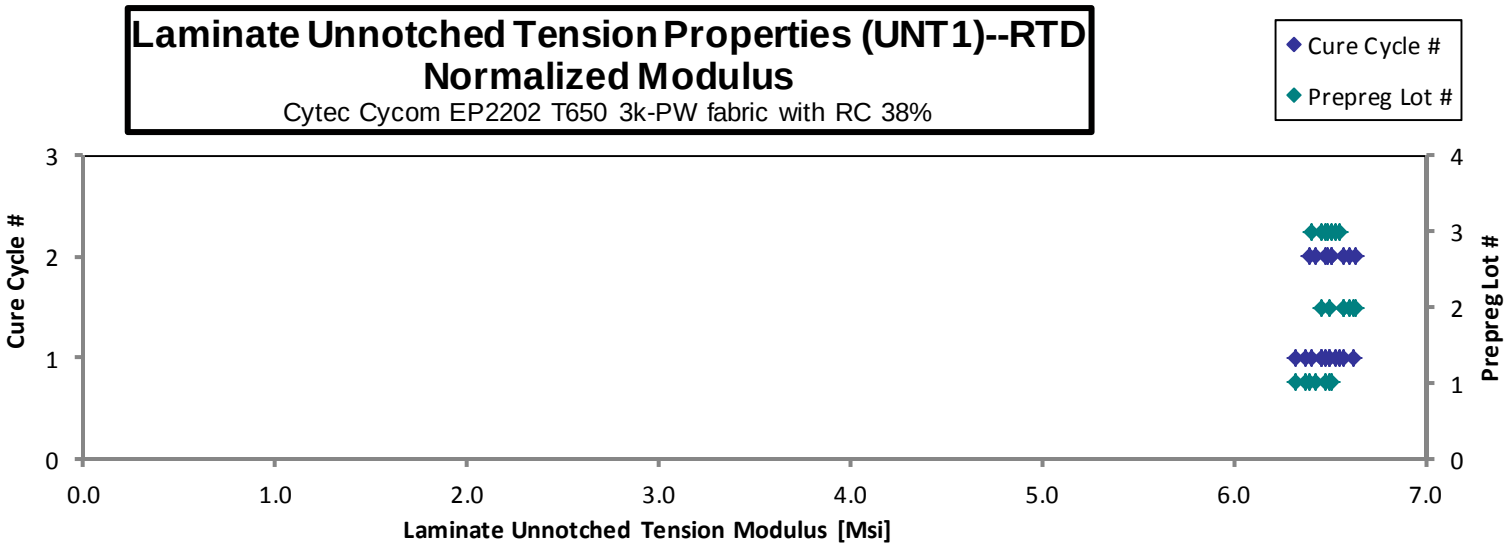
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBAA111A	A	C1	1	1	88.819	6.400	0.128	16	LWT	0.0080	87.803	6.326
EPBAA112A	A	C1	1	1	94.608	6.558	0.128	16	LWB, LWT	0.0080	93.708	6.495
EPBAA113A	A	C1	1	1	99.416	6.436	0.128	16	LWT	0.0080	98.457	6.374
EPBAA114A	A	C1	1	1	99.852	6.557	0.128	16	LGM	0.0080	98.709	6.482
EPBAA211A	A	C2	1	2	96.378	6.487	0.128	16	LWT	0.0080	95.449	6.424
EPBAA212A	A	C2	1	2	94.008	6.464	0.128	16	LGM	0.0080	93.017	6.396
EPBAA213A	A	C2	1	2	91.185	6.570	0.128	16	LWT	0.0080	90.317	6.507
EPBAB111A	B	C1	2	1	97.872	6.719	0.127	16	LGM	0.0079	95.720	6.571
EPBAB112A	B	C1	2	1	97.848	6.719	0.128	16	LGM	0.0080	96.489	6.626
EPBAB113A	B	C1	2	1	91.200	6.539	0.128	16	LAT	0.0080	90.015	6.454
EPBAB114A	B	C1	2	1	86.846	6.590	0.128	16	LWB, LWT	0.0080	85.684	6.502
EPBAB211A	B	C2	2	2	94.935	6.743	0.126	16	LWT	0.0079	92.493	6.569
EPBAB212A	B	C2	2	2	92.250	6.687	0.128	16	LAT	0.0080	91.051	6.600
EPBAB213A	B	C2	2	2	90.225	6.734	0.128	16	LWT	0.0080	88.926	6.637
EPBAC111A	C	C1	3	1	90.592	6.527	0.128	16	LWT, LAB	0.0080	89.590	6.455
EPBAC112A	C	C1	3	1	93.299	6.412	0.129	16	LWB, LWT	0.0081	93.203	6.405
EPBAC113A	C	C1	3	1	97.424	6.622	0.128	16	LGM	0.0080	96.397	6.552
EPBAC114A	C	C1	3	1	98.161	6.593	0.128	16	LGM	0.0080	97.227	6.530
EPBAC211A	C	C2	3	2	93.455	6.606	0.128	16	LWT	0.0080	92.085	6.509
EPBAC212A	C	C2	3	2	93.575	6.491	0.129	16	LWT	0.0081	93.431	6.481
EPBAC213A	C	C2	3	2	94.997	6.519	0.129	16	LWT	0.0081	94.545	6.488

Average	**94.140**	**6.570**	
Standard Dev.	**3.561**	**0.105**	
Coeff. of Var. [%]	**3.782**	**1.603**	
Min.	**86.846**	**6.400**	
Max.	**99.852**	**6.743**	
Number of Spec.	**21**	**21**	

$Average_{norm}$	**0.0080**	**93.063**	**6.494**
$Standard\ Dev._{norm}$		**3.537**	**0.082**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.800**	**1.261**
Min.	**0.0079**	**85.684**	**6.326**
Max.	**0.0081**	**98.709**	**6.637**
Number of Spec.	**21**	**21**	**21**


Laminate Unnotched Tension Properties (UNT1)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Unnotched Tension Strength [ksi]


Laminate Unnotched Tension Properties (UNT1)--RTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
Laminate Unnotched Tension Modulus [Msi]

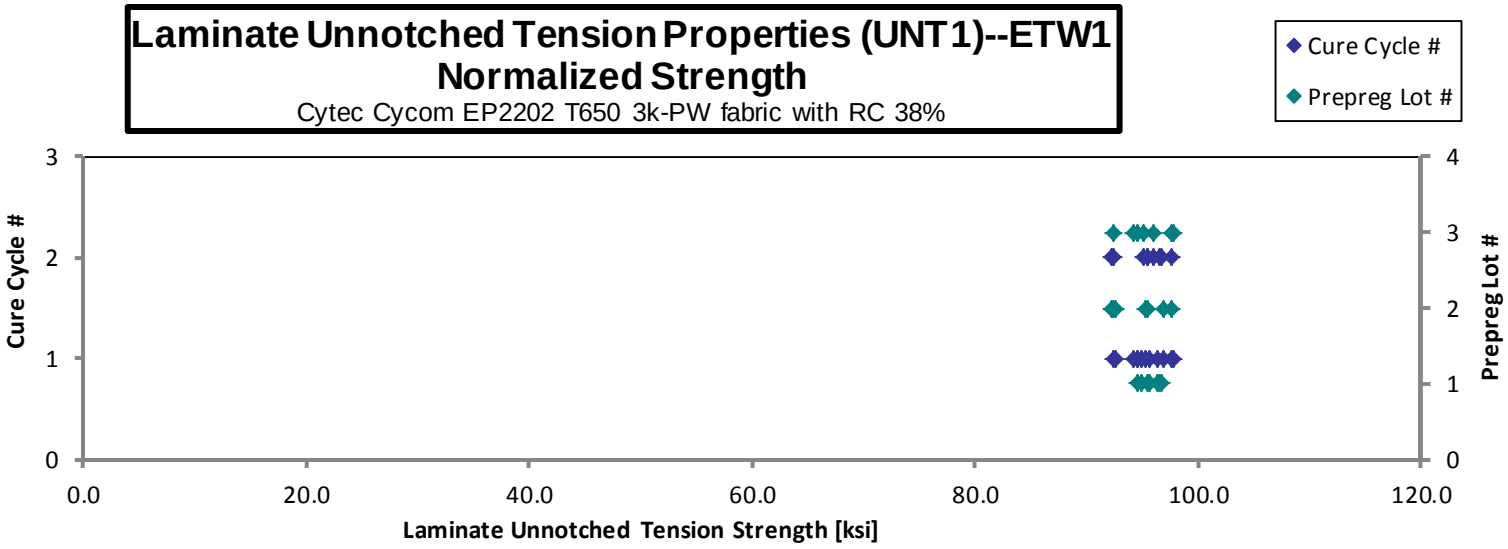
Laminate Unnotched Tension Properties (UNT1)--ETW1
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

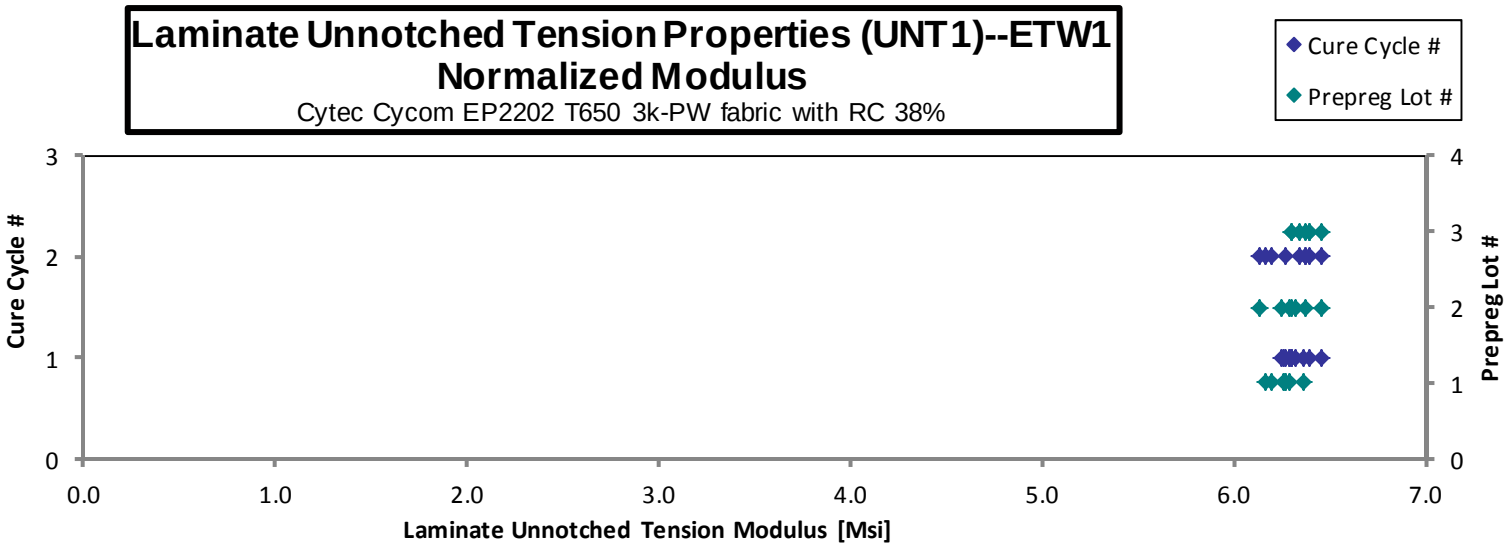
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBAA11BD	A	C1	1	1	95.247	6.294	0.129	16	LGB	0.0081	94.940	6.274
EPBAA11CD	A	C1	1	1	96.849	6.392	0.129	16	LWB	0.0081	96.363	6.360
EPBAA11DD	A	C1	1	1	96.038	6.282	0.129	16	LWT	0.0081	95.643	6.256
EPBAA11ED	A	C1	1	1	94.981	6.321	0.129	16	LGM	0.0081	94.578	6.294
EPBAA219D	A	C2	1	2	96.928	6.211	0.129	16	LGM	0.0081	96.628	6.192
EPBAA21AD	A	C2	1	2	96.882	6.297	0.129	16	LGM	0.0081	96.446	6.268
EPBAA21BD	A	C2	1	2	95.931	6.192	0.129	16	LWT	0.0081	95.475	6.163
EPBAB11BD	B	C1	2	1	97.989	6.386	0.128	16	LWT, LWB	0.0080	96.956	6.318
EPBAB11CD	B	C1	2	1	96.233	6.316	0.128	16	LGM	0.0080	95.194	6.248
EPBAB11DD	B	C1	2	1	93.604	6.371	0.128	16	LWT, LWB	0.0080	92.520	6.297
EPBAB11ED	B	C1	2	1	93.363	6.361	0.128	16	LGM	0.0080	92.367	6.293
EPBAB219D	B	C2	2	2	99.092	6.550	0.128	16	LAT	0.0080	97.627	6.453
EPBAB21AD	B	C2	2	2	93.941	6.496	0.127	16	LWT	0.0079	92.153	6.373
EPBAB21BD	B	C2	2	2	97.047	6.231	0.127	16	LGM	0.0080	95.462	6.129
EPBAC11BD	C	C1	3	1	97.611	6.440	0.130	16	LWT, LWB	0.0081	97.812	6.453
EPBAC11CD	C	C1	3	1	94.698	6.403	0.130	16	LGB	0.0081	94.625	6.398
EPBAC11DD	C	C1	3	1	94.343	6.305	0.129	16	LGM	0.0081	94.258	6.300
EPBAC11ED	C	C1	3	1	97.704	6.300	0.130	16	LWT, LWB	0.0081	97.654	6.297
EPBAC219D	C	C2	3	2	94.357	6.324	0.131	16	LWT	0.0082	95.037	6.370
EPBAC21AD	C	C2	3	2	92.184	6.323	0.130	16	LGM	0.0081	92.457	6.342
EPBAC21BD	C	C2	3	2	95.548	6.367	0.130	16	LGM	0.0081	95.917	6.391

	Strength [ksi]	Modulus [Msi]
Average	**95.741**	**6.341**
Standard Dev.	**1.755**	**0.087**
Coeff. of Var. [%]	**1.833**	**1.372**
Min.	**92.184**	**6.192**
Max.	**99.092**	**6.550**
Number of Spec.	**21**	**21**

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	**0.0081**	**95.243**	**6.308**
Standard $Dev._{norm}$		**1.751**	**0.085**
Coeff. of Var. $[\%]_{norm}$		**1.838**	**1.352**
Min.	**0.0079**	**92.153**	**6.129**
Max.	**0.0082**	**97.812**	**6.453**
Number of Spec.	**21**	**21**	**21**


Laminate Unnotched Tension Properties (UNT1)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Unnotched Tension Strength [ksi]


Laminate Unnotched Tension Properties (UNT1)--ETW1
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
Laminate Unnotched Tension Modulus [Msi]

4.7 "10/80/10" Unnotched Tension 2 Properties (UNT2)

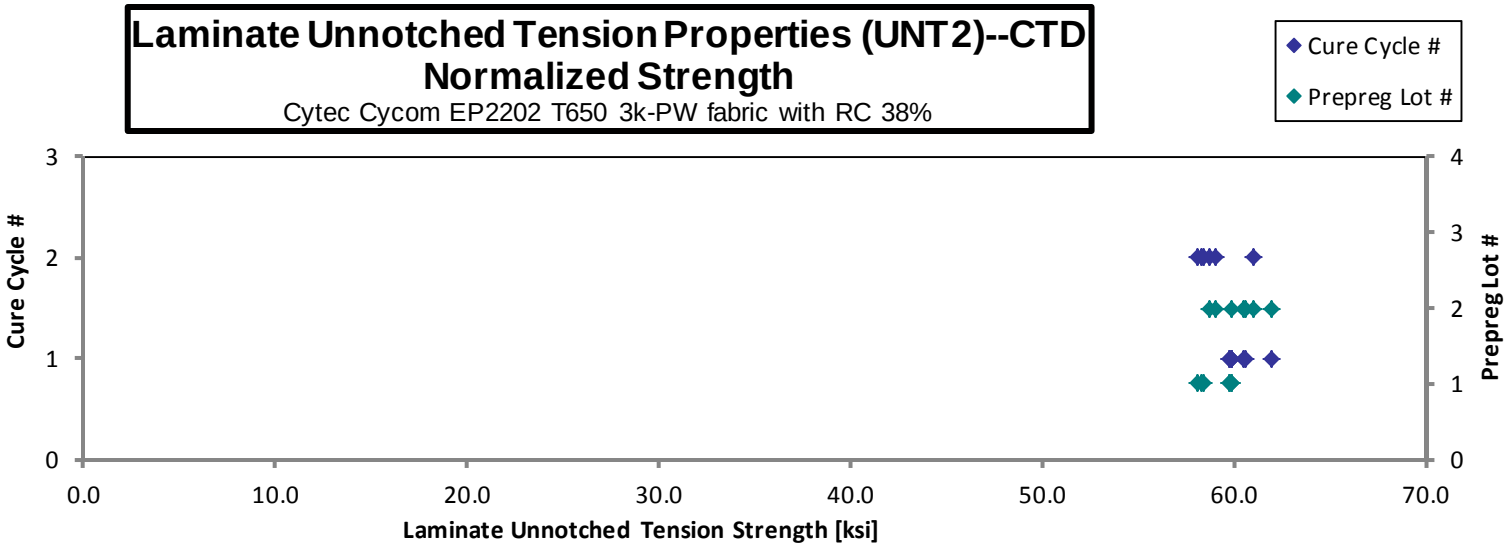
Laminate Unnotched Tension Properties (UNT2) --CTD
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

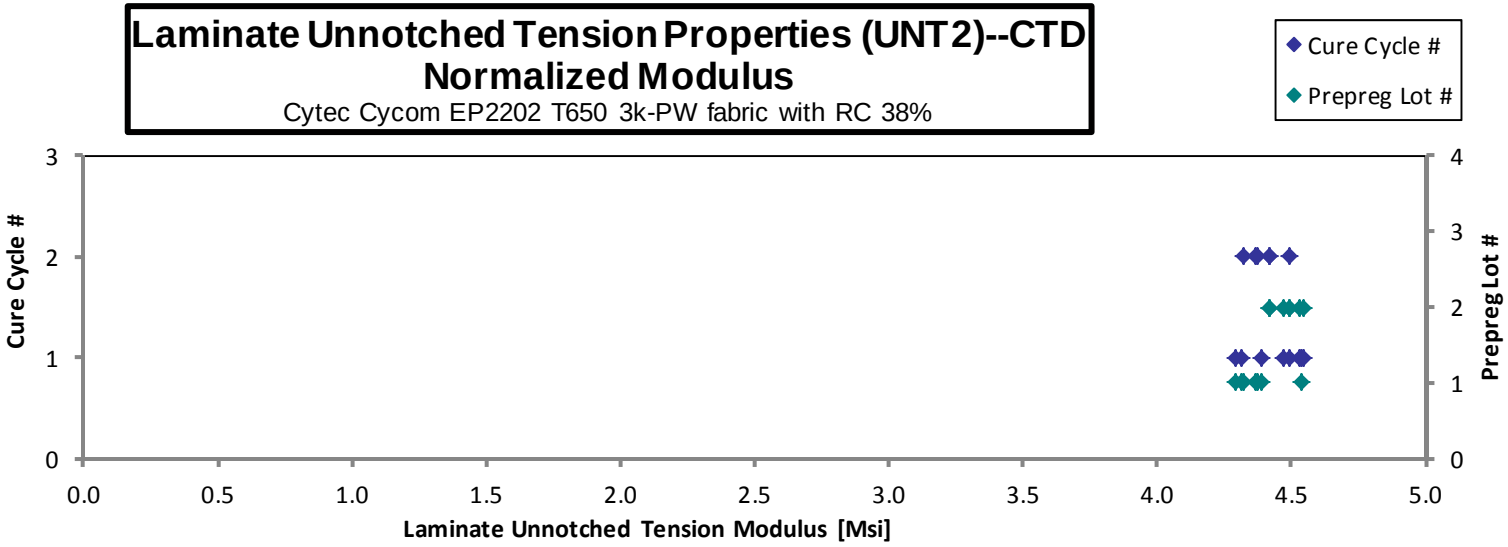
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBBA116B	A	C1	1	1	59.529	4.523	0.163	20	AWT	0.0081	59.744	4.540
EPBBA117B	A	C1	1	1	59.716	4.276	0.163	20	LGM	0.0081	59.900	4.289
EPBBA118B	A	C1	1	1	59.721	4.383	0.162	20	LWB	0.0081	59.801	4.388
EPBBA119B	A	C1	1	1	59.627	4.299	0.163	20	LWT	0.0081	59.841	4.314
EPBBA215B	A	C2	1	2	58.053	4.366	0.162	20	AWB	0.0081	58.130	4.372
EPBBA216B	A	C2	1	2	58.535	4.386	0.161	20	LWT	0.0081	58.288	4.368
EPBBA217B	A	C2	1	2	58.185	4.308	0.163	20	LGM	0.0081	58.413	4.325
EPBBB116B	B	C1	2	1	61.433	4.594	0.160	20	AGM	0.0080	60.580	4.530
EPBBB117B	B	C1	2	1	60.677	4.554	0.160	20	LGB	0.0080	59.903	4.496
EPBBB118B	B	C1	2	1	61.525	4.544	0.159	20	LGM	0.0080	60.550	4.472
EPBBB119B	B	C1	2	1	62.861	4.610	0.160	20	LGT	0.0080	61.988	4.546
EPBBB216B	B	C2	2	2	60.644	4.538	0.158	20	LGM	0.0079	59.059	4.419
EPBBB217B	B	C2	2	2	59.731	4.564	0.159	20	LGT	0.0080	58.778	4.491
EPBBB218B	B	C2	2	2	61.700	4.470	0.160	20	LGM	0.0080	61.021	4.421

	Strength [ksi]	Modulus [Msi]
Average	**60.138**	**4.458**
Standard Dev.	**1.411**	**0.118**
Coeff. of Var. [%]	**2.346**	**2.644**
Min.	**58.053**	**4.276**
Max.	**62.861**	**4.610**
Number of Spec.	**14**	**14**

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	**0.0080**	**59.714**	**4.427**
Standard $Dev._{norm}$		**1.108**	**0.087**
Coeff. of Var. $[\%]_{norm}$		**1.856**	**1.969**
Min.	**0.0079**	**58.130**	**4.289**
Max.	**0.0081**	**61.988**	**4.546**
Number of Spec.	**14**	**14**	**14**


Laminate Unnotched Tension Properties (UNT2)--CTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Unnotched Tension Strength [ksi]


Laminate Unnotched Tension Properties (UNT2)--CTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Laminate Unnotched Tension Modulus [Msi]

Laminate Unnotched Tension Properties (UNT2) --RTD
Strength & Modulus

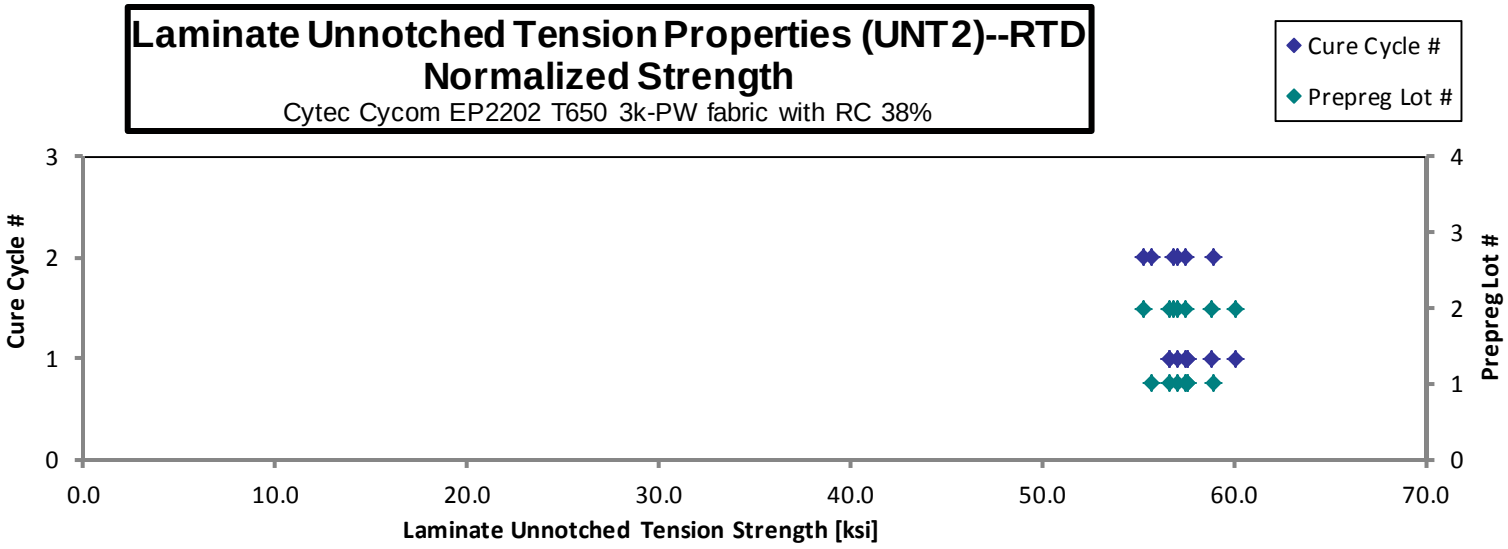
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

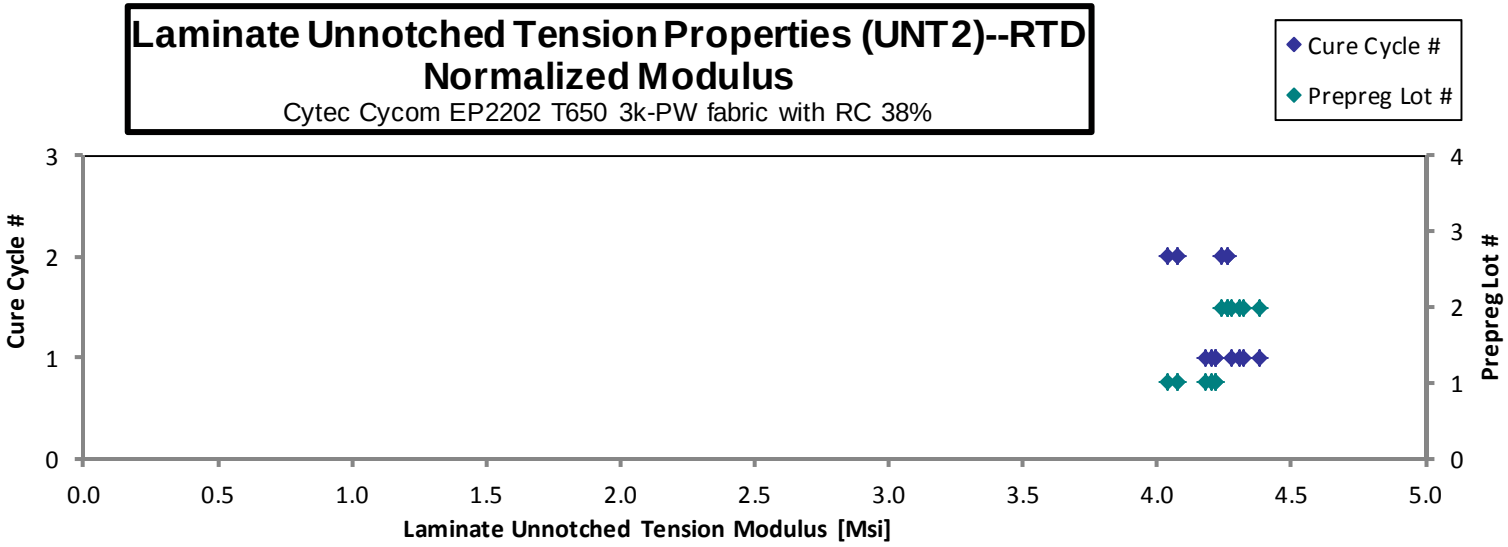
normalizing t_{ply} [in]: 0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBBA111A	A	C1	1	1	57.583	4.218	0.161	20	LWB	0.0080	57.091	4.182
EPBBA112A	A	C1	1	1	56.438	4.186	0.163	20	LWB	0.0081	56.630	4.200
EPBBA113A	A	C1	1	1	57.438	4.213	0.162	20	AGM	0.0081	57.532	4.220
EPBBA114A	A	C1	1	1	58.077	4.253	0.161	20	LWB	0.0080	57.581	4.217
EPBBA211A	A	C2	1	2	57.411	4.066	0.162	20	LWT	0.0081	57.506	4.072
EPBBA212A	A	C2	1	2	55.647	4.073	0.162	20	LWT	0.0081	55.670	4.074
EPBBA213A	A	C2	1	2	58.840	4.030	0.162	20	AWT	0.0081	58.943	4.037
EPBBB111A	B	C1	2	1	61.841	4.444	0.158	20	AGM	0.0079	60.129	4.321
EPBBB112A	B	C1	2	1	59.715	4.442	0.160	20	AWT	0.0080	58.867	4.379
EPBBB113A	B	C1	2	1	58.343	4.372	0.159	20	LWB	0.0080	57.437	4.304
EPBBB114A	B	C1	2	1	57.462	4.341	0.160	20	LWB	0.0080	56.652	4.280
EPBBB211A	B	C2	2	2	58.395	4.356	0.158	20	LGM	0.0079	57.097	4.259
EPBBB212A	B	C2	2	2	57.553	4.310	0.160	20	LWB	0.0080	56.873	4.259
EPBBB213A	B	C2	2	2	56.240	4.315	0.159	20	LWB	0.0080	55.274	4.241

	Strength [ksi]	Modulus [Msi]
Average	**57.927**	**4.258**
Standard Dev.	**1.544**	**0.135**
Coeff. of Var. [%]	**2.666**	**3.163**
Min.	**55.647**	**4.030**
Max.	**61.841**	**4.444**
Number of Spec.	**14**	**14**

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	**0.0080**	**57.377**	**4.217**
Standard $Dev._{norm}$		**1.276**	**0.099**
Coeff. of Var. $[\%]_{norm}$		**2.224**	**2.350**
Min.	**0.0079**	**55.274**	**4.037**
Max.	**0.0081**	**60.129**	**4.379**
Number of Spec.	**14**	**14**	**14**


Laminate Unnotched Tension Properties (UNT2)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Unnotched Tension Strength [ksi]


Laminate Unnotched Tension Properties (UNT2)--RTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Laminate Unnotched Tension Modulus [Msi]

Laminate Unnotched Tension Properties (UNT2) --ETW1
Strength & Modulus

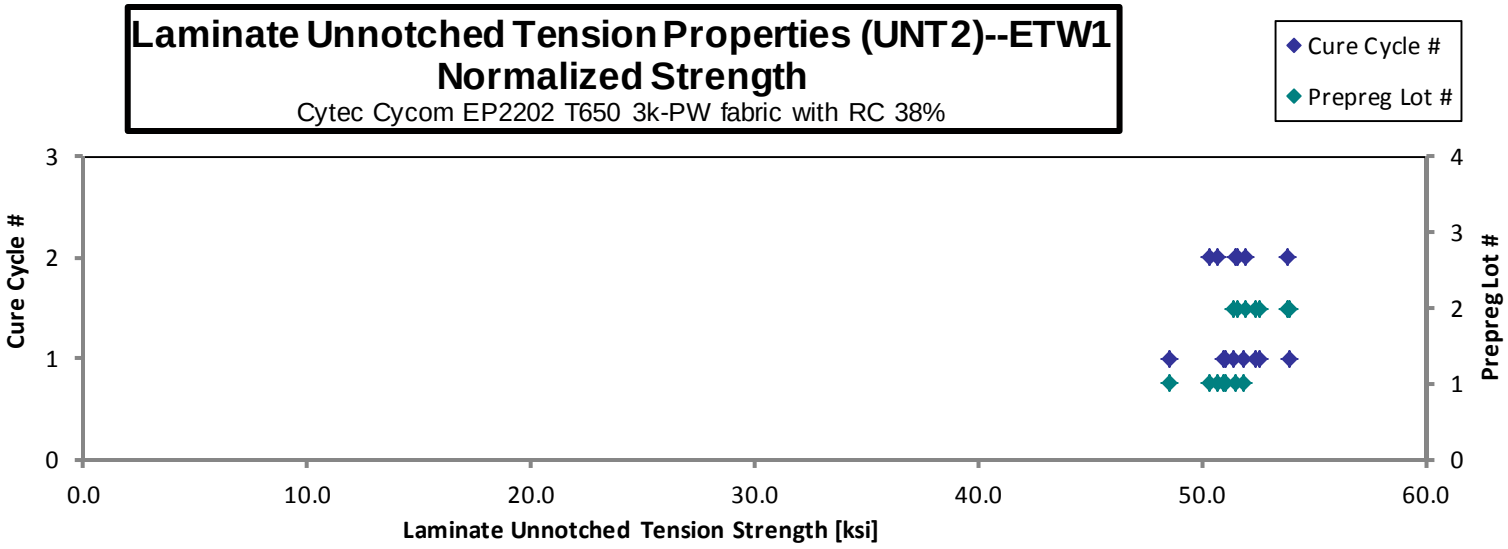
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

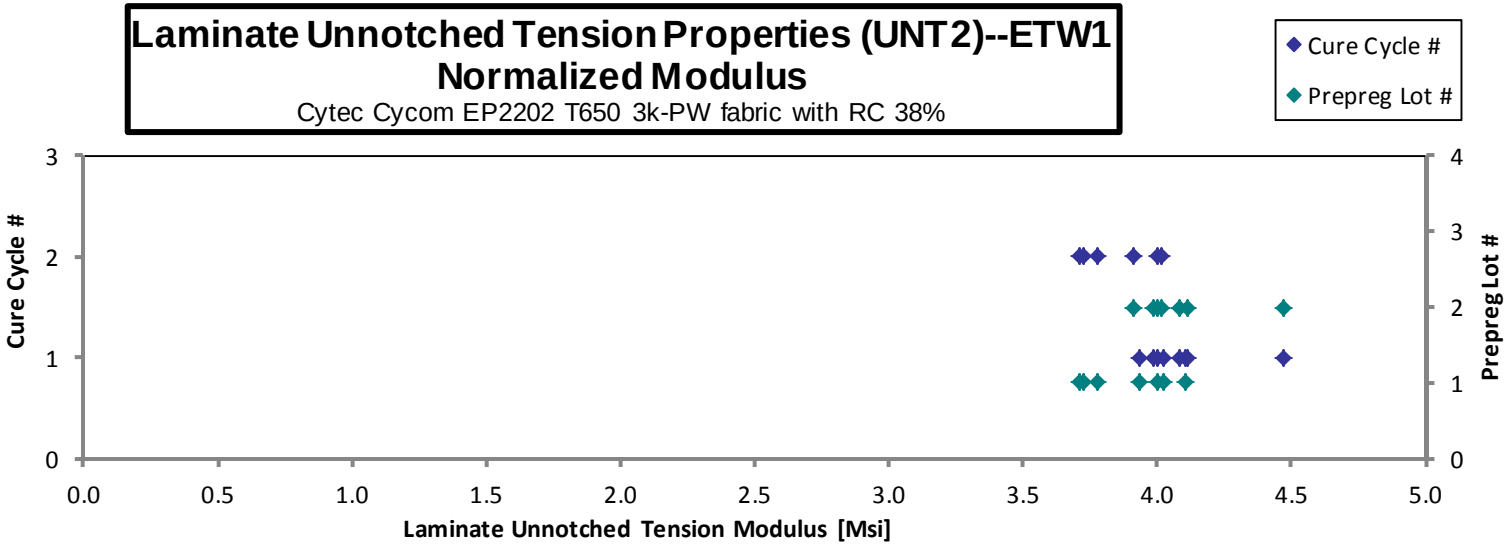
normalizing t_{ply} [in]: 0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBBA11BD	A	C1	1	1	51.770	3.929	0.162	20	AGM	0.0081	51.881	3.937
EPBBA11CD	A	C1	1	1	51.120	4.006	0.162	20	AWT	0.0081	51.094	4.004
EPBBA11DD	A	C1	1	1	50.942	4.105	0.162	20	AGM	0.0081	50.942	4.105
EPBBA11ED	A	C1	1	1	48.449	4.017	0.162	20	AWB	0.0081	48.534	4.024
EPBBA219D	A	C2	1	2	50.706	3.736	0.161	20	AGM	0.0080	50.357	3.710
EPBBA21AD	A	C2	1	2	51.995	3.815	0.161	20	AGM	0.0080	51.524	3.780
EPBBA21BD	A	C2	1	2	50.990	3.749	0.161	20	AGM	0.0081	50.675	3.725
EPBBB11BD	B	C1	2	1	54.898	4.059	0.159	20	AWT	0.0080	53.904	3.985
EPBBB11CD	B	C1	2	1	52.334	4.156	0.159	20	AWT	0.0080	51.429	4.084
EPBBB11DD	B	C1	2	1	53.401	4.172	0.160	20	AWT	0.0080	52.616	4.111
EPBBB11ED	B	C1	2	1	53.066	4.529	0.160	20	AGB	0.0080	52.427	4.474
EPBBB219D	B	C2	2	2	54.226	4.046	0.161	20	AGM	0.0080	53.863	4.019
EPBBB21AD	B	C2	2	2	52.251	4.053	0.160	20	AWT	0.0080	51.595	4.002
EPBBB21BD	B	C2	2	2	52.669	3.967	0.160	20	AGM	0.0080	51.992	3.916

Average	**52.058**	**4.024**	
Standard Dev.	**1.624**	**0.200**	
Coeff. of Var. [%]	**3.119**	**4.964**	
Min.	**48.449**	**3.736**	
Max.	**54.898**	**4.529**	
Number of Spec.	**14**	**14**	

$Average_{norm}$	**0.0080**	**51.631**	**3.991**
$Standard\ Dev._{norm}$		**1.384**	**0.191**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**2.680**	**4.785**
Min.	**0.0080**	**48.534**	**3.710**
Max.	**0.0081**	**53.904**	**4.474**
Number of Spec.	**14**	**14**	**14**


Laminate Unnotched Tension Properties (UNT2)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Tension Strength [ksi]
0.0
10.0
20.0
30.0
40.0
50.0
60.0


Laminate Unnotched Tension Properties (UNT2)--ETW1
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Tension Modulus [Msi]
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0

4.8 "40/20/40" Unnotched Tension 3 Properties (UNT3)

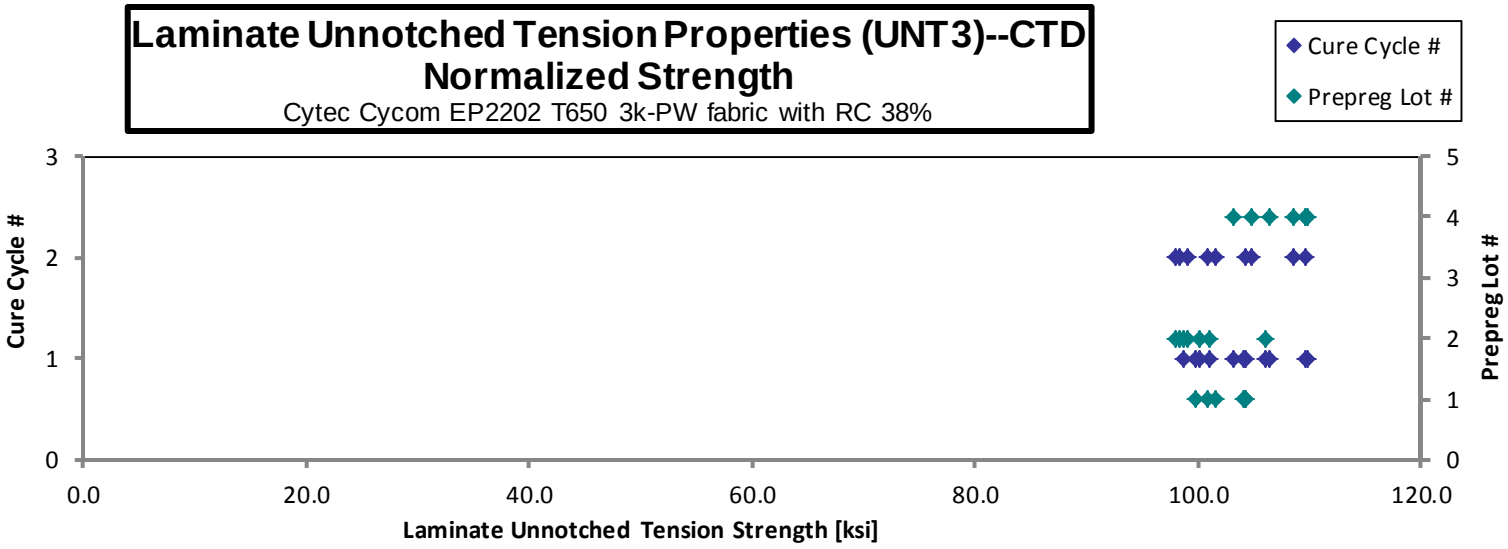
Laminate Unnotched Tension Properties (UNT3)--CTD
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

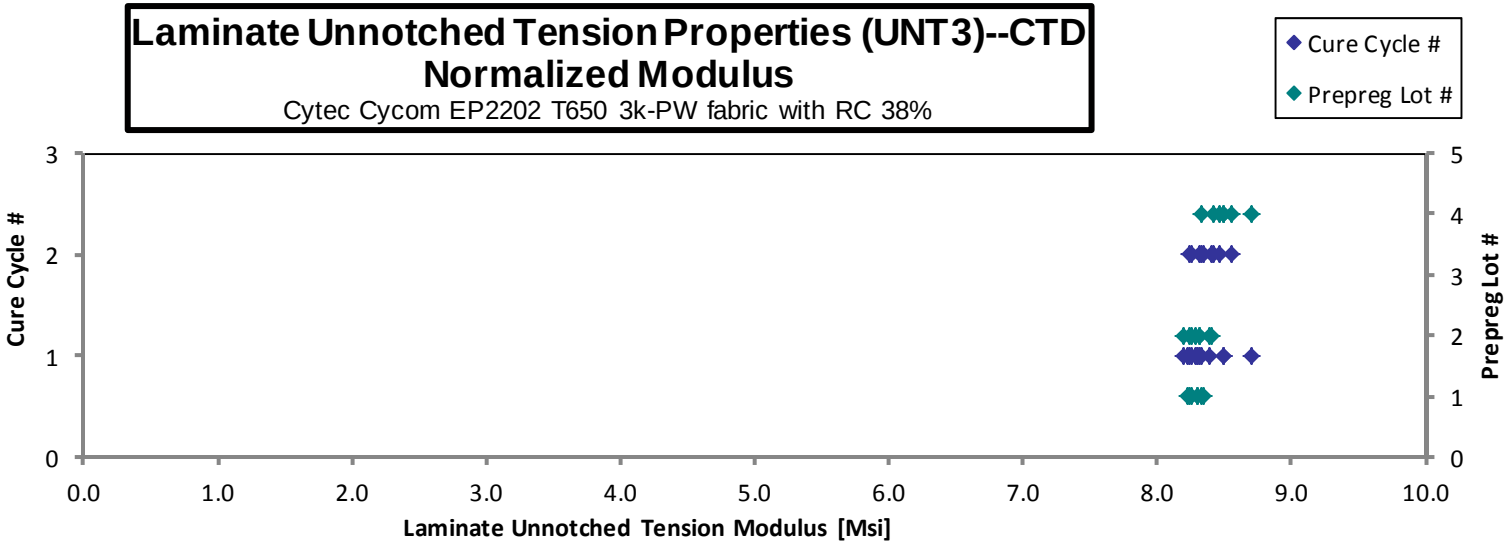
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBCA116B	A	C1	1	1	104.896	8.362	0.121	15	LGM	0.0080	104.090	8.298
EPBCA117B	A	C1	1	1	105.491	8.398	0.120	15	LGB	0.0080	104.304	8.303
EPBCA118B	A	C1	1	1	100.779	8.319	0.120	15	LWT,LWB	0.0080	99.811	8.239
EPBCA119B	A	C1	1	1	104.939	8.294	0.121	15	LGM	0.0080	104.133	8.230
EPBCA215B	A	C2	1	2	105.256	8.429	0.120	15	LGM	0.0080	104.246	8.348
EPBCA216B	A	C2	1	2	102.348	8.318	0.121	15	LGT	0.0080	101.506	8.250
EPBCA217B	A	C2	1	2	101.084	8.350	0.121	15	LGT	0.0081	100.821	8.329
EPBCB116B	B	C1	2	1	102.993	8.431	0.119	15	LGM	0.0079	100.931	8.262
EPBCB117B*	B	C1	2	1		8.382	0.119	15	LIB	0.0079		8.196
EPBCB118B	B	C1	2	1	100.849	8.513	0.119	15	LGM	0.0079	98.594	8.322
EPBCB119B	B	C1	2	1	108.125	8.555	0.119	15	LGM	0.0079	105.959	8.384
EPBCB11AB	B	C1	2	1	102.417	8.476	0.119	15	LWT,LWB	0.0079	100.141	8.288
EPBCB215B	B	C2	2	2	100.555	8.601	0.119	15	LGM	0.0079	98.306	8.408
EPBCB216B	B	C2	2	2	101.330	8.524	0.119	15	LGB	0.0079	98.939	8.323
EPBCB217B	B	C2	2	2	99.277	8.356	0.120	15	LAT	0.0080	97.860	8.237
EPBCD116B	D	C1	4	1	108.816	8.521	0.119	15	LGM	0.0079	106.353	8.328
EPBCD117B	D	C1	4	1	112.614	8.704	0.119	15	LGM	0.0079	109.865	8.491
EPBCD118B	D	C1	4	1	105.820	8.714	0.118	15	LGM	0.0079	103.164	8.495
EPBCD119B	D	C1	4	1	112.188	8.907	0.119	15	LWT,LGB	0.0079	109.649	8.705
EPBCD215B	D	C2	4	2	111.340	8.679	0.118	15	LGT	0.0079	108.545	8.461
EPBCD216B	D	C2	4	2	107.637	8.792	0.118	15	LWT	0.0079	104.714	8.553
EPBCD217B	D	C2	4	2	111.624	8.582	0.119	15	LGB	0.0080	109.587	8.425

* Strength is not reported due to prominent bad failure mode

Average	**105.256**	**8.509**	**Average$_{norm}$**	**0.0080**	**103.406**	**8.358**
Standard Dev.	**4.235**	**0.168**	**Standard Dev.$_{norm}$**		**3.903**	**0.124**
Coeff. of Var. [%]	**4.024**	**1.977**	**Coeff. of Var. [%]$_{norm}$**		**3.774**	**1.481**
Min.	**99.277**	**8.294**	**Min.**	**0.0079**	**97.860**	**8.196**
Max.	**112.614**	**8.907**	**Max.**	**0.0081**	**109.865**	**8.705**
Number of Spec.	**21**	**22**	**Number of Spec.**	**22**	**21**	**22**


Laminate Unnotched Tension Properties (UNT3)--CTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Unnotched Tension Strength [ksi]


Laminate Unnotched Tension Properties (UNT3)--CTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Laminate Unnotched Tension Modulus [Msi]

Laminate Unnotched Tension Properties (UNT3)--RTD
Strength & Modulus

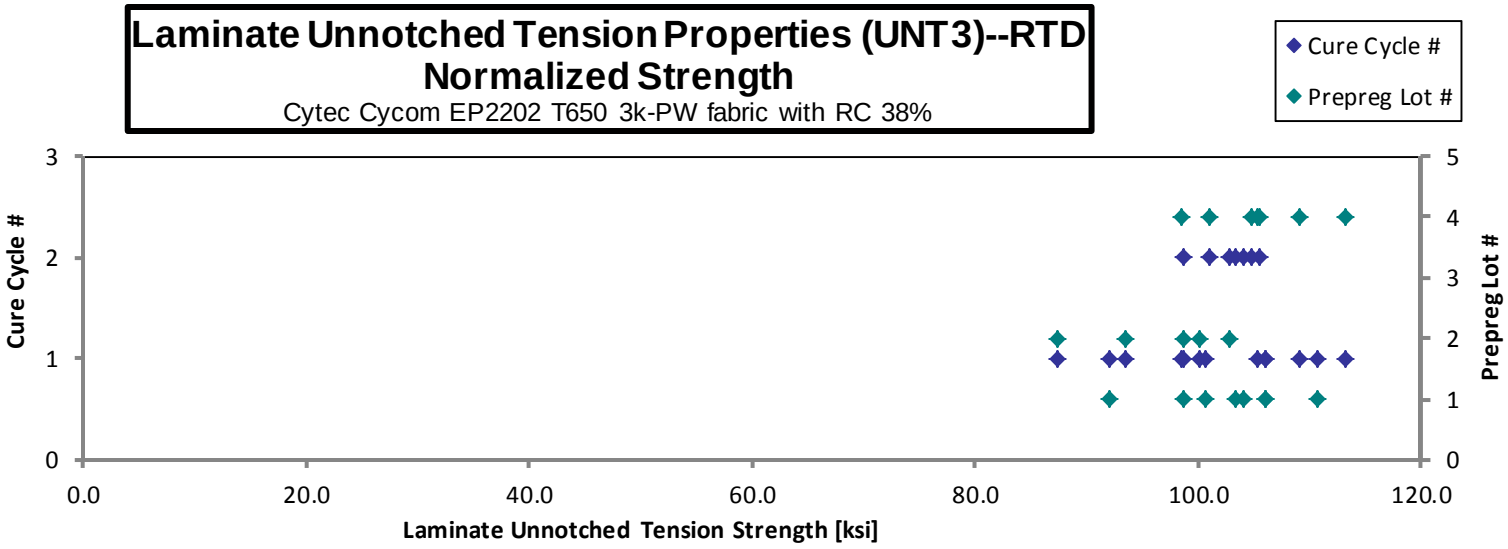
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBCA111A	A	C1	1	1	112.206	8.189	0.120	15	LWB, LAT	0.0080	110.605	8.072
EPBCA112A	A	C1	1	1	107.038	8.083	0.120	15	LWB, LAT	0.0080	106.040	8.008
EPBCA113A	A	C1	1	1	92.774	8.234	0.120	15	LAT	0.0080	91.985	8.164
EPBCA114A	A	C1	1	1	102.043	8.237	0.120	15	LAT	0.0080	100.588	8.119
EPBCA115A	A	C1	1	1	106.937	8.232	0.120	15	LWT, LAB	0.0080	105.939	8.156
EPBCA211A	A	C2	1	2	104.181	8.293	0.120	15	LWT, LAB	0.0080	103.295	8.222
EPBCA212A	A	C2	1	2	104.913	8.243	0.120	15	LAT	0.0080	104.006	8.172
EPBCA213A	A	C2	1	2	99.399	8.081	0.121	15	LGM, LAB	0.0080	98.676	8.023
EPBCB111A	B	C1	2	1	101.492	8.409	0.118	15	LAB	0.0079	98.624	8.172
EPBCB112A	B	C1	2	1	102.299	8.342	0.119	15	LAB	0.0079	100.040	8.158
EPBCB113A	B	C1	2	1	89.283	8.396	0.119	15	LAB	0.0079	87.299	8.210
EPBCB114A	B	C1	2	1	95.620	8.437	0.119	15	LAB, LWT	0.0079	93.456	8.246
EPBCB211A	B	C2	2	2	104.940	8.313	0.119	15	LWT, LWB	0.0079	102.867	8.149
EPBCB212A*	B	C2	2	2		8.366	0.119	15	LIB	0.0079		8.177
EPBCB213A*	B	C2	2	2		8.285	0.119	15	LIB	0.0080		8.138
EPBCB214A*	B	C2	2	2		8.214	0.118	15	LIB	0.0079		8.001
EPBCD111A	D	C1	4	1	109.067	8.658	0.117	15	LWT, LAB	0.0078	105.297	8.359
EPBCD112A	D	C1	4	1	115.457	8.547	0.119	15	LWT	0.0079	113.256	8.384
EPBCD113A	D	C1	4	1	111.622	8.514	0.119	15	LGM, LAB	0.0079	108.988	8.313
EPBCD114A	D	C1	4	1	100.917	8.595	0.118	15	LAT	0.0079	98.412	8.382
EPBCD211A	D	C2	4	2	108.170	8.700	0.118	15	LWT, LAB	0.0079	105.395	8.477
EPBCD212A	D	C2	4	2	103.241	8.555	0.119	15	LAB	0.0079	100.904	8.361
EPBCD213A	D	C2	4	2	107.539	8.561	0.118	15	LAT	0.0079	104.722	8.337

* Strength is not reported due to prominent bad failure mode

	Strength	Modulus		$Strength_{norm}$	$Modulus_{norm}$
Average	**103.957**	**8.369**	**Average$_{norm}$**	**0.0079**	**102.020**	**8.209**
Standard Dev.	**6.444**	**0.176**	**Standard Dev.$_{norm}$**		**6.280**	**0.130**
Coeff. of Var. [%]	**6.199**	**2.107**	**Coeff. of Var. [%]$_{norm}$**		**6.156**	**1.585**
Min.	**89.283**	**8.081**	**Min.**	**0.0078**	**87.299**	**8.001**
Max.	**115.457**	**8.700**	**Max.**	**0.0080**	**113.256**	**8.477**
Number of Spec.	**20**	**23**	**Number of Spec.**	**23**	**20**	**23**


Laminate Unnotched Tension Properties (UNT3)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
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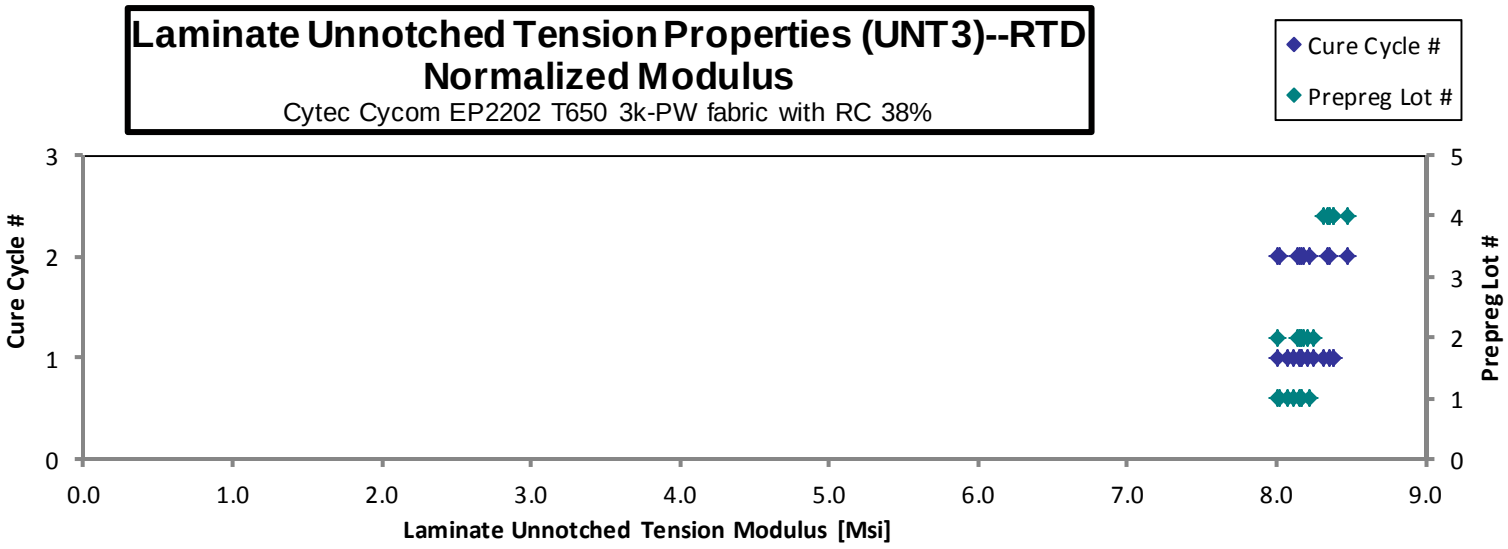
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Unnotched Tension Strength [ksi]


Laminate Unnotched Tension Properties (UNT3)--RTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
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0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
Laminate Unnotched Tension Modulus [Msi]

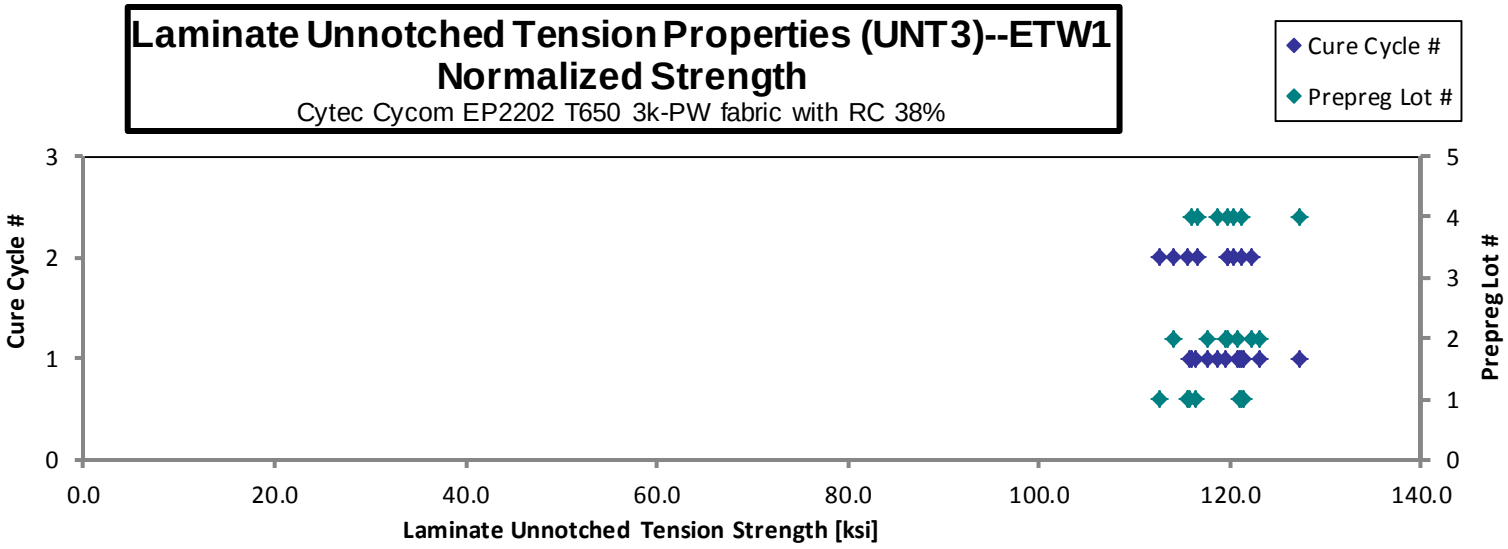
Laminate Unnotched Tension Properties (UNT3)--ETW1
Strength & Modulus

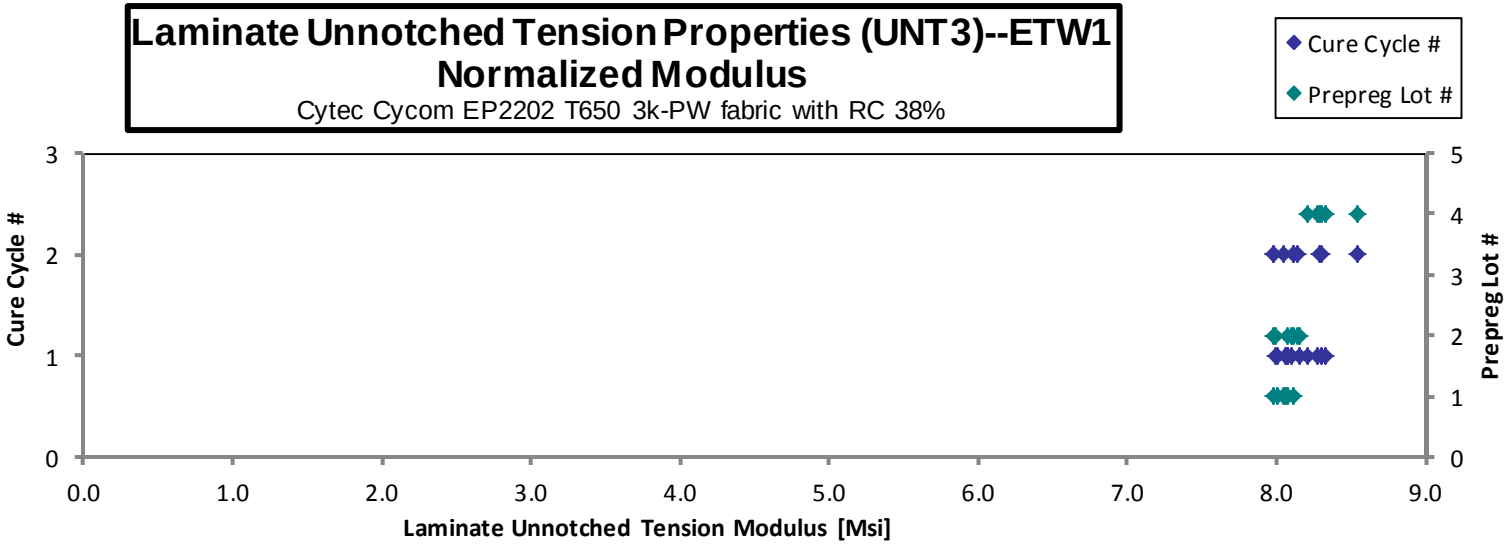
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBCA11BD	A	C1	1	1	121.980	8.113	0.121	15	LWT,LWB	0.0081	121.327	8.069
EPBCA11CD	A	C1	1	1	117.139	8.122	0.121	15	LWT	0.0080	116.384	8.070
EPBCA11DD	A	C1	1	1	116.383	8.106	0.121	15	LGM	0.0081	115.729	8.060
EPBCA11ED	A	C1	1	1	121.745	8.067	0.121	15	LGT,LAB	0.0080	120.926	8.013
EPBCA219D	A	C2	1	2	113.577	8.106	0.121	15	LGT,LAB	0.0080	112.689	8.042
EPBCA21AD	A	C2	1	2	115.970	8.010	0.121	15	LGT,LWB	0.0081	115.445	7.974
EPBCA21BD	A	C2	1	2	121.644	8.145	0.121	15	LGT,LWT,LAB	0.0081	121.143	8.111
EPBCB11BD	B	C1	2	1	121.585	8.245	0.119	15	LGT,LAB	0.0080	119.400	8.096
EPBCB11CD	B	C1	2	1	123.028	8.318	0.119	15	LGM,LWB	0.0079	120.699	8.161
EPBCB11DD	B	C1	2	1	125.427	8.144	0.119	15	LGT,LWB	0.0079	123.070	7.990
EPBCB11ED	B	C1	2	1	119.746	8.226	0.119	15	LWT,LWB	0.0080	117.528	8.074
EPBCB219D	B	C2	2	2	124.251	8.283	0.119	15	LWB,LAT	0.0080	122.155	8.143
EPBCB21AD	B	C2	2	2	116.354	8.145	0.119	15	LWT,LAB	0.0079	114.056	7.985
EPBCB21BD	B	C2	2	2	121.928	8.269	0.119	15	LWB,LGB,LAT	0.0080	119.704	8.118
EPBCD11BD	D	C1	4	1	123.960	8.386	0.119	15	LWB,LAT	0.0079	121.257	8.203
EPBCD11CD	D	C1	4	1	118.965	8.544	0.119	15	LWT,LAB	0.0079	116.044	8.334
EPBCD11DD	D	C1	4	1	121.576	8.494	0.119	15	LWT,LAB	0.0079	118.758	8.298
EPBCD11ED	D	C1	4	1	130.270	8.476	0.119	15	LWT,LWB	0.0079	127.250	8.280
EPBCD219D	D	C2	4	2	119.554	8.508	0.119	15	LGB,LAT	0.0079	116.634	8.300
EPBCD21AD	D	C2	4	2	123.349	8.805	0.118	15	LGB,LWT	0.0079	119.677	8.543
EPBCD21BD	D	C2	4	2	123.879	8.526	0.118	15	LGT,LAB	0.0079	120.362	8.284

