Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Uni-Directional Slit Tape (0.25 inch) 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-17-1H—Composite Materials Handbook for Polymer Matrix Composites. This report contains material property data of common usefulness to wide range of projects. The lamina and laminate material property data have been generated with NCAMP oversight in accordance with NSP 100 NCAMP Standard Operating Procedures; the test panels and test specimens have been inspected by NCAMP Authorized Inspection Representatives (AIR) and the testing has been witnessed by NCAMP Authorized Engineering Representatives (AER). However, the data may not fulfill all the needs of any specific company's program; specific properties, environments, laminate architecture, and loading situations may require additional testing.

The use of NCAMP material and process specifications do 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 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 Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Uni-Directional Slit Tape (0.25 inch) Material Allowables Statistical Analysis Report NCP-RP-2023-002 Rev N/C. The qualification material was utilizing NCAMP Material Specification NMS 397/3 Rev - dated January 24, 2024, NMS 397/3 lists the information for procurement. The qualification test panels were cured in accordance with NCAMP Process Specification NPS 83961AFP “C” cure cycle Rev - dated January 25, 2023. The NCAMP Test Plan NTP 3963Q1 Rev C was used for this qualification program.

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

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

Aircraft companies should not use the data published in this report without specifying NCAMP Material Specification NMS 397/3. NMS 397/3 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 397/3.* NMS 397/3 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

ν_{12}^{t}	major Poisson's ratio, tension
ν_{12}^{c}	major Poisson's Ratio, compression
$\mu\varepsilon$	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
SBS	short beam strength
$F_{12}^{s5\% \text{ strain}}$	in-plane shear strength at 5% strain
F_{12}^{su}	in-plane shear ultimate peak strength
$F_{12}^{s0.2\%}$	in-plane shear strength at 0.2% offset
G_{12}^{s}	in-plane shear modulus

Superscripts

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

Subscripts

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

Acronyms and Definitions

ASTM	American Society for Testing and Materials
B – Basis	95% lower confidence limit on the tenth population percentile
CV	Coefficient of variation
CTA	cold temperature ambient
CPT	cured ply thickness
ETA	elevated temperature ambient
ETW	elevated temperature wet
Gr/Ep	graphite/epoxy
norm	normalized
RTA	room temperature ambient
SACMA	Suppliers of Advanced Composite Materials Association
SRM	SACMA Recommended Method
Tply	thickness divided by the number of plies provides the thickness average per specimen
wet	specimen with an “equilibrium” moisture content
T, RH	temperature, relative humidity

1.3 NIAR–Specimen Naming Format

NTP3963Q1-TC-WEB-NIAR-T01-LT-A-C1-2-TT-RTD-3

Code	Test Plan ID
NTP3963Q1	NCAMP Test Plan #

Code	Manufacturer ID
TC	Toray Composites

Code	Slitter ID
WEB	Web Industries

Code	Fabricator ID
NIAR	NIAR ATLAS

Code	Material Designation
T01	3960 T1100GC 24K 71E UNI

Code	Panel Designation/ Intended Test ID
MST	Master Panel ID
Test ID	Per Appendix 2 & 3

Code	Specimens #
3	1,2,3,4,5

Code	Test Environment
RTD	Room Temperature Dry

Code	Actual Test ID
TT	Transverse Tension

Code	Panel ID
2	1,2,3

Code	Cure Cycle ID
C1	Cure Cycle C1

Code	Material Batch
A	Batch A

Material Batch	Cure Cycle ID	Machine Type
A	C1, C2, C3, C4, …	Electro Impact
B	C1, C3, …	Electro Impact
B	C2, C4, …	Coriolis
C	C1, C2, C3, C4, …	Coriolis

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-16 – Standard Test Method for Short-Beam Strength of Polymer Matrix Composite Materials and Their Laminates
- ASTM D3039/D3039M-17 – Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials
- ASTM D3418-21 - Standard Test Method for Transition Temperatures and Enthalpies of Fusion and Crystallization of Polymers by Differential Scanning Calorimetry
- ASTM D3518/D3518M-18 – 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(2018) – Standard Test Method for Open Hole Tensile Strength of Polymer Matrix Composite Laminates
- ASTM D5961/D5961M-17 – Standard Test Method for Bearing Response of Polymer Matrix Composite Laminates
- ASTM D6415/D6415-06a(2013) – Standard Test Method for Measuring the Curved Beam Strength of a Fiber-Reinforced Polymer-Matrix Composite
- ASTM D6484/D6484M-20 – Standard Test Method for Open-Hole Compressive Strength of Polymer Matrix Composite Laminates
- ASTM D6641/D6641M-16e2 – Standard Test Method for Determining the Compressive Properties of Polymer Matrix Composite Laminates Using a Combined Loading Compression (CLC) Test Fixture
- ASTM D6742/D6742M-17 – Standard Practice for Filled-Hole Tension and Compression Testing of Polymer Matrix Composite Laminates
- ASTM D7028-07(2015) – Standard Test Method for Glass Transition Temperature (DMA Tg) of Polymer Matrix Composites by Dynamic Mechanical Analysis (DMA)
- ASTM D7136/D7136M-20 – Standard Test Method for Measuring the Damage Resistance of a Fiber-Reinforced Polymer Matrix Composite to a Drop-Weight Impact Event
- ASTM D7137/D7137M-17 – Standard Test Method for Compressive Residual Strength Properties of Damaged Polymer Matrix Composite Plates Methodology

- ASTM D792-20 – Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
- ASTM D3171-15– Standard Test Methods for Constituent Content of Composite Materials
- ASTM D910-21 – Standard Specification for Leaded Aviation Gasolines
- ASTM E2580-17 – Standard Practice for Ultrasonic Testing of Flat Panel Composites and Sandwich Core Materials Used in Aerospace Applications

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. Fabrication equipment variability assessed by fabricating panel utilizing both Electroimpact (EI) and Coriolis (C1) AFP machines. Panels 1, 2, and 3 were fabricated using EI AFP machine and panels 4, 5, and 6 were fabricated using C1 AFP machine. Unless otherwise specified, panels 1, 3, and 5 were cured in a single cure cycle. Panels 2, 4, and 6 were cured in a single cure cycle separate from panels 1, 3, and 5. The term "cure cycle" means a single run through the autoclave or oven, with same processing parameters. The specimen selection methodology in Figure 1-2 are presented in “Number of Batches x Number of Cure Process x Number of Specimens” format throughout this document. Specifically, Figure 1-2 depicts a 3x2x3 specimen selection methodology.

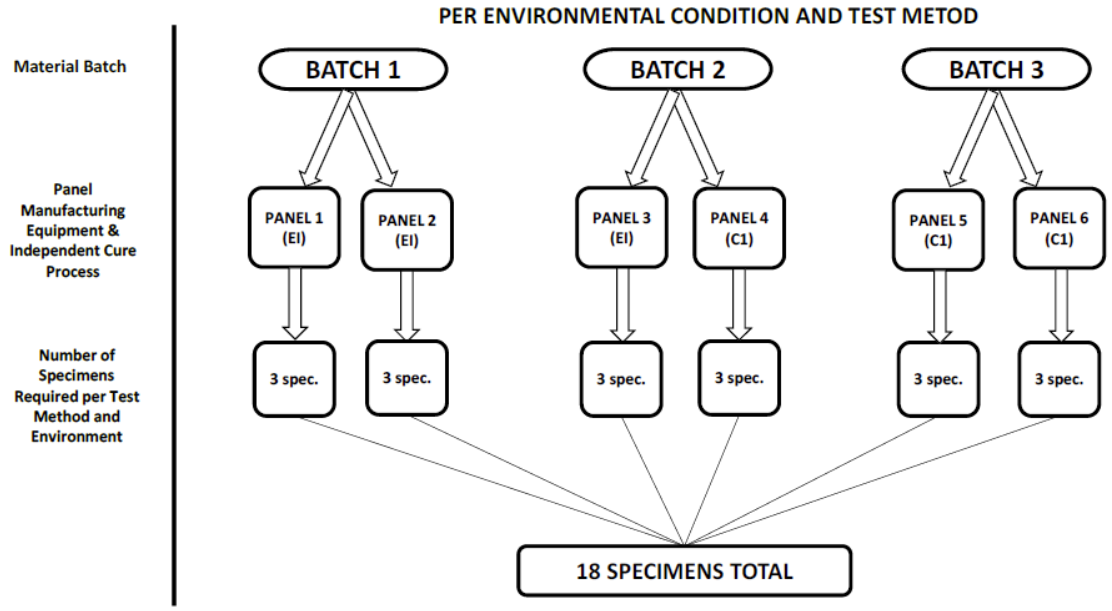


Figure 1-2: Specimen Selection Methodology

All panels were fabricated in accordance with NCAMP Process Specification NPS 83961AFP “C” Cure Cycle.

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.

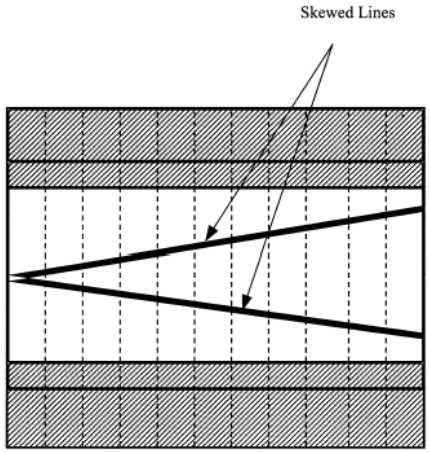


Figure 1-3: Specimen Traceability Line

1.5.2 Specimen & Testing Details

1.5.2.1 Tabbing

1.5.2.1.1 Longitudinal Tension (LT)

			Longitudinal Tension (LT)			
			Batch No. and Cure Cycle No.			
Tabbing Material	**Adhesive Type**	**Cure Temperature and Duration**	**CTA**	**RTA**	**ETW1**	**ETW2**
Epoxyglass™ G10/FR4	Solvay FM300-2M Film Adhesive*	250°F for 90 minutes	A-C2	A-C2	A-C2	A-C2
	Henkel Loctite EA9394 Paste Adhesive	150°F for 60 minutes	C-C1 C-C2	B-C1 C-C2		C-C1 C-C2
	Henkel Loctite EA9359.3 Paste Adhesive	150°F for 60 minutes	A-C1 B-C1 B-C2	A-C1 B-C2 C-C1	A-C1	A-C1 B-C1 B-C2

*Preferred

1.5.2.1.2 Transverse Tension (TT) / Transverse Compression (TC)

			Transverse Tension (TT) / Transverse Compression (TC)			
			Batch No. and Cure Cycle No.			
Tabbing Material	**Adhesive Type**	**Cure Temperature and Duration**	**CTA**	**RTA**	**ETW1**	**ETW2**
Epoxyglass™ G10/FR4	Solvay FM300-2M Film Adhesive*	250°F for 90 minutes	A-C2	A-C2	A-C2	A-C2
	Henkel Loctite EA9394 Paste Adhesive	150°F for 60 minutes	C-C1 C-C2	C-C1 C-C2		C-C1 C-C2
	Henkel Loctite EA9359.3 Paste Adhesive	150°F for 60 minutes	A-C1 B-C1 B-C2	A-C1 B-C1 B-C2	A-C1	A-C1 B-C1 B-C2

*Preferred

1.5.2.1.3 Longitudinal Compression (LC)

			Longitudinal Compression (LC)					
			Batch No. and Cure Cycle No.					
Tabbing Material	**Adhesive Type**	**Cure Temperature and Duration**	**CTA**	**RTA**	**ETA1**	**ETA2**	**ETW1**	**ETW2**
Epoxyglass™ G10/FR4	Solvay FM300-2M Film Adhesive*	250°F for 90 minutes	A-C3 B-C3 B-C4 C-C3 C-C4	A-C3 B-C3 B-C4 C-C3 C-C4	B-C1 B-C2	B-C1 B-C2	A-C2	A-C2
	Henkel Loctite EA9394 Paste Adhesive	150°F for 60 minutes					C-C1 C-C2	C-C1 C-C2
	Henkel Loctite EA9359.3 Paste Adhesive	150°F for 60 minutes	A-C1	A-C1			A-C1 B-C1 B-C2	A-C1 B-C1 B-C2

*Preferred

1.5.2.1.4 Unnotched Compression 0/90 (UNC0)

			Unnotched Compression 0/90 (UNC0)					
			Batch No. and Cure Cycle No.					
Tabbing Material	**Adhesive Type**	**Cure Temperature and Duration**	**CTA**	**RTA**	**ETA1**	**ETA2**	**ETW1**	**ETW2**
Epoxyglass™ G10/FR4	Henkel Loctite EA9394 Paste Adhesive	150°F for 60 minutes	A-C2 C-C1	A-C2 C-C1	A-C2	A-C2	A-C2	A-C2
	Henkel Loctite EA9359.3 Paste Adhesive	150°F for 60 minutes	A-C1 B-C1 B-C2 C-C2	A-C1 B-C1 B-C2 C-C2	A-C1	A-C1	A-C1	A-C1 B-C1 B-C2 C-C1 C-C2

1.5.2.1.5 Unnotched Compression (UNC1, UNC2, UNC3)

			Unnotched Compression 1 (UNC1)		
			Batch No. and Cure Cycle No.		
Tabbing Material	**Adhesive Type**	**Cure Temperature and Duration**	**RTA**	**ETW1**	**ETW2**
Epoxyglass™ G10/FR4	Solvay FM300-2M Film Adhesive*	250°F for 90 minutes	A-C1 A-C2	A-C1 A-C2	A-C1 A-C2
	Henkel Loctite EA9394 Paste Adhesive	150°F for 60 minutes	C-C2		C-C2
	Henkel Loctite EA9359.3 Paste Adhesive	150°F for 60 minutes	B-C1 B-C2 C-C1		B-C1 B-C2 C-C1

*Preferred

			Unnotched Compression 2 (UNC2)	
			Batch No. and Cure Cycle No.	
Tabbing Material	**Adhesive Type**	**Cure Temperature and Duration**	**RTA**	**ETW2**
Epoxyglass™ G10/FR4	Solvay FM300-2M Film Adhesive*	250°F for 90 minutes	A-C1 A-C2 C-C1 C-C2	A-C1 A-C2 C-C1 C-C2
	Henkel Loctite EA9394 Paste Adhesive	150°F for 60 minutes	B-C1	
	Henkel Loctite EA9359.3 Paste Adhesive	150°F for 60 minutes	B-C2	B-C1 B-C2

*Preferred

			Unnotched Compression 3 (UNC3)	
			Batch No. and Cure Cycle No.	
Tabbing Material	**Adhesive Type**	**Cure Temperature and Duration**	**RTA**	**ETW2**
Epoxyglass™ G10/FR4	Solvay FM300-2M Film Adhesive*	250°F for 90 minutes	A-C1 A-C2	A-C1 A-C2 B-C1 B-C2 C-C1 C-C2
	Henkel Loctite EA9394 Paste Adhesive	150°F for 60 minutes	B-C1 C-C1 C-C2	
	Henkel Loctite EA9359.3 Paste Adhesive	150°F for 60 minutes	B-C2	

*Preferred

1.5.2.1.6 Unnotched Tension (UNT1, UNT2, UNT3)

			Unnotched Tension (UNT1, UNT2, UNT3)			
			Batch No. and Cure Cycle No.			
Tabbing Material	**Adhesive Type**	**Cure Temperature and Duration**	**CTA**	**RTA**	**ETW1**	**ETW2**
Epoxyglass™ G10/FR4	Solvay FM300-2M Film Adhesive*	250°F for 90 minutes	A-C1 A-C2 B-C1 B-C2 C-C1 C-C2	A-C1 A-C2 B-C1 B-C2 C-C1 C-C2	A-C1 A-C2	A-C1 A-C2 B-C1 B-C2 C-C1 C-C2

*Preferred

1.5.2.2 Specimen Dimensions & Test Configuration

For SBS specimens, a span of 4T was used 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 specimens, the fasteners were installed at a torque of 85±5 in-lb beyond the prevailing torque of the fastener. For filled-hole compression and bearing specimens, the fasteners were installed 30±5 in-lb beyond the prevailing torque of the fastener. For moisture conditioned specimens, fasteners were installed after moisture conditioning.

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

For filled-hole and bearing specimens, the hole diameter was 0.25 in -0.000 +0.003 in. The fasteners used for filled-hole and bearing testing are listed in Table 1-1.

Test Method	Bolt	Countersink Washer (Head-Side)	Flat Washer (Nut-Side)	Nut
FHT1	NAS6304U-4	MS21206-C4	NAS1149C04063R NAS1149C04032R	MS21084L04
FHT2				
FHT3				
FHC1	NAS6304U-4	MS21206-C4	NAS1149C04063R NAS1149C04032R	MS21084L04
FHC2				
FHC3				
SSB1	NASM21297-04017	MS21206-C4	NAS1149C04063R NAS1149C04032R	MS21084L04
SSB2				
SSB3				

Table 1-1: Fastener Identifications

1.5.2.3 Specimen Strain Device Used

Corresponding Gage ID can be obtained from Appendix 1 of NTP 3963Q1.

Uniaxial gages were used on:

All conditions of Tension specimens except Longitudinal Tension specimens.

All conditions of combined loading compression specimens.

One CAI specimen for balancing.

Biaxial gages were used on:

All conditions of IPS specimens.

All conditions of Longitudinal 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	Test Type Code	Test Type and Direction	Property	Number of Batches x No. of Panels x No. of Specimens					
				Test Temperature/Moisture Condition					
				CTA (-65°F)	RTA (70°F)	ETA1 (180°F)	ETW1 (180°F)	ETA2 (250°F)	ETW2 (250°F)
$[0]_6$	LT	ASTM D3039 0° Tension	Strength, Modulus & Poisson's Ratio	3x2x3	3x2x3		1x2x3		3x2x3
$[0]_{14}$	LC	ASTM D6641 0° Compression	Strength, Modulus & Poisson's Ratio	3x2x3	3x2x3 (1)	1x2x3	1x2x3	1x2x3	3x2x3
$[90]_{12}$	TT	ASTM D3039 90° Tension	Strength & Modulus	3x2x3	3x2x3		1x2x3		3x2x3
$[90]_{14}$	TC	ASTM D6641 90° Compression	Strength & Modulus	3x2x3	3x2x3 (1)	1x2x3	1x2x3 (3)	1x2x3	3x2x3 (3)
$[90/0/90]_5$	UNC0	ASTM D6641 0° Compression (4)	Strength & Modulus	3x2x3	3x2x3 (1)	1x2x3	1x2x3 (3)	1x2x3	3x2x3 (3)
$[45/-45]_{4S}$	IPS	ASTM D3518 In-Plane Shear (2)	0.2% Offset Strength, 5% Strain Strength & Modulus	3x2x3	3x2x3		1x2x3		3x2x3
$[0/90]_{5S}$	VNS	ASTM D5379 In-Plane Shear V-Notched	0.2% Offset Strength, 5% Strain Strength, Ultimate Strength & Modulus	3x2x3	3x2x3		1x2x3		3x2x3
$[0]_{14}$	SBS	ASTM D2344 Short Beam	Strength	3x2x3	3x2x3	1x2x3	1x2x3	1x2x3	3x2x3

Table 1-2: Lamina Level Test Matrix

Note 1: Back-to-back strain gages are needed on the first two specimens. 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 1.50±0.50 inch on each end of the 10 inch 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: 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 4: Derive the 0° lamina compressive strength $F^{cu}_{0^\circ\ plies}$ as follows

$$F^{u}_{0^{\circ}\ plies} = BF\,\frac{P^{f}}{wh}$$

$$BF = \frac{E_1\left[V_0 E_2 + (1-V_0)E_1\right] - \left(\nu_{12} E_2\right)^2}{\left[V_0 E_1 + (1-V_0)E_2\right]\left[V_0 E_2 + (1-V_0)E_1\right] - \left(\nu_{12} E_2\right)^2}$$

Where:

BF = Back-out factor obtained using linear classical lamination theory
P^f = Peak load carried by the test specimen (usually at failure)
w = specimen gage width, mm [in.]
h = specimen gage thickness, mm [in.]
V_0 = fraction of 0° plies in the cross-ply laminate (1/2 for [0/90]ns and 1/3 for [90/0/90]n)
E_1 = axial tensile or compressive stiffness of 0° plies, from an average of all batches
E_2 = transverse tensile or compressive stiffness of 0° plies, from an average of all batches
ν_{12} = major Poisson's ratio of 0° plies, from an average of all batches

Table 1-3 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.

Table 1-3 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. For the single shear bearing test, the ASTM D5961-17 stabilized single shear single fastener bearing test setup (Procedure C) shall be used.

(%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			
			CTA (-65F)	RTA (70F)	ETW1 (180F)	ETW2 (250F)
(25/50/25 - QI) UNT1	ASTM D3039 Un-notched Tension [45/0/-45/90]2S	Strength & Modulus	3x2x3	3x2x3 (6)	1x2x3	3x2x3
(10/80/10 - SO) UNT2	ASTM D3039 Un-notched Tension [45/-45/90/45/-45/45/-45/0/45/-45]S	Strength & Modulus	3x2x3	3x2x3 (6)		3x2x3
(50/40/10 - HD) UNT3	ASTM D3039 Un-notched Tension [45/90/-45/0/0/45/0/0/-45/0]S	Strength & Modulus	3x2x3	3x2x3 (6)		3x2x3
(25/50/25 - QI) UNC1	ASTM D6641 Un-notched Compression [45/0/-45/90]2S	Strength & Modulus		3x2x3 (4 & 6)	1x2x3	3x2x3
(10/80/10 -SO) UNC2	ASTM D6641 Un-notched Compression [45/-45/90/45/-45/45/-45/0/45/-45]S	Strength & Modulus		3x2x3 (4 & 6)		3x2x3
(50/40/10 - HD) UNC3	ASTM D6641 Un-notched Compression [45/90/-45/0/0/45/0/0/-45/0]S	Strength & Modulus		3x2x3 (4 & 6)		3x2x3
(25/50/25 - QI) SBS1	ASTM D2344 Short Beam [45/0/-45/90]3S	Strength		3x2x3		3x2x3
(25/50/25 - QI) OHT1	ASTM D5766 Open Hole Tension (1) [45/0/-45/90]2S	Strength	3x2x3	3x2x3	1x2x3	3x2x3
(10/80/10 - SO) OHT2	ASTM D5766 Open Hole Tension (1) [45/-45/90/45/-45/45/-45/0/45/-45]S	Strength	3x2x3	3x2x3		3x2x3
(50/40/10 - HD) OHT3	ASTM D5766 Open Hole Tension (1) [45/90/-45/0/0/45/0/0/-45/0]S	Strength	3x2x3	3x2x3		3x2x3
(25/50/25 - QI) FHT1	ASTM D6742 Filled Hole Tension (2) [45/0/-45/90]2S	Strength	3x2x3	3x2x3	1x2x3	3x2x3
(10/80/10 - SO) FHT2	ASTM D6742 Filled Hole Tension (2) [45/-45/90/45/-45/45/-45/0/45/-45]S	Strength	3x2x3	3x2x3		3x2x3
(50/40/10 - HD) FHT3	ASTM D6742 Filled Hole Tension (2) [45/90/-45/0/0/45/0/0/-45/0]S	Strength	3x2x3	3x2x3		3x2x3
(25/50/25 - QI) OHC1	ASTM D6484 Open Hole Compression (1) [45/0/-45/90]3S	Strength		3x2x3 (4)	1x2x3	3x2x3
(10/80/10 - SO) OHC2	ASTM D6484 Open Hole Compression (1) [45/-45/90/45/-45/45/-45/0/45/-45]S	Strength		3x2x3 (4)		3x2x3
(50/40/10 - HD) OHC3	ASTM D6484 Open Hole Compression (1) [45/90/-45/0/0/45/0/0/-45/0]S	Strength		3x2x3 (4)		3x2x3
(25/50/25 - QI) FHC1	ASTM D6742 Filled Hole Compression (2) [45/0/-45/90]3S	Strength		3x2x3	1x2x3	3x2x3
(10/80/10 - SO) FHC2	ASTM D6742 Filled Hole Compression (2) [45/-45/90/45/-45/45/-45/0/45/-45]S	Strength		3x2x3		3x2x3
(50/40/10 - HD) FHC3	ASTM D6742 Filled Hole Compression (2) [45/90/-45/0/0/45/0/0/-45/0]S	Strength		3x2x3		3x2x3
(25/50/25 - QI) SSB1	ASTM D5961 Proc.C Single Shear Bearing (3) [45/0/-45/90]2S	Strength & Chord Modulus		3x2x3	1x2x3	3x2x3
(10/80/10 - SO) SSB2	ASTM D5961 Proc.C Single Shear Bearing (3) [45/-45/90/45/-45/45/-45/0/45/-45]S	Strength & Chord Modulus		3x2x3		3x2x3
(50/40/10 - HD) SSB3	ASTM D5961 Proc.C Single Shear Bearing (3) [45/90/-45/0/0/45/0/0/-45/0]S	Strength & Chord Modulus		3x2x3		3x2x3
(100/0/0) ILT	ASTM D6415 Interlaminar Tension [0]22	Strength	1x1x6	1x1x6		1x1x6
(25/50/25 - QI) CAI1	ASTM D7136 & D7137 Compression After Impact (1500 in.lb/in)(7) [45/0/-45/90]3S	Strength		1x1x6		

Table 1-3: Laminate Level Test Matrix

Note 1: Open-hole test configuration: 0.25 inch hole diameter, 1.5 inch width.
Note 2: Filled-hole test configuration: 0.25 inch hole diameter, 1.5 inch width, see section 1.5.2.2 for fastener callout.
Note 3: Single shear bearing test configuration: 0.25: hole diameter, 1.5 inch width, see section 1.5.2.2 for fastener callout, e/D=3, ASTM D5961-17 Procedure C
Note 4: Back-to-back strain gages needed on the first two specimens. 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: At least six specimens must be gaged to obtain full stress-strain curve to failure, as appropriate.
Note 7: 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.

1.5.4 Cured Laminate Physical Testing

The properties in Table 1-4 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 D3171-15	All data from mechanical test specimens
Laminate Density	ASTM D792-20	Per Note 5
Fiber Volume, % by Volume	ASTM D3171-15 (Note 2)	3
Resin Content, % by Weight	ASTM D3171-15 (Note 2)	3
Void Content, % by Volume	ASTM D3171-15	Per Note 5
Ultrasonic Through Transmission, C-Scan	ASTM E2580-17 (Note 3)	1
Glass Transition Temperature, Tg by DMA Flexural Loading	Dry and Wet – ASTM D7028	1 Dry, 1 Wet (Note 4)

Table 1-4: 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. In order to verify Method II is accurate, a minimum of 12 samples (extracted from 4 panels) per batch shall be tested by Method I, Procedure B. If the average fiber volume results of Method I and Method II are within 2%, Method II may be deemed accurate and the remaining panels may use Method II only. Otherwise, use Method I, Procedure B for all panels.
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: Test repetitions are the same as fiber volume test.

1.5.5 Environmental Conditioning

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

Test environments are defined as:

CTA = -65±5°F, ambient
RTA = 70±10°F, ambient
ETA1 = 180±5°F, ambient
ETW1 = 180±5°F, wet (equilibrium moisture content per section 1.5.5)
ETA2 = 250±5°F, ambient
ETW2 = 250±5°F, wet (equilibrium moisture content per section 1.5.5)

Within each test method and test environment, the failure mode was evaluated immediately after each test by an NCAMP/ATLAS staff engineer or NCAMP AER. Obvious improper failure modes was logged. If a second improper failure mode occurs, testing was cease until the test setup and test data was reviewed by NCAMP/ATLAS. Retain the samples until data review was completed and the test report was finalized. All tested specimens were digitally photographed after each test in order to pictorially document failure modes.

For ambient testing, specimens were tested as-fabricated and stored at ambient condition prior to testing.

For dry DMA testing, specimens were dried at 250°F±5°F for a minimum of 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. The specimens shall be re-dried if the specimens were not tested within 14 days period after drying.

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

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

Where:

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

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

1.5.6 Non-ambient Testing

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

For elevated temperature testing, the temperature chamber, test fixture, and grips were preheated to the specified temperature. Each specimen was heated to the required test temperature as verified by a thermocouple in direct contact with and taped to the specimen gage section. The heat-up time of the specimen did not exceed 5 minutes, unless otherwise specified in individual test summary sheets. The test was started 2^{+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 1-5 lists the requirements for fluid sensitivity screening, which requires ASTM D2344 Short Beam Strength testing on $[0°]_{14}$ lamina level specimens dried at 250°F±5°F for 120^{+48}_{-0} hours before being subjected to the conditions indicated in the test matrix. Five replicates with a single cure cycle per each fluid type was subjected to fluid exposure. 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, preferably through a single setup. It was intended that the fluid resistance testing was performed on a limited number of reinforcement types and that engineering judgement was used to determine the necessity of repetition for other reinforcement configurations.

Experience suggested 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.

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	90 days min. @ 70°F±10°F	70°F	FS12RT
	90 days min. @ 70°F±10°F	180°F	FS12ET
MIL-PRF-5606 Hydraulic Oil	90 days min. @ 70°F±10°F	70°F	FS13RT
	90 days min. @ 70°F±10°F	180°F	FS13ET
MIL-PRF-83282 Hydraulic Oil	90 days min. @ 70°F±10°F	70°F	FS14RT
	90 days min. @ 70°F±10°F	180°F	FS14ET
MIL-PRF-7808 Engine Oil	90 days min. @ 70°F±10°F	70°F	FS15RT
	90 days min. @ 70°F±10°F	180°F	FS15ET
MIL-PRF-23699, Class STD Engine Oil	90 days min. @ 70°F±10°F	70°F	FS16RT
	90 days min. @ 70°F±10°F	180°F	FS16ET
Salt Water (ASTM D1141 or equiv.)	90 days min. @ 70°F±10°F	70°F	FS17RT
	90 days min. @ 70°F±10°F	180°F	FS17ET
Skydrol 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
Degreasing Solvent per MIL-PRF-680, Type III (2)	90 days min. @ 70°F±10°F	70°F	FS09RT
	90 days min. @ 70°F±10°F	180°F	FS09ET
Preservation Oil per MIL-PRF-6081 (2)	90 days min. @ 70°F±10°F	70°F	FS10RT
	90 days min. @ 70°F±10°F	180°F	FS10ET
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
Detergent per MIL-D-16791, Type I (2)	90 minutes min. @ 70°F±10°F	70°F	FS24RT
	90 minutes min. @ 70°F±10°F	180°F	FS24ET
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 6.2 Test Plan NTP 3963Q1	70°F	FS32RT
	Dry per section 6.2 Test Plan NTP 3963Q1	180°F	FS32ET
85% Relative Humidity	Per section 6.2 (1) Test Plan NTP 3963Q1	70°F	FS33RT
	Per section 6.2 (1) Test Plan NTP 3963Q1	180°F	FS33ET

Table 1-5: Fluid Sensitivity Matrix

Note 1: Data from Table 1-2 can be used for fluid sensitivity studies when exposure configurations are identical.

Note 2: Specimens were extracted from the same panel as NTP 3963Q1 Rev B (MST10-A-C1).

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 cured ply thickness of 0.007000 inches based on actual panel thickness average 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 Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Uni-Directional Slit Tape (0.25 inch) material the anticipated theoretical calculated CPT was 0.007200 inches. The average as measured CPT of the qualification panels was 0.007005 inches. The lowest and highest CPT measured were 0.006705 inches and 0.007400 inches respectively.

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. Test setup and witnessing was delegated to an NCAMP AER. Mechanical testing was carried out at the National Institute for Aviation Research, Wichita State University. The inspection documentation, with required approval signatures are stored in hard copy as well as electronically.

1.5.10 Material Pedigree Information

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

2. Test Results

2.1 Lamina Level Test Summary

Prepreg Material: Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Material Specification: NMS 397/3
Process Specification: NPS 83961
Fiber: T1100G-24000-71E **Resin:** 3960

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) Lamina Properties Summary

Tg(dry): 373.37°F **Tg(wet):** 306.95°F **Tg METHOD:** ASTM D7028

	Lot #1 (A)	Lot #2 (B)	Lot #3 (C)
Fiber Lot	A1120K2	A1120K2	A1120J1
Date of fiber manufacture	10/31/2020	10/31/2020	9/30/2020
Resin Lot	Multiple	Multiple	Multiple
Date of resin manufacture	Multiple	Multiple	Multiple
Prepreg Lot	A5210392	A5210797	A3201290
Date of prepreg manufacture	3/11/2021	7/30/2021	12/8/2020
Date of composite manufacture	6/3/2022 - 11/29/2022		

Date of testing 8/23/2022 to 6/1/2023
Date of data submittal 6/26/2023

LAMINA MECHANICAL PROPERTY SUMMARY
Data reported as: Normalized & Measured
(Normalized by CPT=0.007000 inch)

Properties	CTA (-65°F) Mean		RTA (70°F) Mean		ETA1 (180°F) Mean		ETA2 (250°F) Mean		ETW1 (180°F) Mean		ETW2 (250°F) Mean	
	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
F_1^{tu} [ksi]	518.2	518.2	527.7	528.7					504.5	505.0	489.2	483.2
E_1^t [Msi]	24.51	24.58	24.67	24.73					25.54	25.58	25.59	25.31
ν_{12}^t		0.3217		0.3344						0.3365		0.3715
F_2^{tu} [ksi]		8.094		9.399						6.684		3.921
E_2^t [Msi]		1.476		1.330						1.111		0.6996
F_1^{cu} [ksi] from UNC0*	300.0	299.3	280.7	280.8	259.2	260.4	250.4	252.3	256.5	257.8	200.8	200.8
E_1^c [Msi]	21.63	21.72	21.62	21.71	21.78	22.15	21.51	21.90	21.46	21.87	21.52	21.64
ν_{12}^c		0.3383		0.3492		0.3646		0.3730		0.3943		0.4157
F_2^{cu} [ksi]		49.11		38.01		29.13		22.92		23.87		15.45
E_2^c [Msi]		1.495		1.386		1.279		1.201		1.198		0.9105
(0/90) UNC0 Strength [ksi]	113.7	113.4	105.4	105.4	96.45	96.70	92.70	93.24	94.93	95.24	72.55	72.52
(0/90) UNC0 Modulus [Msi]	8.023	8.000	8.033	8.028	7.903	7.924	7.979	8.024	8.202	8.231	8.231	8.231
(IPS) $F_{12}^{s0.2\%}$ [ksi]		10.76		8.119						5.678		3.261
(IPS) $F_{12}^{s5\%strain}$ [ksi]		16.42		13.43						8.473		5.253
(IPS) G_{12}^s [Msi]		0.8492		0.7338						0.5418		0.3310
(VNS) $F_{12}^{s0.2\%}$ [ksi]		11.77		9.185						6.490		4.113
(VNS) $F_{12}^{s5\%strain}$ [ksi]		19.21		15.35						10.08		6.420
(VNS) F_{12}^{su} [ksi]		29.32		24.53						16.72		11.39
(VNS) G_{12}^s [Msi]		0.8960		0.7615						0.5709		0.4036
SBS [ksi]		22.01		16.83		12.88		10.44		11.39		7.865

*Derived from cross-ply using back-out factor.
In-Plane Shear (IPS) data was calculated per ASTM D3518.
In-Plane Shear V-Notched (VNS) data was calculated per ASTM D5379.

Table 2-1: Lamina Summary Data

2.2 Laminate Level Test Summary

Prepreg Material: Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Material Specification: NMS 397/3
Process Specification: NPS 83961
Fiber: T1100G-24000-71E **Resin:** 3960
Tg(dry): 373.37°F **Tg(wet):** 306.95°F **Tg METHOD:** ASTM D7028

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) Laminate Properties Summary

	Lot #1 (A)	Lot #2 (B)	Lot #3 (C)		
Fiber Lot	A1120K2	A1120K2	A1120J1		
Date of fiber manufacture	10/31/2020	10/31/2020	9/30/2020	**Date of testing**	8/23/2022 to 6/1/2023
Resin Lot	Multiple	Multiple	Multiple	**Date of data submittal**	6/26/2023
Date of resin manufacture	Multiple	Multiple	Multiple		
Prepreg Lot	A5210392	A5210797	A3201290		
Date of prepreg manufacture	3/11/2021	7/30/2021	12/8/2020		
Date of composite manufacture		6/3/2022 - 11/29/2022			

LAMINATE MECHANICAL PROPERTY SUMMARY
Data reported as: Normalized & Measured
(Normalized by CPT=0.007000 inch)

Properties	Layup	25/50/25 (Quasi)		10/80/10 (Soft)		50/40/10 (Hard)	
	Test Condition	Normalized	Measured	Normalized	Measured	Normalized	Measured
OHT Strength [ksi]	CTA (-65°F)	83.15	83.02	58.92	58.83	138.3	137.2
	RTA (70°F)	91.82	91.68	58.42	58.34	152.8	151.7
	ETW1 (180°F)	98.66	98.88				
	ETW2 (250°F)	116.4	116.4	52.89	52.80	223.7	222.1
OHC Strength [ksi]	RTA (70°F)	49.63	49.77	43.60	43.50	71.33	71.04
	ETW1 (180°F)	42.02	42.48				
	ETW2 (250°F)	35.74	35.87	26.99	26.93	49.09	48.89
UNT Strength [ksi]	CTA (-65°F)	149.7	149.5	85.87	85.69	264.5	263.3
	RTA (70°F)	161.2	160.9	84.03	83.76	284.1	282.7
	ETW1 (180°F)	167.6	168.0				
	ETW2 (250°F)	158.5	158.4	67.92	67.84	237.2	236.4
UNT Modulus [Msi]	CTA (-65°F)	9.265	9.253	5.909	5.897	14.52	14.46
	RTA (70°F)	9.122	9.106	5.669	5.651	14.34	14.26
	ETW1 (180°F)	9.007	9.031				
	ETW2 (250°F)	8.626	8.625	4.464	4.459	14.09	14.05
UNC Strength [ksi]	RTA (70°F)	111.2	111.1	74.78	74.72	168.1	167.6
	ETW1 (180°F)	94.69	94.98				
	ETW2 (250°F)	66.92	66.87	45.09	45.10	103.1	102.8
UNC Modulus [Msi]	RTA (70°F)	8.088	8.078	5.046	5.041	12.53	12.50
	ETW1 (180°F)	7.839	7.864				
	ETW2 (250°F)	7.810	7.804	4.365	4.367	12.64	12.61
FHT Strength [ksi]	CTA (-65°F)	87.50	87.53	64.96	64.82	134.9	134.5
	RTA (70°F)	93.35	93.29	62.59	62.44	148.1	147.4
	ETW1 (180°F)	101.9	102.1				
	ETW2 (250°F)	106.3	106.2	49.55	49.39	176.4	175.9
FHC Strength [ksi]	RTA (70°F)	74.94	75.03	63.58	63.35	97.69	97.21
	ETW1 (180°F)	66.31	66.92				
	ETW2 (250°F)	50.52	50.65	36.75	36.65	62.96	62.65
SBS1 Strength [ksi]	RTA (70°F)		13.03				
	ETW1 (180°F)		8.527				
	ETW2 (250°F)		4.059				
SSB 2% Offset Strength [ksi]	RTA (70°F)	109.2	108.8	114.2	113.6	113.1	112.3
	ETW1 (180°F)	111.6	111.6				
	ETW2 (250°F)	93.67	93.31	93.16	92.73	87.34	86.77
SSB Ultimate Strength [ksi]	RTA (70°F)	153.1	152.6	147.6	146.8	147.8	146.8
	ETW1 (180°F)	130.2	130.3				
	ETW2 (250°F)	112.0	111.5	109.4	108.9	105.9	105.2
SSB Chord Modulus [Msi]	RTA (70°F)	1.878	1.872	1.318	1.310	1.768	1.756
	ETW1 (180°F)	2.060	2.061				
	ETW2 (250°F)	1.721	1.715	1.260	1.254	1.682	1.671
CBS* [lb]	CTA (-65°F)		640.3				
	RTA (70°F)		482.2				
	ETW2 (250°F)		111.4				
ILT* [ksi]	CTA (-65°F)		21.89				
	RTA (70°F)		16.37				
	ETW2 (250°F)		3.423				
CAI [ksi]	RTA (70°F)	49.52	50.24				

***The actual layup for ILT is [0]22, (100/0/0).**

Table 2-2: Laminate Summary Data

2.3 Individual Test Summaries

2.3.1 Longitudinal Tension Properties (LT)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)						**Tension, 1-axis** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [0]6			
Resin content:	34.05 %wt	**Comp. density:** 1.572 g/cc								
Fiber volume:	57.86 %vol									
Ply count:	6									
Test method:	ASTM D3039-17	**Modulus calculation:** 1000-3000 microstrain								
Normalized by:	0.007000	in. CPT								
		CTA		**RTA**		**ETW1**		**ETW2**		
Test Temperature [°F]		-65		70		180		250		
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium		
Equilibrium at T, RH						160F,85%		160F,85%		
Source code prefixed by:	NTP3963Q1-TC-WEB-NIAR-T01-	MSTX-X-CX-LT-CTA-X		MSTX-X-CX-LT-RTA-X		MSTX-X-CX-LT-ETW1-X		MSTX-X-CX-LT-ETW2-X		
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
F_1^{tu} [ksi]	**Mean**	518.2	518.2	527.7	528.7	504.5	505.0	489.2	483.2	
	Minimum	477.4	476.5	444.8	449.6	460.4	467.3	438.7	446.5	
	Maximum	553.0	562.6	580.4	576.7	566.5	559.6	536.4	537.0	
	C.V.(%)	3.982	4.312	6.696	6.243	8.447	7.371	5.135	4.403	
	No. Specimens	20		18		7		19		
	No. Prepreg Lots	3		3		2		3		
E_1^t [Msi]	**Mean**	24.51	24.58	24.67	24.73	25.54	25.58	25.59	25.31	
	Minimum	23.68	23.46	24.21	23.83	24.86	25.08	24.97	24.69	
	Maximum	25.07	25.28	25.17	25.29	26.23	26.07	27.28	26.17	
	C.V.(%)	1.328	2.260	1.069	1.800	2.129	1.374	1.988	1.753	
	No. Specimens	18		18		7		18		
	No. Prepreg Lots	3		3		2		3		
ν_{12}^t	**Mean**		0.3217		0.3344		0.3365		0.3715	
	Minimum		0.2221		0.3181		0.3042		0.3332	
	Maximum		0.3680		0.3505		0.3575		0.4102	
	C.V.(%)		10.13		2.993		5.907		5.401	
	No. Specimens	18		18		7		18		
	No. Prepreg Lots	3		3		2		3		

2.3.2 Transverse Tension Properties (TT)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)		**Tension, 2-axis** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [90]12
Resin content:	34.14 %wt	**Comp. density:** 1.568 g/cc	
Fiber volume:	57.64 %vol		
Ply count:	12		
Test method:	ASTM D3039-17	**Modulus calculation:** 1000-3000 microstrain	
Normalized by:	NA		

		CTA		RTA		ETW1		ETW2	
Test Temperature [°F]		-65		70		180		250	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F,85%		160F,85%	
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01		MSTX-X-CX-TT-CTA-X		MSTX-X-CX-TT-RTA-X		MSTX-X-CX-TT-ETW1-X		MSTX-X-CX-TT-ETW2-X	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
F_2^{tu} [ksi]	**Mean**		8.094		9.399		6.684		3.921
	Minimum		6.168		5.838		6.365		3.396
	Maximum		9.622		12.64		7.090		4.451
	C.V.(%)		8.813		18.98		4.279		6.691
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	
E_2^t [Msi]	**Mean**		1.476		1.330		1.111		0.6996
	Minimum		1.284		1.292		1.076		0.6489
	Maximum		1.623		1.357		1.146		0.7847
	C.V.(%)		5.232		1.431		3.261		6.136
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	

2.3.3 Longitudinal Compression Properties (LC)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)											**Compression, 1-axis** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [0]14	
Resin content:	34.27 %wt	**Comp. density:** 1.567 g/cc											
Fiber volume:	57.47 %vol												
Ply count:	14												
Test method:	ASTM D6641-16e2	**Modulus calculation:** 1000-3000 microstrain											
Normalized by:	0.007000	in. CPT											
		CTA		**RTA**		**ETA1**		**ETA2**		**ETW1**		**ETW2**	
Test Temperature [°F]		-65		70		180		250		180		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH										160F,85%		160F,85%	
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-LC-CTA-X		MSTX-X-CX-LC-RTA-X		MSTX-X-CX-LC-ETA1-X		MSTX-X-CX-LC-ETA2-X		MSTX-X-CX-LC-ETW1-X		MSTX-X-CX-LC-ETW2-X	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
E_1^c [Msi]	**Mean**	21.63	21.72	21.62	21.71	21.78	22.15	21.51	21.90	21.46	21.87	21.52	21.64
	Minimum	20.30	20.74	20.41	20.87	20.86	21.31	20.42	20.86	20.58	21.03	20.73	20.65
	Maximum	23.10	22.72	22.83	23.28	22.28	22.86	22.30	22.75	22.32	22.63	22.72	23.04
	C.V.(%)	2.634	2.101	2.776	2.499	1.835	1.987	2.834	2.874	3.424	3.096	2.318	2.766
	No. Specimens	36		36		12		12		6		18	
	No. Prepreg Lots	3		3		1		1		1		3	
ν_{12}^c	**Mean**		0.3383		0.3492		0.3646		0.3730		0.3943		0.4157
	Minimum		0.2972		0.3230		0.3474		0.3310		0.3579		0.3741
	Maximum		0.3655		0.3714		0.3843		0.3908		0.4284		0.4875
	C.V.(%)		4.486		4.608		3.760		6.177		6.418		7.567
	No. Specimens	18		18		6		6		6		18	
	No. Prepreg Lots	3		3		1		1		1		3	

2.3.4 Longitudinal Compression Back-out Factor Properties

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)											**Compression, 1-axis, Back-out Factor** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) UNC0 Layup: [90/0/90]5	
		CTA		**RTA**		**ETA1**		**ETA2**		**ETW1**		**ETW2**	
Test Temperature [°F]		-65		70		180		250		180		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH										160F,85%		160F,85%	
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-UNC0-CTA-X		MSTX-X-CX-UNC0-RTA-X		MSTX-X-CX-UNC0-ETA1-X		MSTX-X-CX-UNC0-ETA2-X		MSTX-X-CX-UNC0-ETW1-X		MSTX-X-CX-UNC0-ETW2-X	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
F_1^{cu} [ksi] from UNC0	**Mean**	300.0	299.3	280.7	280.8	259.2	260.4	250.4	252.3	256.5	257.8	200.8	200.8
	Minimum	209.4	209.5	232.6	230.8	249.0	252.9	224.3	223.0	233.8	239.2	144.9	143.2
	Maximum	323.6	320.2	303.8	302.8	265.9	270.8	275.2	274.7	267.3	270.1	237.1	238.5
	C.V.(%)	8.659	8.575	6.637	7.227	2.768	2.619	8.427	8.547	4.803	4.071	10.02	10.28
	No. Specimens	20		18		6		6		6		22	
	No. Prepreg Lots	3		3		1		1		1		3	

2.3.5 Transverse Compression Properties (TC)

Material: Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Resin content: 34.27 %wt **Comp. density:** 1.569 g/cc
Fiber volume: 57.56 %vol
Ply count: 14

Test method: ASTM D6641-16e2 **Modulus calculation:** 1000-3000 microstrain

Normalized by: NA

Compression, 2-axis
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
[90]14

		CTA		RTA		ETA1		ETA2		ETW1		ETW2	
Test Temperature [°F]		-65		70		180		250		180		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH										160F,85%		160F,85%	
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-TC-CTA-X		MSTX-X-CX-TC-RTA-X		MSTX-X-CX-TC-ETA1-X		MSTX-X-CX-TC-ETA2-X		MSTX-X-CX-TC-ETW1-X		MSTX-X-CX-TC-ETW2-X	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
F_2^{cu} [ksi]	**Mean**		49.11		38.01		29.13		22.92		23.87		15.45
	Minimum		44.84		36.40		28.13		21.71		23.67		14.21
	Maximum		52.39		39.85		29.72		24.00		24.27		16.95
	C.V.(%)		4.702		2.417		2.149		3.764		0.8927		4.464
	No. Specimens		18		19		6		6		6		18
	No. Prepreg Lots		3		3		1		1		1		3
E_2^c [Msi]	**Mean**		1.495		1.386		1.279		1.201		1.198		0.9105
	Minimum		1.447		1.314		1.227		1.160		1.176		0.8394
	Maximum		1.552		1.429		1.316		1.237		1.218		0.9823
	C.V.(%)		1.979		1.975		2.612		2.867		1.410		4.773
	No. Specimens		18		19		6		6		6		18
	No. Prepreg Lots		3		3		1		1		1		3

2.3.6 In-Plane Shear Properties (IPS)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)			**In-Plane Shear** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/-45]4S	
Resin content:	34.19 %wt	**Comp. density:**	1.564 g/cc		
Fiber volume:	57.45 %vol				
Ply count:	16				
Test method:	ASTM D3518-18	**Modulus calculation:**	2000-6000 microstrain		
Normalized by:	NA				

		CTA		RTA		ETW1		ETW2	
Test Temperature [°F]		-65		70		180		250	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F,85%		160F,85%	
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01.		MSTX-X-CX-IPS-CTA-X		MSTX-X-CX-IPS-RTA-X		MSTX-X-CX-IPS-ETW1-X		MSTX-X-CX-IPS-ETW2-X	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
$F_{12}^{s0.2\%}$ [ksi]	**Mean**		10.76		8.119		5.678		3.261
	Minimum		10.35		7.943		5.564		2.924
	Maximum		11.09		8.267		5.741		3.678
	C.V.(%)		1.901		1.149		1.071		5.898
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	
$F_{12}^{s5\% \text{ strain}}$ [ksi]	**Mean**		16.42		13.43		8.473		5.253
	Minimum		15.79		13.11		8.276		4.755
	Maximum		16.81		13.70		8.574		5.584
	C.V.(%)		1.989		1.373		1.304		5.350
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	
G_{12}^{s} [Msi]	**Mean**		0.8492		0.7338		0.5418		0.3310
	Minimum		0.8094		0.7146		0.5324		0.2936
	Maximum		0.8793		0.7537		0.5514		0.3784
	C.V.(%)		2.490		1.594		1.141		7.212
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	

In-Plane Shear (IPS) data was calculated per ASTM D3518.

2.3.7 In-Plane Shear V-Notched Properties (VNS)

In-Plane Shear V-Notched
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
[0/90]5S

Material: Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Resin content: 33.77 %wt **Comp. density:** 1.567 g/cc
Fiber volume: 57.91 %vol
Ply count: 20
Test method: ASTM D5379-19 **Modulus calculation:** 2000-6000 microstrain
Normalized by: NA

		CTA		RTA		ETW1		ETW2	
Test Temperature [°F]		-65		70		180		250	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F,85%		160F,85%	
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-VNS-CTA-X		MSTX-X-CX-VNS-RTA-X		MSTX-X-CX-VNS-ETW1-X		MSTX-X-CX-VNS-ETW2-X	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
(IPS V-Notched) $F_{12}^{s0.2\%}$ [ksi]	**Mean**		11.77		9.185		6.490		4.113
	Minimum		9.316		8.929		6.358		3.678
	Maximum		12.93		9.408		6.641		4.402
	C.V.(%)		8.287		1.415		1.644		4.216
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	
(IPS V-Notched) $F_{12}^{s5\% strain}$ [ksi]	**Mean**		19.21		15.35		10.08		6.420
	Minimum		18.66		14.90		9.795		5.942
	Maximum		19.90		15.68		10.30		6.924
	C.V.(%)		1.738		1.477		1.885		4.052
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	
(IPS V-Notched) F_{12}^{su} [ksi]	**Mean**		29.32		24.53		16.72		11.39
	Minimum		27.85		24.08		16.48		10.47
	Maximum		30.80		25.12		17.20		12.19
	C.V.(%)		2.261		1.219		1.597		4.758
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	
(IPS V-Notched) G_{12}^{s} [Msi]	**Mean**		0.8960		0.7615		0.5709		0.4036
	Minimum		0.8096		0.7386		0.5559		0.3761
	Maximum		1.230		0.7938		0.5860		0.4372
	C.V.(%)		11.03		2.013		2.081		4.214
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	

In-Plane Shear V-Notched (VNS) data was calculated per ASTM D5379.

2.3.8 “25/50/25” Unnotched Tension 1 Properties (UNT1)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)		**Unnotched Tension 1** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/0/-45/90]2S
Resin content:	33.89 %wt	**Comp. density:** 1.567 g/cc	
Fiber volume:	57.82 %vol		
Ply count:	16		
Test method:	ASTM D3039-17	**Modulus calculation:** 1000-3000 microstrain	
Normalized by:	0.007000	in. CPT	

		CTA		RTA		ETW1		ETW2	
Test Temperature [°F]		-65		70		180		250	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F,85%		160F,85%	
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-UNT1-CTA-X		MSTX-X-CX-UNT1-RTA-X		MSTX-X-CX-UNT1-ETW1-X		MSTX-X-CX-UNT1-ETW2-X	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
UNT1 Strength [ksi]	**Mean**	149.7	149.5	161.2	160.9	167.6	168.0	158.5	158.4
	Minimum	137.4	136.1	147.8	147.4	165.0	165.6	147.5	148.5
	Maximum	161.0	161.4	173.4	171.6	172.3	172.5	166.3	166.3
	C.V.(%)	4.019	4.076	4.175	4.196	1.695	1.684	3.438	3.221
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	
UNT1 Modulus [Msi]	**Mean**	9.265	9.253	9.122	9.106	9.007	9.031	8.626	8.625
	Minimum	9.080	9.037	8.855	8.819	8.918	8.950	8.308	8.296
	Maximum	9.469	9.426	9.276	9.303	9.045	9.078	8.965	8.963
	C.V.(%)	1.226	1.325	1.347	1.607	0.5151	0.5141	1.800	2.060
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	

2.3.9 "10/80/10" Unnotched Tension 2 Properties (UNT2)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)							**Unnotched Tension 2** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/-45/90/45/-45/45/-45/0/45/-45]S			
Resin content:	33.80 %wt	**Comp. density:** 1.567 g/cc									
Fiber volume:	57.89 %vol										
Ply count:	20										
Test method:	ASTM D3039-17	**Modulus calculation:** 1000-3000 microstrain									
Normalized by:	0.007000	in. CPT									
		CTA		**RTA**		**ETW2**					
Test Temperature [°F]		-65		70		250					
Moisture Conditioning		Ambient		Ambient		Equilibrium					
Equilibrium at T, RH						160F,85%					
Source code prefixed by:	NTP3963Q1-TC-WEB-NIAR-T01-	MSTX-X-CX-UNT2-CTA-X		MSTX-X-CX-UNT2-RTA-X		MSTX-X-CX-UNT2-ETW2-X					
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**				
UNT2 Strength [ksi]	**Mean**	85.87	85.69	84.03	83.76	67.92	67.84				
	Minimum	81.84	81.36	81.41	80.60	60.80	60.84				
	Maximum	89.50	89.79	85.95	85.41	70.98	70.26				
	C.V.(%)	2.508	2.860	1.225	1.428	3.331	3.157				
	No. Specimens	18		18		18					
	No. Prepreg Lots	3		3		3					
UNT2 Modulus [Msi]	**Mean**	5.909	5.897	5.669	5.651	4.464	4.459				
	Minimum	5.650	5.588	5.516	5.511	4.348	4.347				
	Maximum	6.235	6.255	5.816	5.813	4.602	4.555				
	C.V.(%)	2.333	2.756	1.435	1.580	1.484	1.426				
	No. Specimens	18		18		18					
	No. Prepreg Lots	3		3		3					

2.3.10 "50/40/10" Unnotched Tension 3 Properties (UNT3)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)		**Unnotched Tension 3** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/90/-45/0/0/45/0/0/-45/0]S
Resin content:	33.96 %wt	**Comp. density:** 1.566 g/cc	
Fiber volume:	57.71 %vol		
Ply count:	20		
Test method:	ASTM D3039-17	**Modulus calculation:** 1000-3000 microstrain	
Normalized by:	0.007000	in. CPT	

		CTA		RTA		ETW2		
Test Temperature [°F]		-65		70		250		
Moisture Conditioning		Ambient		Ambient		Equilibrium		
Equilibrium at T, RH						160F,85%		
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-UNT3-CTA-X		MSTX-X-CX-UNT3-RTA-X		MSTX-X-CX-UNT3-ETW2-X		
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
UNT3 Strength [ksi]	**Mean**	264.5	263.3	284.1	282.7	237.2	236.4	
	Minimum	246.4	247.4	251.8	252.2	223.1	221.7	
	Maximum	285.3	282.0	296.5	296.8	248.1	248.1	
	C.V.(%)	4.581	4.211	3.589	3.533	2.944	3.096	
	No. Specimens	18		18		18		
	No. Prepreg Lots	3		3		3		
UNT3 Modulus [Msi]	**Mean**	14.52	14.46	14.34	14.26	14.09	14.05	
	Minimum	14.20	14.05	14.09	13.99	13.67	13.66	
	Maximum	14.82	14.74	14.57	14.45	14.51	14.43	
	C.V.(%)	1.0635	1.262	0.8935	1.002	1.721	1.862	
	No. Specimens	18		18		18		
	No. Prepreg Lots	3		3		3		

2.3.11 "33/0/67" Unnotched Compression 0/90 Properties (UNC0)

Material: Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Unnotched Compression 0/90
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
[90/0/90]5

Resin content: 33.97 %wt **Comp. density:** 1.566 g/cc
Fiber volume: 57.71 %vol
Ply count: 15

Test method: ASTM D6641-16e2 **Modulus calculation:** 1000-3000 microstrain

Normalized by: 0.007000 in. CPT

		CTA		RTA		ETA1		ETA2		ETW1		ETW2	
Test Temperature [°F]		-65		70		180		250		180		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH										160F,85%		160F,85%	
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-UNC0-CTA-X		MSTX-X-CX-UNC0-RTA-X		MSTX-X-CX-UNC0-ETA1-X		MSTX-X-CX-UNC0-ETA2-X		MSTX-X-CX-UNC0-ETW1-X		MSTX-X-CX-UNC0-ETW2-X	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
(0/90) UNC0 Strength [ksi]	**Mean**	113.7	113.4	105.4	105.4	96.45	96.70	92.70	93.24	94.93	95.24	72.55	72.52
	Minimum	79.36	79.33	87.36	86.63	92.65	93.94	83.03	82.39	86.54	88.35	52.35	51.70
	Maximum	122.6	121.3	114.1	113.7	98.92	100.6	101.9	101.5	98.92	99.77	85.64	86.12
	C.V.(%)	8.659	8.575	6.637	7.227	2.768	2.619	8.427	8.547	4.803	4.071	10.02	10.28
	No. Specimens	20		18		6		6		6		22	
	No. Prepreg Lots	3		3		1		1		1		3	
(0/90) UNC0 Modulus [Msi]	**Mean**	8.023	8.000	8.033	8.028	7.903	7.924	7.979	8.024	8.202	8.231	8.231	8.231
	Minimum	7.464	7.462	7.780	7.759	7.704	7.762	7.752	7.855	8.087	7.994	7.778	7.917
	Maximum	8.694	8.976	8.294	8.343	8.054	8.091	8.307	8.243	8.352	8.361	8.559	8.548
	C.V.(%)	3.813	4.355	2.094	2.321	1.499	1.805	2.381	1.612	1.273	1.591	3.053	2.570
	No. Specimens	19		18		6		6		6		18	
	No. Prepreg Lots	3		3		1		1		1		3	

2.3.12 "25/50/25" Unnotched Compression 1 Properties (UNC1)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)		**Unnotched Compression 1** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/0/-45/90]2S
Resin content:	33.89 %wt	**Comp. density:** 1.567 g/cc	
Fiber volume:	57.82 %vol		
Ply count:	16		
Test method:	ASTM D6641-16e2	**Modulus calculation:** 1000-3000 microstrain	
Normalized by:	0.007000	in. CPT	

		RTA		ETW1		ETW2		
Test Temperature [°F]		70		180		250		
Moisture Conditioning		Ambient		Equilibrium		Equilibrium		
Equilibrium at T, RH				160F,85%		160F,85%		
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-UNC1-RTA-X		MSTX-X-CX-UNC1-ETW1-X		MSTX-X-CX-UNC1-ETW2-X		
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
UNC1 Strength [ksi]	**Mean**	111.2	111.1	94.69	94.98	66.92	66.87	
	Minimum	100.8	101.5	91.32	91.64	61.16	60.69	
	Maximum	119.4	118.9	97.52	97.74	79.19	79.35	
	C.V.(%)	4.435	4.415	2.591	2.443	7.149	7.393	
	No. Specimens	18		6		18		
	No. Prepreg Lots	3		1		3		
UNC1 Modulus [Msi]	**Mean**	8.088	8.078	7.839	7.864	7.810	7.804	
	Minimum	7.726	7.696	7.695	7.703	7.413	7.446	
	Maximum	8.293	8.302	7.969	7.998	8.048	8.074	
	C.V.(%)	1.791	2.145	1.145	1.240	2.130	2.276	
	No. Specimens	18		6		18		
	No. Prepreg Lots	3		1		3		

2.3.13 "10/80/10" Unnotched Compression 2 Properties (UNC2)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)						**Unnotched Compression 2** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/-45/90/45/-45/45/-45/0/45/-45]S			
Resin content:	33.80 %wt	**Comp. density:** 1.567 g/cc							
Fiber volume:	57.89 %vol								
Ply count:	20								
Test method:	ASTM D6641-16e2	**Modulus calculation:** 1000-3000 microstrain							
Normalized by:	0.007000	in. CPT							
		RTA		**ETW2**					
Test Temperature [°F]		70		250					
Moisture Conditioning		Ambient		Equilibrium					
Equilibrium at T, RH				160F,85%					
Source code prefixed by:	NTP3963Q1-TC-WEB-NIAR-T01-	MSTX-X-CX-UNC2-RTA-X		MSTX-X-CX-UNC2-ETW2-X					
		Normalized	**Measured**	**Normalized**	**Measured**				
UNC2 Strength [ksi]	**Mean**	74.78	74.72	45.09	45.10				
	Minimum	70.86	70.72	38.33	38.22				
	Maximum	78.12	78.56	48.42	48.66				
	C.V.(%)	3.064	3.169	6.013	6.189				
	No. Specimens	18		19					
	No. Prepreg Lots	3		3					
UNC2 Modulus [Msi]	**Mean**	5.046	5.041	4.365	4.367				
	Minimum	4.866	4.881	4.153	4.131				
	Maximum	5.187	5.182	4.654	4.659				
	C.V.(%)	1.805	1.709	2.862	2.958				
	No. Specimens	18		18					
	No. Prepreg Lots	3		3					

2.3.14 "50/40/10" Unnotched Compression 3 Properties (UNC3)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)						**Unnotched Compression 3** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/90/-45/0/0/45/0/0/-45/0]S			
Resin content:	33.96 %wt	**Comp. density:**	1.566 g/cc						
Fiber volume:	57.71 %vol								
Ply count:	20								
Test method:	ASTM D6641-16e2	**Modulus calculation:**	1000-3000 microstrain						
Normalized by:	0.007000	in. CPT							
			RTA		**ETW2**				
Test Temperature [°F]			70		250				
Moisture Conditioning			Ambient		Equilibrium				
Equilibrium at T, RH					160F,85%				
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T0:			MSTX-X-CX-UNC3-RTA-X		MSTX-X-CX-UNC3-ETW2-X				
			Normalized	**Measured**	**Normalized**	**Measured**				
UNC3 Strength [ksi]	**Mean**		168.1	167.6	103.1	102.8				
	Minimum		154.7	154.0	90.82	90.97				
	Maximum		176.2	177.6	120.2	119.8				
	C.V.(%)		3.494	3.774	8.777	8.546				
	No. Specimens		18		21					
	No. Prepreg Lots		3		3					
UNC3 Modulus [Msi]	**Mean**		12.53	12.50	12.64	12.61				
	Minimum		12.24	12.19	11.95	11.99				
	Maximum		12.73	12.75	14.31	14.38				
	C.V.(%)		0.8722	1.211	3.616	3.773				
	No. Specimens		18		21					
	No. Prepreg Lots		3		3					

2.3.15 Lamina Short-Beam Strength Properties (SBS)

Short-Beam Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
[0]14

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)												
Resin content:	34.27 %wt	**Comp. density:** 1.569 g/cc											
Fiber volume:	57.56 %vol												
Ply count:	14												
Test method:	ASTM D2344-16												
Normalized by:	NA												
		CTA		**RTA**		**ETA1**		**ETA2**		**ETW1**		**ETW2**	
Test Temperature [°F]		-65		70		180		250		180		250	
Moisture Conditioning		Ambient		Ambient		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH										160F,85%		160F,85%	
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-SBS-CTA-X		MSTX-X-CX-SBS-RTA-X		MSTX-X-CX-SBS-ETA1-X		MSTX-X-CX-SBS-ETA2-X		MSTX-X-CX-SBS-ETW1-X		MSTX-X-CX-SBS-ETW2-X	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
SBS [ksi]	**Mean**		22.01		16.83		12.88		10.44		11.39		7.865
	Minimum		20.63		16.28		12.68		10.22		11.01		7.156
	Maximum		23.70		17.35		13.23		10.96		11.80		8.738
	C.V.(%)		4.398		2.033		1.488		2.556		3.113		6.329
	No. Specimens		18		18		6		6		6		18
	No. Prepreg Lots		3		3		1		1		1		3

2.3.16 Laminate Short-Beam Strength Properties (SBS1)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)		**Laminate Short-Beam Strength** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/0/-45/90]3S
Resin content:	33.93 %wt	**Comp. density:** 1.565 g/cc	
Fiber volume:	57.71 %vol		
Ply count:	24		
Test method:	ASTM D2344-16		
Normalized by:	NA		

		RTA		ETW1		ETW2		
Test Temperature [°F]		70		180		250		
Moisture Conditioning		Ambient		Equilibrium		Equilibrium		
Equilibrium at T, RH				160F,85%		160F,85%		
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-SBS1-RTA-X		MSTX-X-CX-SBS1-ETW1-X		MSTX-X-CX-SBS1-ETW2-X		
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
SBS1 Strength [ksi]	**Mean**		13.03		8.527		4.059	
	Minimum		12.30		7.604		3.687	
	Maximum		13.41		9.036		4.690	
	C.V.(%)		2.072		6.716		7.913	
	No. Specimens		18		6		18	
	No. Prepreg Lots		3		1		3	

2.3.17 "25/50/25" Open-Hole Tension 1 Properties (OHT1)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)		**Open-Hole Tension 1** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/0/-45/90]2S
Resin content:	33.89 %wt	**Comp. density:** 1.567 g/cc	
Fiber volume:	57.82 %vol		
Ply count:	16		
Test method:	ASTM D5766-11(2018)		
Normalized by:	0.007000 in. CPT		

		CTA		RTA		ETW1		ETW2	
Test Temperature [°F]		-65		70		180		250	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F,85%		160F,85%	
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-OHT1-CTA-X		MSTX-X-CX-OHT1-RTA-X		MSTX-X-CX-OHT1-ETW1-X		MSTX-X-CX-OHT1-ETW2-X	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
OHT1 Strength [ksi]	**Mean**	83.15	83.02	91.82	91.68	98.66	98.88	116.4	116.4
	Minimum	79.39	79.70	85.99	86.34	91.13	91.35	113.2	113.8
	Maximum	85.83	86.11	97.38	96.66	105.6	105.7	120.0	119.9
	C.V.(%)	2.112	2.249	3.341	3.114	5.769	5.870	1.630	1.581
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	

2.3.18 "10/80/10" Open-Hole Tension 2 Properties (OHT2)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)						**Open-Hole Tension 2** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/-45/90/45/-45/45/-45/0/45/-45]S		
Resin content:	33.80 %wt	**Comp. density:** 1.567 g/cc							
Fiber volume:	57.89 %vol								
Ply count:	20								
Test method:	ASTM D5766-11(2018)								
Normalized by:	0.007000	in. CPT							
		CTA		**RTA**		**ETW2**			
Test Temperature [°F]		-65		70		250			
Moisture Conditioning		Ambient		Ambient		Equilibrium			
Equilibrium at T, RH						160F,85%			
Source code prefixed by:	NTP3963Q1-TC-WEB-NIAR-T01-	MSTX-X-CX-OHT2-CTA-X		MSTX-X-CX-OHT2-RTA-X		MSTX-X-CX-OHT2-ETW2-X			
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**		
OHT2 Strength [ksi]	**Mean**	58.92	58.83	58.42	58.34	52.89	52.80		
	Minimum	55.82	56.13	56.52	56.51	48.96	49.18		
	Maximum	60.97	60.89	60.46	60.55	56.83	56.55		
	C.V.(%)	1.970	2.000	1.805	1.931	3.963	3.890		
	No. Specimens	18		18		18			
	No. Prepreg Lots	3		3		3			

2.3.19 "50/40/10" Open-Hole Tension 3 Properties (OHT3)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)							**Open-Hole Tension 3** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/90/-45/0/0/45/0/0/-45/0]S			
Resin content:	33.96 %wt	**Comp. density:** 1.566 g/cc									
Fiber volume:	57.71 %vol										
Ply count:	20										
Test method:	ASTM D5766-11(2018)										
Normalized by:	0.007000	in. CPT									
			CTA		**RTA**		**ETW2**				
Test Temperature [°F]			-65		70		250				
Moisture Conditioning			Ambient		Ambient		Equilibrium				
Equilibrium at T, RH							160F,85%				
Source code prefixed by:	NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-OHT3-CTA-X		MSTX-X-CX-OHT3-RTA-X		MSTX-X-CX-OHT3-ETW2-X				
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**			
OHT3 Strength [ksi]	**Mean**		138.3	137.2	152.8	151.7	223.7	222.1			
	Minimum		131.8	130.6	145.4	144.4	215.9	216.1			
	Maximum		148.1	145.3	159.0	159.4	231.1	227.5			
	C.V.(%)		2.971	2.779	2.367	2.517	1.841	1.461			
	No. Specimens		18		18		18				
	No. Prepreg Lots		3		3		3				

2.3.20 "25/50/25" Filled-Hole Tension 1 Properties (FHT1)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)							**Filled-Hole Tension 1** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/0/-45/90]2S	
Resin content:	33.89 %wt	**Comp. density:** 1.567 g/cc							
Fiber volume:	57.82 %vol								
Ply count:	16								
Test method:	ASTM D6742-17								
Normalized by:	0.007000	in. CPT							
		CTA		**RTA**		**ETW1**		**ETW2**	
Test Temperature [°F]		-65		70		180		250	
Moisture Conditioning		Ambient		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH						160F,85%		160F,85%	
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-FHT1-CTA-X		MSTX-X-CX-FHT1-RTA-X		MSTX-X-CX-FHT1-ETW1-X		MSTX-X-CX-FHT1-ETW2-X	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
FHT1 Strength [ksi]	**Mean**	87.50	87.53	93.35	93.29	101.9	102.1	106.3	106.2
	Minimum	82.79	83.22	87.61	87.87	99.75	99.89	99.08	98.76
	Maximum	89.52	90.30	99.75	99.75	105.6	106.0	112.8	112.1
	C.V.(%)	2.155	2.233	3.548	3.399	2.357	2.455	3.302	3.175
	No. Specimens	18		18		6		18	
	No. Prepreg Lots	3		3		1		3	

2.3.21 "10/80/10" Filled-Hole Tension 2 Properties (FHT2)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)							**Filled-Hole Tension 2** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/-45/90/45/-45/45/-45/0/45/-45]S		
Resin content:	33.80 %wt	**Comp. density:** 1.567 g/cc								
Fiber volume:	57.89 %vol									
Ply count:	20									
Test method:	ASTM D6742-17									
Normalized by:	0.007000	in. CPT								
		CTA		**RTA**		**ETW2**				
Test Temperature [°F]		-65		70		250				
Moisture Conditioning		Ambient		Ambient		Equilibrium				
Equilibrium at T, RH						160F,85%				
Source code prefixed by:	NTP3963Q1-TC-WEB-NIAR-T01-	MSTX-X-CX-FHT2-CTA-X		MSTX-X-CX-FHT2-RTA-X		MSTX-X-CX-FHT2-ETW2-X				
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**			
FHT2 Strength [ksi]	**Mean**	64.96	64.82	62.59	62.44	49.55	49.39			
	Minimum	62.25	62.36	60.25	60.29	48.13	47.81			
	Maximum	66.74	66.67	63.83	63.98	52.43	52.38			
	C.V.(%)	1.972	1.988	1.611	1.737	2.279	2.463			
	No. Specimens	18		18		18				
	No. Prepreg Lots	3		3		3				

2.3.22 "50/40/10" Filled-Hole Tension 3 Properties (FHT3)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)						**Filled-Hole Tension 3** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/90/-45/0/0/45/0/0/-45/0]S		
Resin content:	33.96 %wt	**Comp. density:** 1.566 g/cc							
Fiber volume:	57.71 %vol								
Ply count:	20								
Test method:	ASTM D6742-17								
Normalized by:	0.007000	in. CPT							
		CTA		**RTA**		**ETW2**			
Test Temperature [°F]		-65		70		250			
Moisture Conditioning		Ambient		Ambient		Equilibrium			
Equilibrium at T, RH						160F,85%			
Source code prefixed by:	NTP3963Q1-TC-WEB-NIAR-T01-	MSTX-X-CX-FHT3-CTA-X		MSTX-X-CX-FHT3-RTA-X		MSTX-X-CX-FHT3-ETW2-X			
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**		
FHT3 Strength [ksi]	**Mean**	134.9	134.5	148.1	147.4	176.4	175.9		
	Minimum	126.0	125.2	130.8	129.3	162.1	162.8		
	Maximum	143.2	144.4	157.6	158.0	214.5	212.3		
	C.V.(%)	4.263	4.348	4.644	4.823	7.600	7.380		
	No. Specimens	18		18		20			
	No. Prepreg Lots	3		3		3			

2.3.23 "25/50/25" Open-Hole Compression 1 Properties (OHC1)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)								**Open-Hole Compression 1** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/0/-45/90]3S	
Resin content:	33.93 %wt		**Comp. density:** 1.565 g/cc							
Fiber volume:	57.71 %vol									
Ply count:	24									
Test method:	ASTM D6484-20									
Normalized by:	0.007000	in. CPT								
			RTA		**ETW1**		**ETW2**			
Test Temperature [°F]			70		180		250			
Moisture Conditioning			Ambient		Equilibrium		Equilibrium			
Equilibrium at T, RH					160F,85%		160F,85%			
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-			MSTX-X-CX-OHC1-RTA-X		MSTX-X-CX-OHC1-ETW1-X		MSTX-X-CX-OHC1-ETW2-X			
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**		
OHC1 Strength [ksi]	**Mean**		49.63	49.77	42.02	42.48	35.74	35.87		
	Minimum		47.24	47.93	40.22	40.88	33.97	33.86		
	Maximum		51.59	51.31	44.62	45.38	39.09	39.36		
	C.V.(%)		2.363	2.131	3.406	3.602	4.116	4.036		
	No. Specimens		18		6		18			
	No. Prepreg Lots		3		1		3			

2.3.24 "10/80/10" Open-Hole Compression 2 Properties (OHC2)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)						**Open-Hole Compression 2** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/-45/90/45/-45/45/-45/0/45/-45]S	
Resin content:	33.80 %wt	**Comp. density:** 1.567 g/cc						
Fiber volume:	57.89 %vol							
Ply count:	20							
Test method:	ASTM D6484-20							
Normalized by:	0.007000	in. CPT						
			RTA		**ETW2**			
Test Temperature [°F]			70		250			
Moisture Conditioning			Ambient		Equilibrium			
Equilibrium at T, RH					160F,85%			
Source code prefixed by:	NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-OHC2-RTA-X		MSTX-X-CX-OHC2-ETW2-X			
			Normalized	**Measured**	**Normalized**	**Measured**		
OHC2 Strength [ksi]	**Mean**		43.60	43.50	26.99	26.93		
	Minimum		40.45	40.39	25.13	24.97		
	Maximum		46.76	46.52	28.94	29.06		
	C.V.(%)		4.164	4.243	3.962	4.202		
	No. Specimens		18		18			
	No. Prepreg Lots		3		3			

2.3.25 "50/40/10" Open-Hole Compression 3 Properties (OHC3)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)						**Open-Hole Compression 3** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/90/-45/0/0/45/0/0/-45/0]S	
Resin content:	33.96 %wt	**Comp. density:** 1.566 g/cc						
Fiber volume:	57.71 %vol							
Ply count:	20							
Test method:	ASTM D6484-20							
Normalized by:	0.007000	in. CPT						
			RTA		**ETW2**			
Test Temperature [°F]			70		250			
Moisture Conditioning			Ambient		Equilibrium			
Equilibrium at T, RH					160F,85%			
Source code prefixed by:	NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-OHC3-RTA-X		MSTX-X-CX-OHC3-ETW2-X			
			Normalized	**Measured**	**Normalized**	**Measured**		
OHC3 Strength [ksi]	**Mean**		71.33	71.04	49.09	48.89		
	Minimum		67.28	67.08	44.32	44.48		
	Maximum		75.77	75.40	52.83	52.68		
	C.V.(%)		3.348	3.309	4.386	4.139		
	No. Specimens		18		18			
	No. Prepreg Lots		3		3			

2.3.26 "25/50/25" Filled-Hole Compression 1 Properties (FHC1)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)							**Filled-Hole Compression 1** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/0/-45/90]3S		
Resin content:	33.93 %wt	**Comp. density:** 1.565 g/cc								
Fiber volume:	57.71 %vol									
Ply count:	24									
Test method:	ASTM D6742-17									
Normalized by:	0.007000	in. CPT								
			RTA		**ETW1**		**ETW2**			
Test Temperature [°F]			70		180		250			
Moisture Conditioning			Ambient		Equilibrium		Equilibrium			
Equilibrium at T, RH					160F,85%		160F,85%			
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-			MSTX-X-CX-FHC1-RTA-X		MSTX-X-CX-FHC1-ETW1-X		MSTX-X-CX-FHC1-ETW2-X			
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**		
FHC1 Strength [ksi]	**Mean**		74.94	75.03	66.31	66.92	50.52	50.65		
	Minimum		71.04	70.71	65.19	66.27	45.36	44.94		
	Maximum		79.57	79.59	67.82	68.08	54.05	54.15		
	C.V.(%)		3.440	3.718	1.811	1.135	3.893	4.180		
	No. Specimens		20		6		18			
	No. Prepreg Lots		3		1		3			

2.3.27 "10/80/10" Filled-Hole Compression 2 Properties (FHC2)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)						**Filled-Hole Compression 2** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/-45/90/45/-45/45/-45/0/45/-45]S	
Resin content:	33.80 %wt	**Comp. density:** 1.567 g/cc						
Fiber volume:	57.89 %vol							
Ply count:	20							
Test method:	ASTM D6742-17							
Normalized by:	0.007000	in. CPT						
			RTA		**ETW2**			
Test Temperature [°F]			70		250			
Moisture Conditioning			Ambient		Equilibrium			
Equilibrium at T, RH					160F,85%			
Source code prefixed by:	NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-FHC2-RTA-X		MSTX-X-CX-FHC2-ETW2-X			
			Normalized	**Measured**	**Normalized**	**Measured**		
FHC2 Strength [ksi]	**Mean**		63.58	63.35	36.75	36.65		
	Minimum		56.49	56.07	33.48	33.07		
	Maximum		66.66	66.47	39.49	39.55		
	C.V.(%)		3.975	3.918	4.270	4.292		
	No. Specimens		19		19			
	No. Prepreg Lots		3		3			

2.3.28 "50/40/10" Filled-Hole Compression 3 Properties (FHC3)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)						**Filled-Hole Compression 3** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/90/-45/0/0/45/0/0/-45/0]S	
Resin content:	33.96 %wt	**Comp. density:** 1.566 g/cc						
Fiber volume:	57.71 %vol							
Ply count:	20							
Test method:	ASTM D6742-17							
Normalized by:	0.007000	in. CPT						
			RTA		**ETW2**			
Test Temperature [°F]			70		250			
Moisture Conditioning			Ambient		Equilibrium			
Equilibrium at T, RH					160F,85%			
Source code prefixed by:	NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-FHC3-RTA-X		MSTX-X-CX-FHC3-ETW2-X			
			Normalized	**Measured**	**Normalized**	**Measured**		
FHC3 Strength [ksi]	**Mean**		97.69	97.21	62.96	62.65		
	Minimum		93.50	93.39	57.25	56.97		
	Maximum		101.6	101.0	67.55	67.11		
	C.V.(%)		2.395	2.389	5.646	5.561		
	No. Specimens		18		18			
	No. Prepreg Lots		3		3			

2.3.29 "25/50/25" Single-Shear Bearing 1 Properties (SSB1, Proc. C)

Material: Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Resin content: 33.89 %wt **Comp. density:** 1.567 g/cc
Fiber volume: 57.82 %vol
Ply count: 16

Test method: ASTM D5961-17, Procedure C

Normalized by: 0.007000 in. CPT

Single-Shear Bearing 1, Proc. C
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
[45/0/-45/90]2S

		RTA		ETW1		ETW2	
Test Temperature [°F]		70		180		250	
Moisture Conditioning		Ambient		Equilibrium		Equilibrium	
Equilibrium at T, RH				160F,85%		160F,85%	
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-SSB1-RTA-X		MSTX-X-CX-SSB1-ETW1-X		MSTX-X-CX-SSB1-ETW2-X	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
SSB1, Proc. C 2% Offset Strength [ksi]	**Mean**	109.2	108.8	111.6	111.6	93.67	93.31
	Minimum	105.3	104.3	108.4	108.2	83.37	82.48
	Maximum	117.3	117.4	119.5	119.8	110.2	109.9
	C.V.(%)	2.834	2.986	3.774	3.873	9.208	9.479
	No. Specimens	18		6		18	
	No. Prepreg Lots	3		1		3	
SSB1, Proc. C Ultimate Strength [ksi]	**Mean**	153.1	152.6	130.2	130.3	112.0	111.5
	Minimum	146.1	144.4	126.3	126.7	104.1	103.9
	Maximum	163.3	163.1	134.7	135.0	124.4	124.7
	C.V.(%)	3.299	3.600	2.234	2.154	5.827	6.131
	No. Specimens	18		6		18	
	No. Prepreg Lots	3		1		3	
SSB1, Proc. C Chord Modulus [Msi]	**Mean**	1.878	1.872	2.060	2.061	1.721	1.715
	Minimum	1.632	1.623	1.940	1.944	1.429	1.415
	Maximum	2.080	2.078	2.238	2.232	2.173	2.175
	C.V.(%)	6.307	6.236	6.278	6.080	13.65	13.87
	No. Specimens	18		6		18	
	No. Prepreg Lots	3		1		3	

2.3.30 "10/80/10" Single-Shear Bearing 2 Properties (SSB2, Proc. C)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)						**Single-Shear Bearing 2, Proc. C** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/-45/90/45/-45/45/-45/0/45/-45]S		
Resin content:	33.80 %wt	**Comp. density:** 1.567 g/cc							
Fiber volume:	57.89 %vol								
Ply count:	20								
Test method:	ASTM D5961-17, Procedure C								
Normalized by:	0.007000	in. CPT							
			RTA		**ETW2**				
Test Temperature [°F]			70		250				
Moisture Conditioning			Ambient		Equilibrium				
Equilibrium at T, RH					160F,85%				
Source code prefixed by:	NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-SSB2-RTA-X		MSTX-X-CX-SSB2-ETW2-X				
			Normalized	**Measured**	**Normalized**	**Measured**			
SSB2, Proc. C 2% Offset Strength [ksi]	**Mean**		114.2	113.6	93.16	92.73			
	Minimum		108.2	107.0	80.04	80.04			
	Maximum		119.5	119.1	102.2	101.1			
	C.V.(%)		2.725	2.715	6.953	6.773			
	No. Specimens		18		18				
	No. Prepreg Lots		3		3				
SSB2, Porc. C Ultimate Strength [ksi]	**Mean**		147.6	146.8	109.4	108.9			
	Minimum		141.7	141.3	100.7	100.7			
	Maximum		156.5	156.1	115.3	114.0			
	C.V.(%)		2.441	2.318	4.091	3.826			
	No. Specimens		18		18				
	No. Prepreg Lots		3		3				
SSB2, Proc. C Chord Modulus [Msi]	**Mean**		1.318	1.310	1.260	1.254			
	Minimum		1.252	1.249	1.051	1.050			
	Maximum		1.370	1.366	1.423	1.414			
	C.V.(%)		2.110	2.191	10.01	9.790			
	No. Specimens		18		18				
	No. Prepreg Lots		3		3				

2.3.31 "50/40/10" Single-Shear Bearing 3 Properties (SSB3, Proc. C)

Material: Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Resin content: 33.96 %wt **Comp. density:** 1.566 g/cc
Fiber volume: 57.71 %vol
Ply count: 20

Test method: ASTM D5961-17, Procedure C

Normalized by: 0.007000 in. CPT

Single-Shear Bearing 3, Proc. C
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
[45/90/-45/0/0/45/0/0/-45/0]S

		RTA		ETW2					
Test Temperature [°F]		70		250					
Moisture Conditioning		Ambient		Equilibrium					
Equilibrium at T, RH				160F,85%					
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-SSB3-RTA-X		MSTX-X-CX-SSB3-ETW2-X					
		Normalized	**Measured**	**Normalized**	**Measured**				
SSB3, Proc. C 2% Offset Strength [ksi]	**Mean**	113.1	112.3	87.34	86.77				
	Minimum	107.0	104.8	74.92	73.92				
	Maximum	120.7	119.7	103.6	102.3				
	C.V.(%)	3.070	3.162	10.15	10.11				
	No. Specimens	18		18					
	No. Prepreg Lots	3		3					
SSB3, Proc. C Ultimate Strength [ksi]	**Mean**	147.8	146.8	105.9	105.2				
	Minimum	142.8	140.9	94.16	93.30				
	Maximum	154.5	154.6	116.2	115.3				
	C.V.(%)	2.719	2.876	7.913	7.963				
	No. Specimens	18		18					
	No. Prepreg Lots	3		3					
SSB3, Proc. C Chord Modulus [Msi]	**Mean**	1.768	1.756	1.682	1.671				
	Minimum	1.632	1.617	1.451	1.449				
	Maximum	1.860	1.861	1.988	1.972				
	C.V.(%)	3.382	3.714	10.83	10.67				
	No. Specimens	18		18					
	No. Prepreg Lots	3		3					

2.3.32 "25/50/25" Compression After Impact 1 Properties (CAI1)

Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)						**Compression After Impact 1** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [45/0/-45/90]3S	
Resin content:	34.37 %wt	**Comp. density:** 1.566 g/cc						
Fiber volume:	57.35 %vol							
Ply count:	24							
Test method:	ASTM D7136-20/D7137-17							
Normalized by:	0.007000	in. CPT						
		RTA						
Test Temperature [°F]		70						
Moisture Conditioning		Ambient						
Equilibrium at T, RH								
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01		MSTX-X-CX-CAI1-RTA-X						
		Normalized	**Measured**					
	Mean	49.52	50.24					
	Minimum	45.03	45.66					
	Maximum	52.83	53.55					
CAI1 Strength [ksi]	**C.V.(%)**	5.931	5.917					
	No. Specimens	6						
	No. Prepreg Lots	1						

2.3.33 Interlaminar Tension Properties (ILT)

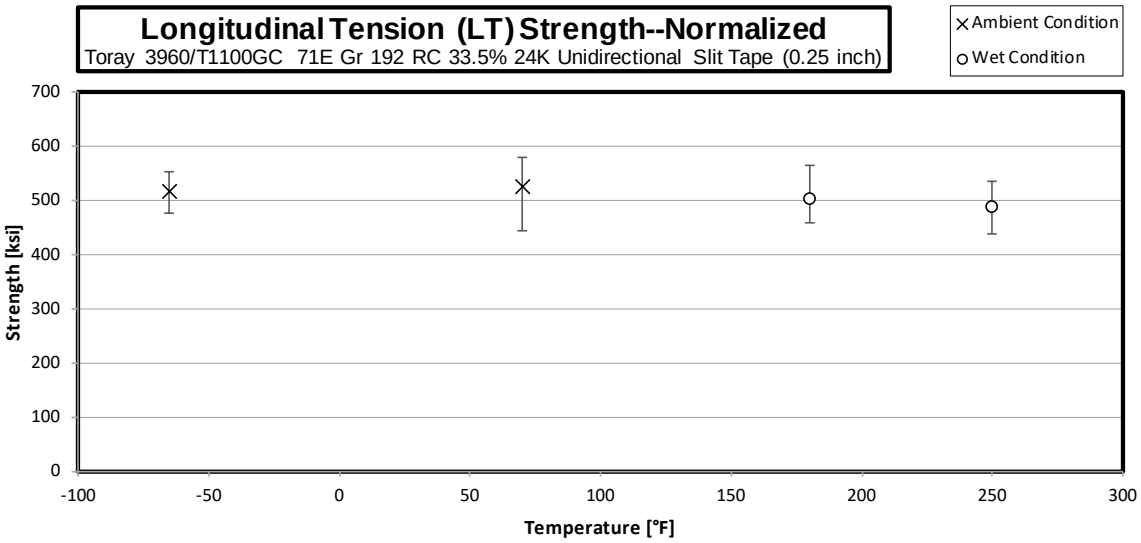
Material:	Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)		**Interlaminar Tension** Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch) [0]22
Resin content:	31.37 %wt	**Comp. density:** 1.588 g/cc	
Fiber volume:	60.81 %vol		
Ply count:	22		
Test method:	ASTM D6415-06a(2013)		
Normalized by:	NA		

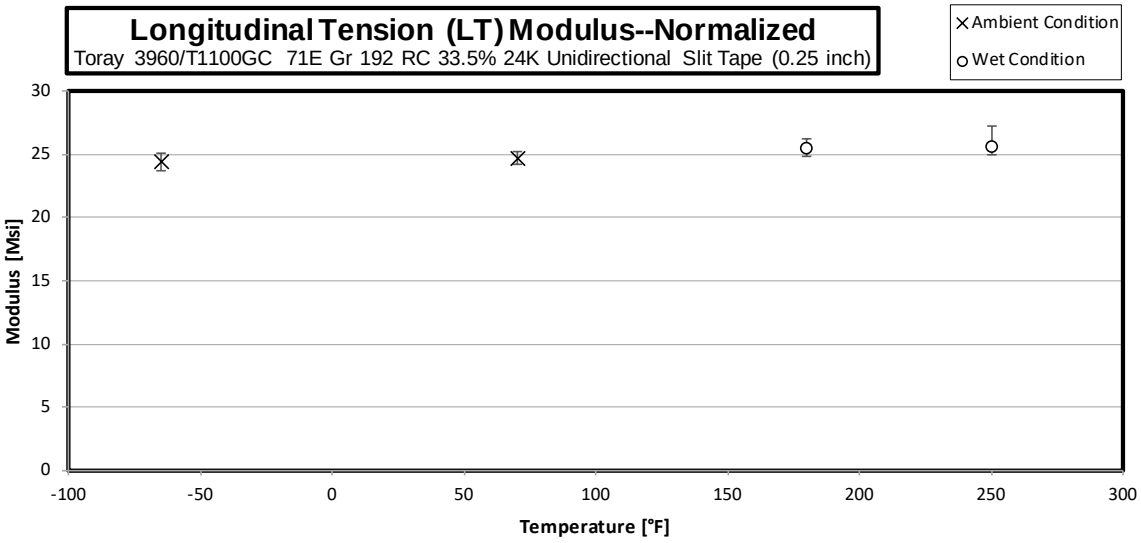
		CTA		RTA		ETW2		
Test Temperature [°F]		-65		70		250		
Moisture Conditioning		Ambient		Ambient		Equilibrium		
Equilibrium at T, RH						160F,85%		
Source code prefixed by: NTP3963Q1-TC-WEB-NIAR-T01-		MSTX-X-CX-ILT-CTA-X		MSTX-X-CX-ILT-RTA-X		MSTX-X-CX-ILT-ETW2-X		
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
CBS [lb]	**Mean**		640.3		482.2		111.4	
	Minimum		513.6		463.6		109.1	
	Maximum		775.1		500.6		113.9	
	C.V.(%)		12.50		3.424		1.819	
	No. Specimens	8		6		6		
	No. Prepreg Lots	1		1		1		
ILT [ksi]	**Mean**		21.89		16.37		3.423	
	Minimum		17.55		15.83		3.361	
	Maximum		26.78		17.10		3.525	
	C.V.(%)		13.18		3.007		1.809	
	No. Specimens	8		6		6		
	No. Prepreg Lots	1		1		1		

3. Individual Test Charts

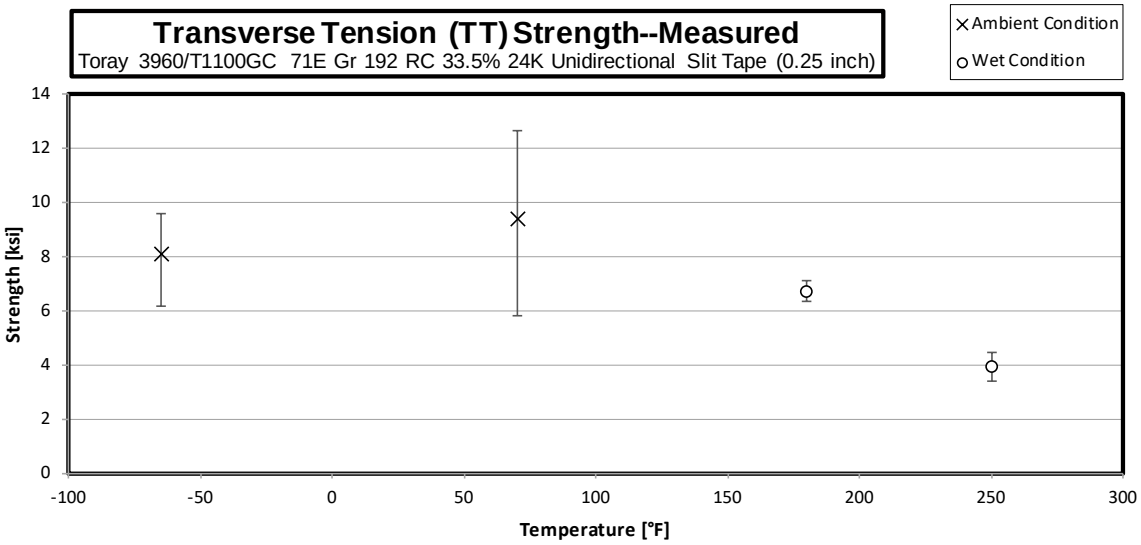
These charts combine all three batches of data and plot the minimum and maximum modulus and strength range based on the test temperature.

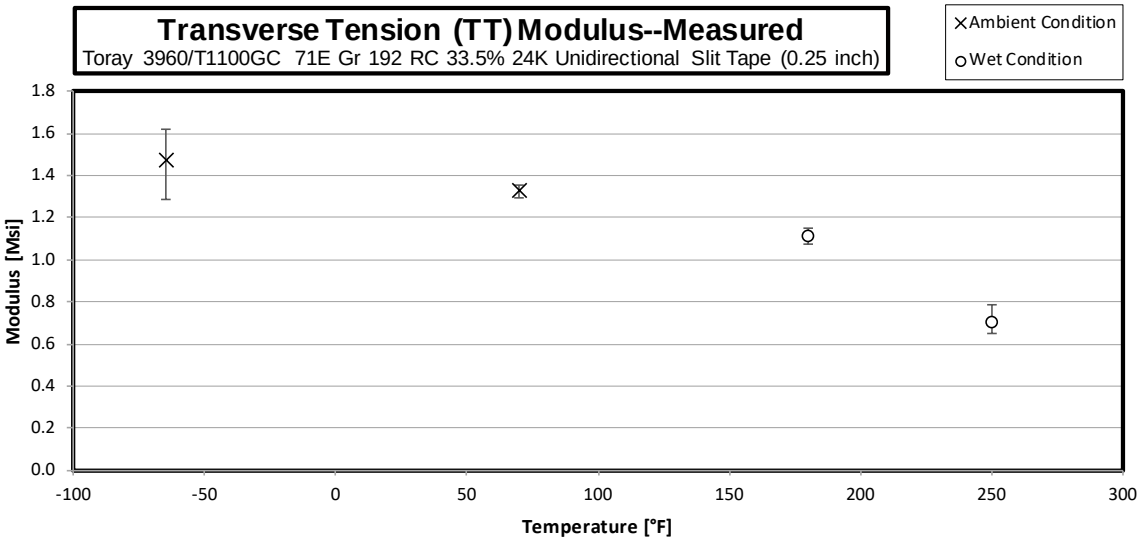
3.1 Longitudinal Tension Properties (LT)



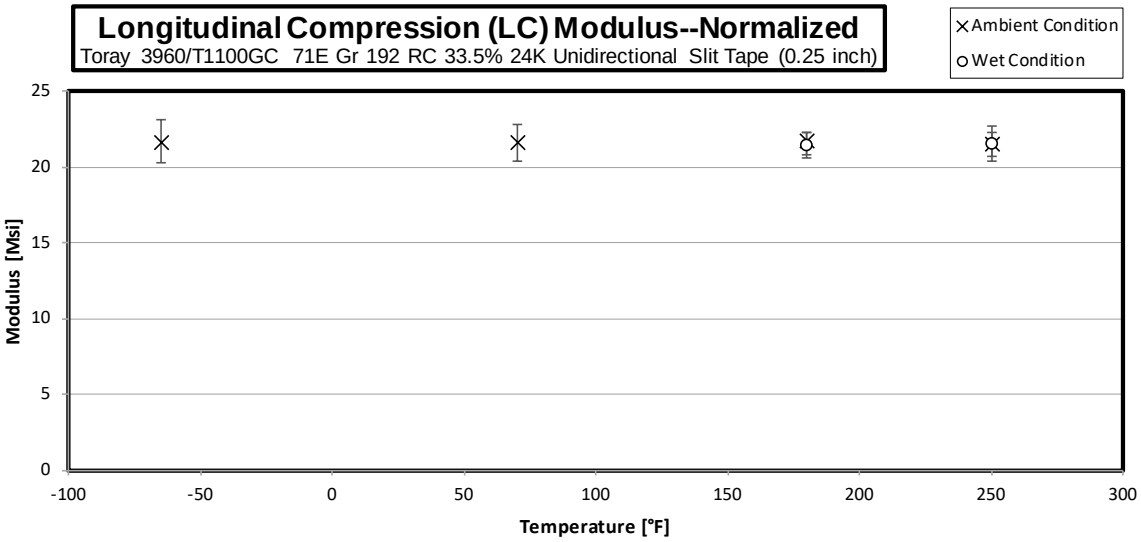


3.2 Transverse Tension Properties (TT)

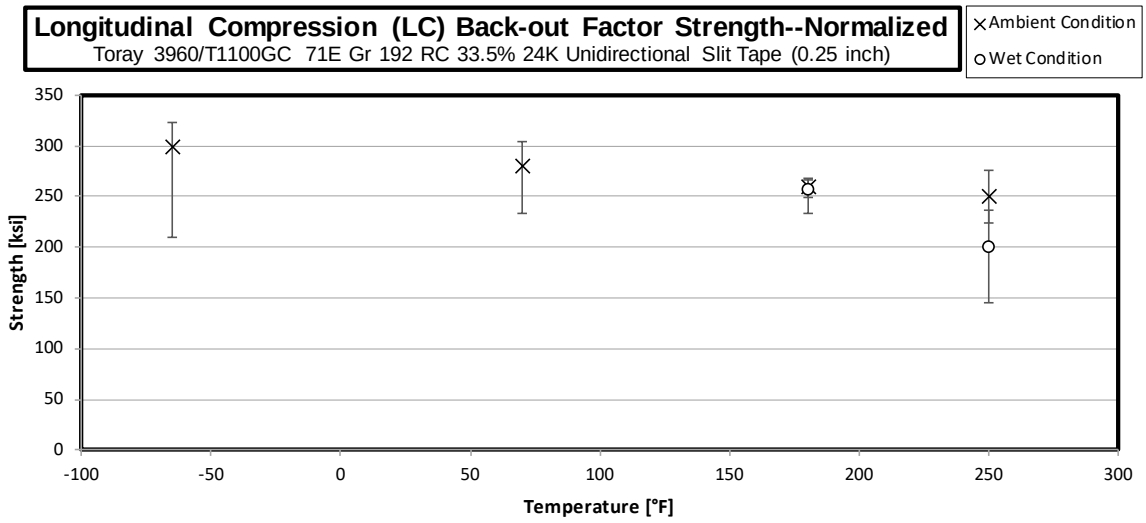




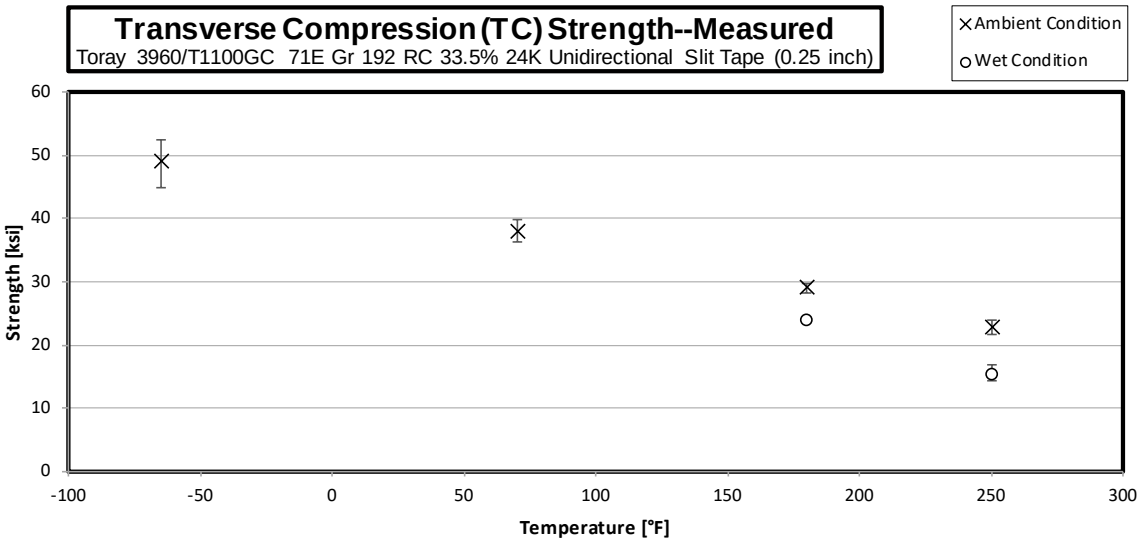
3.3 Longitudinal Compression Properties (LC)

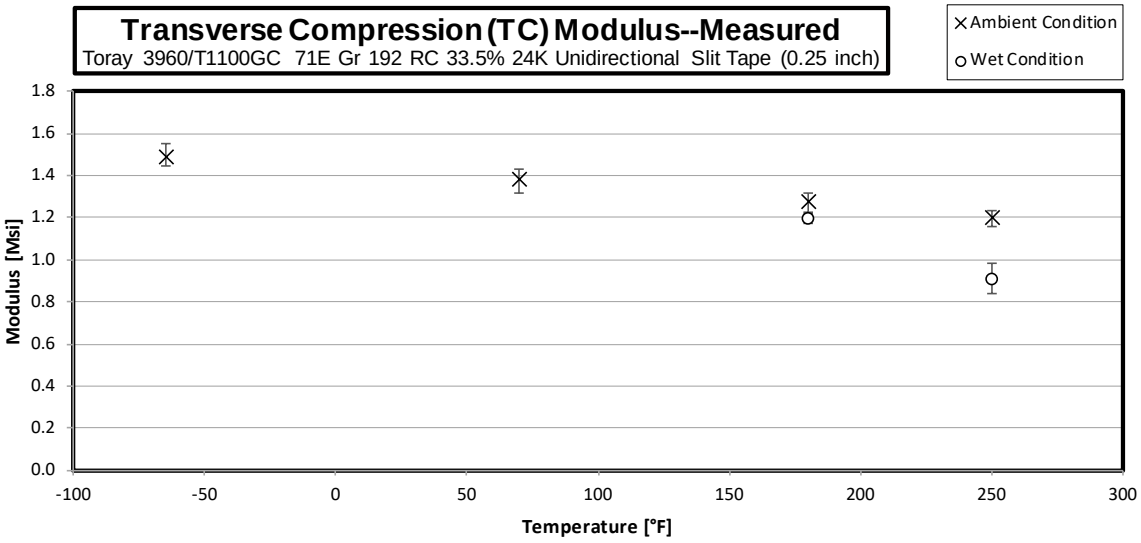


3.4 Longitudinal Compression Back-out Factor Properties

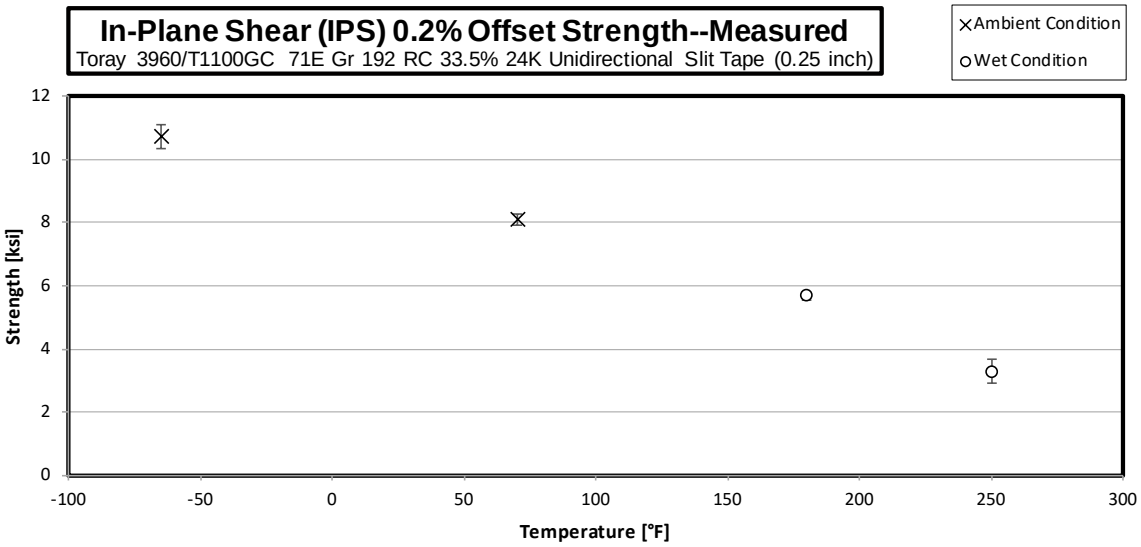


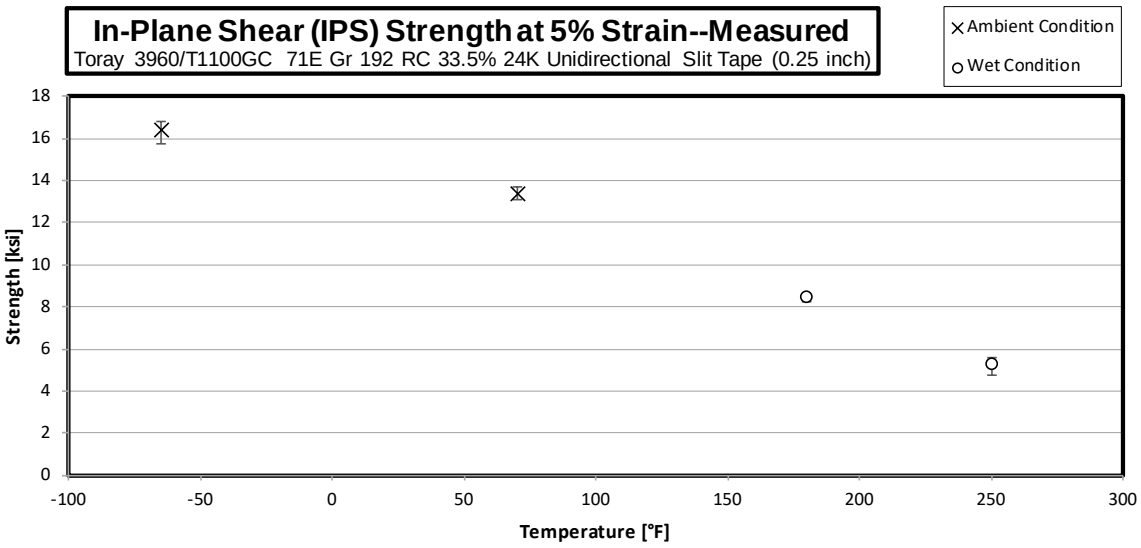
3.5 Transverse Compression Properties (TC)

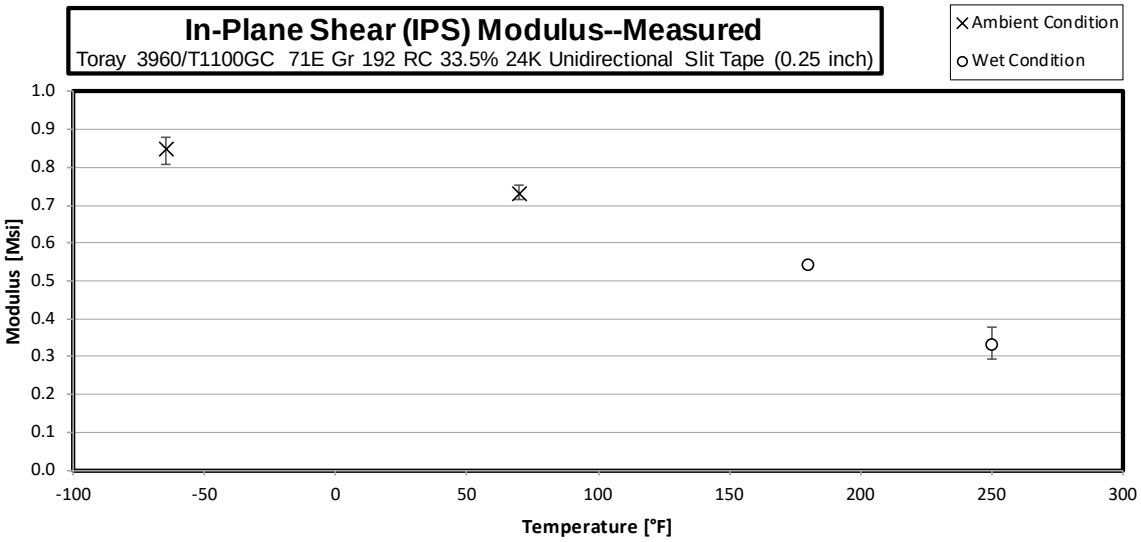




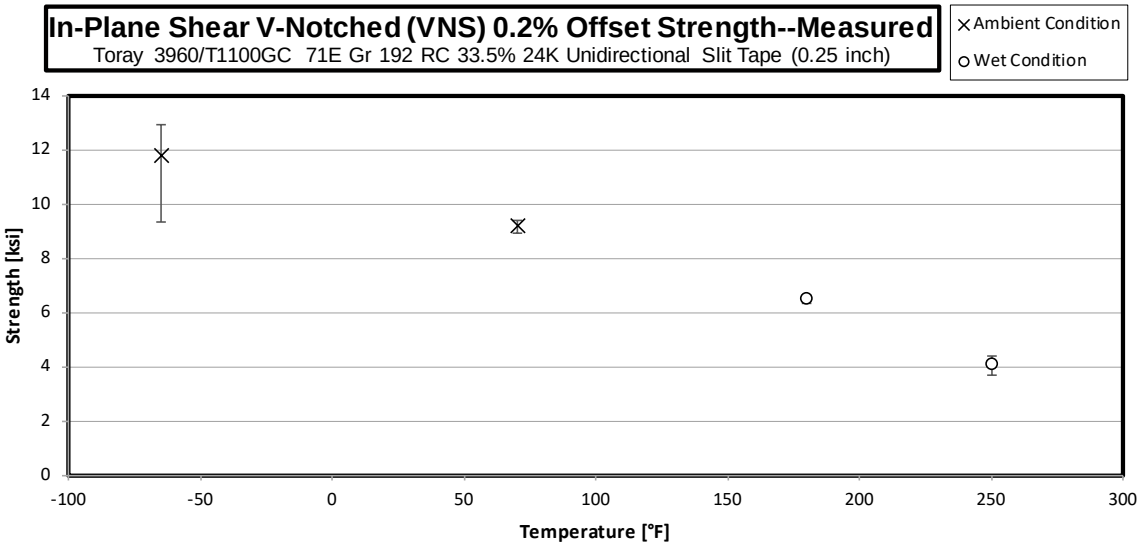
3.6 In-Plane Shear Properties (IPS)

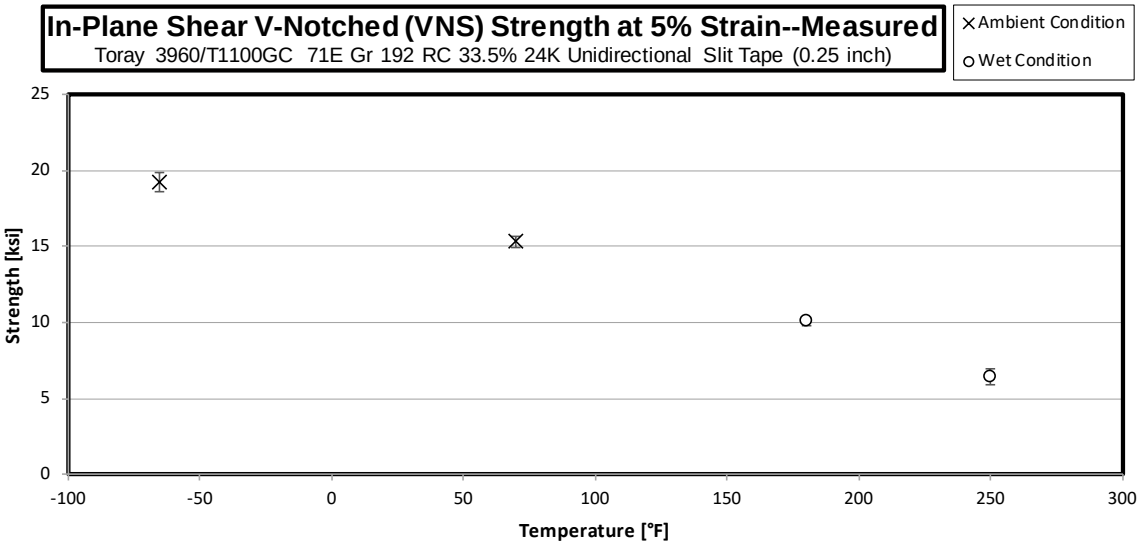


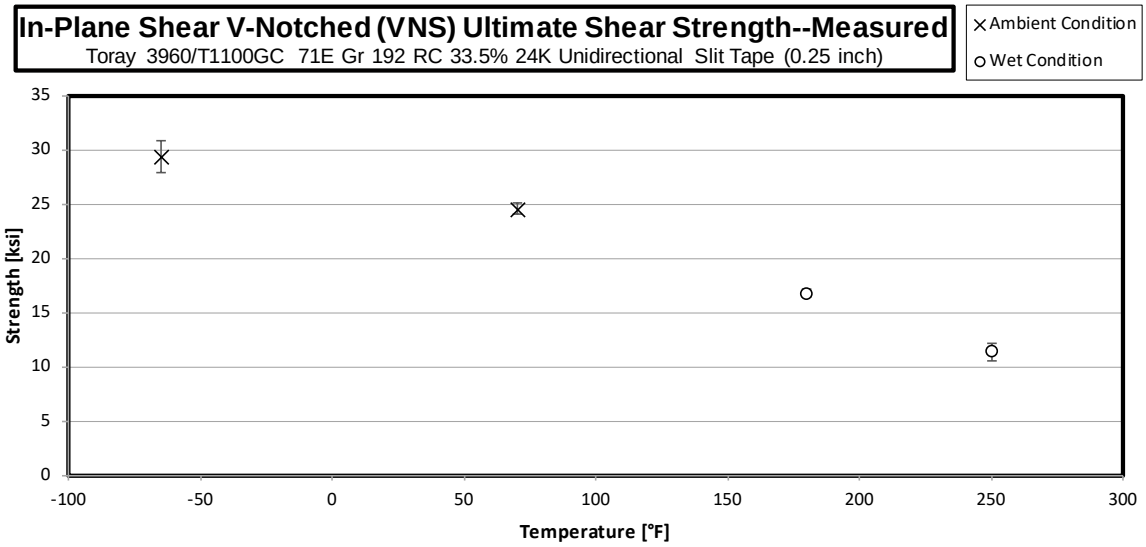


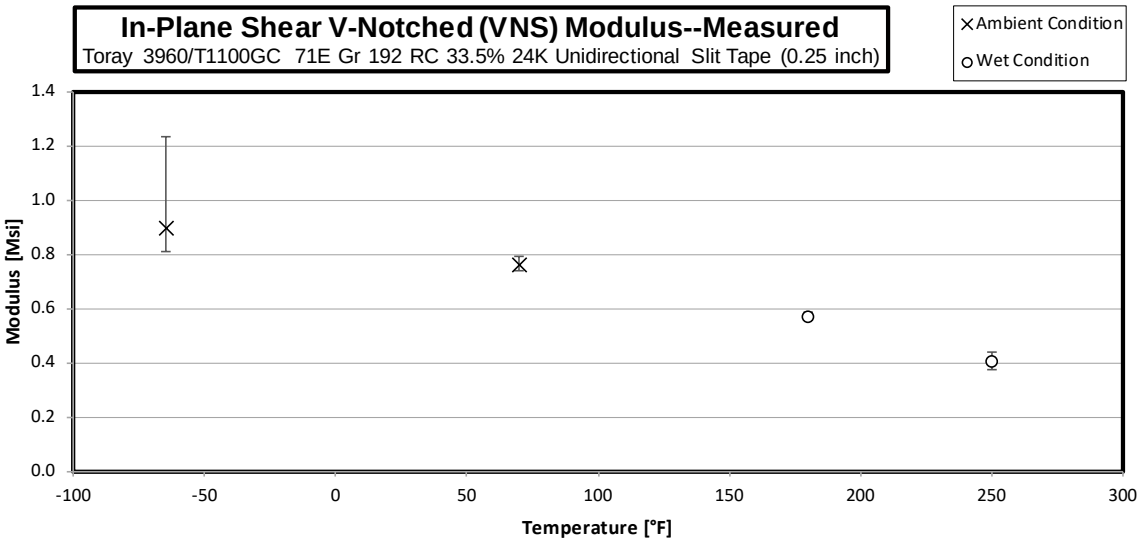

In-Plane Shear (IPS) Modulus--Measured
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Ambient Condition
Wet Condition
Modulus [Msi]
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-100
-50
0
50
100
150
200
250
300
Temperature [°F]

3.7 In-Plane Shear V-Notched Properties (VNS)

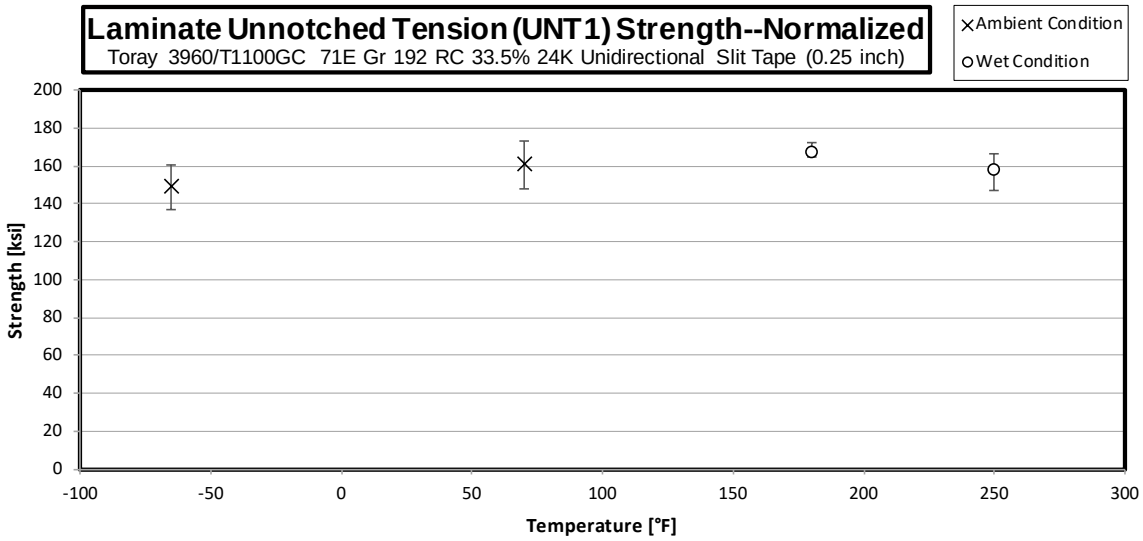


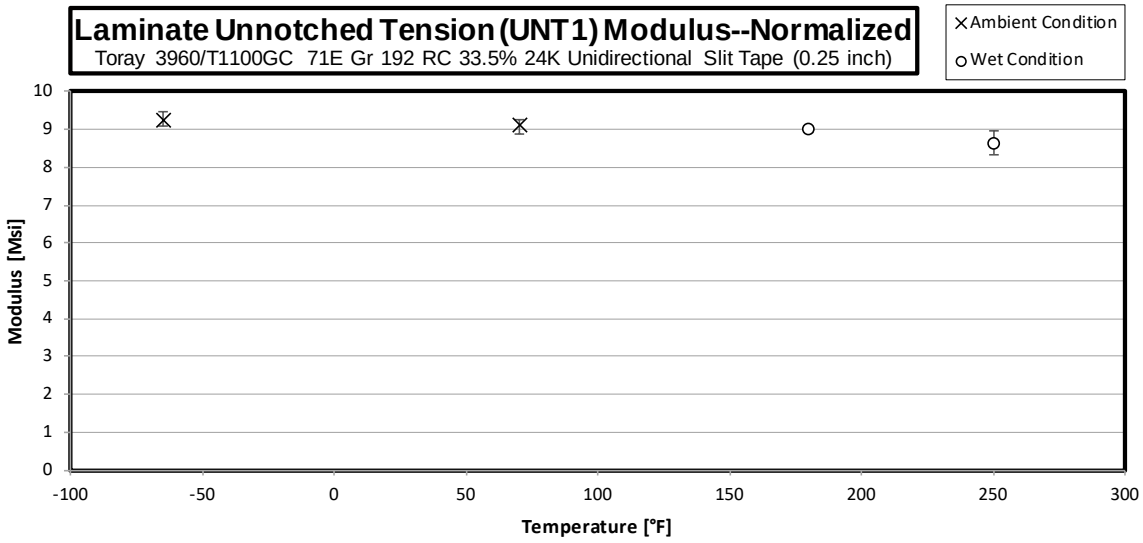



In-Plane Shear V-Notched (VNS) Ultimate Shear Strength--Measured
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Ambient Condition
Wet Condition
Strength [ksi]
Temperature [°F]

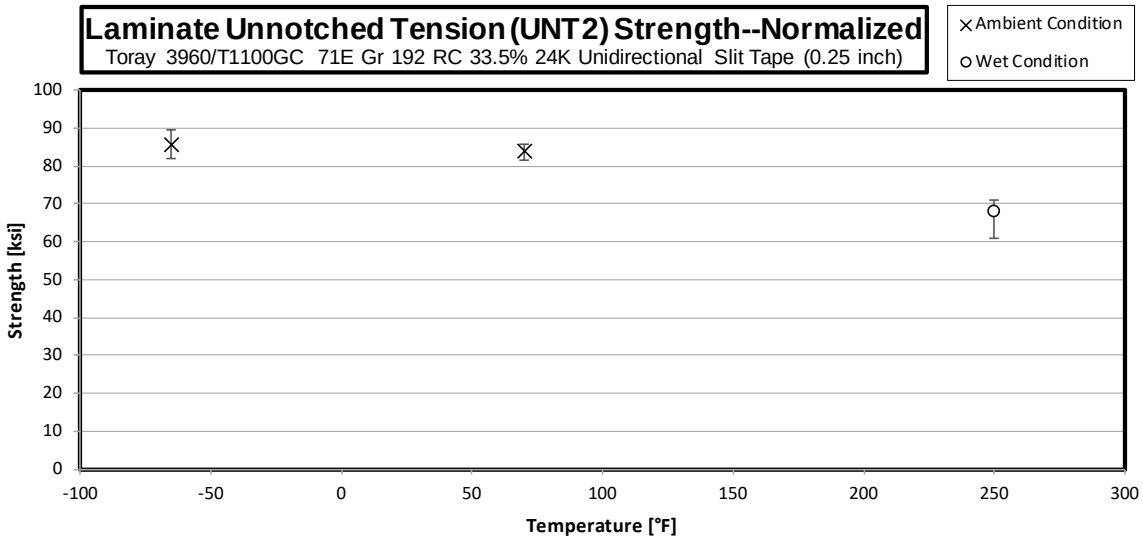

In-Plane Shear V-Notched (VNS) Modulus--Measured
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Ambient Condition
Wet Condition
Modulus [Msi]
Temperature [°F]

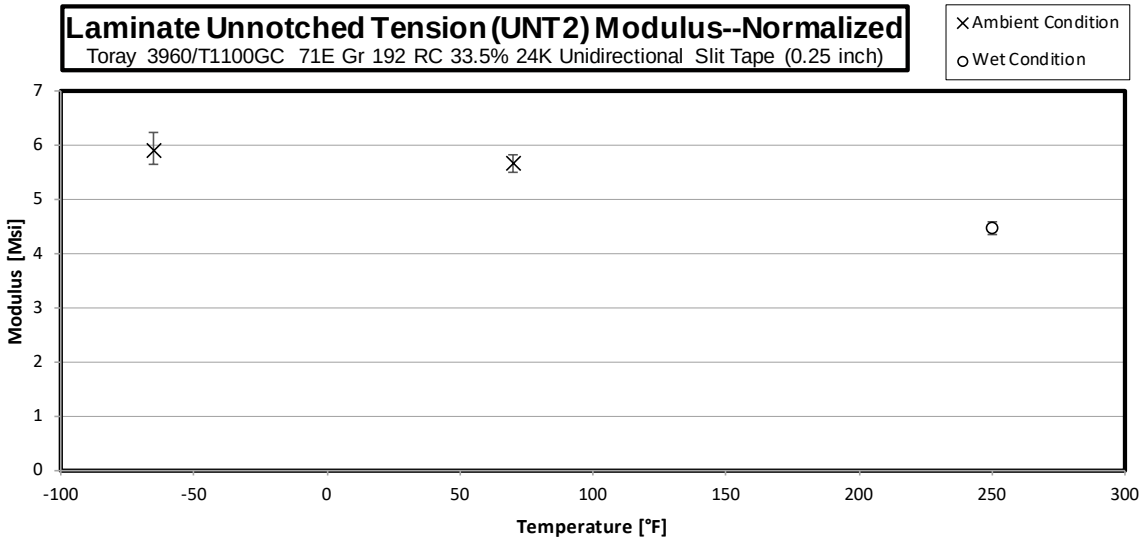
3.8 "25/50/25" Unnotched Tension 1 Properties (UNT1)



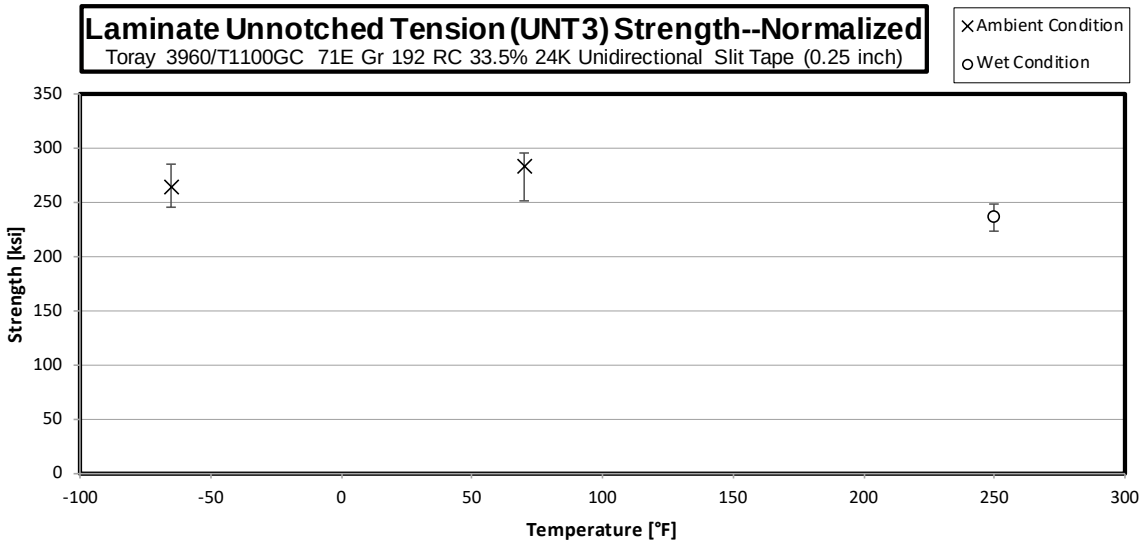


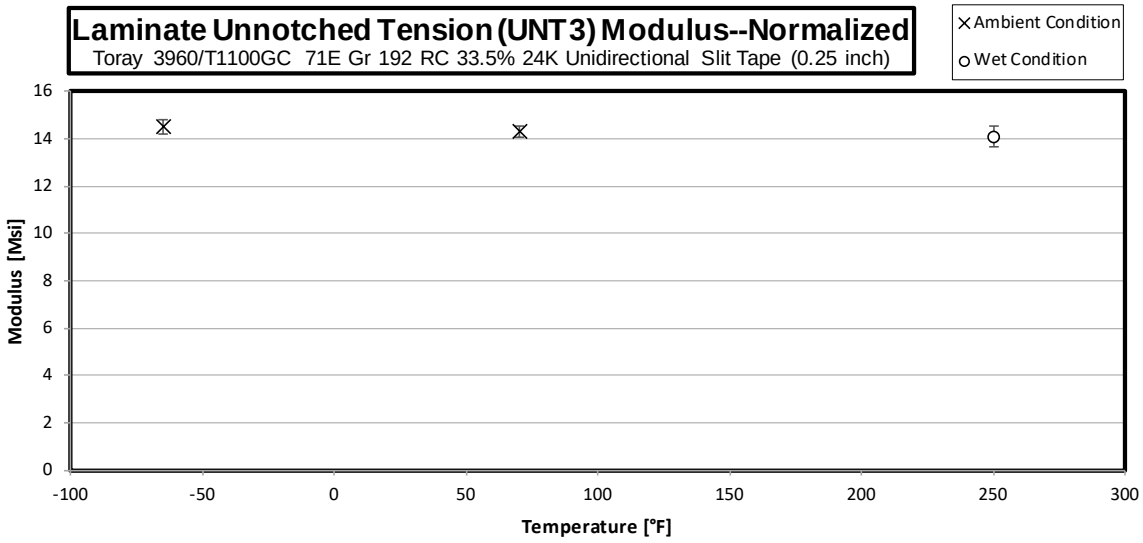
3.9 "10/80/10" Unnotched Tension 2 Properties (UNT2)



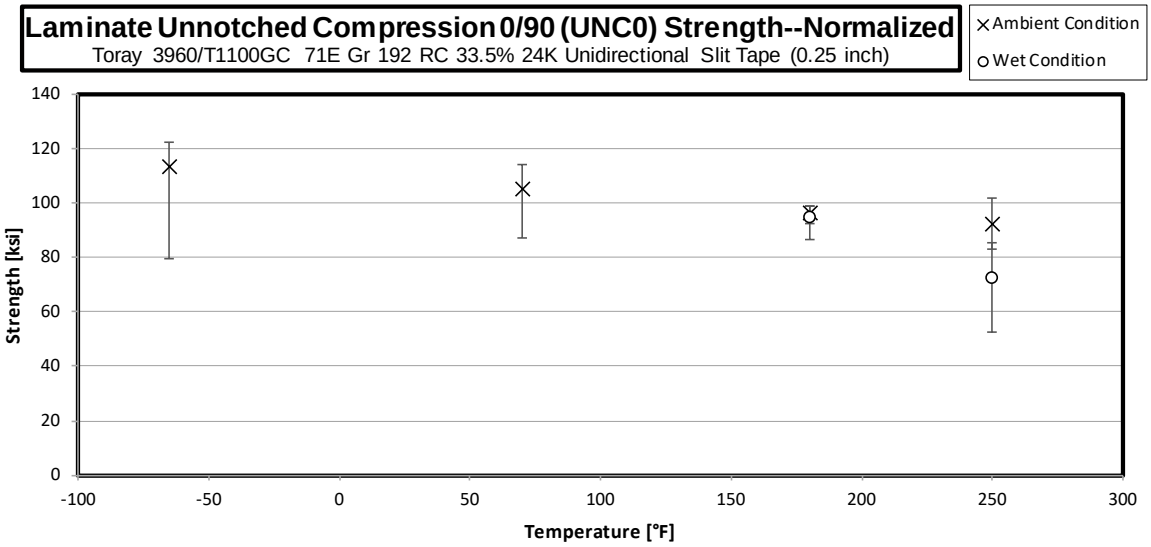


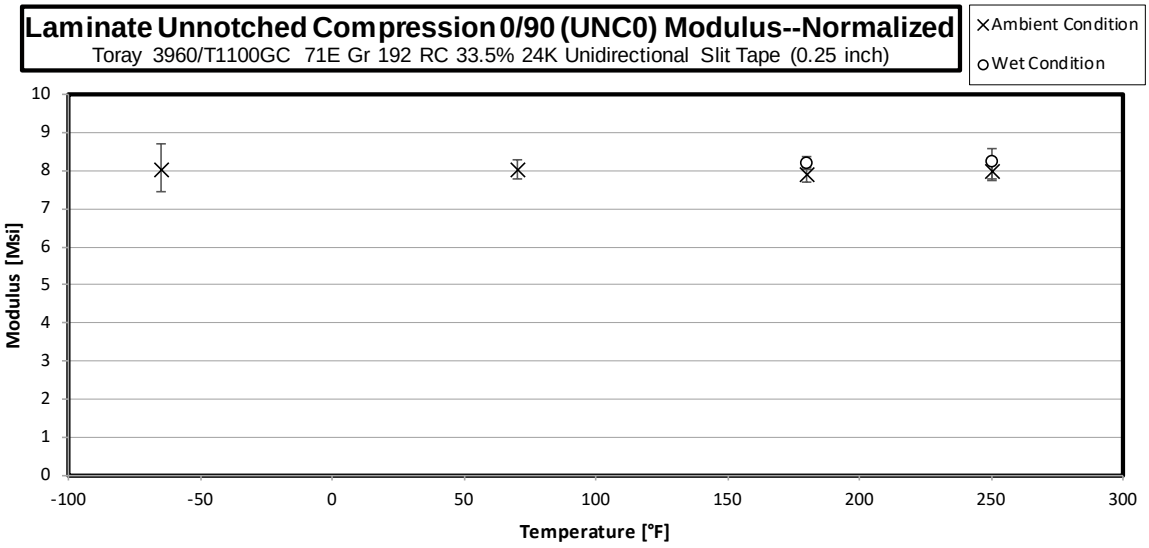
3.10 "50/40/10" Unnotched Tension 3 Properties (UNT3)



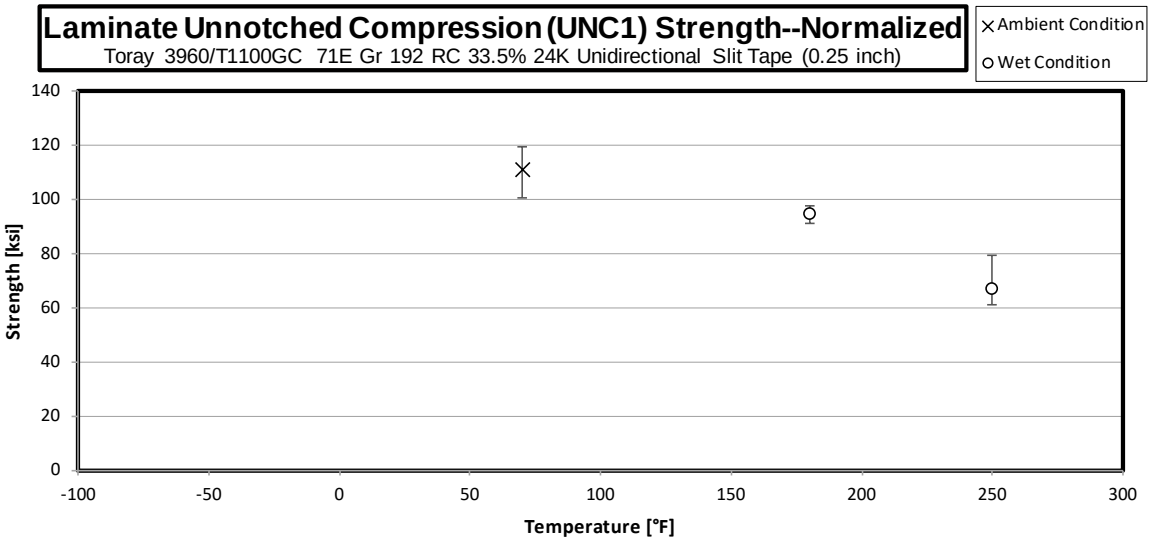


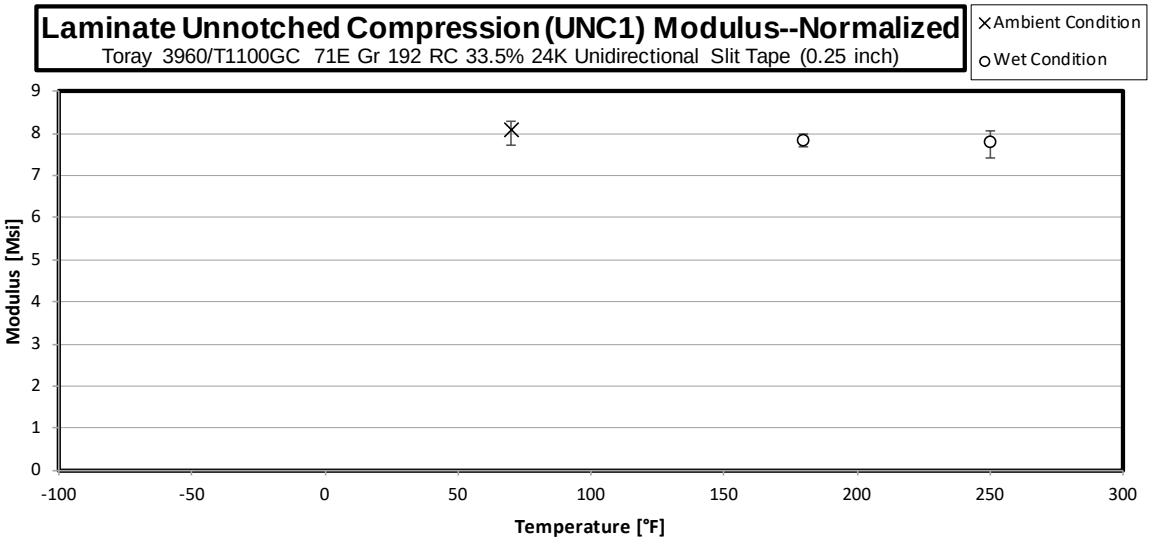
3.11 “33/0/67” Unnotched Compression 0/90 Properties (UNC0)



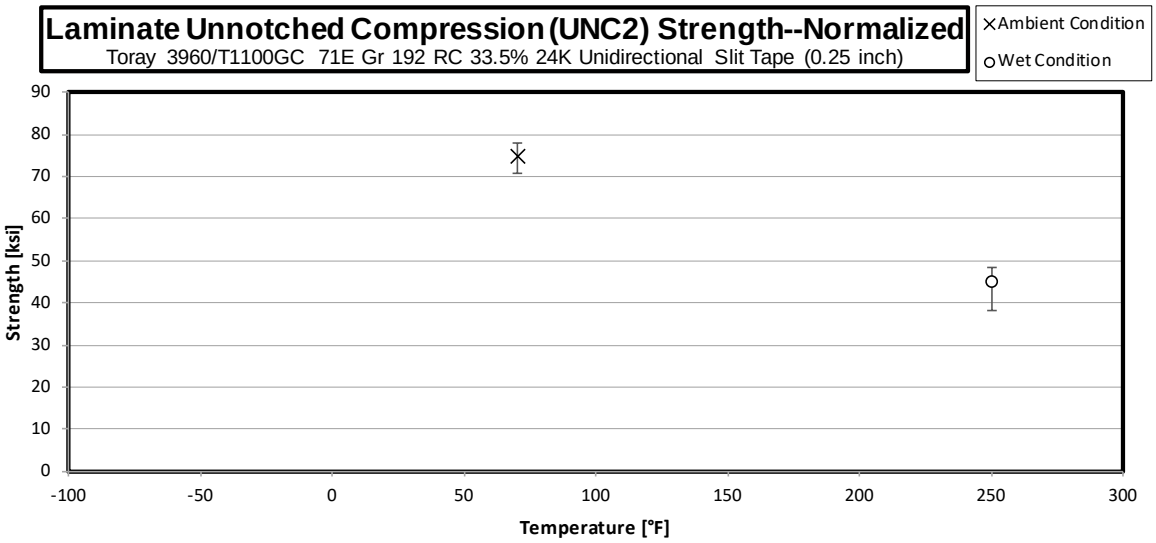


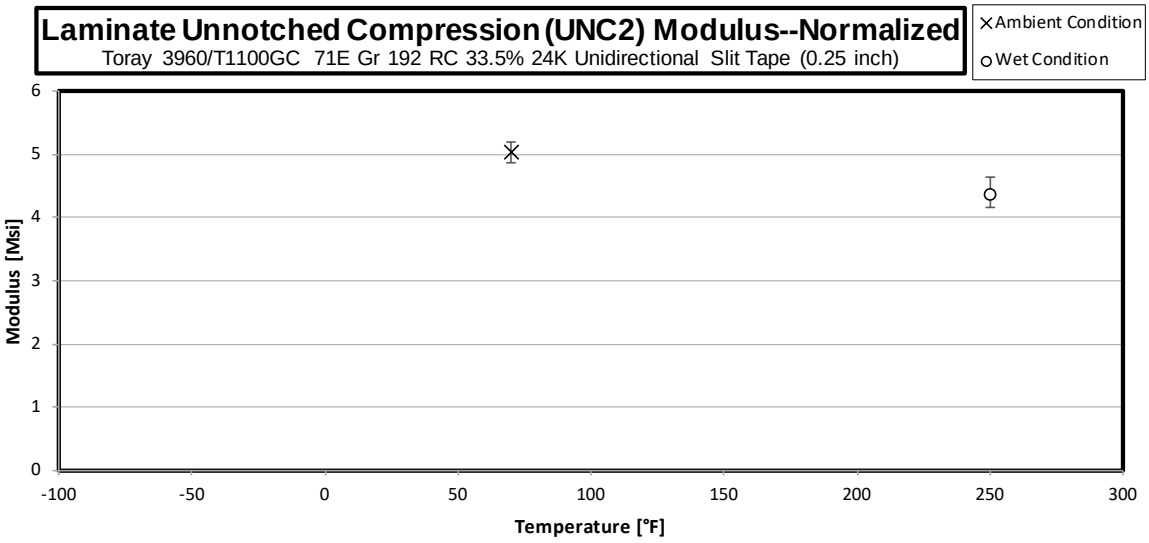
3.12 “25/50/25” Unnotched Compression 1 Properties (UNC1)