Average	**121.062**	**8.288**	**$Average_{norm}$**	**0.0080**	**119.059**	**8.150**
Standard Dev.	**3.822**	**0.206**	**$Standard\ Dev._{norm}$**		**3.393**	**0.144**
Coeff. of Var. [%]	**3.157**	**2.480**	**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**2.849**	**1.771**
Min.	**113.577**	**8.010**	**Min.**	**0.0079**	**112.689**	**7.974**
Max.	**130.270**	**8.805**	**Max.**	**0.0081**	**127.250**	**8.543**
Number of Spec.	**21**	**21**	**Number of Spec.**	**21**	**21**	**21**


Laminate Unnotched Tension Properties (UNT3)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Laminate Unnotched Tension Strength [ksi]


Laminate Unnotched Tension Properties (UNT3)--ETW1
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
Laminate Unnotched Tension Modulus [Msi]

4.9 "25/50/25" Unnotched Compression 1 Properties (UNC1)

Laminate Unnotched Compression Properties (UNC1)--RTD
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

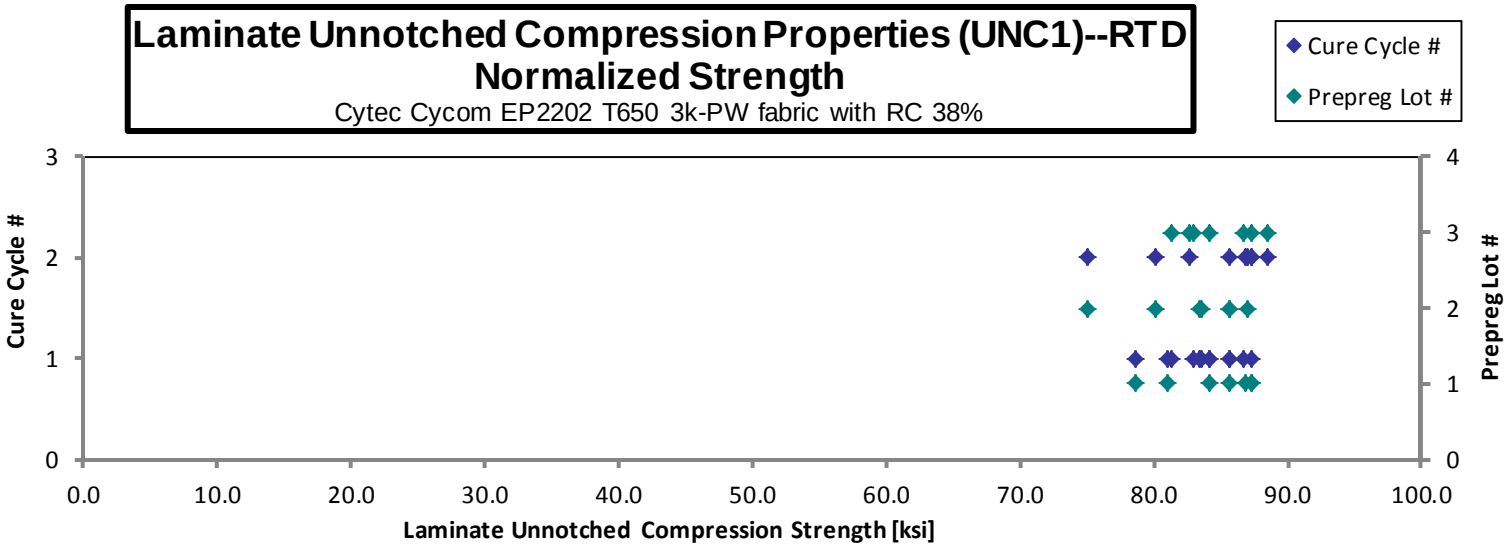
normalizing t_{ply} [in]
0.0081

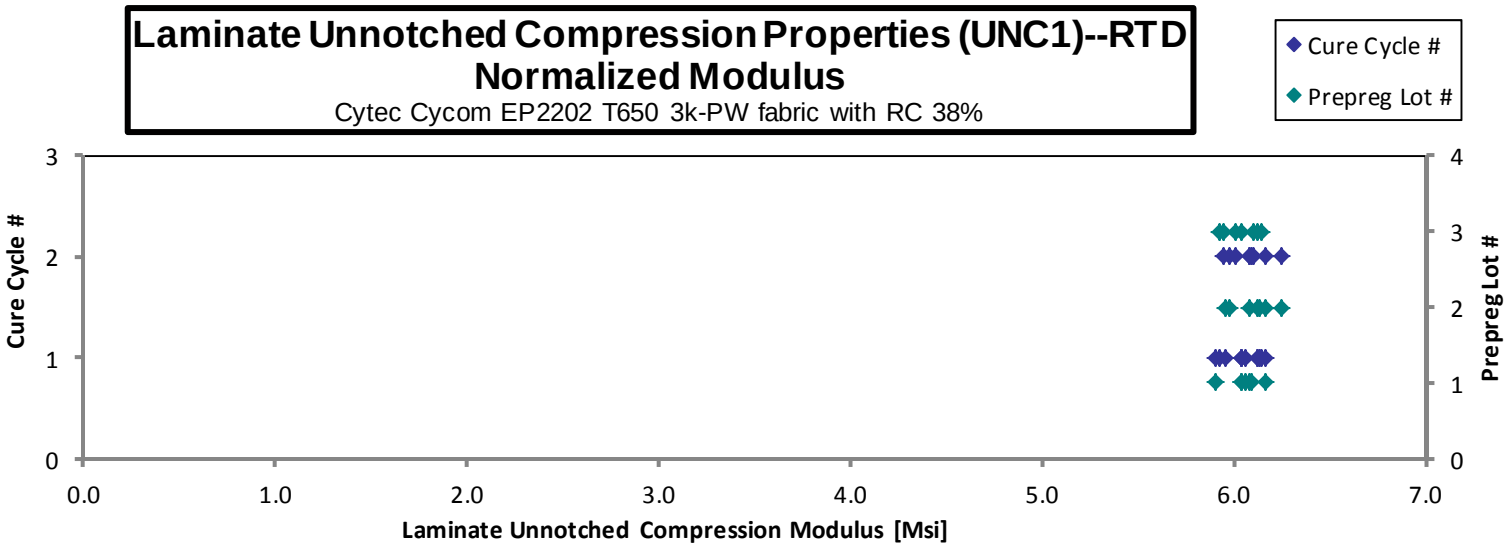
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
EPBWA111A*	A	C1	1	1	85.043	6.112	0.128	16	BGM	0.0080	84.091	6.044
EPBWA112A*	A	C1	1	1	78.827	6.084	0.129	16	BGM	0.0081	78.573	6.065
EPBWA113A	A	C1	1	1	87.617	6.064	0.129	16	BGM	0.0081	87.324	6.044
EPBWA114A	A	C1	1	1	81.760	5.957	0.128	16	BGM	0.0080	81.056	5.906
EPBWA211A	A	C2	1	2	88.309	6.183	0.128	16	BGM	0.0080	86.901	6.085
EPBWA212A	A	C2	1	2	88.336	6.231	0.128	16	BGM	0.0080	87.337	6.161
EPBWA213A	A	C2	1	2	86.643	6.156	0.128	16	BGM	0.0080	85.718	6.090
EPBWB111A	B	C1	2	1	86.909	6.209	0.128	16	BGM	0.0080	85.658	6.119
EPBWB112A	B	C1	2	1	83.863	6.198	0.129	16	BGM	0.0081	83.366	6.161
EPBWB113A	B	C1	2	1	83.776	6.153	0.129	16	BGM	0.0081	83.539	6.135
EPBWB114A	B	C1	2	1	85.995	5.982	0.129	16	BGM	0.0081	85.597	5.954
EPBWB211A	B	C2	2	2	87.647	6.126	0.129	16	BGM	0.0080	86.982	6.079
EPBWB212A	B	C2	2	2	80.694	6.021	0.129	16	BGM	0.0080	80.124	5.978
EPBWB213A	B	C2	2	2	75.207	6.264	0.129	16	BGM	0.0081	75.014	6.248
EPBWC111A	C	C1	3	1	86.138	5.885	0.131	16	BGM	0.0082	86.748	5.926
EPBWC112A	C	C1	3	1	83.480	5.995	0.131	16	BGM	0.0082	84.091	6.039
EPBWC113A	C	C1	3	1	82.365	6.103	0.131	16	BGM	0.0082	82.937	6.145
EPBWC114A	C	C1	3	1	81.069	6.109	0.130	16	BGM	0.0081	81.267	6.124
EPBWC211A	C	C2	3	2	82.832	6.113	0.129	16	BGM	0.0081	82.704	6.104
EPBWC212A	C	C2	3	2	86.567	5.892	0.131	16	BGM	0.0082	87.313	5.943
EPBWC213A	C	C2	3	2	87.897	5.966	0.131	16	BGM	0.0082	88.518	6.008

* Modulus are averaged values of 2 strain gages.

Average	**84.332**	**6.086**	
Standard Dev.	**3.473**	**0.109**	
Coeff. of Var. [%]	**4.119**	**1.785**	
Min.	**75.207**	**5.885**	
Max.	**88.336**	**6.264**	
Number of Spec.	**21**	**21**	

$Average_{norm}$	**0.0081**	**84.041**	**6.065**
$Standard\ Dev._{norm}$		**3.402**	**0.088**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**4.048**	**1.459**
Min.	**0.0080**	**75.014**	**5.906**
Max.	**0.0082**	**88.518**	**6.248**
Number of Spec.	**21**	**21**	**21**


Laminate Unnotched Compression Properties (UNC1)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression Properties (UNC1)--RTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
Laminate Unnotched Compression Modulus [Msi]

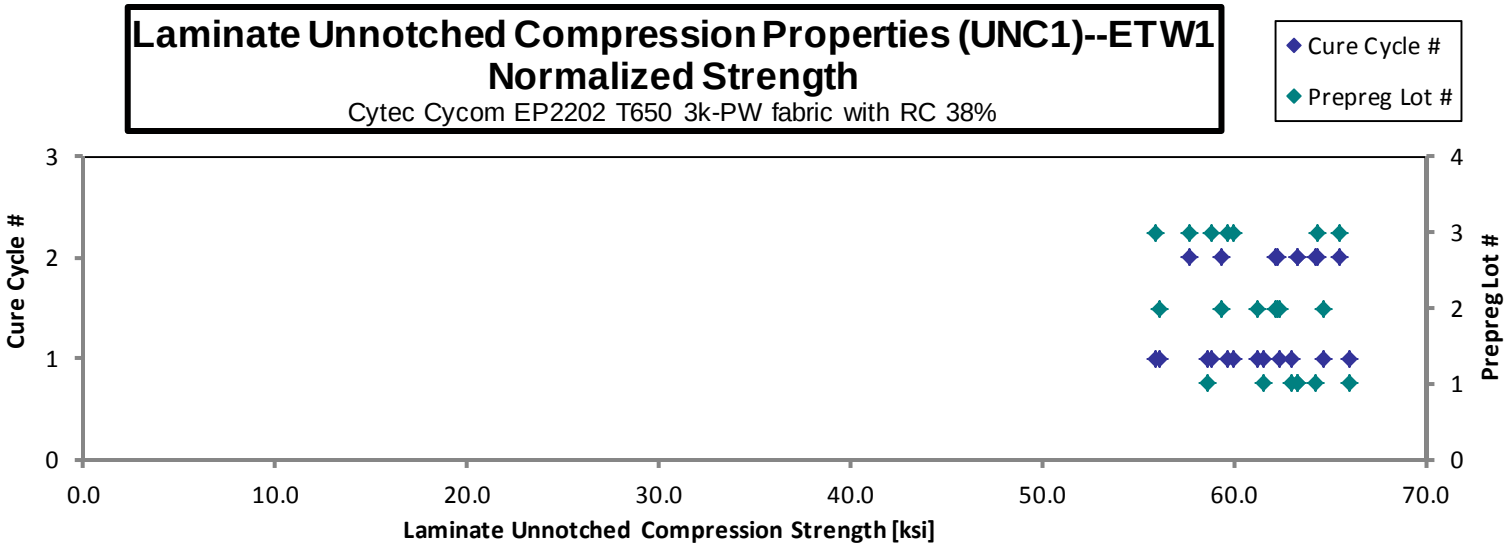
Laminate Unnotched Compression Properties (UNC1)--ETW1
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

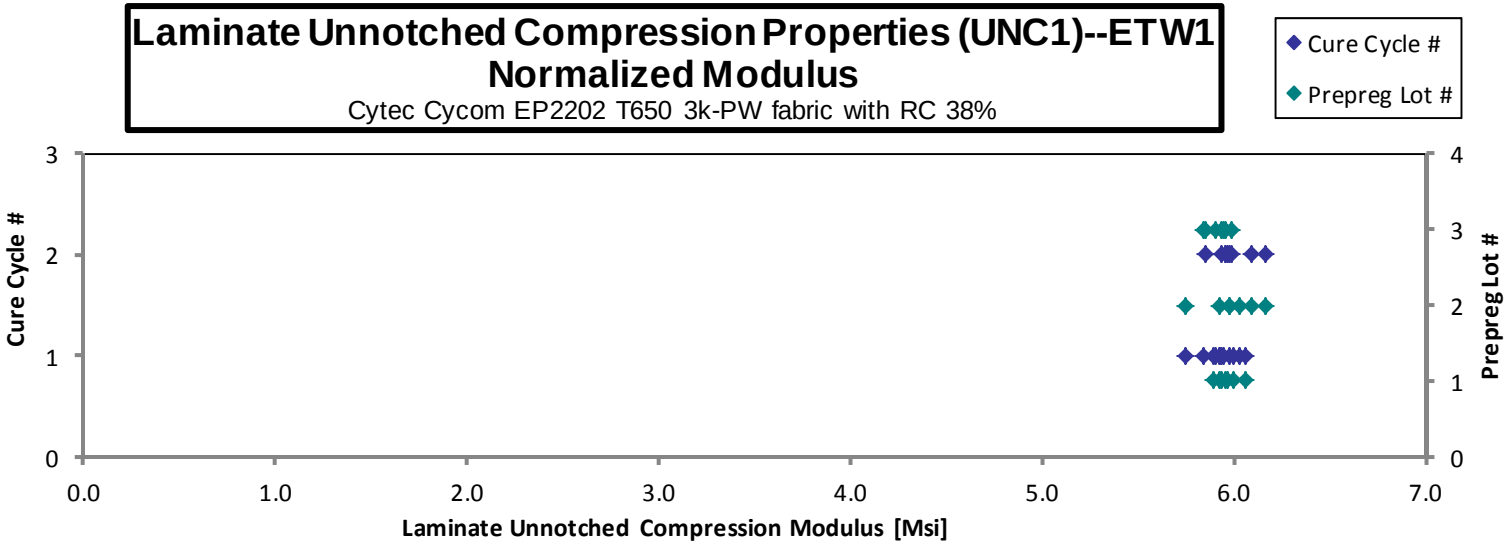
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBWA117D	A	C1	1	1		6.154	0.128	16	BGM	0.0080		6.062
EPBWA118D	A	C1	1	1		5.998	0.128	16	BGM	0.0080		5.922
EPBWA119D	A	C1	1	1		6.068	0.128	16	HGM, HIT	0.0080		5.994
EPBWA11AD	A	C1	1	1		5.986	0.128	16	BGM	0.0080		5.891
EPBWA11BD	A	C1	1	1	59.684		0.127	16	BGM	0.0080	58.617	
EPBWA11CD	A	C1	1	1	67.289		0.127	16	BAB	0.0079	66.017	
EPBWA11DD	A	C1	1	1	64.085		0.128	16	BGM	0.0080	63.054	
EPBWA11ED	A	C1	1	1	62.758		0.127	16	BGM	0.0079	61.555	
EPBWA216D	A	C2	1	2		6.054	0.128	16	BGM	0.0080		5.969
EPBWA217D	A	C2	1	2		6.008	0.128	16	BAT	0.0080		5.935
EPBWA218D	A	C2	1	2		6.035	0.128	16	BGM	0.0080		5.954
EPBWA219D	A	C2	1	2	64.328		0.128	16	BGM	0.0080	63.294	
EPBWA21AD	A	C2	1	2	65.363		0.127	16	BAB	0.0080	64.295	
EPBWA21BD	A	C2	1	2	64.308		0.128	16	BGM	0.0080	63.316	
EPBWB117D	B	C1	2	1		5.999	0.129	16	BGM	0.0081		5.975
EPBWB118D	B	C1	2	1		6.056	0.129	16	BGM	0.0081		6.028
EPBWB119D	B	C1	2	1		5.756	0.129	16	BAT	0.0081		5.744
EPBWB11AD	B	C1	2	1		5.948	0.129	16	BGM	0.0081		5.923
EPBWB11BD	B	C1	2	1	61.450		0.129	16	BAT	0.0081	61.220	
EPBWB11CD	B	C1	2	1	56.208		0.129	16	BAT	0.0081	56.078	
EPBWB11DD	B	C1	2	1	64.929		0.129	16	BGM	0.0081	64.629	
EPBWB11ED	B	C1	2	1	62.571		0.129	16	BGM	0.0081	62.419	
EPBWB216D	B	C2	2	2		6.036	0.128	16	BGM	0.0080		5.973
EPBWB217D	B	C2	2	2		6.142	0.129	16	BGM	0.0080		6.094
EPBWB218D	B	C2	2	2		6.212	0.129	16	BGM	0.0080		6.167
EPBWB219D	B	C2	2	2	62.466		0.129	16	BGM	0.0081	62.144	
EPBWB21AD	B	C2	2	2	59.682		0.129	16	BGM	0.0081	59.382	
EPBWB21BD	B	C2	2	2	62.600		0.129	16	BGM	0.0081	62.270	
EPBWC117D	C	C1	3	1		5.922	0.130	16	BGM	0.0081		5.949
EPBWC118D	C	C1	3	1		5.923	0.130	16	BGM	0.0081		5.935
EPBWC119D	C	C1	3	1		5.901	0.130	16	BGM	0.0081		5.900
EPBWC11AD	C	C1	3	1		5.845	0.130	16	BGM	0.0081		5.843
EPBWC11BD	C	C1	3	1	60.062		0.130	16	BGM	0.0081	60.031	
EPBWC11CD	C	C1	3	1	56.056		0.129	16	BGM	0.0081	55.905	
EPBWC11DD	C	C1	3	1	59.799		0.129	16	BGM	0.0081	59.706	
EPBWC11ED	C	C1	3	1	58.904		0.129	16	BGM	0.0081	58.806	
EPBWC216D	C	C2	3	2		5.827	0.130	16	BAB	0.0081		5.849
EPBWC217D	C	C2	3	2		5.968	0.130	16	BGM	0.0081		5.985
EPBWC218D	C	C2	3	2		5.920	0.130	16	BGM	0.0082		5.961
EPBWC219D	C	C2	3	2	65.084		0.130	16	BGM	0.0082	65.486	
EPBWC21AD	C	C2	3	2	64.116		0.130	16	BGM	0.0081	64.314	
EPBWC21BD	C	C2	3	2	57.605		0.130	16	HGM	0.0081	57.731	

	Strength [ksi]	Modulus [Msi]
Average	**61.874**	**5.988**
Standard Dev.	**3.127**	**0.111**
Coeff. of Var. [%]	**5.053**	**1.848**
Min.	**56.056**	**5.756**
Max.	**67.289**	**6.212**
Number of Spec.	**21**	**21**

	t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	**0.0081**	**61.441**	**5.955**
Standard $Dev._{norm}$		**2.941**	**0.090**
Coeff. of Var. [%]$_{norm}$		**4.786**	**1.514**
Min.	**0.0079**	**55.905**	**5.744**
Max.	**0.0082**	**66.017**	**6.167**
Number of Spec.	**42**	**21**	**21**


Laminate Unnotched Compression Properties (UNC1)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression Properties (UNC1)--ETW1
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
Laminate Unnotched Compression Modulus [Msi]

4.10 "10/80/10" Unnotched Compression 2 Properties (UNC2)

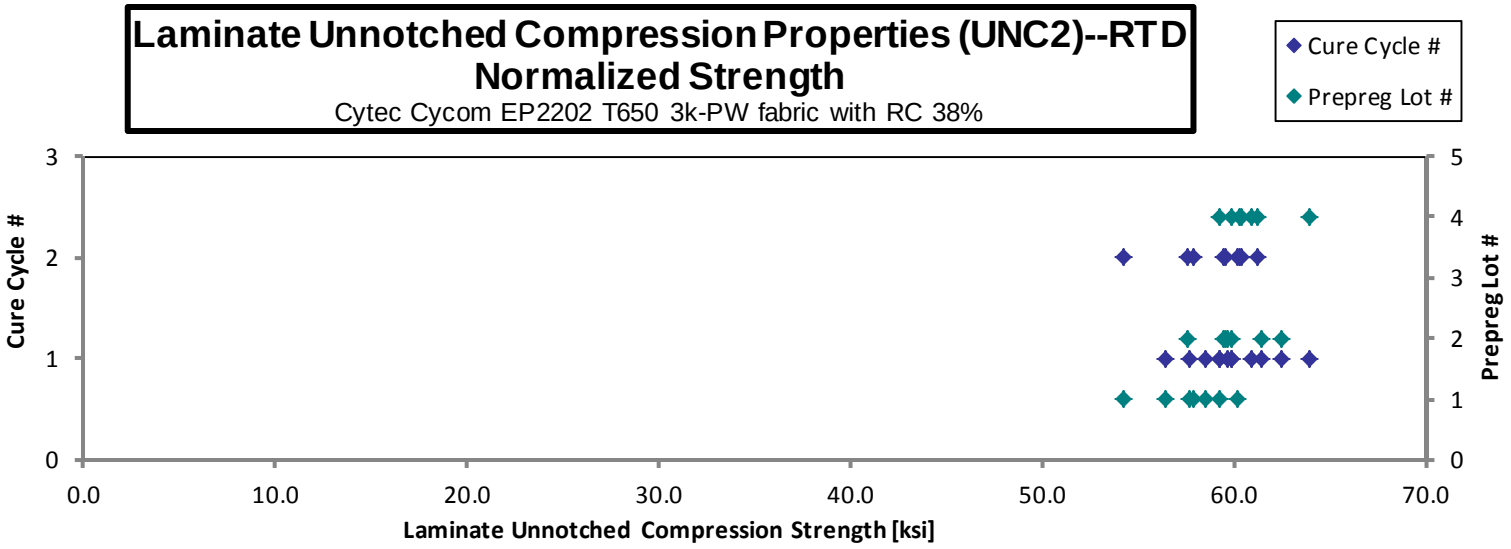
Laminate Unnotched Compression Properties (UNC2)--RTD
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

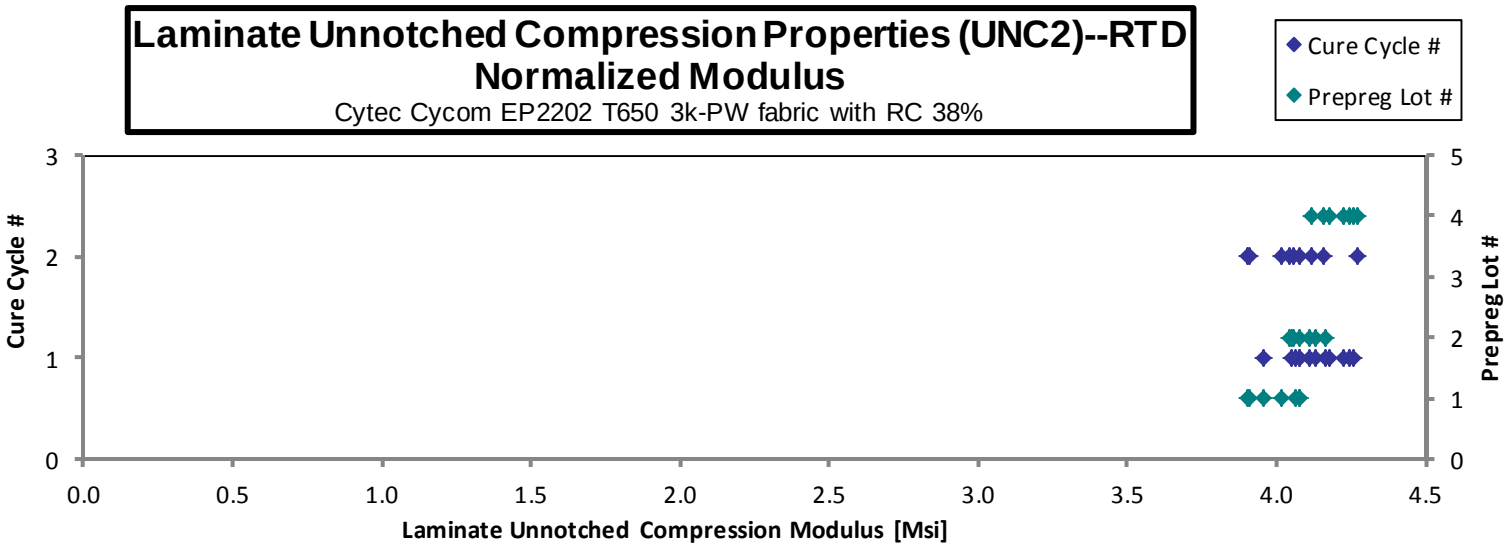
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBXA111A*	A	C1	1	1	59.683	4.159	0.159	20	BGM	0.0079	58.504	4.076
EPBXA112A*	A	C1	1	1	56.900	4.098	0.161	20	BGM	0.0080	56.455	4.066
EPBXA113A	A	C1	1	1	57.931	4.095	0.161	20	BGM	0.0081	57.663	4.076
EPBXA114A	A	C1	1	1	59.464	3.971	0.162	20	BGM	0.0081	59.298	3.960
EPBXA211A	A	C2	1	2	61.148	3.975	0.159	20	BGM	0.0080	60.142	3.910
EPBXA212A	A	C2	1	2	55.244	4.091	0.159	20	BGM	0.0080	54.278	4.019
EPBXA213A	A	C2	1	2	58.931	3.974	0.159	20	BGM	0.0080	57.888	3.904
EPBXB111A	B	C1	2	1	63.003	4.164	0.161	20	BGM	0.0080	62.465	4.128
EPBXB112A	B	C1	2	1	61.918	4.142	0.161	20	BGM	0.0080	61.491	4.114
EPBXB113A	B	C1	2	1	59.960	4.189	0.161	20	BGM	0.0081	59.652	4.167
EPBXB114A	B	C1	2	1	60.234	4.073	0.161	20	BGM	0.0081	59.875	4.049
EPBXB211A	B	C2	2	2	58.726	4.128	0.159	20	BGM	0.0079	57.566	4.046
EPBXB212A	B	C2	2	2	60.134	4.103	0.160	20	BGM	0.0080	59.466	4.057
EPBXB213A	B	C2	2	2	60.122	4.117	0.160	20	BGM	0.0080	59.559	4.079
EPBXD111A	D	C1	4	1	63.441	4.434	0.156	20	BGM	0.0078	60.941	4.260
EPBXD112A	D	C1	4	1	65.515	4.349	0.158	20	BGM	0.0079	63.938	4.245
EPBXD113A	D	C1	4	1	60.569	4.270	0.159	20	BGM	0.0079	59.304	4.180
EPBXD114A	D	C1	4	1	61.228	4.319	0.158	20	BGM	0.0079	59.886	4.224
EPBXD211A	D	C2	4	2	61.485	4.200	0.159	20	BGM	0.0079	60.302	4.119
EPBXD212A	D	C2	4	2	62.002	4.321	0.160	20	BGM	0.0080	61.250	4.269
EPBXD213A	D	C2	4	2	61.317	4.220	0.160	20	BGM	0.0080	60.434	4.160

* Modulus are averaged values of 2 strain gages.

Average	**60.427**	**4.162**	**$Average_{norm}$**	**0.0080**	**59.541**	**4.100**
Standard Dev.	**2.258**	**0.125**	**Standard $Dev._{norm}$**		**2.087**	**0.104**
Coeff. of Var. [%]	**3.737**	**3.000**	**Coeff. of Var. $[\%]_{norm}$**		**3.505**	**2.541**
Min.	**55.244**	**3.971**	**Min.**	**0.0078**	**54.278**	**3.904**
Max.	**65.515**	**4.434**	**Max.**	**0.0081**	**63.938**	**4.269**
Number of Spec.	**21**	**21**	**Number of Spec.**	**21**	**21**	**21**


Laminate Unnotched Compression Properties (UNC2)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression Properties (UNC2)--RTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
Laminate Unnotched Compression Modulus [Msi]

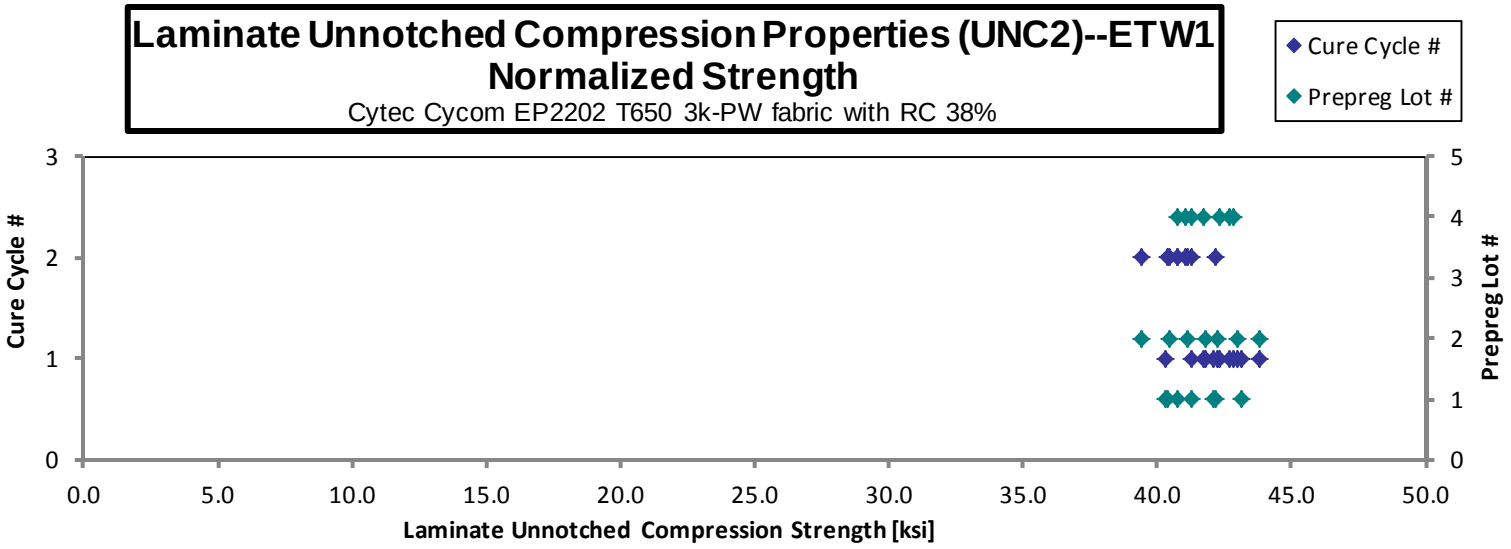
Laminate Unnotched Compression Properties (UNC2)--ETW1
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

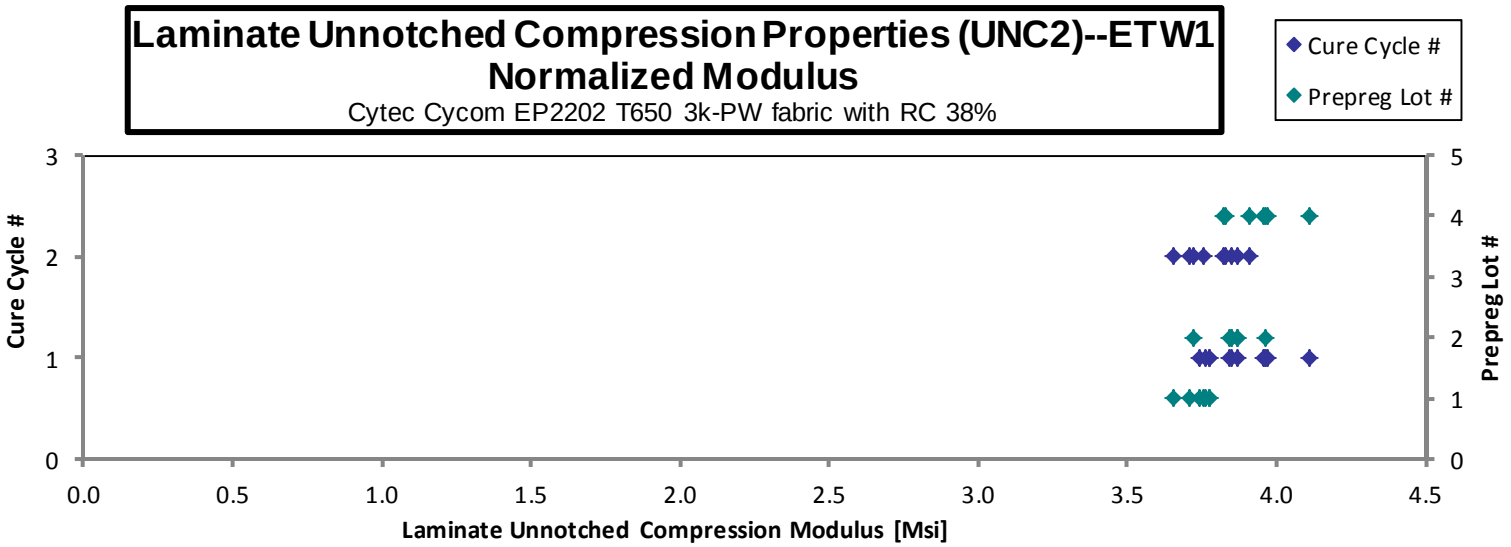
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBXA117D	A	C1	1	1		3.770	0.162	20	HGM	0.0081		3.775
EPBXA118D	A	C1	1	1		3.757	0.162	20	BAB	0.0081		3.765
EPBXA119D	A	C1	1	1		3.736	0.162	20	BGM	0.0081		3.742
EPBXA11AD	A	C1	1	1		3.778	0.162	20	BGM	0.0081		3.773
EPBXA11BD	A	C1	1	1	41.263		0.162	20	BGM	0.0081	41.284	
EPBXA11CD	A	C1	1	1	43.038		0.162	20	BGM	0.0081	43.127	
EPBXA11DD	A	C1	1	1	40.313		0.162	20	BGM	0.0081	40.337	
EPBXA11ED	A	C1	1	1	42.191		0.162	20	BGM	0.0081	42.086	
EPBXA216D	A	C2	1	2		3.838	0.159	20	BGM	0.0079		3.756
EPBXA217D	A	C2	1	2		3.718	0.159	20	BGM	0.0080		3.655
EPBXA218D	A	C2	1	2		3.770	0.159	20	BGM	0.0080		3.706
EPBXA219D	A	C2	1	2	41.400		0.159	20	BGM	0.0080	40.757	
EPBXA21AD	A	C2	1	2	43.012		0.159	20	BGM	0.0079	42.172	
EPBXA21BD	A	C2	1	2	41.173		0.159	20	BGM	0.0079	40.398	
EPBXB117D	B	C1	2	1		3.870	0.161	20	BGM	0.0081		3.850
EPBXB118D	B	C1	2	1		3.859	0.161	20	BGM	0.0081		3.841
EPBXB119D	B	C1	2	1		3.891	0.161	20	BGM	0.0081		3.867
EPBXB11AD	B	C1	2	1	42.577		0.161	20	BGM	0.0080	42.275	
EPBXB11BD	B	C1	2	1	42.073		0.161	20	BGM	0.0080	41.796	
EPBXB11CD	B	C1	2	1	44.196		0.161	20	BGM	0.0080	43.846	
EPBXB11DD	B	C1	2	1	43.246		0.161	20	BGM	0.0081	42.988	
EPBXB11ED	B	C1	2	1		3.997	0.161	20	BGM	0.0080		3.965
EPBXB216D	B	C2	2	2		3.763	0.160	20	BGM	0.0080		3.722
EPBXB217D	B	C2	2	2		3.875	0.161	20	BGM	0.0080		3.849
EPBXB218D	B	C2	2	2		3.903	0.161	20	BGM	0.0080		3.870
EPBXB219D	B	C2	2	2	39.815		0.160	20	BGM	0.0080	39.426	
EPBXB21AD	B	C2	2	2	41.644		0.160	20	BGM	0.0080	41.147	
EPBXB21BD	B	C2	2	2	40.802		0.161	20	BAB	0.0080	40.445	
EPBXD117D	D	C1	4	1		4.212	0.158	20	BGM	0.0079		4.109
EPBXD118D	D	C1	4	1		4.076	0.158	20	BGM	0.0079		3.972
EPBXD119D	D	C1	4	1		4.055	0.158	20	BGM	0.0079		3.962
EPBXD11AD	D	C1	4	1		4.051	0.158	20	LGM	0.0079		3.953
EPBXD11BD	D	C1	4	1	43.947		0.158	20	BGM	0.0079	42.839	
EPBXD11CD	D	C1	4	1	43.429		0.158	20	BGM	0.0079	42.294	
EPBXD11DD	D	C1	4	1	42.842		0.158	20	BGM	0.0079	41.749	
EPBXD11ED	D	C1	4	1	43.781		0.158	20	BGM	0.0079	42.709	
EPBXD216D	D	C2	4	2		3.897	0.159	20	BGM	0.0080		3.825
EPBXD217D	D	C2	4	2		3.984	0.159	20	BGM	0.0080		3.913
EPBXD218D	D	C2	4	2		3.899	0.159	20	BGM	0.0080		3.829
EPBXD219D	D	C2	4	2	42.051		0.159	20	BGM	0.0079	41.268	
EPBXD21AD	D	C2	4	2	41.561		0.159	20	BGM	0.0079	40.783	
EPBXD21BD	D	C2	4	2	41.809		0.159	20	BGM	0.0080	41.086	

Average	**42.198**	**3.890**	
Standard Dev.	**1.199**	**0.131**	
Coeff. of Var. [%]	**2.841**	**3.376**	
Min.	**39.815**	**3.718**	
Max.	**44.196**	**4.212**	
Number of Spec.	**21**	**21**	

$Average_{norm}$	**0.0080**	**41.658**	**3.843**
$Standard\ Dev._{norm}$		**1.112**	**0.109**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**2.669**	**2.834**
Min.	**0.0079**	**39.426**	**3.655**
Max.	**0.0081**	**43.846**	**4.109**
Number of Spec.	**42**	**21**	**21**


Laminate Unnotched Compression Properties (UNC2)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression Properties (UNC2)--ETW1
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
Laminate Unnotched Compression Modulus [Msi]

4.11 "40/20/40" Unnotched Compression 3 Properties (UNC3)

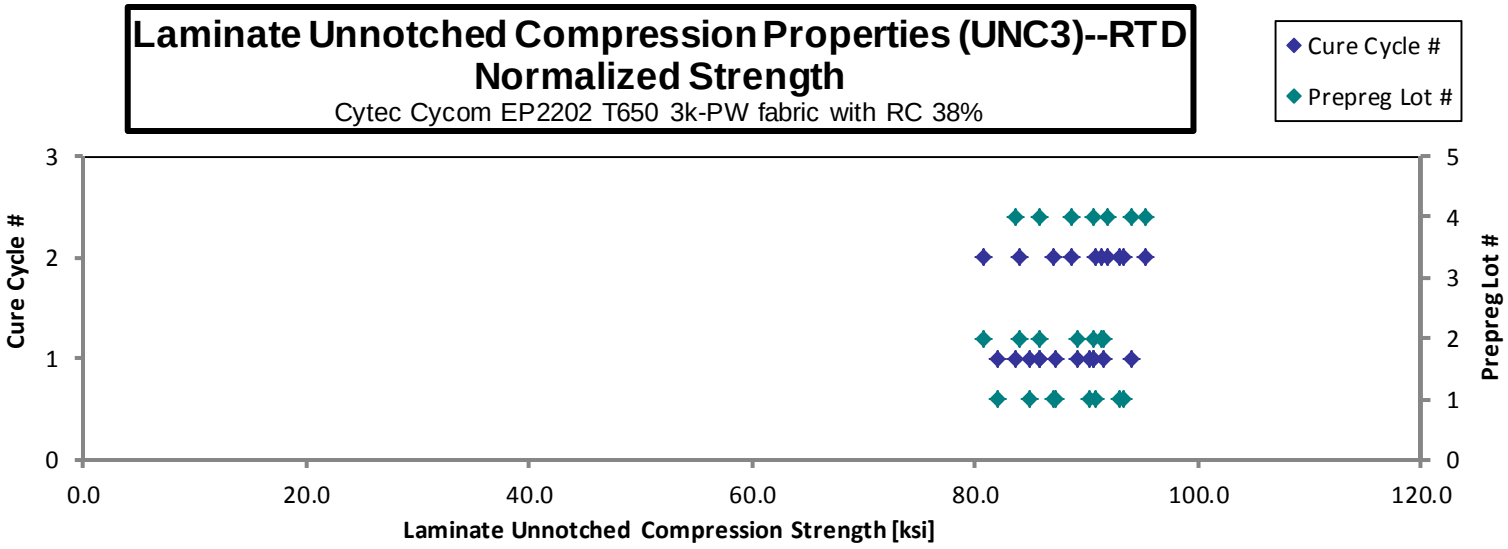
Laminate Unnotched Compression Properties (UNC3)--RTD
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

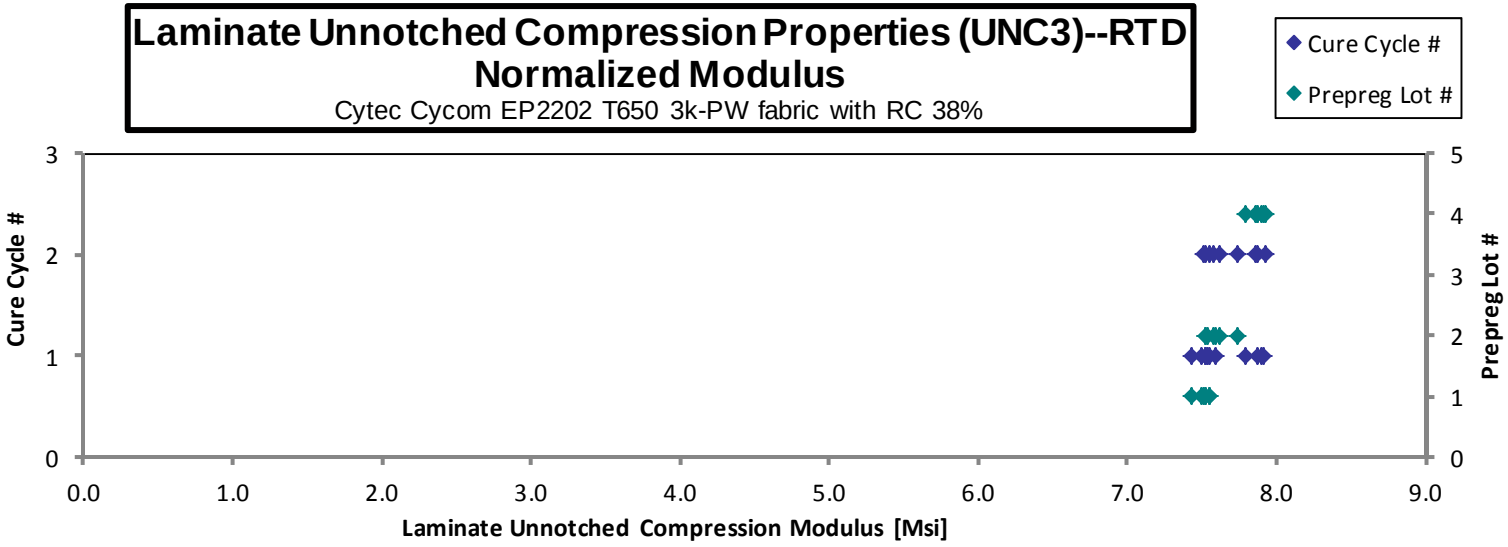
normalizing t_{ply} [in]: 0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBYA111A*	A	C1	1	1	91.147	7.597	0.160	20	BGM	0.0080	90.256	7.523
EPBYA112A*	A	C1	1	1	82.224	7.528	0.161	20	BGM	0.0081	81.962	7.504
EPBYA113A	A	C1	1	1	85.361	7.466	0.161	20	BGM	0.0081	84.905	7.426
EPBYA114A	A	C1	1	1	87.942	7.616	0.161	20	BGM	0.0080	87.209	7.553
EPBYA211A	A	C2	1	2	94.503	7.652	0.159	20	BGM	0.0080	92.840	7.517
EPBYA212A	A	C2	1	2	93.933		0.161	20	BGM	0.0080	93.218	
EPBYA213A	A	C2	1	2	91.188	7.577	0.161	20	BGM	0.0081	90.832	7.547
EPBYA214A	A	C2	1	2	87.748	7.585	0.161	20	BGM	0.0080	87.007	7.521
EPBYB111A	B	C1	2	1	87.520	7.752	0.159	20	BGM	0.0079	85.737	7.594
EPBYB112A	B	C1	2	1	91.842	7.637	0.160	20	BGM	0.0080	90.538	7.529
EPBYB113A	B	C1	2	1	90.505	7.649	0.160	20	BGM	0.0080	89.118	7.532
EPBYB114A	B	C1	2	1	93.329	7.677	0.159	20	BGM	0.0079	91.466	7.524
EPBYB211A	B	C2	2	2	92.795	7.703	0.159	20	BGM	0.0080	91.258	7.575
EPBYB212A	B	C2	2	2	85.036	7.711	0.160	20	BGM	0.0080	83.977	7.615
EPBYB213A	B	C2	2	2	81.552	7.821	0.160	20	BGM	0.0080	80.696	7.739
EPBYD111A	D	C1	4	1	87.920	8.114	0.158	20	BGM	0.0079	85.794	7.918
EPBYD112A	D	C1	4	1	92.848	8.096	0.158	20	BGM	0.0079	90.651	7.905
EPBYD113A	D	C1	4	1	96.168	8.044	0.158	20	BGM	0.0079	94.051	7.867
EPBYD114A	D	C1	4	1	85.709	7.985	0.158	20	BGM	0.0079	83.637	7.792
EPBYD211A	D	C2	4	2	91.392	8.127	0.157	20	BGM	0.0078	88.562	7.875
EPBYD212A	D	C2	4	2	97.568	8.114	0.158	20	BGM	0.0079	95.339	7.929
EPBYD213A	D	C2	4	2	93.808	8.031	0.159	20	BGM	0.0079	91.820	7.861

* Modulus are averaged values of 2 strain gages.

Average	**90.093**	**7.785**	**$Average_{norm}$**	**0.0080**	**88.676**	**7.659**
Standard Dev.	**4.347**	**0.223**	**$Standard\ Dev._{norm}$**		**4.039**	**0.170**
Coeff. of Var. [%]	**4.825**	**2.868**	**Coeff. of Var. [%]$_{norm}$**		**4.555**	**2.222**
Min.	**81.552**	**7.466**	**Min.**	**0.0078**	**80.696**	**7.426**
Max.	**97.568**	**8.127**	**Max.**	**0.0081**	**95.339**	**7.929**
Number of Spec.	**22**	**21**	**Number of Spec.**	**22**	**22**	**21**


Laminate Unnotched Compression Properties (UNC3)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression Properties (UNC3)--RTD
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
Laminate Unnotched Compression Modulus [Msi]

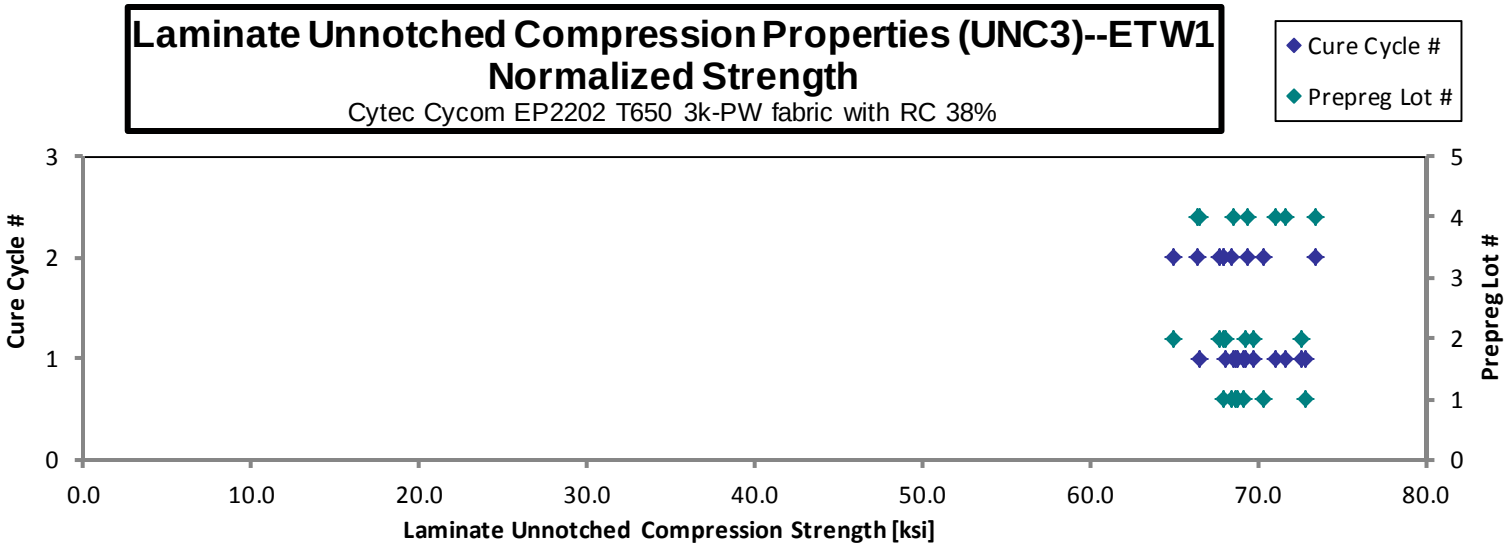
Laminate Unnotched Compression Properties (UNC3)--ETW1
Strength & Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

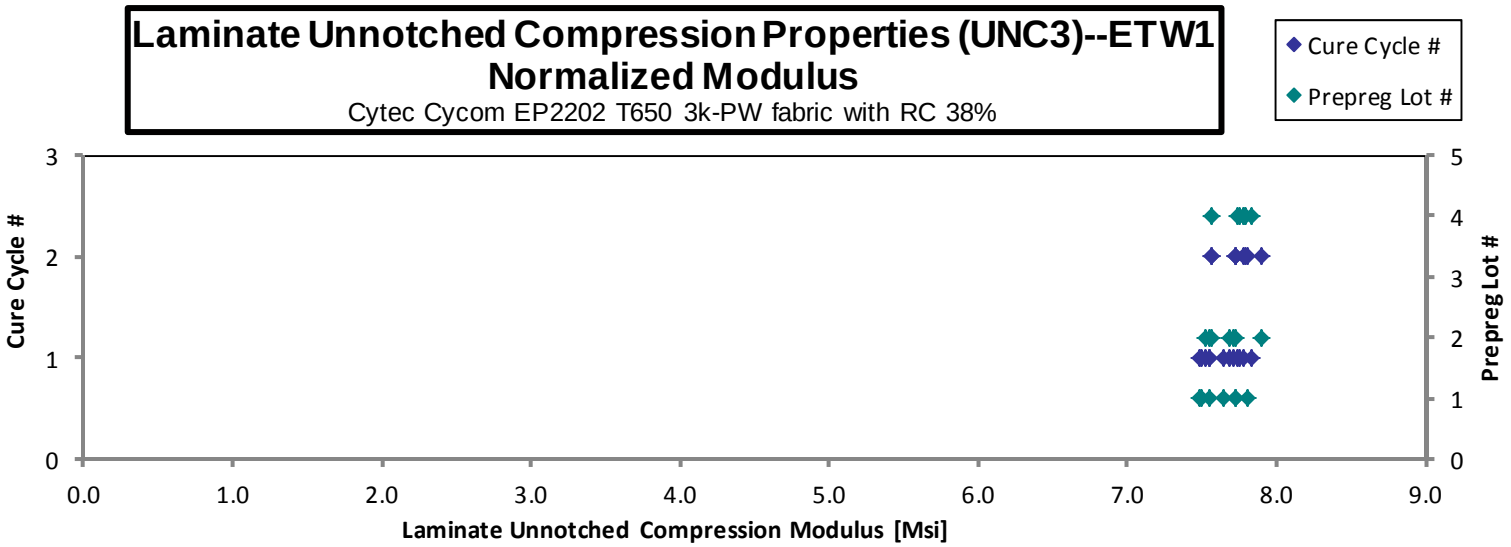
normalizing t_{ply} [in]: 0.0081

Specimen Number	Cytec Batch #	Cytec 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]
EPBYA117D	A	C1	1	1		7.511	0.162	20	BGM	0.0081		7.489
EPBYA118D	A	C1	1	1		7.692	0.161	20	BGM	0.0080		7.643
EPBYA119D	A	C1	1	1		7.540	0.161	20	BGM	0.0081		7.500
EPBYA11AD	A	C1	1	1		7.571	0.162	20	BGM	0.0081		7.553
EPBYA11BD	A	C1	1	1	69.395		0.162	20	BGM	0.0081	69.195	
EPBYA11CD	A	C1	1	1	69.004		0.161	20	BGM	0.0081	68.663	
EPBYA11DD	A	C1	1	1	69.234		0.161	20	BGM	0.0081	68.835	
EPBYA11ED	A	C1	1	1	73.436		0.161	20	BGM	0.0080	72.824	
EPBYA216D	A	C2	1	2		7.789	0.161	20	BGM	0.0080		7.726
EPBYA217D	A	C2	1	2		7.866	0.161	20	BGM	0.0080		7.811
EPBYA218D	A	C2	1	2		7.773	0.161	20	BGM	0.0081		7.727
EPBYA219D	A	C2	1	2	68.601		0.161	20	BGM	0.0080	67.994	
EPBYA21AD	A	C2	1	2	68.904		0.161	20	BGM	0.0080	68.387	
EPBYA21BD	A	C2	1	2	70.956		0.161	20	BGM	0.0080	70.306	
EPBYB117D	B	C1	2	1		7.868	0.159	20	BGM	0.0079		7.718
EPBYB118D	B	C1	2	1		7.683	0.159	20	BGM	0.0080		7.551
EPBYB119D	B	C1	2	1		7.645	0.159	20	BGM	0.0080		7.520
EPBYB11AD	B	C1	2	1		7.808	0.160	20	BGM	0.0080		7.692
EPBYB11BD	B	C1	2	1	70.366		0.159	20	BGM	0.0080	69.237	
EPBYB11CD	B	C1	2	1	69.152		0.160	20	BGM	0.0080	68.113	
EPBYB11DD	B	C1	2	1	70.963		0.159	20	BGM	0.0080	69.802	
EPBYB11ED	B	C1	2	1	73.942		0.159	20	BGM	0.0080	72.649	
EPBYB216D	B	C2	2	2		7.822	0.160	20	BGM	0.0080		7.727
EPBYB217D	B	C2	2	2		8.003	0.160	20	HGM	0.0080		7.901
EPBYB218D	B	C2	2	2		7.652	0.160	20	HAT, HIT	0.0080		7.558
EPBYB219D	B	C2	2	2	68.929		0.160	20	BGM	0.0080	68.000	
EPBYB21AD	B	C2	2	2	68.430		0.160	20	BGM	0.0080	67.684	
EPBYB21BD	B	C2	2	2	65.538		0.161	20	BGM	0.0080	65.005	
EPBYD117D	D	C1	4	1		7.996	0.158	20	BGM	0.0079		7.782
EPBYD118D	D	C1	4	1		7.921	0.158	20	BGM	0.0079		7.734
EPBYD119D	D	C1	4	1		7.997	0.159	20	BGM	0.0079		7.830
EPBYD11AD	D	C1	4	1		7.939	0.158	20	BGM	0.0079		7.750
EPBYD11BD	D	C1	4	1	68.410		0.158	20	BGM	0.0079	66.573	
EPBYD11CD	D	C1	4	1	73.406		0.158	20	BGM	0.0079	71.662	
EPBYD11DD	D	C1	4	1	72.954		0.158	20	BGM	0.0079	71.018	
EPBYD11ED	D	C1	4	1	70.350		0.158	20	BGM	0.0079	68.606	
EPBYD216D	D	C2	4	2		7.965	0.158	20	BGM	0.0079		7.773
EPBYD217D	D	C2	4	2		7.736	0.158	20	HGM	0.0079		7.565
EPBYD218D	D	C2	4	2		7.986	0.158	20	BGM	0.0079		7.792
EPBYD219D	D	C2	4	2	67.922		0.158	20	HGM	0.0079	66.363	
EPBYD21AD	D	C2	4	2	71.085		0.158	20	BGM	0.0079	69.433	
EPBYD21BD	D	C2	4	2	75.068		0.159	20	BAT, HIT	0.0079	73.485	

	Strength [ksi]	Modulus [Msi]
Average	70.288	7.798
Standard Dev.	2.357	0.159
Coeff. of Var. [%]	3.353	2.034
Min.	65.538	7.511
Max.	75.068	8.003
Number of Spec.	21	21

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.0080	69.230	7.683
$Standard\ Dev._{norm}$		2.176	0.121
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.144	1.575
Min.	0.0079	65.005	7.489
Max.	0.0081	73.485	7.901
Number of Spec.	42	21	21


Laminate Unnotched Compression Properties (UNC3)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
Laminate Unnotched Compression Strength [ksi]

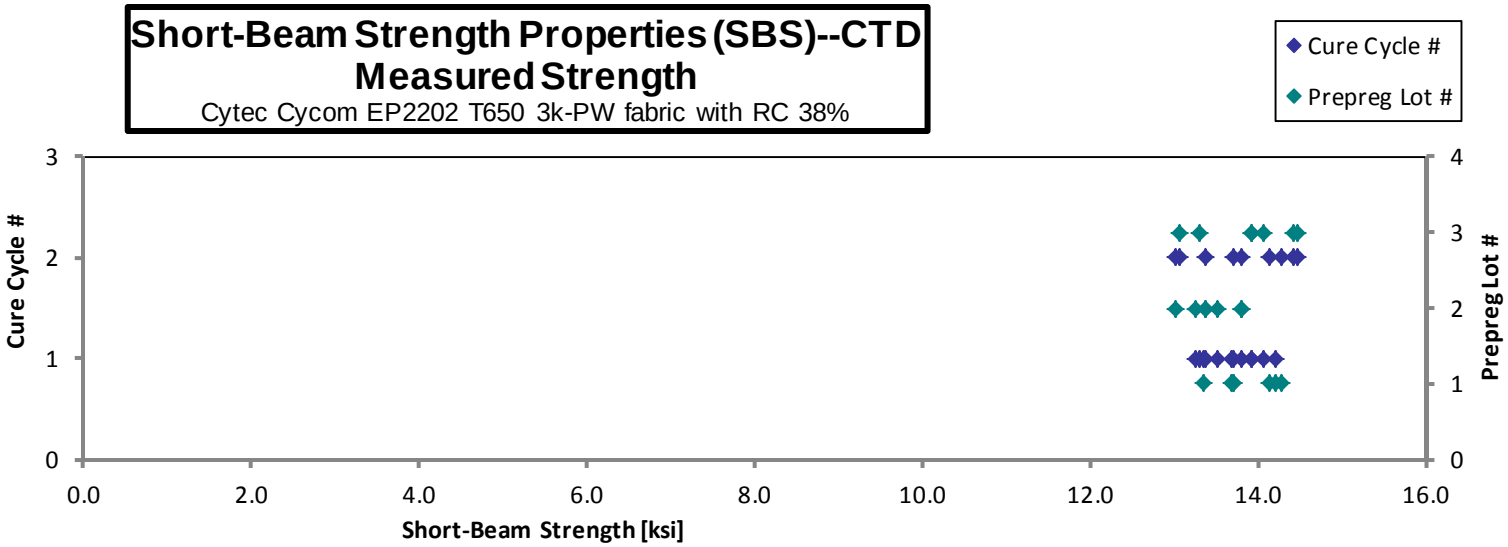

Laminate Unnotched Compression Properties (UNC3)--ETW1
Normalized Modulus
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
Laminate Unnotched Compression Modulus [Msi]

4.12 Lamina Short-Beam Strength Properties (SBS)

Short-Beam Strength Properties (SBS)--CTD
Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
EPBQA116B	A	C1	1	1	13.722	0.257	32	0.0080	TENSION FAILURE
EPBQA117B	A	C1	1	1	14.216	0.255	32	0.0080	TENSION FAILURE
EPBQA118B	A	C1	1	1	13.687	0.258	32	0.0081	TENSION FAILURE
EPBQA119B	A	C1	1	1	13.345	0.257	32	0.0080	TENSION FAILURE
EPBQA215B	A	C2	1	2	14.150	0.256	32	0.0080	TENSION FAILURE
EPBQA216B	A	C2	1	2	14.284	0.255	32	0.0080	TENSION FAILURE
EPBQA217B	A	C2	1	2	13.701	0.257	32	0.0080	TENSION FAILURE
EPBQB116B	B	C1	2	1	13.383	0.251	32	0.0079	TENSION FAILURE
EPBQB117B	B	C1	2	1	13.795	0.248	32	0.0077	TENSION FAILURE
EPBQB118B	B	C1	2	1	13.511	0.252	32	0.0079	TENSION FAILURE
EPBQB119B	B	C1	2	1	13.250	0.252	32	0.0079	TENSION FAILURE
EPBQB215B	B	C2	2	2	13.388	0.252	32	0.0079	TENSION FAILURE
EPBQB216B	B	C2	2	2	13.812	0.252	32	0.0079	TENSION FAILURE
EPBQB217B	B	C2	2	2	13.028	0.251	32	0.0078	TENSION FAILURE
EPBQC116B	C	C1	3	1	13.919	0.257	32	0.0080	TENSION FAILURE
EPBQC117B	C	C1	3	1	14.056	0.254	32	0.0079	TENSION FAILURE
EPBQC118B	C	C1	3	1	13.308	0.258	32	0.0081	TENSION FAILURE
EPBQC119B	C	C1	3	1	13.931	0.258	32	0.0081	TENSION FAILURE
EPBQC215B	C	C2	3	2	13.070	0.261	32	0.0081	TENSION FAILURE
EPBQC216B	C	C2	3	2	14.462	0.259	32	0.0081	TENSION FAILURE
EPBQC217B	C	C2	3	2	14.424	0.261	32	0.0082	TENSION FAILURE