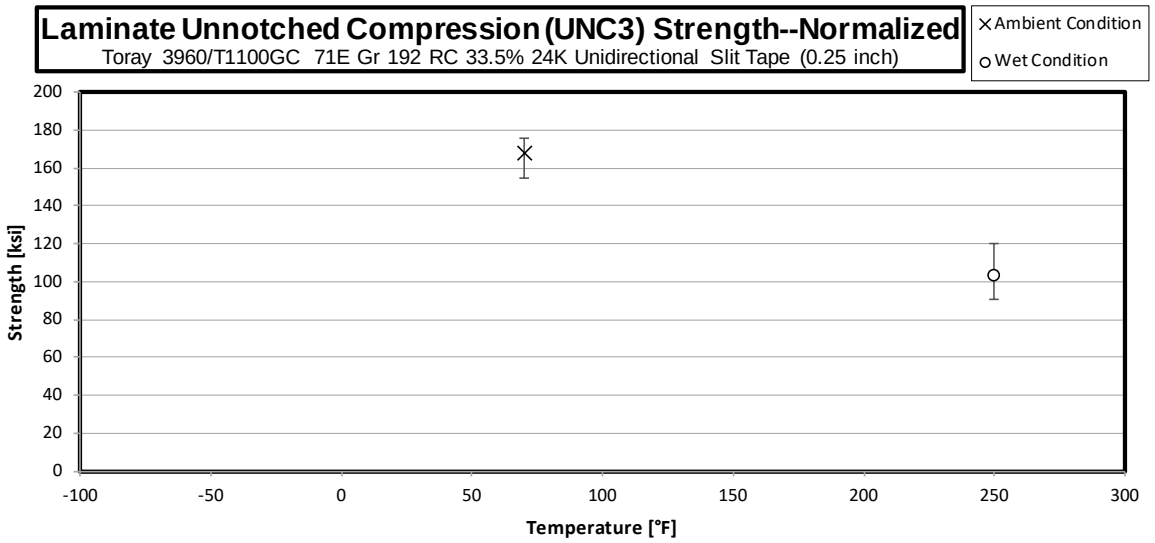


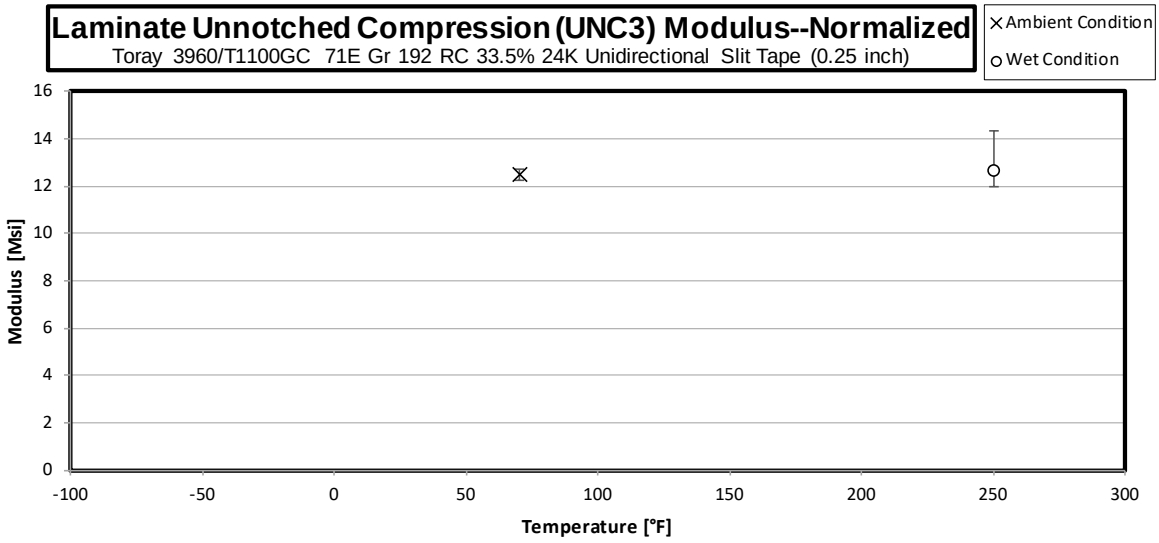
3.13 “10/80/10” Unnotched Compression 2 Properties (UNC2)



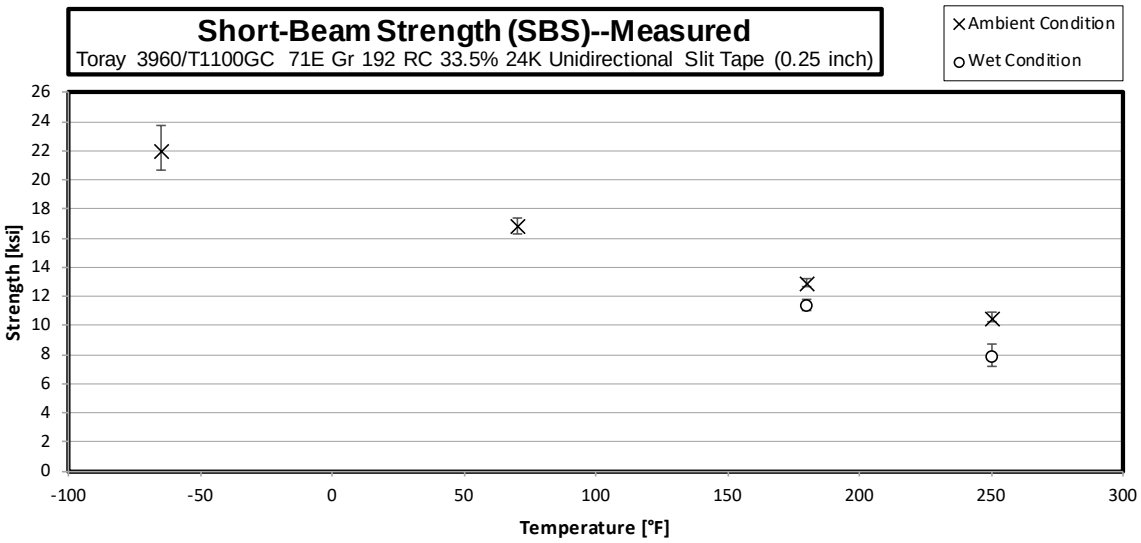


3.14 “50/40/10” Unnotched Compression 3 Properties (UNC3)

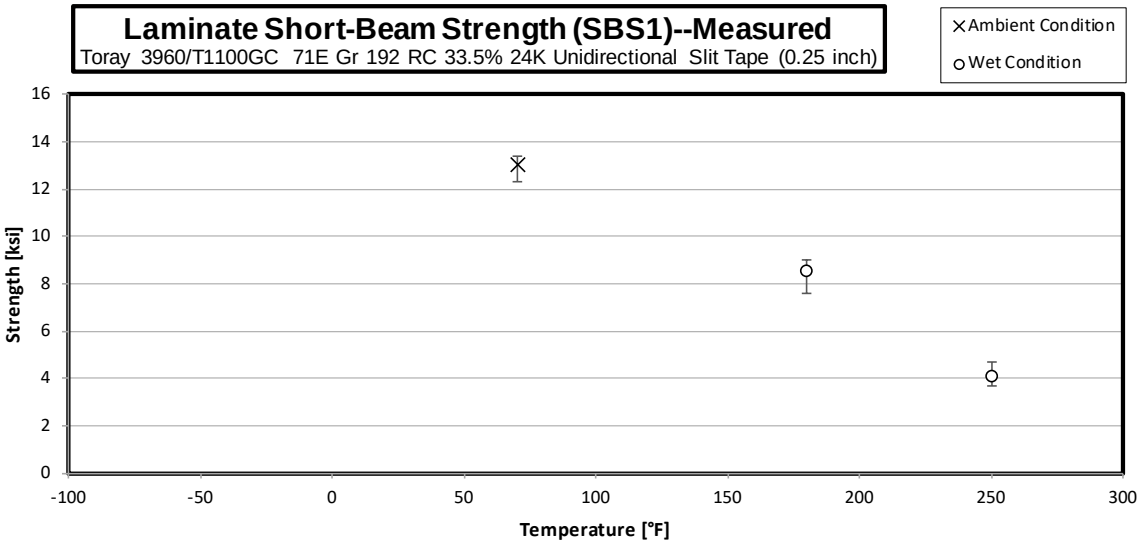




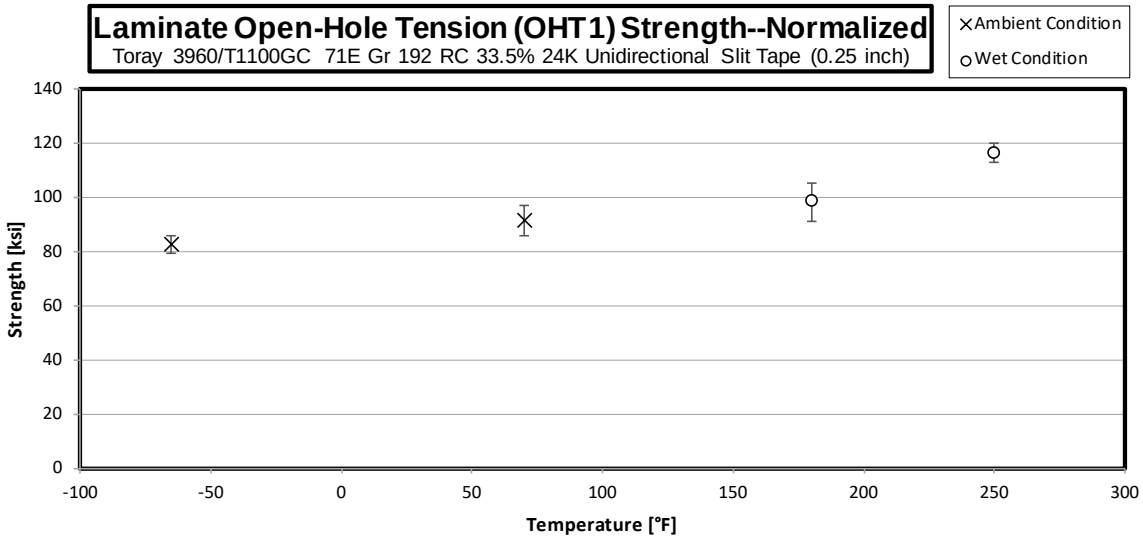
3.15 Lamina Short-Beam Shear Properties (SBS)



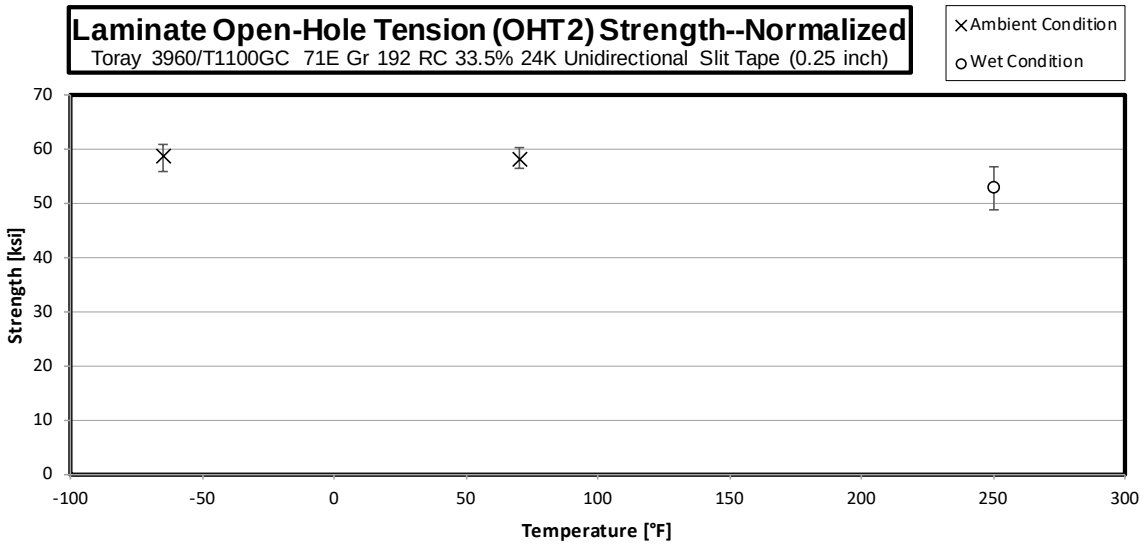
3.16 Laminate Short-Beam Strength Properties (SBS1)



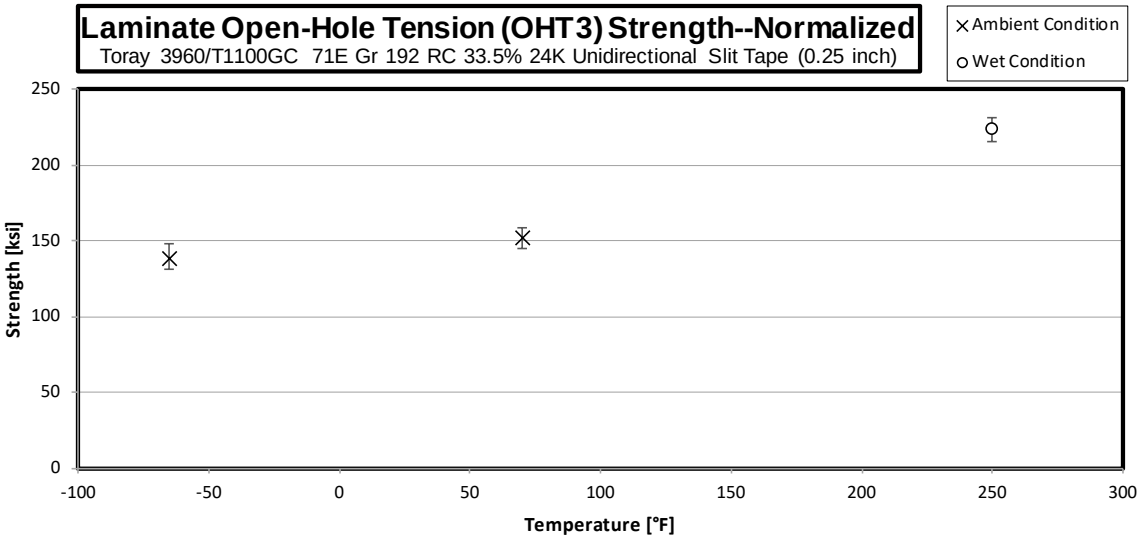
3.17 "25/50/25" Open-Hole Tension 1 Properties (OHT1)



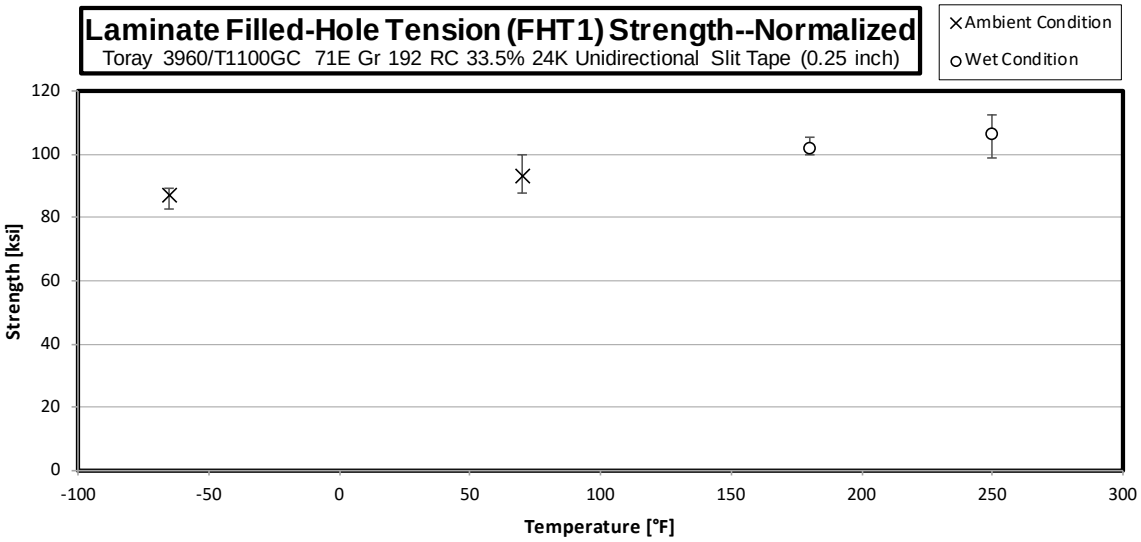
3.18 "10/80/10" Open-Hole Tension 2 Properties (OHT2)



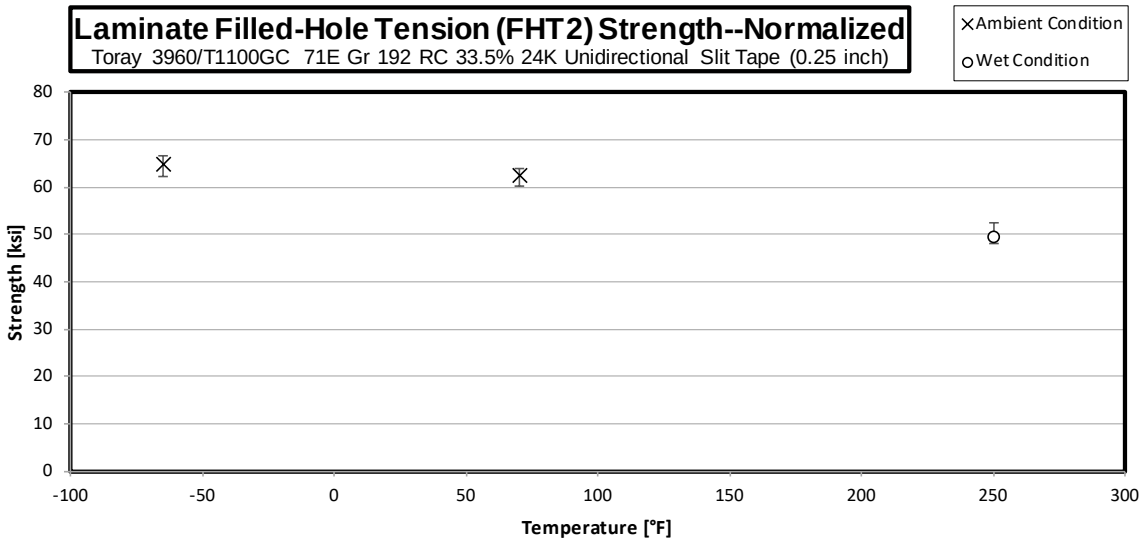
3.19 “50/40/10” Open-Hole Tension 3 Properties (OHT3)



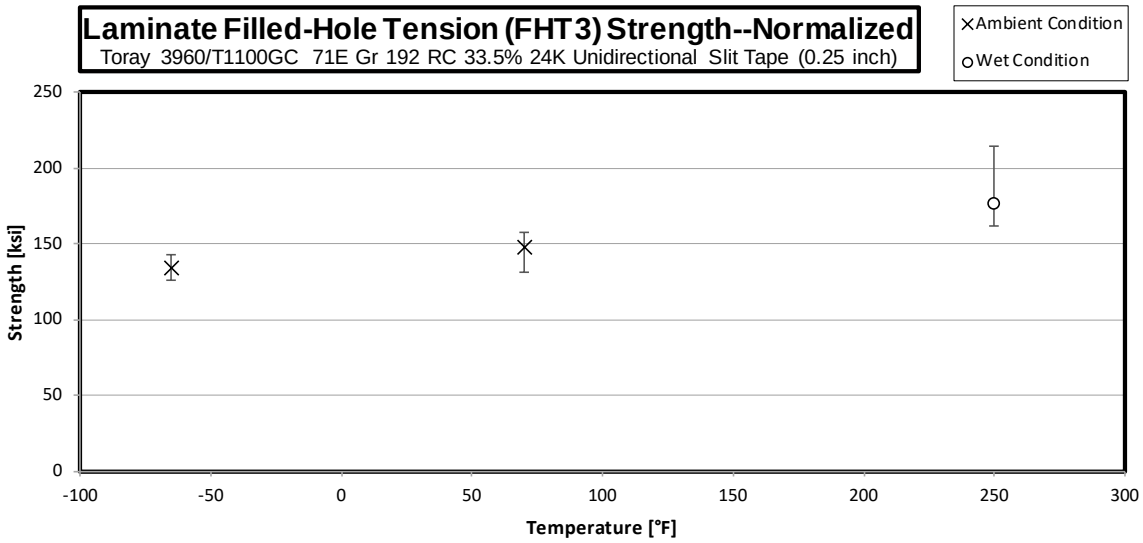
3.20 “25/50/25” Filled-Hole Tension 1 Properties (FHT1)



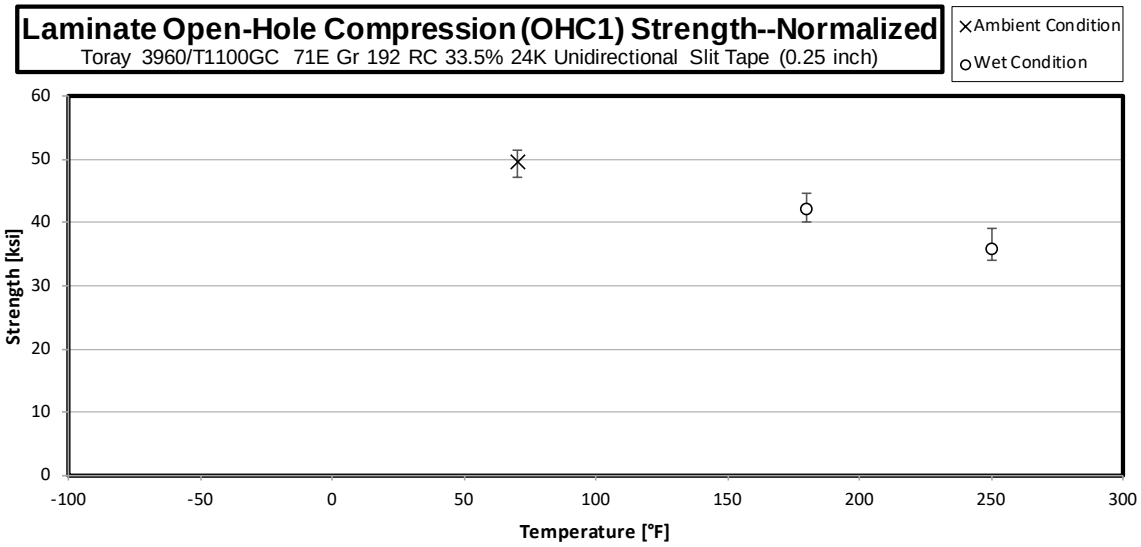
3.21 “10/80/10” Filled-Hole Tension 2 Properties (FHT2)



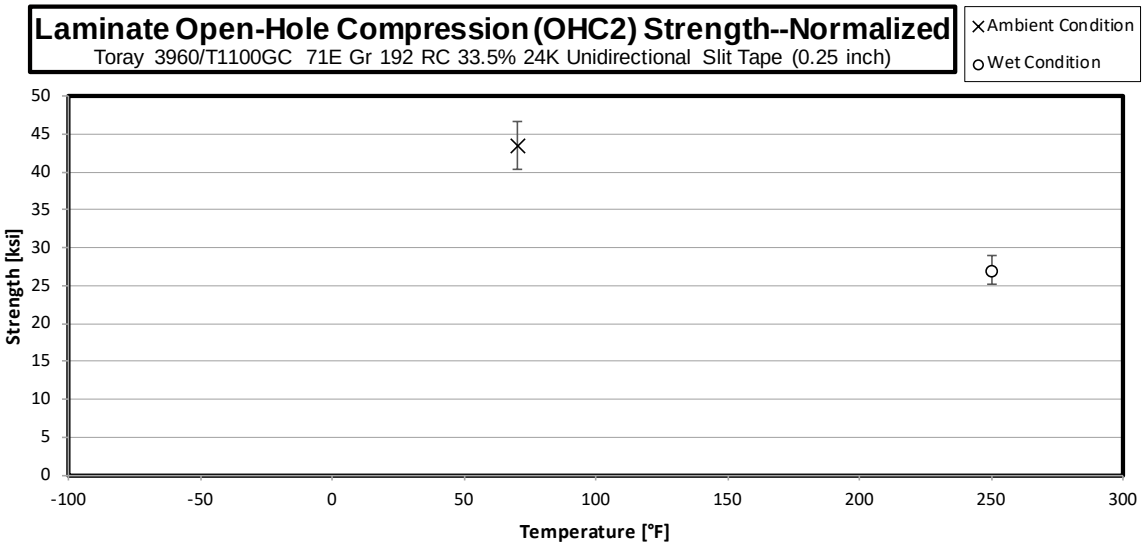
3.22 “50/40/10” Filled-Hole Tension 3 Properties (FHT3)



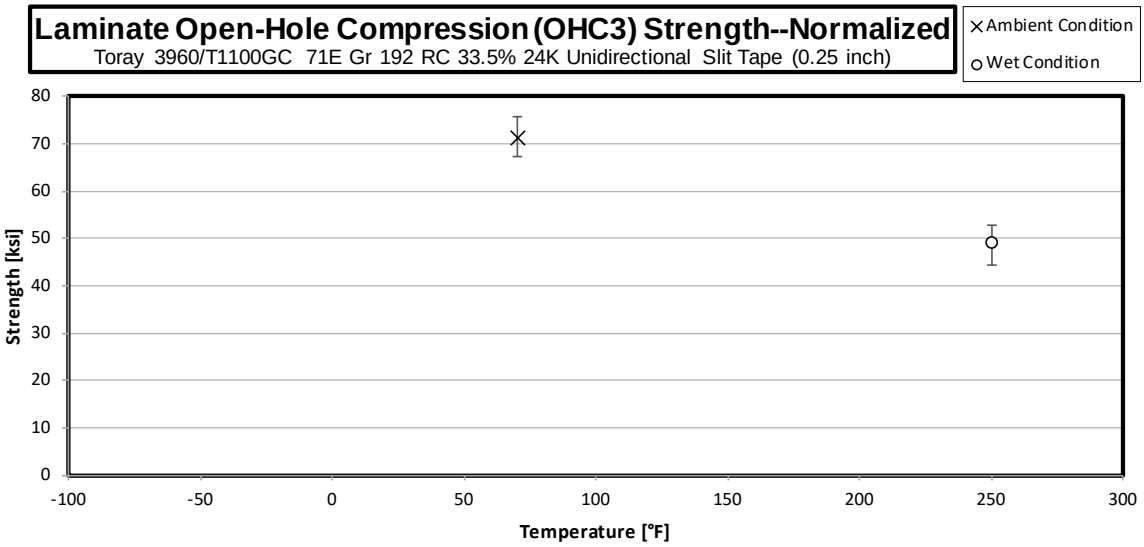
3.23 “25/50/25” Open-Hole Compression 1 Properties (OHC1)



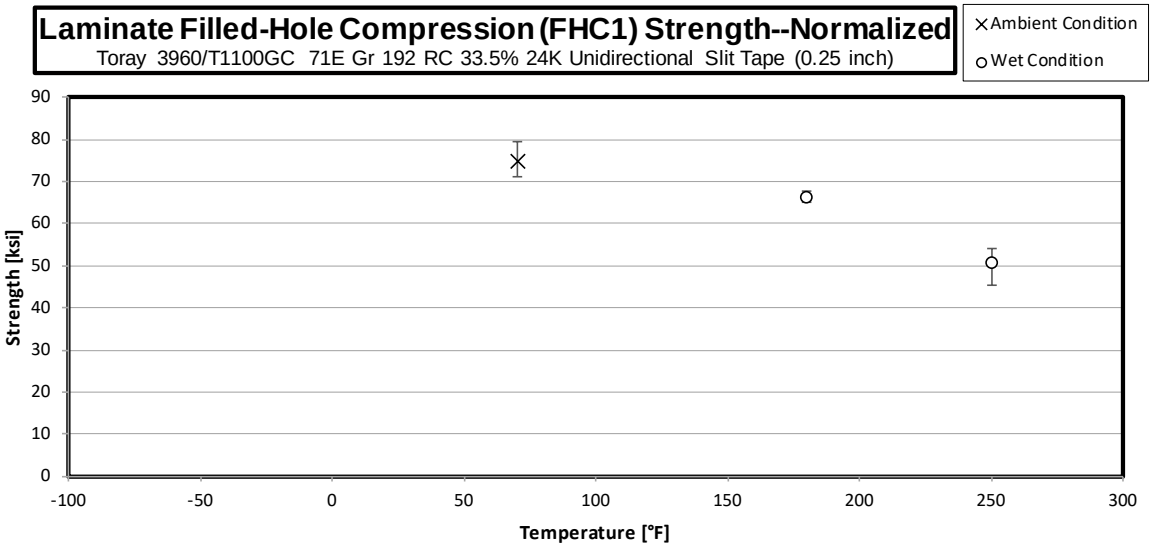
3.24 “10/80/10” Open-Hole Compression 2 Properties (OHC2)



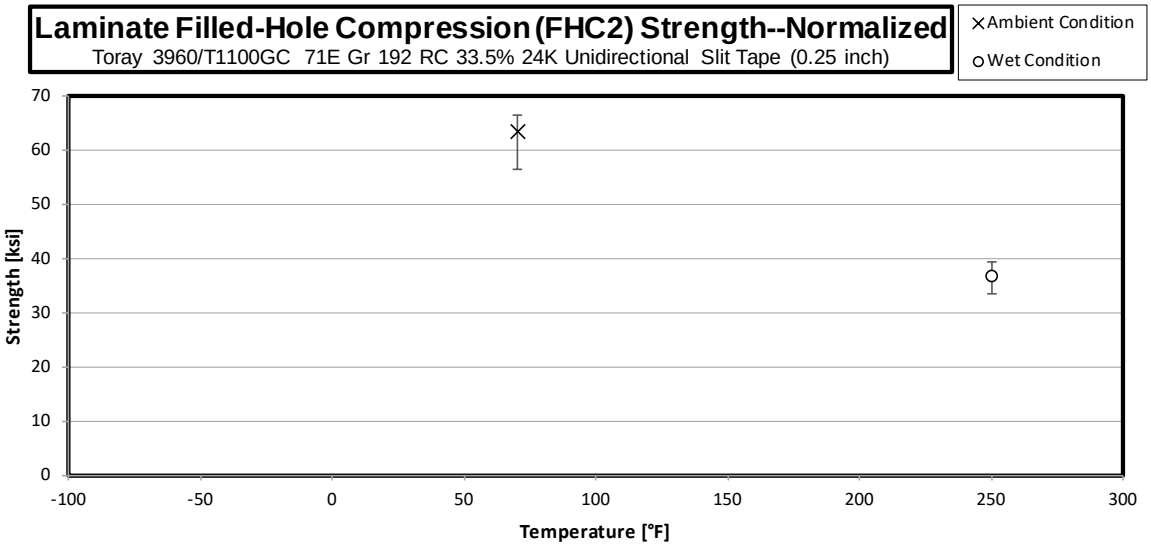
3.25 “50/40/10” Open-Hole Compression 3 Properties (OHC3)



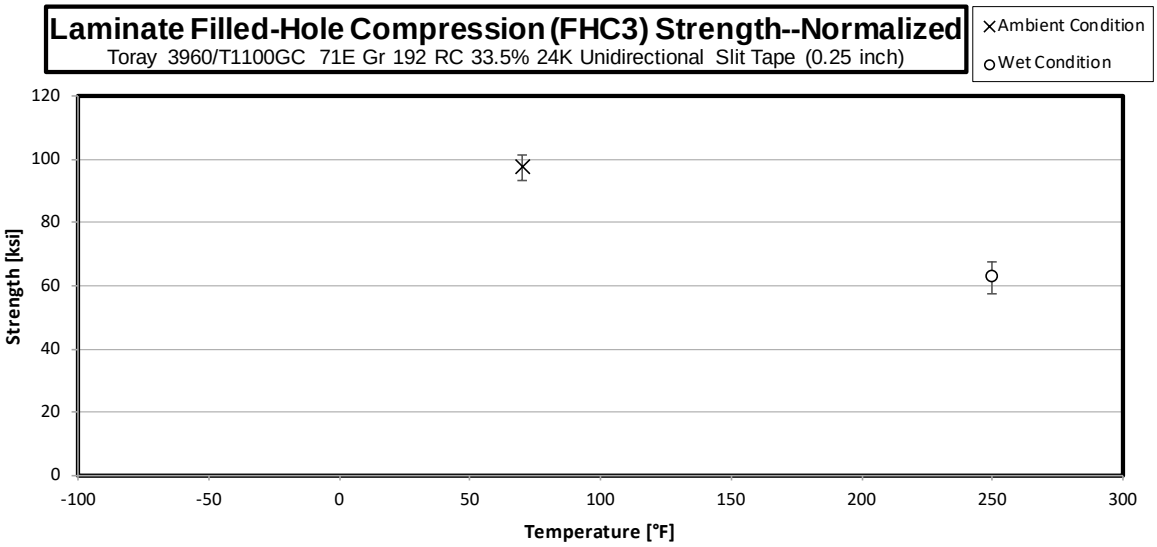
3.26 “25/50/25” Filled-Hole Compression 1 Properties (FHC1)



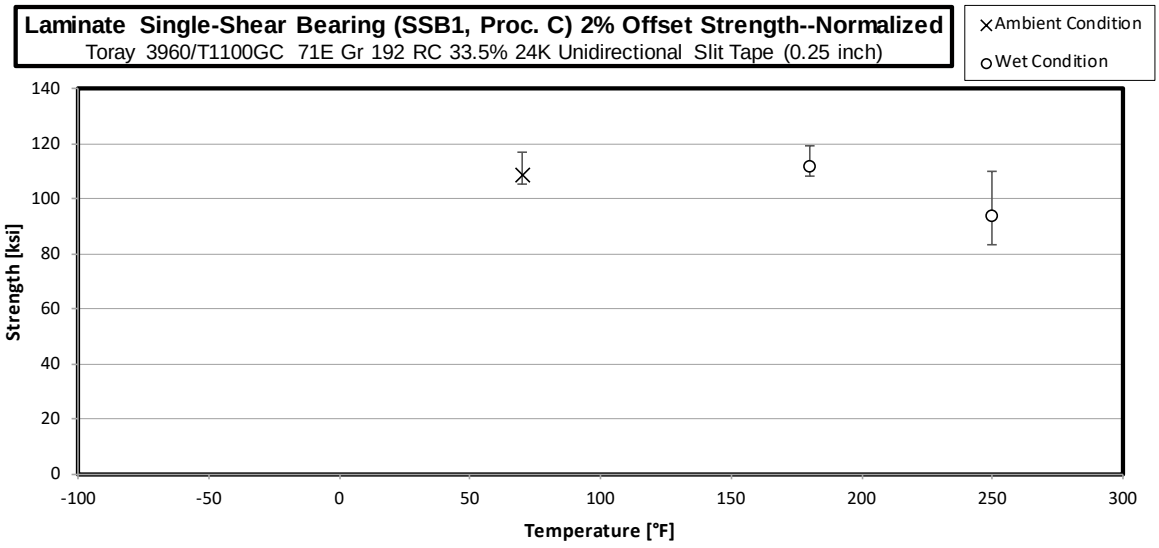
3.27 “10/80/10” Filled-Hole Compression 2 Properties (FHC2)

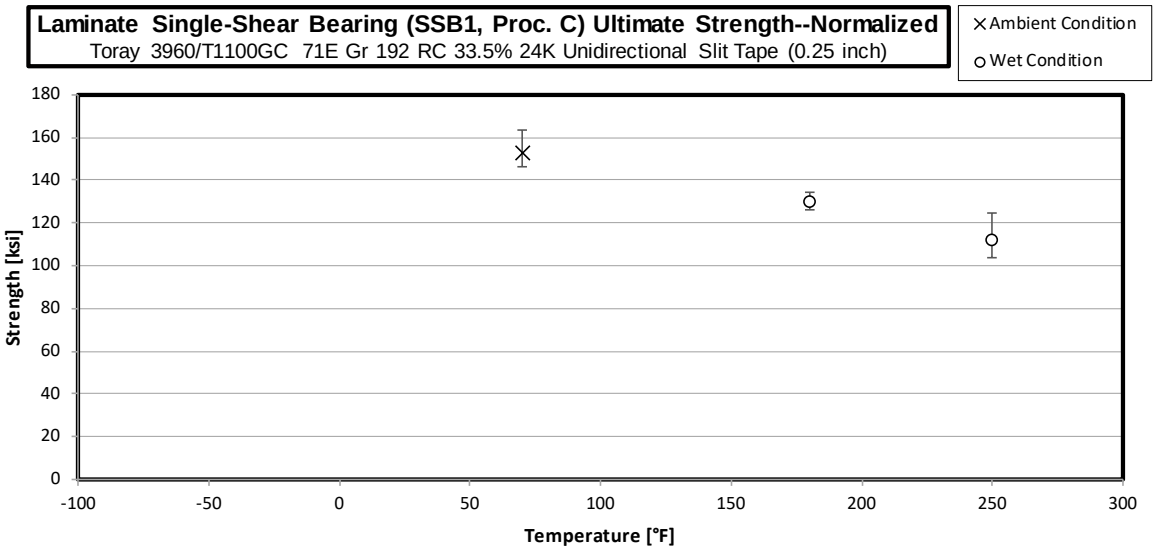


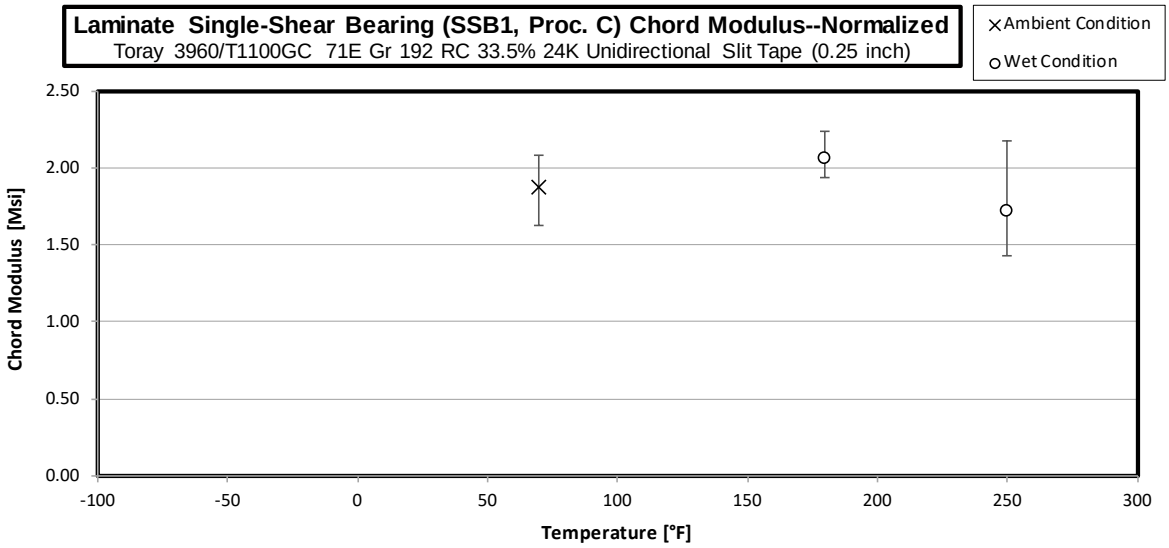
3.28 “50/40/10” Filled-Hole Compression 3 Properties (FHC3)



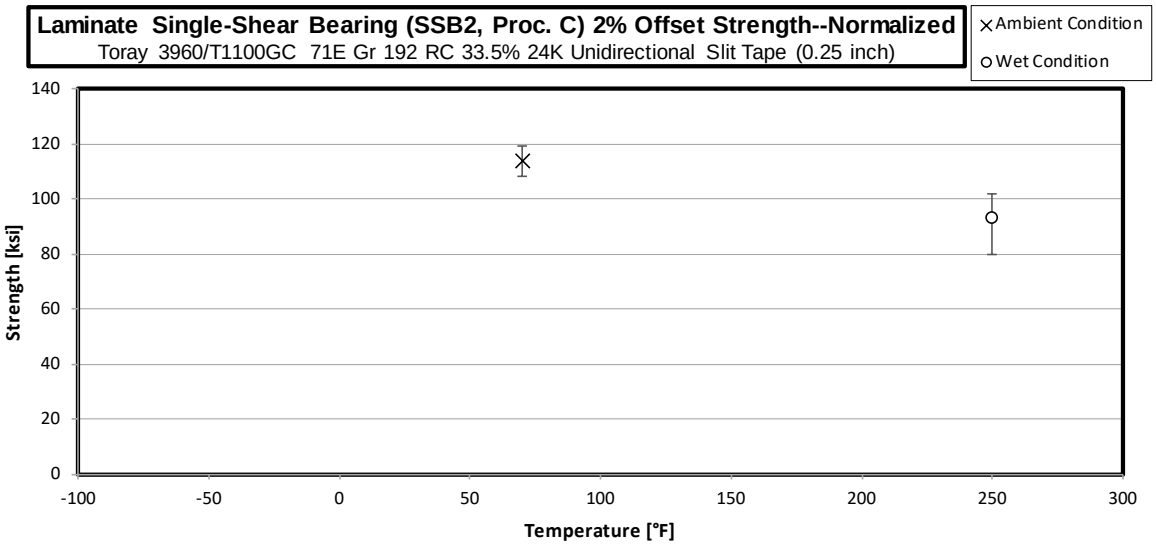
3.29 “25/50/25” Single-Shear Bearing Strength1 Properties (SSB1, Proc. C)

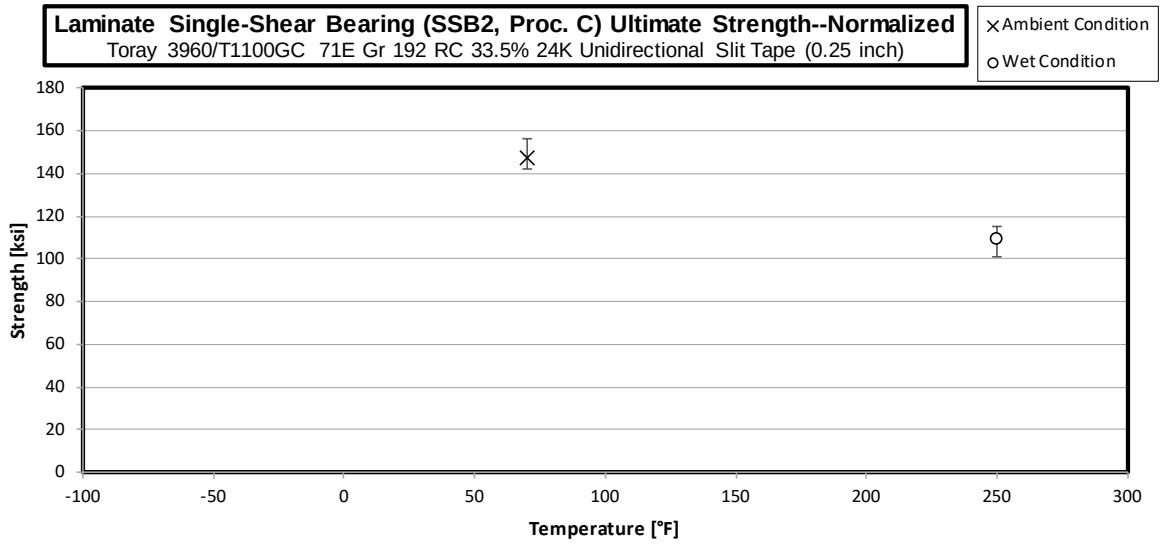


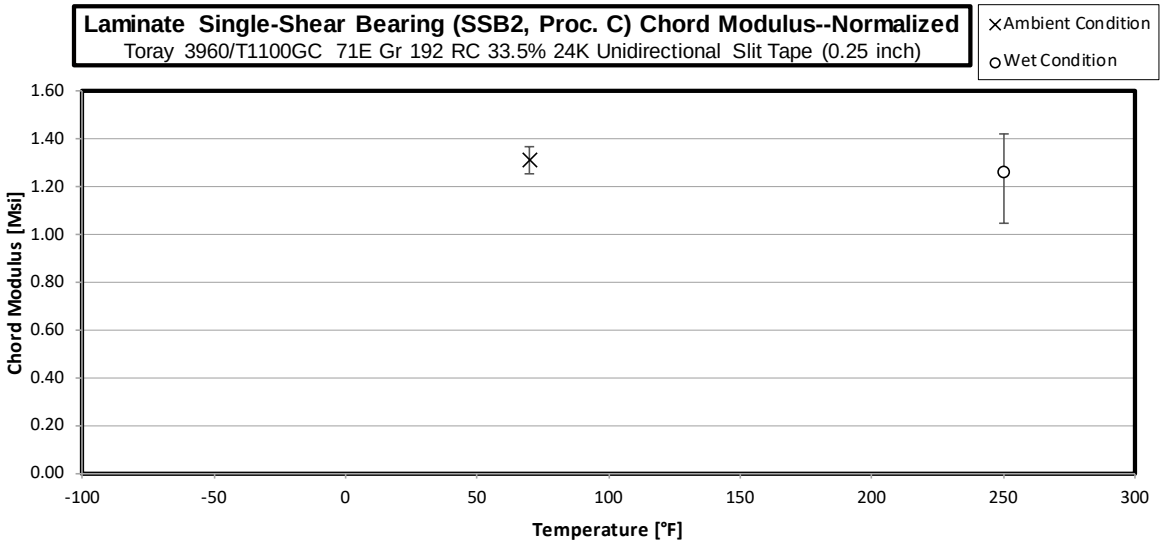




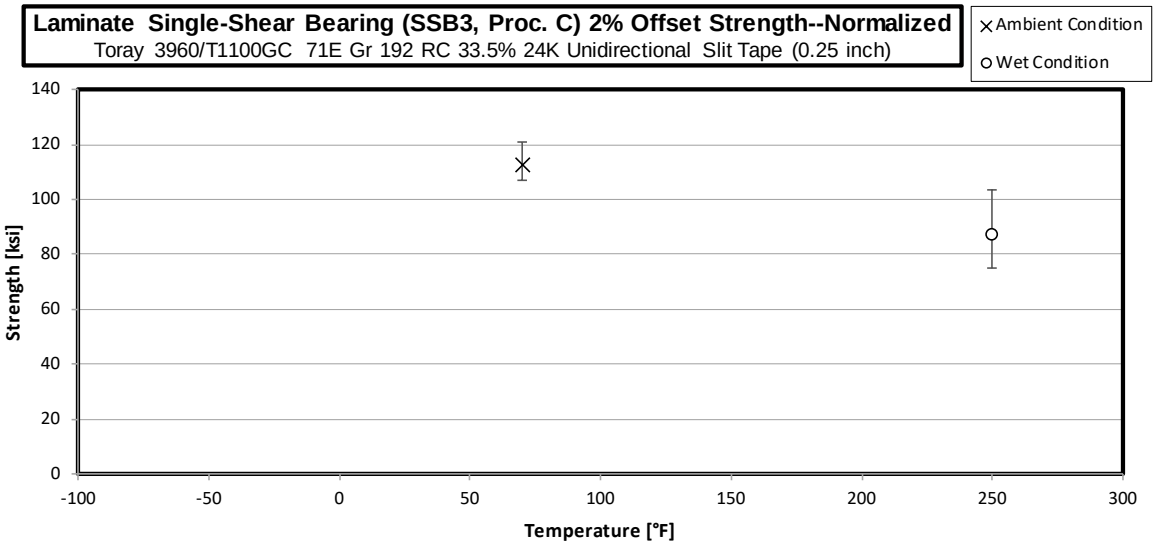
3.30 "10/80/10" Single-Shear Bearing Strength 2 Properties (SSB2, Proc. C)

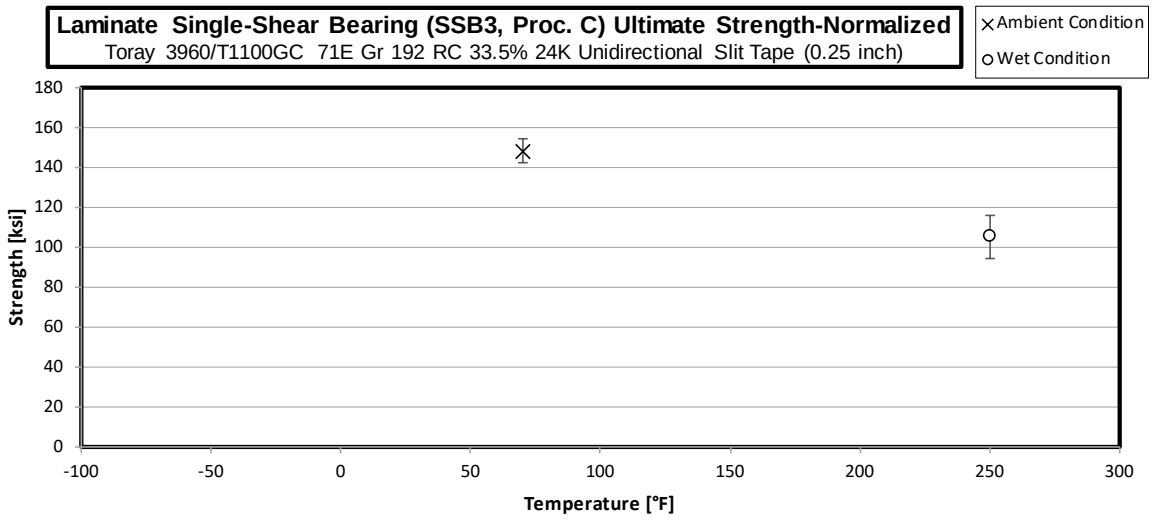


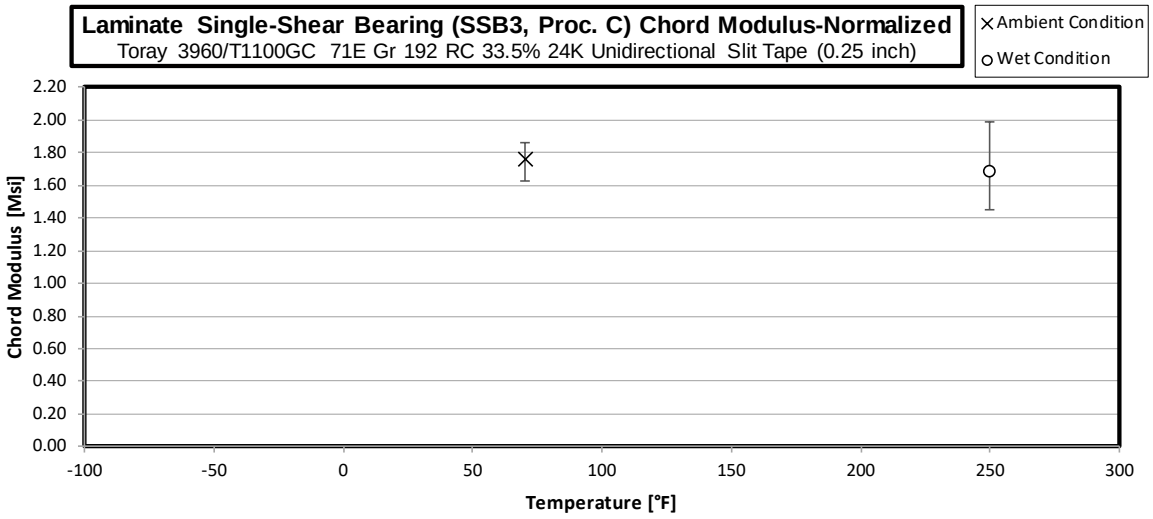

Laminate Single-Shear Bearing (SSB2, Proc. C) Ultimate Strength--Normalized
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Ambient Condition
Wet Condition
Strength [ksi]
180
160
140
120
100
80
60
40
20
0
-100
-50
0
50
100
150
200
250
300
Temperature [°F]


Laminate Single-Shear Bearing (SSB2, Proc. C) Chord Modulus--Normalized
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Ambient Condition
Wet Condition
Chord Modulus [Msi]
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
-100
-50
0
50
100
150
200
250
300
Temperature [°F]

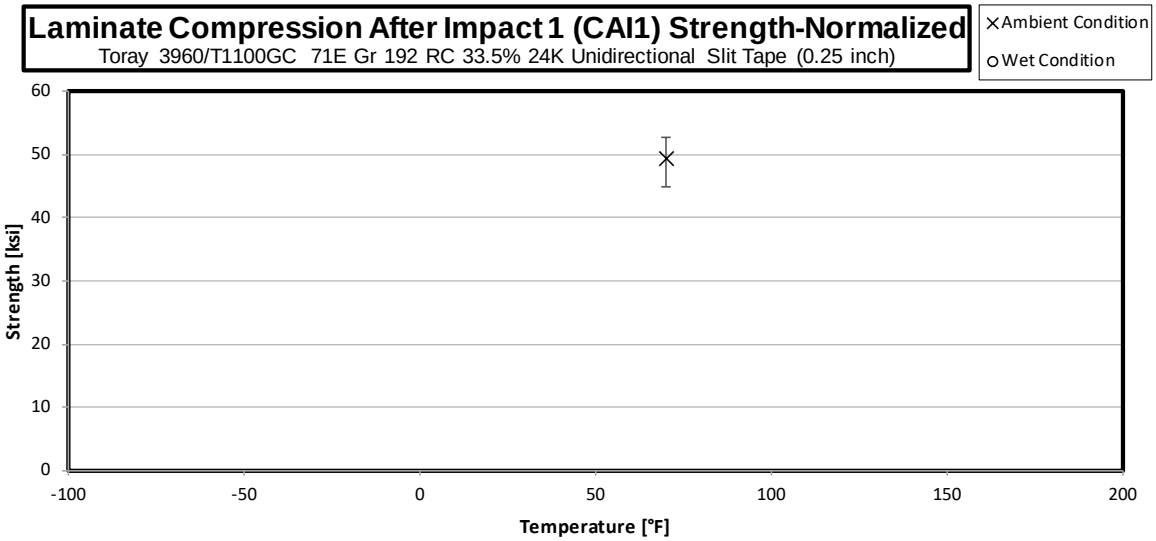
3.31 “50/40/10” Single-Shear Bearing 3 Properties (SSB3, Proc. C)



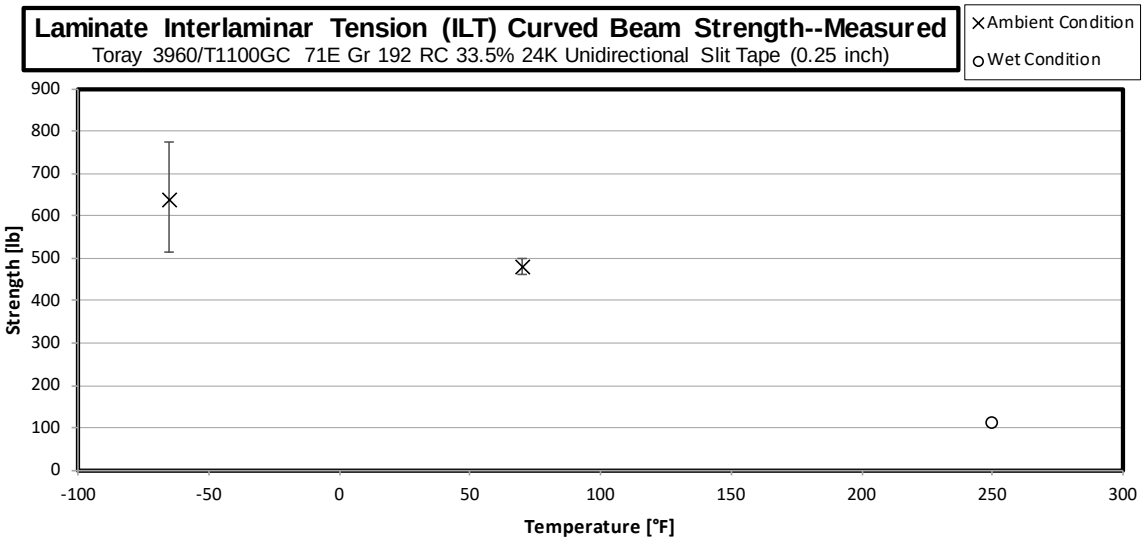


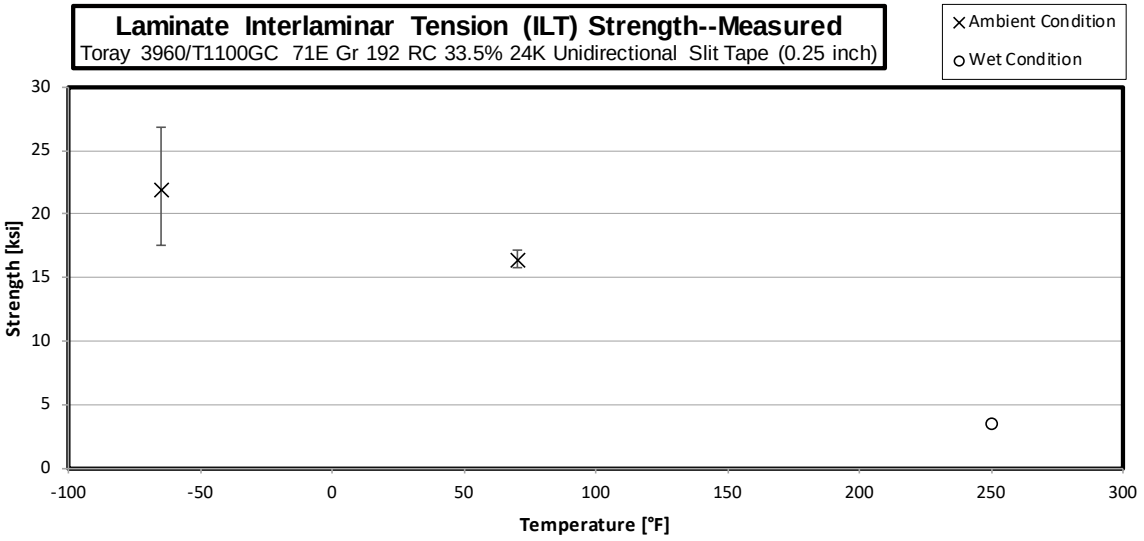


3.32 “25/50/25” Compression After Impact 1 Properties (CAI1)



3.33 Interlaminar Tension Properties (ILT)





4. Raw Data

4.1 Longitudinal Tension Properties (LT)

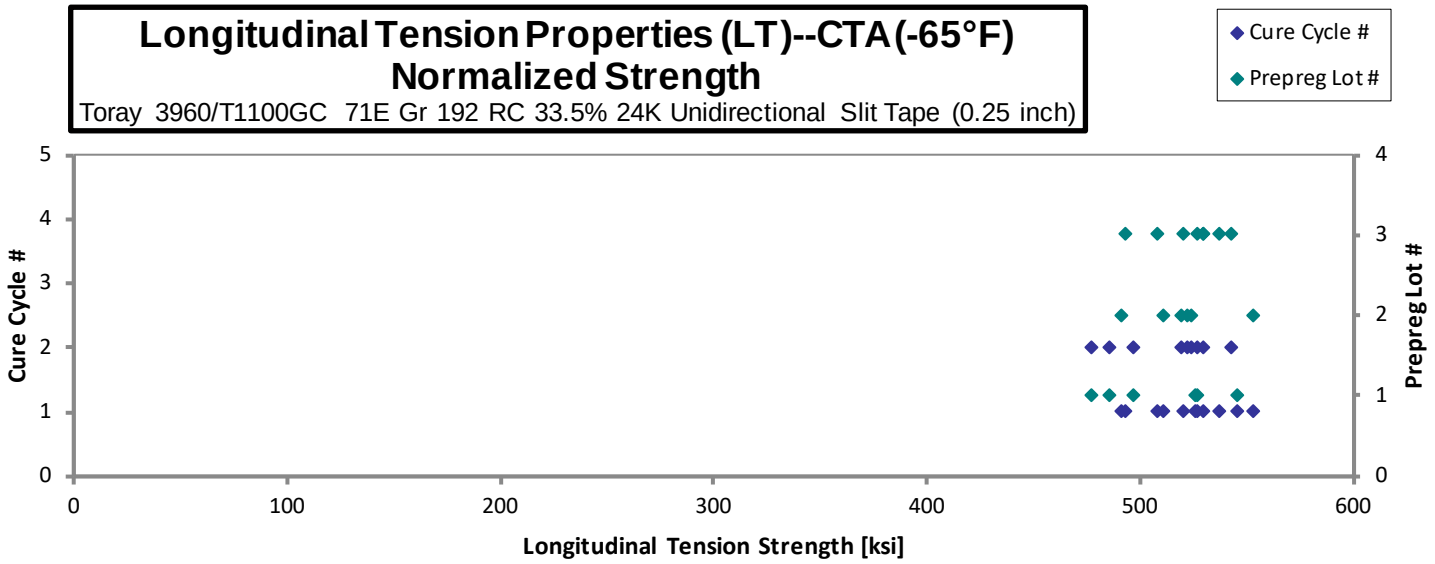
Longitudinal Tension Properties (LT)--CTA (-65°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

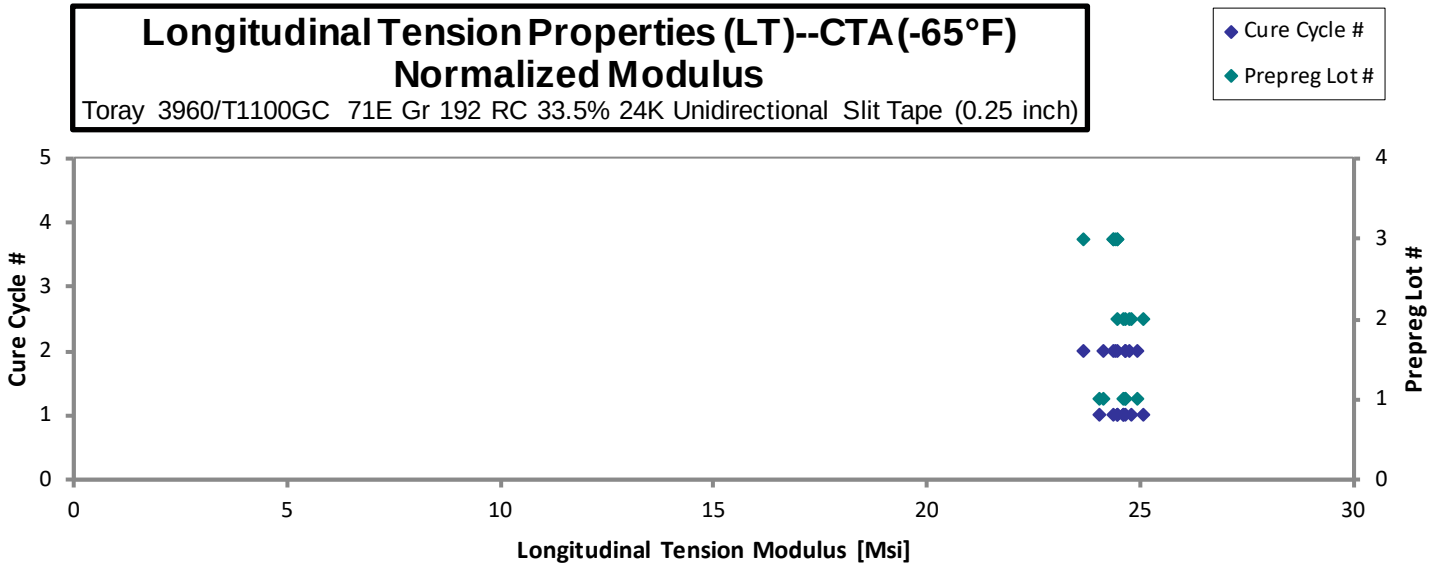
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LT-CTA-1	A	C1	1	1	531.0	24.89	0.3313	0.04162	6	XGM, LWT	0.006936	526.1	24.66
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LT-CTA-2*	A	C1	1	1		25.00	0.3403	0.04137	6	AWB, GIT	0.006894		24.62
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LT-CTA-3*	A	C1	1	1		24.32	0.3104	0.04153	6	GIT	0.006922		24.05
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LT-SP-1**	A	C1	1	1	534.2			0.04140	6	XGM	0.006900	526.5	
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LT-SP-2**	A	C1	1	1	548.6			0.04175	6	XGM	0.006958	545.3	
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LT-CTA-1	A	C2	1	2	482.5	24.93	0.3294	0.04155	6	XGM	0.006925	477.4	24.66
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LT-CTA-2	A	C2	1	2	490.6	24.37	0.2221	0.04160	6	XGM	0.006933	486.0	24.14
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LT-CTA-3	A	C2	1	2	502.1	25.23	0.3391	0.04153	6	XGM	0.006922	496.6	24.95
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LT-CTA-1	B	C1	2	1	562.6	25.21	0.3355	0.04128	6	XGM	0.006881	553.0	24.78
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LT-CTA-2	B	C1	2	1	495.7	25.28	0.3337	0.04165	6	XGM	0.006942	491.6	25.07
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LT-CTA-3	B	C1	2	1	509.5	24.53	0.3355	0.04212	6	XGM	0.007019	510.9	24.60
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LT-CTA-1	B	C2	2	2	528.9	25.21	0.3387	0.04122	6	XGM	0.006869	519.0	24.74
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LT-CTA-2	B	C2	2	2	526.5	24.67	0.2910	0.04167	6	XGM	0.006944	522.3	24.48
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LT-CTA-3	B	C2	2	2	530.2	24.97	0.3380	0.04148	6	XGM	0.006914	523.7	24.66
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LT-CTA-1	C	C1	3	1	525.0	24.26	0.2954	0.04240	6	XGM	0.007067	530.0	24.49
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LT-CTA-2	C	C1	3	1	502.3	24.22	0.3680	0.04245	6	XGM	0.007075	507.7	24.48
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LT-CTA-3	C	C1	3	1	502.4	23.55	0.3320	0.04347	6	XGM	0.007244	519.9	24.38
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LT-SP-1**	C	C1	3	1	476.5			0.04347	6	XGM, LGT	0.007244	493.2	
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LT-SP-2**	C	C1	3	1	533.9			0.04222	6	XGM	0.007036	536.7	
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LT-CTA-1	C	C2	3	2	521.6	23.46	0.3189	0.04240	6	XGM	0.007067	526.6	23.68
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LT-CTA-2*	C	C2	3	2		24.24	0.2829	0.04222	6	LWB, DIT	0.007036		24.37
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LT-CTA-3*	C	C2	3	2		24.11	0.3490	0.04253	6	SGM, DIB	0.007089		24.42
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LT-SP-2**	C	C2	3	2	538.8			0.04232	6	XGM	0.007053	542.9	
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LT-SP-3**	C	C2	3	2	521.0			0.04270	6	XGM	0.007117	529.7	

*Strength not reported due to unacceptable failure mode.
**Specimen was not gaged, only strength is tested.

	Strength [ksi]	Modulus [Msi]	Poisson's Ratio		$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	518.2	24.58	0.3217	$Average_{norm}$	518.2	24.51
Standard Dev.	22.34	0.5556	0.03260	Standard $Dev._{norm}$	20.64	0.3255
Coeff. of Var. [%]	4.312	2.260	10.13	Coeff. of $Var._{norm}$ [%]	3.982	1.328
Min.	476.5	23.46	0.2221	Min.	477.4	23.68
Max.	562.6	25.28	0.3680	Max.	553.0	25.07
Number of Spec.	20	18	18	Number of Spec.	20	18


Longitudinal Tension Properties (LT)--CTA (-65°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
5
0
100
200
300
400
500
600
Longitudinal Tension Strength [ksi]

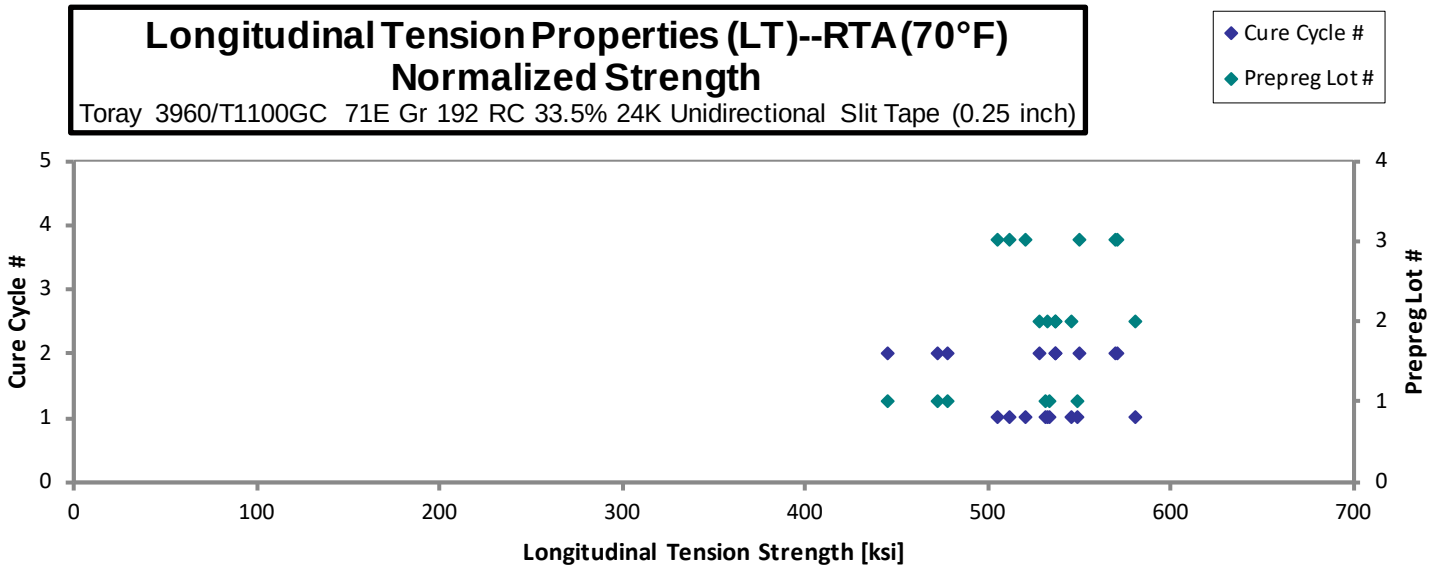

Longitudinal Tension Properties (LT)--CTA (-65°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
5
0
5
10
15
20
25
30
Longitudinal Tension Modulus [Msi]

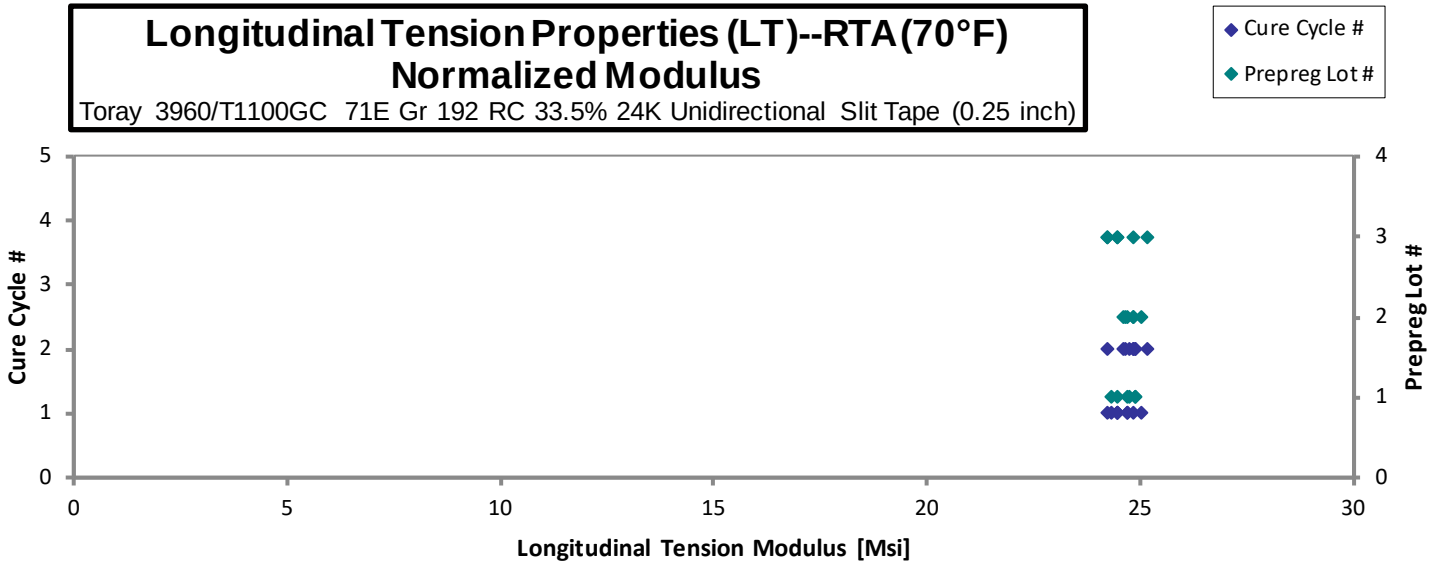
Longitudinal Tension Properties (LT)--RTA (70°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LT-RTA-1	A	C1	1	1	553.9	24.91	0.3457	0.04167	6	XGM	0.006944	549.5	24.71
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LT-RTA-2	A	C1	1	1	533.1	24.52	0.3181	0.04192	6	XGM	0.006986	532.0	24.47
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LT-RTA-3	A	C1	1	1	536.4	24.45	0.3190	0.04182	6	XGM	0.006969	534.0	24.35
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LT-RTA-1	A	C2	1	2	449.6	25.15	0.3214	0.04155	6	XGM	0.006925	444.8	24.88
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LT-RTA-2	A	C2	1	2	484.6	25.25	0.3308	0.04142	6	XGM	0.006903	477.9	24.90
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LT-RTA-3	A	C2	1	2	479.7	25.13	0.3247	0.04135	6	XGM	0.006892	472.3	24.74
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LT-RTA-1	B	C1	2	1	576.7	24.69	0.3341	0.04227	6	XGM	0.007044	580.4	24.84
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LT-RTA-2	B	C1	2	1	537.4	25.22	0.3379	0.04165	6	XGM	0.006942	532.9	25.01
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LT-RTA-3	B	C1	2	1	544.7	24.65	0.3229	0.04205	6	XGM	0.007008	545.3	24.68
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LT-RTA-1	B	C2	2	2	547.2	25.29	0.3400	0.04122	6	XGM	0.006869	537.0	24.82
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LT-RTA-2	B	C2	2	2	544.5	24.97	0.3453	0.04140	6	XGM	0.006900	536.7	24.62
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LT-RTA-3	B	C2	2	2	538.5	25.16	0.3505	0.04120	6	XGM	0.006867	528.3	24.68
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LT-RTA-1	C	C1	3	1	514.7	24.19	0.3469	0.04247	6	XGM, LWT	0.007078	520.5	24.46
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LT-RTA-2	C	C1	3	1	496.0	23.83	0.3340	0.04275	6	XGM	0.007125	504.9	24.25
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LT-RTA-3	C	C1	3	1	511.8	24.46	0.3374	0.04202	6	XGM, LGT	0.007003	512.0	24.47
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LT-RTA-1	C	C2	3	2	546.5	24.07	0.3338	0.04225	6	XGM	0.007042	549.7	24.21
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LT-RTA-2	C	C2	3	2	562.5	24.80	0.3342	0.04263	6	XGM	0.007106	571.0	25.17
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LT-RTA-3	C	C2	3	2	558.4	24.33	0.3431	0.04290	6	XGM	0.007150	570.3	24.85

	Strength [ksi]	Modulus [Msi]	Poisson's Ratio		$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	**528.7**	**24.73**	**0.3344**	**$Average_{norm}$**	**0.006986**	**527.7**	**24.67**
Standard Dev.	**33.01**	**0.4450**	**0.01001**	**Standard $Dev._{norm}$**		**35.34**	**0.2639**
Coeff. of Var. [%]	**6.243**	**1.800**	**2.993**	**Coeff. of Var. $[\%]_{norm}$**		**6.696**	**1.069**
Min.	**449.6**	**23.83**	**0.3181**	**Min.**	**0.006867**	**444.8**	**24.21**
Max.	**576.7**	**25.29**	**0.3505**	**Max.**	**0.007150**	**580.4**	**25.17**
Number of Spec.	**18**	**18**	**18**	**Number of Spec.**	**18**	**18**	**18**


Longitudinal Tension Properties (LT)--RTA (70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Longitudinal Tension Strength [ksi]
0
100
200
300
400
500
600
700
0
1
2
3
4
5


Longitudinal Tension Properties (LT)--RTA (70°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Longitudinal Tension Modulus [Msi]
0
5
10
15
20
25
30
0
1
2
3
4
5

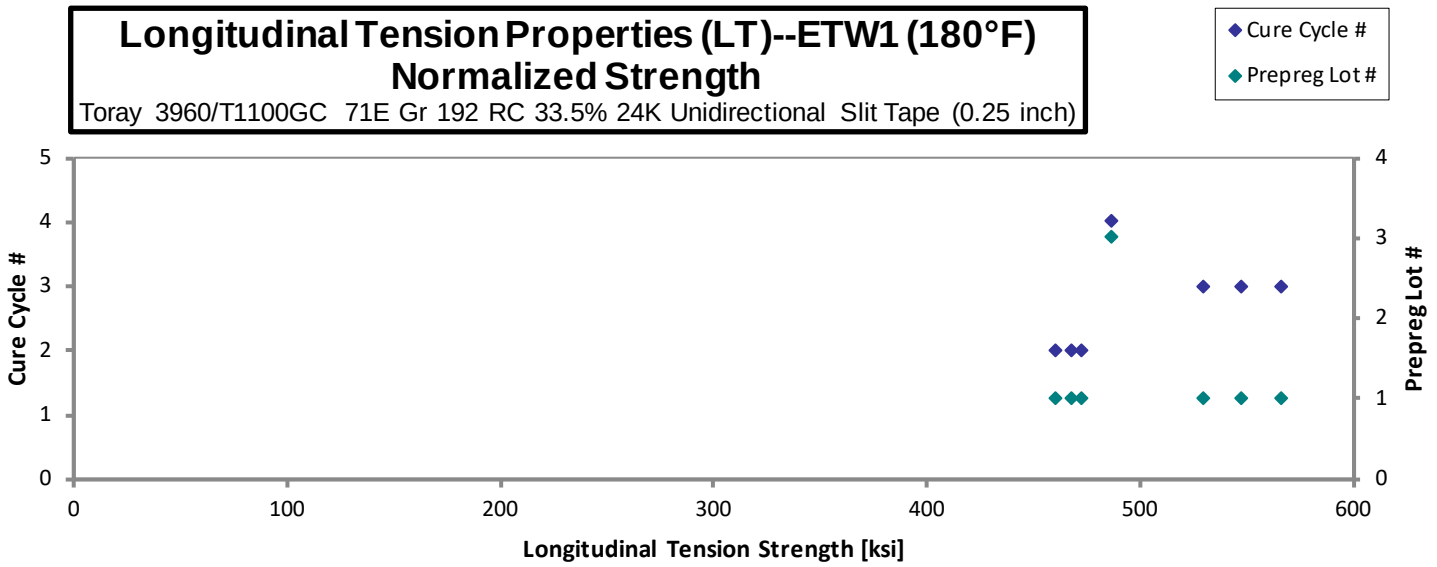
Longitudinal Tension Properties (LT)--ETW1 (180°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

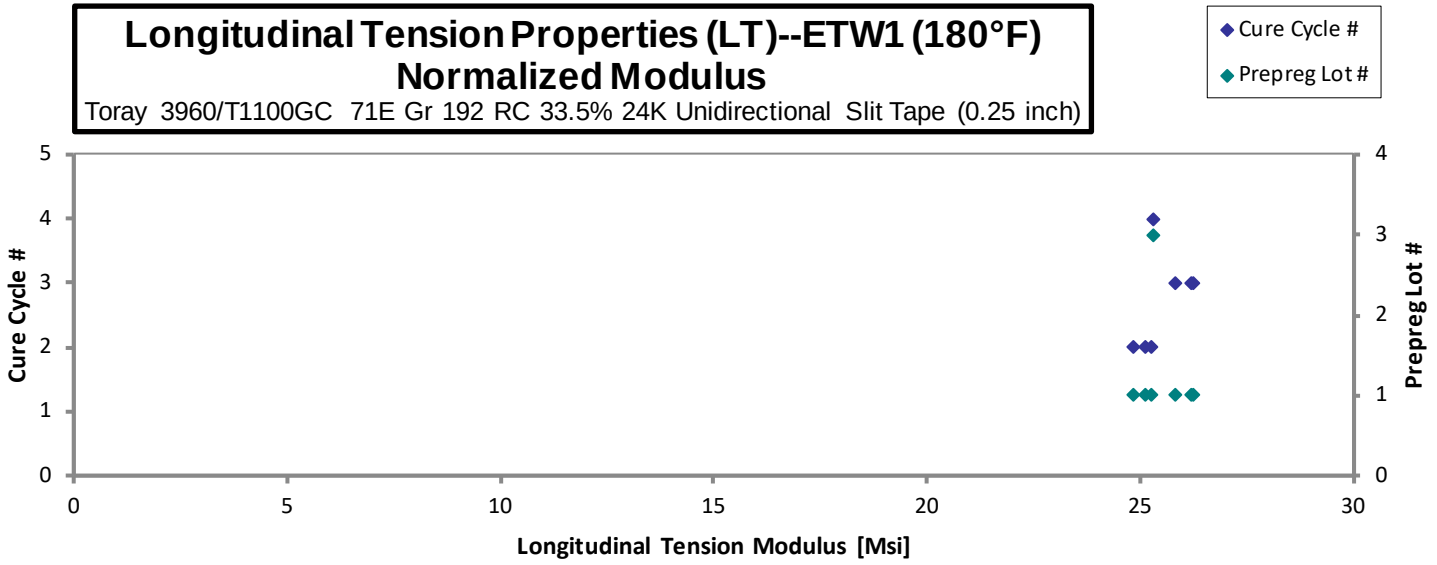
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LT-ETW1-1	A	C2	1	2	479.6	25.48	0.3240	0.04140	6	XGM	0.006900	472.7	25.12
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LT-ETW1-2	A	C2	1	2	467.3	25.23	0.3575	0.04138	6	XGM	0.006897	460.4	24.86
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LT-ETW1-3	A	C2	1	2	476.9	25.71	0.3228	0.04123	6	XGM	0.006872	468.2	25.24
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C3-1-LT-ETW1-1	A	C3	1	3	526.4	26.07	0.3425	0.04225	6	XGM	0.007042	529.5	26.23
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C3-1-LT-ETW1-2	A	C3	1	3	543.4	25.63	0.3535	0.04230	6	XGM	0.007050	547.3	25.81
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C3-1-LT-ETW1-3	A	C3	1	3	559.6	25.89	0.3513	0.04252	6	XGM	0.007086	566.5	26.21
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C4-1-LT-ETW2-2*	C	C4	3	4	481.8	25.08	0.3042	0.04242	6	XGM	0.007069	486.6	25.33

*ETW2(250°F) specimen was tested as ETW1(180°F).

	Strength [ksi]	Modulus [Msi]	Poisson's Ratio		$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	**505.0**	**25.58**	**0.3365**	**$Average_{norm}$**	**0.006988**	**504.5**	**25.54**
Standard Dev.	**37.22**	**0.3515**	**0.01988**	**Standard $Dev._{norm}$**		**42.61**	**0.5438**
Coeff. of Var. [%]	**7.371**	**1.374**	**5.907**	**Coeff. of Var. $[\%]_{norm}$**		**8.447**	**2.129**
Min.	**467.3**	**25.08**	**0.3042**	**Min.**	**0.006872**	**460.4**	**24.86**
Max.	**559.6**	**26.07**	**0.3575**	**Max.**	**0.007086**	**566.5**	**26.23**
Number of Spec.	**7**	**7**	**7**	**Number of Spec.**	**7**	**7**	**7**


Longitudinal Tension Properties (LT)--ETW1 (180°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
5
0
100
200
300
400
500
600
Longitudinal Tension Strength [ksi]


Longitudinal Tension Properties (LT)--ETW1 (180°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
5
0
5
10
15
20
25
30
Longitudinal Tension Modulus [Msi]

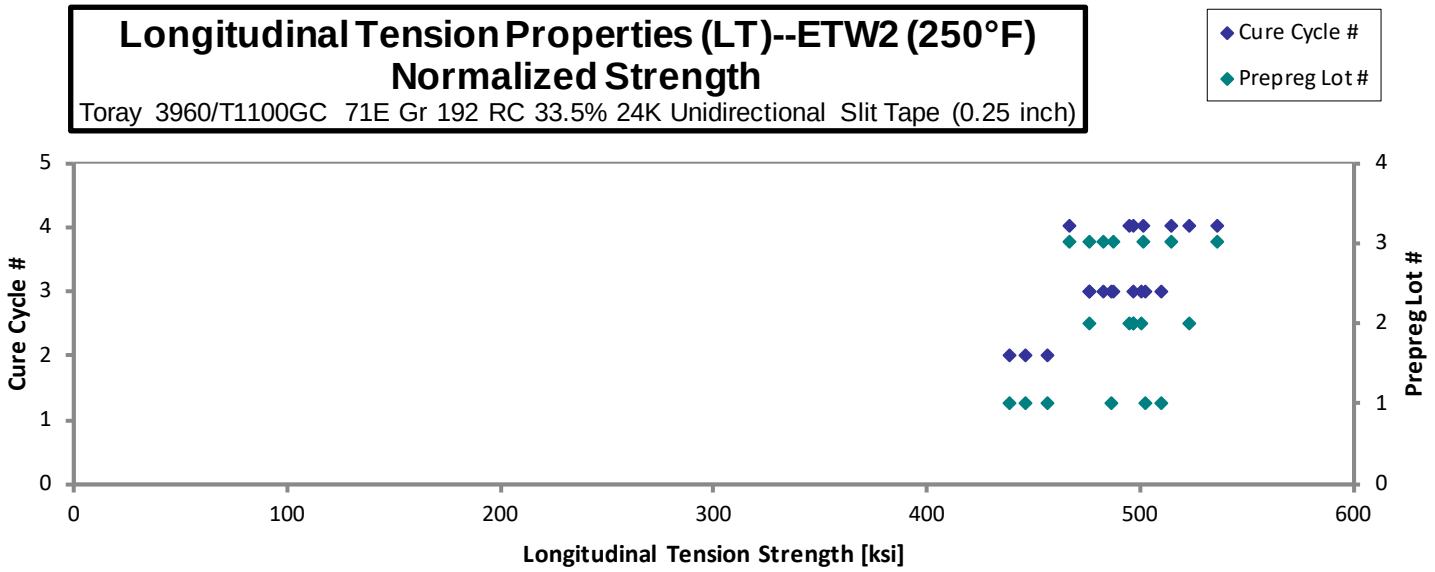
Longitudinal Tension Properties (LT)--ETW2 (250°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

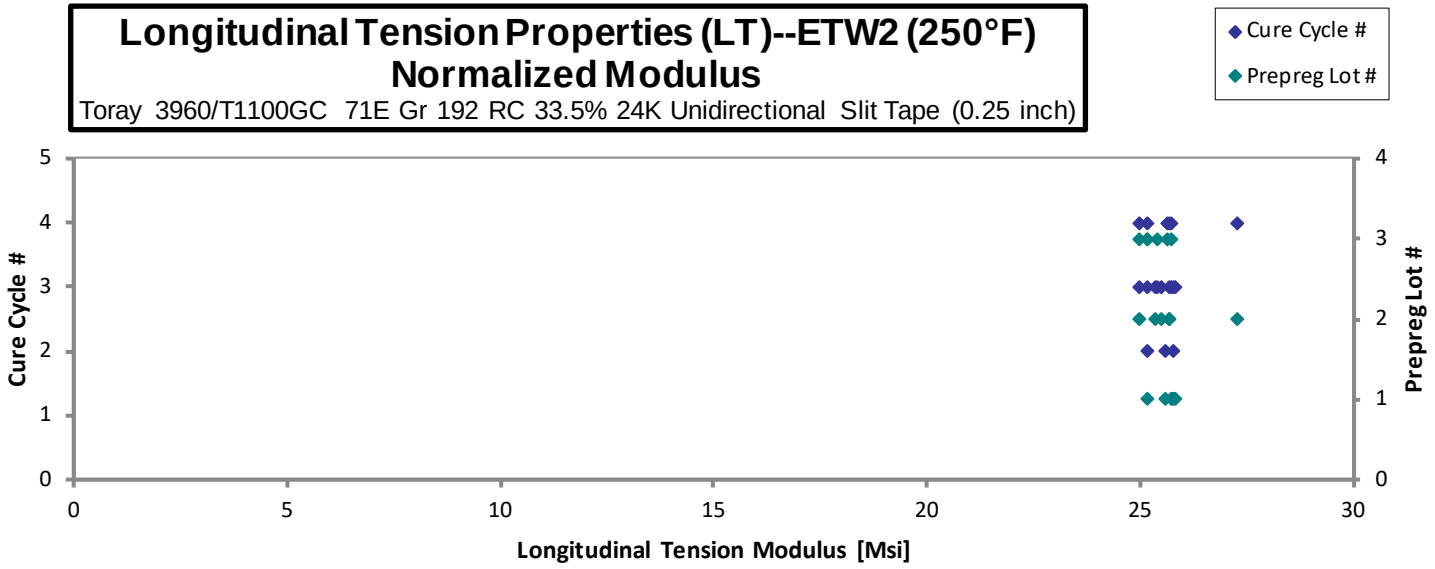
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LT-ETW2-1	A	C2	1	2	463.0	26.17	0.3332	0.04140	6	XGM	0.006900	456.4	25.80
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LT-ETW2-2	A	C2	1	2	446.5	26.06	0.3724	0.04127	6	XGM	0.006878	438.7	25.60
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LT-ETW2-3	A	C2	1	2	455.5	25.65	0.3667	0.04118	6	XGM	0.006864	446.6	25.15
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C3-1-LT-ETW2-1	A	C3	1	3	501.6	25.67	0.4102	0.04207	6	XGM	0.007011	502.4	25.72
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C3-1-LT-ETW2-2	A	C3	1	3	482.8	25.61	0.3768	0.04233	6	XGM	0.007056	486.6	25.81
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C3-1-LT-ETW2-3	A	C3	1	3	510.3	25.81	0.3624	0.04198	6	XGM	0.006997	510.1	25.80
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LT-ETW2-1	B	C3	2	3	490.3	25.34	0.3421	0.04258	6	XGM	0.007097	497.1	25.69
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LT-ETW2-2	B	C3	2	3	472.1	25.27	0.3585	0.04238	6	XGM	0.007064	476.4	25.50
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LT-ETW2-3	B	C3	2	3	494.9	25.08	0.3764	0.04247	6	XGM	0.007078	500.4	25.36
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LT-ETW2-1	B	C4	2	4	481.8	25.11	0.3559	0.04562	6	XGM	0.007603	523.3	27.28
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LT-ETW2-2	B	C4	2	4	479.1	24.81	0.3936	0.04352	6	XGM	0.007253	496.4	25.70
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LT-ETW2-3	B	C4	2	4	488.9	24.69	0.3719	0.04250	6	XGM	0.007083	494.7	24.99
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C3-1-LT-ETW2-1	C	C3	3	3	479.7	24.79	0.3877	0.04230	6	XGM	0.007050	483.1	24.97
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C3-1-LT-ETW2-2	C	C3	3	3	487.2	25.43	0.3503	0.04198	6	XGM	0.006997	487.0	25.42
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C3-1-LT-ETW2-3	C	C3	3	3	476.0	25.16	0.3987	0.04205	6	XGM	0.007008	476.6	25.19
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C4-1-LT-ETW2-1	C	C4	3	4	537.0	25.22	0.3605	0.04195	6	XGM	0.006992	536.4	25.19
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C4-1-LT-ETW2-3	C	C4	3	4	452.0	24.83	0.3888	0.04337	6	XGM	0.007228	466.7	25.64
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C4-1-LT-SP-1	C	C4	3	4	484.2	24.86	0.3803	0.04348	6	XGM	0.007247	501.3	25.74
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C4-1-LT-SP-2*	C	C4	3	4	498.9			0.04330	6	XGM	0.007217	514.3	

*Specimen was not gaged, only strength is tested.

	Strength [ksi]	Modulus [Msi]	Poisson's Ratio		Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	**483.2**	**25.31**	**0.3715**	**Average$_{norm}$**	**0.007085**	**489.2**	**25.59**
Standard Dev.	**21.28**	**0.4436**	**0.02006**	**Standard Dev.$_{norm}$**		**25.12**	**0.5087**
Coeff. of Var. [%]	**4.403**	**1.753**	**5.401**	**Coeff. of Var. [%]$_{norm}$**		**5.135**	**1.988**
Min.	**446.5**	**24.69**	**0.3332**	**Min.**	**0.006864**	**438.7**	**24.97**
Max.	**537.0**	**26.17**	**0.4102**	**Max.**	**0.007603**	**536.4**	**27.28**
Number of Spec.	**19**	**18**	**18**	**Number of Spec.**	**19**	**19**	**18**

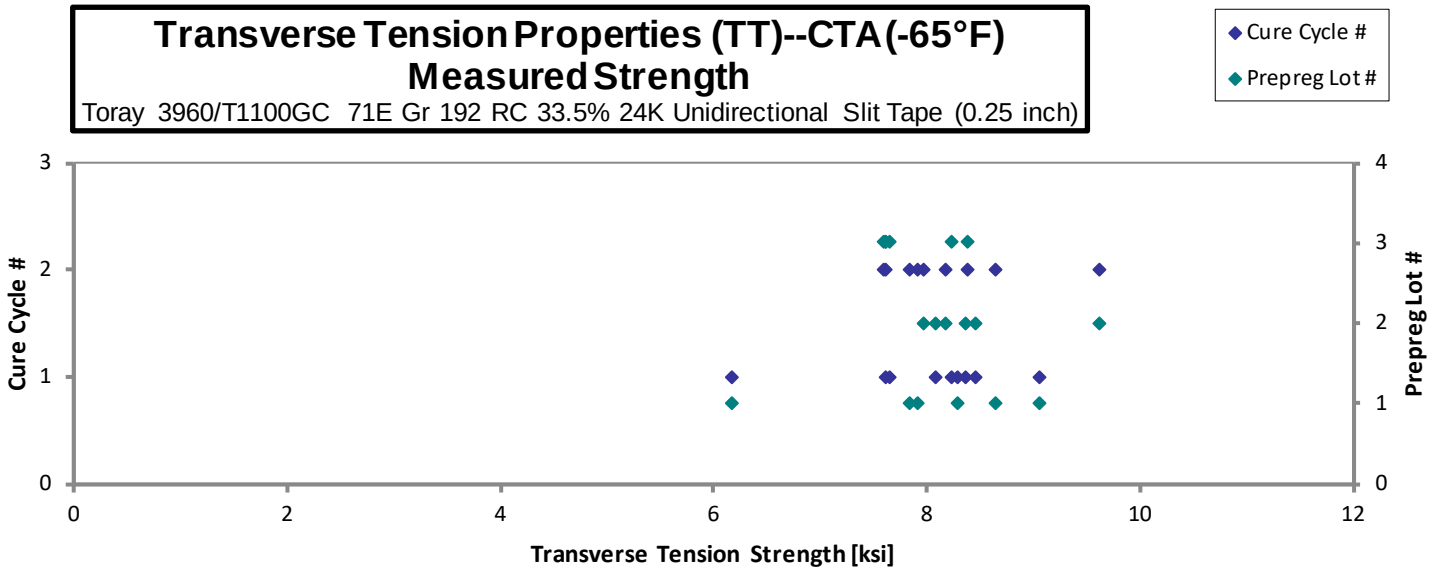

Longitudinal Tension Properties (LT)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
5
0
100
200
300
400
500
600
Longitudinal Tension Strength [ksi]

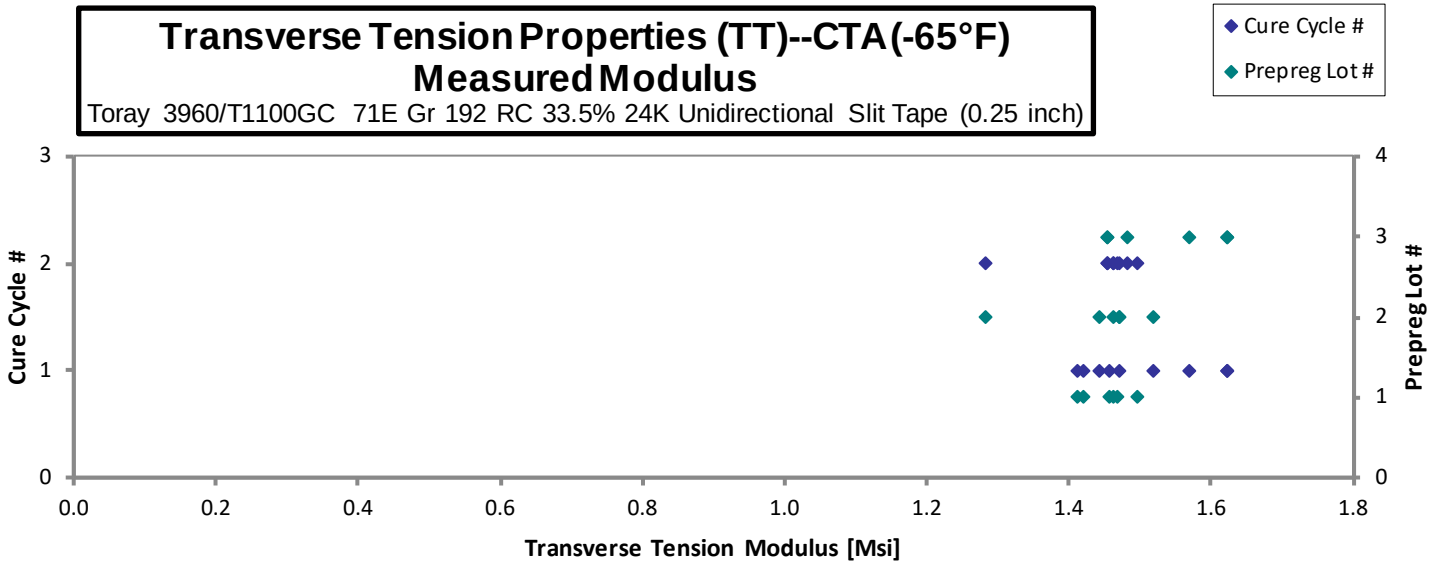

Longitudinal Tension Properties (LT)--ETW2 (250°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
5
0
5
10
15
20
25
30
Longitudinal Tension Modulus [Msi]

4.2 Transverse Tension Properties (TT)

Transverse Tension Properties (TT)--CTA (-65°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

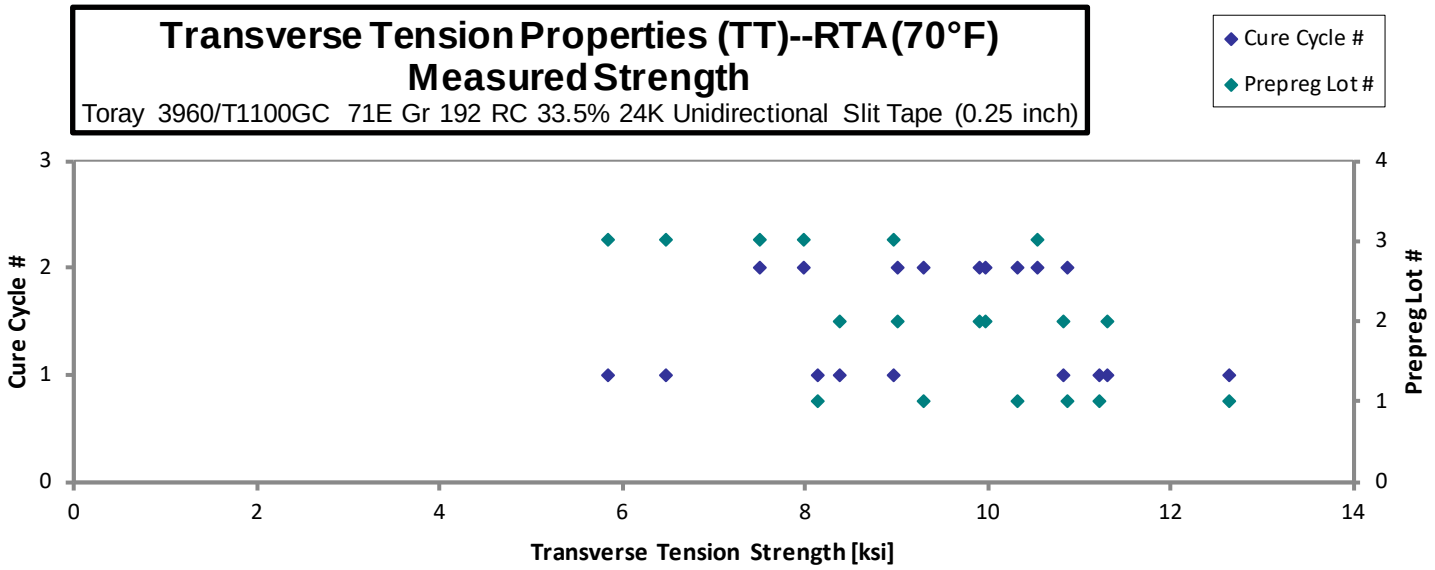
Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TT-CTA-1	A	C1	1	1	6.168	1.413	0.08325	12	0.006938	LGT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TT-CTA-2	A	C1	1	1	9.060	1.419	0.08205	12	0.006838	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TT-CTA-3	A	C1	1	1	8.294	1.456	0.08212	12	0.006843	LAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TT-CTA-1	A	C2	1	2	8.646	1.469	0.08273	12	0.006894	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TT-CTA-2	A	C2	1	2	7.916	1.495	0.08208	12	0.006840	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TT-CTA-3	A	C2	1	2	7.846	1.461	0.08260	12	0.006883	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TT-CTA-1	B	C1	2	1	8.366	1.520	0.08383	12	0.006986	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TT-CTA-2	B	C1	2	1	8.461	1.444	0.08420	12	0.007017	LAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TT-CTA-3	B	C1	2	1	8.086	1.471	0.08413	12	0.007011	LAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TT-CTA-1	B	C2	2	2	8.170	1.470	0.08373	12	0.006978	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TT-CTA-2	B	C2	2	2	7.972	1.284	0.08358	12	0.006965	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TT-CTA-3	B	C2	2	2	9.622	1.462	0.08347	12	0.006956	LAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TT-CTA-1	C	C1	3	1	7.617	1.570	0.08518	12	0.007099	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TT-CTA-2	C	C1	3	1	7.649	1.623	0.08440	12	0.007033	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TT-CTA-3	C	C1	3	1	8.231	1.623	0.08487	12	0.007072	LAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TT-CTA-1	C	C2	3	2	7.610	1.454	0.08495	12	0.007079	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TT-CTA-2	C	C2	3	2	8.373	1.455	0.08430	12	0.007025	LAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TT-CTA-3	C	C2	3	2	7.598	1.482	0.08478	12	0.007065	LAB
				Average	**8.094**	**1.476**			**0.006973**	
				Standard Dev.	**0.7133**	**0.07723**				
				Coeff. of Var. [%]	**8.813**	**5.232**				
				Min.	**6.168**	**1.284**			**0.006838**	
				Max.	**9.622**	**1.623**			**0.007099**	
				Number of Spec.	**18**	**18**			**18**	

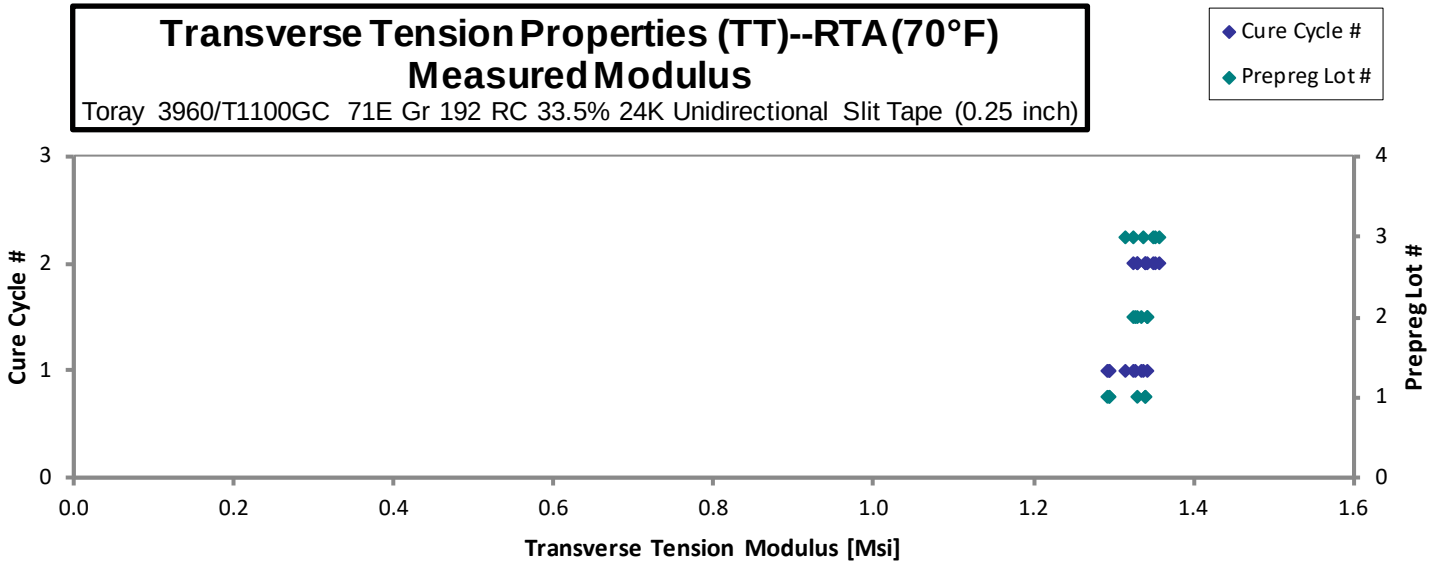

Transverse Tension Properties (TT)--CTA (-65°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Tension Strength [ksi]
0
2
4
6
8
10
12
0
1
2
3
4


Transverse Tension Properties (TT)--CTA (-65°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Tension Modulus [Msi]
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
0
1
2
3
4

Transverse Tension Properties (TT)--RTA (70°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TT-RTA-1	A	C1	1	1	11.22	1.296	0.08270	12	0.006892	LWT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TT-RTA-2	A	C1	1	1	8.142	1.295	0.08260	12	0.006883	LWT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TT-RTA-3	A	C1	1	1	12.64	1.292	0.08253	12	0.006878	LGT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TT-RTA-1	A	C2	1	2	10.86	1.330	0.08290	12	0.006908	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TT-RTA-2	A	C2	1	2	9.288	1.340	0.08222	12	0.006851	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TT-RTA-3	A	C2	1	2	10.32	1.340	0.08272	12	0.006893	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TT-RTA-1	B	C1	2	1	8.376	1.342	0.08402	12	0.007001	LWT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TT-RTA-2	B	C1	2	1	11.31	1.328	0.08420	12	0.007017	LWB, LWT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TT-RTA-3	B	C1	2	1	10.83	1.335	0.08395	12	0.006996	LWT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TT-RTA-1	B	C2	2	2	9.904	1.331	0.08375	12	0.006979	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TT-RTA-2	B	C2	2	2	9.968	1.325	0.08348	12	0.006957	LAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TT-RTA-3	B	C2	2	2	9.013	1.341	0.08313	12	0.006928	LAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TT-RTA-1	C	C1	3	1	5.838	1.315	0.08455	12	0.007046	LAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TT-RTA-2	C	C1	3	1	6.481	1.326	0.08458	12	0.007049	LAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TT-RTA-3	C	C1	3	1	8.961	1.338	0.08440	12	0.007033	LAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TT-RTA-1	C	C2	3	2	10.53	1.357	0.08463	12	0.007053	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TT-RTA-2	C	C2	3	2	7.986	1.352	0.08458	12	0.007049	LAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TT-RTA-3	C	C2	3	2	7.506	1.349	0.08458	12	0.007049	LAT
				Average	**9.399**	**1.330**			**0.006970**	
				Standard Dev.	**1.784**	**0.01902**				
				Coeff. of Var. [%]	**18.98**	**1.431**				
				Min.	**5.838**	**1.292**			**0.006851**	
				Max.	**12.64**	**1.357**			**0.007053**	
				Number of Spec.	**18**	**18**			**18**	


Transverse Tension Properties (TT)--RTA (70°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Tension Strength [ksi]
0
2
4
6
8
10
12
14
0
1
2
3
4

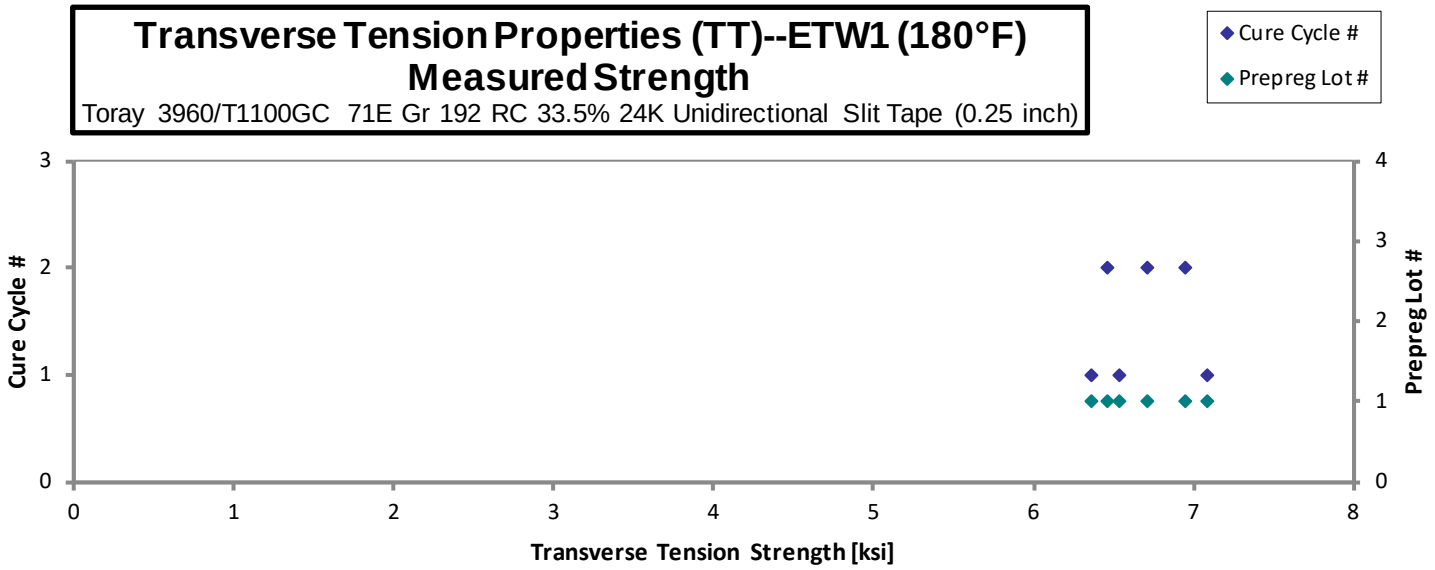

Transverse Tension Properties (TT)--RTA (70°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Tension Modulus [Msi]
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
0
1
2
3
4

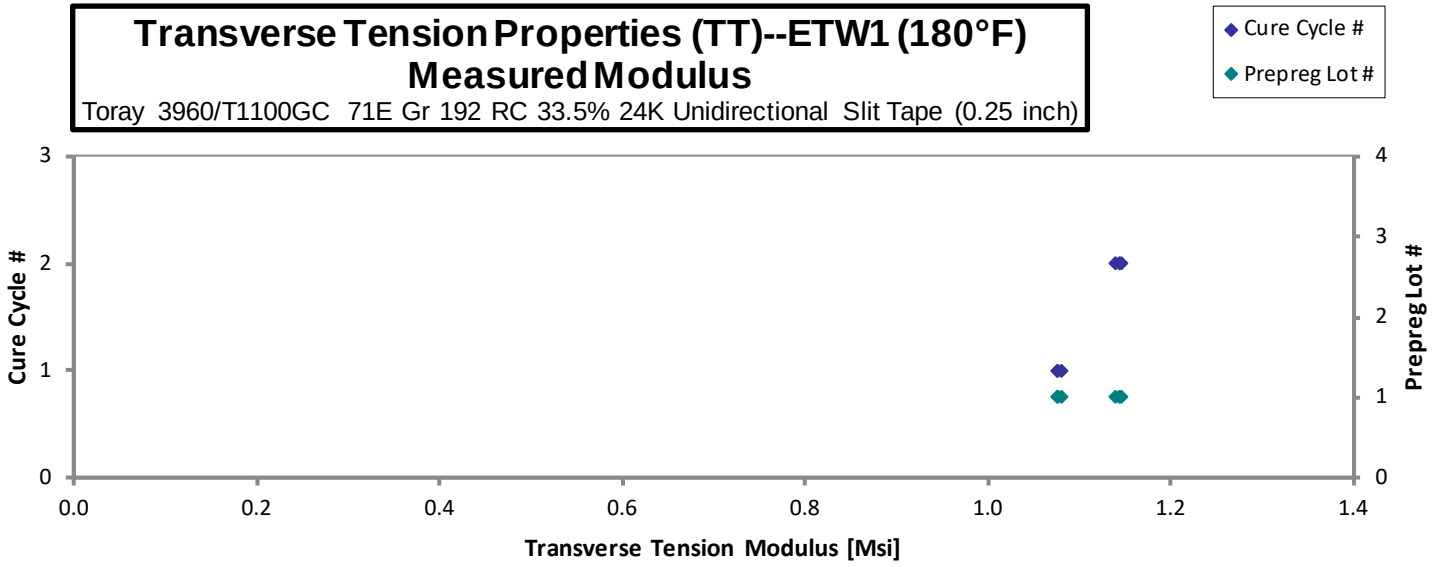
Transverse Tension Properties (TT)--ETW1 (180°F)
Strength & Modulus

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TT-ETW1-1	A	C1	1	1	6.365	1.081	0.08265	12	0.006888	LWB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TT-ETW1-2	A	C1	1	1	6.531	1.076	0.08252	12	0.006876	LGT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TT-ETW1-3	A	C1	1	1	7.090	1.076	0.08243	12	0.006869	LGT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TT-ETW1-1	A	C2	1	2	6.714	1.145	0.08268	12	0.006890	LGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TT-ETW1-2	A	C2	1	2	6.461	1.139	0.08260	12	0.006883	LGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TT-ETW1-3	A	C2	1	2	6.944	1.146	0.08257	12	0.006881	LGM

Average	**6.684**	**1.111**	**0.006881**
Standard Dev.	**0.2860**	**0.03621**	
Coeff. of Var. [%]	**4.279**	**3.261**	
Min.	**6.365**	**1.076**	**0.006869**
Max.	**7.090**	**1.146**	**0.006890**
Number of Spec.	**6**	**6**	**6**

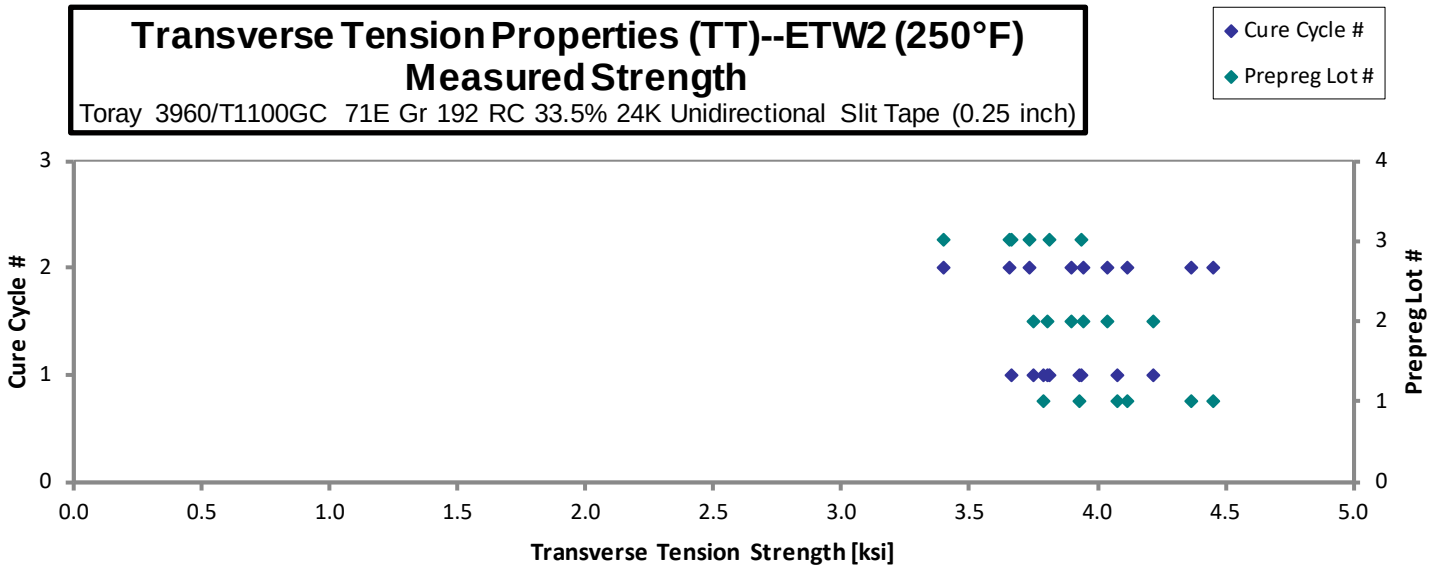

Transverse Tension Properties (TT)--ETW1 (180°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Tension Strength [ksi]
0
1
2
3
4
5
6
7
8

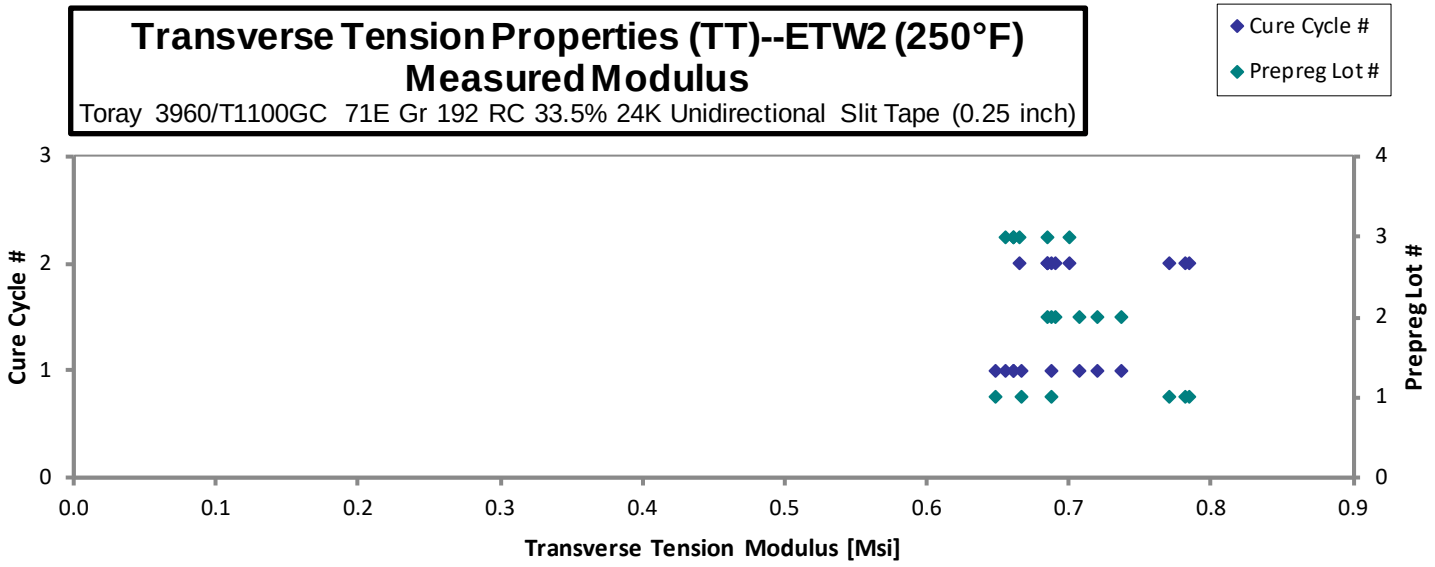

Transverse Tension Properties (TT)--ETW1 (180°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Tension Modulus [Msi]
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4

Transverse Tension Properties (TT)--ETW2 (250°F)
Strength & Modulus

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TT-ETW2-1	A	C1	1	1	3.930	0.6672	0.08247	12	0.006872	LGT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TT-ETW2-2	A	C1	1	1	4.078	0.6879	0.08242	12	0.006868	LGT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TT-ETW2-3	A	C1	1	1	3.787	0.6489	0.08235	12	0.006863	LGT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TT-ETW2-1	A	C2	1	2	4.370	0.7699	0.08193	12	0.006828	LGT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TT-ETW2-2	A	C2	1	2	4.451	0.7812	0.08207	12	0.006839	LGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TT-ETW2-3	A	C2	1	2	4.117	0.7847	0.08227	12	0.006856	LGT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TT-ETW2-1	B	C1	2	1	4.219	0.7073	0.08377	12	0.006981	LGB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TT-ETW2-2	B	C1	2	1	3.747	0.7367	0.08375	12	0.006979	LWT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TT-ETW2-3	B	C1	2	1	3.807	0.7198	0.08347	12	0.006956	LWB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TT-ETW2-1	B	C2	2	2	3.895	0.6906	0.08313	12	0.006928	LGB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TT-ETW2-2	B	C2	2	2	4.038	0.6871	0.08373	12	0.006978	LGB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TT-ETW2-3	B	C2	2	2	3.948	0.6845	0.08330	12	0.006942	LGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TT-ETW2-1	C	C1	3	1	3.666	0.6609	0.08467	12	0.007056	LGT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TT-ETW2-2	C	C1	3	1	3.933	0.6610	0.08442	12	0.007035	LGB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TT-ETW2-3	C	C1	3	1	3.809	0.6551	0.08462	12	0.007051	LGT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TT-ETW2-1	C	C2	3	2	3.396	0.7002	0.08475	12	0.007063	LGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TT-ETW2-2	C	C2	3	2	3.734	0.6844	0.08472	12	0.007060	LGB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TT-ETW2-3	C	C2	3	2	3.654	0.6649	0.08472	12	0.007060	LGM
				Average	**3.921**	**0.6996**			**0.006956**	
				Standard Dev.	**0.2624**	**0.04292**				
				Coeff. of Var. [%]	**6.691**	**6.136**				
				Min.	**3.396**	**0.6489**			**0.006828**	
				Max.	**4.451**	**0.7847**			**0.007063**	
				Number of Spec.	**18**	**18**			**18**	


Transverse Tension Properties (TT)--ETW2 (250°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Tension 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
4


Transverse Tension Properties (TT)--ETW2 (250°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Tension Modulus [Msi]
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
0
1
2
3
4

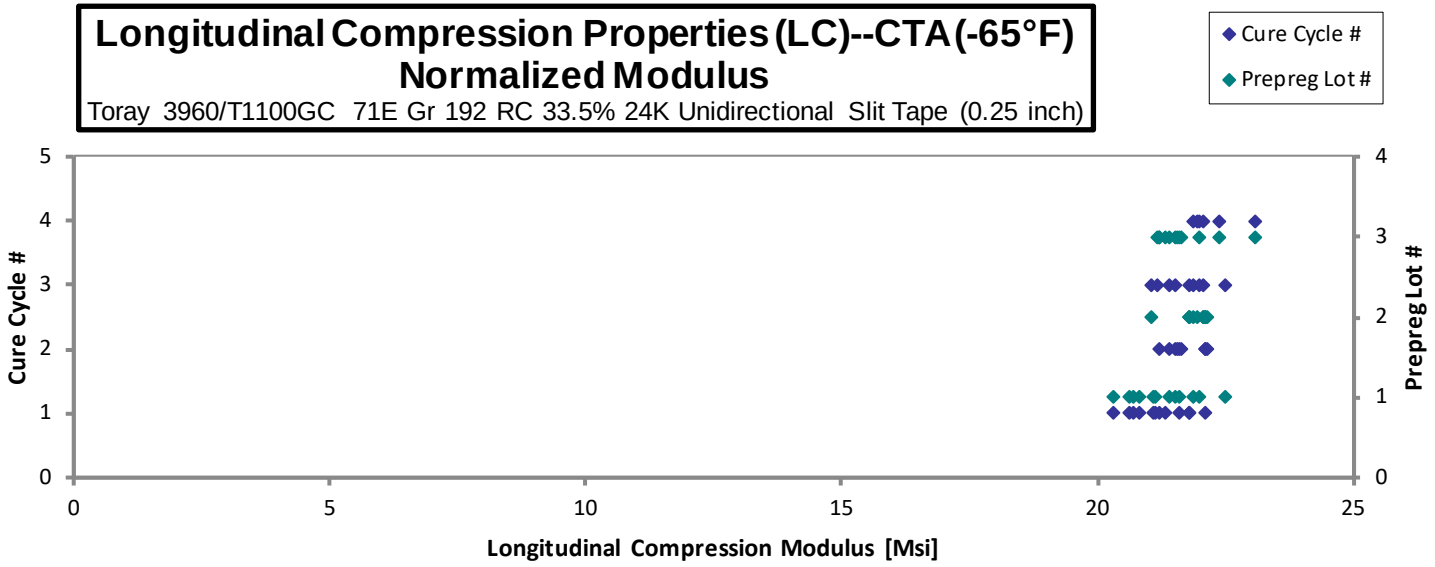
4.3 Longitudinal Compression Properties (LC)

Longitudinal Compression Properties (LC)--CTA (-65°F)
Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	$Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-CTA-1	A	C1	1	1	21.21		0.09750	14	0.006964	21.10
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-CTA-2	A	C1	1	1	20.93		0.09662	14	0.006901	20.64
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-CTA-3	A	C1	1	1	21.64		0.09572	14	0.006837	21.14
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-SP-6	A	C1	1	1	21.11	0.3436	0.09607	14	0.006862	20.70
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-SP-9	A	C1	1	1	20.74	0.3221	0.09593	14	0.006852	20.30
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-SP-10	A	C1	1	1	21.28	0.3378	0.09580	14	0.006843	20.80
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-CTA-1	A	C2	1	2	21.83		0.09612	14	0.006865	21.42
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-CTA-2	A	C2	1	2	22.04		0.09607	14	0.006862	21.60
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-CTA-3	A	C2	1	2	21.97		0.09603	14	0.006860	21.53
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C3-1-LC-CTA-1	A	C3	1	3	22.19	0.3415	0.09712	14	0.006937	21.99
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C3-1-LC-CTA-2	A	C3	1	3	22.08	0.3418	0.09712	14	0.006937	21.89
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C3-1-LC-CTA-3	A	C3	1	3	22.54	0.3316	0.09777	14	0.006983	22.49
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LC-CTA-1	B	C1	2	1	21.73		0.09830	14	0.007021	21.80
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LC-CTA-2	B	C1	2	1	22.00		0.09847	14	0.007033	22.11
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LC-CTA-3	B	C1	2	1	21.69		0.09845	14	0.007032	21.79
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LC-CTA-1	B	C2	2	2	22.08		0.09813	14	0.007010	22.11
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LC-CTA-2	B	C2	2	2	22.01		0.09838	14	0.007027	22.09
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LC-CTA-3	B	C2	2	2	22.12		0.09813	14	0.007010	22.15
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LC-CTA-1	B	C3	2	3	21.82	0.3240	0.09462	14	0.006758	21.07
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LC-CTA-2	B	C3	2	3	22.72	0.3558	0.09527	14	0.006805	22.08
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LC-CTA-3	B	C3	2	3	22.23	0.3480	0.09602	14	0.006858	21.78
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LC-CTA-1	B	C4	2	4	22.01	0.3488	0.09780	14	0.006986	21.96
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LC-CTA-2	B	C4	2	4	21.94	0.3410	0.09775	14	0.006982	21.88
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LC-CTA-3	B	C4	2	4	21.96	0.3284	0.09855	14	0.007039	22.08
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LC-CTA-1	C	C1	3	1	21.11		0.09845	14	0.007032	21.21
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LC-CTA-2	C	C1	3	1	21.18		0.09863	14	0.007045	21.32
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LC-CTA-3	C	C1	3	1	21.46		0.09858	14	0.007042	21.58
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LC-CTA-1	C	C2	3	2	21.39		0.09880	14	0.007057	21.57
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LC-CTA-2	C	C2	3	2	21.02		0.09887	14	0.007062	21.21
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LC-CTA-3	C	C2	3	2	21.53		0.09850	14	0.007036	21.64
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C3-1-LC-CTA-1	C	C3	3	3	22.08	0.3324	0.09548	14	0.006820	21.51
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C3-1-LC-CTA-2	C	C3	3	3	22.04	0.3342	0.09518	14	0.006799	21.41
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C3-1-LC-CTA-3	C	C3	3	3	21.65	0.2972	0.09575	14	0.006839	21.15
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C4-1-LC-CTA-1	C	C4	3	4	21.37	0.3407	0.10083	14	0.007202	21.99
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C4-1-LC-CTA-2	C	C4	3	4	21.49	0.3542	0.10208	14	0.007292	22.39
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C4-1-LC-CTA-3	C	C4	3	4	21.69	0.3655	0.10435	14	0.007454	23.10

Average	**21.72**	**0.3383**	**Average$_{norm}$**	**0.006971**	**21.63**
Standard Dev.	**0.4564**	**0.01517**	**Standard Dev.$_{norm}$**		**0.5696**
Coeff. of Var. [%]	**2.101**	**4.486**	**Coeff. of Var. [%]$_{norm}$**		**2.634**
Min.	**20.74**	**0.2972**	**Min.**	**0.006758**	**20.30**
Max.	**22.72**	**0.3655**	**Max.**	**0.007454**	**23.10**
Number of Spec.	**36**	**18**	**Number of Spec.**	**36**	**36**


Longitudinal Compression Properties (LC)--CTA (-65°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Longitudinal Compression Modulus [Msi]
0
1
2
3
4
5
0
5
10
15
20
25

Longitudinal Compression Properties (LC)--RTA (70°F)
Modulus

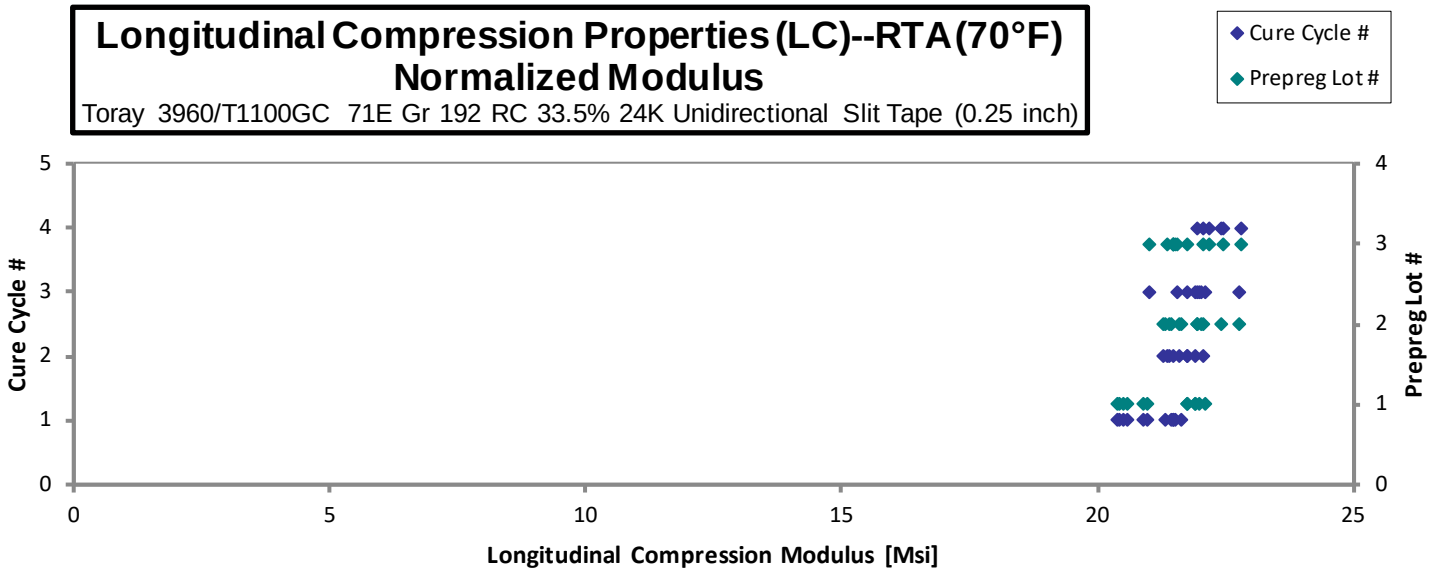
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	$Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-RTA-1*	A	C1	1	1	21.46		0.09540	14	0.006814	20.89
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-RTA-2*	A	C1	1	1	21.10		0.09525	14	0.006804	20.51
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-RTA-3	A	C1	1	1	20.87		0.09582	14	0.006844	20.41
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-SP-1*	A	C1	1	1	21.55	0.3681	0.09542	14	0.006815	20.98
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-SP-2*	A	C1	1	1	20.92	0.3604	0.09575	14	0.006839	20.44
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-SP-5	A	C1	1	1	20.99	0.3332	0.09613	14	0.006867	20.59
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-RTA-1*	A	C2	1	2	22.37		0.09593	14	0.006852	21.90
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-RTA-2*	A	C2	1	2	22.19		0.09607	14	0.006862	21.75
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-RTA-3	A	C2	1	2	22.19		0.09600	14	0.006857	21.74
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C3-1-LC-RTA-1*	A	C3	1	3	21.90	0.3243	0.09842	14	0.007030	21.99
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C3-1-LC-RTA-2*	A	C3	1	3	22.00	0.3400	0.09847	14	0.007033	22.11
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C3-1-LC-RTA-3	A	C3	1	3	21.75	0.3230	0.09867	14	0.007048	21.90
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LC-RTA-1*	B	C1	2	1	21.64		0.09792	14	0.006994	21.62
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LC-RTA-2*	B	C1	2	1	21.36		0.09837	14	0.007026	21.44
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LC-RTA-3	B	C1	2	1	21.20		0.09858	14	0.007042	21.33
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LC-RTA-1*	B	C2	2	2	21.58		0.09805	14	0.007004	21.59
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LC-RTA-2*	B	C2	2	2	21.38		0.09802	14	0.007001	21.39
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LC-RTA-3	B	C2	2	2	21.34		0.09773	14	0.006981	21.28
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LC-RTA-1*	B	C3	2	3	23.28	0.3646	0.09578	14	0.006842	22.75
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LC-RTA-2*	B	C3	2	3	22.66	0.3284	0.09533	14	0.006810	22.04
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LC-RTA-3	B	C3	2	3	22.51	0.3501	0.09550	14	0.006821	21.94
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LC-RTA-1*	B	C4	2	4	22.20	0.3388	0.09888	14	0.007063	22.40
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LC-RTA-2*	B	C4	2	4	22.01	0.3625	0.09777	14	0.006983	21.96
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LC-RTA-3	B	C4	2	4	22.33	0.3530	0.09685	14	0.006918	22.07
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LC-RTA-1	C	C1	3	1	21.39		0.09838	14	0.007027	21.47
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LC-RTA-2	C	C1	3	1	21.40		0.09837	14	0.007026	21.48
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LC-RTA-3	C	C1	3	1	21.45		0.09835	14	0.007025	21.53
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LC-RTA-1	C	C2	3	2	21.37		0.09852	14	0.007037	21.48
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LC-RTA-2	C	C2	3	2	21.26		0.09840	14	0.007029	21.35
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LC-RTA-3	C	C2	3	2	21.99		0.09840	14	0.007029	22.08
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C3-1-LC-RTA-1	C	C3	3	3	22.32	0.3672	0.09543	14	0.006817	21.74
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C3-1-LC-RTA-2	C	C3	3	3	22.06	0.3546	0.09568	14	0.006835	21.54
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C3-1-LC-RTA-3	C	C3	3	3	21.48	0.3313	0.09593	14	0.006852	21.03
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C4-1-LC-RTA-1	C	C4	3	4	21.48	0.3585	0.10413	14	0.007438	22.83
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C4-1-LC-RTA-2	C	C4	3	4	21.34	0.3714	0.10312	14	0.007365	22.45
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C4-1-LC-RTA-3	C	C4	3	4	21.25	0.3561	0.10227	14	0.007305	22.18

*Modulus and Poisson's ratio are averaged values of 2 strain gages.