Average	**13.735**	**Average**	**0.0080**
Standard Dev.	**0.430**	**Standard Dev.**	
Coeff. of Var. [%]	**3.134**	**Coeff. of Var. [%]**	
Min.	**13.028**	**Min.**	**0.0077**
Max.	**14.462**	**Max.**	**0.0082**
Number of Spec.	**21**	**Number of Spec.**	**21**


Short-Beam Strength Properties (SBS)--CTD
Measured Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Short-Beam Strength [ksi]
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0

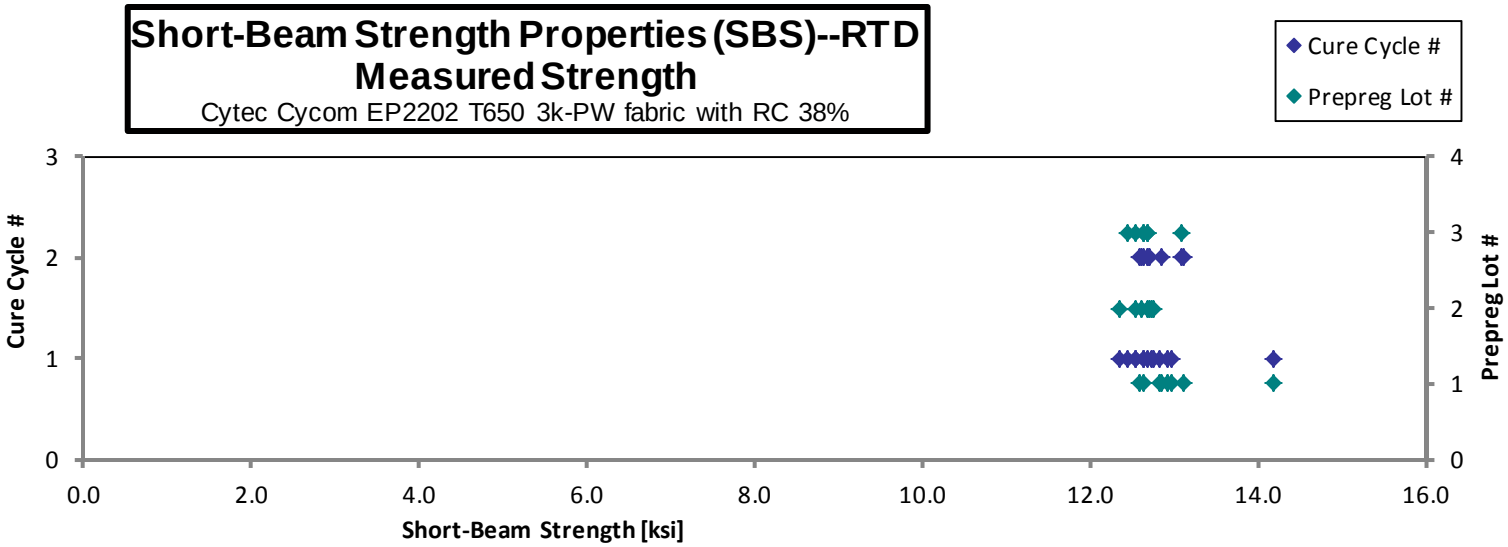
Short-Beam Strength Properties (SBS)--RTD
Strength

Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
EPBQA111A	A	C1	1	1	12.827	0.258	32	0.0081	TENSION FAILURE
EPBQA112A*	A	C1	1	1	14.185	0.257	32	0.0080	TENSION FAILURE, ILS
EPBQA113A	A	C1	1	1	12.625	0.257	32	0.0080	TENSION FAILURE
EPBQA114A	A	C1	1	1	12.929	0.257	32	0.0080	TENSION, COMP FAILURE
EPBQA115A	A	C1	1	1	12.961	0.257	32	0.0080	TENSION, COMP FAILURE
EPBQA211A	A	C2	1	2	13.120	0.257	32	0.0080	TENSION FAILURE
EPBQA212A	A	C2	1	2	12.863	0.257	32	0.0080	TENSION FAILURE
EPBQA213A	A	C2	1	2	12.585	0.257	32	0.0080	TENSION FAILURE
EPBQB111A	B	C1	2	1	12.756	0.251	32	0.0078	TENSION FAILURE
EPBQB112A	B	C1	2	1	12.743	0.251	32	0.0078	TENSION FAILURE
EPBQB113A	B	C1	2	1	12.551	0.251	32	0.0078	TENSION FAILURE
EPBQB114A	B	C1	2	1	12.343	0.251	32	0.0078	TENSION FAILURE
EPBQB211A	B	C2	2	2	12.680	0.248	32	0.0078	TENSION FAILURE
EPBQB212A	B	C2	2	2	12.715	0.252	32	0.0079	TENSION FAILURE
EPBQB213A	B	C2	2	2	12.608	0.252	32	0.0079	TENSION FAILURE
EPBQC111A	C	C1	3	1	12.457	0.257	32	0.0080	ILS, COMP, TENSION FAILURE
EPBQC112A	C	C1	3	1	12.538	0.256	32	0.0080	TENSION FAILURE
EPBQC113A	C	C1	3	1	12.625	0.256	32	0.0080	TENSION FAILURE
EPBQC114A	C	C1	3	1	12.682	0.257	33	0.0078	TENSION FAILURE
EPBQC211A	C	C2	3	2	12.696	0.259	32	0.0081	TENSION FAILURE
EPBQC212A	C	C2	3	2	13.095	0.260	32	0.0081	TENSION FAILURE
EPBQC213A	C	C2	3	2	12.634	0.260	32	0.0081	TENSION FAILURE

* 3T span length is used

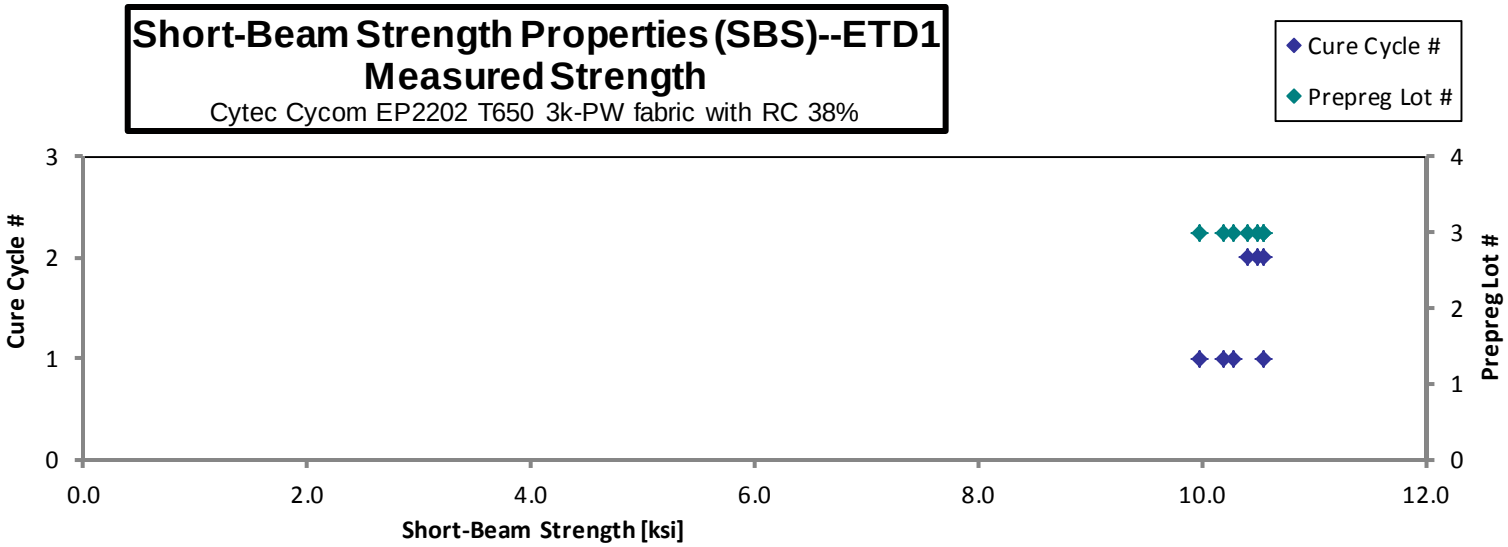
Average	**12.783**	**Average**	**0.0080**
Standard Dev.	**0.367**	**Standard Dev.**	
Coeff. of Var. [%]	**2.871**	**Coeff. of Var. [%]**	
Min.	**12.343**	**Min.**	**0.0078**
Max.	**14.185**	**Max.**	**0.0081**
Number of Spec.	**22**	**Number of Spec.**	**22**


Short-Beam Strength Properties (SBS)--RTD
Measured Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Short-Beam Strength [ksi]
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0

Short-Beam Strength Properties (SBS)--ETD1
Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
EPBQC11HC	C	C1	3	1	10.555	0.253	32	0.0079	TENSION FAILURE
EPBQC11IC	C	C1	3	1	10.200	0.256	32	0.0080	ILS, COMP FAILURE
EPBQC11JC	C	C1	3	1	9.978	0.256	32	0.0080	ILS, COMP FAILURE
EPBQC11KC	C	C1	3	1	10.285	0.256	32	0.0080	ILS, TENSION FAILURE
EPBQC21EC	C	C2	3	2	10.555	0.259	32	0.0081	ILS, TENSION FAILURE
EPBQC21FC	C	C2	3	2	10.406	0.261	32	0.0081	ILS, TENSION, COMP FAILURE
EPBQC21GC	C	C2	3	2	10.489	0.261	32	0.0082	ILS, TENSION, COMP FAILURE

Average	**10.353**	**Average**	**0.0080**
Standard Dev.	**0.213**	**Standard Dev.**	
Coeff. of Var. [%]	**2.054**	**Coeff. of Var. [%]**	
Min.	**9.978**	**Min.**	**0.0079**
Max.	**10.555**	**Max.**	**0.0082**
Number of Spec.	**7**	**Number of Spec.**	**7**

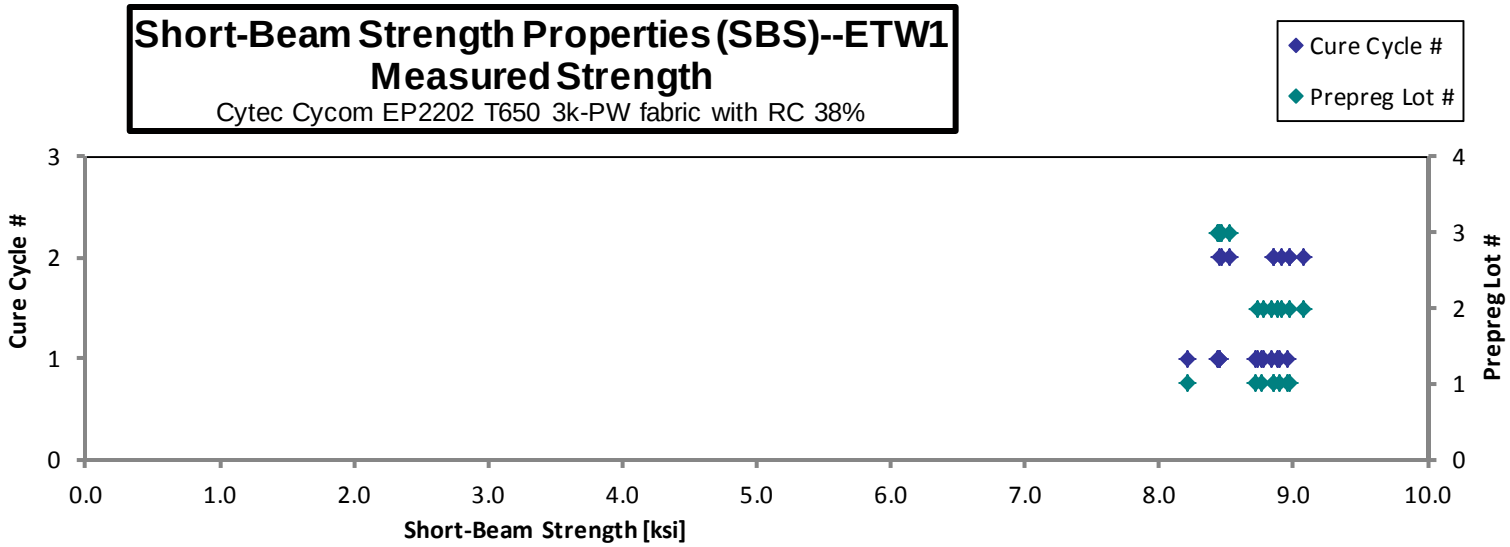

Short-Beam Strength Properties (SBS)--ETD1
Measured Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Short-Beam Strength [ksi]
0.0
2.0
4.0
6.0
8.0
10.0
12.0
0
1
2
3
4

Short-Beam Strength Properties (SBS)--ETW1
Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
EPBQA11BD	A	C1	1	1	8.213	0.257	32	0.0080	COMP FAILURE, ILS, INELASTIC
EPBQA11CD*	A	C1	1	1	8.964	0.257	32	0.0080	ILS, INELASTIC
EPBQA11DD*	A	C1	1	1	8.757	0.257	32	0.0080	ILS, COMP FAILURE, INELASTIC
EPBQA11ED*	A	C1	1	1	8.714	0.255	32	0.0080	ILS, INELASTIC
EPBQA11FD*	A	C1	1	1	8.897	0.258	32	0.0081	ILS, INELASTIC
EPBQA219D*	A	C2	1	2	8.852	0.257	32	0.0080	ILS, COMP FAILURE, INELASTIC
EPBQA21AD*	A	C2	1	2	8.848	0.256	32	0.0080	ILS, INELASTIC
EPBQA21BD*	A	C2	1	2	8.966	0.256	32	0.0080	ILS, INELASTIC
EPBQB11BD*	B	C1	2	1	8.876	0.252	32	0.0079	ILS, INELASTIC
EPBQB11CD*	B	C1	2	1	8.779	0.253	32	0.0079	ILS, INELASTIC
EPBQB11DD*	B	C1	2	1	8.838	0.252	32	0.0079	ILS, INELASTIC
EPBQB11ED*	B	C1	2	1	8.734	0.249	32	0.0078	ILS, INELASTIC
EPBQB219D*	B	C2	2	2	9.074	0.254	32	0.0079	ILS, INELASTIC
EPBQB21AD*	B	C2	2	2	8.976	0.254	32	0.0079	ILS, INELASTIC
EPBQB21BD*	B	C2	2	2	8.908	0.254	32	0.0079	ILS, INELASTIC
EPBQC11BD*	C	C1	3	1	8.428	0.257	32	0.0080	ILS, INELASTIC
EPBQC11CD*	C	C1	3	1	8.452	0.257	32	0.0080	ILS, INELASTIC
EPBQC11DD*	C	C1	3	1	8.456	0.258	33	0.0078	ILS, INELASTIC
EPBQC11ED*	C	C1	3	1	8.444	0.255	32	0.0080	ILS, INELASTIC
EPBQC219D*	C	C2	3	2	8.446	0.262	32	0.0082	ILS, INELASTIC
EPBQC21AD*	C	C2	3	2	8.525	0.261	32	0.0082	ILS, INELASTIC
EPBQC21BD*	C	C2	3	2	8.468	0.262	32	0.0082	ILS, INELASTIC

* 3T span length is used

Average	**8.710**	**Average**	**0.0080**
Standard Dev.	**0.238**	**Standard Dev.**	
Coeff. of Var. [%]	**2.732**	**Coeff. of Var. [%]**	
Min.	**8.213**	**Min.**	**0.0078**
Max.	**9.074**	**Max.**	**0.0082**
Number of Spec.	**22**	**Number of Spec.**	**22**


Short-Beam Strength Properties (SBS)--ETW1
Measured Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Short-Beam Strength [ksi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
0
1
2
3
4

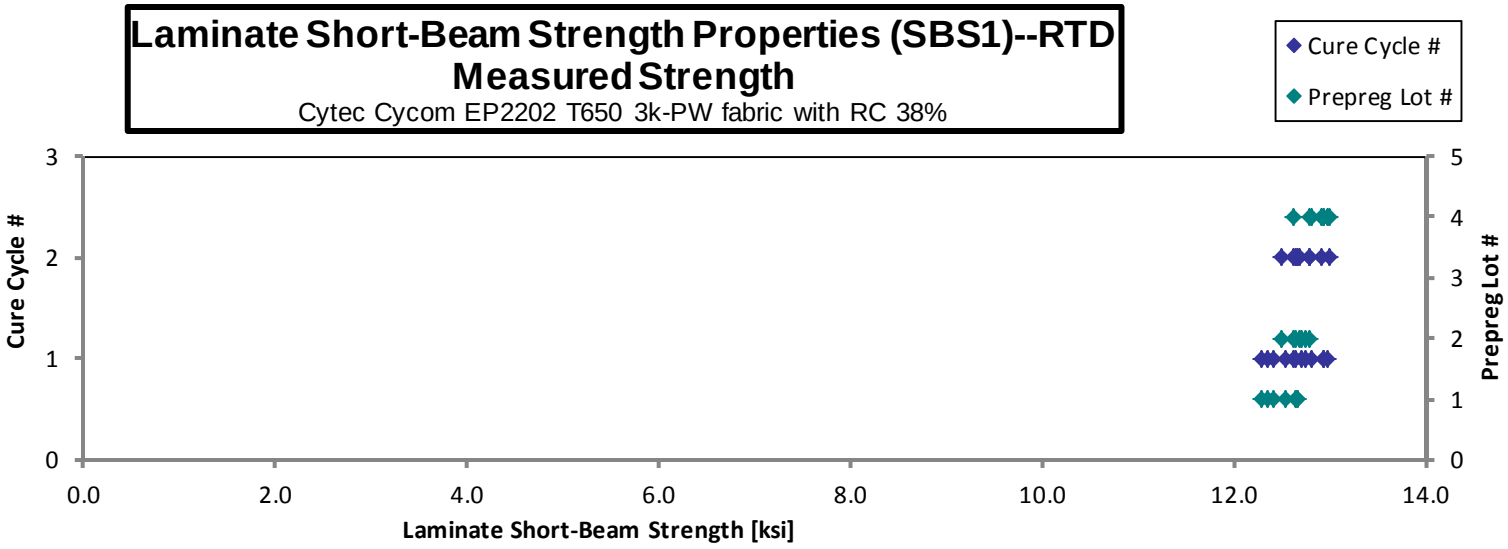
4.13 Laminate Short-Beam Strength Properties (SBS1)

Laminate Short-Beam Strength Properties (SBS1)--RTD Strength

Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
EPBqA1G1A	A	C1	1	1	12.289	0.162	20	0.0081	ILS
EPBqA1G2A	A	C1	1	1	12.351	0.161	20	0.0081	ILS
EPBqA1G3A	A	C1	1	1	12.532	0.162	20	0.0081	ILS
EPBqA1G4A	A	C1	1	1	12.406	0.161	20	0.0081	ILS
EPBqA2G1A	A	C2	1	2	12.660	0.161	20	0.0080	ILS
EPBqA2G2A	A	C2	1	2	12.653	0.161	20	0.0080	ILS, TENSION FAILURE
EPBqA2G3A	A	C2	1	2	12.654	0.162	20	0.0081	ILS, TENSION FAILURE
EPBqB1G1A	B	C1	2	1	12.700	0.159	20	0.0080	ILS, TENSION FAILURE
EPBqB1G2A	B	C1	2	1	12.646	0.161	20	0.0080	ILS, TENSION FAILURE
EPBqB1G3A	B	C1	2	1	12.739	0.160	20	0.0080	ILS, TENSION FAILURE
EPBqB1G4A	B	C1	2	1	12.615	0.159	20	0.0080	ILS, TENSION FAILURE
EPBqB2G1A	B	C2	2	2	12.691	0.163	20	0.0082	ILS, TENSION FAILURE
EPBqB2G2A	B	C2	2	2	12.504	0.163	20	0.0081	ILS, TENSION FAILURE
EPBqB2G3A	B	C2	2	2	12.785	0.161	20	0.0081	ILS, COMP FAILURE
EPBqD1G1A	D	C1	4	1	12.983	0.157	20	0.0079	ILS, TENSION FAILURE
EPBqD1G2A	D	C1	4	1	12.943	0.157	20	0.0078	ILS, TENSION FAILURE
EPBqD1G3A	D	C1	4	1	12.938	0.157	20	0.0078	ILS, TENSION FAILURE
EPBqD1G4A	D	C1	4	1	12.808	0.157	20	0.0078	ILS
EPBqD2G1A	D	C2	4	2	12.924	0.157	20	0.0078	ILS, COMP FAILURE
EPBqD2G2A	D	C2	4	2	12.625	0.157	20	0.0078	ILS, TENSION FAILURE
EPBqD2G3A	D	C2	4	2	12.785	0.157	20	0.0078	ILS, TENSION FAILURE
EPBqD2G4A	D	C2	4	2	13.001	0.157	20	0.0079	ILS, TENSION, COMP FAILURE

Average	**12.692**	**Average**	**0.0080**
Standard Dev.	**0.199**	**Standard Dev.**	
Coeff. of Var. [%]	**1.565**	**Coeff. of Var. [%]**	
Min.	**12.289**	**Min.**	**0.0078**
Max.	**13.001**	**Max.**	**0.0082**
Number of Spec.	**22**	**Number of Spec.**	**22**

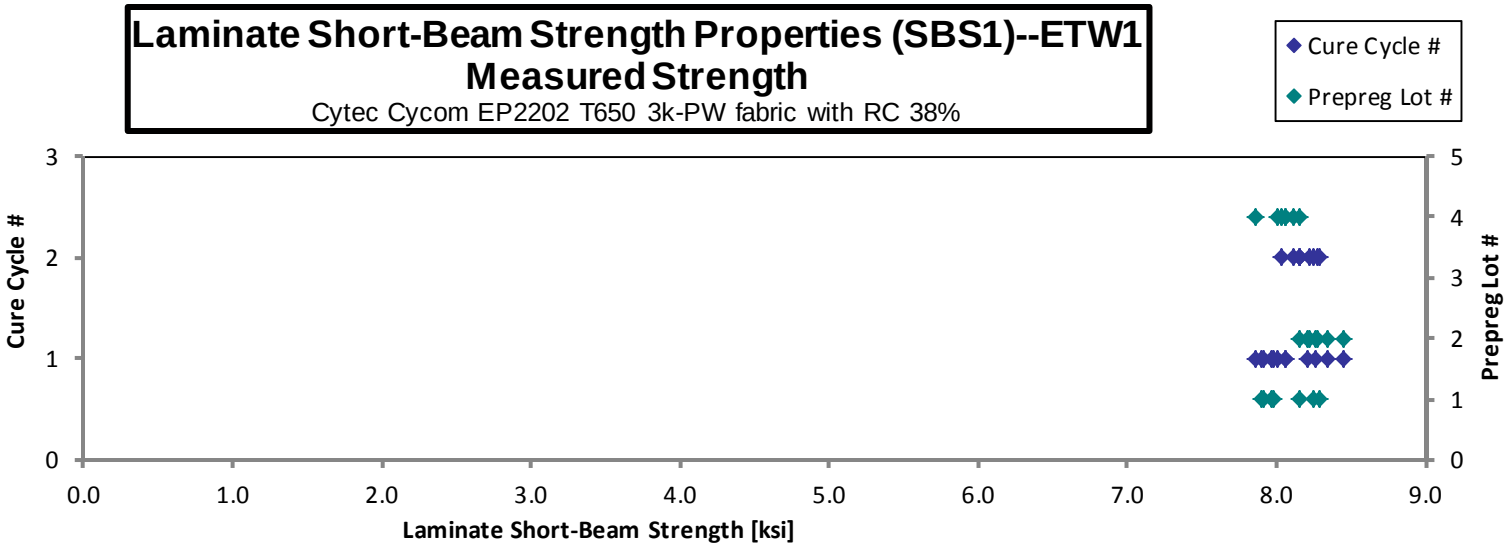

Laminate Short-Beam Strength Properties (SBS1)--RTD
Measured Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Short-Beam Strength [ksi]
0
1
2
3
0
1
2
3
4
5
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0

Laminate Short-Beam Strength Properties (SBS1)--ETW1 Strength

Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
EPBqA1G6D	A	C1	1	1	7.969	0.162	20	0.0081	ILS, INELASTIC
EPBqA1G7D	A	C1	1	1	7.984	0.162	20	0.0081	ILS, INELASTIC
EPBqA1G8D	A	C1	1	1	7.914	0.162	20	0.0081	ILS, INELASTIC
EPBqA1G9D	A	C1	1	1	7.898	0.162	20	0.0081	ILS, INELASTIC
EPBqA2G6D	A	C2	1	2	8.248	0.160	20	0.0080	ILS, INELASTIC
EPBqA2G7D	A	C2	1	2	8.288	0.161	20	0.0080	ILS, INELASTIC
EPBqA2G8D	A	C2	1	2	8.148	0.161	20	0.0080	ILS, INELASTIC
EPBqB1G6D	B	C1	2	1	8.455	0.159	20	0.0080	ILS, INELASTIC
EPBqB1G7D	B	C1	2	1	8.208	0.160	20	0.0080	ILS, INELASTIC
EPBqB1G8D	B	C1	2	1	8.258	0.161	20	0.0080	ILS, INELASTIC
EPBqB1G9D	B	C1	2	1	8.338	0.160	20	0.0080	ILS, INELASTIC
EPBqB2G6D	B	C2	2	2	8.282	0.161	20	0.0081	ILS, INELASTIC
EPBqB2G7D	B	C2	2	2	8.149	0.164	20	0.0082	ILS, INELASTIC
EPBqB2G8D	B	C2	2	2	8.222	0.163	20	0.0081	ILS, INELASTIC
EPBqD1G6D	D	C1	4	1	7.860	0.158	20	0.0079	ILS, INELASTIC
EPBqD1G7D	D	C1	4	1	8.009	0.157	20	0.0078	ILS, INELASTIC
EPBqD1G8D	D	C1	4	1	8.061	0.157	20	0.0078	ILS, INELASTIC
EPBqD1G9D	D	C1	4	1	8.067	0.157	20	0.0078	ILS, INELASTIC
EPBqD2G6D	D	C2	4	2	8.150	0.157	20	0.0079	ILS, INELASTIC
EPBqD2G7D	D	C2	4	2	8.113	0.157	20	0.0079	ILS, INELASTIC
EPBqD2G8D	D	C2	4	2	8.035	0.157	20	0.0079	ILS, INELASTIC

Average	**8.126**	**Average**	**0.0080**
Standard Dev.	**0.157**	**Standard Dev.**	
Coeff. of Var. [%]	**1.937**	**Coeff. of Var. [%]**	
Min.	**7.860**	**Min.**	**0.0078**
Max.	**8.455**	**Max.**	**0.0082**
Number of Spec.	**21**	**Number of Spec.**	**21**


Laminate Short-Beam Strength Properties (SBS1)--ETW1
Measured Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Short-Beam Strength [ksi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
0
1
2
3
0
1
2
3
4
5

4.14 "25/50/25" Open-Hole Tension 1 Properties (OHT1)

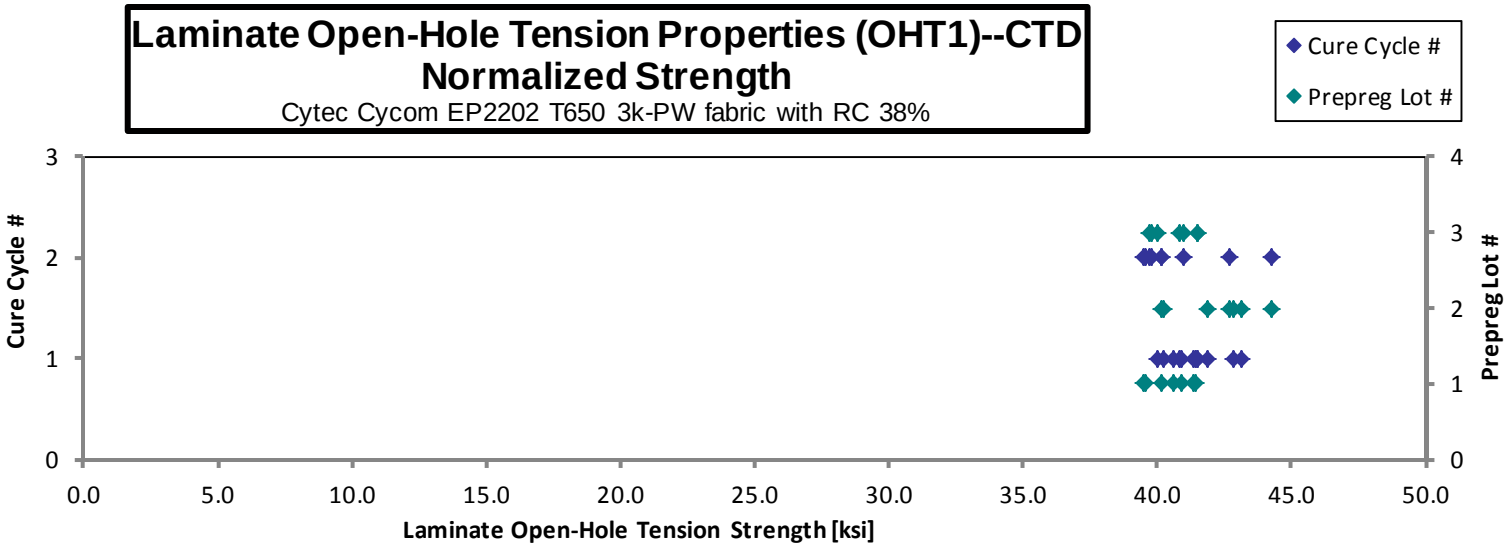
Laminate Open-Hole Tension Properties (OHT1)--CTD
Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBDA116B	A	C1	1	1	41.810	0.128	16	LGM	0.0080	41.385
EPBDA117B	A	C1	1	1	41.707	0.129	16	LGM	0.0080	41.438
EPBDA118B	A	C1	1	1	40.911	0.129	16	LGM	0.0080	40.632
EPBDA119B	A	C1	1	1	41.319	0.128	16	LGM	0.0080	40.889
EPBDA215B	A	C2	1	2	39.792	0.129	16	LGM	0.0080	39.474
EPBDA216B	A	C2	1	2	40.565	0.128	16	LGM	0.0080	40.174
EPBDA217B	A	C2	1	2	40.102	0.128	16	LGM	0.0080	39.587
EPBDB116B	B	C1	2	1	41.261	0.126	16	LGM	0.0079	40.221
EPBDB117B	B	C1	2	1	44.054	0.126	16	LGM	0.0079	42.875
EPBDB119B	B	C1	2	1	44.346	0.126	16	LGM	0.0079	43.165
EPBDB11AB	B	C1	2	1	43.230	0.126	16	LGM	0.0079	41.907
EPBDB215B	B	C2	2	2	45.046	0.127	16	LGM	0.0080	44.241
EPBDB216B	B	C2	2	2	43.581	0.127	16	LGM	0.0079	42.712
EPBDB217B	B	C2	2	2	40.996	0.127	16	LGM	0.0079	40.142
EPBDC116B	C	C1	3	1	41.109	0.129	16	LGM	0.0081	40.861
EPBDC117B	C	C1	3	1	40.205	0.129	16	LGM	0.0081	40.014
EPBDC118B	C	C1	3	1	41.097	0.131	16	LGM	0.0082	41.499
EPBDC119B	C	C1	3	1	41.055	0.131	16	LGM	0.0082	41.472
EPBDC215B	C	C2	3	2	39.871	0.129	16	LGM	0.0081	39.795
EPBDC216B	C	C2	3	2	39.907	0.129	16	LGM	0.0081	39.738
EPBDC217B	C	C2	3	2	41.111	0.129	16	LGM	0.0081	40.995

Average	**41.575**	
Standard Dev.	**1.557**	
Coeff. of Var. [%]	**3.746**	
Min.	**39.792**	
Max.	**45.046**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**41.106**
$Standard\ Dev._{norm}$		**1.296**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.152**
Min.	**0.0079**	**39.474**
Max.	**0.0082**	**44.241**
Number of Spec.	**21**	**21**


Laminate Open-Hole Tension Properties (OHT1)--CTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Laminate Open-Hole Tension Strength [ksi]

Laminate Open-Hole Tension Properties (OHT1)--RTD
Strength

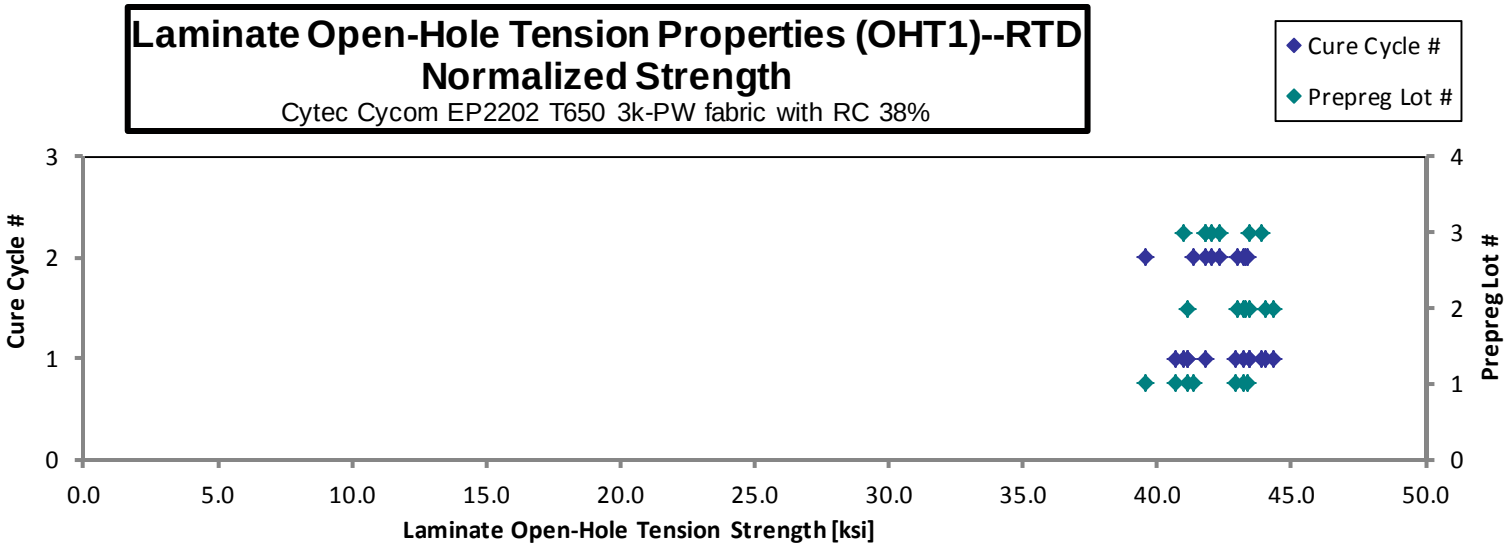
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBDA111A	A	C1	1	1	43.344	0.128	16	LGM	0.0080	42.943
EPBDA112A	A	C1	1	1	41.222	0.129	16	LGM	0.0081	41.100
EPBDA113A	A	C1	1	1	40.863	0.129	16	LGM	0.0081	40.700
EPBDA114A	A	C1	1	1	43.523	0.129	16	LGM	0.0080	43.199
EPBDA211A	A	C2	1	2	41.612	0.129	16	LGM	0.0080	41.344
EPBDA212A	A	C2	1	2	39.760	0.129	16	LGM	0.0081	39.555
EPBDA213A	A	C2	1	2	43.625	0.129	16	LGM	0.0080	43.350
EPBDB111A	B	C1	2	1	44.674	0.126	16	LGM	0.0079	43.473
EPBDB112A	B	C1	2	1	42.213	0.126	16	LGM	0.0079	41.106
EPBDB113A	B	C1	2	1	45.510	0.126	16	LGM	0.0079	44.363
EPBDB114A	B	C1	2	1	45.123	0.127	16	LGM	0.0079	44.055
EPBDB211A	B	C2	2	2	44.040	0.127	16	LGM	0.0080	43.299
EPBDB212A	B	C2	2	2	44.279	0.126	16	LGM	0.0079	43.214
EPBDB213A	B	C2	2	2	43.818	0.127	16	LGM	0.0080	43.018
EPBDC111A	C	C1	3	1	41.782	0.130	16	LGM	0.0081	41.819
EPBDC112A	C	C1	3	1	43.654	0.129	16	LGM	0.0081	43.464
EPBDC113A	C	C1	3	1	41.264	0.129	16	LGM	0.0080	40.988
EPBDC114A	C	C1	3	1	44.092	0.129	16	LGM	0.0081	43.877
EPBDC211A	C	C2	3	2	42.380	0.129	16	LGM	0.0081	42.325
EPBDC212A	C	C2	3	2	42.269	0.129	16	LGM	0.0081	42.057
EPBDC213A	C	C2	3	2	42.019	0.129	16	LGM	0.0081	41.808

Average	**42.908**	
Standard Dev.	**1.523**	
Coeff. of Var. [%]	**3.549**	
Min.	**39.760**	
Max.	**45.510**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**42.431**
$Standard\ Dev._{norm}$		**1.284**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.027**
Min.	**0.0079**	**39.555**
Max.	**0.0081**	**44.363**
Number of Spec.	**21**	**21**


Laminate Open-Hole Tension Properties (OHT1)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Tension Strength [ksi]
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
0
1
2
3
4

Laminate Open-Hole Tension Properties (OHT1)--ETW1
Strength

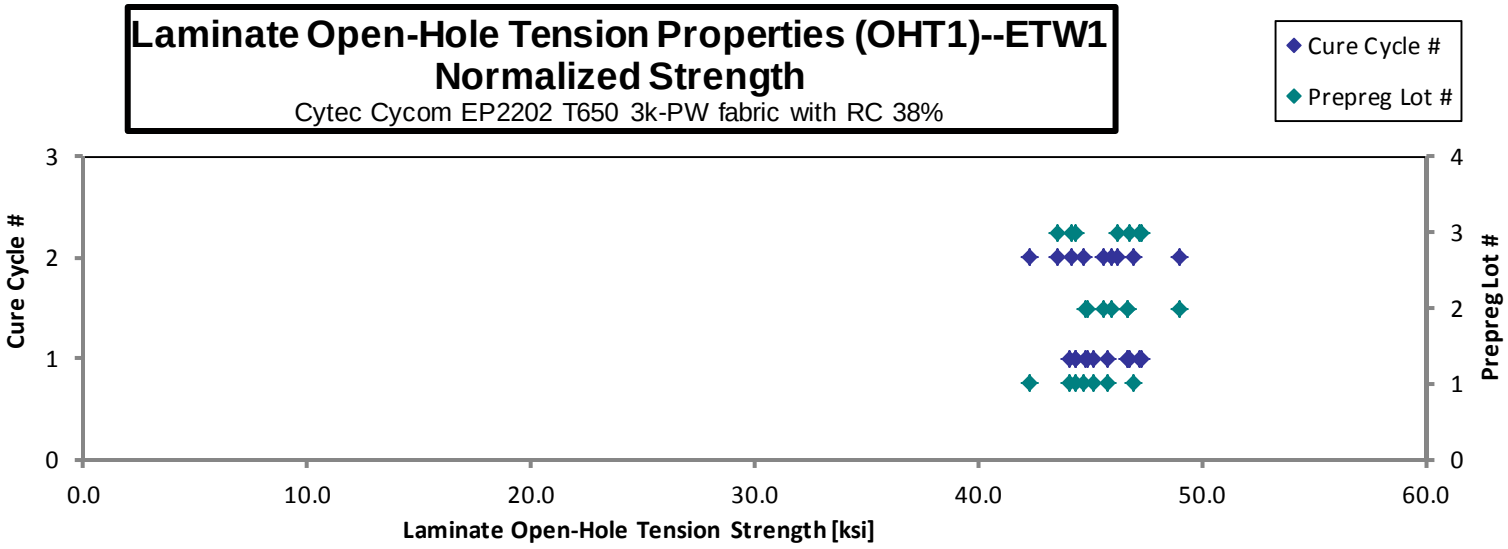
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBDA11BD	A	C1	1	1	45.372	0.129	16	LGM	0.0081	45.151
EPBDA11CD	A	C1	1	1	46.085	0.129	16	LGM	0.0080	45.753
EPBDA11DD	A	C1	1	1	44.319	0.129	16	LGM	0.0080	44.040
EPBDA11ED	A	C1	1	1	44.669	0.129	16	LGM	0.0080	44.382
EPBDA219D	A	C2	1	2	42.629	0.129	16	LGM	0.0080	42.311
EPBDA21AD	A	C2	1	2	45.034	0.129	16	LGM	0.0080	44.716
EPBDA21BD	A	C2	1	2	47.295	0.129	16	LGM	0.0080	46.906
EPBDB11BD	B	C1	2	1	45.980	0.126	16	LGM	0.0079	44.815
EPBDB11CD	B	C1	2	1	47.960	0.126	16	LGM	0.0079	46.714
EPBDB11DD	B	C1	2	1	46.224	0.126	16	LGM	0.0079	44.916
EPBDB11ED	B	C1	2	1	47.963	0.126	16	LGM	0.0079	46.655
EPBDB219D	B	C2	2	2	49.655	0.128	16	LGM	0.0080	48.965
EPBDB21AD	B	C2	2	2	46.366	0.128	16	LGM	0.0080	45.621
EPBDB21BD	B	C2	2	2	46.760	0.127	16	LGM	0.0080	45.948
EPBDC11BD	C	C1	3	1	46.889	0.130	16	LGM	0.0081	47.172
EPBDC11CD	C	C1	3	1	44.109	0.130	16	LGM	0.0081	44.307
EPBDC11DD	C	C1	3	1	47.172	0.130	16	LGM	0.0081	47.287
EPBDC11ED	C	C1	3	1	46.783	0.130	16	LGM	0.0081	46.764
EPBDC219D	C	C2	3	2	43.918	0.130	16	LGM	0.0081	44.150
EPBDC21AD	C	C2	3	2	43.283	0.130	16	LGM	0.0081	43.522
EPBDC21BD	C	C2	3	2	45.961	0.130	16	LGM	0.0082	46.256

Average	**45.925**	
Standard Dev.	**1.714**	
Coeff. of Var. [%]	**3.732**	
Min.	**42.629**	
Max.	**49.655**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**45.541**
$Standard\ Dev._{norm}$		**1.540**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.382**
Min.	**0.0079**	**42.311**
Max.	**0.0082**	**48.965**
Number of Spec.	**21**	**21**


Laminate Open-Hole Tension Properties (OHT1)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Open-Hole Tension Strength [ksi]

4.15 "10/80/10" Open-Hole Tension 2 Properties (OHT2)

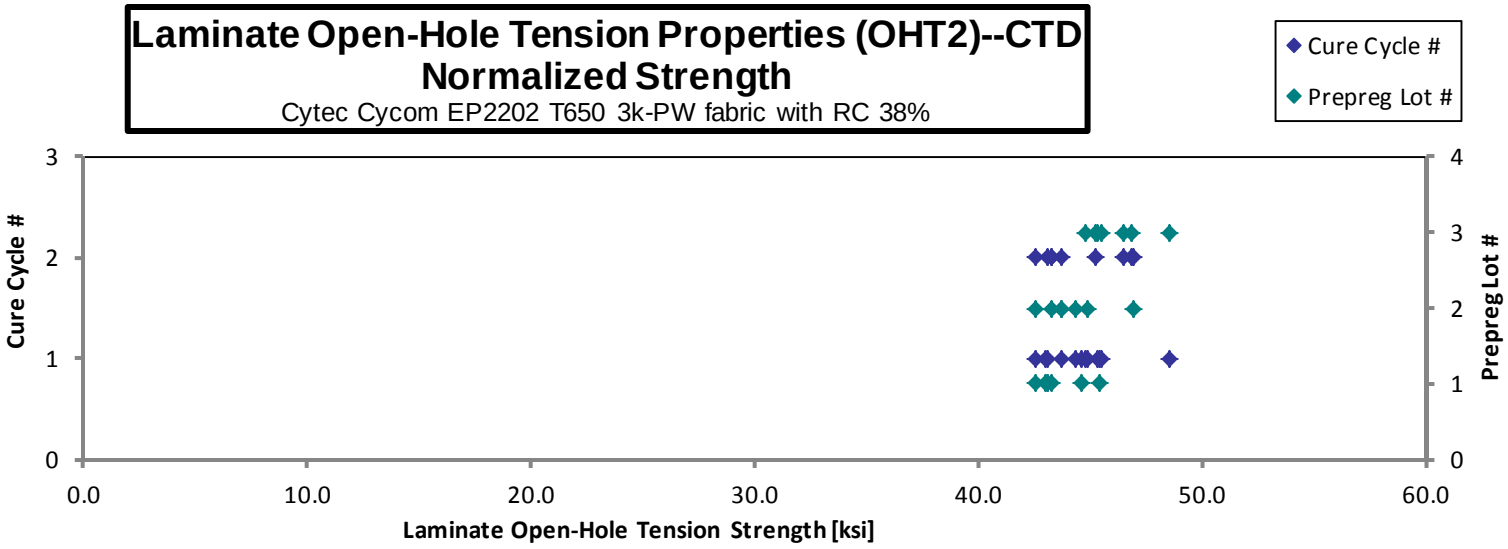
Laminate Open-Hole Tension Properties (OHT2)--CTD
Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBEA116B	A	C1	1	1	43.042	0.162	20	LGM	0.0081	43.109
EPBEA117B	A	C1	1	1	45.428	0.162	20	LGM	0.0081	45.410
EPBEA118B	A	C1	1	1	44.788	0.162	20	LGM	0.0081	44.650
EPBEA119B	A	C1	1	1	42.896	0.162	20	LGM	0.0081	42.997
EPBEA215B	A	C2	1	2	43.669	0.161	20	LGM	0.0080	43.278
EPBEA216B	A	C2	1	2	43.440	0.161	20	LGM	0.0080	43.127
EPBEA217B	A	C2	1	2	43.050	0.160	20	LGM	0.0080	42.603
EPBEB116B	B	C1	2	1	44.794	0.158	20	LGM	0.0079	43.730
EPBEB117B	B	C1	2	1	45.904	0.158	20	LGM	0.0079	44.893
EPBEB118B	B	C1	2	1	43.649	0.158	20	LGM	0.0079	42.558
EPBEB119B	B	C1	2	1	45.593	0.158	20	LGM	0.0079	44.327
EPBEB215B	B	C2	2	2	47.752	0.159	20	LGM	0.0080	46.911
EPBEB216B	B	C2	2	2	44.063	0.159	20	LGM	0.0080	43.270
EPBEB217B	B	C2	2	2	44.620	0.159	20	LGM	0.0079	43.748
EPBEC116B	C	C1	3	1	45.543	0.161	20	LGM	0.0081	45.365
EPBEC117B	C	C1	3	1	45.692	0.161	20	LGM	0.0081	45.504
EPBEC118B	C	C1	3	1	45.085	0.161	20	LGM	0.0080	44.783
EPBEC119B	C	C1	3	1	47.798	0.165	20	LGM	0.0082	48.585
EPBEC215B	C	C2	3	2	46.637	0.161	20	LGM	0.0081	46.484
EPBEC216B	C	C2	3	2	46.994	0.161	20	LGM	0.0081	46.824
EPBEC217B	C	C2	3	2	45.554	0.161	20	LGM	0.0080	45.244

Average	**45.047**	
Standard Dev.	**1.477**	
Coeff. of Var. [%]	**3.280**	
Min.	**42.896**	
Max.	**47.798**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**44.638**
Standard $Dev._{norm}$		**1.620**
Coeff. of Var. $[\%]_{norm}$		**3.629**
Min.	**0.0079**	**42.558**
Max.	**0.0082**	**48.585**
Number of Spec.	**21**	**21**


Laminate Open-Hole Tension Properties (OHT2)--CTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Open-Hole Tension Strength [ksi]

Laminate Open-Hole Tension Properties (OHT2)--RTD
Strength

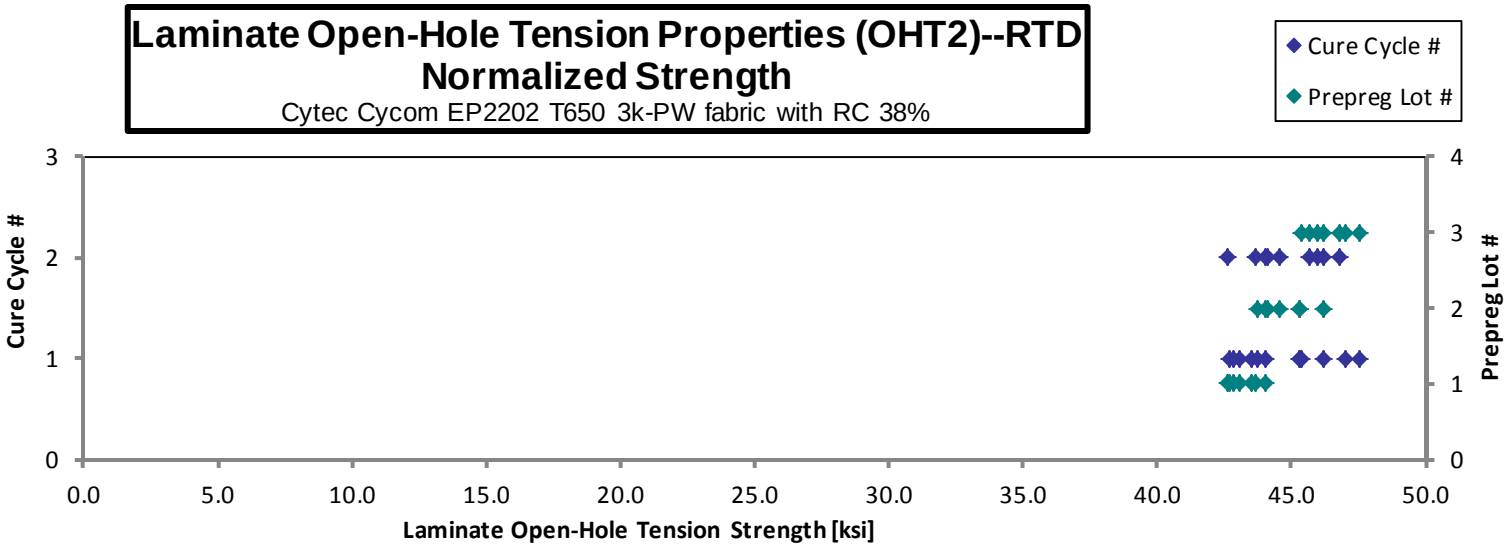
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBEA111A	A	C1	1	1	43.282	0.163	20	LGM	0.0081	43.509
EPBEA112A	A	C1	1	1	42.903	0.163	20	LGM	0.0081	43.040
EPBEA113A	A	C1	1	1	42.467	0.163	20	LGM	0.0081	42.724
EPBEA114A	A	C1	1	1	42.695	0.163	20	LGM	0.0081	42.858
EPBEA211A	A	C2	1	2	44.017	0.161	20	LGM	0.0080	43.668
EPBEA212A	A	C2	1	2	43.013	0.160	20	LGM	0.0080	42.605
EPBEA213A	A	C2	1	2	44.299	0.161	20	LGM	0.0080	44.011
EPBEB111A	B	C1	2	1	44.893	0.158	20	LGM	0.0079	43.747
EPBEB112A	B	C1	2	1	44.967	0.159	20	LGM	0.0079	44.041
EPBEB113A	B	C1	2	1	46.338	0.158	20	LGM	0.0079	45.285
EPBEB114A	B	C1	2	1	46.309	0.159	20	LGM	0.0079	45.308
EPBEB211A	B	C2	2	2	44.838	0.159	20	LGM	0.0080	44.119
EPBEB212A	B	C2	2	2	47.154	0.159	20	LGM	0.0079	46.213
EPBEB213A	B	C2	2	2	45.215	0.160	20	LGM	0.0080	44.526
EPBEC111A	C	C1	3	1	45.272	0.162	20	LGM	0.0081	45.393
EPBEC112A	C	C1	3	1	47.446	0.162	20	LGM	0.0081	47.519
EPBEC113A	C	C1	3	1	47.146	0.162	20	LGM	0.0081	47.030
EPBEC114A	C	C1	3	1	46.286	0.162	20	LGM	0.0081	46.176
EPBEC211A	C	C2	3	2	45.705	0.162	20	LGM	0.0081	45.700
EPBEC212A	C	C2	3	2	46.937	0.162	20	LGM	0.0081	46.812
EPBEC213A	C	C2	3	2	45.952	0.162	20	LGM	0.0081	45.962

Average	**45.102**	
Standard Dev.	**1.581**	
Coeff. of Var. [%]	**3.505**	
Min.	**42.467**	
Max.	**47.446**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**44.774**
$Standard\ Dev._{norm}$		**1.501**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.353**
Min.	**0.0079**	**42.605**
Max.	**0.0081**	**47.519**
Number of Spec.	**21**	**21**


Laminate Open-Hole Tension Properties (OHT2)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Tension Strength [ksi]
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
0
1
2
3
4

Laminate Open-Hole Tension Properties (OHT2)--ETW1
Strength

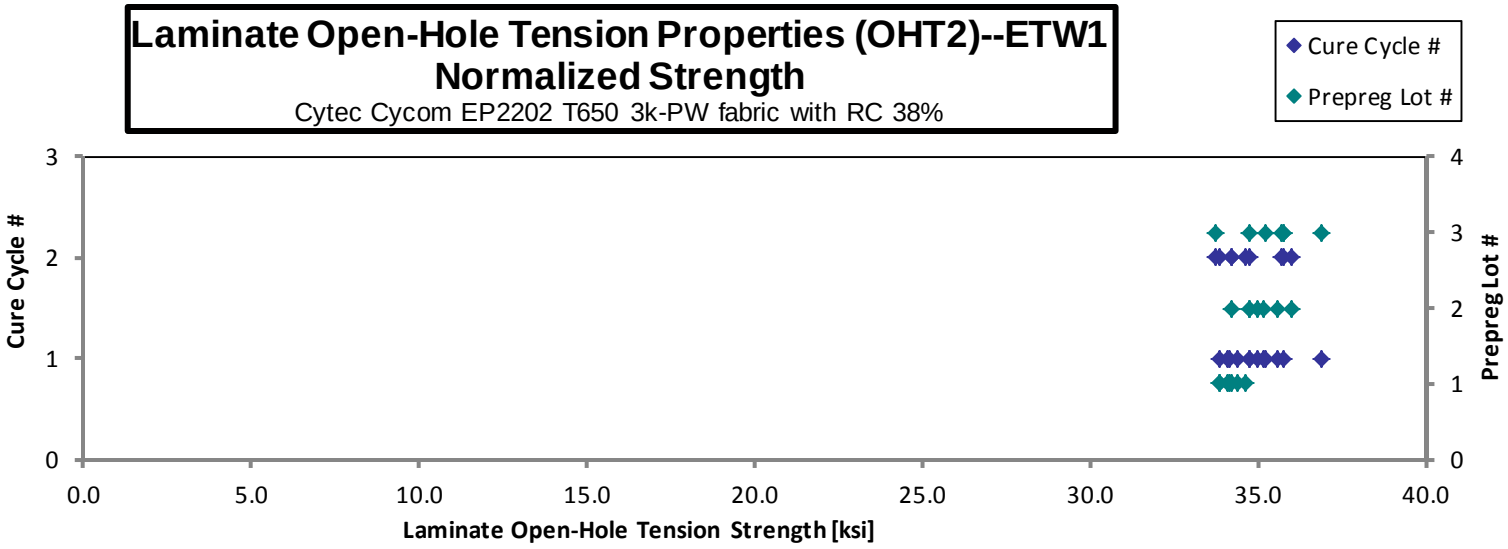
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBEA11BD	A	C1	1	1	33.832	0.162	20	AGM	0.0081	33.881
EPBEA11CD	A	C1	1	1	34.121	0.162	20	AGM	0.0081	34.150
EPBEA11DD	A	C1	1	1	34.396	0.162	20	AGM	0.0081	34.368
EPBEA11ED	A	C1	1	1	34.020	0.162	20	AGM	0.0081	34.104
EPBEA219D	A	C2	1	2	33.950	0.162	20	AGM	0.0081	33.849
EPBEA21AD	A	C2	1	2	34.855	0.161	20	AGM	0.0080	34.629
EPBEA21BD	A	C2	1	2	34.287	0.162	20	AGM	0.0081	34.231
EPBEB11BD	B	C1	2	1	36.411	0.158	20	AGM	0.0079	35.572
EPBEB11CD	B	C1	2	1	35.557	0.158	20	AGM	0.0079	34.767
EPBEB11DD	B	C1	2	1	35.998	0.158	20	AGM	0.0079	35.179
EPBEB11ED	B	C1	2	1	35.912	0.158	20	AGM	0.0079	35.018
EPBEB219D	B	C2	2	2	35.403	0.159	20	AGM	0.0080	34.770
EPBEB21AD	B	C2	2	2	34.838	0.159	20	AGM	0.0080	34.225
EPBEB21BD	B	C2	2	2	36.593	0.159	20	AGM	0.0080	35.998
EPBEC11BD	C	C1	3	1	35.419	0.164	20	AGM	0.0082	35.780
EPBEC11CD	C	C1	3	1	34.530	0.163	20	AGM	0.0082	34.761
EPBEC11DD	C	C1	3	1	34.823	0.164	20	AGM	0.0082	35.246
EPBEC11ED	C	C1	3	1	36.602	0.163	20	AGM	0.0082	36.911
EPBEC219D	C	C2	3	2	35.589	0.163	20	AGM	0.0081	35.750
EPBEC21AD	C	C2	3	2	35.549	0.163	20	AGM	0.0081	35.688
EPBEC21BD	C	C2	3	2	33.599	0.163	20	AGM	0.0081	33.741

Average	**35.061**	
Standard Dev.	**0.935**	
Coeff. of Var. [%]	**2.666**	
Min.	**33.599**	
Max.	**36.602**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0081**	**34.886**
$Standard\ Dev._{norm}$		**0.837**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**2.400**
Min.	**0.0079**	**33.741**
Max.	**0.0082**	**36.911**
Number of Spec.	**21**	**21**


Laminate Open-Hole Tension Properties (OHT2)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
Laminate Open-Hole Tension Strength [ksi]

4.16 "40/20/40" Open-Hole Tension 3 Properties (OHT3)

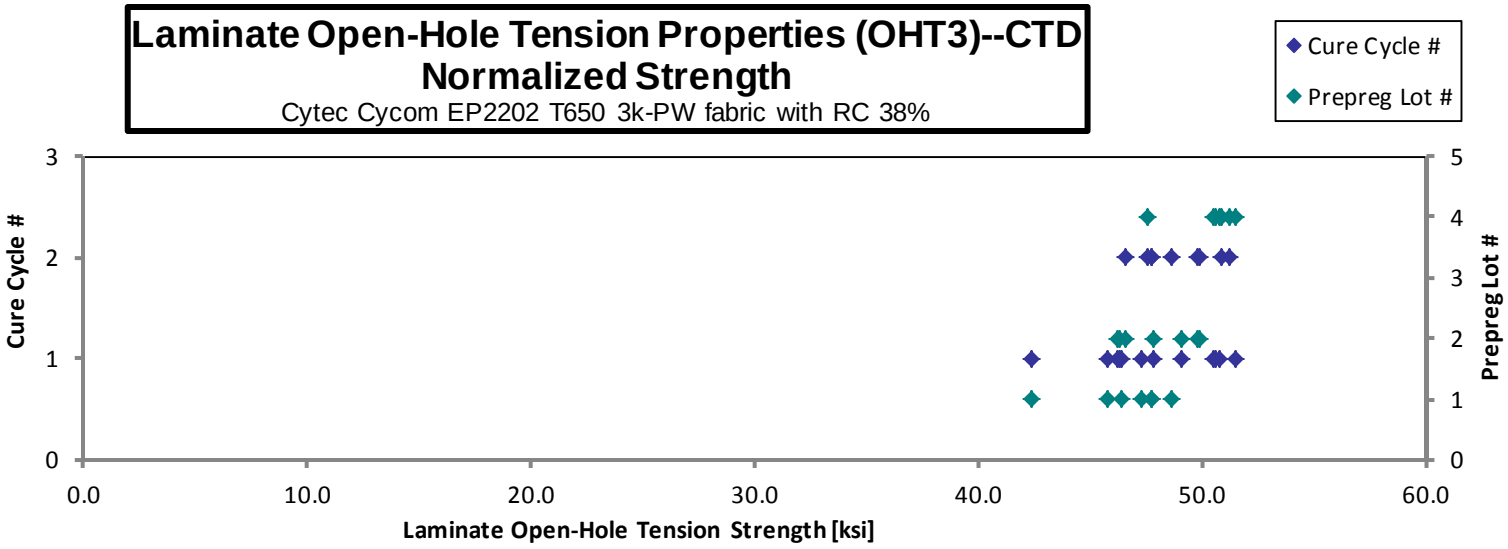
Laminate Open-Hole Tension Properties (OHT3)--CTD
Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBFA116B	A	C1	1	1	46.609	0.119	15	LGM	0.0080	45.771
EPBFA117B	A	C1	1	1	47.421	0.119	15	LGM	0.0079	46.413
EPBFA118B	A	C1	1	1	48.069	0.119	15	LGM	0.0080	47.272
EPBFA119B	A	C1	1	1	42.561	0.121	15	LGM	0.0081	42.410
EPBFA215B	A	C2	1	2	48.301	0.120	15	LGM	0.0080	47.771
EPBFA216B	A	C2	1	2	48.313	0.120	15	LGM	0.0080	47.737
EPBFA217B	A	C2	1	2	49.225	0.120	15	LGM	0.0080	48.624
EPBFB116B	B	C1	2	1	48.617	0.120	15	LGM	0.0080	47.837
EPBFB117B	B	C1	2	1	47.323	0.119	15	LGM	0.0079	46.323
EPBFB118B	B	C1	2	1	46.699	0.120	15	LGM	0.0080	46.206
EPBFB119B	B	C1	2	1	49.051	0.122	15	LGM	0.0081	49.085
EPBFB215B	B	C2	2	2	50.111	0.121	15	LGM	0.0081	49.829
EPBFB216B	B	C2	2	2	47.307	0.120	15	LGM	0.0080	46.554
EPBFB217B	B	C2	2	2	50.577	0.120	15	LGM	0.0080	49.897
EPBFD116B	D	C1	4	1	52.246	0.118	15	LGM	0.0079	50.806
EPBFD117B	D	C1	4	1	53.026	0.118	15	LGM	0.0079	51.499
EPBFD118B	D	C1	4	1	51.977	0.118	15	LGM	0.0079	50.580
EPBFD119B	D	C1	4	1	51.448	0.119	15	LGM	0.0080	50.496
EPBFD215B	D	C2	4	2	52.017	0.119	15	LGM	0.0079	50.847
EPBFD216B	D	C2	4	2	52.078	0.120	15	LGM	0.0080	51.228
EPBFD217B	D	C2	4	2	48.632	0.119	15	LGM	0.0079	47.558