Average	**21.71**	**0.3492**	**$Average_{norm}$**	**0.006970**	**21.62**
Standard Dev.	**0.5426**	**0.01609**	**$Standard\ Dev._{norm}$**		**0.6001**
Coeff. of Var. [%]	**2.499**	**4.608**	**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**2.776**
Min.	**20.87**	**0.3230**	**Min.**	**0.006804**	**20.41**
Max.	**23.28**	**0.3714**	**Max.**	**0.007438**	**22.83**
Number of Spec.	**36**	**18**	**Number of Spec.**	**36**	**36**


Longitudinal Compression Properties (LC)--RTA (70°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Longitudinal Compression Modulus [Msi]
0
5
10
15
20
25
0
1
2
3
4
5

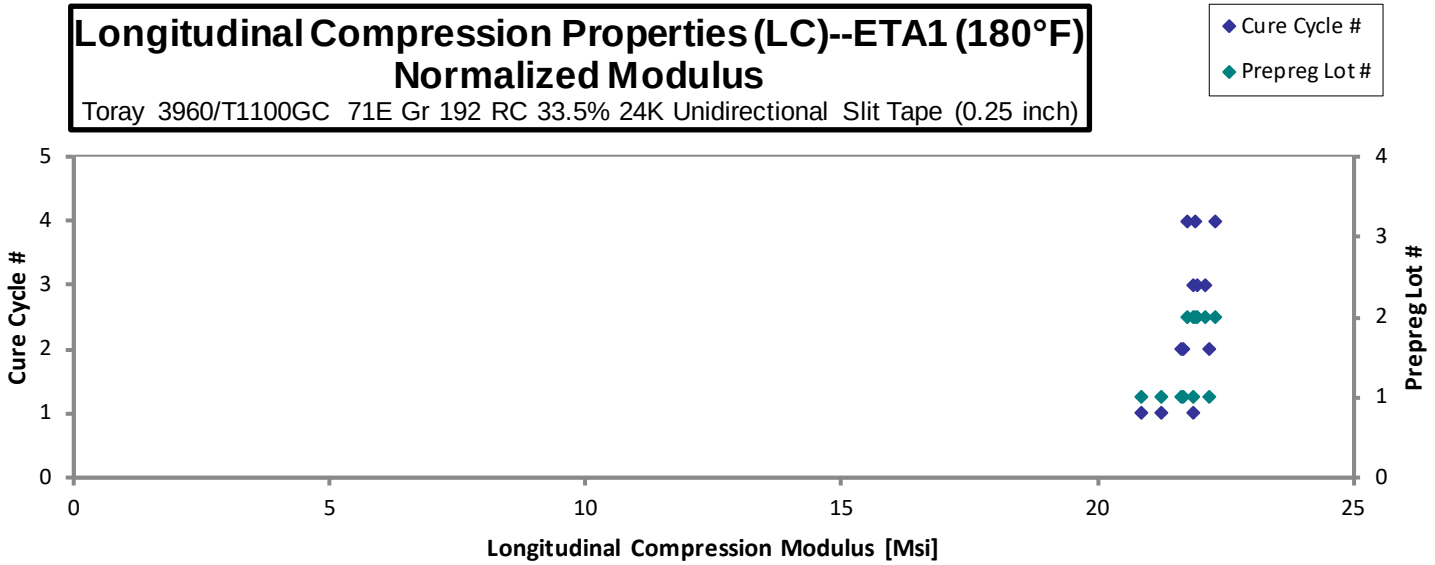
Longitudinal Compression Properties (LC)--ETA1 (180°F)
Modulus

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	$Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-ETA1-1	A	C1	1	1	21.31		0.09592	14	0.006851	20.86
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-ETA1-2	A	C1	1	1	22.32		0.09602	14	0.006858	21.87
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-ETA1-3	A	C1	1	1	21.70		0.09595	14	0.006854	21.25
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-ETA1-1	A	C2	1	2	22.59		0.09620	14	0.006871	22.17
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-ETA1-2	A	C2	1	2	22.05		0.09640	14	0.006886	21.69
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-ETA1-3	A	C2	1	2	21.97		0.09650	14	0.006893	21.64
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LC-ETA1-1	B	C3	2	3	22.86	0.3843	0.09483	14	0.006774	22.13
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LC-ETA1-2	B	C3	2	3	22.43	0.3776	0.09558	14	0.006827	21.88
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LC-ETA1-3	B	C3	2	3	22.56	0.3581	0.09543	14	0.006817	21.97
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LC-ETA1-1	B	C4	2	4	21.78	0.3617	0.09795	14	0.006996	21.77
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LC-ETA1-2	B	C4	2	4	21.94	0.3474	0.09787	14	0.006990	21.91
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LC-ETA1-3	B	C4	2	4	22.33	0.3585	0.09782	14	0.006987	22.28

Average	**22.15**	**0.3646**	**Average$_{norm}$**	**0.006884**	**21.78**
Standard Dev.	**0.4403**	**0.01371**	**Standard Dev.$_{norm}$**		**0.3998**
Coeff. of Var. [%]	**1.987**	**3.760**	**Coeff. of Var. [%]$_{norm}$**		**1.835**
Min.	**21.31**	**0.3474**	**Min.**	**0.006774**	**20.86**
Max.	**22.86**	**0.3843**	**Max.**	**0.006996**	**22.28**
Number of Spec.	**12**	**6**	**Number of Spec.**	**12**	**12**

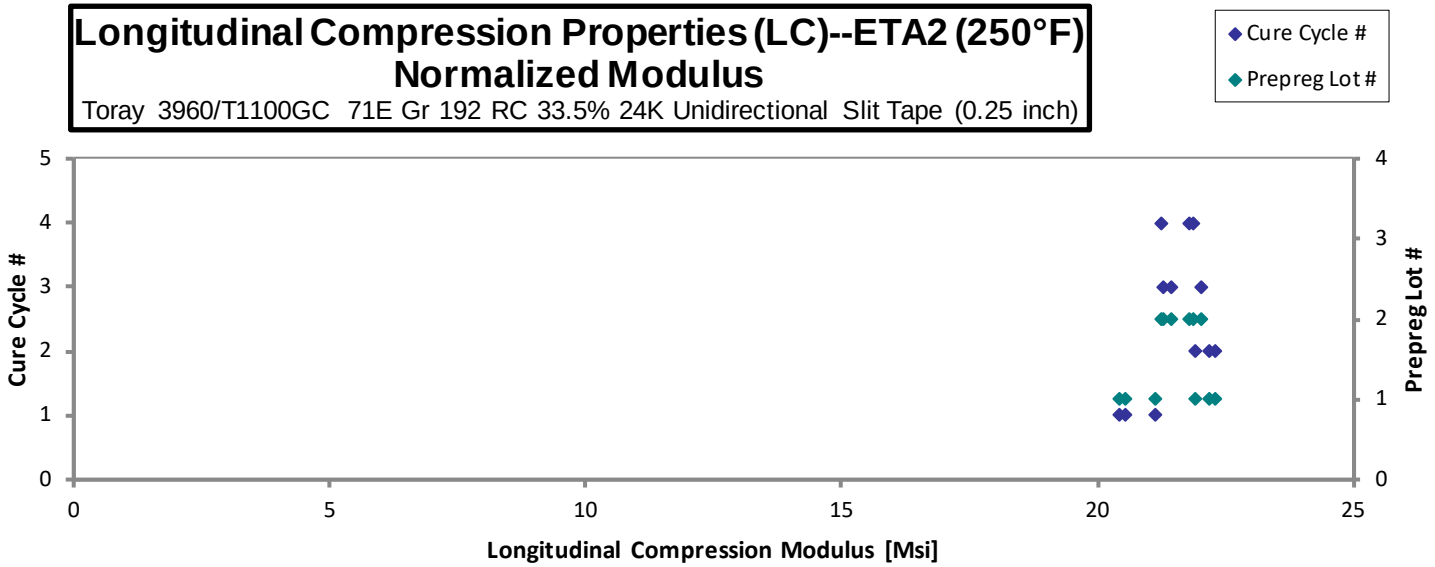

Longitudinal Compression Properties (LC)--ETA1 (180°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Longitudinal Compression Modulus [Msi]
0
5
10
15
20
25
0
1
2
3
4
5

Longitudinal Compression Properties (LC)--ETA2 (250°F)
Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	$Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-ETA2-1	A	C1	1	1	20.86		0.09593	14	0.006852	20.42
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-ETA2-2	A	C1	1	1	21.01		0.09583	14	0.006845	20.55
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-ETA2-3	A	C1	1	1	21.67		0.09553	14	0.006824	21.12
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-ETA2-1	A	C2	1	2	22.65		0.09593	14	0.006852	22.17
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-ETA2-2	A	C2	1	2	22.75		0.09607	14	0.006862	22.30
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-ETA2-3	A	C2	1	2	22.43		0.09577	14	0.006840	21.92
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LC-ETA2-1	B	C3	2	3	22.60	0.3657	0.09545	14	0.006818	22.02
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LC-ETA2-2	B	C3	2	3	21.82	0.3908	0.09565	14	0.006832	21.29
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C3-1-LC-ETA2-3	B	C3	2	3	22.13	0.3721	0.09493	14	0.006781	21.43
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LC-ETA2-1	B	C4	2	4	21.79	0.3310	0.09802	14	0.007001	21.79
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LC-ETA2-2	B	C4	2	4	21.79	0.3878	0.09838	14	0.007027	21.88
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C4-1-LC-ETA2-3	B	C4	2	4	21.35	0.3904	0.09748	14	0.006963	21.24

Average	**21.90**	**0.3730**	**$Average_{norm}$**	**0.006875**	**21.51**
Standard Dev.	**0.6296**	**0.02304**	**Standard $Dev._{norm}$**		**0.6097**
Coeff. of Var. [%]	**2.874**	**6.177**	**Coeff. of Var. $[\%]_{norm}$**		**2.834**
Min.	**20.86**	**0.3310**	**Min.**	**0.006781**	**20.42**
Max.	**22.75**	**0.3908**	**Max.**	**0.007027**	**22.30**
Number of Spec.	**12**	**6**	**Number of Spec.**	**12**	**12**


Longitudinal Compression Properties (LC)--ETA2 (250°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Longitudinal Compression Modulus [Msi]
0
5
10
15
20
25
0
1
2
3
4
5

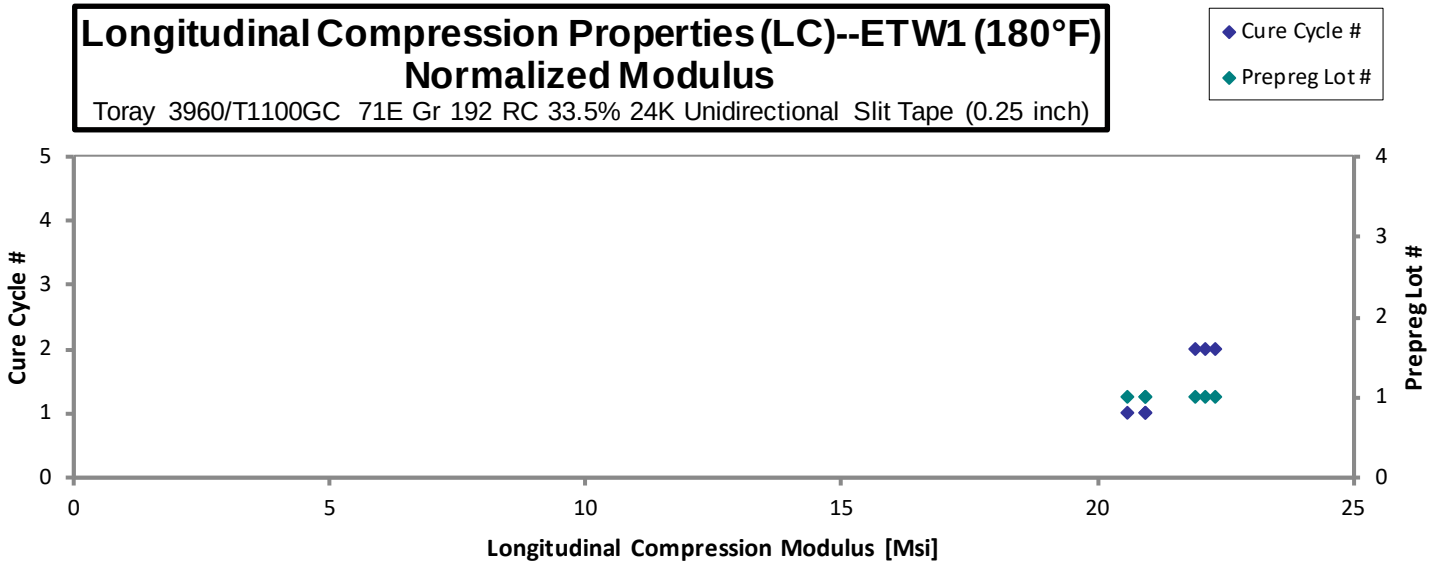
Longitudinal Compression Properties (LC)--ETW1 (180°F)
Modulus

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	$Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-ETW1-2	A	C1	1	1	21.03	0.4138	0.09590	14	0.006850	20.58
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-ETW1-3	A	C1	1	1	21.34	0.3579	0.09605	14	0.006861	20.92
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-SP-7	A	C1	1	1	21.43	0.3774	0.09575	14	0.006839	20.94
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-ETW1-1	A	C2	1	2	22.63	0.4284	0.09667	14	0.006905	22.32
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-ETW1-2	A	C2	1	2	22.30	0.3893	0.09635	14	0.006882	21.93
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-ETW1-3	A	C2	1	2	22.47	0.3989	0.09638	14	0.006885	22.10

Average	**21.87**	**0.3943**	**$Average_{norm}$**	**0.006870**	**21.46**
Standard Dev.	**0.6770**	**0.02530**	**$Standard\ Dev._{norm}$**		**0.7350**
Coeff. of Var. [%]	**3.096**	**6.418**	**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**3.424**
Min.	**21.03**	**0.3579**	**Min.**	**0.006839**	**20.58**
Max.	**22.63**	**0.4284**	**Max.**	**0.006905**	**22.32**
Number of Spec.	**6**	**6**	**Number of Spec.**	**6**	**6**


Longitudinal Compression Properties (LC)--ETW1 (180°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Longitudinal Compression Modulus [Msi]
0
5
10
15
20
25
0
1
2
3
4
5

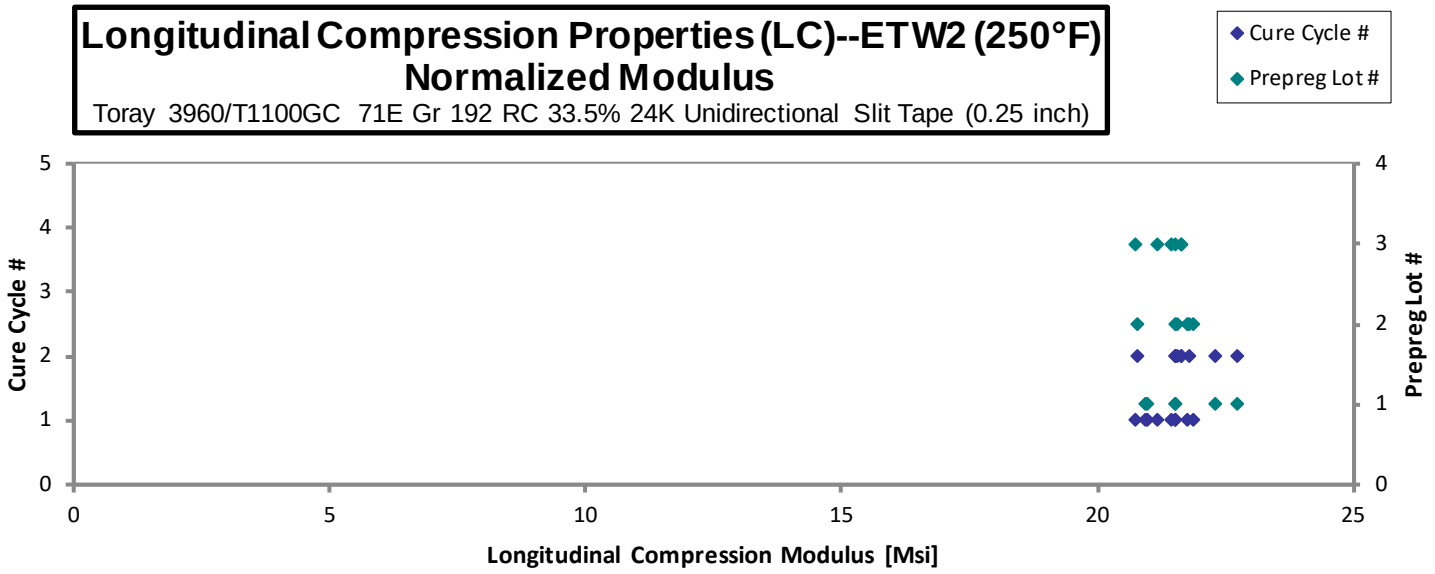
Longitudinal Compression Properties (LC)--ETW2 (250°F)
Modulus

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	$Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-ETW2-1	A	C1	1	1	21.77	0.4019	0.09682	14	0.006915	21.51
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-ETW2-2	A	C1	1	1	21.49	0.3822	0.09547	14	0.006819	20.94
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC-ETW2-3	A	C1	1	1	21.67	0.3787	0.09492	14	0.006780	20.98
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-ETW2-1	A	C2	1	2	23.04	0.4875	0.09663	14	0.006902	22.72
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-ETW2-2	A	C2	1	2	22.04	0.4574	0.09575	14	0.006839	21.54
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC-ETW2-3	A	C2	1	2	22.90	0.4469	0.09538	14	0.006813	22.29
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LC-ETW2-1	B	C1	2	1	21.86	0.4497	0.09808	14	0.007006	21.87
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LC-ETW2-2	B	C1	2	1	21.43	0.3811	0.09833	14	0.007024	21.51
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LC-ETW2-3	B	C1	2	1	21.66	0.3741	0.09835	14	0.007025	21.74
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LC-ETW2-1	B	C2	2	2	21.57	0.3971	0.09787	14	0.006990	21.54
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LC-ETW2-2	B	C2	2	2	21.84	0.4172	0.09783	14	0.006988	21.80
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-LC-ETW2-3	B	C2	2	2	20.78	0.3956	0.09798	14	0.006999	20.78
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LC-ETW2-1	C	C1	3	1	20.65	0.4245	0.09838	14	0.007027	20.73
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LC-ETW2-2	C	C1	3	1	21.32	0.4238	0.09852	14	0.007037	21.43
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LC-ETW2-3	C	C1	3	1	21.12	0.3930	0.09828	14	0.007020	21.18
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LC-ETW2-1	C	C2	3	2	21.49	0.4047	0.09865	14	0.007046	21.64
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LC-ETW2-2	C	C2	3	2	21.41	0.4317	0.09845	14	0.007032	21.51
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-LC-ETW2-3	C	C2	3	2	21.44	0.4355	0.09890	14	0.007064	21.63

	Modulus	Poisson's Ratio		$Modulus_{norm}$	
Average	**21.64**	**0.4157**	**Average$_{norm}$**	**0.006963**	**21.52**
Standard Dev.	**0.5986**	**0.03146**	**Standard Dev.$_{norm}$**		**0.4989**
Coeff. of Var. [%]	**2.766**	**7.567**	**Coeff. of Var. [%]$_{norm}$**		**2.318**
Min.	**20.65**	**0.3741**	**Min.**	**0.006780**	**20.73**
Max.	**23.04**	**0.4875**	**Max.**	**0.007064**	**22.72**
Number of Spec.	**18**	**18**	**Number of Spec.**	**18**	**18**

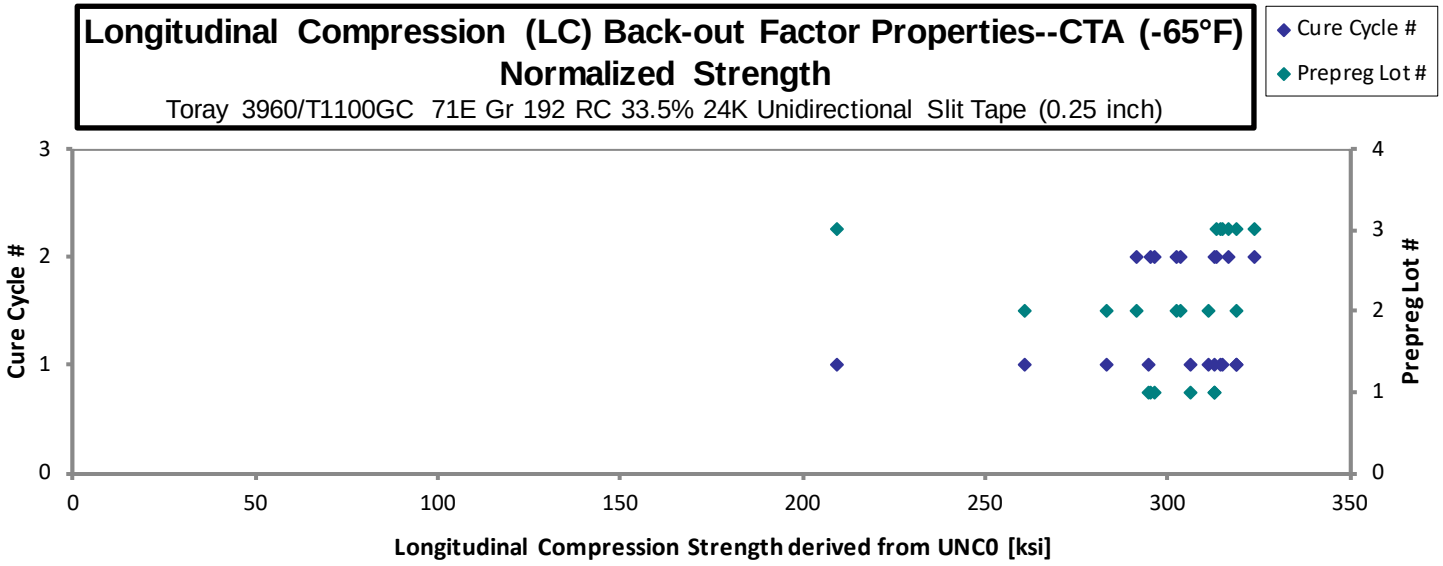

Longitudinal Compression Properties (LC)--ETW2 (250°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Longitudinal Compression Modulus [Msi]
0
5
10
15
20
25
0
1
2
3
4
5

4.4 Longitudinal Compression Back-out Factor Properties

Longitudinal Compression (LC) Back-out Factor Properties--CTA (-65°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

UNC0 Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	$F_1^{cu}{}_{meas}$ [ksi] from UNC0	$F_1^{cu}{}_{norm}$ [ksi] from UNC0
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-CTA-1	A	C1	1	1	291.1	294.6
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-CTA-2	A	C1	1	1	307.9	312.6
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-CTA-3	A	C1	1	1	301.3	306.0
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-CTA-1	A	C2	1	2	314.9	312.7
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-CTA-2	A	C2	1	2	300.9	295.4
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-CTA-3	A	C2	1	2	306.3	296.5
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-CTA-1	B	C1	2	1	320.0	318.9
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-CTA-2	B	C1	2	1	260.4	260.9
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-CTA-3	B	C1	2	1	311.3	311.2
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-SP-1	B	C1	2	1	280.5	283.0
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-CTA-1	B	C2	2	2	300.9	303.5
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-CTA-2	B	C2	2	2	302.0	302.6
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-CTA-3	B	C2	2	2	291.6	291.2
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-CTA-1	C	C1	3	1	315.3	314.6
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-CTA-2	C	C1	3	1	209.5	209.4
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-CTA-3	C	C1	3	1	315.1	314.8
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-SP-1	C	C1	3	1	320.2	319.0
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-CTA-1	C	C2	3	2	309.3	316.8
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-CTA-2	C	C2	3	2	317.1	323.6
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-CTA-3	C	C2	3	2	311.1	313.2

Average	**299.3**	**300.0**
Standard Dev.	**25.67**	**25.98**
Coeff. of Var. [%]	**8.575**	**8.659**
Min.	**209.5**	**209.4**
Max.	**320.2**	**323.6**
Number of Spec.	**20**	**20**

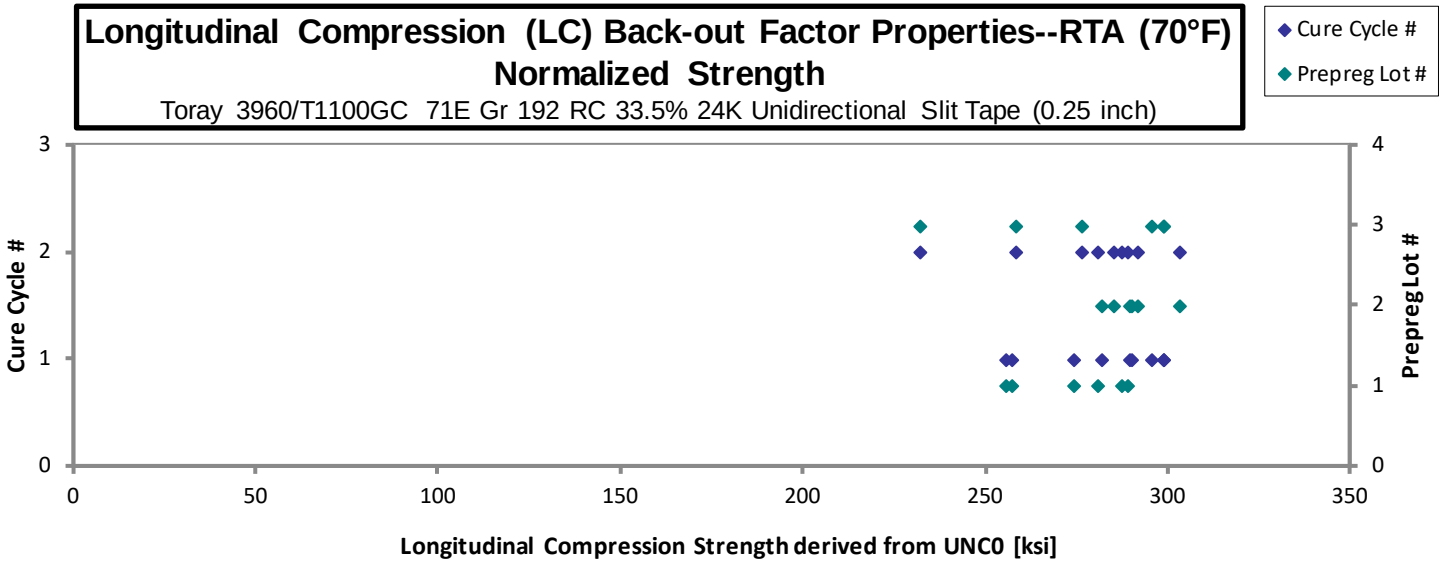

Longitudinal Compression (LC) Back-out Factor Properties--CTA (-65°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Longitudinal Compression Strength derived from UNC0 [ksi]
0
1
2
3
4
0
50
100
150
200
250
300
350

Longitudinal Compression (LC) Back-out Factor Properties--RTA (70°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

UNC0 Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	$F_1^{cu}{}_{meas}$ [ksi] from UNC0	$F_1^{cu}{}_{norm}$ [ksi] from UNC0
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-RTA-1	A	C1	1	1	271.6	274.7
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-RTA-2	A	C1	1	1	252.5	257.5
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-RTA-3	A	C1	1	1	253.3	255.9
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-RTA-1	A	C2	1	2	286.6	281.0
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-RTA-2	A	C2	1	2	294.1	289.5
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-RTA-3	A	C2	1	2	294.3	287.8
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-RTA-1	B	C1	2	1	289.7	290.3
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-RTA-2	B	C1	2	1	279.9	282.2
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-RTA-3	B	C1	2	1	290.8	289.9
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-RTA-1	B	C2	2	2	291.1	291.9
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-RTA-2	B	C2	2	2	302.8	303.8
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-RTA-3	B	C2	2	2	284.9	285.7
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-RTA-1	C	C1	3	1	300.0	299.5
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-RTA-2	C	C1	3	1	301.1	299.2
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-RTA-3	C	C1	3	1	298.0	295.7
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-RTA-1	C	C2	3	2	275.2	276.6
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-RTA-2	C	C2	3	2	230.8	232.6
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-RTA-3	C	C2	3	2	257.0	259.0

Average	**280.8**	**280.7**
Standard Dev.	**20.29**	**18.63**
Coeff. of Var. [%]	**7.227**	**6.637**
Min.	**230.8**	**232.6**
Max.	**302.8**	**303.8**
Number of Spec.	**18**	**18**

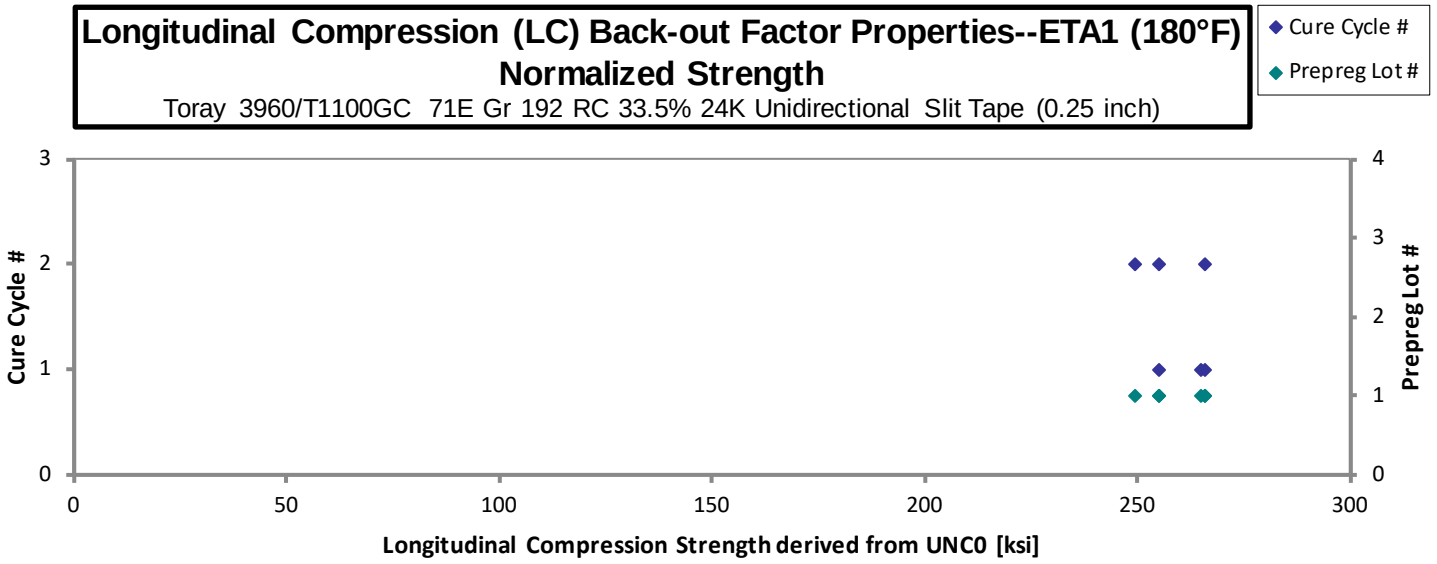

Longitudinal Compression (LC) Back-out Factor Properties--RTA (70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
50
100
150
200
250
300
350
Longitudinal Compression Strength derived from UNC0 [ksi]

Longitudinal Compression (LC) Back-out Factor Properties--ETA1 (180°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

UNC0 Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	$F_1^{cu}{}_{meas}$ [ksi] from UNC0	$F_1^{cu}{}_{norm}$ [ksi] from UNC0
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETA1-1	A	C1	1	1	261.3	264.8
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETA1-2	A	C1	1	1	252.9	254.9
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETA1-3	A	C1	1	1	264.5	265.9
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETA1-1	A	C2	1	2	253.4	249.0
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETA1-2	A	C2	1	2	259.2	255.1
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETA1-3	A	C2	1	2	270.8	265.7

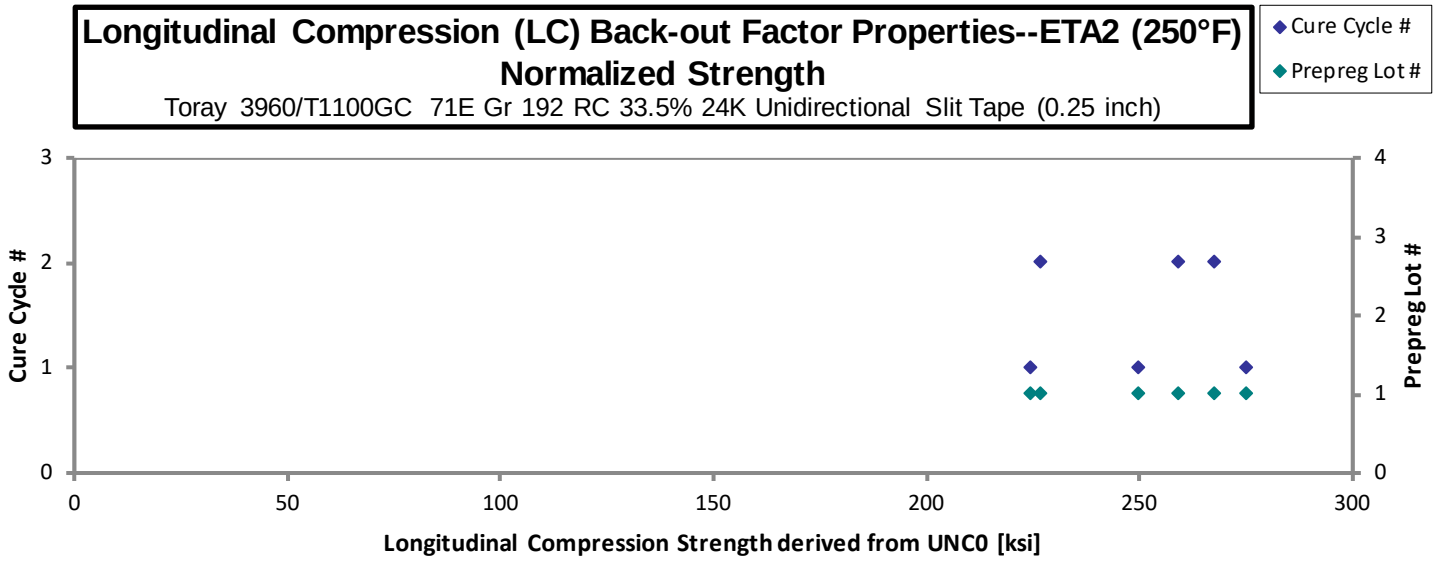
Average	**260.4**	**259.2**
Standard Dev.	**6.820**	**7.175**
Coeff. of Var. [%]	**2.619**	**2.768**
Min.	**252.9**	**249.0**
Max.	**270.8**	**265.9**
Number of Spec.	**6**	**6**


Longitudinal Compression (LC) Back-out Factor Properties--ETA1 (180°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
50
100
150
200
250
300
Longitudinal Compression Strength derived from UNC0 [ksi]

Longitudinal Compression (LC) Back-out Factor Properties--ETA2 (250°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

UNC0 Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	$F_1^{cu}{}_{meas}$ [ksi] from UNC0	$F_1^{cu}{}_{norm}$ [ksi] from UNC0
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETA2-1	A	C1	1	1	274.7	275.2
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETA2-2	A	C1	1	1	248.1	249.5
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETA2-3	A	C1	1	1	223.0	224.3
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETA2-1	A	C2	1	2	263.0	259.1
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETA2-2	A	C2	1	2	232.2	226.8
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETA2-3	A	C2	1	2	273.0	267.7
				Average	**252.3**	**250.4**
				Standard Dev.	**21.57**	**21.10**
				Coeff. of Var. [%]	**8.547**	**8.427**
				Min.	**223.0**	**224.3**
				Max.	**274.7**	**275.2**
				Number of Spec.	**6**	**6**

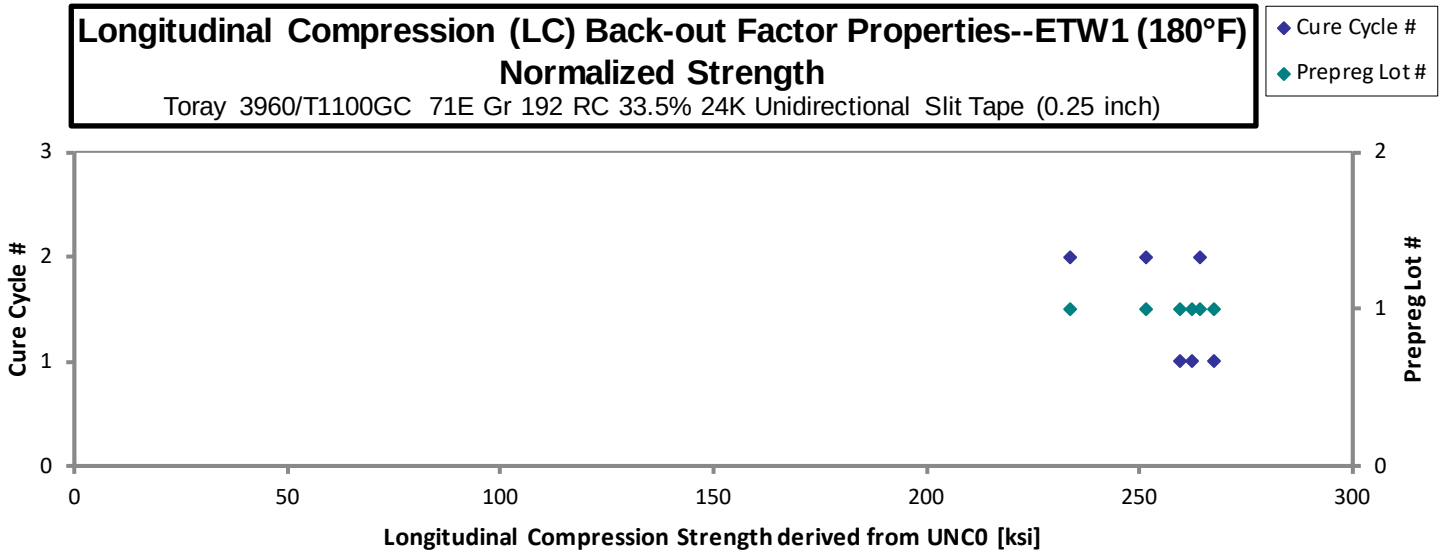

Longitudinal Compression (LC) Back-out Factor Properties--ETA2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Longitudinal Compression Strength derived from UNC0 [ksi]
0
1
2
3
4
0
50
100
150
200
250
300

Longitudinal Compression (LC) Back-out Factor Properties--ETW1 (180°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

UNC0 Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	$F_1^{cu}{}_{meas}$ [ksi] from UNC0	$F_1^{cu}{}_{norm}$ [ksi] from UNC0
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETW1-1	A	C1	1	1	264.3	267.3
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETW1-2	A	C1	1	1	257.0	259.5
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETW1-3	A	C1	1	1	260.3	262.5
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETW1-1	A	C2	1	2	239.2	233.8
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETW1-2	A	C2	1	2	270.1	264.3
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETW1-3	A	C2	1	2	255.9	251.6

	$F_1^{cu}{}_{meas}$ [ksi] from UNC0	$F_1^{cu}{}_{norm}$ [ksi] from UNC0
Average	**257.8**	**256.5**
Standard Dev.	**10.50**	**12.32**
Coeff. of Var. [%]	**4.071**	**4.803**
Min.	**239.2**	**233.8**
Max.	**270.1**	**267.3**
Number of Spec.	**6**	**6**

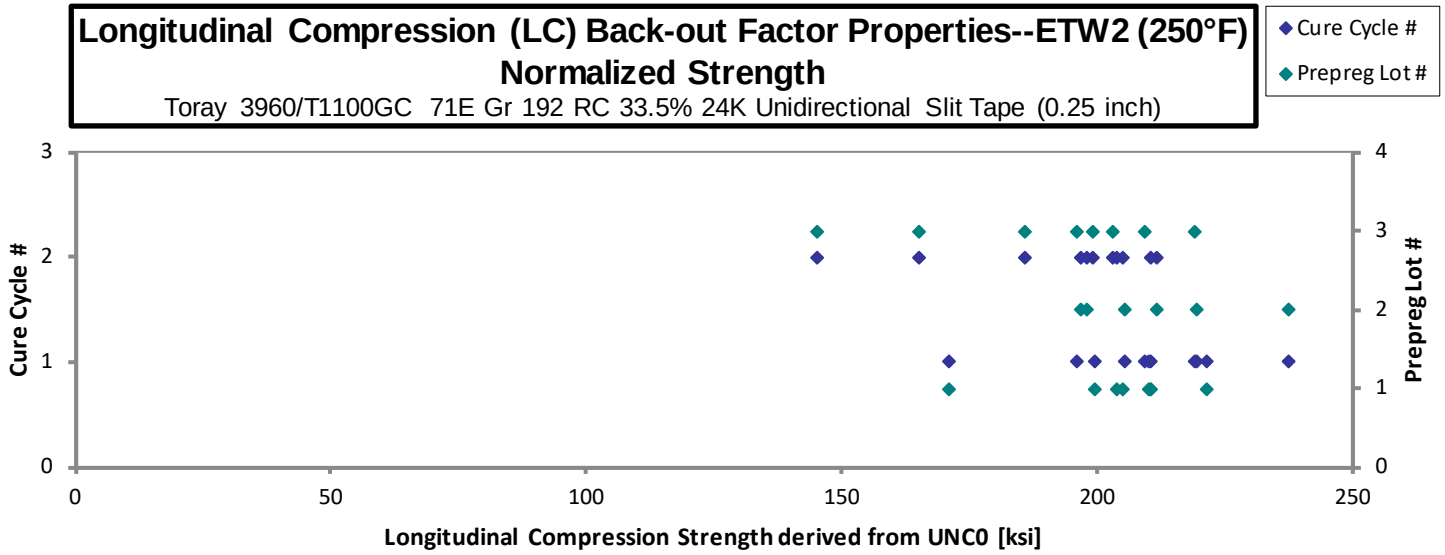

Longitudinal Compression (LC) Back-out Factor Properties--ETW1 (180°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Longitudinal Compression Strength derived from UNC0 [ksi]
0
1
2
3
0
50
100
150
200
250
300

Longitudinal Compression (LC) Back-out Factor Properties--ETW2 (250°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

UNC0 Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	$F_1^{cu}{}_{meas}$ [ksi] from UNC0	$F_1^{cu}{}_{norm}$ [ksi] from UNC0
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETW2-1	A	C1	1	1	218.6	221.3
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETW2-2	A	C1	1	1	170.4	170.8
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETW2-3	A	C1	1	1	209.1	209.8
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-SP-11	A	C1	1	1	208.9	210.3
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-SP-12	A	C1	1	1	198.3	199.4
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETW2-1	A	C2	1	2	207.3	203.6
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETW2-2	A	C2	1	2	209.9	204.9
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETW2-3	A	C2	1	2	215.9	210.3
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-ETW2-1	B	C1	2	1	238.5	237.1
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-ETW2-2	B	C1	2	1	205.0	205.3
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-ETW2-3	B	C1	2	1	217.3	219.1
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-ETW2-1	B	C2	2	2	210.3	211.4
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-ETW2-2	B	C2	2	2	195.8	196.4
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-ETW2-3	B	C2	2	2	196.8	197.7
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-ETW2-1	C	C1	3	1	198.2	195.9
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-ETW2-2	C	C1	3	1	210.8	209.3
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-ETW2-3	C	C1	3	1	216.9	218.7
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-ETW2-1	C	C2	3	2	163.0	164.8
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-ETW2-2	C	C2	3	2	143.2	144.9
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-ETW2-3	C	C2	3	2	200.7	203.0
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-SP-5	C	C2	3	2	184.6	185.6
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-SP-6	C	C2	3	2	198.8	199.0

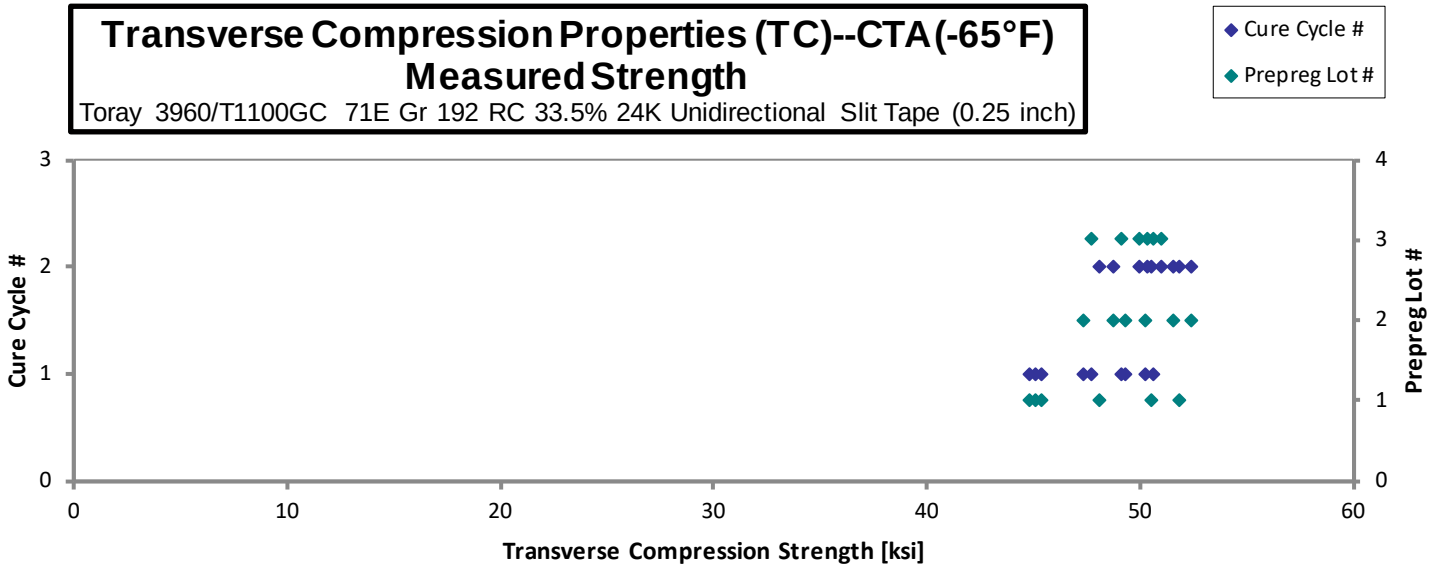
Average	**200.8**	**200.8**
Standard Dev.	**20.65**	**20.12**
Coeff. of Var. [%]	**10.28**	**10.02**
Min.	**143.2**	**144.9**
Max.	**238.5**	**237.1**
Number of Spec.	**22**	**22**

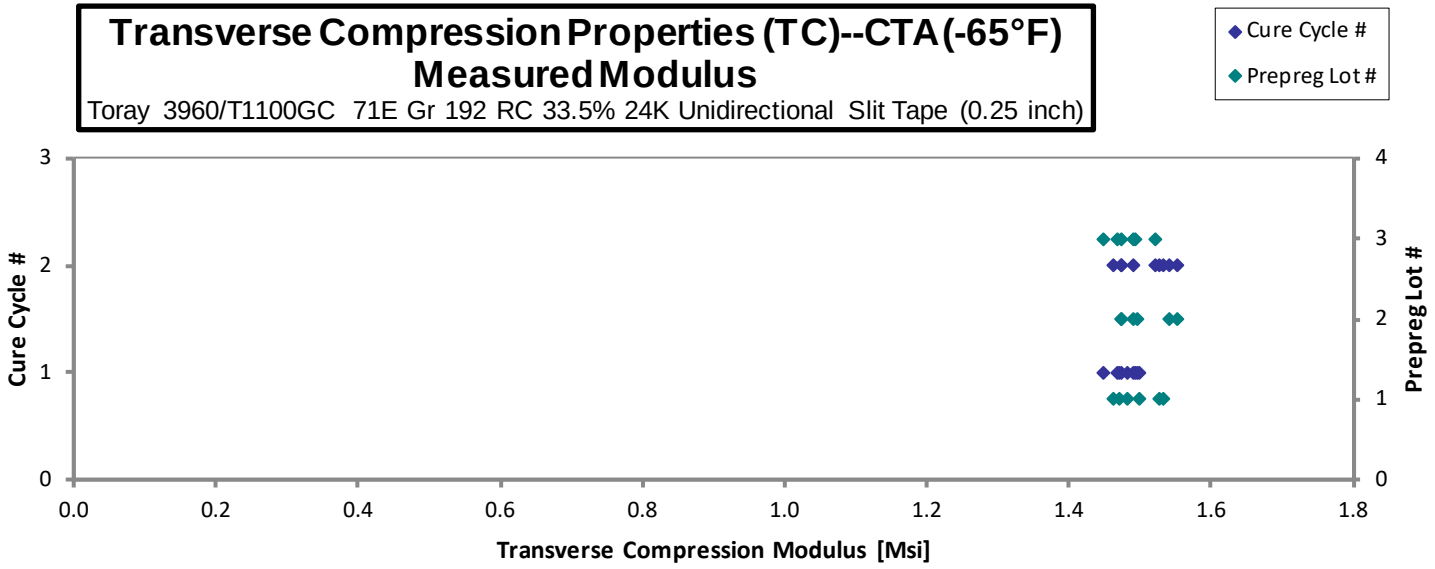

Longitudinal Compression (LC) Back-out Factor Properties--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
50
100
150
200
250
Longitudinal Compression Strength derived from UNC0 [ksi]

4.5 Transverse Compression Properties (TC)

Transverse Compression Properties (TC)--CTA (-65°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-CTA-1	A	C1	1	1	45.33	1.470	0.09662	14	0.006901	BAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-CTA-2	A	C1	1	1	44.84	1.500	0.09605	14	0.006861	BAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-CTA-3	A	C1	1	1	45.06	1.483	0.09525	14	0.006804	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-CTA-1	A	C2	1	2	50.52	1.533	0.09663	14	0.006902	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-CTA-2	A	C2	1	2	51.82	1.528	0.09678	14	0.006913	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-CTA-3	A	C2	1	2	48.11	1.463	0.09638	14	0.006885	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TC-CTA-1	B	C1	2	1	49.32	1.473	0.09862	14	0.007044	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TC-CTA-2	B	C1	2	1	47.37	1.490	0.09815	14	0.007011	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TC-CTA-3	B	C1	2	1	50.27	1.497	0.09773	14	0.006981	BAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TC-CTA-1	B	C2	2	2	51.60	1.475	0.09857	14	0.007040	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TC-CTA-2	B	C2	2	2	52.39	1.552	0.09777	14	0.006983	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TC-CTA-3	B	C2	2	2	48.73	1.542	0.09777	14	0.006983	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TC-CTA-1	C	C1	3	1	50.64	1.495	0.09848	14	0.007035	HGM, HAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TC-CTA-2	C	C1	3	1	47.69	1.447	0.09837	14	0.007026	HGM, HAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TC-CTA-3	C	C1	3	1	49.10	1.469	0.09845	14	0.007032	HGM, HAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TC-CTA-1	C	C2	3	2	50.33	1.491	0.09865	14	0.007046	HGM, HAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TC-CTA-2	C	C2	3	2	50.95	1.521	0.09855	14	0.007039	HGM, HAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TC-CTA-3	C	C2	3	2	49.96	1.474	0.09885	14	0.007061	HGM, HAB
				Average	**49.11**	**1.495**			**0.006975**	
				Standard Dev.	**2.309**	**0.02958**				
				Coeff. of Var. [%]	**4.702**	**1.979**				
				Min.	**44.84**	**1.447**			**0.006804**	
				Max.	**52.39**	**1.552**			**0.007061**	
				Number of Spec.	**18**	**18**			**18**	


Transverse Compression Properties (TC)--CTA (-65°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Compression Strength [ksi]
0
10
20
30
40
50
60
0
1
2
3
4

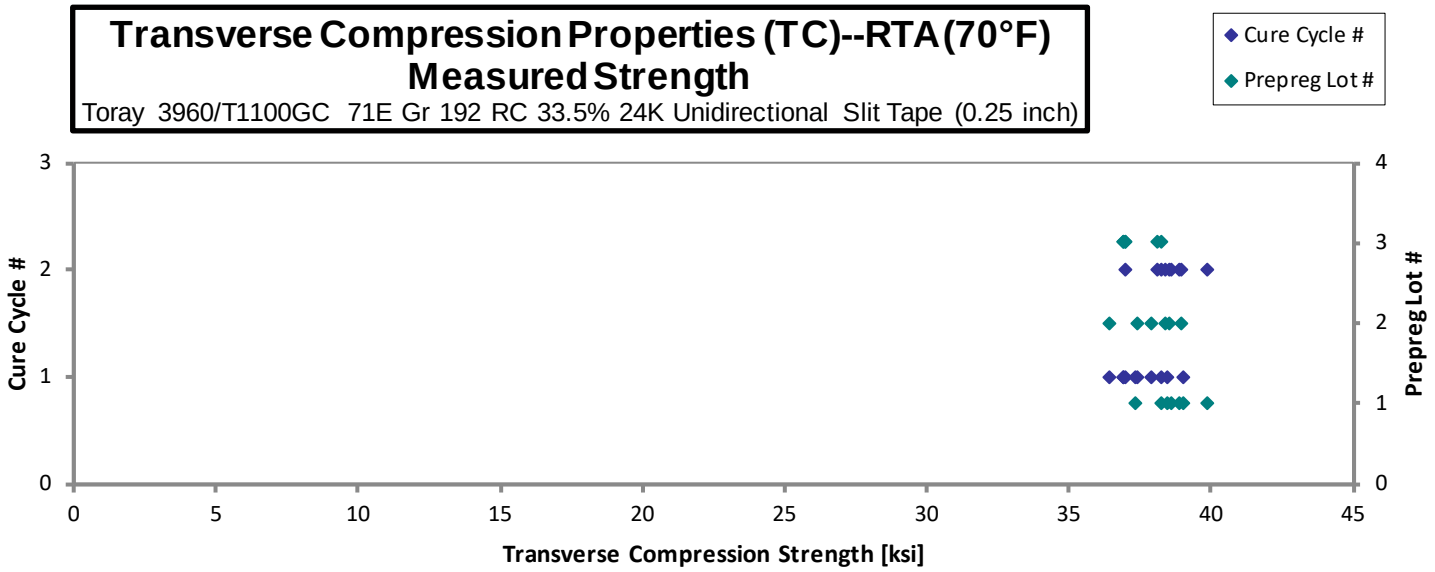

Transverse Compression Properties (TC)--CTA (-65°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Compression Modulus [Msi]
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
0
1
2
3
4

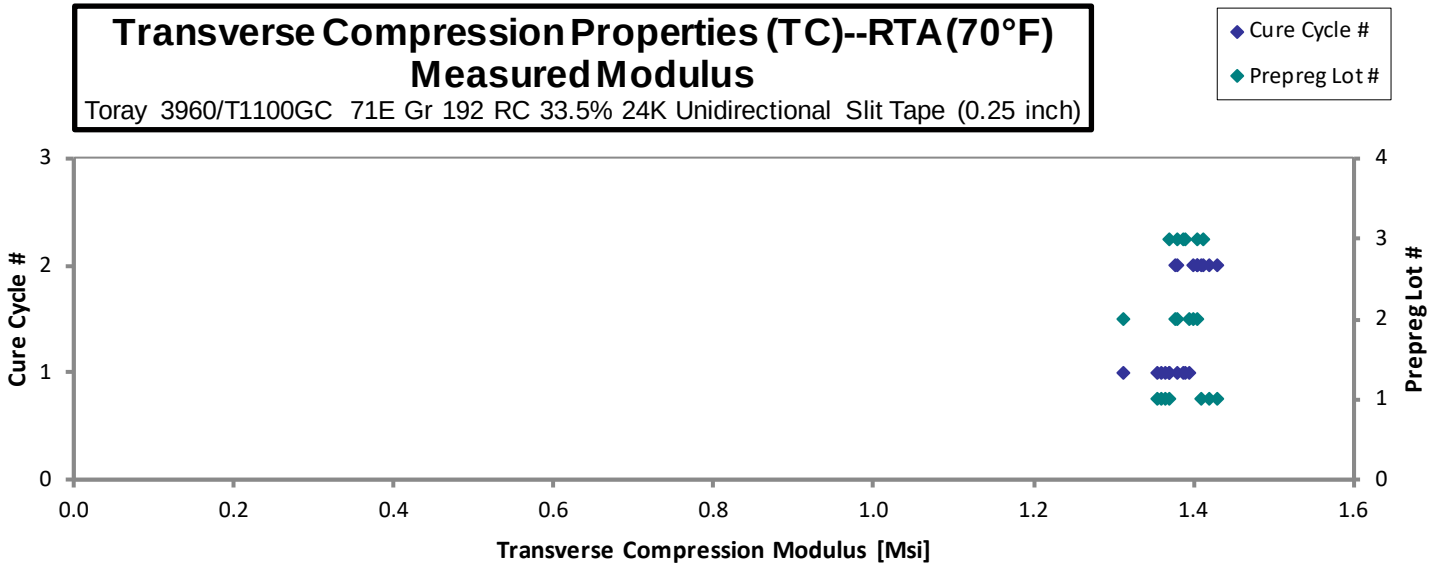
Transverse Compression Properties (TC)--RTA (70°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-RTA-1*	A	C1	1	1	39.02	1.360	0.09543	14	0.006817	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-RTA-2*	A	C1	1	1	38.27	1.369	0.09528	14	0.006806	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-RTA-3	A	C1	1	1	38.48	1.365	0.09513	14	0.006795	BGM, BAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-SP-4*	A	C1	1	1	37.32	1.354	0.09607	14	0.006862	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-RTA-1*	A	C2	1	2	39.85	1.429	0.09580	14	0.006843	HAB, HAT
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-RTA-2*	A	C2	1	2	38.62	1.421	0.09627	14	0.006876	BAB
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-RTA-3	A	C2	1	2	38.90	1.411	0.09625	14	0.006875	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TC-RTA-1*	B	C1	2	1	37.38	1.381	0.09762	14	0.006973	M(B,H)GM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TC-RTA-3	B	C1	2	1	36.40	1.314	0.09732	14	0.006951	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TC-SP-3*	B	C1	2	1	37.92	1.396	0.09748	14	0.006963	M(B,H)GM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TC-RTA-1*	B	C2	2	2	38.53	1.405	0.09783	14	0.006988	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TC-RTA-2*	B	C2	2	2	38.41	1.378	0.09817	14	0.007012	M(B,H)GM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TC-RTA-3	B	C2	2	2	38.92	1.400	0.09782	14	0.006987	M(B,H)GM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TC-RTA-1*	C	C1	3	1	36.96	1.388	0.09820	14	0.007014	HGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TC-RTA-2*	C	C1	3	1	36.93	1.389	0.09830	14	0.007021	HGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TC-RTA-3	C	C1	3	1	36.94	1.370	0.09845	14	0.007032	HGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TC-RTA-1*	C	C2	3	2	38.28	1.413	0.09853	14	0.007038	HGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TC-RTA-2*	C	C2	3	2	36.95	1.405	0.09865	14	0.007046	HGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TC-RTA-3	C	C2	3	2	38.10	1.380	0.09862	14	0.007044	BGM

*Modulus are averaged values of 2 strain gages.

Average	**38.01**	**1.386**	**0.006944**
Standard Dev.	**0.9188**	**0.02736**	
Coeff. of Var. [%]	**2.417**	**1.975**	
Min.	**36.40**	**1.314**	**0.006795**
Max.	**39.85**	**1.429**	**0.007046**
Number of Spec.	**19**	**19**	**19**

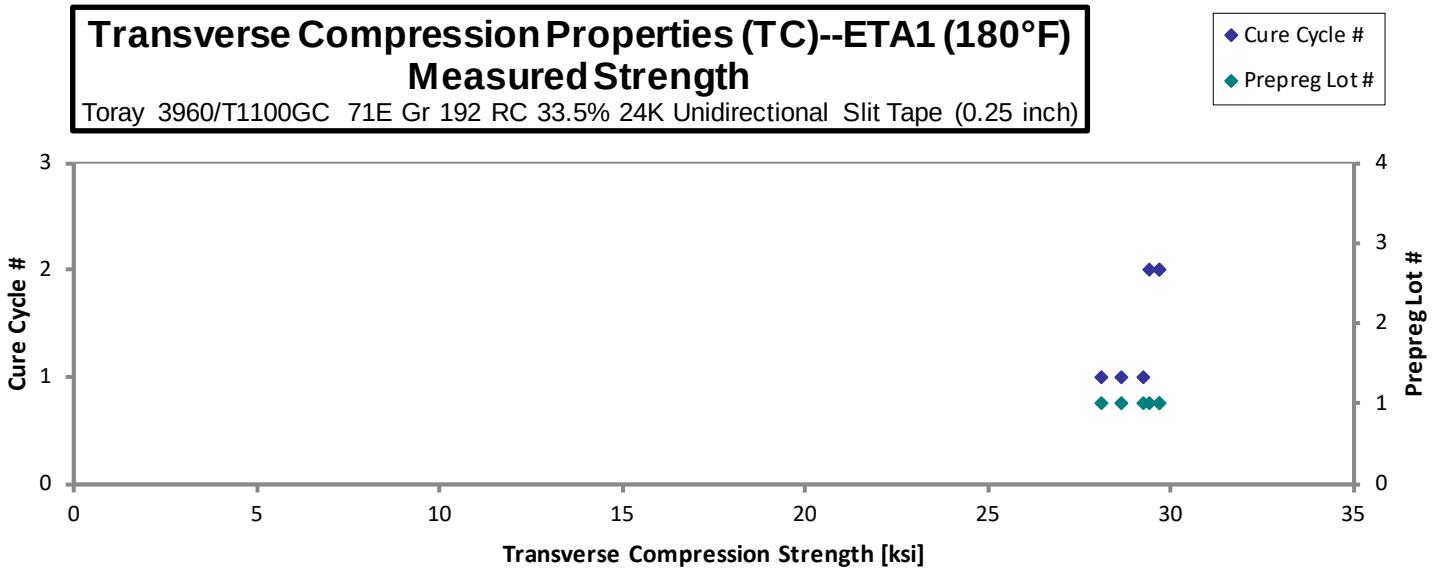

Transverse Compression Properties (TC)--RTA (70°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Compression Strength [ksi]
0
5
10
15
20
25
30
35
40
45
0
1
2
3
4

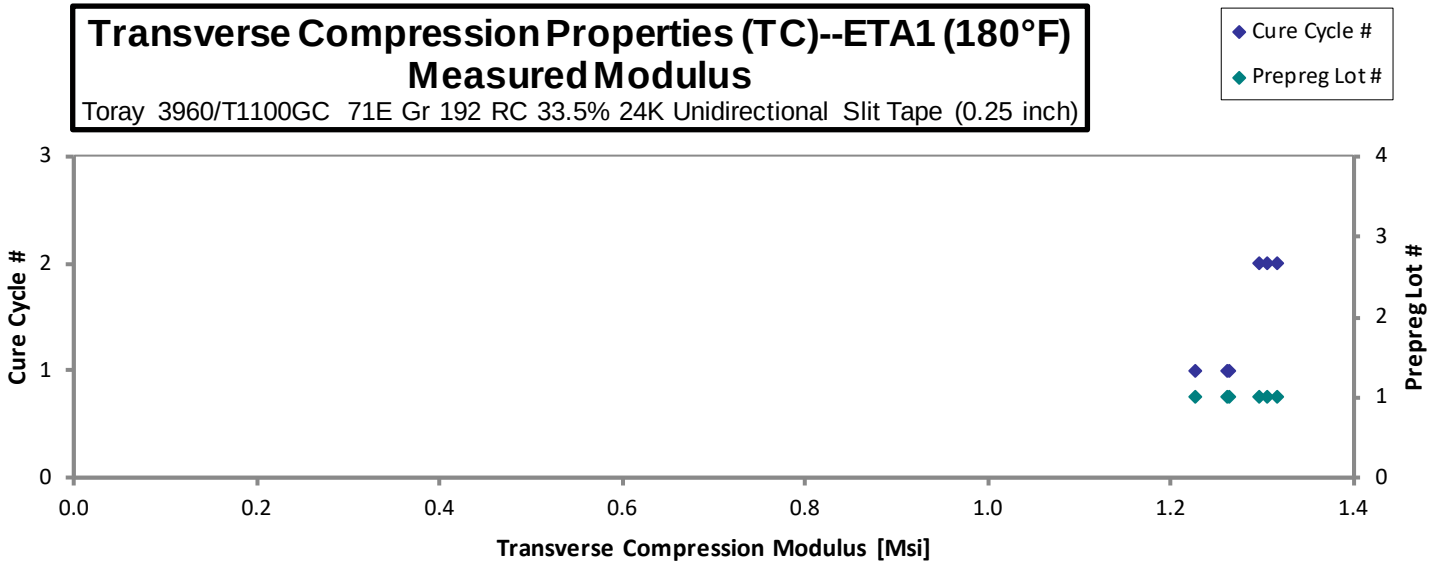

Transverse Compression Properties (TC)--RTA (70°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Compression Modulus [Msi]
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
0
1
2
3
4

Transverse Compression Properties (TC)--ETA1 (180°F)
Strength & Modulus

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-ETA1-1	A	C1	1	1	29.24	1.261	0.09568	14	0.006835	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-ETA1-2	A	C1	1	1	28.13	1.227	0.09623	14	0.006874	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-ETA1-3	A	C1	1	1	28.63	1.265	0.09610	14	0.006864	M(B,H)GM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-ETA1-2	A	C2	1	2	29.39	1.316	0.09635	14	0.006882	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-ETA1-3	A	C2	1	2	29.72	1.297	0.09623	14	0.006874	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-SP-5	A	C2	1	2	29.67	1.305	0.09653	14	0.006895	BGM
				Average	**29.13**	**1.279**			**0.006871**	
				Standard Dev.	**0.6261**	**0.03340**				
				Coeff. of Var. [%]	**2.149**	**2.612**				
				Min.	**28.13**	**1.227**			**0.006835**	
				Max.	**29.72**	**1.316**			**0.006895**	
				Number of Spec.	**6**	**6**			**6**	


Transverse Compression Properties (TC)--ETA1 (180°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Compression Strength [ksi]
0
5
10
15
20
25
30
35
0
1
2
3
4

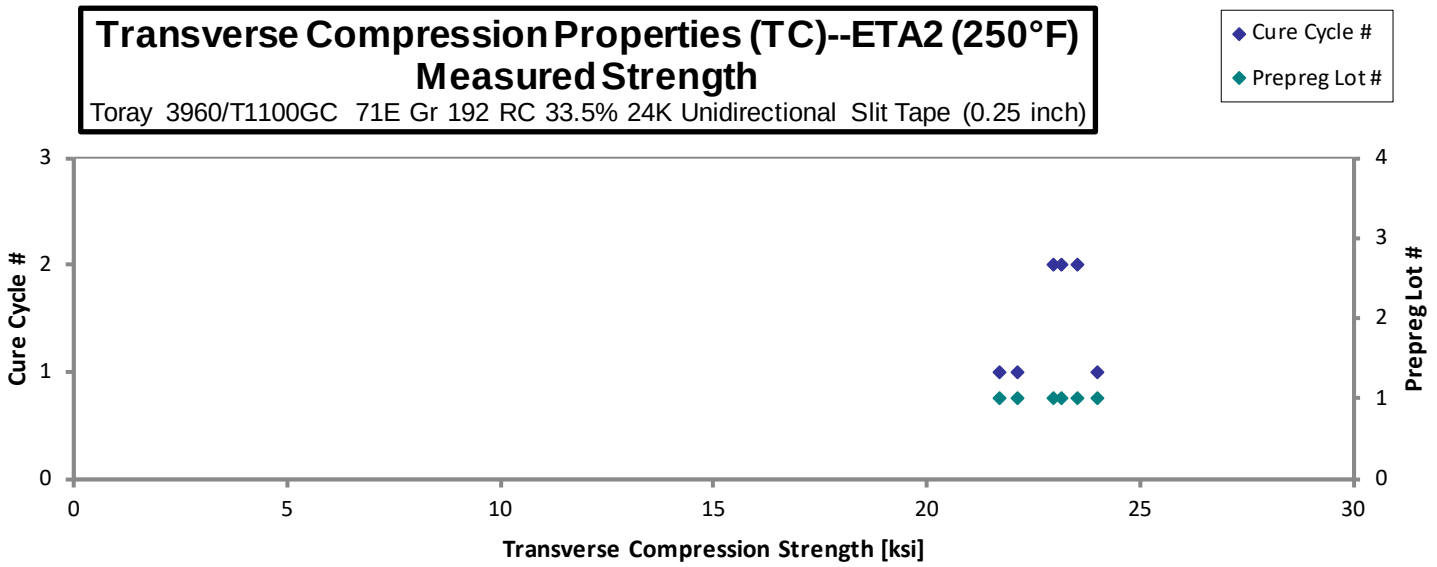

Transverse Compression Properties (TC)--ETA1 (180°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Compression Modulus [Msi]
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
0
1
2
3
4

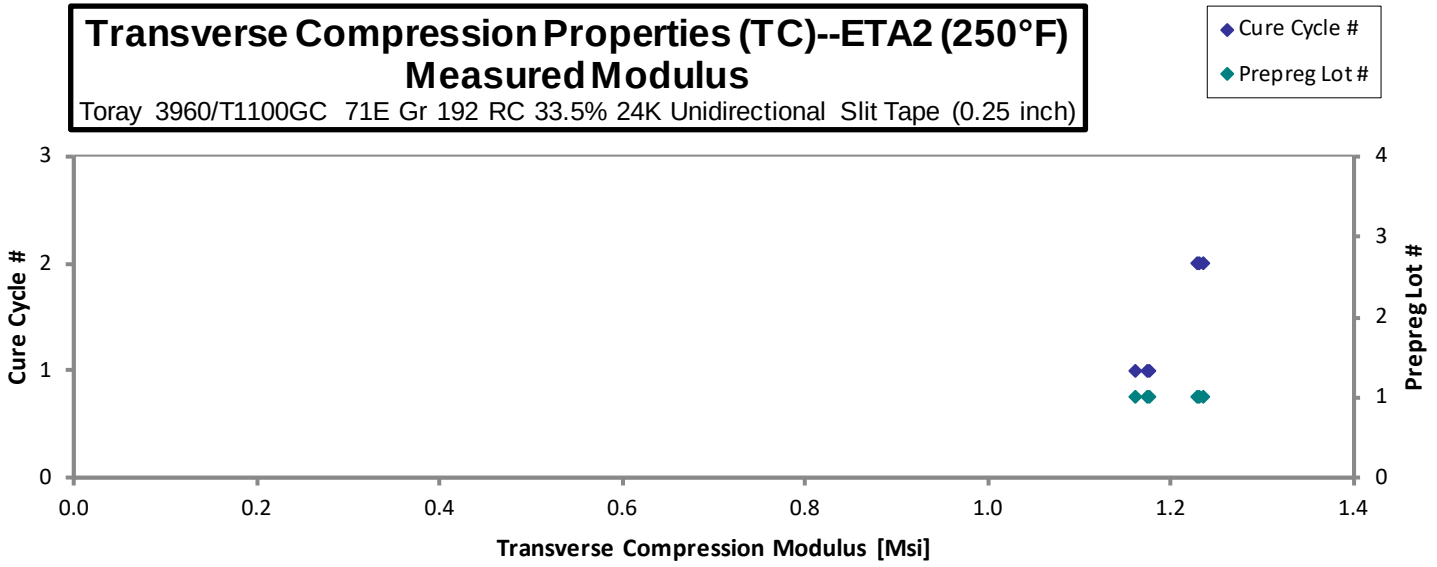
Transverse Compression Properties (TC)--ETA2 (250°F)
Strength & Modulus

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-ETA2-1	A	C1	1	1	24.00	1.160	0.09642	14	0.006887	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-ETA2-2	A	C1	1	1	21.71	1.174	0.09622	14	0.006873	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-ETA2-3	A	C1	1	1	22.11	1.176	0.09580	14	0.006843	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-ETA2-1	A	C2	1	2	22.98	1.231	0.09665	14	0.006904	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-ETA2-2	A	C2	1	2	23.17	1.237	0.09617	14	0.006869	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-ETA2-3	A	C2	1	2	23.54	1.229	0.09598	14	0.006856	M(B,H)GM

	Strength [ksi]	Modulus [Msi]	Avg. t_{ply} [in]
Average	**22.92**	**1.201**	**0.006872**
Standard Dev.	**0.8626**	**0.03444**	
Coeff. of Var. [%]	**3.764**	**2.867**	
Min.	**21.71**	**1.160**	**0.006843**
Max.	**24.00**	**1.237**	**0.006904**
Number of Spec.	**6**	**6**	**6**

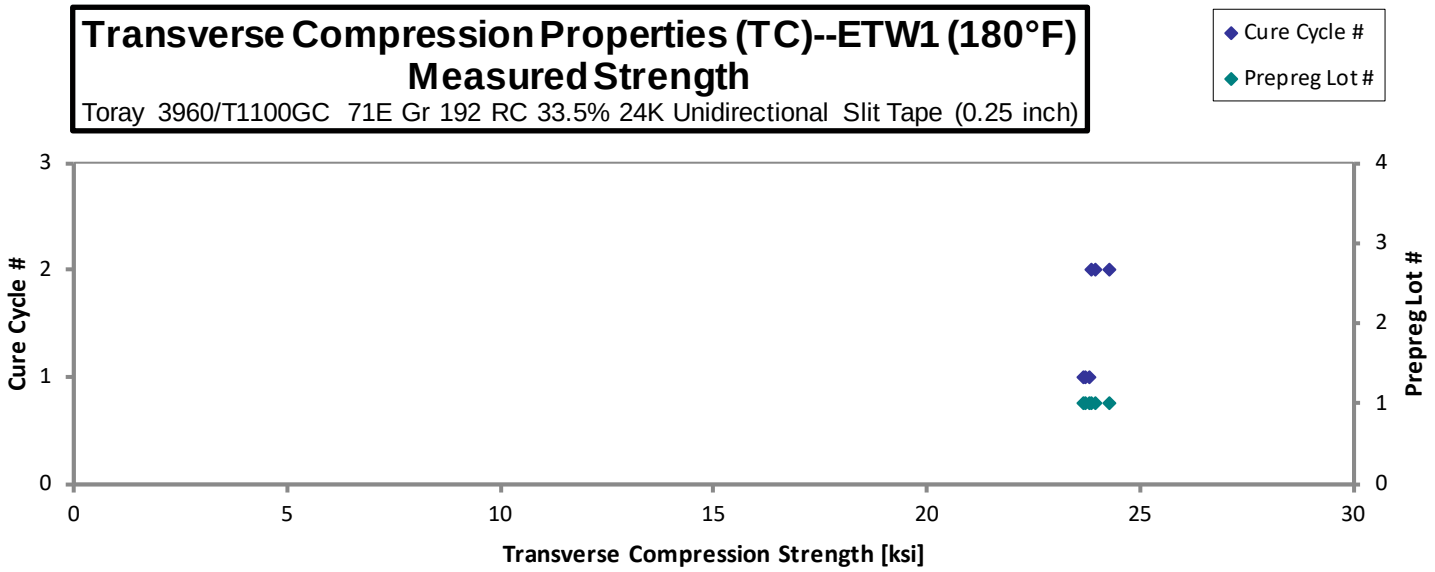

Transverse Compression Properties (TC)--ETA2 (250°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Compression Strength [ksi]
0
5
10
15
20
25
30
0
1
2
3
4

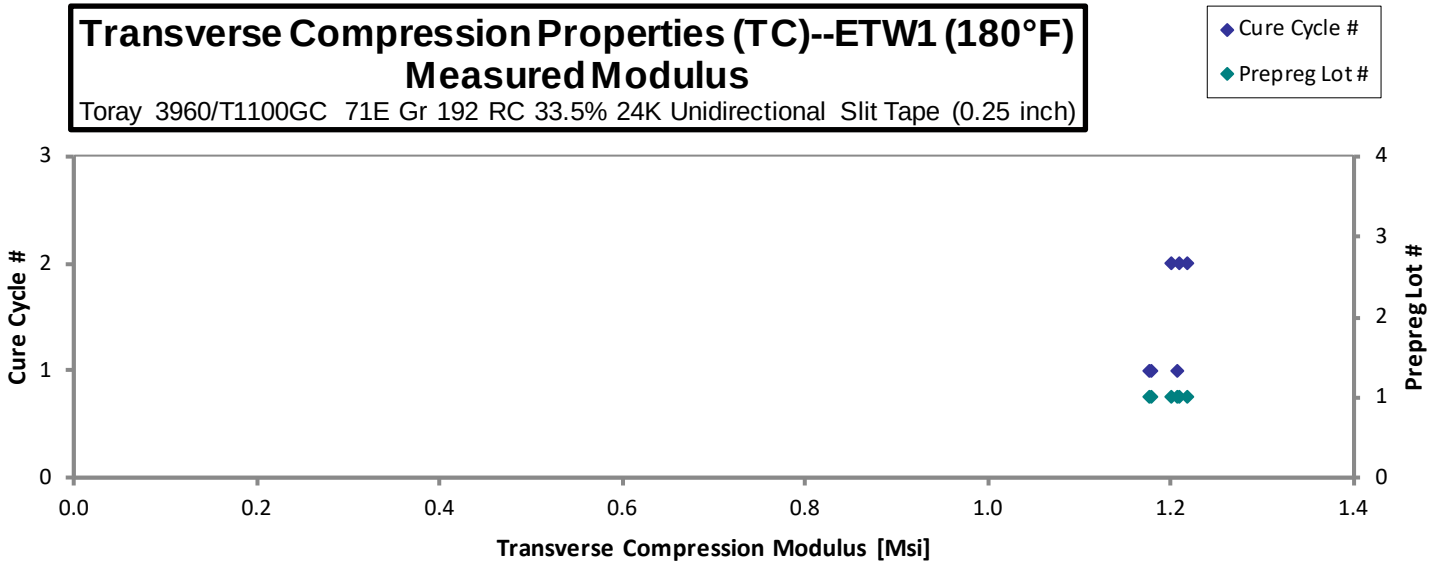

Transverse Compression Properties (TC)--ETA2 (250°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Compression Modulus [Msi]
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
0
1
2
3
4

Transverse Compression Properties (TC)--ETW1 (180°F)
Strength & Modulus

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

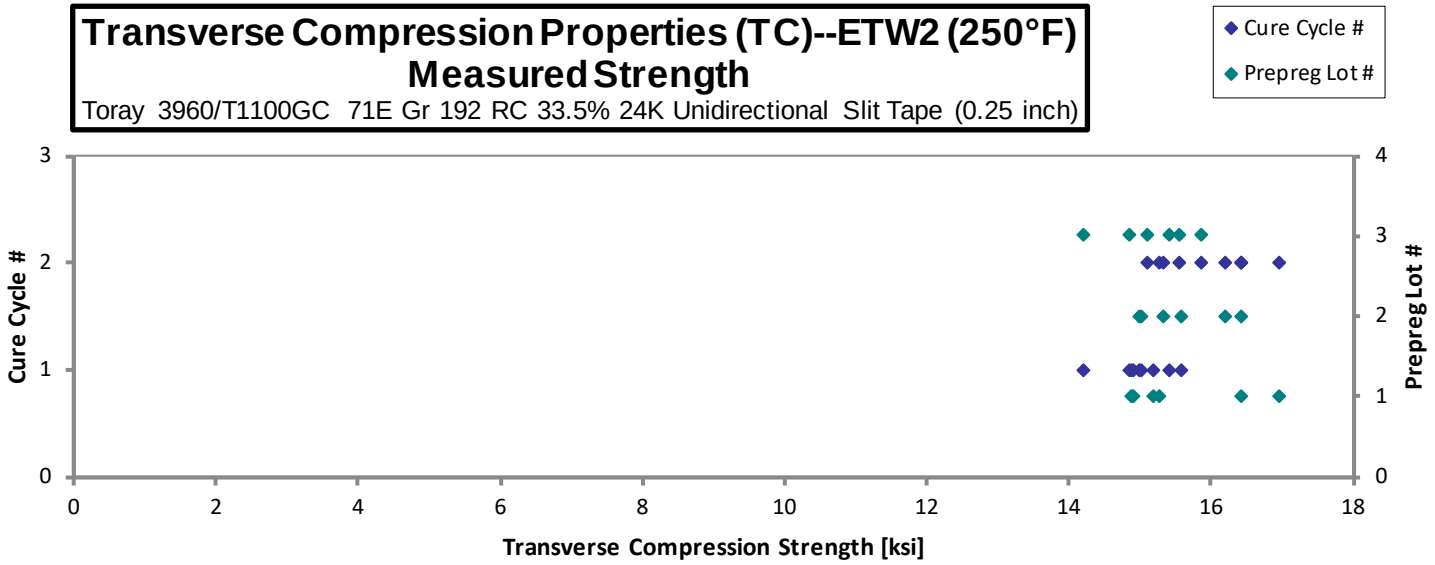
Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-ETW1-1	A	C1	1	1	23.72	1.176	0.09618	14	0.006870	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-ETW1-2	A	C1	1	1	23.67	1.179	0.09620	14	0.006871	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-ETW1-3	A	C1	1	1	23.80	1.207	0.09585	14	0.006846	M(B,H)GM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-ETW1-1	A	C2	1	2	24.27	1.208	0.09635	14	0.006882	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-ETW1-2	A	C2	1	2	23.85	1.218	0.09623	14	0.006874	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-ETW1-3	A	C2	1	2	23.93	1.202	0.09635	14	0.006882	BGM
				Average	**23.87**	**1.198**			**0.006871**	
				Standard Dev.	**0.2131**	**0.01689**				
				Coeff. of Var. [%]	**0.8927**	**1.410**				
				Min.	**23.67**	**1.176**			**0.006846**	
				Max.	**24.27**	**1.218**			**0.006882**	
				Number of Spec.	**6**	**6**			**6**	

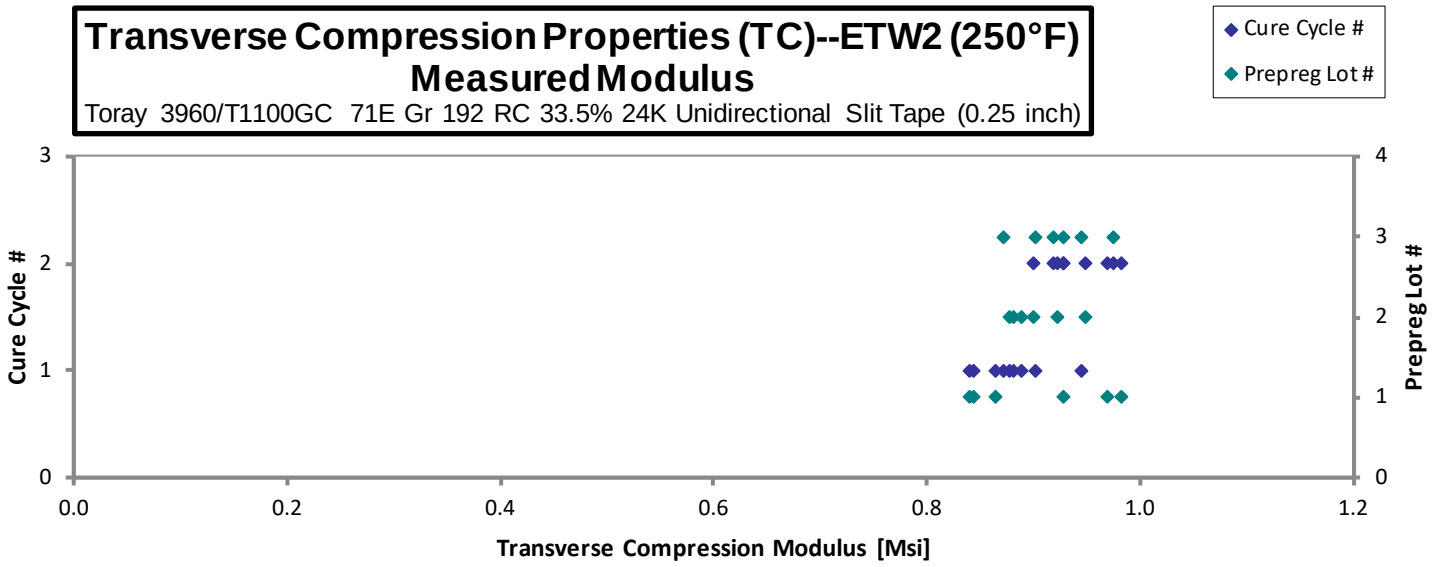

Transverse Compression Properties (TC)--ETW1 (180°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Compression Strength [ksi]
0
5
10
15
20
25
30
0
1
2
3
4


Transverse Compression Properties (TC)--ETW1 (180°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Compression Modulus [Msi]
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
0
1
2
3
4

Transverse Compression Properties (TC)--ETW2 (250°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-ETW2-1	A	C1	1	1	14.91	0.8437	0.09763	14	0.006974	HGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-ETW2-2	A	C1	1	1	15.19	0.8394	0.09708	14	0.006935	HGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TC-ETW2-3	A	C1	1	1	14.89	0.8649	0.09595	14	0.006854	HGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-ETW2-2	A	C2	1	2	16.95	0.9823	0.09617	14	0.006869	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-ETW2-3	A	C2	1	2	16.42	0.9700	0.09598	14	0.006856	HGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TC-SP-11	A	C2	1	2	15.27	0.9283	0.09593	14	0.006852	HGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TC-ETW2-1	B	C1	2	1	15.01	0.8884	0.09768	14	0.006977	HGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TC-ETW2-2	B	C1	2	1	15.59	0.8807	0.09775	14	0.006982	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-TC-ETW2-3	B	C1	2	1	15.00	0.8768	0.09737	14	0.006955	HGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TC-ETW2-1	B	C2	2	2	16.21	0.9488	0.09808	14	0.007006	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TC-ETW2-2	B	C2	2	2	16.43	0.9233	0.09817	14	0.007012	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-TC-ETW2-3	B	C2	2	2	15.32	0.9009	0.09800	14	0.007000	M(B,H)GM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TC-ETW2-1	C	C1	3	1	14.84	0.9025	0.09828	14	0.007020	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TC-ETW2-2	C	C1	3	1	15.42	0.9442	0.09838	14	0.007027	M(B,H)GM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-TC-ETW2-3	C	C1	3	1	14.21	0.8724	0.09842	14	0.007030	BGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TC-ETW2-1	C	C2	3	2	15.86	0.9755	0.09897	14	0.007069	HGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TC-ETW2-2	C	C2	3	2	15.10	0.9188	0.09863	14	0.007045	HGM
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-TC-ETW2-3	C	C2	3	2	15.54	0.9284	0.09868	14	0.007049	BGM
				Average	**15.45**	**0.9105**			**0.006973**	
				Standard Dev.	**0.6898**	**0.04346**				
				Coeff. of Var. [%]	**4.464**	**4.773**				
				Min.	**14.21**	**0.8394**			**0.006852**	
				Max.	**16.95**	**0.9823**			**0.007069**	
				Number of Spec.	**18**	**18**			**18**	

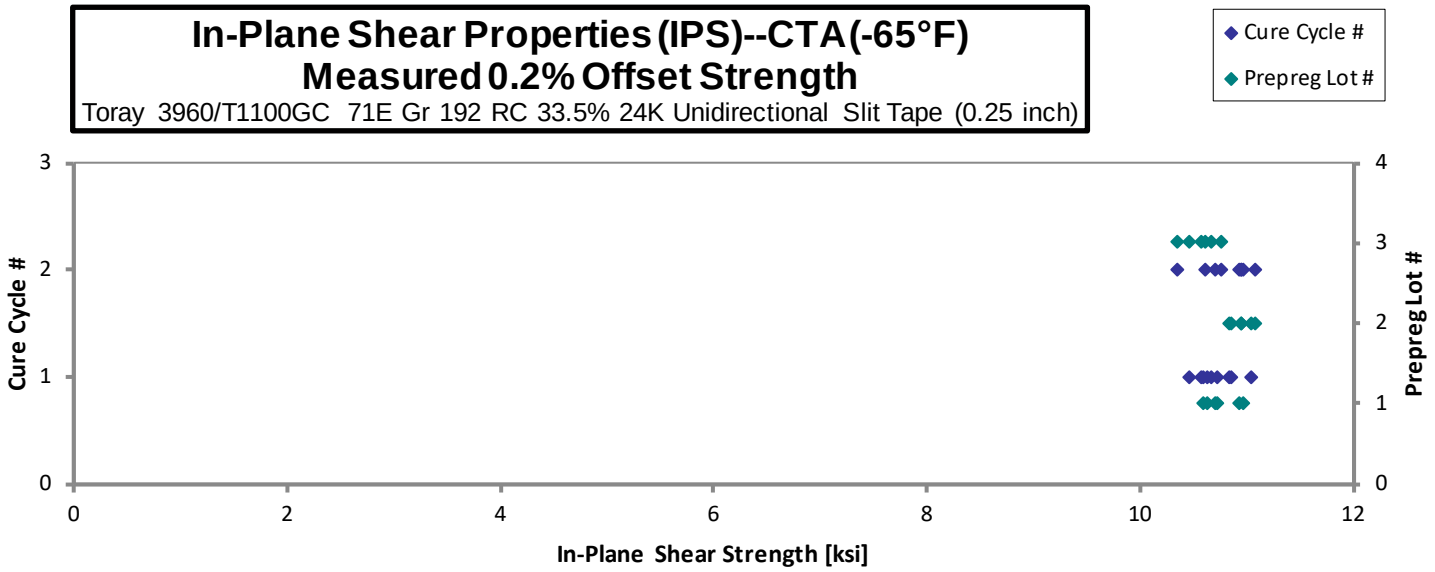

Transverse Compression Properties (TC)--ETW2 (250°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Compression Strength [ksi]
0
2
4
6
8
10
12
14
16
18
0
1
2
3
4

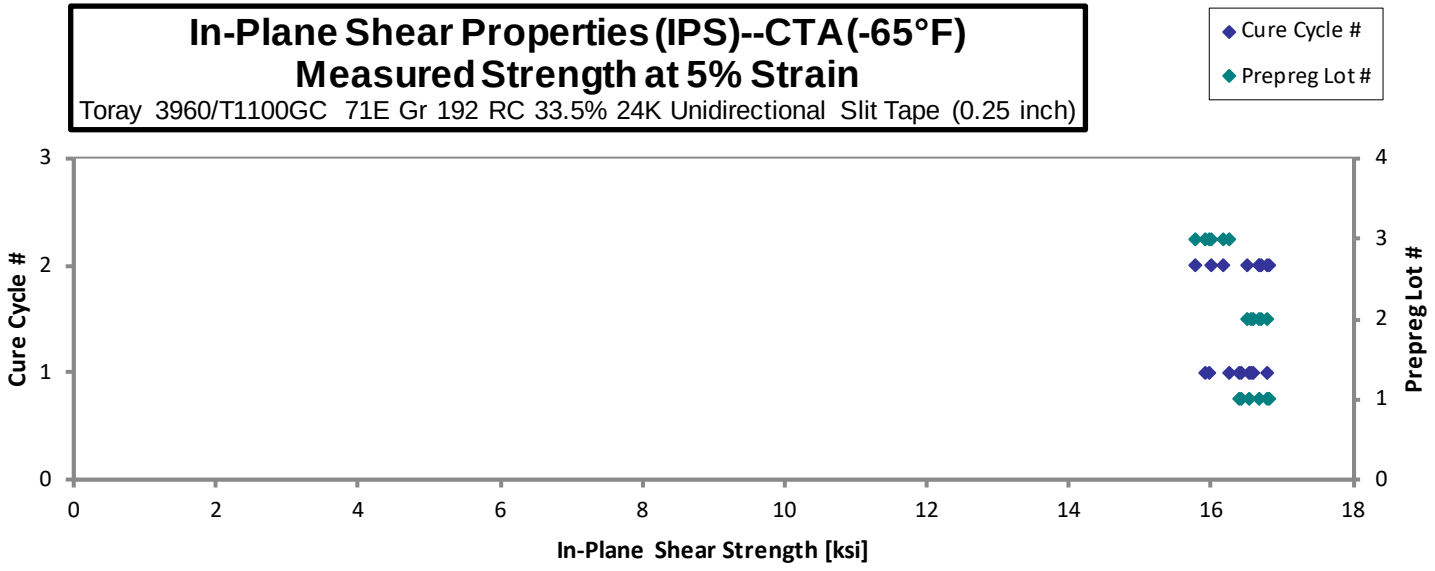

Transverse Compression Properties (TC)--ETW2 (250°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Transverse Compression Modulus [Msi]
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0
1
2
3
4

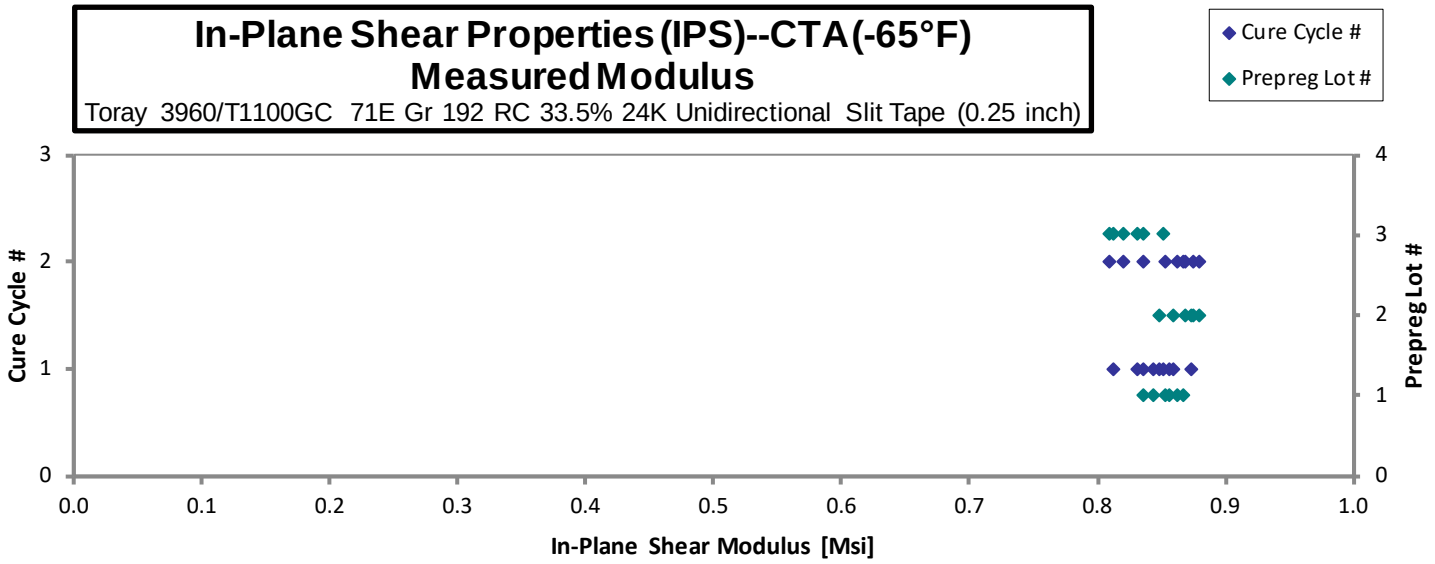
4.6 In-Plane Shear Properties (IPS)

In-Plane Shear Properties (IPS)--CTA (-65°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C1-1-IPS-CTA-1	A	C1	1	1	10.63	16.39	0.8361	0.1140	16	0.007124
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C1-1-IPS-CTA-2	A	C1	1	1	10.72	16.43	0.8565	0.1118	16	0.006990
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C1-1-IPS-CTA-3	A	C1	1	1	10.59	16.54	0.8440	0.1131	16	0.007071
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C2-1-IPS-CTA-1	A	C2	1	2	10.70	16.67	0.8527	0.1115	16	0.006967
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C2-1-IPS-CTA-2	A	C2	1	2	10.97	16.80	0.8677	0.1104	16	0.006900
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C2-1-IPS-CTA-3	A	C2	1	2	10.93	16.81	0.8626	0.1113	16	0.006957
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C1-1-IPS-CTA-1	B	C1	2	1	10.84	16.57	0.8587	0.1133	16	0.007082
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C1-1-IPS-CTA-2	B	C1	2	1	11.04	16.78	0.8726	0.1113	16	0.006958
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C1-1-IPS-CTA-3	B	C1	2	1	10.86	16.60	0.8490	0.1123	16	0.007017
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C2-1-IPS-CTA-1	B	C2	2	2	10.95	16.49	0.8748	0.1122	16	0.007013
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C2-1-IPS-CTA-2	B	C2	2	2	11.09	16.69	0.8793	0.1121	16	0.007003
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C2-1-IPS-CTA-3	B	C2	2	2	10.95	16.67	0.8692	0.1133	16	0.007082
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C1-1-IPS-CTA-1	C	C1	3	1	10.47	15.93	0.8127	0.1160	16	0.007252
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C1-1-IPS-CTA-2	C	C1	3	1	10.57	15.98	0.8313	0.1143	16	0.007144
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C1-1-IPS-CTA-3	C	C1	3	1	10.68	16.25	0.8515	0.1138	16	0.007109
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C2-1-IPS-CTA-1	C	C2	3	2	10.35	15.79	0.8094	0.1158	16	0.007239
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C2-1-IPS-CTA-2	C	C2	3	2	10.76	16.00	0.8207	0.1143	16	0.007145
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C2-1-IPS-CTA-3	C	C2	3	2	10.62	16.16	0.8365	0.1143	16	0.007145
				Average	**10.76**	**16.42**	**0.8492**			**0.007066**
				Standard Dev.	**0.2046**	**0.3266**	**0.02115**			
				Coeff. of Var. [%]	**1.901**	**1.989**	**2.490**			
				Min.	**10.35**	**15.79**	**0.8094**			**0.006900**
				Max.	**11.09**	**16.81**	**0.8793**			**0.007252**
				Number of Spec.	**18**	**18**	**18**			**18**


In-Plane Shear Properties (IPS)--CTA (-65°F)
Measured 0.2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Strength [ksi]
0
2
4
6
8
10
12
0
1
2
3
4

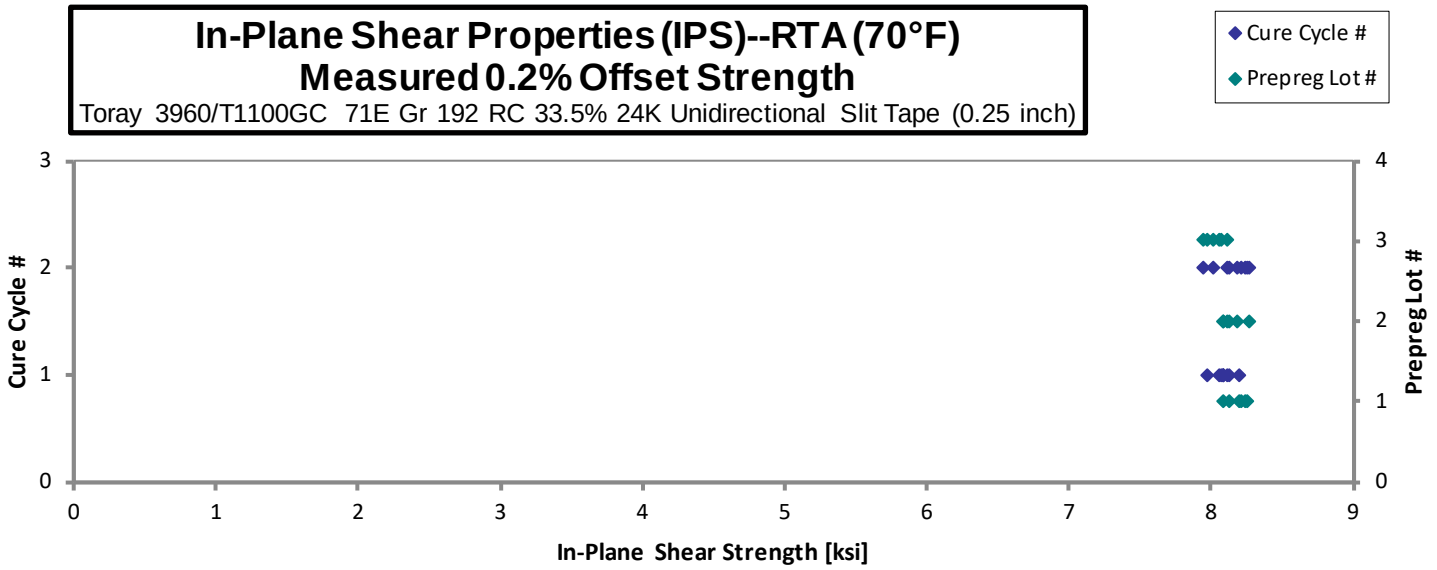

In-Plane Shear Properties (IPS)--CTA (-65°F)
Measured Strength at 5% Strain
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Strength [ksi]
0
2
4
6
8
10
12
14
16
18
0
1
2
3
4

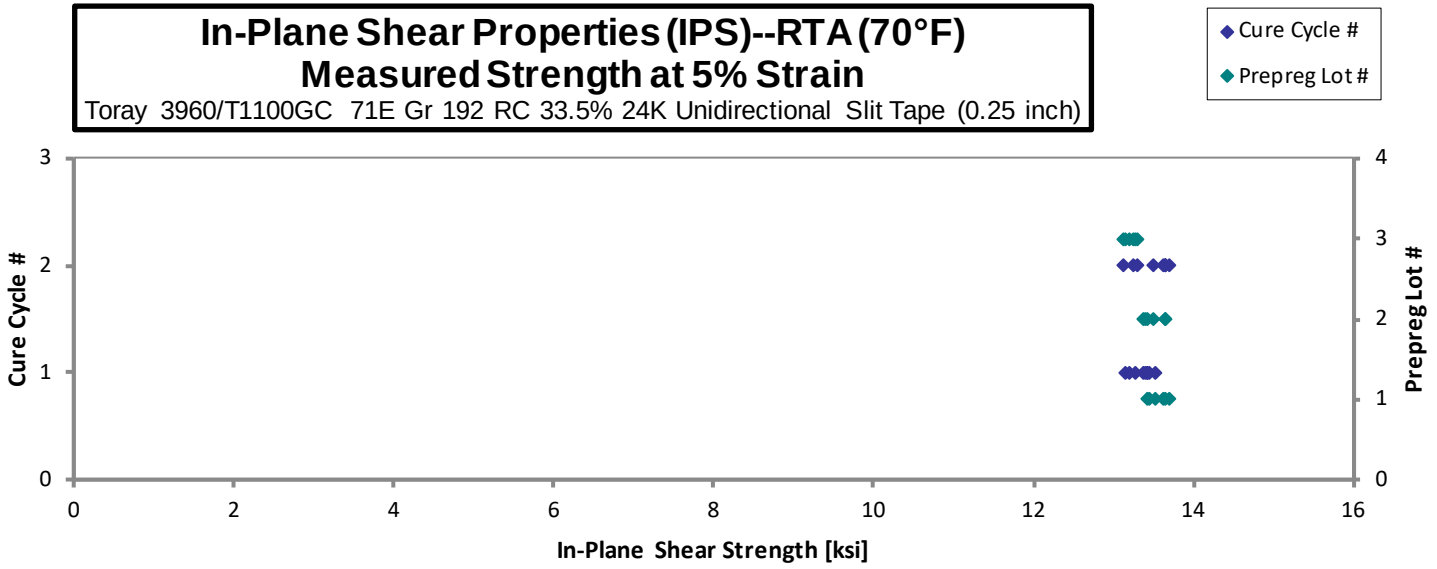

In-Plane Shear Properties (IPS)--CTA (-65°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Modulus [Msi]
0
1
2
3
4
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

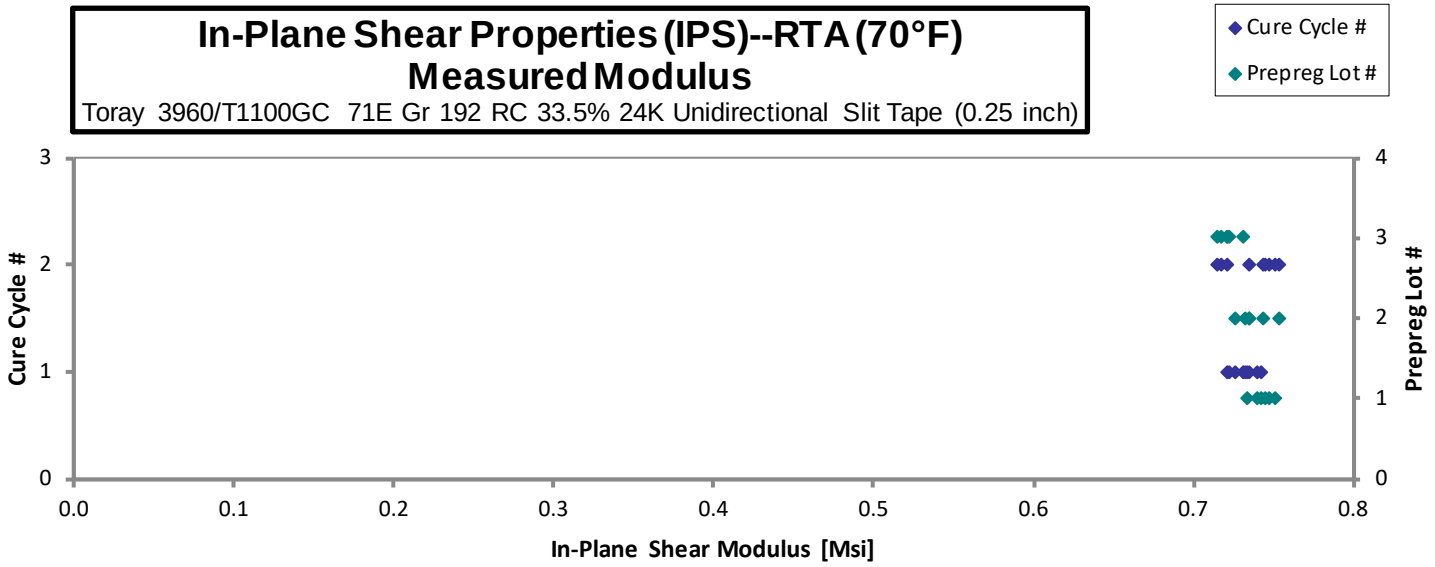
In-Plane Shear Properties (IPS)--RTA (70°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C1-1-IPS-RTA-1	A	C1	1	1	8.090	13.46	0.7333	0.1133	16	0.007078
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C1-1-IPS-RTA-2	A	C1	1	1	8.125	13.43	0.7395	0.1127	16	0.007044
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C1-1-IPS-RTA-3	A	C1	1	1	8.193	13.54	0.7419	0.1120	16	0.007000
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C2-1-IPS-RTA-1	A	C2	1	2	8.249	13.70	0.7468	0.1116	16	0.006973
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C2-1-IPS-RTA-2	A	C2	1	2	8.214	13.62	0.7448	0.1114	16	0.006961
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C2-1-IPS-RTA-3	A	C2	1	2	8.246	13.65	0.7508	0.1112	16	0.006948
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C1-1-IPS-RTA-1	B	C1	2	1	8.111	13.41	0.7345	0.1126	16	0.007034
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C1-1-IPS-RTA-2	B	C1	2	1	8.079	13.39	0.7259	0.1122	16	0.007014
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C1-1-IPS-RTA-3	B	C1	2	1	8.087	13.36	0.7317	0.1121	16	0.007007
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C2-1-IPS-RTA-1	B	C2	2	2	8.189	13.65	0.7431	0.1128	16	0.007052
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C2-1-IPS-RTA-2	B	C2	2	2	8.267	13.64	0.7537	0.1131	16	0.007070
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C2-1-IPS-RTA-3	B	C2	2	2	8.128	13.49	0.7350	0.1129	16	0.007058
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C1-1-IPS-RTA-1	C	C1	3	1	8.051	13.27	0.7216	0.1146	16	0.007165
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C1-1-IPS-RTA-2	C	C1	3	1	7.971	13.16	0.7227	0.1152	16	0.007199
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C1-1-IPS-RTA-3	C	C1	3	1	8.069	13.19	0.7313	0.1146	16	0.007164
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C2-1-IPS-RTA-1	C	C2	3	2	8.107	13.30	0.7206	0.1145	16	0.007158
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C2-1-IPS-RTA-2	C	C2	3	2	8.019	13.26	0.7173	0.1146	16	0.007159
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C2-1-IPS-RTA-3	C	C2	3	2	7.943	13.11	0.7146	0.1147	16	0.007166

Average	**8.119**	**13.43**	**0.7338**	**0.007069**
Standard Dev.	**0.09326**	**0.1843**	**0.01170**	
Coeff. of Var. [%]	**1.149**	**1.373**	**1.594**	
Min.	**7.943**	**13.11**	**0.7146**	**0.006948**
Max.	**8.267**	**13.70**	**0.7537**	**0.007199**
Number of Spec.	**18**	**18**	**18**	**18**

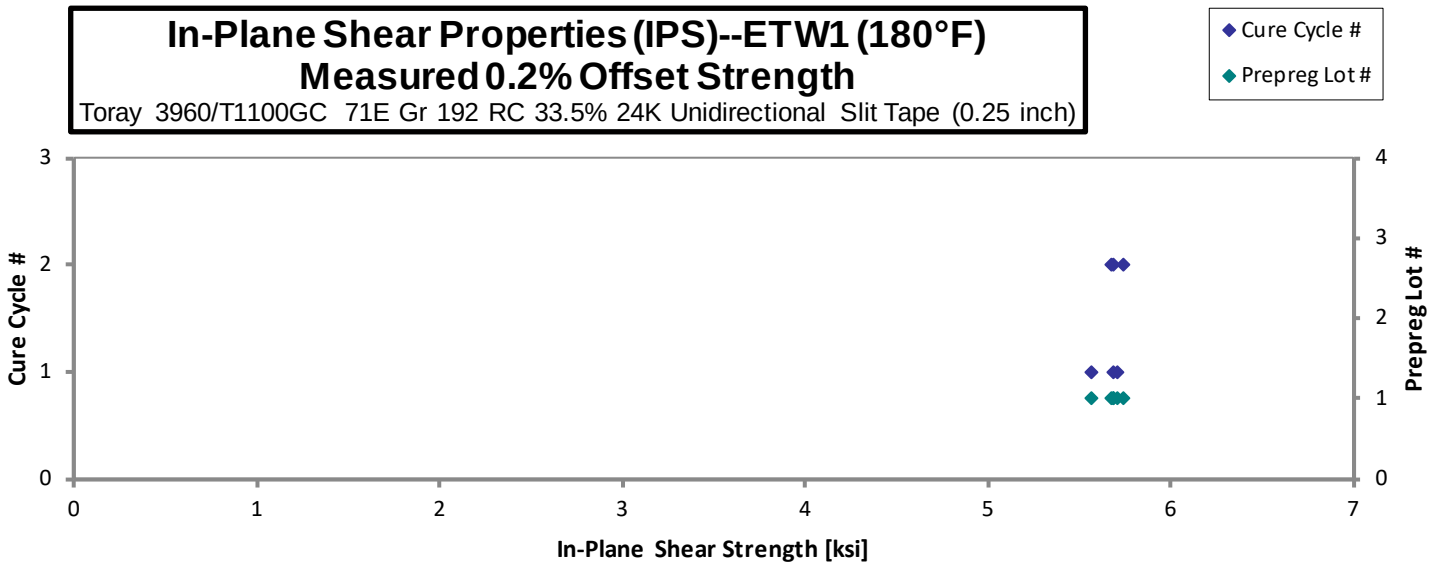

In-Plane Shear Properties (IPS)--RTA (70°F)
Measured 0.2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Strength [ksi]
0
1
2
3
4
5
6
7
8
9

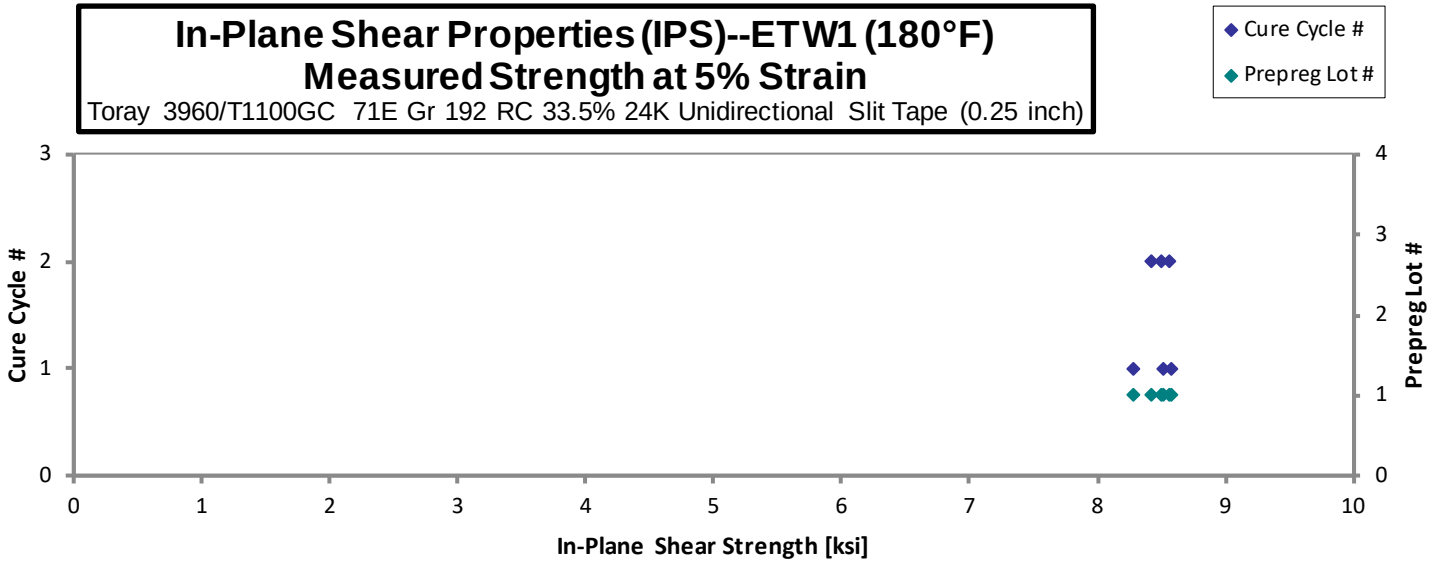

In-Plane Shear Properties (IPS)--RTA (70°F)
Measured Strength at 5% Strain
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Strength [ksi]
0
2
4
6
8
10
12
14
16

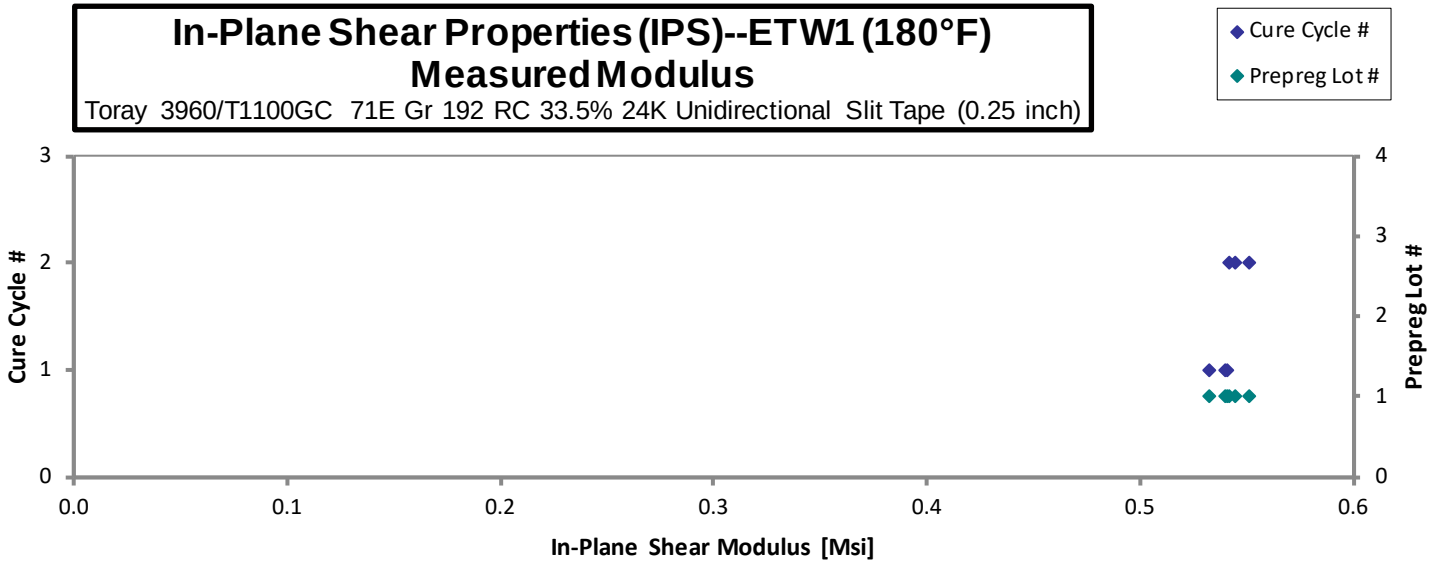

In-Plane Shear Properties (IPS)--RTA (70°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Modulus [Msi]
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0
1
2
3
4

In-Plane Shear Properties (IPS)--ETW1 (180°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C1-1-IPS-ETW1-1	A	C1	1	1	5.564	8.276	0.5324	0.1118	16	0.006988
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C1-1-IPS-ETW1-2	A	C1	1	1	5.684	8.514	0.5412	0.1123	16	0.007017
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C1-1-IPS-ETW1-3	A	C1	1	1	5.713	8.574	0.5400	0.1123	16	0.007017
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C2-1-IPS-ETW1-1	A	C2	1	2	5.688	8.500	0.5443	0.1112	16	0.006947
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C2-1-IPS-ETW1-2	A	C2	1	2	5.677	8.418	0.5417	0.1111	16	0.006942
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C2-1-IPS-ETW1-3	A	C2	1	2	5.741	8.554	0.5514	0.1113	16	0.006958
Average					**5.678**	**8.473**	**0.5418**			**0.006978**
Standard Dev.					**0.06080**	**0.1105**	**0.006182**			
Coeff. of Var. [%]					**1.071**	**1.304**	**1.141**			
Min.					**5.564**	**8.276**	**0.5324**			**0.006942**
Max.					**5.741**	**8.574**	**0.5514**			**0.007017**
Number of Spec.					**6**	**6**	**6**			**6**

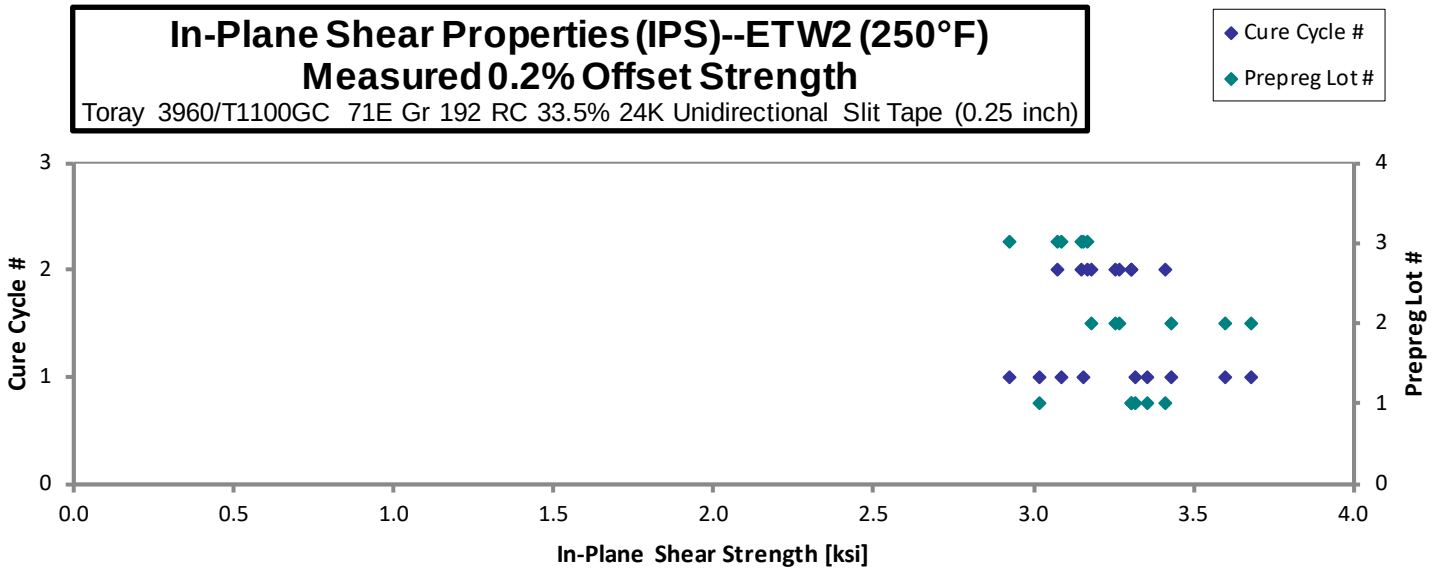

In-Plane Shear Properties (IPS)--ETW1 (180°F)
Measured 0.2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Strength [ksi]
0
1
2
3
4
5
6
7

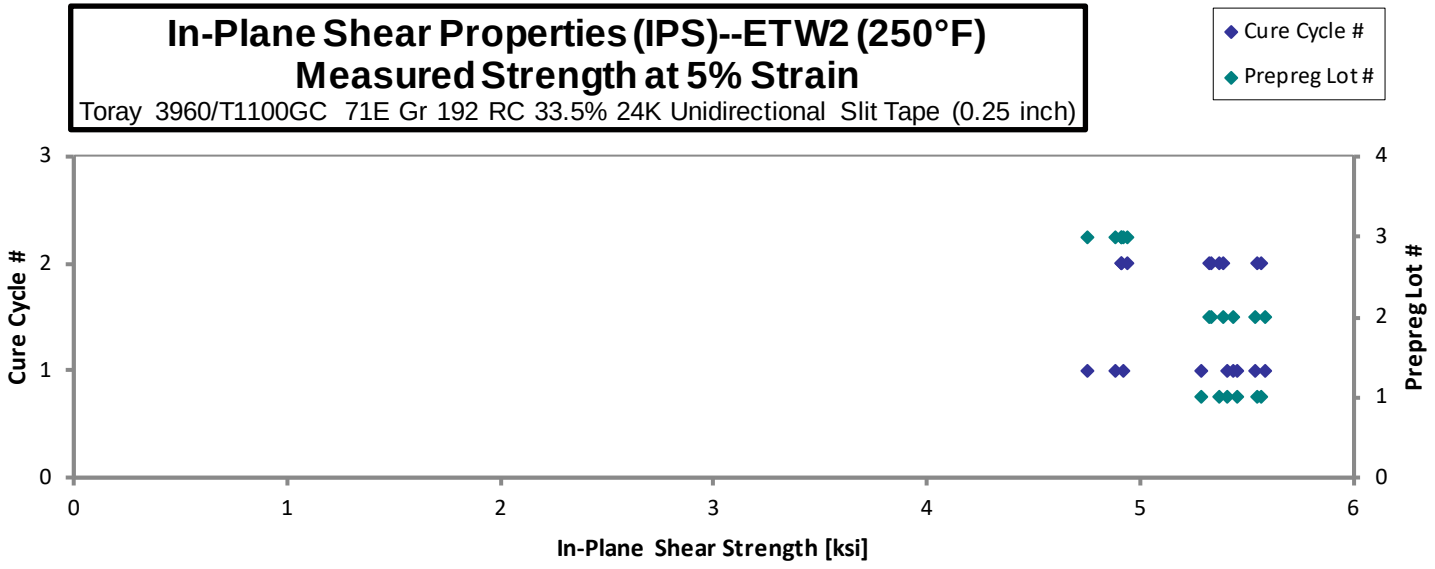

In-Plane Shear Properties (IPS)--ETW1 (180°F)
Measured Strength at 5% Strain
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Strength [ksi]
0
1
2
3
4
5
6
7
8
9
10

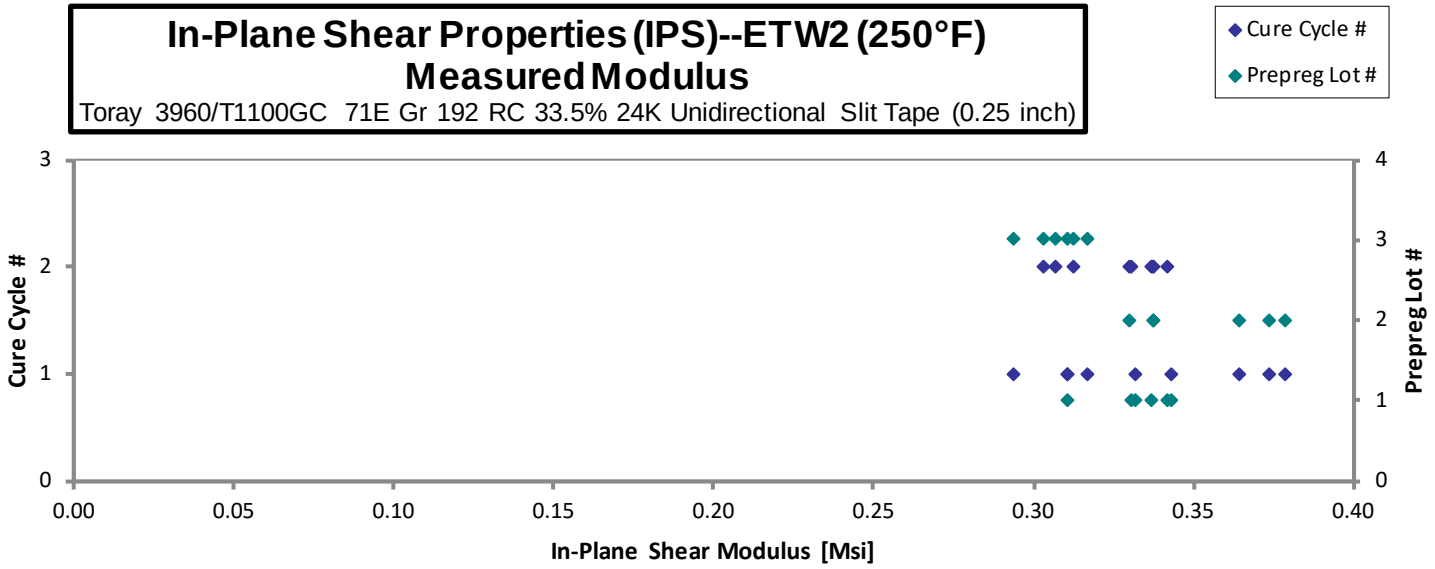

In-Plane Shear Properties (IPS)--ETW1 (180°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Modulus [Msi]
0
1
2
3
4
0.0
0.1
0.2
0.3
0.4
0.5
0.6

In-Plane Shear Properties (IPS)--ETW2 (250°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C1-1-IPS-ETW2-1	A	C1	1	1	3.358	5.457	0.3430	0.1128	16	0.007052
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C1-1-IPS-ETW2-2	A	C1	1	1	3.317	5.410	0.3320	0.1118	16	0.006989
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C1-1-IPS-ETW2-3	A	C1	1	1	3.021	5.288	0.3104	0.1131	16	0.007066
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C2-1-IPS-ETW2-1	A	C2	1	2	3.307	5.369	0.3371	0.1113	16	0.006957
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C2-1-IPS-ETW2-2	A	C2	1	2	3.303	5.545	0.3305	0.1115	16	0.006967
NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C2-1-IPS-ETW2-3	A	C2	1	2	3.411	5.564	0.3417	0.1104	16	0.006902
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C1-1-IPS-ETW2-1	B	C1	2	1	3.678	5.536	0.3784	0.1118	16	0.006990
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C1-1-IPS-ETW2-2	B	C1	2	1	3.597	5.584	0.3734	0.1117	16	0.006980
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C1-1-IPS-ETW2-3	B	C1	2	1	3.429	5.441	0.3643	0.1132	16	0.007074
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C2-1-IPS-ETW2-1	B	C2	2	2	3.256	5.388	0.3374	0.1125	16	0.007028
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C2-1-IPS-ETW2-2	B	C2	2	2	3.181	5.337	0.3297	0.1128	16	0.007047
NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C2-1-IPS-ETW2-3	B	C2	2	2	3.269	5.320	0.3372	0.1125	16	0.007031
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C1-1-IPS-ETW2-1	C	C1	3	1	3.090	4.883	0.3106	0.1147	16	0.007166
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C1-1-IPS-ETW2-2	C	C1	3	1	2.924	4.755	0.2936	0.1147	16	0.007166
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C1-1-IPS-ETW2-3	C	C1	3	1	3.158	4.920	0.3169	0.1145	16	0.007157
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C2-1-IPS-ETW2-1	C	C2	3	2	3.168	4.936	0.3126	0.1146	16	0.007163
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C2-1-IPS-ETW2-2	C	C2	3	2	3.072	4.915	0.3031	0.1148	16	0.007175
NTP3963Q1-TC-WEB-NIAR-T01-MST3-C-C2-1-IPS-ETW2-3	C	C2	3	2	3.150	4.914	0.3066	0.1146	16	0.007163
				Average	**3.261**	**5.253**	**0.3310**			**0.007059**
				Standard Dev.	**0.1923**	**0.2810**	**0.02387**			
				Coeff. of Var. [%]	**5.898**	**5.350**	**7.212**			
				Min.	**2.924**	**4.755**	**0.2936**			**0.006902**
				Max.	**3.678**	**5.584**	**0.3784**			**0.007175**
				Number of Spec.	**18**	**18**	**18**			**18**


In-Plane Shear Properties (IPS)--ETW2 (250°F)
Measured 0.2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
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
0
1
2
3
4

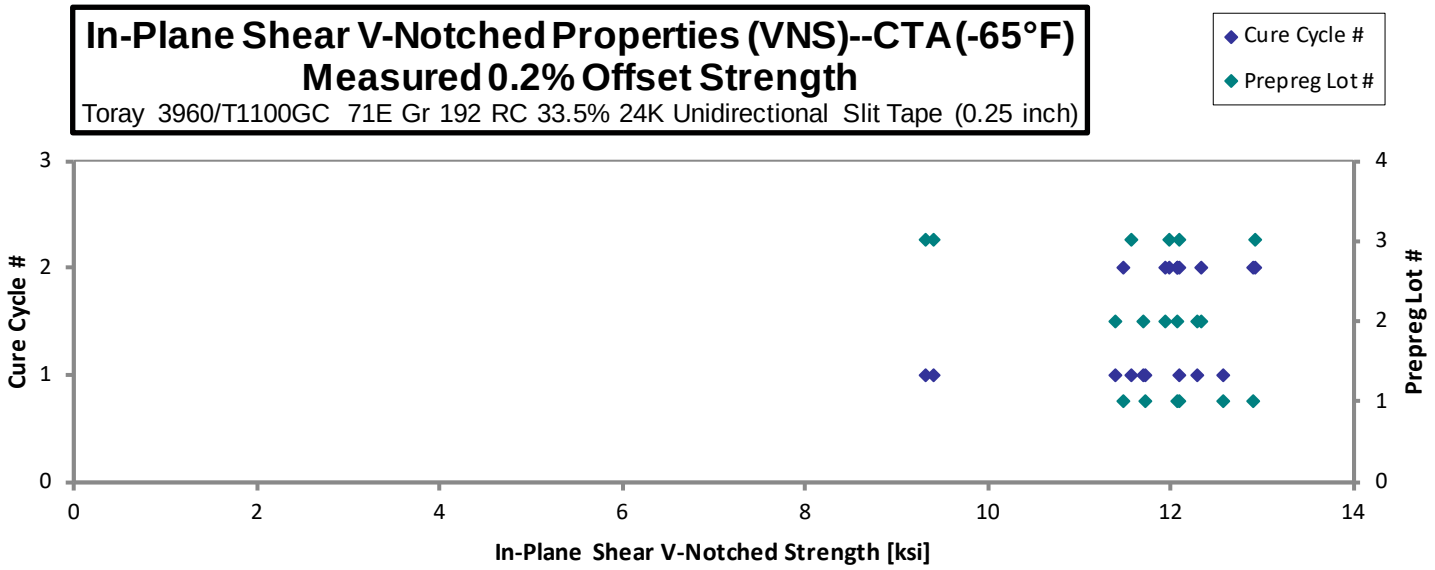

In-Plane Shear Properties (IPS)--ETW2 (250°F)
Measured Strength at 5% Strain
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Strength [ksi]
0
1
2
3
4
5
6
0
1
2
3
4

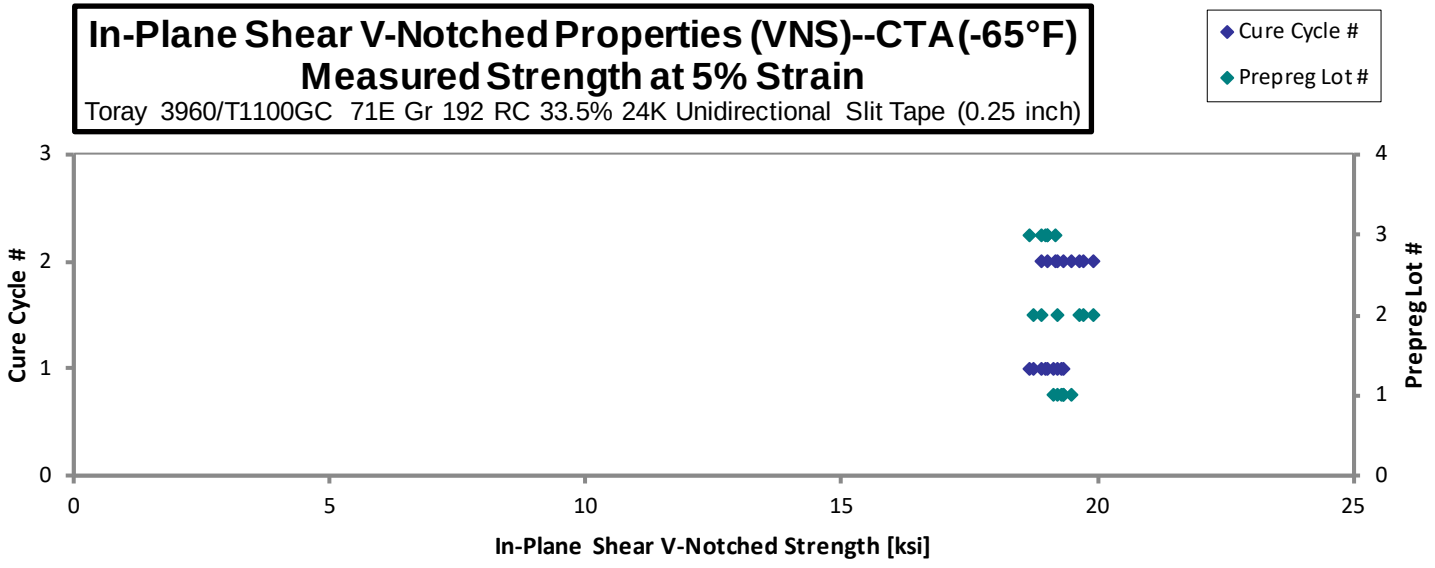

In-Plane Shear Properties (IPS)--ETW2 (250°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Modulus [Msi]
0
1
2
3
4
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40

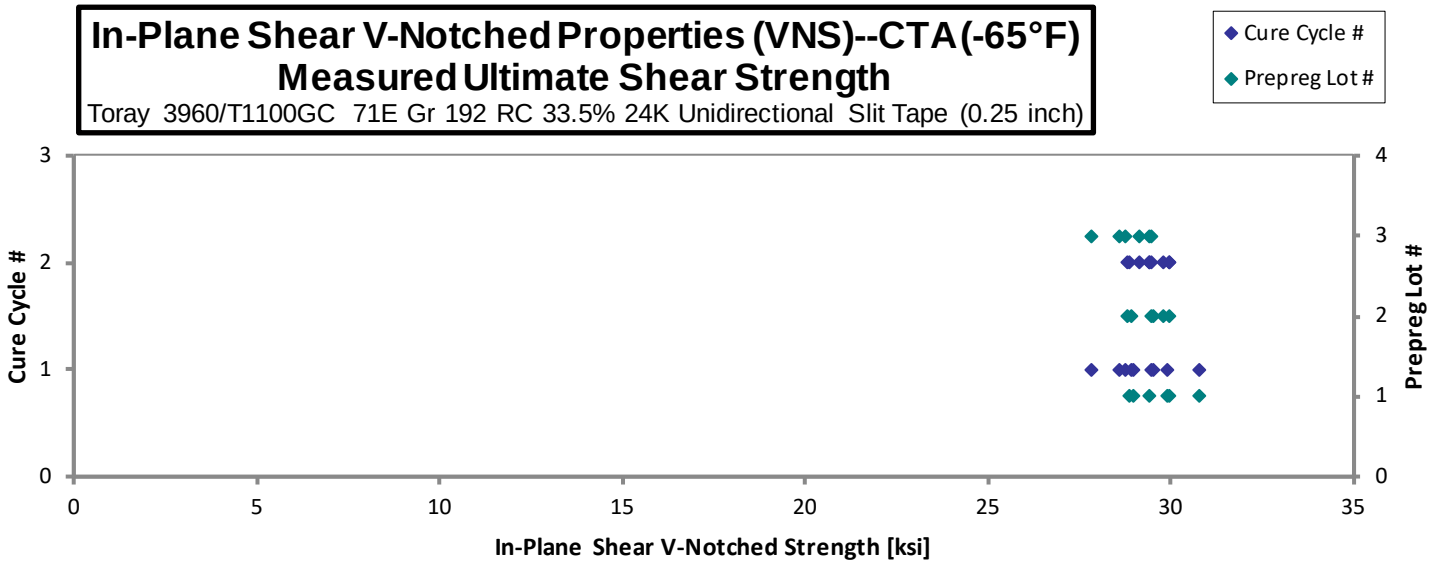
4.7 In-Plane Shear V-Notched Properties (VNS)

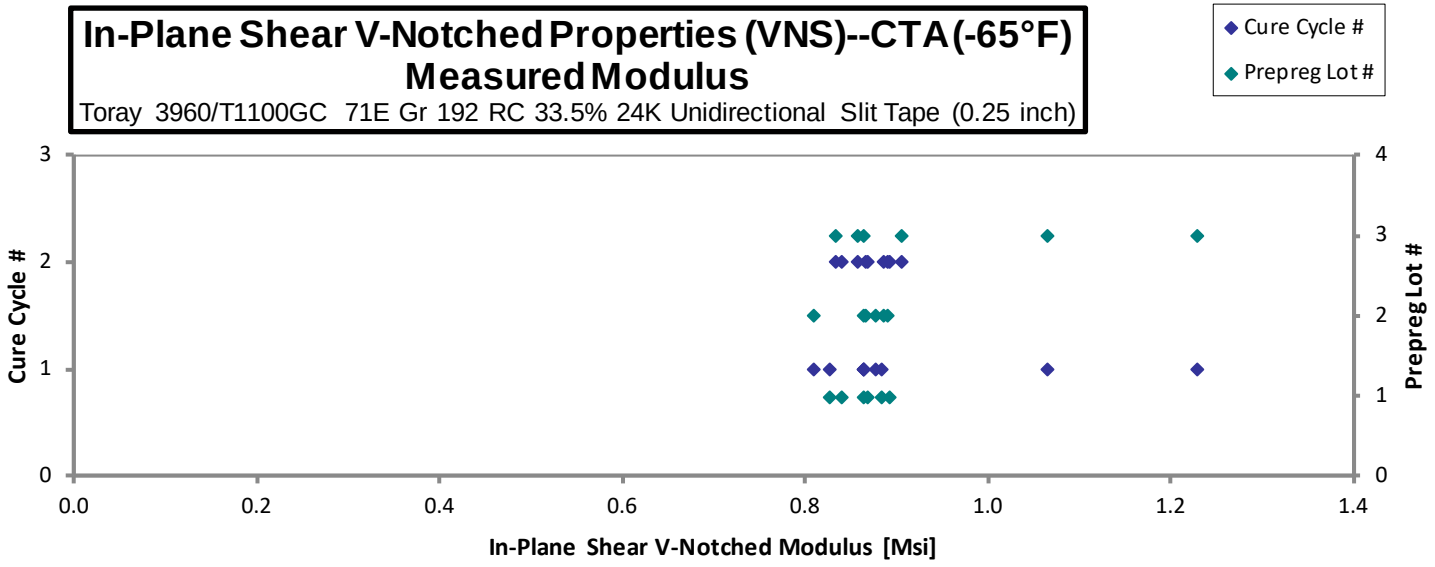
In-Plane Shear V-Notched Properties (VNS)--CTA (-65°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Ultimate Shear Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C1-1-VNS-CTA-1	A	C1	1	1	11.73	19.35	30.80	0.8849	0.1376	20	0.006878	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C1-1-VNS-CTA-2	A	C1	1	1	12.57	19.29	28.96	0.8277	0.1383	20	0.006917	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C1-1-VNS-CTA-3	A	C1	1	1	12.10	19.13	29.92	0.8639	0.1383	20	0.006915	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C2-1-VNS-CTA-1	A	C2	1	2	12.90	19.21	29.96	0.8402	0.1385	20	0.006926	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C2-1-VNS-CTA-2	A	C2	1	2	11.48	19.48	28.88	0.8935	0.1404	20	0.007021	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C2-1-VNS-CTA-3	A	C2	1	2	12.08	19.33	29.43	0.8675	0.1389	20	0.006943	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C1-1-VNS-CTA-1	B	C1	2	1	11.40	19.23	29.55	0.8641	0.1413	20	0.007064	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C1-1-VNS-CTA-2	B	C1	2	1	12.29	18.89	28.95	0.8096	0.1388	20	0.006940	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C1-1-VNS-CTA-3	B	C1	2	1	11.70	18.76	29.49	0.8773	0.1389	20	0.006945	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C2-1-VNS-CTA-1	B	C2	2	2	11.94	19.90	28.83	0.8667	0.1402	20	0.007011	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C2-1-VNS-CTA-2	B	C2	2	2	12.33	19.74	29.95	0.8867	0.1402	20	0.007008	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C2-1-VNS-CTA-3	B	C2	2	2	12.07	19.64	29.78	0.8904	0.1406	20	0.007028	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C1-1-VNS-CTA-1	C	C1	3	1	9.409	18.66	27.85	1.230	0.1469	20	0.007347	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C1-1-VNS-CTA-2	C	C1	3	1	9.316	18.97	28.77	1.065	0.1440	20	0.007198	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C1-1-VNS-CTA-3	C	C1	3	1	11.57	19.03	28.58	0.8632	0.1422	20	0.007109	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C2-1-VNS-CTA-1	C	C2	3	2	11.98	19.18	29.15	0.8578	0.1413	20	0.007063	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C2-1-VNS-CTA-2	C	C2	3	2	12.93	19.01	29.44	0.8339	0.1403	20	0.007015	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C2-1-VNS-CTA-3	C	C2	3	2	12.09	18.90	29.50	0.9055	0.1387	20	0.006933	HGN
				Average	**11.77**	**19.21**	**29.32**	**0.8960**			**0.007014**	
				Standard Dev.	**0.9755**	**0.3338**	**0.6630**	**0.09885**				
				Coeff. of Var. [%]	**8.287**	**1.738**	**2.261**	**11.03**				
				Min.	**9.316**	**18.66**	**27.85**	**0.8096**			**0.006878**	
				Max.	**12.93**	**19.90**	**30.80**	**1.230**			**0.007347**	
				Number of Spec.	**18**	**18**	**18**	**18**			**18**	


In-Plane Shear V-Notched Properties (VNS)--CTA (-65°F)
Measured 0.2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear V-Notched Strength [ksi]
0
2
4
6
8
10
12
14
0
1
2
3
4

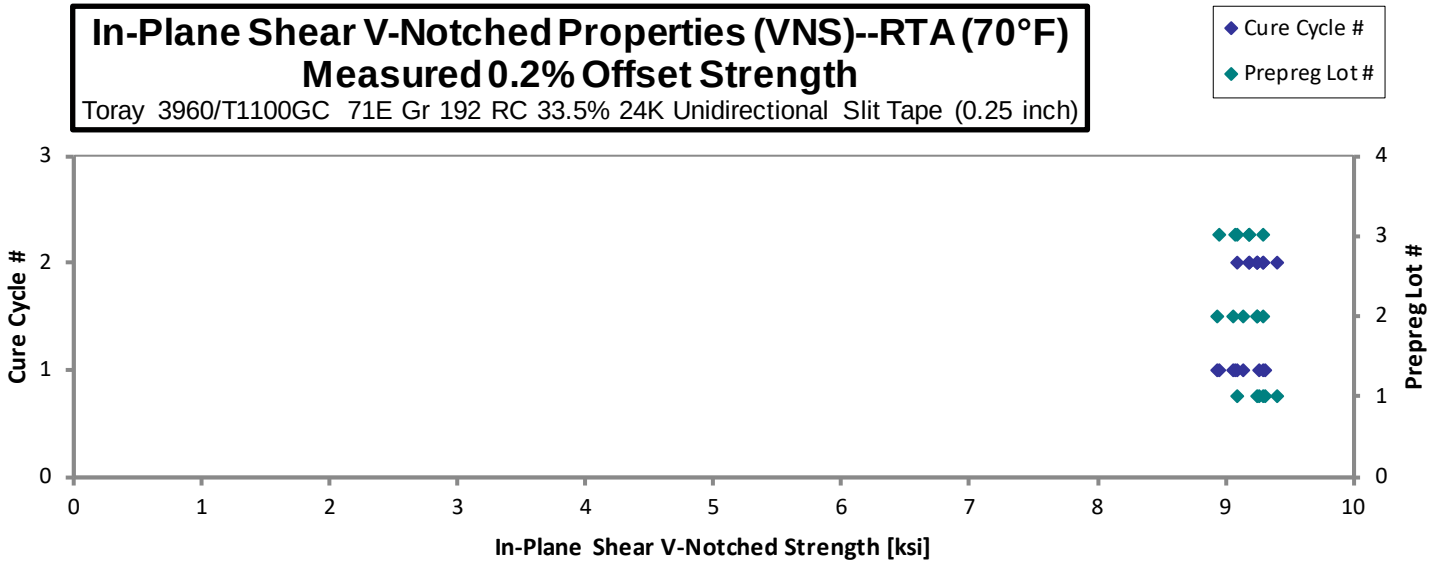

In-Plane Shear V-Notched Properties (VNS)--CTA (-65°F)
Measured Strength at 5% Strain
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear V-Notched Strength [ksi]
0
5
10
15
20
25
0
1
2
3
4

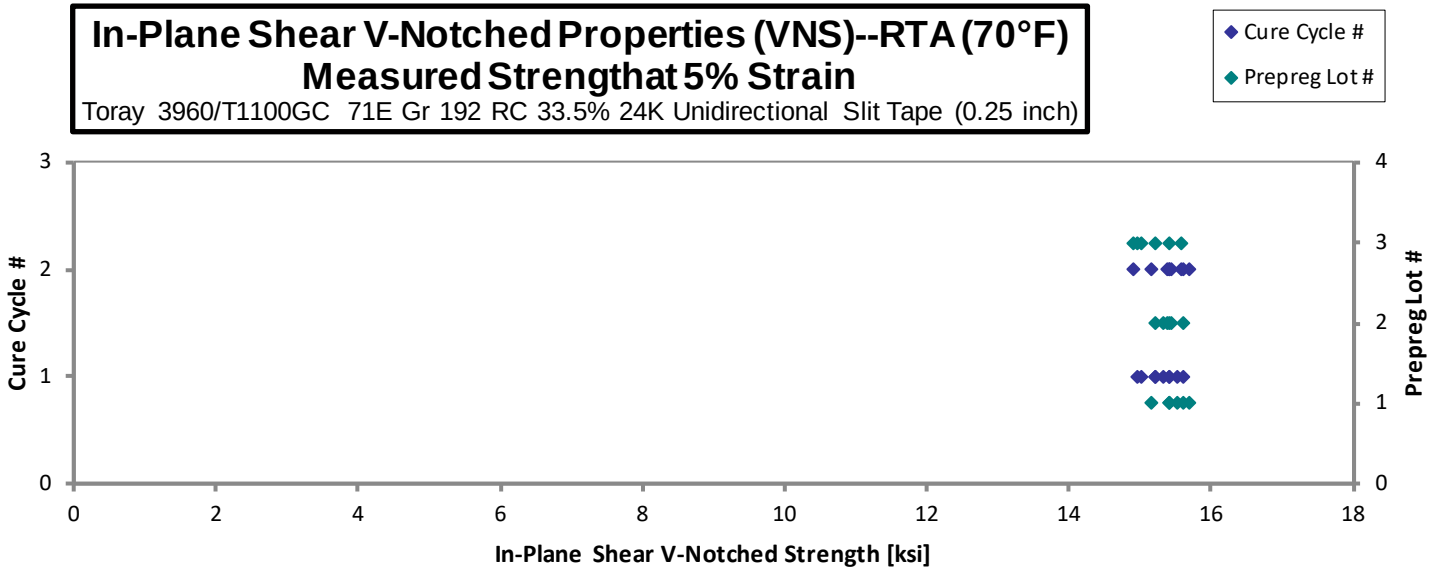

In-Plane Shear V-Notched Properties (VNS)--CTA (-65°F)
Measured Ultimate Shear Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
5
10
15
20
25
30
35
In-Plane Shear V-Notched Strength [ksi]

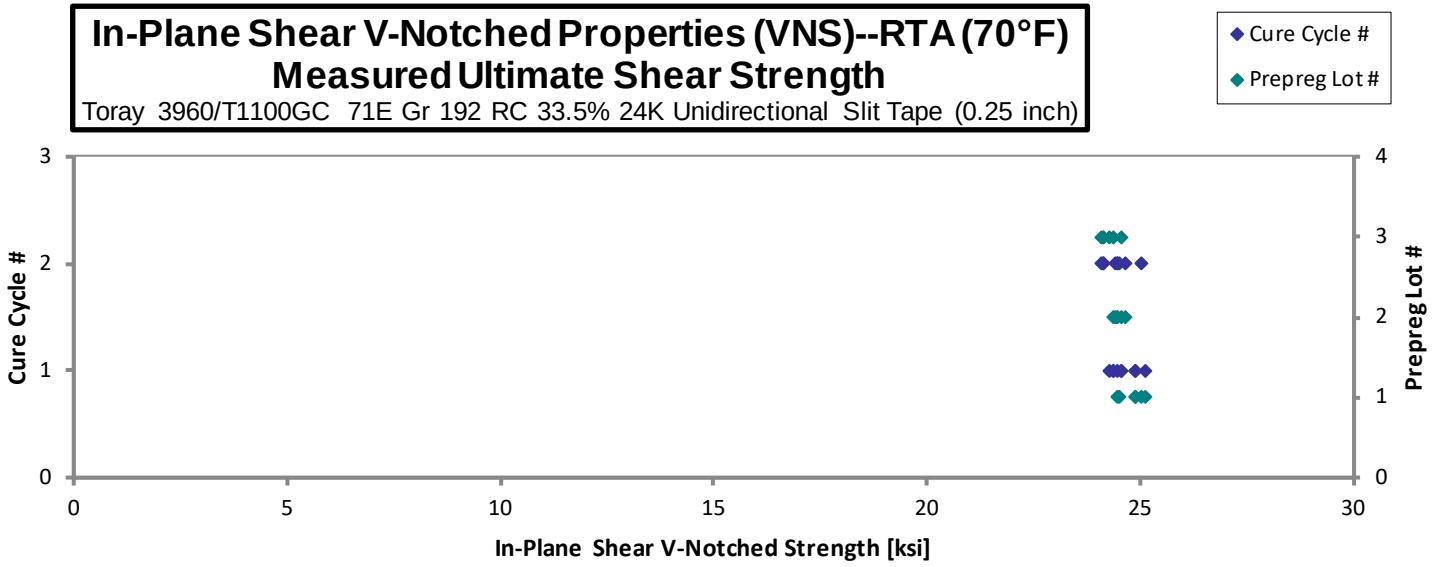

In-Plane Shear V-Notched Properties (VNS)--CTA (-65°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
In-Plane Shear V-Notched Modulus [Msi]

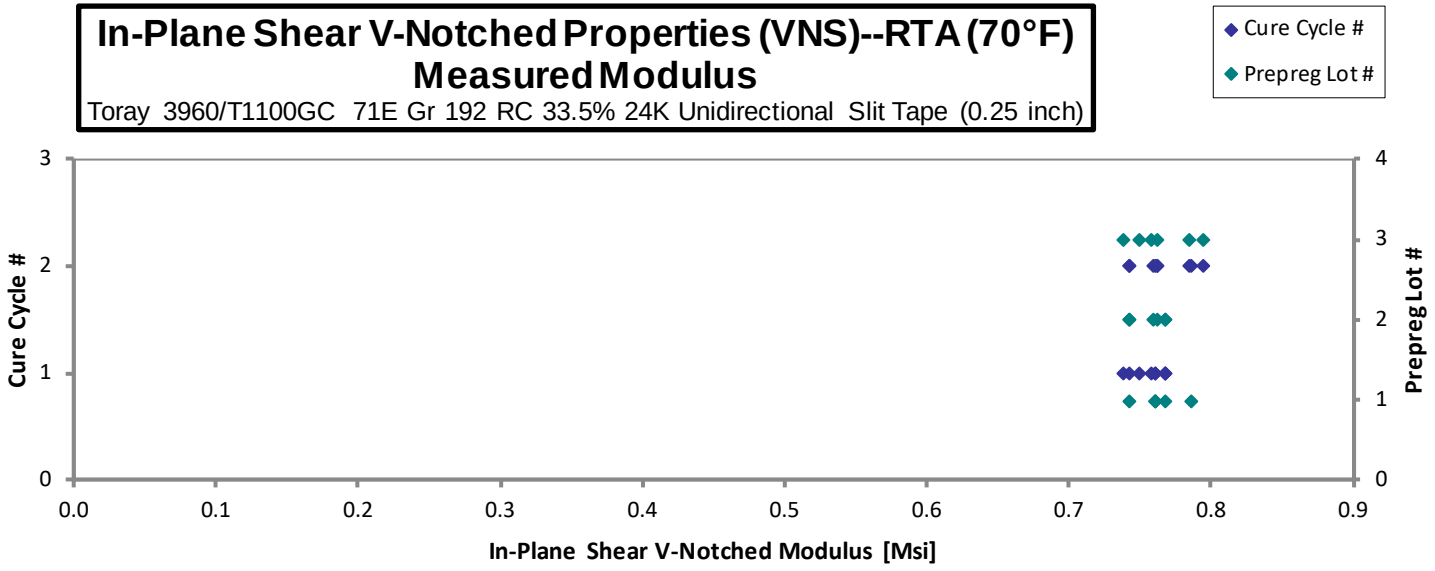
In-Plane Shear V-Notched Properties (VNS)--RTA (70°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Ultimate Shear Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C1-1-VNS-RTA-1	A	C1	1	1	9.306	15.40	24.89	0.7610	0.1382	20	0.006911	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C1-1-VNS-RTA-2	A	C1	1	1	9.300	15.60	25.12	0.7603	0.1376	20	0.006882	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C1-1-VNS-RTA-3	A	C1	1	1	9.270	15.51	24.90	0.7678	0.1371	20	0.006853	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C2-1-VNS-RTA-1	A	C2	1	2	9.242	15.42	25.05	0.7610	0.1417	20	0.007086	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C2-1-VNS-RTA-2	A	C2	1	2	9.408	15.68	24.52	0.7857	0.1399	20	0.006995	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C2-1-VNS-RTA-3	A	C2	1	2	9.092	15.16	24.47	0.7431	0.1424	20	0.007121	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C1-1-VNS-RTA-1	B	C1	2	1	9.132	15.40	24.46	0.7677	0.1395	20	0.006974	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C1-1-VNS-RTA-2	B	C1	2	1	8.929	15.32	24.37	0.7672	0.1403	20	0.007017	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C1-1-VNS-RTA-3	B	C1	2	1	9.068	15.20	24.56	0.7431	0.1416	20	0.007078	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C2-1-VNS-RTA-1	B	C2	2	2	9.253	15.38	24.48	0.7620	0.1414	20	0.007071	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C2-1-VNS-RTA-2	B	C2	2	2	9.292	15.60	24.43	0.7594	0.1412	20	0.007058	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C2-1-VNS-RTA-3	B	C2	2	2	9.251	15.43	24.64	0.7425	0.1411	20	0.007057	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C1-1-VNS-RTA-1	C	C1	3	1	9.094	15.22	24.55	0.7498	0.1413	20	0.007064	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C1-1-VNS-RTA-2	C	C1	3	1	9.083	15.02	24.29	0.7580	0.1423	20	0.007114	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C1-1-VNS-RTA-3	C	C1	3	1	8.945	14.96	24.39	0.7386	0.1456	20	0.007280	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C2-1-VNS-RTA-1	C	C2	3	2	9.294	15.59	24.08	0.7847	0.1391	20	0.006953	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C2-1-VNS-RTA-2	C	C2	3	2	9.189	15.42	24.15	0.7938	0.1401	20	0.007007	HGN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C2-1-VNS-RTA-3	C	C2	3	2	9.185	14.90	24.14	0.7617	0.1415	20	0.007075	HGN
				Average	**9.185**	**15.35**	**24.53**	**0.7615**			**0.007033**	
				Standard Dev.	**0.1300**	**0.2266**	**0.2990**	**0.01533**				
				Coeff. of Var. [%]	**1.415**	**1.477**	**1.219**	**2.013**				
				Min.	**8.929**	**14.90**	**24.08**	**0.7386**			**0.006853**	
				Max.	**9.408**	**15.68**	**25.12**	**0.7938**			**0.007280**	
				Number of Spec.	**18**	**18**	**18**	**18**			**18**	


In-Plane Shear V-Notched Properties (VNS)--RTA (70°F)
Measured 0.2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear V-Notched Strength [ksi]

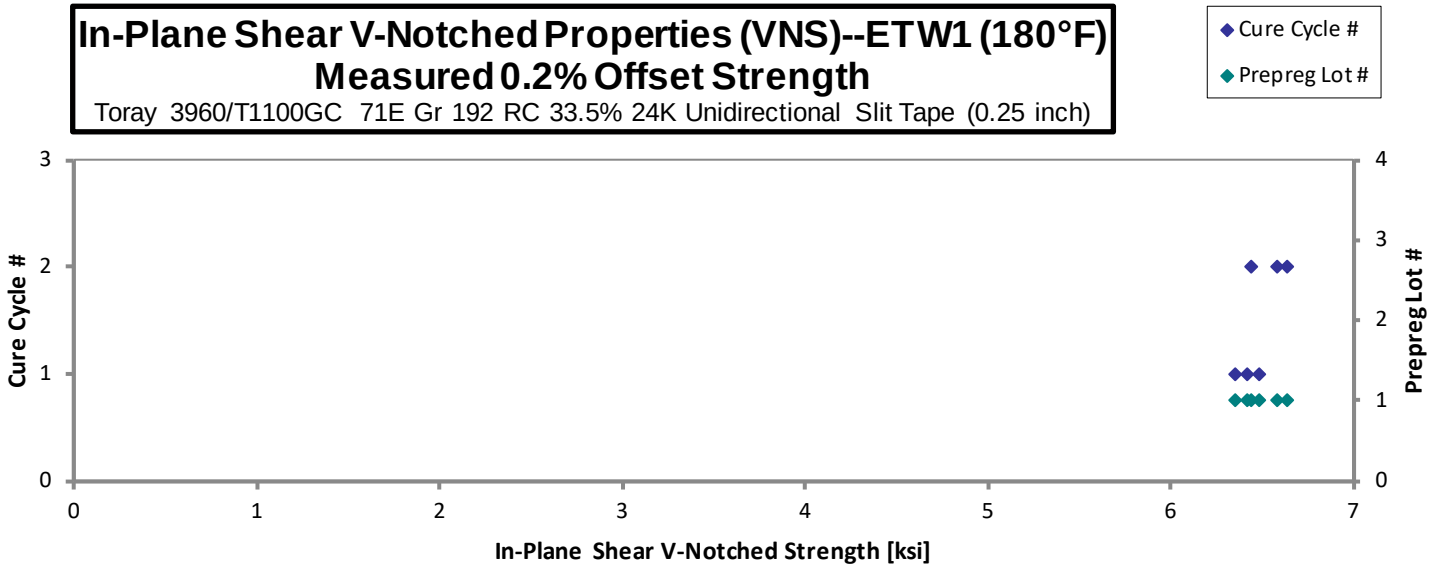

In-Plane Shear V-Notched Properties (VNS)--RTA (70°F)
Measured Strengthat 5% Strain
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear V-Notched Strength [ksi]

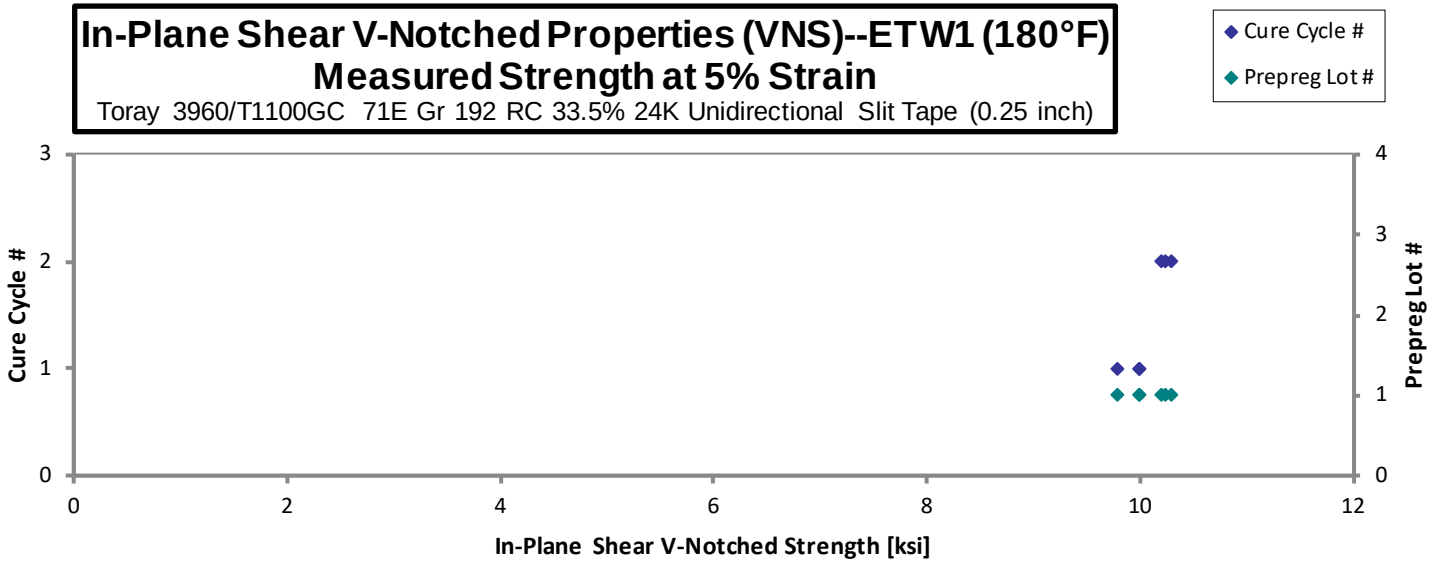

In-Plane Shear V-Notched Properties (VNS)--RTA (70°F)
Measured Ultimate Shear Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
5
10
15
20
25
30
In-Plane Shear V-Notched Strength [ksi]

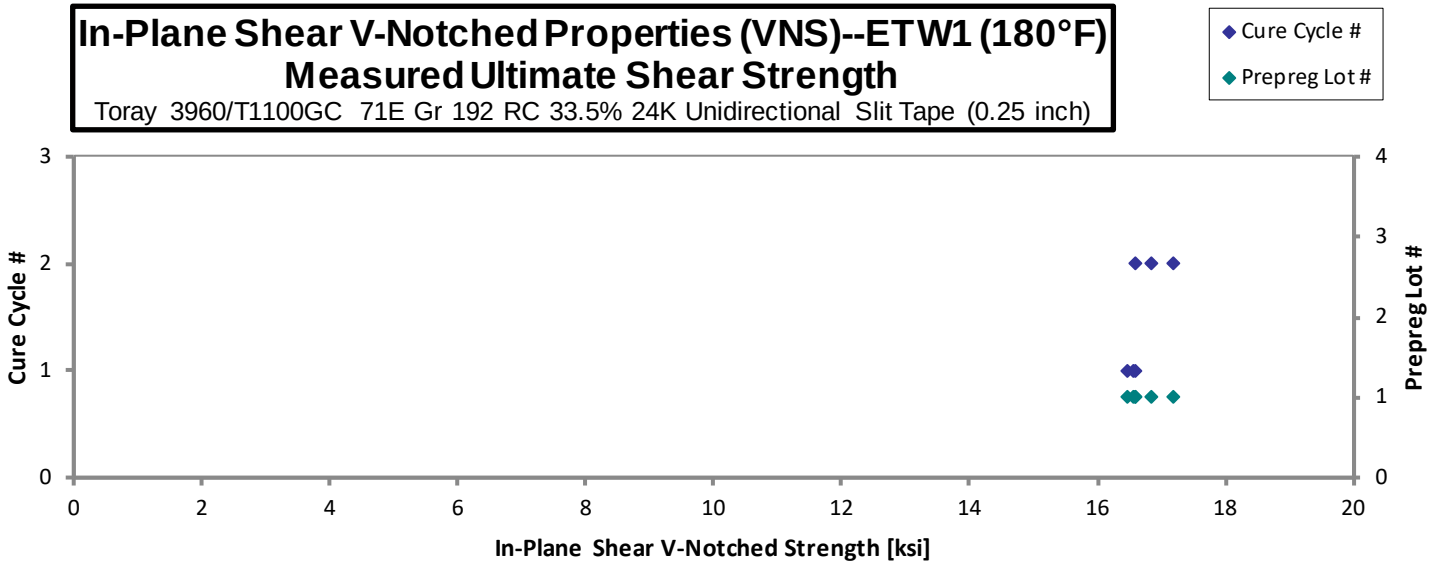

In-Plane Shear V-Notched Properties (VNS)--RTA (70°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
In-Plane Shear V-Notched Modulus [Msi]

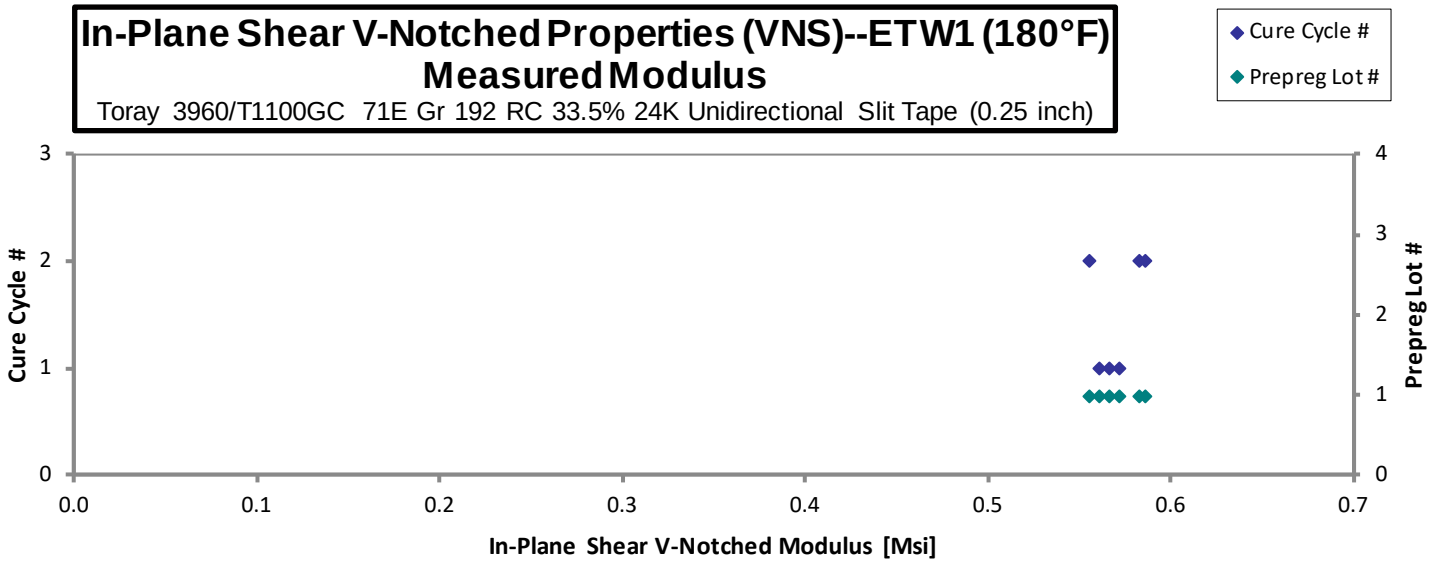
In-Plane Shear V-Notched Properties (VNS)--ETW1 (180°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Ultimate Shear Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C1-1-VNS-ETW1-1	A	C1	1	1	6.488	9.984	16.56	0.5670	0.1374	20	0.006870	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C1-1-VNS-ETW1-2	A	C1	1	1	6.358	9.795	16.48	0.5614	0.1395	20	0.006975	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C1-1-VNS-ETW1-3	A	C1	1	1	6.420	10.00	16.60	0.5723	0.1393	20	0.006964	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C2-1-VNS-ETW1-1	A	C2	1	2	6.444	10.19	16.61	0.5860	0.1400	20	0.006999	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C2-1-VNS-ETW1-2	A	C2	1	2	6.641	10.23	16.85	0.5559	0.1397	20	0.006985	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C2-1-VNS-ETW1-3	A	C2	1	2	6.588	10.30	17.20	0.5830	0.1404	20	0.007019	M(V,H)GN
Average					**6.490**	**10.08**	**16.72**	**0.5709**			**0.006969**	
Standard Dev.					**0.1067**	**0.1901**	**0.2670**	**0.01188**				
Coeff. of Var. [%]					**1.644**	**1.885**	**1.597**	**2.081**				
Min.					**6.358**	**9.795**	**16.48**	**0.5559**			**0.006870**	
Max.					**6.641**	**10.30**	**17.20**	**0.5860**			**0.007019**	
Number of Spec.					**6**	**6**	**6**	**6**			**6**	


In-Plane Shear V-Notched Properties (VNS)--ETW1 (180°F)
Measured 0.2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear V-Notched Strength [ksi]
0
1
2
3
4
5
6
7

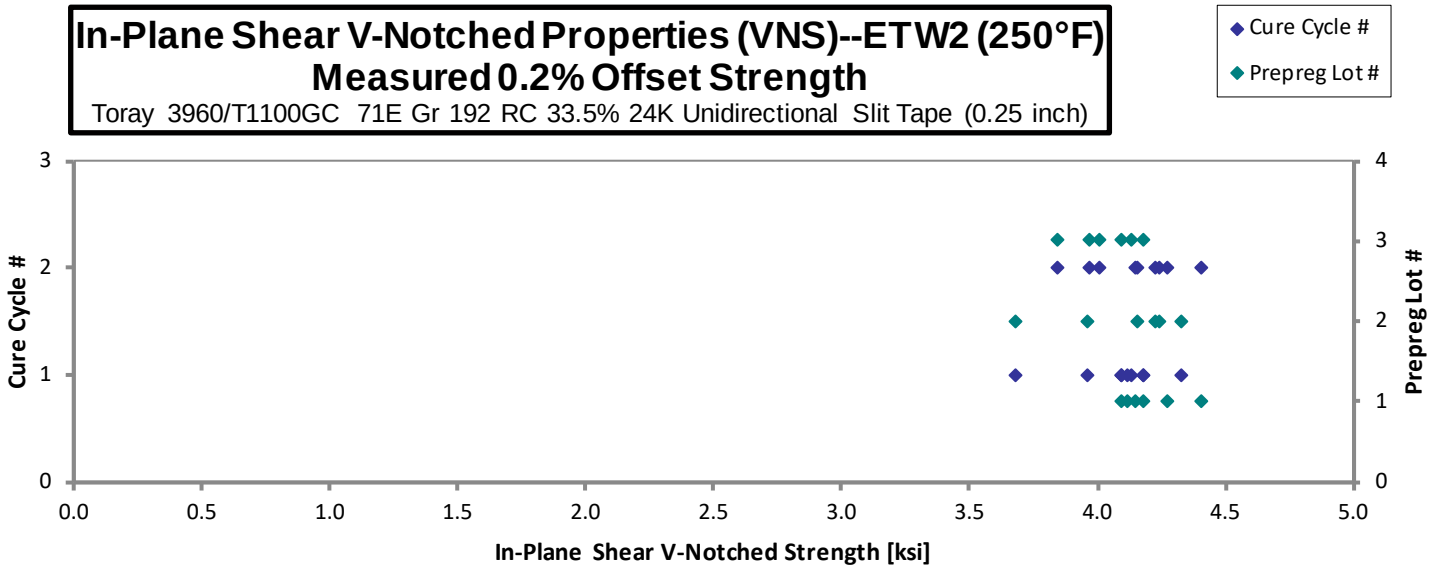

In-Plane Shear V-Notched Properties (VNS)--ETW1 (180°F)
Measured Strength at 5% Strain
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear V-Notched Strength [ksi]
0
2
4
6
8
10
12

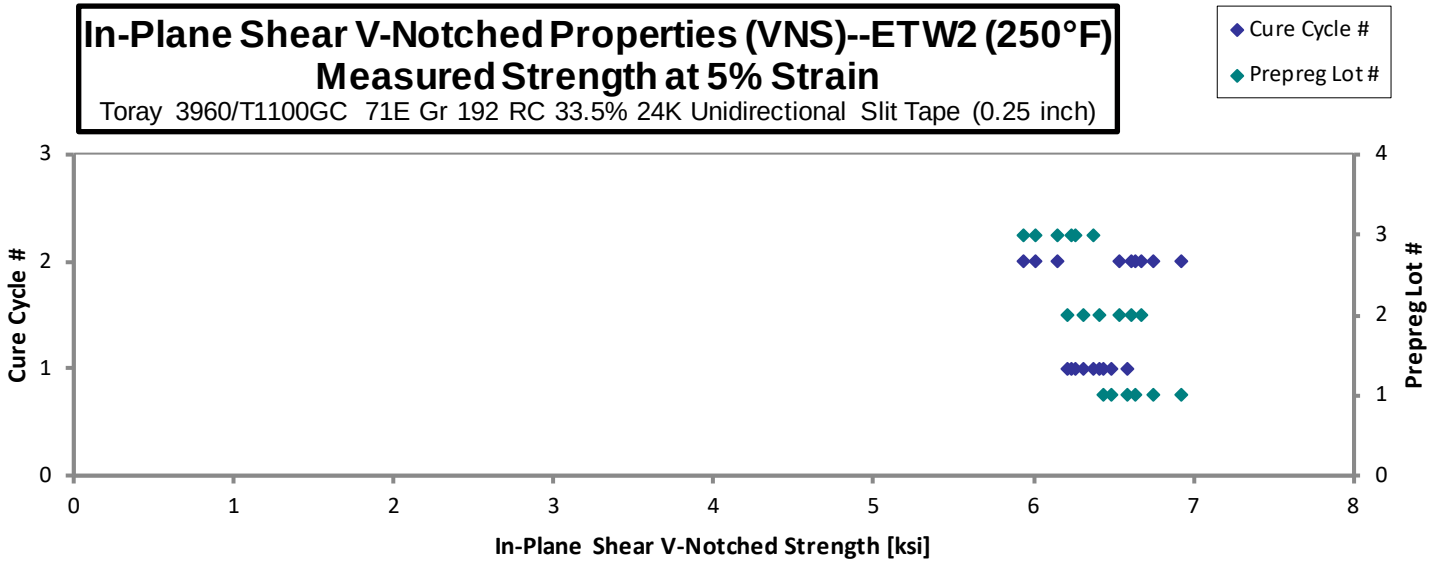

In-Plane Shear V-Notched Properties (VNS)--ETW1 (180°F)
Measured Ultimate Shear Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear V-Notched Strength [ksi]
0
2
4
6
8
10
12
14
16
18
20
0
1
2
3
4

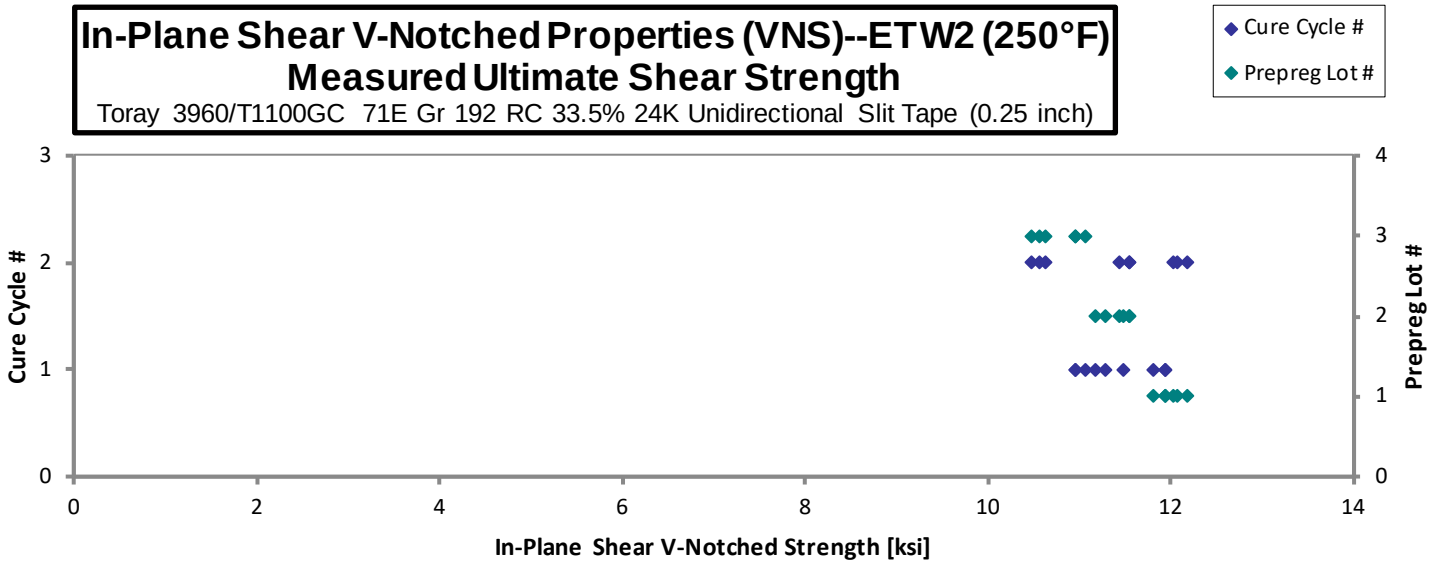

In-Plane Shear V-Notched Properties (VNS)--ETW1 (180°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear V-Notched Modulus [Msi]
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0
1
2
3
4

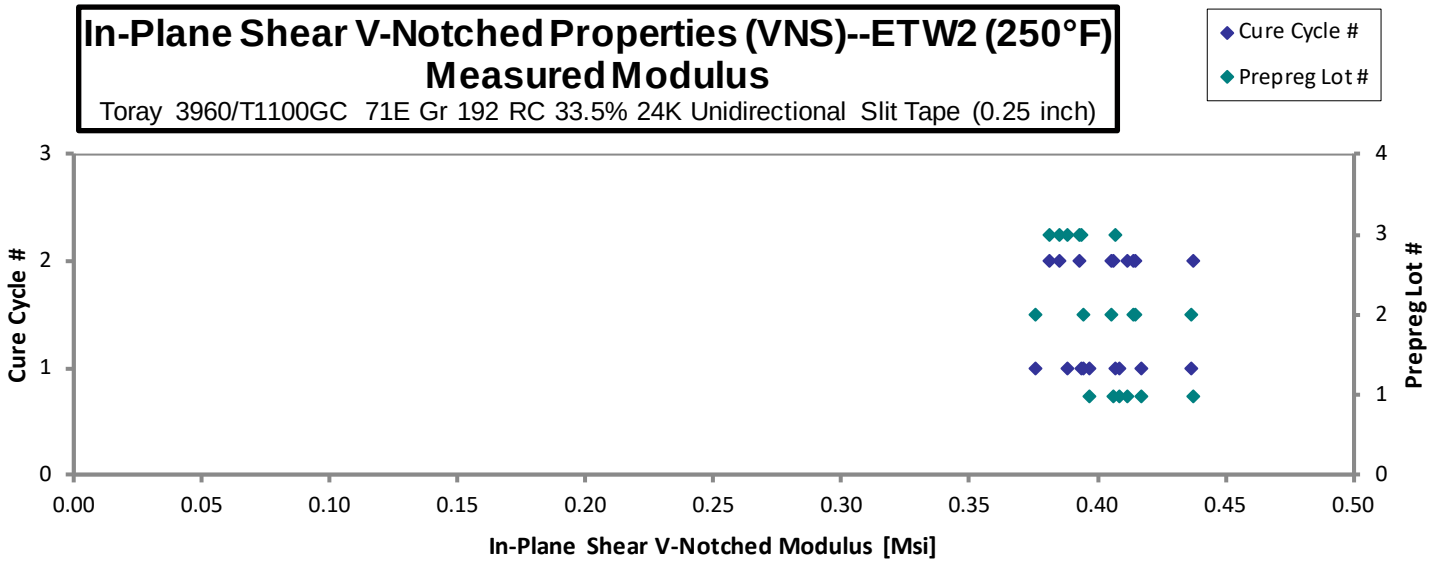
In-Plane Shear V-Notched Properties (VNS)--ETW2 (250°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Ultimate Shear Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C1-1-VNS-ETW2-1	A	C1	1	1	4.097	6.488	11.95	0.4085	0.1370	20	0.006848	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C1-1-VNS-ETW2-2	A	C1	1	1	4.114	6.441	11.82	0.3968	0.1376	20	0.006880	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C1-1-VNS-ETW2-3	A	C1	1	1	4.177	6.584	11.94	0.4169	0.1381	20	0.006906	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C2-1-VNS-ETW2-1	A	C2	1	2	4.151	6.637	12.02	0.4064	0.1410	20	0.007048	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C2-1-VNS-ETW2-2	A	C2	1	2	4.270	6.749	12.08	0.4114	0.1419	20	0.007097	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C2-1-VNS-ETW2-3	A	C2	1	2	4.402	6.924	12.19	0.4372	0.1393	20	0.006963	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C1-1-VNS-ETW2-1	B	C1	2	1	4.325	6.414	11.47	0.3761	0.1394	20	0.006971	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C1-1-VNS-ETW2-2	B	C1	2	1	3.678	6.206	11.29	0.4365	0.1392	20	0.006962	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C1-1-VNS-ETW2-3	B	C1	2	1	3.964	6.308	11.17	0.3942	0.1399	20	0.006993	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C2-1-VNS-ETW2-1	B	C2	2	2	4.227	6.617	11.55	0.4145	0.1407	20	0.007036	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C2-1-VNS-ETW2-2	B	C2	2	2	4.244	6.676	11.44	0.4056	0.1411	20	0.007057	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-B-C2-1-VNS-ETW2-3	B	C2	2	2	4.158	6.541	11.54	0.4137	0.1414	20	0.007072	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C1-1-VNS-ETW2-1	C	C1	3	1	4.096	6.377	10.96	0.4067	0.1432	20	0.007161	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C1-1-VNS-ETW2-2	C	C1	3	1	4.181	6.234	10.96	0.3881	0.1420	20	0.007099	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C1-1-VNS-ETW2-3	C	C1	3	1	4.135	6.260	11.07	0.3935	0.1417	20	0.007083	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C2-1-VNS-ETW2-1	C	C2	3	2	4.011	6.147	10.63	0.3933	0.1399	20	0.006996	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C2-1-VNS-ETW2-2	C	C2	3	2	3.969	6.011	10.57	0.3848	0.1392	20	0.006958	M(V,H)GN
NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C2-1-VNS-ETW2-3	C	C2	3	2	3.844	5.942	10.47	0.3810	0.1398	20	0.006989	M(V,H)GN
				Average	**4.113**	**6.420**	**11.39**	**0.4036**			**0.007006**	
				Standard Dev.	**0.1734**	**0.2602**	**0.5422**	**0.01701**				
				Coeff. of Var. [%]	**4.216**	**4.052**	**4.758**	**4.214**				
				Min.	**3.678**	**5.942**	**10.47**	**0.3761**			**0.006848**	
				Max.	**4.402**	**6.924**	**12.19**	**0.4372**			**0.007161**	
				Number of Spec.	**18**	**18**	**18**	**18**			**18**	


In-Plane Shear V-Notched Properties (VNS)--ETW2 (250°F)
Measured 0.2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear V-Notched 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
4


In-Plane Shear V-Notched Properties (VNS)--ETW2 (250°F)
Measured Strength at 5% Strain
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear V-Notched Strength [ksi]
0
1
2
3
4
5
6
7
8
0
1
2
3
4


In-Plane Shear V-Notched Properties (VNS)--ETW2 (250°F)
Measured Ultimate Shear Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear V-Notched Strength [ksi]
0
2
4
6
8
10
12
14


In-Plane Shear V-Notched Properties (VNS)--ETW2 (250°F)
Measured Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear V-Notched Modulus [Msi]
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50

4.8 "25/50/25" Unnotched Tension 1 Properties (UNT1)

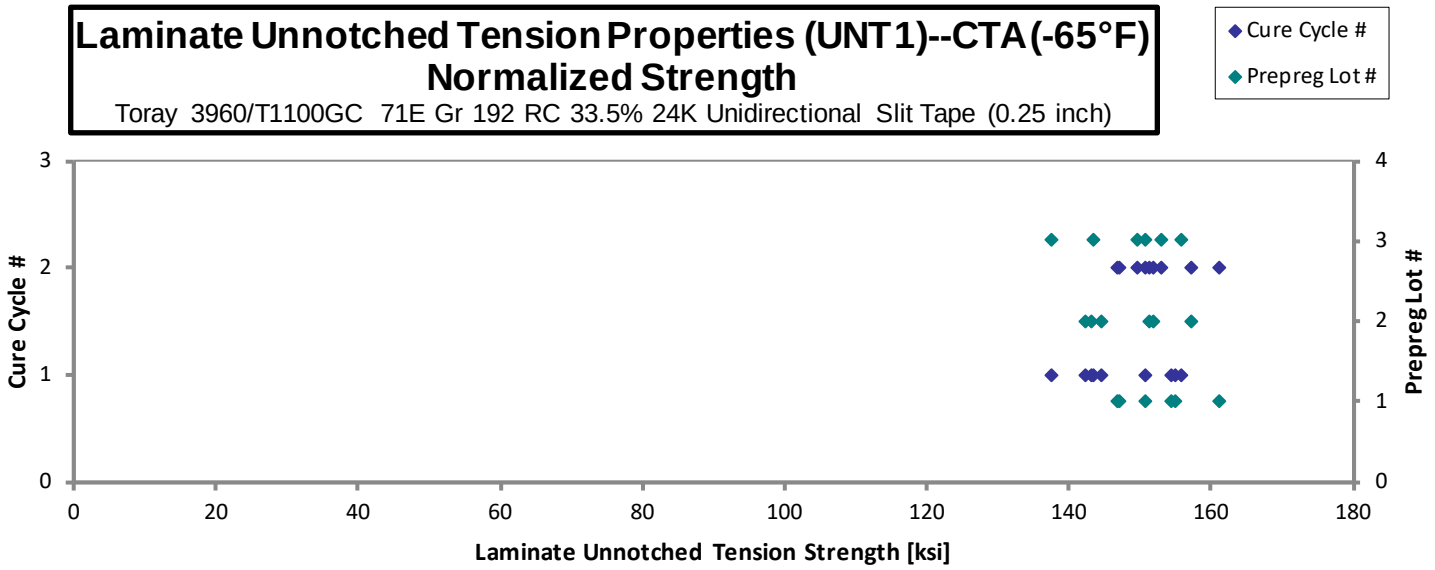
Laminate Unnotched Tension Properties (UNT1)--CTA (-65°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

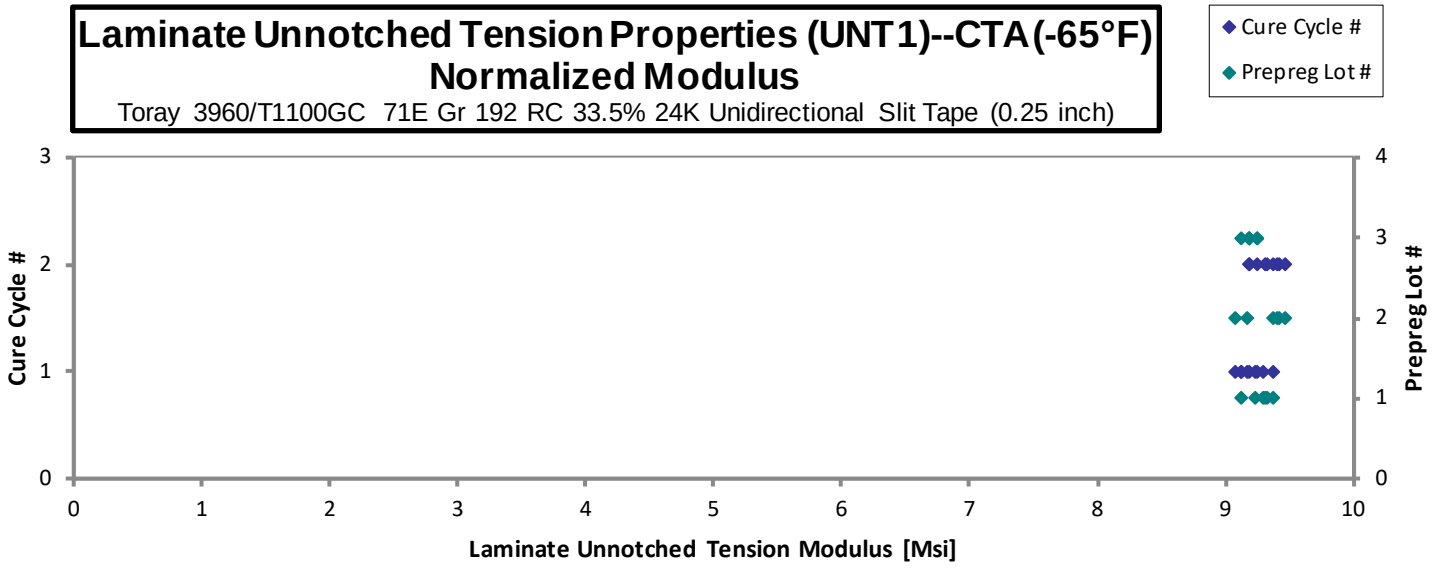
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNT1-CTA-1	A	C1	1	1	154.5	9.248	0.1119	16	AGB, M(A,L)WT	0.006993	154.3	9.238
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNT1-CTA-2	A	C1	1	1	151.4	9.162	0.1115	16	AGB, AAT	0.006967	150.7	9.118
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNT1-CTA-3	A	C1	1	1	154.7	9.296	0.1121	16	AWB, AAT	0.007004	154.8	9.302
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNT1-CTA-1	A	C2	1	2	146.6	9.292	0.1122	16	AAB, AAT	0.007011	146.9	9.307
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNT1-CTA-2	A	C2	1	2	147.5	9.355	0.1117	16	AWB, M(A,L)WT	0.006980	147.1	9.329
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNT1-CTA-3	A	C2	1	2	161.4	9.406	0.1117	16	AGT, AAB	0.006980	161.0	9.379
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNT1-CTA-1	B	C1	2	1	143.6	9.202	0.1117	16	AGB	0.006981	143.2	9.177
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNT1-CTA-2	B	C1	2	1	142.8	9.115	0.1116	16	AGB, M(A,L)WT	0.006973	142.3	9.080
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNT1-CTA-3	B	C1	2	1	145.1	9.408	0.1117	16	AGT, LWB	0.006978	144.7	9.379
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNT1-CTA-1	B	C2	2	2	151.7	9.406	0.1122	16	AWT, M(A,L)AB	0.007010	151.9	9.420
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNT1-CTA-2	B	C2	2	2	151.2	9.385	0.1122	16	AGM	0.007010	151.4	9.399
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNT1-CTA-3	B	C2	2	2	156.5	9.426	0.1125	16	AGM	0.007032	157.2	9.469
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNT1-CTA-1	C	C1	3	1	136.1	9.037	0.1131	16	AWT, M(A,L)WB	0.007067	137.4	9.123
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNT1-CTA-2	C	C1	3	1	142.1	9.162	0.1130	16	AGM, AAT	0.007065	143.4	9.246
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNT1-CTA-3	C	C1	3	1	154.4	9.099	0.1131	16	AWT, M(A,L)WB	0.007066	155.9	9.184
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNT1-CTA-1	C	C2	3	2	149.1	9.221	0.1123	16	M(A,L)WB, AWT	0.007018	149.5	9.245
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNT1-CTA-2	C	C2	3	2	152.3	9.160	0.1124	16	AGM, M(A,L)AB	0.007024	152.8	9.191
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNT1-CTA-3	C	C2	3	2	150.5	9.178	0.1122	16	AWB	0.007009	150.7	9.190

	Strength [ksi]	Modulus [Msi]
Average	149.5	9.253
Standard Dev.	6.095	0.1226
Coeff. of Var. [%]	4.076	1.325
Min.	136.1	9.037
Max.	161.4	9.426
Number of Spec.	18	18

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.007009	149.7	9.265
$Standard\ Dev._{norm}$		6.018	0.1136
Coeff. of Var. $[\%]_{norm}$		4.019	1.226
Min.	0.006967	137.4	9.080
Max.	0.007067	161.0	9.469
Number of Spec.	18	18	18


Laminate Unnotched Tension Properties (UNT1)--CTA (-65°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Tension Strength [ksi]
0
20
40
60
80
100
120
140
160
180
0
1
2
3
4


Laminate Unnotched Tension Properties (UNT1)--CTA (-65°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Tension Modulus [Msi]
0
1
2
3
4
5
6
7
8
9
10
0
1
2
3
4

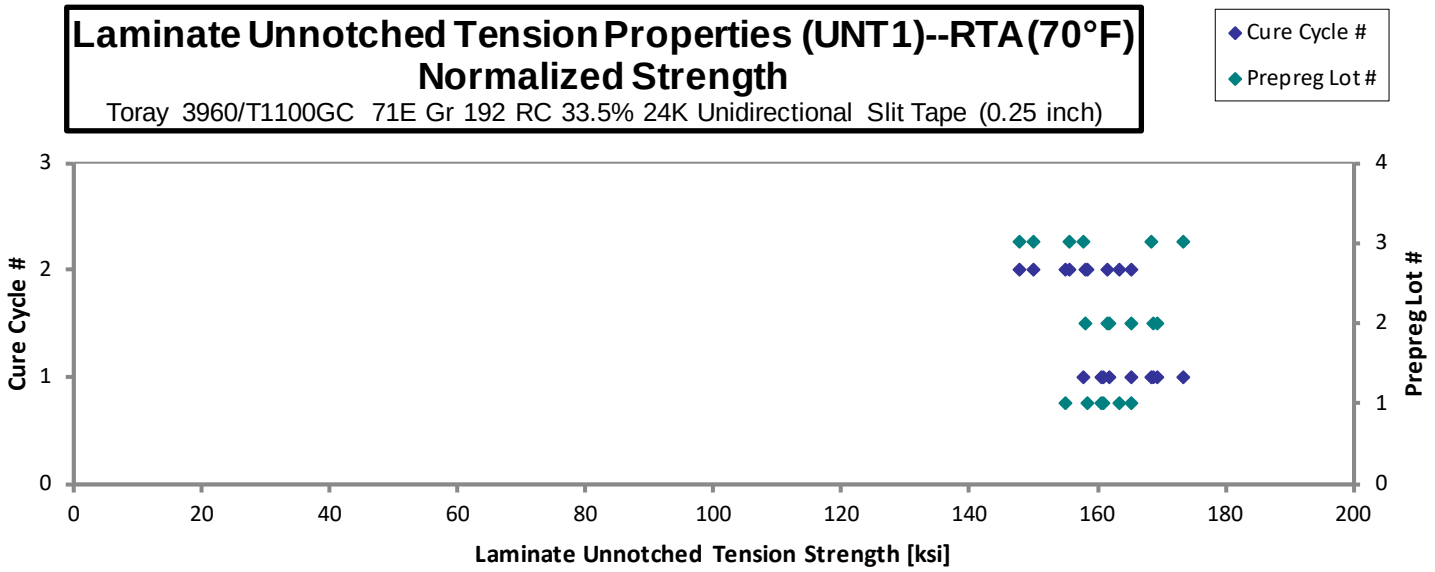
Laminate Unnotched Tension Properties (UNT1)--RTA (70°F)
Strength & Modulus

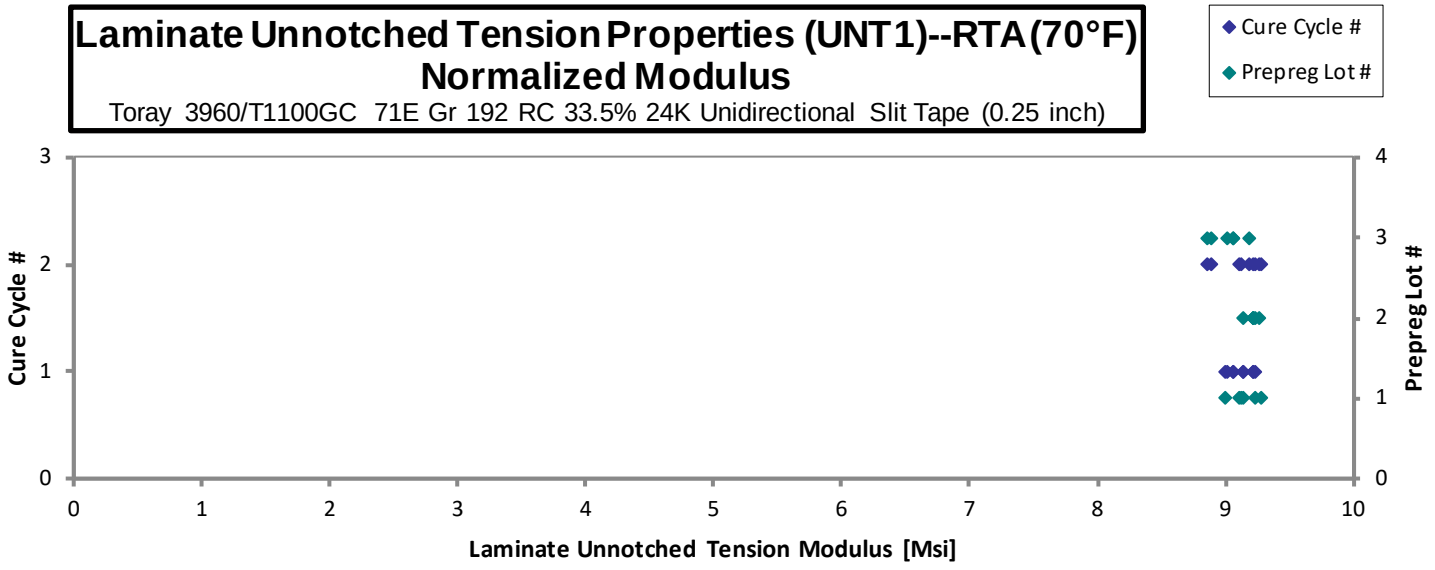
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNT1-RTA-1	A	C1	1	1	165.5	9.143	0.1119	16	M(A,L)WB, AWT	0.006992	165.3	9.132
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNT1-RTA-2	A	C1	1	1	160.9	9.237	0.1119	16	AGM	0.006995	160.8	9.230
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNT1-RTA-3	A	C1	1	1	160.5	8.995	0.1120	16	AGT, M(A,L)WB	0.007001	160.5	8.996
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNT1-RTA-1	A	C2	1	2	155.3	9.149	0.1117	16	AGM	0.006980	154.9	9.123
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNT1-RTA-2	A	C2	1	2	163.9	9.303	0.1117	16	AGM, M(A,L)WB	0.006979	163.4	9.276
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNT1-RTA-3	A	C2	1	2	158.8	9.132	0.1117	16	AGT, LWB	0.006978	158.3	9.104
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNT1-RTA-1	B	C1	2	1	162.4	9.249	0.1116	16	M(A,L)WT, AWB	0.006976	161.8	9.218
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNT1-RTA-2	B	C1	2	1	169.4	9.259	0.1116	16	AGB, LWT	0.006973	168.8	9.223
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNT1-RTA-3	B	C1	2	1	170.4	9.191	0.1114	16	LWB, AWT	0.006959	169.4	9.138
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNT1-RTA-1	B	C2	2	2	164.8	9.226	0.1124	16	AGB	0.007024	165.4	9.257
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNT1-RTA-2	B	C2	2	2	160.6	9.180	0.1126	16	AWB, AWT	0.007038	161.5	9.229
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNT1-RTA-3	B	C2	2	2	156.9	9.147	0.1128	16	AGT, LWB	0.007048	158.0	9.210
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNT1-RTA-1	C	C1	3	1	156.3	8.922	0.1132	16	AGT	0.007073	157.9	9.014
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNT1-RTA-2	C	C1	3	1	171.6	8.963	0.1131	16	AWB, LWT	0.007071	173.4	9.054
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNT1-RTA-3	C	C1	3	1	166.4	8.953	0.1133	16	AWB, AWT	0.007081	168.4	9.057
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNT1-RTA-1	C	C2	3	2	149.4	8.819	0.1125	16	AWB, LWT	0.007028	150.0	8.855
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNT1-RTA-2	C	C2	3	2	147.4	8.871	0.1123	16	AGB, LWT	0.007019	147.8	8.895
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNT1-RTA-3	C	C2	3	2	155.4	9.170	0.1122	16	M(D,A)GM	0.007015	155.7	9.189

	Strength [ksi]	Modulus [Msi]			$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	**160.9**	**9.106**		**$Average_{norm}$**	**161.2**	**9.122**
Standard Dev.	**6.751**	**0.1463**		**Standard $Dev._{norm}$**	**6.729**	**0.1228**
Coeff. of Var. [%]	**4.196**	**1.607**		**Coeff. of Var. $[\%]_{norm}$**	**4.175**	**1.347**
Min.	**147.4**	**8.819**		**Min.**	**147.8**	**8.855**
Max.	**171.6**	**9.303**		**Max.**	**173.4**	**9.276**
Number of Spec.	**18**	**18**		**Number of Spec.**	**18**	**18**


Laminate Unnotched Tension Properties (UNT1)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
20
40
60
80
100
120
140
160
180
200
Laminate Unnotched Tension Strength [ksi]


Laminate Unnotched Tension Properties (UNT1)--RTA(70°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
6
7
8
9
10
Laminate Unnotched Tension Modulus [Msi]

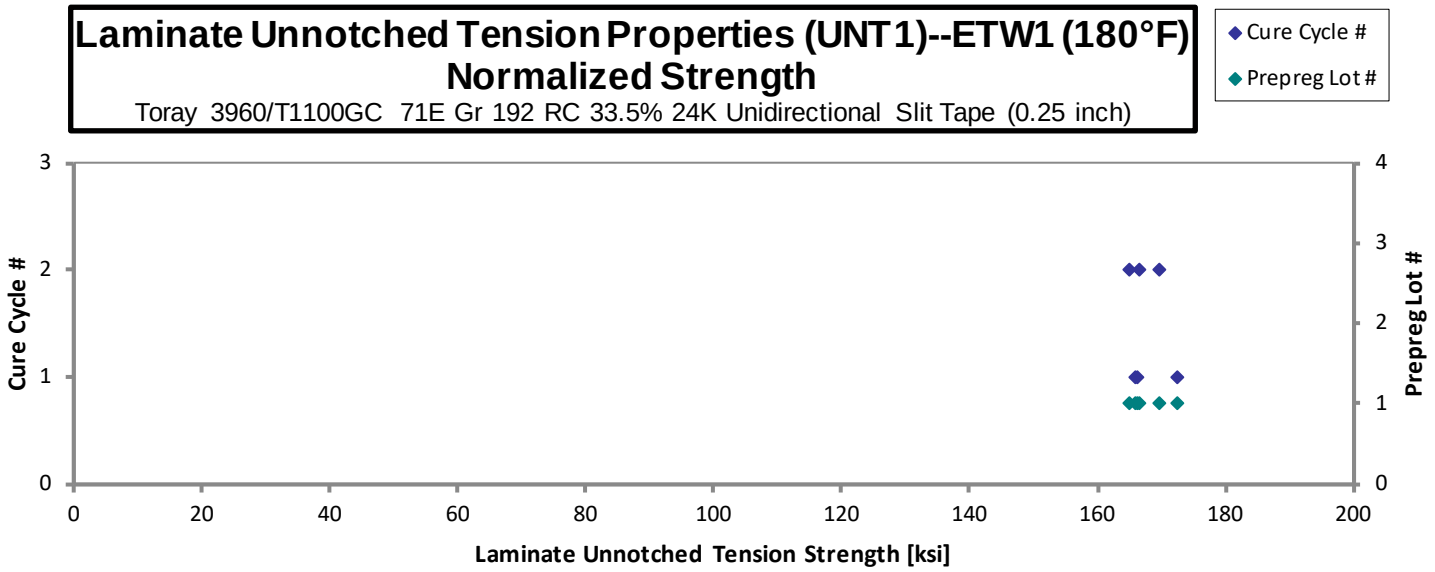
Laminate Unnotched Tension Properties (UNT1)--ETW1 (180°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

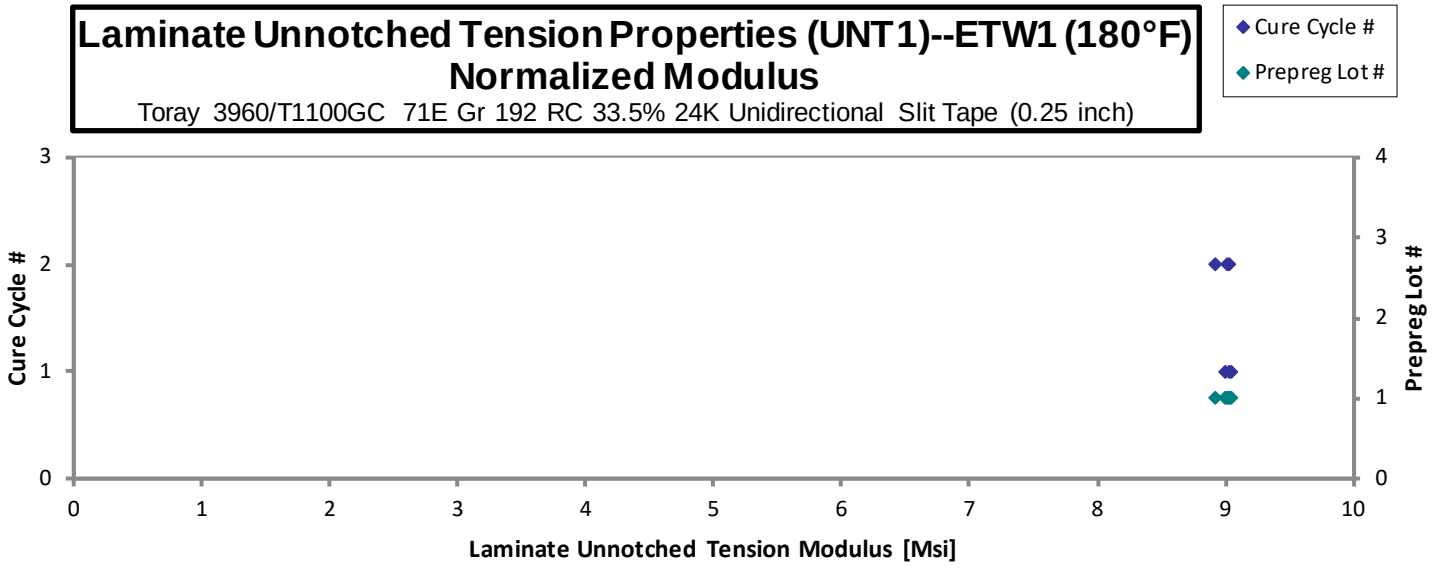
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNT1-ETW1-1	A	C1	1	1	166.2	9.068	0.1117	16	DGM, LWB, AWT	0.006982	165.8	9.045
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNT1-ETW1-2	A	C1	1	1	166.2	9.009	0.1119	16	M(A,L)WT, LWB	0.006995	166.1	9.003
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNT1-ETW1-3	A	C1	1	1	172.5	9.043	0.1119	16	M(A,L)GM, M(A,L)WT	0.006995	172.3	9.037
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNT1-ETW1-1	A	C2	1	2	167.0	9.035	0.1117	16	LWT, AWT	0.006981	166.5	9.011
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNT1-ETW1-2	A	C2	1	2	170.6	9.078	0.1114	16	M(A,L)GT	0.006963	169.7	9.030
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNT1-ETW1-3	A	C2	1	2	165.6	8.950	0.1116	16	M(A,L)GM, LWB	0.006975	165.0	8.918

	Strength	Modulus
Average	168.0	9.031
Standard Dev.	2.830	0.04643
Coeff. of Var. [%]	1.684	0.5141
Min.	165.6	8.950
Max.	172.5	9.078
Number of Spec.	6	6

	Avg. t_{ply} [in]	$Strength_{norm}$	$Modulus_{norm}$
$Average_{norm}$	0.006982	167.6	9.007
$Standard\ Dev._{norm}$		2.841	0.04639
$Coeff.\ of\ Var.\ [\%]_{norm}$		1.695	0.5151
Min.	0.006963	165.0	8.918
Max.	0.006995	172.3	9.045
Number of Spec.	6	6	6


Laminate Unnotched Tension Properties (UNT1)--ETW1 (180°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
20
40
60
80
100
120
140
160
180
200
Laminate Unnotched Tension Strength [ksi]


Laminate Unnotched Tension Properties (UNT1)--ETW1 (180°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
6
7
8
9
10
Laminate Unnotched Tension Modulus [Msi]

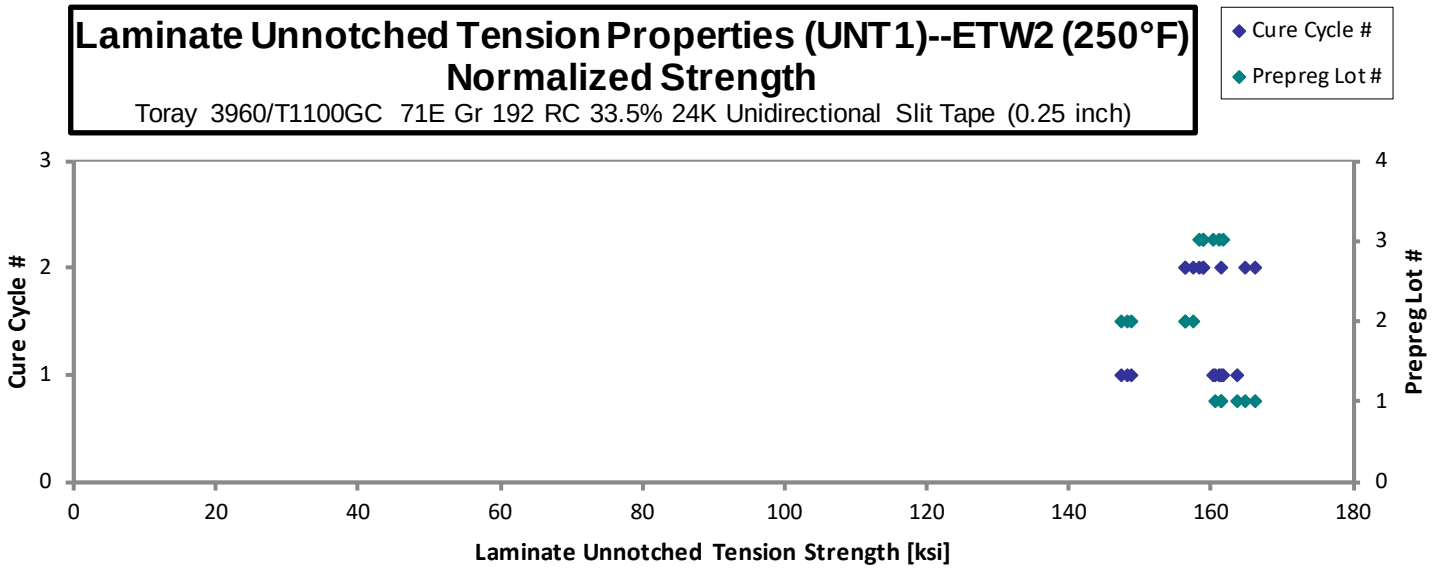
Laminate Unnotched Tension Properties (UNT1)--ETW2 (250°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

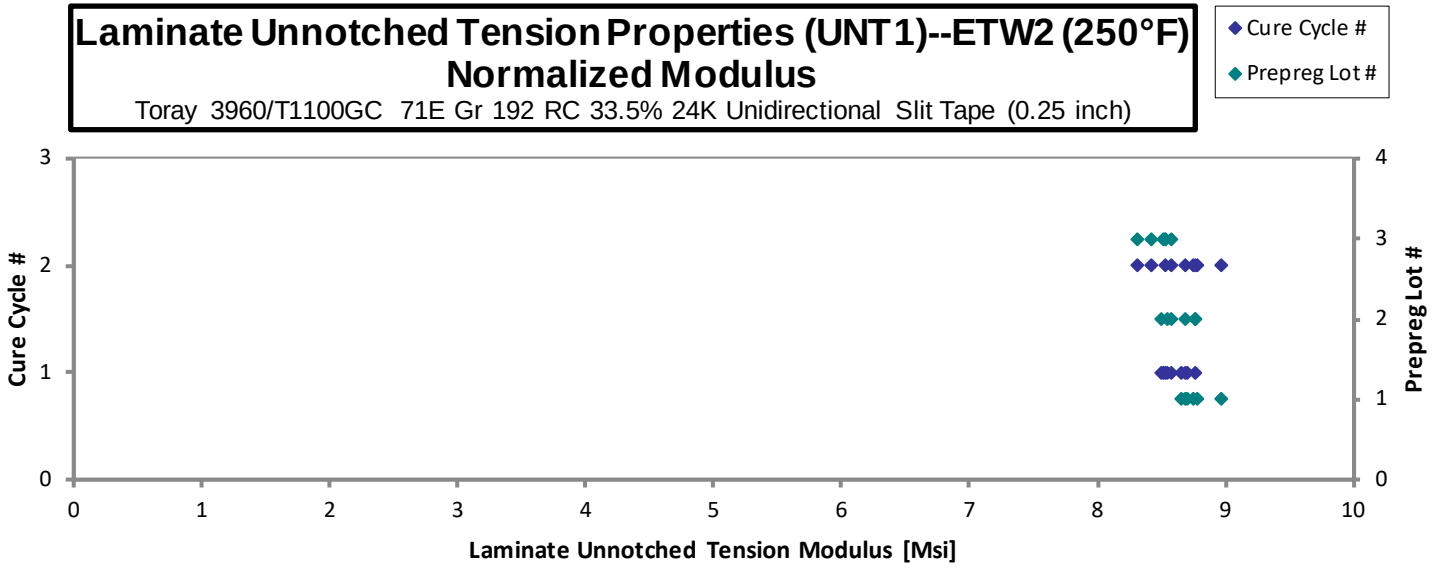
normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNT1-ETW2-1	A	C1	1	1	160.2	8.645	0.1122	16	M(A,L)GM, LWT	0.007013	160.5	8.660
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNT1-ETW2-2	A	C1	1	1	163.7	8.684	0.1120	16	M(A,L)GM, M(A,L)WB	0.007002	163.8	8.687
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNT1-ETW2-3	A	C1	1	1	161.4	8.694	0.1121	16	M(A,L)GM, LWB	0.007004	161.5	8.700
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNT1-ETW2-1	A	C2	1	2	162.0	8.789	0.1116	16	M(A,L)GM, M(A,L)WT	0.006972	161.4	8.754
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNT1-ETW2-2	A	C2	1	2	165.8	8.838	0.1112	16	M(A,L)GT	0.006950	164.7	8.775
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNT1-ETW2-3	A	C2	1	2	166.3	8.963	0.1120	16	M(A,L)GM, LWT	0.007001	166.3	8.965
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNT1-ETW2-1	B	C1	2	1	150.2	8.854	0.1110	16	M(A,L)GT	0.006934	148.8	8.771
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNT1-ETW2-2	B	C1	2	1	148.5	8.547	0.1113	16	M(D,A)GM	0.006954	147.5	8.491
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNT1-ETW2-3	B	C1	2	1	148.9	8.592	0.1114	16	M(A,L)WT	0.006960	148.1	8.543
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNT1-ETW2-1	B	C2	2	2	157.1	8.559	0.1123	16	M(D,A,L)GM	0.007016	157.5	8.578
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNT1-ETW2-2	B	C2	2	2	156.8	8.793	0.1117	16	M(D,A,L)GM	0.006978	156.3	8.765
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNT1-ETW2-3	B	C2	2	2	156.2	8.675	0.1122	16	M(D,A,L)GT, M(A,L)WB	0.007011	156.4	8.689
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNT1-ETW2-1	C	C1	3	1	160.1	8.445	0.1132	16	M(A,L)WT, M(A,L)WB	0.007073	161.8	8.533
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNT1-ETW2-2	C	C1	3	1	158.3	8.410	0.1135	16	M(A,L)GB, LAT	0.007091	160.3	8.519
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNT1-ETW2-3	C	C1	3	1	159.4	8.474	0.1133	16	M(A,D,L)GM	0.007080	161.3	8.571
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNT1-ETW2-1	C	C2	3	2	158.2	8.296	0.1122	16	M(A,L)GM, LWB	0.007010	158.4	8.308
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNT1-ETW2-2	C	C2	3	2	159.8	8.466	0.1114	16	M(A,L)GM	0.006963	158.9	8.421
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNT1-ETW2-3	C	C2	3	2	158.6	8.519	0.1122	16	M(A,L)GB, LWT	0.007013	158.9	8.534

	Strength [ksi]	Modulus [Msi]
Average	**158.4**	**8.625**
Standard Dev.	**5.102**	**0.1776**
Coeff. of Var. [%]	**3.221**	**2.060**
Min.	**148.5**	**8.296**
Max.	**166.3**	**8.963**
Number of Spec.	**18**	**18**

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	**0.007001**	**158.5**	**8.626**
Standard $Dev._{norm}$		**5.447**	**0.1553**
Coeff. of Var. $[\%]_{norm}$		**3.438**	**1.800**
Min.	**0.006934**	**147.5**	**8.308**
Max.	**0.007091**	**166.3**	**8.965**
Number of Spec.	**18**	**18**	**18**


Laminate Unnotched Tension Properties (UNT1)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Tension Strength [ksi]
0
20
40
60
80
100
120
140
160
180
0
1
2
3
4


Laminate Unnotched Tension Properties (UNT1)--ETW2 (250°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Tension Modulus [Msi]
0
1
2
3
4
5
6
7
8
9
10
0
1
2
3
4

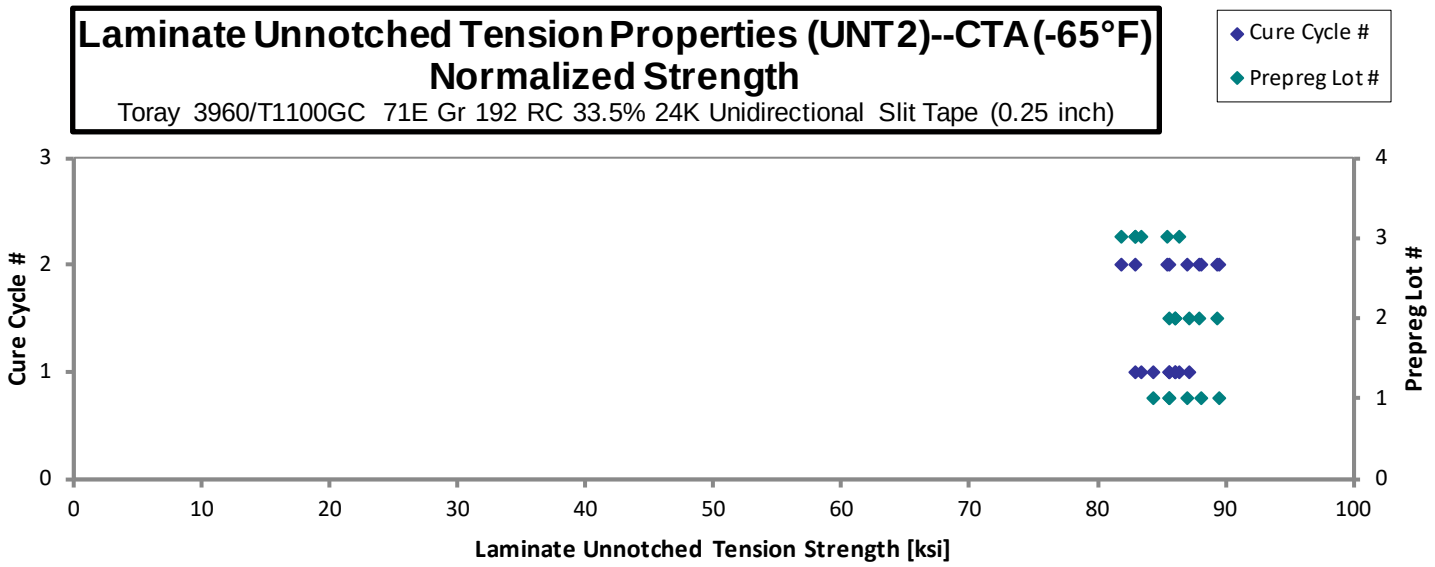
4.9 "10/80/10" Unnotched Tension 2 Properties (UNT2)

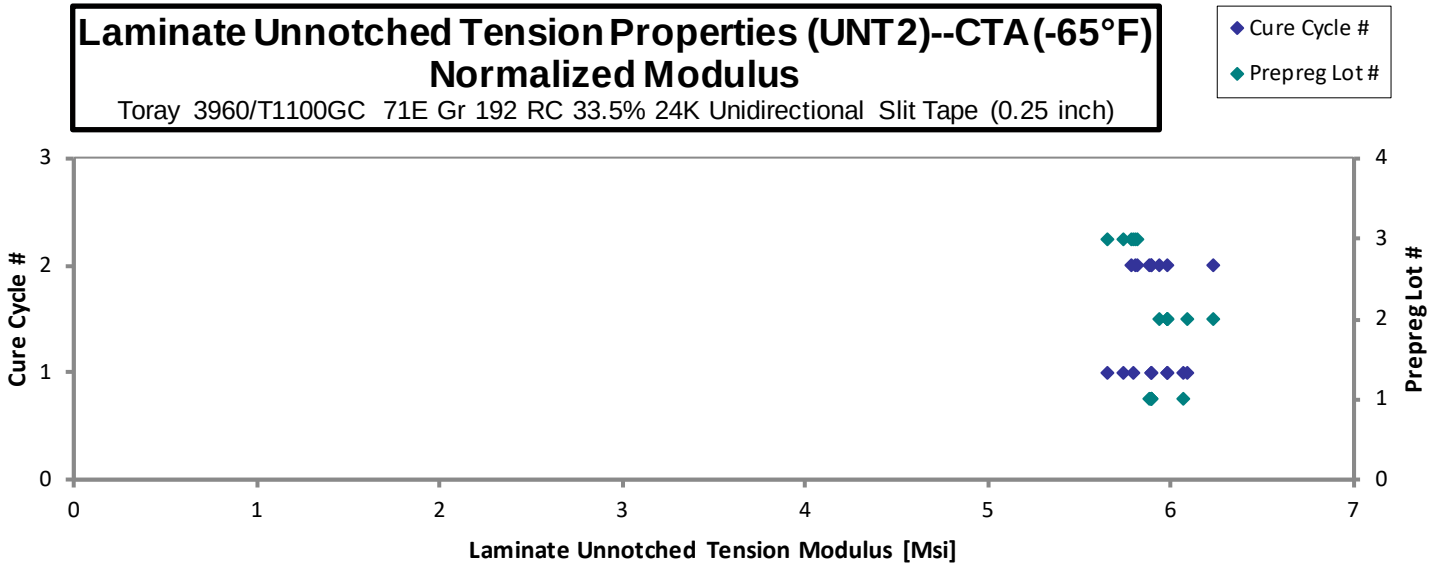
Laminate Unnotched Tension Properties (UNT2)--CTA (-65°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNT2-CTA-1	A	C1	1	1	85.74	6.087	0.1397	20	DGM, AGT	0.006984	85.55	6.073
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNT2-CTA-2	A	C1	1	1	84.35	5.898	0.1400	20	M(D,A)GM	0.007002	84.37	5.899
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNT2-CTA-3	A	C1	1	1	85.72	5.896	0.1399	20	DGM, AWB	0.006995	85.66	5.892
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNT2-CTA-1	A	C2	1	2	87.28	5.912	0.1397	20	M(D,A)WB	0.006985	87.09	5.899
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNT2-CTA-2	A	C2	1	2	89.79	5.906	0.1395	20	DGM, AWB	0.006977	89.50	5.886
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNT2-CTA-3	A	C2	1	2	88.26	5.906	0.1397	20	M(D,A)GB	0.006986	88.08	5.894
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNT2-CTA-1	B	C1	2	1	87.14	6.093	0.1400	20	M(D,A)WB	0.007000	87.14	6.093
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNT2-CTA-2	B	C1	2	1	86.14	5.984	0.1398	20	M(D,A)GB	0.006992	86.04	5.977
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNT2-CTA-3	B	C1	2	1	85.94	5.976	0.1402	20	DGM, AGB	0.007009	86.05	5.984
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNT2-CTA-1	B	C2	2	2	88.09	5.988	0.1398	20	M(D,A)WB	0.006988	87.94	5.978
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNT2-CTA-2	B	C2	2	2	89.39	5.942	0.1400	20	M(D,A)WB	0.006998	89.37	5.940
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNT2-CTA-3	B	C2	2	2	85.93	6.255	0.1396	20	M(D,A)GB	0.006978	85.66	6.235
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNT2-CTA-1	C	C1	3	1	85.35	5.727	0.1416	20	M(D,A)GM	0.007080	86.33	5.792
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNT2-CTA-2	C	C1	3	1	82.52	5.588	0.1416	20	M(D,A)GT	0.007078	83.44	5.650
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNT2-SP-1	C	C1	3	1	82.09	5.681	0.1416	20	M(D,A)WB	0.007080	83.03	5.746
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNT2-CTA-1	C	C2	3	2	82.58	5.791	0.1408	20	DGM, AWB	0.007038	83.03	5.822
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNT2-CTA-2	C	C2	3	2	84.74	5.759	0.1413	20	M(D,A)GM	0.007063	85.51	5.811
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNT2-CTA-3	C	C2	3	2	81.36	5.755	0.1408	20	M(D,A)GB	0.007041	81.84	5.788

	Strength [ksi]	Modulus [Msi]		t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	**85.69**	**5.897**	**$Average_{norm}$**	**0.007015**	**85.87**	**5.909**
Standard Dev.	**2.451**	**0.1625**	**Standard $Dev._{norm}$**		**2.153**	**0.1378**
Coeff. of Var. [%]	**2.860**	**2.756**	**Coeff. of Var. $[\%]_{norm}$**		**2.508**	**2.333**
Min.	**81.36**	**5.588**	**Min.**	**0.006977**	**81.84**	**5.650**
Max.	**89.79**	**6.255**	**Max.**	**0.007080**	**89.50**	**6.235**
Number of Spec.	**18**	**18**	**Number of Spec.**	**18**	**18**	**18**


Laminate Unnotched Tension Properties (UNT2)--CTA (-65°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Tension Strength [ksi]
0
10
20
30
40
50
60
70
80
90
100
0
1
2
3
4

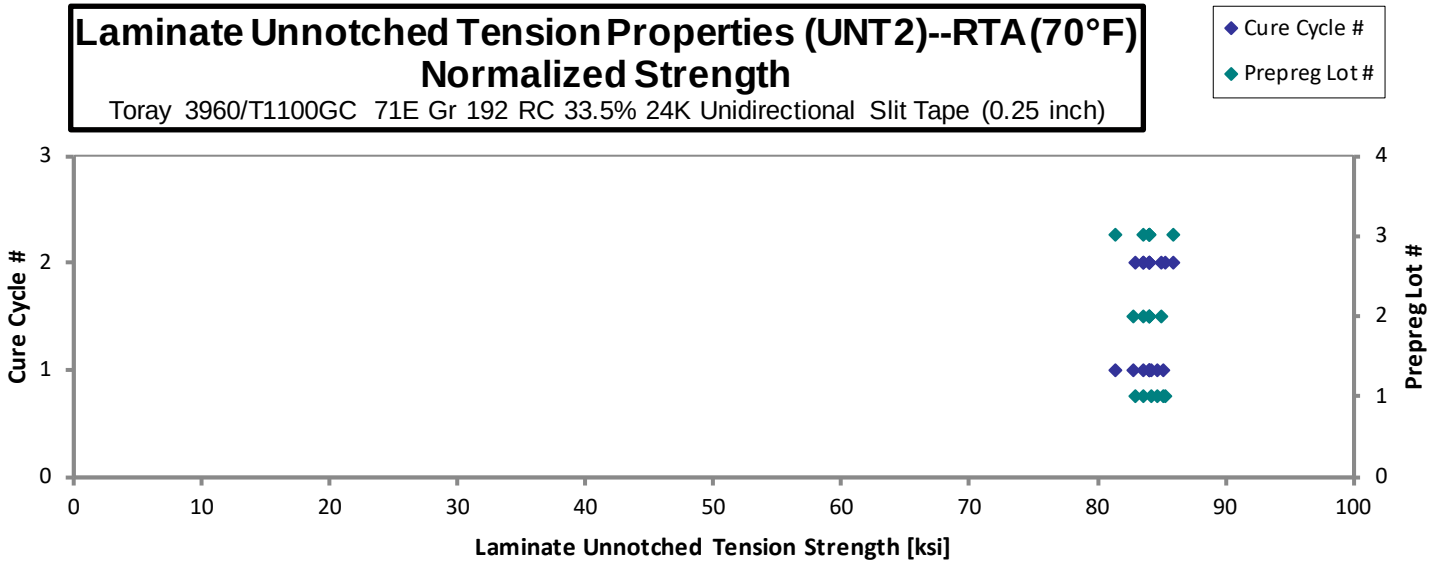

Laminate Unnotched Tension Properties (UNT2)--CTA (-65°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Tension Modulus [Msi]
0
1
2
3
4
5
6
7
0
1
2
3
4

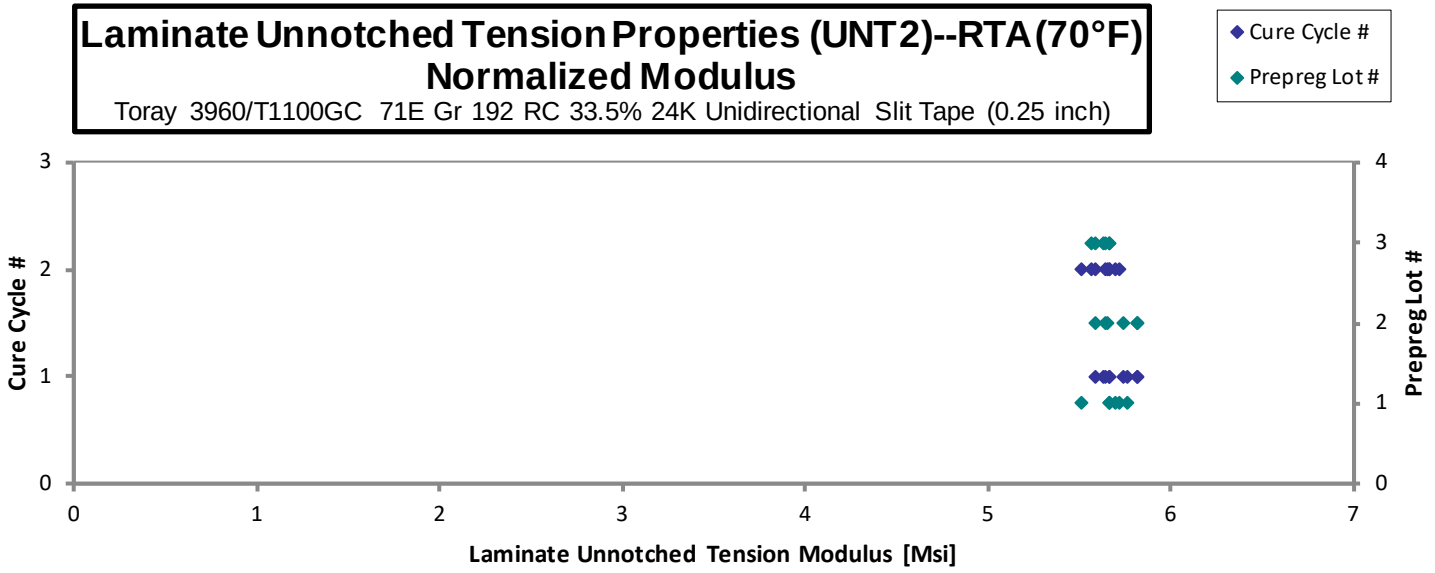
Laminate Unnotched Tension Properties (UNT2)--RTA (70°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNT2-RTA-1	A	C1	1	1	85.33	5.674	0.1397	20	M(D,A)GT	0.006983	85.13	5.660
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNT2-RTA-2	A	C1	1	1	84.35	5.675	0.1399	20	M(D,A)GT	0.006994	84.28	5.670
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNT2-RTA-3	A	C1	1	1	84.44	5.751	0.1403	20	M(D,A)GT	0.007015	84.62	5.763
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNT2-RTA-1	A	C2	1	2	83.10	5.523	0.1398	20	M(A,D)WB	0.006991	82.99	5.516
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNT2-RTA-2	A	C2	1	2	85.35	5.701	0.1399	20	M(A,D)GB	0.006997	85.31	5.699
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNT2-RTA-3	A	C2	1	2	83.52	5.708	0.1402	20	M(A,D)GM	0.007008	83.62	5.714
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNT2-RTA-1	B	C1	2	1	82.77	5.813	0.1401	20	M(A,D)WB	0.007004	82.81	5.816
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNT2-RTA-2	B	C1	2	1	83.38	5.773	0.1411	20	M(A,D)GB	0.007053	84.00	5.816
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNT2-RTA-3	B	C1	2	1	83.96	5.743	0.1401	20	M(A,D)GT	0.007003	84.00	5.746
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNT2-RTA-1	B	C2	2	2	85.37	5.679	0.1395	20	M(A,D)GM	0.006975	85.06	5.658
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNT2-RTA-2	B	C2	2	2	83.78	5.567	0.1405	20	M(A,D)GM	0.007024	84.07	5.586
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNT2-RTA-3	B	C2	2	2	83.53	5.638	0.1400	20	M(A,D)GB	0.007001	83.54	5.638
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNT2-RTA-1	C	C1	3	1	80.60	5.528	0.1414	20	M(D,A)GB	0.007070	81.41	5.584
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNT2-RTA-2	C	C1	3	1	82.93	5.591	0.1412	20	M(D,A)GM	0.007058	83.61	5.637
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNT2-RTA-3	C	C1	3	1	82.98	5.571	0.1418	20	M(D,A)GT	0.007091	84.06	5.643
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNT2-RTA-1	C	C2	3	2	85.41	5.635	0.1409	20	M(D,A)GM	0.007044	85.95	5.670
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNT2-RTA-2	C	C2	3	2	83.29	5.511	0.1413	20	M(D,A)GM	0.007066	84.07	5.563
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNT2-RTA-3	C	C2	3	2	83.62	5.642	0.1407	20	M(D,A)GB	0.007033	84.02	5.669

	Strength [ksi]	Modulus [Msi]		t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	**83.76**	**5.651**	**Average$_{norm}$**	**0.007023**	**84.03**	**5.669**
Standard Dev.	**1.196**	**0.08926**	**Standard Dev.$_{norm}$**		**1.030**	**0.08138**
Coeff. of Var. [%]	**1.428**	**1.580**	**Coeff. of Var. [%]$_{norm}$**		**1.225**	**1.435**
Min.	**80.60**	**5.511**	**Min.**	**0.006975**	**81.41**	**5.516**
Max.	**85.41**	**5.813**	**Max.**	**0.007091**	**85.95**	**5.816**
Number of Spec.	**18**	**18**	**Number of Spec.**	**18**	**18**	**18**


Laminate Unnotched Tension Properties (UNT2)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Tension Strength [ksi]


Laminate Unnotched Tension Properties (UNT2)--RTA(70°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Tension Modulus [Msi]

Laminate Unnotched Tension Properties (UNT2)--ETW2 (250°F)
Strength & Modulus

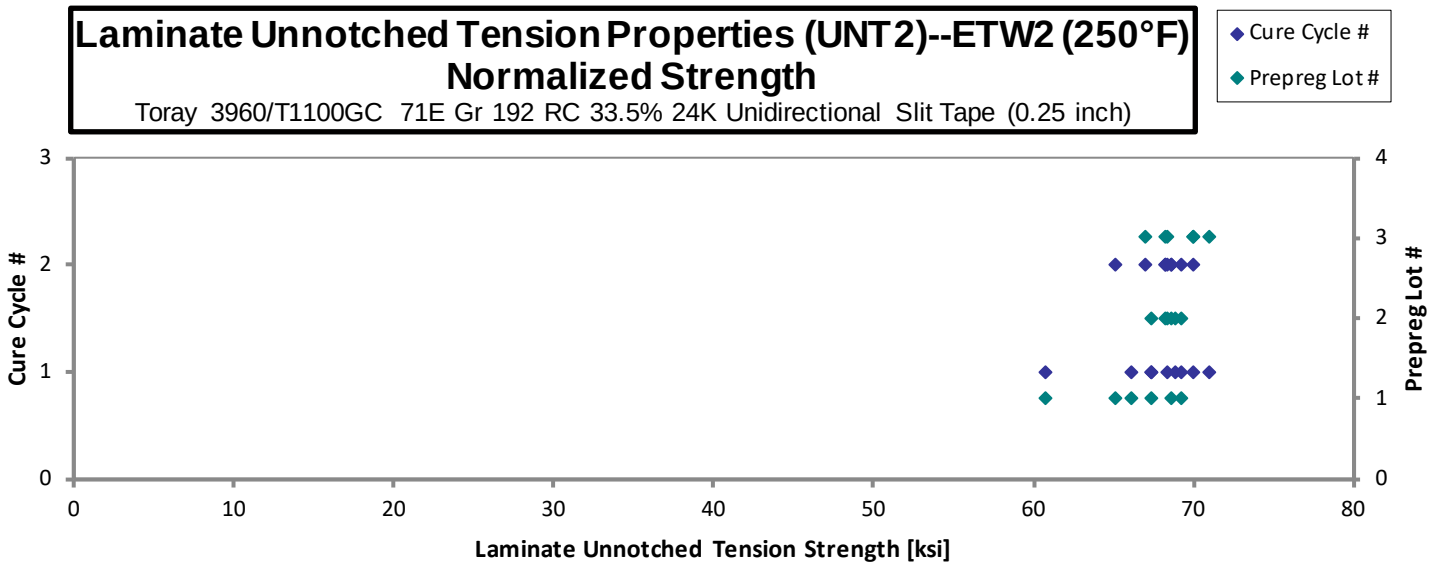
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

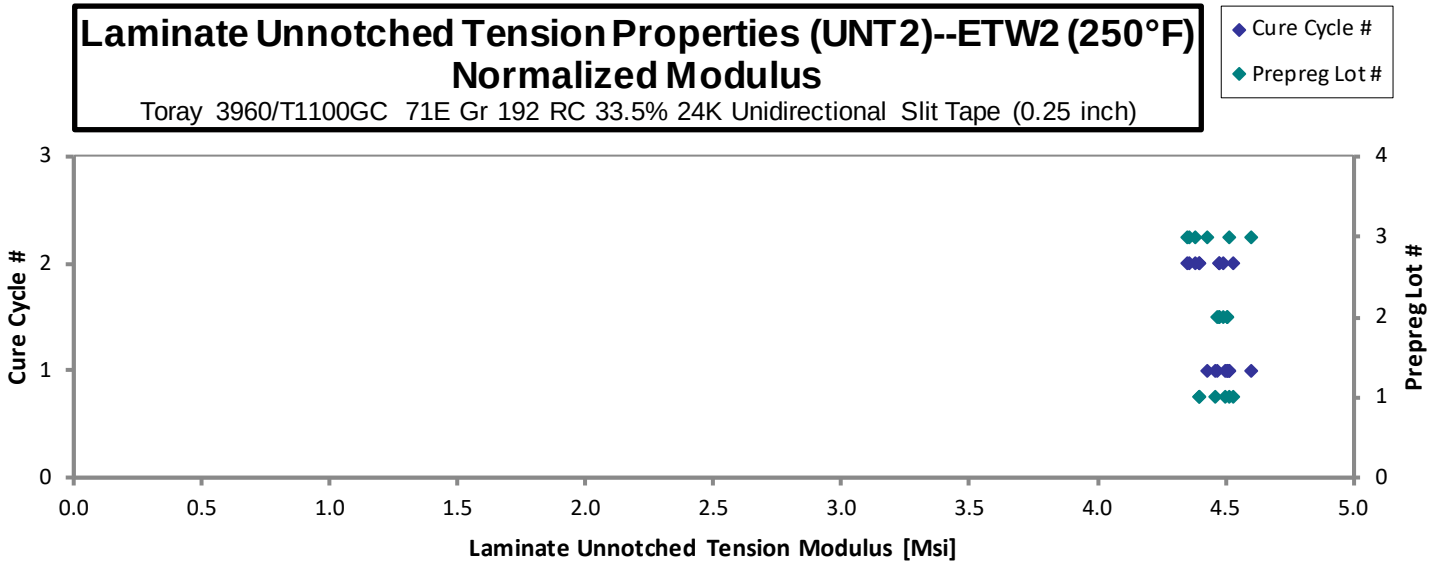
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNT2-ETW2-1	A	C1	1	1	67.39	4.501	0.1400	20	DGM	0.007001	67.40	4.501
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNT2-ETW2-2	A	C1	1	1	66.46	4.538	0.1393	20	DGM	0.006966	66.14	4.516
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNT2-ETW2-3	A	C1	1	1	60.84	4.464	0.1399	20	DGM	0.006996	60.80	4.461
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNT2-ETW2-1	A	C2	1	2	68.66	4.532	0.1399	20	DGM	0.006996	68.62	4.529
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNT2-ETW2-2	A	C2	1	2	65.29	4.414	0.1396	20	DGM	0.006979	65.10	4.401
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNT2-ETW2-3	A	C2	1	2	69.37	4.406	0.1397	20	DGM	0.006984	69.21	4.396
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNT2-ETW2-1	B	C1	2	1	67.09	4.489	0.1405	20	DGM	0.007025	67.33	4.505
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNT2-ETW2-2	B	C1	2	1	69.10	4.482	0.1396	20	DGM	0.006982	68.91	4.470
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNT2-ETW2-3	B	C1	2	1	68.80	4.481	0.1408	20	DGM	0.007038	69.18	4.506
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNT2-ETW2-1	B	C2	2	2	68.53	4.467	0.1402	20	DGM	0.007008	68.61	4.472
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNT2-ETW2-2	B	C2	2	2	68.85	4.533	0.1388	20	DGM	0.006941	68.27	4.494
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNT2-ETW2-3	B	C2	2	2	68.20	4.466	0.1402	20	DGM	0.007011	68.30	4.473
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNT2-ETW2-1	C	C1	3	1	70.26	4.555	0.1414	20	DGM	0.007072	70.98	4.602
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNT2-ETW2-2	C	C1	3	1	69.23	4.464	0.1416	20	DGM	0.007078	70.00	4.513
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNT2-ETW2-3	C	C1	3	1	67.82	4.394	0.1411	20	DGM	0.007053	68.33	4.427
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNT2-ETW2-1	C	C2	3	2	67.02	4.347	0.1401	20	DGM	0.007003	67.04	4.348
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNT2-ETW2-2	C	C2	3	2	68.28	4.361	0.1400	20	DGM	0.007001	68.29	4.362
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNT2-ETW2-3	C	C2	3	2	69.84	4.373	0.1404	20	DGM	0.007018	70.01	4.384

	Strength [ksi]	Modulus [Msi]
Average	**67.84**	**4.459**
Standard Dev.	**2.141**	**0.06361**
Coeff. of Var. [%]	**3.157**	**1.426**
Min.	**60.84**	**4.347**
Max.	**70.26**	**4.555**
Number of Spec.	**18**	**18**

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	**0.007008**	**67.92**	**4.464**
Standard $Dev._{norm}$		**2.262**	**0.06625**
Coeff. of Var. $[\%]_{norm}$		**3.331**	**1.484**
Min.	**0.006941**	**60.80**	**4.348**
Max.	**0.007078**	**70.98**	**4.602**
Number of Spec.	**18**	**18**	**18**


Laminate Unnotched Tension Properties (UNT2)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Tension Strength [ksi]
0
10
20
30
40
50
60
70
80
0
1
2
3
4

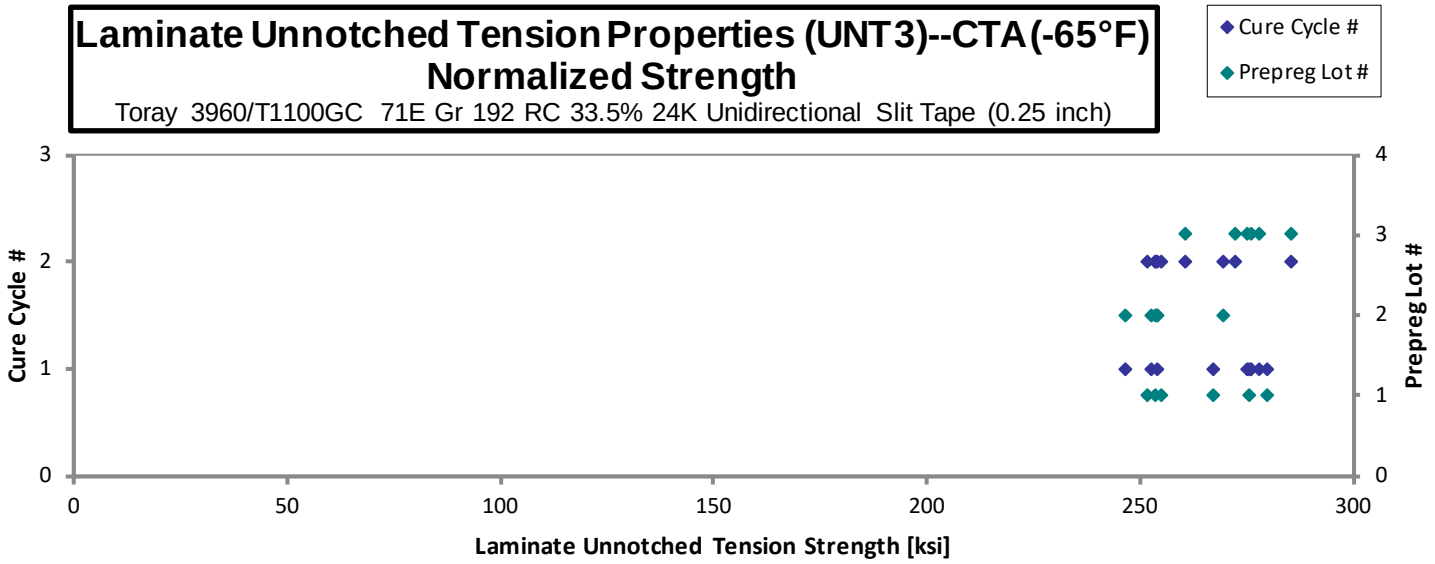

Laminate Unnotched Tension Properties (UNT2)--ETW2 (250°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Tension Modulus [Msi]
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
0
1
2
3
4

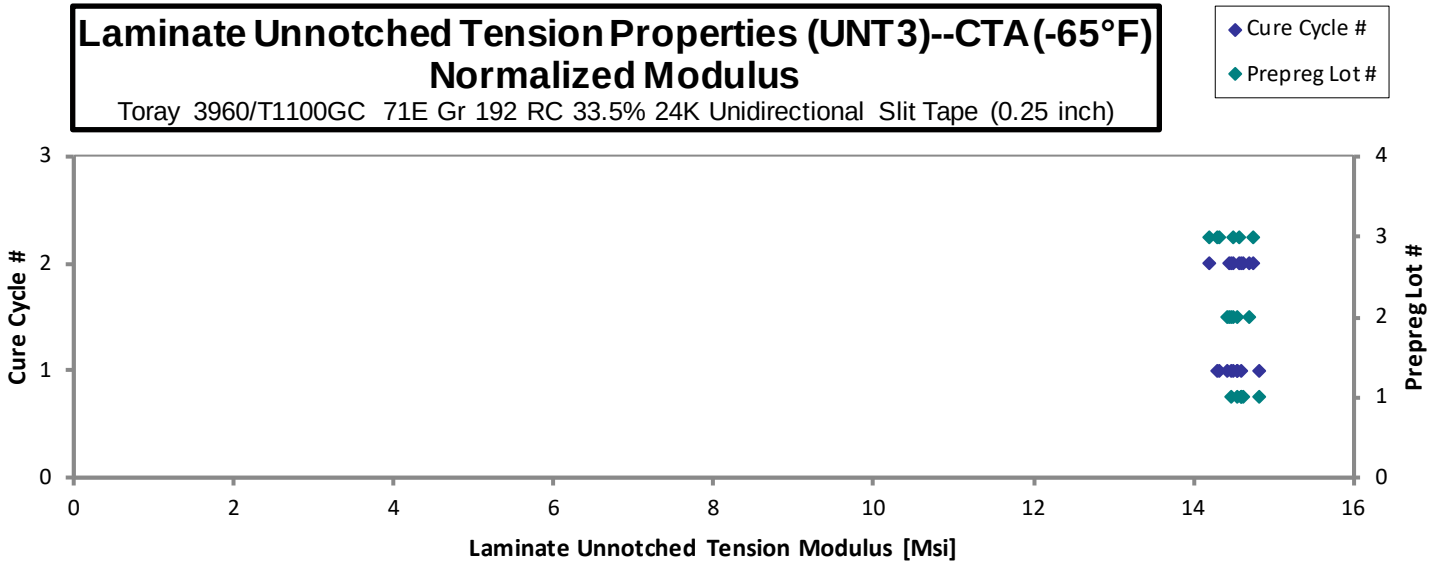
4.10 “50/40/10” Unnotched Tension 3 Properties (UNT3)

Laminate Unnotched Tension Properties (UNT3)--CTA (-65°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNT3-CTA-1	A	C1	1	1	273.5	14.48	0.1412	20	AGM, AWT, AAB/AIB	0.007058	275.8	14.60
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNT3-CTA-2	A	C1	1	1	265.6	14.46	0.1408	20	AAT/AIT, AAB/AIB	0.007038	267.0	14.54
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNT3-CTA-3	A	C1	1	1	278.3	14.74	0.1408	20	AAT/AIT, AAB/AIB	0.007038	279.8	14.82
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNT3-CTA-1	A	C2	1	2	254.0	14.63	0.1398	20	DGM, SGT, AAT/AIT, AAB/AIB	0.006991	253.7	14.61
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNT3-CTA-2	A	C2	1	2	250.8	14.41	0.1406	20	M(A,L,S)GT, AAB/AIB	0.007028	251.8	14.47
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNT3-CTA-3	A	C2	1	2	253.7	14.54	0.1408	20	M(A,L)GM, AAB/AIB	0.007038	255.0	14.62
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNT3-CTA-1	B	C1	2	1	247.4	14.61	0.1394	20	DGM, M(A,L)AT, AAB/AIB	0.006971	246.4	14.55
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNT3-CTA-2	B	C1	2	1	254.4	14.49	0.1398	20	M(A,L)AT, AAB/AIB	0.006988	254.0	14.47
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNT3-CTA-3	B	C1	2	1	253.2	14.44	0.1397	20	AGM	0.006986	252.7	14.41
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNT3-CTA-1	B	C2	2	2	254.7	14.50	0.1396	20	M(A,S)GM, AWT, AAB/AIB	0.006980	254.0	14.46
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNT3-CTA-2	B	C2	2	2	253.7	14.50	0.1399	20	M(D,A)GM, AWT, AAB/AIB	0.006995	253.5	14.49
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNT3-CTA-3	B	C2	2	2	270.4	14.74	0.1396	20	AGM, AAT/AIT, AAB/AIB	0.006980	269.6	14.70
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNT3-CTA-1	C	C1	3	1	275.9	14.23	0.1409	20	AAT/AIT, AAB/AIB	0.007047	277.7	14.32
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNT3-CTA-2	C	C1	3	1	272.1	14.15	0.1415	20	AGB, AWT	0.007073	275.0	14.30
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNT3-CTA-3	C	C1	3	1	274.0	14.38	0.1411	20	LWT, AAB/AIB	0.007053	276.0	14.49
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNT3-CTA-2	C	C2	3	2	257.4	14.37	0.1419	20	AWB, LAT/LIT	0.007093	260.8	14.56
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNT3-CTA-3	C	C2	3	2	282.0	14.57	0.1416	20	AAT, AAB/AIB	0.007081	285.3	14.74
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNT3-SP-1	C	C2	3	2	269.1	14.05	0.1416	20	AGT, AAT/AIT, LAB/LIB	0.007079	272.2	14.20
Average					**263.3**	**14.46**				**$Average_{norm}$**	**264.5**	**14.52**
Standard Dev.					**11.09**	**0.1825**				**$Standard\ Dev._{norm}$**	**12.11**	**0.1544**
Coeff. of Var. [%]					**4.211**	**1.262**				**Coeff. of Var. $[\%]_{norm}$**	**4.581**	**1.0635**
Min.					**247.4**	**14.05**				**Min.**	**0.006971**	**246.4**	**14.20**
Max.					**282.0**	**14.74**				**Max.**	**0.007093**	**285.3**	**14.82**
Number of Spec.					**18**	**18**				**Number of Spec.**	**18**	**18**	**18**


Laminate Unnotched Tension Properties (UNT3)--CTA (-65°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Tension Strength [ksi]
0
50
100
150
200
250
300
0
1
2
3
4


Laminate Unnotched Tension Properties (UNT3)--CTA (-65°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Tension Modulus [Msi]
0
2
4
6
8
10
12
14
16
0
1
2
3
4

Laminate Unnotched Tension Properties (UNT3)--RTA (70°F)
Strength & Modulus

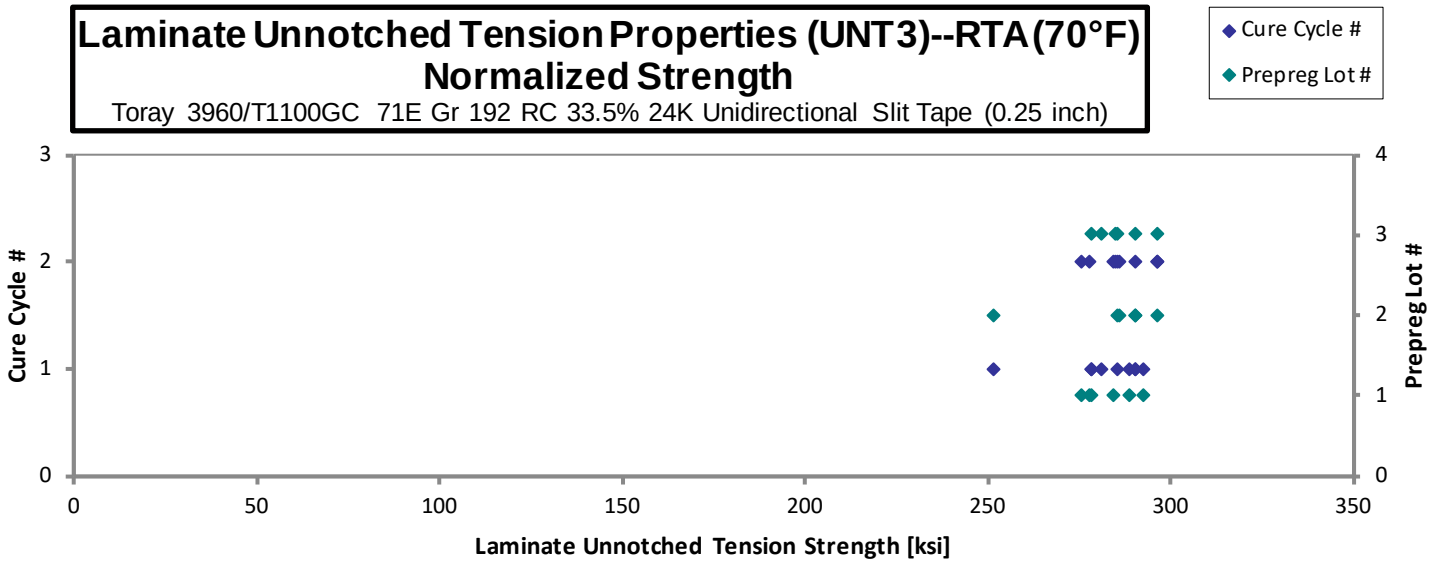
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

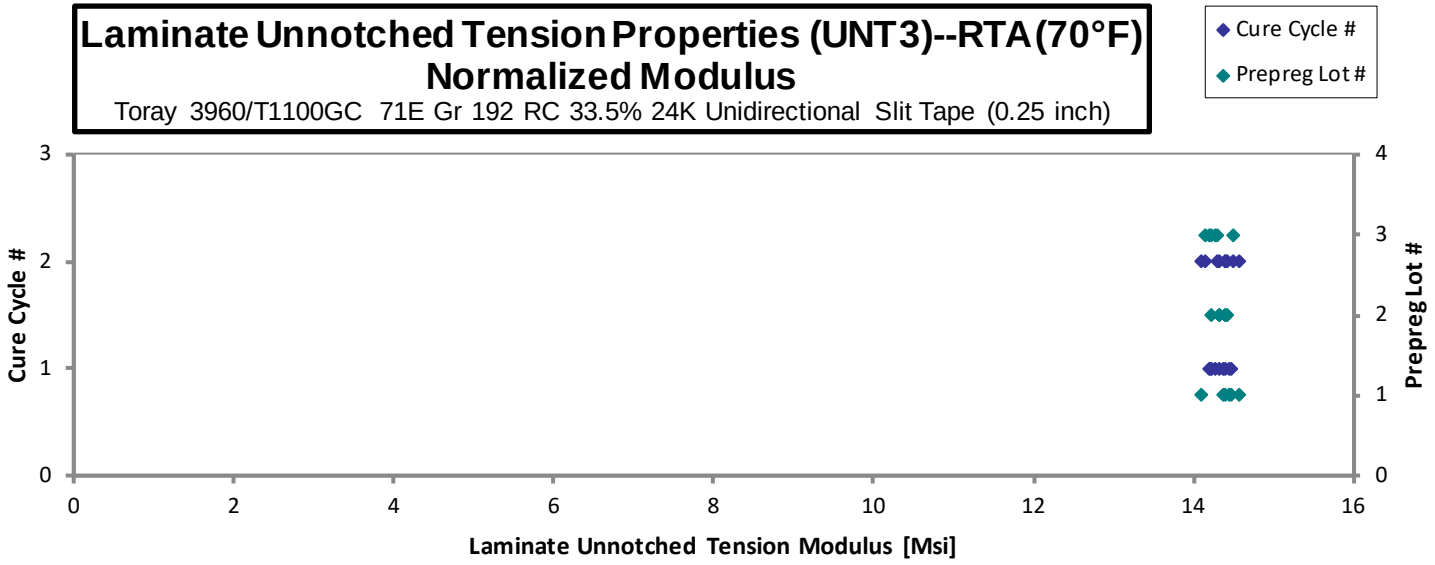
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNT3-RTA-1	A	C1	1	1	286.8	14.36	0.1408	20	AGT, LAB/LIB	0.007041	288.5	14.44
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNT3-RTA-2	A	C1	1	1	276.0	14.26	0.1411	20	AGM, LAB/LIB, LAT/LIT	0.007057	278.2	14.37
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNT3-RTA-3	A	C1	1	1	290.7	14.35	0.1410	20	LAT/LIT, LAB/LIB	0.007052	292.8	14.46
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNT3-RTA-1	A	C2	1	2	277.0	14.37	0.1403	20	AGT, AWB, AAT/AIT	0.007017	277.6	14.40
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNT3-RTA-2	A	C2	1	2	274.3	14.02	0.1407	20	M(A,L)WT, M(A,L)WB	0.007033	275.6	14.09
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNT3-RTA-3	A	C2	1	2	281.9	14.45	0.1411	20	AGB, LAT/LIT	0.007055	284.1	14.57
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNT3-RTA-1	B	C1	2	1	285.8	14.33	0.1398	20	AAT/AIT, LAB/LIB	0.006991	285.4	14.31
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNT3-RTA-2	B	C1	2	1	252.2	14.24	0.1398	20	AWB, AAT/AIT	0.006988	251.8	14.22
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNT3-RTA-3	B	C1	2	1	289.8	14.37	0.1402	20	AAT/AIT, LAB/LIB	0.007011	290.3	14.39
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNT3-RTA-1	B	C2	2	2	290.5	14.42	0.1399	20	AGB, LAT/LIT	0.006995	290.3	14.41
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNT3-RTA-2	B	C2	2	2	286.0	14.42	0.1401	20	M(A,L)WB, AAT/AIT	0.007005	286.2	14.43
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNT3-RTA-3	B	C2	2	2	296.8	14.33	0.1399	20	AAT/AIT, AAB/AIB	0.006993	296.5	14.31
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNT3-RTA-1	C	C1	3	1	276.3	14.12	0.1411	20	LAT/LIT, AAB/AIB	0.007053	278.3	14.22
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNT3-RTA-2	C	C1	3	1	288.9	14.19	0.1408	20	AGM, LAB/LIB, LAT/LIT	0.007039	290.5	14.27
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNT3-RTA-3	C	C1	3	1	278.4	14.07	0.1413	20	AWB, AWT	0.007066	281.0	14.21
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNT3-RTA-1	C	C2	3	2	292.9	14.33	0.1417	20	AWB, AAT/AIT	0.007086	296.5	14.51
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNT3-RTA-2	C	C2	3	2	282.4	14.14	0.1415	20	AAB/AIB, M(A,L)AT/M(A,L)IT	0.007073	285.3	14.29
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNT3-RTA-3	C	C2	3	2	281.9	13.99	0.1416	20	AWB, AAT/AIT	0.007078	285.0	14.15

	Strength [ksi]	Modulus [Msi]
Average	**282.7**	**14.26**
Standard Dev.	**9.988**	**0.1429**
Coeff. of Var. [%]	**3.533**	**1.002**
Min.	**252.2**	**13.99**
Max.	**296.8**	**14.45**
Number of Spec.	**18**	**18**

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	**0.007035**	**284.1**	**14.34**
Standard $Dev._{norm}$		**10.20**	**0.1281**
Coeff. of Var. $[\%]_{norm}$		**3.589**	**0.8935**
Min.	**0.006988**	**251.8**	**14.09**
Max.	**0.007086**	**296.5**	**14.57**
Number of Spec.	**18**	**18**	**18**


Laminate Unnotched Tension Properties (UNT3)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
50
100
150
200
250
300
350
Laminate Unnotched Tension Strength [ksi]


Laminate Unnotched Tension Properties (UNT3)--RTA(70°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
2
4
6
8
10
12
14
16
Laminate Unnotched Tension Modulus [Msi]

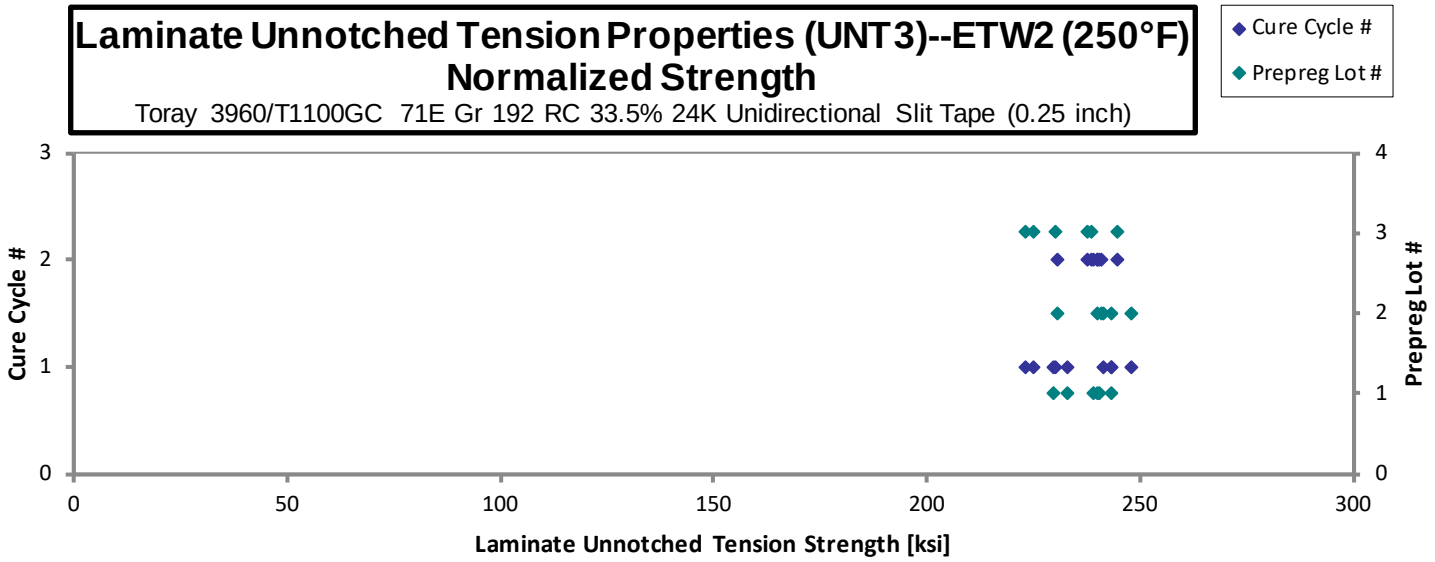
Laminate Unnotched Tension Properties (UNT3)--ETW2 (250°F)
Strength & Modulus

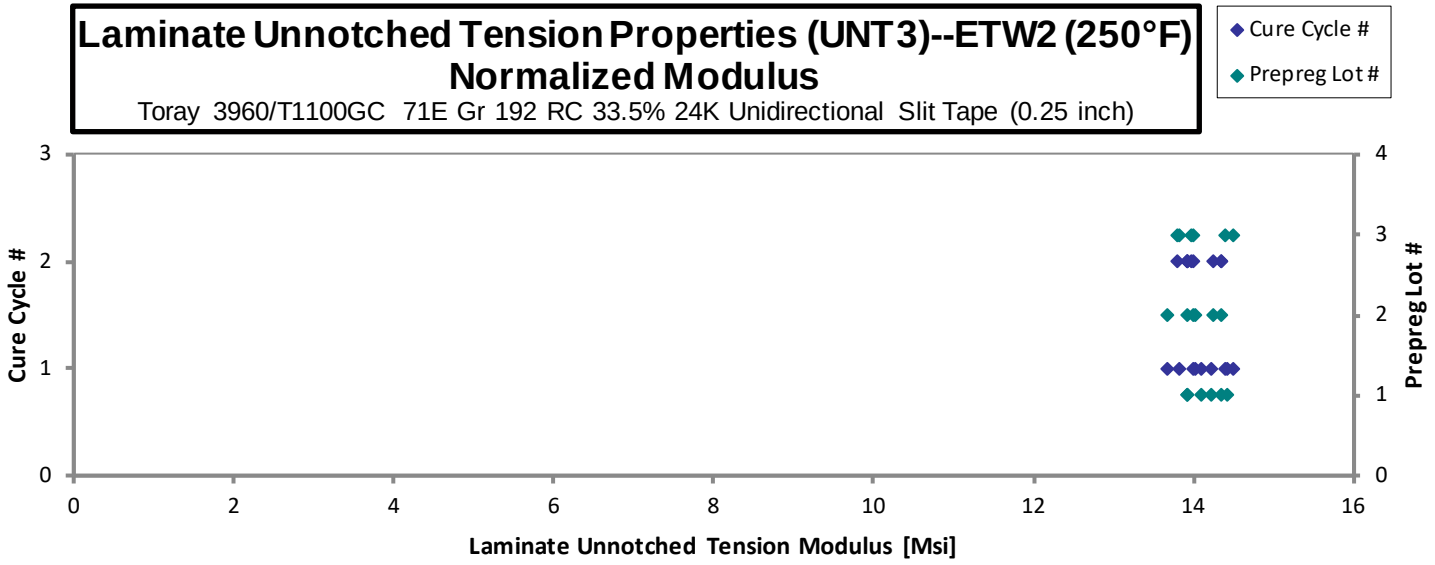
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNT3-ETW2-1	A	C1	1	1	241.9	14.02	0.1408	20	DGM, LWT	0.007040	243.3	14.10
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNT3-ETW2-2	A	C1	1	1	231.5	14.13	0.1409	20	DGM, LWT	0.007044	232.9	14.22
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNT3-ETW2-3	A	C1	1	1	227.1	14.27	0.1415	20	DGM, LWT	0.007076	229.6	14.42
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNT3-ETW2-1	A	C2	1	2	240.6	13.93	0.1400	20	DGM, LWB	0.007000	240.6	13.93
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNT3-ETW2-2	A	C2	1	2	240.2	14.43	0.1392	20	DGM, LWT	0.006959	238.8	14.34
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNT3-ETW2-3	A	C2	1	2	239.9	13.92	0.1400	20	DGM, AGT	0.007002	239.9	13.93
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNT3-ETW2-1	B	C1	2	1	241.7	13.67	0.1399	20	DGM	0.006997	241.6	13.67
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNT3-ETW2-2	B	C1	2	1	248.1	14.04	0.1400	20	DGM	0.007000	248.1	14.04
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNT3-ETW2-3	B	C1	2	1	243.4	14.02	0.1399	20	DGM, LGT	0.006994	243.2	14.01
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNT3-ETW2-1	B	C2	2	2	240.7	14.38	0.1397	20	DGM, AWT	0.006984	240.2	14.35
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNT3-ETW2-2	B	C2	2	2	241.6	14.27	0.1397	20	DGM, LWB	0.006985	241.1	14.24
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNT3-ETW2-3	B	C2	2	2	231.5	13.99	0.1394	20	DGM, LWT	0.006969	230.5	13.93
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNT3-ETW2-1	C	C1	3	1	221.7	13.75	0.1409	20	DGM	0.007043	223.1	13.83
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNT3-ETW2-2	C	C1	3	1	230.2	14.42	0.1399	20	DGM, M(A,L)WB	0.006993	229.9	14.41
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNT3-ETW2-3	C	C1	3	1	223.4	14.39	0.1412	20	DGM, LWT	0.007058	225.2	14.51
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNT3-ETW2-1	C	C2	3	2	240.5	13.74	0.1423	20	DGM, LWB	0.007116	244.5	13.97
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNT3-ETW2-2	C	C2	3	2	235.2	13.86	0.1415	20	DGM, LWT	0.007076	237.7	14.01
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNT3-ETW2-3	C	C2	3	2	236.3	13.66	0.1414	20	DGM, LWT	0.007069	238.6	13.80

	Strength [ksi]	Modulus [Msi]		$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	**236.4**	**14.05**	**$Average_{norm}$**	**237.2**	**14.09**
Standard Dev.	**7.318**	**0.2616**	**$Standard\ Dev._{norm}$**	**6.982**	**0.2426**
Coeff. of Var. [%]	**3.096**	**1.862**	**$Coeff.\ of\ Var.\ [\%]_{norm}$**	**2.944**	**1.721**
Min.	**221.7**	**13.66**	**Min.**	**223.1**	**13.67**
Max.	**248.1**	**14.43**	**Max.**	**248.1**	**14.51**
Number of Spec.	**18**	**18**	**Number of Spec.**	**18**	**18**


Laminate Unnotched Tension Properties (UNT3)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
50
100
150
200
250
300
Laminate Unnotched Tension Strength [ksi]


Laminate Unnotched Tension Properties (UNT3)--ETW2 (250°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
2
4
6
8
10
12
14
16
Laminate Unnotched Tension Modulus [Msi]

4.11 “33/0/67” Unnotched Compression 0/90 Properties (UNC0)

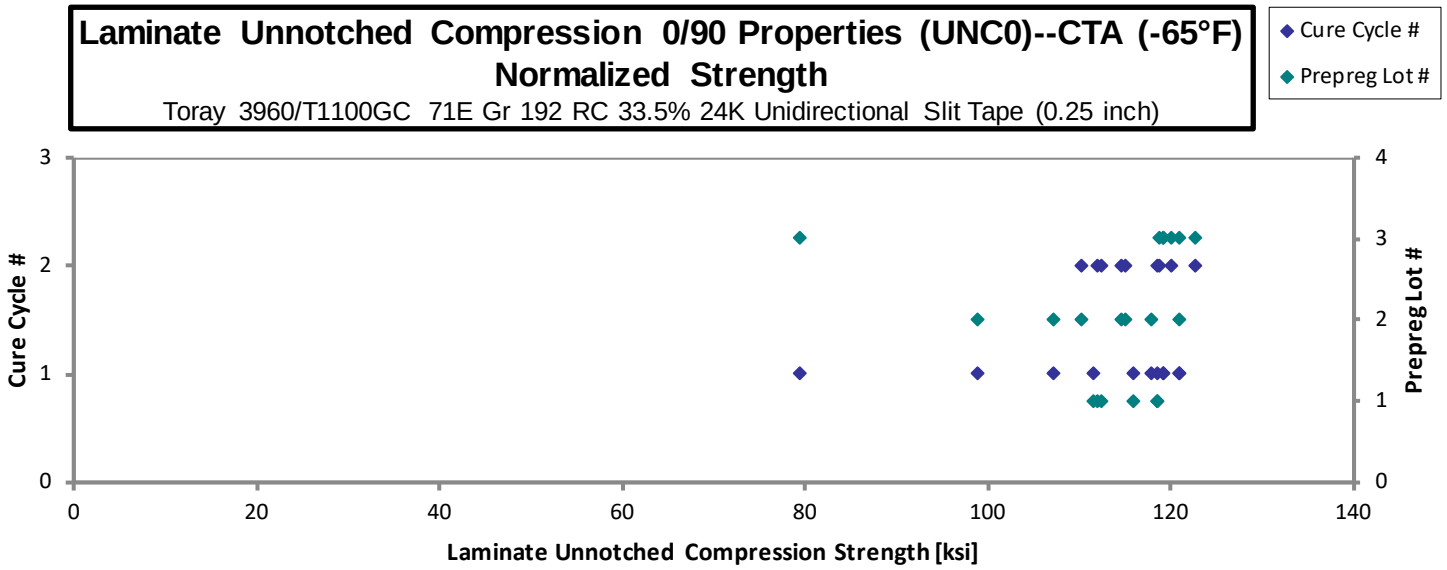
Laminate Unnotched Compression 0/90 Properties (UNC0)--CTA (-65°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

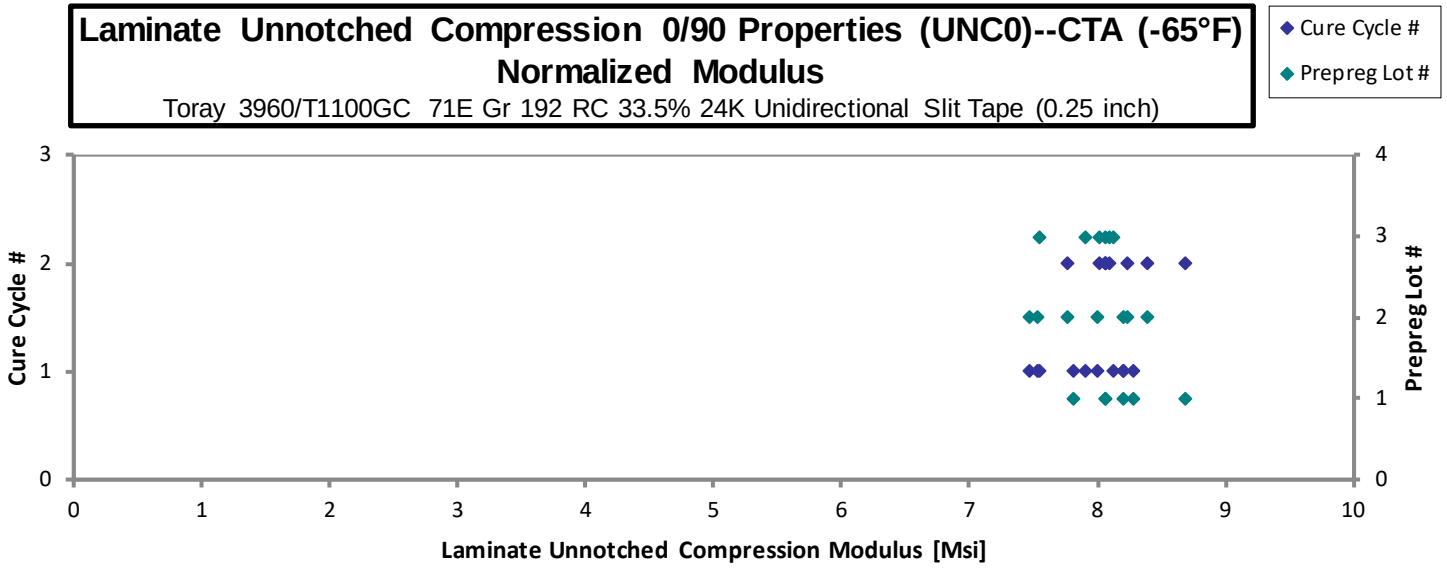
normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-CTA-1	A	C1	1	1	110.2	7.716	0.1063	15	BGM	0.007089	111.6	7.814
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-CTA-2	A	C1	1	1	116.6	8.082	0.1067	15	BAT	0.007111	118.5	8.210
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-CTA-3	A	C1	1	1	114.1	8.144	0.1067	15	BAB	0.007111	115.9	8.273
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-CTA-1	A	C2	1	2	119.2	8.114	0.1043	15	BGM	0.006954	118.5	8.061
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-CTA-2	A	C2	1	2	114.0	8.207	0.1032	15	BGM	0.006877	111.9	8.063
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-CTA-3	A	C2	1	2	116.0	8.976	0.1017	15	BGM	0.006780	112.4	8.694
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-CTA-1	B	C1	2	1	121.2	8.016	0.1047	15	BGM	0.006980	120.8	7.993
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-CTA-2	B	C1	2	1	98.61	8.178	0.1053	15	BGM	0.007017	98.85	8.198
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-CTA-3	B	C1	2	1	117.9	7.464	0.1050	15	BAB	0.007000	117.9	7.464
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-SP-1	B	C1	2	1	106.2	7.462	0.1060	15	BGM	0.007066	107.2	7.532
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-CTA-1	B	C2	2	2	113.9	8.317	0.1060	15	BAB	0.007066	115.0	8.395
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-CTA-2	B	C2	2	2	114.4	7.750	0.1053	15	BGM, HGM	0.007018	114.6	7.770
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-CTA-3	B	C2	2	2	110.4	8.241	0.1049	15	BGM, HGM	0.006996	110.3	8.235
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-CTA-1	C	C1	3	1	119.4	7.562	0.1048	15	BAT	0.006987	119.2	7.548
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-CTA-2	C	C1	3	1	79.33	8.120	0.1050	15	BGM, HGM	0.007002	79.36	8.123
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-CTA-3	C	C1	3	1	119.3	7.907	0.1050	15	BAT	0.006997	119.3	7.903
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-SP-1*	C	C1	3	1	121.3		0.1047	15	BAT	0.006978	120.9	
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-CTA-1	C	C2	3	2	117.1	7.902	0.1076	15	BGM	0.007173	120.0	8.098
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-CTA-2	C	C2	3	2	120.1	7.890	0.1072	15	BAT	0.007148	122.6	8.057
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-CTA-3	C	C2	3	2	117.8	7.960	0.1057	15	BAB	0.007049	118.7	8.016

*Specimen was not gaged, only strength is tested.

	Strength [ksi]	Modulus [Msi]		t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	**113.4**	**8.000**	**$Average_{norm}$**	**0.007020**	**113.7**	**8.023**
Standard Dev.	**9.721**	**0.3484**	**Standard $Dev._{norm}$**		**9.844**	**0.3060**
Coeff. of Var. [%]	**8.575**	**4.355**	**Coeff. of Var. $[\%]_{norm}$**		**8.659**	**3.813**
Min.	**79.33**	**7.462**	**Min.**	**0.006780**	**79.36**	**7.464**
Max.	**121.3**	**8.976**	**Max.**	**0.007173**	**122.6**	**8.694**
Number of Spec.	**20**	**19**	**Number of Spec.**	**20**	**20**	**19**


Laminate Unnotched Compression 0/90 Properties (UNC0)--CTA (-65°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Compression Strength [ksi]
0
20
40
60
80
100
120
140
0
1
2
3
4


Laminate Unnotched Compression 0/90 Properties (UNC0)--CTA (-65°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Compression Modulus [Msi]
0
1
2
3
4
5
6
7
8
9
10
0
1
2
3
4

Laminate Unnotched Compression 0/90 Properties (UNC0)--RTA (70°F)
Strength & Modulus

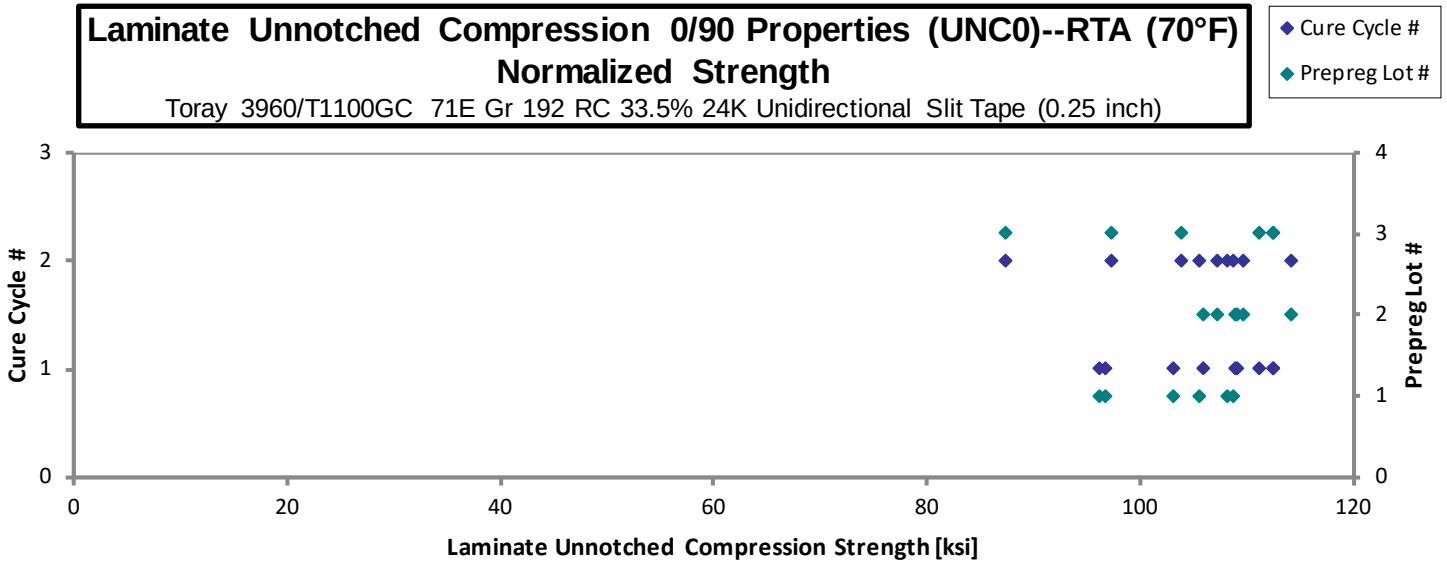
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

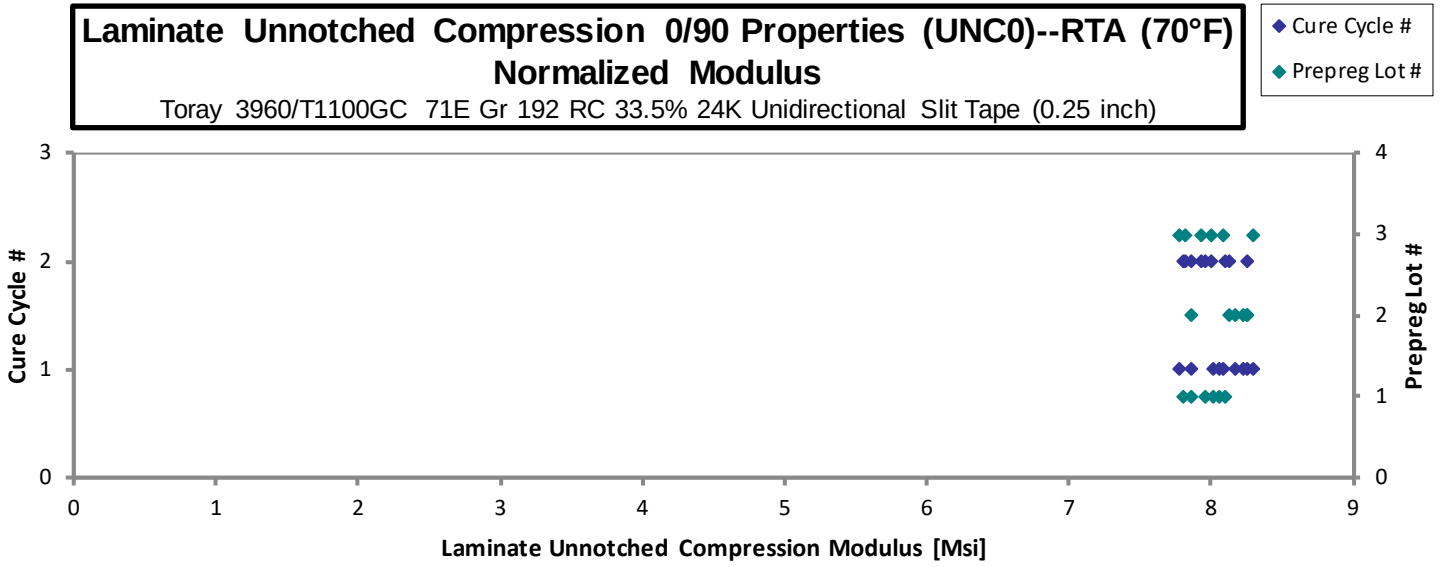
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-RTA-1*	A	C1	1	1	102.0	7.968	0.1063	15	BGM	0.007083	103.2	8.063
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-RTA-2*	A	C1	1	1	94.79	7.853	0.1071	15	BGM	0.007142	96.72	8.013
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-RTA-3	A	C1	1	1	95.09	7.769	0.1062	15	BGM	0.007077	96.13	7.854
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-RTA-1*	A	C2	1	2	107.6	8.114	0.1030	15	BGM	0.006868	105.6	7.961
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-RTA-2*	A	C2	1	2	110.4	7.925	0.1034	15	BGM	0.006893	108.7	7.804
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-RTA-3	A	C2	1	2	110.5	8.279	0.1027	15	BGM	0.006848	108.1	8.099
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-RTA-1*	B	C1	2	1	108.7	8.209	0.1053	15	BAT	0.007019	109.0	8.232
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-RTA-2*	B	C1	2	1	105.1	8.177	0.1059	15	BGM	0.007062	106.0	8.250
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-RTA-3	B	C1	2	1	109.2	8.193	0.1047	15	BAT	0.006982	108.9	8.172
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-RTA-1*	B	C2	2	2	109.3	8.229	0.1054	15	BGM	0.007023	109.7	8.256
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-RTA-2*	B	C2	2	2	113.7	8.093	0.1054	15	BGM	0.007027	114.1	8.124
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-RTA-3	B	C2	2	2	107.0	7.831	0.1054	15	BGM	0.007023	107.3	7.857
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-RTA-1*	C	C1	3	1	112.6	8.097	0.1049	15	BGM	0.006991	112.5	8.087
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-RTA-2*	C	C1	3	1	113.1	8.343	0.1044	15	BGM	0.006959	112.4	8.294
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-RTA-3	C	C1	3	1	111.9	7.836	0.1043	15	BGM	0.006950	111.1	7.780
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-RTA-1*	C	C2	3	2	103.3	7.888	0.1056	15	BGM	0.007040	103.9	7.933
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-RTA-2*	C	C2	3	2	86.63	7.933	0.1059	15	BGM	0.007059	87.36	7.999
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-RTA-3	C	C2	3	2	96.50	7.759	0.1059	15	BGM	0.007057	97.28	7.822

*Modulus are averaged values of 2 strain gages.