Average	**49.124**	
Standard Dev.	**2.514**	
Coeff. of Var. [%]	**5.117**	
Min.	**42.561**	
Max.	**53.026**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**48.321**
Standard $Dev._{norm}$		**2.298**
Coeff. of Var. $[\%]_{norm}$		**4.755**
Min.	**0.0079**	**42.410**
Max.	**0.0081**	**51.499**
Number of Spec.	**21**	**21**


Laminate Open-Hole Tension Properties (OHT3)--CTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Tension Strength [ksi]
0.0
10.0
20.0
30.0
40.0
50.0
60.0
0
1
2
3
0
1
2
3
4
5

Laminate Open-Hole Tension Properties (OHT3)--RTD
Strength

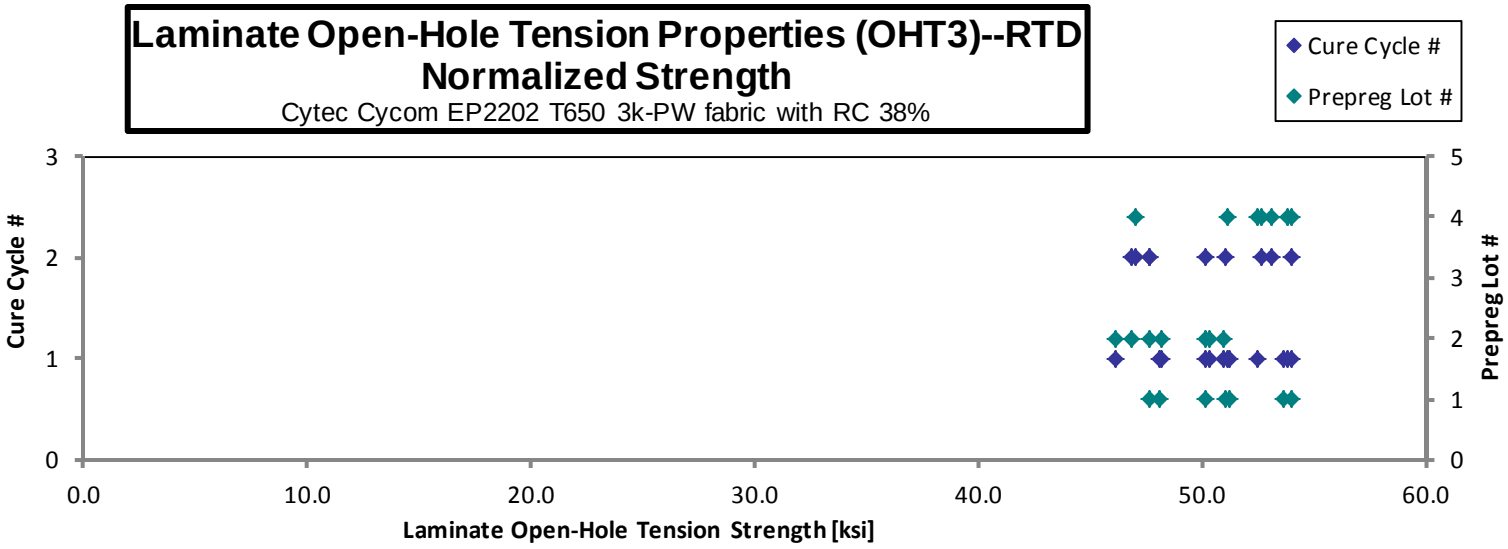
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBFA111A	A	C1	1	1	51.077	0.119	15	LGM	0.0080	50.145
EPBFA112A	A	C1	1	1	49.067	0.119	15	LGM	0.0079	48.064
EPBFA113A	A	C1	1	1	55.016	0.118	15	LGM	0.0079	53.620
EPBFA114A	A	C1	1	1	52.234	0.119	15	LGM	0.0079	51.238
EPBFA211A	A	C2	1	2	51.882	0.120	15	LGM	0.0080	51.035
EPBFA212A	A	C2	1	2	54.841	0.120	15	LGM	0.0080	53.991
EPBFA213A	A	C2	1	2	48.472	0.119	15	LGM	0.0080	47.668
EPBFB111A	B	C1	2	1	46.688	0.120	15	LGM	0.0080	46.130
EPBFB112A	B	C1	2	1	51.762	0.120	15	LGM	0.0080	50.995
EPBFB113A	B	C1	2	1	49.049	0.119	15	LGM	0.0080	48.155
EPBFB114A	B	C1	2	1	51.306	0.119	15	LGM	0.0080	50.356
EPBFB211A	B	C2	2	2	47.289	0.120	15	LGM	0.0080	46.880
EPBFB212A	B	C2	2	2	48.356	0.120	15	LGM	0.0080	47.699
EPBFB213A	B	C2	2	2	50.622	0.120	15	LGM	0.0080	50.136
EPBFD111A	D	C1	4	1	53.735	0.119	15	LGM	0.0079	52.504
EPBFD112A	D	C1	4	1	52.910	0.117	15	LGM	0.0078	51.124
EPBFD113A	D	C1	4	1	55.509	0.118	15	LGM	0.0078	53.788
EPBFD114A	D	C1	4	1	55.471	0.118	15	LGM	0.0079	53.972
EPBFD211A	D	C2	4	2	54.450	0.119	15	LGM	0.0079	53.121
EPBFD212A	D	C2	4	2	48.009	0.119	15	LGM	0.0079	47.054
EPBFD213A	D	C2	4	2	53.781	0.119	15	LGM	0.0079	52.660

Average	**51.501**	
Standard Dev.	**2.847**	
Coeff. of Var. [%]	**5.527**	
Min.	**46.688**	
Max.	**55.509**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0079**	**50.492**
$Standard\ Dev._{norm}$		**2.583**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**5.116**
Min.	**0.0078**	**46.130**
Max.	**0.0080**	**53.991**
Number of Spec.	**21**	**21**


Laminate Open-Hole Tension Properties (OHT3)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Open-Hole Tension Strength [ksi]

Laminate Open-Hole Tension Properties (OHT3)--ETW1
Strength

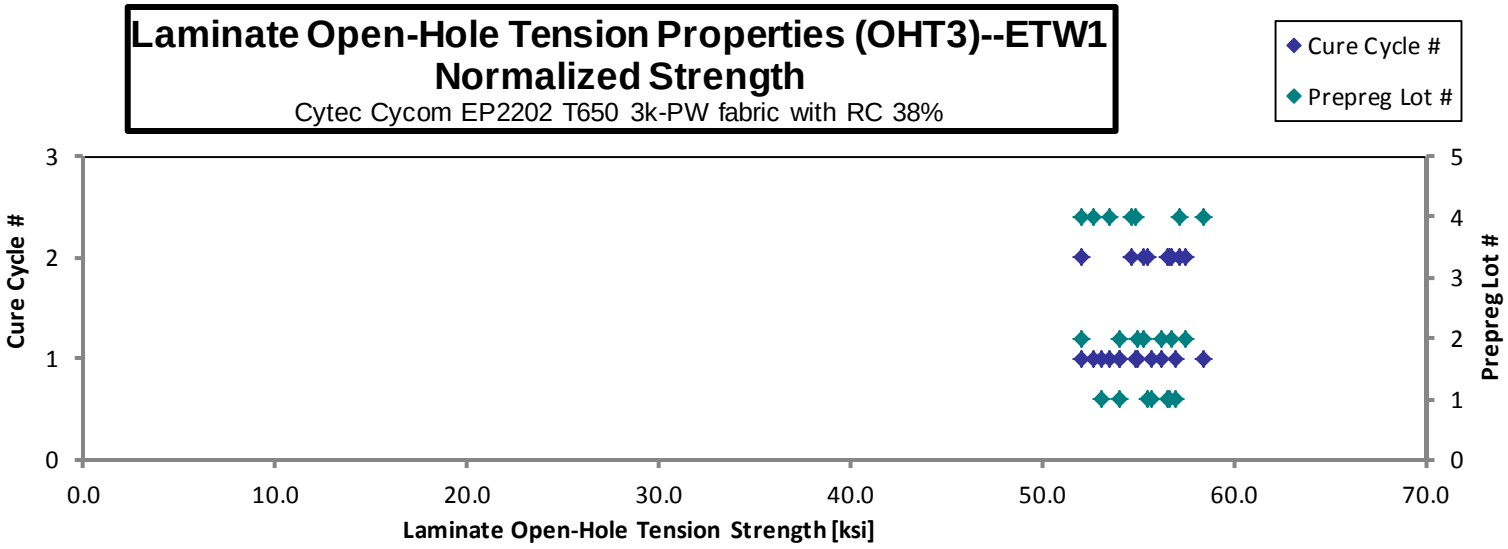
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBFA11BD	A	C1	1	1	57.586	0.120	15	LGM	0.0080	57.002
EPBFA11CD	A	C1	1	1	53.878	0.120	15	LGM	0.0080	53.116
EPBFA11DD	A	C1	1	1	54.847	0.120	15	LGM	0.0080	54.064
EPBFA11ED	A	C1	1	1	56.487	0.120	15	LGM	0.0080	55.666
EPBFA219D	A	C2	1	2	57.446	0.120	15	LGM	0.0080	56.642
EPBFA21AD	A	C2	1	2	57.217	0.120	15	LGM	0.0080	56.519
EPBFA21BD	A	C2	1	2	56.167	0.120	15	LGM	0.0080	55.543
EPBFB11BD	B	C1	2	1	56.783	0.120	15	LGM	0.0080	56.269
EPBFB11CD	B	C1	2	1	52.828	0.120	15	LGM	0.0080	52.103
EPBFB11DD	B	C1	2	1	55.959	0.119	15	LGM	0.0080	54.984
EPBFB11ED	B	C1	2	1	54.845	0.120	15	LGM	0.0080	54.055
EPBFB219D	B	C2	2	2	57.805	0.121	15	LGM	0.0081	57.457
EPBFB21AD	B	C2	2	2	57.060	0.121	15	LGM	0.0081	56.778
EPBFB21BD	B	C2	2	2	55.490	0.121	15	LGM	0.0081	55.315
EPBFD11BD	D	C1	4	1	56.265	0.118	15	LGM	0.0079	54.822
EPBFD11CD	D	C1	4	1	53.843	0.119	15	LGM	0.0079	52.654
EPBFD11DD	D	C1	4	1	60.109	0.118	15	LGM	0.0079	58.419
EPBFD11ED	D	C1	4	1	54.679	0.119	15	LGM	0.0079	53.494
EPBFD219D	D	C2	4	2	52.716	0.120	15	LGM	0.0080	52.007
EPBFD21AD	D	C2	4	2	55.517	0.120	15	LGM	0.0080	54.664
EPBFD21BD	D	C2	4	2	58.101	0.120	15	LGM	0.0080	57.185

Average	**55.982**	
Standard Dev.	**1.839**	
Coeff. of Var. [%]	**3.285**	
Min.	**52.716**	
Max.	**60.109**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**55.179**
$Standard\ Dev._{norm}$		**1.831**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.318**
Min.	**0.0079**	**52.007**
Max.	**0.0081**	**58.419**
Number of Spec.	**21**	**21**


Laminate Open-Hole Tension Properties (OHT3)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Open-Hole Tension Strength [ksi]

4.17 "25/50/25" Filled-Hole Tension 1 Properties (FHT1)

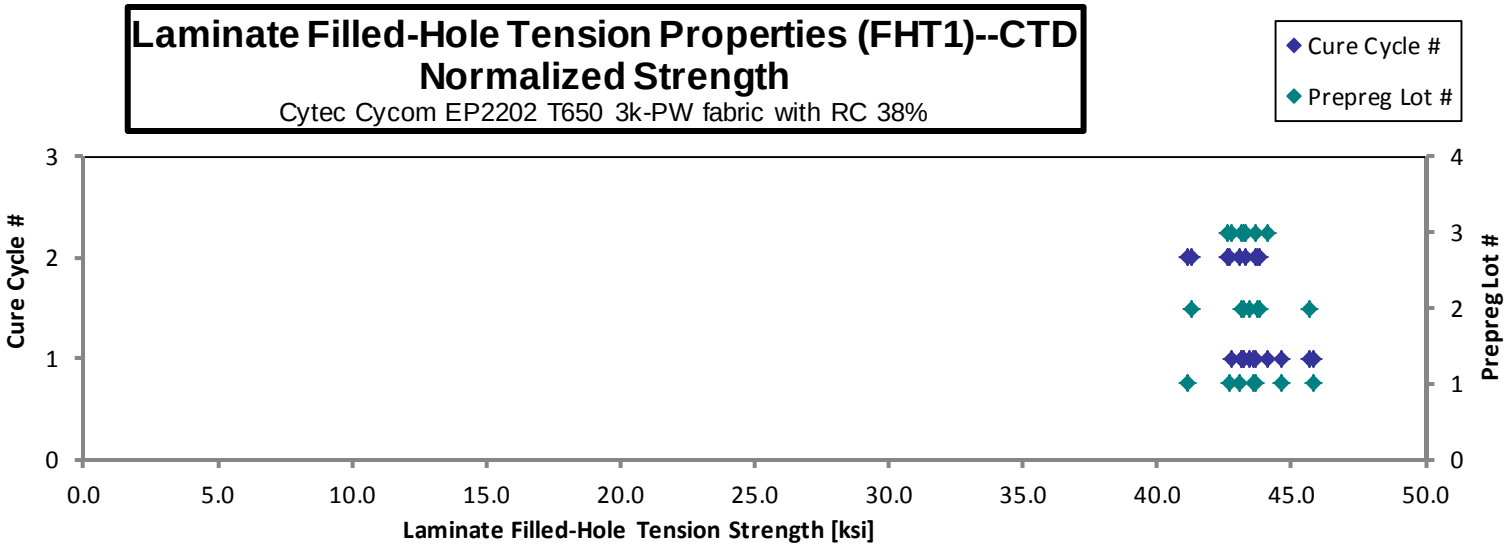
Laminate Filled-Hole Tension Properties (FHT1)--CTD
Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB4A116B	A	C1	1	1	46.188	0.128	16	LGM	0.0080	45.790
EPB4A117B	A	C1	1	1	45.148	0.128	16	LGM	0.0080	44.660
EPB4A118B	A	C1	1	1	43.570	0.130	16	LGM	0.0081	43.558
EPB4A119B	A	C1	1	1	43.912	0.129	16	LGM	0.0081	43.669
EPB4A215B	A	C2	1	2	42.998	0.130	16	LGM	0.0081	43.081
EPB4A216B	A	C2	1	2	41.331	0.129	16	LGM	0.0081	41.150
EPB4A217B	A	C2	1	2	43.103	0.128	16	LGM	0.0080	42.699
EPB4B116B	B	C1	2	1	44.459	0.127	16	LGM	0.0079	43.413
EPB4B117B	B	C1	2	1	44.043	0.127	16	LGM	0.0079	43.170
EPB4B118B	B	C1	2	1	46.786	0.127	16	LGM	0.0079	45.691
EPB4B119B	B	C1	2	1	43.974	0.127	16	LGM	0.0080	43.228
EPB4B215B	B	C2	2	2	44.038	0.129	16	LGM	0.0081	43.806
EPB4B216B	B	C2	2	2	43.843	0.129	16	LGM	0.0081	43.764
EPB4B217B	B	C2	2	2	41.214	0.130	16	LGM	0.0081	41.278
EPB4C116B	C	C1	3	1	44.576	0.128	16	LGM	0.0080	44.100
EPB4C117B	C	C1	3	1	43.528	0.129	16	LGM	0.0080	43.175
EPB4C118B	C	C1	3	1	43.000	0.129	16	LGM	0.0081	42.785
EPB4C119B	C	C1	3	1	42.864	0.131	16	LGM	0.0082	43.184
EPB4C215B	C	C2	3	2	42.741	0.129	16	LGM	0.0081	42.653
EPB4C216B	C	C2	3	2	43.867	0.129	16	LGM	0.0081	43.670
EPB4C217B	C	C2	3	2	43.610	0.129	16	LGM	0.0080	43.268

Average	**43.752**	
Standard Dev.	**1.310**	
Coeff. of Var. [%]	**2.993**	
Min.	**41.214**	
Max.	**46.786**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**43.419**
Standard $Dev._{norm}$		**1.113**
Coeff. of Var. $[\%]_{norm}$		**2.564**
Min.	**0.0079**	**41.150**
Max.	**0.0082**	**45.790**
Number of Spec.	**21**	**21**


Laminate Filled-Hole Tension Properties (FHT1)--CTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Laminate Filled-Hole Tension Strength [ksi]

Laminate Filled-Hole Tension Properties (FHT1)--RTD
Strength

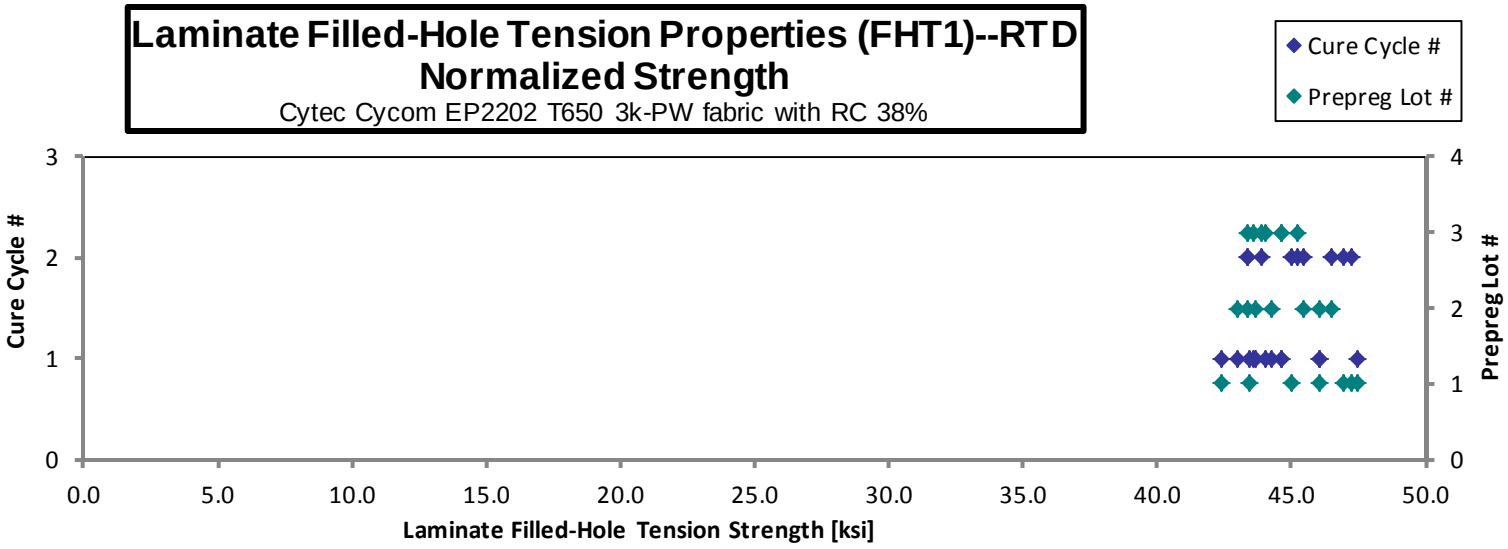
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB4A111A	A	C1	1	1	43.885	0.128	16	LGM	0.0080	43.444
EPB4A112A	A	C1	1	1	47.814	0.129	16	LGM	0.0080	47.482
EPB4A113A	A	C1	1	1	46.367	0.129	16	LGM	0.0080	46.057
EPB4A114A	A	C1	1	1	42.697	0.129	16	LGM	0.0080	42.389
EPB4A211A	A	C2	1	2	45.402	0.129	16	LGM	0.0080	45.034
EPB4A212A	A	C2	1	2	47.229	0.129	16	LGM	0.0081	46.937
EPB4A213A	A	C2	1	2	47.441	0.129	16	LGM	0.0081	47.252
EPB4B111A	B	C1	2	1	44.503	0.129	16	LGM	0.0081	44.245
EPB4B112A	B	C1	2	1	43.521	0.128	16	LGM	0.0080	42.995
EPB4B113A	B	C1	2	1	44.432	0.127	16	LGM	0.0080	43.666
EPB4B114A	B	C1	2	1	46.802	0.127	16	LGM	0.0080	46.014
EPB4B211A	B	C2	2	2	46.043	0.128	16	LGM	0.0080	45.487
EPB4B212A	B	C2	2	2	43.988	0.128	16	LGM	0.0080	43.388
EPB4B213A	B	C2	2	2	47.104	0.128	16	LGM	0.0080	46.486
EPB4C111A	C	C1	3	1	44.488	0.128	16	LGM	0.0080	44.018
EPB4C112A	C	C1	3	1	43.953	0.129	16	LGM	0.0080	43.580
EPB4C113A	C	C1	3	1	44.938	0.129	16	LGM	0.0080	44.620
EPB4C114A	C	C1	3	1	44.927	0.129	16	LGM	0.0081	44.667
EPB4C211A	C	C2	3	2	44.157	0.129	16	LGM	0.0081	43.924
EPB4C212A	C	C2	3	2	45.395	0.129	16	LGM	0.0081	45.197
EPB4C213A	C	C2	3	2	43.406	0.129	16	LGM	0.0081	43.339

Average	**45.166**	
Standard Dev.	**1.486**	
Coeff. of Var. [%]	**3.290**	
Min.	**42.697**	
Max.	**47.814**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**44.772**
$Standard\ Dev._{norm}$		**1.481**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.308**
Min.	**0.0080**	**42.389**
Max.	**0.0081**	**47.482**
Number of Spec.	**21**	**21**


Laminate Filled-Hole Tension Properties (FHT1)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Laminate Filled-Hole Tension Strength [ksi]

Laminate Filled-Hole Tension Properties (FHT1)--ETW1
Strength

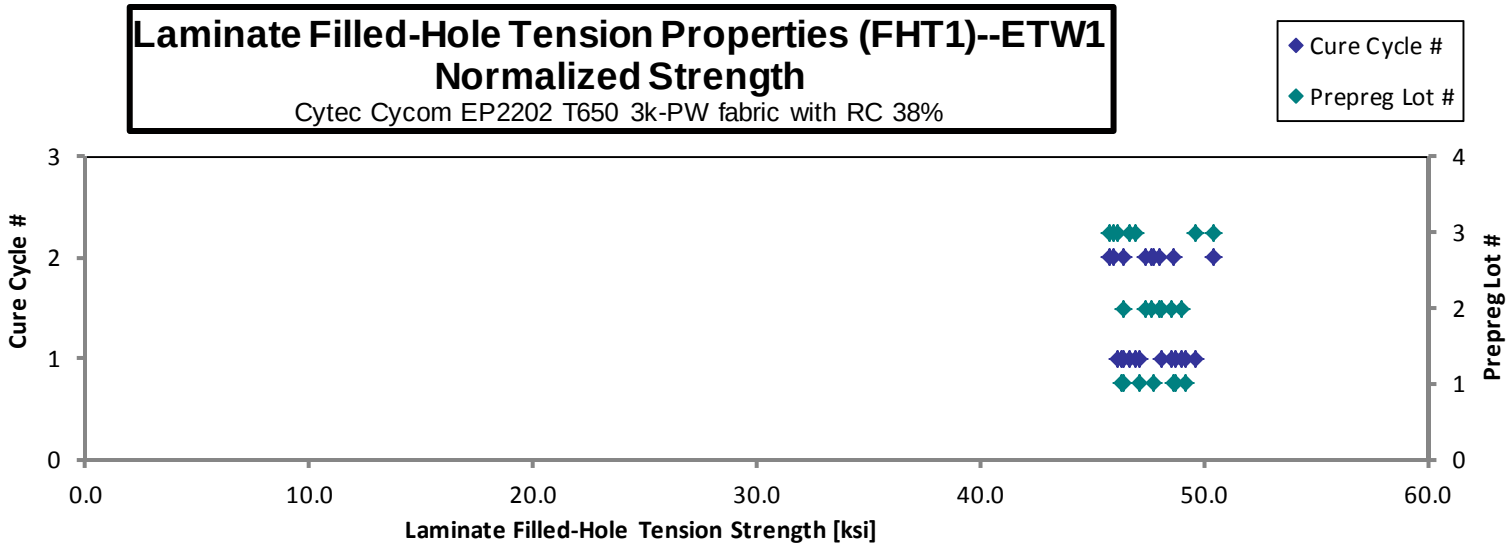
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB4A11BD	A	C1	1	1	49.730	0.128	16	LGM	0.0080	49.167
EPB4A11CD	A	C1	1	1	47.602	0.128	16	LGM	0.0080	47.118
EPB4A11DD	A	C1	1	1	46.662	0.129	16	LGM	0.0080	46.320
EPB4A11ED	A	C1	1	1	49.062	0.129	16	LGM	0.0080	48.728
EPB4A219D	A	C2	1	2	46.489	0.129	16	LGM	0.0081	46.405
EPB4A21AD	A	C2	1	2	48.868	0.129	16	LGM	0.0081	48.674
EPB4A21BD	A	C2	1	2	48.254	0.128	16	LGM	0.0080	47.745
EPB4B11BD	B	C1	2	1	49.422	0.127	16	LGM	0.0080	48.577
EPB4B11CD	B	C1	2	1	49.155	0.127	16	LGM	0.0079	48.131
EPB4B11DD	B	C1	2	1	47.367	0.127	16	LGM	0.0079	46.447
EPB4B11ED	B	C1	2	1	50.171	0.127	16	LGM	0.0079	48.991
EPB4B219D	B	C2	2	2	47.716	0.130	16	LGM	0.0081	47.698
EPB4B21AD	B	C2	2	2	47.237	0.130	16	LGM	0.0081	47.407
EPB4B21BD	B	C2	2	2	47.893	0.130	16	LGM	0.0081	48.060
EPB4C11BD	C	C1	3	1	49.408	0.130	16	LGM	0.0081	49.599
EPB4C11CD	C	C1	3	1	45.990	0.130	16	LGM	0.0081	46.161
EPB4C11DD	C	C1	3	1	46.550	0.130	16	LGM	0.0081	46.681
EPB4C11ED	C	C1	3	1	46.917	0.130	16	LGM	0.0081	46.917
EPB4C219D	C	C2	3	2	50.409	0.130	16	LGM	0.0081	50.422
EPB4C21AD	C	C2	3	2	45.918	0.130	16	LGM	0.0081	46.001
EPB4C21BD	C	C2	3	2	45.567	0.130	16	LGM	0.0081	45.749

Average	**47.923**	
Standard Dev.	**1.476**	
Coeff. of Var. [%]	**3.079**	
Min.	**45.567**	
Max.	**50.409**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0081**	**47.667**
$Standard\ Dev._{norm}$		**1.307**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**2.743**
Min.	**0.0079**	**45.749**
Max.	**0.0081**	**50.422**
Number of Spec.	**21**	**21**


Laminate Filled-Hole Tension Properties (FHT1)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Filled-Hole Tension Strength [ksi]

4.18 "10/80/10" Filled-Hole Tension 2 Properties (FHT2)

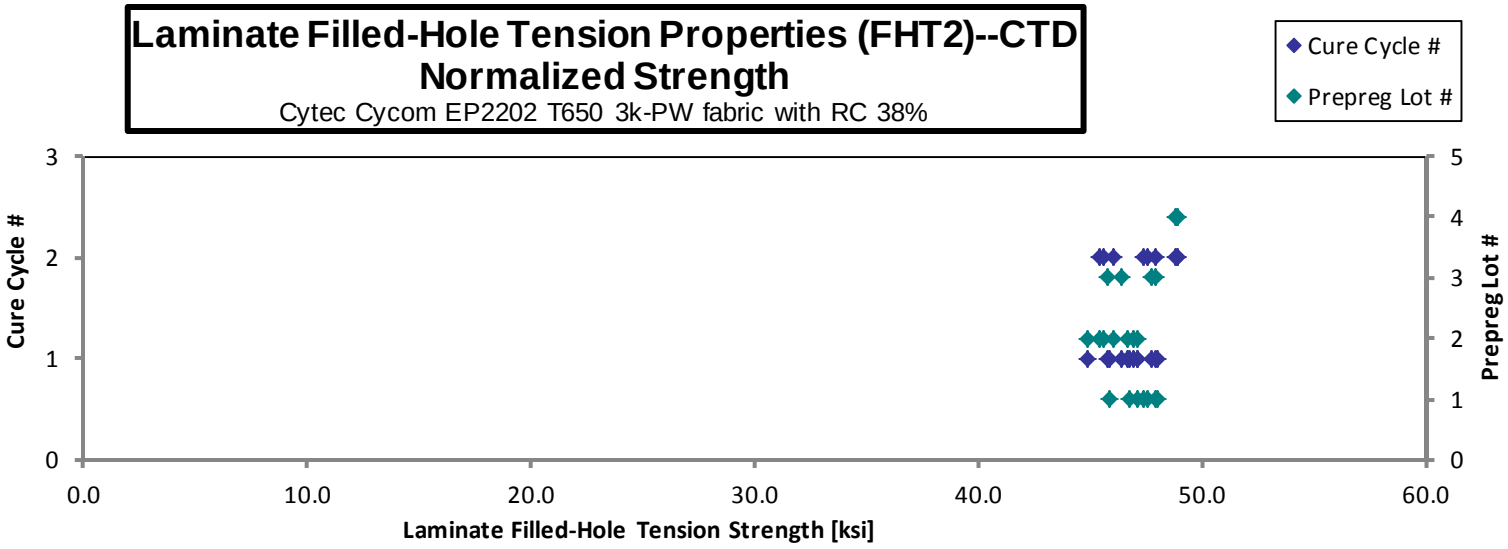
Laminate Filled-Hole Tension Properties (FHT2)--CTD
Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB5A116B	A	C1	1	1	47.032	0.161	20	LGM	0.0080	46.727
EPB5A117B	A	C1	1	1	48.493	0.160	20	LGM	0.0080	47.984
EPB5A118B	A	C1	1	1	47.614	0.160	20	LGM	0.0080	47.139
EPB5A119B	A	C1	1	1	46.311	0.160	20	LGM	0.0080	45.877
EPB5A215B	A	C2	1	2	47.878	0.161	20	LGM	0.0080	47.548
EPB5A216B	A	C2	1	2	47.786	0.161	20	LGM	0.0080	47.373
EPB5A217B	A	C2	1	2	48.360	0.161	20	LGM	0.0080	47.942
EPB5B116B	B	C1	2	1	47.930	0.158	20	LGM	0.0079	46.717
EPB5B117B	B	C1	2	1	46.224	0.157	20	LGM	0.0079	44.907
EPB5B118B	B	C1	2	1	48.410	0.157	20	LGM	0.0079	46.951
EPB5B119B	B	C1	2	1	47.855	0.160	20	LGM	0.0080	47.161
EPB5B215B	B	C2	2	2	46.064	0.160	20	LGM	0.0080	45.382
EPB5B216B	B	C2	2	2	46.617	0.160	20	LGM	0.0080	46.056
EPB5B217B	B	C2	2	2	46.275	0.160	20	LGM	0.0080	45.575
EPB5C116B	C	C1	3	1	47.516	0.163	20	LGM	0.0081	47.765
EPB5C117B	C	C1	3	1	45.649	0.162	20	LGM	0.0081	45.743
EPB5C118B	C	C1	3	1	46.338	0.162	20	LGM	0.0081	46.376
EPB5C119B	C	C1	3	1	48.134	0.161	20	LGM	0.0081	47.936
EPB5D215B	D	C2	4	2	50.335	0.157	20	LGM	0.0079	48.849
EPB5D216B	D	C2	4	2	49.768	0.159	20	LGM	0.0080	48.928
EPB5D217B	D	C2	4	2	50.115	0.158	20	LGM	0.0079	48.944

Average	**47.653**	
Standard Dev.	**1.331**	
Coeff. of Var. [%]	**2.792**	
Min.	**45.649**	
Max.	**50.335**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**47.042**
$Standard\ Dev._{norm}$		**1.183**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**2.515**
Min.	**0.0079**	**44.907**
Max.	**0.0081**	**48.944**
Number of Spec.	**21**	**21**


Laminate Filled-Hole Tension Properties (FHT2)--CTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Filled-Hole Tension Strength [ksi]

Laminate Filled-Hole Tension Properties (FHT2)--RTD
Strength

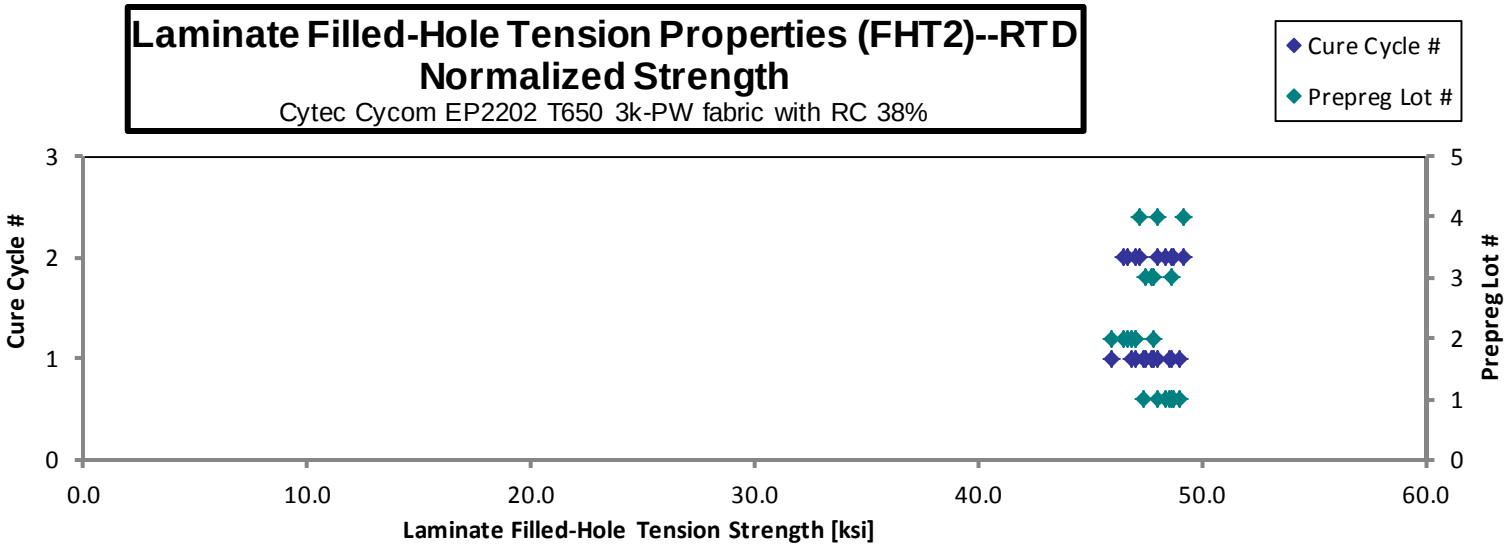
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB5A111A	A	C1	1	1	48.574	0.160	20	LGM	0.0080	48.015
EPB5A112A	A	C1	1	1	47.774	0.161	20	LGM	0.0080	47.415
EPB5A113A	A	C1	1	1	49.347	0.161	20	LGM	0.0080	49.012
EPB5A114A	A	C1	1	1	48.793	0.161	20	LGM	0.0081	48.512
EPB5A211A	A	C2	1	2	49.049	0.161	20	LGM	0.0081	48.751
EPB5A212A	A	C2	1	2	49.173	0.160	20	LGM	0.0080	48.637
EPB5A213A	A	C2	1	2	48.764	0.161	20	LGM	0.0080	48.372
EPB5B111A	B	C1	2	1	48.736	0.159	20	LGM	0.0080	47.864
EPB5B112A	B	C1	2	1	46.876	0.159	20	LGM	0.0079	45.935
EPB5B113A	B	C1	2	1	47.813	0.159	20	LGM	0.0080	47.065
EPB5B114A	B	C1	2	1	47.778	0.159	20	LGM	0.0079	46.874
EPB5B211A	B	C2	2	2	47.116	0.160	20	LGM	0.0080	46.457
EPB5B212A	B	C2	2	2	47.342	0.160	20	LGM	0.0080	46.685
EPB5B213A	B	C2	2	2	47.785	0.159	20	LGM	0.0080	46.994
EPB5C111A	C	C1	3	1	47.604	0.163	20	LGM	0.0081	47.780
EPB5C112A	C	C1	3	1	47.812	0.162	20	LGM	0.0081	47.876
EPB5C113A	C	C1	3	1	48.663	0.162	20	LGM	0.0081	48.678
EPB5C114A	C	C1	3	1	47.307	0.163	20	LGM	0.0081	47.468
EPB5D211A	D	C2	4	2	49.122	0.158	20	MGM	0.0079	47.975
EPB5D212A	D	C2	4	2	48.548	0.157	20	MGM	0.0079	47.170
EPB5D213A	D	C2	4	2	50.521	0.158	20	MGM	0.0079	49.221

Average	**48.309**	
Standard Dev.	**0.896**	
Coeff. of Var. [%]	**1.854**	
Min.	**46.876**	
Max.	**50.521**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**47.750**
$Standard\ Dev._{norm}$		**0.893**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**1.871**
Min.	**0.0079**	**45.935**
Max.	**0.0081**	**49.221**
Number of Spec.	**21**	**21**


Laminate Filled-Hole Tension Properties (FHT2)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Filled-Hole Tension Strength [ksi]

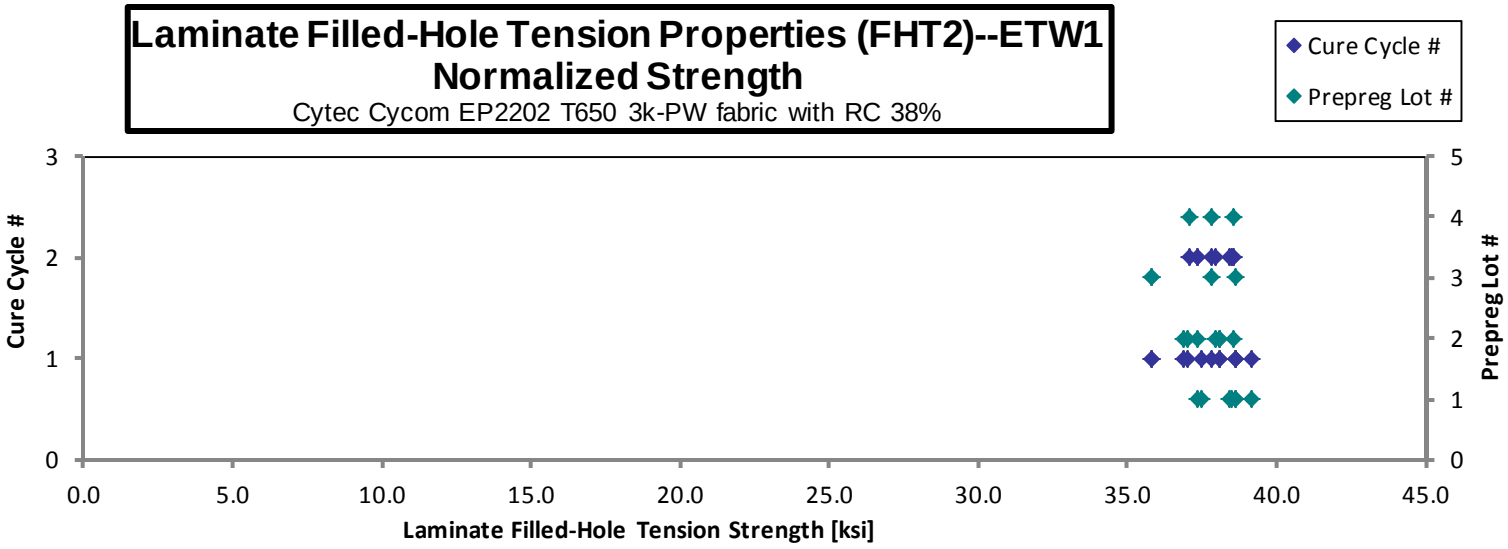
Laminate Filled-Hole Tension Properties (FHT2)--ETW1
Strength

Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB5A11BD	A	C1	1	1	37.720	0.161	20	AGM	0.0080	37.479
EPB5A11CD	A	C1	1	1	38.695	0.162	20	AGM	0.0081	38.631
EPB5A11DD	A	C1	1	1	38.694	0.162	20	AGM	0.0081	38.646
EPB5A11ED	A	C1	1	1	39.362	0.161	20	AGM	0.0081	39.152
EPB5A219D	A	C2	1	2	38.700	0.161	20	AGM	0.0080	38.430
EPB5A21AD	A	C2	1	2	37.561	0.161	20	AGM	0.0081	37.376
EPB5A21BD	A	C2	1	2	38.602	0.162	20	AGM	0.0081	38.495
EPB5B11BD	B	C1	2	1	38.994	0.158	20	AGM	0.0079	38.068
EPB5B11CD	B	C1	2	1	39.110	0.158	20	AGM	0.0079	38.112
EPB5B11DD	B	C1	2	1	37.838	0.158	20	AGM	0.0079	36.873
EPB5B11ED	B	C1	2	1	37.910	0.158	20	AGM	0.0079	37.048
EPB5B219D	B	C2	2	2	39.132	0.160	20	AGM	0.0080	38.549
EPB5B21AD	B	C2	2	2	37.818	0.160	20	AGM	0.0080	37.371
EPB5B21BD	B	C2	2	2	38.422	0.160	20	AGM	0.0080	37.971
EPB5C11BD	C	C1	3	1	37.845	0.162	20	AGM	0.0081	37.802
EPB5C11CD	C	C1	3	1	38.618	0.162	20	AGM	0.0081	38.622
EPB5C11DD	C	C1	3	1	35.729	0.162	20	AGM	0.0081	35.799
EPB5C11ED	C	C1	3	1	35.647	0.163	20	AGM	0.0081	35.790
EPB5D219D	D	C2	4	2	39.422	0.158	20	AGM	0.0079	38.534
EPB5D21AD	D	C2	4	2	37.932	0.158	20	AGM	0.0079	37.054
EPB5D21BD	D	C2	4	2	38.536	0.159	20	AGM	0.0079	37.790

Average	**38.204**		**Average$_{norm}$**	**0.0080**	**37.790**
Standard Dev.	**1.006**		**Standard Dev.$_{norm}$**		**0.910**
Coeff. of Var. [%]	**2.633**		**Coeff. of Var. [%]$_{norm}$**		**2.409**
Min.	**35.647**		**Min.**	**0.0079**	**35.790**
Max.	**39.422**		**Max.**	**0.0081**	**39.152**
Number of Spec.	**21**		**Number of Spec.**	**21**	**21**


Laminate Filled-Hole Tension Properties (FHT2)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
Laminate Filled-Hole Tension Strength [ksi]

4.19 "40/20/40" Filled-Hole Tension 3 Properties (FHT3)

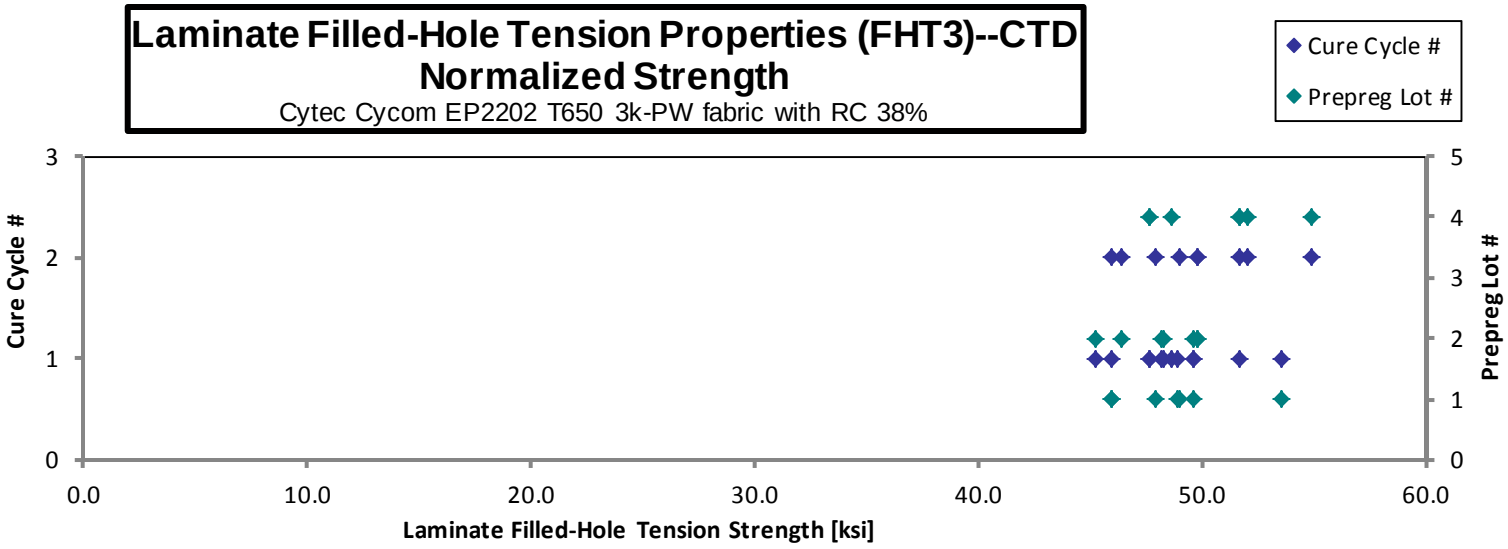
Laminate Filled-Hole Tension Properties (FHT3)--CTD
Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB6A116B	A	C1	1	1	54.244	0.120	15	LGM	0.0080	53.544
EPB6A117B	A	C1	1	1	50.125	0.120	15	LGM	0.0080	49.637
EPB6A118B	A	C1	1	1	46.633	0.120	15	LGM	0.0080	45.975
EPB6A119B	A	C1	1	1	49.120	0.121	15	LGM	0.0081	48.931
EPB6A215B	A	C2	1	2	48.427	0.120	15	LGM	0.0080	47.896
EPB6A216B	A	C2	1	2	46.444	0.120	15	LGM	0.0080	45.953
EPB6A217B	A	C2	1	2	49.620	0.120	15	LGM	0.0080	49.014
EPB6B116B	B	C1	2	1	49.182	0.119	15	LGM	0.0079	48.224
EPB6B117B	B	C1	2	1	46.131	0.119	15	LGM	0.0079	45.264
EPB6B118B	B	C1	2	1	50.491	0.119	15	LGM	0.0080	49.646
EPB6B119B	B	C1	2	1	48.594	0.121	15	LGM	0.0080	48.254
EPB6B215B	B	C2	2	2	50.565	0.120	15	LGM	0.0080	49.768
EPB6B216B	B	C2	2	2	47.507	0.119	15	LGM	0.0079	46.386
EPB6B217B	B	C2	2	2	50.411	0.120	15	LGM	0.0080	49.775
EPB6D116B	D	C1	4	1	49.984	0.118	15	LGM	0.0079	48.647
EPB6D117B	D	C1	4	1	48.945	0.118	15	LGM	0.0079	47.683
EPB6D118B	D	C1	4	1	52.722	0.119	15	LGM	0.0079	51.638
EPB6D119B	D	C1	4	1	48.732	0.119	15	LGM	0.0079	47.656
EPB6D215B	D	C2	4	2	55.938	0.119	15	LGM	0.0079	54.879
EPB6D216B	D	C2	4	2	53.228	0.119	15	LGM	0.0079	52.008
EPB6D217B	D	C2	4	2	53.221	0.118	15	LGM	0.0079	51.651

Average	**50.013**	
Standard Dev.	**2.609**	
Coeff. of Var. [%]	**5.217**	
Min.	**46.131**	
Max.	**55.938**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**49.163**
$Standard\ Dev._{norm}$		**2.500**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**5.085**
Min.	**0.0079**	**45.264**
Max.	**0.0081**	**54.879**
Number of Spec.	**21**	**21**


Laminate Filled-Hole Tension Properties (FHT3)--CTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Filled-Hole Tension Strength [ksi]

Laminate Filled-Hole Tension Properties (FHT3)--RTD
Strength

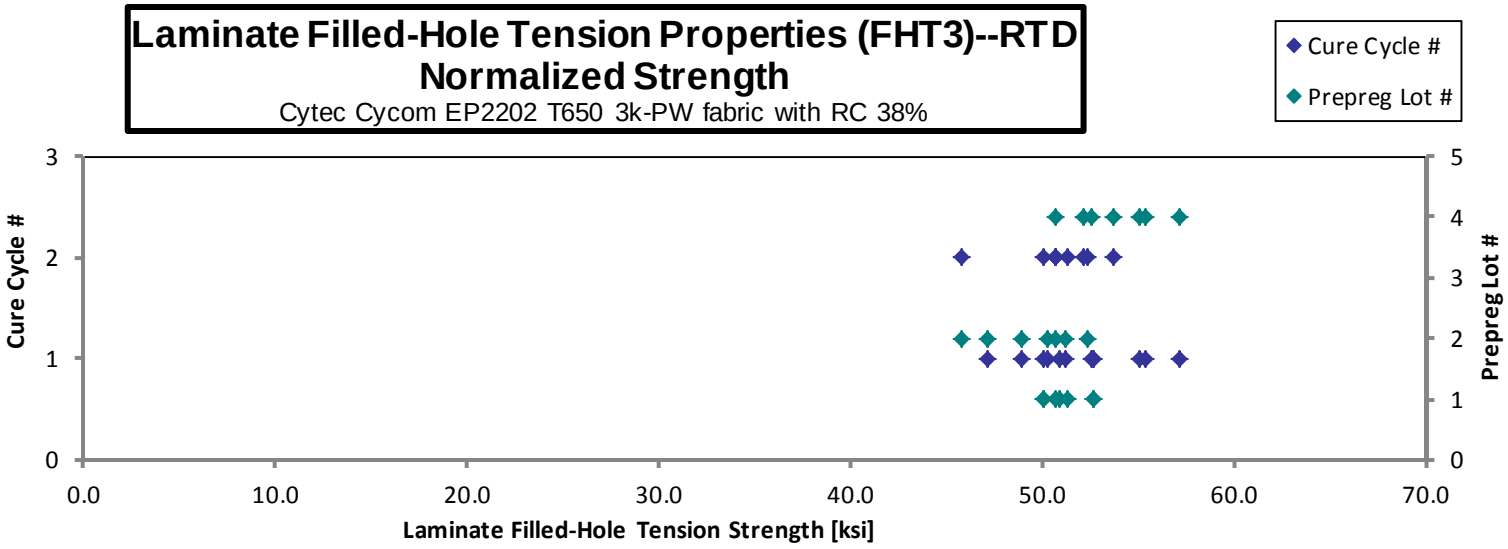
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB6A111A	A	C1	1	1	50.623	0.120	15	LGM	0.0080	50.116
EPB6A112A	A	C1	1	1	53.269	0.120	15	LGM	0.0080	52.677
EPB6A113A	A	C1	1	1	51.508	0.120	15	LGM	0.0080	50.935
EPB6A114A	A	C1	1	1	53.174	0.120	15	LGM	0.0080	52.692
EPB6A211A	A	C2	1	2	52.324	0.119	15	LGM	0.0079	51.348
EPB6A212A	A	C2	1	2	50.803	0.120	15	LGM	0.0080	50.064
EPB6A213A	A	C2	1	2	51.354	0.120	15	LGM	0.0080	50.671
EPB6B111A	B	C1	2	1	48.106	0.119	15	LGM	0.0079	47.169
EPB6B112A	B	C1	2	1	49.650	0.120	15	LGM	0.0080	48.921
EPB6B113A	B	C1	2	1	51.194	0.119	15	LGM	0.0080	50.302
EPB6B114A	B	C1	2	1	52.111	0.119	15	LGM	0.0080	51.196
EPB6B211A	B	C2	2	2	53.448	0.119	15	LGM	0.0079	52.393
EPB6B212A	B	C2	2	2	51.561	0.119	15	LGM	0.0080	50.706
EPB6B213A	B	C2	2	2	46.850	0.119	15	LGM	0.0079	45.829
EPB6D111A	D	C1	4	1	59.500	0.117	15	LGM	0.0078	57.190
EPB6D112A	D	C1	4	1	56.426	0.119	15	LGM	0.0079	55.056
EPB6D113A	D	C1	4	1	56.791	0.118	15	LGM	0.0079	55.342
EPB6D114A	D	C1	4	1	53.885	0.118	15	LGM	0.0079	52.547
EPB6D211A	D	C2	4	2	51.687	0.119	15	LGM	0.0079	50.702
EPB6D212A	D	C2	4	2	53.269	0.119	15	LGM	0.0079	52.158
EPB6D213A	D	C2	4	2	54.782	0.119	15	LGM	0.0079	53.692

Average	**52.491**	
Standard Dev.	**2.863**	
Coeff. of Var. [%]	**5.455**	
Min.	**46.850**	
Max.	**59.500**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**51.510**
$Standard\ Dev._{norm}$		**2.599**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**5.046**
Min.	**0.0078**	**45.829**
Max.	**0.0080**	**57.190**
Number of Spec.	**21**	**21**


Laminate Filled-Hole Tension Properties (FHT3)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Filled-Hole Tension Strength [ksi]

Laminate Filled-Hole Tension Properties (FHT3)--ETW1
Strength

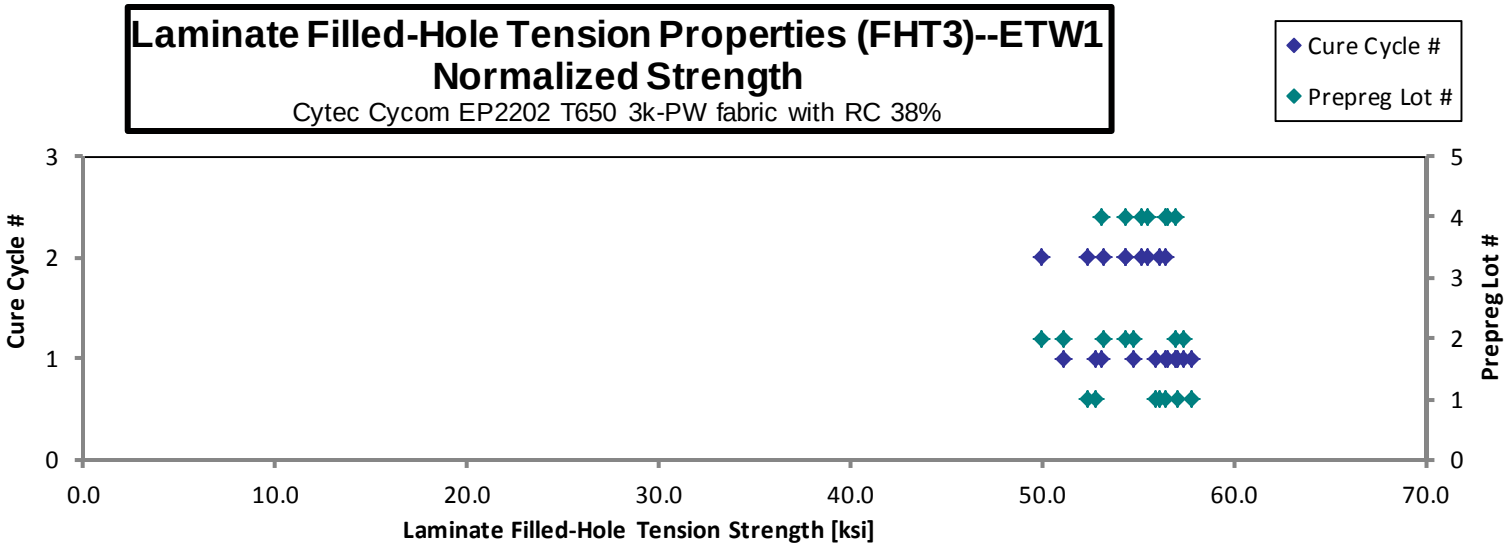
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB6A11BD	A	C1	1	1	53.156	0.121	15	LGM	0.0080	52.806
EPB6A11CD	A	C1	1	1	56.151	0.121	15	LGM	0.0081	55.920
EPB6A11DD	A	C1	1	1	57.236	0.121	15	LGM	0.0081	57.063
EPB6A11ED	A	C1	1	1	58.221	0.121	15	LGM	0.0080	57.758
EPB6A219D	A	C2	1	2	57.138	0.120	15	LGM	0.0080	56.464
EPB6A21AD	A	C2	1	2	53.216	0.120	15	LGM	0.0080	52.413
EPB6A21BD	A	C2	1	2	56.780	0.120	15	LGM	0.0080	56.125
EPB6B11BD	B	C1	2	1	55.236	0.121	15	LGM	0.0080	54.812
EPB6B11CD	B	C1	2	1	57.779	0.121	15	LGM	0.0081	57.422
EPB6B11DD	B	C1	2	1	57.528	0.120	15	LGM	0.0080	56.992
EPB6B11ED	B	C1	2	1	51.800	0.120	15	LGM	0.0080	51.104
EPB6B219D	B	C2	2	2	55.002	0.120	15	LGM	0.0080	54.345
EPB6B21AD	B	C2	2	2	54.202	0.119	15	LGM	0.0080	53.236
EPB6B21BD	B	C2	2	2	50.829	0.119	15	LGM	0.0080	49.985
EPB6D11BD	D	C1	4	1	58.275	0.119	15	LGM	0.0079	56.948
EPB6D11CD	D	C1	4	1	57.610	0.119	15	LGM	0.0079	56.401
EPB6D11DD	D	C1	4	1	57.912	0.119	15	LGM	0.0079	56.514
EPB6D11ED	D	C1	4	1	54.482	0.118	15	LGM	0.0079	53.122
EPB6D219D	D	C2	4	2	57.042	0.118	15	LGM	0.0079	55.461
EPB6D21AD	D	C2	4	2	55.721	0.119	15	LGM	0.0079	54.398
EPB6D21BD	D	C2	4	2	56.341	0.119	15	LGM	0.0079	55.228

Average	**55.793**	
Standard Dev.	**2.157**	
Coeff. of Var. [%]	**3.865**	
Min.	**50.829**	
Max.	**58.275**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**54.977**
$Standard\ Dev._{norm}$		**2.163**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.934**
Min.	**0.0079**	**49.985**
Max.	**0.0081**	**57.758**
Number of Spec.	**21**	**21**


Laminate Filled-Hole Tension Properties (FHT3)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Filled-Hole Tension Strength [ksi]

4.20 "25/50/25" Open-Hole Compression 1 Properties (OHC1)

Laminate Open-Hole Compression Properties (OHC1)--RTD Strength

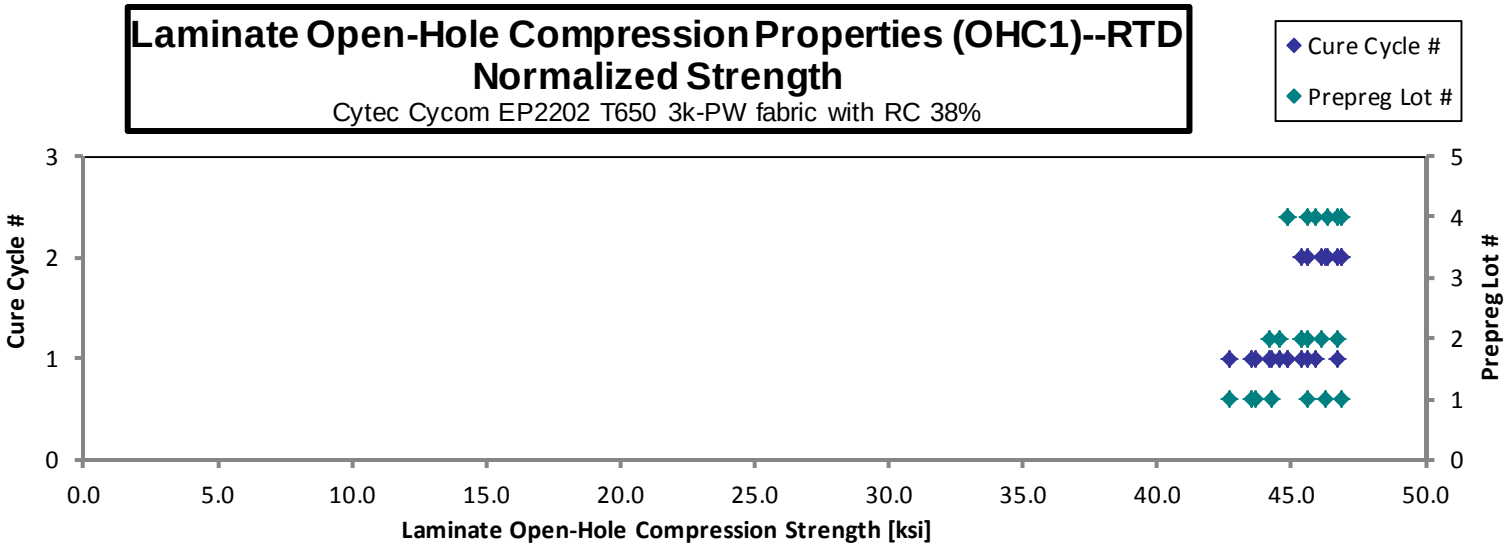
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBGA111A	A	C1	1	1	43.704	0.161	20	LGM	0.0081	43.484
EPBGA112A	A	C1	1	1	43.912	0.161	20	LGM	0.0081	43.699
EPBGA113A	A	C1	1	1	42.712	0.162	20	LGM	0.0081	42.668
EPBGA114A	A	C1	1	1	44.282	0.162	20	LGM	0.0081	44.264
EPBGA211A	A	C2	1	2	46.789	0.160	20	LGM	0.0080	46.265
EPBGA212A	A	C2	1	2	46.418	0.159	20	LGM	0.0080	45.634
EPBGA213A	A	C2	1	2	47.538	0.160	20	LGM	0.0080	46.878
EPBGB111A	B	C1	2	1	45.126	0.160	20	LGM	0.0080	44.564
EPBGB112A	B	C1	2	1	47.464	0.159	20	LGM	0.0080	46.717
EPBGB113A	B	C1	2	1	44.904	0.160	20	LGM	0.0080	44.211
EPBGB114A	B	C1	2	1	46.069	0.159	20	LGM	0.0080	45.344
EPBGB211A	B	C2	2	2	46.504	0.161	20	MGM	0.0080	46.135
EPBGB212A	B	C2	2	2	46.076	0.160	20	LGM	0.0080	45.379
EPBGB213A	B	C2	2	2	46.171	0.160	20	LGM	0.0080	45.606
EPBGD111A	D	C1	4	1	47.199	0.157	20	LGM	0.0079	45.869
EPBGD112A	D	C1	4	1	46.016	0.158	20	LGM	0.0079	44.885
EPBGD113A	D	C1	4	1	46.864	0.158	20	LGM	0.0079	45.620
EPBGD114A	D	C1	4	1	46.189	0.157	20	LGM	0.0079	44.839
EPBGD211A	D	C2	4	2	48.136	0.157	20	MGM	0.0079	46.700
EPBGD212A	D	C2	4	2	48.559	0.156	20	LGM	0.0078	46.880
EPBGD213A	D	C2	4	2	47.750	0.157	20	LGM	0.0079	46.330

Average	**46.113**	
Standard Dev.	**1.534**	
Coeff. of Var. [%]	**3.327**	
Min.	**42.712**	
Max.	**48.559**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**45.332**
Standard $Dev._{norm}$		**1.188**
Coeff. of Var. $[\%]_{norm}$		**2.621**
Min.	**0.0078**	**42.668**
Max.	**0.0081**	**46.880**
Number of Spec.	**21**	**21**


Laminate Open-Hole Compression Properties (OHC1)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Laminate Open-Hole Compression Strength [ksi]

Laminate Open-Hole Compression Properties (OHC1)--ETW1
Strength

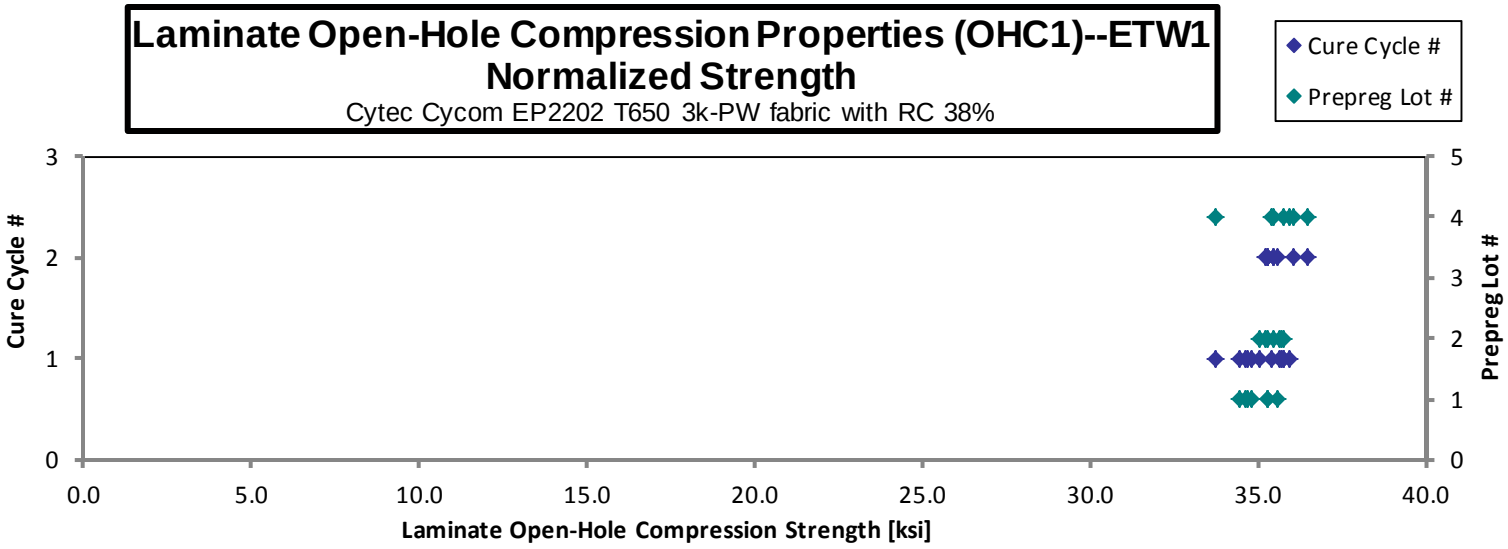
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBGA117D	A	C1	1	1	34.865	0.162	20	LGM	0.0081	34.797
EPBGA118D	A	C1	1	1	34.751	0.162	20	LGM	0.0081	34.658
EPBGA119D	A	C1	1	1	34.845	0.161	20	LGM	0.0081	34.705
EPBGA11AD	A	C1	1	1	34.455	0.162	20	LGM	0.0081	34.434
EPBGA216D	A	C2	1	2	35.814	0.161	20	LGM	0.0080	35.559
EPBGA217D	A	C2	1	2	35.790	0.160	20	LGM	0.0080	35.304
EPBGA218D	A	C2	1	2	35.805	0.160	20	LGM	0.0080	35.311
EPBGB117D	B	C1	2	1	36.255	0.160	20	LGM	0.0080	35.725
EPBGB118D	B	C1	2	1	35.746	0.159	20	LGM	0.0079	35.077
EPBGB119D	B	C1	2	1	36.402	0.159	20	LGM	0.0079	35.631
EPBGB11AD	B	C1	2	1	36.573	0.159	20	LGM	0.0079	35.794
EPBGB216D	B	C2	2	2	35.744	0.160	20	LGM	0.0080	35.318
EPBGB217D	B	C2	2	2	35.809	0.160	20	LGM	0.0080	35.459
EPBGB218D	B	C2	2	2	35.631	0.160	20	LGM	0.0080	35.202
EPBGD117D	D	C1	4	1	34.605	0.158	20	LGM	0.0079	33.750
EPBGD118D	D	C1	4	1	36.329	0.158	20	LGM	0.0079	35.421
EPBGD119D	D	C1	4	1	36.910	0.158	20	LGM	0.0079	35.949
EPBGD11AD	D	C1	4	1	36.752	0.158	20	LGM	0.0079	35.742
EPBGD216D	D	C2	4	2	37.081	0.157	20	LGM	0.0079	36.039
EPBGD217D	D	C2	4	2	36.769	0.156	20	LGM	0.0078	35.475
EPBGD218D	D	C2	4	2	37.809	0.156	20	LGM	0.0078	36.467

Average	**35.940**	
Standard Dev.	**0.893**	
Coeff. of Var. [%]	**2.484**	
Min.	**34.455**	
Max.	**37.809**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**35.325**
$Standard\ Dev._{norm}$		**0.609**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**1.724**
Min.	**0.0078**	**33.750**
Max.	**0.0081**	**36.467**
Number of Spec.	**21**	**21**


Laminate Open-Hole Compression Properties (OHC1)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
Laminate Open-Hole Compression Strength [ksi]

4.21 "10/80/10" Open-Hole Compression 2 Properties (OHC2)

Laminate Open-Hole Compression Properties (OHC2)--RTD Strength

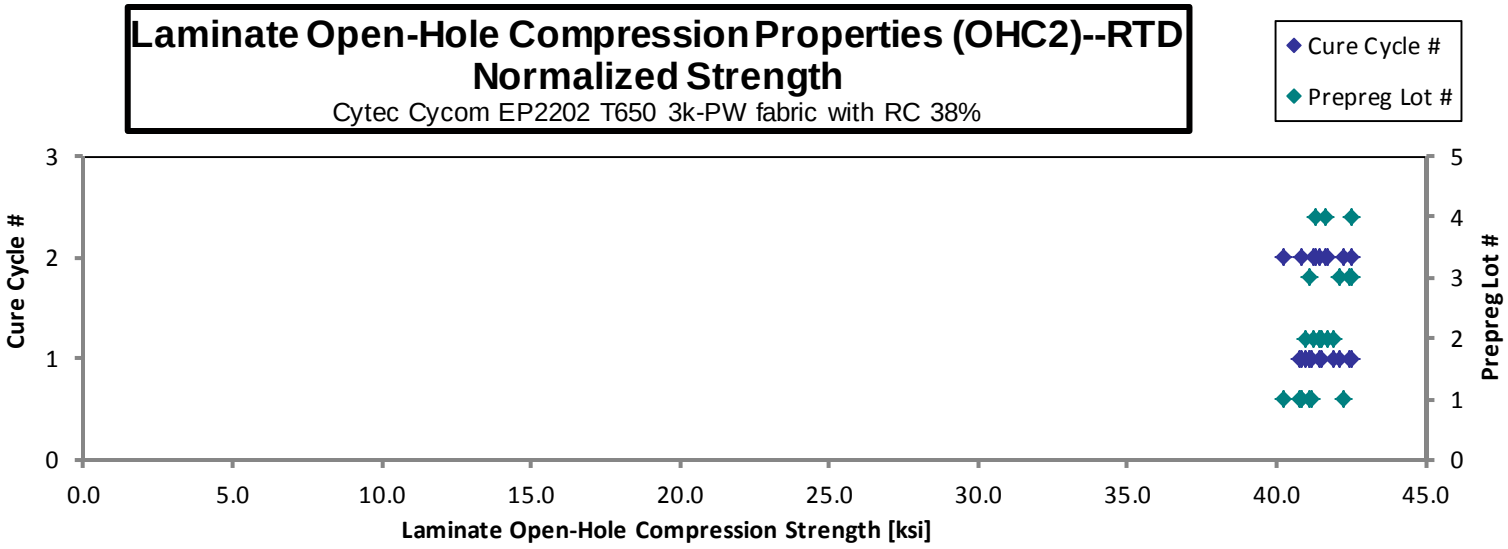
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBHA111A	A	C1	1	1	41.275	0.161	20	MGM	0.0081	41.080
EPBHA112A	A	C1	1	1	40.772	0.162	20	MGM	0.0081	40.819
EPBHA113A	A	C1	1	1	40.586	0.163	20	AGM	0.0081	40.757
EPBHA114A	A	C1	1	1	40.997	0.163	20	AGM	0.0081	41.204
EPBHA211A	A	C2	1	2	40.810	0.162	20	AGM	0.0081	40.843
EPBHA212A	A	C2	1	2	40.388	0.161	20	AGM	0.0081	40.259
EPBHA213A	A	C2	1	2	42.223	0.162	20	AGM	0.0081	42.249
EPBHB111A	B	C1	2	1	42.344	0.160	20	AGM	0.0080	41.943
EPBHB112A	B	C1	2	1	42.056	0.160	20	AGM	0.0080	41.468
EPBHB113A	B	C1	2	1	41.834	0.161	20	AGM	0.0080	41.507
EPBHB114A	B	C1	2	1	41.466	0.160	20	AGM	0.0080	40.997
EPBHB211A	B	C2	2	2	42.192	0.160	20	AGM	0.0080	41.745
EPBHB212A	B	C2	2	2	42.222	0.159	20	AGM	0.0080	41.475
EPBHB213A	B	C2	2	2	41.869	0.160	20	AGM	0.0080	41.236
EPBHC111A	C	C1	3	1	42.266	0.163	20	AGM	0.0081	42.431
EPBHC112A	C	C1	3	1	42.267	0.163	20	AGM	0.0081	42.502
EPBHC113A	C	C1	3	1	42.062	0.162	20	AGM	0.0081	42.109
EPBHC114A	C	C1	3	1	40.938	0.163	20	AGM	0.0081	41.102
EPBHD211A	D	C2	4	2	44.158	0.156	20	AGM	0.0078	42.536
EPBHD212A	D	C2	4	2	43.134	0.156	20	AGM	0.0078	41.634
EPBHD213A	D	C2	4	2	42.723	0.157	20	AGM	0.0078	41.303

Average	**41.837**	
Standard Dev.	**0.917**	
Coeff. of Var. [%]	**2.192**	
Min.	**40.388**	
Max.	**44.158**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**41.486**
Standard $Dev._{norm}$		**0.629**
Coeff. of Var. $[\%]_{norm}$		**1.517**
Min.	**0.0078**	**40.259**
Max.	**0.0081**	**42.536**
Number of Spec.	**21**	**21**


Laminate Open-Hole Compression Properties (OHC2)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
Laminate Open-Hole Compression Strength [ksi]

Laminate Open-Hole Compression Properties (OHC2)--ETW1
Strength

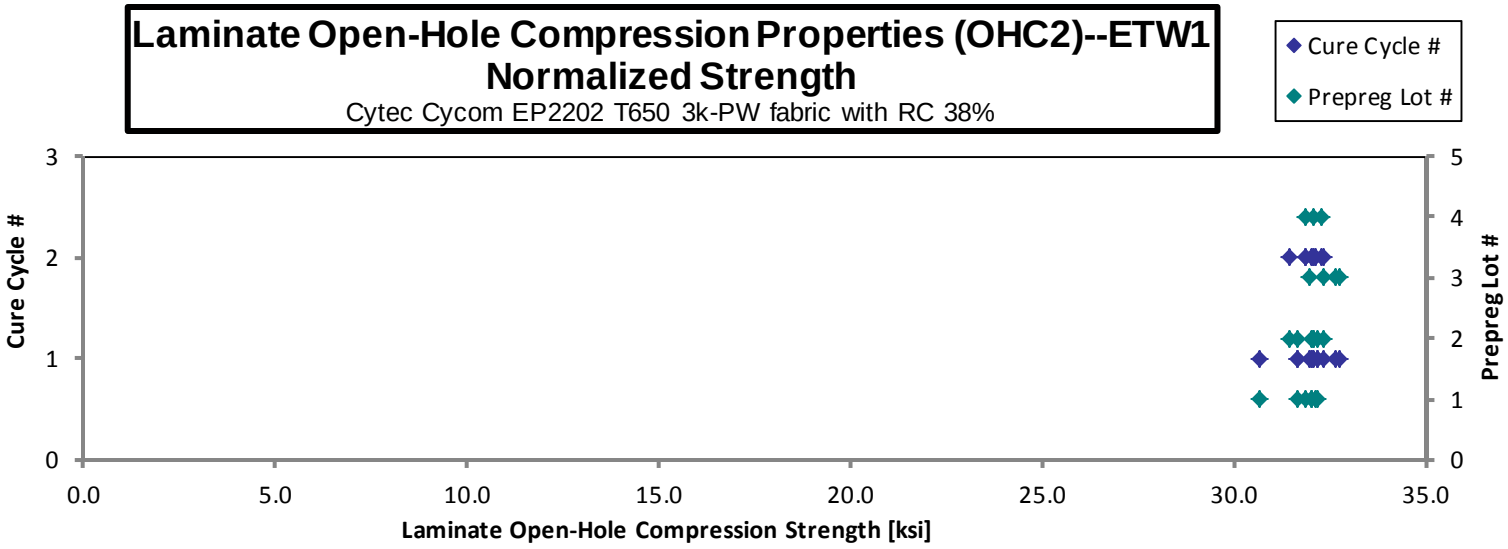
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBHA117D	A	C1	1	1	32.252	0.162	20	AGM	0.0081	32.205
EPBHA118D	A	C1	1	1	32.055	0.162	20	MGM	0.0081	32.012
EPBHA119D	A	C1	1	1	31.637	0.162	20	LGM	0.0081	31.680
EPBHA11AD	A	C1	1	1	30.600	0.162	20	AGM	0.0081	30.656
EPBHA216D	A	C2	1	2	32.045	0.162	20	AGM	0.0081	32.005
EPBHA217D	A	C2	1	2	32.253	0.161	20	MGM	0.0081	32.107
EPBHA218D	A	C2	1	2	31.913	0.162	20	MGM	0.0081	31.883
EPBHB117D	B	C1	2	1	32.497	0.160	20	MGM	0.0080	32.156
EPBHB118D	B	C1	2	1	32.414	0.160	20	MGM	0.0080	32.064
EPBHB119D	B	C1	2	1	32.424	0.160	20	MGM	0.0080	32.044
EPBHB11AD	B	C1	2	1	32.025	0.160	20	MGM	0.0080	31.649
EPBHB216D	B	C2	2	2	32.485	0.161	20	MGM	0.0081	32.351
EPBHB217D	B	C2	2	2	32.305	0.161	20	MGM	0.0080	32.065
EPBHB219D	B	C2	2	2	31.830	0.160	20	MGM	0.0080	31.470
EPBHC117D	C	C1	3	1	32.082	0.163	20	MGM	0.0082	32.333
EPBHC118D	C	C1	3	1	32.443	0.163	20	MGM	0.0082	32.677
EPBHC119D	C	C1	3	1	32.627	0.163	20	MGM	0.0081	32.778
EPBHC11AD	C	C1	3	1	31.876	0.162	20	MGM	0.0081	31.968
EPBHD216D	D	C2	4	2	33.590	0.156	20	MGM	0.0078	32.270
EPBHD217D	D	C2	4	2	33.138	0.156	20	MGM	0.0078	31.860
EPBHD218D	D	C2	4	2	33.322	0.156	20	MGM	0.0078	32.057

Average	**32.277**	
Standard Dev.	**0.623**	
Coeff. of Var. [%]	**1.930**	
Min.	**30.600**	
Max.	**33.590**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**32.014**
$Standard\ Dev._{norm}$		**0.436**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**1.362**
Min.	**0.0078**	**30.656**
Max.	**0.0082**	**32.778**
Number of Spec.	**21**	**21**


Laminate Open-Hole Compression Properties (OHC2)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
Laminate Open-Hole Compression Strength [ksi]

4.22 "40/20/40" Open-Hole Compression 3 Properties (OHC3)

Laminate Open-Hole Compression Properties (OHC3)--RTD Strength

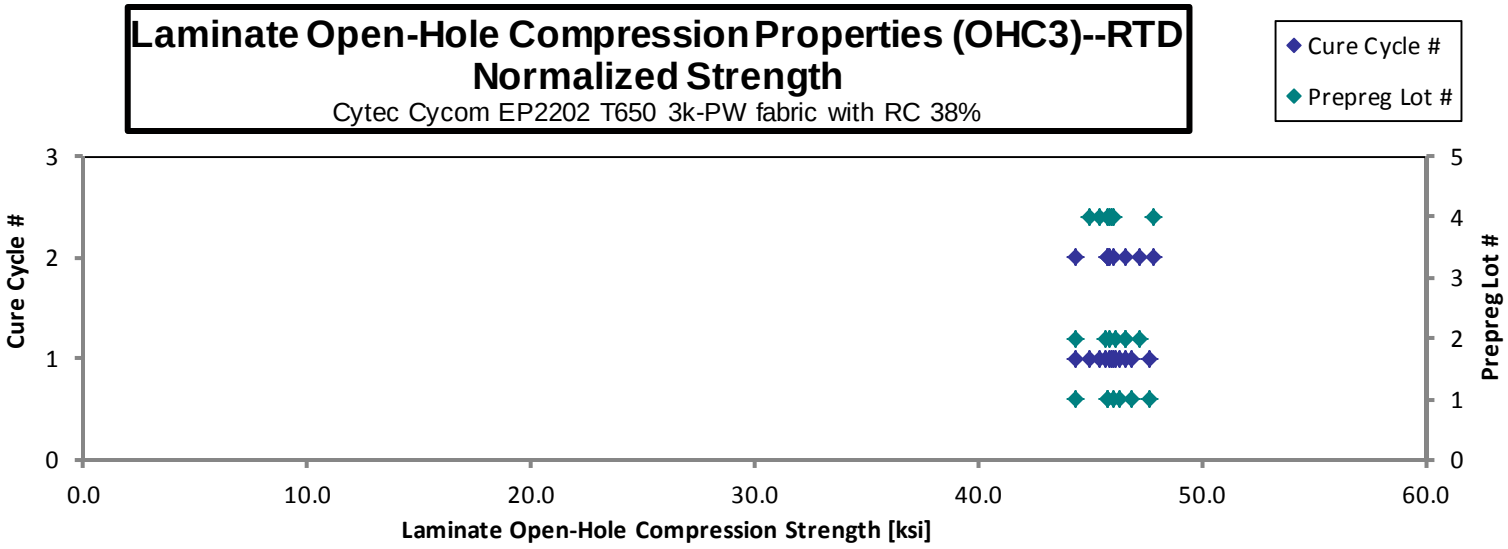
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBIA111A	A	C1	1	1	46.528	0.161	20	LGM	0.0081	46.322
EPBIA112A	A	C1	1	1	44.602	0.161	20	LGM	0.0081	44.340
EPBIA113A	A	C1	1	1	47.044	0.161	20	LGM	0.0081	46.889
EPBIA114A	A	C1	1	1	48.092	0.161	20	LGM	0.0080	47.701
EPBIA211A	A	C2	1	2	46.278	0.160	20	LGM	0.0080	45.788
EPBIA212A	A	C2	1	2	46.632	0.160	20	LGM	0.0080	46.013
EPBIA213A	A	C2	1	2	46.352	0.160	20	LGM	0.0080	45.780
EPBIB111A	B	C1	2	1	46.491	0.160	20	LGM	0.0080	45.826
EPBIB112A	B	C1	2	1	46.442	0.159	20	LGM	0.0080	45.668
EPBIB113A	B	C1	2	1	47.508	0.159	20	LGM	0.0079	46.555
EPBIB114A	B	C1	2	1	47.052	0.159	20	LGM	0.0079	46.161
EPBIB211A	B	C2	2	2	47.554	0.161	20	LGM	0.0080	47.197
EPBIB212A	B	C2	2	2	47.326	0.159	20	LGM	0.0080	46.581
EPBIB213A	B	C2	2	2	45.080	0.159	20	LGM	0.0080	44.338
EPBID111A	D	C1	4	1	47.435	0.157	20	LGM	0.0079	46.010
EPBID112A	D	C1	4	1	47.308	0.157	20	LGM	0.0079	45.921
EPBID113A	D	C1	4	1	46.349	0.157	20	LGM	0.0079	45.019
EPBID114A	D	C1	4	1	46.803	0.157	20	AGM	0.0079	45.450
EPBID211A	D	C2	4	2	48.465	0.160	20	LGM	0.0080	47.876
EPBID212A	D	C2	4	2	46.964	0.158	20	AGM	0.0079	45.872
EPBID213A	D	C2	4	2	46.414	0.160	20	LGM	0.0080	45.779

Average	**46.796**	
Standard Dev.	**0.882**	
Coeff. of Var. [%]	**1.884**	
Min.	**44.602**	
Max.	**48.465**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**46.052**
Standard $Dev._{norm}$		**0.907**
Coeff. of Var. $[\%]_{norm}$		**1.969**
Min.	**0.0079**	**44.338**
Max.	**0.0081**	**47.876**
Number of Spec.	**21**	**21**


Laminate Open-Hole Compression Properties (OHC3)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Open-Hole Compression Strength [ksi]

Laminate Open-Hole Compression Properties (OHC3)--ETW1
Strength

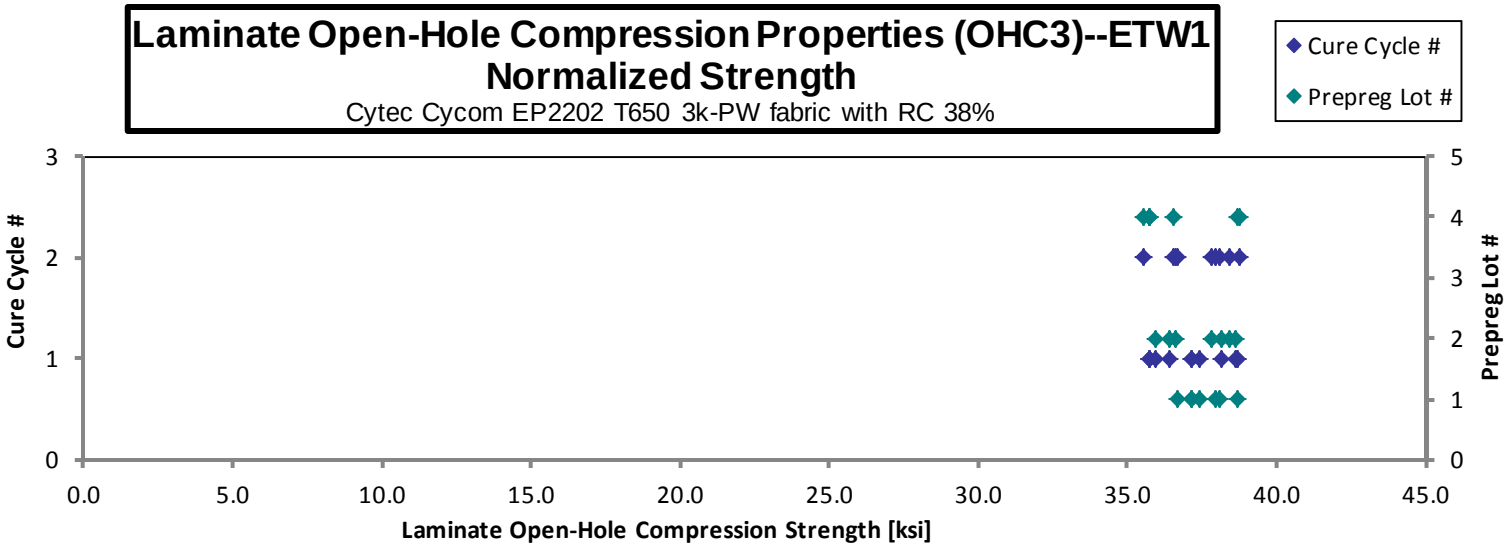
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBIA117D	A	C1	1	1	38.859	0.161	20	LGM	0.0081	38.695
EPBIA118D	A	C1	1	1	37.750	0.161	20	LGM	0.0080	37.432
EPBIA119D	A	C1	1	1	37.443	0.161	20	LGM	0.0080	37.146
EPBIA11AD	A	C1	1	1	37.389	0.161	20	LGM	0.0080	37.143
EPBIA216D	A	C2	1	2	36.877	0.161	20	LGM	0.0081	36.657
EPBIA217D	A	C2	1	2	38.310	0.160	20	LGM	0.0080	37.935
EPBIA218D	A	C2	1	2	38.343	0.161	20	LGM	0.0081	38.106
EPBIB117D	B	C1	2	1	39.111	0.160	20	LGM	0.0080	38.644
EPBIB118D	B	C1	2	1	38.748	0.160	20	LGM	0.0080	38.178
EPBIB119D	B	C1	2	1	37.075	0.159	20	LGM	0.0080	36.434
EPBIB11AD	B	C1	2	1	36.655	0.159	20	LGM	0.0079	35.927
EPBIB216D	B	C2	2	2	37.318	0.159	20	LGM	0.0079	36.596
EPBIB217D	B	C2	2	2	38.104	0.161	20	LGM	0.0080	37.798
EPBIB218D	B	C2	2	2	38.716	0.161	20	LGM	0.0080	38.405
EPBID117D	D	C1	4	1	36.990	0.156	20	LGM	0.0078	35.723
EPBID118D	D	C1	4	1	36.964	0.157	20	LGM	0.0078	35.767
EPBID119D	D	C1	4	1	40.038	0.157	20	LGM	0.0078	38.716
EPBID11AD	D	C1	4	1	36.932	0.157	20	LGM	0.0078	35.739
EPBID216D	D	C2	4	2	39.507	0.159	20	LGM	0.0080	38.775
EPBID217D	D	C2	4	2	37.179	0.159	20	LGM	0.0080	36.529
EPBID218D	D	C2	4	2	36.466	0.158	20	LGM	0.0079	35.543

Average	**37.846**	
Standard Dev.	**1.015**	
Coeff. of Var. [%]	**2.681**	
Min.	**36.466**	
Max.	**40.038**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**37.233**
$Standard\ Dev._{norm}$		**1.134**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.045**
Min.	**0.0078**	**35.543**
Max.	**0.0081**	**38.775**
Number of Spec.	**21**	**21**


Laminate Open-Hole Compression Properties (OHC3)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
Laminate Open-Hole Compression Strength [ksi]

4.23 "25/50/25" Filled-Hole Compression 1 Properties (FHC1)

Laminate Filled-Hole Compression Properties (FHC1)--RTD Strength

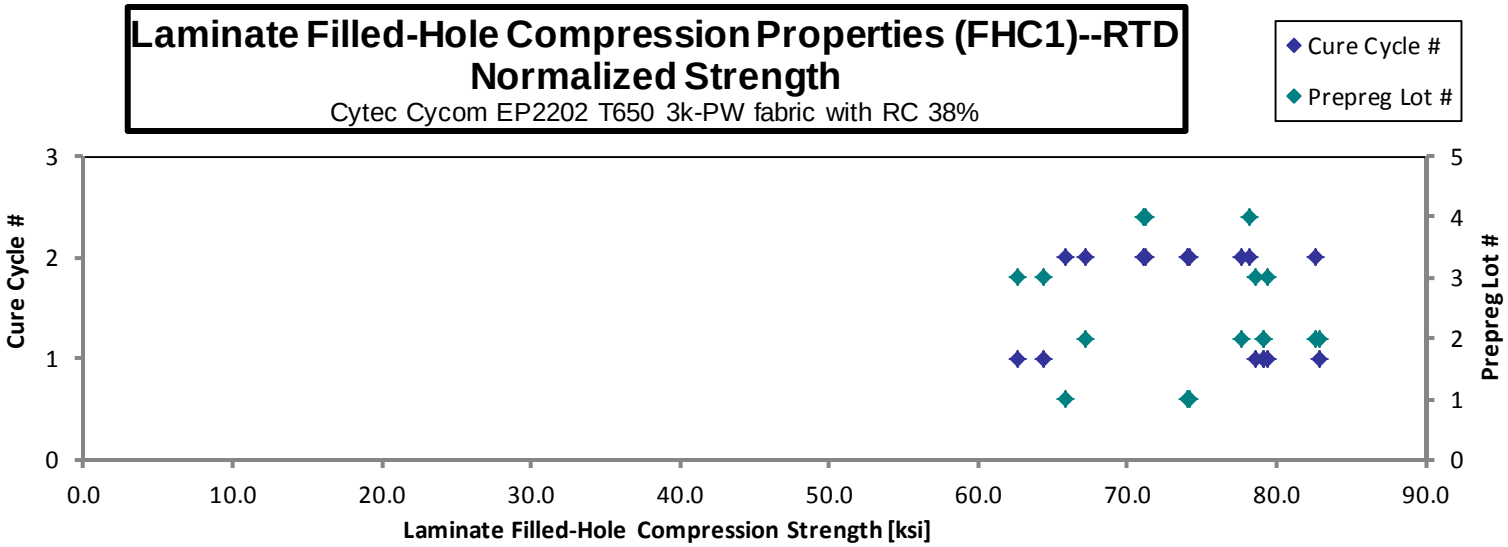
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB7A212A	A	C2	1	2	74.290	0.162	20	LGF	0.0081	74.076
EPB7A213A	A	C2	1	2	74.317	0.162	20	LGM	0.0081	74.110
EPB7A214A	A	C2	1	2	65.895	0.162	20	LGF	0.0081	65.840
EPB7B111A	B	C1	2	1	84.322	0.159	20	LGF	0.0080	82.908
EPB7B112A	B	C1	2	1	80.516	0.159	20	MGF	0.0080	79.116
EPB7B113A	B	C1	2	1	80.547	0.159	20	LGF	0.0080	79.113
EPB7B211A	B	C2	2	2	83.973	0.159	20	LGF	0.0080	82.573
EPB7B212A	B	C2	2	2	79.618	0.158	20	LGF	0.0079	77.701
EPB7B215A	B	C2	2	2	68.576	0.159	20	LGF	0.0079	67.201
EPB7C111A	C	C1	3	1	78.569	0.162	20	LGF	0.0081	78.626
EPB7C113A	C	C1	3	1	79.783	0.161	20	LGF	0.0081	79.398
EPB7C115A	C	C1	3	1	62.965	0.161	20	LGF	0.0080	62.569
EPB7C116A	C	C1	3	1	64.600	0.162	20	LGF	0.0081	64.400
EPB7D211A	D	C2	4	2	80.021	0.158	20	LGF	0.0079	78.234
EPB7D212A	D	C2	4	2	72.720	0.159	20	LGF	0.0079	71.276
EPB7D213A	D	C2	4	2	72.691	0.159	20	LGF	0.0079	71.120

Average	**75.213**	
Standard Dev.	**6.825**	
Coeff. of Var. [%]	**9.074**	
Min.	**62.965**	
Max.	**84.322**	
Number of Spec.	**16**	

$Average_{norm}$	**0.0080**	**74.266**
$Standard\ Dev._{norm}$		**6.519**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**8.778**
Min.	**0.0079**	**62.569**
Max.	**0.0081**	**82.908**
Number of Spec.	**16**	**16**


Laminate Filled-Hole Compression Properties (FHC1)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
Laminate Filled-Hole Compression Strength [ksi]

Laminate Filled-Hole Compression Properties (FHC1)--ETW1
Strength

Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

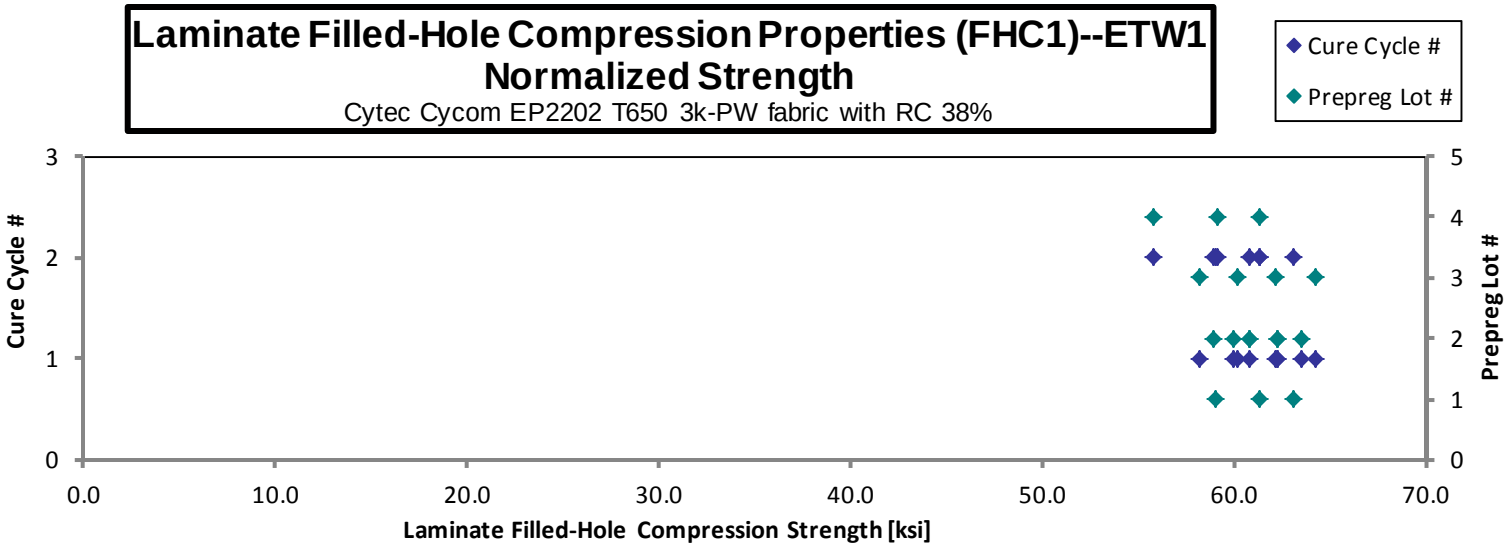
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB7A216D*	A	C2	1	2	63.037	0.162	20	LGF	0.0081	63.095
EPB7A218D	A	C2	1	2	61.638	0.161	20	LGF	0.0081	61.372
EPB7A21AD	A	C2	1	2	59.376	0.161	20	LGO	0.0080	58.992
EPB7B117D	B	C1	2	1	61.797	0.160	20	LGF	0.0080	60.868
EPB7B118D	B	C1	2	1	62.782	0.161	20	LGF	0.0080	62.304
EPB7B119D	B	C1	2	1	61.026	0.159	20	LGF	0.0080	60.016
EPB7B11AD*	B	C1	2	1	64.450	0.160	20	LGT	0.0080	63.521
EPB7B11BD	B	C1	2	1	63.386	0.159	20	LGO, LGF	0.0080	62.232
EPB7B216D*	B	C2	2	2	62.020	0.159	20	LGF	0.0079	60.846
EPB7B217D	B	C2	2	2	60.253	0.158	20	LGF	0.0079	58.908
EPB7C117D	C	C1	3	1	57.185	0.165	20	LGF	0.0082	58.232
EPB7C118D	C	C1	3	1	64.415	0.162	20	LGM	0.0081	64.270
EPB7C11AD	C	C1	3	1	62.111	0.162	20	LGF	0.0081	62.162
EPB7C11BD	C	C1	3	1	60.414	0.161	20	LGF	0.0081	60.209
EPB7D216D	D	C2	4	2	56.688	0.160	20	LGF	0.0080	55.848
EPB7D217D	D	C2	4	2	59.804	0.160	20	LGF	0.0080	59.189
EPB7D218D	D	C2	4	2	62.141	0.160	20	LGF	0.0080	61.297

* Failure mode occurred approximately 0.25" from the hole.

Average	**61.325**	
Standard Dev.	**2.201**	
Coeff. of Var. [%]	**3.589**	
Min.	**56.688**	
Max.	**64.450**	
Number of Spec.	**17**	

$Average_{norm}$	**0.0080**	**60.786**
$Standard\ Dev._{norm}$		**2.136**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.513**
Min.	**0.0079**	**55.848**
Max.	**0.0082**	**64.270**
Number of Spec.	**17**	**17**


Laminate Filled-Hole Compression Properties (FHC1)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Filled-Hole Compression Strength [ksi]

4.24 "10/80/10" Filled-Hole Compression 2 Properties (FHC2)

Laminate Filled-Hole Compression Properties (FHC2)--RTD Strength

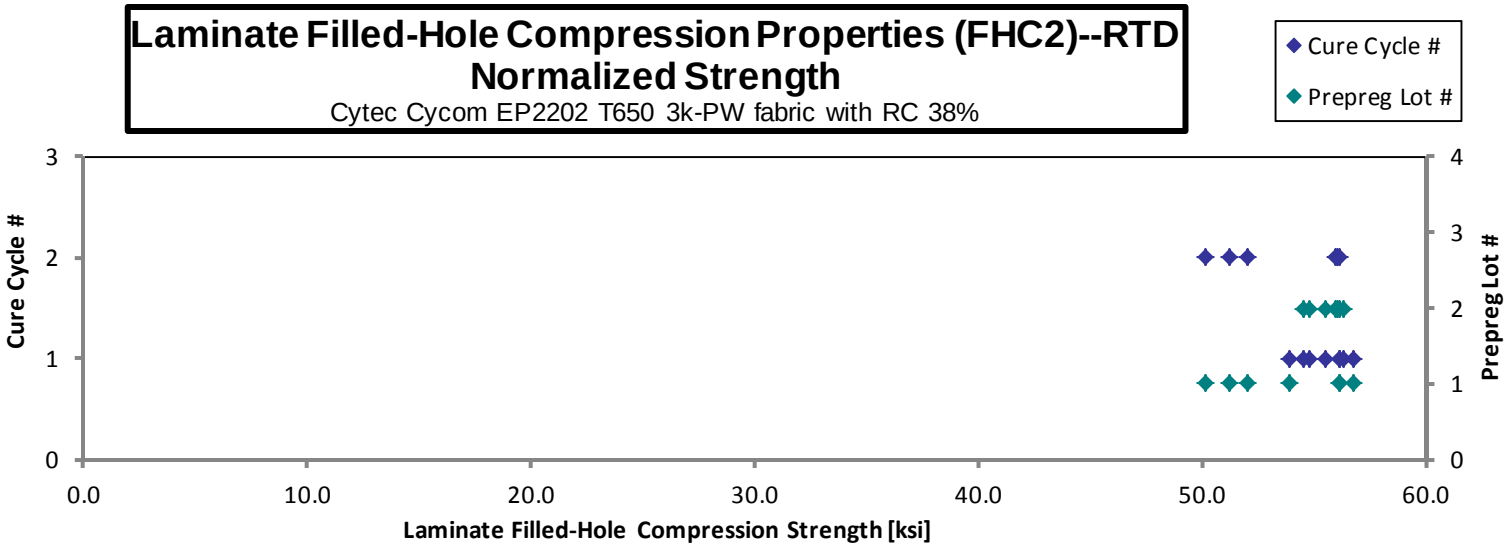
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB8A111A	A	C1	1	1	56.482	0.161	20	MGF	0.0081	56.179
EPB8A112A	A	C1	1	1	54.471	0.160	20	MGF	0.0080	53.944
EPB8A114A	A	C1	1	1	56.519	0.161	20	AGM	0.0081	56.181
EPB8A116A	A	C1	1	1	57.191	0.161	20	AGM	0.0080	56.737
EPB8A211A	A	C2	1	2	50.877	0.163	20	MGF	0.0082	51.196
EPB8A212A	A	C2	1	2	51.824	0.163	20	MGF	0.0081	52.006
EPB8A213A	A	C2	1	2	49.992	0.163	20	MGF	0.0081	50.146
EPB8B111A	B	C1	2	1	56.066	0.158	20	MGF	0.0079	54.808
EPB8B113A	B	C1	2	1	55.515	0.159	20	LGF	0.0080	54.527
EPB8B114A	B	C1	2	1	56.314	0.160	20	AGM	0.0080	55.549
EPB8B115A	B	C1	2	1	57.086	0.160	20	MGF	0.0080	56.288
EPB8B211A	B	C2	2	2	57.015	0.160	20	MGF	0.0080	56.182
EPB8B212A	B	C2	2	2	57.276	0.159	20	AGF	0.0079	56.091
EPB8B213A	B	C2	2	2	56.899	0.159	20	LGF	0.0080	55.951

Average	**55.252**	
Standard Dev.	**2.499**	
Coeff. of Var. [%]	**4.523**	
Min.	**49.992**	
Max.	**57.276**	
Number of Spec.	**14**	

$Average_{norm}$	**0.0080**	**54.699**
$Standard\ Dev._{norm}$		**2.119**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.874**
Min.	**0.0079**	**50.146**
Max.	**0.0082**	**56.737**
Number of Spec.	**14**	**14**


Laminate Filled-Hole Compression Properties (FHC2)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Filled-Hole Compression Strength [ksi]

Laminate Filled-Hole Compression Properties (FHC2)--ETW1
Strength

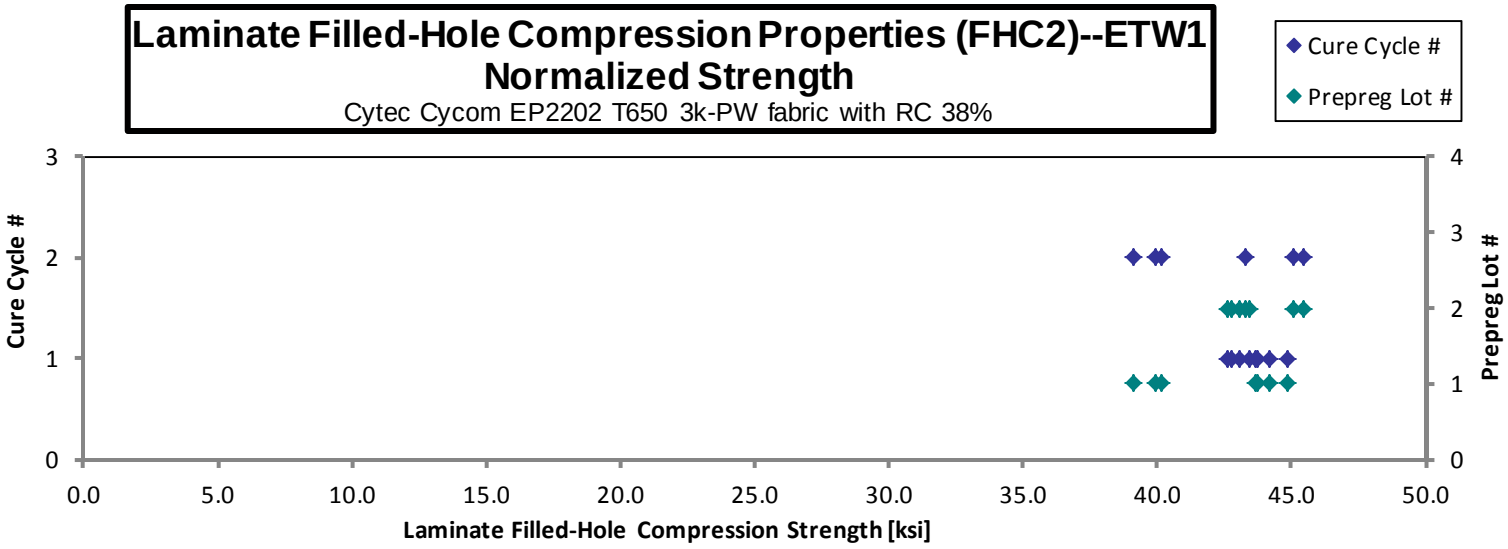
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB8A117D	A	C1	1	1	43.549	0.162	20	AGF	0.0081	43.630
EPB8A118D	A	C1	1	1	43.866	0.162	20	AGO	0.0081	43.762
EPB8A119D	A	C1	1	1	44.367	0.161	20	AGO	0.0081	44.161
EPB8A11AD	A	C1	1	1	45.031	0.161	20	AGF	0.0081	44.846
EPB8A216D	A	C2	1	2	39.995	0.163	20	LGF	0.0081	40.147
EPB8A217D	A	C2	1	2	39.584	0.163	20	AGF	0.0082	39.909
EPB8A218D	A	C2	1	2	38.952	0.163	20	AGF	0.0081	39.133
EPB8B117D	B	C1	2	1	43.808	0.158	20	AGF	0.0079	42.749
EPB8B119D	B	C1	2	1	44.331	0.159	20	AGF	0.0079	43.451
EPB8B11AD	B	C1	2	1	43.544	0.159	20	AGF	0.0079	42.657
EPB8B11BD	B	C1	2	1	43.876	0.159	20	AGF	0.0080	43.086
EPB8B216D	B	C2	2	2	45.770	0.160	20	AGO	0.0080	45.087
EPB8B217D	B	C2	2	2	46.313	0.159	20	AGO	0.0079	45.441
EPB8B218D	B	C2	2	2	43.992	0.159	20	AGF	0.0080	43.259

Average	**43.355**	
Standard Dev.	**2.244**	
Coeff. of Var. [%]	**5.176**	
Min.	**38.952**	
Max.	**46.313**	
Number of Spec.	**14**	

$Average_{norm}$	**0.0080**	**42.951**
$Standard\ Dev._{norm}$		**1.944**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**4.526**
Min.	**0.0079**	**39.133**
Max.	**0.0082**	**45.441**
Number of Spec.	**14**	**14**


Laminate Filled-Hole Compression Properties (FHC2)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Compression Strength [ksi]
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
0
1
2
3
4

4.25 "40/20/40" Filled-Hole Compression 3 Properties (FHC3)

Laminate Filled-Hole Compression Properties (FHC3)--RTD Strength

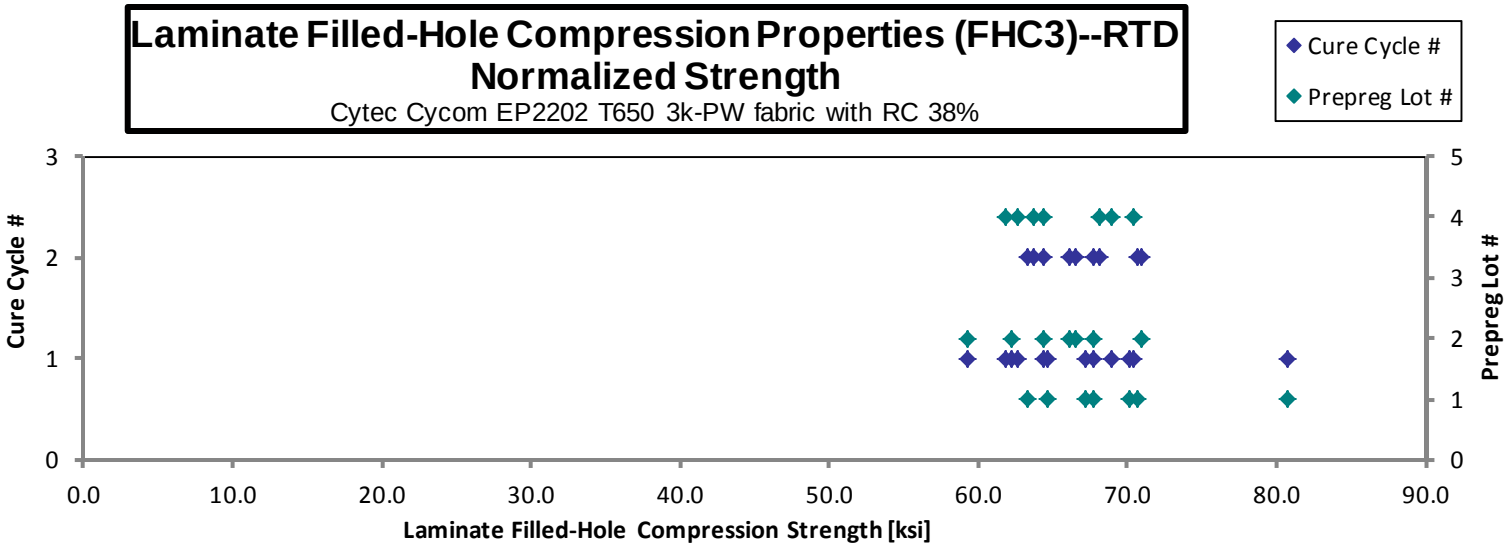
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB9A111A	A	C1	1	1	81.519	0.160	20	LGF	0.0080	80.680
EPB9A112A	A	C1	1	1	70.815	0.160	20	LGF	0.0080	70.123
EPB9A113A	A	C1	1	1	67.667	0.161	20	LGF	0.0080	67.180
EPB9A114A	A	C1	1	1	65.138	0.161	20	LGF	0.0080	64.629
EPB9A211A	A	C2	1	2	68.108	0.161	20	LGF	0.0080	67.674
EPB9A212A	A	C2	1	2	71.464	0.160	20	LGF	0.0080	70.743
EPB9A213A	A	C2	1	2	64.083	0.160	20	LGF	0.0080	63.371
EPB9B111A	B	C1	2	1	65.187	0.160	20	LGF	0.0080	64.355
EPB9B112A	B	C1	2	1	63.016	0.160	20	LGF	0.0080	62.180
EPB9B113A	B	C1	2	1	59.895	0.160	20	LGF	0.0080	59.278
EPB9B114A	B	C1	2	1	68.224	0.161	20	LGF	0.0080	67.683
EPB9B211A	B	C2	2	2	67.985	0.159	20	LGF	0.0079	66.544
EPB9B212A	B	C2	2	2	72.132	0.159	20	LGF	0.0080	70.975
EPB9B213A	B	C2	2	2	67.413	0.159	20	LGF	0.0079	66.144
EPB9D111A	D	C1	4	1	70.746	0.158	20	LGF	0.0079	68.897
EPB9D112A	D	C1	4	1	63.613	0.158	20	LGF	0.0079	61.892
EPB9D113A	D	C1	4	1	64.505	0.157	20	LGF	0.0079	62.673
EPB9D114A	D	C1	4	1	70.712	0.161	20	LGF	0.0081	70.443
EPB9D211A	D	C2	4	2	69.179	0.160	20	LGM	0.0080	68.197
EPB9D212A	D	C2	4	2	64.604	0.160	20	LGM	0.0080	63.727
EPB9D213A	D	C2	4	2	66.389	0.157	20	LGF	0.0079	64.340

Average	**67.733**	
Standard Dev.	**4.487**	
Coeff. of Var. [%]	**6.624**	
Min.	**59.895**	
Max.	**81.519**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0080**	**66.749**
$Standard\ Dev._{norm}$		**4.558**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**6.828**
Min.	**0.0079**	**59.278**
Max.	**0.0081**	**80.680**
Number of Spec.	**21**	**21**


Laminate Filled-Hole Compression Properties (FHC3)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
Laminate Filled-Hole Compression Strength [ksi]

Laminate Filled-Hole Compression Properties (FHC3)--ETW1
Strength

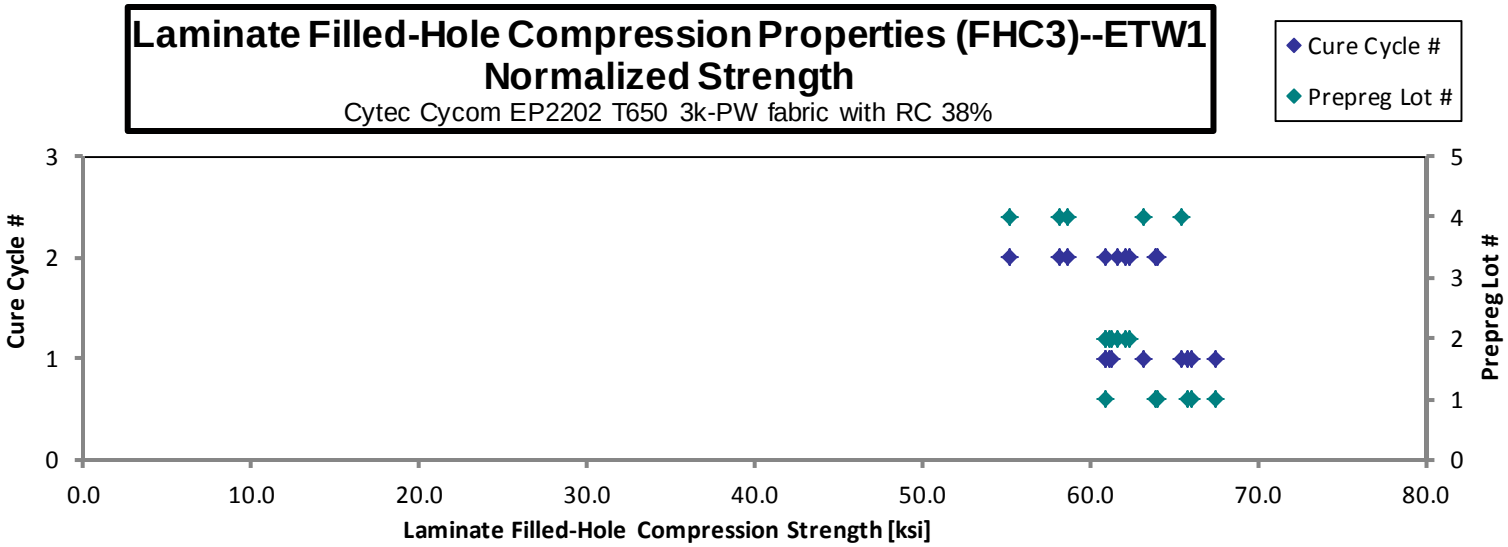
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPB9A118D	A	C1	1	1	66.650	0.161	20	LGF	0.0080	66.046
EPB9A119D	A	C1	1	1	66.266	0.161	20	LGF	0.0080	65.816
EPB9A11CD	A	C1	1	1	67.850	0.161	20	LGM	0.0080	67.424
EPB9A216D	A	C2	1	2	64.533	0.161	20	LGF	0.0080	64.049
EPB9A217D	A	C2	1	2	64.379	0.161	20	LGM	0.0080	63.863
EPB9A218D	A	C2	1	2	61.413	0.161	20	LGM	0.0080	60.876
EPB9B117D	B	C1	2	1	61.645	0.161	20	LGF	0.0080	61.182
EPB9B118D	B	C1	2	1	62.006	0.160	20	LGM, LGF	0.0080	61.273
EPB9B11BD	B	C1	2	1	61.135	0.161	20	LGF	0.0081	60.921
EPB9B11CD	B	C1	2	1	61.102	0.162	20	LGF	0.0081	60.920
EPB9B218D	B	C2	2	2	63.235	0.160	20	LGF	0.0080	62.337
EPB9B219D	B	C2	2	2	62.647	0.160	20	LGF	0.0080	61.680
EPB9B21AD	B	C2	2	2	63.140	0.160	20	LGF	0.0080	62.165
EPB9D119D	D	C1	4	1	64.851	0.158	20	LGM	0.0079	63.236
EPB9D11CD	D	C1	4	1	67.463	0.157	20	LGM	0.0079	65.505
EPB9D216D	D	C2	4	2	58.646	0.161	20	LGF	0.0080	58.230
EPB9D217D*	D	C2	4	2	56.284	0.159	20	LGM	0.0079	55.155
EPB9D21AD	D	C2	4	2	60.072	0.158	20	LGF	0.0079	58.626

* Failure occured on one side of the hole across the width

Average	**62.962**	**Average$_{norm}$**	**0.0080**	**62.184**
Standard Dev.	**3.071**	**Standard Dev.$_{norm}$**		**3.056**
Coeff. of Var. [%]	**4.878**	**Coeff. of Var. [%]$_{norm}$**		**4.914**
Min.	**56.284**	**Min.**	**0.0079**	**55.155**
Max.	**67.850**	**Max.**	**0.0081**	**67.424**
Number of Spec.	**18**	**Number of Spec.**	**18**	**18**


Laminate Filled-Hole Compression Properties (FHC3)--ETW1
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
Laminate Filled-Hole Compression Strength [ksi]

4.26 "25/50/25" Single-Shear Bearing 1 Properties (SSB1)

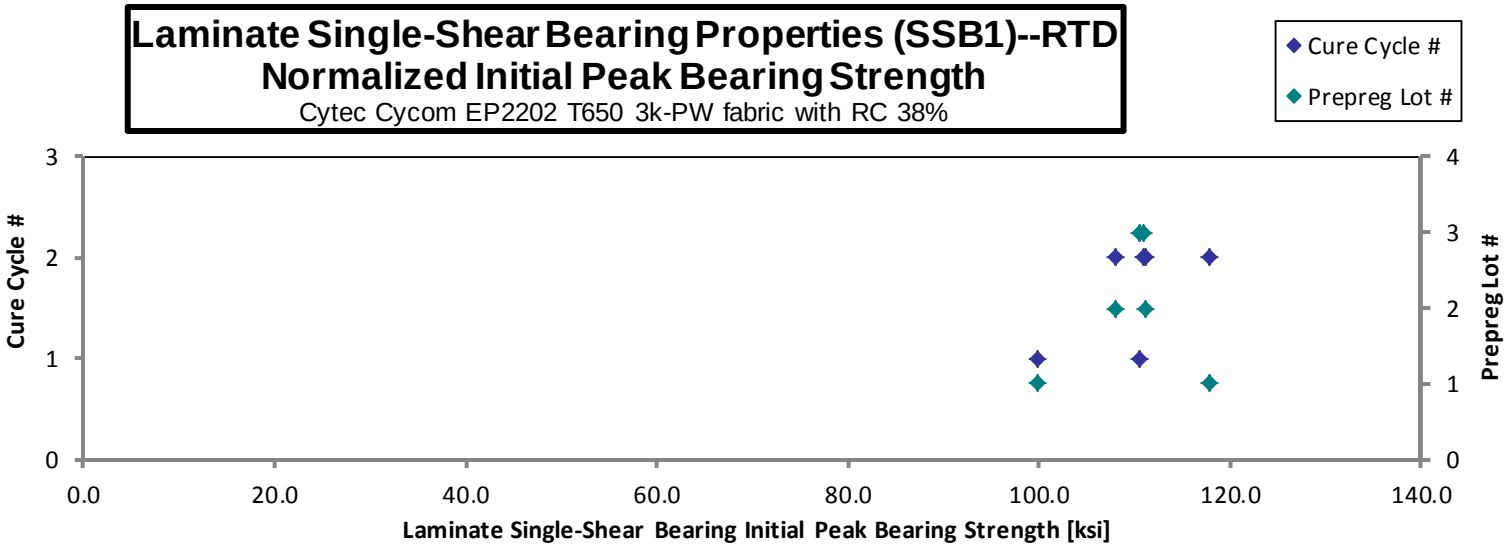
Laminate Single-Shear Bearing Properties (SSB1)--RTD Strength

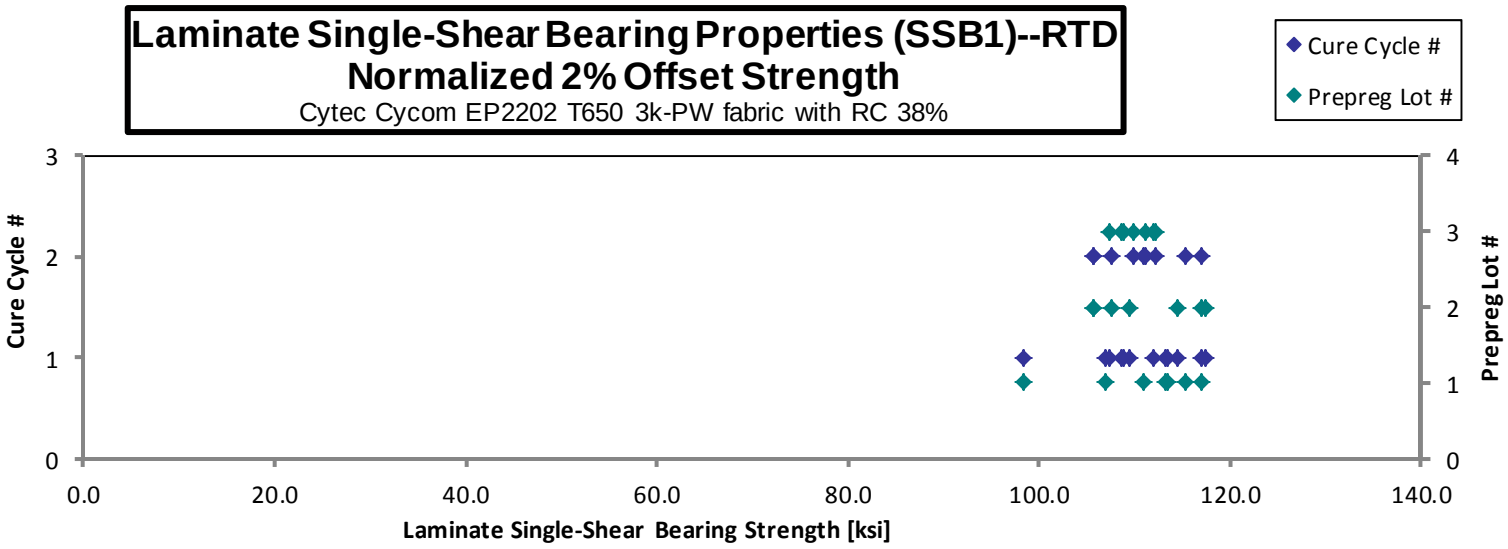
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