	Strength [ksi]	Modulus [Msi]			$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	**105.4**	**8.028**		**$Average_{norm}$**	**105.4**	**8.033**
Standard Dev.	**7.617**	**0.1863**		**Standard $Dev._{norm}$**	**6.998**	**0.1682**
Coeff. of Var. [%]	**7.227**	**2.321**		**Coeff. of Var. $[\%]_{norm}$**	**6.637**	**2.094**
Min.	**86.63**	**7.759**		**Min.**	**87.36**	**7.780**
Max.	**113.7**	**8.343**		**Max.**	**114.1**	**8.294**
Number of Spec.	**18**	**18**		**Number of Spec.**	**18**	**18**


Laminate Unnotched Compression 0/90 Properties (UNC0)--RTA (70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
20
40
60
80
100
120
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression 0/90 Properties (UNC0)--RTA (70°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
1
2
3
4
5
6
7
8
9
Laminate Unnotched Compression Modulus [Msi]

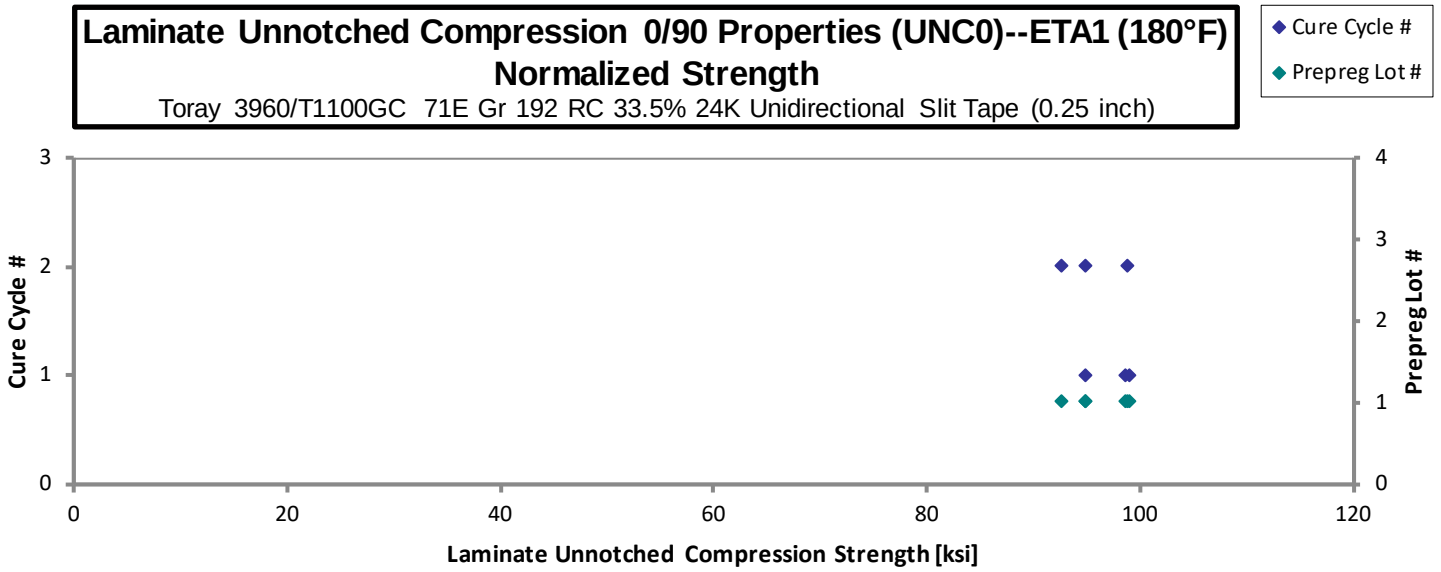
Laminate Unnotched Compression 0/90 Properties (UNC0)--ETA1 (180°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

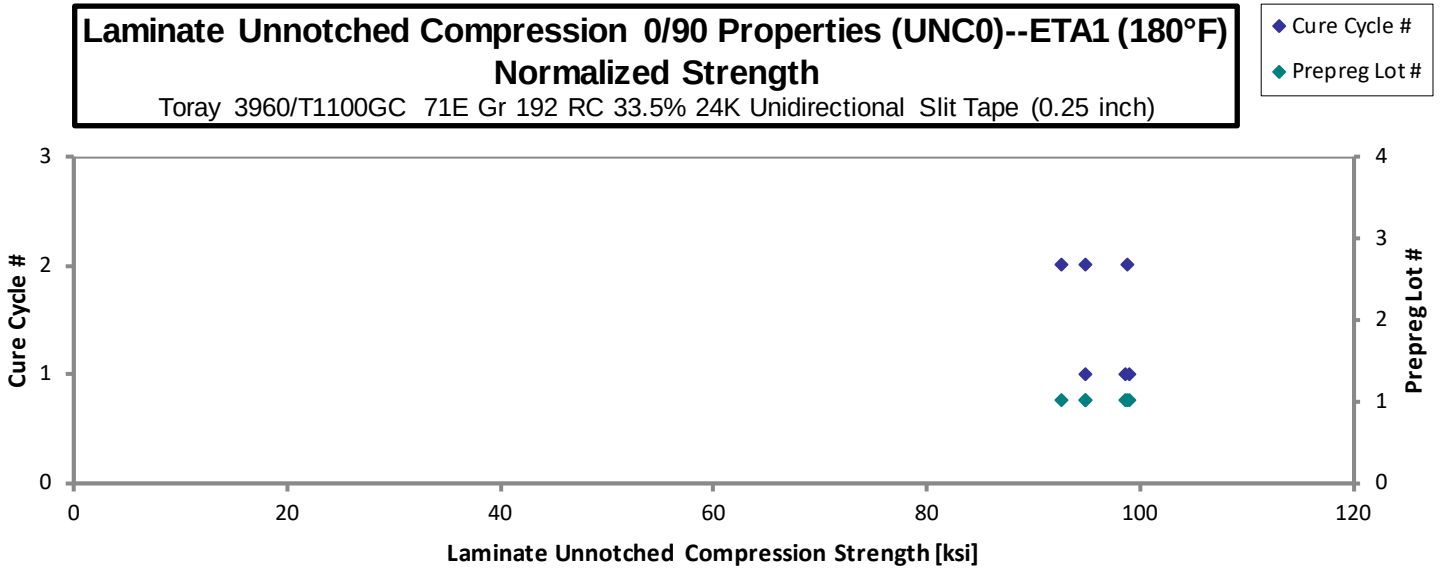
normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETA1-1	A	C1	1	1	97.06	7.762	0.1066	15	BGM	0.007106	98.52	7.879
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETA1-2	A	C1	1	1	93.94	7.795	0.1060	15	BGM	0.007068	94.85	7.871
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETA1-3	A	C1	1	1	98.24	7.999	0.1057	15	BAT	0.007048	98.92	8.054
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETA1-1	A	C2	1	2	94.13	8.061	0.1034	15	BAT	0.006890	92.65	7.934
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETA1-2	A	C2	1	2	96.26	8.091	0.1035	15	BGM	0.006901	94.90	7.976
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETA1-3	A	C2	1	2	100.6	7.839	0.1032	15	BGM	0.006880	98.86	7.704

	Strength [ksi]	Modulus [Msi]
Average	**96.70**	**7.924**
Standard Dev.	**2.533**	**0.1430**
Coeff. of Var. [%]	**2.619**	**1.805**
Min.	**93.94**	**7.762**
Max.	**100.6**	**8.091**
Number of Spec.	**6**	**6**

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	**0.006982**	**96.45**	**7.903**
$Standard\ Dev._{norm}$		**2.670**	**0.1185**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**2.768**	**1.499**
Min.	**0.006880**	**92.65**	**7.704**
Max.	**0.007106**	**98.92**	**8.054**
Number of Spec.	**6**	**6**	**6**


Laminate Unnotched Compression 0/90 Properties (UNC0)--ETA1 (180°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
20
40
60
80
100
120
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression 0/90 Properties (UNC0)--ETA1 (180°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
20
40
60
80
100
120
Laminate Unnotched Compression Strength [ksi]

Laminate Unnotched Compression 0/90 Properties (UNC0)--ETA2 (250°F)
Strength & Modulus

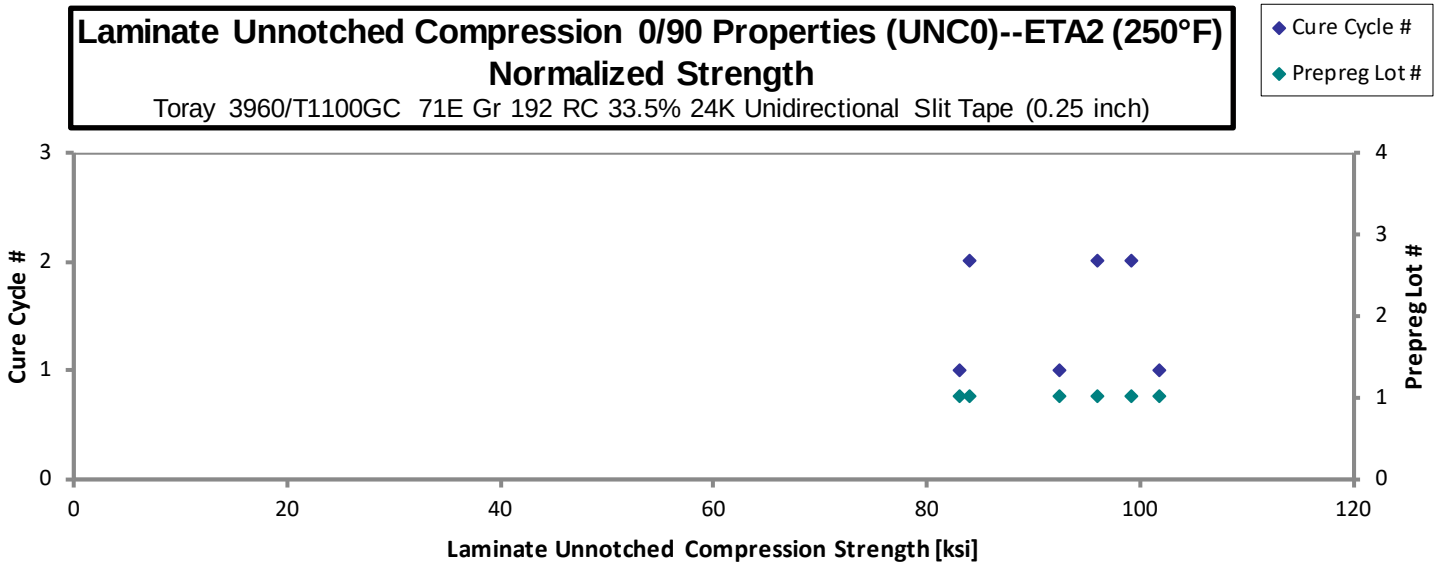
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

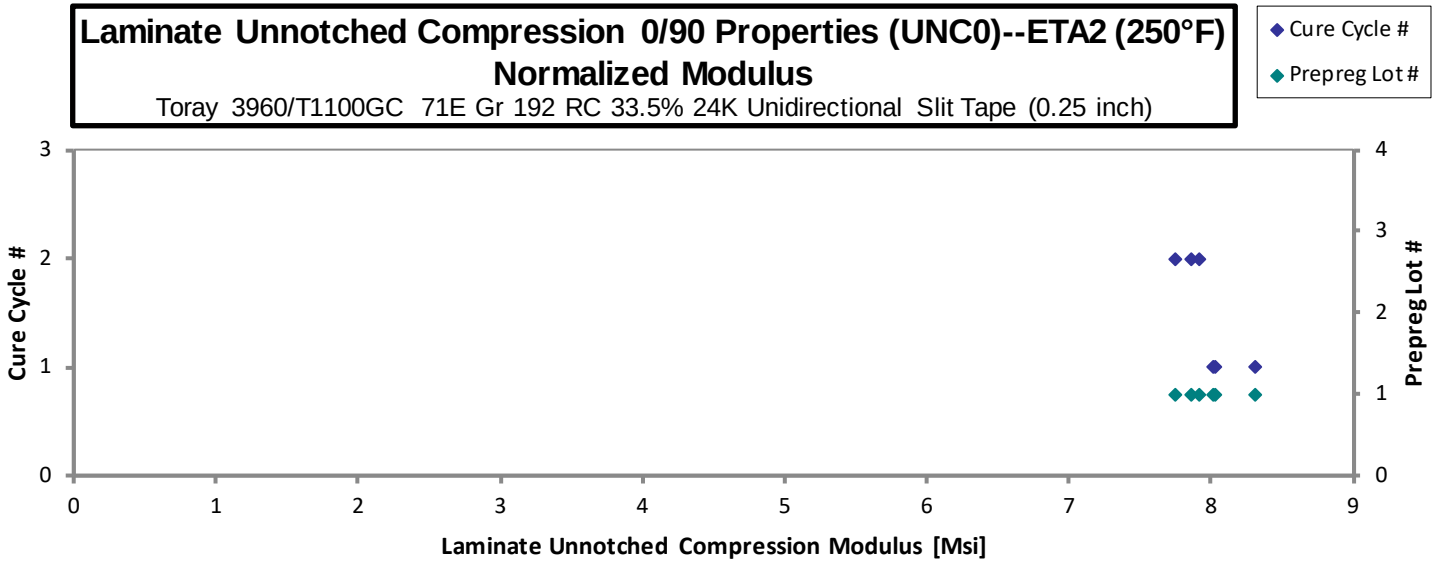
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETA2-1	A	C1	1	1	101.5	7.998	0.1054	15	BAB	0.007024	101.9	8.026
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETA2-2	A	C1	1	1	91.66	7.953	0.1058	15	BAT	0.007053	92.36	8.013
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETA2-3	A	C1	1	1	82.39	8.243	0.1058	15	BGM	0.007054	83.03	8.307
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETA2-1	A	C2	1	2	97.19	7.855	0.1036	15	BGM	0.006908	95.91	7.752
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETA2-2	A	C2	1	2	85.81	8.037	0.1027	15	BGM	0.006849	83.96	7.864
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETA2-3	A	C2	1	2	100.9	8.056	0.1032	15	BAB	0.006877	99.09	7.914

	Strength [ksi]	Modulus [Msi]
Average	93.24	8.024
Standard Dev.	7.969	0.1293
Coeff. of Var. [%]	8.547	1.612
Min.	82.39	7.855
Max.	101.5	8.243
Number of Spec.	6	6

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.006961	92.70	7.979
$Standard\ Dev._{norm}$		7.812	0.1900
$Coeff.\ of\ Var.\ [\%]_{norm}$		8.427	2.381
Min.	0.006849	83.03	7.752
Max.	0.007054	101.9	8.307
Number of Spec.	6	6	6


Laminate Unnotched Compression 0/90 Properties (UNC0)--ETA2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
20
40
60
80
100
120
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression 0/90 Properties (UNC0)--ETA2 (250°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
1
2
3
4
5
6
7
8
9
Laminate Unnotched Compression Modulus [Msi]

Laminate Unnotched Compression 0/90 Properties (UNC0)--ETW1 (180°F)
Strength & Modulus

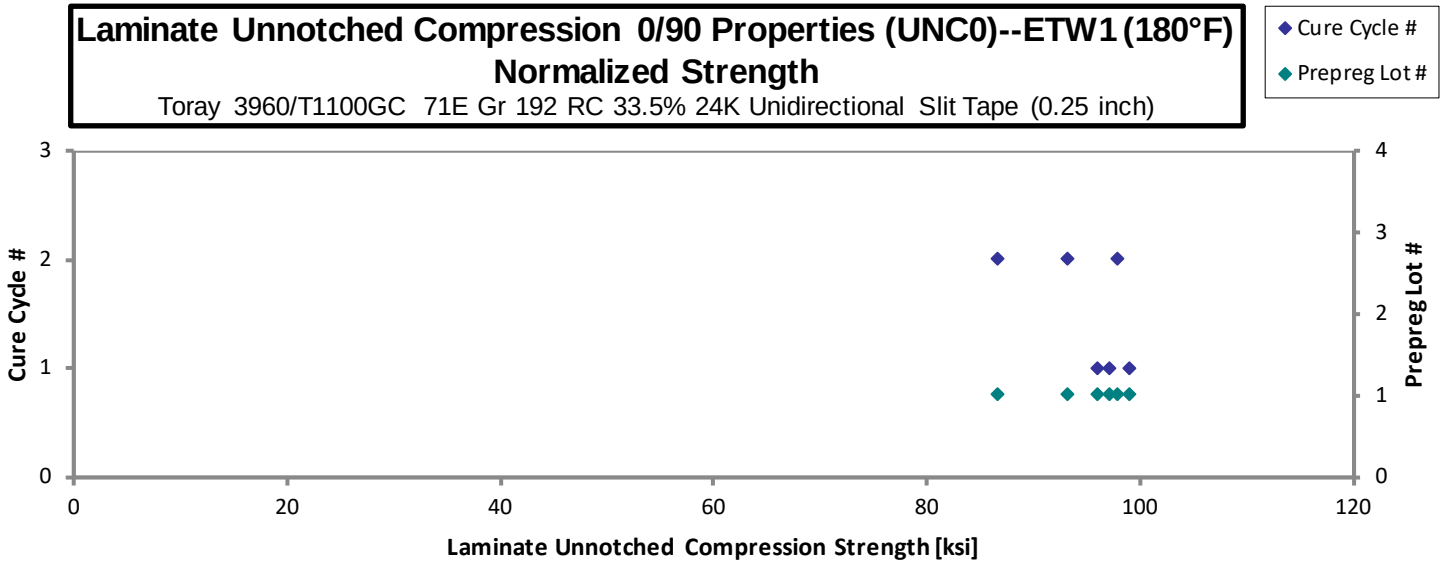
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

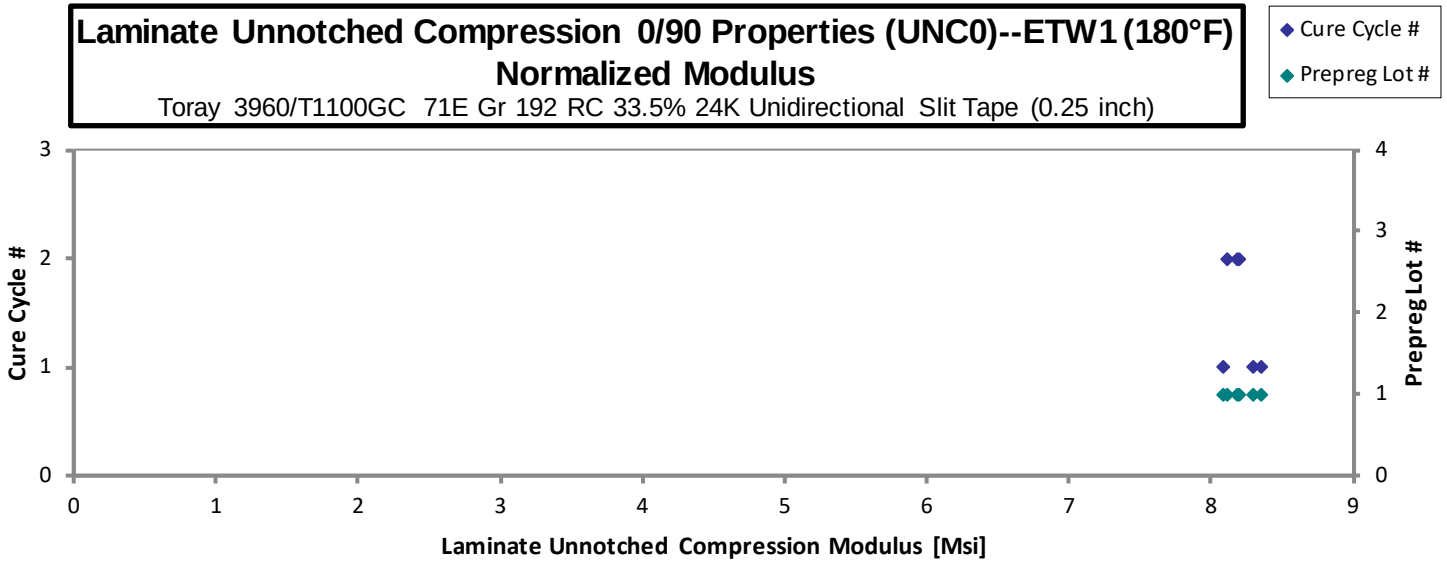
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETW1-1	A	C1	1	1	97.65	8.245	0.1064	15	BGM	0.007091	98.92	8.352
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETW1-2	A	C1	1	1	94.95	7.994	0.1062	15	BGM	0.007081	96.05	8.087
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETW1-3	A	C1	1	1	96.17	8.214	0.1061	15	BGM	0.007071	97.15	8.297
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETW1-1	A	C2	1	2	88.35	8.361	0.1029	15	BGM	0.006857	86.54	8.190
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETW1-2	A	C2	1	2	99.77	8.341	0.1029	15	BGM	0.006862	97.81	8.177
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETW1-3	A	C2	1	2	94.55	8.233	0.1034	15	BGM	0.006894	93.13	8.109

	Strength [ksi]	Modulus [Msi]
Average	95.24	8.231
Standard Dev.	3.878	0.1310
Coeff. of Var. [%]	4.071	1.591
Min.	88.35	7.994
Max.	99.77	8.361
Number of Spec.	6	6

	t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.006976	94.93	8.202
$Standard\ Dev._{norm}$		4.560	0.1044
$Coeff.\ of\ Var.\ [\%]_{norm}$		4.803	1.273
Min.	0.006857	86.54	8.087
Max.	0.007091	98.92	8.352
Number of Spec.	6	6	6


Laminate Unnotched Compression 0/90 Properties (UNC0)--ETW1 (180°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
20
40
60
80
100
120
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression 0/90 Properties (UNC0)--ETW1 (180°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
1
2
3
4
5
6
7
8
9
Laminate Unnotched Compression Modulus [Msi]

Laminate Unnotched Compression 0/90 Properties (UNC0)--ETW2 (250°F)
Strength & Modulus

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

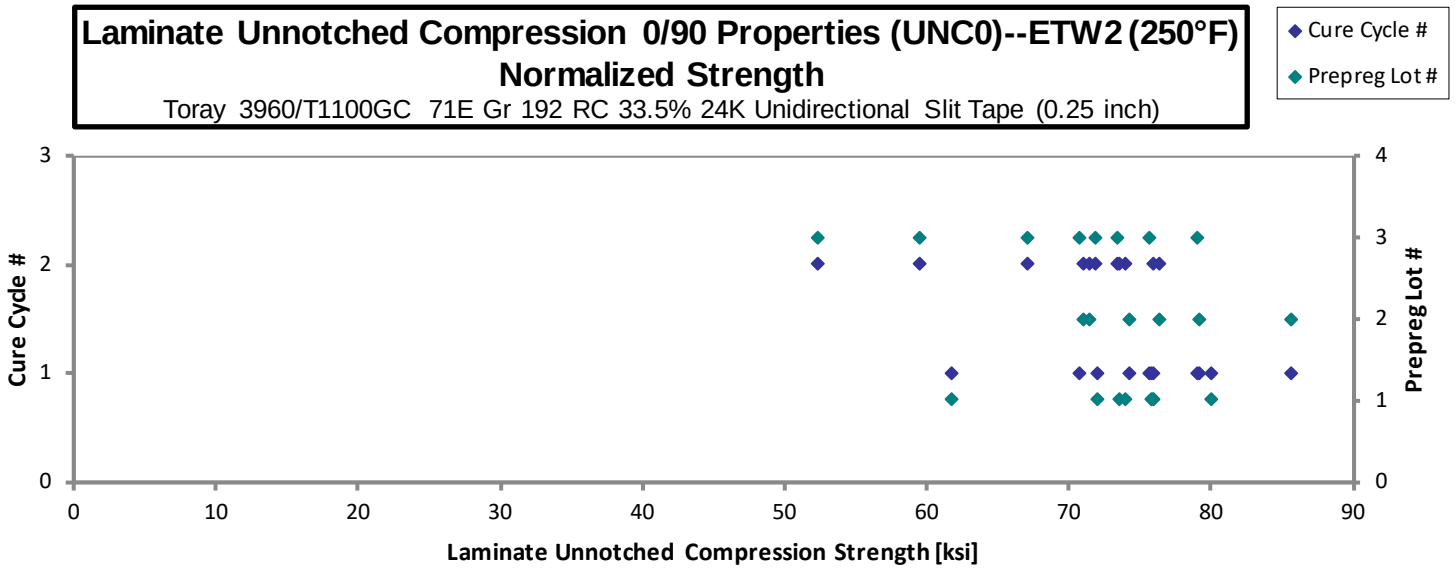
normalizing t_{ply} [in]: 0.007000

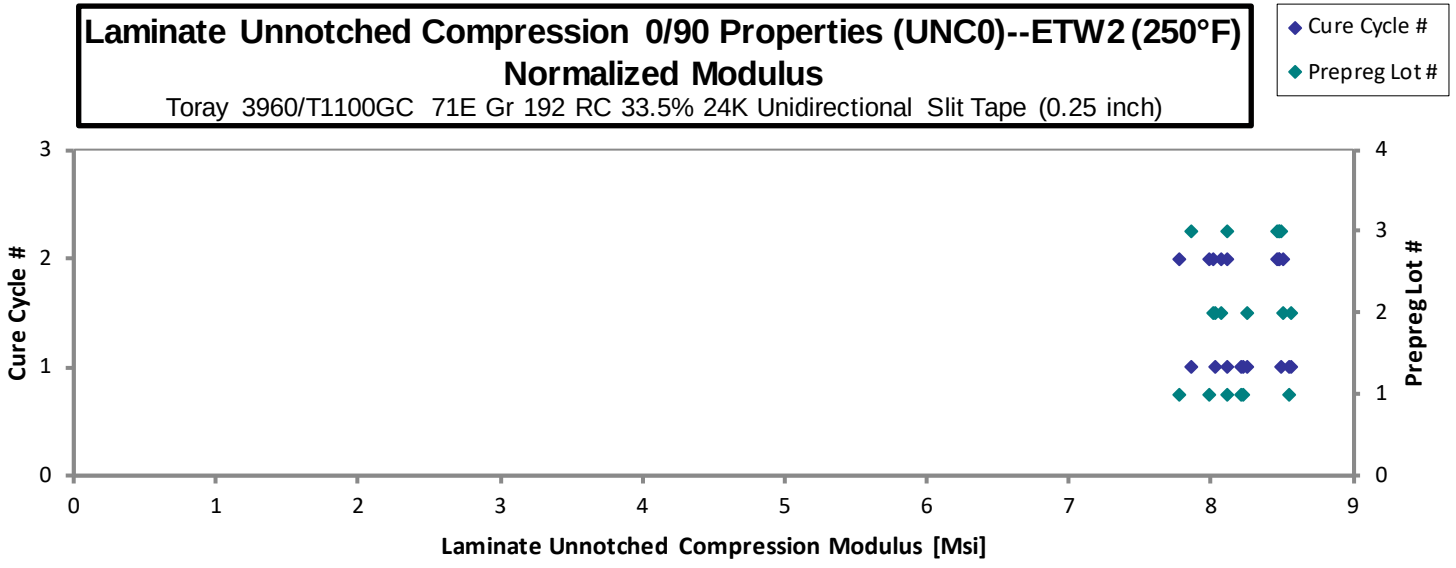
Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETW2-1	A	C1	1	1	78.94	8.116	0.1064	15	BGM	0.007090	79.96	8.221
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETW2-2	A	C1	1	1	61.53	8.186	0.1053	15	BGM	0.007020	61.70	8.210
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-ETW2-3	A	C1	1	1	75.50	8.514	0.1054	15	BGM	0.007026	75.78	8.546
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-SP-11*	A	C1	1	1	75.42		0.1058	15	BGM	0.007052	75.98	
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-SP-12*	A	C1	1	1	71.61		0.1056	15	BGM	0.007042	72.04	
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETW2-1	A	C2	1	2	74.87	7.917	0.1032	15	BGM	0.006877	73.55	7.778
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETW2-2	A	C2	1	2	75.79	8.180	0.1026	15	BGM	0.006837	74.02	7.989
NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-ETW2-3	A	C2	1	2	77.95	8.327	0.1023	15	BGM	0.006821	75.96	8.114
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-ETW2-1	B	C1	2	1	86.12	8.302	0.1044	15	BGM	0.006961	85.64	8.256
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-ETW2-2	B	C1	2	1	74.01	8.010	0.1052	15	BAB	0.007016	74.18	8.028
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C1-1-UNC0-ETW2-3	B	C1	2	1	78.47	8.485	0.1059	15	BGM	0.007061	79.16	8.559
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-ETW2-1	B	C2	2	2	75.94	8.030	0.1056	15	BGM	0.007038	76.35	8.074
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-ETW2-2	B	C2	2	2	70.69	7.986	0.1054	15	BGM	0.007026	70.95	8.015
NTP3963Q1-TC-WEB-NIAR-T01-MST2-B-C2-1-UNC0-ETW2-3	B	C2	2	2	71.07	8.464	0.1055	15	BGM	0.007034	71.42	8.505
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-ETW2-1	C	C1	3	1	71.57	7.942	0.1038	15	M(B,H)GM	0.006921	70.77	7.853
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-ETW2-2	C	C1	3	1	76.12	8.548	0.1043	15	BGM	0.006952	75.60	8.490
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C1-1-UNC0-ETW2-3	C	C1	3	1	78.33	8.037	0.1059	15	BGM	0.007060	79.00	8.106
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-ETW2-1	C	C2	3	2	58.87	8.378	0.1062	15	BGM	0.007079	59.53	8.473
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-ETW2-2	C	C2	3	2	51.70	8.364	0.1063	15	BGM	0.007088	52.35	8.469
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-ETW2-3	C	C2	3	2	72.49	8.377	0.1062	15	BGM	0.007082	73.34	8.476
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-SP-5*	C	C2	3	2	66.66		0.1056	15	BGM	0.007039	67.03	
NTP3963Q1-TC-WEB-NIAR-T01-MST2-C-C2-1-UNC0-SP-6*	C	C2	3	2	71.78		0.1052	15	BGM	0.007011	71.89	

*Specimen was not gaged, only strength is tested.

	Strength [ksi]	Modulus [Msi]
Average	72.52	8.231
Standard Dev.	7.458	0.2116
Coeff. of Var. [%]	10.28	2.570
Min.	51.70	7.917
Max.	86.12	8.548
Number of Spec.	22	18

	t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.007006	72.55	8.231
$Standard\ Dev._{norm}$		7.267	0.2513
Coeff. of Var. $[\%]_{norm}$		10.02	3.053
Min.	0.006821	52.35	7.778
Max.	0.007090	85.64	8.559
Number of Spec.	22	22	18


Laminate Unnotched Compression 0/90 Properties (UNC0)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression 0/90 Properties (UNC0)--ETW2 (250°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Compression Modulus [Msi]

4.12 “25/50/25” Unnotched Compression 1 Properties (UNC1)

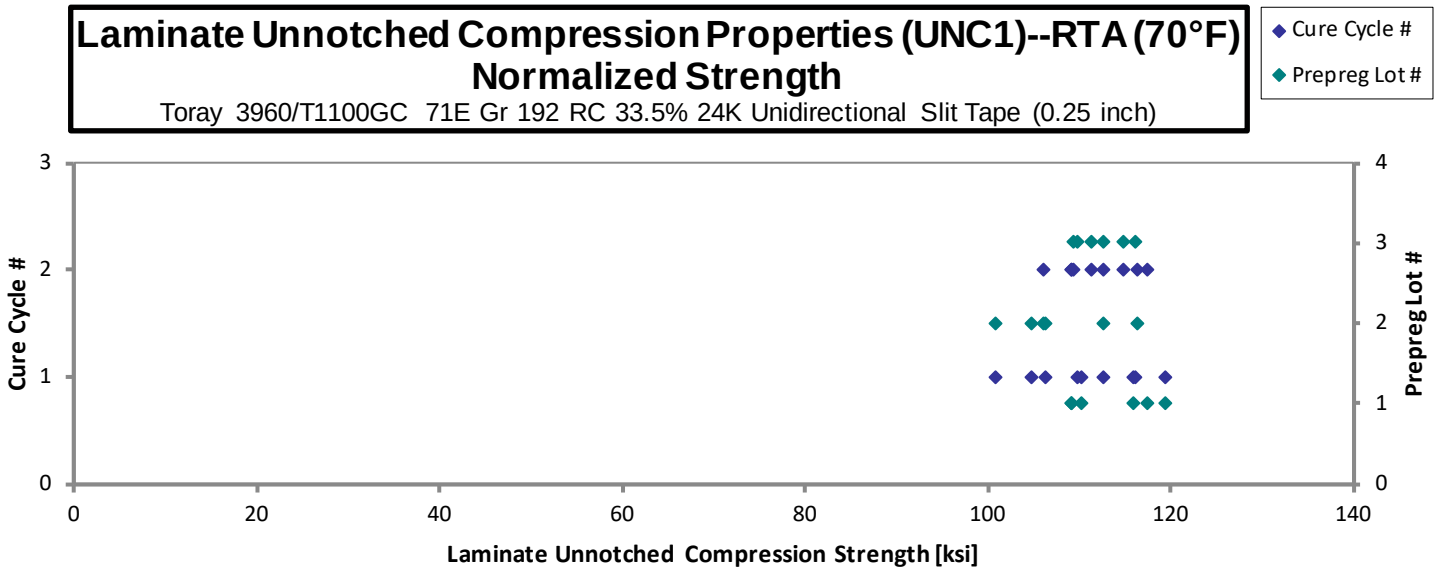
Laminate Unnotched Compression Properties (UNC1)--RTA (70°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

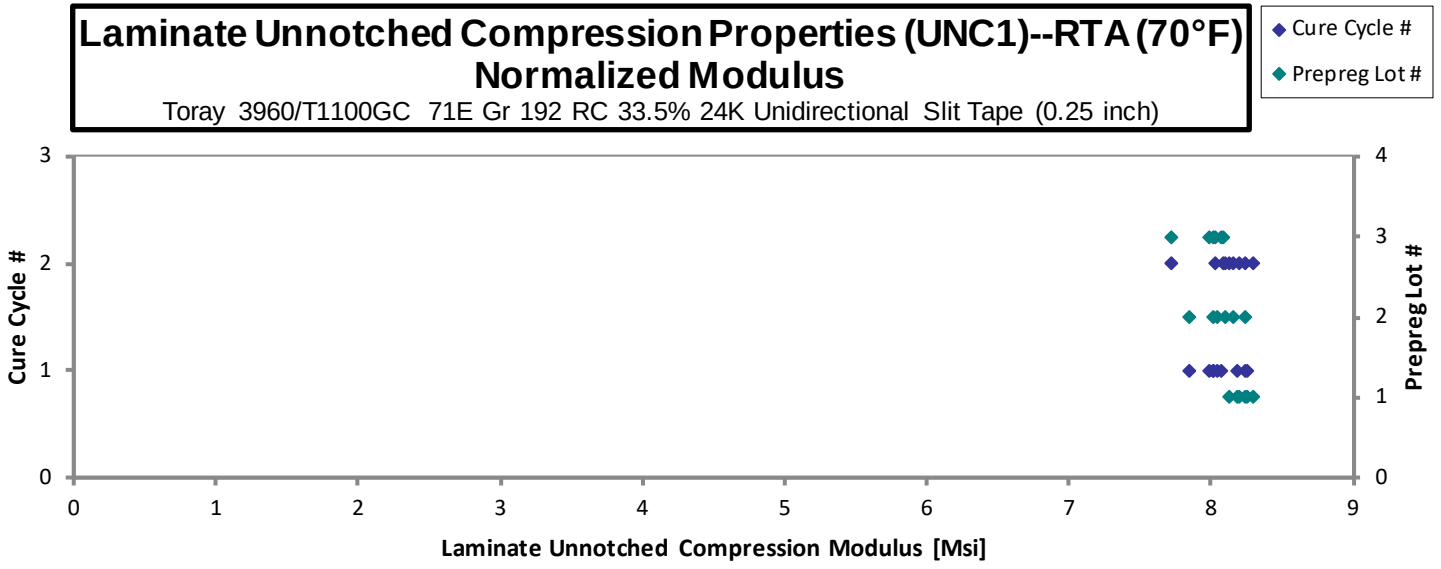
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNC1-RTA-1*	A	C1	1	1	118.9	8.227	0.1124	16	BGM	0.007026	119.4	8.258
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNC1-RTA-2*	A	C1	1	1	110.7	8.265	0.1116	16	BGM	0.006972	110.3	8.232
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNC1-RTA-3	A	C1	1	1	116.7	8.232	0.1113	16	BGM	0.006953	115.9	8.177
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNC1-RTA-1*	A	C2	1	2	117.2	8.266	0.1124	16	BGM	0.007023	117.5	8.293
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNC1-RTA-2*	A	C2	1	2	109.2	8.201	0.1119	16	BGM	0.006995	109.1	8.194
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNC1-RTA-3	A	C2	1	2	110.5	8.215	0.1108	16	BGM	0.006924	109.3	8.126
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNC1-RTA-1*	B	C1	2	1	103.5	7.912	0.1134	16	BGM	0.007084	104.8	8.007
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNC1-RTA-2*	B	C1	2	1	106.4	8.047	0.1119	16	BGM	0.006991	106.2	8.037
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNC1-RTA-3	B	C1	2	1	101.5	7.907	0.1112	16	BGM	0.006952	100.8	7.853
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNC1-RTA-1*	B	C2	2	2	116.4	8.149	0.1120	16	BGM	0.007002	116.4	8.152
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNC1-RTA-2*	B	C2	2	2	113.7	8.167	0.1110	16	BGM	0.006938	112.7	8.094
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNC1-RTA-3	B	C2	2	2	106.8	8.302	0.1112	16	BGM	0.006952	106.0	8.245
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNC1-RTA-1*	C	C1	3	1	107.9	7.856	0.1139	16	BGM	0.007120	109.7	7.990
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNC1-RTA-2*	C	C1	3	1	111.5	7.933	0.1131	16	BGM	0.007071	112.6	8.013
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNC1-RTA-3	C	C1	3	1	115.5	8.021	0.1127	16	BGM	0.007045	116.2	8.072
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNC1-RTA-1*	C	C2	3	2	108.2	7.937	0.1132	16	BGM	0.007075	109.4	8.022
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNC1-RTA-2*	C	C2	3	2	114.6	8.077	0.1122	16	BGM	0.007011	114.8	8.090
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNC1-RTA-3	C	C2	3	2	110.8	7.696	0.1124	16	BGM	0.007027	111.2	7.726

*Modulus are averaged values of 2 strain gages.

	Strength [ksi]	Modulus [Msi]		Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	111.1	8.078	$Average_{norm}$	0.007009	111.2	8.088
Standard Dev.	4.905	0.1733	$Standard\ Dev._{norm}$		4.934	0.1448
Coeff. of Var. [%]	4.415	2.145	Coeff. of Var. $[\%]_{norm}$		4.435	1.791
Min.	101.5	7.696	Min.	0.006924	100.8	7.726
Max.	118.9	8.302	Max.	0.007120	119.4	8.293
Number of Spec.	18	18	Number of Spec.	18	18	18


Laminate Unnotched Compression Properties (UNC1)--RTA (70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
20
40
60
80
100
120
140
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression Properties (UNC1)--RTA (70°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
5
6
7
8
9
Laminate Unnotched Compression Modulus [Msi]

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

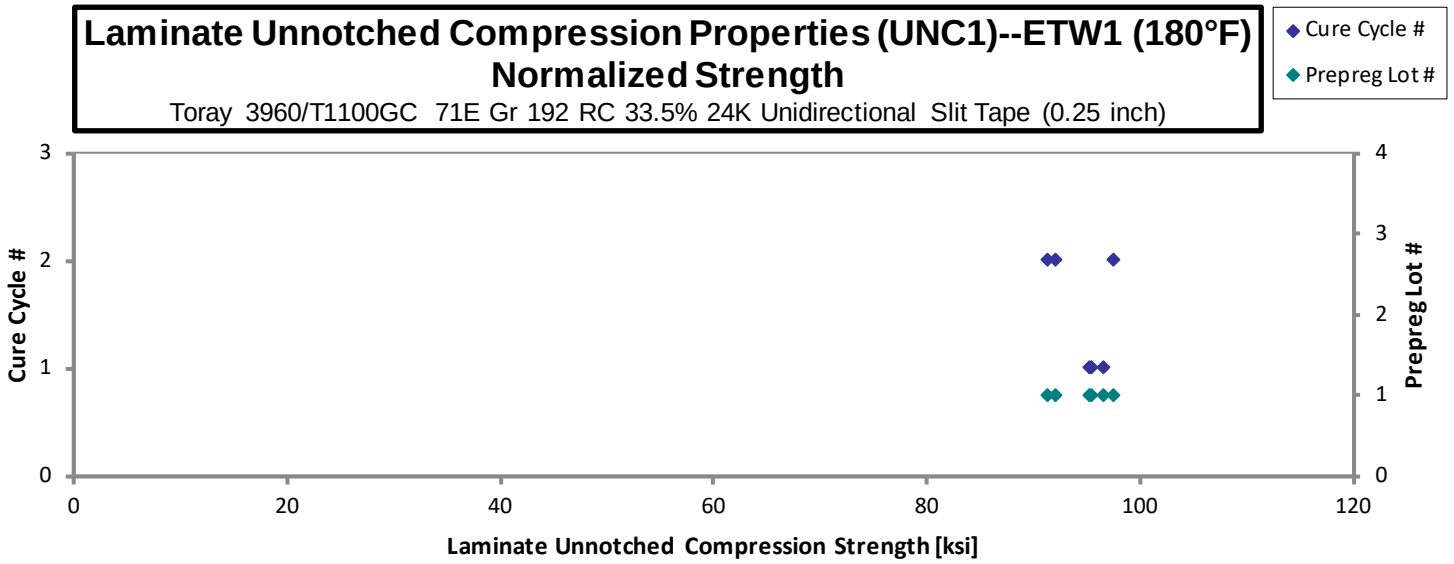
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

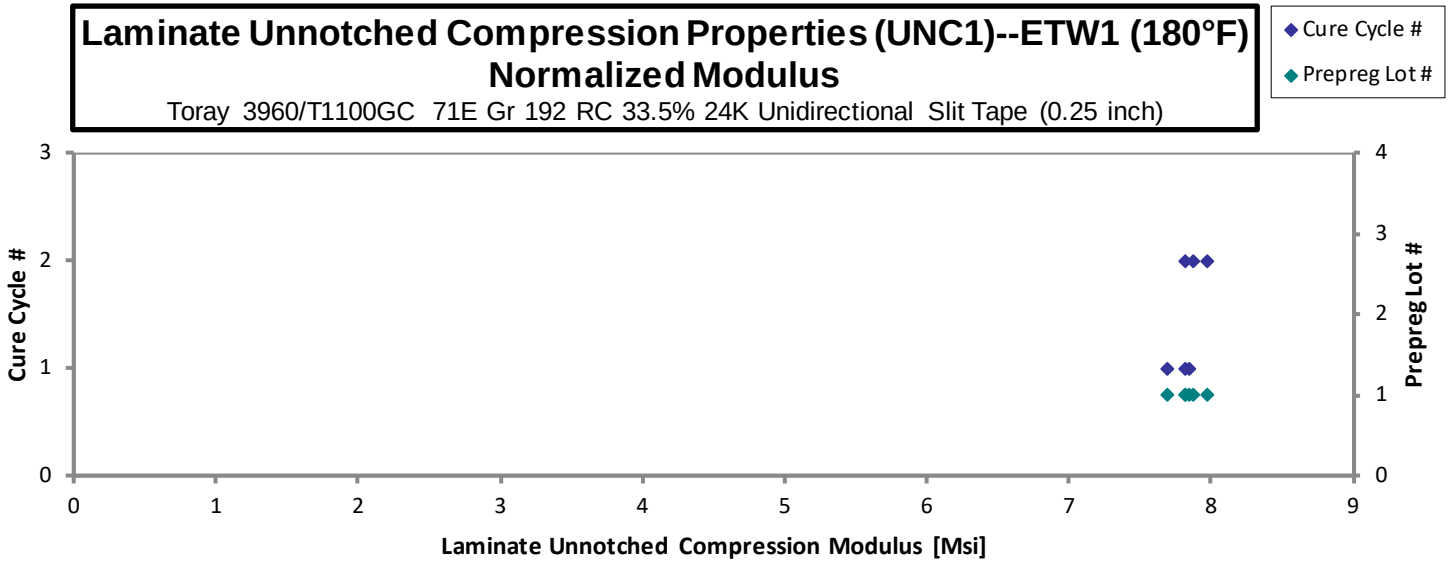
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNC1-ETW1-1	A	C1	1	1	96.87	7.882	0.1116	16	BGM	0.006972	96.48	7.850
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNC1-ETW1-2	A	C1	1	1	95.51	7.703	0.1119	16	BGM	0.006993	95.41	7.695
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNC1-ETW1-3	A	C1	1	1	95.22	7.819	0.1121	16	BGM	0.007004	95.27	7.823
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNC1-ETW1-1	A	C2	1	2	91.64	7.998	0.1116	16	BGM	0.006975	91.32	7.969
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNC1-ETW1-2	A	C2	1	2	92.92	7.882	0.1110	16	BAB	0.006940	92.12	7.814
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNC1-ETW1-3	A	C2	1	2	97.74	7.898	0.1118	16	BGM	0.006984	97.52	7.880

	Strength [ksi]	Modulus [Msi]
Average	94.98	7.864
Standard Dev.	2.320	0.09751
Coeff. of Var. [%]	2.443	1.240
Min.	91.64	7.703
Max.	97.74	7.998
Number of Spec.	6	6

	t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.006978	94.69	7.839
$Standard\ Dev._{norm}$		2.454	0.08973
$Coeff.\ of\ Var.\ [\%]_{norm}$		2.591	1.145
Min.	0.006940	91.32	7.695
Max.	0.007004	97.52	7.969
Number of Spec.	6	6	6


Laminate Unnotched Compression Properties (UNC1)--ETW1 (180°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
20
40
60
80
100
120
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression Properties (UNC1)--ETW1 (180°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
1
2
3
4
5
6
7
8
9
Laminate Unnotched Compression Modulus [Msi]

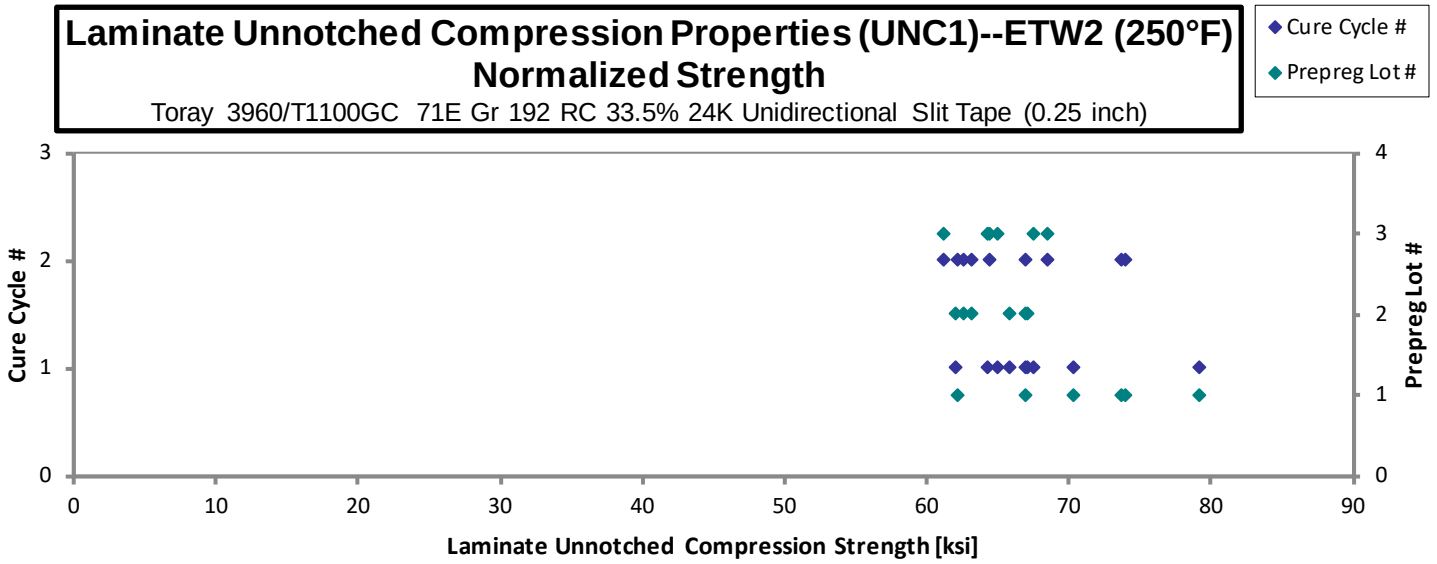
Laminate Unnotched Compression Properties (UNC1)--ETW2 (250°F)
Strength & Modulus

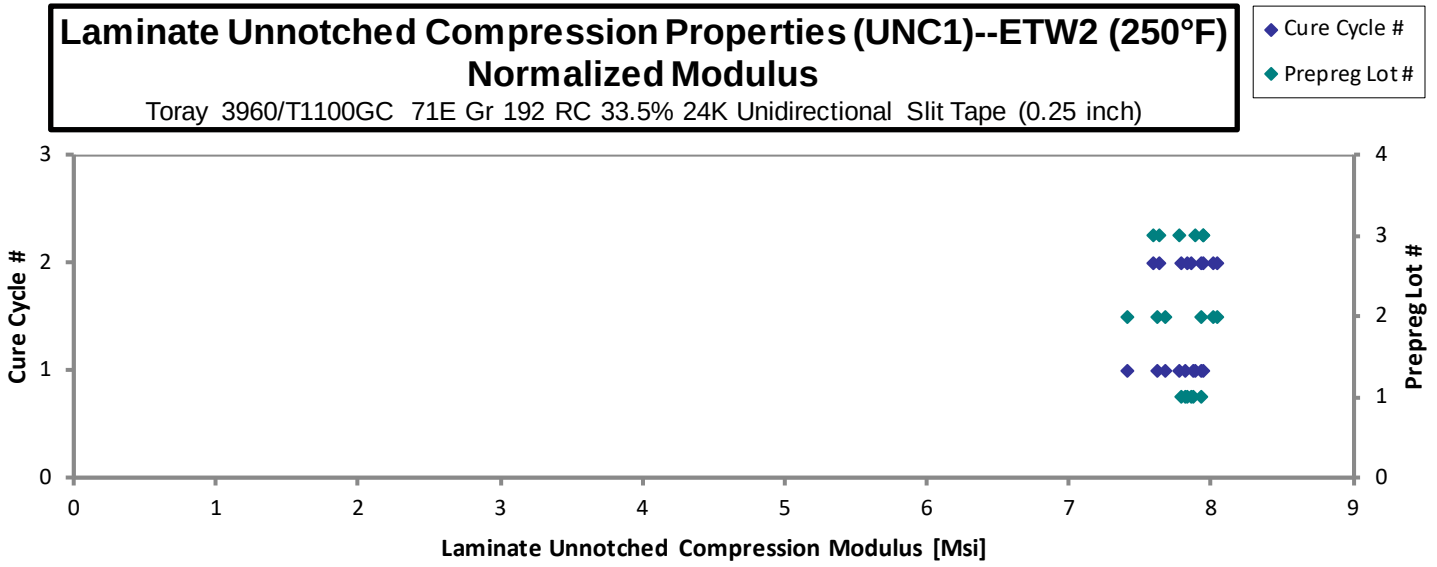
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNC1-ETW2-1	A	C1	1	1	79.35	7.839	0.1118	16	BGM	0.006985	79.19	7.822
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNC1-ETW2-2	A	C1	1	1	67.06	7.881	0.1119	16	BGM	0.006991	66.97	7.870
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNC1-ETW2-3	A	C1	1	1	70.11	7.915	0.1122	16	BGM	0.007015	70.26	7.931
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNC1-ETW2-1	A	C2	1	2	74.13	7.912	0.1113	16	BGM	0.006953	73.63	7.859
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNC1-ETW2-2	A	C2	1	2	74.43	7.891	0.1112	16	BGM	0.006951	73.91	7.836
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNC1-ETW2-3	A	C2	1	2	62.57	7.828	0.1114	16	BGM	0.006959	62.20	7.783
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNC1-ETW2-1	B	C1	2	1	67.40	7.446	0.1115	16	BGM	0.006969	67.10	7.413
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNC1-ETW2-2	B	C1	2	1	62.06	7.683	0.1119	16	BGM	0.006995	62.01	7.677
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-UNC1-ETW2-3	B	C1	2	1	65.58	7.591	0.1124	16	BGM	0.007023	65.79	7.615
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNC1-ETW2-1	B	C2	2	2	67.29	8.060	0.1113	16	BGM	0.006957	66.88	8.011
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNC1-ETW2-2	B	C2	2	2	62.85	8.074	0.1116	16	BGM	0.006977	62.64	8.048
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNC1-ETW2-3	B	C2	2	2	63.16	7.939	0.1119	16	BGM	0.006992	63.08	7.930
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNC1-ETW2-1	C	C1	3	1	67.14	7.910	0.1126	16	BGM	0.007036	67.49	7.951
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNC1-ETW2-2	C	C1	3	1	63.70	7.710	0.1130	16	BGM	0.007065	64.29	7.781
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNC1-ETW2-3	C	C1	3	1	64.10	7.780	0.1135	16	BGM	0.007093	64.95	7.883
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNC1-ETW2-1	C	C2	3	2	64.02	7.588	0.1128	16	BGM	0.007049	64.47	7.641
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNC1-ETW2-2	C	C2	3	2	60.69	7.528	0.1129	16	BGM	0.007054	61.16	7.586
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-UNC1-ETW2-3	C	C2	3	2	68.04	7.894	0.1128	16	BGM	0.007047	68.50	7.947

	Strength [ksi]	Modulus [Msi]			$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	**66.87**	**7.804**		**$Average_{norm}$**	**0.007006**	**66.92**	**7.810**
Standard Dev.	**4.944**	**0.1776**		**Standard $Dev._{norm}$**		**4.784**	**0.1664**
Coeff. of Var. [%]	**7.393**	**2.276**		**Coeff. of Var. $[\%]_{norm}$**		**7.149**	**2.130**
Min.	**60.69**	**7.446**		**Min.**	**0.006951**	**61.16**	**7.413**
Max.	**79.35**	**8.074**		**Max.**	**0.007093**	**79.19**	**8.048**
Number of Spec.	**18**	**18**		**Number of Spec.**	**18**	**18**	**18**


Laminate Unnotched Compression Properties (UNC1)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Compression Strength [ksi]
0
10
20
30
40
50
60
70
80
90
0
1
2
3
4


Laminate Unnotched Compression Properties (UNC1)--ETW2 (250°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Compression Modulus [Msi]
0
1
2
3
4
5
6
7
8
9
0
1
2
3
4

4.13 “10/80/10” Unnotched Compression 2 Properties (UNC2)

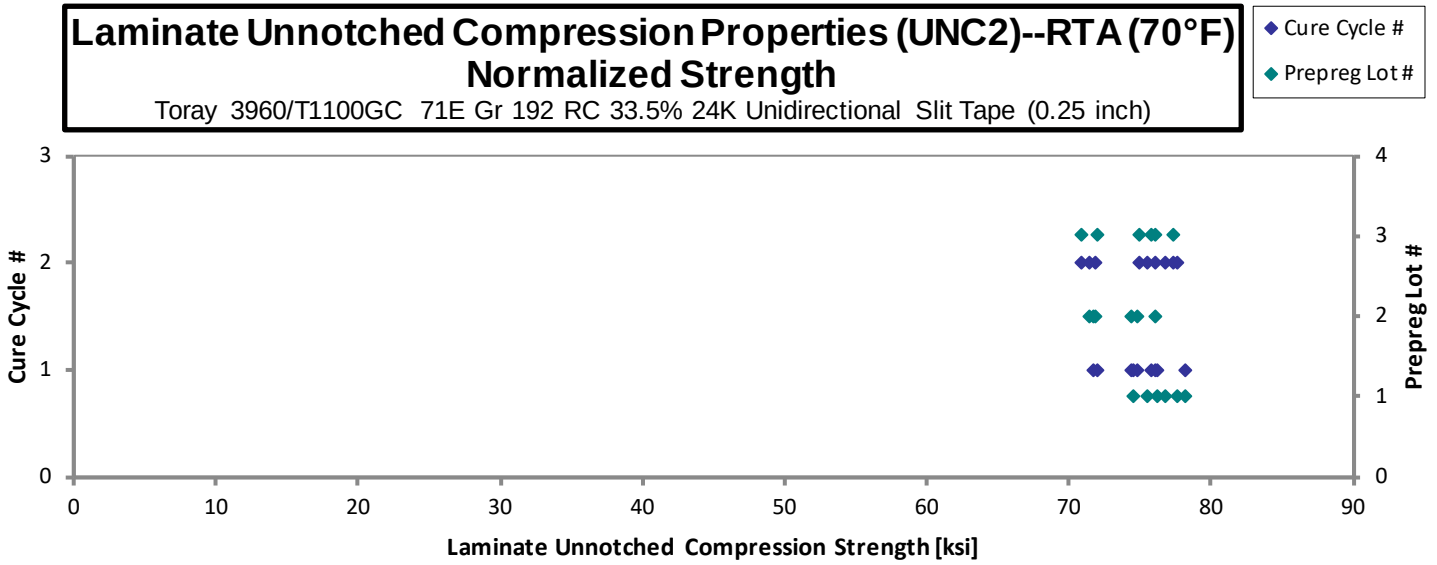
Laminate Unnotched Compression Properties (UNC2)--RTA (70°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

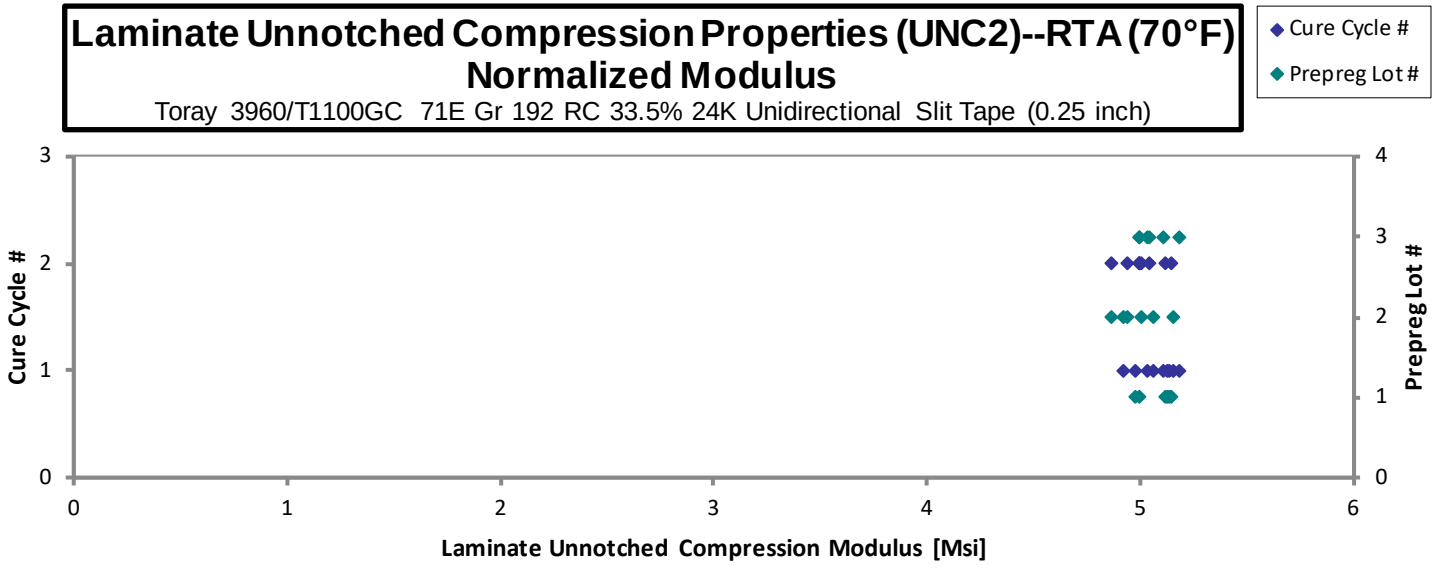
normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNC2-RTA-1*	A	C1	1	1	76.02	5.125	0.1404	20	BGM	0.007018	76.21	5.138
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNC2-RTA-2*	A	C1	1	1	78.05	5.118	0.1401	20	BGM	0.007007	78.12	5.123
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNC2-RTA-3	A	C1	1	1	74.35	4.966	0.1402	20	BGM	0.007011	74.46	4.974
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNC2-RTA-1*	A	C2	1	2	75.88	5.178	0.1393	20	BGM	0.006963	75.48	5.151
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNC2-RTA-2*	A	C2	1	2	78.56	5.182	0.1384	20	BGM	0.006919	77.65	5.123
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNC2-RTA-3	A	C2	1	2	77.59	5.041	0.1386	20	BGM	0.006932	76.83	4.992
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNC2-RTA-1*	B	C1	2	1	73.82	5.115	0.1410	20	BGM	0.007050	74.35	5.152
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNC2-RTA-2*	B	C1	2	1	72.10	5.094	0.1392	20	BGM	0.006961	71.70	5.066
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNC2-RTA-3	B	C1	2	1	75.72	4.977	0.1384	20	BGM	0.006918	74.83	4.918
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNC2-RTA-1*	B	C2	2	2	71.54	4.945	0.1399	20	BGM	0.006993	71.48	4.941
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNC2-RTA-2*	B	C2	2	2	76.07	5.004	0.1401	20	BGM	0.007004	76.11	5.007
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNC2-RTA-3	B	C2	2	2	72.06	4.881	0.1396	20	BGM	0.006978	71.84	4.866
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNC2-RTA-1*	C	C1	3	1	74.06	4.992	0.1433	20	BGM	0.007165	75.81	5.109
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNC2-RTA-2*	C	C1	3	1	75.10	5.125	0.1417	20	BGM	0.007084	76.00	5.187
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNC2-RTA-3	C	C1	3	1	71.73	5.016	0.1406	20	BGM	0.007031	72.05	5.038
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNC2-RTA-1*	C	C2	3	2	70.72	5.038	0.1403	20	BGM	0.007013	70.86	5.048
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNC2-RTA-2*	C	C2	3	2	76.95	4.973	0.1407	20	BGM	0.007035	77.34	4.998
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNC2-RTA-3	C	C2	3	2	74.56	4.968	0.1408	20	BGM	0.007040	74.98	4.996

*Modulus are averaged values of 2 strain gages.

	Strength [ksi]	Modulus [Msi]		t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	74.72	5.041	$Average_{norm}$	0.007007	74.78	5.046
Standard Dev.	2.368	0.08613	$Standard\ Dev._{norm}$		2.291	0.09109
Coeff. of Var. [%]	3.169	1.709	Coeff. of Var. $[\%]_{norm}$		3.064	1.805
Min.	70.72	4.881	Min.	0.006918	70.86	4.866
Max.	78.56	5.182	Max.	0.007165	78.12	5.187
Number of Spec.	18	18	Number of Spec.	18	18	18


Laminate Unnotched Compression Properties (UNC2)--RTA (70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
0
10
20
30
40
50
60
70
80
90
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression Properties (UNC2)--RTA (70°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
0
1
2
3
4
0
1
2
3
4
5
6
Laminate Unnotched Compression Modulus [Msi]

Laminate Unnotched Compression Properties (UNC2)--ETW2 (250°F)
Strength & Modulus

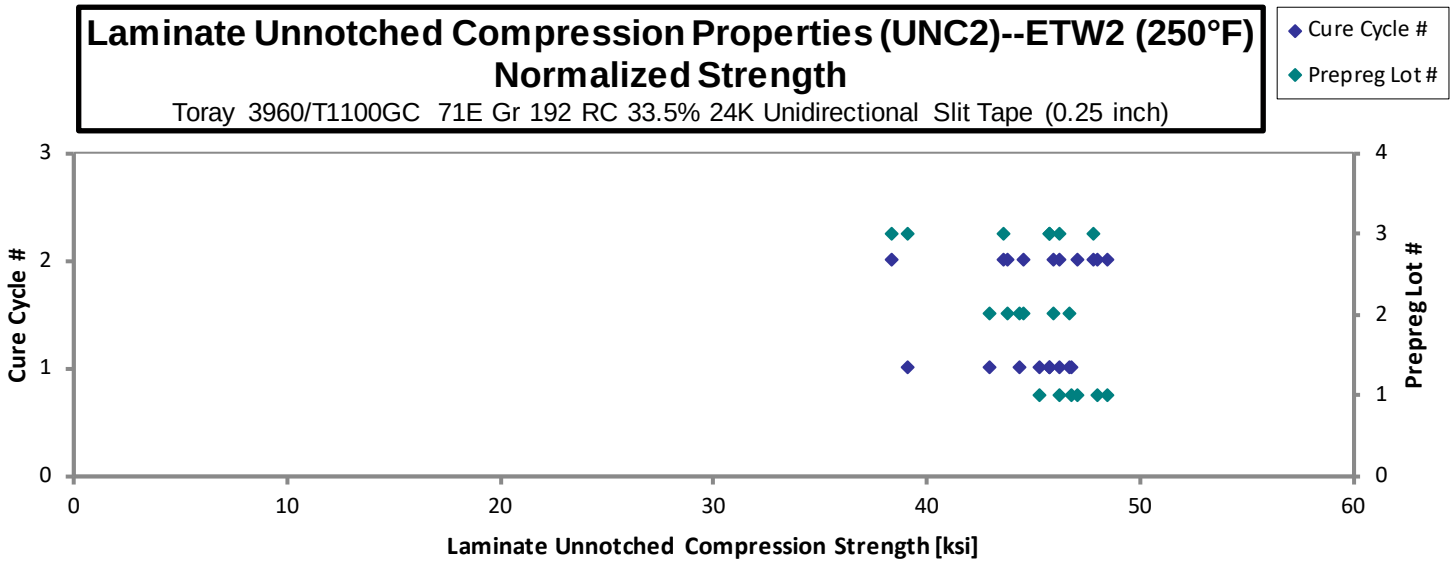
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

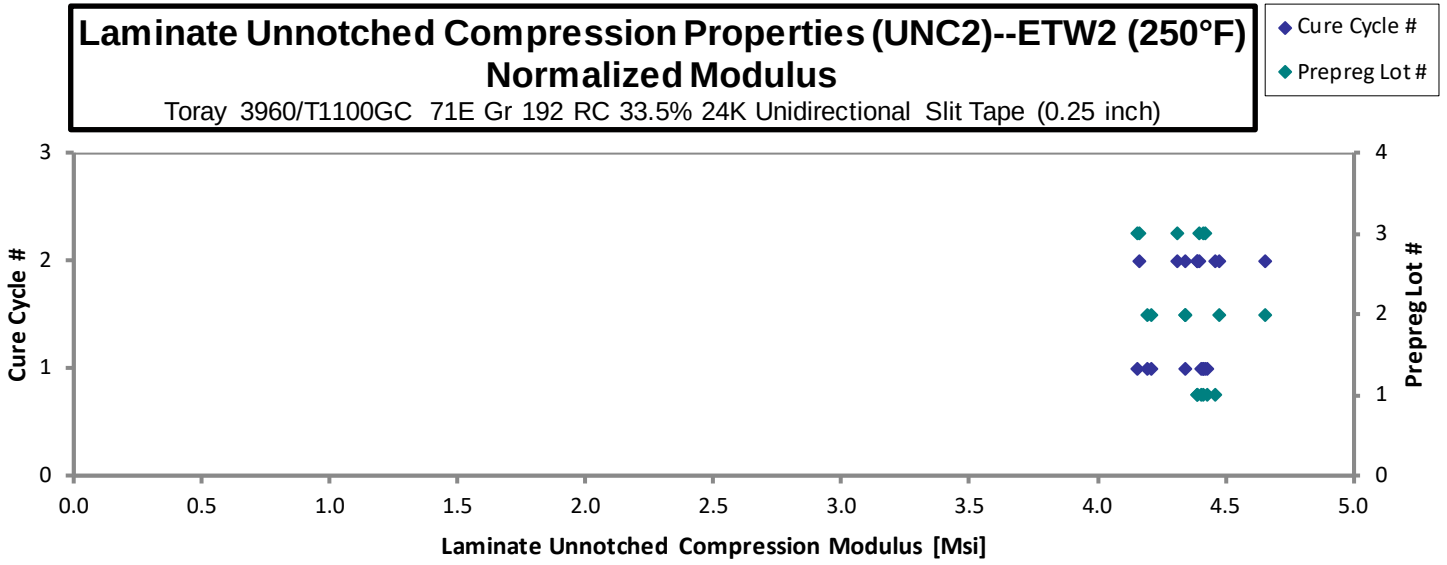
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNC2-ETW2-1	A	C1	1	1	46.26	4.414	0.1400	20	BGM	0.007000	46.26	4.414
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNC2-ETW2-2	A	C1	1	1	46.71	4.422	0.1402	20	BGM	0.007010	46.77	4.428
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-UNC2-ETW2-3	A	C1	1	1	45.20	4.397	0.1403	20	BGM	0.007017	45.31	4.408
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNC2-ETW2-1	A	C2	1	2	48.24	4.409	0.1394	20	BGM	0.006971	48.04	4.390
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNC2-ETW2-2	A	C2	1	2	48.66	4.415	0.1393	20	BGM	0.006965	48.42	4.393
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNC2-ETW2-3	A	C2	1	2	47.35	4.482	0.1393	20	BGM	0.006963	47.10	4.458
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNC2-ETW2-1	B	C1	2	1	47.14	4.385	0.1387	20	BGM	0.006935	46.70	4.344
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNC2-ETW2-2	B	C1	2	1	44.41	4.208	0.1397	20	BGM	0.006983	44.30	4.198
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-UNC2-ETW2-3	B	C1	2	1	43.01	4.210	0.1399	20	BGM	0.006995	42.98	4.207
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNC2-ETW2-1	B	C2	2	2	46.14	4.496	0.1395	20	BGM	0.006973	45.96	4.478
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNC2-ETW2-2	B	C2	2	2	44.54	4.659	0.1399	20	BGM	0.006993	44.49	4.654
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNC2-ETW2-3	B	C2	2	2	43.82	4.344	0.1399	20	BGM	0.006993	43.78	4.340
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNC2-ETW2-1	C	C1	3	1	45.60	4.401	0.1405	20	BGM	0.007025	45.76	4.417
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNC2-ETW2-2	C	C1	3	1	38.89	4.131	0.1407	20	BGM	0.007037	39.09	4.153
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNC2-ETW2-3	C	C1	3	1	45.36	4.385	0.1412	20	BGM	0.007061	45.75	4.423
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNC2-ETW2-1	C	C2	3	2	38.22	4.387	0.1404	20	BGM	0.007019	38.33	4.399
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNC2-ETW2-2	C	C2	3	2	47.70	4.302	0.1404	20	BGM	0.007018	47.82	4.313
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNC2-ETW2-3	C	C2	3	2	43.49	4.153	0.1403	20	BGM	0.007013	43.57	4.160
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-UNC2-SP-3*	C	C2	3	2	46.14		0.1404	20	BGM	0.007018	46.26	

*Specimen was not gaged, only strength is tested.

Average	**45.10**	**4.367**		**$Average_{norm}$**	**0.006999**	**45.09**	**4.365**
Standard Dev.	**2.791**	**0.1292**		**$Standard\ Dev._{norm}$**		**2.711**	**0.1250**
Coeff. of Var. [%]	**6.189**	**2.958**		**Coeff. of Var. [%]$_{norm}$**		**6.013**	**2.862**
Min.	**38.22**	**4.131**		**Min.**	**0.006935**	**38.33**	**4.153**
Max.	**48.66**	**4.659**		**Max.**	**0.007061**	**48.42**	**4.654**
Number of Spec.	**19**	**18**		**Number of Spec.**	**19**	**19**	**18**


Laminate Unnotched Compression Properties (UNC2)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
10
20
30
40
50
60
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression Properties (UNC2)--ETW2 (250°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
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 Compression Modulus [Msi]

4.14 “50/40/10” Unnotched Compression 3 Properties (UNC3)

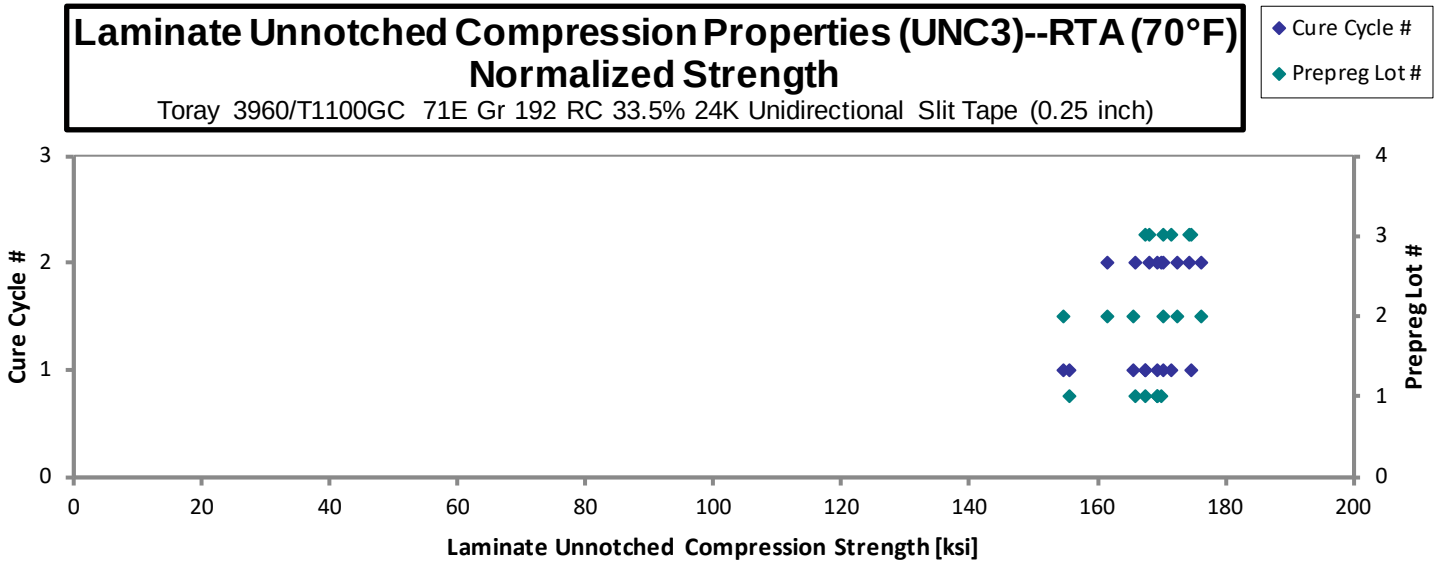
Laminate Unnotched Compression Properties (UNC3)--RTA (70°F)
Strength & Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

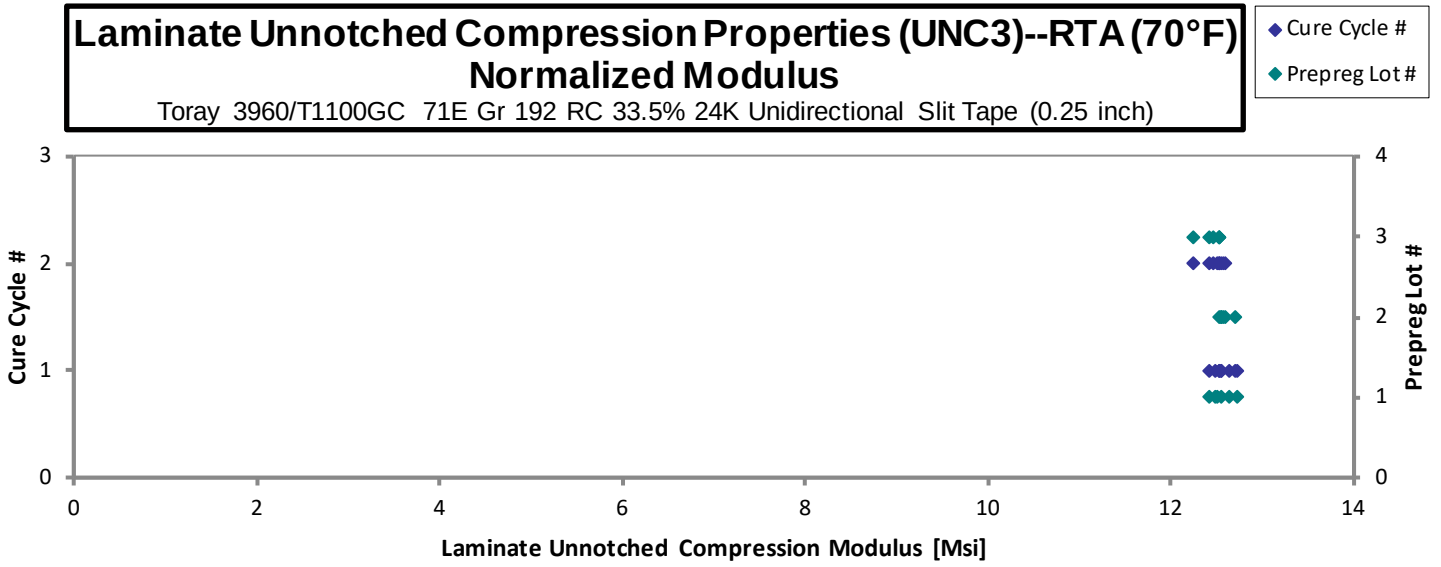
normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNC3-RTA-1*	A	C1	1	1	154.8	12.67	0.1407	20	BGM	0.007035	155.6	12.73
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNC3-RTA-2*	A	C1	1	1	168.0	12.55	0.1411	20	BGM	0.007054	169.3	12.64
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNC3-RTA-3	A	C1	1	1	166.0	12.38	0.1413	20	BGM	0.007063	167.5	12.49
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNC3-RTA-1*	A	C2	1	2	168.1	12.38	0.1415	20	BGM	0.007074	169.9	12.51
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNC3-RTA-2*	A	C2	1	2	165.5	12.52	0.1405	20	BGM	0.007023	166.0	12.56
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNC3-RTA-3	A	C2	1	2	169.1	12.40	0.1403	20	BGM	0.007015	169.4	12.43
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNC3-RTA-1*	B	C1	2	1	154.0	12.49	0.1407	20	BGM	0.007033	154.7	12.55
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNC3-RTA-2*	B	C1	2	1	165.6	12.57	0.1399	20	BGM	0.006996	165.5	12.56
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNC3-RTA-3	B	C1	2	1	171.0	12.75	0.1394	20	BGM	0.006972	170.3	12.70
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNC3-RTA-1*	B	C2	2	2	161.3	12.50	0.1403	20	BGM	0.007013	161.6	12.52
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNC3-RTA-2*	B	C2	2	2	177.6	12.69	0.1389	20	BAT	0.006943	176.2	12.58
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNC3-RTA-3	B	C2	2	2	173.8	12.70	0.1389	20	BGM	0.006944	172.5	12.60
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNC3-RTA-1*	C	C1	3	1	166.4	12.47	0.1408	20	BGM	0.007041	167.3	12.54
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNC3-RTA-2*	C	C1	3	1	172.3	12.59	0.1394	20	BGM	0.006972	171.6	12.54
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNC3-RTA-3	C	C1	3	1	175.5	12.49	0.1394	20	BGM	0.006968	174.7	12.43
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNC3-RTA-1*	C	C2	3	2	164.9	12.28	0.1428	20	BGM	0.007140	168.2	12.52
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNC3-RTA-2*	C	C2	3	2	173.2	12.37	0.1411	20	BGM	0.007053	174.5	12.46
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNC3-RTA-3	C	C2	3	2	169.6	12.19	0.1406	20	BGM	0.007031	170.4	12.24

*Modulus are averaged values of 2 strain gages.

	Strength [ksi]	Modulus [Msi]		t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	167.6	12.50	$Average_{norm}$	0.007020	168.1	12.53
Standard Dev.	6.326	0.1513	$Standard\ Dev._{norm}$		5.873	0.1093
Coeff. of Var. [%]	3.774	1.211	Coeff. of Var. $[\%]_{norm}$		3.494	0.8722
Min.	154.0	12.19	Min.	0.006943	154.7	12.24
Max.	177.6	12.75	Max.	0.007140	176.2	12.73
Number of Spec.	18	18	Number of Spec.	18	18	18


Laminate Unnotched Compression Properties (UNC3)--RTA (70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
20
40
60
80
100
120
140
160
180
200
Laminate Unnotched Compression Strength [ksi]


Laminate Unnotched Compression Properties (UNC3)--RTA (70°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
2
4
6
8
10
12
14
Laminate Unnotched Compression Modulus [Msi]

Laminate Unnotched Compression Properties (UNC3)--ETW2 (250°F)
Strength & Modulus

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

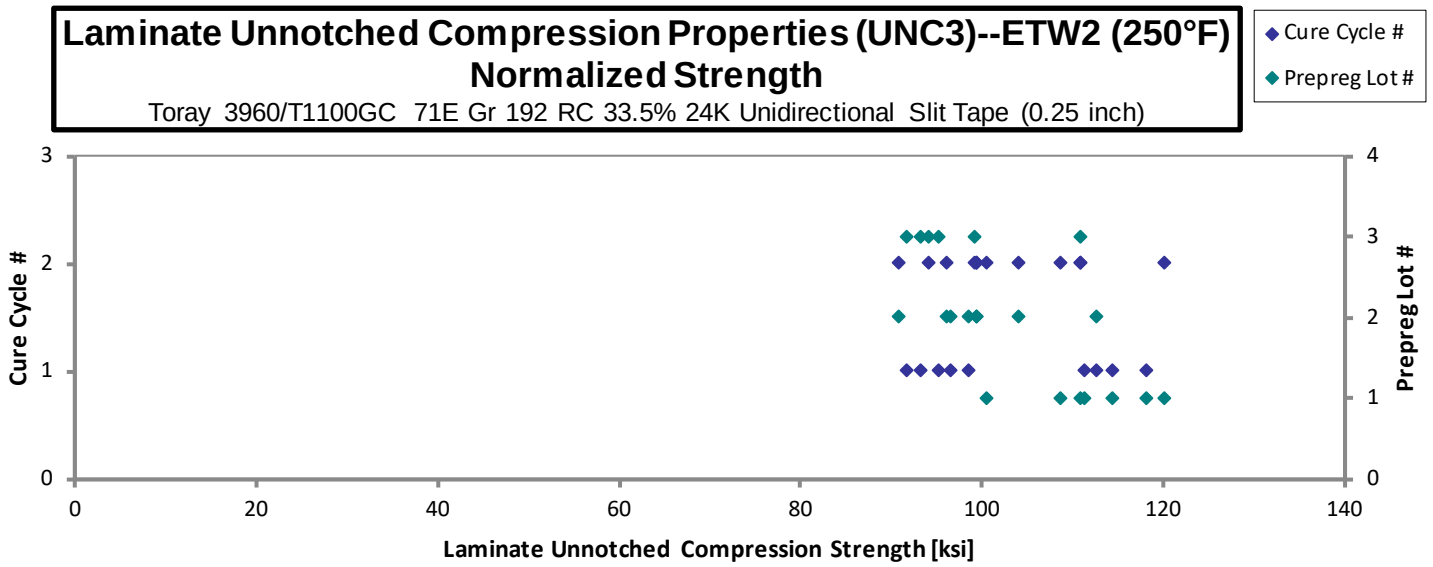
Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNC3-ETW2-1	A	C1	1	1	110.5	12.75	0.1411	20	BAB	0.007057	111.4	12.85
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNC3-ETW2-2	A	C1	1	1	113.3	12.60	0.1414	20	BGM	0.007068	114.4	12.72
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-UNC3-ETW2-3	A	C1	1	1	116.9	12.46	0.1414	20	BGM	0.007068	118.0	12.58
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNC3-ETW2-1	A	C2	1	2	119.8	12.84	0.1404	20	BAB	0.007022	120.2	12.88
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNC3-ETW2-2	A	C2	1	2	100.0	12.31	0.1408	20	BAB, CIB	0.007038	100.6	12.38
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNC3-ETW2-3	A	C2	1	2	107.7	12.28	0.1414	20	BGM	0.007068	108.7	12.40
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNC3-SP-3*	A	C2	1	2	110.5		0.1405	20	BAB, CIT	0.007026	110.9	
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNC3-ETW2-1R	B	C1	2	1	112.4	12.74	0.1403	20	BGM, CIB	0.007014	112.6	12.76
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNC3-ETW2-2R	B	C1	2	1	98.74	13.06	0.1398	20	BGM, CIT, CIB	0.006991	98.61	13.04
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-UNC3-ETW2-3R	B	C1	2	1	96.78	12.45	0.1396	20	BGM, CIT, CIB	0.006982	96.53	12.42
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNC3-ETW2-1**	B	C2	2	2		12.46	0.1393	20	CIT, CIB, DTT	0.006967		12.40
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNC3-ETW2-2	B	C2	2	2	104.6	14.38	0.1394	20	BGM, CIT	0.006968	104.1	14.31
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNC3-ETW2-3	B	C2	2	2	99.77	12.00	0.1395	20	BGM, CIB	0.006973	99.37	11.95
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNC3-ETW2-1R	B	C2	2	2	91.16	12.53	0.1395	20	BAB, CIT, CIB	0.006974	90.82	12.48
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNC3-ETW2-2R	B	C2	2	2	96.96	12.53	0.1389	20	BGM, CIT, CIB	0.006943	96.17	12.43
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-UNC3-ETW2-3R	B	C2	2	2	100.8	12.74	0.1380	20	BAB, CIT, CIB	0.006898	99.34	12.55
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNC3-ETW2-1R	C	C1	3	1	90.97	12.55	0.1412	20	BGM, CIT, CIB	0.007061	91.76	12.66
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNC3-ETW2-2R	C	C1	3	1	92.67	12.56	0.1408	20	BAB, CIT, CIB	0.007040	93.20	12.64
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNC3-ETW2-3R	C	C1	3	1	94.74	12.62	0.1406	20	DGM, CIT, CIB	0.007031	95.16	12.68
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNC3-ETW2-1R	C	C2	3	2	109.6	11.99	0.1414	20	BGM, CIB	0.007071	110.8	12.11
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNC3-ETW2-2R	C	C2	3	2	98.23	12.39	0.1412	20	BAB, CIB	0.007062	99.10	12.50
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-UNC3-ETW2-3R	C	C2	3	2	93.30	12.61	0.1411	20	BGM, CIB	0.007054	94.02	12.71

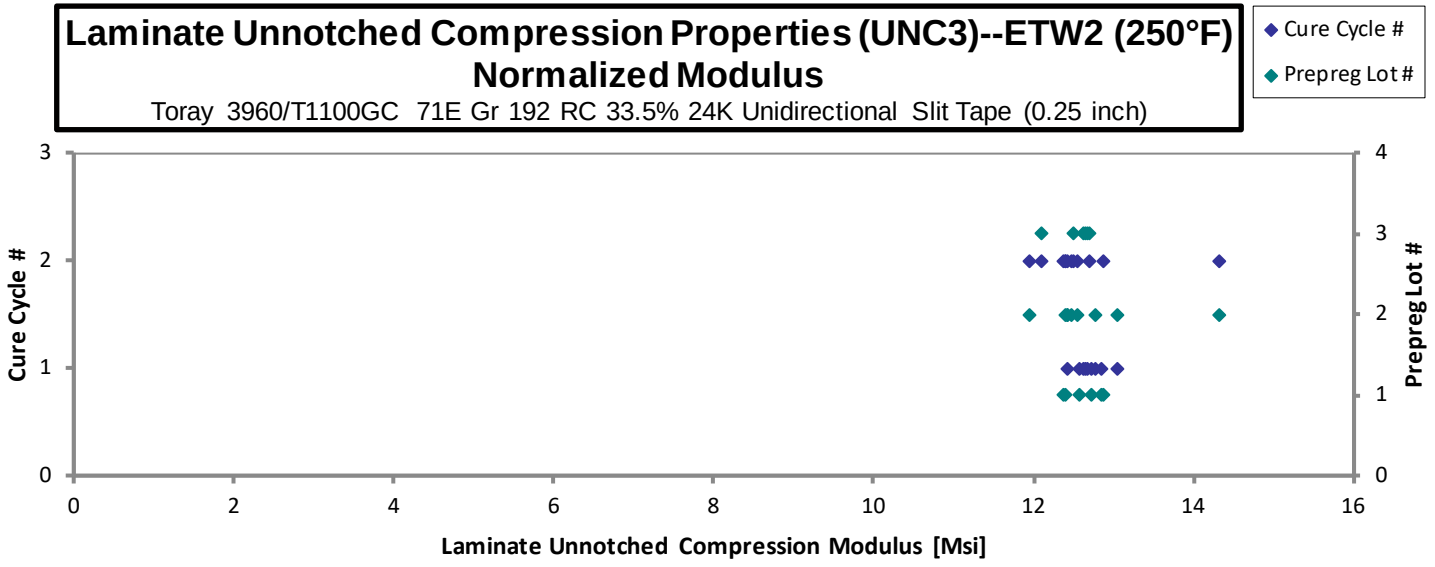
*Specimen was not gaged, only strength is tested.

**Strength not reported due to unacceptable failure mode

	Strength	Modulus
Average	102.8	12.61
Standard Dev.	8.788	0.4759
Coeff. of Var. [%]	8.546	3.773
Min.	90.97	11.99
Max.	119.8	14.38
Number of Spec.	21	21

	t_{ply}	$Strength_{norm}$	$Modulus_{norm}$
$Average_{norm}$	0.007017	103.1	12.64
$Standard\ Dev._{norm}$		9.052	0.4571
$Coeff.\ of\ Var.\ [\%]_{norm}$		8.777	3.616
Min.	0.006898	90.82	11.95
Max.	0.007071	120.2	14.31
Number of Spec.	22	21	21


Laminate Unnotched Compression Properties (UNC3)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Compression Strength [ksi]
0
20
40
60
80
100
120
140
0
1
2
3
0
1
2
3
4

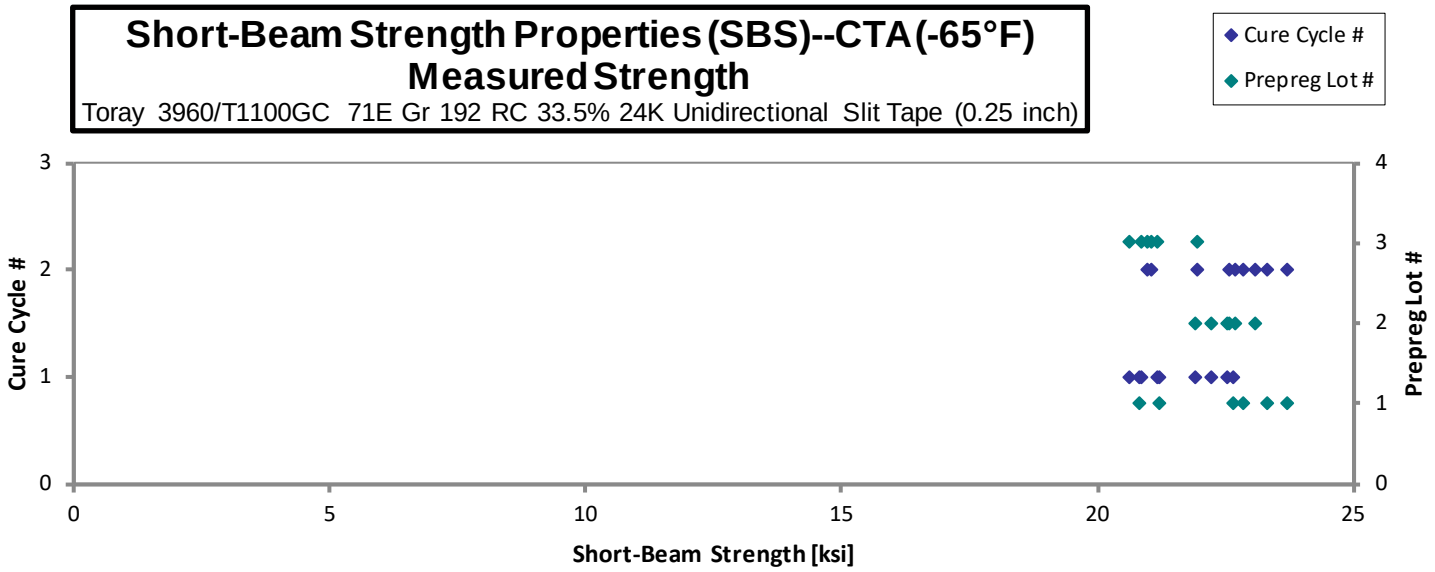

Laminate Unnotched Compression Properties (UNC3)--ETW2 (250°F)
Normalized Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Unnotched Compression Modulus [Msi]
0
2
4
6
8
10
12
14
16
0
1
2
3
0
1
2
3
4

4.15 Lamina Short-Beam Strength Properties (SBS)

Short-Beam Strength Properties (SBS)--CTA (-65°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

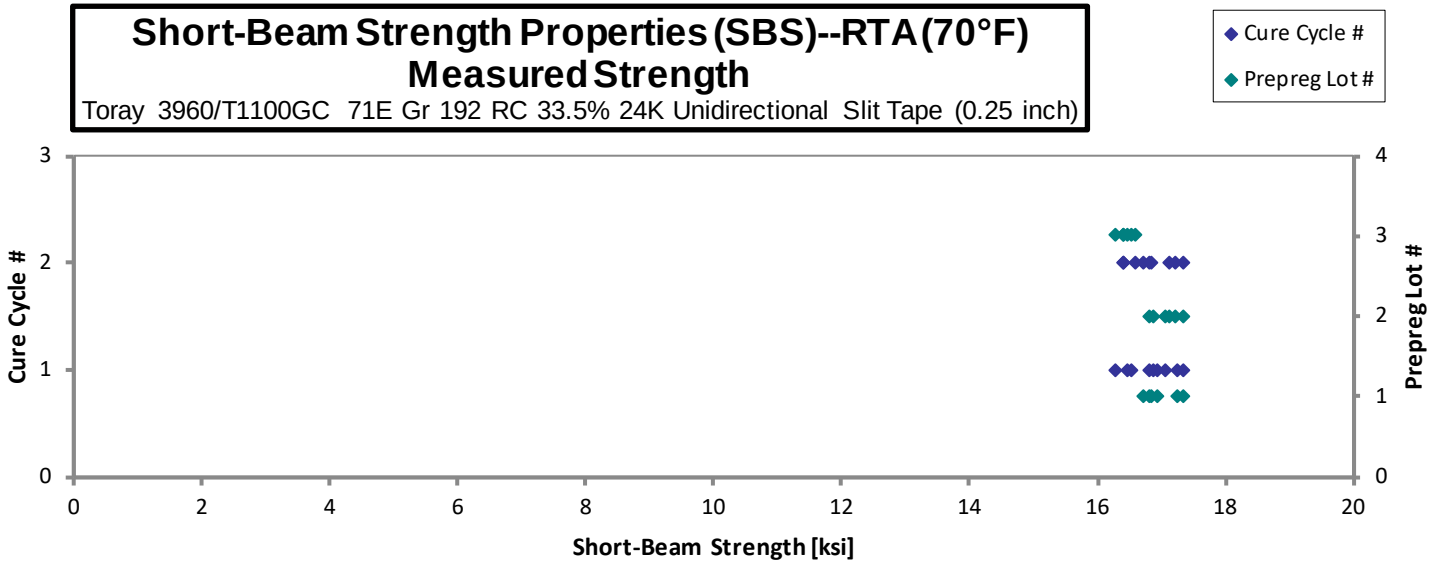
Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-CTA-1	A	C1	1	1	20.82	0.09730	14	0.006950	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-CTA-2	A	C1	1	1	21.21	0.09708	14	0.006935	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-CTA-3	A	C1	1	1	22.67	0.09658	14	0.006899	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-CTA-1	A	C2	1	2	23.32	0.09640	14	0.006886	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-CTA-2	A	C2	1	2	23.70	0.09653	14	0.006895	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-CTA-3	A	C2	1	2	22.86	0.09647	14	0.006890	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-SBS-CTA-1	B	C1	2	1	21.93	0.09973	14	0.007124	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-SBS-CTA-2	B	C1	2	1	22.53	0.09800	14	0.007000	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-SBS-CTA-3	B	C1	2	1	22.24	0.09775	14	0.006982	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-SBS-CTA-1	B	C2	2	2	23.07	0.09713	14	0.006938	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-SBS-CTA-2	B	C2	2	2	22.56	0.09732	14	0.006951	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-SBS-CTA-3	B	C2	2	2	22.70	0.09722	14	0.006944	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-SBS-CTA-1	C	C1	3	1	20.84	0.09928	14	0.007092	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-SBS-CTA-2	C	C1	3	1	20.63	0.09843	14	0.007031	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-SBS-CTA-3	C	C1	3	1	21.18	0.09840	14	0.007029	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-SBS-CTA-1	C	C2	3	2	21.07	0.09653	14	0.006895	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-SBS-CTA-2	C	C2	3	2	20.98	0.09635	14	0.006882	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-SBS-CTA-3	C	C2	3	2	21.93	0.09615	14	0.006868	ILS, COMPRESSION

Average	**22.01**	**0.006955**
Standard Dev.	**0.9683**	
Coeff. of Var. [%]	**4.398**	
Min.	**20.63**	**0.006868**
Max.	**23.70**	**0.007124**
Number of Spec.	**18**	**18**


Short-Beam Strength Properties (SBS)--CTA (-65°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Short-Beam Strength [ksi]
0
1
2
3
4
0
5
10
15
20
25

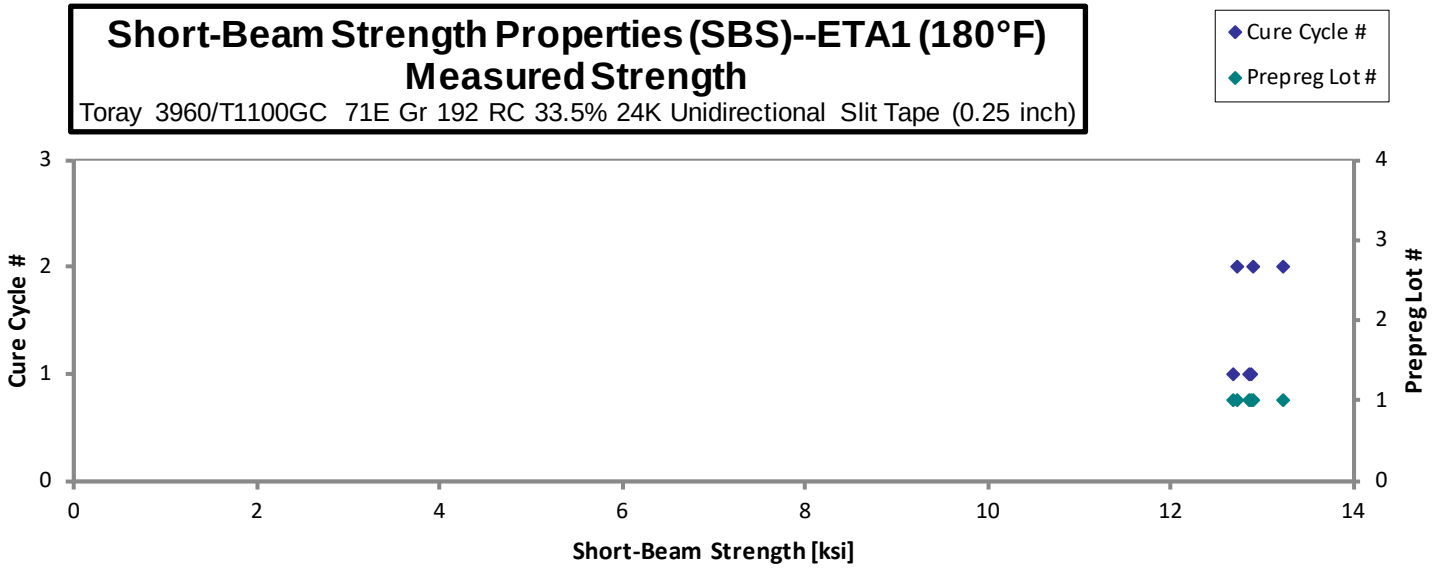
Short-Beam Strength Properties (SBS)--RTA (70°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-RTA-1	A	C1	1	1	16.92	0.09850	14	0.007036	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-RTA-2	A	C1	1	1	17.35	0.09885	14	0.007061	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-RTA-3	A	C1	1	1	17.25	0.09828	14	0.007020	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-RTA-1	A	C2	1	2	16.82	0.09627	14	0.006876	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-RTA-2	A	C2	1	2	16.83	0.09630	14	0.006879	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-RTA-3	A	C2	1	2	16.71	0.09638	14	0.006885	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-SBS-RTA-1	B	C1	2	1	17.05	0.1005	14	0.007179	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-SBS-RTA-2	B	C1	2	1	16.82	0.1006	14	0.007182	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-SBS-RTA-3	B	C1	2	1	16.86	0.09912	14	0.007080	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-SBS-RTA-1	B	C2	2	2	17.35	0.09832	14	0.007023	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-SBS-RTA-2	B	C2	2	2	17.13	0.09703	14	0.006931	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-SBS-RTA-3	B	C2	2	2	17.21	0.09717	14	0.006940	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-SBS-RTA-1	C	C1	3	1	16.53	0.1012	14	0.007230	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-SBS-RTA-2	C	C1	3	1	16.48	0.1009	14	0.007210	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-SBS-RTA-3	C	C1	3	1	16.28	0.1003	14	0.007165	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-SBS-RTA-1	C	C2	3	2	16.58	0.09900	14	0.007071	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-SBS-RTA-2	C	C2	3	2	16.40	0.09797	14	0.006998	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-SBS-RTA-3	C	C2	3	2	16.39	0.09710	14	0.006936	ILS
				Average	**16.83**			**0.007039**	
				Standard Dev.	**0.3421**				
				Coeff. of Var. [%]	**2.033**				
				Min.	**16.28**			**0.006876**	
				Max.	**17.35**			**0.007230**	
				Number of Spec.	**18**			**18**	


Short-Beam Strength Properties (SBS)--RTA (70°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Short-Beam Strength [ksi]
0
1
2
3
4
0
2
4
6
8
10
12
14
16
18
20

Short-Beam Strength Properties (SBS)--ETA1 (180°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

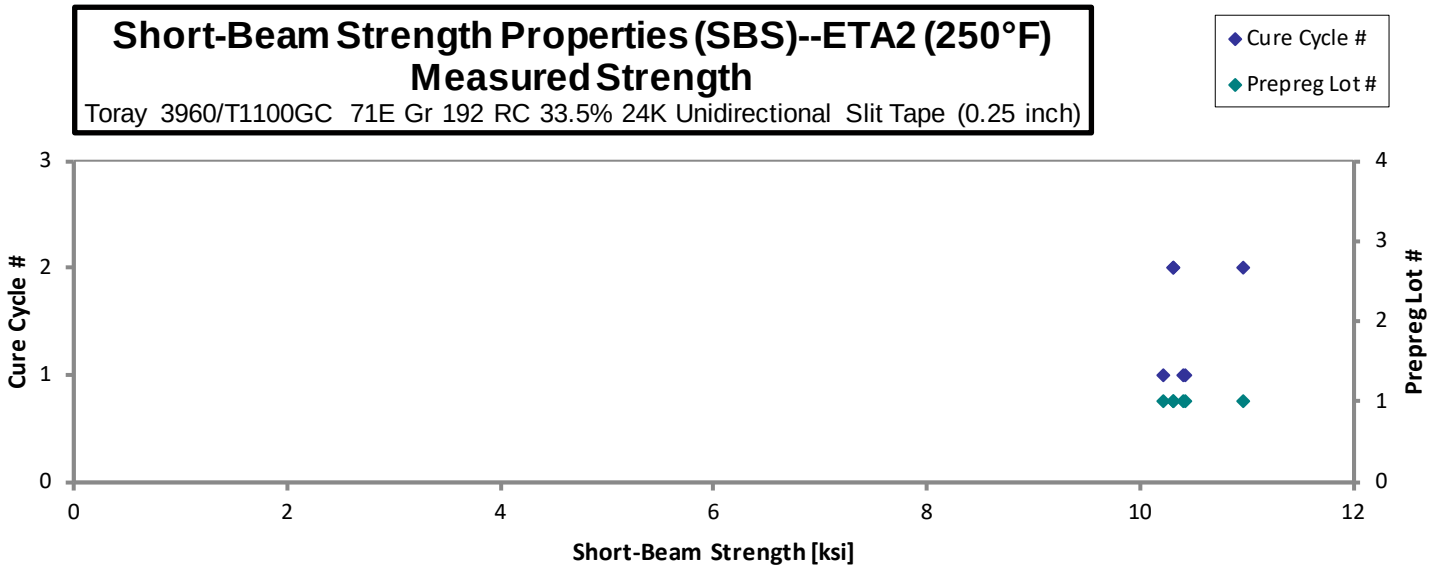
Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-ETA1-1	A	C1	1	1	12.87	0.09632	14	0.006880	ILS, COMPRESSION, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-ETA1-2	A	C1	1	1	12.68	0.09612	14	0.006865	ILS, COMPRESSION, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-ETA1-3	A	C1	1	1	12.88	0.09595	14	0.006854	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-ETA1-1	A	C2	1	2	12.74	0.09667	14	0.006905	ILS, INELASTIC DEFORMATION, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-ETA1-2	A	C2	1	2	12.90	0.09683	14	0.006917	ILS, INELASTIC DEFORMATION, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-ETA1-3	A	C2	1	2	13.23	0.09657	14	0.006898	ILS, INELASTIC DEFORMATION, COMPRESSION
				Average	**12.88**			**0.006886**	
				Standard Dev.	**0.1917**				
				Coeff. of Var. [%]	**1.488**				
				Min.	**12.68**			**0.006854**	
				Max.	**13.23**			**0.006917**	
				Number of Spec.	**6**			**6**	


Short-Beam Strength Properties (SBS)--ETA1 (180°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Short-Beam Strength [ksi]
0
1
2
3
4
0
2
4
6
8
10
12
14

Short-Beam Strength Properties (SBS)--ETA2 (250°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-ETA2-1	A	C1	1	1	10.42	0.09595	14	0.006854	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-ETA2-2	A	C1	1	1	10.41	0.09607	14	0.006862	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-ETA2-3	A	C1	1	1	10.22	0.09655	14	0.006896	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-ETA2-1	A	C2	1	2	10.96	0.09662	14	0.006901	ILS, INELASTIC DEFORMATION, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-ETA2-2	A	C2	1	2	10.31	0.09663	14	0.006902	ILS, INELASTIC DEFORMATION, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-ETA2-3	A	C2	1	2	10.31	0.09648	14	0.006892	ILS, INELASTIC DEFORMATION

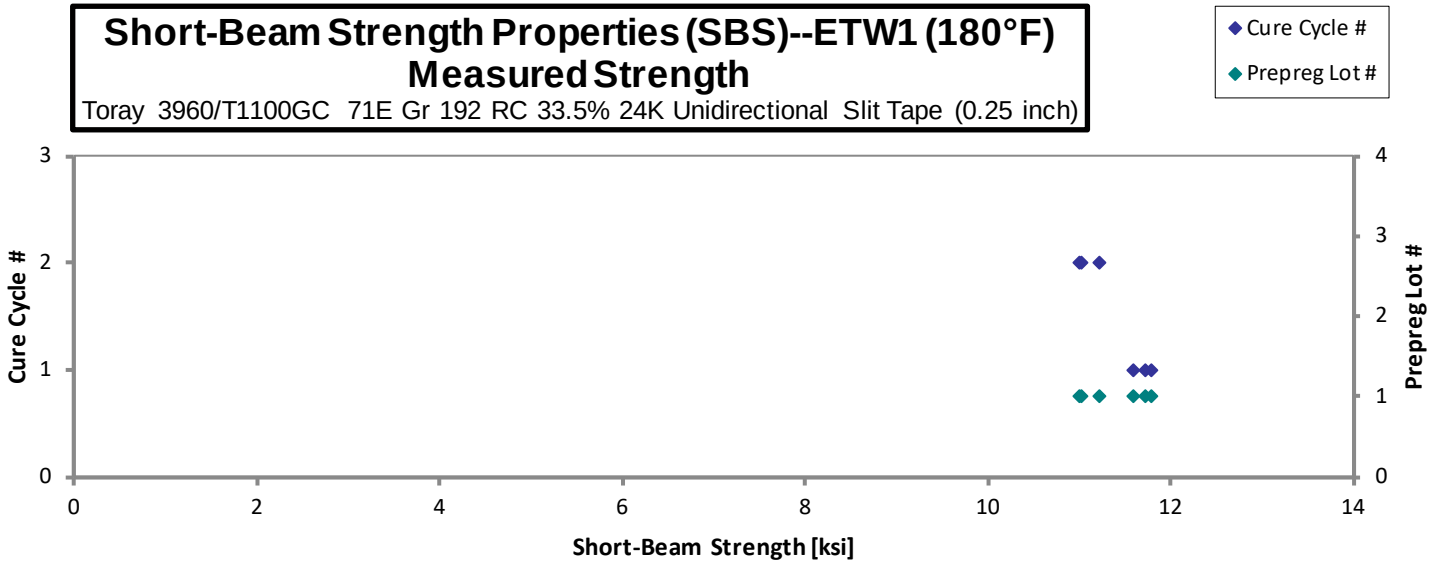
Average	**10.44**	**0.006885**
Standard Dev.	**0.2668**	
Coeff. of Var. [%]	**2.556**	
Min.	**10.22**	**0.006854**
Max.	**10.96**	**0.006902**
Number of Spec.	**6**	**6**


Short-Beam Strength Properties (SBS)--ETA2 (250°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Short-Beam Strength [ksi]
0
1
2
3
4
0
2
4
6
8
10
12

Short-Beam Strength Properties (SBS)--ETW1 (180°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-ETW1-1	A	C1	1	1	11.58	0.09655	14	0.006896	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-ETW1-2	A	C1	1	1	11.80	0.09653	14	0.006895	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-ETW1-3	A	C1	1	1	11.72	0.09652	14	0.006894	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-ETW1-1	A	C2	1	2	11.22	0.09650	14	0.006893	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-ETW1-2	A	C2	1	2	11.02	0.09638	14	0.006885	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-ETW1-3	A	C2	1	2	11.01	0.09660	14	0.006900	ILS, INELASTIC DEFORMATION

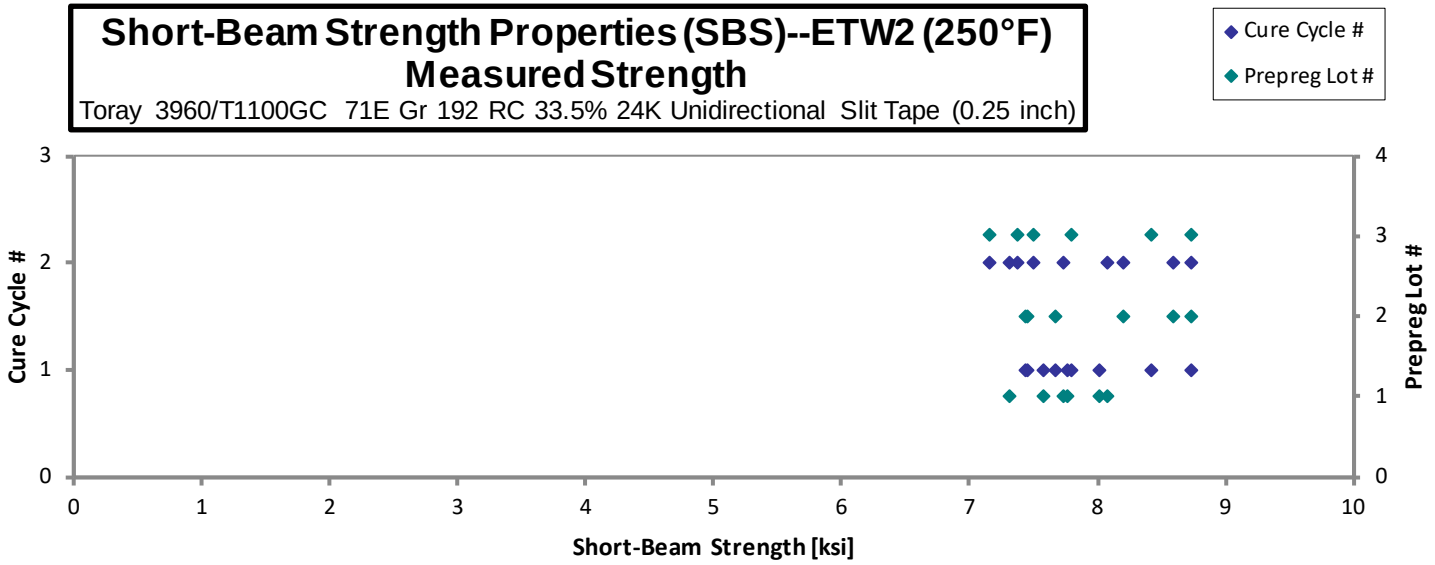
Average	**11.39**	**0.006894**
Standard Dev.	**0.3546**	
Coeff. of Var. [%]	**3.113**	
Min.	**11.01**	**0.006885**
Max.	**11.80**	**0.006900**
Number of Spec.	**6**	**6**


Short-Beam Strength Properties (SBS)--ETW1 (180°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Short-Beam Strength [ksi]
0
1
2
3
4
6
8
10
12
14

Short-Beam Strength Properties (SBS)--ETW2 (250°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-ETW2-1	A	C1	1	1	8.020	0.09637	14	0.006883	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-ETW2-2	A	C1	1	1	7.578	0.09668	14	0.006906	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-SBS-ETW2-3	A	C1	1	1	7.766	0.09657	14	0.006898	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-ETW2-1	A	C2	1	2	8.074	0.09657	14	0.006898	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-ETW2-2	A	C2	1	2	7.730	0.09648	14	0.006892	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-SBS-ETW2-3	A	C2	1	2	7.320	0.09663	14	0.006902	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-SBS-ETW2-1	B	C1	2	1	7.431	0.09750	14	0.006964	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-SBS-ETW2-2	B	C1	2	1	7.460	0.09763	14	0.006974	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-SBS-ETW2-3	B	C1	2	1	7.667	0.09783	14	0.006988	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-SBS-ETW2-1	B	C2	2	2	8.738	0.09763	14	0.006974	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-SBS-ETW2-2	B	C2	2	2	8.593	0.09745	14	0.006961	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C2-1-SBS-ETW2-3	B	C2	2	2	8.207	0.09737	14	0.006955	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-SBS-ETW2-1	C	C1	3	1	8.727	0.09785	14	0.006989	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-SBS-ETW2-2	C	C1	3	1	8.424	0.09840	14	0.007029	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-SBS-ETW2-3	C	C1	3	1	7.790	0.09857	14	0.007040	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-SBS-ETW2-1	C	C2	3	2	7.504	0.09648	14	0.006892	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-SBS-ETW2-2	C	C2	3	2	7.375	0.09680	14	0.006914	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C2-1-SBS-ETW2-3	C	C2	3	2	7.156	0.09692	14	0.006923	ILS, INELASTIC DEFORMATION

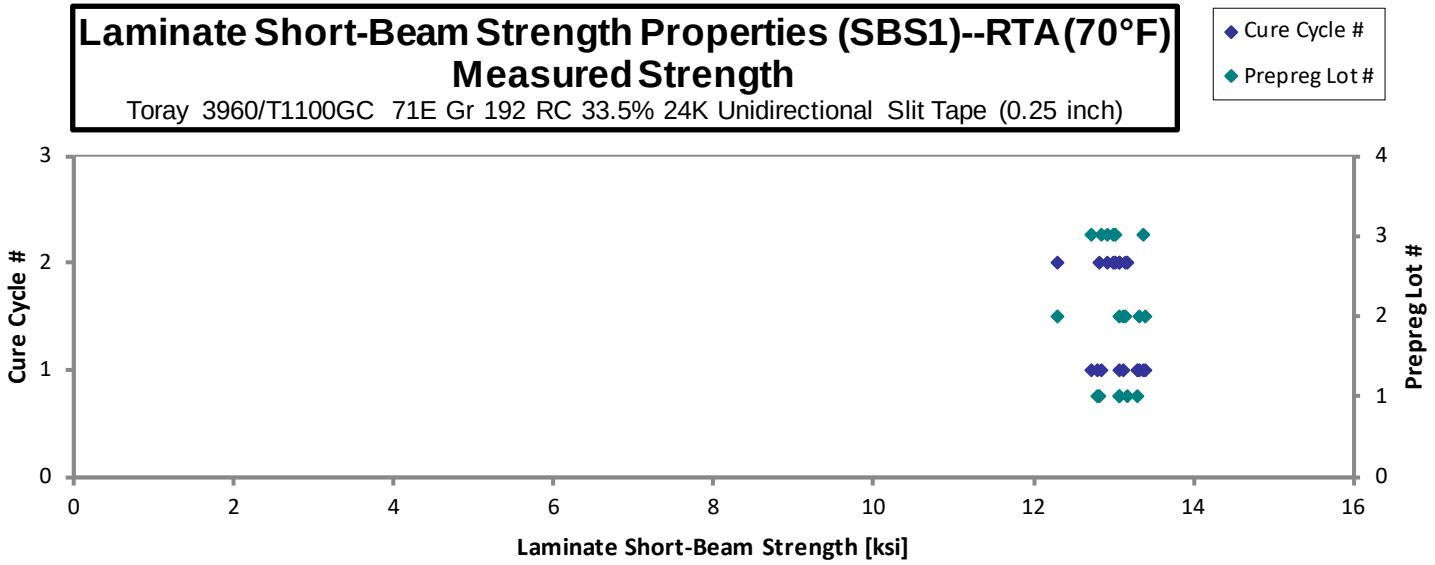
Average	**7.865**	**0.006943**
Standard Dev.	**0.4977**	
Coeff. of Var. [%]	**6.329**	
Min.	**7.156**	**0.006883**
Max.	**8.738**	**0.007040**
Number of Spec.	**18**	**18**


Short-Beam Strength Properties (SBS)--ETW2 (250°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Short-Beam Strength [ksi]
0
1
2
3
4
5
6
7
8
9
10

4.16 Laminate Short-Beam Strength Properties (SBS1)

Laminate Short-Beam Strength Properties (SBS1)--RTA (70°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

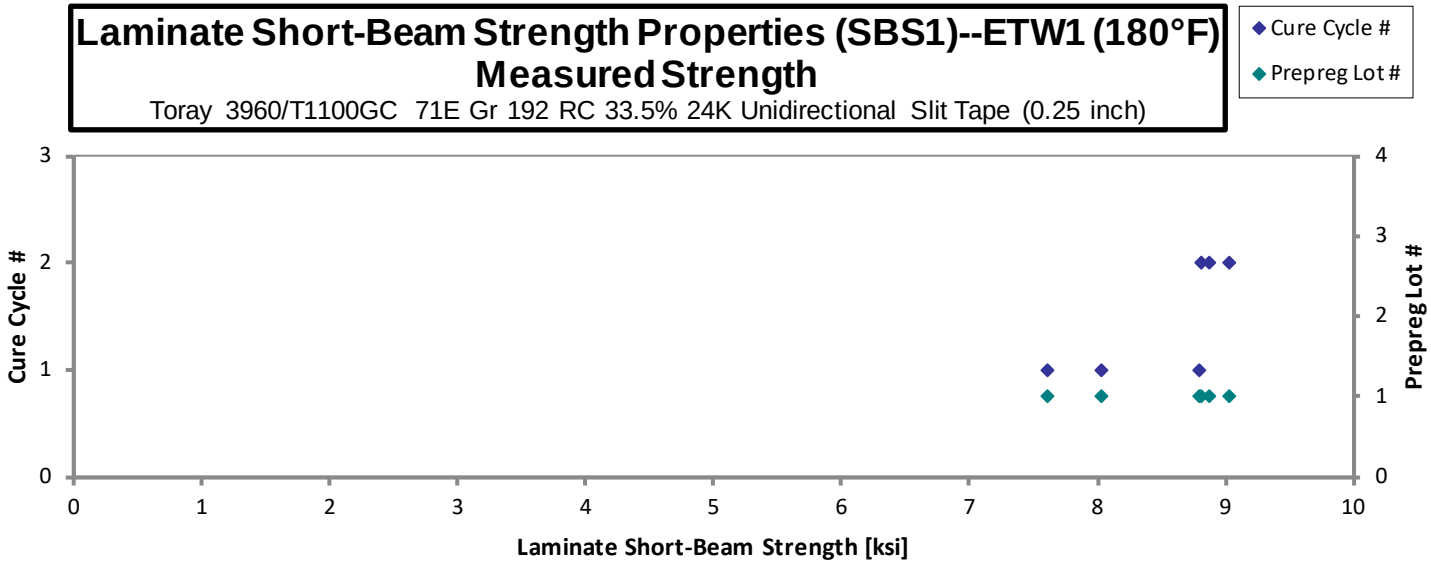
Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-SBS1-RTA-1	A	C1	1	1	12.80	0.1695	24	0.007061	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-SBS1-RTA-2	A	C1	1	1	13.30	0.1686	24	0.007026	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-SBS1-RTA-3	A	C1	1	1	13.07	0.1669	24	0.006955	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-SBS1-RTA-1	A	C2	1	2	13.18	0.1709	24	0.007119	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-SBS1-RTA-2	A	C2	1	2	12.82	0.1691	24	0.007044	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-SBS1-RTA-3	A	C2	1	2	13.06	0.1673	24	0.006970	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-SBS1-RTA-1	B	C1	2	1	13.31	0.1659	24	0.006912	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-SBS1-RTA-2	B	C1	2	1	13.41	0.1666	24	0.006940	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-SBS1-RTA-3	B	C1	2	1	13.13	0.1668	24	0.006949	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-SBS1-RTA-1	B	C2	2	2	13.16	0.1700	24	0.007084	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-SBS1-RTA-2	B	C2	2	2	12.30	0.1693	24	0.007052	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-SBS1-RTA-3	B	C2	2	2	13.07	0.1678	24	0.006992	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-SBS1-RTA-1	C	C1	3	1	12.85	0.1707	24	0.007112	ILS, COMPRESSION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-SBS1-RTA-2	C	C1	3	1	12.73	0.1703	24	0.007097	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-SBS1-RTA-3	C	C1	3	1	13.38	0.1690	24	0.007040	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-SBS1-RTA-1	C	C2	3	2	13.02	0.1714	24	0.007143	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-SBS1-RTA-2	C	C2	3	2	12.93	0.1711	24	0.007129	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-SBS1-RTA-3	C	C2	3	2	13.00	0.1699	24	0.007081	ILS
				Average	**13.03**			**0.007039**	
				Standard Dev.	**0.2699**				
				Coeff. of Var. [%]	**2.072**				
				Min.	**12.30**			**0.006912**	
				Max.	**13.41**			**0.007143**	
				Number of Spec.	**18**			**18**	


Laminate Short-Beam Strength Properties (SBS1)--RTA(70°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Short-Beam Strength [ksi]
0
1
2
3
4
0
2
4
6
8
10
12
14
16

Laminate Short-Beam Strength Properties (SBS1)--ETW1 (180°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-SBS1-ETW1-1	A	C1	1	1	8.801	0.1655	24	0.006897	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-SBS1-ETW1-2	A	C1	1	1	7.604	0.1648	24	0.006865	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-SBS1-ETW1-3	A	C1	1	1	8.028	0.1646	24	0.006856	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-SBS1-ETW1-1	A	C2	1	2	8.874	0.1664	24	0.006933	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-SBS1-ETW1-2	A	C2	1	2	8.817	0.1665	24	0.006936	ILS
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-SBS1-ETW1-3	A	C2	1	2	9.036	0.1667	24	0.006944	ILS

Average	**8.527**	**0.006905**
Standard Dev.	**0.5727**	
Coeff. of Var. [%]	**6.716**	
Min.	**7.604**	**0.006856**
Max.	**9.036**	**0.006944**
Number of Spec.	**6**	**6**

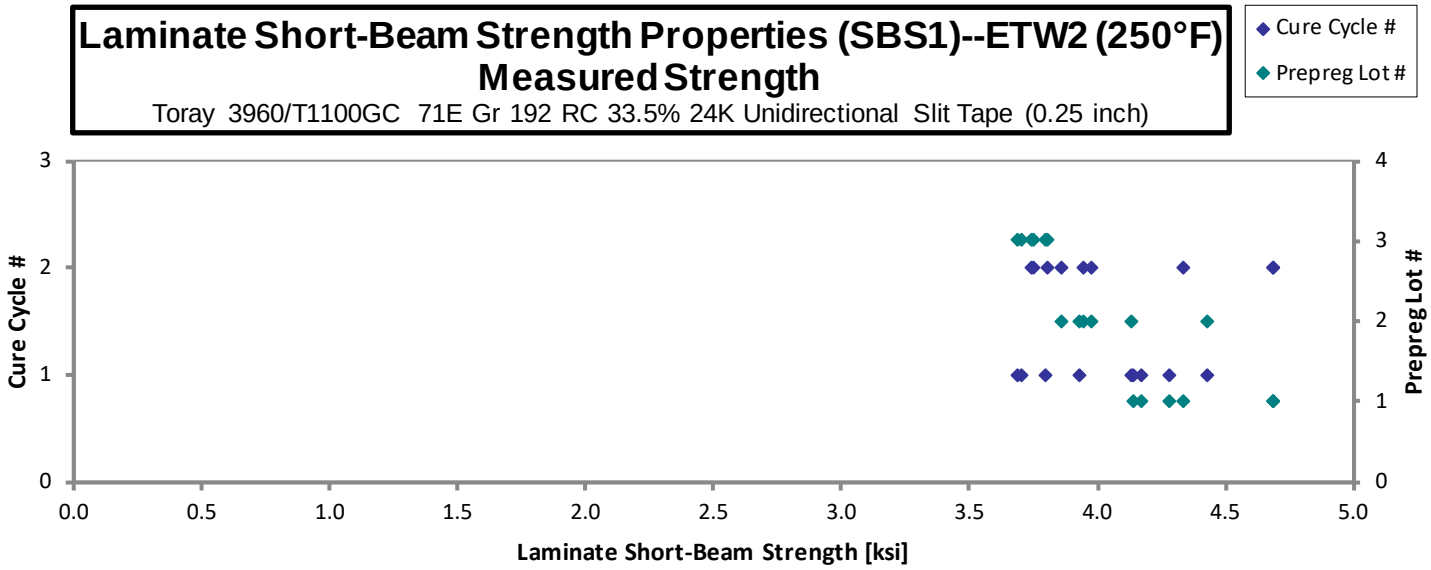

Laminate Short-Beam Strength Properties (SBS1)--ETW1 (180°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Short-Beam Strength [ksi]
0
1
2
3
4
5
6
7
8
9
10

Laminate Short-Beam Strength Properties (SBS1)--ETW2 (250°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-SBS1-ETW2-1	A	C1	1	1	4.143	0.1651	24	0.006879	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-SBS1-ETW2-2	A	C1	1	1	4.278	0.1651	24	0.006880	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-SBS1-ETW2-3	A	C1	1	1	4.171	0.1655	24	0.006895	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-SBS1-ETW2-1	A	C2	1	2	4.688	0.1673	24	0.006971	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-SBS1-ETW2-2	A	C2	1	2	4.690	0.1680	24	0.006999	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-SBS1-ETW2-3	A	C2	1	2	4.337	0.1680	24	0.007000	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-SBS1-ETW2-1	B	C1	2	1	4.429	0.1673	24	0.006970	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-SBS1-ETW2-2	B	C1	2	1	3.926	0.1676	24	0.006981	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-SBS1-ETW2-3	B	C1	2	1	4.134	0.1675	24	0.006977	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-SBS1-ETW2-1	B	C2	2	2	3.945	0.1669	24	0.006953	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-SBS1-ETW2-2	B	C2	2	2	3.858	0.1668	24	0.006951	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-SBS1-ETW2-3	B	C2	2	2	3.976	0.1671	24	0.006962	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-SBS1-ETW2-1	C	C1	3	1	3.702	0.1679	24	0.006995	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-SBS1-ETW2-2	C	C1	3	1	3.687	0.1681	24	0.007004	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-SBS1-ETW2-3	C	C1	3	1	3.800	0.1686	24	0.007024	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-SBS1-ETW2-1	C	C2	3	2	3.746	0.1680	24	0.007000	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-SBS1-ETW2-2	C	C2	3	2	3.744	0.1675	24	0.006980	ILS, INELASTIC DEFORMATION
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-SBS1-ETW2-3	C	C2	3	2	3.805	0.1684	24	0.007015	ILS, INELASTIC DEFORMATION

Average	**4.059**	**0.006969**
Standard Dev.	**0.3212**	
Coeff. of Var. [%]	**7.913**	
Min.	**3.687**	**0.006879**
Max.	**4.690**	**0.007024**
Number of Spec.	**18**	**18**


Laminate Short-Beam Strength Properties (SBS1)--ETW2 (250°F)
Measured Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Short-Beam 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
4

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

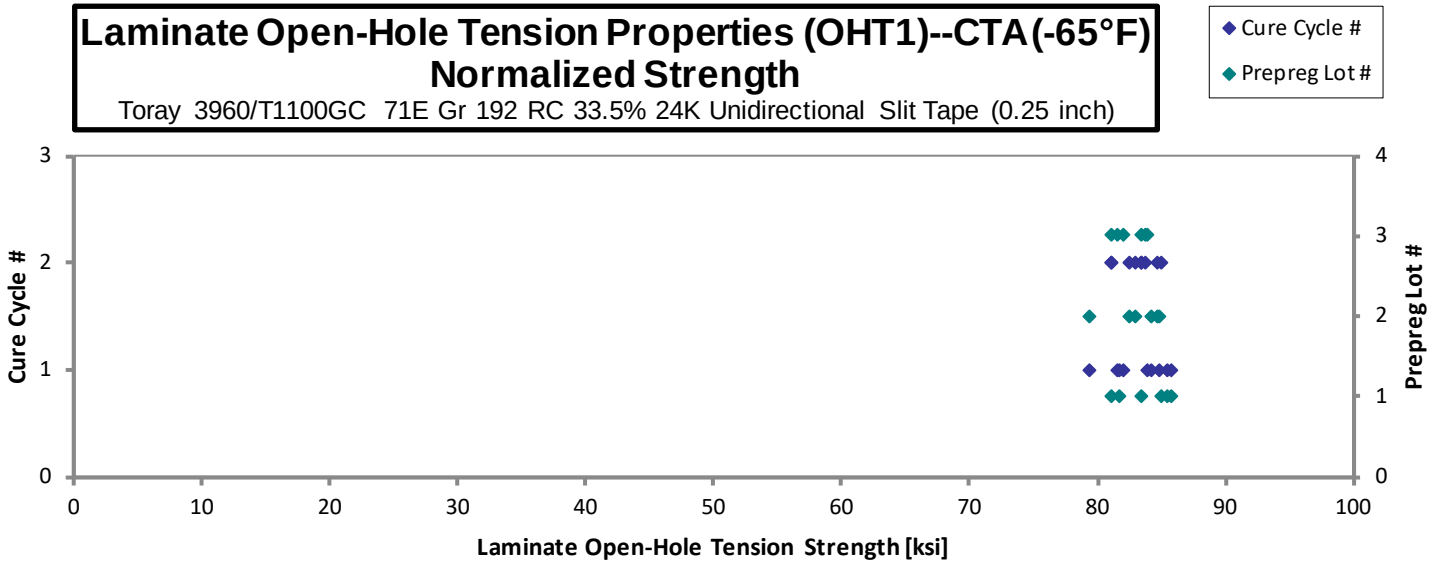
Laminate Open-Hole Tension Properties (OHT1)--CTA (-65°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-OHT1-CTA-1	A	C1	1	1	82.41	0.1111	16	AGM	0.006945	81.76
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-OHT1-CTA-2	A	C1	1	1	85.32	0.1121	16	AGM	0.007007	85.41
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-OHT1-CTA-3	A	C1	1	1	86.11	0.1116	16	AGM	0.006977	85.83
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-OHT1-CTA-1	A	C2	1	2	83.86	0.1114	16	AGM	0.006960	83.39
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-OHT1-CTA-2	A	C2	1	2	80.92	0.1122	16	AGM	0.007015	81.09
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-OHT1-CTA-3	A	C2	1	2	85.13	0.1118	16	AGM	0.006990	85.01
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-OHT1-CTA-1	B	C1	2	1	79.70	0.1116	16	AGM	0.006973	79.39
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-OHT1-CTA-2	B	C1	2	1	85.05	0.1117	16	AGM	0.006981	84.82
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-OHT1-CTA-3	B	C1	2	1	84.68	0.1115	16	AGM	0.006966	84.26
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-OHT1-CTA-1	B	C2	2	2	83.10	0.1117	16	AGM	0.006982	82.89
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-OHT1-CTA-2	B	C2	2	2	82.75	0.1116	16	AGM	0.006977	82.48
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-OHT1-CTA-3	B	C2	2	2	84.92	0.1118	16	AGM	0.006985	84.75
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-OHT1-CTA-1	C	C1	3	1	80.80	0.1131	16	AGM	0.007069	81.59
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-OHT1-CTA-2	C	C1	3	1	81.57	0.1126	16	AGM	0.007038	82.00
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-OHT1-CTA-3	C	C1	3	1	82.90	0.1133	16	AGM	0.007079	83.84
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-OHT1-CTA-1	C	C2	3	2	81.83	0.1142	16	AGM	0.007138	83.44
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-OHT1-CTA-2	C	C2	3	2	81.06	0.1119	16	AGM	0.006996	81.01
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-OHT1-CTA-3	C	C2	3	2	82.30	0.1140	16	AGM	0.007122	83.73

Average	**83.02**	
Standard Dev.	**1.867**	
Coeff. of Var. [%]	**2.249**	
Min.	**79.70**	
Max.	**86.11**	
Number of Spec.	**18**	

$Average_{norm}$	**0.007011**	**83.15**
Standard $Dev._{norm}$		**1.756**
Coeff. of $Var._{norm}$ [%]		**2.112**
Min.	**0.006945**	**79.39**
Max.	**0.007138**	**85.83**
Number of Spec.	**18**	**18**


Laminate Open-Hole Tension Properties (OHT1)--CTA (-65°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Tension Strength [ksi]
0
10
20
30
40
50
60
70
80
90
100
0
1
2
3
4

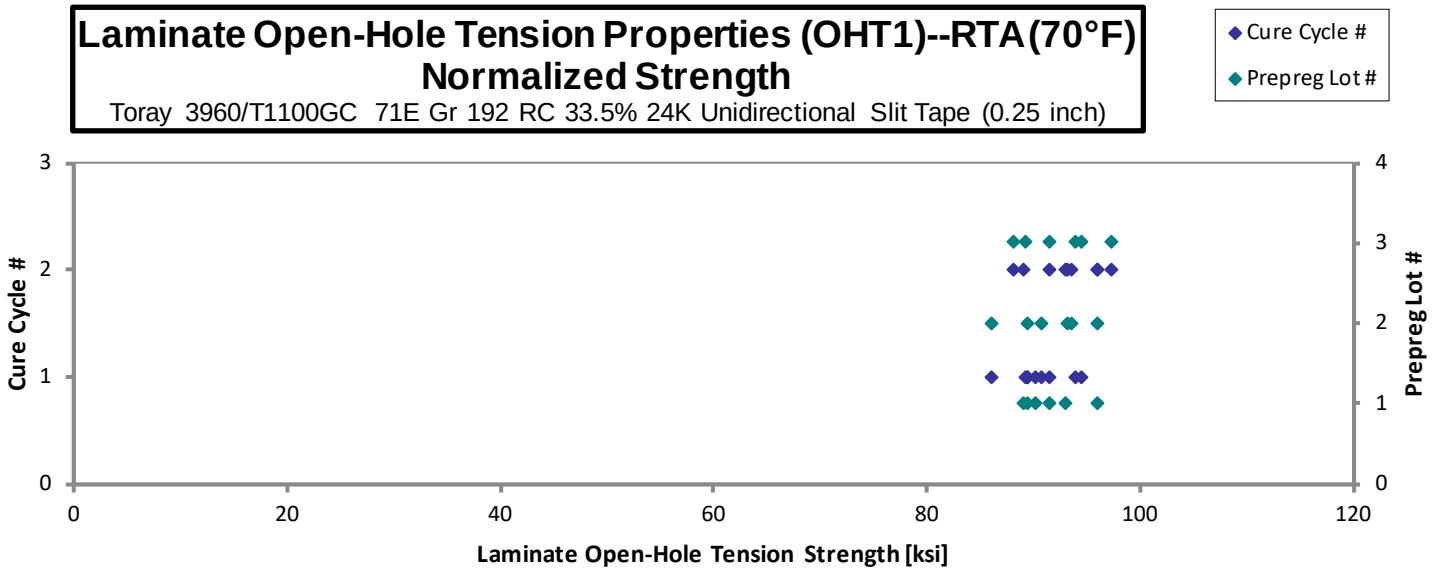
Laminate Open-Hole Tension Properties (OHT1)--RTA (70°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-OHT1-RTA-1	A	C1	1	1	89.61	0.1118	16	AGM	0.006989	89.47
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-OHT1-RTA-2	A	C1	1	1	90.65	0.1115	16	AGM	0.006967	90.22
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-OHT1-RTA-3	A	C1	1	1	91.83	0.1116	16	AGM	0.006976	91.52
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-OHT1-RTA-1	A	C2	1	2	89.20	0.1119	16	AGM	0.006992	89.10
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-OHT1-RTA-2	A	C2	1	2	92.98	0.1120	16	AGM	0.006998	92.95
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-OHT1-RTA-3	A	C2	1	2	94.15	0.1141	16	AGM	0.007131	95.91
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-OHT1-RTA-1	B	C1	2	1	91.22	0.1115	16	AGM	0.006966	90.77
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-OHT1-RTA-2	B	C1	2	1	86.34	0.1116	16	AGM	0.006972	85.99
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-OHT1-RTA-3	B	C1	2	1	89.88	0.1115	16	AGM	0.006970	89.49
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-OHT1-RTA-1	B	C2	2	2	96.21	0.1118	16	AGM	0.006984	96.00
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-OHT1-RTA-2	B	C2	2	2	94.11	0.1114	16	AGM	0.006964	93.62
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-OHT1-RTA-3	B	C2	2	2	93.58	0.1116	16	AGM	0.006976	93.26
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-OHT1-RTA-1	C	C1	3	1	93.40	0.1132	16	AGM	0.007076	94.42
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-OHT1-RTA-2	C	C1	3	1	88.39	0.1130	16	AGM	0.007063	89.18
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-OHT1-RTA-3	C	C1	3	1	93.29	0.1128	16	AGM	0.007052	93.98
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-OHT1-RTA-1	C	C2	3	2	91.00	0.1125	16	AGM	0.007033	91.44
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-OHT1-RTA-2	C	C2	3	2	87.72	0.1125	16	AGM	0.007032	88.13
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-OHT1-RTA-3	C	C2	3	2	96.66	0.1128	16	AGM	0.007052	97.38

Average	**91.68**		**$Average_{norm}$**	**0.007011**	**91.82**
Standard Dev.	**2.855**		**$Standard\ Dev._{norm}$**		**3.068**
Coeff. of Var. [%]	**3.114**		**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**3.341**
Min.	**86.34**		**Min.**	**0.006964**	**85.99**
Max.	**96.66**		**Max.**	**0.007131**	**97.38**
Number of Spec.	**18**		**Number of Spec.**	**18**	**18**


Laminate Open-Hole Tension Properties (OHT1)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
20
40
60
80
100
120
Laminate Open-Hole Tension Strength [ksi]

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

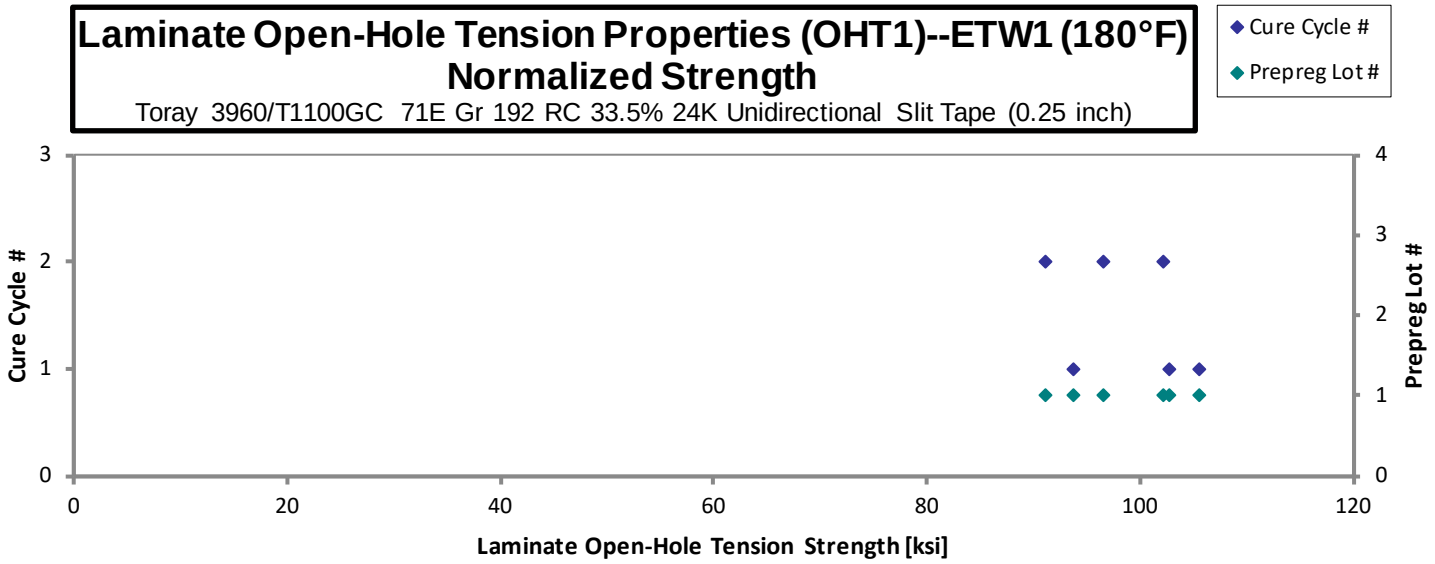
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-OHT1-ETW1-1	A	C1	1	1	93.72	0.1121	16	AGM	0.007006	93.80
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-OHT1-ETW1-2	A	C1	1	1	105.7	0.1119	16	AGM	0.006993	105.6
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-OHT1-ETW1-3	A	C1	1	1	103.3	0.1114	16	AGM	0.006963	102.7
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-OHT1-ETW1-1	A	C2	1	2	102.7	0.1115	16	AGM	0.006971	102.2
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-OHT1-ETW1-2	A	C2	1	2	96.61	0.1119	16	AGM	0.006994	96.52
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-OHT1-ETW1-3	A	C2	1	2	91.35	0.1117	16	AGM	0.006983	91.13

Average	**98.88**	
Standard Dev.	**5.805**	
Coeff. of Var. [%]	**5.870**	
Min.	**91.35**	
Max.	**105.7**	
Number of Spec.	**6**	

$Average_{norm}$	**0.006985**	**98.66**
Standard $Dev._{norm}$		**5.692**
Coeff. of Var. $[\%]_{norm}$		**5.769**
Min.	**0.006963**	**91.13**
Max.	**0.007006**	**105.6**
Number of Spec.	**6**	**6**


Laminate Open-Hole Tension Properties (OHT1)--ETW1 (180°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Tension Strength [ksi]
0
20
40
60
80
100
120
0
1
2
3
4

Laminate Open-Hole Tension Properties (OHT1)--ETW2 (250°F)
Strength

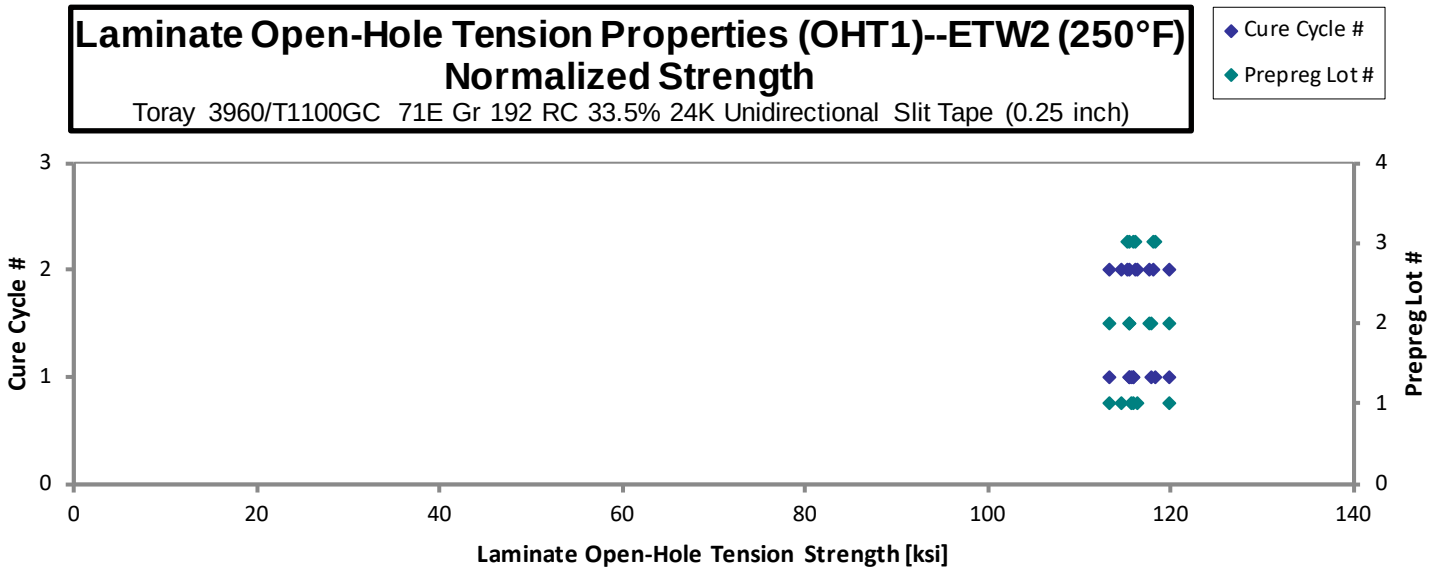
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-OHT1-ETW2-1	A	C1	1	1	119.9	0.1119	16	M(A,L)GM	0.006992	119.8
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-OHT1-ETW2-2	A	C1	1	1	115.9	0.1120	16	M(A,L)GM	0.006997	115.8
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-OHT1-ETW2-3	A	C1	1	1	116.2	0.1118	16	M(A,L)GM	0.006985	116.0
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-OHT1-ETW2-1	A	C2	1	2	117.1	0.1114	16	M(A,L)GM	0.006963	116.5
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-OHT1-ETW2-2	A	C2	1	2	113.8	0.1114	16	M(A,L)GM	0.006965	113.2
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-OHT1-ETW2-3	A	C2	1	2	115.1	0.1116	16	M(A,L)GM	0.006973	114.7
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-OHT1-ETW2-1	B	C1	2	1	114.0	0.1114	16	AGM	0.006964	113.4
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-OHT1-ETW2-2	B	C1	2	1	115.9	0.1115	16	AGM	0.006969	115.4
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-OHT1-ETW2-3	B	C1	2	1	118.5	0.1115	16	AGM	0.006968	118.0
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-OHT1-ETW2-1	B	C2	2	2	115.3	0.1122	16	AGM	0.007009	115.5
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-OHT1-ETW2-2	B	C2	2	2	117.4	0.1123	16	AGM	0.007017	117.6
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-OHT1-ETW2-3	B	C2	2	2	119.9	0.1120	16	AGM	0.007001	120.0
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-OHT1-ETW2-1	C	C1	3	1	114.7	0.1129	16	AGM	0.007056	115.6
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-OHT1-ETW2-2	C	C1	3	1	115.1	0.1129	16	AGM	0.007055	116.0
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-OHT1-ETW2-3	C	C1	3	1	117.1	0.1131	16	AGM	0.007066	118.2
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-OHT1-ETW2-1	C	C2	3	2	115.5	0.1127	16	M(A,L)GM	0.007041	116.2
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-OHT1-ETW2-2	C	C2	3	2	118.2	0.1120	16	M(A,L)GM	0.007002	118.2
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-OHT1-ETW2-3	C	C2	3	2	115.1	0.1122	16	M(A,L)GM	0.007011	115.3

Average	**116.4**	
Standard Dev.	**1.840**	
Coeff. of Var. [%]	**1.581**	
Min.	**113.8**	
Max.	**119.9**	
Number of Spec.	**18**	

$Average_{norm}$	**0.007002**	**116.4**
Standard $Dev._{norm}$		**1.897**
Coeff. of Var. $[\%]_{norm}$		**1.630**
Min.	**0.006963**	**113.2**
Max.	**0.007066**	**120.0**
Number of Spec.	**18**	**18**


Laminate Open-Hole Tension Properties (OHT1)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
20
40
60
80
100
120
140
Laminate Open-Hole Tension Strength [ksi]

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

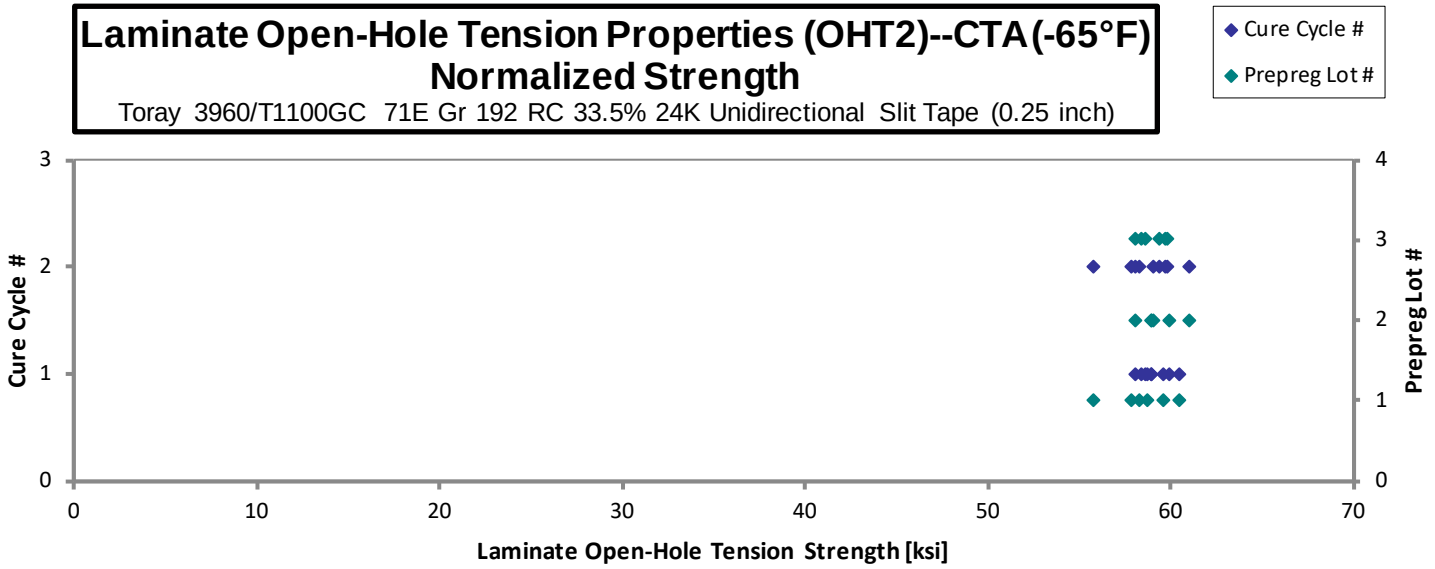
Laminate Open-Hole Tension Properties (OHT2)--CTA (-65°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHT2-CTA-1	A	C1	1	1	60.59	0.1397	20	AGM	0.006987	60.48
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHT2-CTA-2	A	C1	1	1	58.77	0.1400	20	AGM	0.006998	58.75
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHT2-CTA-3	A	C1	1	1	59.69	0.1399	20	AGM	0.006995	59.65
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHT2-CTA-1	A	C2	1	2	56.13	0.1392	20	AGM	0.006961	55.82
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHT2-CTA-2	A	C2	1	2	58.36	0.1398	20	AGM	0.006988	58.26
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHT2-CTA-3	A	C2	1	2	57.81	0.1400	20	AGM	0.006999	57.81
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHT2-CTA-1	B	C1	2	1	58.89	0.1403	20	AGM	0.007013	58.99
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHT2-CTA-2	B	C1	2	1	58.90	0.1400	20	AGM	0.007001	58.91
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHT2-CTA-3	B	C1	2	1	59.66	0.1406	20	AGM	0.007030	59.92
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHT2-CTA-1	B	C2	2	2	57.88	0.1404	20	AGM	0.007021	58.05
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHT2-CTA-2	B	C2	2	2	59.17	0.1396	20	AGM	0.006981	59.01
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHT2-CTA-3	B	C2	2	2	60.89	0.1402	20	AGM	0.007009	60.97
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHT2-CTA-1	C	C1	3	1	58.11	0.1413	20	AGM	0.007066	58.66
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHT2-CTA-2	C	C1	3	1	57.54	0.1413	20	AGM	0.007064	58.07
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHT2-CTA-3	C	C1	3	1	57.75	0.1415	20	AGM	0.007076	58.38
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHT2-CTA-1	C	C2	3	2	59.66	0.1401	20	AGM	0.007003	59.69
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHT2-CTA-2	C	C2	3	2	59.81	0.1399	20	AGM	0.006995	59.77
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHT2-CTA-3	C	C2	3	2	59.26	0.1404	20	AGM	0.007018	59.41

Average	**58.83**	
Standard Dev.	**1.177**	
Coeff. of Var. [%]	**2.000**	
Min.	**56.13**	
Max.	**60.89**	
Number of Spec.	**18**	

$Average_{norm}$	**0.007011**	**58.92**
Standard $Dev._{norm}$		**1.161**
Coeff. of Var. $[\%]_{norm}$		**1.970**
Min.	**0.006961**	**55.82**
Max.	**0.007076**	**60.97**
Number of Spec.	**18**	**18**