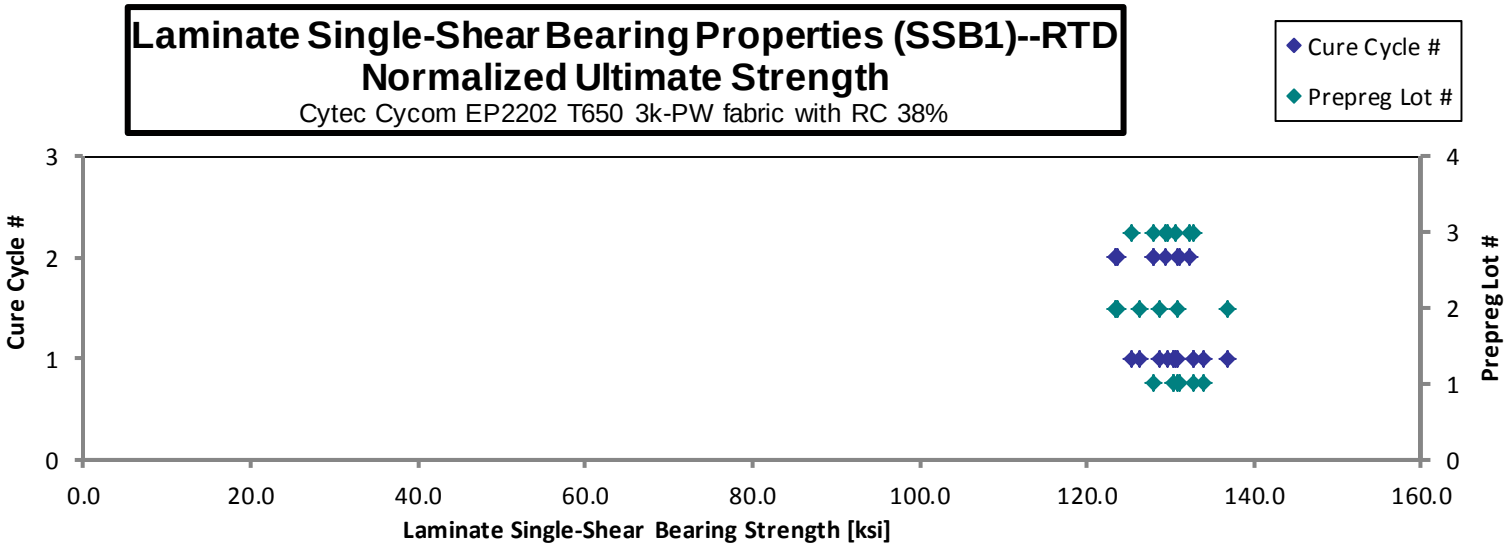
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Initial Peak Bearing Strength [ksi]	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	Initial Peak Bearing $Strength_{norm}$ [ksi]	2% Offset $Strength_{norm}$ [ksi]	Ultimate $Strength_{norm}$ [ksi]
EPB1A111A	A	C1	1	1		114.430	131.570	0.129	16	B1I	0.0080		113.458	130.453
EPB1A112A	A	C1	1	1		108.464	134.485	0.128	16	B1I	0.0080		106.986	132.652
EPB1A113A	A	C1	1	1	100.746	99.276	131.506	0.128	16	B1I	0.0080	99.878	98.420	130.373
EPB1A114A	A	C1	1	1		114.177	134.882	0.129	16	B1I	0.0080		113.326	133.876
EPB1A211A	A	C2	1	2	118.604	117.775	131.890	0.129	16	B1I	0.0080	117.780	116.957	130.974
EPB1A212A	A	C2	1	2		112.090	132.169	0.128	16	B1I	0.0080		110.879	130.742
EPB1A213A	A	C2	1	2		116.400	129.144	0.129	16	B1I	0.0080		115.412	128.048
EPB1B111A	B	C1	2	1		116.798	139.719	0.127	16	B1I	0.0079		114.454	136.916
EPB1B112A	B	C1	2	1		112.298	129.515	0.126	16	B1I	0.0079		109.453	126.234
EPB1B113A	B	C1	2	1		120.685	132.434	0.126	16	B1I	0.0079		117.317	128.738
EPB1B114A	B	C1	2	1		119.877	134.019	0.126	16	B1I	0.0079		116.979	130.779
EPB1B211A	B	C2	2	2		107.670	125.867	0.127	16	B1I	0.0079		105.621	123.472
EPB1B212A	B	C2	2	2	110.431	108.002	126.055	0.127	16	B1I	0.0079	108.059	105.682	123.348
EPB1B213A	B	C2	2	2	113.916	110.374	126.794	0.126	16	B1I	0.0079	111.060	107.606	123.614
EPB1C111A	C	C1	3	1		108.440	126.583	0.128	16	B1I	0.0080		107.367	125.329
EPB1C112A	C	C1	3	1		109.345	131.315	0.129	16	B1I	0.0081		108.740	130.589
EPB1C113A	C	C1	3	1	111.615	109.727	133.975	0.128	16	B1I	0.0080	110.538	108.668	132.682
EPB1C114A	C	C1	3	1		113.286	131.024	0.128	16	B1I	0.0080		112.063	129.609
EPB1C211A	C	C2	3	2	111.130	110.009	129.427	0.129	16	B1I	0.0081	111.001	109.882	129.277
EPB1C212A	C	C2	3	2		112.219	132.241	0.130	16	B1I	0.0081		112.190	132.207
EPB1C213A	C	C2	3	2		111.345	128.092	0.129	16	B1I	0.0081		111.230	127.960

Average	**111.074**	**112.033**	**131.081**		**Average$_{norm}$**	**0.0080**	**109.719**	**110.604**	**129.422**
Standard Dev.	**5.868**	**4.831**	**3.406**		**Standard Dev.$_{norm}$**		**5.809**	**4.603**	**3.547**
Coeff. of Var. [%]	**5.283**	**4.312**	**2.599**		**Coeff. of Var. [%]$_{norm}$**		**5.294**	**4.162**	**2.741**
Min.	**100.746**	**99.276**	**125.867**		**Min.**	**0.0079**	**99.878**	**98.420**	**123.348**
Max.	**118.604**	**120.685**	**139.719**		**Max.**	**0.0081**	**117.780**	**117.317**	**136.916**
Number of Spec.	**6**	**21**	**21**		**Number of Spec.**	**21**	**6**	**21**	**21**


Laminate Single-Shear Bearing Properties (SSB1)--RTD
Normalized Initial Peak Bearing Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Laminate Single-Shear Bearing Initial Peak Bearing Strength [ksi]


Laminate Single-Shear Bearing Properties (SSB1)--RTD
Normalized 2% Offset Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Laminate Single-Shear Bearing Strength [ksi]

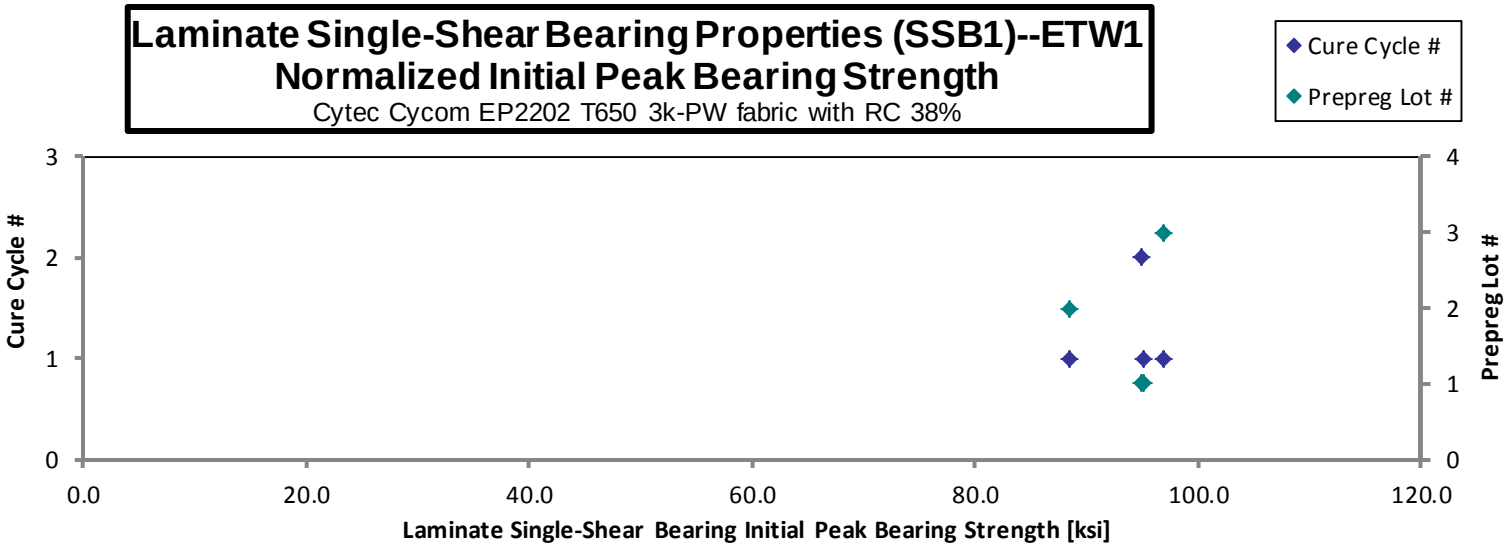

Laminate Single-Shear Bearing Properties (SSB1)--RTD
Normalized Ultimate Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
Laminate Single-Shear Bearing Strength [ksi]

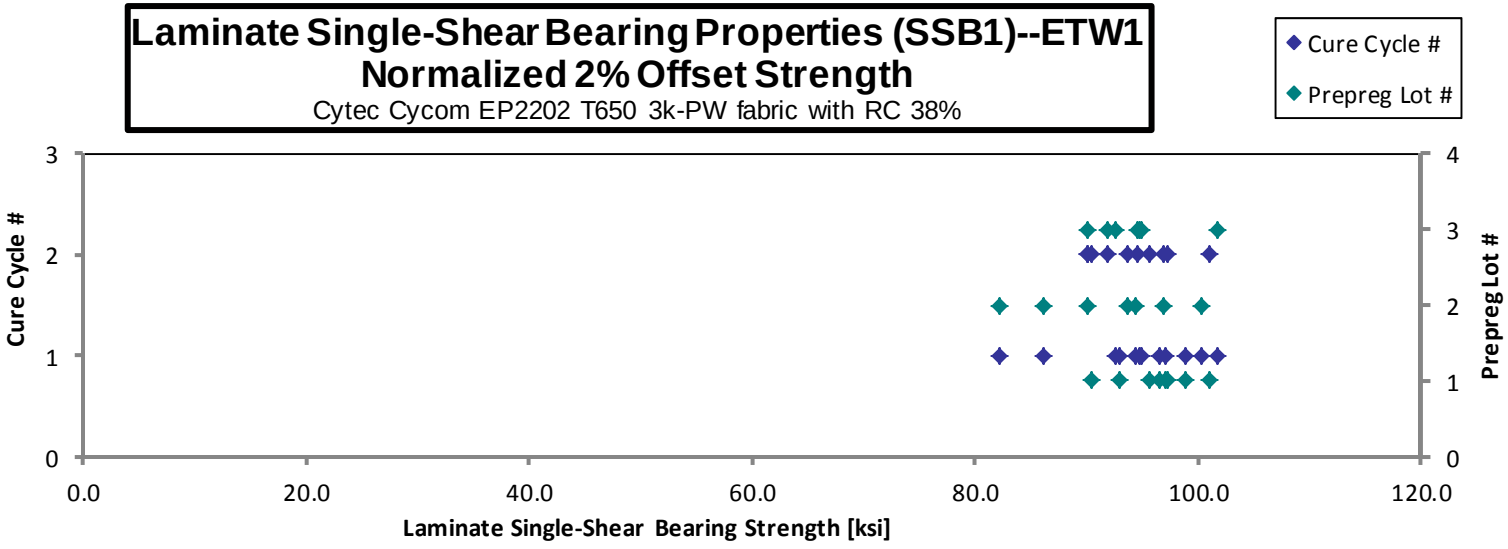
Laminate Single-Shear Bearing Properties (SSB1)--ETW1
Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

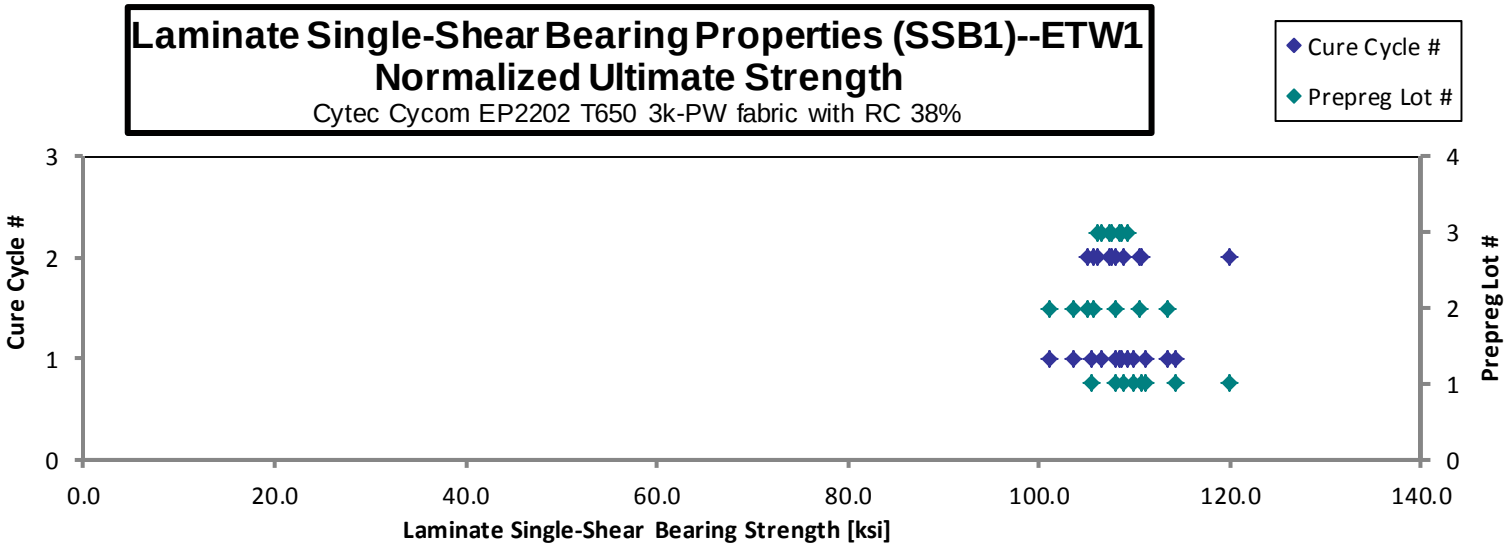
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Initial Peak Bearing Strength [ksi]	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	Initial Peak Bearing $Strength_{norm}$ [ksi]	2% Offset $Strength_{norm}$ [ksi]	Ultimate $Strength_{norm}$ [ksi]
EPB1A116D	A	C1	1	1		97.693	111.825	0.129	16	B1I	0.0080		97.052	111.091
EPB1A117D	A	C1	1	1		99.656	106.331	0.129	16	B1I	0.0080		98.887	105.511
EPB1A118D	A	C1	1	1	95.699	93.443	110.647	0.129	16	B1I	0.0081	95.121	92.879	109.978
EPB1A119D	A	C1	1	1		97.381	115.299	0.128	16	B1I	0.0080		96.505	114.261
EPB1A215D	A	C2	1	2		97.658	120.465	0.129	16	B1I	0.0081		97.294	120.016
EPB1A216D	A	C2	1	2	94.883	90.401	110.713	0.130	16	B1I	0.0081	94.871	90.390	110.698
EPB1A217D	A	C2	1	2		101.139	108.857	0.129	16	B1I	0.0081		101.034	108.745
EPB1A218D	A	C2	1	2		95.775	108.125	0.129	16	B1I	0.0081		95.578	107.903
EPB1B116D	B	C1	2	1		96.707	103.481	0.127	16	B1I	0.0079		94.419	101.033
EPB1B117D	B	C1	2	1		83.795	105.699	0.127	16	B1I	0.0079		82.200	103.688
EPB1B118D	B	C1	2	1	90.580	88.089	116.207	0.127	16	B1I	0.0079	88.448	86.016	113.472
EPB1B119D	B	C1	2	1		102.770	110.573	0.127	16	B1I	0.0079		100.338	107.957
EPB1B215D	B	C2	2	2		91.333	106.379	0.128	16	B1I	0.0080		90.123	104.970
EPB1B216D	B	C2	2	2		98.702	112.579	0.127	16	B1I	0.0079		96.823	110.436
EPB1B217D	B	C2	2	2		95.083	107.330	0.128	16	B1I	0.0080		93.640	105.701
EPB1C116D	C	C1	3	1		101.301	108.077	0.130	16	B1I	0.0081		101.679	108.480
EPB1C117D	C	C1	3	1		95.316	109.597	0.129	16	B1I	0.0081		94.948	109.174
EPB1C118D	C	C1	3	1		92.757	106.745	0.129	16	B1I	0.0081		92.542	106.498
EPB1C119D	C	C1	3	1	96.994	94.785	108.699	0.129	16	B1I	0.0081	96.844	94.639	108.531
EPB1C215D	C	C2	3	2		94.327	107.123	0.130	16	B1I	0.0081		94.593	107.426
EPB1C216D	C	C2	3	2		89.943	107.584	0.130	16	B1I	0.0081		89.989	107.640
EPB1C217D	C	C2	3	2		91.294	105.409	0.130	16	B1I	0.0081		91.845	106.046

Average	**94.539**	**94.970**	**109.443**	**$Average_{norm}$**	**0.0080**	**93.821**	**94.246**	**108.602**
Standard Dev.	**2.779**	**4.639**	**3.972**	**Standard $Dev._{norm}$**		**3.688**	**4.707**	**3.958**
Coeff. of Var. [%]	**2.940**	**4.885**	**3.630**	**Coeff. of Var. $[\%]_{norm}$**		**3.931**	**4.994**	**3.645**
Min.	**90.580**	**83.795**	**103.481**	**Min.**	**0.0079**	**88.448**	**82.200**	**101.033**
Max.	**96.994**	**102.770**	**120.465**	**Max.**	**0.0081**	**96.844**	**101.679**	**120.016**
Number of Spec.	**4**	**22**	**22**	**Number of Spec.**	**22**	**4**	**22**	**22**


Laminate Single-Shear Bearing Properties (SSB1)--ETW1
Normalized Initial Peak Bearing Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Single-Shear Bearing Initial Peak Bearing Strength [ksi]


Laminate Single-Shear Bearing Properties (SSB1)--ETW1
Normalized 2% Offset Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Single-Shear Bearing Strength [ksi]


Laminate Single-Shear Bearing Properties (SSB1)--ETW1
Normalized Ultimate Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Laminate Single-Shear Bearing Strength [ksi]

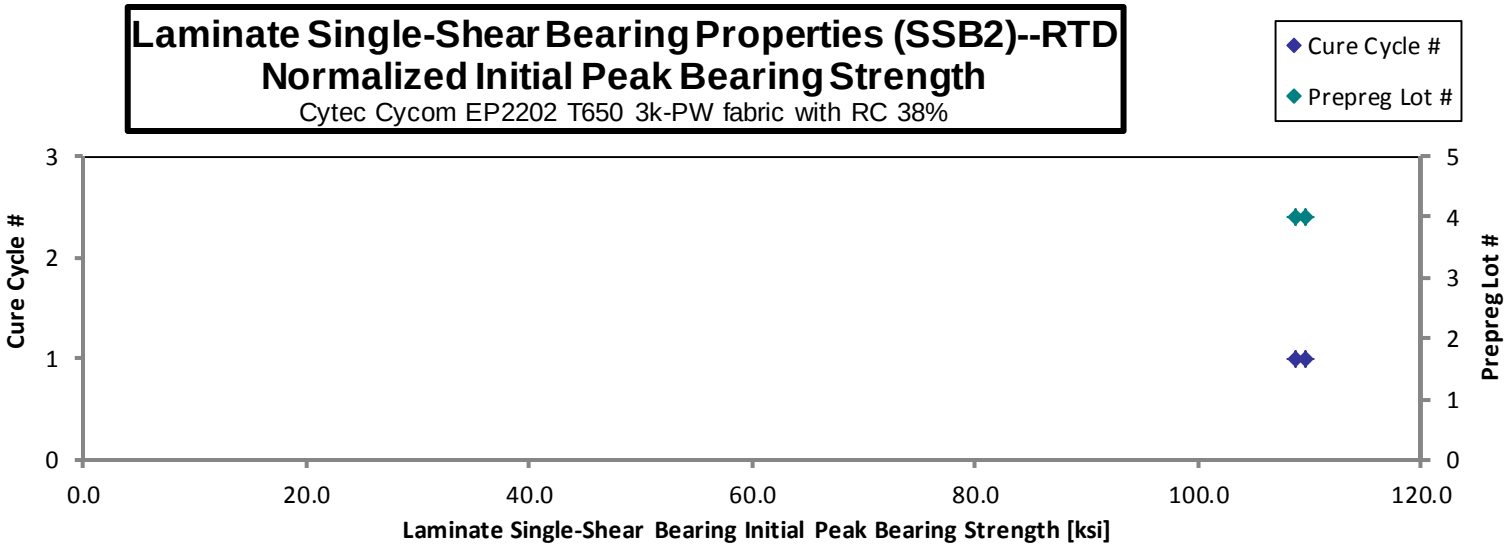
4.27 "10/80/10" Single-Shear Bearing 2 Properties (SSB2)

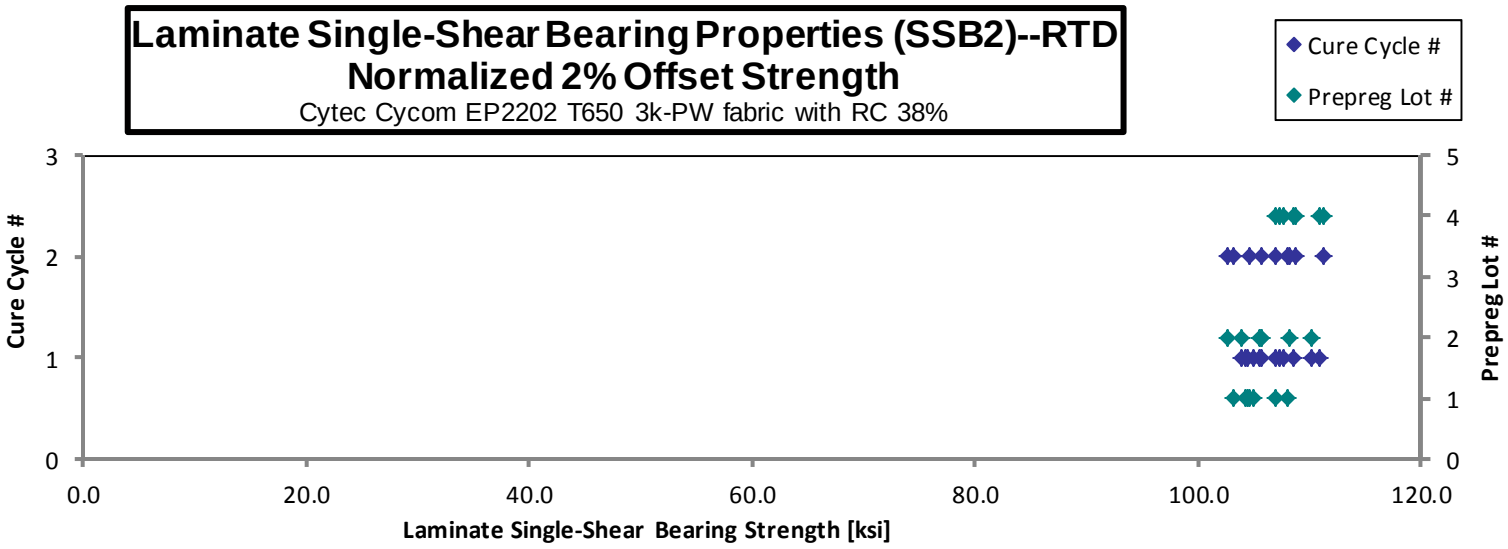
Laminate Single-Shear Bearing Properties (SSB2)--RTD Strength

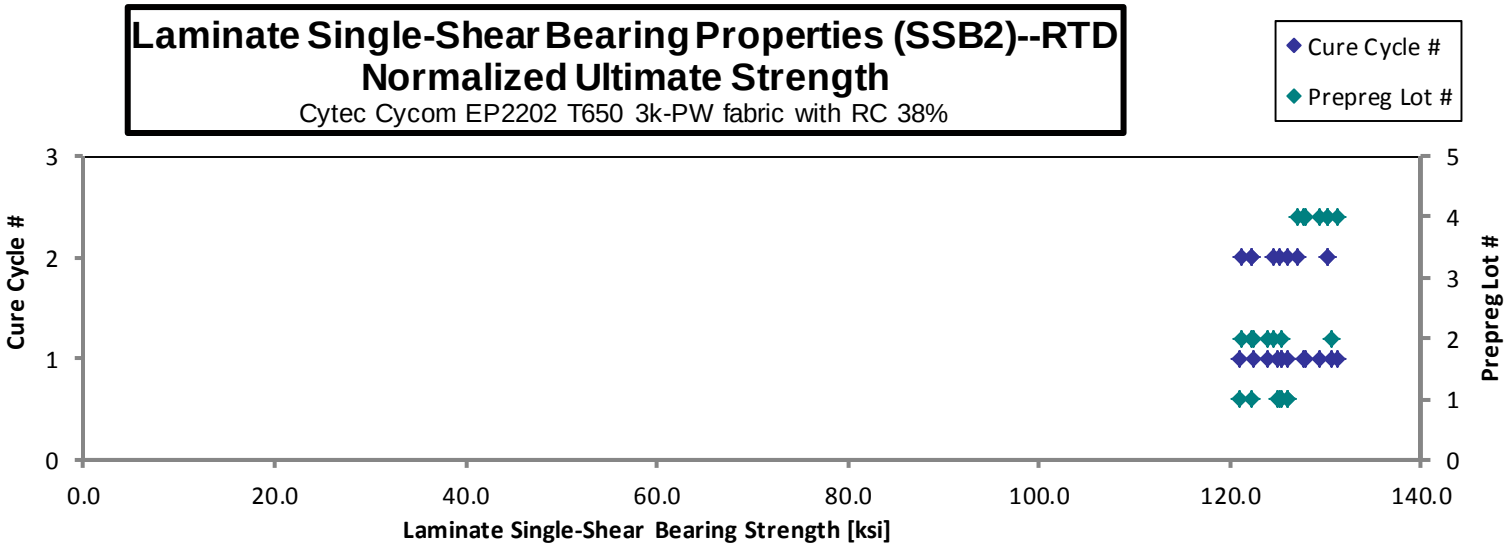
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Initial Peak Bearing Strength [ksi]	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	Initial Peak Bearing $Strength_{norm}$ [ksi]	2% Offset $Strength_{norm}$ [ksi]	Ultimate $Strength_{norm}$ [ksi]
EPB2A111A	A	C1	1	1		107.922	126.625	0.160	20	B1I	0.0080		106.911	125.440
EPB2A112A	A	C1	1	1		106.175	126.403	0.160	20	B1I	0.0080		104.919	124.907
EPB2A113A	A	C1	1	1		105.474	122.335	0.160	20	B1I	0.0080		104.324	121.000
EPB2A114A	A	C1	1	1		105.089	127.118	0.161	20	B1I	0.0080		104.224	126.072
EPB2A211A	A	C2	1	2		104.389	127.521	0.160	20	B1I	0.0080		103.090	125.934
EPB2A212A	A	C2	1	2		109.699	124.082	0.160	20	B1I	0.0080		108.052	122.218
EPB2A213A	A	C2	1	2		105.504	126.179	0.161	20	B1I	0.0080		104.560	125.049
EPB2B111A	B	C1	2	1		107.248	124.286	0.159	20	B1I	0.0080		105.582	122.355
EPB2B112A	B	C1	2	1		107.142	132.614	0.159	20	B1I	0.0080		105.445	130.513
EPB2B113A	B	C1	2	1		105.652	127.567	0.159	20	B1I	0.0080		103.859	125.402
EPB2B114A	B	C1	2	1		111.739	125.673	0.160	20	B1I	0.0080		110.106	123.837
EPB2B211A	B	C2	2	2		103.275	121.932	0.161	20	B1I	0.0080		102.617	121.155
EPB2B212A	B	C2	2	2		106.113	122.606	0.161	20	B1I	0.0081		105.742	122.177
EPB2B213A	B	C2	2	2		108.927	125.433	0.161	20	B1I	0.0080		108.109	124.491
EPB2D111A	D	C1	4	1	113.490	112.469	134.043	0.156	20	B1I	0.0078	109.521	108.535	129.354
EPB2D112A	D	C1	4	1		111.329	132.331	0.157	20	B1I	0.0078		107.652	127.960
EPB2D113A	D	C1	4	1	112.346	110.923	135.764	0.157	20	B1I	0.0078	108.670	107.294	131.323
EPB2D114A	D	C1	4	1		114.542	131.922	0.157	20	B1I	0.0078		110.842	127.661
EPB2D211A	D	C2	4	2		113.200	132.471	0.159	20	B1I	0.0080		111.243	130.181
EPB2D212A	D	C2	4	2		109.183	129.707	0.159	20	B1I	0.0079		106.981	127.092
EPB2D213A	D	C2	4	2		110.333	132.227	0.160	20	B1I	0.0080		108.653	130.214
Average					**112.918**	**108.397**	**128.040**				**Average$_{norm}$**	**0.0080**	**109.096**	**106.607**	**125.921**
Standard Dev.					**0.809**	**3.169**	**4.130**				**Standard Dev.$_{norm}$**		**0.601**	**2.476**	**3.188**
Coeff. of Var. [%]					**0.717**	**2.923**	**3.225**				**Coeff. of Var. [%]$_{norm}$**		**0.551**	**2.323**	**2.532**
Min.					**112.346**	**103.275**	**121.932**				**Min.**	**0.0078**	**108.670**	**102.617**	**121.000**
Max.					**113.490**	**114.542**	**135.764**				**Max.**	**0.0081**	**109.521**	**111.243**	**131.323**
Number of Spec.					**2**	**21**	**21**				**Number of Spec.**	**21**	**2**	**21**	**21**


Laminate Single-Shear Bearing Properties (SSB2)--RTD
Normalized Initial Peak Bearing Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
5
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Single-Shear Bearing Initial Peak Bearing Strength [ksi]


Laminate Single-Shear Bearing Properties (SSB2)--RTD
Normalized 2% Offset Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
5
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Single-Shear Bearing Strength [ksi]

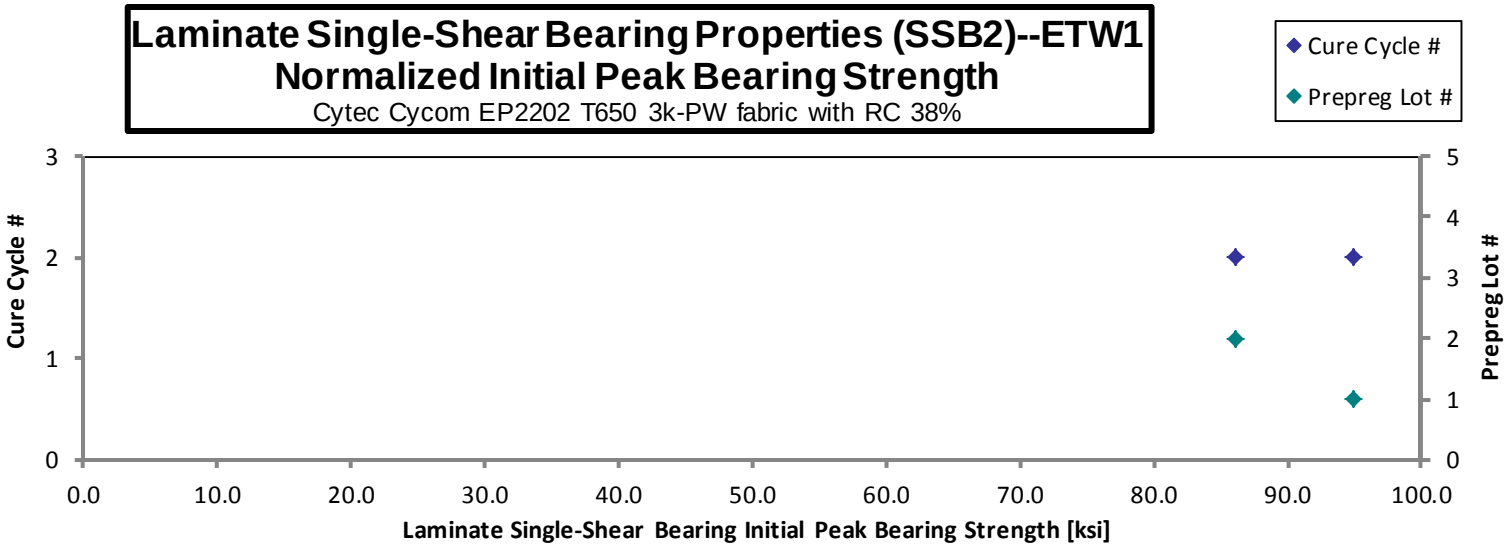

Laminate Single-Shear Bearing Properties (SSB2)--RTD
Normalized Ultimate Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Laminate Single-Shear Bearing Strength [ksi]

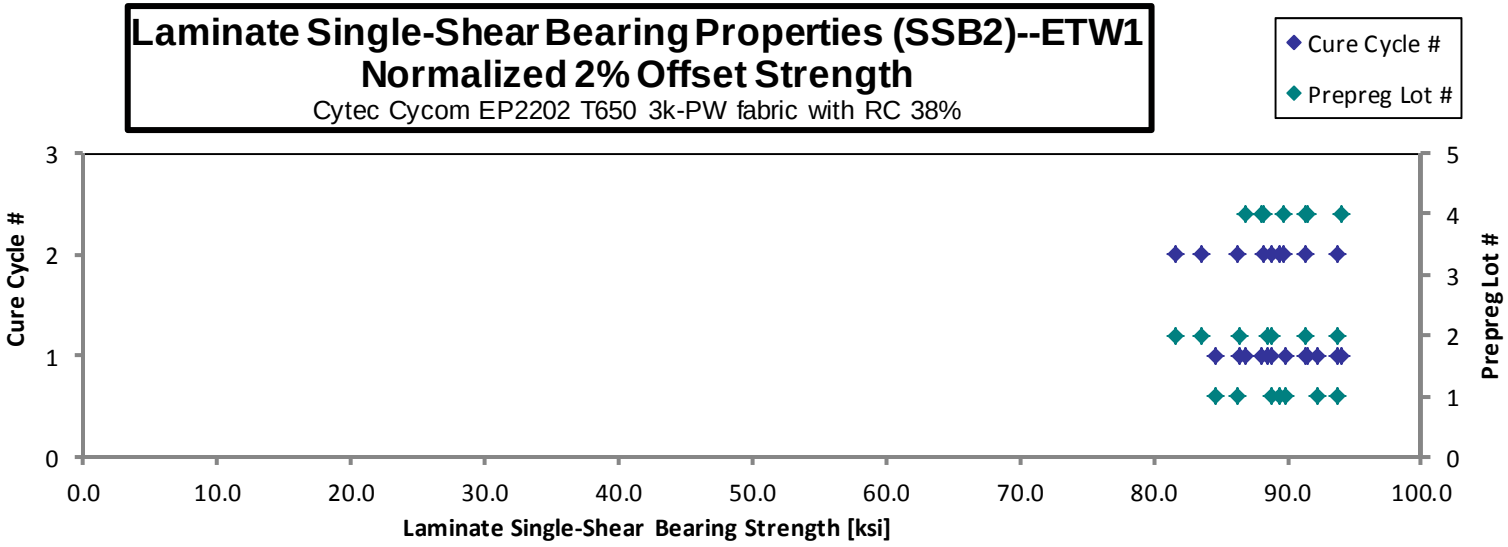
Laminate Single-Shear Bearing Properties (SSB2)--ETW1
Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

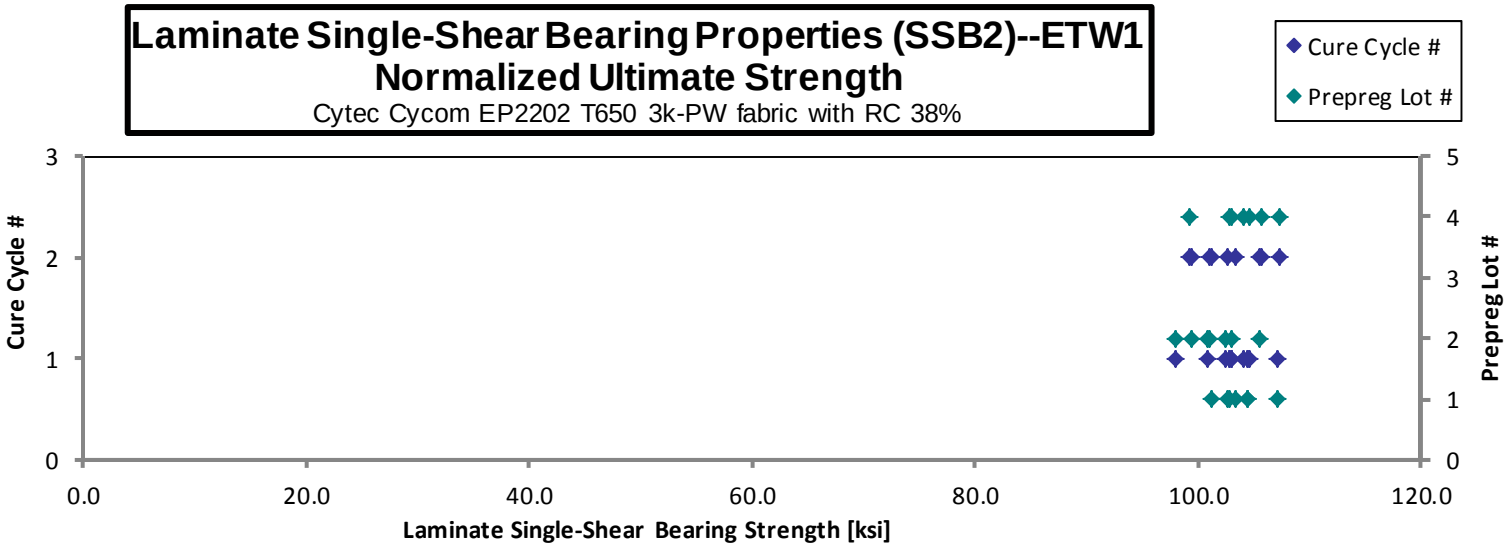
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Initial Peak Bearing Strength [ksi]	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	Initial Peak Bearing $Strength_{norm}$ [ksi]	2% Offset $Strength_{norm}$ [ksi]	Ultimate $Strength_{norm}$ [ksi]
EPB2A116D	A	C1	1	1		94.429	103.549	0.161	20	BI1	0.0080		93.798	102.856
EPB2A117D	A	C1	1	1		90.515	105.103	0.161	20	BI1	0.0080		89.873	104.357
EPB2A118D	A	C1	1	1		85.202	107.766	0.161	20	BI1	0.0080		84.606	107.012
EPB2A119D	A	C1	1	1		92.988	105.258	0.161	20	BI1	0.0080		92.222	104.392
EPB2A215D	A	C2	1	2	95.291	89.769	103.055	0.161	20	BI1	0.0081	94.909	89.409	102.642
EPB2A216D	A	C2	1	2		86.633	103.865	0.161	20	BI1	0.0081		86.188	103.331
EPB2A217D	A	C2	1	2		89.335	101.778	0.161	20	BI1	0.0080		88.747	101.107
EPB2B116D	B	C1	2	1		92.879	104.663	0.159	20	B1I	0.0080		91.398	102.994
EPB2B117D	B	C1	2	1		88.328	104.612	0.159	20	B1I	0.0079		86.447	102.384
EPB2B118D	B	C1	2	1		90.005	99.611	0.159	20	B1I	0.0080		88.496	97.941
EPB2B119D	B	C1	2	1		90.049	102.092	0.160	20	B1I	0.0080		88.864	100.747
EPB2B215D	B	C2	2	2	87.165	84.537	102.083	0.160	20	B1I	0.0080	86.161	83.563	100.907
EPB2B216D	B	C2	2	2		94.138	106.014	0.161	20	B1I	0.0081		93.683	105.501
EPB2B217D	B	C2	2	2		81.466	99.232	0.162	20	B1I	0.0081		81.600	99.396
EPB2D116D	D	C1	4	1		97.309	108.265	0.157	20	B1I	0.0078		94.055	104.645
EPB2D117D	D	C1	4	1		89.472	107.266	0.157	20	B1I	0.0079		86.812	104.076
EPB2D118D	D	C1	4	1		94.302	106.056	0.157	20	B1I	0.0079		91.527	102.936
EPB2D119D	D	C1	4	1		90.316	105.408	0.158	20	B1I	0.0079		88.040	102.751
EPB2D215D	D	C2	4	2		93.017	109.253	0.159	20	B1I	0.0080		91.343	107.286
EPB2D216D	D	C2	4	2		91.623	107.973	0.159	20	B1I	0.0079		89.728	105.740
EPB2D217D	D	C2	4	2		89.754	100.992	0.159	20	B1I	0.0080		88.221	99.267

Average	**91.228**	**90.289**	**104.471**	**$Average_{norm}$**	**0.0080**	**90.535**	**88.982**	**102.965**
Standard Dev.	**5.746**	**3.721**	**2.829**	**Standard $Dev._{norm}$**		**6.186**	**3.352**	**2.471**
Coeff. of Var. [%]	**6.298**	**4.121**	**2.708**	**Coeff. of Var. $[\%]_{norm}$**		**6.832**	**3.767**	**2.400**
Min.	**87.165**	**81.466**	**99.232**	**Min.**	**0.0078**	**86.161**	**81.600**	**97.941**
Max.	**95.291**	**97.309**	**109.253**	**Max.**	**0.0081**	**94.909**	**94.055**	**107.286**
Number of Spec.	**2**	**21**	**21**	**Number of Spec.**	**21**	**2**	**21**	**21**


Laminate Single-Shear Bearing Properties (SSB2)--ETW1
Normalized Initial Peak Bearing Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
Laminate Single-Shear Bearing Initial Peak Bearing Strength [ksi]


Laminate Single-Shear Bearing Properties (SSB2)--ETW1
Normalized 2% Offset Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
Laminate Single-Shear Bearing Strength [ksi]


Laminate Single-Shear Bearing Properties (SSB2)--ETW1
Normalized Ultimate Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Single-Shear Bearing Strength [ksi]

4.28 "40/20/40" Single-Shear Bearing 3 Properties (SSB3)

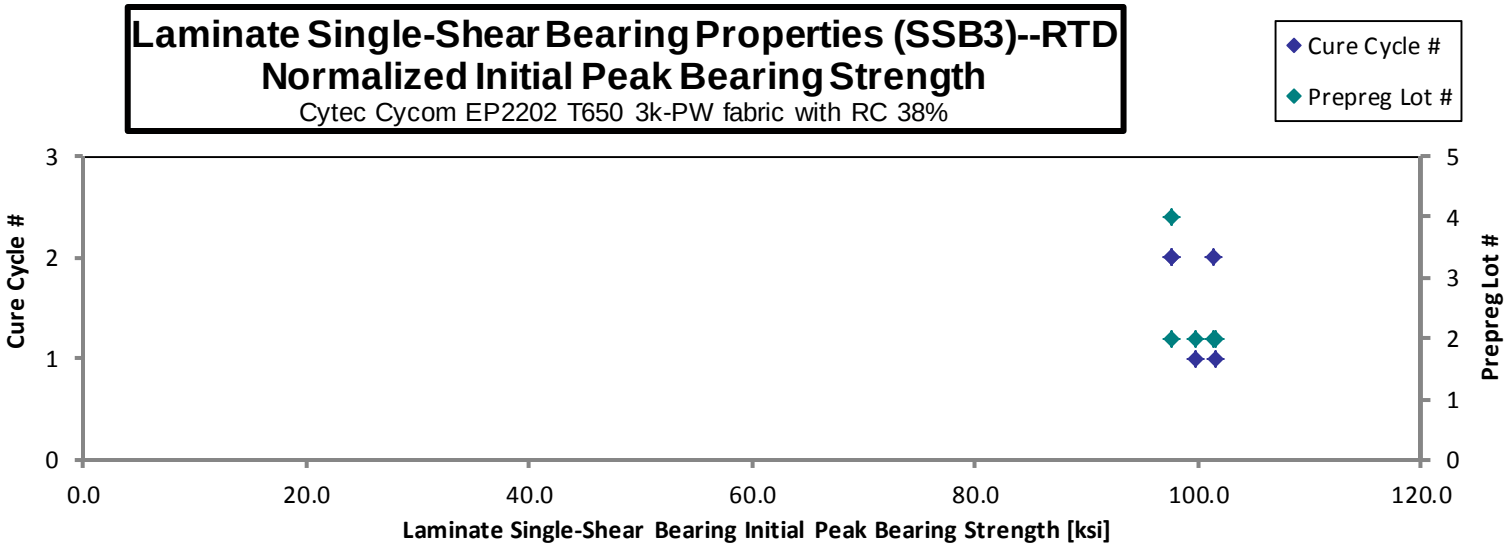
Laminate Single-Shear Bearing Properties (SSB3)--RTD Strength

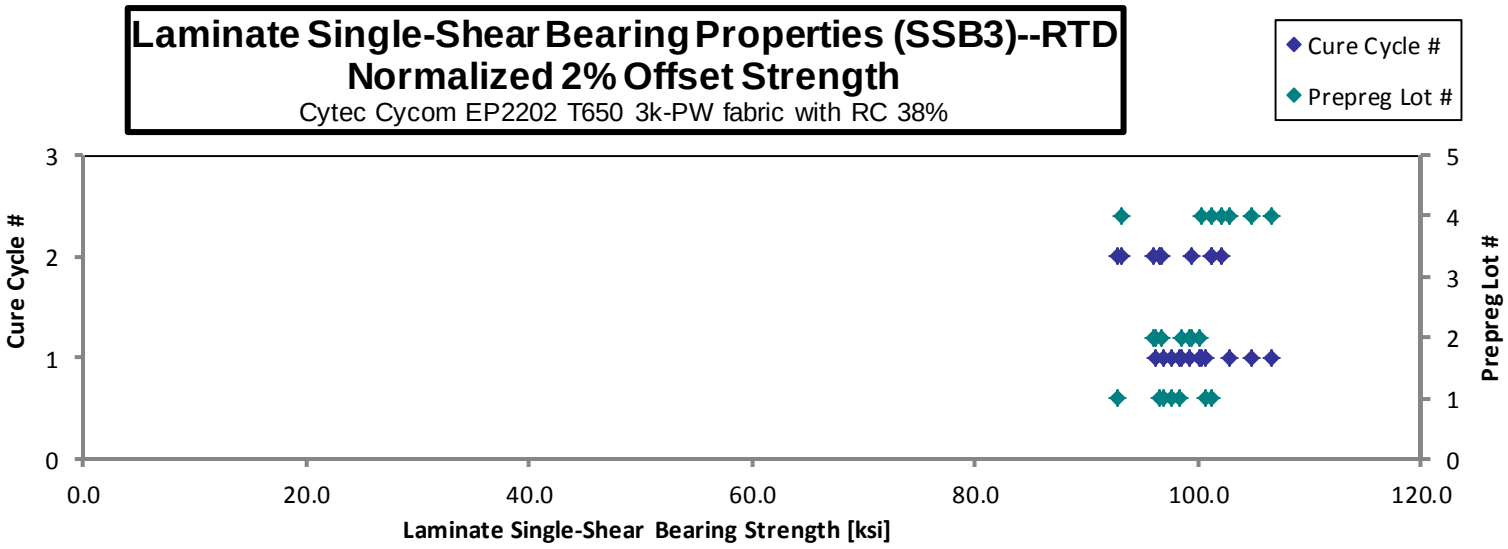
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

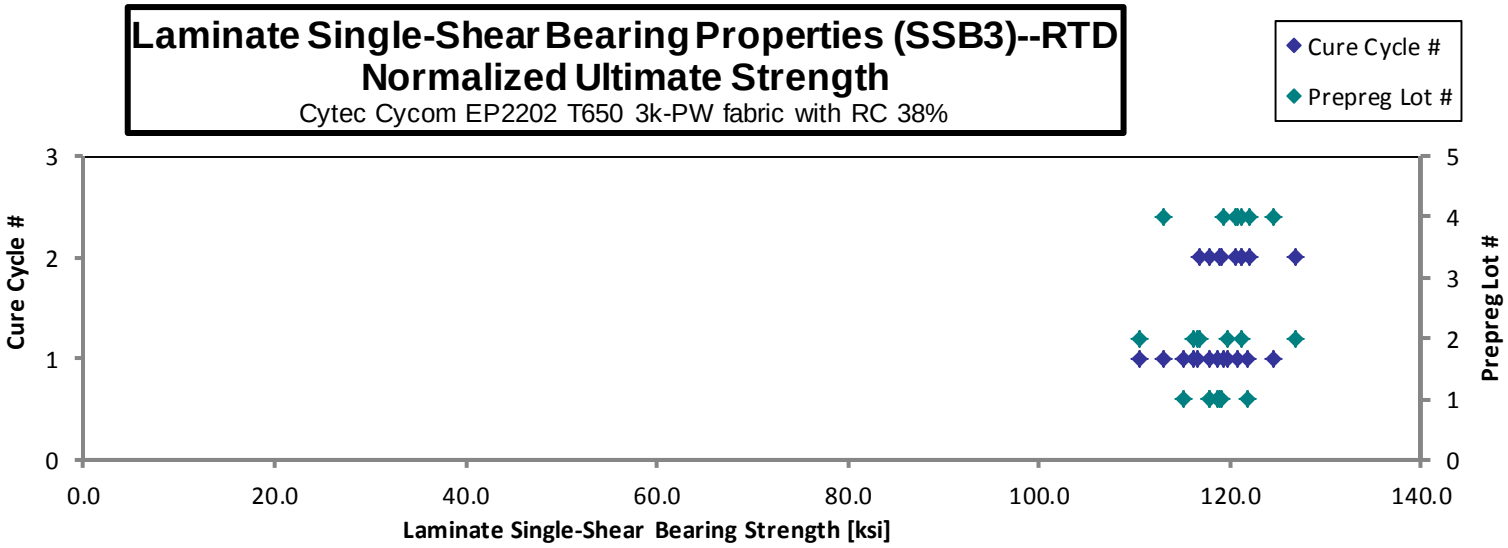
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Initial Peak Bearing Strength [ksi]	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	Initial Peak Bearing $Strength_{norm}$ [ksi]	2% Offset $Strength_{norm}$ [ksi]	Ultimate $Strength_{norm}$ [ksi]
EPB3A111A	A	C1	1	1		101.834	119.365	0.160	20	B1I	0.0080		100.566	117.879
EPB3A112A	A	C1	1	1		97.638	122.881	0.161	20	B1I	0.0080		96.784	121.807
EPB3A113A	A	C1	1	1		98.525	119.715	0.161	20	B1I	0.0080		97.653	118.656
EPB3A114A	A	C1	1	1		99.441	116.453	0.160	20	B1I	0.0080		98.367	115.195
EPB3A211A	A	C2	1	2		97.821	120.421	0.160	20	B1I	0.0080		96.583	118.897
EPB3A212A	A	C2	1	2		102.301	119.221	0.160	20	B1I	0.0080		101.143	117.872
EPB3A213A	A	C2	1	2		93.710	120.308	0.160	20	B1I	0.0080		92.765	119.095
EPB3B111A	B	C1	2	1	101.280	100.096	117.920	0.159	20	B1I	0.0080	99.707	98.541	116.088
EPB3B112A	B	C1	2	1	103.077	101.740	112.245	0.159	20	B1I	0.0080	101.465	100.149	110.490
EPB3B113A	B	C1	2	1		100.229	117.634	0.160	20	B1I	0.0080		99.270	116.508
EPB3B114A	B	C1	2	1		97.512	121.396	0.160	20	B1I	0.0080		96.238	119.810
EPB3B211A	B	C2	2	2		98.462	118.909	0.159	20	B1I	0.0080		96.760	116.854
EPB3B212A	B	C2	2	2	99.751	97.995	123.705	0.159	20	B1I	0.0079	97.667	95.949	121.122
EPB3B213A	B	C2	2	2	103.578	101.739	129.794	0.158	20	B1I	0.0079	101.266	99.468	126.896
EPB3D111A	D	C1	4	1		109.240	127.705	0.158	20	B1I	0.0079		106.475	124.473
EPB3D112A	D	C1	4	1		107.516	122.551	0.158	20	B1I	0.0079		104.717	119.361
EPB3D113A	D	C1	4	1		105.742	124.281	0.157	20	B1I	0.0079		102.794	120.816
EPB3D114A	D	C1	4	1		103.269	116.363	0.157	20	B1I	0.0079		100.358	113.082
EPB3D211A	D	C2	4	2		105.055	124.837	0.157	20	B1I	0.0079		102.007	121.215
EPB3D212A	D	C2	4	2	100.315	103.879	125.387	0.158	20	B1I	0.0079		101.089	122.020
EPB3D213A	D	C2	4	2		95.805	123.950	0.158	20	B1I	0.0079		93.154	120.520

Average	**101.600**	**100.931**	**121.192**	**Average$_{norm}$**	**0.0080**	**100.026**	**99.087**	**118.984**
Standard Dev.	**1.678**	**3.907**	**4.127**	**Standard Dev.$_{norm}$**		**1.758**	**3.427**	**3.667**
Coeff. of Var. [%]	**1.652**	**3.871**	**3.406**	**Coeff. of Var. [%]$_{norm}$**		**1.758**	**3.459**	**3.082**
Min.	**99.751**	**93.710**	**112.245**	**Min.**	**0.0079**	**97.667**	**92.765**	**110.490**
Max.	**103.578**	**109.240**	**129.794**	**Max.**	**0.0080**	**101.465**	**106.475**	**126.896**
Number of Spec.	**5**	**21**	**21**	**Number of Spec.**	**21**	**4**	**21**	**21**


Laminate Single-Shear Bearing Properties (SSB3)--RTD
Normalized Initial Peak Bearing Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Single-Shear Bearing Initial Peak Bearing Strength [ksi]


Laminate Single-Shear Bearing Properties (SSB3)--RTD
Normalized 2% Offset Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Single-Shear Bearing Strength [ksi]

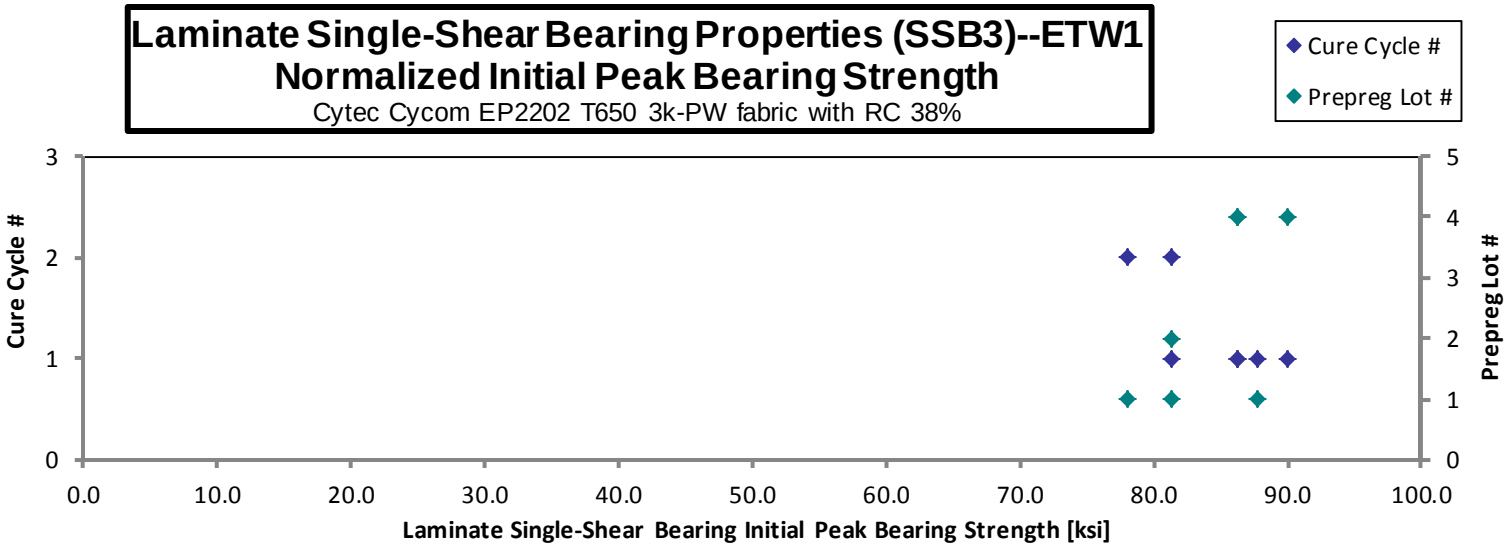

Laminate Single-Shear Bearing Properties (SSB3)--RTD
Normalized Ultimate Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Laminate Single-Shear Bearing Strength [ksi]

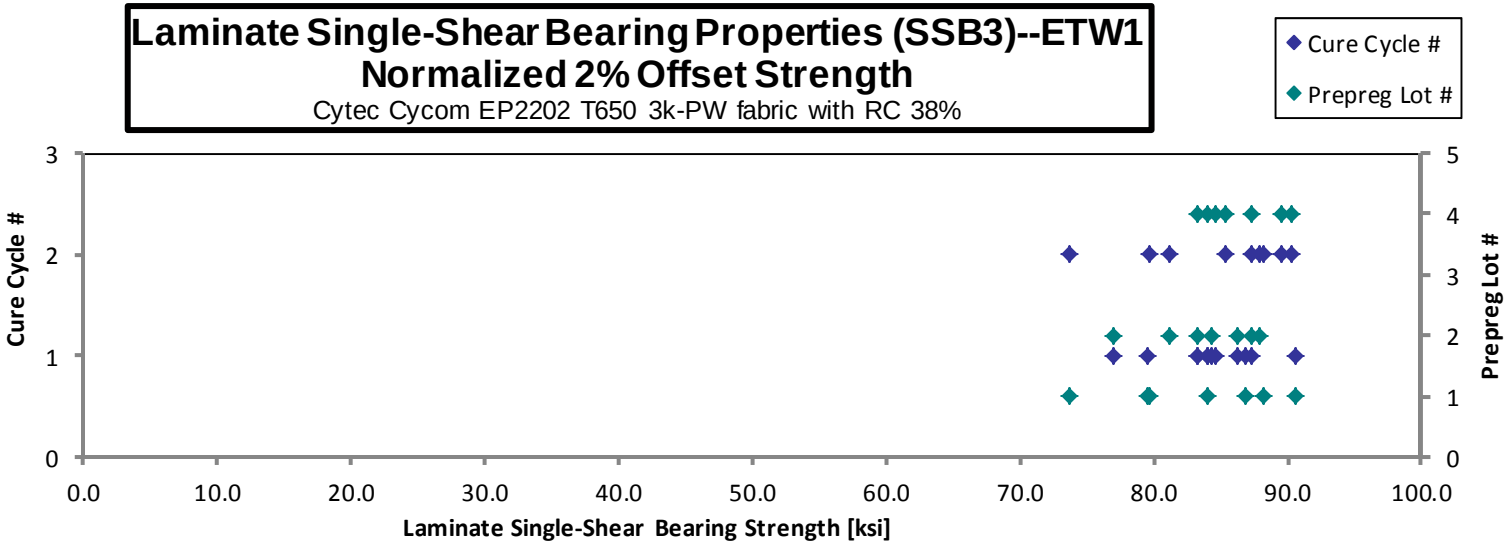
Laminate Single-Shear Bearing Properties (SSB3)--ETW1
Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

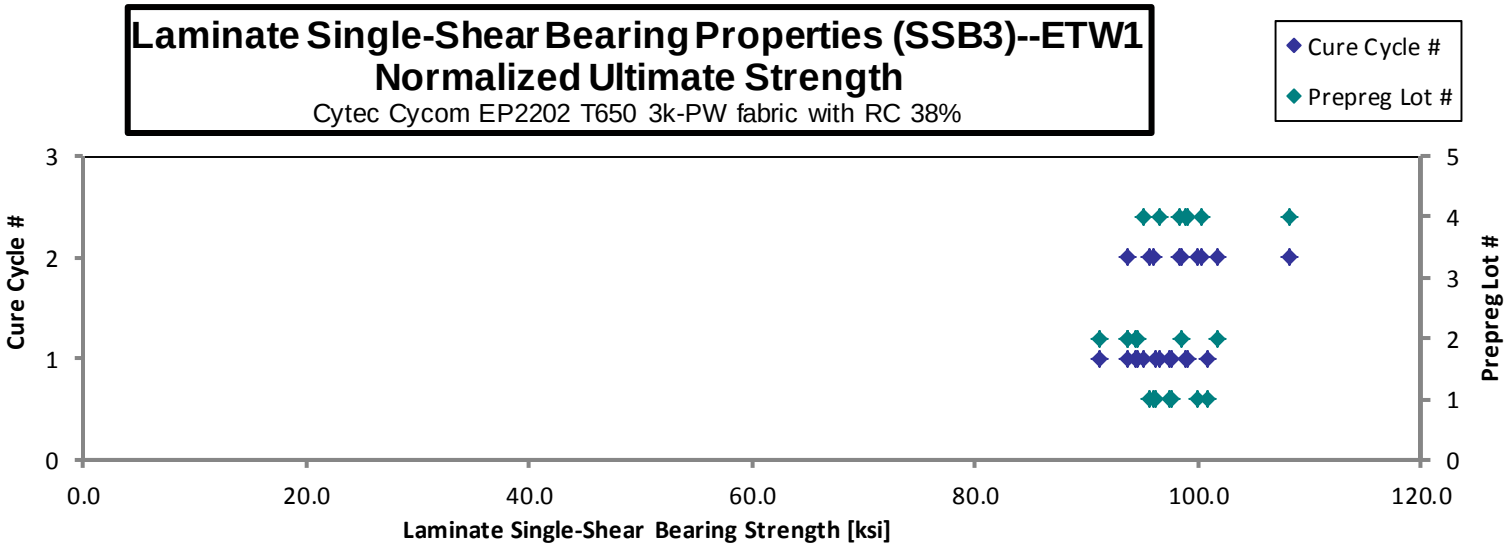
normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Initial Peak Bearing Strength [ksi]	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	Initial Peak Bearing $Strength_{norm}$ [ksi]	2% Offset $Strength_{norm}$ [ksi]	Ultimate $Strength_{norm}$ [ksi]
EPB3A116D	A	C1	1	1		80.317	98.622	0.160	20	B1I	0.0080		79.540	97.668
EPB3A117D	A	C1	1	1		87.375	97.916	0.161	20	B1I	0.0081		86.925	97.412
EPB3A118D	A	C1	1	1		91.021	96.531	0.161	20	B1I	0.0081		90.600	96.084
EPB3A119D	A	C1	1	1	88.138	84.354	101.111	0.161	20	B1I	0.0081	87.812	84.042	100.736
EPB3A215D	A	C2	1	2	81.856	80.156	96.558	0.161	20	B1I	0.0080	81.308	79.620	95.912
EPB3A216D	A	C2	1	2	78.304	73.888	100.341	0.161	20	B1I	0.0081	78.030	73.630	99.990
EPB3A217D	A	C2	1	2		88.664	96.065	0.161	20	B1I	0.0081		88.172	95.531
EPB3B111D	B	C1	2	1		83.996	95.224	0.161	20	B1I	0.0080		83.331	94.470
EPB3B112D	B	C1	2	1		85.184	94.621	0.160	20	B1I	0.0080		84.377	93.725
EPB3B113D	B	C1	2	1	81.778	77.313	91.669	0.161	20	B1I	0.0081	81.357	76.916	91.198
EPB3B114D	B	C1	2	1		86.526	94.605	0.161	20	B1I	0.0081		86.250	94.303
EPB3B211D	B	C2	2	2		88.588	95.001	0.160	20	B1I	0.0080		87.312	93.632
EPB3B212D	B	C2	2	2		89.595	100.447	0.159	20	B1I	0.0079		87.834	98.473
EPB3B213D	B	C2	2	2		82.940	103.953	0.159	20	B1I	0.0079		81.182	101.750
EPB3D116D	D	C1	4	1	92.116	89.494	98.943	0.158	20	B1I	0.0079	89.917	87.358	96.581
EPB3D117D	D	C1	4	1	87.947	86.276	100.942	0.159	20	B1I	0.0079	86.246	84.607	98.990
EPB3D118D	D	C1	4	1		85.669	97.002	0.159	20	B1I	0.0079		83.977	95.086
EPB3D119D	D	C1	4	1	85.964	82.993	98.603	0.163	20	B1I	0.0081	86.229	83.249	98.907
EPB3D215D	D	C2	4	2		92.154	101.093	0.157	20	B1I	0.0079		89.575	98.264
EPB3D216D	D	C2	4	2		87.978	103.390	0.157	20	B1I	0.0079		85.299	100.242
EPB3D217D	D	C2	4	2		92.535	110.810	0.158	20	B1I	0.0079		90.288	108.119

Average	**85.157**	**85.572**	**98.735**	**$Average_{norm}$**	**0.0080**	**84.414**	**84.480**	**97.480**
Standard Dev.	**4.744**	**4.804**	**4.165**	**$Standard\ Dev._{norm}$**		**4.247**	**4.389**	**3.634**
Coeff. of Var. [%]	**5.571**	**5.614**	**4.218**	**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**5.031**	**5.195**	**3.728**
Min.	**78.304**	**73.888**	**91.669**	**Min.**	**0.0079**	**78.030**	**73.630**	**91.198**
Max.	**92.116**	**92.535**	**110.810**	**Max.**	**0.0081**	**89.917**	**90.600**	**108.119**
Number of Spec.	**7**	**21**	**21**	**Number of Spec.**	**21**	**7**	**21**	**21**


Laminate Single-Shear Bearing Properties (SSB3)--ETW1
Normalized Initial Peak Bearing Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
Laminate Single-Shear Bearing Initial Peak Bearing Strength [ksi]


Laminate Single-Shear Bearing Properties (SSB3)--ETW1
Normalized 2% Offset Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
5
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
Laminate Single-Shear Bearing Strength [ksi]


Laminate Single-Shear Bearing Properties (SSB3)--ETW1
Normalized Ultimate Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Single-Shear Bearing Strength [ksi]

4.29 "25/50/25" Compression After Impact 1 Properties (CAI1)

Laminate Compression After Impact Properties (CAI1)--RTD Strength

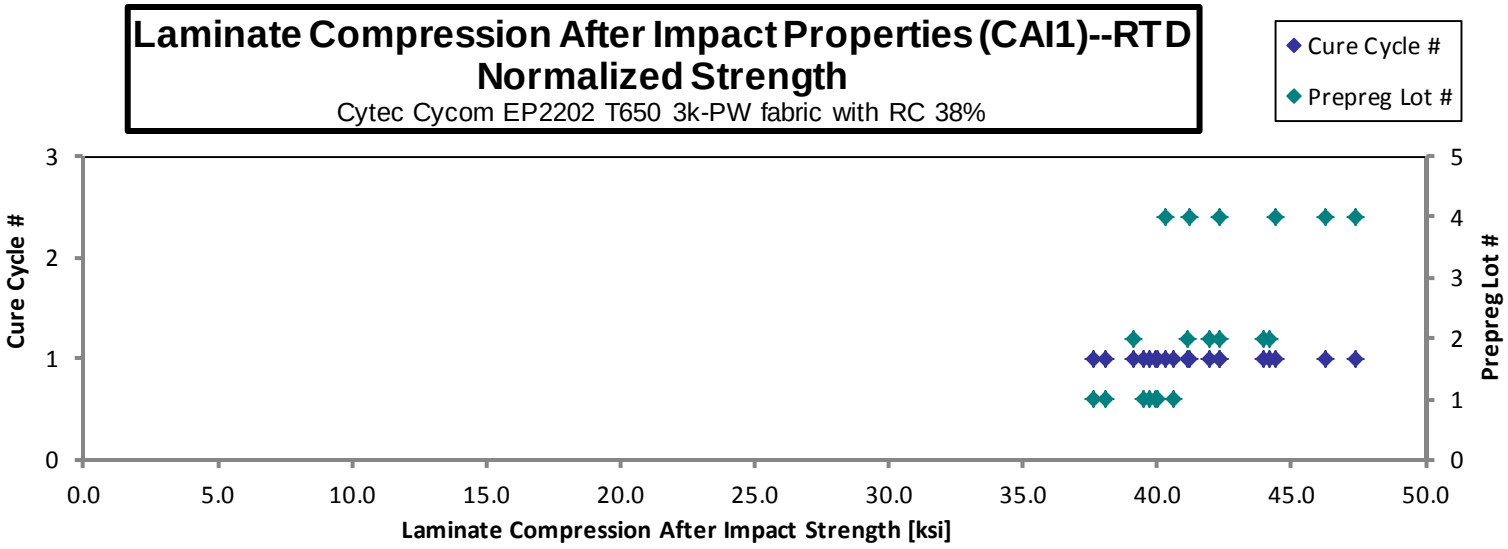
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

normalizing t_{ply} [in]
0.0081

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Measured Impact Energy (in-lbf)	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
EPBKA112A	A	C1	1	1	40.516	288.050	0.192	24	LDM	0.0080	40.042
EPBKA113A	A	C1	1	1	38.419	288.690	0.193	24	LDM	0.0080	38.046
EPBKA114A	A	C1	1	1	40.344	284.940	0.193	24	LDM	0.0080	39.960
EPBKA115A	A	C1	1	1	37.889	285.350	0.193	24	LDM	0.0080	37.609
EPBKA116A	A	C1	1	1	40.026	288.550	0.193	24	LDM	0.0080	39.699
EPBKA117A	A	C1	1	1	40.891	292.800	0.193	24	LDM	0.0080	40.578
EPBKA118A	A	C1	1	1	39.876	293.730	0.193	24	LDM	0.0080	39.507
EPBKB111A	B	C1	2	1	45.054	287.310	0.191	24	LDM	0.0079	44.179
EPBKB112A	B	C1	2	1	43.119	286.770	0.191	24	LDM	0.0080	42.354
EPBKB113A	B	C1	2	1	44.737	283.740	0.191	24	LDM	0.0080	43.983
EPBKB114A	B	C1	2	1	42.776	287.190	0.191	24	LDM	0.0079	41.937
EPBKB115A	B	C1	2	1	39.948	288.280	0.191	24	LDM	0.0079	39.149
EPBKB116A	B	C1	2	1	41.954	284.010	0.190	24	LDM	0.0079	41.104
EPBKD111A	D	C1	4	1	43.053	288.420	0.191	24	LDM	0.0080	42.289
EPBKD112A	D	C1	4	1	42.083	285.800	0.190	24	LDM	0.0079	41.171
EPBKD113A	D	C1	4	1	47.181	282.900	0.191	24	LDM	0.0079	46.289
EPBKD114A	D	C1	4	1	41.193	285.670	0.190	24	LDM	0.0079	40.334
EPBKD115A	D	C1	4	1	45.253	286.070	0.191	24	LDM	0.0080	44.435
EPBKD116A	D	C1	4	1	48.435	282.970	0.190	24	LDM	0.0079	47.401

Average	**42.250**	
Standard Dev.	**2.854**	
Coeff. of Var. [%]	**6.755**	
Min.	**37.889**	
Max.	**48.435**	
Number of Spec.	**19**	

$Average_{norm}$	**0.0080**	**41.582**
Standard $Dev._{norm}$		**2.666**
Coeff. of Var. $[\%]_{norm}$		**6.411**
Min.	**0.0079**	**37.609**
Max.	**0.0080**	**47.401**
Number of Spec.	**19**	**19**


Laminate Compression After Impact Properties (CAI1)--RTD
Normalized Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Compression After Impact Strength [ksi]
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
0
1
2
3
4
5

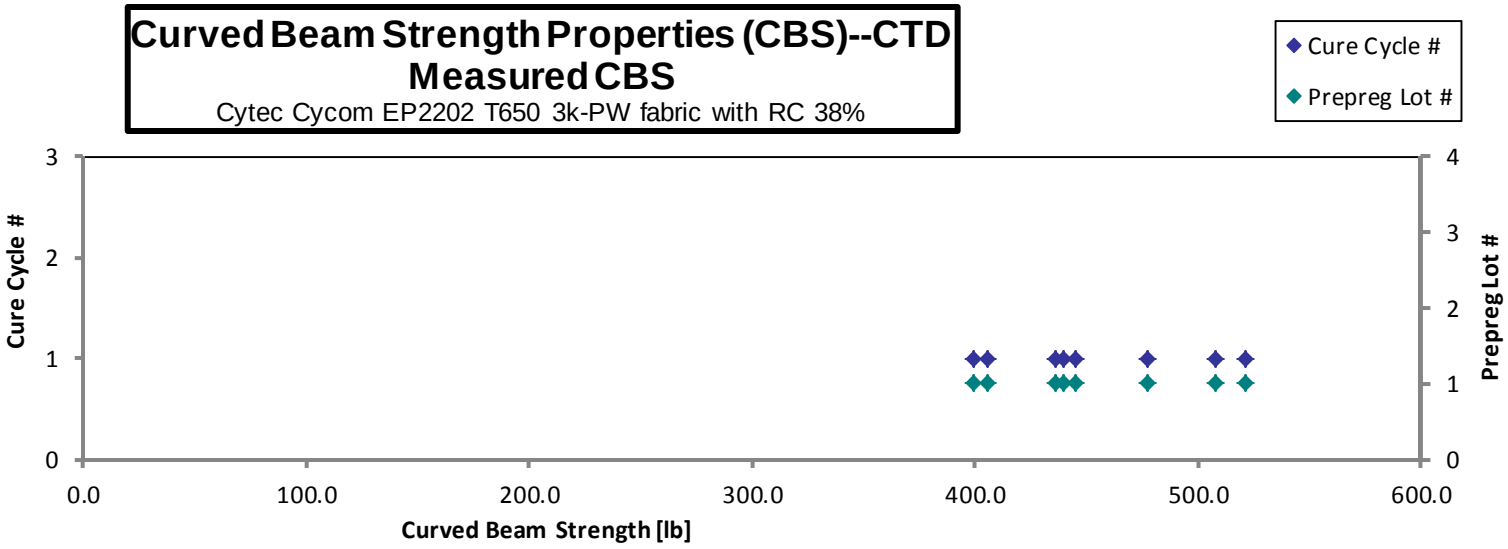
4.30 "50/0/50" Interlaminar Tension Properties (ILT)

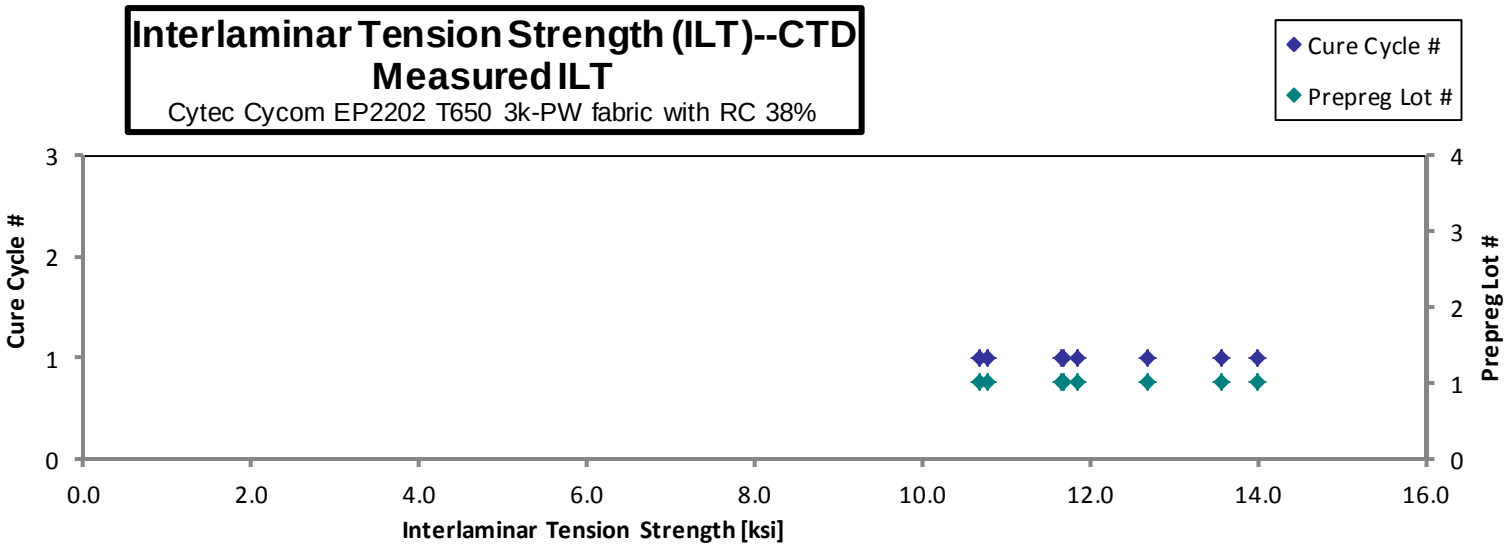
Interlaminar Tension Properties (ILT)--CTD
Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Curved Beam Strength [lb]	Interlaminar Tension Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
EPBMA121B*	A	C1	1	1	520.781	13.985	0.168	21	0.0080	ILT
EPBMA122B*	A	C1	1	1	436.027	11.674	0.169	21	0.0080	ILT
EPBMA123B*	A	C1	1	1	399.216	10.691	0.169	21	0.0080	ILT
EPBMA124B*	A	C1	1	1	405.023	10.788	0.168	21	0.0080	ILT
EPBMA125B*	A	C1	1	1	507.804	13.565	0.168	22	0.0076	ILT
EPBMA126B*	A	C1	1	1	445.159	11.855	0.168	23	0.0073	ILT
EPBMA127B*	A	C1	1	1	477.269	12.697	0.168	21	0.0080	ILT
EPBMA128B*	A	C1	1	1	439.937	11.669	0.169	21	0.0080	ILT

* Cross head displacement exceed 5mm [0.2 in] prior to failure.

Average	**453.902**	**12.115**	**Average**	**0.0079**	
Standard Dev.	**44.553**	**1.207**	**Standard Dev.**		
Coeff. of Var. [%]	**9.816**	**9.959**	**Coeff. of Var. [%]**		
Min.	**399.216**	**10.691**	**Min.**	**0.0073**	
Max.	**520.781**	**13.985**	**Max.**	**0.0080**	
Number of Spec.	**8**	**8**	**Number of Spec.**	**8**	


Curved Beam Strength Properties (CBS)--CTD
Measured CBS
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Curved Beam Strength [lb]
0.0
100.0
200.0
300.0
400.0
500.0
600.0


Interlaminar Tension Strength (ILT)--CTD
Measured ILT
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Interlaminar Tension Strength [ksi]
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0

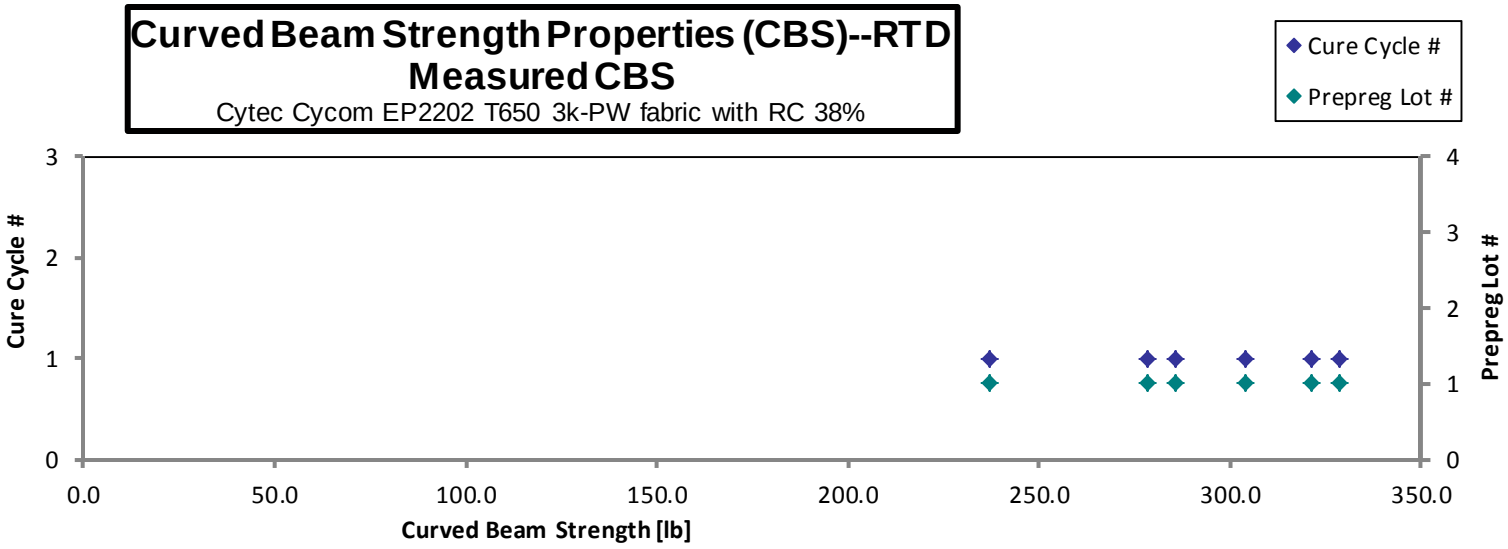
Interlaminar Tension Properties (ILT)--RTD
Strength

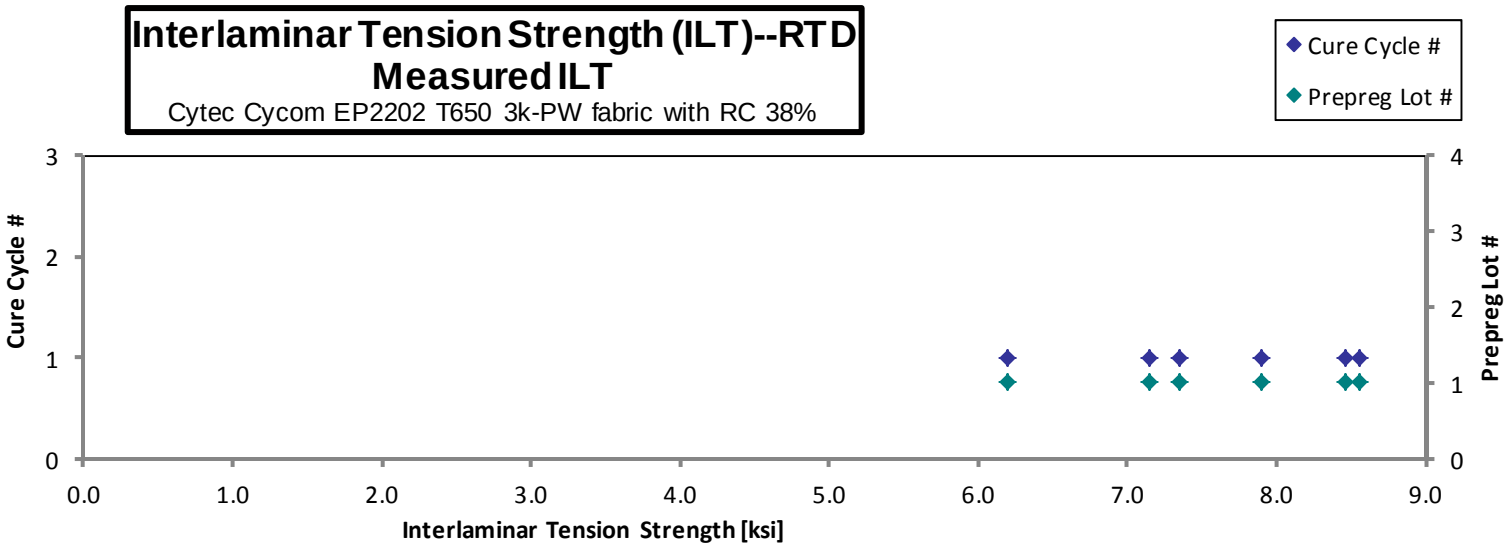
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Curved Beam Strength [lb]	Interlaminar Tension Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
EPBMA111A*	A	C1	1	1	285.773	7.355	0.178	21	0.0085	ILT
EPBMA112A*	A	C1	1	1	278.560	7.154	0.178	21	0.0085	ILT
EPBMA113A*	A	C1	1	1	303.834	7.894	0.177	21	0.0084	ILT
EPBMA114A*	A	C1	1	1	328.729	8.554	0.177	21	0.0084	ILT
EPBMA115A*	A	C1	1	1	237.177	6.200	0.176	21	0.0084	ILT
EPBMA116A*	A	C1	1	1	321.159	8.460	0.175	21	0.0083	ILT

* Cross head displacement exceed 5mm [0.2 in] prior to failure.

Average	**292.539**	**7.603**	**Average**	**0.0084**
Standard Dev.	**33.354**	**0.889**	**Standard Dev.**	
Coeff. of Var. [%]	**11.402**	**11.696**	**Coeff. of Var. [%]**	
Min.	**237.177**	**6.200**	**Min.**	**0.0083**
Max.	**328.729**	**8.554**	**Max.**	**0.0085**
Number of Spec.	**6**	**6**	**Number of Spec.**	**6**


Curved Beam Strength Properties (CBS)--RTD
Measured CBS
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Curved Beam Strength [lb]
0.0
50.0
100.0
150.0
200.0
250.0
300.0
350.0

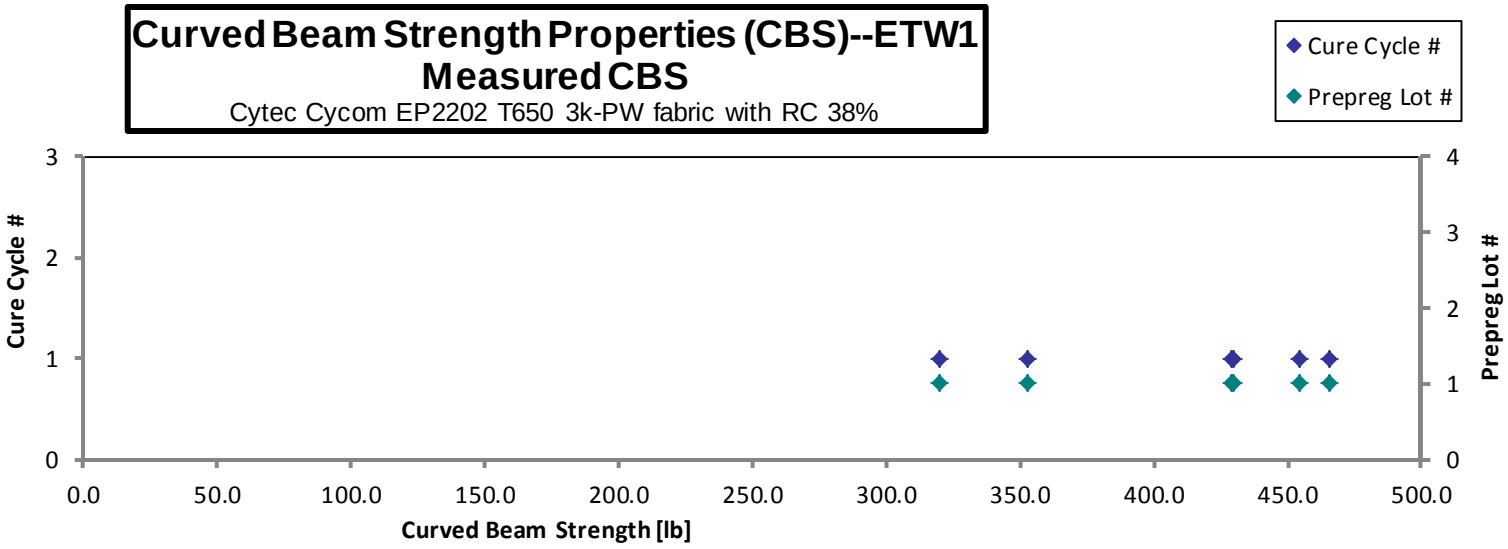

Interlaminar Tension Strength (ILT)--RTD
Measured ILT
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Interlaminar Tension Strength [ksi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0

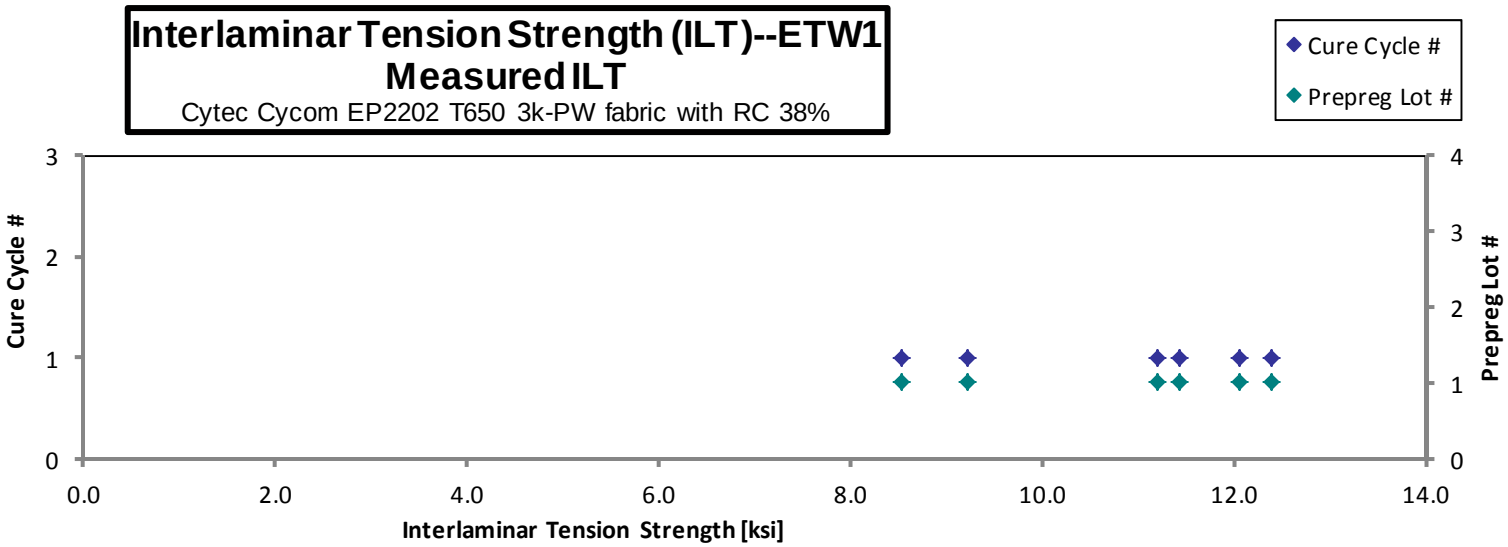
Interlaminar Tension Properties (ILT)--ETW1
Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Curved Beam Strength [lb]	Interlaminar Tension Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
EPBMA132D*	A	C1	1	1	465.712	12.383	0.173	21	0.0083	ILT
EPBMA133D*	A	C1	1	1	454.804	12.051	0.174	21	0.0083	ILT
EPBMA134D*	A	C1	1	1	320.086	8.536	0.173	21	0.0082	ILT
EPBMA135D*	A	C1	1	1	428.674	11.199	0.176	21	0.0084	ILT
EPBMA136D*	A	C1	1	1	430.129	11.431	0.173	21	0.0083	ILT
EPBMA137D*	A	C1	1	1	352.571	9.222	0.176	21	0.0084	ILT

* Cross head displacement exceed 5mm [0.2 in] prior to failure.

Average	**408.663**	**10.803**	**Average**	**0.0083**
Standard Dev.	**58.715**	**1.565**	**Standard Dev.**	
Coeff. of Var. [%]	**14.368**	**14.484**	**Coeff. of Var. [%]**	
Min.	**320.086**	**8.536**	**Min.**	**0.0082**
Max.	**465.712**	**12.383**	**Max.**	**0.0084**
Number of Spec.	**6**	**6**	**Number of Spec.**	**6**

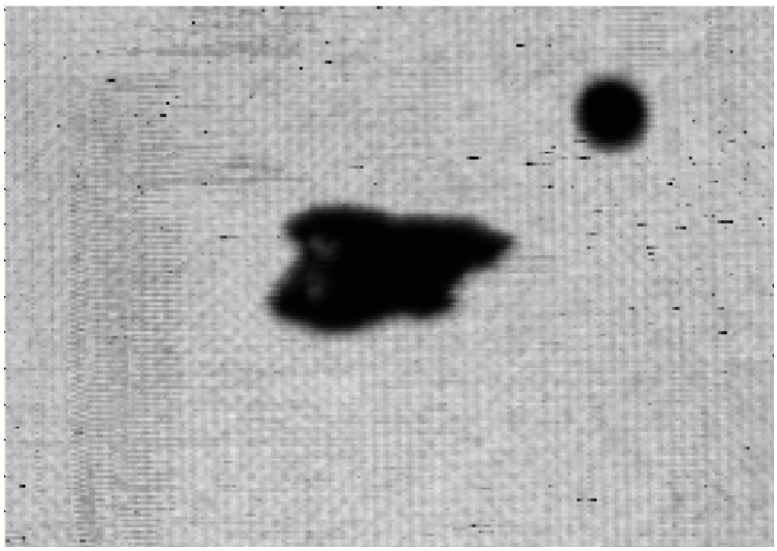

Curved Beam Strength Properties (CBS)--ETW1
Measured CBS
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Curved Beam Strength [lb]
0.0
50.0
100.0
150.0
200.0
250.0
300.0
350.0
400.0
450.0
500.0


Interlaminar Tension Strength (ILT)--ETW1
Measured ILT
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Interlaminar Tension Strength [ksi]
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0

5 Additional Compression after Impact Data

Impactor Diameter: 0.625”

Representative of Damage Area:

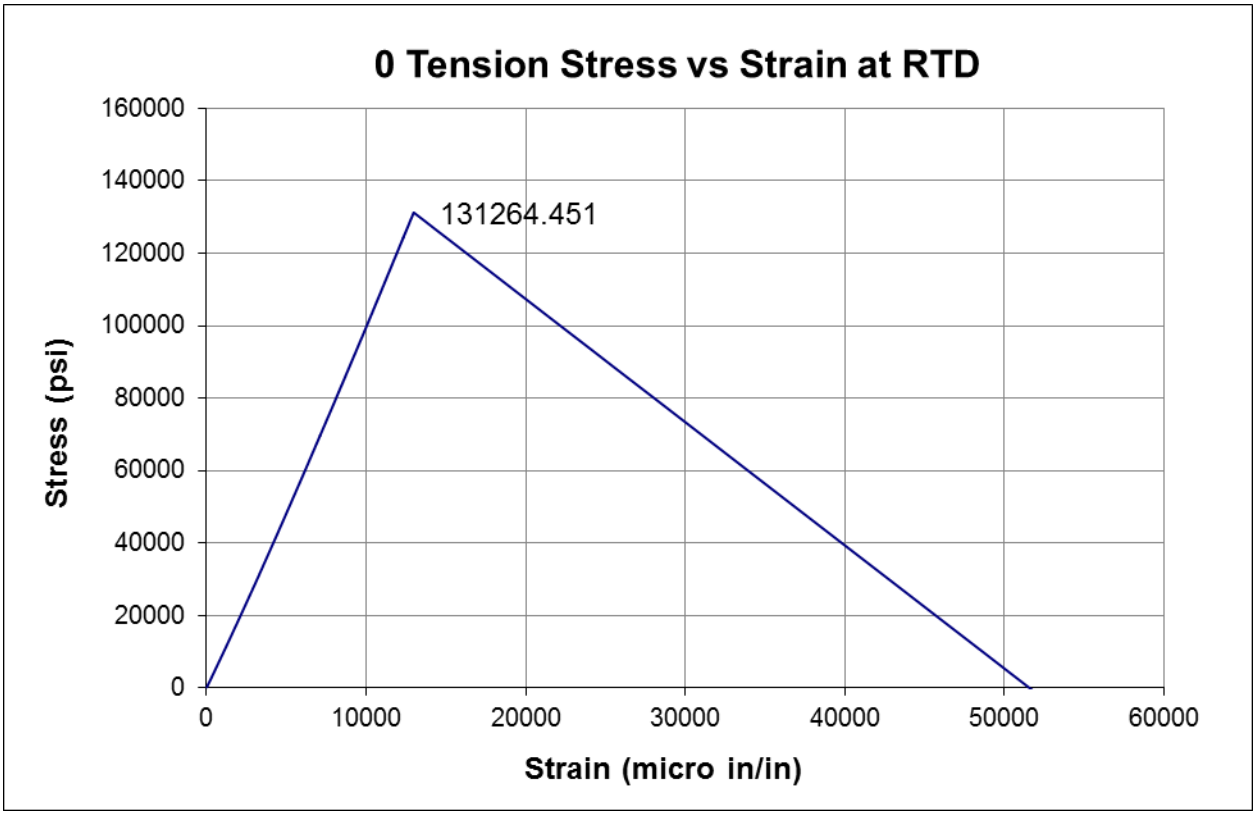


Damage Area and Dent Depth Summary:

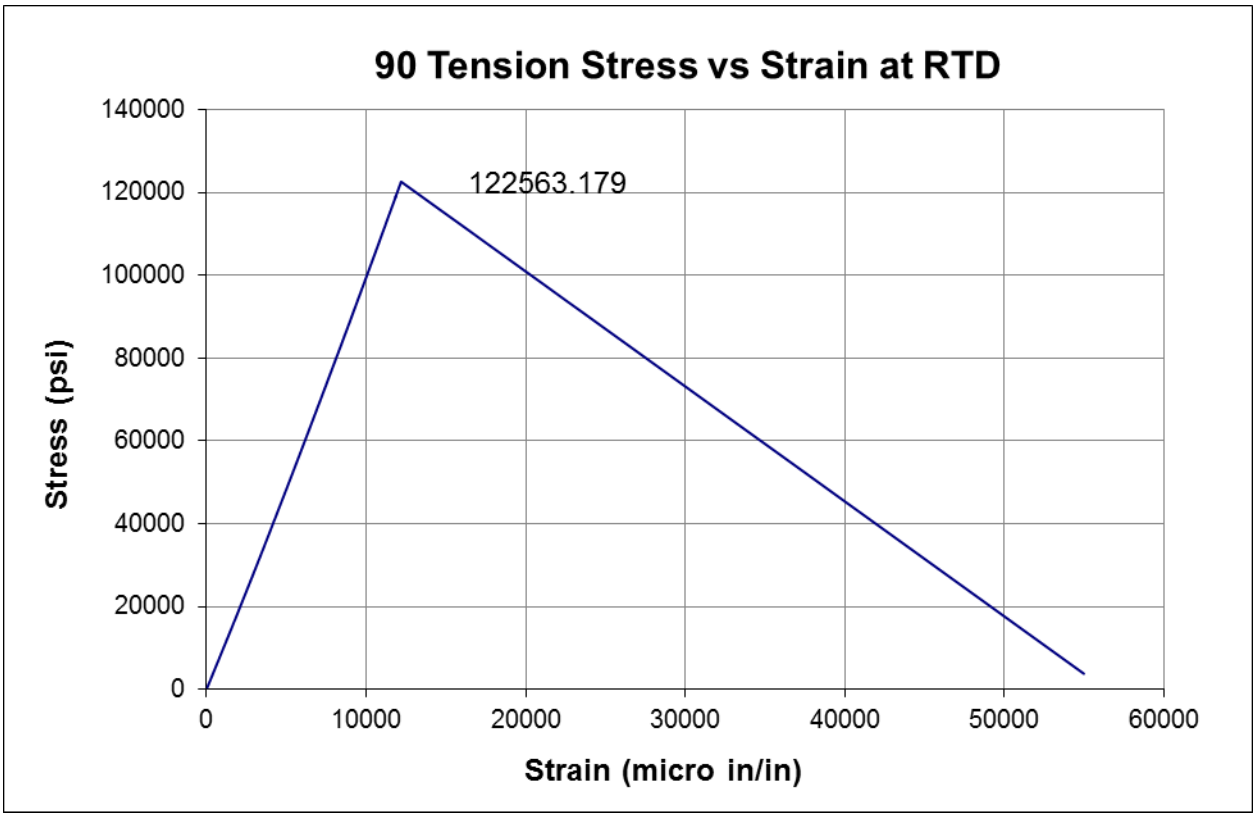
Specimen ID	Damage Area (inch^2)	Dent Depth (inch)
EPBKA112A	1.016	0.022
EPBKA113A	1.056	0.021
EPBKA114A	0.966	0.021
EPBKA115A	0.839	0.022
EPBKA116A	0.972	0.022
EPBKA117A	1.013	0.023
EPBKA118A	0.896	0.022
EPBKB111A	1.307	0.021
EPBKB112A	0.994	0.020
EPBKB113A	0.873	0.021
EPBKB114A	0.983	0.021
EPBKB115A	1.115	0.021
EPBKB116A	1.094	0.020
EPBKD111A	0.839	0.021
EPBKD112A	0.799	0.021
EPBKD113A	0.860	0.019
EPBKD114A	0.977	0.024
EPBKD115A	0.837	0.018
EPBKD116A	0.849	0.018

6 Full Shear Stress vs. Shear Strain Curve

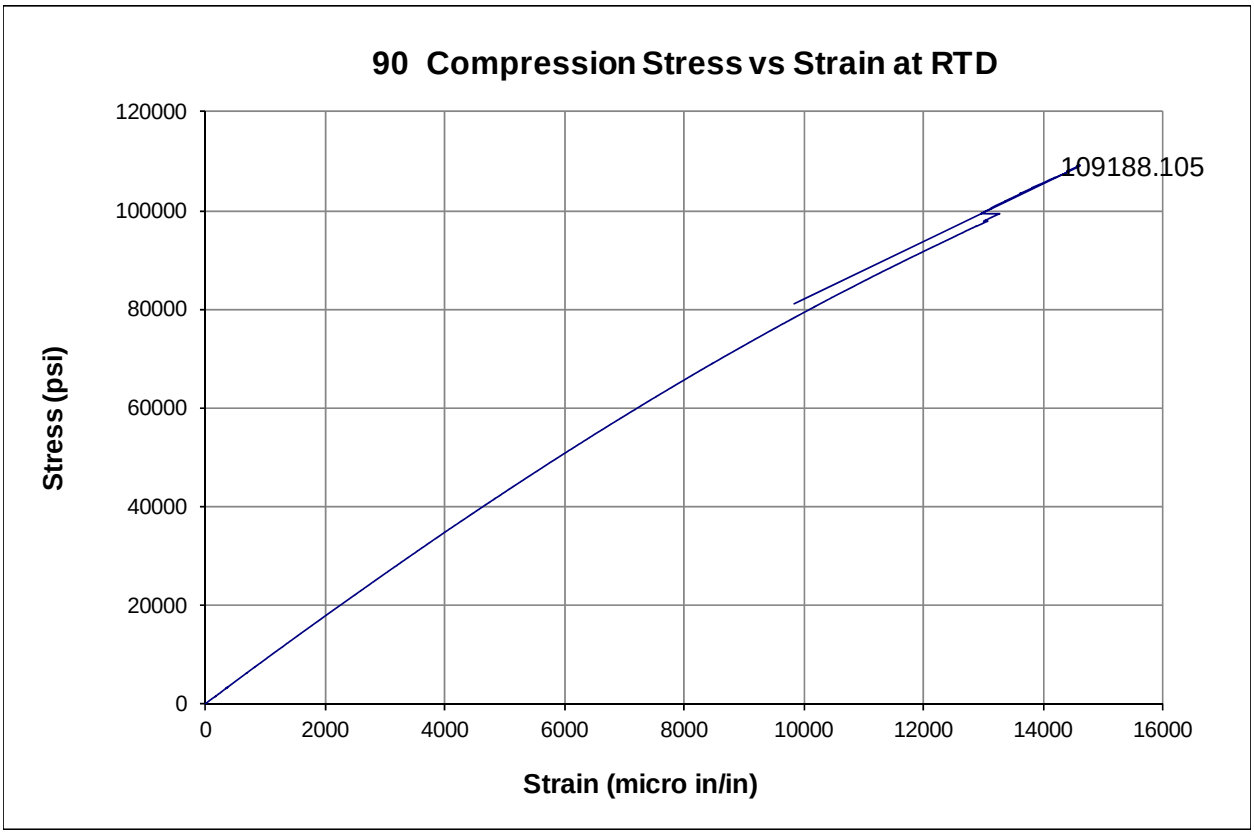
6.1 Warp Tension



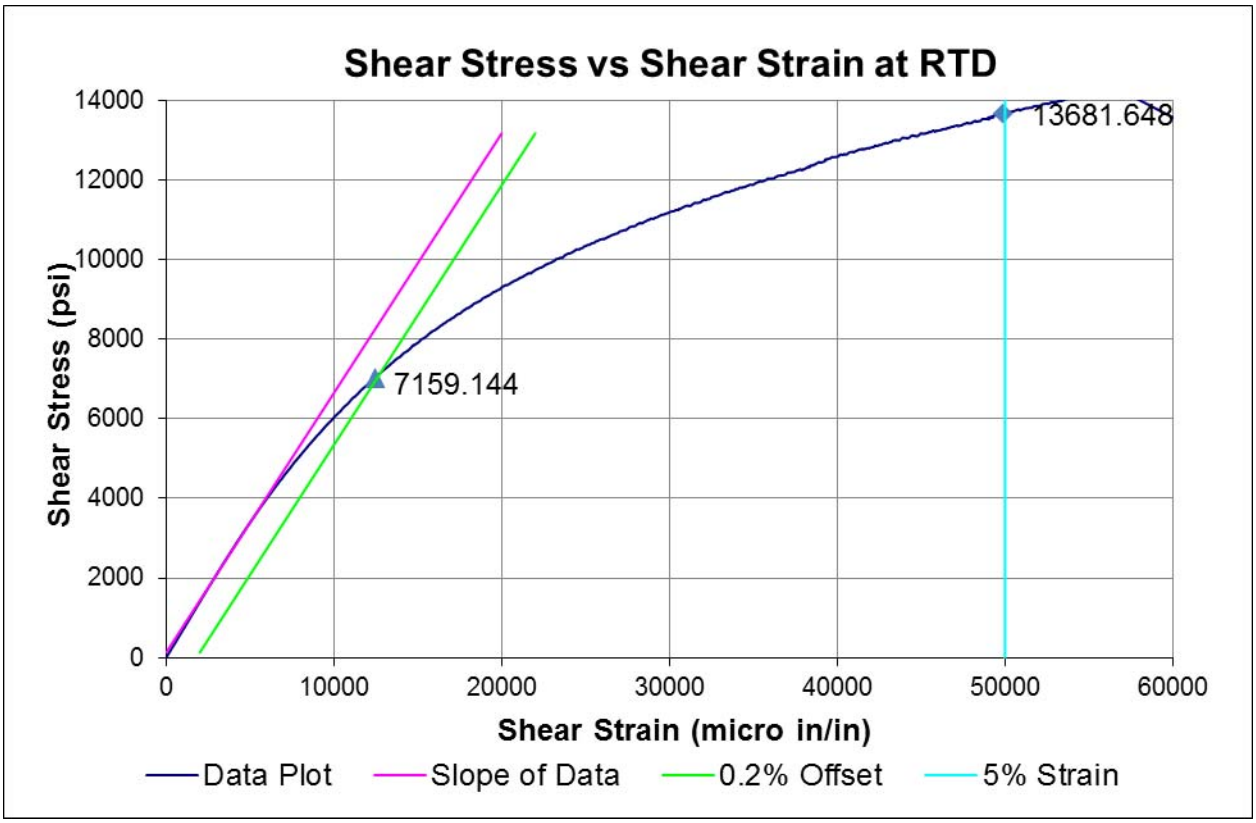
6.2 Fill Tension



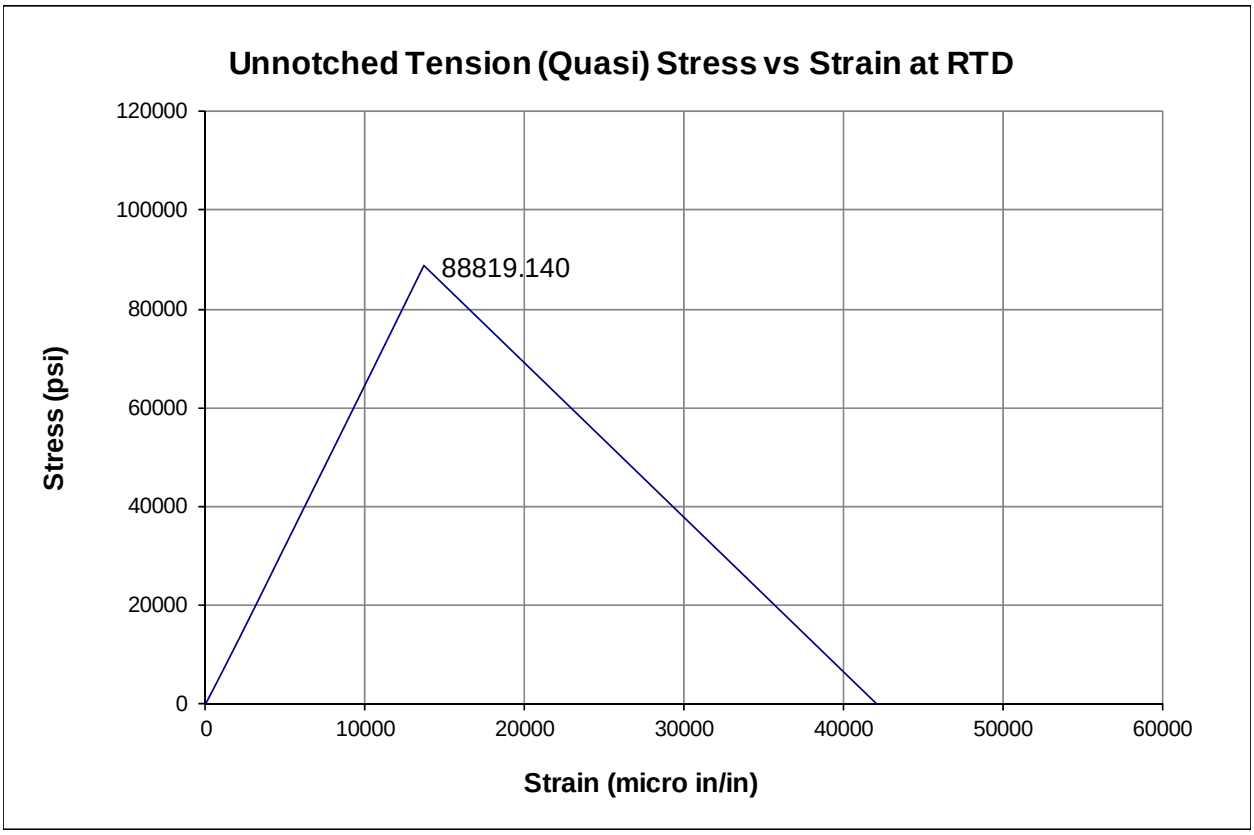
6.3 Fill Compression

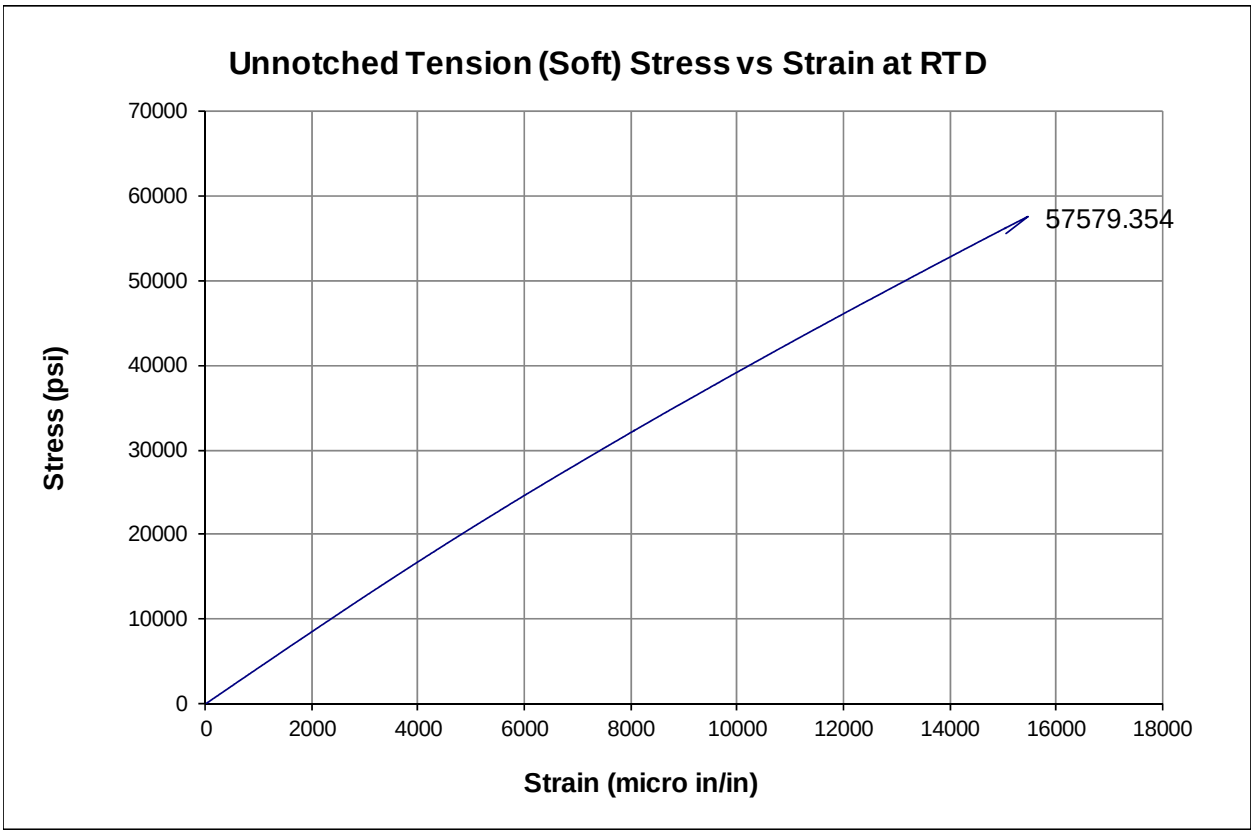


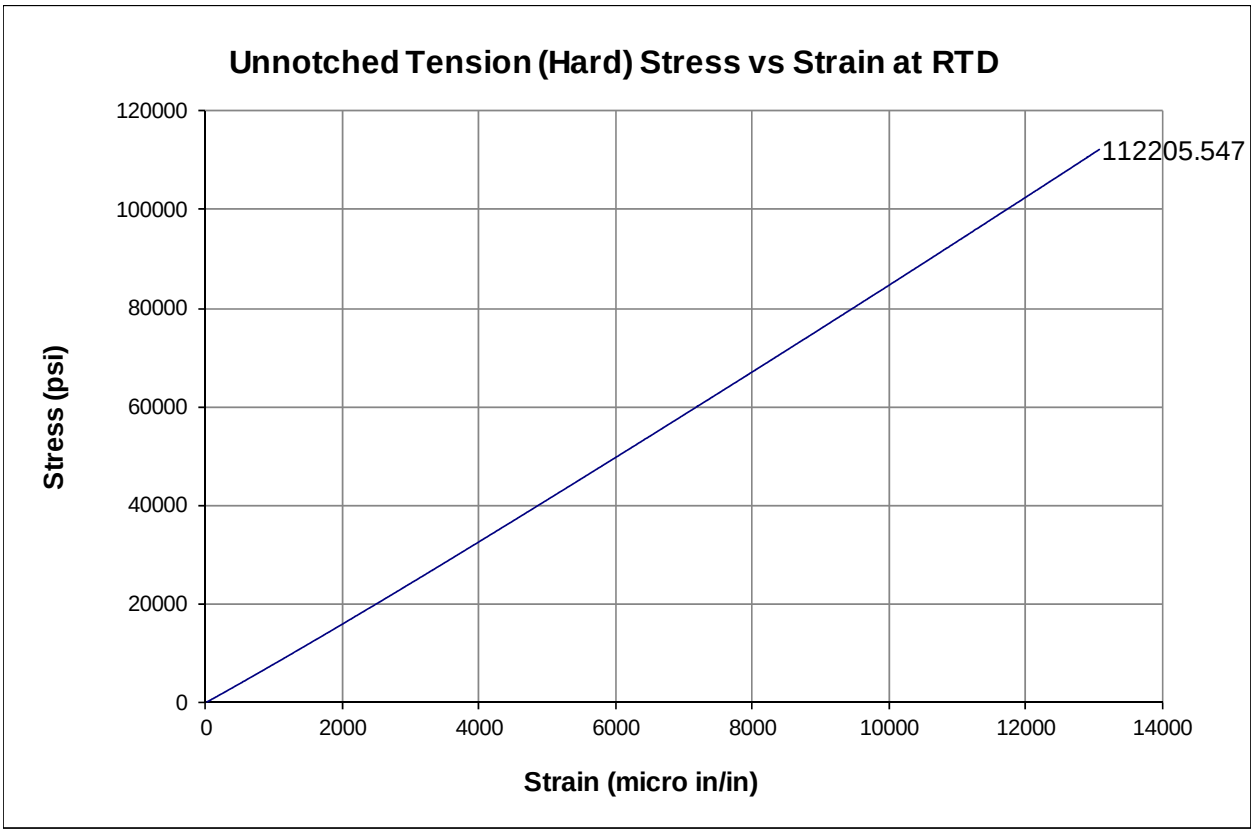
6.4 In-Plane Shear



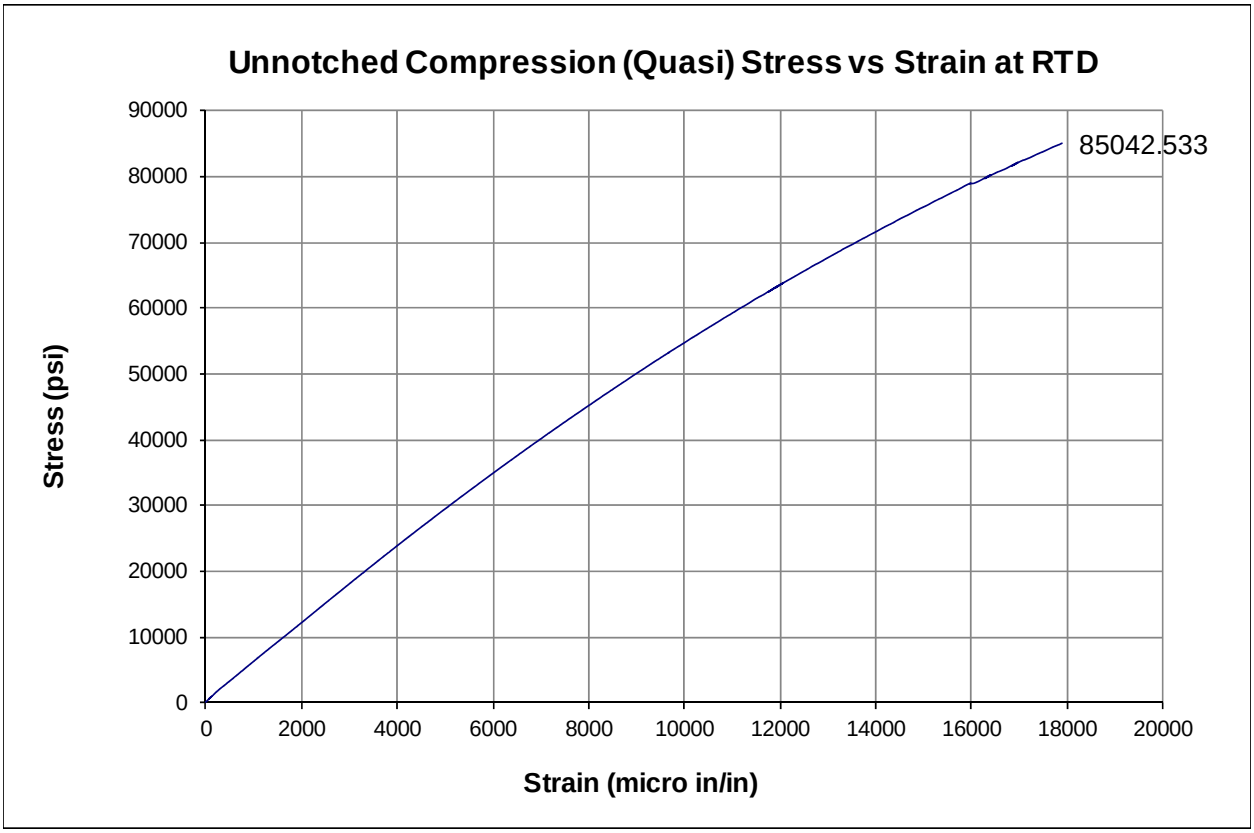
6.5 Unnotched Tension

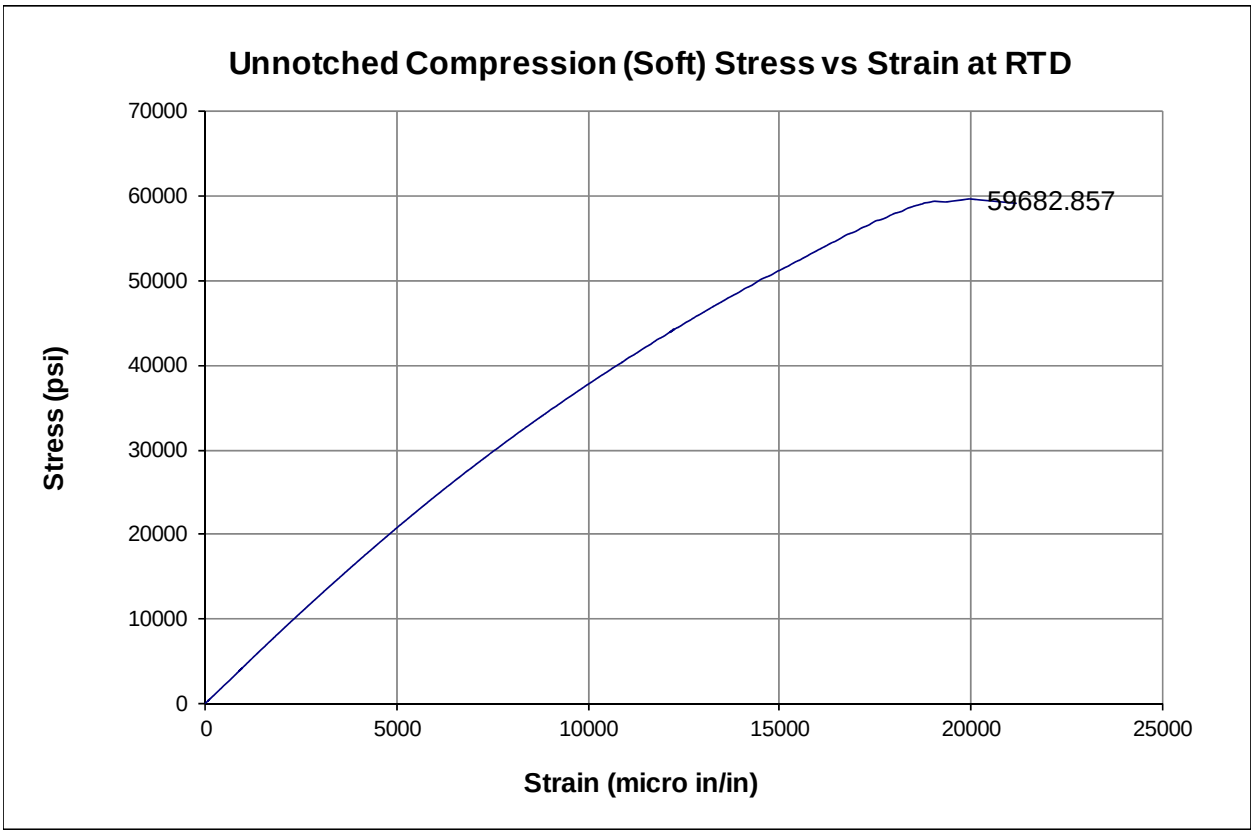



Unnotched Tension (Soft) Stress vs Strain at RTD
Stress (psi)
70000
60000
50000
40000
30000
20000
10000
0
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
57579.354
Strain (micro in/in)


Unnotched Tension (Hard) Stress vs Strain at RTD
Stress (psi)
120000
100000
80000
60000
40000
20000
0
0
2000
4000
6000
8000
10000
12000
14000
112205.547
Strain (micro in/in)

6.6 Unnotched Compression




Unnotched Compression (Soft) Stress vs Strain at RTD
Stress (psi)
70000
60000
50000
40000
30000
20000
10000
0
0
5000
10000
15000
20000
25000
59682.857
Strain (micro in/in)

7 Fluid Sensitivity Comparison

7.1 Room Temperature Test Data

	Fluid	Exposure
a	100 Low lead Fuel	90 days min @ 70°F ± 10F
b	Jet A Fuel	
c	Mil-H-5606 Hydraulic Oil	
d	Mil-H-83282 Hydraulic Oil	
e	Engine Lube Oil Mil-L-7808	
f	Engine Lube Oil Mil-L-23699	
g	Salt Water	
h	Skydrol LD-4	
i	50% Water w/ 50% Skydrol	
r	Distilled Water	
j	MEK washing fluid	90 mins @ 70°F ± 10F
k	Polypropylene Glycol Deicer	
t	Isopropyl Alcohol Deicing	48±4 hrs @ 70°F ± 10F
A	Dry	Per section 6.1 Test Plan
M	85% Relative Humidity	

Fluid	Average Short-Beam Strength With Fluid (ksi)	Same Environment Short-Beam Strength Without Fluid (ksi) (RTD)	Worst Case Environment Short-Beam Strength (ksi) (RTW)	% Strength Reduction With Respect to RTD
a	13.717	13.932	12.280	1.550
b	13.861	13.932	12.280	0.514
c	13.933	13.932	12.280	-0.005
d	13.775	13.932	12.280	1.129
e	13.895	13.932	12.280	0.270
f	13.753	13.932	12.280	1.286
g	12.836	13.932	12.280	7.869
h	13.909	13.932	12.280	0.165
i	12.867	13.932	12.280	7.649
j	13.633	13.932	12.280	2.149
k	13.849	13.932	12.280	0.597
t	14.009	13.932	12.280	-0.550
r	12.813	13.932	12.280	8.031
A	13.932	13.932	12.280	0.000
M	12.280	13.932	12.280	11.861