Laminate Open-Hole Tension Properties (OHT2)--CTA (-65°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Tension Strength [ksi]
0
10
20
30
40
50
60
70
0
1
2
3
4

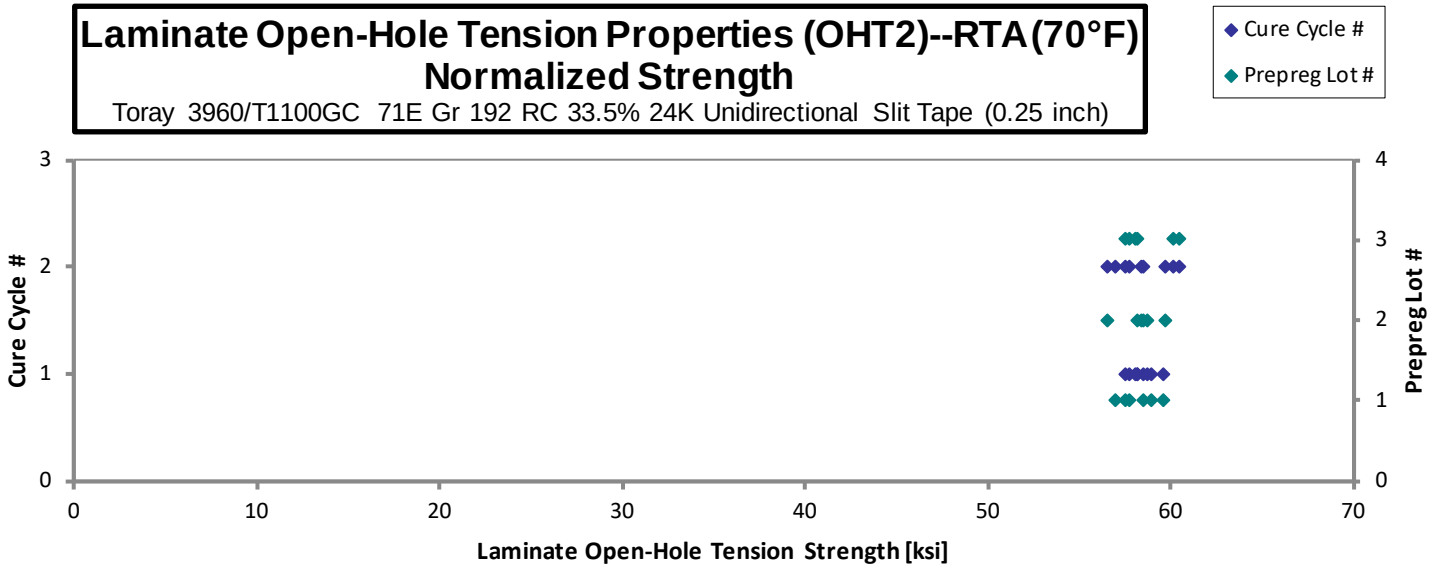
Laminate Open-Hole Tension Properties (OHT2)--RTA (70°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHT2-RTA-1	A	C1	1	1	59.70	0.1398	20	AGM	0.006988	59.60
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHT2-RTA-2	A	C1	1	1	57.68	0.1397	20	AGM	0.006987	57.57
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHT2-RTA-3	A	C1	1	1	58.97	0.1399	20	AGM	0.006995	58.93
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHT2-RTA-1	A	C2	1	2	58.63	0.1397	20	AGM	0.006985	58.51
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHT2-RTA-2	A	C2	1	2	57.85	0.1398	20	AGM	0.006988	57.75
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHT2-RTA-3	A	C2	1	2	56.97	0.1400	20	AGM	0.006999	56.96
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHT2-RTA-1	B	C1	2	1	58.42	0.1402	20	AGM	0.007008	58.48
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHT2-RTA-2	B	C1	2	1	58.57	0.1403	20	AGM	0.007017	58.71
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHT2-RTA-3	B	C1	2	1	58.03	0.1404	20	AGM	0.007019	58.18
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHT2-RTA-1	B	C2	2	2	56.51	0.1400	20	AGM	0.007001	56.52
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHT2-RTA-2	B	C2	2	2	58.48	0.1399	20	AGM	0.006994	58.44
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHT2-RTA-3	B	C2	2	2	59.66	0.1401	20	AGM	0.007006	59.71
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHT2-RTA-1	C	C1	3	1	57.55	0.1413	20	AGM	0.007063	58.07
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHT2-RTA-2	C	C1	3	1	57.87	0.1408	20	AGM	0.007040	58.20
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHT2-RTA-3	C	C1	3	1	57.10	0.1416	20	AGM	0.007079	57.75
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHT2-RTA-1	C	C2	3	2	57.42	0.1403	20	AGM	0.007013	57.52
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHT2-RTA-2	C	C2	3	2	60.55	0.1398	20	AGM	0.006990	60.46
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHT2-RTA-3	C	C2	3	2	60.16	0.1399	20	AGM	0.006997	60.13

Average	**58.34**		**Average$_{norm}$**	**0.007009**	**58.42**
Standard Dev.	**1.126**		**Standard Dev.$_{norm}$**		**1.054**
Coeff. of Var. [%]	**1.931**		**Coeff. of Var. [%]$_{norm}$**		**1.805**
Min.	**56.51**		**Min.**	**0.006985**	**56.52**
Max.	**60.55**		**Max.**	**0.007079**	**60.46**
Number of Spec.	**18**		**Number of Spec.**	**18**	**18**


Laminate Open-Hole Tension Properties (OHT2)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Tension Strength [ksi]
0
10
20
30
40
50
60
70
0
1
2
3
4

Laminate Open-Hole Tension Properties (OHT2)--ETW2 (250°F)
Strength

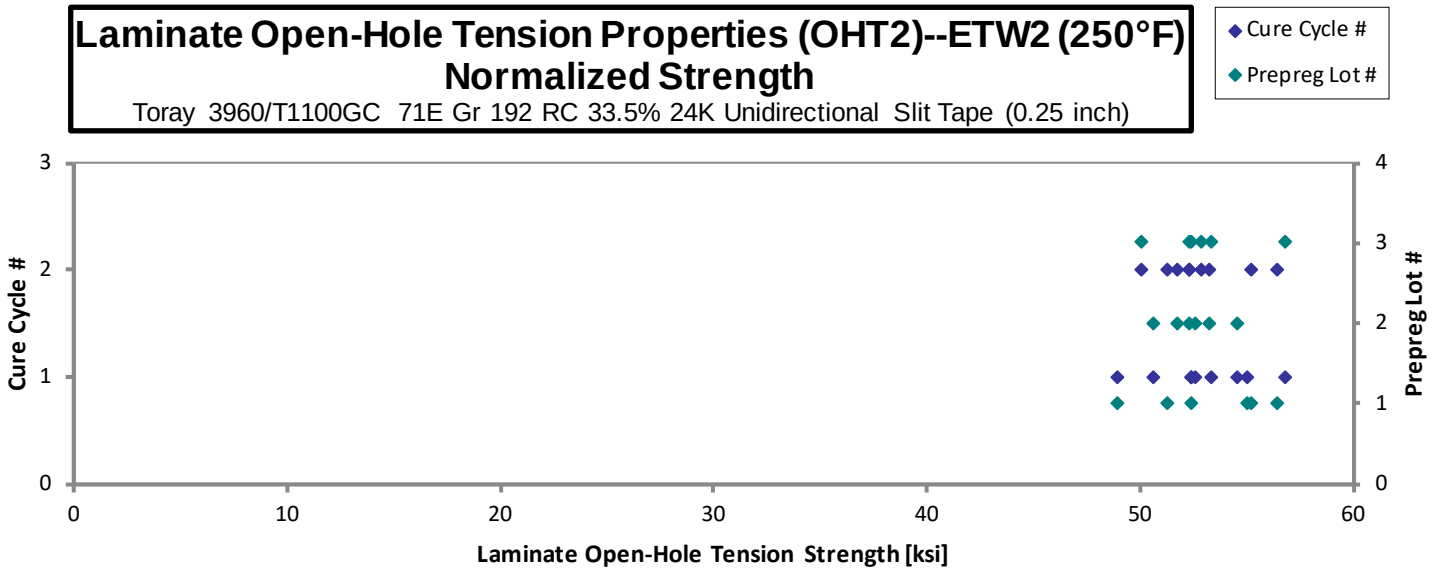
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHT2-ETW2-1	A	C1	1	1	49.18	0.1394	20	AGM	0.006968	48.96
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHT2-ETW2-2	A	C1	1	1	55.30	0.1393	20	AGM	0.006967	55.04
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHT2-ETW2-3	A	C1	1	1	52.58	0.1395	20	AGM	0.006973	52.38
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHT2-ETW2-1	A	C2	1	2	55.08	0.1404	20	AGM	0.007018	55.21
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHT2-ETW2-2	A	C2	1	2	56.35	0.1401	20	AGM	0.007003	56.38
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHT2-ETW2-3	A	C2	1	2	51.20	0.1403	20	AGM	0.007014	51.31
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHT2-ETW2-1	B	C1	2	1	52.45	0.1403	20	AGM	0.007013	52.55
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHT2-ETW2-2	B	C1	2	1	50.51	0.1402	20	AGM	0.007009	50.58
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHT2-ETW2-3	B	C1	2	1	54.48	0.1401	20	AGM	0.007004	54.51
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHT2-ETW2-1	B	C2	2	2	53.23	0.1400	20	AGM	0.007002	53.24
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHT2-ETW2-2	B	C2	2	2	51.80	0.1398	20	AGM	0.006989	51.72
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHT2-ETW2-3	B	C2	2	2	51.92	0.1411	20	AGM	0.007053	52.32
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHT2-ETW2-1	C	C1	3	1	52.58	0.1420	20	AGM	0.007100	53.33
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHT2-ETW2-2	C	C1	3	1	51.93	0.1412	20	AGM	0.007059	52.37
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHT2-ETW2-3	C	C1	3	1	56.55	0.1407	20	AGM	0.007035	56.83
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHT2-ETW2-1	C	C2	3	2	50.21	0.1396	20	AGM	0.006979	50.06
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHT2-ETW2-2	C	C2	3	2	52.77	0.1402	20	AGM	0.007010	52.84
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHT2-ETW2-3	C	C2	3	2	52.33	0.1400	20	AGM	0.007002	52.34

Average	**52.80**	
Standard Dev.	**2.054**	
Coeff. of Var. [%]	**3.890**	
Min.	**49.18**	
Max.	**56.55**	
Number of Spec.	**18**	

$Average_{norm}$	**0.007011**	**52.89**
$Standard\ Dev._{norm}$		**2.096**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.963**
Min.	**0.006967**	**48.96**
Max.	**0.007100**	**56.83**
Number of Spec.	**18**	**18**


Laminate Open-Hole Tension Properties (OHT2)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Tension Strength [ksi]
0
10
20
30
40
50
60
0
1
2
3
4

4.19 “50/40/10” Open-Hole Tension 3 Properties (OHT3)

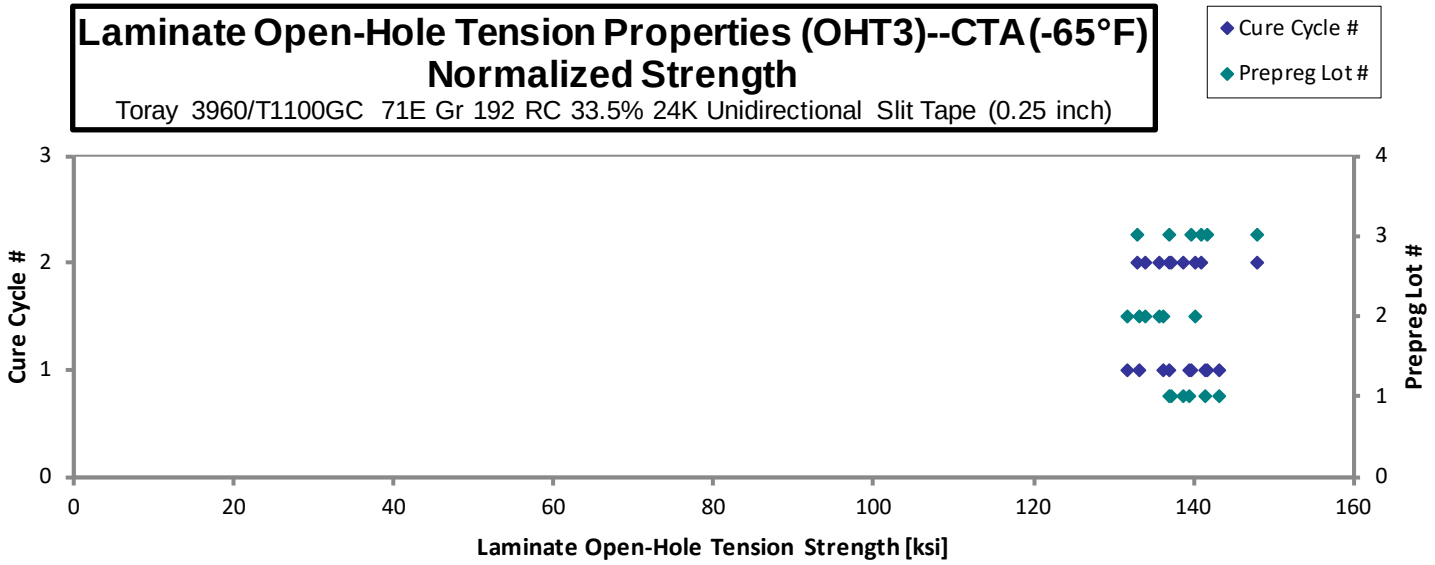
Laminate Open-Hole Tension Properties (OHT3)--CTA (-65°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHT3-CTA-1	A	C1	1	1	140.0	0.1414	20	AGM	0.007070	141.4
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHT3-CTA-2	A	C1	1	1	137.9	0.1416	20	AGM	0.007078	139.5
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHT3-CTA-3	A	C1	1	1	141.9	0.1414	20	AGM	0.007072	143.3
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHT3-CTA-1	A	C2	1	2	138.5	0.1401	20	AGM	0.007006	138.6
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHT3-CTA-2	A	C2	1	2	137.2	0.1398	20	AGM	0.006988	137.0
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHT3-CTA-3	A	C2	1	2	137.5	0.1397	20	AGM	0.006984	137.2
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHT3-CTA-1	B	C1	2	1	131.8	0.1414	20	AGM	0.007071	133.2
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHT3-CTA-2	B	C1	2	1	131.3	0.1406	20	AGM	0.007028	131.8
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHT3-CTA-3	B	C1	2	1	135.0	0.1412	20	AGM	0.007060	136.2
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHT3-CTA-1	B	C2	2	2	140.5	0.1396	20	M(A,L)GM	0.006981	140.1
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHT3-CTA-2	B	C2	2	2	136.2	0.1395	20	M(A,L)GM	0.006973	135.7
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHT3-CTA-3	B	C2	2	2	134.6	0.1394	20	M(A,L)GM	0.006968	134.0
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHT3-CTA-1	C	C1	3	1	134.6	0.1425	20	M(A,L)GM	0.007125	137.0
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHT3-CTA-2	C	C1	3	1	139.0	0.1408	20	M(A,L)GM	0.007040	139.8
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHT3-CTA-3	C	C1	3	1	139.8	0.1419	20	M(A,L)GM	0.007097	141.7
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHT3-CTA-1	C	C2	3	2	138.4	0.1426	20	AGM	0.007131	140.9
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHT3-CTA-2	C	C2	3	2	145.3	0.1426	20	AGM	0.007132	148.1
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHT3-CTA-3	C	C2	3	2	130.6	0.1426	20	AGM	0.007132	133.1

Average	**137.2**	
Standard Dev.	**3.813**	
Coeff. of Var. [%]	**2.779**	
Min.	**130.6**	
Max.	**145.3**	
Number of Spec.	**18**	

$Average_{norm}$	**0.007052**	**138.3**
Standard $Dev._{norm}$		**4.107**
Coeff. of Var. $[\%]_{norm}$		**2.971**
Min.	**0.006968**	**131.8**
Max.	**0.007132**	**148.1**
Number of Spec.	**18**	**18**

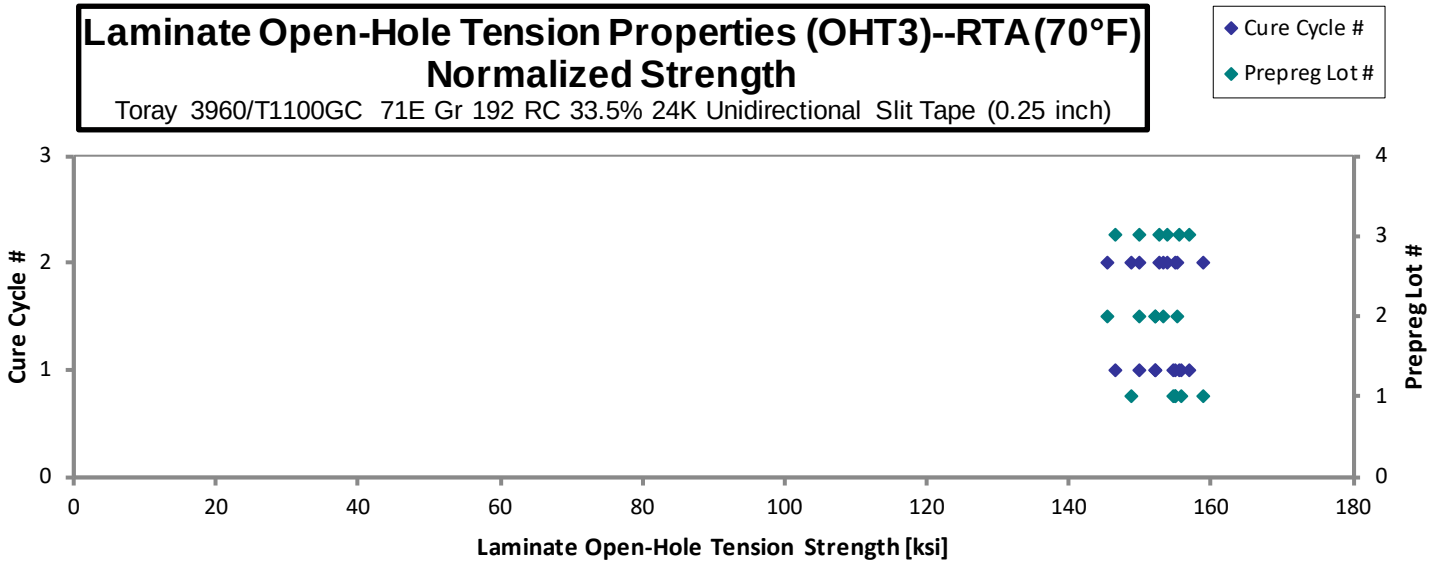

Laminate Open-Hole Tension Properties (OHT3)--CTA (-65°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Tension Strength [ksi]
0
20
40
60
80
100
120
140
160
0
1
2
3
4

Laminate Open-Hole Tension Properties (OHT3)--RTA (70°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHT3-RTA-1	A	C1	1	1	153.4	0.1412	20	M(A,L)GM	0.007058	154.7
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHT3-RTA-2	A	C1	1	1	154.2	0.1414	20	M(A,L)GM	0.007071	155.8
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHT3-RTA-3	A	C1	1	1	153.2	0.1416	20	M(A,L)GM	0.007079	155.0
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHT3-RTA-1	A	C2	1	2	155.3	0.1397	20	M(A,L)GM	0.006983	154.9
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHT3-RTA-2	A	C2	1	2	149.3	0.1394	20	M(A,L)GM	0.006968	148.7
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHT3-RTA-3	A	C2	1	2	159.4	0.1396	20	M(A,L)GM	0.006982	159.0
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHT3-RTA-1	B	C1	2	1	150.6	0.1413	20	M(A,L)GM	0.007065	152.0
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHT3-RTA-2	B	C1	2	1	151.3	0.1407	20	M(A,L)GM	0.007033	152.1
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHT3-RTA-3	B	C1	2	1	149.2	0.1406	20	M(A,L)GM	0.007028	149.8
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHT3-RTA-1	B	C2	2	2	145.1	0.1404	20	M(A,L)GM	0.007018	145.4
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHT3-RTA-2	B	C2	2	2	155.4	0.1399	20	M(A,L)GM	0.006994	155.3
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHT3-RTA-3	B	C2	2	2	153.2	0.1401	20	M(A,L)GM	0.007006	153.3
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHT3-RTA-1	C	C1	3	1	144.4	0.1420	20	M(A,L)GM	0.007100	146.4
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHT3-RTA-2	C	C1	3	1	155.0	0.1416	20	M(A,L)GM	0.007081	156.8
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHT3-RTA-3	C	C1	3	1	153.0	0.1424	20	M(A,L)GM	0.007118	155.6
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHT3-RTA-1	C	C2	3	2	149.5	0.1429	20	M(A,L)GM	0.007144	152.6
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHT3-RTA-2	C	C2	3	2	147.4	0.1424	20	M(A,L)GM	0.007118	149.9
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHT3-RTA-3	C	C2	3	2	151.4	0.1423	20	M(A,L)GM	0.007113	153.9

Average	**151.7**	**Average$_{norm}$**	**0.007053**	**152.8**
Standard Dev.	**3.819**	**Standard Dev.$_{norm}$**		**3.617**
Coeff. of Var. [%]	**2.517**	**Coeff. of Var. [%]$_{norm}$**		**2.367**
Min.	**144.4**	**Min.**	**0.006968**	**145.4**
Max.	**159.4**	**Max.**	**0.007144**	**159.0**
Number of Spec.	**18**	**Number of Spec.**	**18**	**18**


Laminate Open-Hole Tension Properties (OHT3)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Tension Strength [ksi]
0
20
40
60
80
100
120
140
160
180
0
1
2
3
4

Laminate Open-Hole Tension Properties (OHT3)--ETW2 (250°F)
Strength

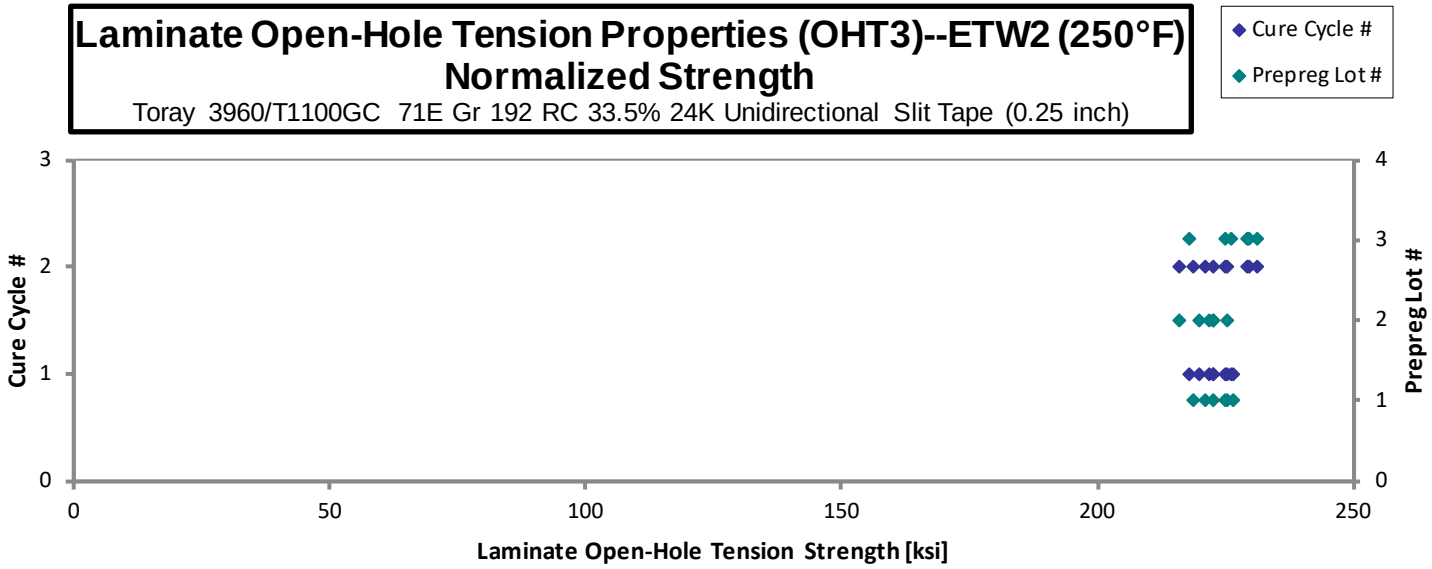
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHT3-ETW2-1	A	C1	1	1	223.2	0.1413	20	XGM	0.007063	225.3
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHT3-ETW2-2	A	C1	1	1	221.1	0.1410	20	XGM	0.007052	222.8
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHT3-ETW2-3	A	C1	1	1	224.2	0.1414	20	XGM	0.007072	226.5
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHT3-ETW2-1	A	C2	1	2	221.6	0.1396	20	XGM	0.006981	221.0
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHT3-ETW2-2	A	C2	1	2	225.5	0.1398	20	XGM	0.006988	225.1
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHT3-ETW2-3	A	C2	1	2	218.6	0.1400	20	XGM	0.007001	218.6
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHT3-ETW2-1	B	C1	2	1	218.9	0.1407	20	XGM	0.007037	220.1
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHT3-ETW2-2	B	C1	2	1	221.7	0.1407	20	XGM	0.007034	222.8
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHT3-ETW2-3	B	C1	2	1	220.3	0.1411	20	XGM	0.007053	222.0
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHT3-ETW2-1	B	C2	2	2	220.1	0.1416	20	SGM	0.007078	222.6
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHT3-ETW2-2	B	C2	2	2	225.5	0.1400	20	SGM	0.007000	225.5
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHT3-ETW2-3	B	C2	2	2	216.1	0.1399	20	SGM	0.006995	215.9
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHT3-ETW2-1	C	C1	3	1	223.0	0.1411	20	XGM	0.007056	224.8
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHT3-ETW2-2	C	C1	3	1	216.5	0.1409	20	XGM	0.007045	217.9
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHT3-ETW2-3	C	C1	3	1	223.8	0.1414	20	XGM	0.007068	226.0
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHT3-ETW2-1	C	C2	3	2	225.3	0.1424	20	XGM	0.007121	229.2
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHT3-ETW2-2	C	C2	3	2	227.5	0.1422	20	XGM	0.007111	231.1
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHT3-ETW2-3	C	C2	3	2	225.1	0.1428	20	XGM	0.007142	229.7

Average	**222.1**	
Standard Dev.	**3.245**	
Coeff. of Var. [%]	**1.461**	
Min.	**216.1**	
Max.	**227.5**	
Number of Spec.	**18**	

$Average_{norm}$	**0.007050**	**223.7**
Standard $Dev._{norm}$		**4.118**
Coeff. of Var. $[\%]_{norm}$		**1.841**
Min.	**0.006981**	**215.9**
Max.	**0.007142**	**231.1**
Number of Spec.	**18**	**18**


Laminate Open-Hole Tension Properties (OHT3)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
50
100
150
200
250
Laminate Open-Hole Tension Strength [ksi]

4.20 “25/50/25” Filled-Hole Tension 1 Properties (FHT1)

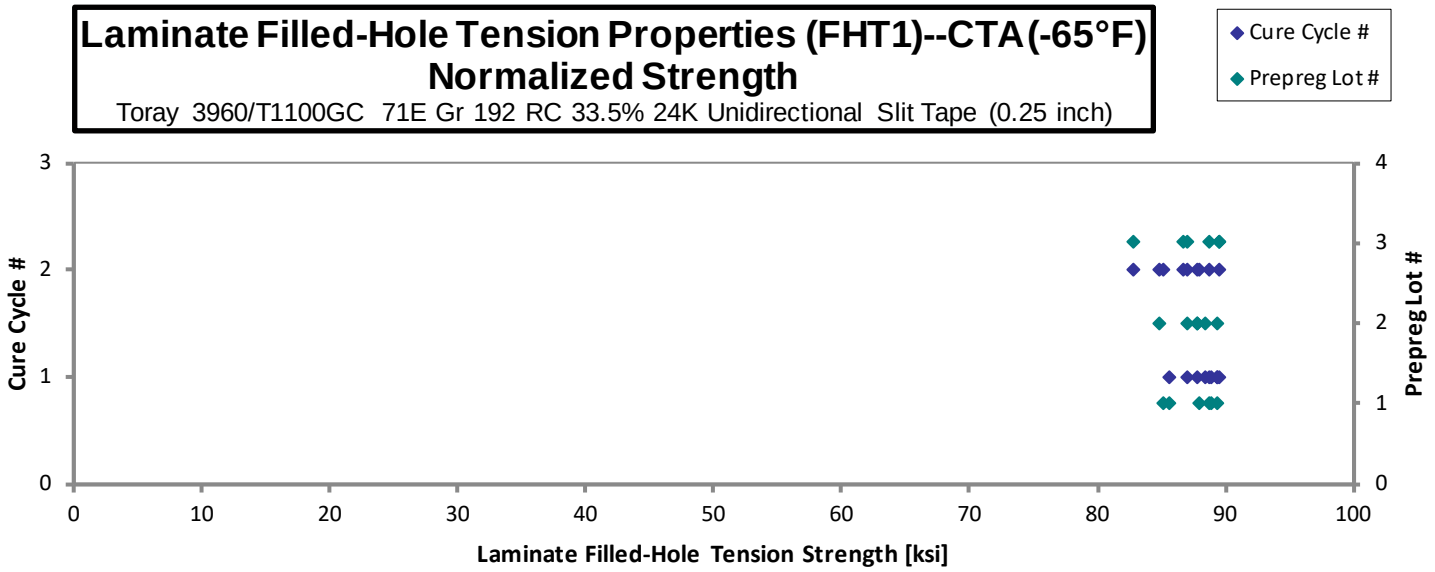
Laminate Filled-Hole Tension Properties (FHT1)--CTA (-65°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-FHT1-CTA-1	A	C1	1	1	89.40	0.1113	16	AGM	0.006958	88.87
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-FHT1-CTA-2	A	C1	1	1	85.56	0.1120	16	AGM	0.007000	85.56
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-FHT1-CTA-3	A	C1	1	1	89.83	0.1115	16	AGM	0.006968	89.42
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-FHT1-CTA-1	A	C2	1	2	88.32	0.1116	16	AGM	0.006974	87.99
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-FHT1-CTA-2	A	C2	1	2	84.78	0.1126	16	AGM	0.007034	85.20
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-FHT1-CTA-3	A	C2	1	2	88.94	0.1117	16	AGM	0.006980	88.69
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-FHT1-CTA-1	B	C1	2	1	89.00	0.1112	16	M(A,L)GM	0.006950	88.36
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-FHT1-CTA-2	B	C1	2	1	90.30	0.1108	16	M(A,L)GM	0.006922	89.30
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-FHT1-CTA-3	B	C1	2	1	88.60	0.1110	16	M(A,L)GM	0.006935	87.78
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-FHT1-CTA-1	B	C2	2	2	87.74	0.1120	16	AGM	0.006999	87.72
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-FHT1-CTA-2	B	C2	2	2	84.73	0.1121	16	AGM	0.007008	84.83
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-FHT1-CTA-3	B	C2	2	2	86.98	0.1121	16	AGM	0.007008	87.09
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-FHT1-CTA-1	C	C1	3	1	88.57	0.1132	16	AGM	0.007075	89.52
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-FHT1-CTA-2	C	C1	3	1	86.65	0.1124	16	AGM	0.007025	86.96
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-FHT1-CTA-3	C	C1	3	1	87.64	0.1135	16	AGM	0.007093	88.81
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-FHT1-CTA-1	C	C2	3	2	86.54	0.1122	16	AGM	0.007010	86.67
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-FHT1-CTA-2	C	C2	3	2	83.22	0.1114	16	AGM	0.006964	82.79
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-FHT1-CTA-3	C	C2	3	2	88.76	0.1129	16	AGM	0.007054	89.45

Average	**87.53**	
Standard Dev.	**1.955**	
Coeff. of Var. [%]	**2.233**	
Min.	**83.22**	
Max.	**90.30**	
Number of Spec.	**18**	

$Average_{norm}$	**0.006998**	**87.50**
Standard $Dev._{norm}$		**1.885**
Coeff. of Var. $[\%]_{norm}$		**2.155**
Min.	**0.006922**	**82.79**
Max.	**0.007093**	**89.52**
Number of Spec.	**18**	**18**


Laminate Filled-Hole Tension Properties (FHT1)--CTA (-65°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Tension Strength [ksi]
0
10
20
30
40
50
60
70
80
90
100
0
1
2
3
4

Laminate Filled-Hole Tension Properties (FHT1)--RTA (70°F)
Strength

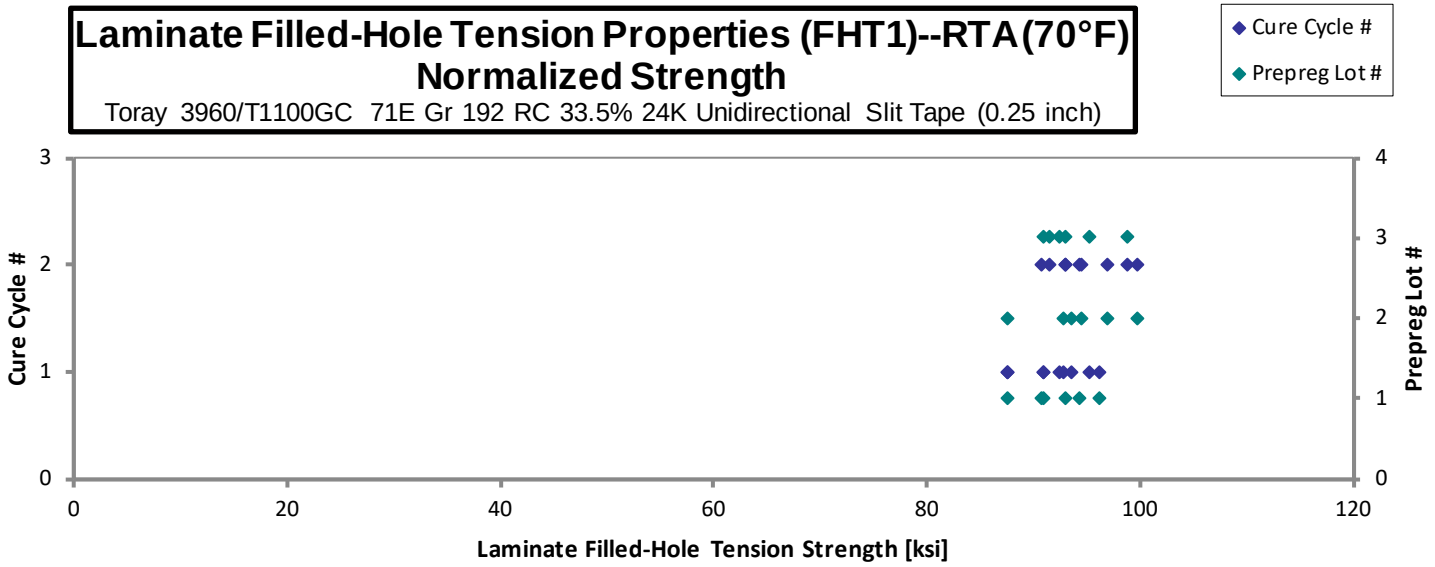
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-FHT1-RTA-1	A	C1	1	1	87.87	0.1117	16	AGM	0.006979	87.61
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-FHT1-RTA-2	A	C1	1	1	96.34	0.1118	16	AGM	0.006990	96.20
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-FHT1-RTA-3	A	C1	1	1	90.99	0.1120	16	AGM	0.007000	90.99
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-FHT1-RTA-1	A	C2	1	2	90.87	0.1119	16	AGM	0.006993	90.77
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-FHT1-RTA-2	A	C2	1	2	94.34	0.1120	16	AGM	0.007001	94.35
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-FHT1-RTA-3	A	C2	1	2	93.03	0.1119	16	AGM	0.006993	92.94
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-FHT1-RTA-1	B	C1	2	1	88.46	0.1110	16	AGM	0.006935	87.64
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-FHT1-RTA-2	B	C1	2	1	94.14	0.1113	16	AGM	0.006958	93.58
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-FHT1-RTA-3	B	C1	2	1	93.44	0.1113	16	AGM	0.006954	92.83
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-FHT1-RTA-1	B	C2	2	2	96.76	0.1122	16	AGM	0.007010	96.90
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-FHT1-RTA-2	B	C2	2	2	99.75	0.1120	16	AGM	0.007000	99.75
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-FHT1-RTA-3	B	C2	2	2	94.31	0.1123	16	AGM	0.007017	94.54
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-FHT1-RTA-1	C	C1	3	1	94.32	0.1132	16	AGM	0.007072	95.28
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-FHT1-RTA-2	C	C1	3	1	90.07	0.1130	16	AGM	0.007061	90.86
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-FHT1-RTA-3	C	C1	3	1	91.80	0.1128	16	AGM	0.007052	92.48
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-FHT1-RTA-1	C	C2	3	2	93.08	0.1120	16	M(A,L)GM	0.007000	93.08
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-FHT1-RTA-2	C	C2	3	2	91.46	0.1122	16	M(A,L)GM	0.007009	91.59
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-FHT1-RTA-3	C	C2	3	2	98.19	0.1128	16	M(A,L)GM	0.007047	98.85

Average	**93.29**	
Standard Dev.	**3.171**	
Coeff. of Var. [%]	**3.399**	
Min.	**87.87**	
Max.	**99.75**	
Number of Spec.	**18**	

$Average_{norm}$	**0.007004**	**93.35**
Standard $Dev._{norm}$		**3.312**
Coeff. of Var. $[\%]_{norm}$		**3.548**
Min.	**0.006935**	**87.61**
Max.	**0.007072**	**99.75**
Number of Spec.	**18**	**18**


Laminate Filled-Hole Tension Properties (FHT1)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Tension Strength [ksi]
0
20
40
60
80
100
120
0
1
2
3
4

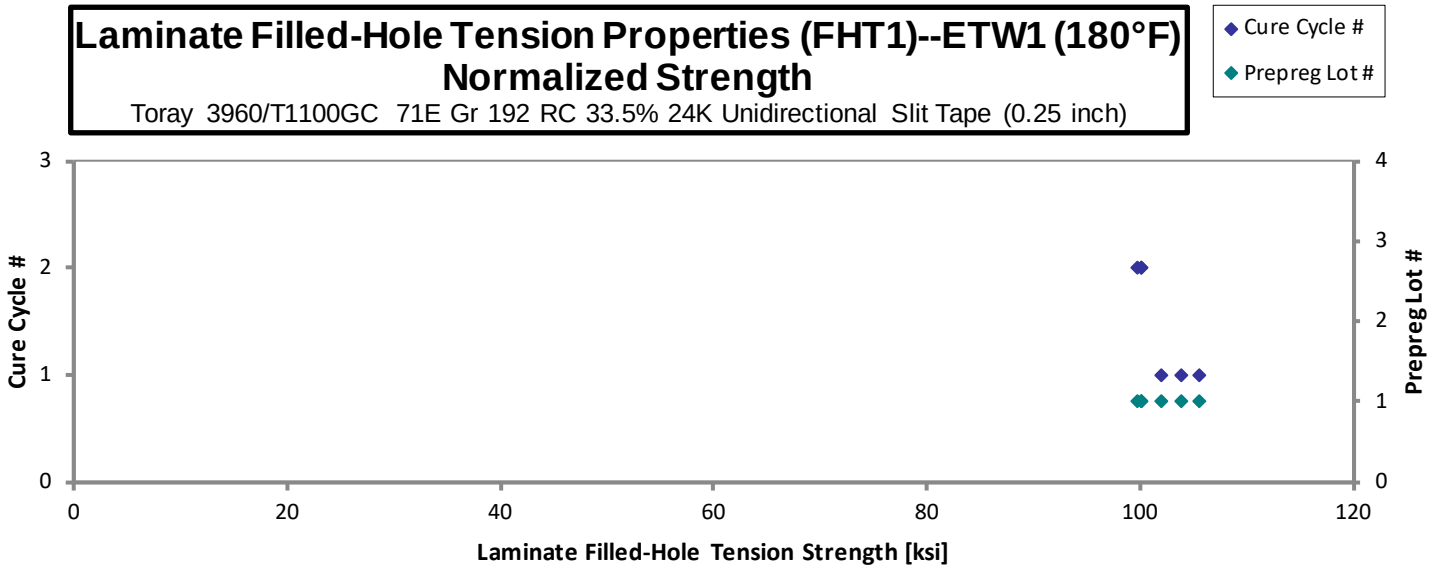
Laminate Filled-Hole Tension Properties (FHT1)--ETW1 (180°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-FHT1-ETW1-1	A	C1	1	1	106.0	0.1116	16	AGM	0.006975	105.6
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-FHT1-ETW1-2	A	C1	1	1	104.2	0.1117	16	AGM	0.006980	103.9
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-FHT1-ETW1-3	A	C1	1	1	102.3	0.1117	16	AGM	0.006978	102.0
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-FHT1-ETW1-1	A	C2	1	2	100.2	0.1118	16	AGM	0.006985	100.0
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-FHT1-ETW1-2	A	C2	1	2	99.89	0.1119	16	AGM	0.006991	99.75
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-FHT1-ETW1-3	A	C2	1	2	100.2	0.1120	16	AGM	0.006997	100.2

Average	**102.1**		**$Average_{norm}$**	**0.006984**	**101.9**
Standard Dev.	**2.507**		**$Standard\ Dev._{norm}$**		**2.402**
Coeff. of Var. [%]	**2.455**		**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**2.357**
Min.	**99.89**		**Min.**	**0.006975**	**99.75**
Max.	**106.0**		**Max.**	**0.006997**	**105.6**
Number of Spec.	**6**		**Number of Spec.**	**6**	**6**


Laminate Filled-Hole Tension Properties (FHT1)--ETW1 (180°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Tension Strength [ksi]
0
20
40
60
80
100
120
0
1
2
3
4

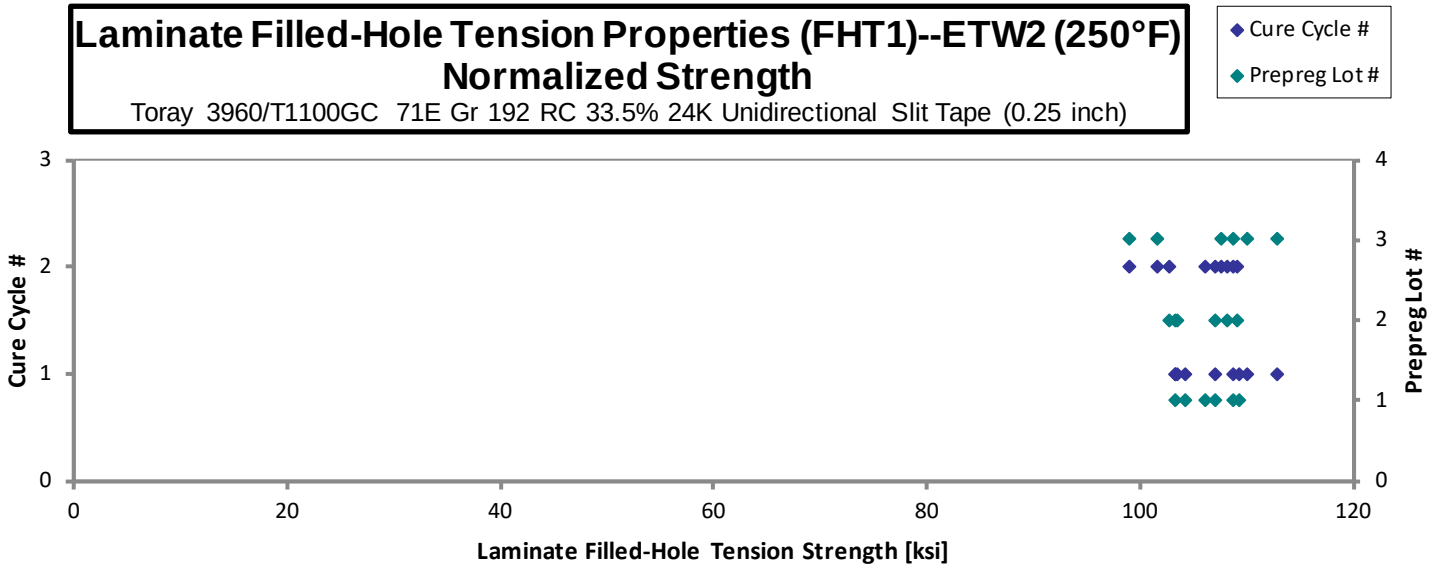
Laminate Filled-Hole Tension Properties (FHT1)--ETW2 (250°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-FHT1-ETW2-1	A	C1	1	1	109.6	0.1118	16	AGM	0.006985	109.3
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-FHT1-ETW2-2	A	C1	1	1	104.4	0.1118	16	AGM	0.006984	104.1
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-FHT1-ETW2-3	A	C1	1	1	103.7	0.1116	16	AGM	0.006975	103.4
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-FHT1-ETW2-1	A	C2	1	2	107.2	0.1120	16	AGM	0.006997	107.1
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-FHT1-ETW2-2	A	C2	1	2	106.4	0.1117	16	AGM	0.006982	106.1
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-FHT1-ETW2-3	A	C2	1	2	109.1	0.1117	16	AGM	0.006980	108.8
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-FHT1-ETW2-1	B	C1	2	1	104.0	0.1115	16	AGM	0.006968	103.5
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-FHT1-ETW2-2	B	C1	2	1	103.8	0.1115	16	AGM	0.006966	103.3
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-FHT1-ETW2-3	B	C1	2	1	107.7	0.1113	16	AGM	0.006958	107.1
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-FHT1-ETW2-1	B	C2	2	2	108.0	0.1123	16	AGM	0.007018	108.2
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-FHT1-ETW2-2	B	C2	2	2	109.0	0.1121	16	AGM	0.007008	109.1
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-FHT1-ETW2-3	B	C2	2	2	103.0	0.1117	16	AGM	0.006982	102.7
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-FHT1-ETW2-1	C	C1	3	1	108.9	0.1132	16	AGM	0.007072	110.0
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-FHT1-ETW2-2	C	C1	3	1	108.0	0.1127	16	AGM	0.007044	108.7
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-FHT1-ETW2-3	C	C1	3	1	112.1	0.1127	16	AGM	0.007046	112.8
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-FHT1-ETW2-1	C	C2	3	2	98.76	0.1124	16	AGM	0.007023	99.08
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-FHT1-ETW2-2	C	C2	3	2	107.0	0.1126	16	AGM	0.007038	107.5
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-FHT1-ETW2-3	C	C2	3	2	100.9	0.1127	16	AGM	0.007044	101.5

Average	**106.2**		**$Average_{norm}$**	**0.007004**	**106.3**
Standard Dev.	**3.372**		**$Standard\ Dev._{norm}$**		**3.508**
Coeff. of Var. [%]	**3.175**		**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**3.302**
Min.	**98.76**		**Min.**	**0.006958**	**99.08**
Max.	**112.1**		**Max.**	**0.007072**	**112.8**
Number of Spec.	**18**		**Number of Spec.**	**18**	**18**


Laminate Filled-Hole Tension Properties (FHT1)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Tension Strength [ksi]
0
20
40
60
80
100
120
0
1
2
3
4

4.21 "10/80/10" Filled-Hole Tension 2 Properties (FHT2)

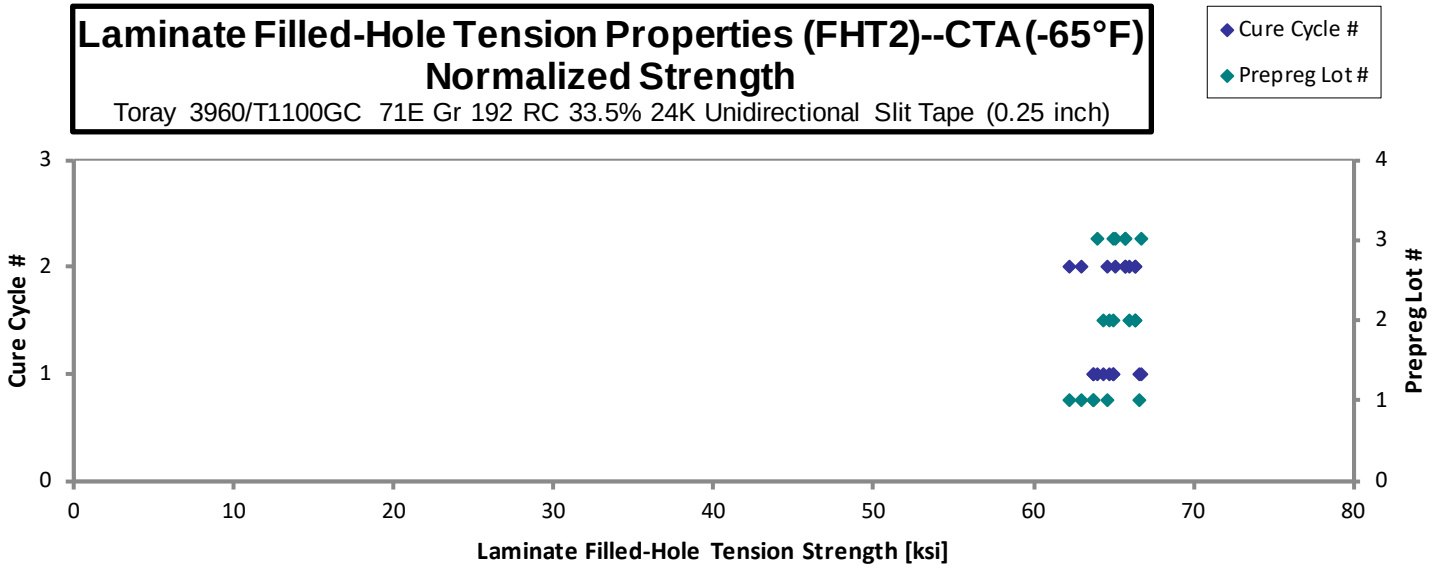
Laminate Filled-Hole Tension Properties (FHT2)--CTA (-65°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHT2-CTA-1	A	C1	1	1	63.69	0.1403	20	AGM	0.007013	63.80
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHT2-CTA-2	A	C1	1	1	63.77	0.1400	20	AGM	0.006998	63.75
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHT2-CTA-3	A	C1	1	1	66.63	0.1399	20	AGM	0.006997	66.60
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHT2-CTA-1	A	C2	1	2	62.36	0.1398	20	AGM	0.006988	62.25
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHT2-CTA-2	A	C2	1	2	64.75	0.1398	20	AGM	0.006988	64.64
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHT2-CTA-3	A	C2	1	2	62.79	0.1405	20	AGM	0.007023	62.99
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHT2-CTA-1	B	C1	2	1	64.50	0.1398	20	AGM	0.006991	64.41
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHT2-CTA-2	B	C1	2	1	65.17	0.1395	20	AGM	0.006975	64.94
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHT2-CTA-3	B	C1	2	1	64.71	0.1400	20	AGM	0.006999	64.71
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHT2-CTA-1	B	C2	2	2	66.67	0.1394	20	AGM	0.006969	66.37
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHT2-CTA-2	B	C2	2	2	66.31	0.1402	20	AGM	0.007011	66.42
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHT2-CTA-3	B	C2	2	2	65.76	0.1406	20	AGM	0.007029	66.04
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHT2-CTA-1	C	C1	3	1	63.16	0.1418	20	AGM	0.007090	63.97
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHT2-CTA-2	C	C1	3	1	64.46	0.1413	20	AGM	0.007064	65.05
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHT2-CTA-3	C	C1	3	1	66.19	0.1412	20	AGM	0.007058	66.74
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHT2-CTA-1	C	C2	3	2	65.41	0.1407	20	AGM	0.007033	65.71
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHT2-CTA-2	C	C2	3	2	64.87	0.1406	20	AGM	0.007028	65.13
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHT2-CTA-3	C	C2	3	2	65.51	0.1406	20	AGM	0.007030	65.79

Average	**64.82**	
Standard Dev.	**1.288**	
Coeff. of Var. [%]	**1.988**	
Min.	**62.36**	
Max.	**66.67**	
Number of Spec.	**18**	

$Average_{norm}$	**0.007016**	**64.96**
Standard $Dev._{norm}$		**1.281**
Coeff. of Var. $[\%]_{norm}$		**1.972**
Min.	**0.006969**	**62.25**
Max.	**0.007090**	**66.74**
Number of Spec.	**18**	**18**

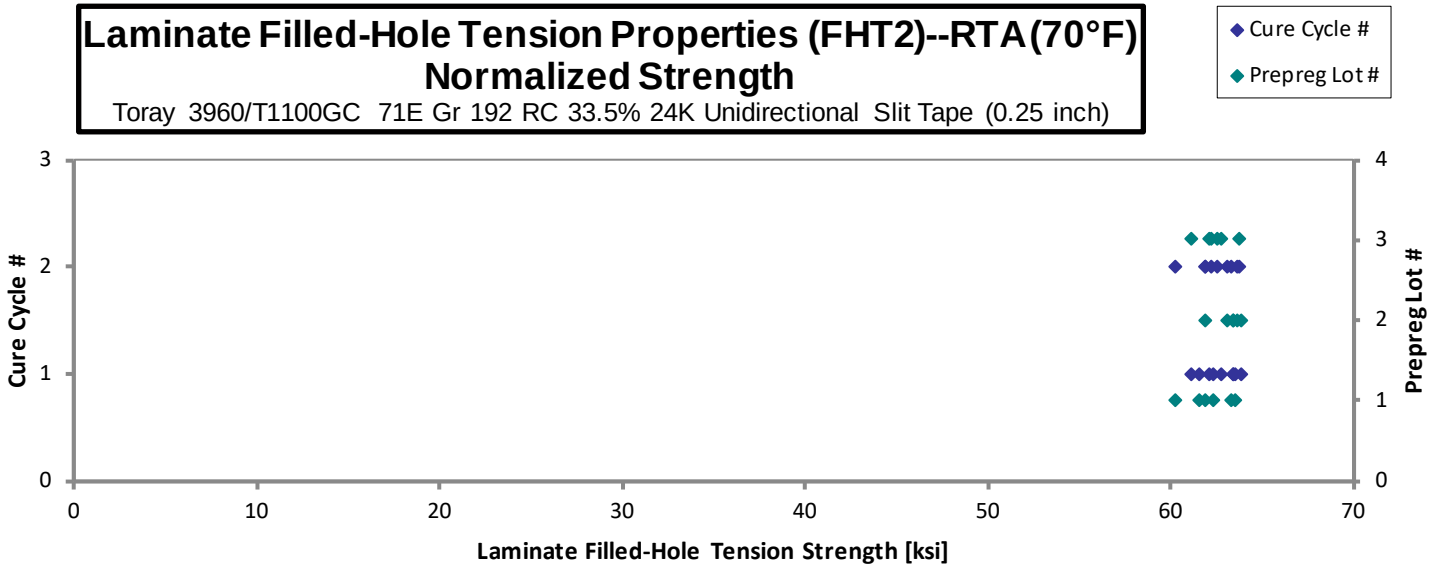

Laminate Filled-Hole Tension Properties (FHT2)--CTA(-65°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Tension Strength [ksi]
0
10
20
30
40
50
60
70
80
0
1
2
3
4

Laminate Filled-Hole Tension Properties (FHT2)--RTA (70°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHT2-RTA-1	A	C1	1	1	62.41	0.1399	20	AGM	0.006994	62.36
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHT2-RTA-2	A	C1	1	1	61.47	0.1401	20	AGM	0.007007	61.53
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHT2-RTA-3	A	C1	1	1	63.32	0.1404	20	AGM	0.007020	63.50
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHT2-RTA-1	A	C2	1	2	60.29	0.1399	20	AGM	0.006996	60.25
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHT2-RTA-2	A	C2	1	2	63.45	0.1398	20	AGM	0.006991	63.37
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHT2-RTA-3	A	C2	1	2	61.91	0.1399	20	AGM	0.006993	61.85
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHT2-RTA-1	B	C1	2	1	63.57	0.1398	20	AGM	0.006988	63.46
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHT2-RTA-2	B	C1	2	1	63.98	0.1397	20	AGM	0.006983	63.83
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHT2-RTA-3	B	C1	2	1	63.44	0.1399	20	AGM	0.006994	63.38
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHT2-RTA-1	B	C2	2	2	62.94	0.1403	20	AGM	0.007013	63.05
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHT2-RTA-2	B	C2	2	2	63.64	0.1400	20	AGM	0.007000	63.64
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHT2-RTA-3	B	C2	2	2	61.81	0.1402	20	AGM	0.007008	61.88
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHT2-RTA-1	C	C1	3	1	62.32	0.1411	20	AGM	0.007056	62.82
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHT2-RTA-2	C	C1	3	1	60.51	0.1413	20	AGM	0.007066	61.08
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHT2-RTA-3	C	C1	3	1	61.55	0.1414	20	AGM	0.007068	62.15
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHT2-RTA-1	C	C2	3	2	61.90	0.1407	20	AGM	0.007037	62.23
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHT2-RTA-2	C	C2	3	2	62.17	0.1410	20	AGM	0.007048	62.59
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHT2-RTA-3	C	C2	3	2	63.29	0.1409	20	AGM	0.007047	63.71

	Strength [ksi]		$Strength_{norm}$ [ksi]
Average	**62.44**	**$Average_{norm}$**	**0.007017**	**62.59**
Standard Dev.	**1.085**	**$Standard\ Dev._{norm}$**		**1.008**
Coeff. of Var. [%]	**1.737**	**Coeff. of Var. $[\%]_{norm}$**		**1.611**
Min.	**60.29**	**Min.**	**0.006983**	**60.25**
Max.	**63.98**	**Max.**	**0.007068**	**63.83**
Number of Spec.	**18**	**Number of Spec.**	**18**	**18**


Laminate Filled-Hole Tension Properties (FHT2)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Tension Strength [ksi]
0
10
20
30
40
50
60
70
0
1
2
3
4

Laminate Filled-Hole Tension Properties (FHT2)--ETW2 (250°F)
Strength

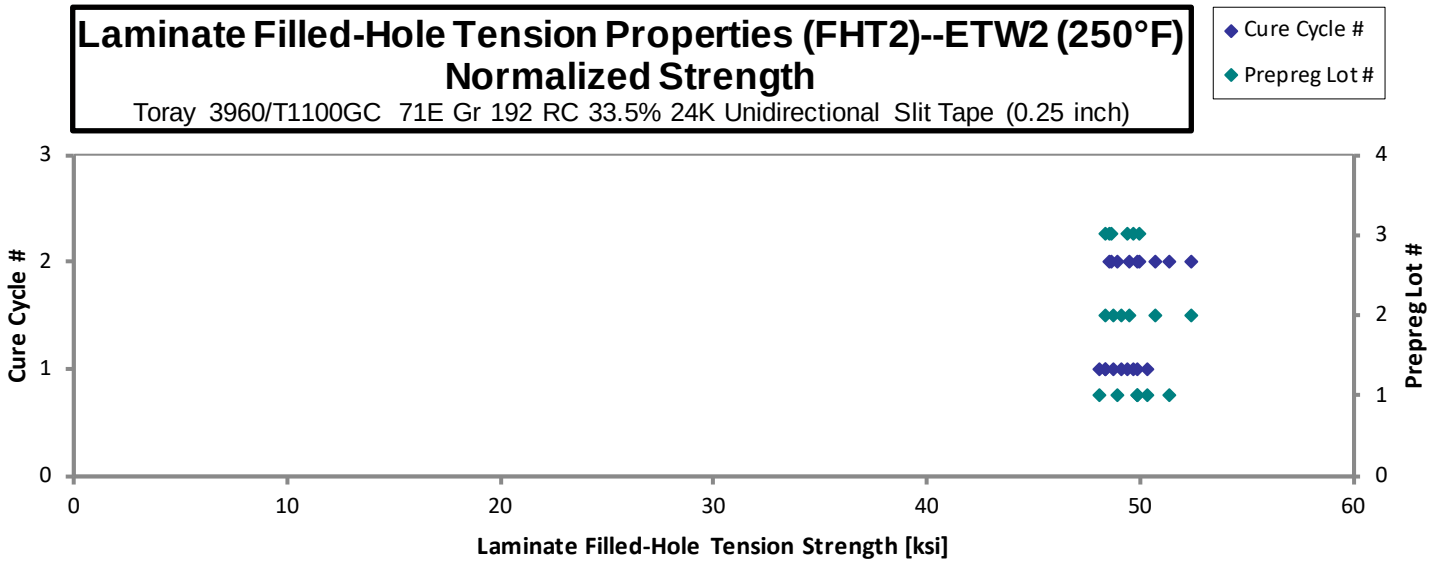
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHT2-ETW2-1	A	C1	1	1	47.97	0.1405	20	AGM	0.007023	48.13
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHT2-ETW2-2	A	C1	1	1	50.09	0.1407	20	AGM	0.007033	50.33
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHT2-ETW2-3	A	C1	1	1	49.89	0.1399	20	AGM	0.006996	49.86
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHT2-ETW2-1	A	C2	1	2	49.92	0.1400	20	AGM	0.006998	49.90
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHT2-ETW2-2	A	C2	1	2	51.52	0.1395	20	AGM	0.006977	51.35
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHT2-ETW2-3	A	C2	1	2	48.91	0.1399	20	AGM	0.006997	48.89
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHT2-ETW2-1	B	C1	2	1	48.83	0.1398	20	AGM	0.006992	48.77
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHT2-ETW2-2	B	C1	2	1	48.50	0.1396	20	AGM	0.006979	48.35
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHT2-ETW2-3	B	C1	2	1	49.26	0.1396	20	AGM	0.006978	49.11
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHT2-ETW2-1	B	C2	2	2	52.38	0.1401	20	AGM	0.007007	52.43
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHT2-ETW2-2	B	C2	2	2	49.53	0.1400	20	AGM	0.007000	49.53
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHT2-ETW2-3	B	C2	2	2	50.60	0.1402	20	AGM	0.007009	50.67
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHT2-ETW2-1	C	C1	3	1	48.92	0.1413	20	AGM	0.007066	49.38
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHT2-ETW2-2	C	C1	3	1	49.19	0.1415	20	AGM	0.007073	49.70
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHT2-ETW2-3	C	C1	3	1	47.81	0.1416	20	AGM	0.007078	48.34
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHT2-ETW2-1	C	C2	3	2	48.33	0.1410	20	AGM	0.007051	48.68
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHT2-ETW2-2	C	C2	3	2	48.00	0.1417	20	AGM	0.007086	48.59
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHT2-ETW2-3	C	C2	3	2	49.44	0.1415	20	AGM	0.007075	49.97

Average	**49.39**	
Standard Dev.	**1.217**	
Coeff. of Var. [%]	**2.463**	
Min.	**47.81**	
Max.	**52.38**	
Number of Spec.	**18**	

$Average_{norm}$	**0.007023**	**49.55**
Standard $Dev._{norm}$		**1.129**
Coeff. of Var. $[\%]_{norm}$		**2.279**
Min.	**0.006977**	**48.13**
Max.	**0.007086**	**52.43**
Number of Spec.	**18**	**18**


Laminate Filled-Hole Tension Properties (FHT2)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
10
20
30
40
50
60
Laminate Filled-Hole Tension Strength [ksi]

4.22 “50/40/10” Filled-Hole Tension 3 Properties (FHT3)

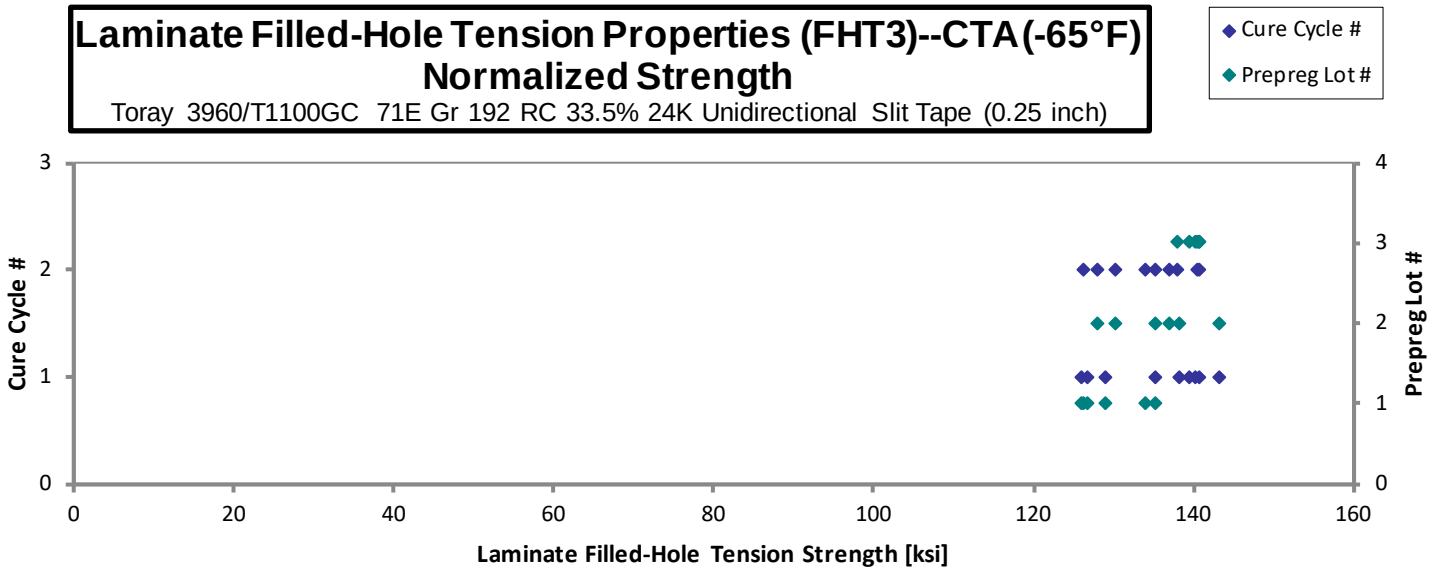
Laminate Filled-Hole Tension Properties (FHT3)--CTA (-65°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHT3-CTA-1	A	C1	1	1	126.1	0.1406	20	AGM	0.007031	126.6
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHT3-CTA-2	A	C1	1	1	127.9	0.1413	20	AGM	0.007065	129.1
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHT3-CTA-3	A	C1	1	1	125.2	0.1410	20	AGM	0.007049	126.0
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHT3-CTA-1	A	C2	1	2	133.0	0.1411	20	AGM	0.007053	134.0
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHT3-CTA-2	A	C2	1	2	134.7	0.1407	20	AGM	0.007033	135.3
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHT3-CTA-3	A	C2	1	2	125.7	0.1406	20	AGM	0.007032	126.3
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHT3-CTA-1	B	C1	2	1	134.7	0.1405	20	AGM	0.007024	135.2
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHT3-CTA-2	B	C1	2	1	144.4	0.1389	20	AGM	0.006943	143.2
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHT3-CTA-3	B	C1	2	1	138.0	0.1401	20	AGM	0.007005	138.1
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHT3-CTA-1	B	C2	2	2	137.2	0.1397	20	M(A,L)GM	0.006985	136.9
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHT3-CTA-2	B	C2	2	2	130.6	0.1396	20	M(A,L)GM	0.006982	130.3
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHT3-CTA-3	B	C2	2	2	128.6	0.1394	20	M(A,L)GM	0.006972	128.1
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHT3-CTA-1	C	C1	3	1	139.1	0.1416	20	AGM	0.007078	140.7
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHT3-CTA-2	C	C1	3	1	139.3	0.1408	20	AGM	0.007042	140.2
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHT3-CTA-3	C	C1	3	1	137.8	0.1416	20	AGM	0.007081	139.4
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHT3-CTA-1	C	C2	3	2	136.8	0.1411	20	AGM	0.007055	137.9
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHT3-CTA-2	C	C2	3	2	140.9	0.1395	20	AGM	0.006974	140.4
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHT3-CTA-3	C	C2	3	2	140.0	0.1408	20	AGM	0.007038	140.8

Average	**134.5**	
Standard Dev.	**5.846**	
Coeff. of Var. [%]	**4.348**	
Min.	**125.2**	
Max.	**144.4**	
Number of Spec.	**18**	

$Average_{norm}$	**0.007025**	**134.9**
$Standard\ Dev._{norm}$		**5.752**
Coeff. of Var. $[\%]_{norm}$		**4.263**
Min.	**0.006943**	**126.0**
Max.	**0.007081**	**143.2**
Number of Spec.	**18**	**18**


Laminate Filled-Hole Tension Properties (FHT3)--CTA (-65°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Tension Strength [ksi]
0
20
40
60
80
100
120
140
160
0
1
2
3
4

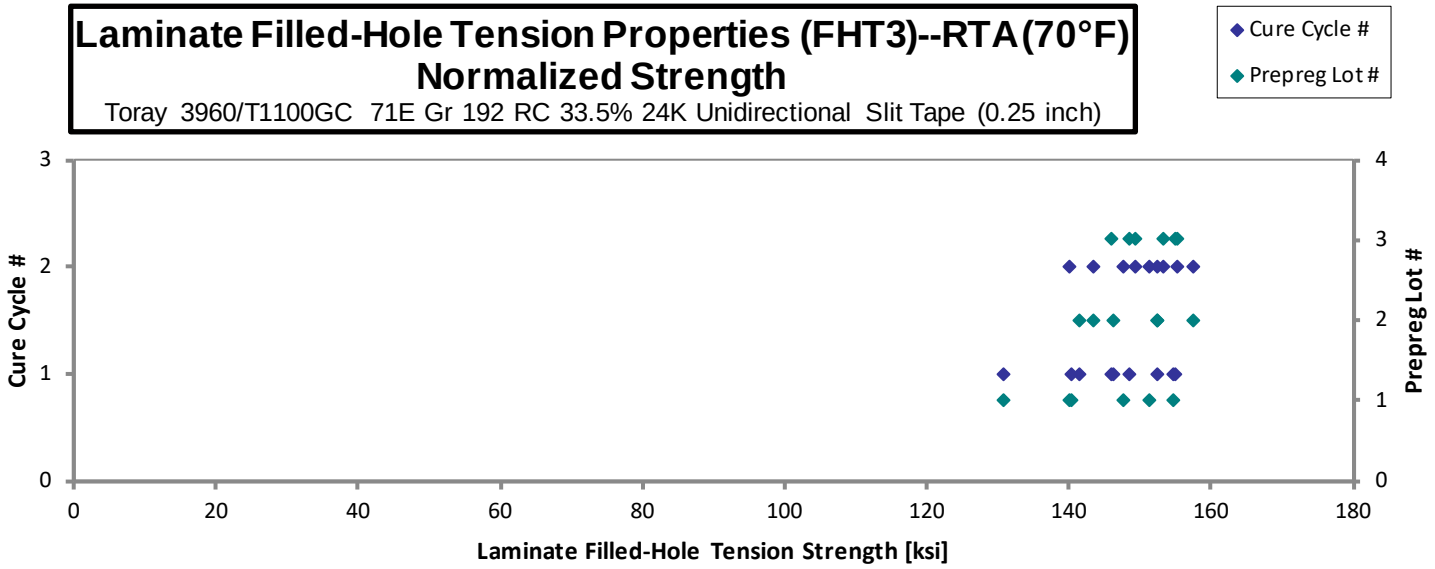
Laminate Filled-Hole Tension Properties (FHT3)--RTA (70°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHT3-RTA-1	A	C1	1	1	129.3	0.1416	20	AGM	0.007079	130.8
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHT3-RTA-2	A	C1	1	1	139.2	0.1413	20	AGM	0.007064	140.4
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHT3-RTA-3	A	C1	1	1	153.3	0.1412	20	AGM	0.007060	154.6
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHT3-RTA-1	A	C2	1	2	147.0	0.1407	20	M(A,L)GM	0.007037	147.8
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHT3-RTA-2	A	C2	1	2	150.3	0.1409	20	M(A,L)GM	0.007046	151.3
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHT3-RTA-3	A	C2	1	2	139.3	0.1407	20	M(A,L)GM	0.007033	139.9
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHT3-RTA-1	B	C1	2	1	152.9	0.1395	20	M(A,L)GM	0.006977	152.3
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHT3-RTA-2	B	C1	2	1	142.1	0.1394	20	M(A,L)GM	0.006971	141.5
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHT3-RTA-3	B	C1	2	1	146.7	0.1396	20	M(A,L)GM	0.006978	146.3
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHT3-RTA-1	B	C2	2	2	158.0	0.1397	20	M(A,L)GM	0.006983	157.6
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHT3-RTA-2	B	C2	2	2	152.6	0.1399	20	M(A,L)GM	0.006994	152.5
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHT3-RTA-3	B	C2	2	2	144.1	0.1395	20	M(A,L)GM	0.006975	143.5
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHT3-RTA-1	C	C1	3	1	153.3	0.1415	20	M(A,L)GM	0.007075	154.9
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHT3-RTA-2	C	C1	3	1	142.8	0.1432	20	M(A,L)GM	0.007159	146.0
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHT3-RTA-3	C	C1	3	1	145.5	0.1430	20	M(A,L)GM	0.007148	148.6
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHT3-RTA-1	C	C2	3	2	152.8	0.1405	20	M(A,L)GM	0.007026	153.3
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHT3-RTA-2	C	C2	3	2	154.8	0.1404	20	M(A,L)GM	0.007019	155.2
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHT3-RTA-3	C	C2	3	2	148.9	0.1403	20	M(A,L)GM	0.007015	149.3

Average	**147.4**		**Average$_{norm}$**	**0.007035**	**148.1**
Standard Dev.	**7.109**		**Standard Dev.$_{norm}$**		**6.879**
Coeff. of Var. [%]	**4.823**		**Coeff. of Var. [%]$_{norm}$**		**4.644**
Min.	**129.3**		**Min.**	**0.006971**	**130.8**
Max.	**158.0**		**Max.**	**0.007159**	**157.6**
Number of Spec.	**18**		**Number of Spec.**	**18**	**18**


Laminate Filled-Hole Tension Properties (FHT3)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Tension Strength [ksi]
0
20
40
60
80
100
120
140
160
180
0
1
2
3
4

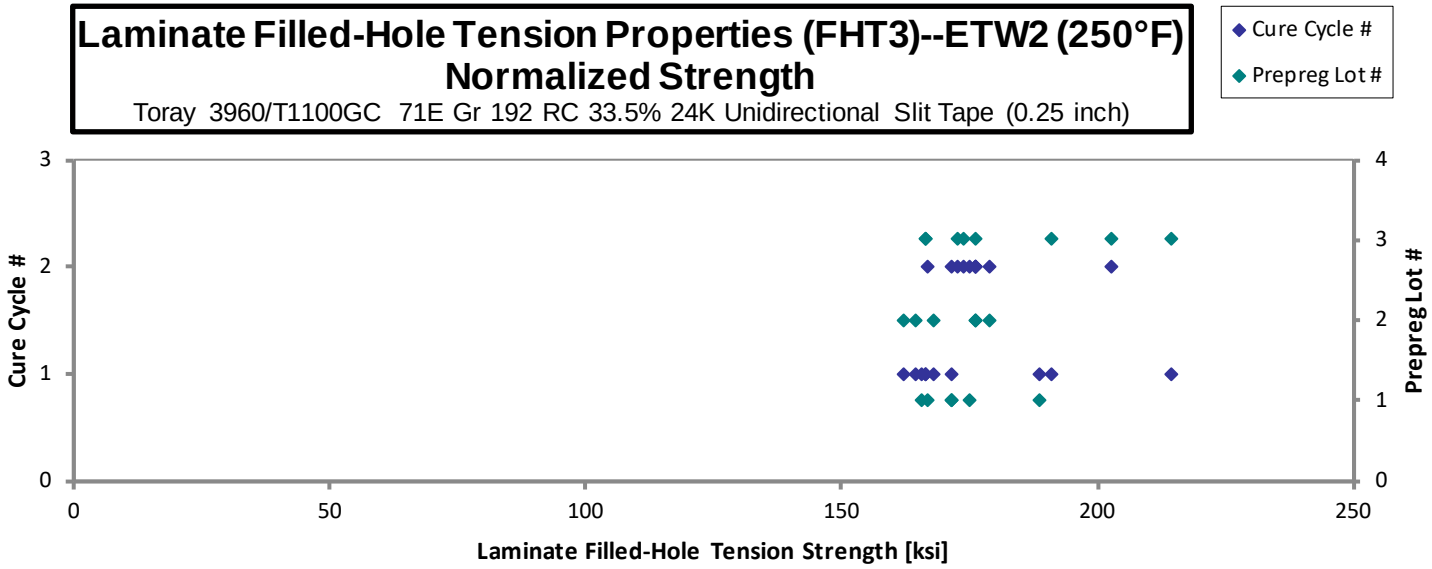
Laminate Filled-Hole Tension Properties (FHT3)--ETW2 (250°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHT3-ETW2-1	A	C1	1	1	164.4	0.1409	20	AGM	0.007046	165.5
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHT3-ETW2-2	A	C1	1	1	170.2	0.1411	20	M(A,L)GM	0.007053	171.5
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHT3-ETW2-3	A	C1	1	1	187.5	0.1409	20	M(A,S)GM	0.007044	188.7
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHT3-ETW2-1	A	C2	1	2	170.3	0.1408	20	AGM	0.007042	171.3
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHT3-ETW2-2	A	C2	1	2	174.2	0.1405	20	AGM	0.007024	174.8
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHT3-ETW2-3	A	C2	1	2	166.2	0.1406	20	AGM	0.007029	166.9
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHT3-ETW2-1	B	C1	2	1	168.2	0.1400	20	AGM	0.006998	168.2
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHT3-ETW2-2	B	C1	2	1	164.6	0.1398	20	AGM	0.006990	164.4
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHT3-ETW2-3	B	C1	2	1	162.8	0.1394	20	AGM	0.006969	162.1
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHT3-ETW2-1	B	C2	2	2	179.4	0.1396	20	AGM	0.006981	178.9
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHT3-ETW2-2	B	C2	2	2	177.2	0.1393	20	AGM	0.006963	176.3
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHT3-ETW2-3	B	C2	2	2	176.6	0.1397	20	AGM	0.006985	176.3
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHT3-ETW2-1	C	C1	3	1	165.4	0.1410	20	AGM	0.007048	166.6
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHT3-ETW2-2	C	C1	3	1	212.3	0.1415	20	XGM	0.007073	214.5
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHT3-ETW2-3	C	C1	3	1	189.1	0.1415	20	AGM	0.007074	191.1
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHT3-SP-5	C	C1	3	1	165.6	0.1405	20	AGM	0.007026	166.2
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHT3-ETW2-1	C	C2	3	2	201.7	0.1407	20	DGM	0.007034	202.7
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHT3-ETW2-2	C	C2	3	2	172.3	0.1404	20	AGM	0.007020	172.8
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHT3-ETW2-3	C	C2	3	2	176.0	0.1401	20	AGM	0.007006	176.1
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHT3-SP-5	C	C2	3	2	173.0	0.1407	20	AGM	0.007034	173.8

Average	**175.9**		**$Average_{norm}$**	**0.007022**	**176.4**
Standard Dev.	**12.98**		**Standard $Dev._{norm}$**		**13.41**
Coeff. of Var. [%]	**7.380**		**Coeff. of Var. $[\%]_{norm}$**		**7.600**
Min.	**162.8**		**Min.**	**0.006963**	**162.1**
Max.	**212.3**		**Max.**	**0.007074**	**214.5**
Number of Spec.	**20**		**Number of Spec.**	**20**	**20**


Laminate Filled-Hole Tension Properties (FHT3)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
50
100
150
200
250
Laminate Filled-Hole Tension Strength [ksi]

4.23 “25/50/25” Open-Hole Compression 1 Properties (OHC1)

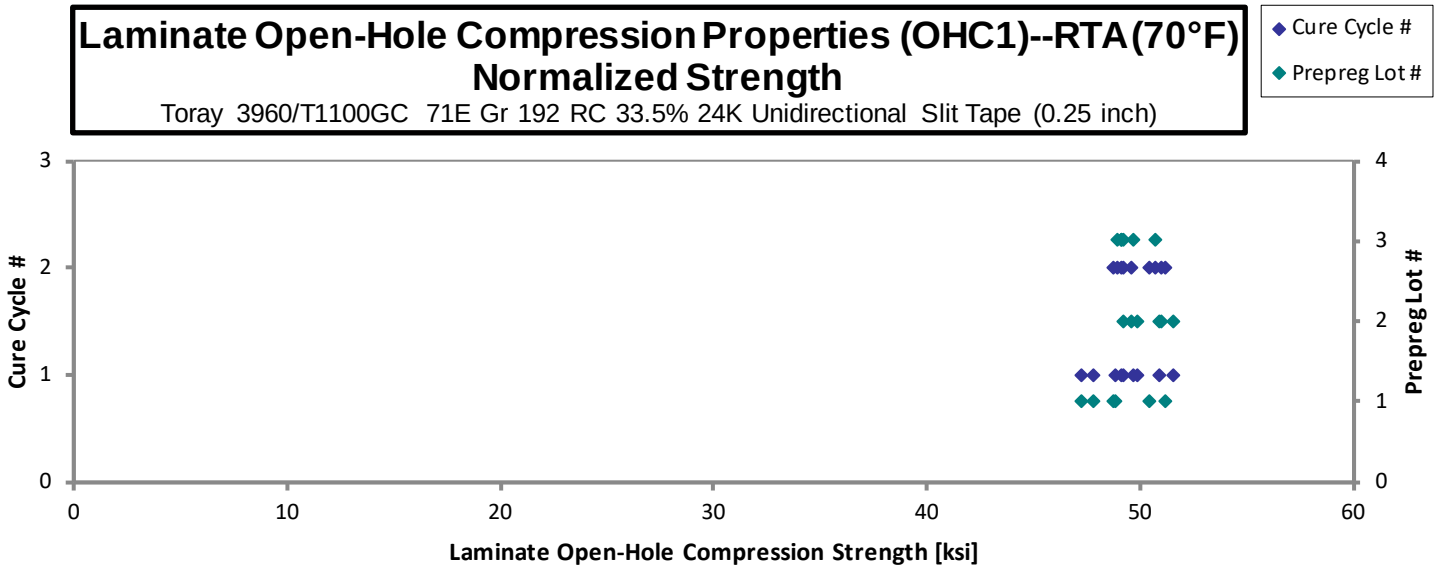
Laminate Open-Hole Compression Properties (OHC1)--RTA (70°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-OHC1-RTA-1	A	C1	1	1	47.93	0.1677	24	LGM	0.006989	47.85
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-OHC1-RTA-2	A	C1	1	1	48.36	0.1641	24	LGM	0.006838	47.24
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-OHC1-RTA-3	A	C1	1	1	49.74	0.1649	24	LGM	0.006871	48.83
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-OHC1-RTA-1	A	C2	1	2	51.05	0.1686	24	LGM	0.007024	51.22
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-OHC1-RTA-2	A	C2	1	2	51.03	0.1660	24	LGM	0.006918	50.43
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-OHC1-RTA-3	A	C2	1	2	48.92	0.1675	24	LGM	0.006978	48.77
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-OHC1-RTA-1	B	C1	2	1	51.30	0.1690	24	LGM	0.007040	51.59
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-OHC1-RTA-2	B	C1	2	1	50.95	0.1679	24	M(A,L)GM	0.006997	50.93
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-OHC1-RTA-3	B	C1	2	1	49.90	0.1679	24	M(A,L)GM	0.006994	49.86
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-OHC1-RTA-1	B	C2	2	2	49.87	0.1671	24	LGM	0.006963	49.61
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-OHC1-RTA-2	B	C2	2	2	49.37	0.1674	24	LGM	0.006976	49.20
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-OHC1-RTA-3	B	C2	2	2	51.31	0.1669	24	LGM	0.006953	50.97
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-OHC1-RTA-1	C	C1	3	1	49.12	0.1680	24	M(A,L)GM	0.007001	49.12
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-OHC1-RTA-2	C	C1	3	1	48.98	0.1689	24	M(A,L)GM	0.007038	49.25
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-OHC1-RTA-3	C	C1	3	1	49.73	0.1680	24	M(A,L)GM	0.007000	49.73
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-OHC1-RTA-1	C	C2	3	2	50.59	0.1685	24	M(A,L)GM	0.007022	50.75
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-OHC1-RTA-2	C	C2	3	2	48.65	0.1690	24	M(A,L)GM	0.007042	48.94
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-OHC1-RTA-3	C	C2	3	2	49.03	0.1683	24	M(A,L)GM	0.007013	49.12

Average	**49.77**	
Standard Dev.	**1.061**	
Coeff. of Var. [%]	**2.131**	
Min.	**47.93**	
Max.	**51.31**	
Number of Spec.	**18**	

$Average_{norm}$	**0.006981**	**49.63**
$Standard\ Dev._{norm}$		**1.173**
Coeff. of Var. [%]$_{norm}$		**2.363**
Min.	**0.006838**	**47.24**
Max.	**0.007042**	**51.59**
Number of Spec.	**18**	**18**


Laminate Open-Hole Compression Properties (OHC1)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
10
20
30
40
50
60
Laminate Open-Hole Compression Strength [ksi]

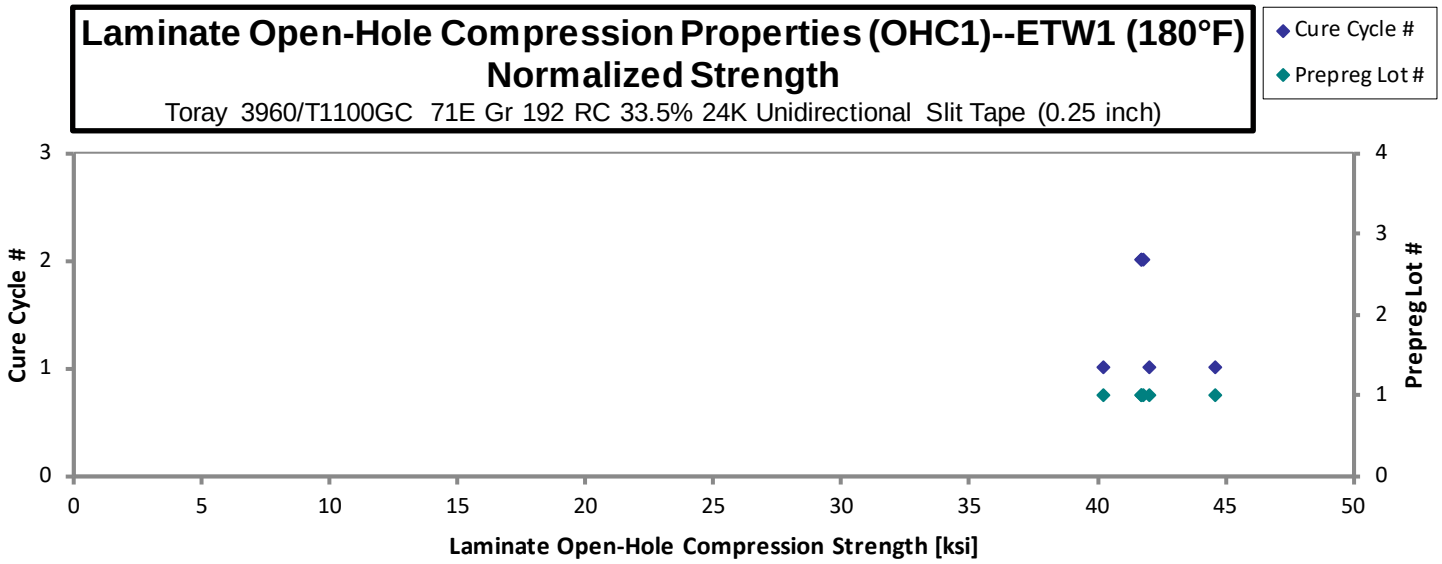
Laminate Open-Hole Compression Properties (OHC1)--ETW1 (180°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-OHC1-ETW1-1	A	C1	1	1	42.62	0.1657	24	LGM	0.006903	42.03
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-OHC1-ETW1-2	A	C1	1	1	45.38	0.1652	24	LGM	0.006883	44.62
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-OHC1-ETW1-3	A	C1	1	1	40.88	0.1653	24	LGM	0.006887	40.22
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-OHC1-ETW1-1	A	C2	1	2	41.90	0.1672	24	LGM	0.006966	41.70
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-OHC1-ETW1-2	A	C2	1	2	42.03	0.1668	24	LGM	0.006948	41.72
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-OHC1-ETW1-3	A	C2	1	2	42.07	0.1670	24	LGM	0.006960	41.83

Average	**42.48**		**Average$_{norm}$**	**0.006924**	**42.02**
Standard Dev.	**1.530**		**Standard Dev.$_{norm}$**		**1.431**
Coeff. of Var. [%]	**3.602**		**Coeff. of Var. [%]$_{norm}$**		**3.406**
Min.	**40.88**		**Min.**	**0.006883**	**40.22**
Max.	**45.38**		**Max.**	**0.006966**	**44.62**
Number of Spec.	**6**		**Number of Spec.**	**6**	**6**


Laminate Open-Hole Compression Properties (OHC1)--ETW1 (180°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Compression Strength [ksi]
0
1
2
3
0
5
10
15
20
25
30
35
40
45
50
4

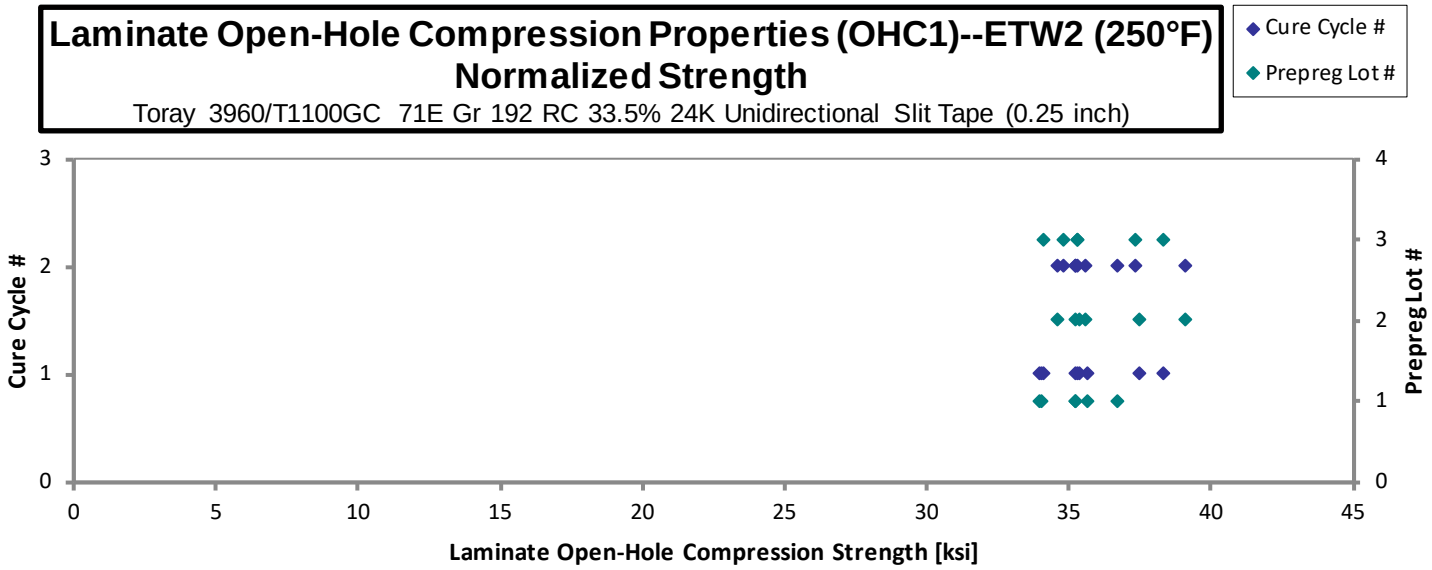
Laminate Open-Hole Compression Properties (OHC1)--ETW2 (250°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-OHC1-ETW2-1	A	C1	1	1	34.53	0.1653	24	LGM	0.006887	33.97
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-OHC1-ETW2-2	A	C1	1	1	34.65	0.1651	24	LGM	0.006879	34.06
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-OHC1-ETW2-3	A	C1	1	1	36.27	0.1652	24	LGM	0.006882	35.66
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-OHC1-ETW2-1	A	C2	1	2	35.48	0.1668	24	LGM	0.006951	35.23
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-OHC1-ETW2-2	A	C2	1	2	36.91	0.1671	24	LGM	0.006962	36.71
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-OHC1-ETW2-3	A	C2	1	2	35.40	0.1671	24	LGM	0.006961	35.20
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-OHC1-ETW2-1	B	C1	2	1	37.51	0.1680	24	LGM	0.006999	37.51
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-OHC1-ETW2-2	B	C1	2	1	35.10	0.1685	24	LGM	0.007019	35.19
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-OHC1-ETW2-3	B	C1	2	1	35.30	0.1682	24	LGM	0.007009	35.34
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-OHC1-ETW2-1	B	C2	2	2	39.36	0.1669	24	LGM	0.006952	39.09
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-OHC1-ETW2-2	B	C2	2	2	34.70	0.1674	24	LGM	0.006975	34.58
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-OHC1-ETW2-3	B	C2	2	2	35.79	0.1671	24	LGM	0.006962	35.59
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-OHC1-ETW2-1	C	C1	3	1	38.27	0.1682	24	LGM	0.007008	38.31
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-OHC1-ETW2-2	C	C1	3	1	33.86	0.1691	24	LGM	0.007044	34.07
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-OHC1-ETW2-3	C	C1	3	1	35.27	0.1682	24	LGM	0.007007	35.31
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-OHC1-ETW2-1	C	C2	3	2	35.27	0.1682	24	LGM	0.007009	35.31
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-OHC1-ETW2-2	C	C2	3	2	34.76	0.1682	24	LGM	0.007008	34.80
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-OHC1-ETW2-3	C	C2	3	2	37.21	0.1685	24	LGM	0.007020	37.31

Average	**35.87**		**$Average_{norm}$**	**0.006974**	**35.74**
Standard Dev.	**1.448**		**$Standard\ Dev._{norm}$**		**1.471**
Coeff. of Var. [%]	**4.036**		**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**4.116**
Min.	**33.86**		**Min.**	**0.006879**	**33.97**
Max.	**39.36**		**Max.**	**0.007044**	**39.09**
Number of Spec.	**18**		**Number of Spec.**	**18**	**18**


Laminate Open-Hole Compression Properties (OHC1)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Compression Strength [ksi]
0
5
10
15
20
25
30
35
40
45
0
1
2
3
4

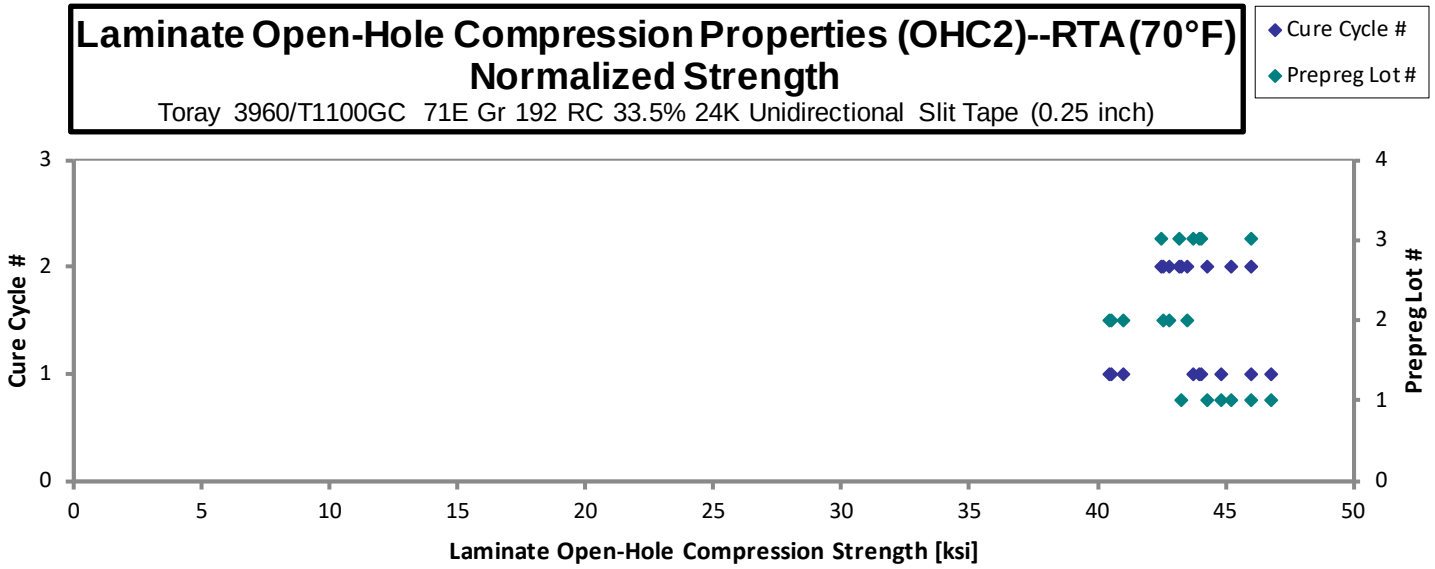
4.24 “10/80/10” Open-Hole Compression 2 Properties (OHC2)

Laminate Open-Hole Compression Properties (OHC2)--RTA (70°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHC2-RTA-1	A	C1	1	1	46.19	0.1393	20	M(A,L)GM	0.006966	45.97
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHC2-RTA-2	A	C1	1	1	45.16	0.1391	20	M(A,L)GM	0.006954	44.86
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHC2-RTA-3	A	C1	1	1	46.52	0.1407	20	M(A,L)GM	0.007037	46.76
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHC2-RTA-1	A	C2	1	2	45.54	0.1390	20	M(A,L)GM	0.006952	45.23
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHC2-RTA-2	A	C2	1	2	44.40	0.1396	20	M(A,L)GM	0.006978	44.26
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHC2-RTA-3	A	C2	1	2	43.41	0.1396	20	M(A,L)GM	0.006979	43.28
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHC2-RTA-1	B	C1	2	1	40.93	0.1402	20	M(A,L)GM	0.007011	40.99
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHC2-RTA-2	B	C1	2	1	40.70	0.1394	20	M(A,L)GM	0.006968	40.52
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHC2-RTA-3	B	C1	2	1	40.39	0.1402	20	M(A,L)GM	0.007011	40.45
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHC2-RTA-1	B	C2	2	2	42.48	0.1411	20	M(A,L)GM	0.007053	42.80
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHC2-RTA-2	B	C2	2	2	43.52	0.1400	20	M(A,L)GM	0.006998	43.51
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHC2-RTA-3	B	C2	2	2	42.44	0.1405	20	M(A,L)GM	0.007023	42.58
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHC2-RTA-1	C	C1	3	1	43.24	0.1416	20	M(A,L)GM	0.007078	43.72
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHC2-RTA-2	C	C1	3	1	43.59	0.1413	20	M(A,L)GM	0.007064	43.99
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHC2-RTA-3	C	C1	3	1	43.71	0.1411	20	M(A,L)GM	0.007057	44.06
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHC2-RTA-1	C	C2	3	2	42.06	0.1414	20	M(A,L)GM	0.007072	42.49
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHC2-RTA-2	C	C2	3	2	45.73	0.1410	20	M(A,L)GM	0.007048	46.04
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHC2-RTA-3	C	C2	3	2	42.93	0.1409	20	M(A,L)GM	0.007046	43.21

	Strength [ksi]		$Strength_{norm}$ [ksi]
Average	**43.50**	**$Average_{norm}$**	**0.007016**	**43.60**
Standard Dev.	**1.846**	**$Standard\ Dev._{norm}$**		**1.815**
Coeff. of Var. [%]	**4.243**	**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**4.164**
Min.	**40.39**	**Min.**	**0.006952**	**40.45**
Max.	**46.52**	**Max.**	**0.007078**	**46.76**
Number of Spec.	**18**	**Number of Spec.**	**18**	**18**


Laminate Open-Hole Compression Properties (OHC2)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Compression Strength [ksi]
0
1
2
3
4
0
5
10
15
20
25
30
35
40
45
50

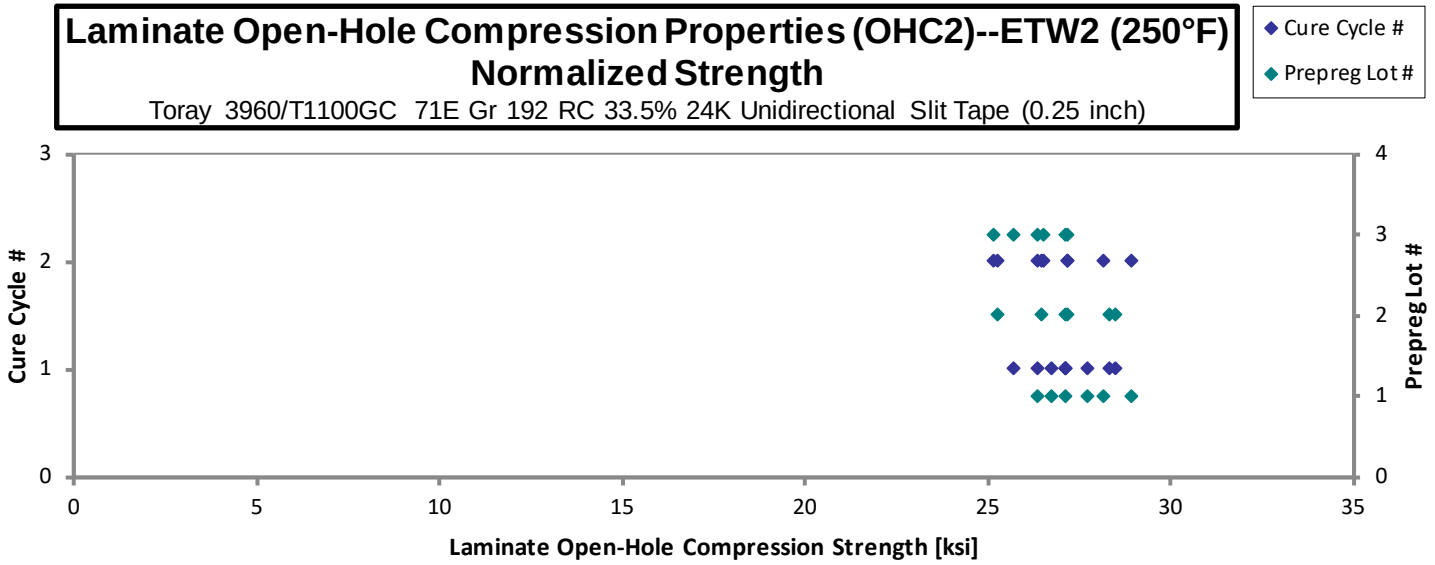
Laminate Open-Hole Compression Properties (OHC2)--ETW2 (250°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHC2-ETW2-1	A	C1	1	1	26.86	0.1395	20	AGM	0.006973	26.75
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHC2-ETW2-2	A	C1	1	1	27.88	0.1393	20	AGM	0.006963	27.73
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-OHC2-ETW2-3	A	C1	1	1	27.18	0.1396	20	AGM	0.006978	27.10
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHC2-ETW2-1	A	C2	1	2	29.06	0.1394	20	M(A,L)GM	0.006970	28.94
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHC2-ETW2-2	A	C2	1	2	28.14	0.1402	20	M(A,L)GM	0.007008	28.17
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-OHC2-ETW2-3	A	C2	1	2	26.45	0.1395	20	M(A,L)GM	0.006973	26.35
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHC2-ETW2-1	B	C1	2	1	28.31	0.1409	20	M(A,L)GM	0.007043	28.48
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHC2-ETW2-2	B	C1	2	1	27.13	0.1400	20	M(A,L)GM	0.006999	27.12
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHC2-ETW2-3	B	C1	2	1	28.37	0.1399	20	M(A,L)GM	0.006993	28.34
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHC2-ETW2-1	B	C2	2	2	26.47	0.1399	20	M(A,L)GM	0.006997	26.45
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHC2-ETW2-2	B	C2	2	2	27.19	0.1399	20	M(A,L)GM	0.006995	27.17
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHC2-ETW2-3	B	C2	2	2	25.20	0.1403	20	M(A,L)GM	0.007015	25.26
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHC2-ETW2-1	C	C1	3	1	26.85	0.1415	20	M(A,L)GM	0.007073	27.13
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHC2-ETW2-2	C	C1	3	1	26.05	0.1416	20	AGM	0.007078	26.34
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-OHC2-ETW2-3	C	C1	3	1	25.43	0.1415	20	M(A,L)GM	0.007073	25.69
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHC2-ETW2-1	C	C2	3	2	26.99	0.1410	20	M(A,L)GM	0.007048	27.18
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHC2-ETW2-2	C	C2	3	2	24.97	0.1409	20	M(A,L)GM	0.007046	25.13
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHC2-ETW2-3	C	C2	3	2	26.29	0.1412	20	M(A,L)GM	0.007060	26.52

	Strength [ksi]		$Strength_{norm}$ [ksi]
Average	**26.93**	**$Average_{norm}$**	**0.007016**	**26.99**
Standard Dev.	**1.132**	**$Standard\ Dev._{norm}$**		**1.069**
Coeff. of Var. [%]	**4.202**	**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**3.962**
Min.	**24.97**	**Min.**	**0.006963**	**25.13**
Max.	**29.06**	**Max.**	**0.007078**	**28.94**
Number of Spec.	**18**	**Number of Spec.**	**18**	**18**


Laminate Open-Hole Compression Properties (OHC2)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Compression Strength [ksi]
0
1
2
3
4
5
10
15
20
25
30
35

4.25 “50/40/10” Open-Hole Compression 3 Properties (OHC3)

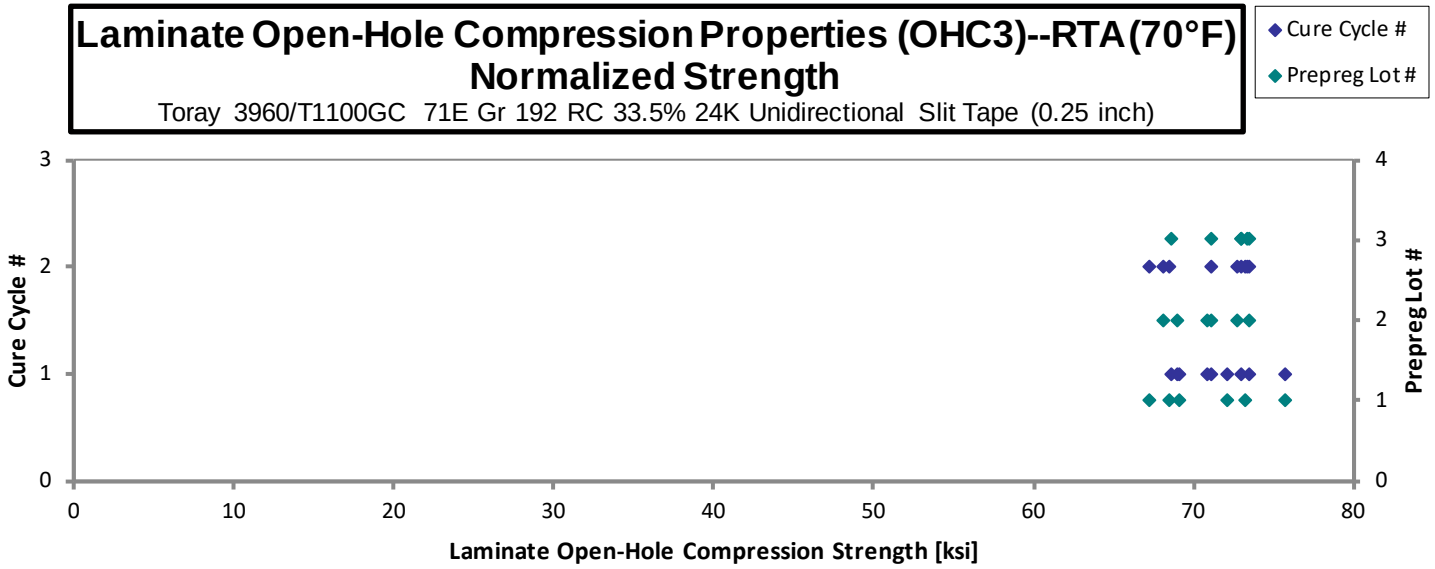
Laminate Open-Hole Compression Properties (OHC3)--RTA (70°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHC3-RTA-1	A	C1	1	1	75.40	0.1407	20	M(A,L)GM	0.007034	75.77
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHC3-RTA-2	A	C1	1	1	72.17	0.1400	20	M(A,L)GM	0.007000	72.17
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHC3-RTA-3	A	C1	1	1	68.94	0.1405	20	M(A,L)GM	0.007023	69.17
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHC3-RTA-1	A	C2	1	2	68.56	0.1399	20	M(A,L)GM	0.006995	68.52
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHC3-RTA-2	A	C2	1	2	73.28	0.1399	20	M(A,L)GM	0.006993	73.20
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHC3-RTA-3	A	C2	1	2	67.08	0.1404	20	M(A,L)GM	0.007022	67.28
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHC3-RTA-1	B	C1	2	1	69.31	0.1394	20	M(A,L)GM	0.006970	69.01
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHC3-RTA-2	B	C1	2	1	71.10	0.1400	20	M(A,L)GM	0.007001	71.10
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHC3-RTA-3	B	C1	2	1	70.53	0.1406	20	M(A,L)GM	0.007028	70.81
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHC3-RTA-1	B	C2	2	2	68.59	0.1392	20	M(A,L)GM	0.006958	68.18
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHC3-RTA-2	B	C2	2	2	74.07	0.1389	20	M(A,L)GM	0.006945	73.49
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHC3-RTA-3	B	C2	2	2	73.09	0.1393	20	M(A,L)GM	0.006963	72.70
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHC3-RTA-1	C	C1	3	1	67.56	0.1421	20	M(A,L)GM	0.007107	68.59
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHC3-RTA-2	C	C1	3	1	73.16	0.1407	20	M(A,L)GM	0.007033	73.50
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHC3-RTA-3	C	C1	3	1	72.26	0.1414	20	M(A,L)GM	0.007071	72.99
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHC3-RTA-1	C	C2	3	2	70.92	0.1440	20	M(A,L)GM	0.007198	72.93
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHC3-RTA-2	C	C2	3	2	70.50	0.1412	20	M(A,L)GM	0.007058	71.08
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHC3-RTA-3	C	C2	3	2	72.19	0.1423	20	M(A,L)GM	0.007117	73.40

Average	**71.04**	
Standard Dev.	**2.351**	
Coeff. of Var. [%]	**3.309**	
Min.	**67.08**	
Max.	**75.40**	
Number of Spec.	**18**	

$Average_{norm}$	**0.007028**	**71.33**
Standard $Dev._{norm}$		**2.388**
Coeff. of $Var._{norm}$ [%]		**3.348**
Min.	**0.006945**	**67.28**
Max.	**0.007198**	**75.77**
Number of Spec.	**18**	**18**


Laminate Open-Hole Compression Properties (OHC3)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Compression Strength [ksi]
0
10
20
30
40
50
60
70
80
0
1
2
3
4

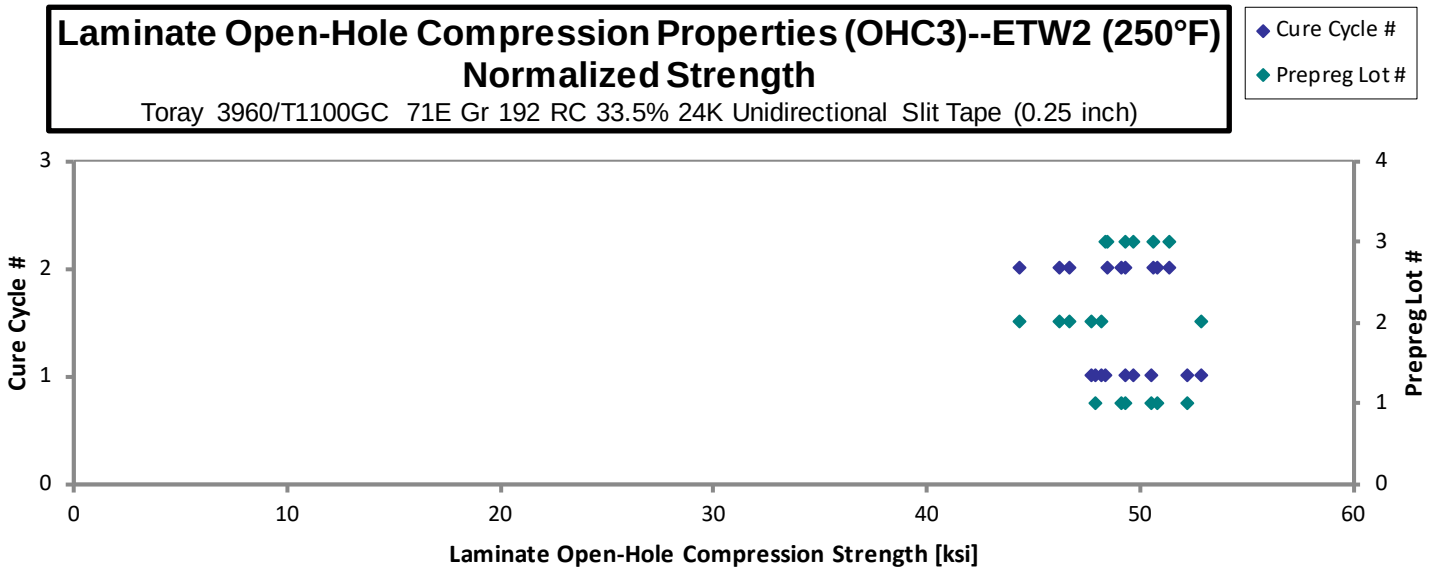
Laminate Open-Hole Compression Properties (OHC3)--ETW2 (250°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHC3-ETW2-1	A	C1	1	1	50.39	0.1403	20	LGM	0.007013	50.49
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHC3-ETW2-2	A	C1	1	1	47.72	0.1405	20	LGM	0.007026	47.90
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHC3-ETW2-3	A	C1	1	1	51.98	0.1406	20	LGM	0.007030	52.21
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHC3-ETW2-1	A	C2	1	2	50.76	0.1401	20	LGM	0.007005	50.80
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHC3-ETW2-2	A	C2	1	2	49.39	0.1398	20	LGM	0.006990	49.32
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-OHC3-ETW2-3	A	C2	1	2	49.10	0.1402	20	LGM	0.007008	49.16
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHC3-ETW2-1	B	C1	2	1	48.17	0.1400	20	LGM	0.007001	48.17
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHC3-ETW2-2	B	C1	2	1	52.68	0.1404	20	LGM	0.007021	52.83
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-OHC3-ETW2-3	B	C1	2	1	47.51	0.1405	20	LGM	0.007026	47.69
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHC3-ETW2-1	B	C2	2	2	46.48	0.1392	20	LGM	0.006959	46.21
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHC3-ETW2-2	B	C2	2	2	44.48	0.1395	20	LGM	0.006976	44.32
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHC3-ETW2-3	B	C2	2	2	46.83	0.1395	20	LGM	0.006973	46.65
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHC3-ETW2-1	C	C1	3	1	48.03	0.1410	20	M(A,L)GM	0.007052	48.38
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHC3-ETW2-2	C	C1	3	1	48.93	0.1412	20	LGM	0.007059	49.34
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHC3-ETW2-3	C	C1	3	1	49.34	0.1411	20	LGM	0.007054	49.72
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHC3-ETW2-1	C	C2	3	2	49.93	0.1419	20	LGM	0.007095	50.60
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHC3-ETW2-2	C	C2	3	2	47.73	0.1420	20	LGM	0.007101	48.42
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-OHC3-ETW2-3	C	C2	3	2	50.61	0.1421	20	LGM	0.007107	51.38

	Strength [ksi]		$Strength_{norm}$ [ksi]
Average	**48.89**	**Average$_{norm}$**	**0.007028**	**49.09**
Standard Dev.	**2.024**	**Standard Dev.$_{norm}$**		**2.153**
Coeff. of Var. [%]	**4.139**	**Coeff. of Var. [%]$_{norm}$**		**4.386**
Min.	**44.48**	**Min.**	**0.006959**	**44.32**
Max.	**52.68**	**Max.**	**0.007107**	**52.83**
Number of Spec.	**18**	**Number of Spec.**	**18**	**18**


Laminate Open-Hole Compression Properties (OHC3)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Open-Hole Compression Strength [ksi]
0
10
20
30
40
50
60
0
1
2
3
4

4.26 “25/50/25” Filled-Hole Compression 1 Properties (FHC1)

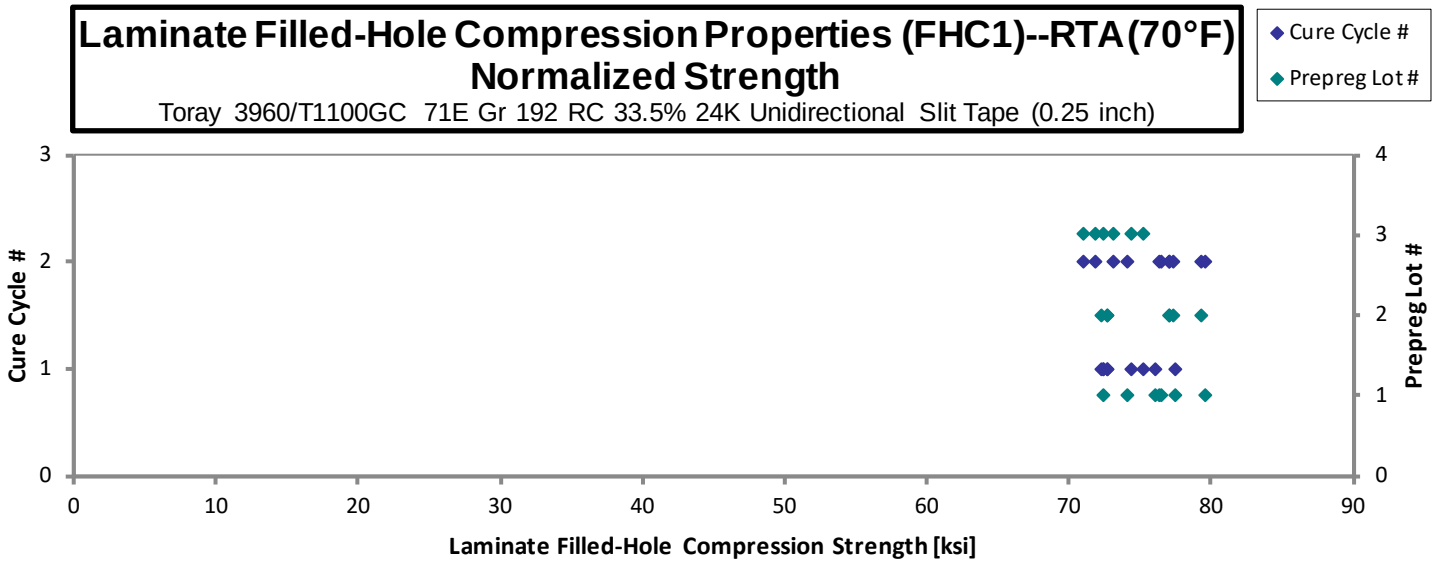
Laminate Filled-Hole Compression Properties (FHC1)--RTA (70°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-FHC1-RTA-1	A	C1	1	1	76.28	0.1674	24	LGO, LGF	0.006974	76.00
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-FHC1-RTA-2	A	C1	1	1	74.18	0.1640	24	LGO, LGF	0.006831	72.39
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-FHC1-RTA-3	A	C1	1	1	78.58	0.1657	24	LGF	0.006902	77.48
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-FHC1-RTA-1	A	C2	1	2	73.62	0.1691	24	LGO, LGF	0.007044	74.09
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-FHC1-RTA-2	A	C2	1	2	75.90	0.1691	24	LGO, LGF	0.007044	76.38
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-FHC1-RTA-3	A	C2	1	2	79.59	0.1680	24	LGO, LGF	0.006999	79.57
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-FHC1-SP-1	A	C2	1	2	76.60	0.1678	24	LGF	0.006990	76.50
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-FHC1-RTA-1	B	C1	2	1	72.07	0.1685	24	LGF	0.007019	72.27
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-FHC1-RTA-2	B	C1	2	1	72.56	0.1683	24	LGF	0.007011	72.67
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-FHC1-RTA-3	B	C1	2	1	72.64	0.1682	24	LGF	0.007009	72.73
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-FHC1-RTA-1	B	C2	2	2	77.58	0.1674	24	M(A,L)GF	0.006974	77.30
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-FHC1-RTA-2	B	C2	2	2	79.58	0.1676	24	M(A,L)GF	0.006981	79.37
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-FHC1-RTA-3	B	C2	2	2	77.30	0.1674	24	M(A,L)GF	0.006973	77.00
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-FHC1-SP-1	B	C2	2	2	77.41	0.1672	24	M(A,L)GF	0.006967	77.05
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-FHC1-RTA-1	C	C1	3	1	74.51	0.1677	24	M(A,L)GF	0.006986	74.37
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-FHC1-RTA-2	C	C1	3	1	72.54	0.1678	24	M(A,L)GF	0.006991	72.44
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-FHC1-RTA-3	C	C1	3	1	75.56	0.1673	24	M(A,L)GF	0.006970	75.24
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-FHC1-RTA-1	C	C2	3	2	70.71	0.1688	24	M(A,L)GF	0.007033	71.04
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-FHC1-RTA-2	C	C2	3	2	71.05	0.1700	24	M(A,L)GF	0.007083	71.90
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-FHC1-RTA-3	C	C2	3	2	72.37	0.1697	24	M(A,L)GF	0.007069	73.08

Average	**75.03**	
Standard Dev.	**2.789**	
Coeff. of Var. [%]	**3.718**	
Min.	**70.71**	
Max.	**79.59**	
Number of Spec.	**20**	

$Average_{norm}$	**0.006993**	**74.94**
$Standard\ Dev._{norm}$		**2.578**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.440**
Min.	**0.006831**	**71.04**
Max.	**0.007083**	**79.57**
Number of Spec.	**20**	**20**


Laminate Filled-Hole Compression Properties (FHC1)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Compression Strength [ksi]
0
10
20
30
40
50
60
70
80
90
0
1
2
3
4

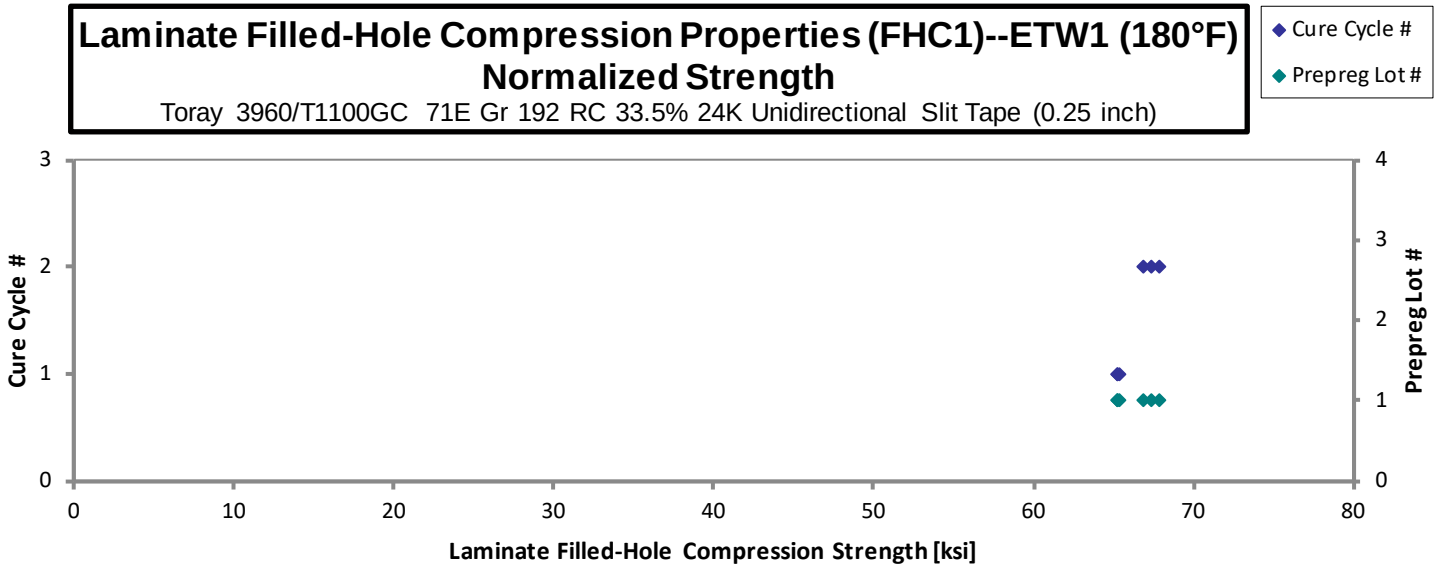
Laminate Filled-Hole Compression Properties (FHC1)--ETW1 (180°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-FHC1-ETW1-1	A	C1	1	1	66.40	0.1649	24	LGF	0.006872	65.19
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-FHC1-ETW1-2	A	C1	1	1	66.27	0.1653	24	LGF	0.006887	65.20
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-FHC1-ETW1-3	A	C1	1	1	66.57	0.1650	24	LGF	0.006873	65.36
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-FHC1-ETW1-2	A	C2	1	2	66.52	0.1689	24	LGF	0.007036	66.86
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-FHC1-ETW1-3	A	C2	1	2	68.08	0.1674	24	LGF	0.006973	67.82
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-FHC1-SP-4	A	C2	1	2	67.66	0.1674	24	LGF	0.006974	67.41

Average	**66.92**	**Average$_{norm}$**	**0.006936**	**66.31**
Standard Dev.	**0.7594**	**Standard Dev.$_{norm}$**		**1.201**
Coeff. of Var. [%]	**1.135**	**Coeff. of Var. [%]$_{norm}$**		**1.811**
Min.	**66.27**	**Min.**	**0.006872**	**65.19**
Max.	**68.08**	**Max.**	**0.007036**	**67.82**
Number of Spec.	**6**	**Number of Spec.**	**6**	**6**


Laminate Filled-Hole Compression Properties (FHC1)--ETW1 (180°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Compression Strength [ksi]
0
10
20
30
40
50
60
70
80
0
1
2
3
4

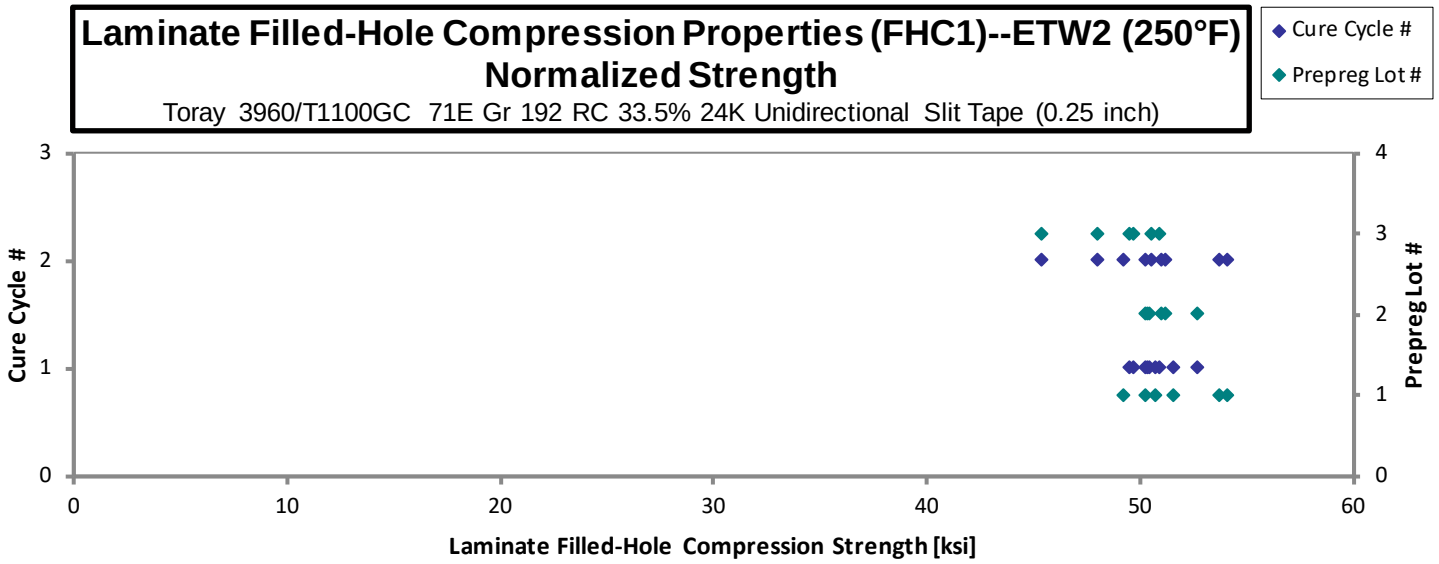
Laminate Filled-Hole Compression Properties (FHC1)--ETW2 (250°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-FHC1-ETW2-1	A	C1	1	1	52.38	0.1654	24	LGF	0.006890	51.55
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-FHC1-ETW2-2	A	C1	1	1	51.76	0.1646	24	LGF	0.006860	50.72
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-FHC1-ETW2-3	A	C1	1	1	51.21	0.1648	24	LGF	0.006867	50.24
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-FHC1-ETW2-1	A	C2	1	2	49.31	0.1676	24	LGF	0.006981	49.18
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-FHC1-ETW2-2	A	C2	1	2	54.15	0.1677	24	LGF	0.006987	54.05
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-FHC1-ETW2-3	A	C2	1	2	53.79	0.1677	24	LGF	0.006988	53.70
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-FHC1-ETW2-1	B	C1	2	1	50.14	0.1686	24	LGF	0.007024	50.32
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-FHC1-ETW2-2	B	C1	2	1	52.40	0.1689	24	LGF	0.007038	52.68
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C1-1-FHC1-ETW2-3	B	C1	2	1	50.51	0.1678	24	LGF	0.006992	50.46
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-FHC1-ETW2-1	B	C2	2	2	51.40	0.1672	24	LGF	0.006965	51.15
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-FHC1-ETW2-2	B	C2	2	2	51.32	0.1670	24	LGF	0.006958	51.01
NTP3963Q1-TC-WEB-NIAR-T01-MST6-B-C2-1-FHC1-ETW2-3	B	C2	2	2	50.45	0.1675	24	LGF	0.006978	50.28
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-FHC1-ETW2-1	C	C1	3	1	49.53	0.1679	24	LGF	0.006994	49.49
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-FHC1-ETW2-2	C	C1	3	1	49.70	0.1681	24	LGF, LGB	0.007003	49.72
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-FHC1-ETW2-3	C	C1	3	1	50.89	0.1679	24	LGF, LGB	0.006994	50.85
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-FHC1-ETW2-1	C	C2	3	2	47.75	0.1688	24	LGF	0.007033	47.98
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-FHC1-ETW2-2	C	C2	3	2	50.14	0.1693	24	LGF	0.007055	50.53
NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C2-1-FHC1-ETW2-3	C	C2	3	2	44.94	0.1696	24	LGF	0.007066	45.36

	Strength [ksi]		t_{ply} [in]	$Strength_{norm}$ [ksi]
Average	**50.65**	**$Average_{norm}$**	**0.006982**	**50.52**
Standard Dev.	**2.118**	**$Standard\ Dev._{norm}$**		**1.967**
Coeff. of Var. [%]	**4.180**	**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**3.893**
Min.	**44.94**	**Min.**	**0.006860**	**45.36**
Max.	**54.15**	**Max.**	**0.007066**	**54.05**
Number of Spec.	**18**	**Number of Spec.**	**18**	**18**


Laminate Filled-Hole Compression Properties (FHC1)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Compression Strength [ksi]
0
10
20
30
40
50
60
0
1
2
3
4

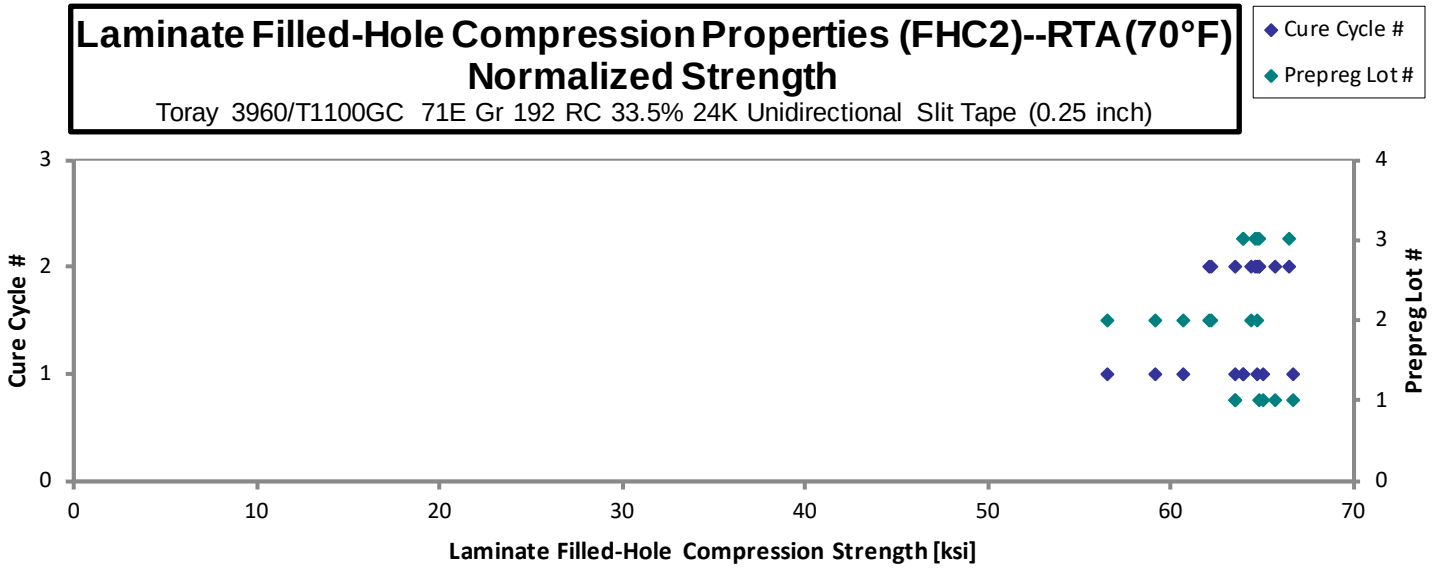
4.27 "10/80/10" Filled-Hole Compression 2 Properties (FHC2)

Laminate Filled-Hole Compression Properties (FHC2)--RTA (70°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHC2-RTA-1	A	C1	1	1	64.72	0.1408	20	M(A,L)GF	0.007038	65.06
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHC2-RTA-2	A	C1	1	1	66.14	0.1411	20	M(A,L)GF	0.007056	66.66
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHC2-RTA-3	A	C1	1	1	63.28	0.1406	20	M(A,L)GF	0.007028	63.53
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHC2-RTA-1	A	C2	1	2	63.43	0.1403	20	M(A,L)GF	0.007014	63.56
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHC2-RTA-2	A	C2	1	2	65.59	0.1404	20	M(A,L)GF	0.007020	65.78
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHC2-RTA-3	A	C2	1	2	64.96	0.1398	20	M(A,L)GF	0.006991	64.88
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHC2-RTA-1	B	C1	2	1	56.07	0.1410	20	AGF	0.007052	56.49
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHC2-RTA-2	B	C1	2	1	60.92	0.1395	20	AGF	0.006976	60.71
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHC2-RTA-3	B	C1	2	1	59.16	0.1400	20	AGF	0.007002	59.18
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHC2-RTA-1	B	C2	2	2	64.27	0.1411	20	M(A,L)GF	0.007053	64.76
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHC2-RTA-2	B	C2	2	2	62.32	0.1395	20	M(A,L)GF, M(A,L)WB	0.006973	62.08
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHC2-RTA-3	B	C2	2	2	64.34	0.1402	20	M(A,L)GF	0.007012	64.44
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHC2-SP-1	B	C2	2	2	62.44	0.1396	20	AGF	0.006978	62.25
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHC2-RTA-1	C	C1	3	1	63.67	0.1423	20	M(A,L)GF	0.007113	64.70
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHC2-RTA-2	C	C1	3	1	63.10	0.1421	20	M(A,L)GF	0.007103	64.02
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHC2-RTA-3	C	C1	3	1	63.29	0.1416	20	M(A,L)GF	0.007080	64.02
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHC2-RTA-1	C	C2	3	2	64.61	0.1400	20	M(A,L)GF	0.007001	64.62
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHC2-RTA-2	C	C2	3	2	66.47	0.1400	20	M(A,L)GF	0.006999	66.46
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHC2-RTA-3	C	C2	3	2	64.78	0.1402	20	M(A,L)GF	0.007010	64.87

	Strength [ksi]		$Strength_{norm}$ [ksi]
Average	63.35	$Average_{norm}$	0.007026 63.58
Standard Dev.	2.482	$Standard\ Dev._{norm}$	2.528
Coeff. of Var. [%]	3.918	Coeff. of Var. $[\%]_{norm}$	3.975
Min.	56.07	Min.	0.006973 56.49
Max.	66.47	Max.	0.007113 66.66
Number of Spec.	19	Number of Spec.	19 19


Laminate Filled-Hole Compression Properties (FHC2)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Compression Strength [ksi]
0
10
20
30
40
50
60
70
0
1
2
3
4

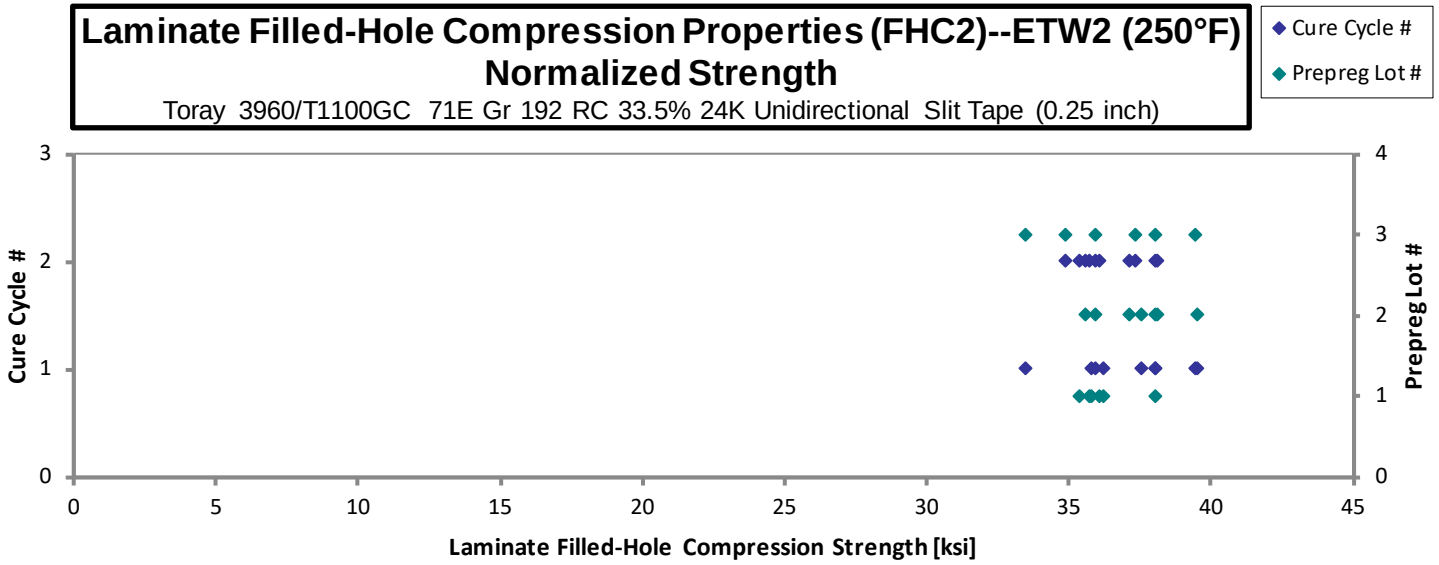
Laminate Filled-Hole Compression Properties (FHC2)--ETW2 (250°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHC2-ETW2-1	A	C1	1	1	37.95	0.1404	20	AGF	0.007022	38.07
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHC2-ETW2-2	A	C1	1	1	35.67	0.1405	20	AGF	0.007026	35.80
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-FHC2-ETW2-3	A	C1	1	1	36.10	0.1405	20	M(A,L)GF	0.007023	36.22
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHC2-ETW2-1	A	C2	1	2	36.07	0.1401	20	M(A,L)GF	0.007007	36.10
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHC2-ETW2-2	A	C2	1	2	35.31	0.1401	20	M(A,L)GF	0.007004	35.33
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-FHC2-ETW2-3	A	C2	1	2	35.74	0.1400	20	AGT	0.007002	35.75
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHC2-ETW2-1	B	C1	2	1	39.55	0.1398	20	M(A,L)GF	0.006988	39.49
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHC2-ETW2-2	B	C1	2	1	35.83	0.1405	20	M(A,L)GF	0.007024	35.95
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHC2-ETW2-3	B	C1	2	1	37.50	0.1403	20	M(A,L)GF	0.007013	37.57
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHC2-ETW2-1	B	C2	2	2	38.04	0.1400	20	M(A,L)GF	0.006998	38.03
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHC2-ETW2-2	B	C2	2	2	37.19	0.1397	20	M(A,L)GF	0.006986	37.11
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHC2-ETW2-3	B	C2	2	2	35.67	0.1396	20	M(A,L)GF, AWT	0.006980	35.56
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-FHC2-SP-3	B	C2	2	2	38.16	0.1398	20	M(A,L)GF	0.006988	38.10
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHC2-ETW2-1	C	C1	3	1	37.60	0.1417	20	M(A,L)GF	0.007086	38.06
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHC2-ETW2-2	C	C1	3	1	38.98	0.1416	20	M(A,L)GF	0.007082	39.44
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-FHC2-ETW2-3	C	C1	3	1	33.07	0.1417	20	M(A,L)GF	0.007087	33.48
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHC2-ETW2-1	C	C2	3	2	34.85	0.1401	20	M(A,L)GF	0.007006	34.88
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHC2-ETW2-2	C	C2	3	2	37.27	0.1404	20	M(A,L)GF	0.007018	37.36
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHC2-ETW2-3	C	C2	3	2	35.88	0.1401	20	M(A,L)GF	0.007007	35.92

Average	**36.65**	
Standard Dev.	**1.573**	
Coeff. of Var. [%]	**4.292**	
Min.	**33.07**	
Max.	**39.55**	
Number of Spec.	**19**	

$Average_{norm}$	**0.007018**	**36.75**
$Standard\ Dev._{norm}$		**1.569**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**4.270**
Min.	**0.006980**	**33.48**
Max.	**0.007087**	**39.49**
Number of Spec.	**19**	**19**


Laminate Filled-Hole Compression Properties (FHC2)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Compression Strength [ksi]
0
1
2
3
4
0
5
10
15
20
25
30
35
40
45

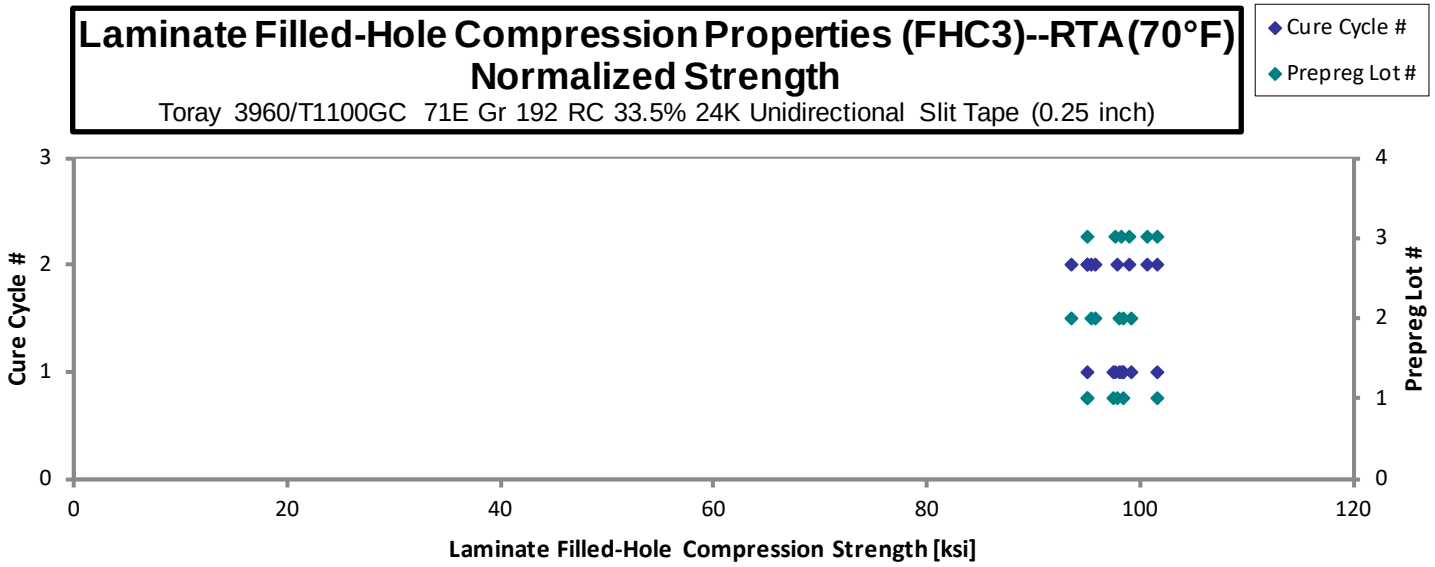
4.28 “50/40/10” Filled-Hole Compression 3 Properties (FHC3)

Laminate Filled-Hole Compression Properties (FHC3)--RTA (70°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHC3-RTA-1	A	C1	1	1	96.54	0.1414	20	LGF, AGF	0.007072	97.53
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHC3-RTA-2	A	C1	1	1	97.55	0.1413	20	LGF, AGF	0.007066	98.47
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHC3-RTA-3	A	C1	1	1	94.48	0.1408	20	LGF, AGF	0.007039	95.01
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHC3-RTA-1	A	C2	1	2	96.92	0.1415	20	LGF, AGF	0.007073	97.93
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHC3-RTA-2	A	C2	1	2	94.18	0.1413	20	LGF, AGF	0.007066	95.07
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHC3-RTA-3	A	C2	1	2	101.0	0.1408	20	LGF, AGF	0.007040	101.6
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHC3-RTA-1	B	C1	2	1	99.93	0.1389	20	M(A,L)GF	0.006947	99.16
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHC3-RTA-2	B	C1	2	1	98.87	0.1389	20	M(A,L)GF	0.006945	98.10
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHC3-RTA-3	B	C1	2	1	98.88	0.1393	20	M(A,L)GF	0.006967	98.41
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHC3-RTA-1	B	C2	2	2	96.26	0.1395	20	LGO	0.006973	95.89
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHC3-RTA-2	B	C2	2	2	95.76	0.1394	20	LGO	0.006970	95.35
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHC3-RTA-3	B	C2	2	2	94.05	0.1392	20	LGO	0.006959	93.50
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHC3-RTA-1	C	C1	3	1	96.17	0.1423	20	M(A,L)GF	0.007115	97.75
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHC3-RTA-2	C	C1	3	1	98.02	0.1402	20	M(A,L)GF	0.007011	98.18
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHC3-RTA-3	C	C1	3	1	100.5	0.1417	20	M(A,L)GF	0.007083	101.6
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHC3-RTA-1	C	C2	3	2	93.39	0.1425	20	M(A,L)GF	0.007126	95.07
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHC3-RTA-2	C	C2	3	2	99.84	0.1413	20	M(A,L)GF	0.007063	100.7
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHC3-RTA-3	C	C2	3	2	97.38	0.1424	20	M(A,L)GF	0.007118	99.02

Average	**97.21**		**$Average_{norm}$**	**0.007035**	**97.69**
Standard Dev.	**2.322**		**$Standard\ Dev._{norm}$**		**2.340**
Coeff. of Var. [%]	**2.389**		**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**2.395**
Min.	**93.39**		**Min.**	**0.006945**	**93.50**
Max.	**101.0**		**Max.**	**0.007126**	**101.6**
Number of Spec.	**18**		**Number of Spec.**	**18**	**18**


Laminate Filled-Hole Compression Properties (FHC3)--RTA (70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Compression Strength [ksi]
0
1
2
3
4
0
20
40
60
80
100
120

Laminate Filled-Hole Compression Properties (FHC3)--ETW2 (250°F)
Strength

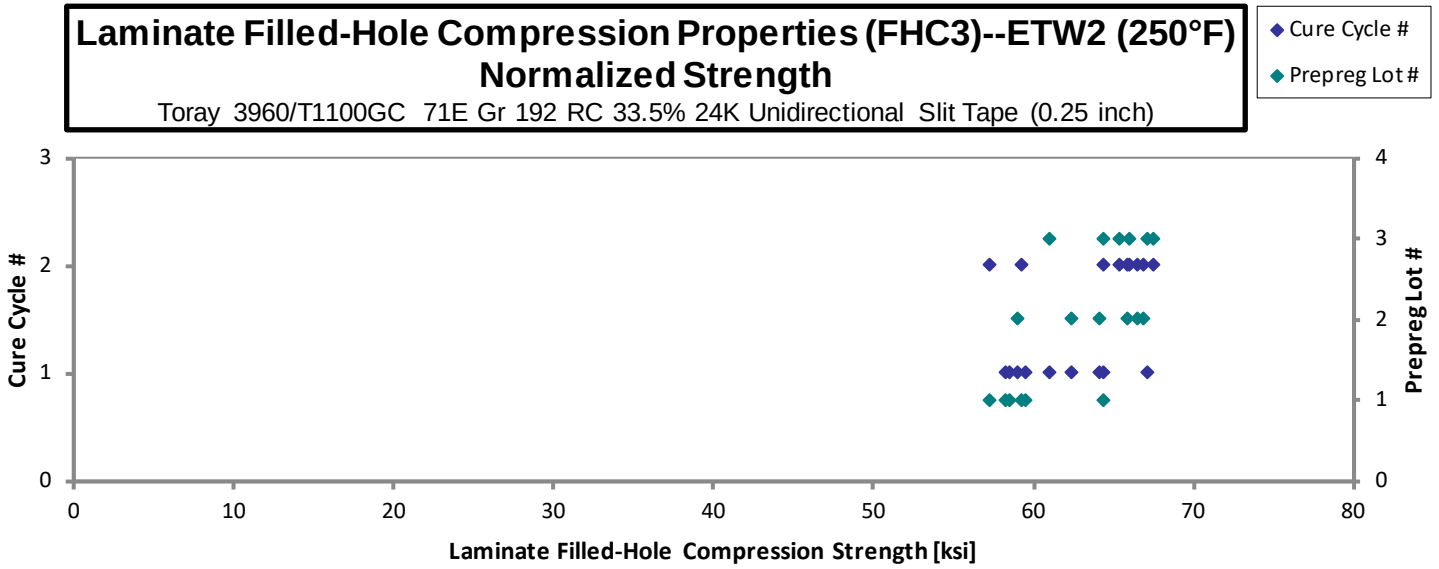
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHC3-ETW2-1	A	C1	1	1	58.22	0.1407	20	LGF	0.007037	58.52
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHC3-ETW2-2	A	C1	1	1	59.12	0.1408	20	LGF	0.007038	59.45
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-FHC3-ETW2-3	A	C1	1	1	57.81	0.1411	20	LGF	0.007056	58.27
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHC3-ETW2-1	A	C2	1	2	58.88	0.1409	20	LGM	0.007047	59.28
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHC3-ETW2-2	A	C2	1	2	56.97	0.1407	20	LGF	0.007035	57.25
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHC3-ETW2-3	A	C2	1	2	64.04	0.1408	20	LGF	0.007041	64.41
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHC3-ETW2-1	B	C1	2	1	64.63	0.1388	20	LGF	0.006940	64.08
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHC3-ETW2-2	B	C1	2	1	62.90	0.1388	20	LGF	0.006939	62.35
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-FHC3-ETW2-3	B	C1	2	1	59.56	0.1388	20	LGF	0.006940	59.05
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHC3-ETW2-1	B	C2	2	2	67.11	0.1395	20	LGF	0.006973	66.86
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHC3-ETW2-2	B	C2	2	2	66.07	0.1396	20	LGF	0.006978	65.86
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-FHC3-ETW2-3	B	C2	2	2	66.61	0.1397	20	LGF	0.006986	66.48
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHC3-ETW2-1	C	C1	3	1	60.45	0.1412	20	LGF	0.007062	60.98
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHC3-ETW2-2	C	C1	3	1	66.55	0.1413	20	LGF	0.007064	67.16
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-FHC3-ETW2-3	C	C1	3	1	63.76	0.1412	20	LGF	0.007061	64.32
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHC3-ETW2-1	C	C2	3	2	64.55	0.1432	20	LGF	0.007160	66.03
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHC3-ETW2-2	C	C2	3	2	63.89	0.1432	20	LGF	0.007161	65.36
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHC3-ETW2-3	C	C2	3	2	66.55	0.1421	20	LGF	0.007106	67.55

Average	**62.65**	
Standard Dev.	**3.484**	
Coeff. of Var. [%]	**5.561**	
Min.	**56.97**	
Max.	**67.11**	
Number of Spec.	**18**	

$Average_{norm}$	**0.007035**	**62.96**
Standard $Dev._{norm}$		**3.555**
Coeff. of Var. $[\%]_{norm}$		**5.646**
Min.	**0.006939**	**57.25**
Max.	**0.007161**	**67.55**
Number of Spec.	**18**	**18**

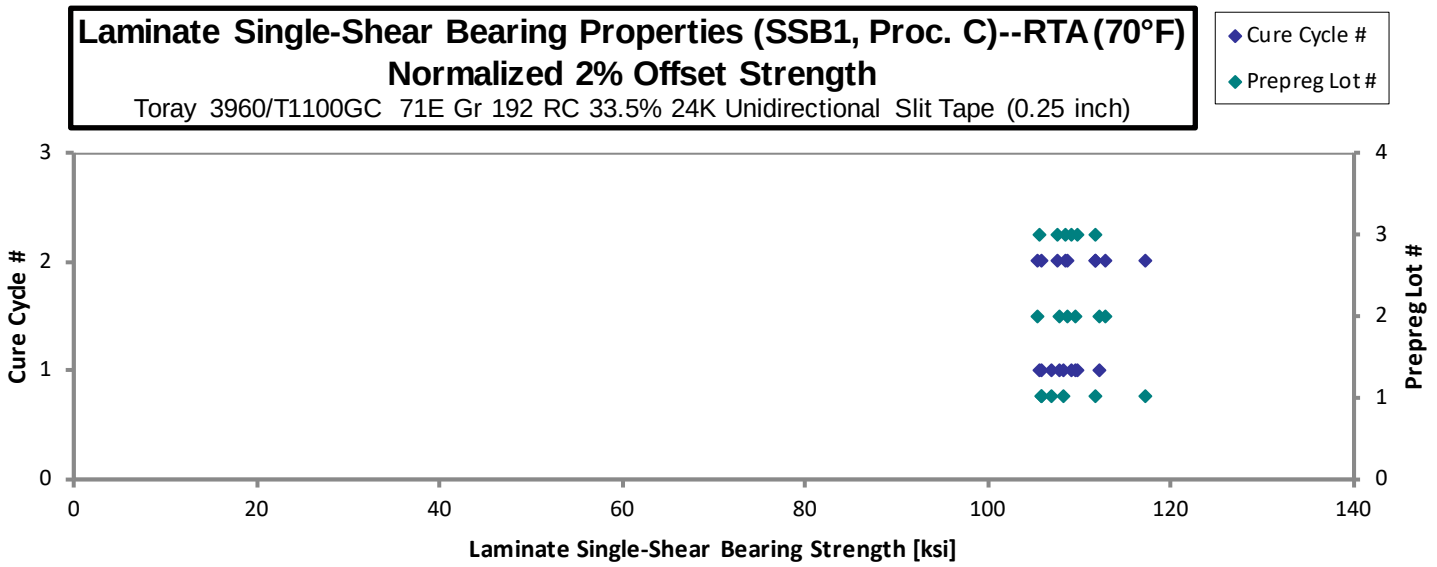

Laminate Filled-Hole Compression Properties (FHC3)--ETW2 (250°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Filled-Hole Compression Strength [ksi]
0
10
20
30
40
50
60
70
80
0
1
2
3
4

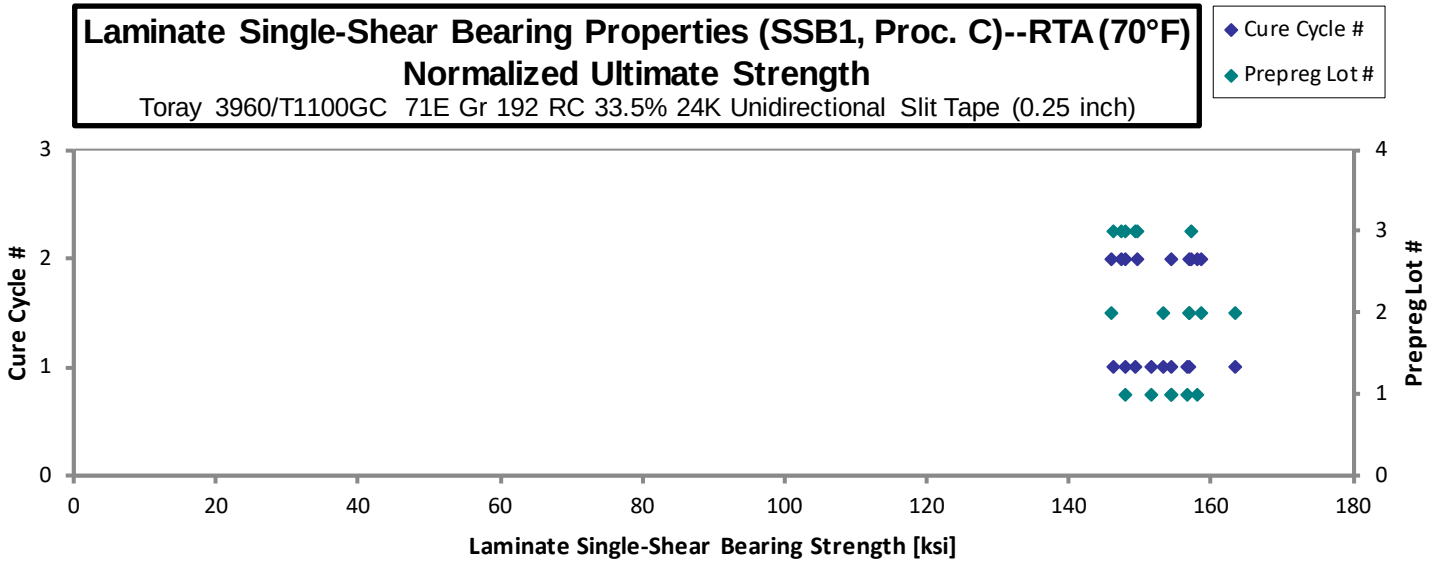
4.29 “25/50/25” Single-Shear Bearing 1 Properties (SSB1, Proc. C)

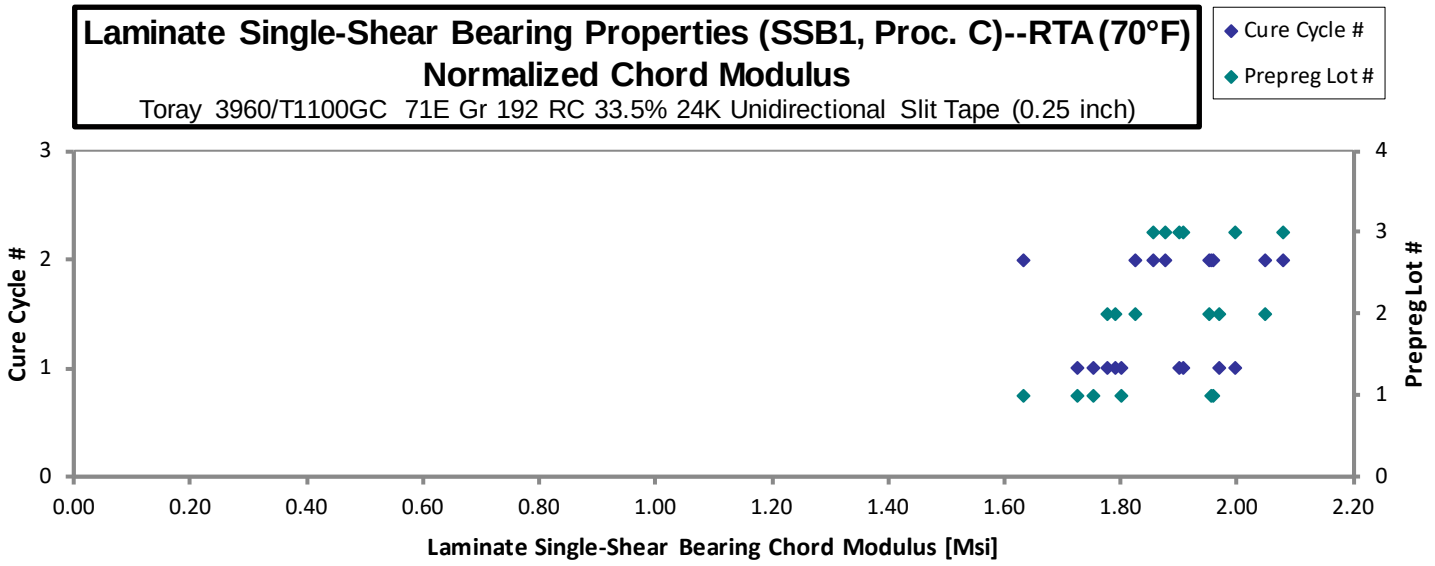
Laminate Single-Shear Bearing Properties (SSB1, Proc. C)--RTA (70°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset $Strength_{norm}$ [ksi]	Ultimate $Strength_{norm}$ [ksi]	Chord $Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-SSB1-RTA-1	A	C1	1	1	108.5	151.8	1.758	0.1118	16	B1I	0.006984	108.3	151.5	1.754
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-SSB1-RTA-2	A	C1	1	1	107.3	154.9	1.807	0.1117	16	B1I	0.006979	107.0	154.4	1.802
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-SSB1-RTA-3	A	C1	1	1	106.2	157.1	1.731	0.1117	16	B1I	0.006981	105.9	156.7	1.727
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-SSB1-RTA-1	A	C2	1	2	105.2	147.2	1.623	0.1126	16	B1I	0.007039	105.8	148.0	1.632
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-SSB1-RTA-2	A	C2	1	2	117.4	154.6	1.961	0.1119	16	B1I	0.006993	117.3	154.4	1.959
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-SSB1-RTA-3	A	C2	1	2	111.2	157.2	1.947	0.1126	16	B1I	0.007035	111.8	158.0	1.957
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-SSB1-RTA-1	B	C1	2	1	112.1	156.8	1.789	0.1121	16	B1I	0.007003	112.1	156.9	1.789
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-SSB1-RTA-2	B	C1	2	1	107.6	163.1	1.773	0.1121	16	B1I	0.007008	107.7	163.3	1.775
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-SSB1-RTA-3	B	C1	2	1	109.2	152.6	1.961	0.1125	16	B1I	0.007028	109.7	153.2	1.969
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-SSB1-RTA-1	B	C2	2	2	112.8	156.7	1.948	0.1122	16	B1I	0.007009	113.0	156.9	1.951
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-SSB1-RTA-2	B	C2	2	2	105.0	145.7	1.818	0.1123	16	B1I	0.007020	105.3	146.1	1.823
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-SSB1-RTA-3	B	C2	2	2	108.6	158.3	2.045	0.1123	16	B1I	0.007016	108.8	158.7	2.050
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-SSB1-RTA-1	C	C1	3	1	108.6	147.6	1.879	0.1133	16	B1I	0.007078	109.8	149.2	1.900
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-SSB1-RTA-2	C	C1	3	1	108.3	146.8	1.982	0.1128	16	B1I	0.007049	109.1	147.8	1.996
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-SSB1-RTA-3	C	C1	3	1	104.3	144.4	1.883	0.1135	16	B1I	0.007091	105.7	146.3	1.908
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-SSB1-RTA-1	C	C2	3	2	106.3	145.7	1.852	0.1134	16	B1I	0.007086	107.6	147.5	1.875
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-SSB1-RTA-2	C	C2	3	2	111.7	157.1	2.078	0.1121	16	B1I	0.007006	111.8	157.2	2.080
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-SSB1-RTA-3	C	C2	3	2	108.2	149.2	1.851	0.1123	16	B1I	0.007019	108.5	149.6	1.856
				Average	**108.8**	**152.6**	**1.872**				**Average$_{norm}$**	**0.007024**	**109.2**	**153.1**	**1.878**
				Standard Dev.	**3.249**	**5.493**	**0.1167**				**Standard Dev.$_{norm}$**		**3.094**	**5.050**	**0.1184**
				Coeff. of Var. [%]	**2.986**	**3.600**	**6.236**				**Coeff. of Var. [%]$_{norm}$**		**2.834**	**3.299**	**6.307**
				Min.	**104.3**	**144.4**	**1.623**				**Min.**	**0.006979**	**105.3**	**146.1**	**1.632**
				Max.	**117.4**	**163.1**	**2.078**				**Max.**	**0.007091**	**117.3**	**163.3**	**2.080**
				Number of Spec.	**18**	**18**	**18**				**Number of Spec.**	**18**	**18**	**18**	**18**


Laminate Single-Shear Bearing Properties (SSB1, Proc. C)--RTA (70°F)
Normalized 2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Strength [ksi]
0
20
40
60
80
100
120
140
0
1
2
3
4

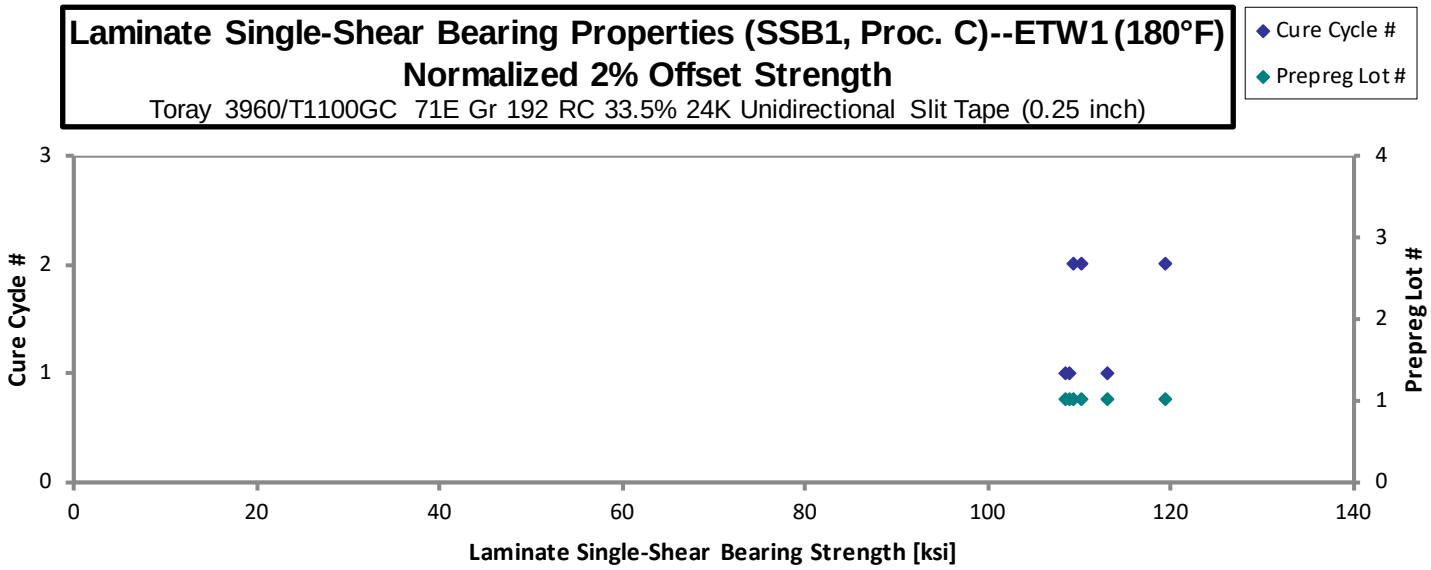

Laminate Single-Shear Bearing Properties (SSB1, Proc. C)--RTA (70°F)
Normalized Ultimate Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Strength [ksi]
0
20
40
60
80
100
120
140
160
180
0
1
2
3
4

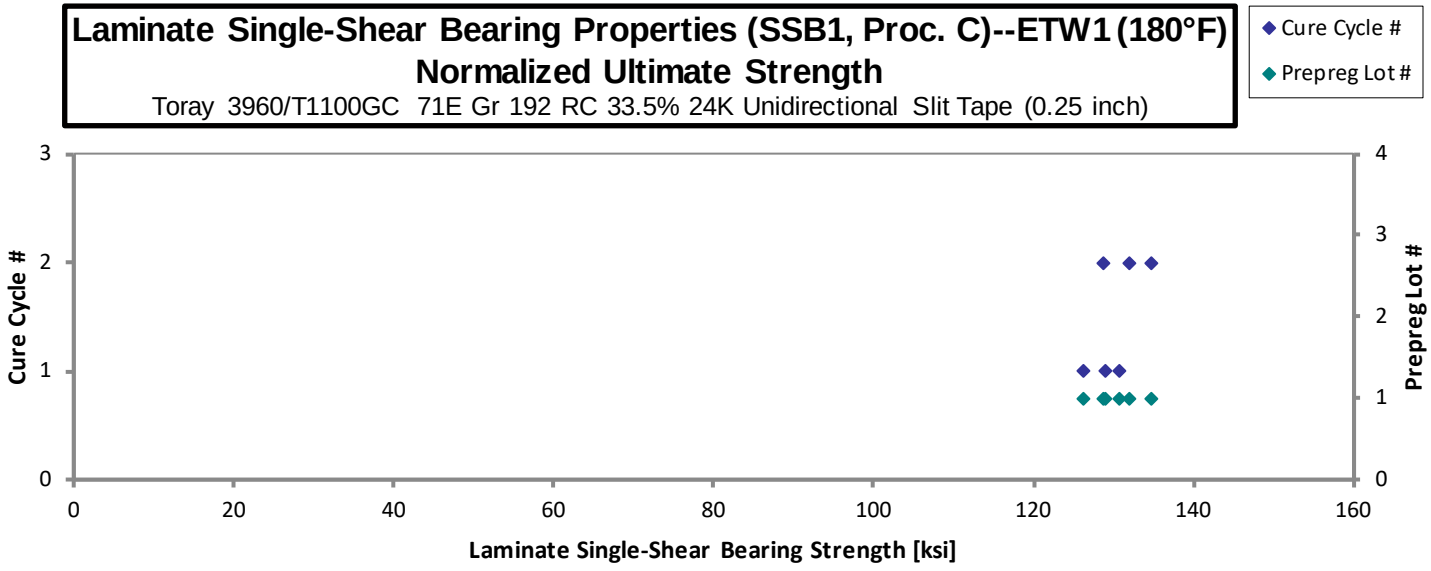

Laminate Single-Shear Bearing Properties (SSB1, Proc. C)--RTA (70°F)
Normalized Chord Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Chord Modulus [Msi]
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
2.00
2.20
0
1
2
3
4

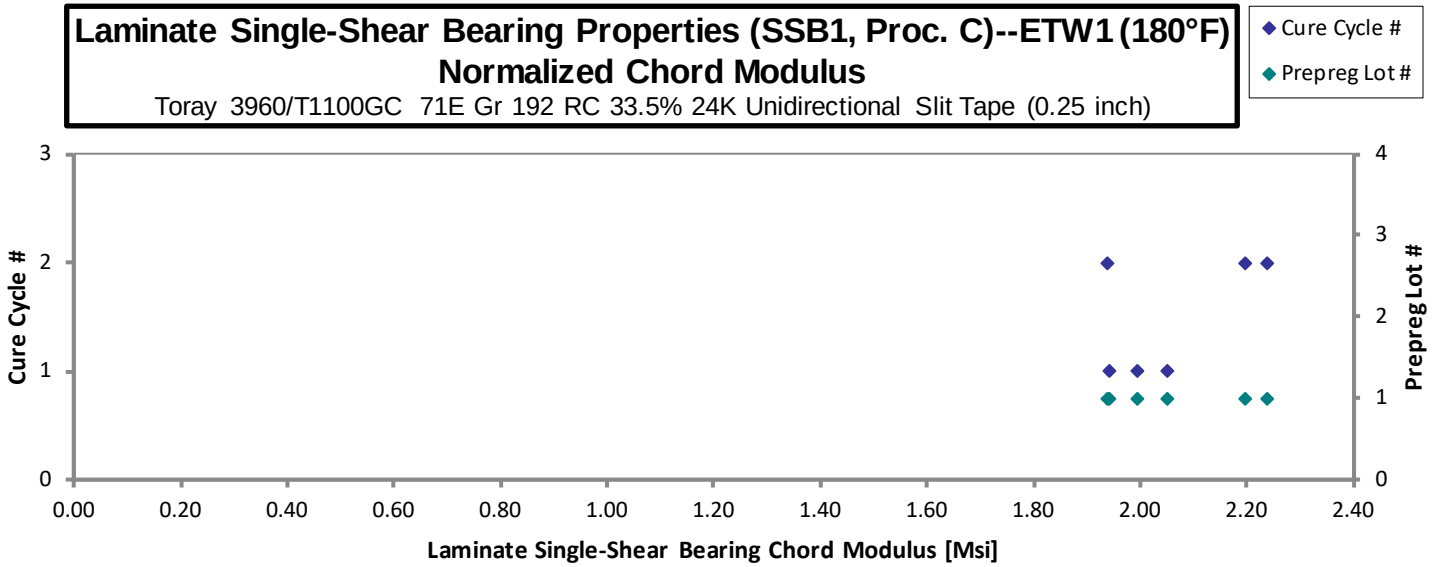
Laminate Single-Shear Bearing Properties (SSB1, Proc. C)--ETW1 (180°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset $Strength_{norm}$ [ksi]	Ultimate $Strength_{norm}$ [ksi]	Chord $Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-SSB1-ETW1-1	A	C1	1	1	109.3	126.7	2.002	0.1116	16	B1I	0.006973	108.9	126.3	1.994
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-SSB1-ETW1-2	A	C1	1	1	108.2	130.4	2.047	0.1122	16	B1I	0.007013	108.4	130.6	2.051
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-SSB1-ETW1-3	A	C1	1	1	113.2	129.2	1.945	0.1117	16	B1I	0.006983	113.0	128.9	1.941
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-SSB1-ETW1-1	A	C2	1	2	109.3	128.8	2.197	0.1120	16	B1I	0.007001	109.3	128.8	2.197
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-SSB1-ETW1-2	A	C2	1	2	110.0	131.5	2.232	0.1123	16	B1I	0.007019	110.3	131.9	2.238
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-SSB1-ETW1-3	A	C2	1	2	119.8	135.0	1.944	0.1118	16	B1I	0.006985	119.5	134.7	1.940
Average					**111.6**	**130.3**	**2.061**				**Average$_{norm}$**	**0.006996**	**111.6**	**130.2**	**2.060**
Standard Dev.					**4.325**	**2.806**	**0.1253**				**Standard Dev.$_{norm}$**		**4.211**	**2.908**	**0.1293**
Coeff. of Var. [%]					**3.873**	**2.154**	**6.080**				**Coeff. of Var. [%]$_{norm}$**		**3.774**	**2.234**	**6.278**
Min.					**108.2**	**126.7**	**1.944**				**Min.**	**0.006973**	**108.4**	**126.3**	**1.940**
Max.					**119.8**	**135.0**	**2.232**				**Max.**	**0.007019**	**119.5**	**134.7**	**2.238**
Number of Spec.					**6**	**6**	**6**				**Number of Spec.**	**6**	**6**	**6**	**6**


Laminate Single-Shear Bearing Properties (SSB1, Proc. C)--ETW1 (180°F)
Normalized 2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Strength [ksi]
0
20
40
60
80
100
120
140
0
1
2
3
0
1
2
3
4


Laminate Single-Shear Bearing Properties (SSB1, Proc. C)--ETW1 (180°F)
Normalized Ultimate Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Strength [ksi]
0
20
40
60
80
100
120
140
160
0
1
2
3
0
1
2
3
4

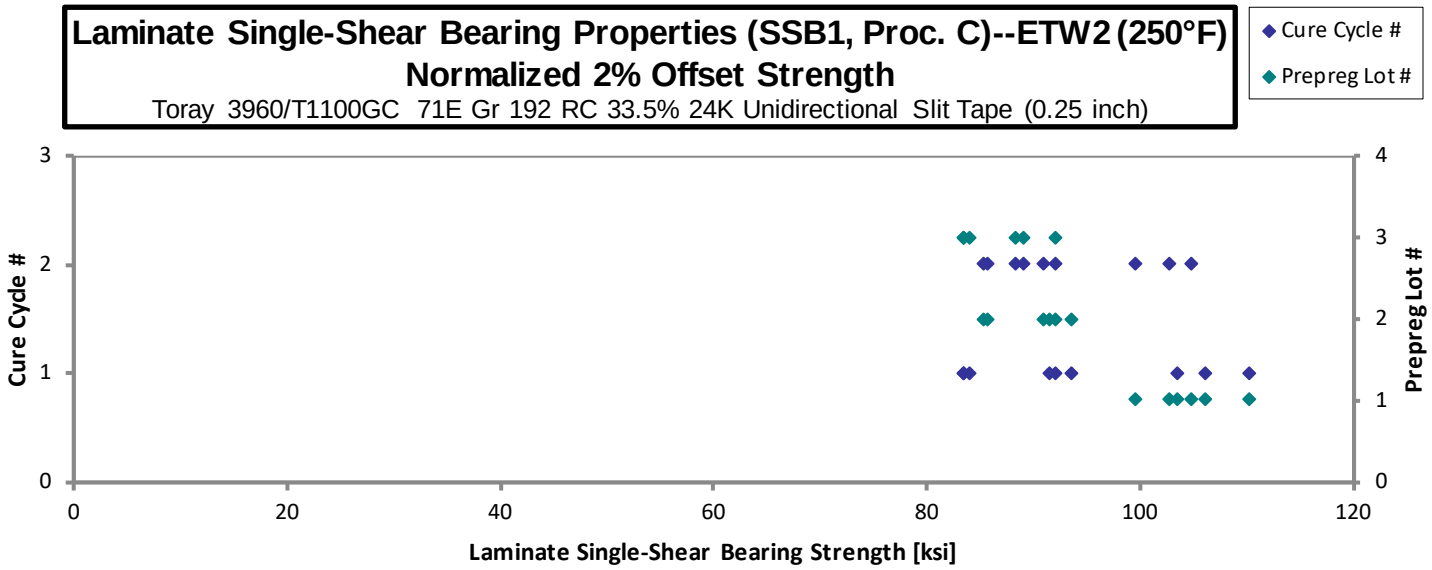

Laminate Single-Shear Bearing Properties (SSB1, Proc. C)--ETW1 (180°F)
Normalized Chord Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
2.00
2.20
2.40
Laminate Single-Shear Bearing Chord Modulus [Msi]

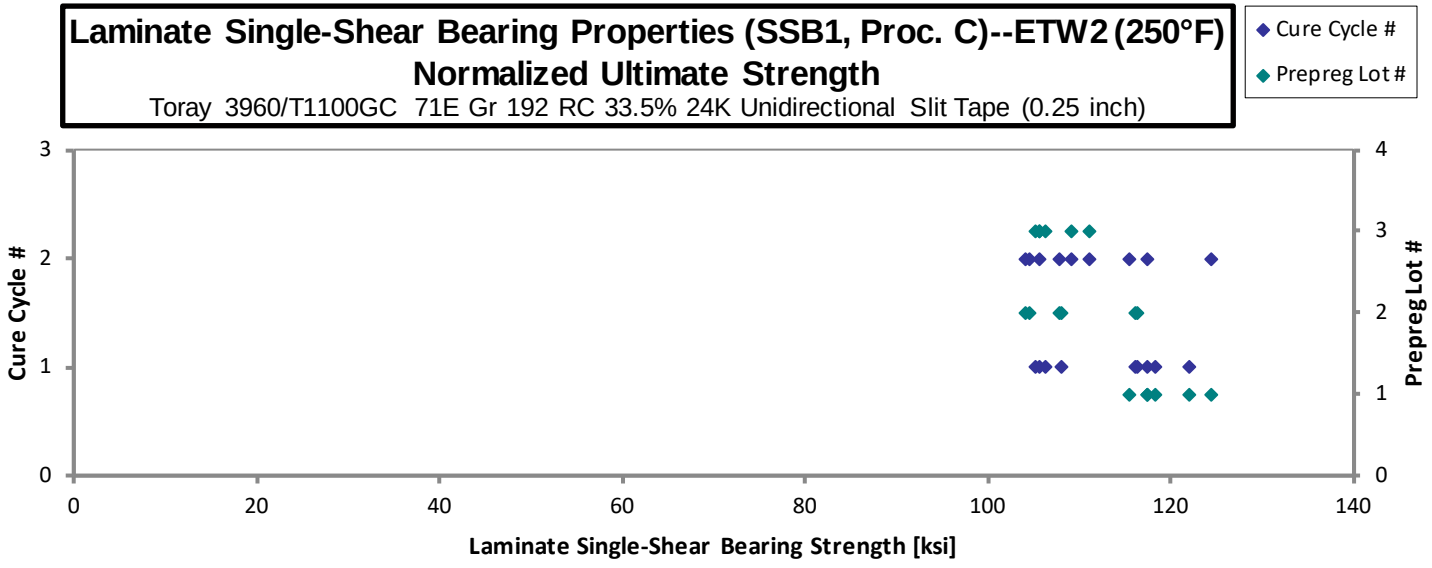
Laminate Single-Shear Bearing Properties (SSB1, Proc. C)--ETW2 (250°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

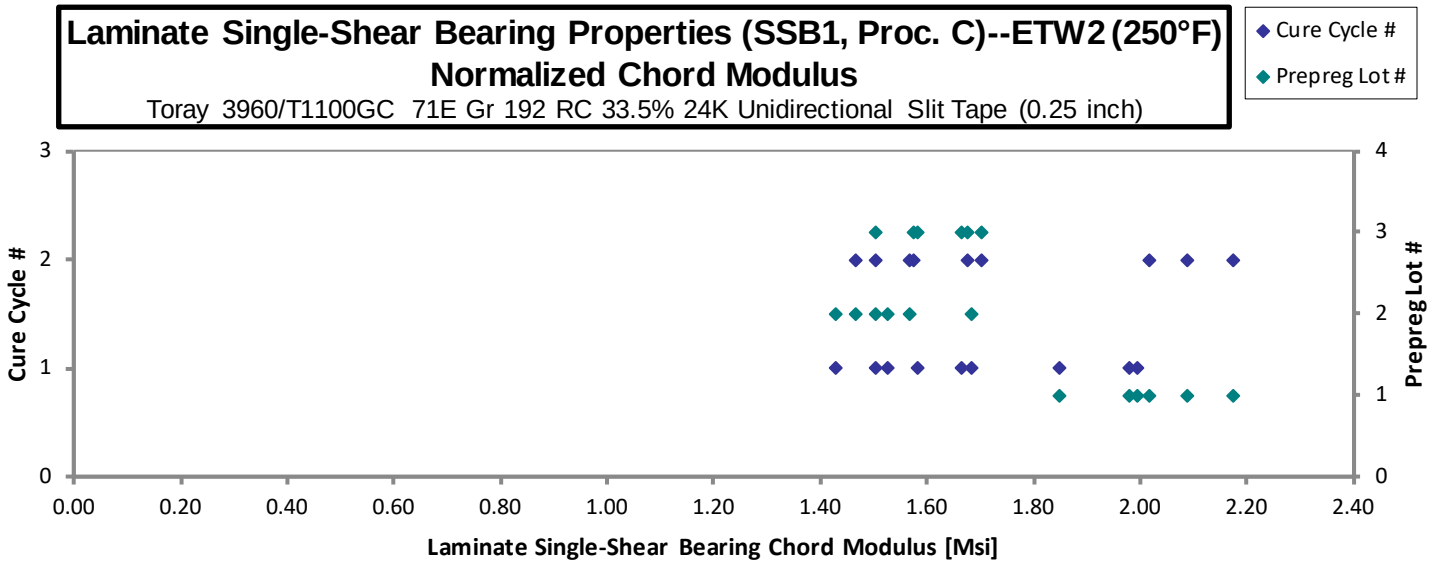
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset $Strength_{norm}$ [ksi]	Ultimate $Strength_{norm}$ [ksi]	Chord $Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-SSB1-ETW2-1	A	C1	1	1	103.6	118.6	1.851	0.1118	16	B1I	0.006990	103.4	118.4	1.848
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-SSB1-ETW2-2	A	C1	1	1	109.9	117.1	1.974	0.1123	16	B1I	0.007017	110.2	117.4	1.979
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-SSB1-ETW2-3	A	C1	1	1	105.9	121.8	1.988	0.1123	16	B1I	0.007019	106.2	122.1	1.993
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-SSB1-ETW2-1	A	C2	1	2	102.1	114.9	2.078	0.1126	16	B1I	0.007035	102.7	115.5	2.088
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-SSB1-ETW2-2	A	C2	1	2	99.55	117.6	2.175	0.1119	16	B1I	0.006995	99.48	117.5	2.173
NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-SSB1-ETW2-3	A	C2	1	2	105.0	124.7	2.023	0.1117	16	B1I	0.006982	104.7	124.4	2.017
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-SSB1-ETW2-1	B	C1	2	1	91.09	107.0	1.415	0.1132	16	B1I	0.007072	92.02	108.1	1.429
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-SSB1-ETW2-2	B	C1	2	1	93.41	116.2	1.680	0.1122	16	B1I	0.007014	93.59	116.5	1.683
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-SSB1-ETW2-3	B	C1	2	1	91.44	116.1	1.526	0.1120	16	B1I	0.007001	91.45	116.1	1.526
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-SSB1-ETW2-1	B	C2	2	2	85.57	103.9	1.501	0.1122	16	B1I	0.007011	85.71	104.1	1.504
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-SSB1-ETW2-2	B	C2	2	2	90.79	104.4	1.463	0.1122	16	B1I	0.007011	90.93	104.6	1.466
NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-SSB1-ETW2-3	B	C2	2	2	84.86	107.3	1.560	0.1126	16	B1I	0.007036	85.31	107.9	1.569
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-SSB1-ETW2-1	C	C1	3	1	83.19	105.1	1.566	0.1131	16	B1I	0.007071	84.04	106.2	1.582
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-SSB1-ETW2-2	C	C1	3	1	82.48	104.0	1.644	0.1134	16	B1I	0.007088	83.51	105.3	1.664
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-SSB1-SP-3	C	C1	3	1	82.51	104.6	1.489	0.1132	16	B1I	0.007073	83.37	105.7	1.504
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-SSB1-ETW2-1	C	C2	3	2	91.71	110.6	1.568	0.1124	16	B1I	0.007024	92.02	111.0	1.573
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-SSB1-ETW2-2	C	C2	3	2	87.88	108.6	1.696	0.1125	16	B1I	0.007033	88.30	109.1	1.704
NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-SSB1-ETW2-3	C	C2	3	2	88.61	105.0	1.669	0.1126	16	B1I	0.007038	89.08	105.6	1.677

Average	**93.31**	**111.5**	**1.715**	**Average$_{norm}$**	**0.007028**	**93.67**	**112.0**	**1.721**
Standard Dev.	**8.845**	**6.838**	**0.2378**	**Standard Dev.$_{norm}$**		**8.625**	**6.524**	**0.2349**
Coeff. of Var. [%]	**9.479**	**6.131**	**13.87**	**Coeff. of Var. [%]$_{norm}$**		**9.208**	**5.827**	**13.65**
Min.	**82.48**	**103.9**	**1.415**	**Min.**	**0.006982**	**83.37**	**104.1**	**1.429**
Max.	**109.9**	**124.7**	**2.175**	**Max.**	**0.007088**	**110.2**	**124.4**	**2.173**
Number of Spec.	**18**	**18**	**18**	**Number of Spec.**	**18**	**18**	**18**	**18**


Laminate Single-Shear Bearing Properties (SSB1, Proc. C)--ETW2 (250°F)
Normalized 2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Strength [ksi]
0
20
40
60
80
100
120
0
1
2
3
4


Laminate Single-Shear Bearing Properties (SSB1, Proc. C)--ETW2 (250°F)
Normalized Ultimate Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Strength [ksi]
0
20
40
60
80
100
120
140
0
1
2
3
4


Laminate Single-Shear Bearing Properties (SSB1, Proc. C)--ETW2 (250°F)
Normalized Chord Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Chord Modulus [Msi]
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
2.00
2.20
2.40
0
1
2
3
4

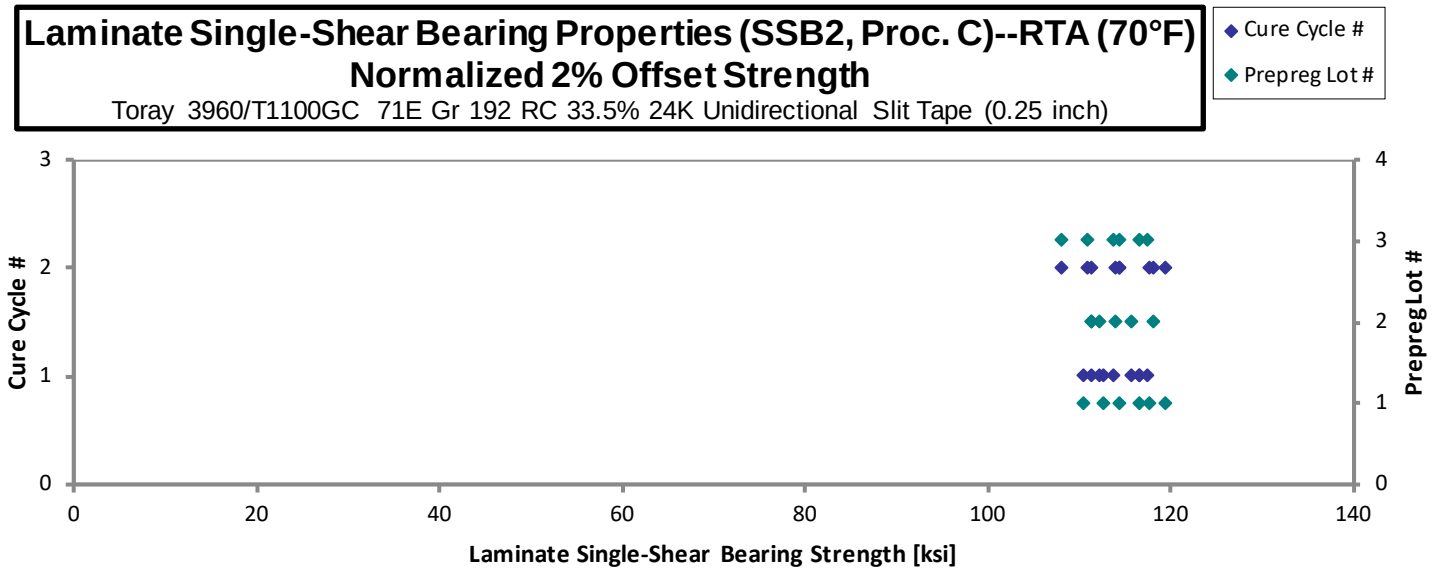
4.30 “10/80/10” Single-Shear Bearing 2 Properties (SSB2, Proc. C)

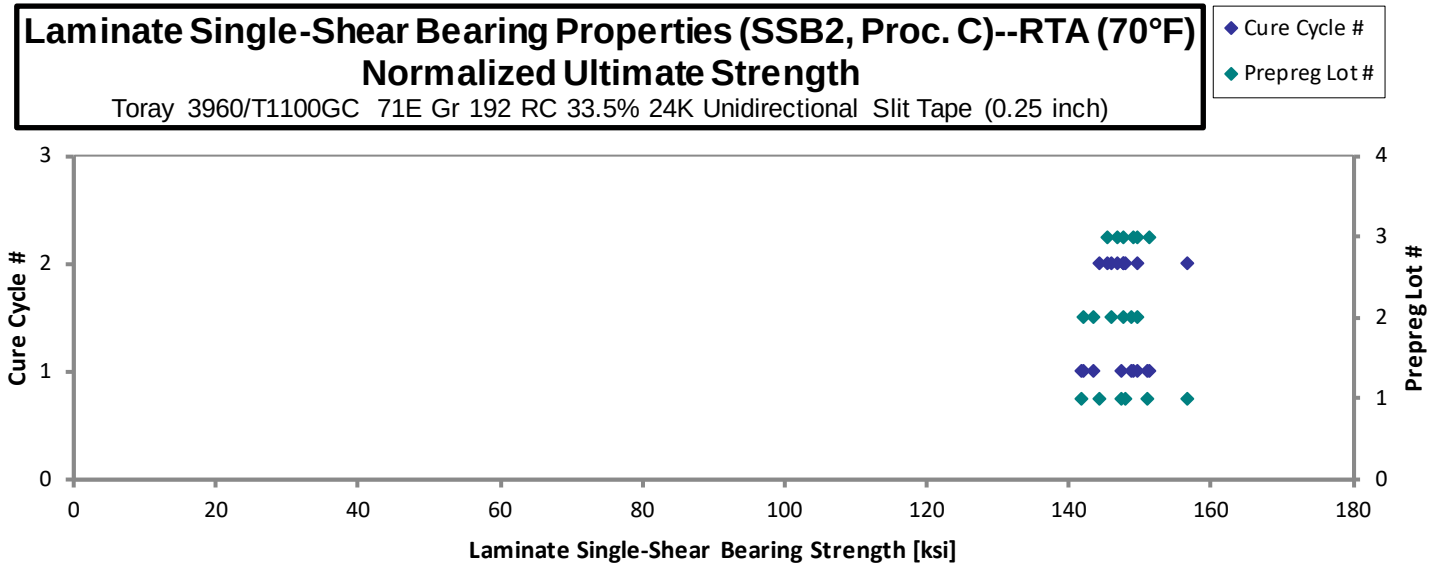
Laminate Single-Shear Bearing Properties (SSB2, Proc. C)--RTA (70°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

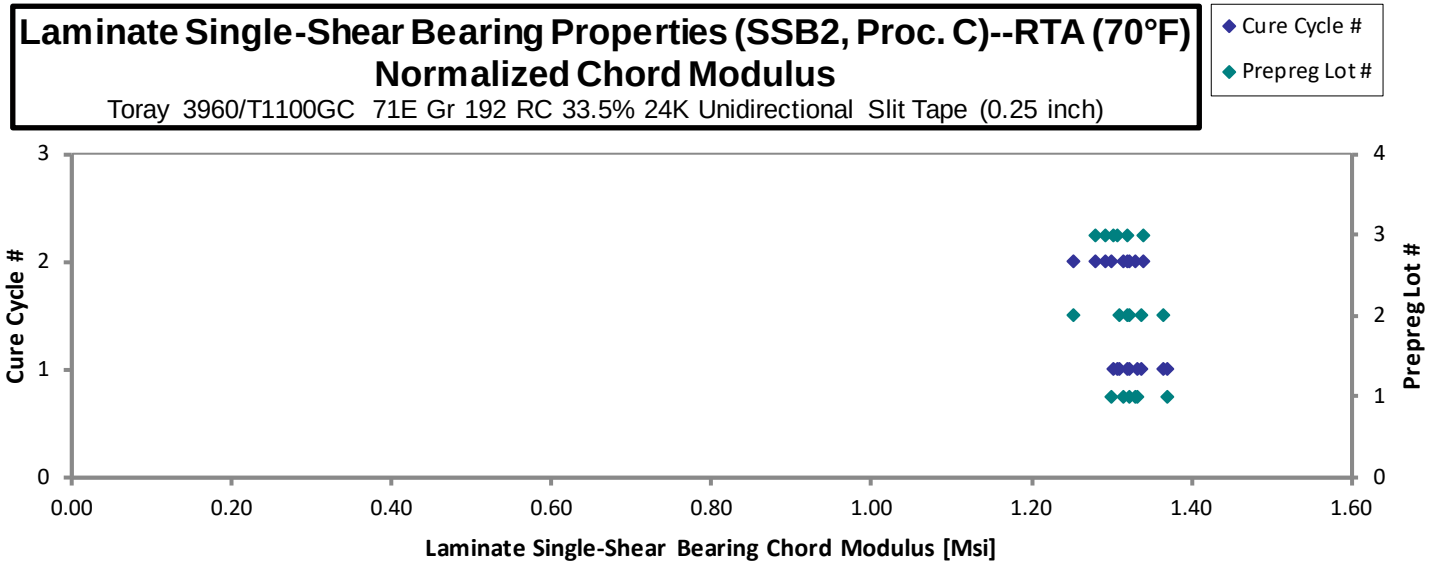
normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset $Strength_{norm}$ [ksi]	Ultimate $Strength_{norm}$ [ksi]	Chord $Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-SSB2-RTA-1	A	C1	1	1	116.2	150.6	1.318	0.1404	20	B1I	0.007022	116.5	151.1	1.322
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-SSB2-RTA-2	A	C1	1	1	112.4	147.0	1.366	0.1404	20	B1I	0.007021	112.7	147.5	1.370
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-SSB2-RTA-3	A	C1	1	1	110.2	141.3	1.329	0.1404	20	B1I	0.007021	110.6	141.7	1.333
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-SSB2-RTA-1	A	C2	1	2	117.4	156.1	1.327	0.1404	20	B1I	0.007018	117.7	156.5	1.330
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-SSB2-RTA-2	A	C2	1	2	114.3	147.8	1.312	0.1402	20	B1I	0.007009	114.4	148.0	1.314
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-SSB2-RTA-3	A	C2	1	2	119.1	143.7	1.296	0.1405	20	B1I	0.007024	119.5	144.2	1.301
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-SSB2-RTA-1	B	C1	2	1	111.0	147.0	1.321	0.1417	20	B1I	0.007084	112.3	148.8	1.337
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-SSB2-RTA-2	B	C1	2	1	111.6	142.5	1.315	0.1395	20	B1I	0.006977	111.3	142.0	1.311
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-SSB2-RTA-3	B	C1	2	1	115.3	143.0	1.360	0.1405	20	B1I	0.007023	115.6	143.4	1.364
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-SSB2-RTA-1	B	C2	2	2	117.5	148.8	1.315	0.1408	20	B1I	0.007040	118.2	149.7	1.323
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-SSB2-RTA-2	B	C2	2	2	111.5	148.0	1.322	0.1398	20	B1I	0.006992	111.4	147.8	1.320
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-SSB2-RTA-3	B	C2	2	2	113.6	145.5	1.249	0.1404	20	B1I	0.007018	113.9	145.9	1.252
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-SSB2-RTA-1	C	C1	3	1	115.8	149.1	1.300	0.1421	20	B1I	0.007103	117.5	151.3	1.319
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-SSB2-RTA-2	C	C1	3	1	115.1	147.2	1.286	0.1418	20	B1I	0.007091	116.6	149.2	1.302
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-SSB2-RTA-3	C	C1	3	1	112.5	147.9	1.293	0.1416	20	B1I	0.007082	113.8	149.6	1.308
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-SSB2-RTA-1	C	C2	3	2	107.0	146.0	1.325	0.1415	20	B1I	0.007073	108.2	147.5	1.339
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-SSB2-RTA-2	C	C2	3	2	113.5	145.5	1.281	0.1412	20	B1I	0.007059	114.5	146.7	1.292
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-SSB2-RTA-3	C	C2	3	2	110.1	144.5	1.272	0.1409	20	B1I	0.007047	110.8	145.5	1.280

Average	**113.6**	**146.8**	**1.310**		**Average$_{norm}$**	**0.007039**	**114.2**	**147.6**	**1.318**
Standard Dev.	**3.084**	**3.402**	**0.02871**		**Standard Dev.$_{norm}$**		**3.112**	**3.602**	**0.02780**
Coeff. of Var. [%]	**2.715**	**2.318**	**2.191**		**Coeff. of Var. [%]$_{norm}$**		**2.725**	**2.441**	**2.110**
Min.	**107.0**	**141.3**	**1.249**		**Min.**	**0.006977**	**108.2**	**141.7**	**1.252**
Max.	**119.1**	**156.1**	**1.366**		**Max.**	**0.007103**	**119.5**	**156.5**	**1.370**
Number of Spec.	**18**	**18**	**18**		**Number of Spec.**	**18**	**18**	**18**	**18**


Laminate Single-Shear Bearing Properties (SSB2, Proc. C)--RTA (70°F)
Normalized 2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Strength [ksi]
0
20
40
60
80
100
120
140
0
1
2
3
4


Laminate Single-Shear Bearing Properties (SSB2, Proc. C)--RTA (70°F)
Normalized Ultimate Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Strength [ksi]
0
20
40
60
80
100
120
140
160
180
0
1
2
3
4

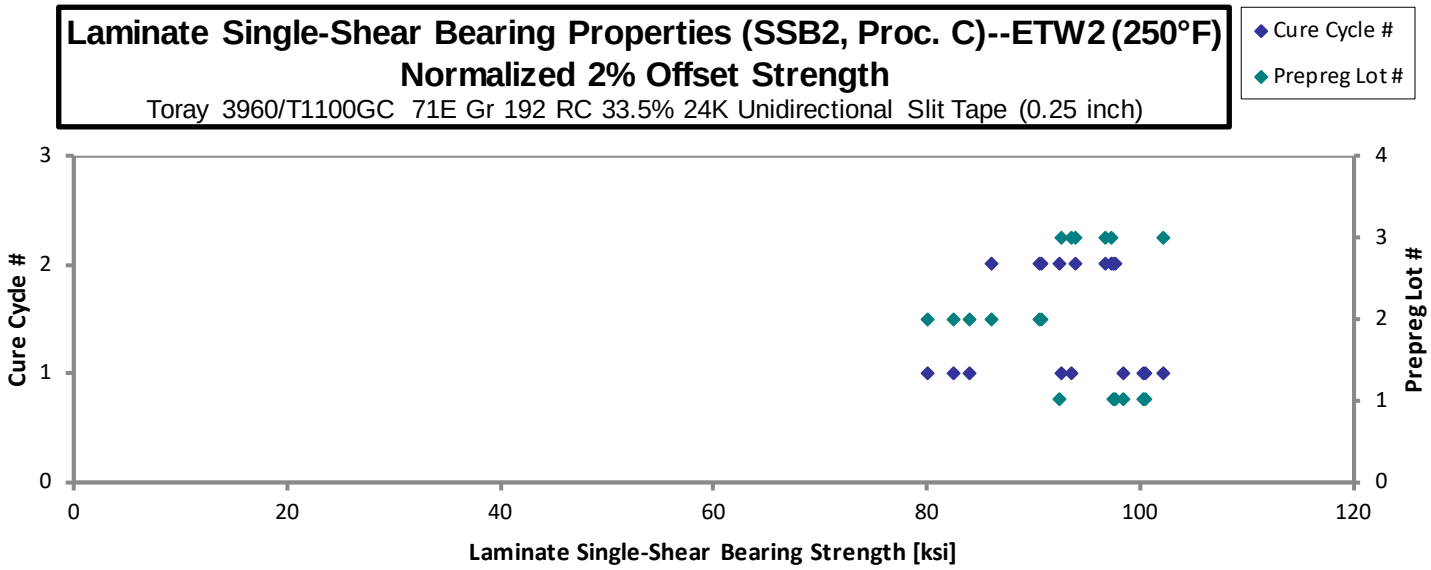

Laminate Single-Shear Bearing Properties (SSB2, Proc. C)--RTA (70°F)
Normalized Chord Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
Laminate Single-Shear Bearing Chord Modulus [Msi]

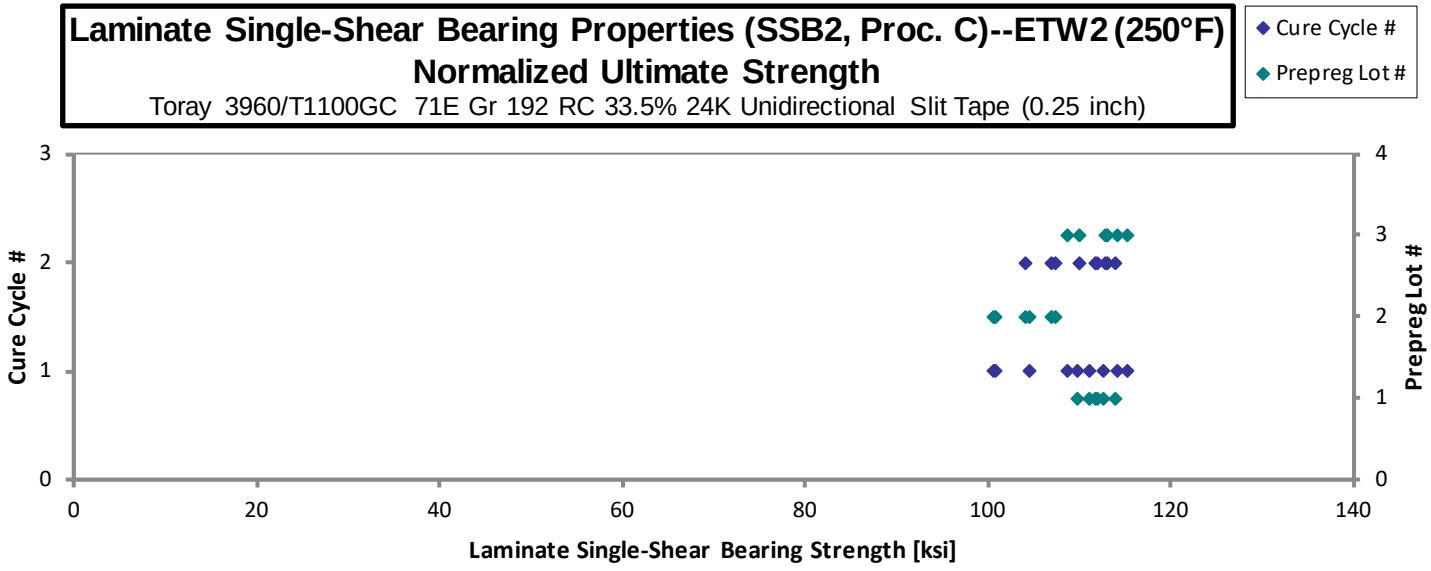
Laminate Single-Shear Bearing Properties (SSB2, Proc. C)--ETW2 (250°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

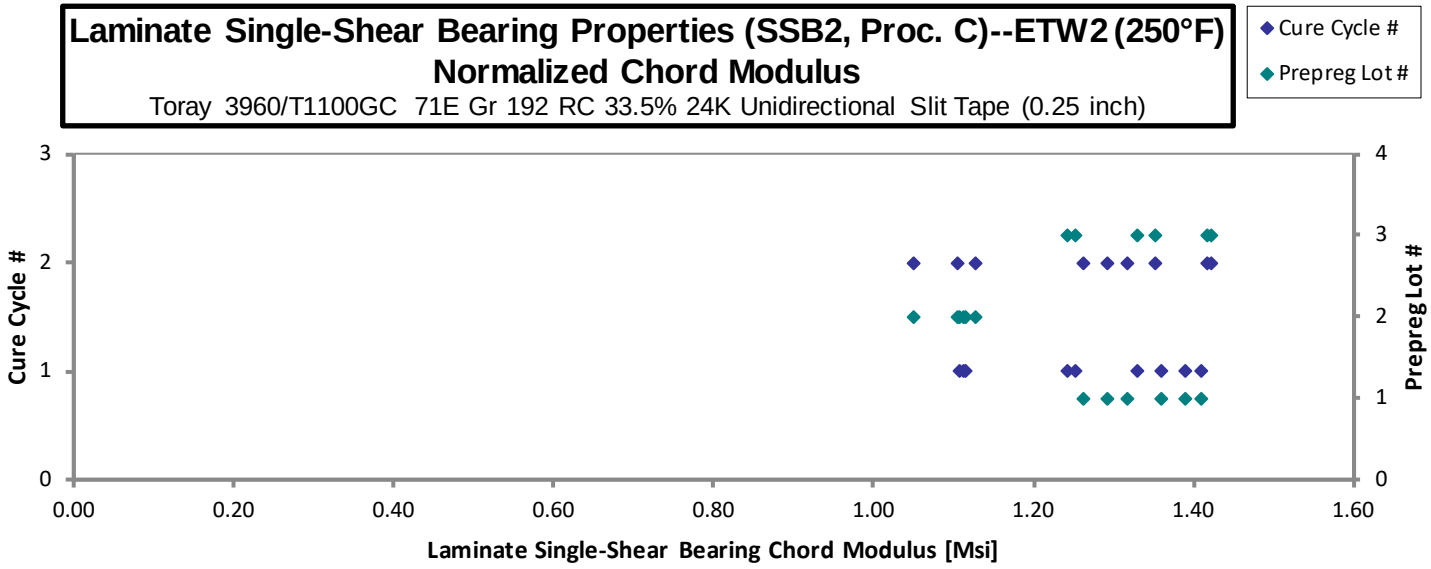
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset $Strength_{norm}$ [ksi]	Ultimate $Strength_{norm}$ [ksi]	Chord $Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-SSB2-ETW2-1	A	C1	1	1	98.10	112.3	1.356	0.1404	20	B1I	0.007018	98.36	112.6	1.359
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-SSB2-ETW2-2	A	C1	1	1	100.0	110.9	1.407	0.1403	20	B1I	0.007017	100.3	111.1	1.410
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C1-1-SSB2-ETW2-3	A	C1	1	1	100.3	109.5	1.387	0.1404	20	B1I	0.007018	100.5	109.8	1.391
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-SSB2-ETW2-1	A	C2	1	2	97.49	113.7	1.292	0.1402	20	B1I	0.007010	97.63	113.9	1.293
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-SSB2-ETW2-2	A	C2	1	2	92.05	111.6	1.312	0.1405	20	B1I	0.007025	92.38	112.0	1.317
NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-SSB2-ETW2-3	A	C2	1	2	97.16	111.4	1.259	0.1404	20	B1I	0.007018	97.41	111.7	1.262
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-SSB2-ETW2-1	B	C1	2	1	80.04	100.8	1.115	0.1400	20	B1I	0.007000	80.04	100.8	1.115
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-SSB2-ETW2-2	B	C1	2	1	82.57	104.6	1.110	0.1398	20	B1I	0.006991	82.46	104.5	1.108
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-SSB2-ETW2-3	B	C1	2	1	84.12	100.7	1.114	0.1400	20	B1I	0.006998	84.09	100.7	1.114
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-SSB2-ETW2-1	B	C2	2	2	90.50	107.2	1.127	0.1402	20	B1I	0.007008	90.60	107.3	1.129
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-SSB2-ETW2-2	B	C2	2	2	90.62	106.8	1.050	0.1402	20	B1I	0.007009	90.74	107.0	1.051
NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-SSB2-ETW2-3	B	C2	2	2	86.02	104.1	1.104	0.1402	20	B1I	0.007008	86.11	104.2	1.105
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-SSB2-ETW2-1	C	C1	3	1	91.53	112.7	1.314	0.1417	20	B1I	0.007085	92.64	114.1	1.330
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-SSB2-ETW2-2	C	C1	3	1	101.1	114.0	1.239	0.1415	20	B1I	0.007077	102.2	115.3	1.252
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-SSB2-ETW2-3	C	C1	3	1	92.33	107.3	1.225	0.1419	20	B1I	0.007094	93.57	108.7	1.241
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-SSB2-ETW2-1	C	C2	3	2	92.67	111.6	1.335	0.1419	20	B1I	0.007096	93.94	113.2	1.353
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-SSB2-ETW2-2	C	C2	3	2	96.64	112.1	1.414	0.1410	20	B1I	0.007048	97.30	112.9	1.423
NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-SSB2-ETW2-3	C	C2	3	2	95.84	109.1	1.405	0.1413	20	B1I	0.007064	96.72	110.1	1.418

	2% Offset Strength	Ultimate Strength	Chord Modulus			$Strength_{norm}$	$Strength_{norm}$	$Modulus_{norm}$
Average	92.73	108.9	1.254	$Average_{norm}$	0.007032	93.16	109.4	1.260
Standard Dev.	6.281	4.167	0.1227	$Standard\ Dev._{norm}$		6.477	4.477	0.1260
Coeff. of Var. [%]	6.773	3.826	9.790	Coeff. of Var. $[\%]_{norm}$		6.953	4.091	10.01
Min.	80.04	100.7	1.050	Min.	0.006991	80.04	100.7	1.051
Max.	101.1	114.0	1.414	Max.	0.007096	102.2	115.3	1.423
Number of Spec.	18	18	18	Number of Spec.	18	18	18	18


Laminate Single-Shear Bearing Properties (SSB2, Proc. C)--ETW2 (250°F)
Normalized 2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Strength [ksi]
0
20
40
60
80
100
120
0
1
2
3
4


Laminate Single-Shear Bearing Properties (SSB2, Proc. C)--ETW2 (250°F)
Normalized Ultimate Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Strength [ksi]
0
20
40
60
80
100
120
140
0
1
2
3
4

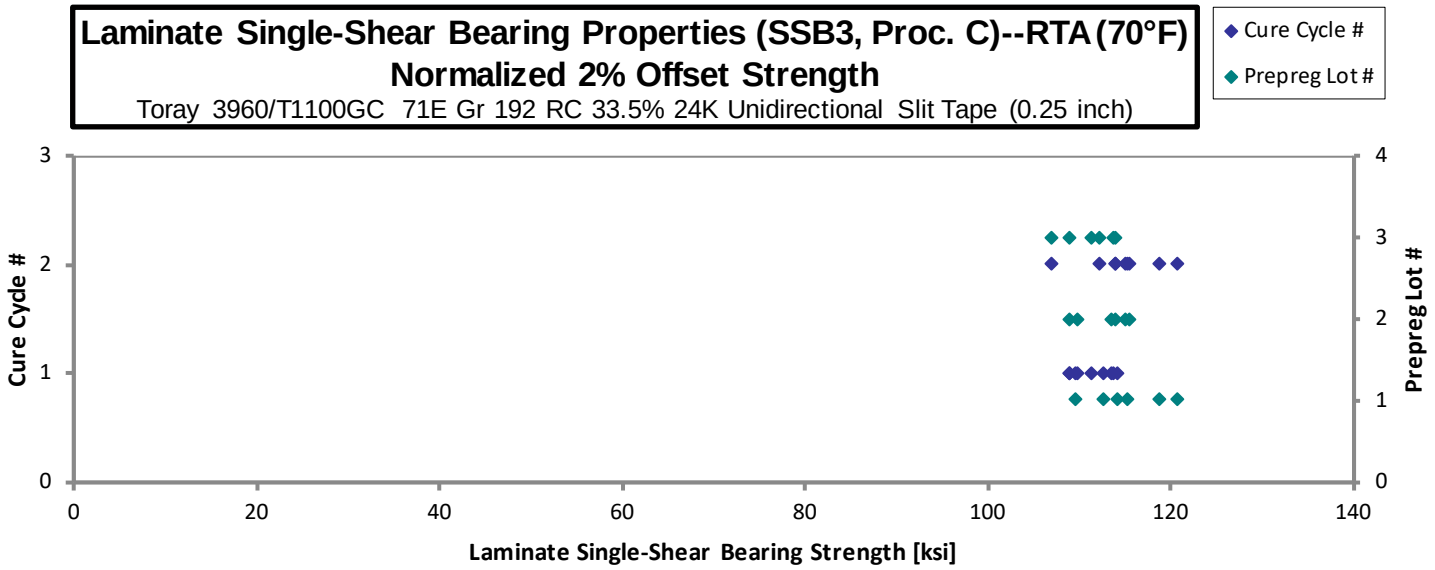

Laminate Single-Shear Bearing Properties (SSB2, Proc. C)--ETW2 (250°F)
Normalized Chord Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Chord Modulus [Msi]
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
0
1
2
3
4

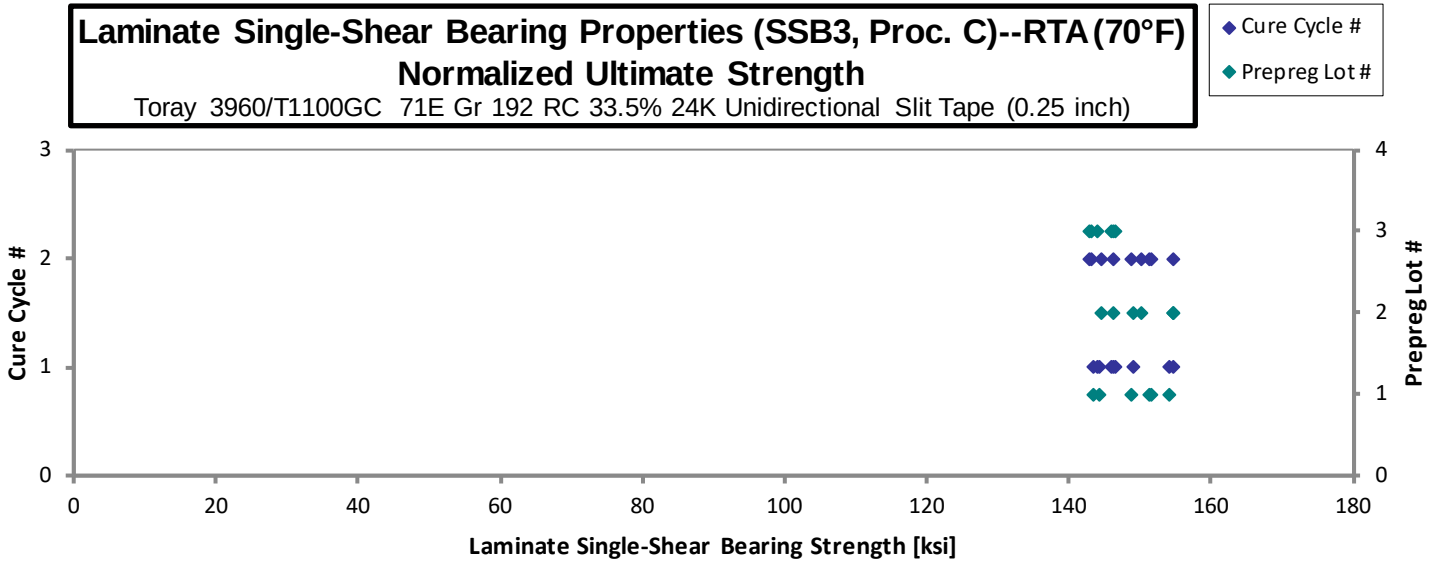
4.31 “50/40/10” Single-Shear Bearing 3 Properties (SSB3, Proc. C)

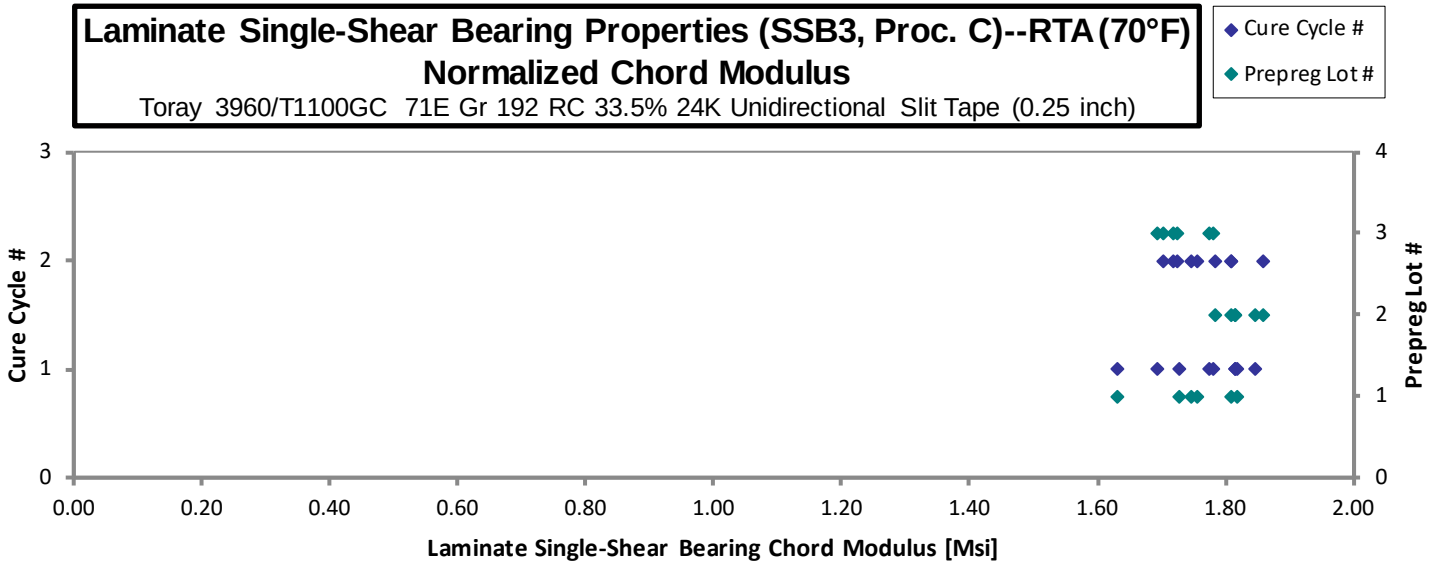
Laminate Single-Shear Bearing Properties (SSB3, Proc. C)--RTA (70°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset $Strength_{norm}$ [ksi]	Ultimate $Strength_{norm}$ [ksi]	Chord $Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-SSB3-RTA-1	A	C1	1	1	113.0	152.4	1.800	0.1416	20	B1I	0.007078	114.3	154.0	1.820
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-SSB3-RTA-2	A	C1	1	1	108.7	142.9	1.711	0.1413	20	B1I	0.007065	109.7	144.2	1.727
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-SSB3-RTA-3	A	C1	1	1	111.7	142.1	1.617	0.1413	20	B1I	0.007067	112.8	143.5	1.632
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-SSB3-RTA-1	A	C2	1	2	117.8	147.6	1.740	0.1412	20	B1I	0.007059	118.7	148.8	1.755
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-SSB3-RTA-2	A	C2	1	2	114.1	149.9	1.729	0.1414	20	B1I	0.007070	115.3	151.4	1.746
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-SSB3-RTA-3	A	C2	1	2	119.7	149.9	1.793	0.1412	20	B1I	0.007058	120.7	151.2	1.808
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-SSB3-RTA-1	B	C1	2	1	112.1	146.9	1.793	0.1419	20	B1I	0.007094	113.6	148.9	1.817
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-SSB3-RTA-2	B	C1	2	1	110.5	147.3	1.859	0.1391	20	B1I	0.006954	109.7	146.4	1.847
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-SSB3-RTA-3	B	C1	2	1	108.5	153.9	1.808	0.1405	20	B1I	0.007027	108.9	154.5	1.815
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-SSB3-RTA-1	B	C2	2	2	115.1	150.3	1.811	0.1399	20	B1I	0.006995	115.0	150.2	1.810
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-SSB3-RTA-2	B	C2	2	2	114.0	144.7	1.785	0.1399	20	B1I	0.006997	113.9	144.6	1.784
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-SSB3-RTA-3	B	C2	2	2	115.5	154.6	1.861	0.1400	20	B1I	0.006998	115.4	154.5	1.860
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-SSB3-RTA-1	C	C1	3	1	108.3	143.1	1.764	0.1409	20	B1I	0.007044	109.0	144.0	1.775
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-SSB3-RTA-2	C	C1	3	1	111.1	145.6	1.688	0.1404	20	B1I	0.007019	111.4	146.0	1.693
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-SSB3-RTA-3	C	C1	3	1	112.6	145.0	1.764	0.1415	20	B1I	0.007073	113.8	146.5	1.782
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-SSB3-RTA-1	C	C2	3	2	104.8	143.2	1.689	0.1430	20	B1I	0.007148	107.0	146.2	1.725
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-SSB3-RTA-2	C	C2	3	2	111.5	142.3	1.708	0.1409	20	B1I	0.007043	112.1	143.2	1.719
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-SSB3-RTA-3	C	C2	3	2	112.6	140.9	1.681	0.1419	20	B1I	0.007093	114.1	142.8	1.704
Average					**112.3**	**146.8**	**1.756**				**Average$_{norm}$**	**0.007049**	**113.1**	**147.8**	**1.768**
Standard Dev.					**3.551**	**4.223**	**0.06520**				**Standard Dev.$_{norm}$**		**3.472**	**4.019**	**0.05979**
Coeff. of Var. [%]					**3.162**	**2.876**	**3.714**				**Coeff. of Var. [%]$_{norm}$**		**3.070**	**2.719**	**3.382**
Min.					**104.8**	**140.9**	**1.617**				**Min.**	**0.006954**	**107.0**	**142.8**	**1.632**
Max.					**119.7**	**154.6**	**1.861**				**Max.**	**0.007148**	**120.7**	**154.5**	**1.860**
Number of Spec.					**18**	**18**	**18**				**Number of Spec.**	**18**	**18**	**18**	**18**


Laminate Single-Shear Bearing Properties (SSB3, Proc. C)--RTA (70°F)
Normalized 2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Strength [ksi]
0
20
40
60
80
100
120
140
0
1
2
3
4


Laminate Single-Shear Bearing Properties (SSB3, Proc. C)--RTA (70°F)
Normalized Ultimate Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Strength [ksi]
0
20
40
60
80
100
120
140
160
180
0
1
2
3
4

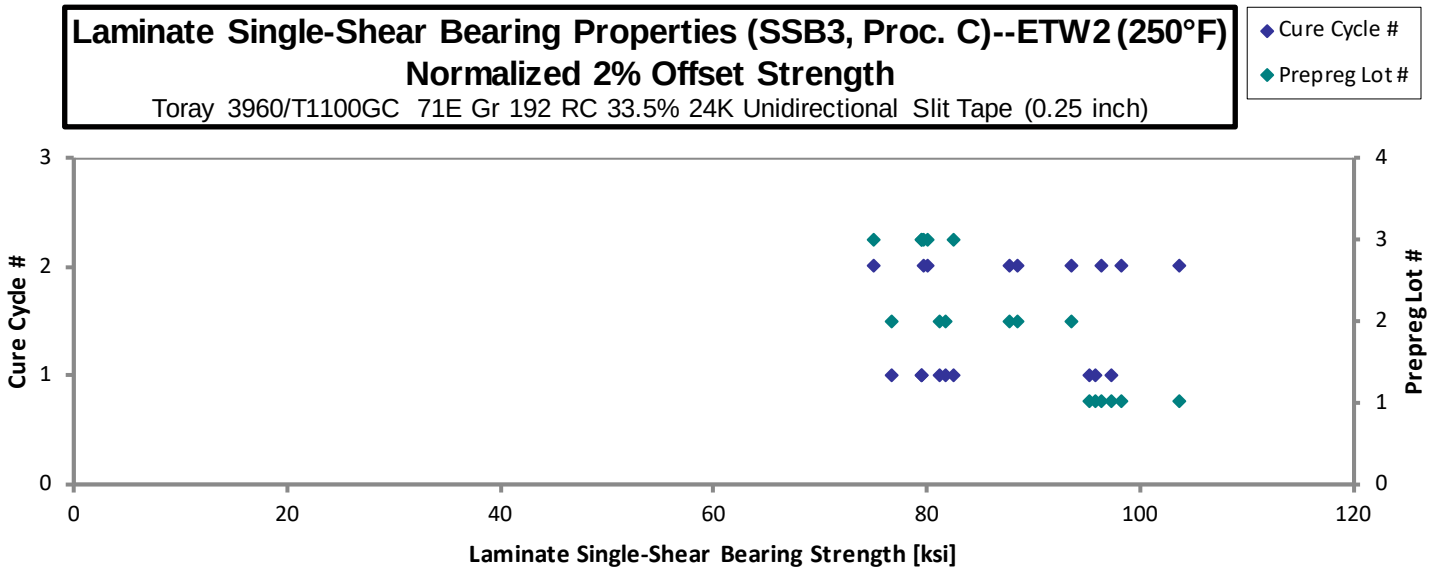

Laminate Single-Shear Bearing Properties (SSB3, Proc. C)--RTA (70°F)
Normalized Chord Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
2.00
Laminate Single-Shear Bearing Chord Modulus [Msi]

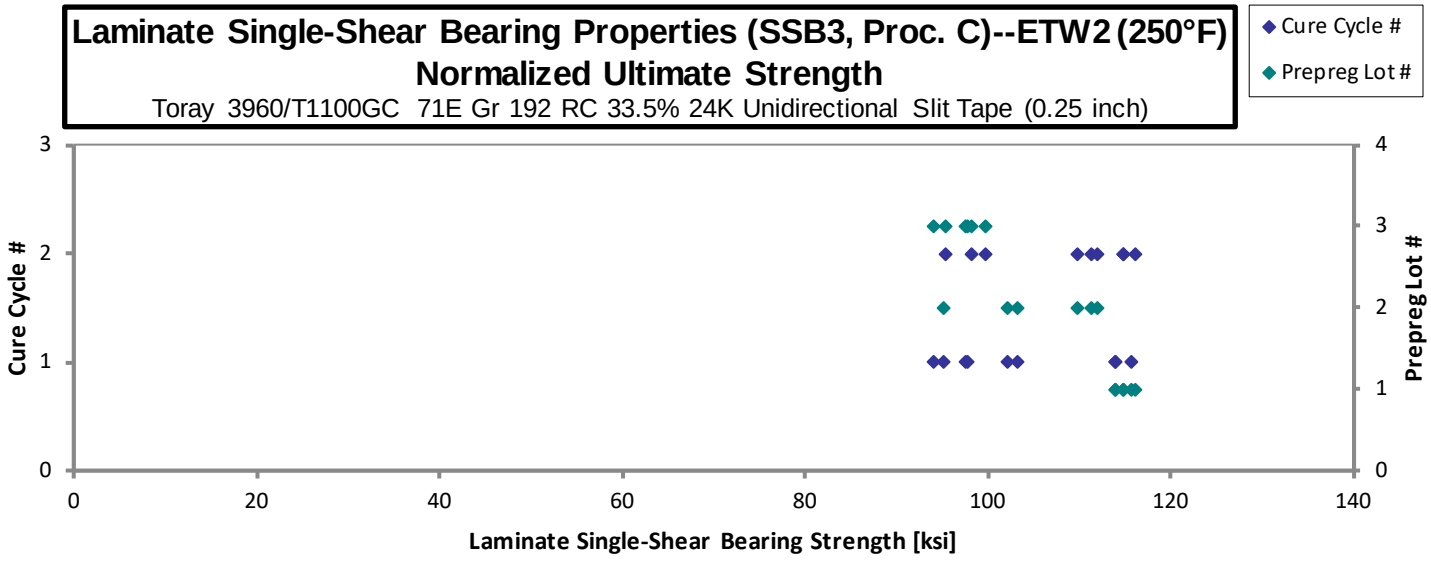
Laminate Single-Shear Bearing Properties (SSB3, Proc. C)--ETW2 (250°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

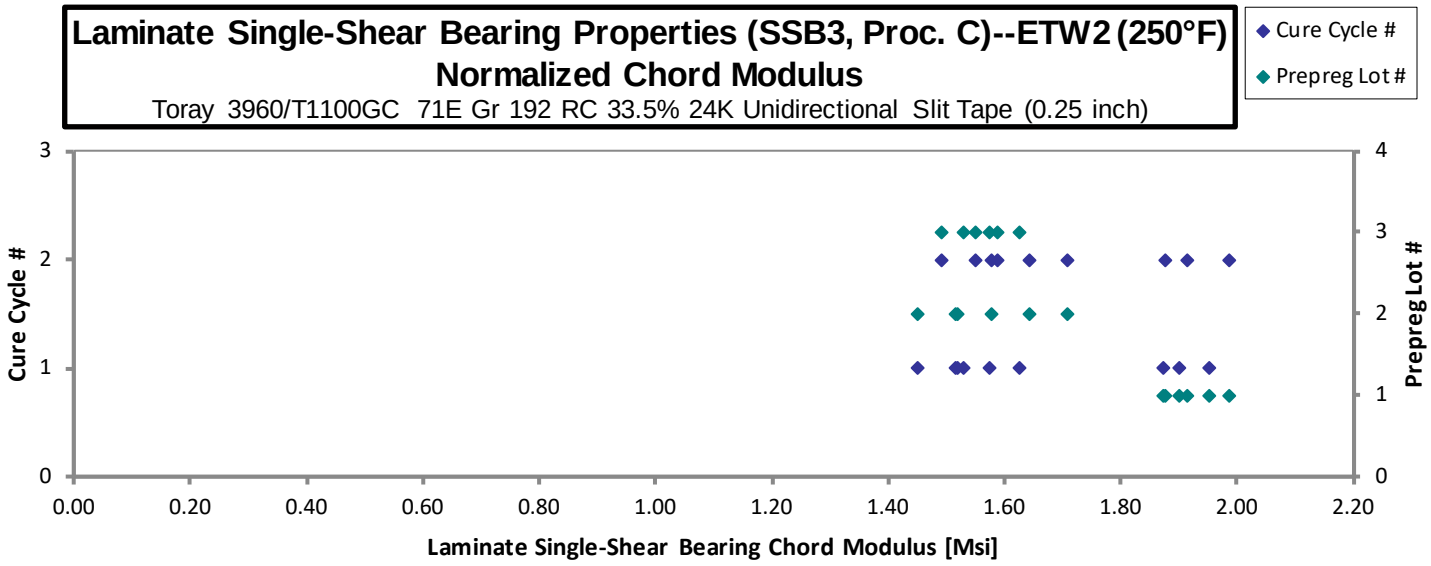
normalizing t_{ply} [in]: 0.007000

Specimen Number	Toray Batch #	Toray Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	2% Offset $Strength_{norm}$ [ksi]	Ultimate $Strength_{norm}$ [ksi]	Chord $Modulus_{norm}$ [Msi]
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-SSB3-ETW2-1	A	C1	1	1	95.40	113.4	1.865	0.1407	20	B1I	0.007035	95.88	114.0	1.874
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-SSB3-ETW2-2	A	C1	1	1	96.34	114.5	1.882	0.1414	20	B1I	0.007071	97.31	115.7	1.901
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-SSB3-ETW2-3	A	C1	1	1	94.33	112.8	1.933	0.1414	20	B1I	0.007068	95.25	113.9	1.952
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-SSB3-ETW2-1	A	C2	1	2	97.46	115.3	1.972	0.1411	20	B1I	0.007056	98.23	116.2	1.988
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-SSB3-ETW2-2	A	C2	1	2	102.3	113.5	1.890	0.1417	20	B1I	0.007086	103.6	114.9	1.913
NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-SSB3-ETW2-3	A	C2	1	2	95.33	113.6	1.857	0.1416	20	B1I	0.007078	96.39	114.9	1.878
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-SSB3-ETW2-1	B	C1	2	1	81.71	103.1	1.517	0.1402	20	B1I	0.007010	81.83	103.3	1.519
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-SSB3-ETW2-2	B	C1	2	1	81.04	102.0	1.449	0.1401	20	B1I	0.007007	81.12	102.1	1.451
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C1-1-SSB3-ETW2-3	B	C1	2	1	76.63	95.09	1.514	0.1400	20	B1I	0.007001	76.64	95.10	1.515
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-SSB3-ETW2-1	B	C2	2	2	88.53	109.8	1.708	0.1400	20	B1I	0.006998	88.51	109.8	1.707
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-SSB3-ETW2-2	B	C2	2	2	93.71	112.2	1.647	0.1397	20	B1I	0.006985	93.51	111.9	1.643
NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-SSB3-ETW2-3	B	C2	2	2	87.78	111.4	1.578	0.1400	20	B1I	0.006998	87.76	111.3	1.578
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-SSB3-ETW2-1	C	C1	3	1	78.83	96.71	1.562	0.1412	20	B1I	0.007059	79.49	97.52	1.575
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-SSB3-ETW2-2	C	C1	3	1	81.97	97.15	1.614	0.1409	20	B1I	0.007046	82.50	97.79	1.625
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-SSB3-ETW2-3	C	C1	3	1	78.74	93.30	1.517	0.1413	20	B1I	0.007064	79.46	94.16	1.531
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-SSB3-ETW2-1	C	C2	3	2	78.79	96.99	1.533	0.1416	20	B1I	0.007082	79.71	98.12	1.551
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-SSB3-ETW2-2	C	C2	3	2	78.96	98.46	1.564	0.1420	20	B1I	0.007099	80.08	99.85	1.586
NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-SSB3-ETW2-3	C	C2	3	2	73.92	94.07	1.473	0.1419	20	B1I	0.007095	74.92	95.34	1.493

	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Chord Modulus [Msi]			2% Offset $Strength_{norm}$ [ksi]	Ultimate $Strength_{norm}$ [ksi]	Chord $Modulus_{norm}$ [Msi]
Average	**86.77**	**105.2**	**1.671**	**$Average_{norm}$**	**0.007047**	**87.34**	**105.9**	**1.682**
Standard Dev.	**8.768**	**8.376**	**0.1783**	**Standard $Dev._{norm}$**		**8.862**	**8.379**	**0.1821**
Coeff. of Var. [%]	**10.11**	**7.963**	**10.67**	**Coeff. of Var. $[\%]_{norm}$**		**10.15**	**7.913**	**10.83**
Min.	**73.92**	**93.30**	**1.449**	**Min.**	**0.006985**	**74.92**	**94.16**	**1.451**
Max.	**102.3**	**115.3**	**1.972**	**Max.**	**0.007099**	**103.6**	**116.2**	**1.988**
Number of Spec.	**18**	**18**	**18**	**Number of Spec.**	**18**	**18**	**18**	**18**


Laminate Single-Shear Bearing Properties (SSB3, Proc. C)--ETW2 (250°F)
Normalized 2% Offset Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Strength [ksi]
0
20
40
60
80
100
120
0
1
2
3
4


Laminate Single-Shear Bearing Properties (SSB3, Proc. C)--ETW2 (250°F)
Normalized Ultimate Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Strength [ksi]
0
20
40
60
80
100
120
140
0
1
2
3
4


Laminate Single-Shear Bearing Properties (SSB3, Proc. C)--ETW2 (250°F)
Normalized Chord Modulus
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Single-Shear Bearing Chord Modulus [Msi]
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
2.00
2.20
0
1
2
3
4

4.32 “25/50/25” Compression After Impact 1 Properties (CAI1)

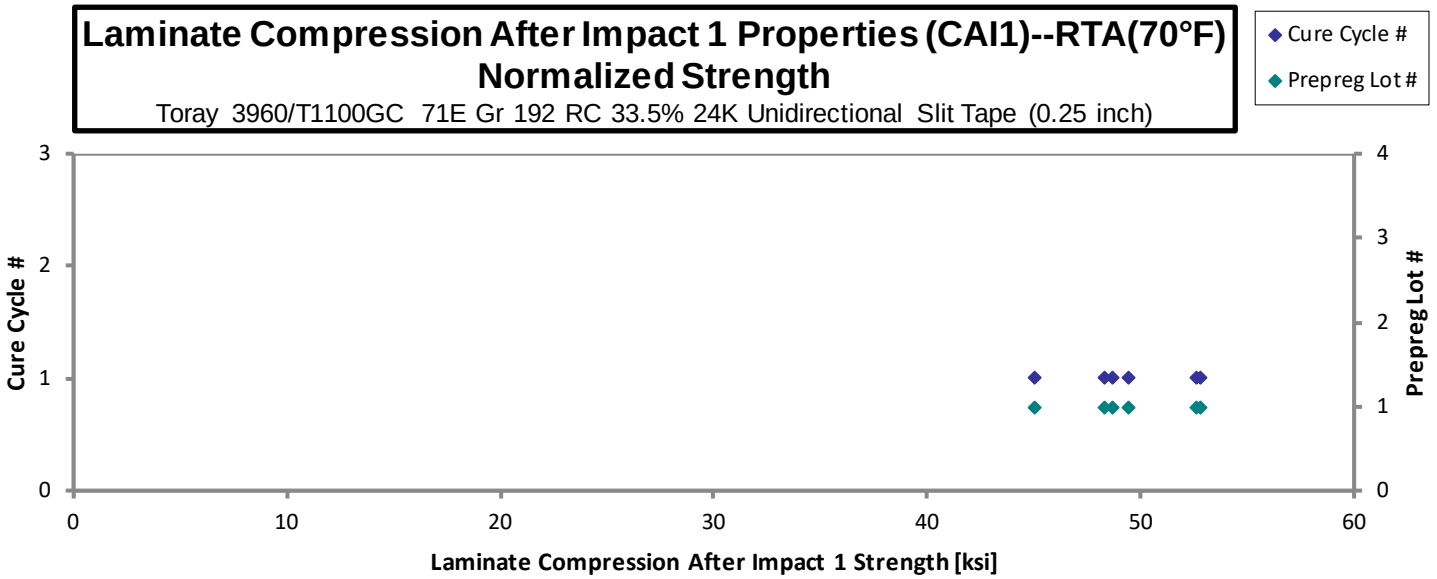
Laminate Compression After Impact 1 Properties (CAI1)--RTA(70°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

normalizing t_{ply} [in]
0.0070

Specimen Number	Toray Batch #	Toray 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]
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-CAI1-RTA-1	A	C1	1	1	53.55	247.8	0.1658	24	LDM	0.006906	52.83
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-CAI1-RTA-2	A	C1	1	1	53.44	247.8	0.1656	24	LDM	0.006900	52.68
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-CAI1-RTA-3	A	C1	1	1	49.09	247.6	0.1655	24	LDM	0.006894	48.35
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-CAI1-RTA-4	A	C1	1	1	50.30	245.4	0.1653	24	LDM	0.006888	49.49
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-CAI1-RTA-5	A	C1	1	1	49.42	248.1	0.1657	24	LDM	0.006903	48.73
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-CAI1-RTA-6	A	C1	1	1	45.66	247.6	0.1657	24	LDM	0.006903	45.03

	Strength [ksi]
Average	50.24
Standard Dev.	2.973
Coeff. of Var. [%]	5.917
Min.	45.66
Max.	53.55
Number of Spec.	6

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
$Average_{norm}$	0.006899	49.52
$Standard\ Dev._{norm}$		2.937
$Coeff.\ of\ Var.\ [\%]_{norm}$		5.931
Min.	0.006888	45.03
Max.	0.006906	52.83
Number of Spec.	6	6


Laminate Compression After Impact 1 Properties (CAI1)--RTA(70°F)
Normalized Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
10
20
30
40
50
60
Laminate Compression After Impact 1 Strength [ksi]

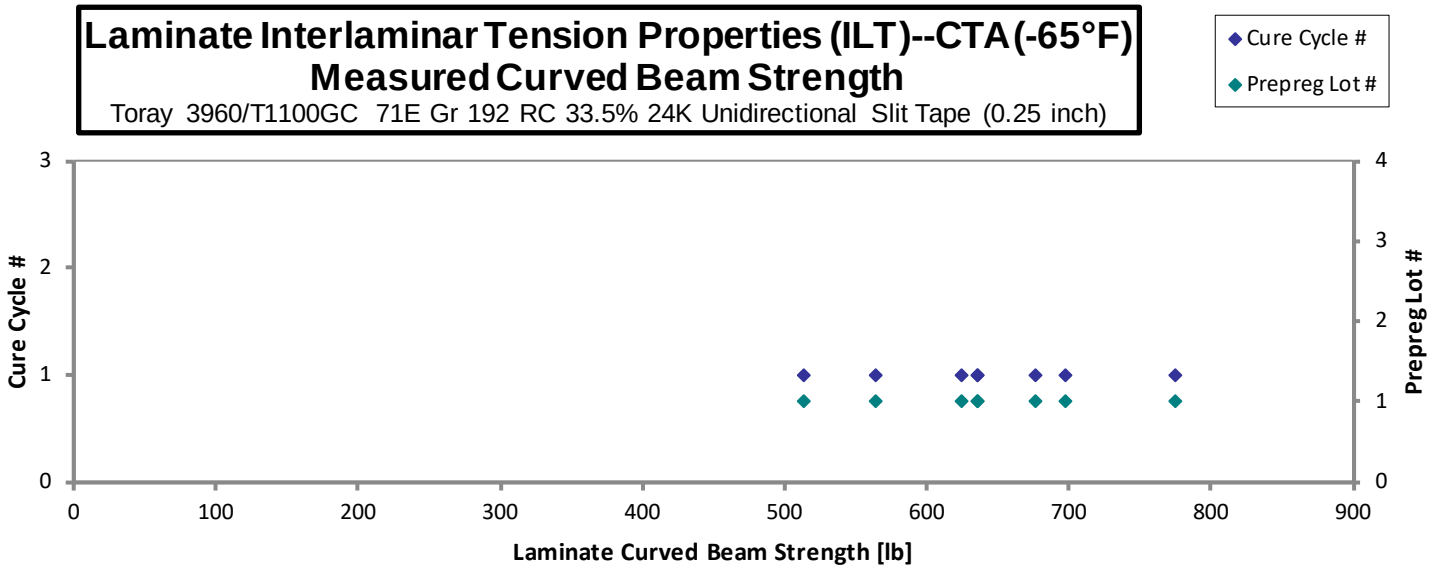
4.33 Interlaminar Tension Properties (ILT)

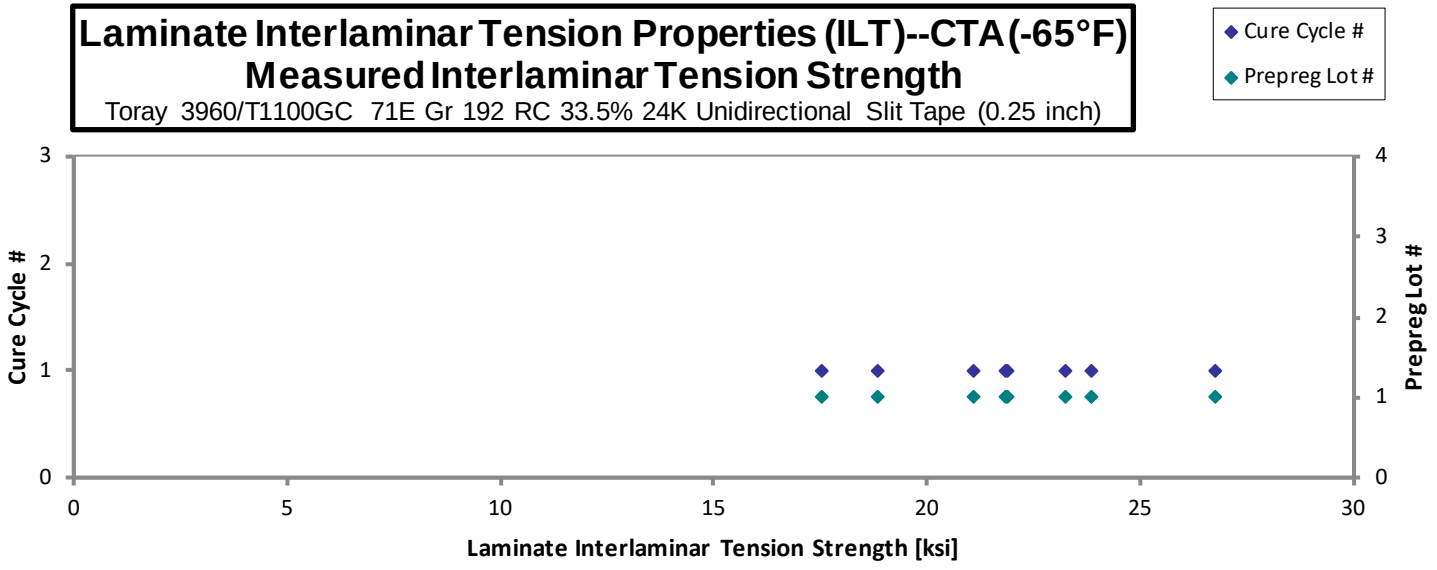
Laminate Interlaminar Tension Properties (ILT)--CTA (-65°F)
Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray 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
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C1-1-ILT-CTA-1*	A	C1	1	1	635.4	21.82	0.1399	22	0.006358	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C1-1-ILT-CTA-2*	A	C1	1	1	775.1	26.78	0.1392	22	0.006326	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C1-1-ILT-CTA-3*	A	C1	1	1	676.2	23.23	0.1399	22	0.006358	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C1-1-ILT-CTA-4*	A	C1	1	1	513.6	17.55	0.1405	22	0.006386	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C1-1-ILT-CTA-5*	A	C1	1	1	635.4	21.89	0.1395	22	0.006341	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C1-1-ILT-CTA-6*	A	C1	1	1	697.6	23.88	0.1403	22	0.006377	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C1-1-ILT-SP-1*	A	C1	1	1	564.4	18.87	0.1431	22	0.006506	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C1-1-ILT-SP-2*	A	C1	1	1	624.8	21.09	0.1420	22	0.006453	INTERLAMINAR TENSILE FAILURE

*Cross head displacement exceeds 0.2in.

Average	**640.3**	**21.89**	**0.006388**
Standard Dev.	**80.04**	**2.886**	
Coeff. of Var. [%]	**12.50**	**13.18**	
Min.	**513.6**	**17.55**	**0.006326**
Max.	**775.1**	**26.78**	**0.006506**
Number of Spec.	**8**	**8**	**8**


Laminate Interlaminar Tension Properties (ILT)--CTA (-65°F)
Measured Curved Beam Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Curved Beam Strength [lb]
0
100
200
300
400
500
600
700
800
900


Laminate Interlaminar Tension Properties (ILT)--CTA (-65°F)
Measured Interlaminar Tension Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Interlaminar Tension Strength [ksi]
0
5
10
15
20
25
30

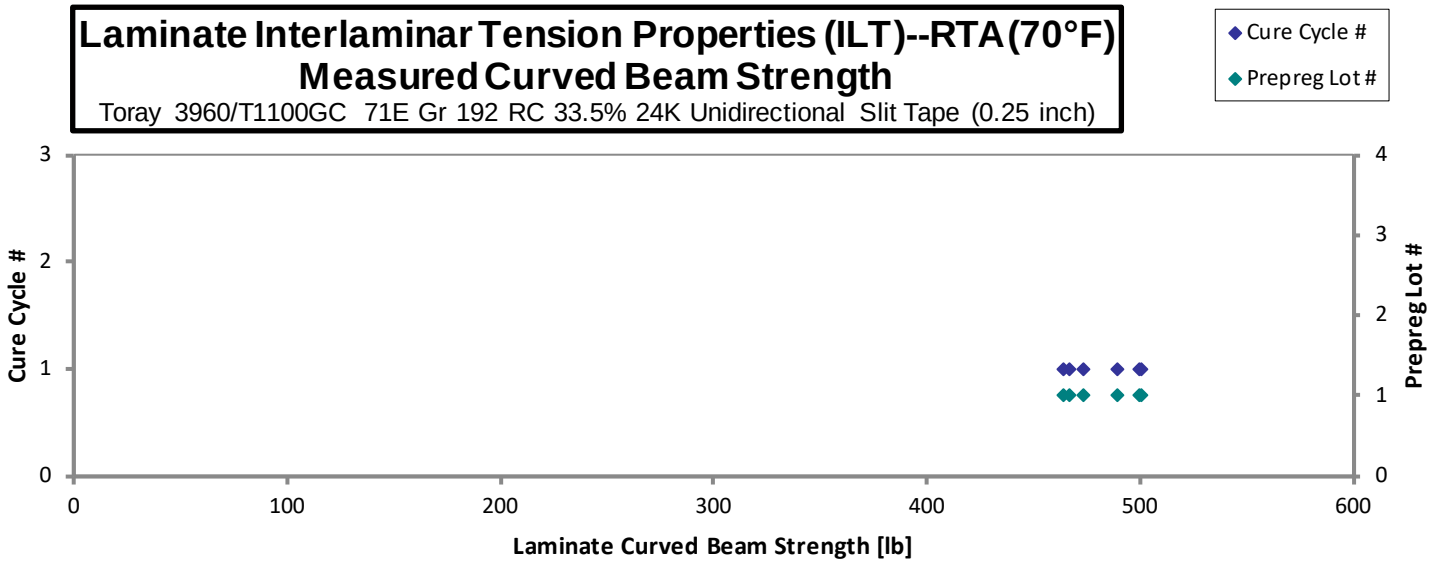
Laminate Interlaminar Tension Properties (ILT)--RTA (70°F)
Strength

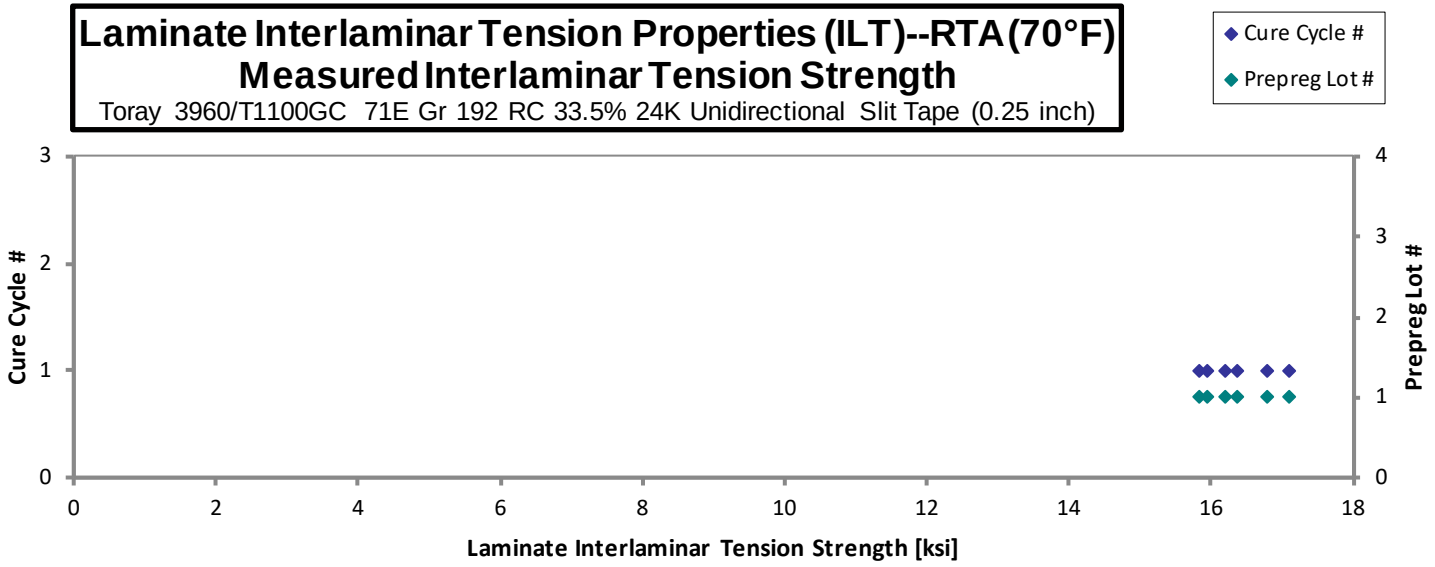
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray 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
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C1-1-ILT-RTA-1*	A	C1	1	1	463.6	15.94	0.1398	22	0.006352	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C1-1-ILT-RTA-2*	A	C1	1	1	473.6	16.21	0.1403	22	0.006377	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C1-1-ILT-RTA-3*	A	C1	1	1	466.6	15.83	0.1414	22	0.006425	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C1-1-ILT-RTA-4*	A	C1	1	1	489.1	16.37	0.1430	22	0.006500	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C1-1-ILT-RTA-5*	A	C1	1	1	499.8	16.79	0.1426	22	0.006481	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C1-1-ILT-RTA-6*	A	C1	1	1	500.6	17.10	0.1405	22	0.006388	INTERLAMINAR TENSILE FAILURE

*Cross head displacement exceeds 0.2in.

Average	**482.2**	**16.37**	**0.006420**
Standard Dev.	**16.51**	**0.4923**	
Coeff. of Var. [%]	**3.424**	**3.007**	
Min.	**463.6**	**15.83**	**0.006352**
Max.	**500.6**	**17.10**	**0.006500**
Number of Spec.	**6**	**6**	**6**

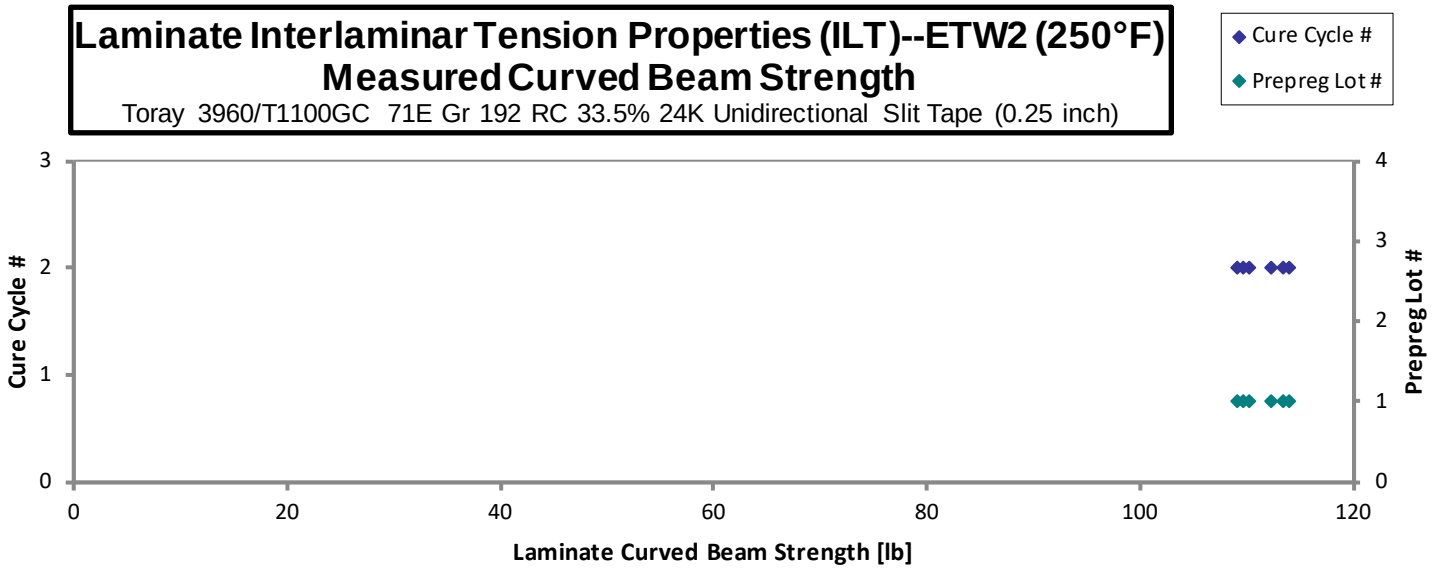

Laminate Interlaminar Tension Properties (ILT)--RTA(70°F)
Measured Curved Beam Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
100
200
300
400
500
600
Laminate Curved Beam Strength [lb]

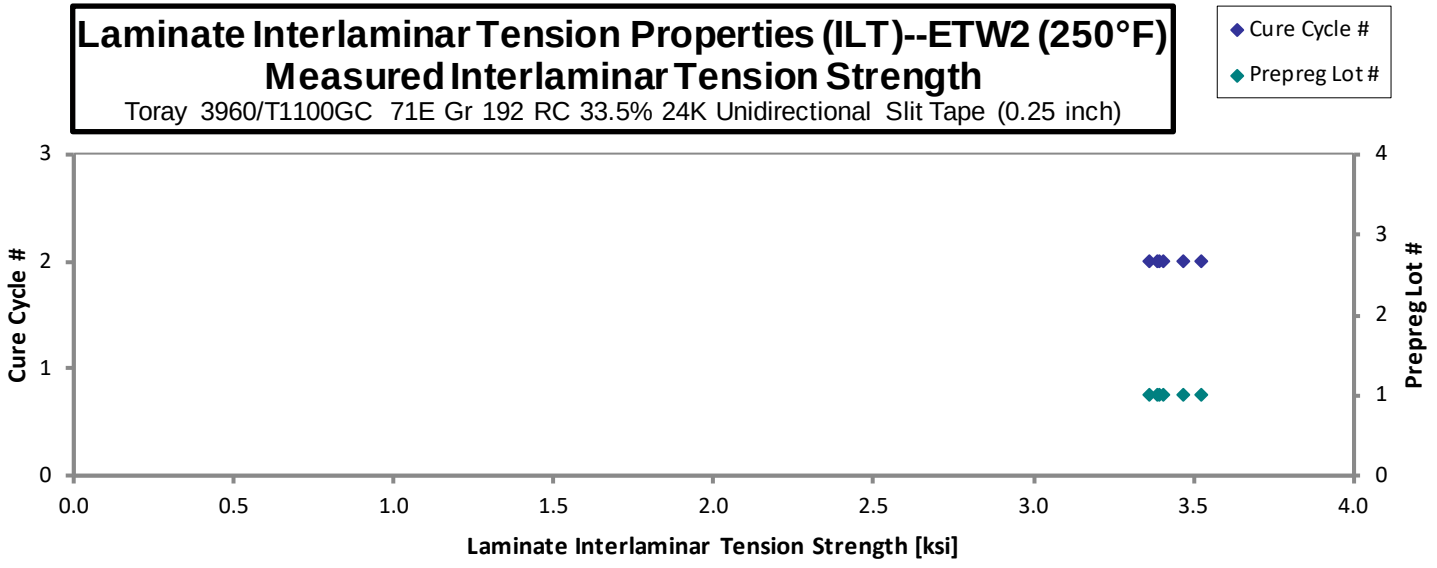

Laminate Interlaminar Tension Properties (ILT)--RTA(70°F)
Measured Interlaminar Tension Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0
2
4
6
8
10
12
14
16
18
Laminate Interlaminar Tension Strength [ksi]

Laminate Interlaminar Tension Properties (ILT)--ETW2 (250°F)
Strength

Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Specimen Number	Toray Batch #	Toray 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
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C2-1-ILT-ETW2-1	A	C2	1	2	112.2	3.385	0.1561	22	0.007095	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C2-1-ILT-ETW2-2	A	C2	1	2	109.7	3.403	0.1525	22	0.006930	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C2-1-ILT-ETW2-3	A	C2	1	2	113.4	3.469	0.1543	22	0.007013	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C2-1-ILT-ETW2-4	A	C2	1	2	110.3	3.393	0.1535	22	0.006978	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C2-1-ILT-ETW2-5	A	C2	1	2	109.1	3.361	0.1533	22	0.006968	INTERLAMINAR TENSILE FAILURE
NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C2-1-ILT-ETW2-6	A	C2	1	2	113.9	3.525	0.1528	22	0.006943	INTERLAMINAR TENSILE FAILURE
Average					**111.4**	**3.423**			**0.006988**	
Standard Dev.					**2.027**	**0.06192**				
Coeff. of Var. [%]					**1.819**	**1.809**				
Min.					**109.1**	**3.361**			**0.006930**	
Max.					**113.9**	**3.525**			**0.007095**	
Number of Spec.					**6**	**6**			**6**	


Laminate Interlaminar Tension Properties (ILT)--ETW2 (250°F)
Measured Curved Beam Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Curved Beam Strength [lb]
0
20
40
60
80
100
120
0
1
2
3
4

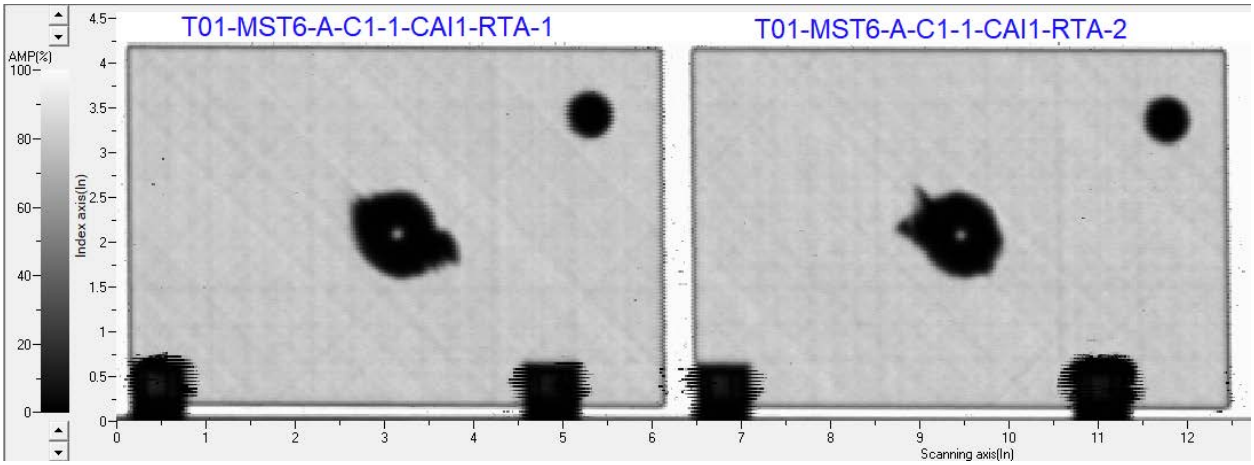

Laminate Interlaminar Tension Properties (ILT)--ETW2 (250°F)
Measured Interlaminar Tension Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Interlaminar Tension Strength [ksi]
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
0
1
2
3
4

5. Additional Compression After Impact Data

Target Impact Energy Level: 1500 in-lb/in

Impactor Diameter: 0.625”

Representative of Damage Area:



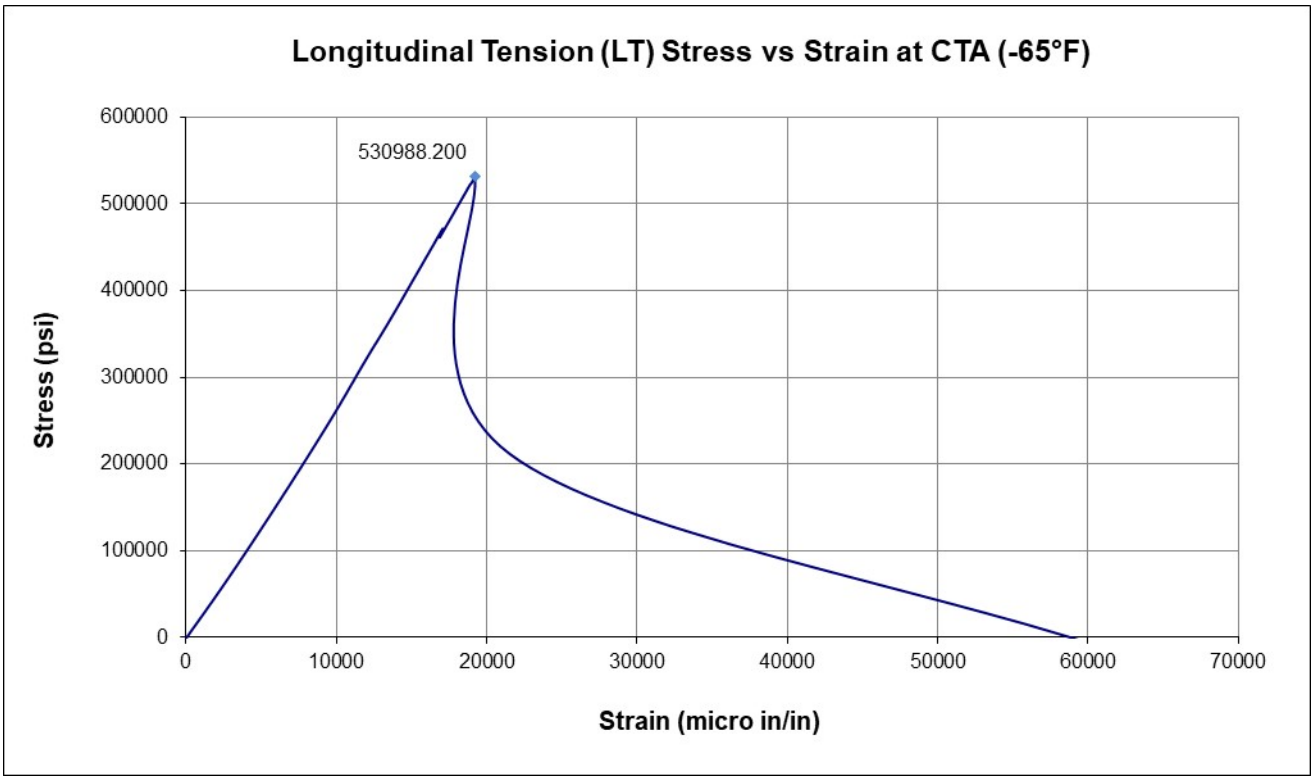
Damage Area and Dent Depth Summary:

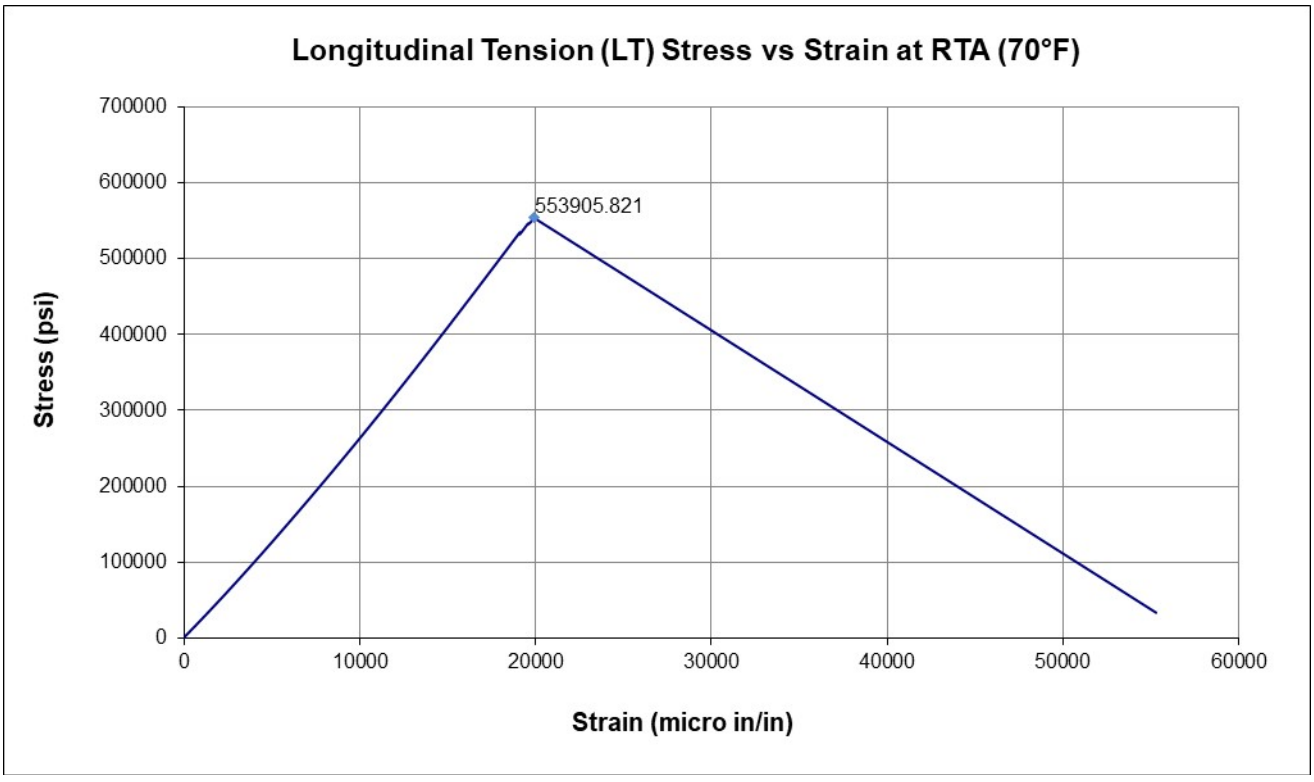
Specimen ID	Damage Area ($inch^2$)	Dent Depth (inch)
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-CAI1-RTA-1	0.8112	0.0095
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-CAI1-RTA-2	0.7728	0.0095
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-CAI1-RTA-3	0.8084	0.0095
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-CAI1-RTA-4	0.7600	0.0095
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-CAI1-RTA-5	0.7920	0.0095
NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-CAI1-RTA-6	0.7488	0.0095

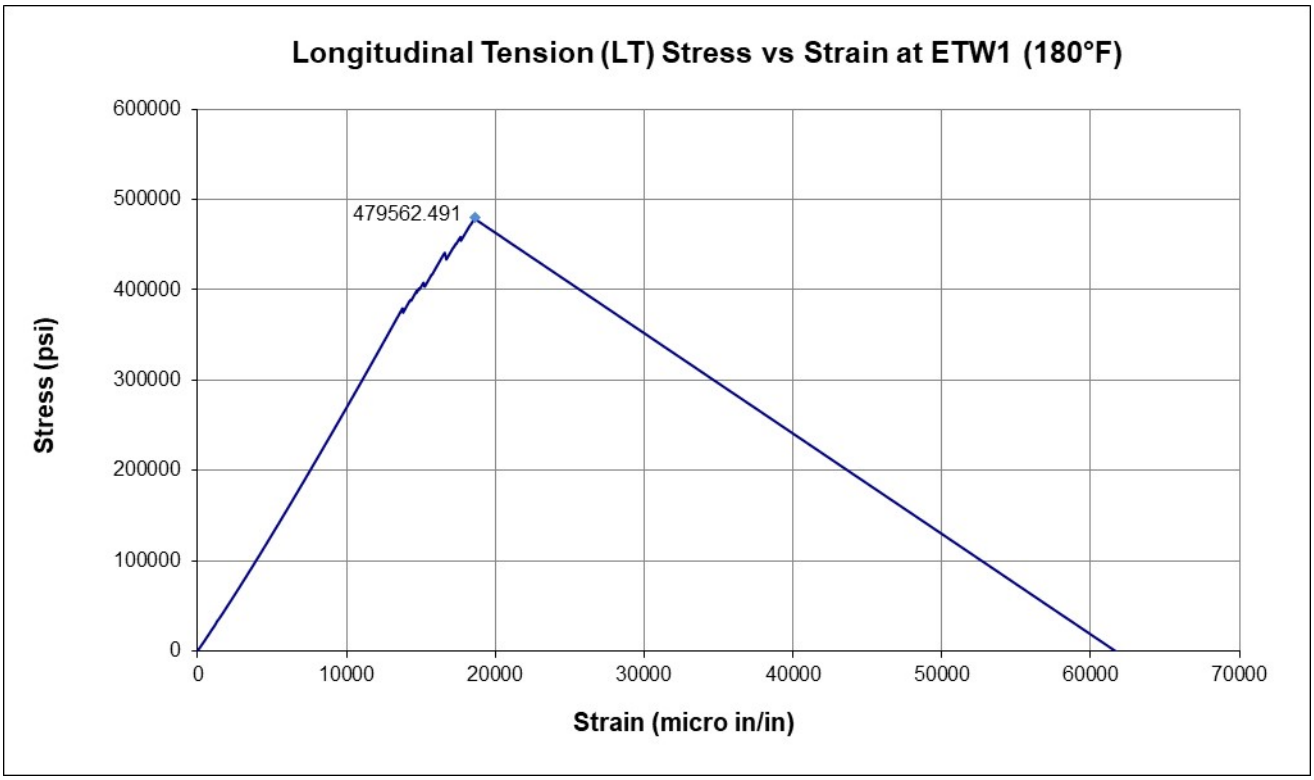
6. Full Stress vs. Strain Curve

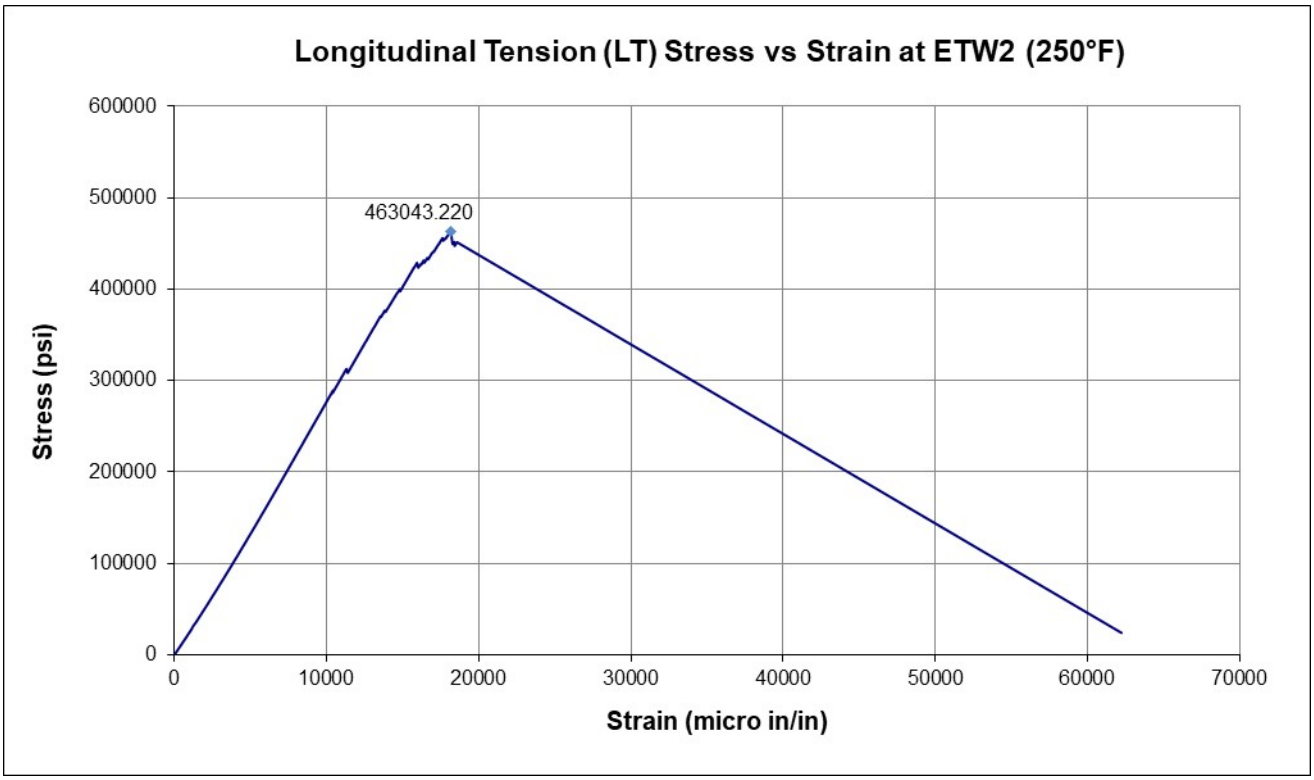
This section provides charts to display the stress-strain curves of the material for the environmental conditions tested. Representative curves for each configuration are provided in the sections below.