Fluid Sensitivity Screening
Short-Beam Strength Properties (FSSBS)--RT Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Fluid	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode	Average
EPBQB121a	B	C1	2	a	13.831	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	13.717
EPBQB122a	B	C1	2	a	13.833	0.118	15	0.0079		
EPBQB123a	B	C1	2	a	13.738	0.118	15	0.0079		
EPBQB124a	B	C1	2	a	13.708	0.119	15	0.0079		
EPBQB125a	B	C1	2	a	13.472	0.119	15	0.0079		
EPBQB121b	B	C1	2	b	13.878	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	13.861
EPBQB122b	B	C1	2	b	13.982	0.118	15	0.0079		
EPBQB123b	B	C1	2	b	13.828	0.119	15	0.0079		
EPBQB124b	B	C1	2	b	13.820	0.119	15	0.0079		
EPBQB125b	B	C1	2	b	13.797	0.118	15	0.0079		
EPBQB121c	B	C1	2	c	13.967	0.117	15	0.0078	Interlaminar Shear, Inelastic Deformation	13.933
EPBQB122c	B	C1	2	c	13.857	0.119	15	0.0079		
EPBQB123c	B	C1	2	c	13.894	0.119	15	0.0079		
EPBQB124c	B	C1	2	c	14.167	0.118	15	0.0079		
EPBQB125c	B	C1	2	c	13.781	0.119	15	0.0079		
EPBQB121d	B	C1	2	d	13.907	0.119	15	0.0079	Interlaminar Shear, Inelastic Deformation	13.775
EPBQB122d	B	C1	2	d	13.829	0.119	15	0.0079		
EPBQB123d	B	C1	2	d	13.701	0.119	15	0.0079		
EPBQB124d	B	C1	2	d	13.785	0.119	15	0.0079		
EPBQB125d	B	C1	2	d	13.654	0.119	15	0.0079		
EPBQB121e	B	C1	2	e	13.953	0.118	15	0.0078	Interlaminar Shear, Inelastic Deformation	13.895
EPBQB122e	B	C1	2	e	13.942	0.118	15	0.0079		
EPBQB123e	B	C1	2	e	13.868	0.118	15	0.0079		
EPBQB124e	B	C1	2	e	13.726	0.119	15	0.0079		
EPBQB125e	B	C1	2	e	13.985	0.118	15	0.0079		
EPBQB121f	B	C1	2	f	13.511	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	13.753
EPBQB122f	B	C1	2	f	14.020	0.118	15	0.0078		
EPBQB123f	B	C1	2	f	13.944	0.118	15	0.0078		
EPBQB124f	B	C1	2	f	13.499	0.118	15	0.0079		
EPBQB125f	B	C1	2	f	13.792	0.118	15	0.0079		
EPBQB121g	B	C1	2	g	12.931	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	12.836
EPBQB122g	B	C1	2	g	12.701	0.118	15	0.0079		
EPBQB123g	B	C1	2	g	13.038	0.117	15	0.0078		
EPBQB124g	B	C1	2	g	12.841	0.118	15	0.0079		
EPBQB125g	B	C1	2	g	12.670	0.119	15	0.0079		
EPBQB121h	B	C1	2	h	13.759	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	13.909
EPBQB122h	B	C1	2	h	13.928	0.119	15	0.0079		
EPBQB123h	B	C1	2	h	14.046	0.119	15	0.0079		
EPBQB124h	B	C1	2	h	13.678	0.119	15	0.0079		
EPBQB125h	B	C1	2	h	14.137	0.118	15	0.0079		

EPBQB121i	B	C1	2	i	12.847	0.119	15	0.0079	Interlaminar Shear, Inelastic Deformation	12.867
EPBQB122i	B	C1	2	i	13.099	0.119	15	0.0079		
EPBQB123i	B	C1	2	i	12.762	0.119	15	0.0079		
EPBQB124i	B	C1	2	i	12.869	0.119	15	0.0079		
EPBQB125i	B	C1	2	i	12.758	0.118	15	0.0079		
EPBQB121j	B	C1	2	j	13.754	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	13.633
EPBQB122j	B	C1	2	j	13.691	0.118	15	0.0079		
EPBQB123j	B	C1	2	j	13.511	0.118	15	0.0079		
EPBQB124j	B	C1	2	j	13.389	0.119	15	0.0079		
EPBQB125j	B	C1	2	j	13.820	0.118	15	0.0079		
EPBQB121k	B	C1	2	k	13.975	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	13.849
EPBQB122k	B	C1	2	k	13.801	0.118	15	0.0078		
EPBQB123k	B	C1	2	k	13.732	0.119	15	0.0079		
EPBQB124k	B	C1	2	k	13.706	0.117	15	0.0078		
EPBQB125k	B	C1	2	k	14.031	0.118	15	0.0078		
EPBQB121t	B	C1	2	t	13.892	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	14.009
EPBQB122t	B	C1	2	t	13.957	0.119	15	0.0079		
EPBQB123t	B	C1	2	t	14.226	0.118	15	0.0079		
EPBQB124t	B	C1	2	t	13.910	0.118	15	0.0079		
EPBQB125t	B	C1	2	t	14.060	0.119	15	0.0079		
EPBQB121r	B	C1	2	r	12.944	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	12.813
EPBQB122r	B	C1	2	r	12.989	0.118	15	0.0079		
EPBQB123r	B	C1	2	r	12.703	0.118	15	0.0079		
EPBQB124r	B	C1	2	r	12.798	0.118	15	0.0079		
EPBQB125r	B	C1	2	r	12.634	0.118	15	0.0079		
EPBQB121A	B	C1	2	A	13.744	0.119	15	0.0079	Interlaminar Shear, Inelastic Deformation	13.932
EPBQB122A	B	C1	2	A	14.178	0.118	15	0.0078		
EPBQB123A	B	C1	2	A	14.034	0.118	15	0.0079		
EPBQB124A	B	C1	2	A	13.988	0.118	15	0.0078		
EPBQB125A	B	C1	2	A	13.719	0.119	15	0.0079		
EPBQB121M	B	C1	2	M	12.465	0.117	15	0.0078	Interlaminar Shear, Inelastic Deformation	12.280
EPBQB122M	B	C1	2	M	12.090	0.119	15	0.0080		
EPBQB123M	B	C1	2	M	12.503	0.119	15	0.0079		
EPBQB124M	B	C1	2	M	12.162	0.119	15	0.0079		
EPBQB125M	B	C1	2	M	12.179	0.118	15	0.0079		

Average	**13.538**
Standard Dev.	**0.551**
Coeff. of Var. [%]	**4.072**
Min.	**12.090**
Max.	**14.226**
Number of Spec.	**75**

7.2 Elevated Temperature Test Data

	Fluid	Exposure
1	100 Low lead Fuel	90 days min @ 70°F ± 10F
2	Jet A Fuel	
3	Mil-H-5606 Hydraulic Oil	
4	Mil-H-83282 Hydraulic Oil	
5	Engine Lube Oil Mil-L-7808	
6	Engine Lube Oil Mil-L-23699	
7	Salt Water	
8	Skydrol LD-4	
9	50% Water w/ 50% Skydrol	
s	Distilled Water	
m	MEK washing fluid	90 mins @ 70°F ± 10F
n	Polypropylene Glycol Deicer	
p	Isopropyl Alcohol Deicing	48±4 hrs @ 70°F ± 10F
L	Dry	Per section 6.1 Test Plan
N	85% Relative Humidity	

Fluid	Average Short-Beam Strength With Fluid (ksi)	Same Environment Short-Beam Strength Without Fluid (ksi) (ETD)	Worst Case Environment Short-Beam Strength (ksi) (ETW)	% Strength Reduction With Respect to ETD
1	10.285	11.186	8.450	8.054
2	10.581	11.186	8.450	5.401
3	10.750	11.186	8.450	3.889
4	10.622	11.186	8.450	5.039
5	10.864	11.186	8.450	2.873
6	11.128	11.186	8.450	0.514
7	8.867	11.186	8.450	20.731
8	11.163	11.186	8.450	0.203
9	9.002	11.186	8.450	19.517
m	11.040	11.186	8.450	1.297
n	11.119	11.186	8.450	0.595
p	11.145	11.186	8.450	0.360
s	9.170	11.186	8.450	18.017
L	11.186	11.186	8.450	0.000
N	8.450	11.186	8.450	24.454

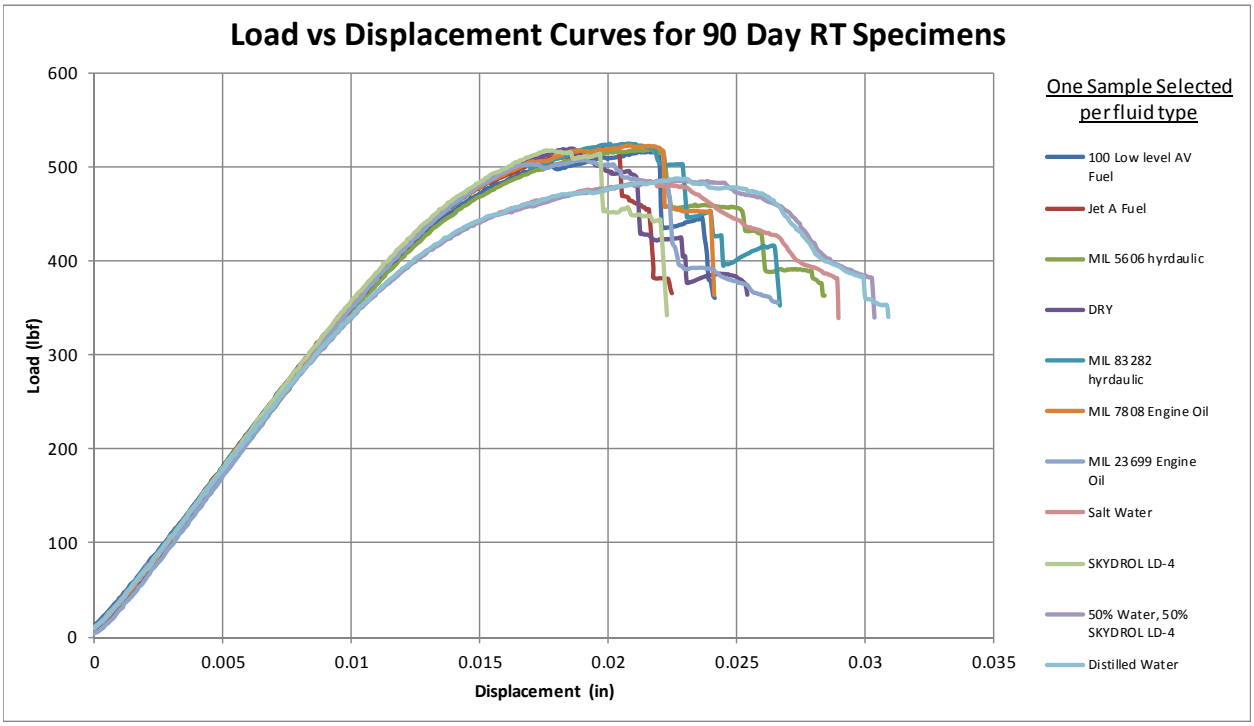
Fluid Sensitivity Screening
Short-Beam Strength Properties (FSSBS)--ET Strength
Cytec Cycom EP2202 T650 3k-PW fabric with RC 38%

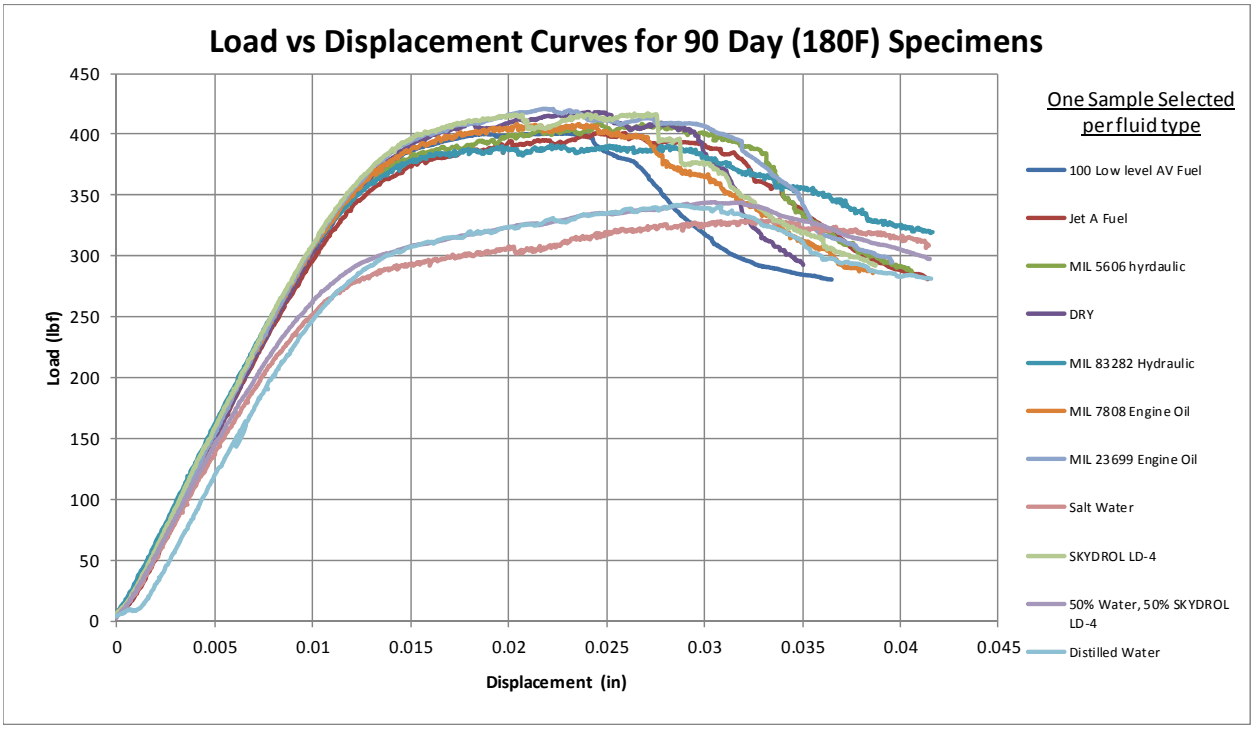
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Fluid	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode	Average
EPBQB1211	B	C1	2	1	10.524	0.119	15	0.0080	Interlaminar Shear, Inelastic Deformation	10.285
EPBQB1221	B	C1	2	1	10.555	0.121	15	0.0081		
EPBQB1231	B	C1	2	1	9.826	0.120	15	0.0080		
EPBQB1241	B	C1	2	1	9.746	0.120	15	0.0080		
EPBQB1251	B	C1	2	1	10.772	0.118	15	0.0079		
EPBQB1212	B	C1	2	2	10.665	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	10.581
EPBQB1222	B	C1	2	2	10.266	0.120	15	0.0080		
EPBQB1232	B	C1	2	2	10.464	0.119	15	0.0079		
EPBQB1242	B	C1	2	2	10.686	0.118	15	0.0079		
EPBQB1252	B	C1	2	2	10.826	0.120	15	0.0080		
EPBQB1213	B	C1	2	3	10.542	0.122	15	0.0081	Interlaminar Shear, Inelastic Deformation	10.750
EPBQB1233	B	C1	2	3	10.592	0.118	15	0.0079		
EPBQB1243	B	C1	2	3	10.787	0.119	15	0.0079		
EPBQB1253	B	C1	2	3	10.957	0.119	15	0.0080		
EPBQB1263	B	C1	2	3	10.769	0.119	15	0.0079		
EPBQB1273	B	C1	2	3	10.856	0.118	15	0.0079		
EPBQB1224	B	C1	2	4	10.419	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	10.622
EPBQB1234	B	C1	2	4	10.703	0.118	15	0.0079		
EPBQB1244	B	C1	2	4	10.627	0.118	15	0.0079		
EPBQB1254	B	C1	2	4	10.594	0.118	15	0.0079		
EPBQB1264	B	C1	2	4	10.766	0.118	15	0.0079		
EPBQB1215	B	C1	2	5	10.893	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	10.864
EPBQB1225	B	C1	2	5	10.906	0.119	15	0.0079		
EPBQB1235	B	C1	2	5	10.813	0.118	15	0.0079		
EPBQB1245	B	C1	2	5	10.799	0.118	15	0.0079		
EPBQB1255	B	C1	2	5	10.909	0.118	15	0.0078		
EPBQB1226	B	C1	2	6	11.137	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	11.128
EPBQB1236	B	C1	2	6	11.083	0.118	15	0.0078		
EPBQB1246	B	C1	2	6	11.189	0.118	15	0.0079		
EPBQB1256	B	C1	2	6	11.232	0.118	15	0.0079		
EPBQB1266	B	C1	2	6	11.000	0.118	15	0.0079		
EPBQB1217	B	C1	2	7	8.840	0.117	15	0.0078	Interlaminar Shear, Inelastic Deformation	8.867
EPBQB1227	B	C1	2	7	8.845	0.118	15	0.0079		
EPBQB1237	B	C1	2	7	8.921	0.118	15	0.0079		
EPBQB1247	B	C1	2	7	8.906	0.118	15	0.0079		
EPBQB1257	B	C1	2	7	8.822	0.119	15	0.0079		
EPBQB1218	B	C1	2	8	11.065	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	11.163
EPBQB1228	B	C1	2	8	11.162	0.118	15	0.0079		
EPBQB1238	B	C1	2	8	11.295	0.119	15	0.0079		
EPBQB1248	B	C1	2	8	11.106	0.118	15	0.0079		
EPBQB1258	B	C1	2	8	11.187	0.118	15	0.0079		

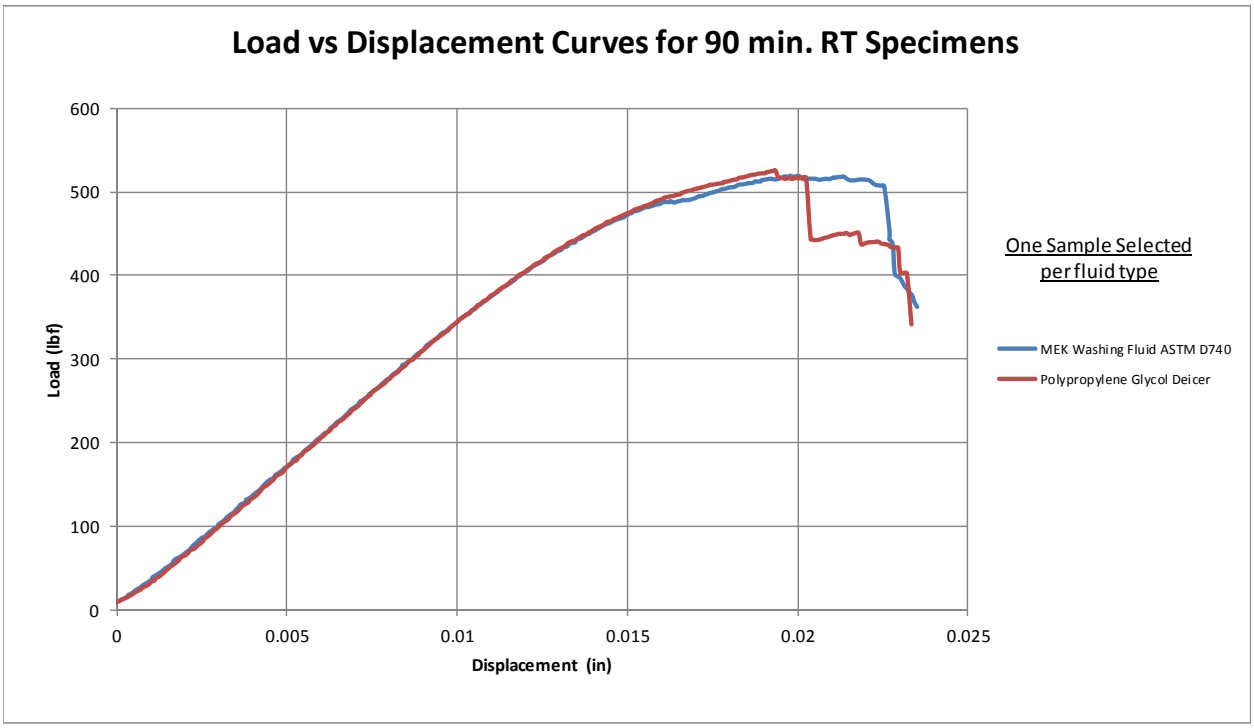
EPBQB1229	B	C1	2	9	8.332	0.119	15	0.0079	Interlaminar Shear, Inelastic Deformation	9.002
EPBQB1239	B	C1	2	9	9.063	0.118	15	0.0079		
EPBQB1249	B	C1	2	9	9.287	0.117	15	0.0078		
EPBQB1259	B	C1	2	9	9.209	0.118	15	0.0079		
EPBQB1269	B	C1	2	9	9.122	0.118	15	0.0079		
EPBQB121m	B	C1	2	m	10.949	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	11.040
EPBQB122m	B	C1	2	m	11.061	0.119	15	0.0079		
EPBQB123m	B	C1	2	m	11.008	0.119	15	0.0079		
EPBQB124m	B	C1	2	m	11.062	0.118	15	0.0079		
EPBQB126m	B	C1	2	m	11.123	0.118	15	0.0079		
EPBQB121n	B	C1	2	n	11.168	0.119	15	0.0079	Interlaminar Shear, Inelastic Deformation	11.119
EPBQB122n	B	C1	2	n	10.909	0.119	15	0.0079		
EPBQB123n	B	C1	2	n	11.266	0.118	15	0.0079		
EPBQB124n	B	C1	2	n	11.153	0.117	15	0.0078		
EPBQB125n	B	C1	2	n	11.099	0.118	15	0.0078		
EPBQB121p	B	C1	2	p	11.243	0.119	15	0.0079	Interlaminar Shear, Inelastic Deformation	11.145
EPBQB122p	B	C1	2	p	11.158	0.118	15	0.0079		
EPBQB123p	B	C1	2	p	11.235	0.118	15	0.0079		
EPBQB124p	B	C1	2	p	11.100	0.118	15	0.0079		
EPBQB125p	B	C1	2	p	10.991	0.118	15	0.0079		
EPBQB121s	B	C1	2	s	9.123	0.118	15	0.0078	Interlaminar Shear, Inelastic Deformation	9.170
EPBQB122s	B	C1	2	s	9.124	0.118	15	0.0079		
EPBQB123s	B	C1	2	s	9.181	0.118	15	0.0079		
EPBQB124s	B	C1	2	s	9.245	0.119	15	0.0079		
EPBQB125s	B	C1	2	s	9.178	0.118	15	0.0079		
EPBQB121L	B	C1	2	L	11.129	0.118	15	0.0079	Interlaminar Shear, Inelastic Deformation	11.186
EPBQB122L	B	C1	2	L	11.246	0.118	15	0.0079		
EPBQB123L	B	C1	2	L	11.089	0.118	15	0.0079		
EPBQB124L	B	C1	2	L	11.231	0.119	15	0.0079		
EPBQB125L	B	C1	2	L	11.232	0.119	15	0.0079		
EPBQB121N	B	C1	2	N	8.319	0.119	15	0.0080	Interlaminar Shear, Inelastic Deformation	8.450
EPBQB122N	B	C1	2	N	8.412	0.118	15	0.0078		
EPBQB123N	B	C1	2	N	8.495	0.118	15	0.0078		
EPBQB124N	B	C1	2	N	8.581	0.118	15	0.0079		
EPBQB125N	B	C1	2	N	8.445	0.118	15	0.0079		

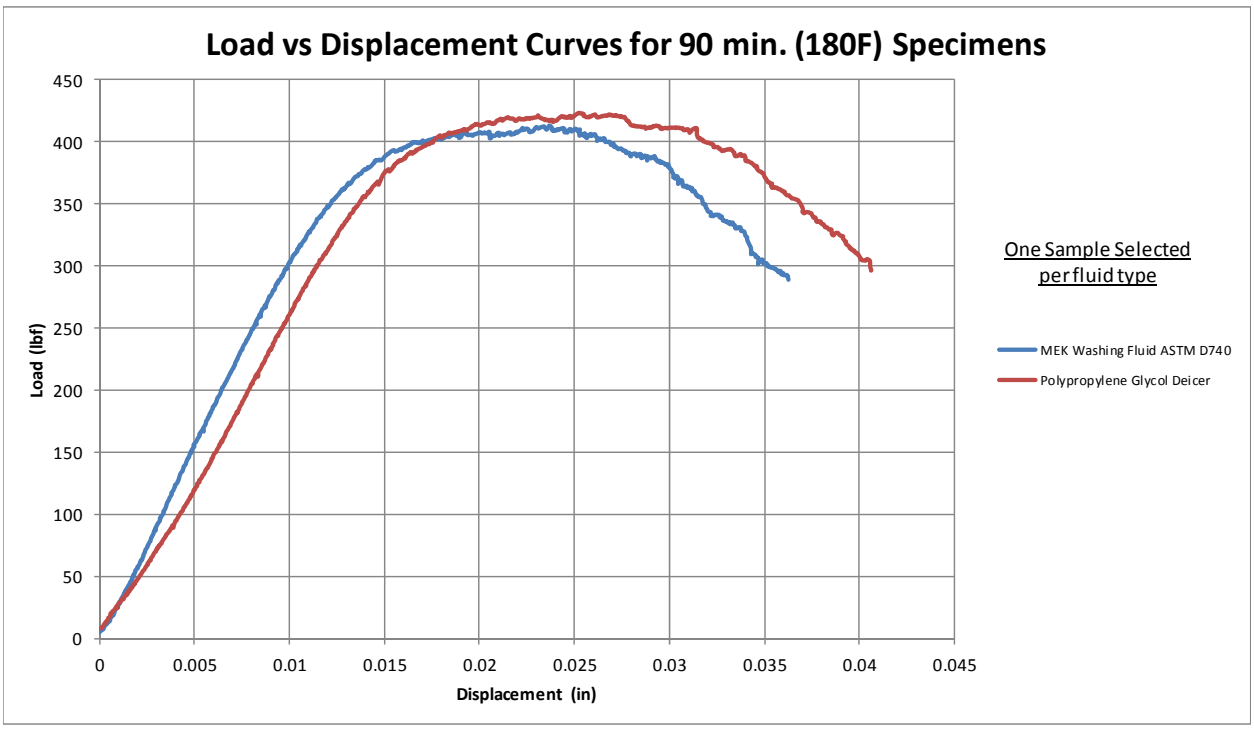
Average	**10.363**
Standard Dev.	**0.955**
Coeff. of Var. [%]	**9.219**
Min.	**8.319**
Max.	**11.295**
Number of Spec.	**76**

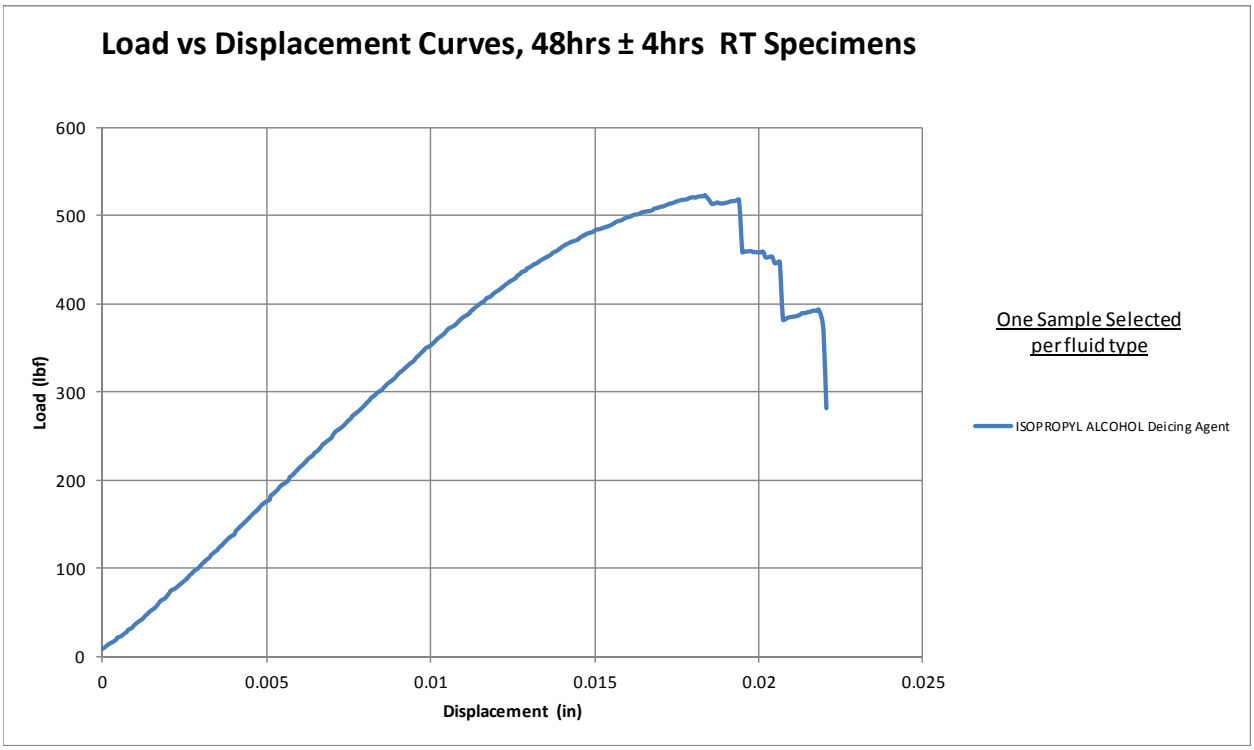
7.3 Load Displacement Curves

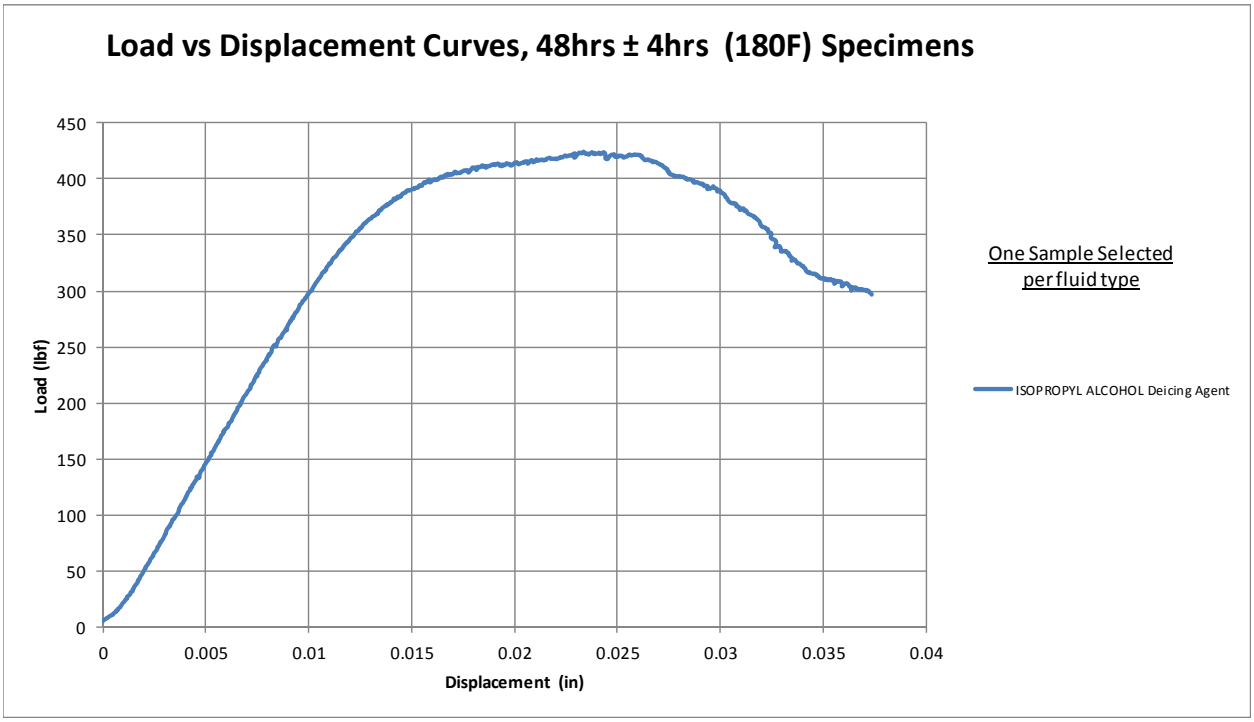


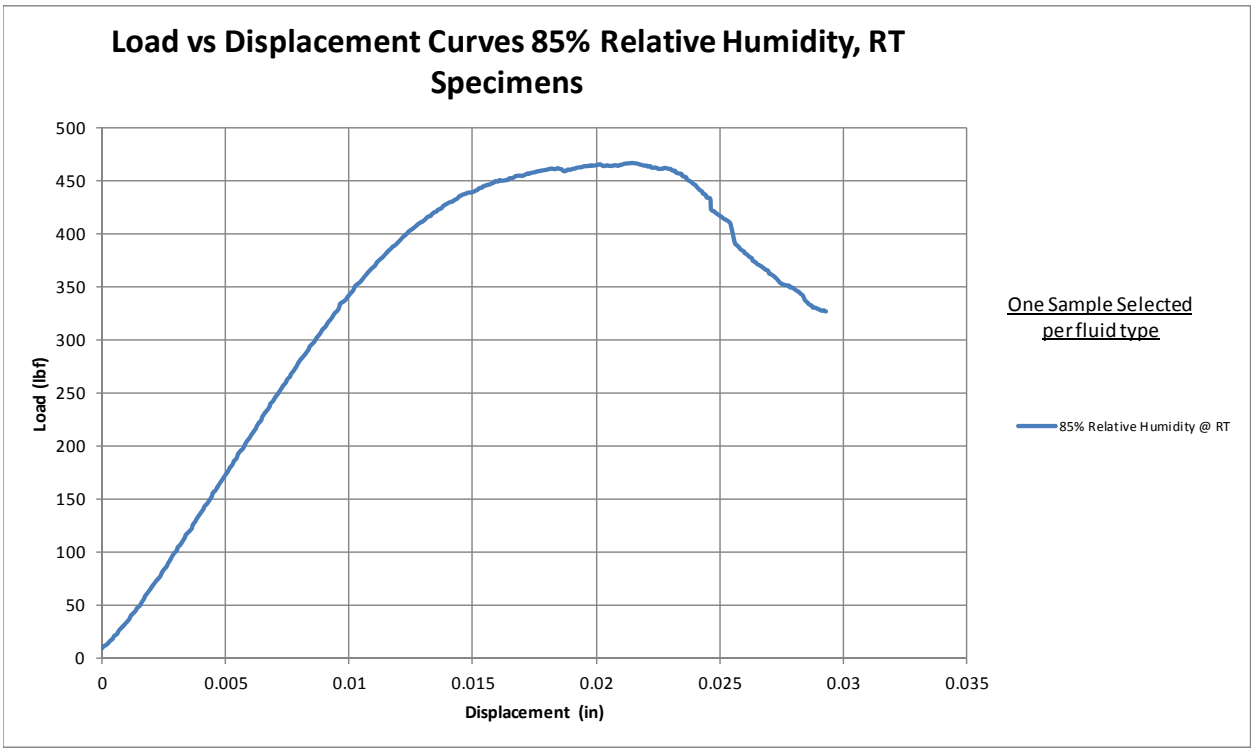


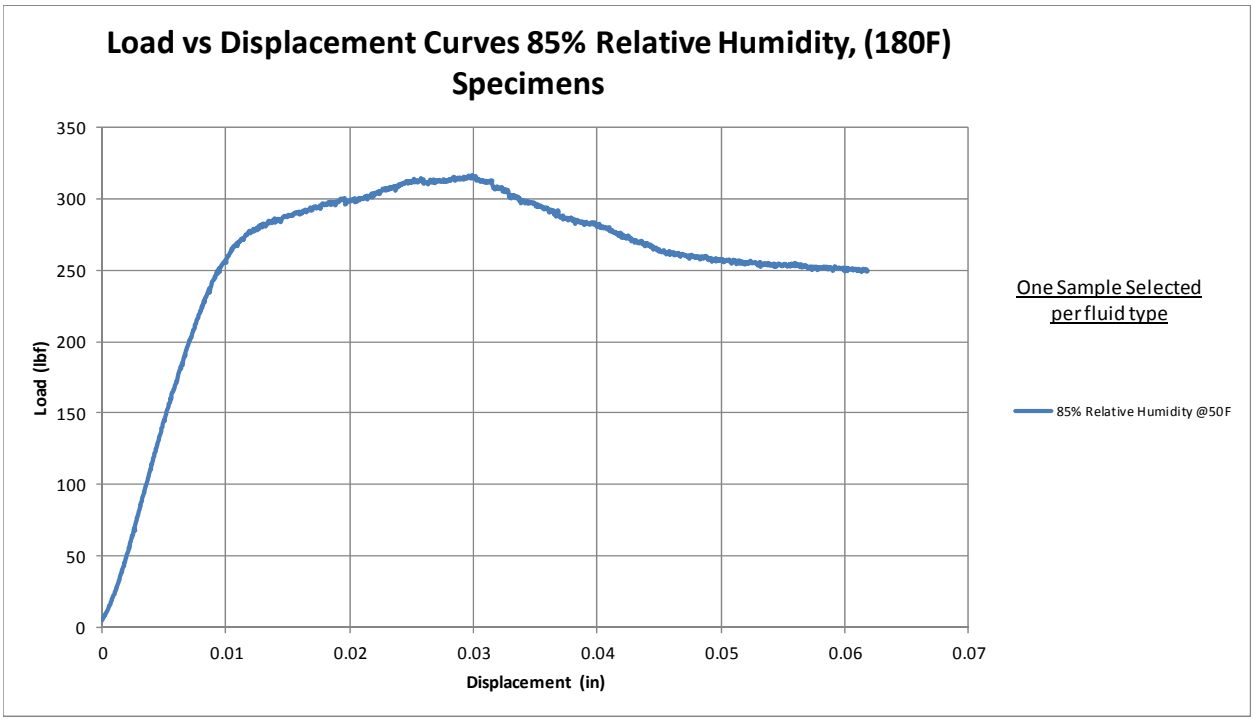

Load vs Displacement Curves for 90 min. RT Specimens
Load (lbf)
600
500
400
300
200
100
0
0
0.005
0.01
0.015
0.02
0.025
Displacement (in)
One Sample Selected per fluid type
MEK Washing Fluid ASTM D740
Polypropylene Glycol Deicer


Load vs Displacement Curves for 90 min. (180F) Specimens
Load (lbf)
450
400
350
300
250
200
150
100
50
0
0
0.005
0.01
0.015
0.02
0.025
0.03
0.035
0.04
0.045
Displacement (in)
One Sample Selected per fluid type
MEK Washing Fluid ASTM D740
Polypropylene Glycol Deicer


Load vs Displacement Curves, 48hrs ± 4hrs RT Specimens
600
500
400
300
200
100
0
Load (lbf)
0
0.005
0.01
0.015
0.02
0.025
Displacement (in)
One Sample Selected per fluid type
ISOPROPYL ALCOHOL Deicing Agent

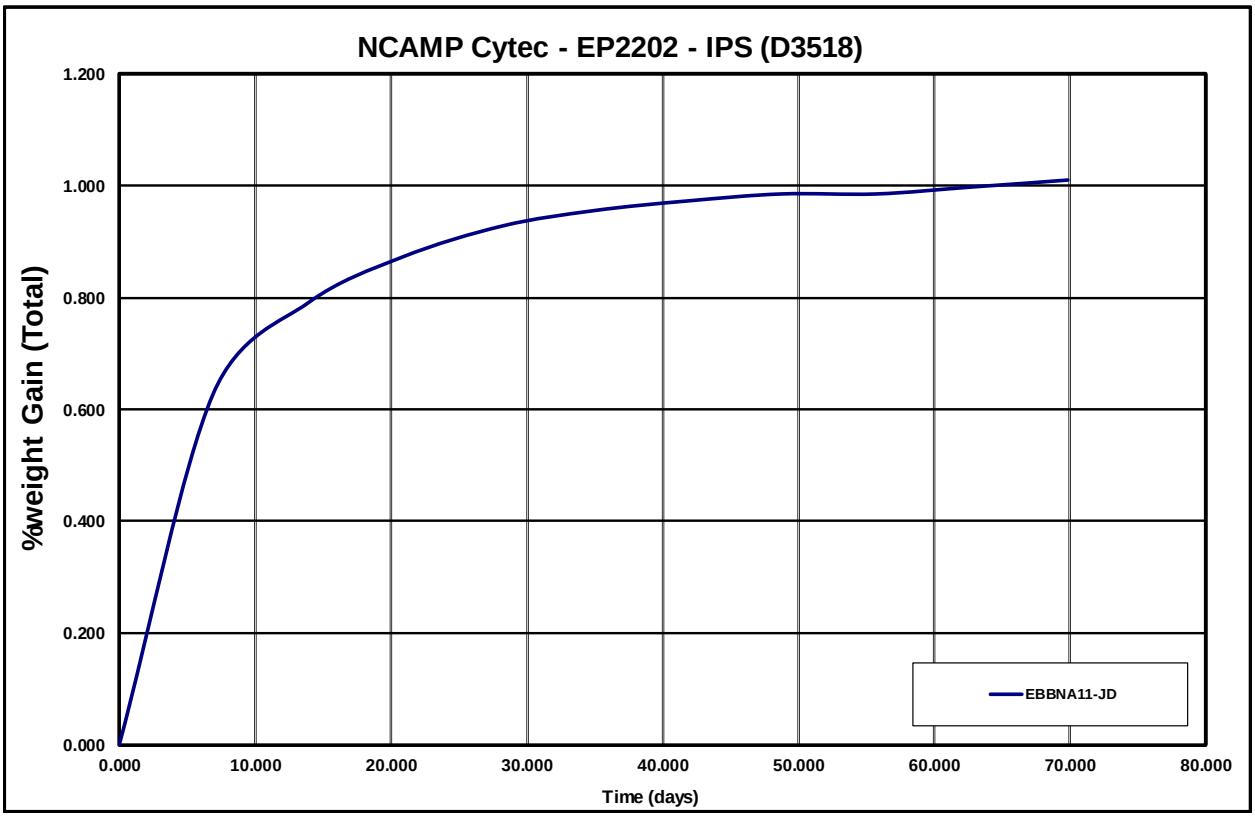

Load vs Displacement Curves, 48hrs ± 4hrs (180F) Specimens
450
400
350
300
250
200
150
100
50
0
Load (lbf)
0
0.005
0.01
0.015
0.02
0.025
0.03
0.035
0.04
Displacement (in)
One Sample Selected per fluid type
ISOPROPYL ALCOHOL Deicing Agent


Load vs Displacement Curves 85% Relative Humidity, RT Specimens
Load (lbf)
500
450
400
350
300
250
200
150
100
50
0
0
0.005
0.01
0.015
0.02
0.025
0.03
0.035
Displacement (in)
One Sample Selected per fluid type
85% Relative Humidity @ RT

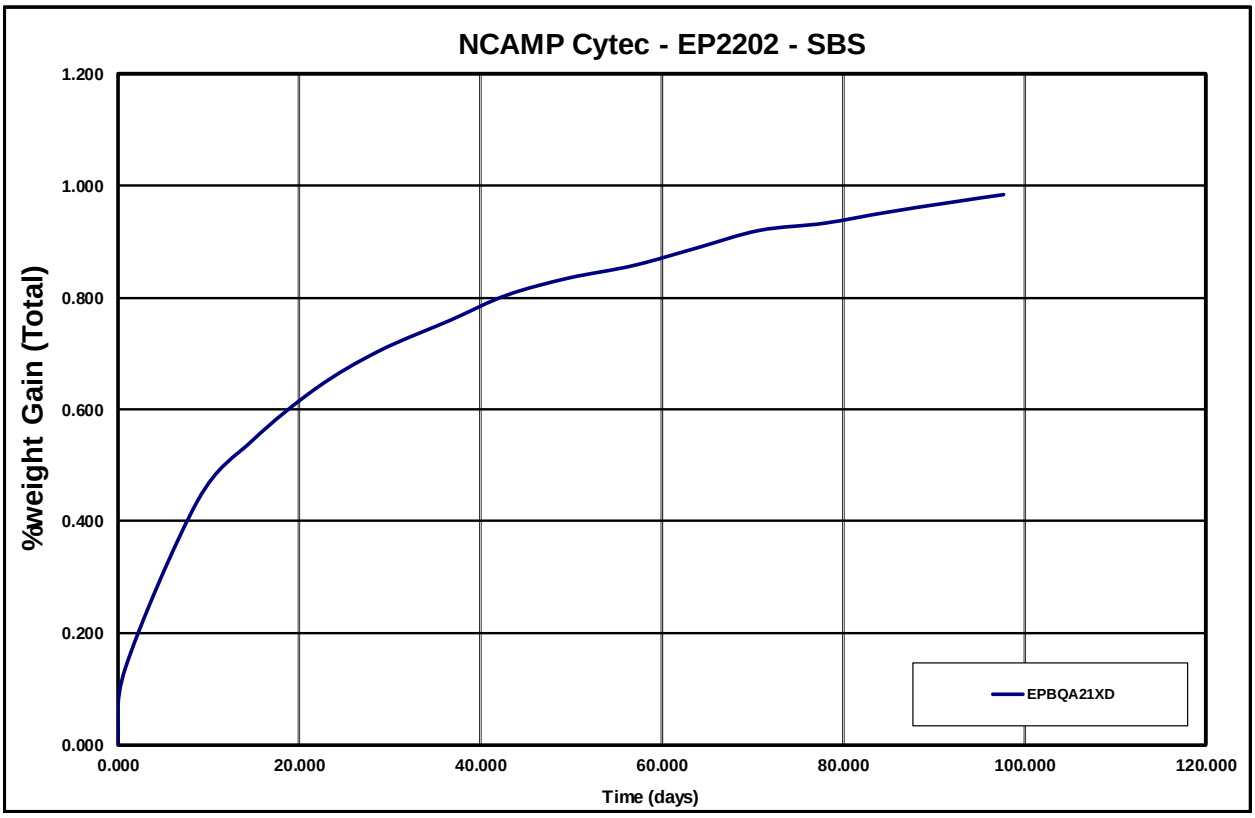

Load vs Displacement Curves 85% Relative Humidity, (180F) Specimens
Load (lbf)
350
300
250
200
150
100
50
0
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
Displacement (in)
One Sample Selected per fluid type
85% Relative Humidity @50F

8 Moisture Conditioning Charts

8.1 In-Plane Shear – Thinnest Panel



8.2 Short Beam Strength – Thickest Panel



For “wet” mechanical test specimens, the drying procedures may not have completely dried the specimens prior to moisture conditioning, so the total amount of moisture absorbed by the specimens may be higher than those recorded in the moisture gain charts.

9 DMA Results

DMA Results Summary

NCAMP Cytec EP2202 CP-C42-XXX-X-XX EPBXXX1 DRY DMA

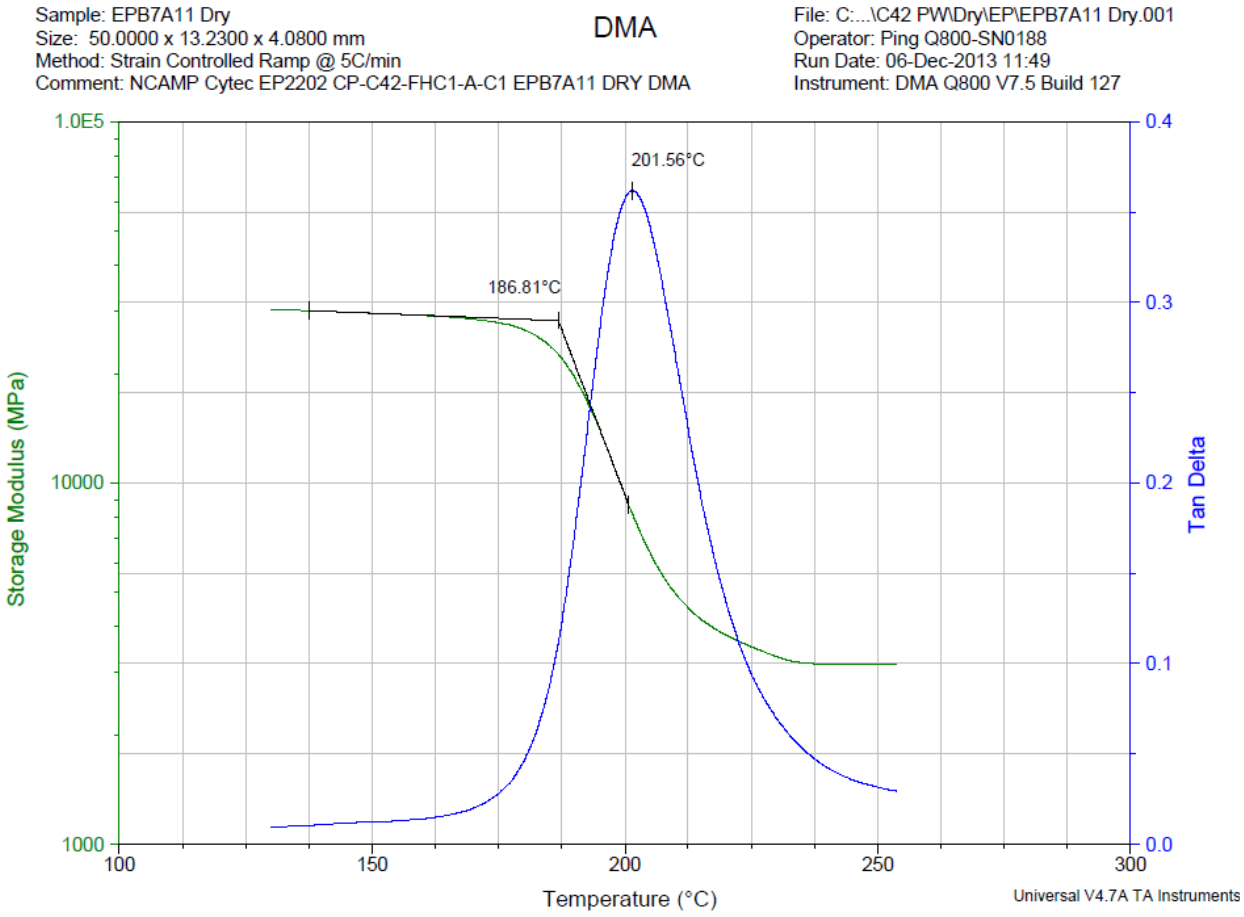
Sample #	Onset Storage Modulus		Peak of Tangent Delta	
	T_g [°C]	T_g [°F]	T_g [°C]	T_g [°F]
EPB7A11 Dry (CP-C42-FHC1-A-C1)	186.81	368.26	201.56	394.81
EPB7A21 Dry (CP-C42-FHC1-A-C2)	188.55	371.39	202.74	396.93
EPB7B11 Dry (CP-C42-FHC1-B-C1)	190.66	375.19	202.70	396.86
EPB7B21 Dry (CP-C42-FHC1-B-C2)	190.41	374.74	202.55	396.59
EPB8A21 Dry (CP-C42-FHC2-A-C2)	186.94	368.49	201.80	395.24
EPB9A11 Dry (CP-C42-FHC3-A-C1)	187.41	369.34	200.81	393.46
EPB9A21 Dry (CP-C42-FHC3-A-C2)	187.46	369.43	201.07	393.93
EPBAA21 Dry (CP-C42-UNT1-A-C2)	187.17	368.91	200.81	393.46
EPBAB11 Dry (CP-C42-UNT1-B-C1)	185.96	366.73	199.79	391.62
EPBDB11 Dry (CP-C42-OHT1-B-C1)	181.07	357.93	196.09	384.96
EPBEB11 Dry (CP-C42-OHT2-B-C1)	186.79	368.22	201.06	393.91
EPBGA11 Dry (CP-C42-OHC1-A-C1)	189.70	373.46	204.18	399.52
EPBGA21 Dry (CP-C42-OHC1-A-C2)	189.74	373.53	202.14	395.85
EPBHC11 Dry (CP-C42-OHC2-C-C1)	179.33	354.79	195.61	384.10
EPBHD21 Dry (CP-C42-OHC2-D-C2)	182.63	360.73	198.00	388.40
EPBID11 Dry (CP-C42-OHC3-D-C1)	182.81	361.06	196.43	385.57
EPBID21 Dry (CP-C42-OHC3-D-C2)	183.45	362.21	197.66	387.79
EPBJA11 Dry (CP-C42-WT-A-C1)	187.79	370.02	201.43	394.57
EPBJA21 Dry (CP-C42-WT-A-C2)	187.39	369.30	199.79	391.62
EPBJB21 Dry (CP-C42-WT-B-C2)	181.29	358.32	194.85	382.73
EPBLA11 Dry (CP-C42-WC-A-C1)	187.53	369.55	201.54	394.77
EPBLA21 Dry (CP-C42-WC-A-C2)	186.36	367.45	199.97	391.95
EPBLB11 Dry (CP-C42-WC-B-C1)	183.16	361.69	196.36	385.45
EPBLB21 Dry (CP-C42-WC-B-C2)	183.98	363.16	197.20	386.96
EPBMA11 Dry (CP-C42-ILT-A-C1-A)	182.82	361.08	195.98	384.76
EPBMA12 Dry (CP-C42-ILT-A-C1-B)	183.14	361.65	196.94	386.49
EPBMA13 Dry (CP-C42-ILT-A-C1-C)	186.48	367.66	199.69	391.44
EPBNB21 Dry (CP-C42-IPS-B-C2)	183.27	361.89	197.29	387.12
EPBNC11 Dry (CP-C42-IPS-C-C1)	180.01	356.02	197.41	387.34
EPBNC21 Dry (CP-C42-IPS-C-C2)	179.68	355.42	196.24	385.23
EPBQA11 Dry (CP-C42-SBS-A-C1)	187.13	368.83	198.63	389.53
EPBQB12 Dry (CP-C42-SBSFS-B-C1)	180.57	357.03	195.37	383.67
EPBUA11 Dry (CP-C42-FT-A-C1)	187.15	368.87	199.47	391.05
EPBUA21 Dry (CP-C42-FT-A-C2)	184.60	364.28	198.77	389.79
EPBUB11 Dry (CP-C42-FT-B-C1)	185.97	366.75	200.03	392.05
EPBUB21 Dry (CP-C42-FT-B-C2)	187.85	370.13	201.34	394.41
EPBXA11 Dry (CP-C42-UNC2-A-C1)	185.65	366.17	199.97	391.95
EPBXA21 Dry (CP-C42-UNC2-A-C2)	187.01	368.62	201.46	394.63
EPBXD11 Dry (CP-C42-UNC2-D-C1)	180.37	356.67	196.40	385.52
EPBXD21 Dry (CP-C42-UNC2-D-C2)	180.34	356.61	197.04	386.67
EPBZB11 Dry (CP-C42-FC-B-C1)	187.89	370.20	199.53	391.15
Average	185.23	365.41	199.21	390.58
Standard Deviation	3.18	5.73	2.45	4.42

DMA Results Summary

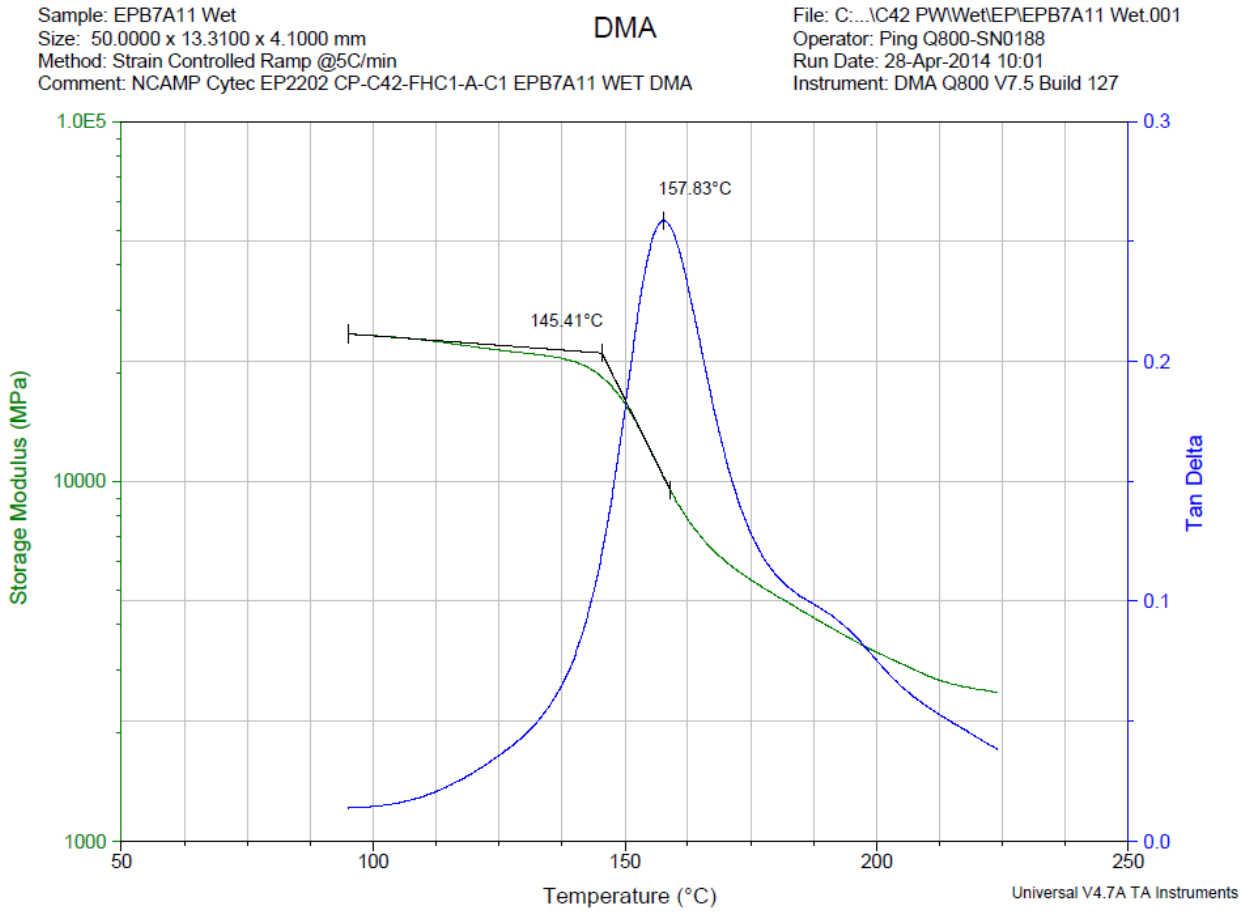
NCAMP Cytec EP2202 CP-C42-XXX-X-XX EPBXXX1 WET DMA

Sample #	Onset Storage Modulus		Peak of Tangent Delta	
	T_g [°C]	T_g [°F]	T_g [°C]	T_g [°F]
EPB7A11 Wet (CP-C42-FHC1-A-C1)	145.41	293.74	157.83	316.09
EPB7A21 Wet (CP-C42-FHC1-A-C2)	147.99	298.38	159.13	318.43
EPB7B11 Wet (CP-C42-FHC1-B-C1)	143.93	291.07	156.37	313.47
EPB7B21 Wet (CP-C42-FHC1-B-C2)	145.51	293.92	156.82	314.28
EPB8A21 Wet (CP-C42-FHC2-A-C2)	144.07	291.33	157.77	315.99
EPB9A11 Wet (CP-C42-FHC3-A-C1)	146.64	295.95	158.19	316.74
EPB9A21 Wet (CP-C42-FHC3-A-C2)	146.01	294.82	157.96	316.33
EPBAA21 Wet (CP-C42-UNT1-A-C2)	144.65	292.37	156.98	314.56
EPBAB11 Wet (CP-C42-UNT1-B-C1)	143.55	290.39	155.74	312.33
EPBDB11 Wet (CP-C42-OHT1-B-C1)	134.65	274.37	152.00	305.60
EPBEB11 Wet (CP-C42-OHT2-B-C1)	145.77	294.39	158.84	317.91
EPBGA11 Wet (CP-C42-OHC1-A-C1)	147.61	297.70	160.10	320.18
EPBGA21 Wet (CP-C42-OHC1-A-C2)	146.26	295.27	158.53	317.35
EPBHC11 Wet (CP-C42-OHC2-C-C1)	135.97	276.75	154.35	309.83
EPBHD21 Wet (CP-C42-OHC2-D-C2)	136.16	277.09	153.86	308.95
EPBID11 Wet (CP-C42-OHC3-D-C1)	135.86	276.55	151.83	305.29
EPBID21 Wet (CP-C42-OHC3-D-C2)	136.94	278.49	152.28	306.10
EPBJA11 Wet (CP-C42-WT-A-C1)	146.63	295.93	157.66	315.79
EPBJA21 Wet (CP-C42-WT-A-C2)	143.07	289.53	154.38	309.88
EPBJB21 Wet (CP-C42-WT-B-C2)	135.04	275.07	149.77	301.59
EPBLA11 Wet (CP-C42-WC-A-C1)	148.44	299.19	159.17	318.51
EPBLA21 Wet (CP-C42-WC-A-C2)	147.57	297.63	158.23	316.81
EPBLB11 Wet (CP-C42-WC-B-C1)	143.13	289.63	154.77	310.59
EPBLB21 Wet (CP-C42-WC-B-C2)	144.41	291.94	156.11	313.00
EPBMA11 Wet (CP-C42-ILT-A-C1-A)	141.50	286.70	153.76	308.77
EPBMA12 Wet (CP-C42-ILT-A-C1-B)	143.50	290.30	155.21	311.38
EPBMA13 Wet (CP-C42-ILT-A-C1-C)	147.86	298.15	158.34	317.01
EPBNB21 Wet (CP-C42-IPS-B-C2)	125.58	258.04	147.79	298.02
EPBNC11 Wet (CP-C42-IPS-C-C1)	131.66	268.99	153.18	307.72
EPBNC21 Wet (CP-C42-IPS-C-C2)	128.24	262.83	151.13	304.03
EPBQA11 Wet (CP-C42-SBS-A-C1)	142.50	288.50	158.23	316.81
EPBQB12 Wet (CP-C42-SBSFS-B-C1)	134.84	274.71	151.07	303.93
EPBUA11 Wet (CP-C42-FT-A-C1)	146.25	295.25	157.79	316.02
EPBUA21 Wet (CP-C42-FT-A-C2)	146.12	295.02	157.85	316.13
EPBUB11 Wet (CP-C42-FT-B-C1)	146.11	295.00	158.10	316.58
EPBUB21 Wet (CP-C42-FT-B-C2)	148.49	299.28	159.39	318.90
EPBXA11 Wet (CP-C42-UNC2-A-C1)	143.39	290.10	157.52	315.54
EPBXA21 Wet (CP-C42-UNC2-A-C2)	146.28	295.30	160.42	320.76
EPBXD11 Wet (CP-C42-UNC2-D-C1)	133.87	272.97	153.60	308.48
EPBXD21 Wet (CP-C42-UNC2-D-C2)	134.06	273.31	153.16	307.69
EPBZB11 Wet (CP-C42-FC-B-C1)	143.16	289.69	155.04	311.07
Average	141.92	287.45	155.86	312.55
Standard Deviation	5.95	10.71	3.05	5.48

9.1 DMA Dry Batch A



9.2 DMA Wet Batch A



10 Deviations

1. A span of 3T was used for SBS ETW testing at the discretion of AER. It was due to improper observed failure modes. 4T was retained for Dry condition tests because the change of span did not affect failure mode.

2. The following test panels were not fabricated/replaced due to insufficient material:
   a. NTP2202Q1-CYT-C42-SPI-UNT2-C-C1
   b. NTP2202Q1-CYT-C42-SPI-UNT2-C-C2
   c. NTP2202Q1-CYT-C42-SPI-FHC2-C-C1
   d. NTP2202Q1-CYT-C42-SPI-FHC2-C-C2