6.1 Longitudinal Tension (LT)

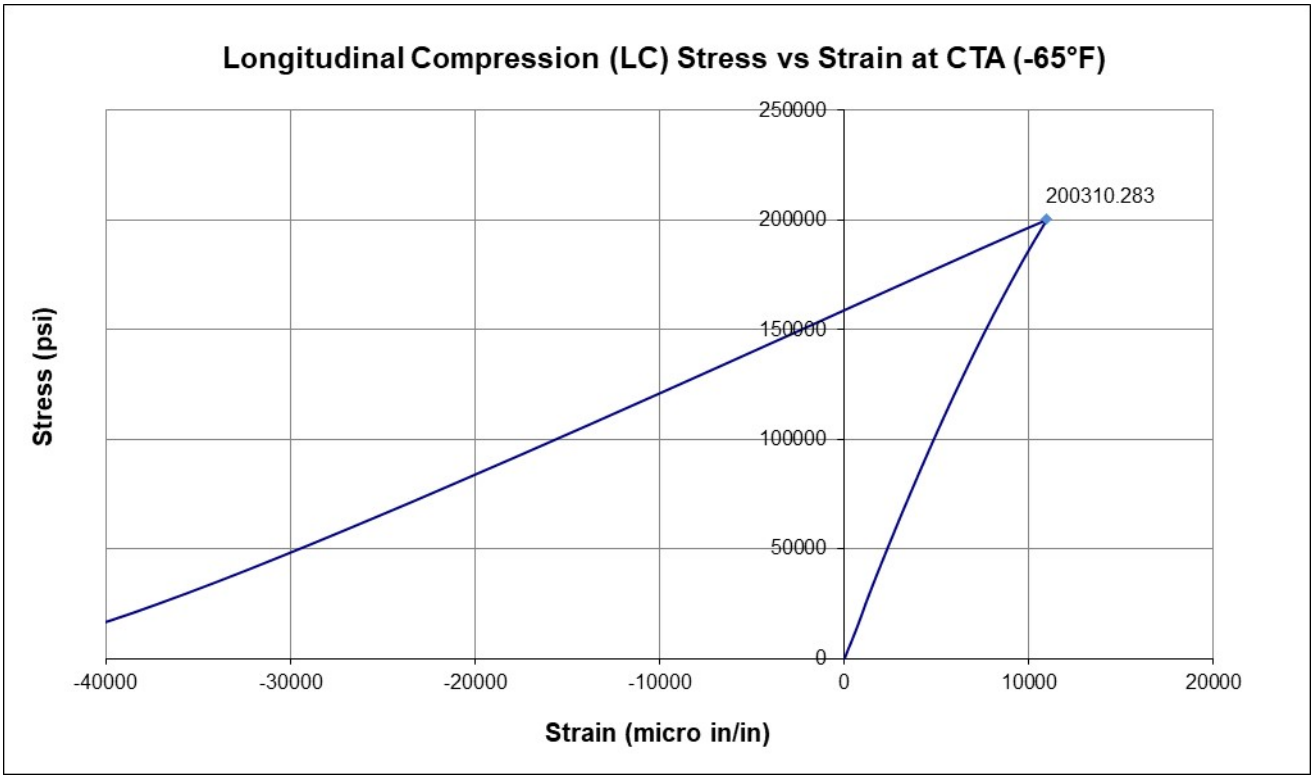


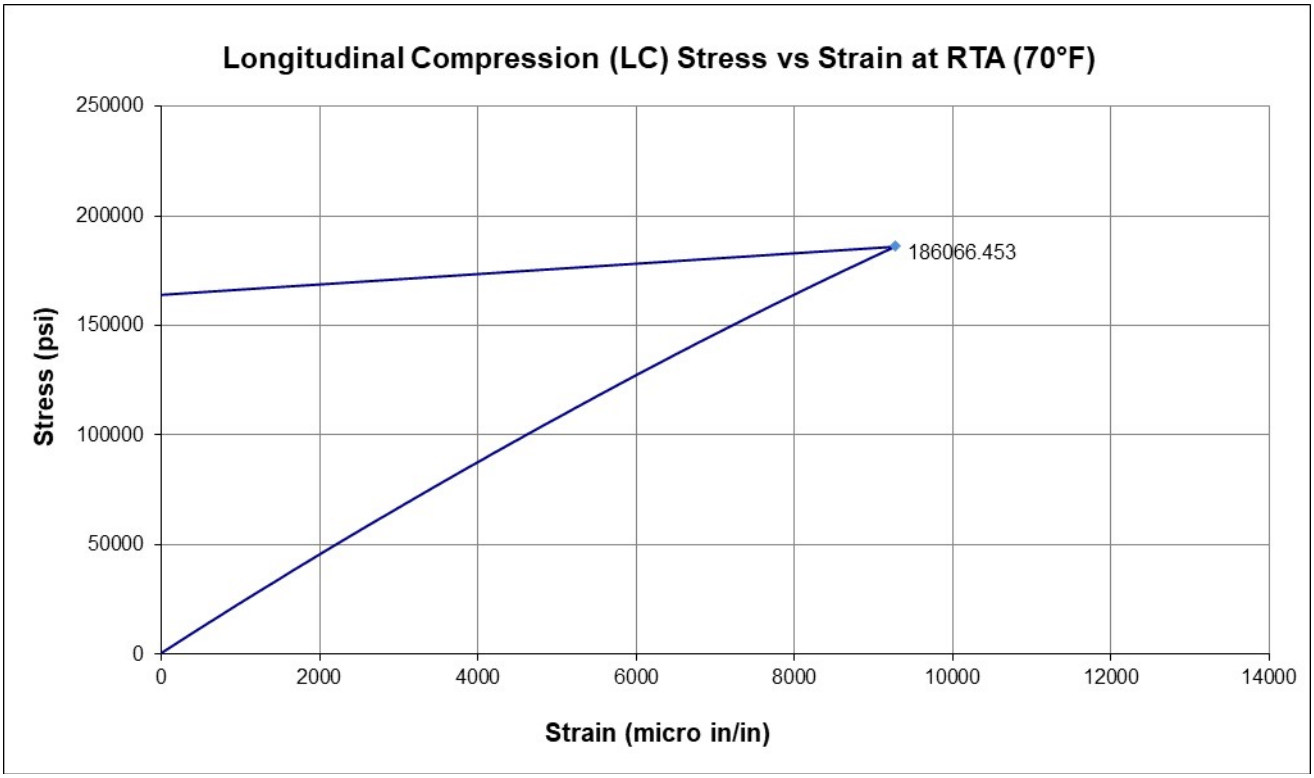


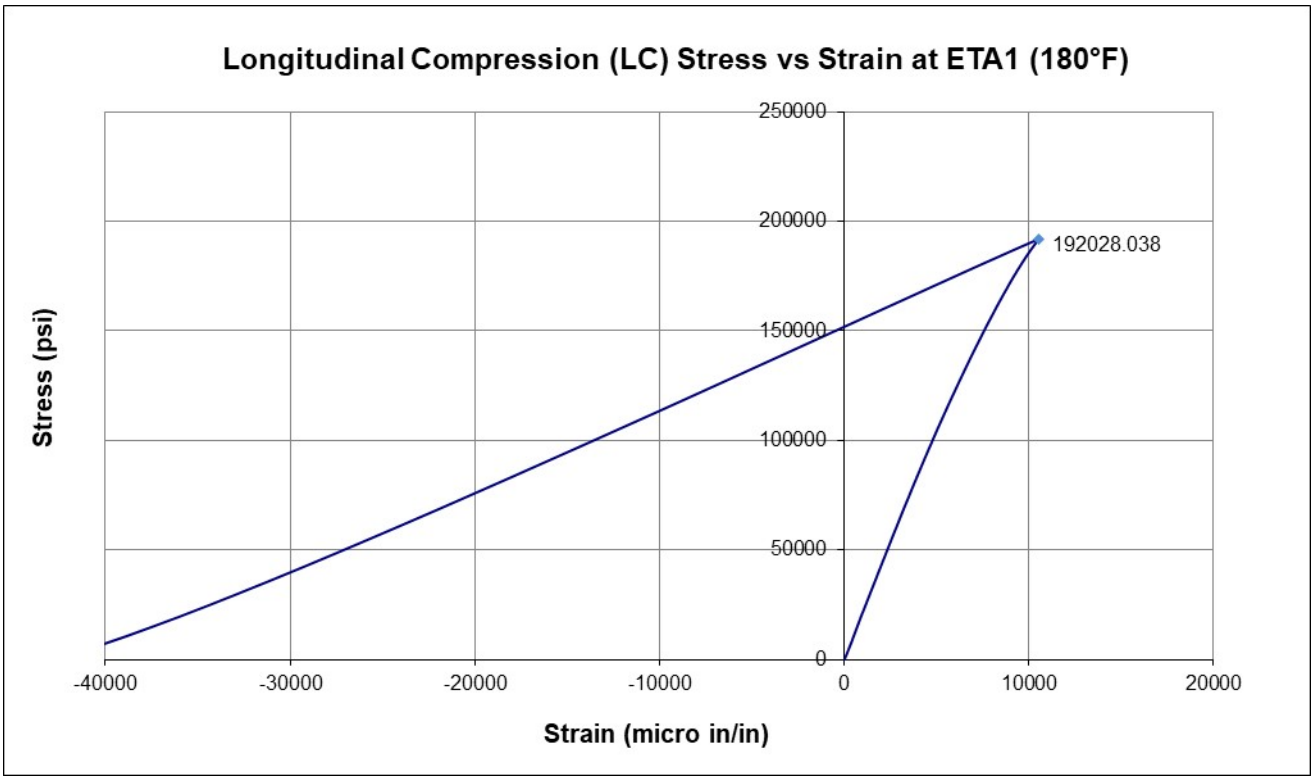

Longitudinal Tension (LT) Stress vs Strain at ETW1 (180°F)
Stress (psi)
600000
500000
400000
300000
200000
100000
0
479562.491
0
10000
20000
30000
40000
50000
60000
70000
Strain (micro in/in)

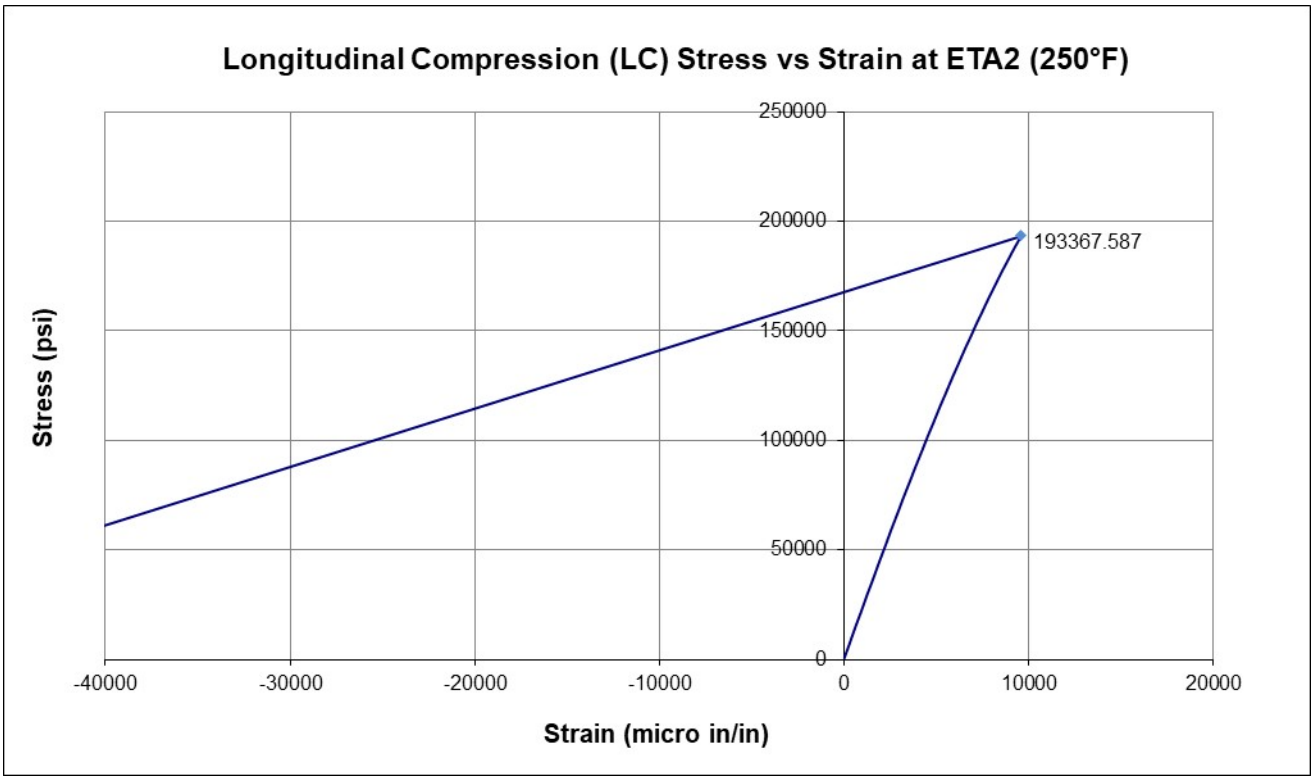

Longitudinal Tension (LT) Stress vs Strain at ETW2 (250°F)
Stress (psi)
600000
500000
400000
300000
200000
100000
0
463043.220
0
10000
20000
30000
40000
50000
60000
70000
Strain (micro in/in)

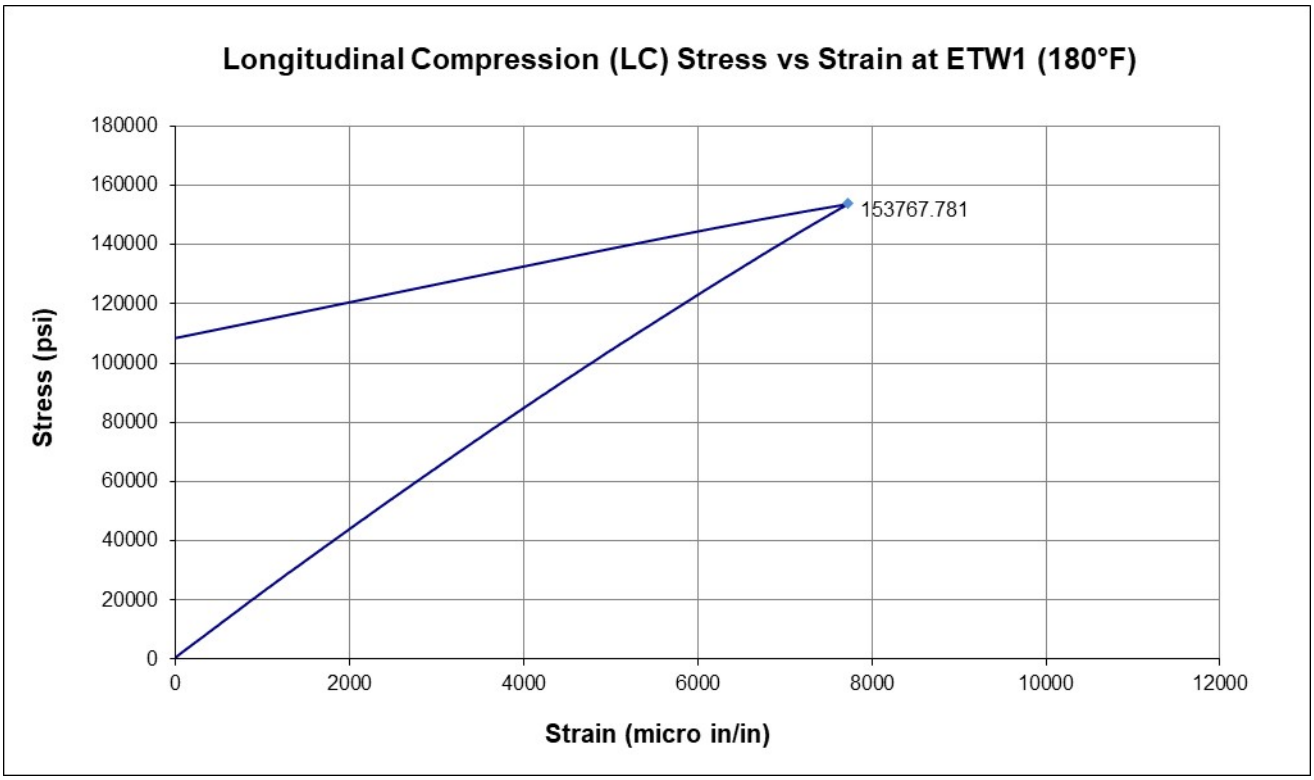
6.2 Longitudinal Compression (LC)

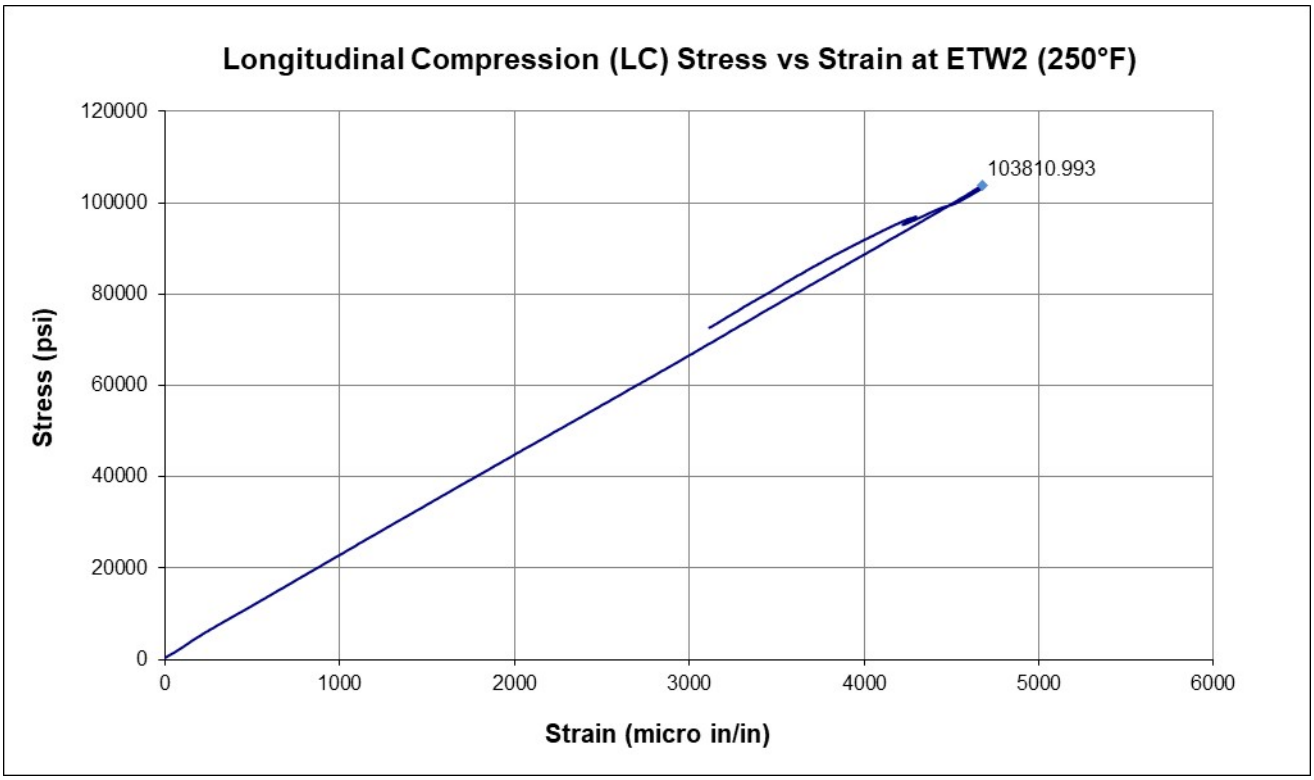




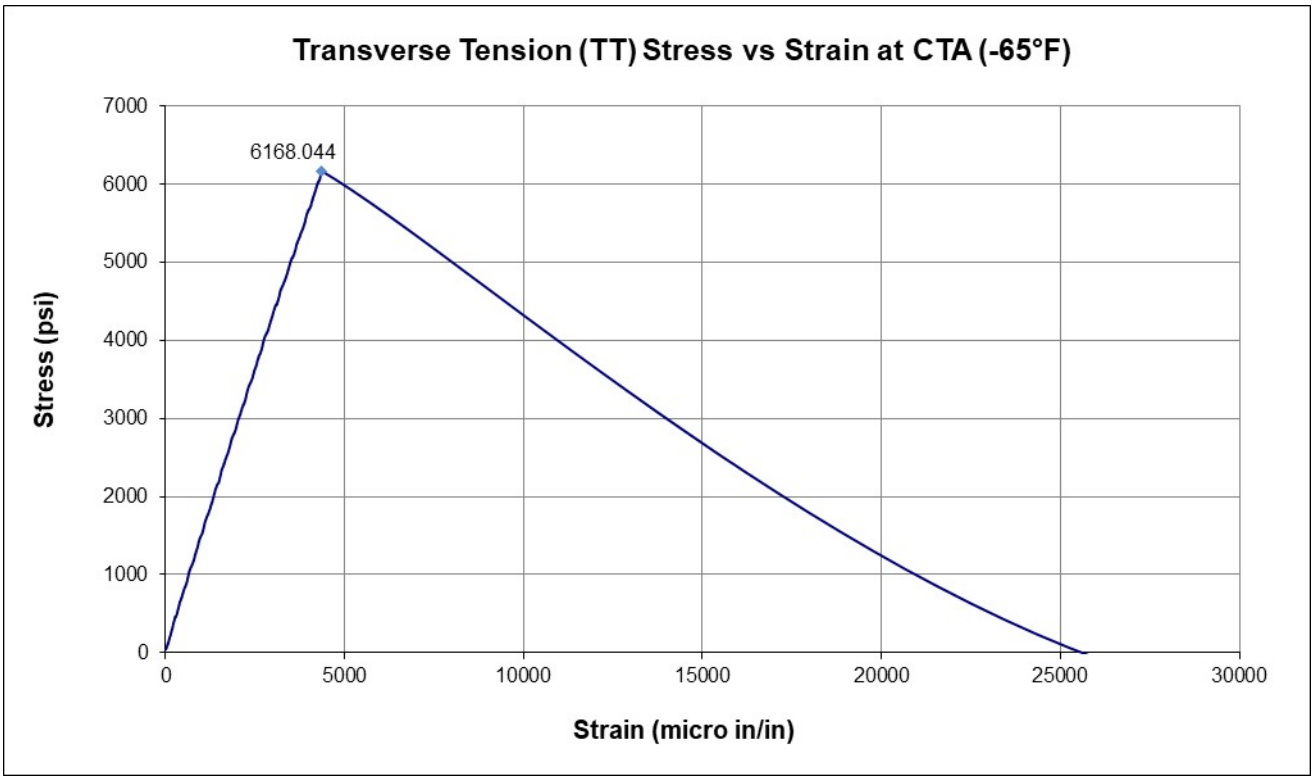

Longitudinal Compression (LC) Stress vs Strain at ETA1 (180°F)
Stress (psi)
250000
200000
150000
100000
50000
0
192028.038
-40000
-30000
-20000
-10000
0
10000
20000
Strain (micro in/in)

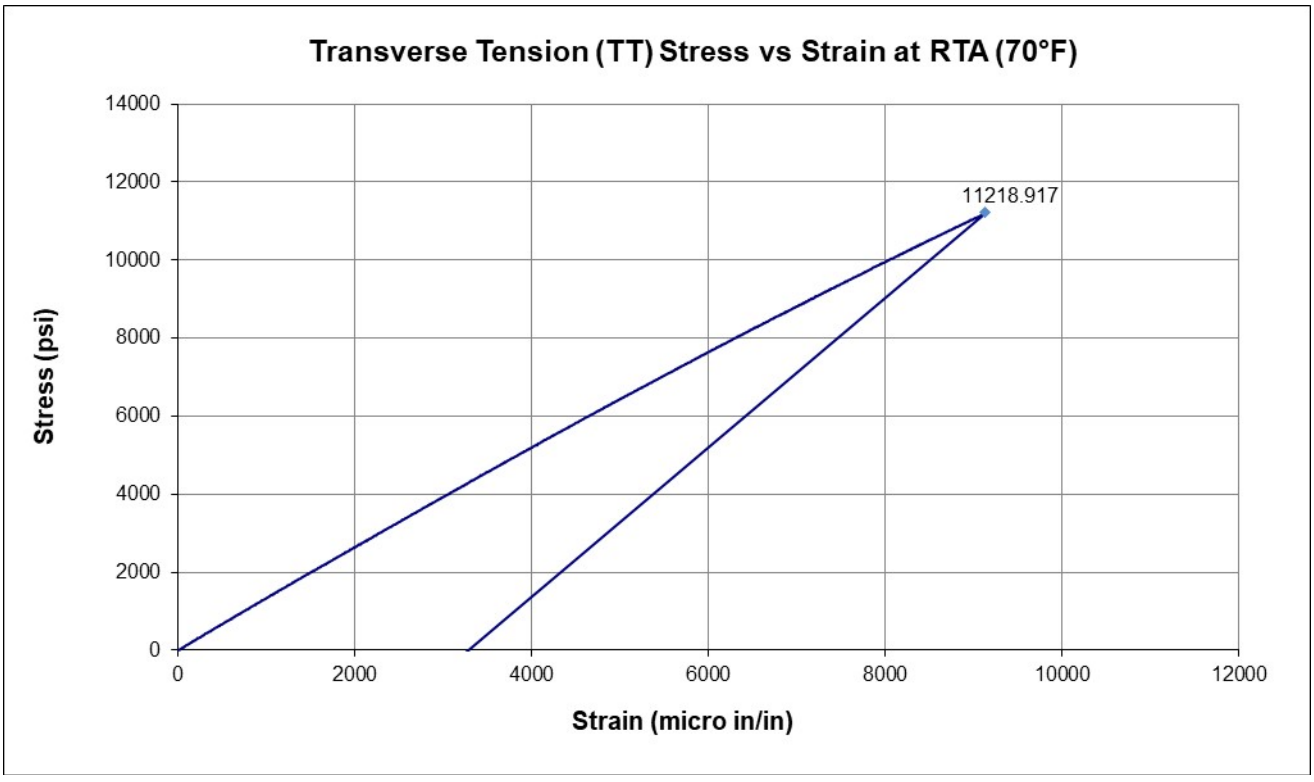

Longitudinal Compression (LC) Stress vs Strain at ETA2 (250°F)
Stress (psi)
250000
200000
150000
100000
50000
0
193367.587
-40000
-30000
-20000
-10000
0
10000
20000
Strain (micro in/in)

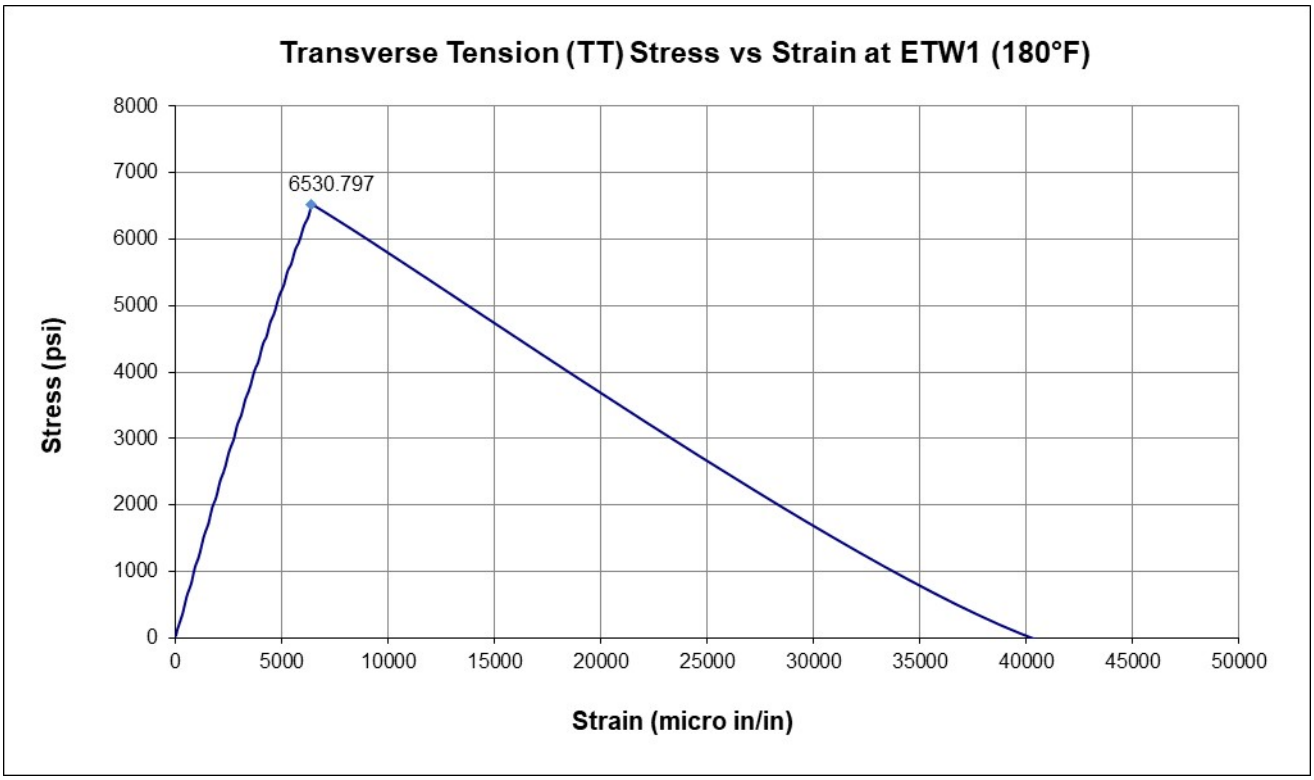

Longitudinal Compression (LC) Stress vs Strain at ETW1 (180°F)
Stress (psi)
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
0
2000
4000
6000
8000
10000
12000
Strain (micro in/in)
153767.781

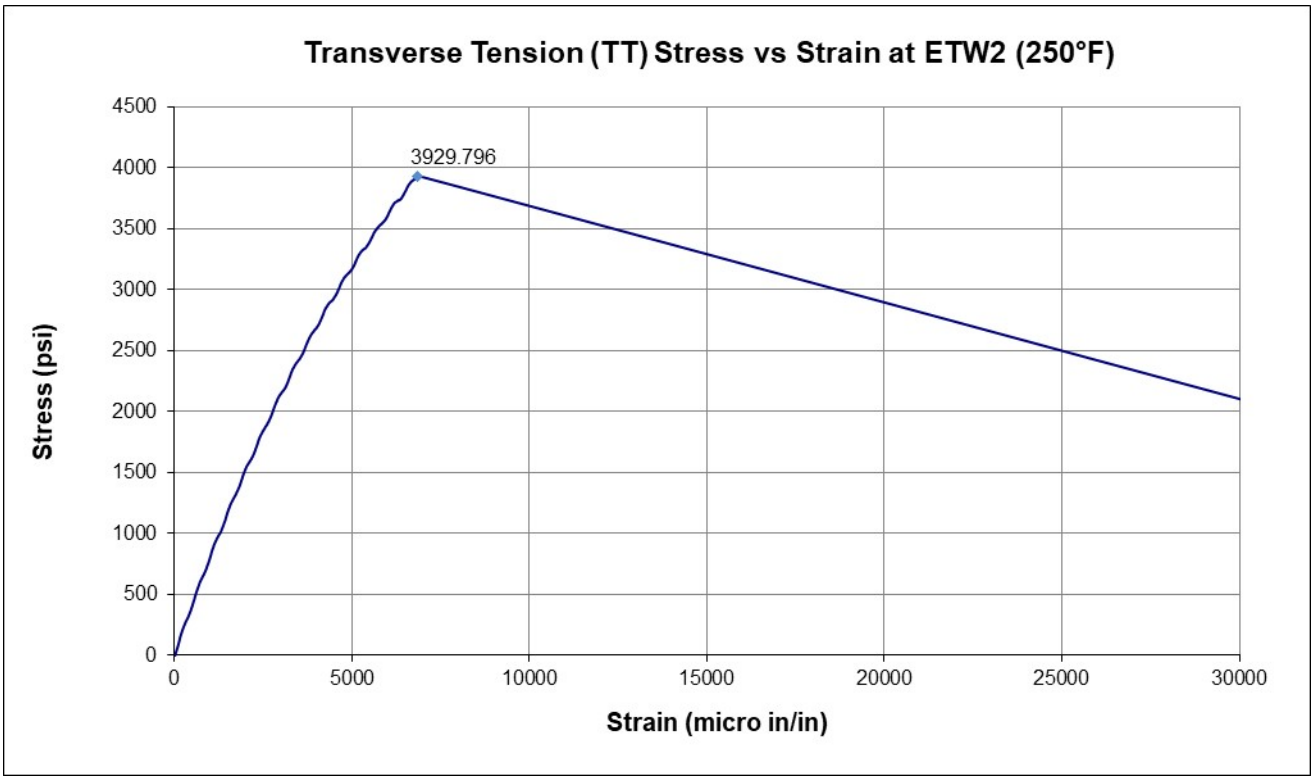

Longitudinal Compression (LC) Stress vs Strain at ETW2 (250°F)
Stress (psi)
120000
100000
80000
60000
40000
20000
0
0
1000
2000
3000
4000
5000
6000
Strain (micro in/in)
103810.993

6.3 Transverse Tension (TT)

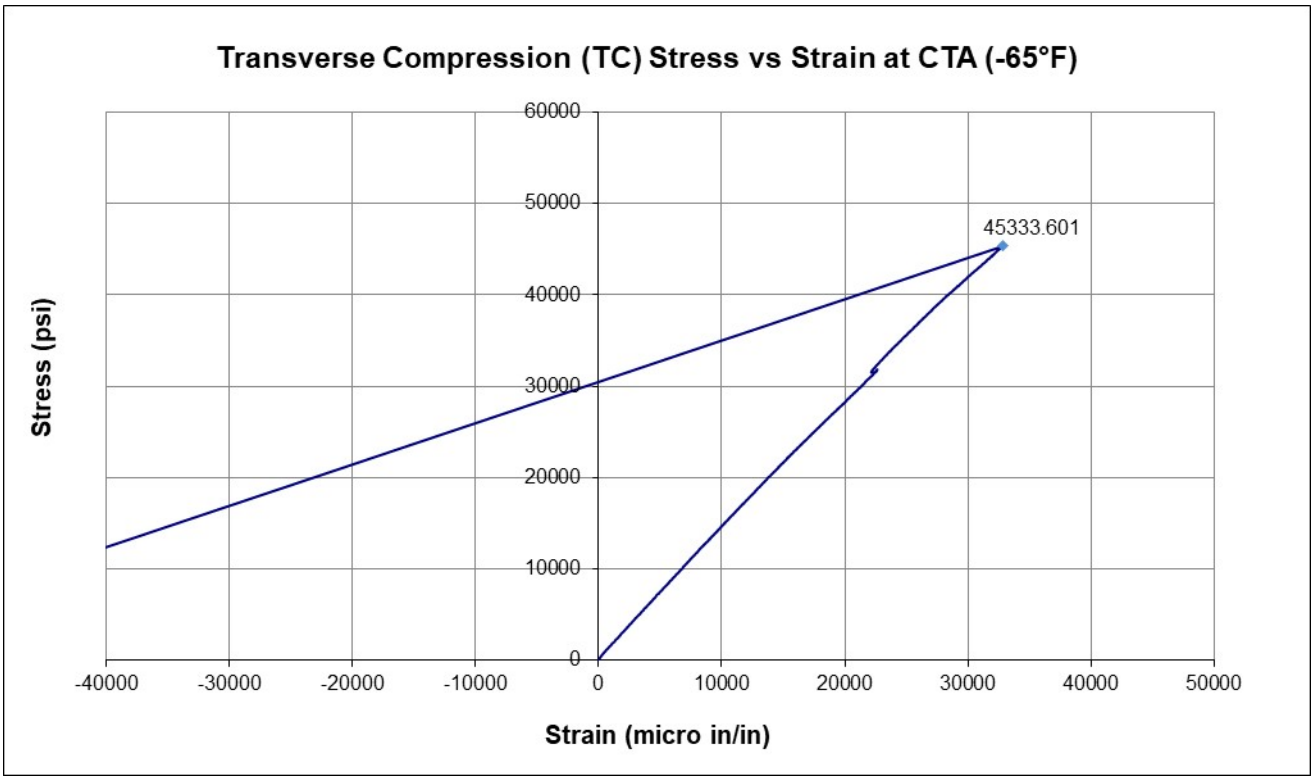


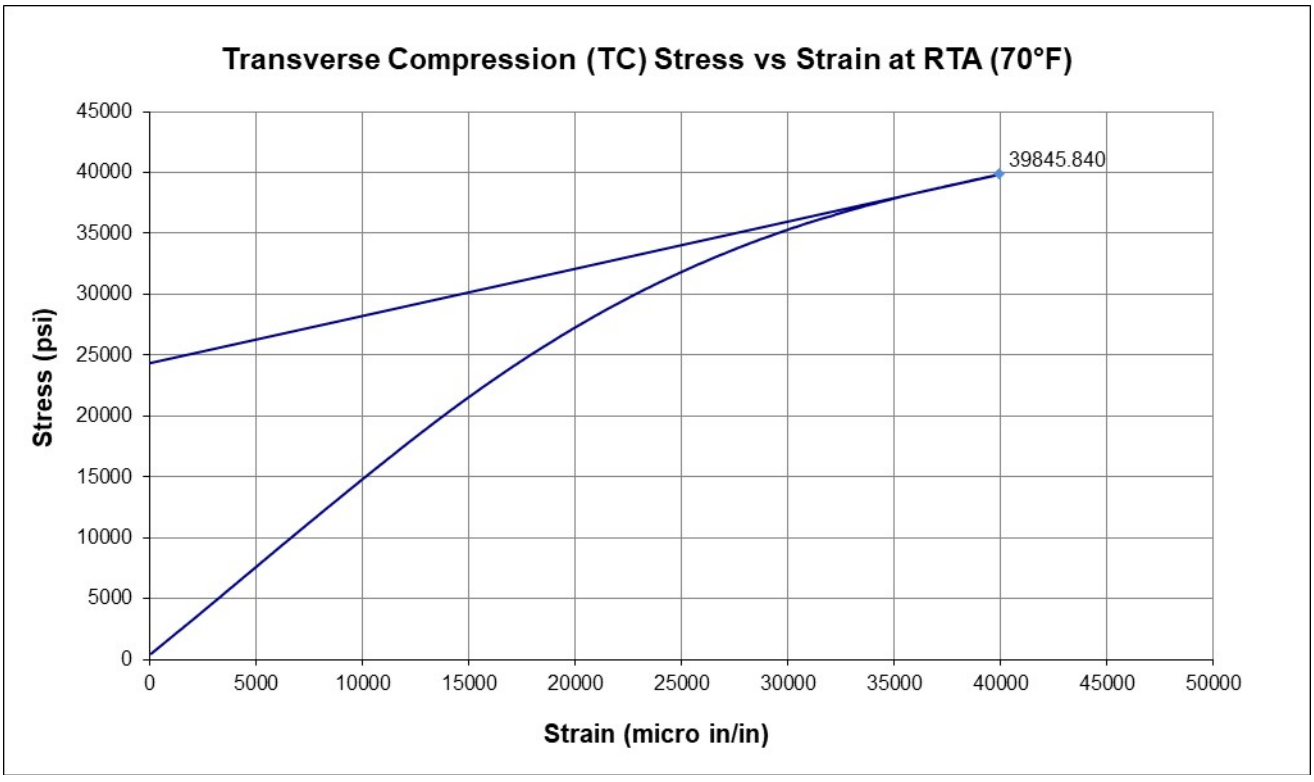


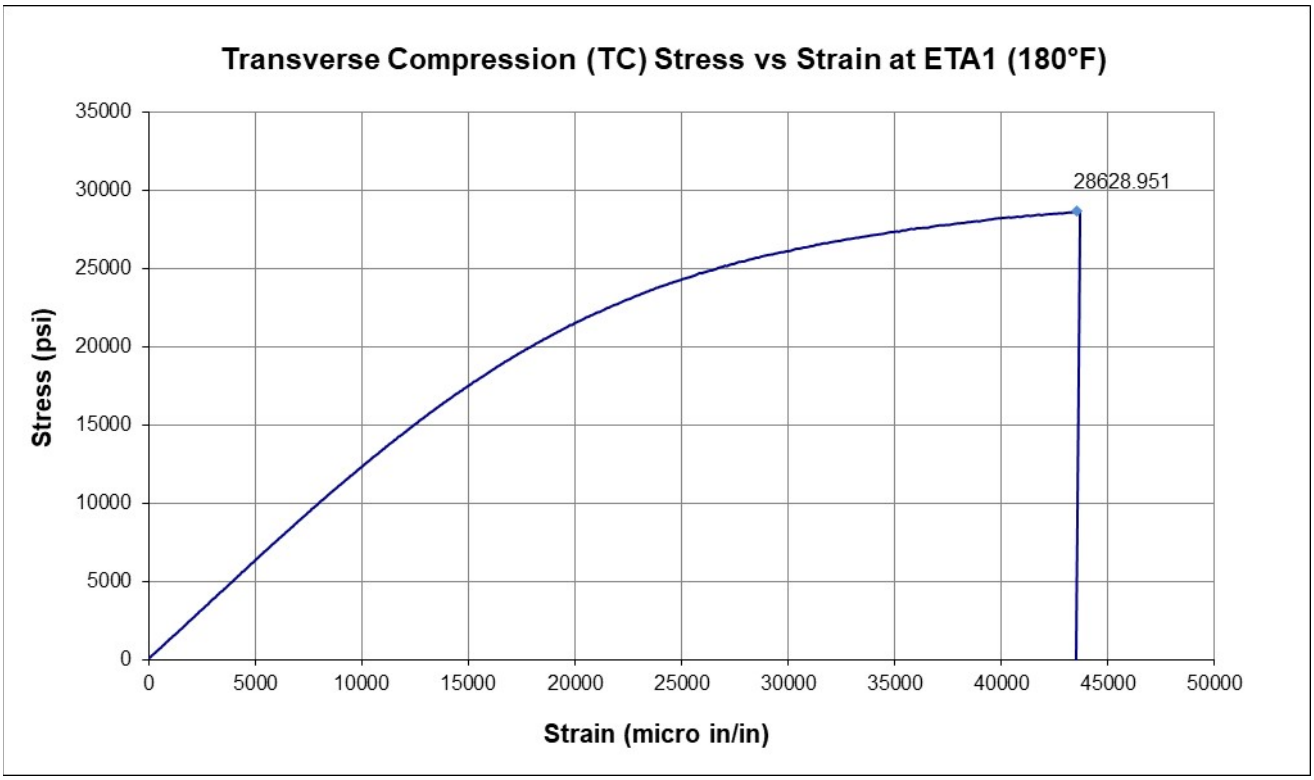

Transverse Tension (TT) Stress vs Strain at ETW1 (180°F)
Stress (psi)
Strain (micro in/in)
6530.797
0
1000
2000
3000
4000
5000
6000
7000
8000
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000

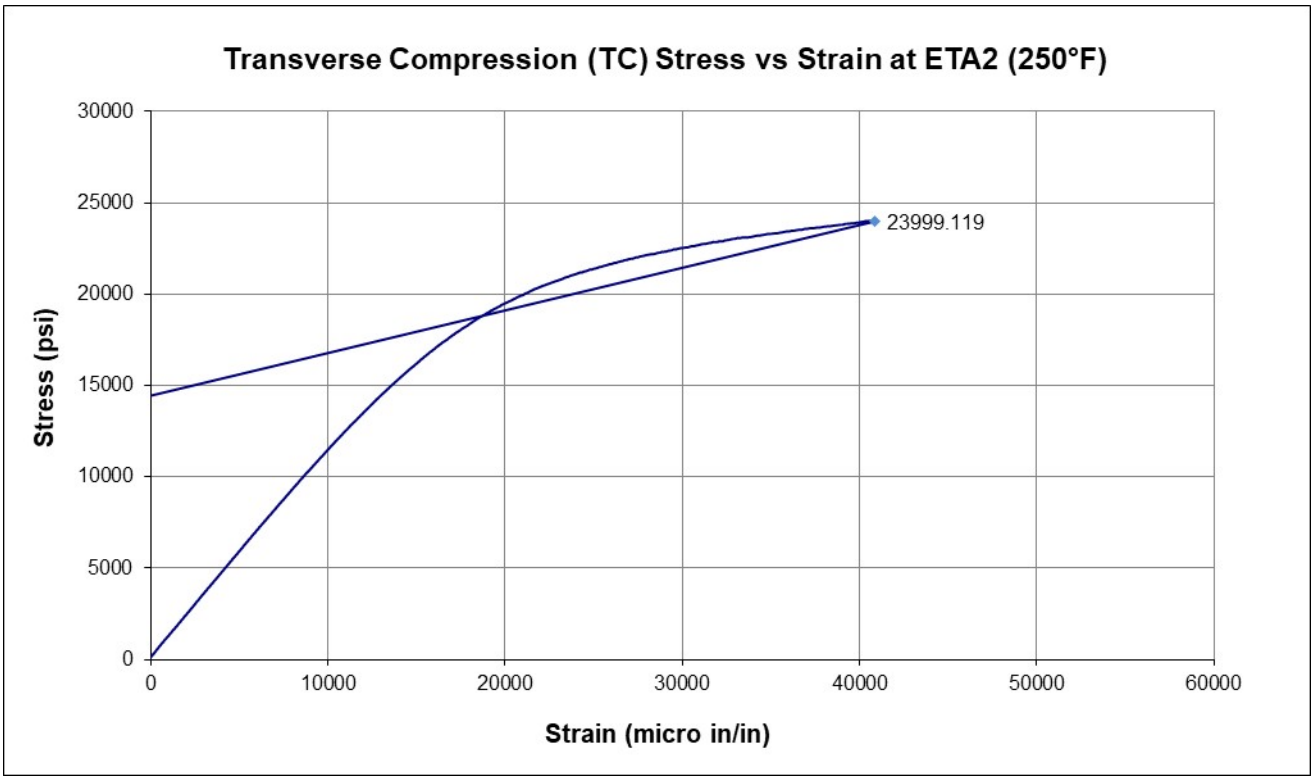

Transverse Tension (TT) Stress vs Strain at ETW2 (250°F)
Stress (psi)
Strain (micro in/in)
3929.796
0
500
1000
1500
2000
2500
3000
3500
4000
4500
0
5000
10000
15000
20000
25000
30000

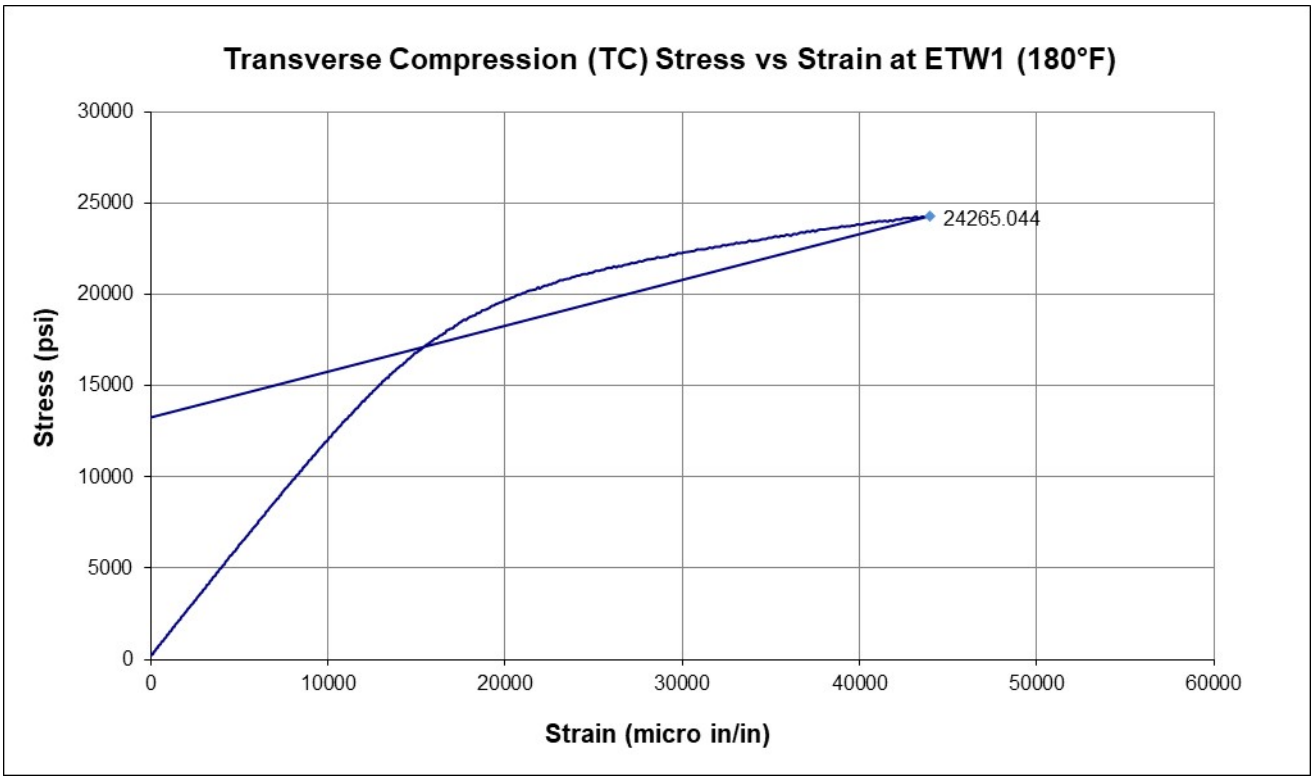
6.4 Transverse Compression (TC)

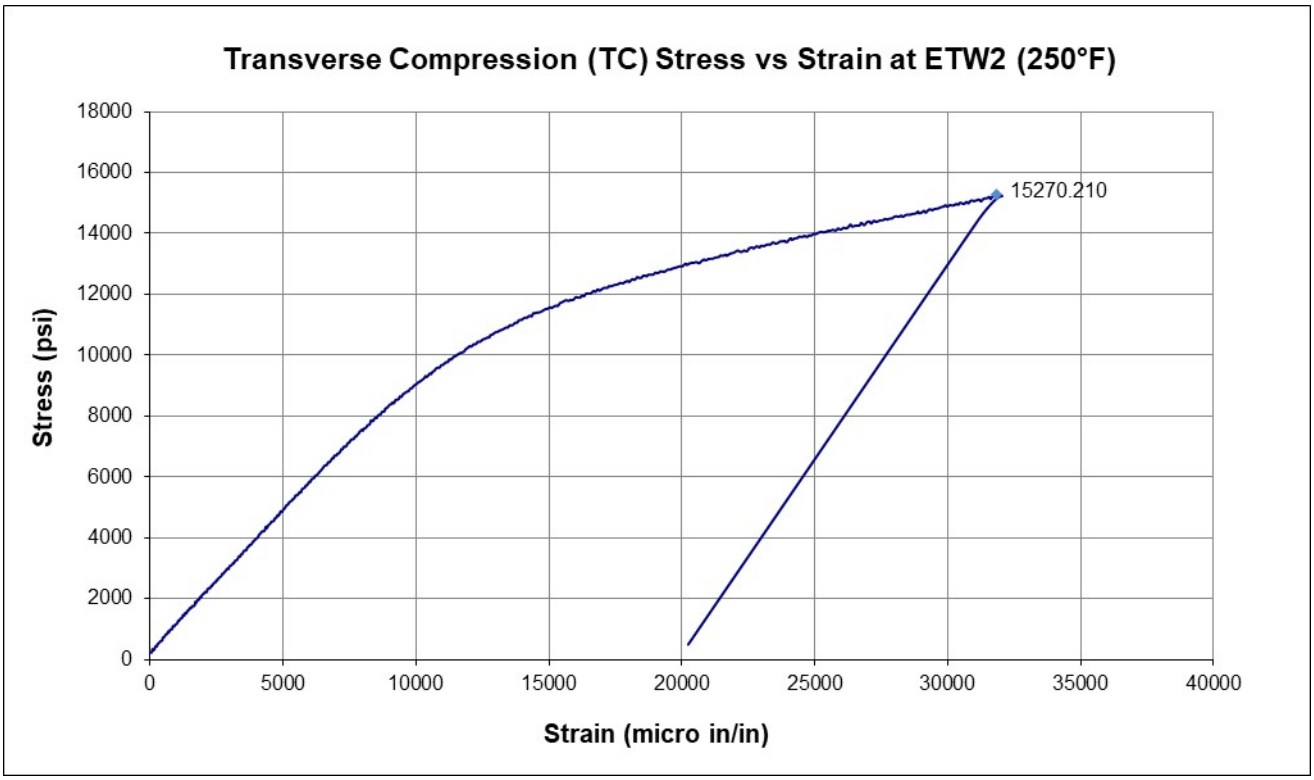




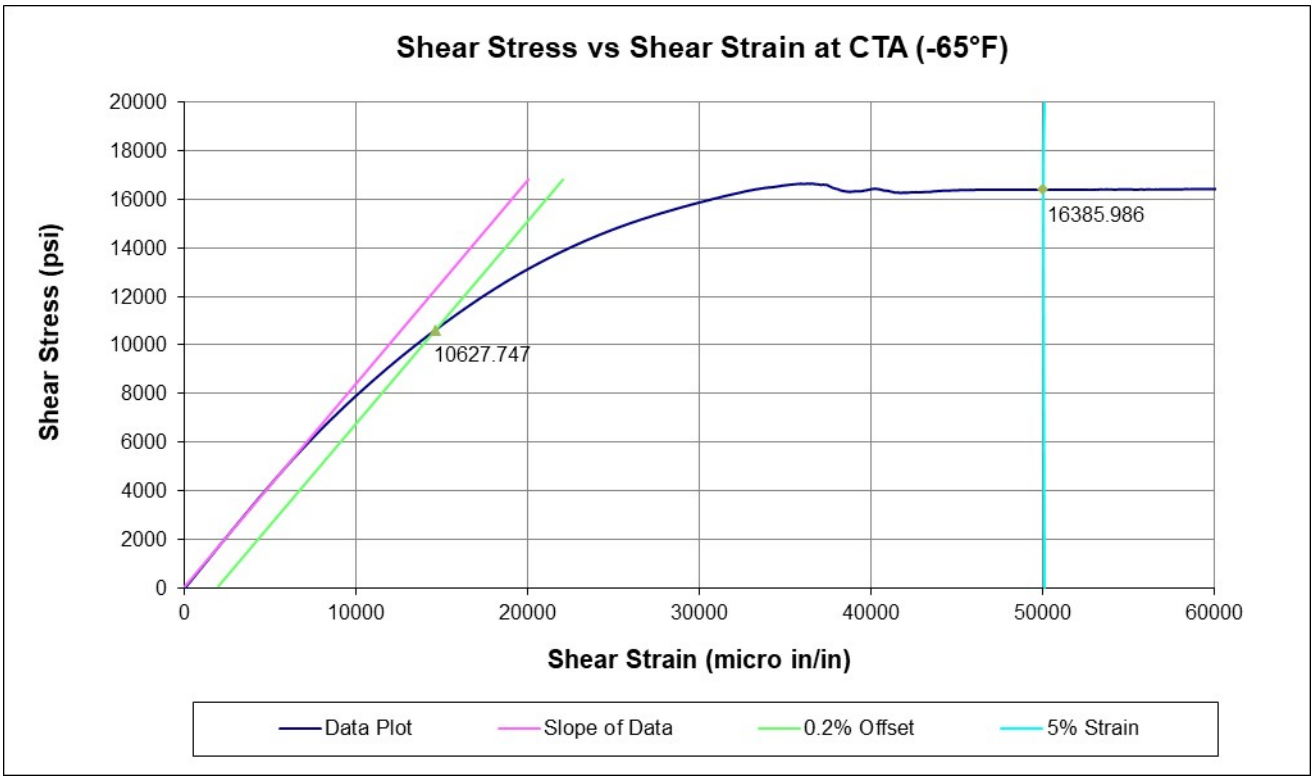

Transverse Compression (TC) Stress vs Strain at ETA1 (180°F)
Stress (psi)
Strain (micro in/in)
28628.951
0
5000
10000
15000
20000
25000
30000
35000
40000
45000
50000

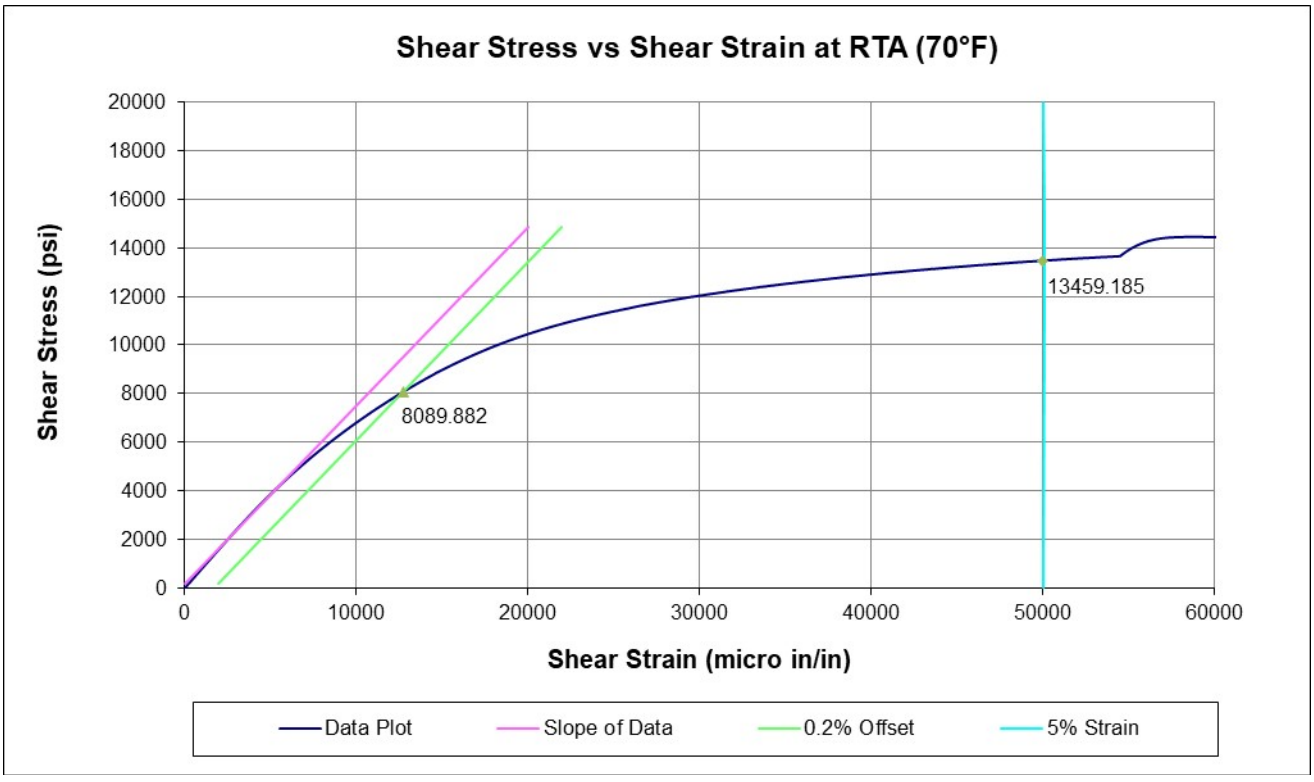

Transverse Compression (TC) Stress vs Strain at ETA2 (250°F)
Stress (psi)
Strain (micro in/in)
23999.119
0
5000
10000
15000
20000
25000
30000
40000
50000
60000

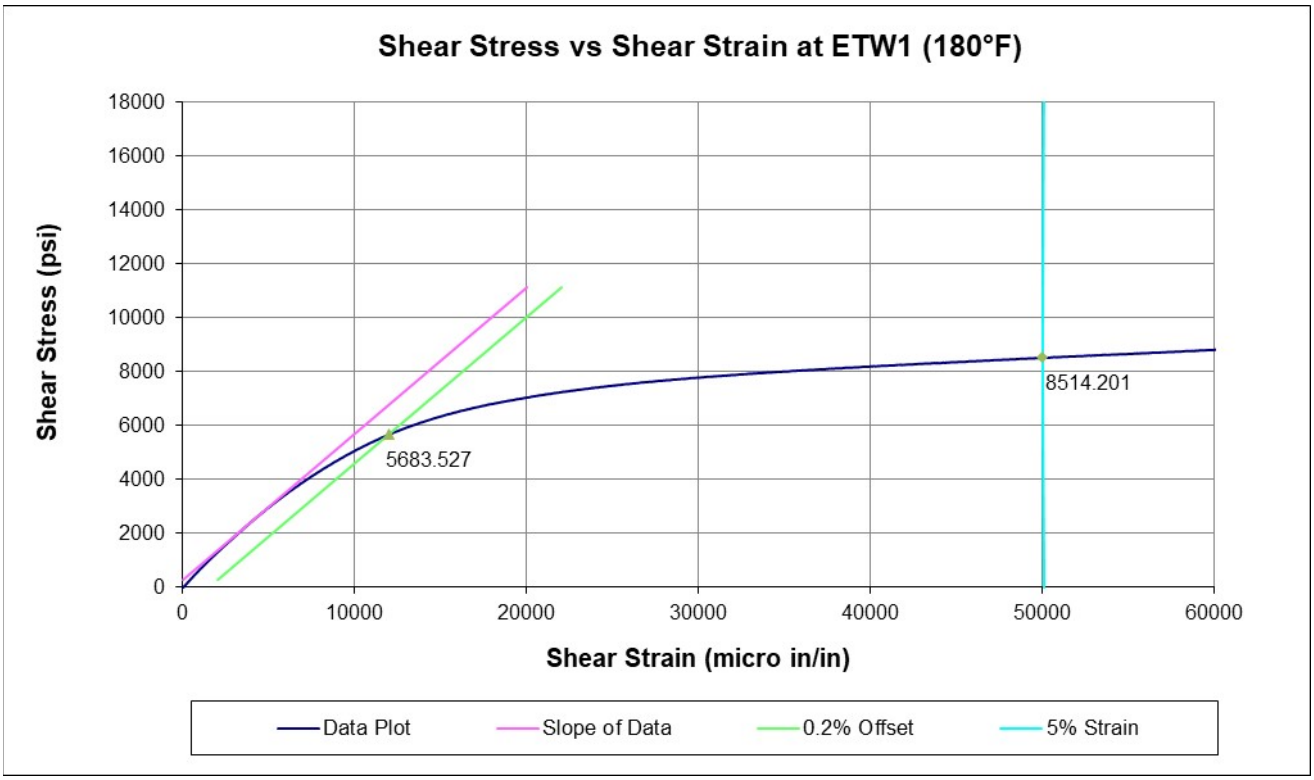

Transverse Compression (TC) Stress vs Strain at ETW1 (180°F)
Stress (psi)
Strain (micro in/in)
24265.044
0
5000
10000
15000
20000
25000
30000
0
10000
20000
30000
40000
50000
60000

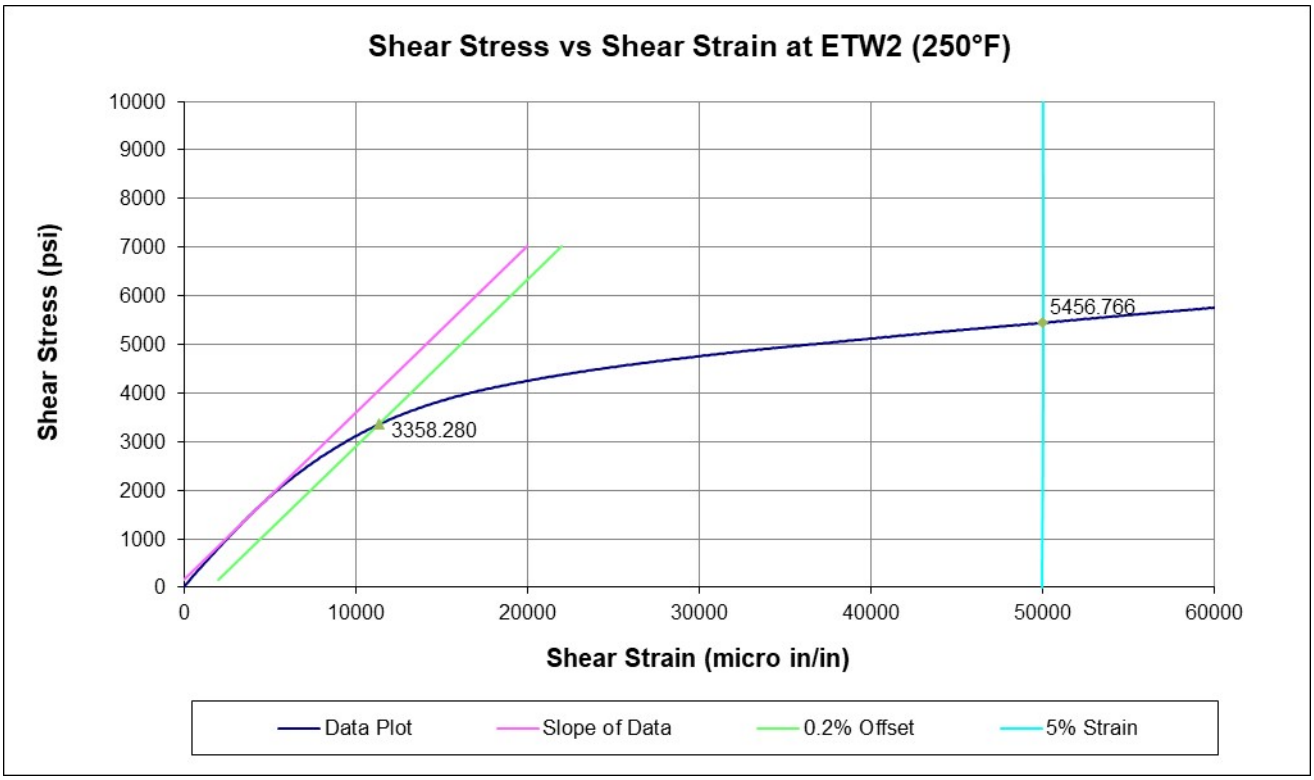

Transverse Compression (TC) Stress vs Strain at ETW2 (250°F)
Stress (psi)
Strain (micro in/in)
15270.210
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
0
5000
10000
15000
20000
25000
30000
35000
40000

6.5 In-Plane Shear (IPS)

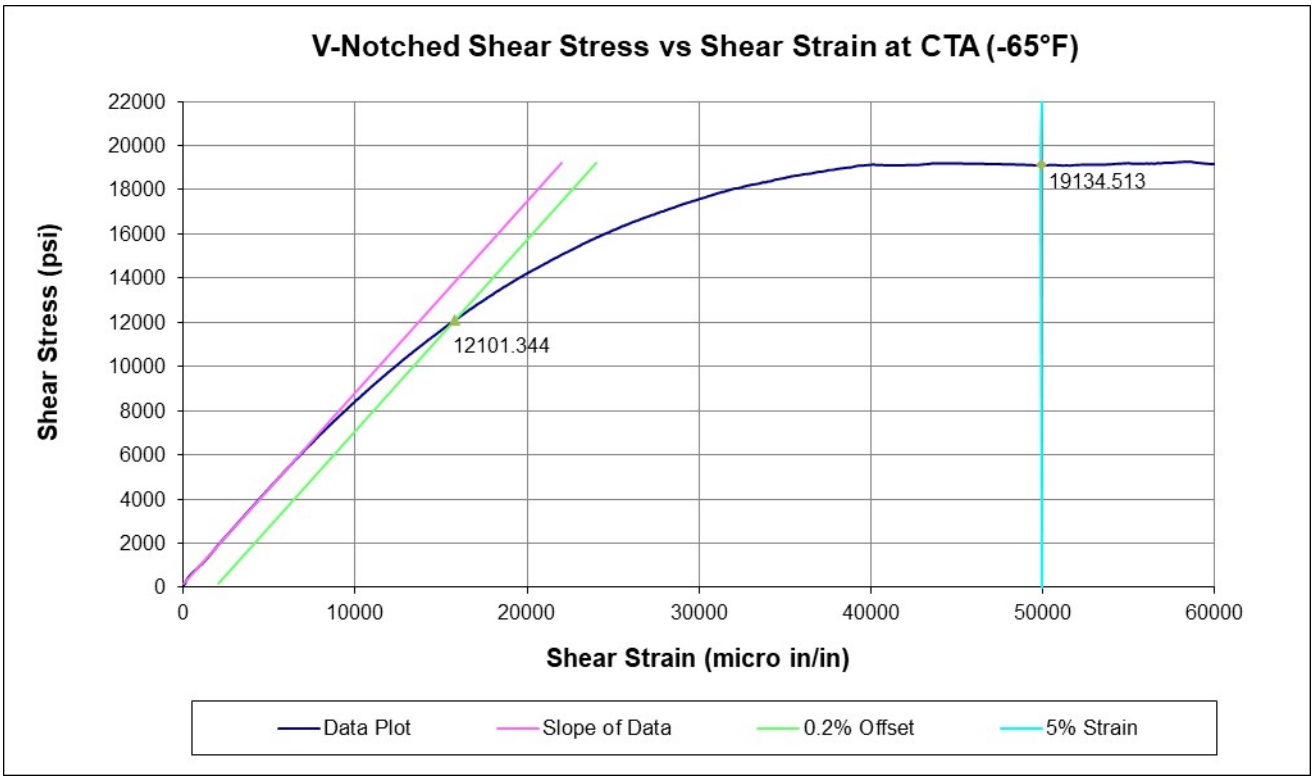


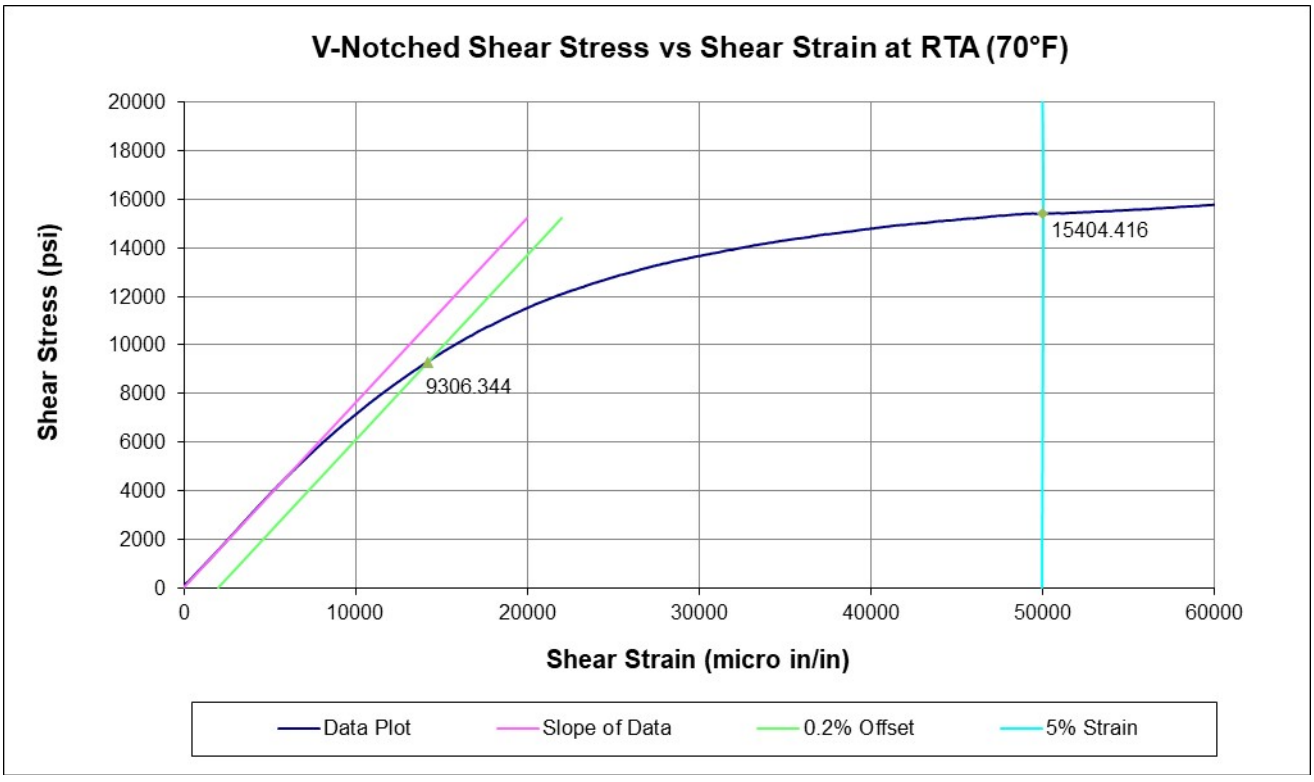


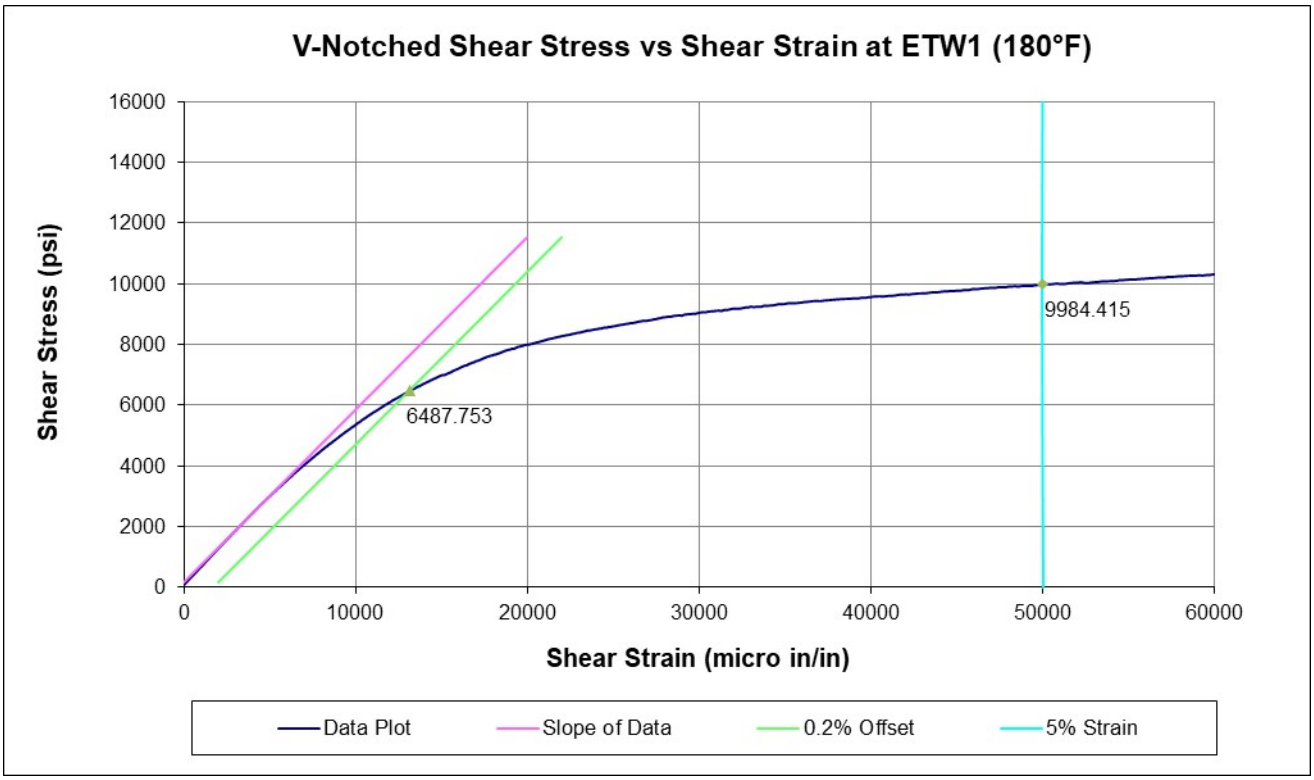

Shear Stress vs Shear Strain at ETW1 (180°F)
Shear Stress (psi)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0
10000
20000
30000
40000
50000
60000
Shear Strain (micro in/in)
5683.527
8514.201
Data Plot
Slope of Data
0.2% Offset
5% Strain

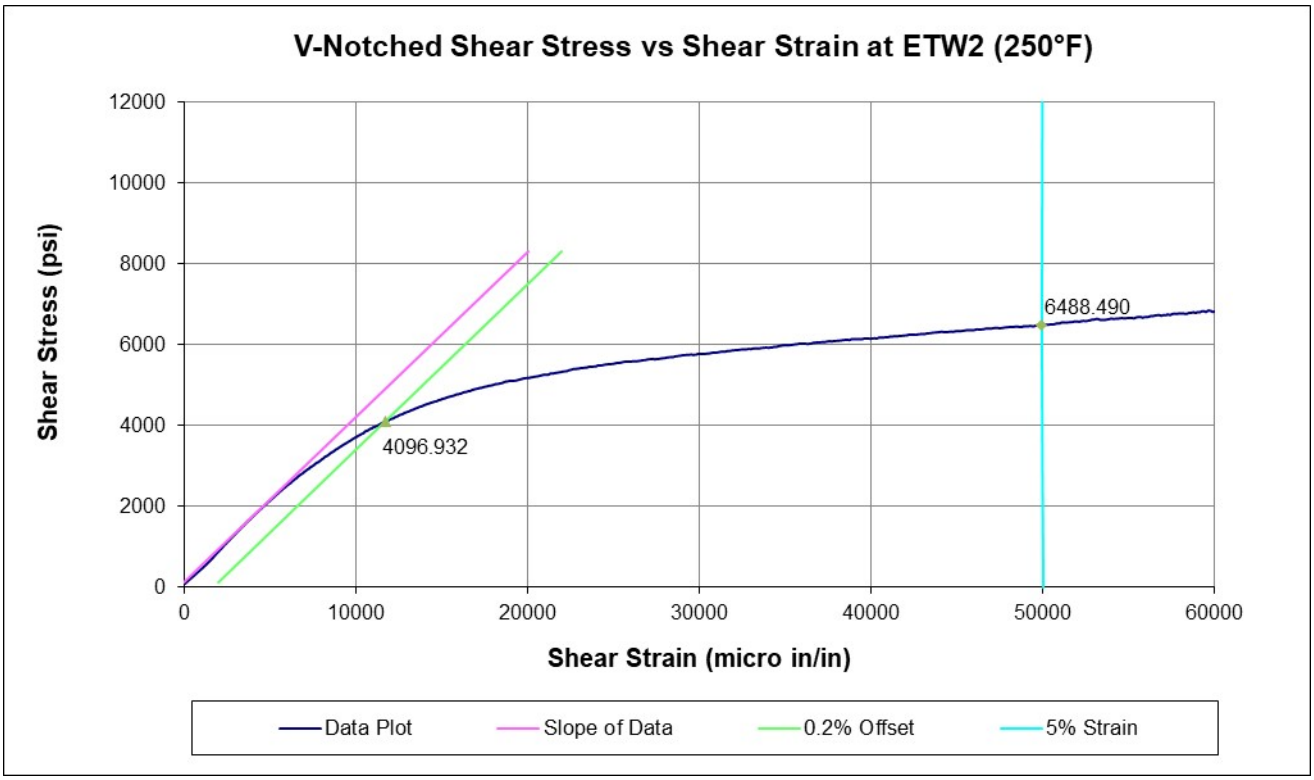

Shear Stress vs Shear Strain at ETW2 (250°F)
Shear Stress (psi)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
10000
20000
30000
40000
50000
60000
Shear Strain (micro in/in)
3358.280
5456.766
Data Plot
Slope of Data
0.2% Offset
5% Strain

6.6 In-Plane Shear V-Notched Properties (VNS)

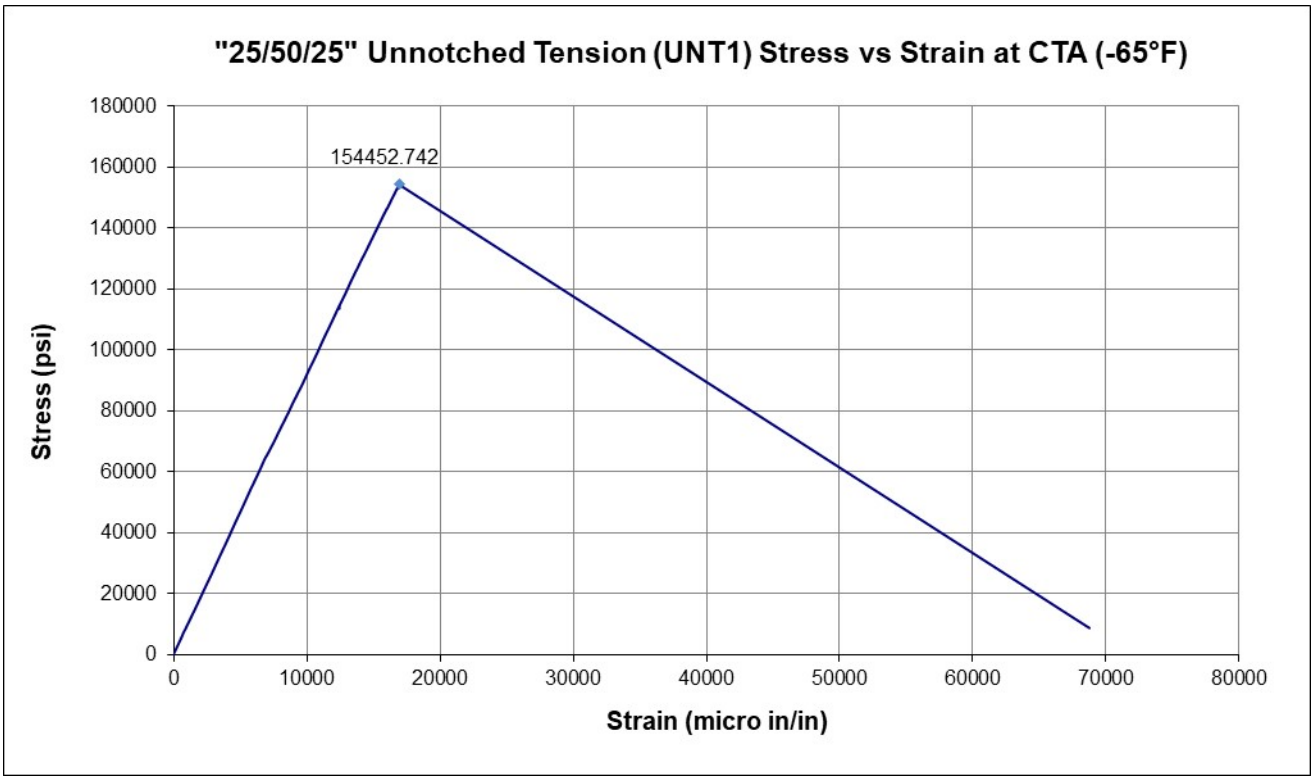


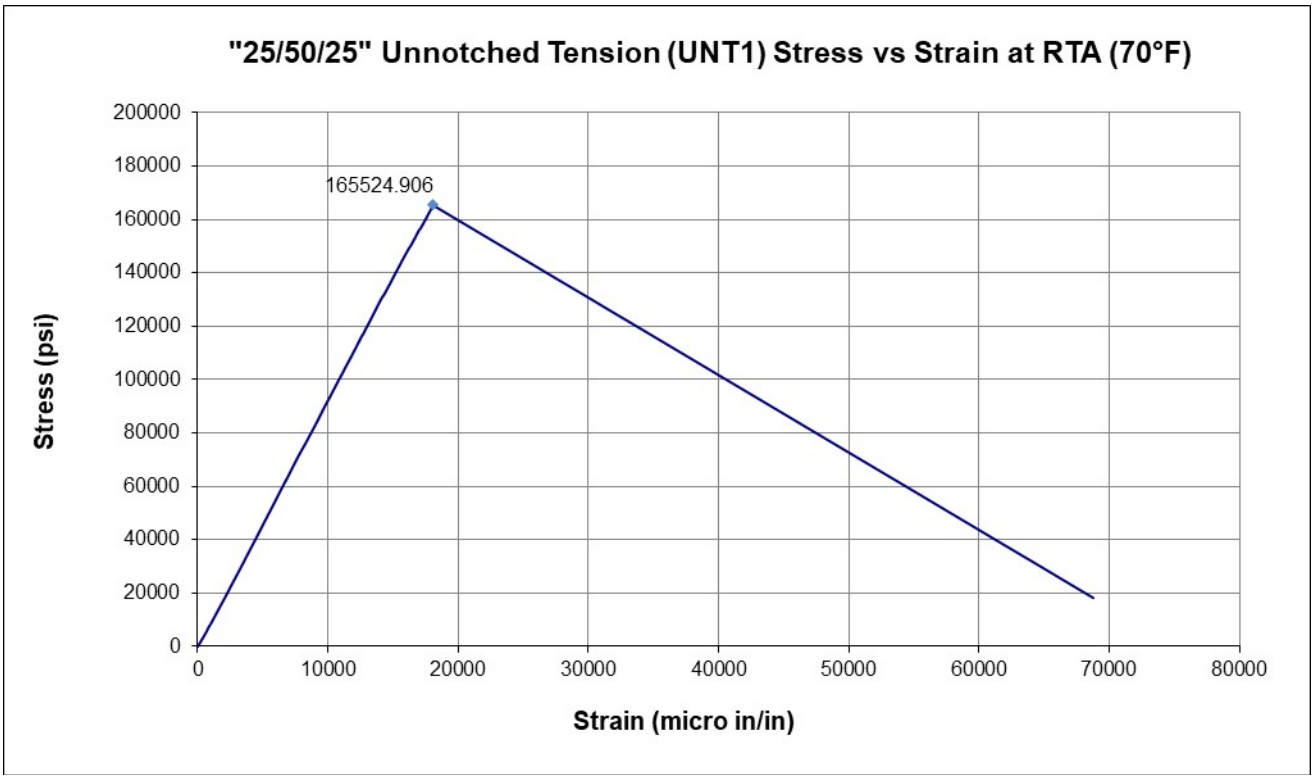


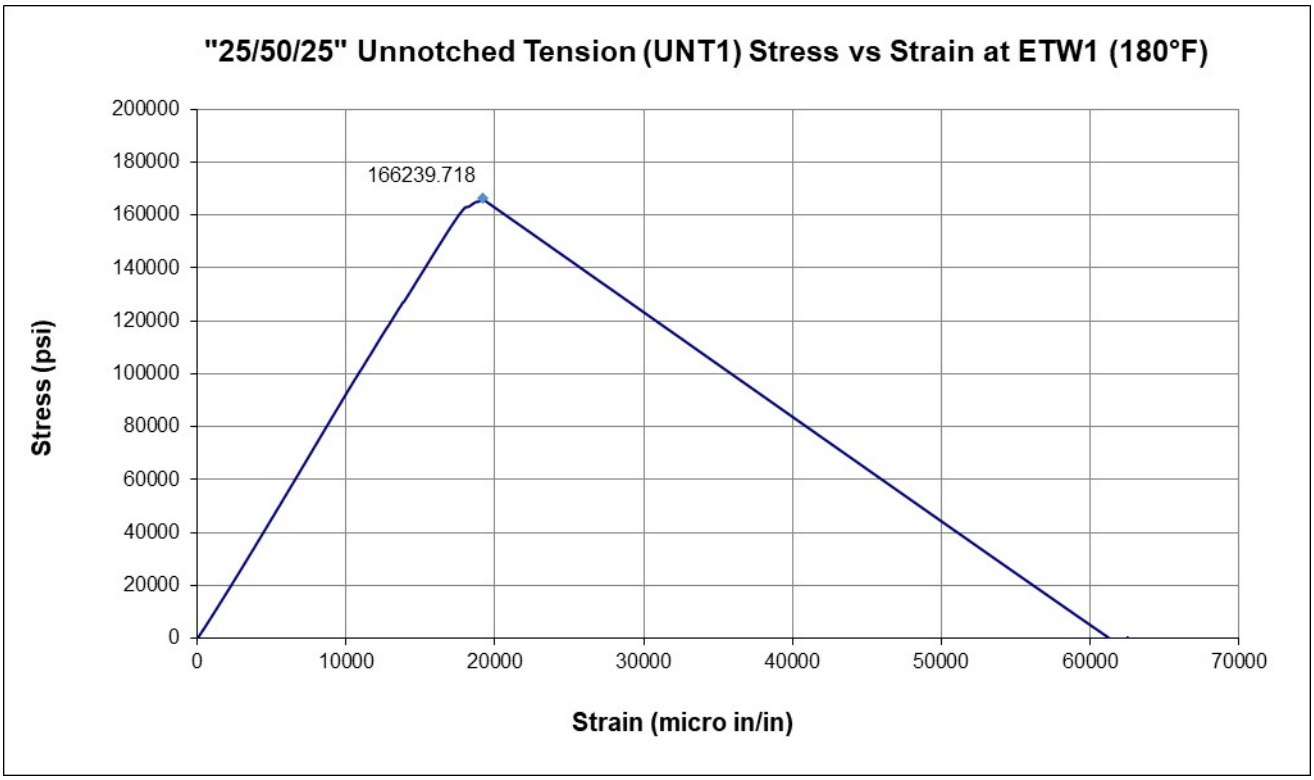

V-Notched Shear Stress vs Shear Strain at ETW1 (180°F)
Shear Stress (psi)
16000
14000
12000
10000
8000
6000
4000
2000
0
0
10000
20000
30000
40000
50000
60000
Shear Strain (micro in/in)
6487.753
9984.415
Data Plot
Slope of Data
0.2% Offset
5% Strain

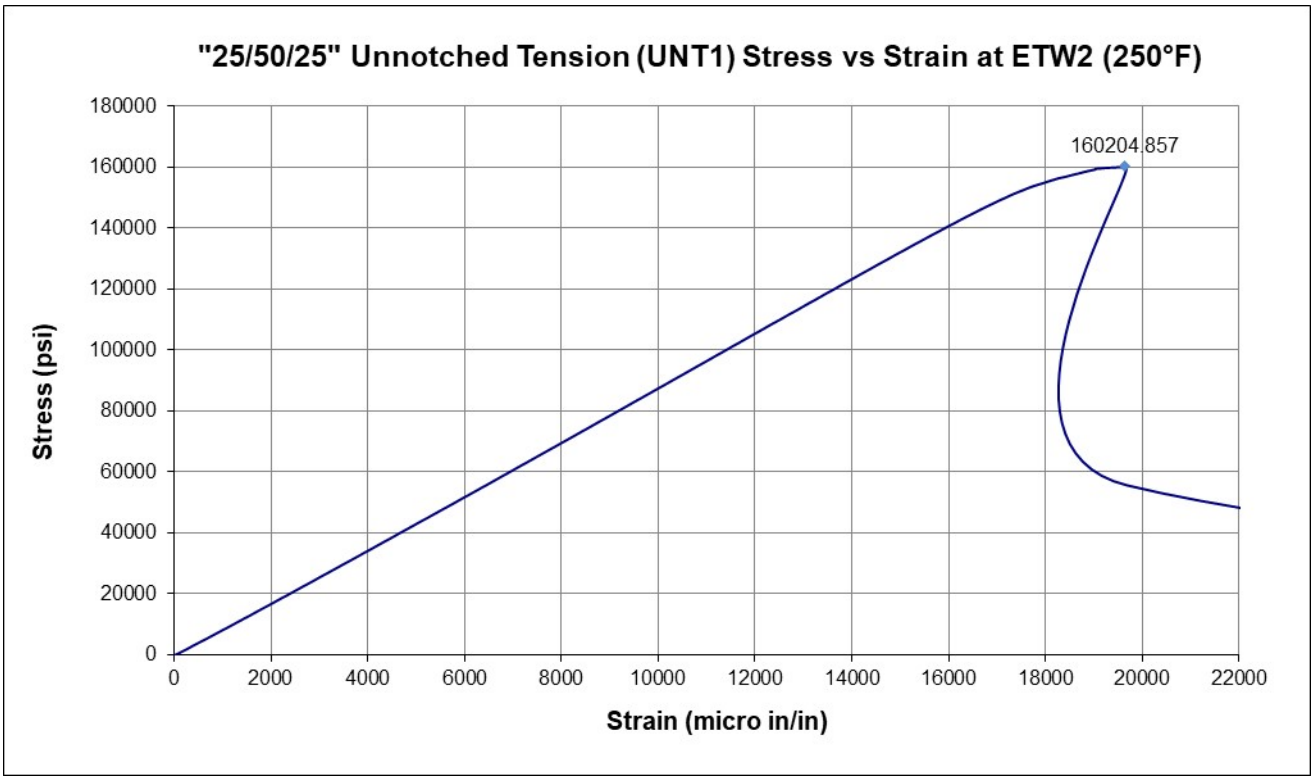

V-Notched Shear Stress vs Shear Strain at ETW2 (250°F)
Shear Stress (psi)
12000
10000
8000
6000
4000
2000
0
0
10000
20000
30000
40000
50000
60000
Shear Strain (micro in/in)
4096.932
6488.490
Data Plot
Slope of Data
0.2% Offset
5% Strain

6.7 “25/50/25” Unnotched Tension 1 (UNT1)

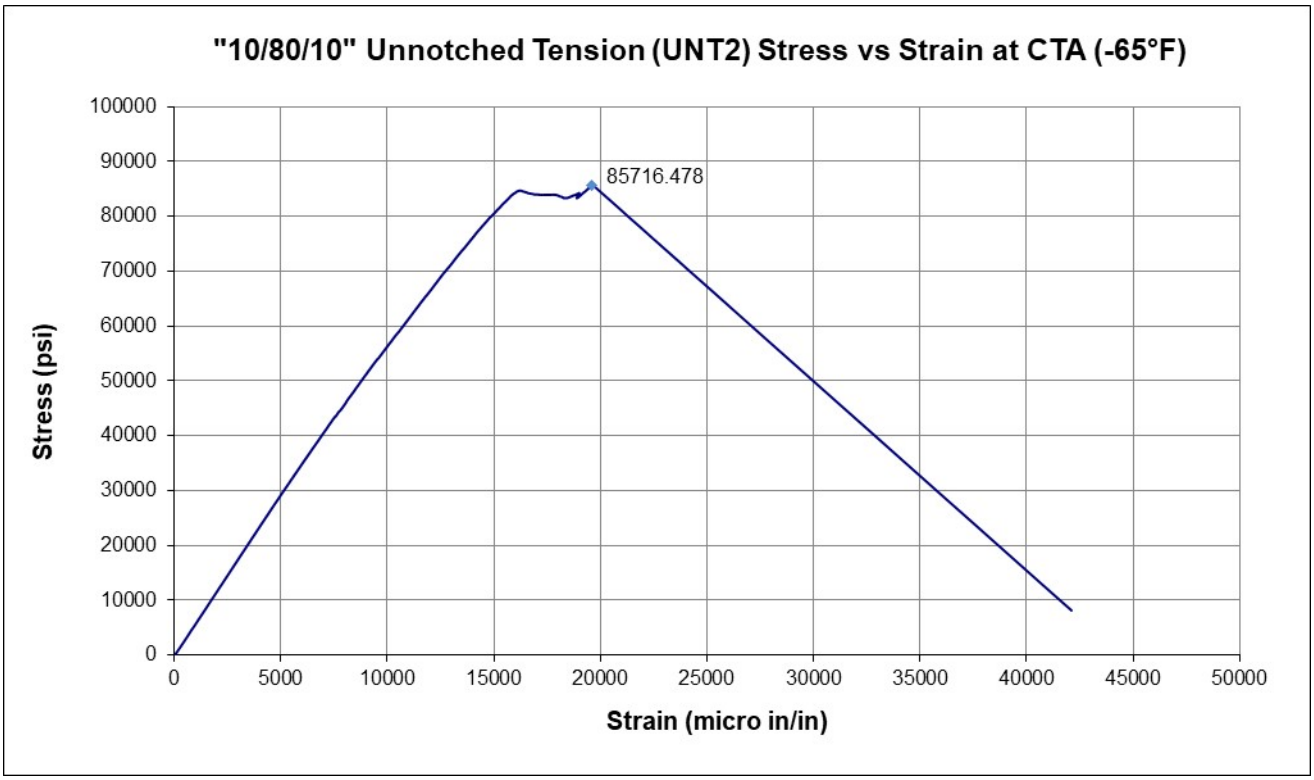


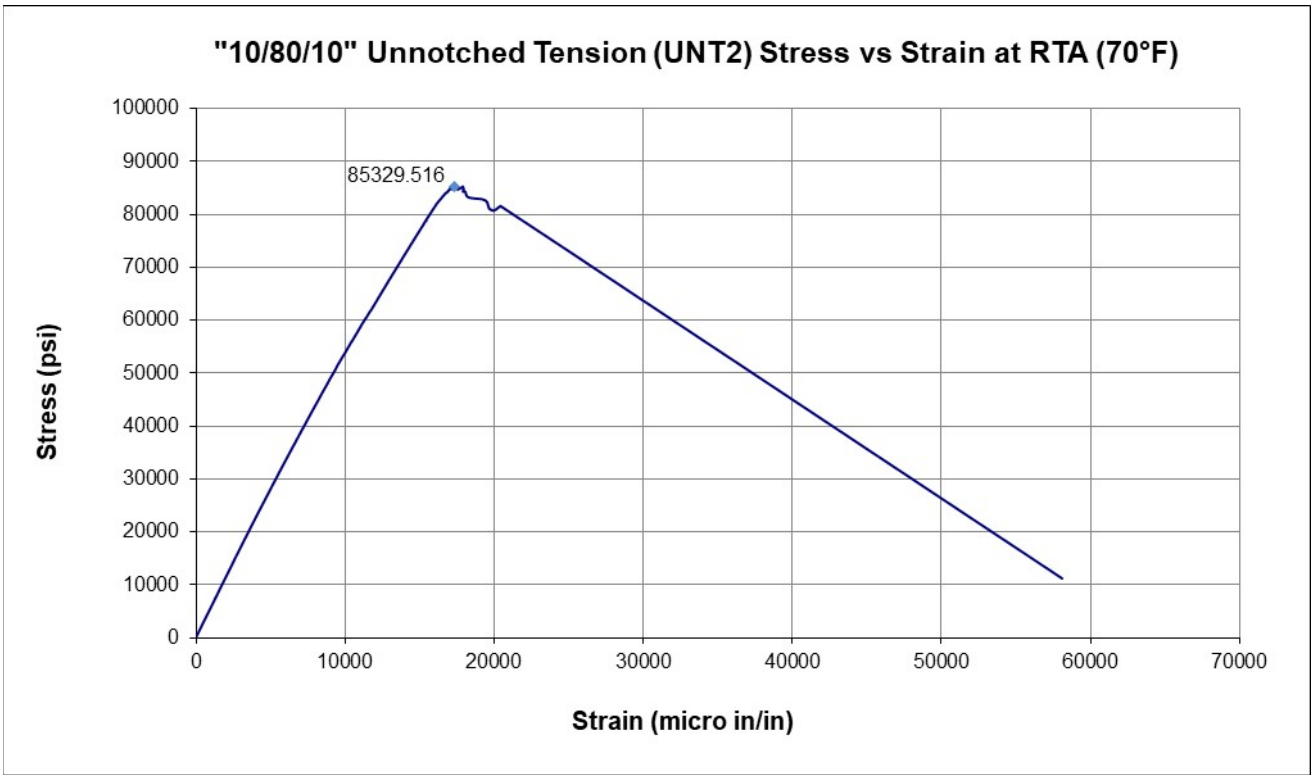


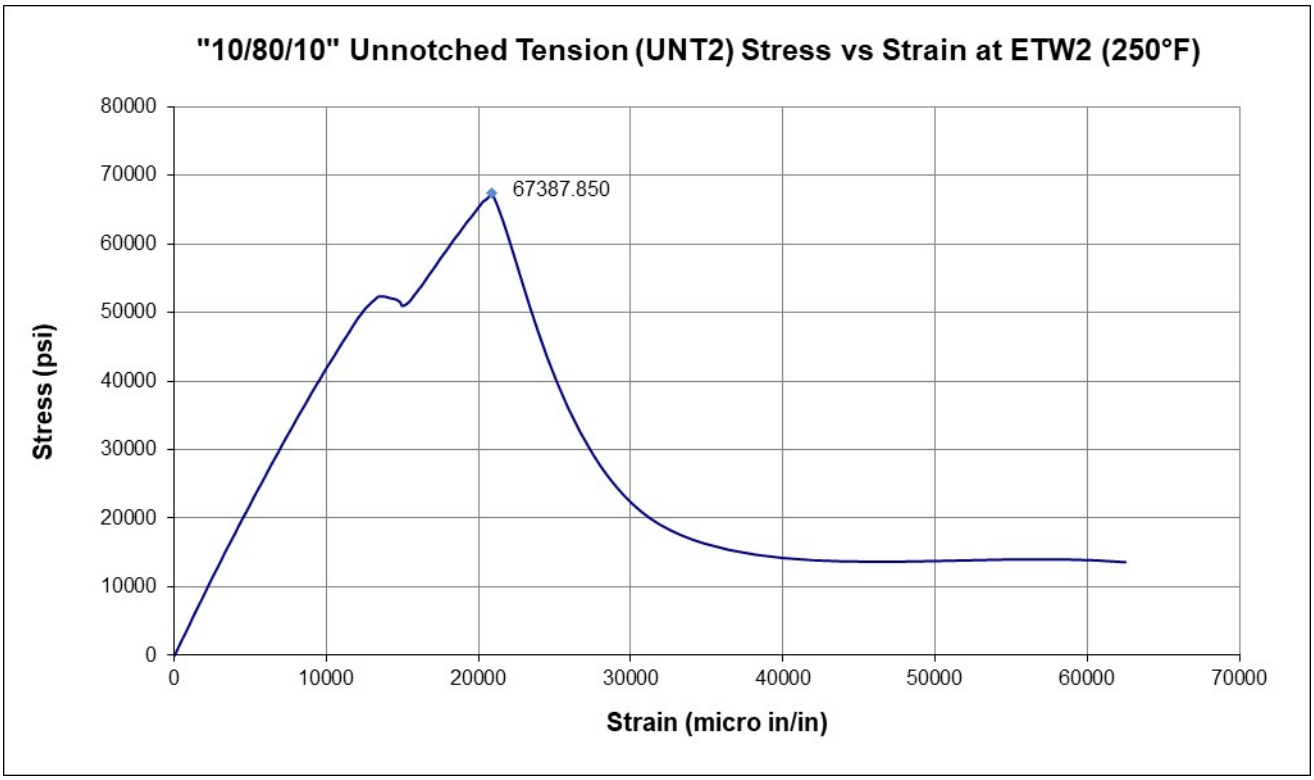

"25/50/25" Unnotched Tension (UNT1) Stress vs Strain at ETW1 (180°F)
166239.718
Stress (psi)
Strain (micro in/in)
0
20000
40000
60000
80000
100000
120000
140000
160000
180000
200000
0
10000
20000
30000
40000
50000
60000
70000


"25/50/25" Unnotched Tension (UNT1) Stress vs Strain at ETW2 (250°F)
160204.857
Stress (psi)
Strain (micro in/in)
0
20000
40000
60000
80000
100000
120000
140000
160000
180000
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
22000

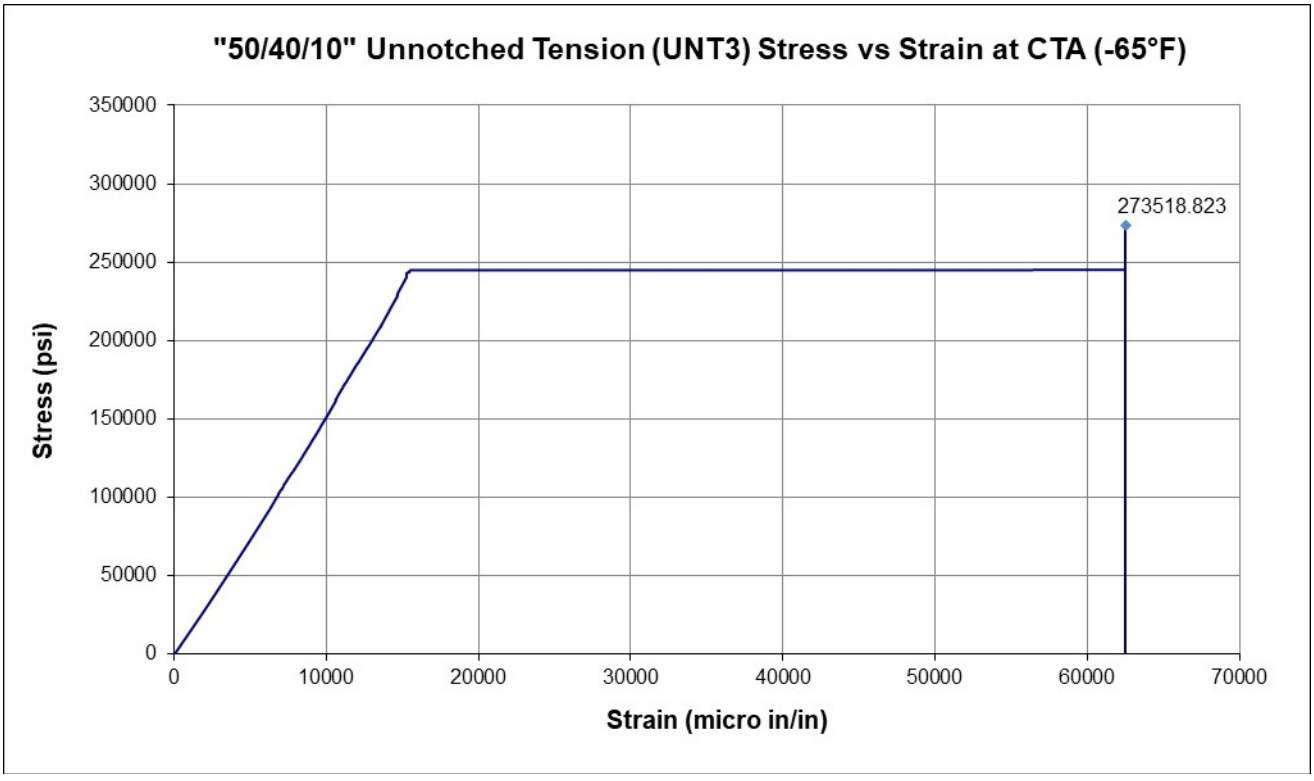
6.8 “10/80/10” Unnotched Tension 2 (UNT2)

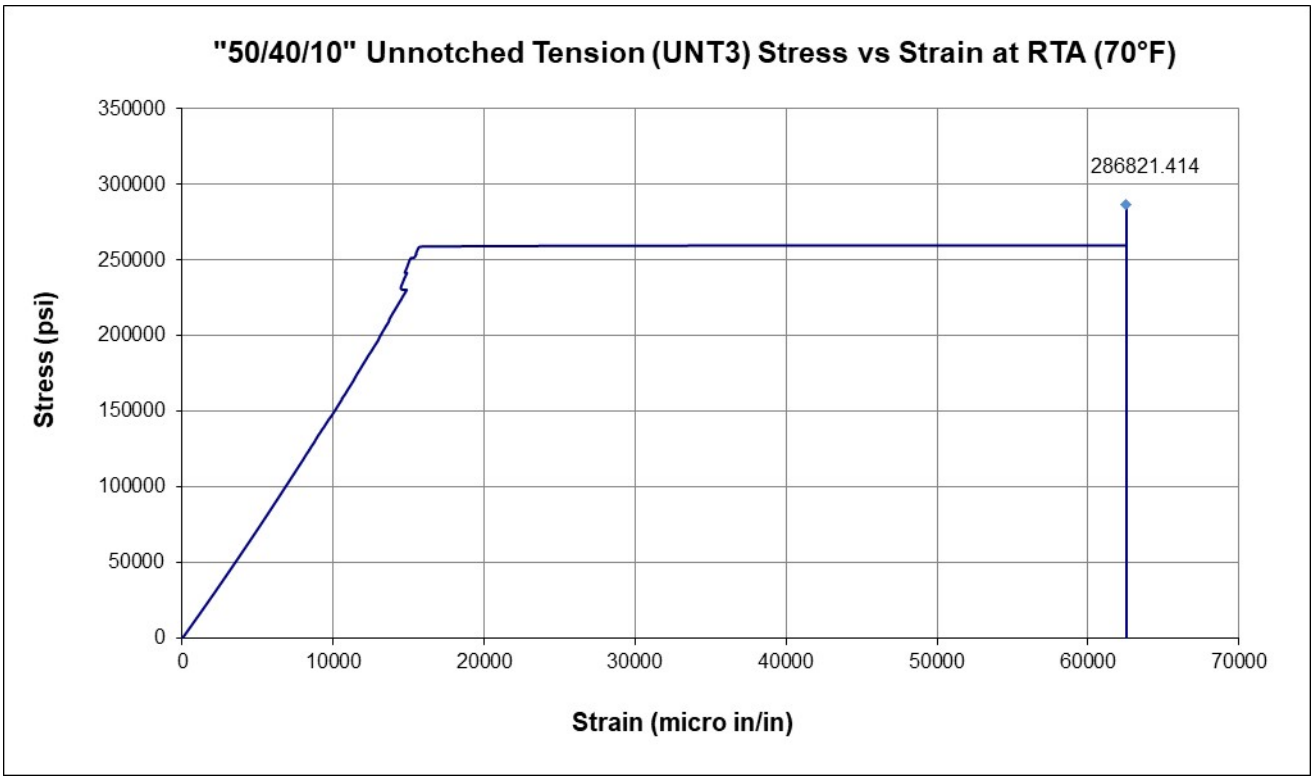


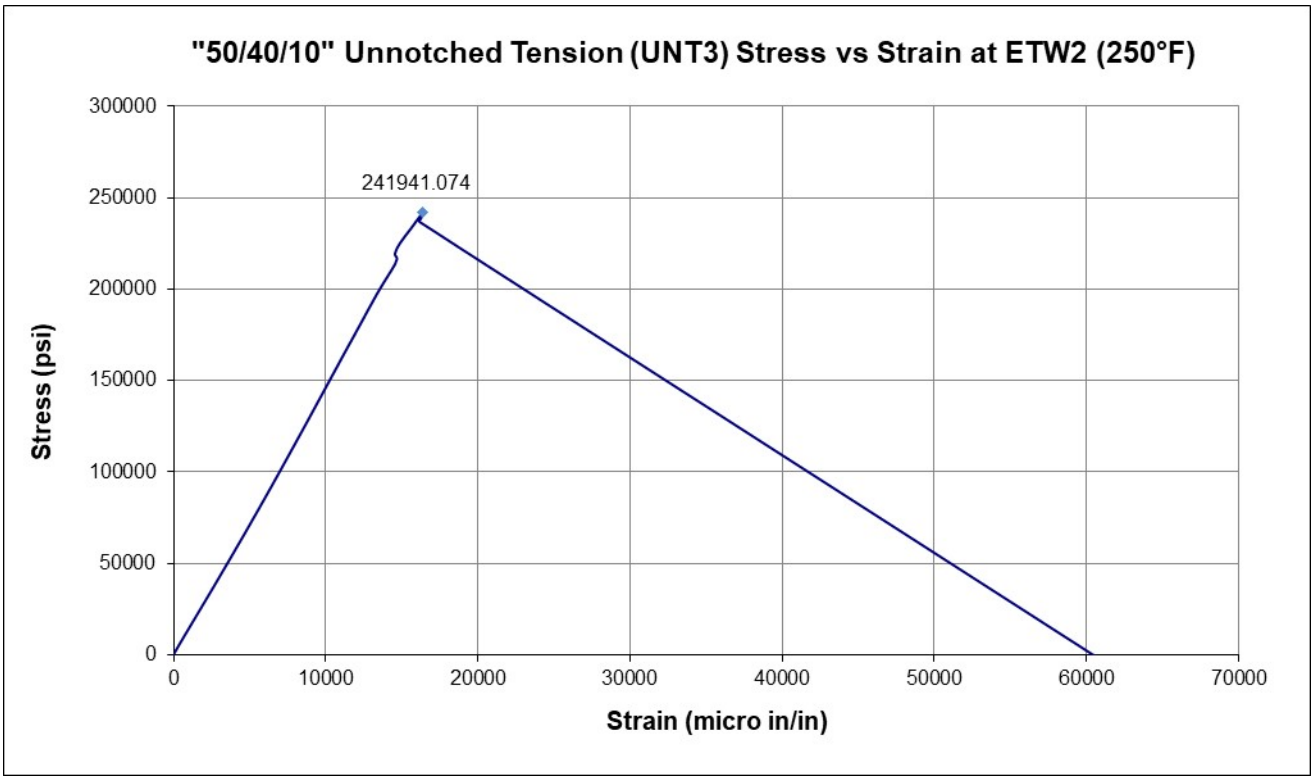




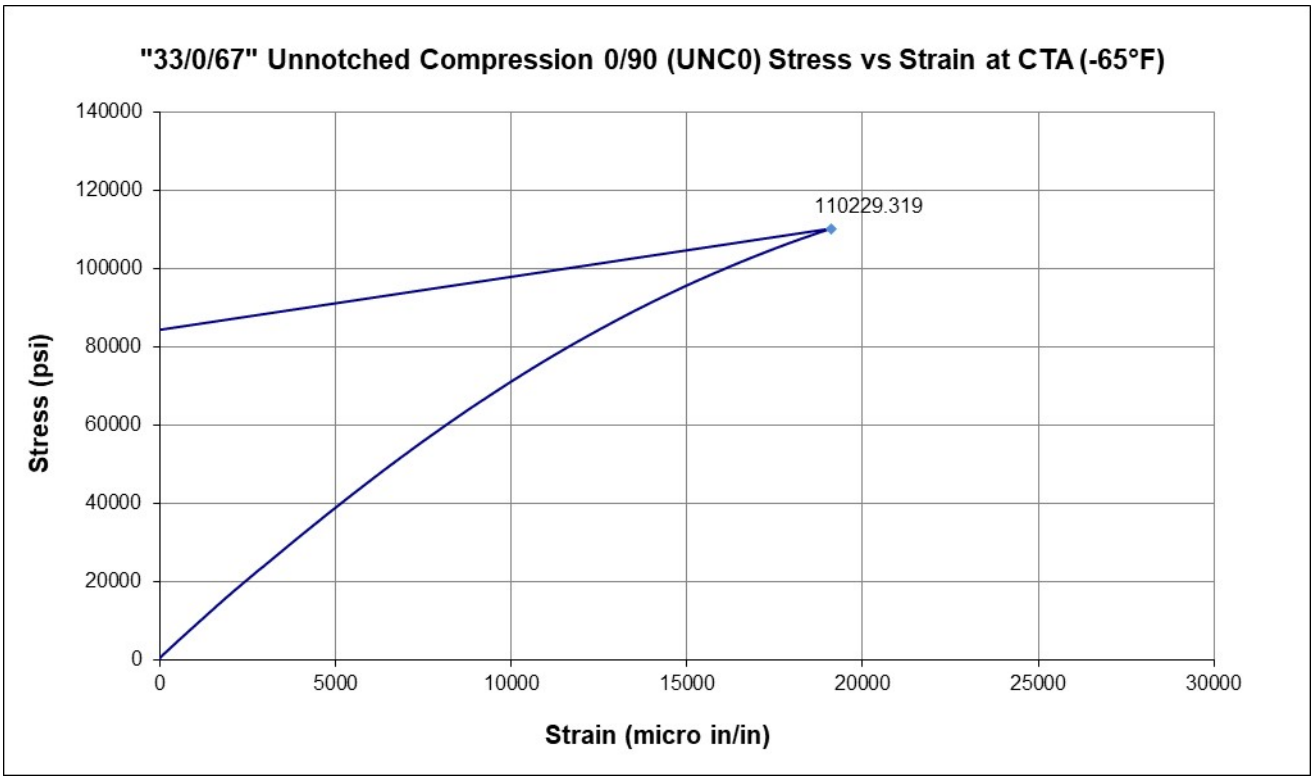
6.9 “50/40/10” Unnotched Tension 3 (UNT3)

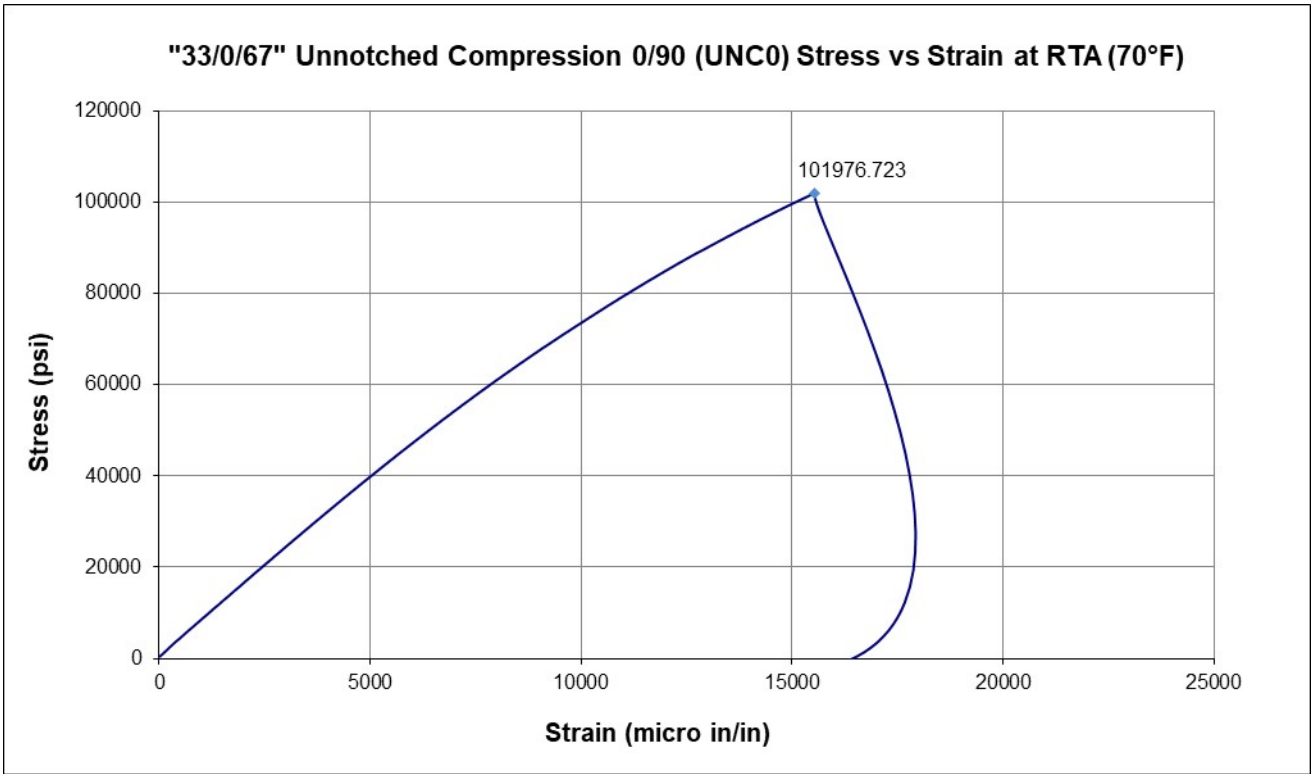


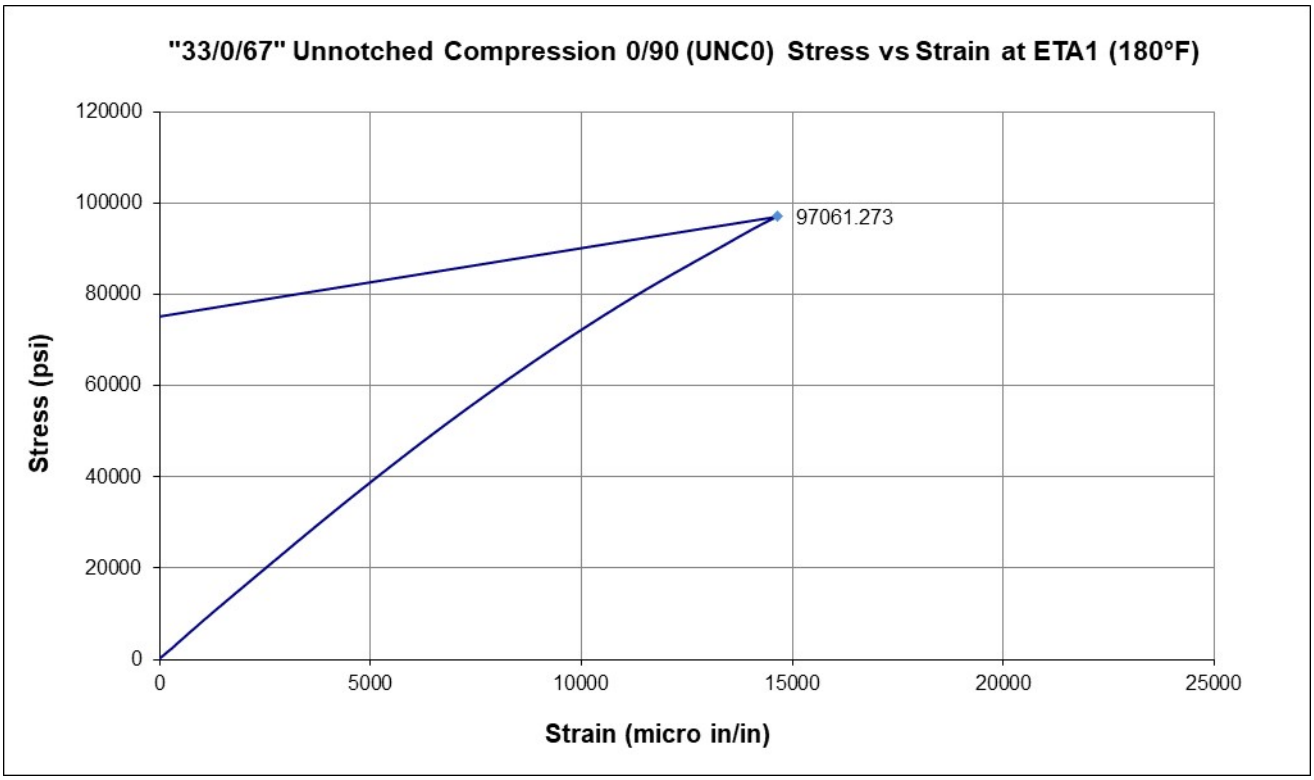

"50/40/10" Unnotched Tension (UNT3) Stress vs Strain at RTA (70°F)
Stress (psi)
350000
300000
250000
200000
150000
100000
50000
0
286821.414
0
10000
20000
30000
40000
50000
60000
70000
Strain (micro in/in)

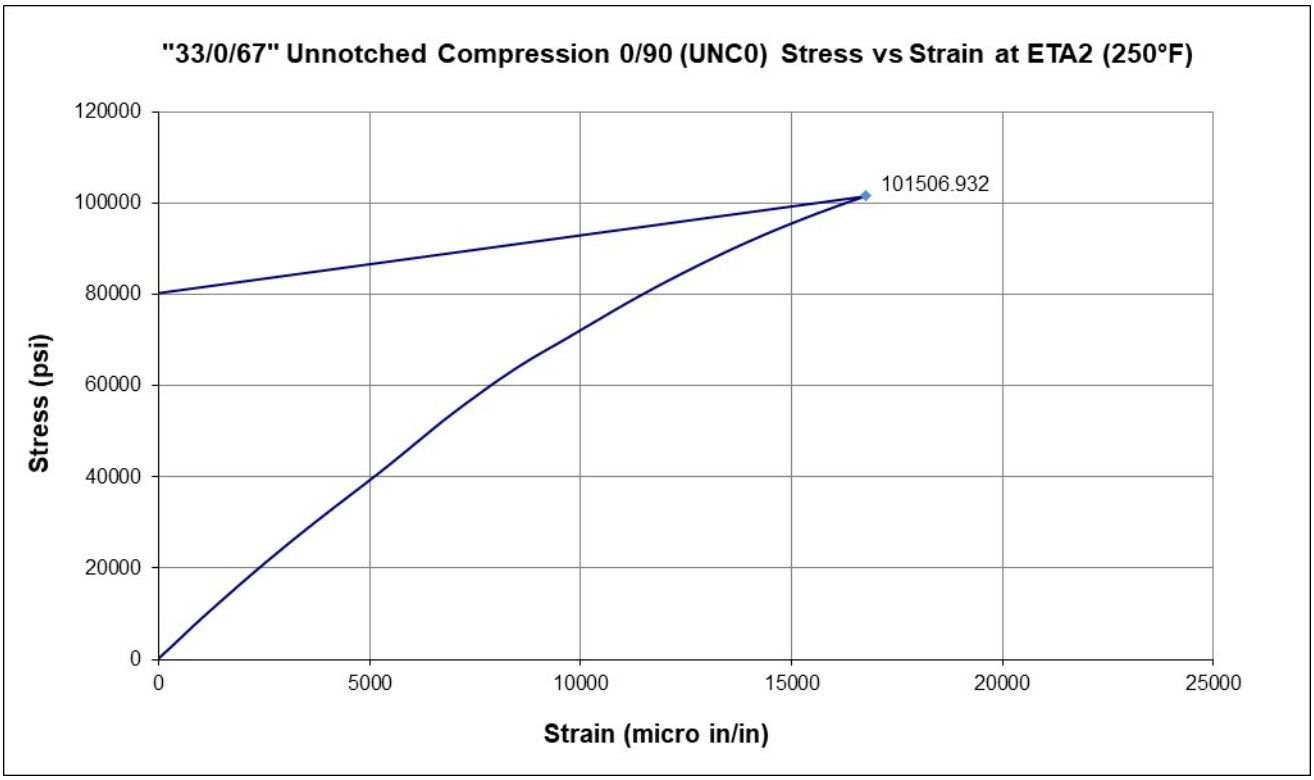

"50/40/10" Unnotched Tension (UNT3) Stress vs Strain at ETW2 (250°F)
Stress (psi)
300000
250000
200000
150000
100000
50000
0
241941.074
0
10000
20000
30000
40000
50000
60000
70000
Strain (micro in/in)

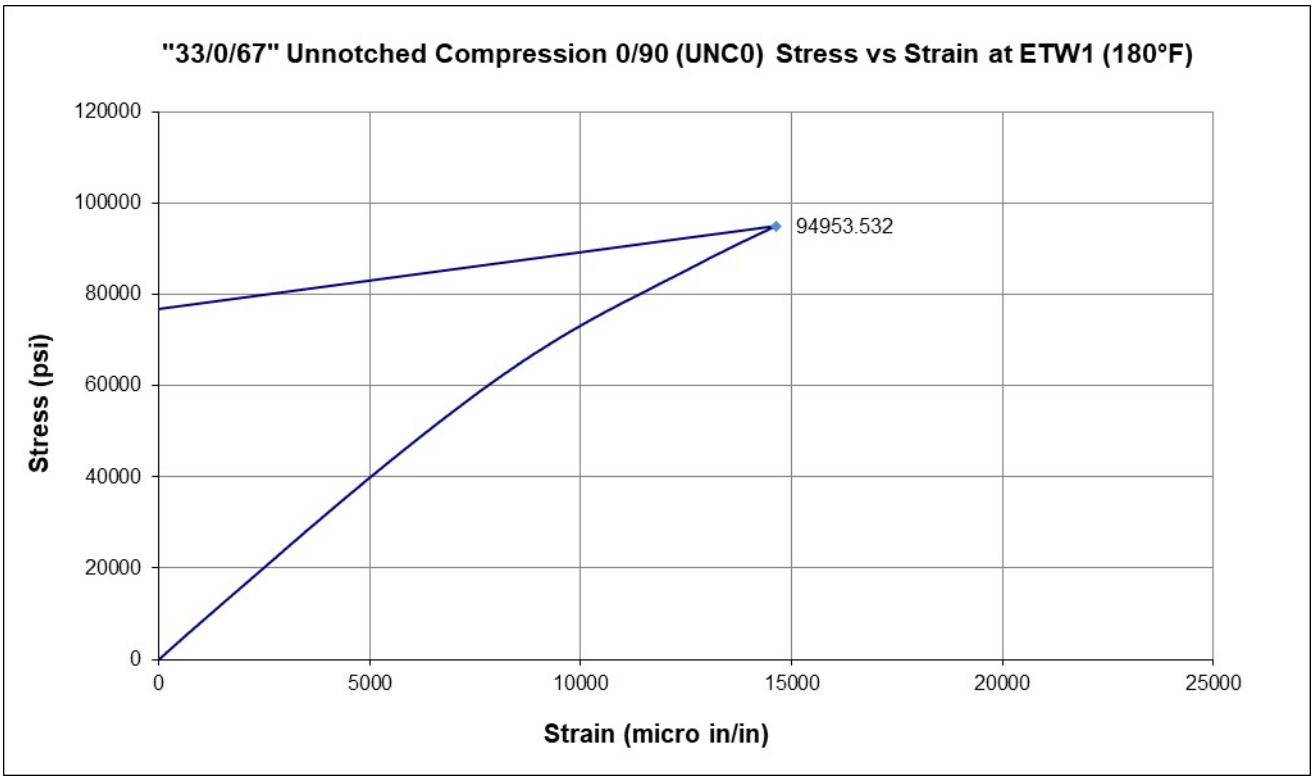
6.10 “33/0/67” Unnotched Compression 0°/90° (UNC0)

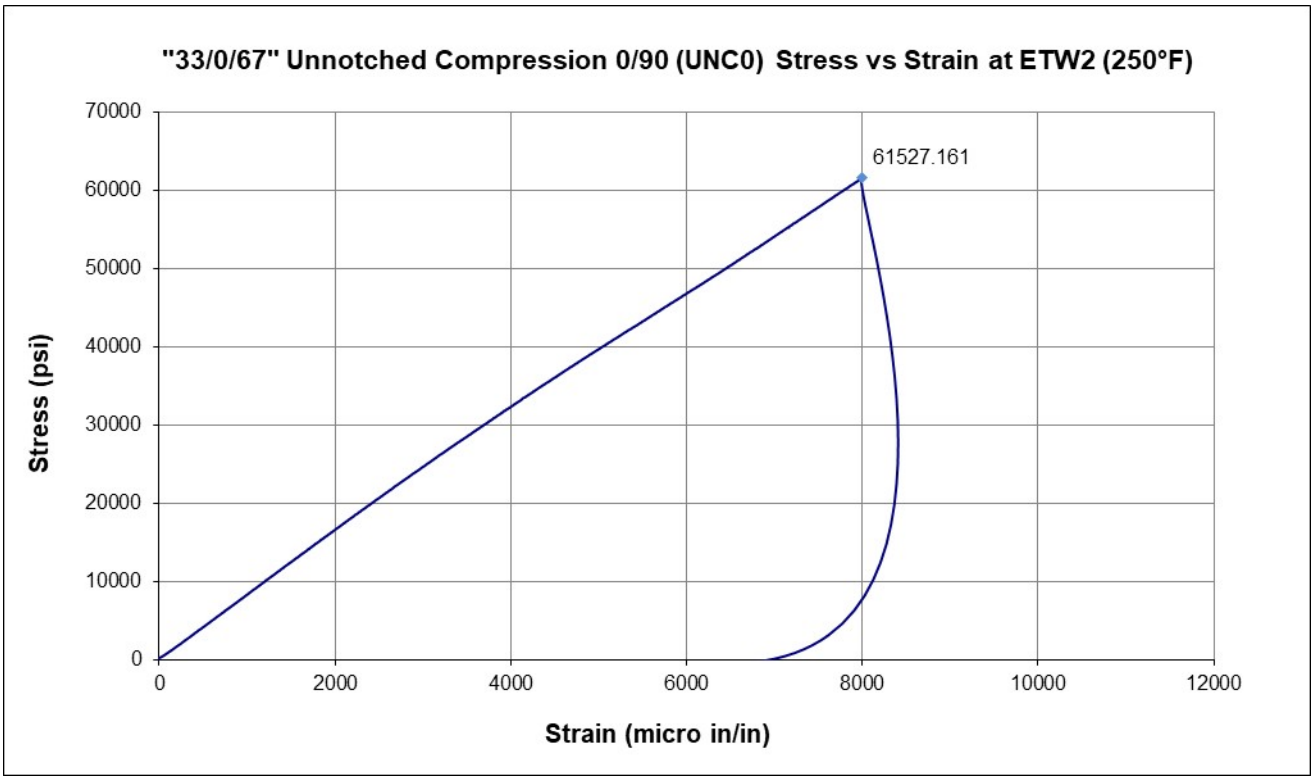




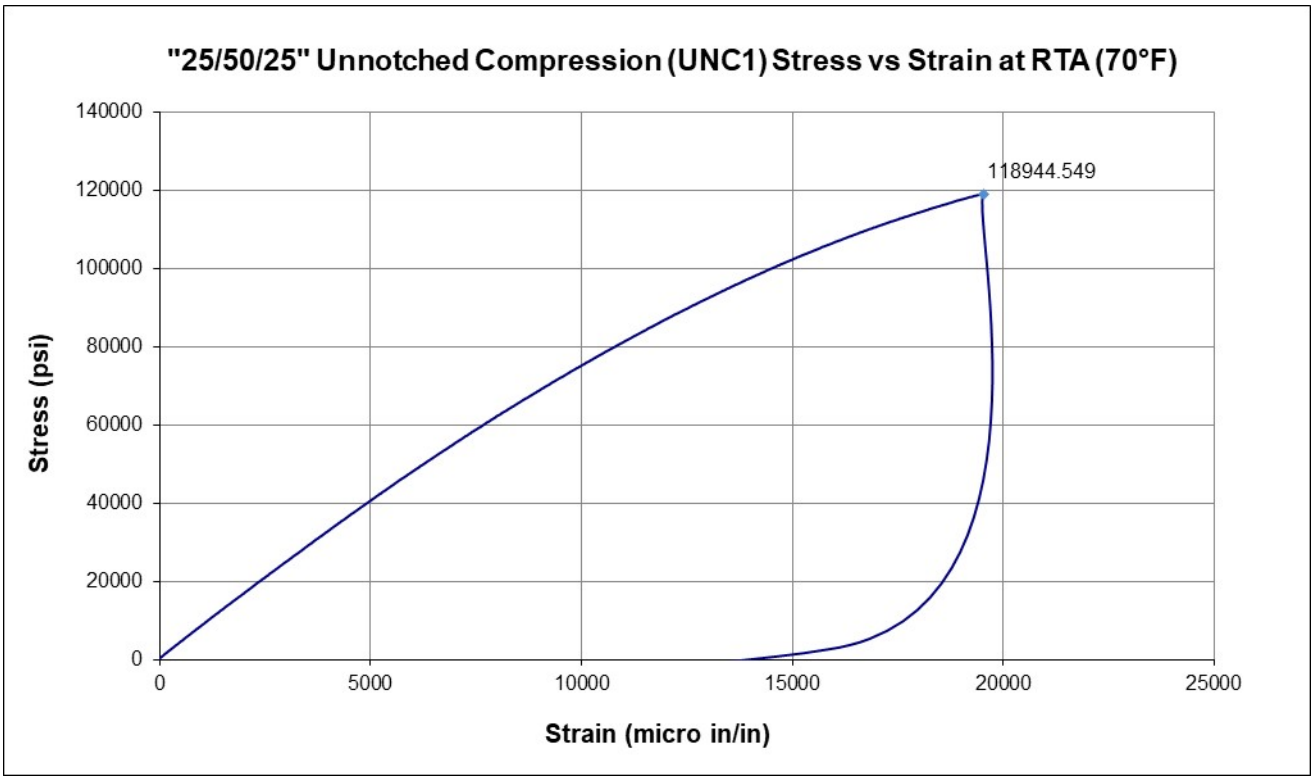

"33/0/67" Unnotched Compression 0/90 (UNC0) Stress vs Strain at ETA1 (180°F)
120000
100000
80000
60000
40000
20000
0
Stress (psi)
97061.273
0
5000
10000
15000
20000
25000
Strain (micro in/in)

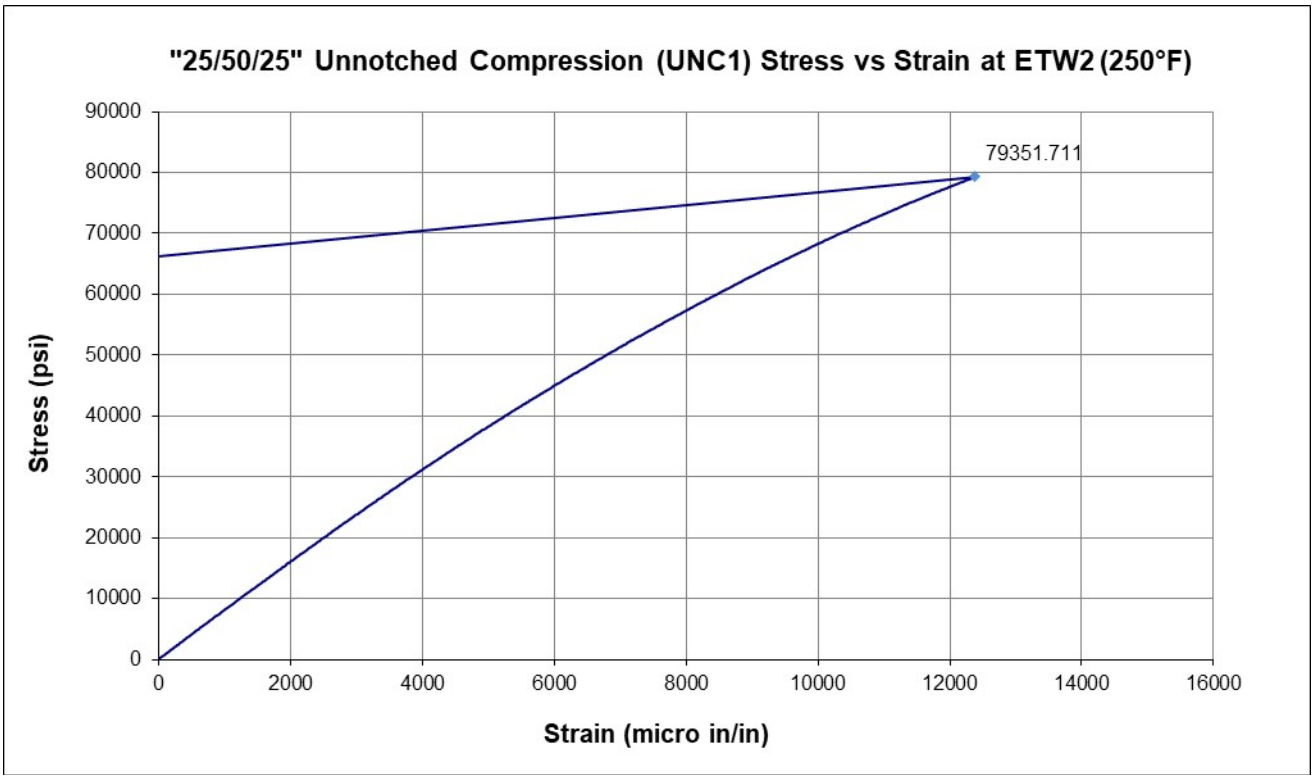

"33/0/67" Unnotched Compression 0/90 (UNC0) Stress vs Strain at ETA2 (250°F)
120000
100000
80000
60000
40000
20000
0
Stress (psi)
101506.932
0
5000
10000
15000
20000
25000
Strain (micro in/in)


"33/0/67" Unnotched Compression 0/90 (UNC0) Stress vs Strain at ETW1 (180°F)
Stress (psi)
120000
100000
80000
60000
40000
20000
0
94953.532
0
5000
10000
15000
20000
25000
Strain (micro in/in)

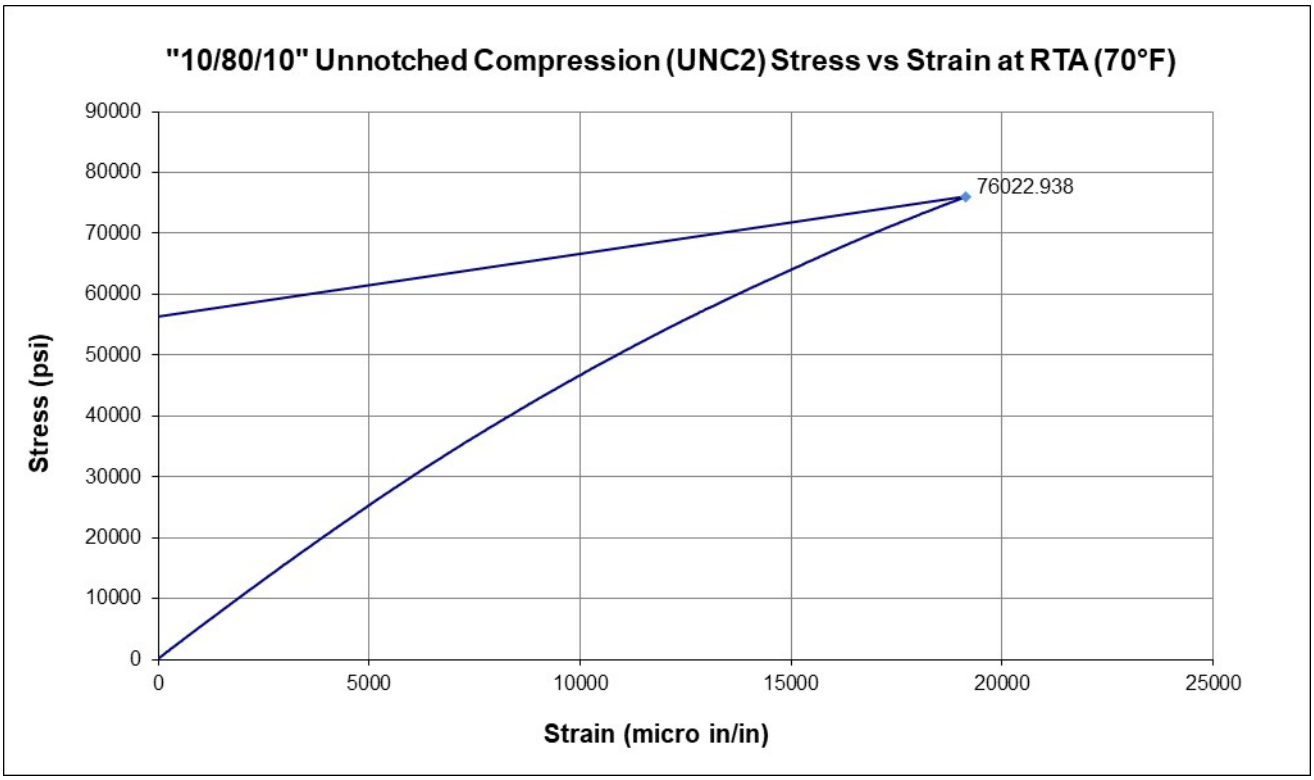

"33/0/67" Unnotched Compression 0/90 (UNC0) Stress vs Strain at ETW2 (250°F)
Stress (psi)
70000
60000
50000
40000
30000
20000
10000
0
61527.161
0
2000
4000
6000
8000
10000
12000
Strain (micro in/in)

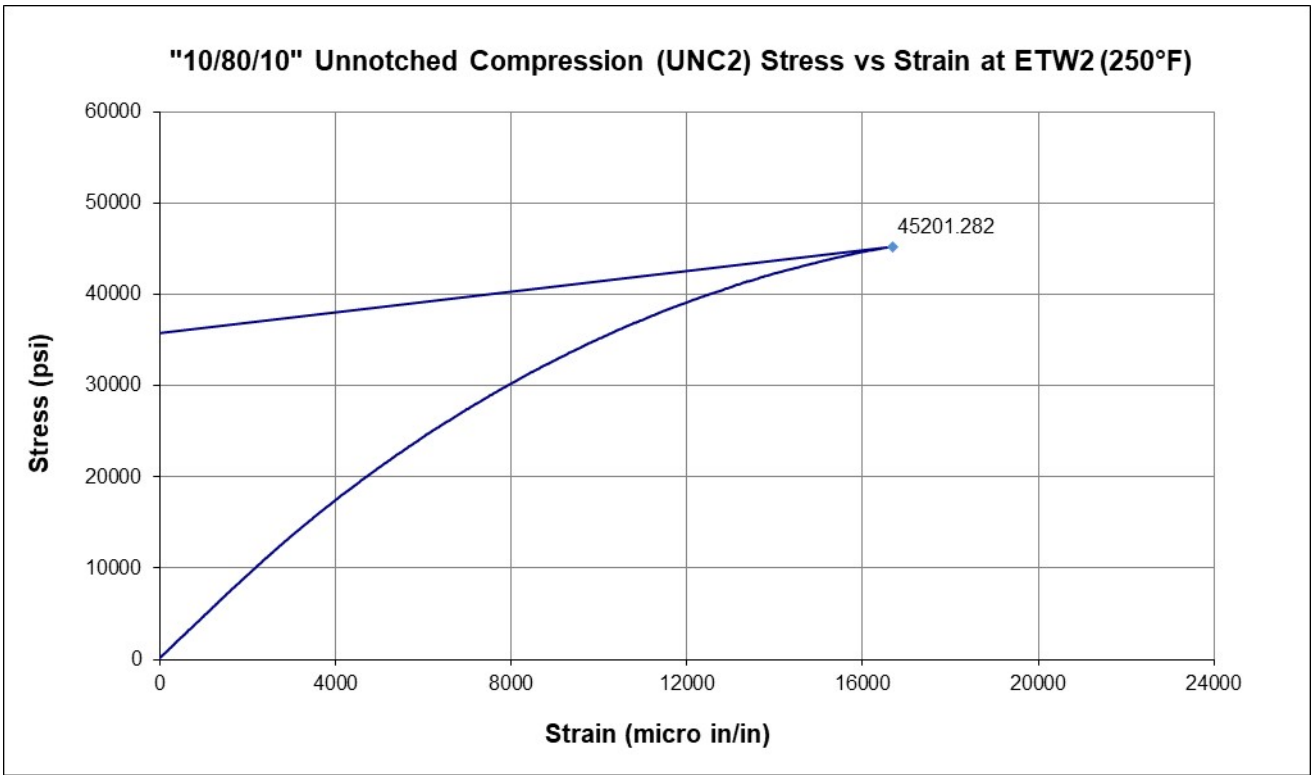
6.11 “25/50/25” Unnotched Compression 1 (UNC1)



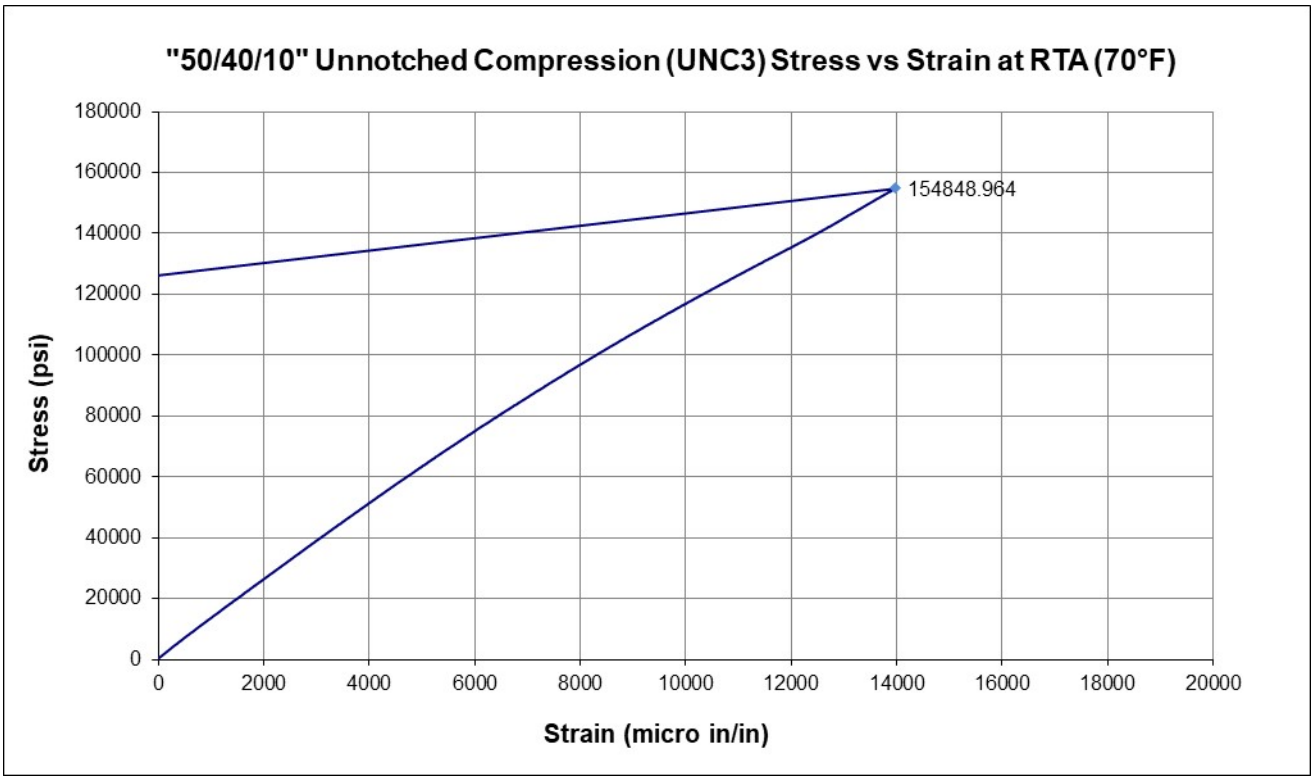


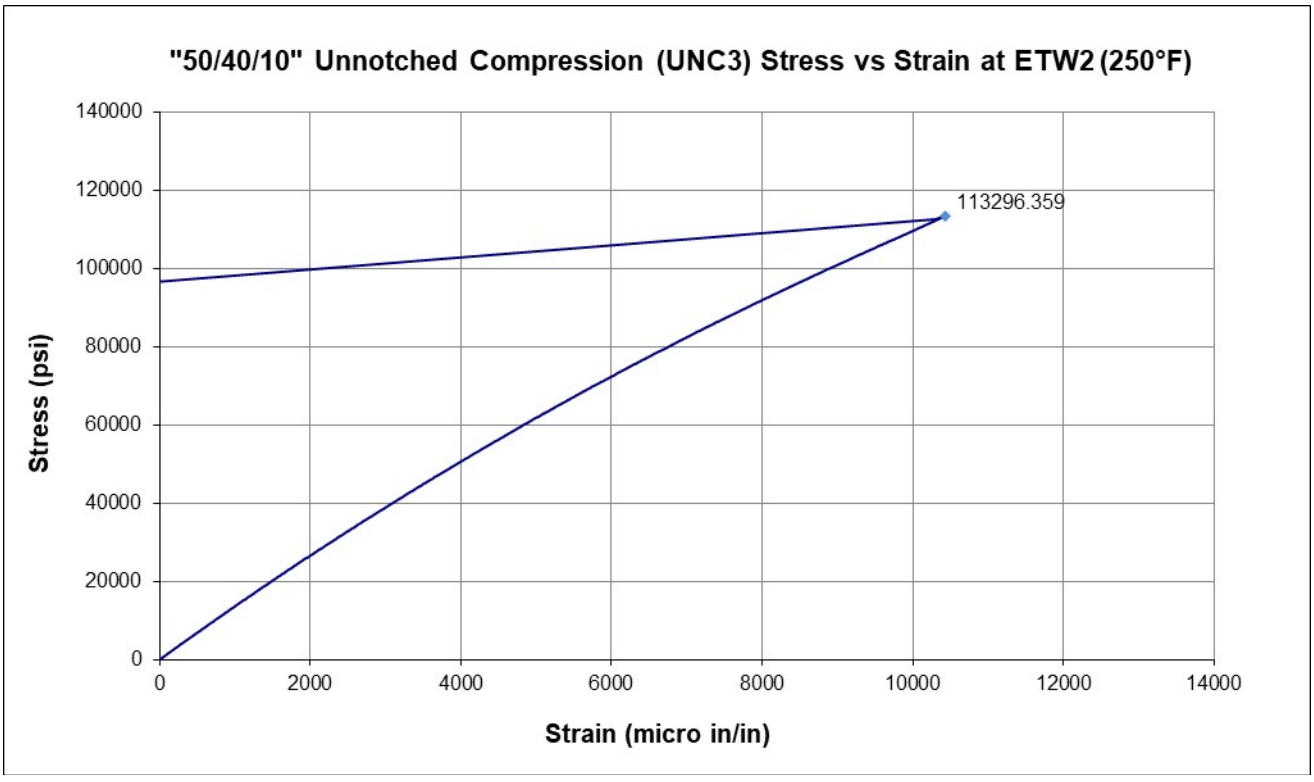
6.12 “10/80/10” Unnotched Compression 2 (UNC2)





6.13 “50/40/10” Unnotched Compression 3 (UNC3)

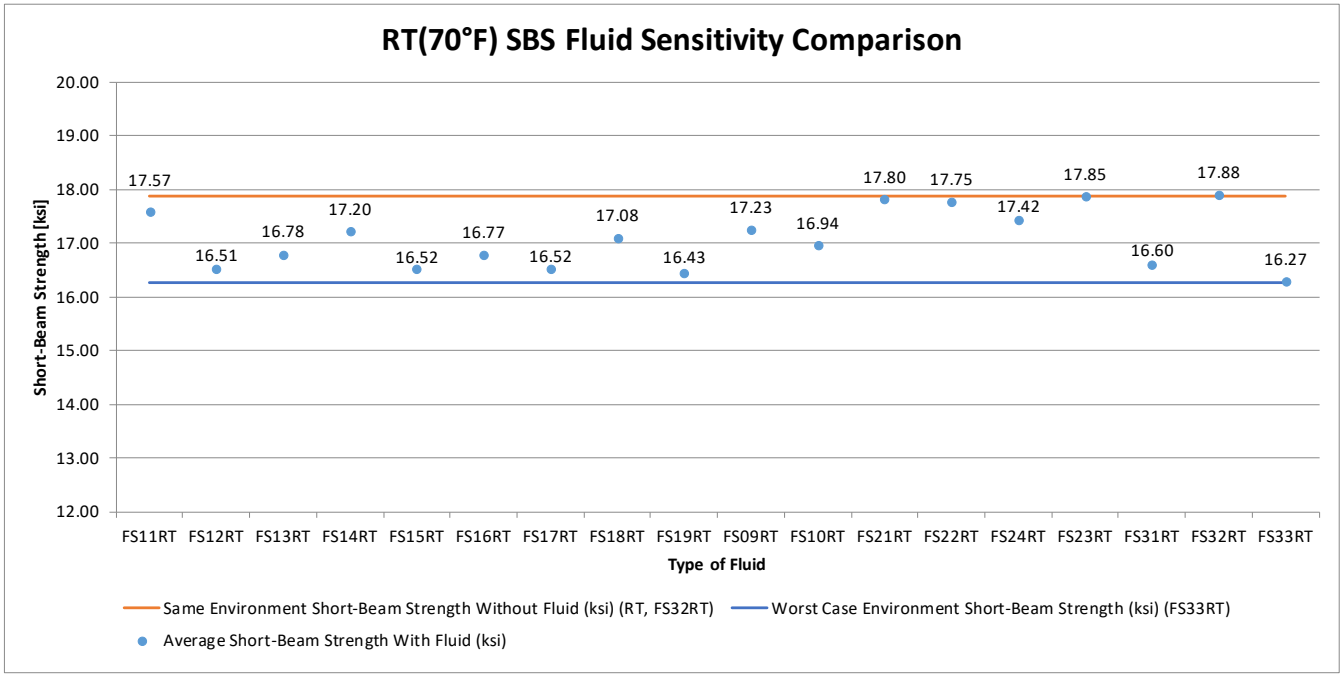


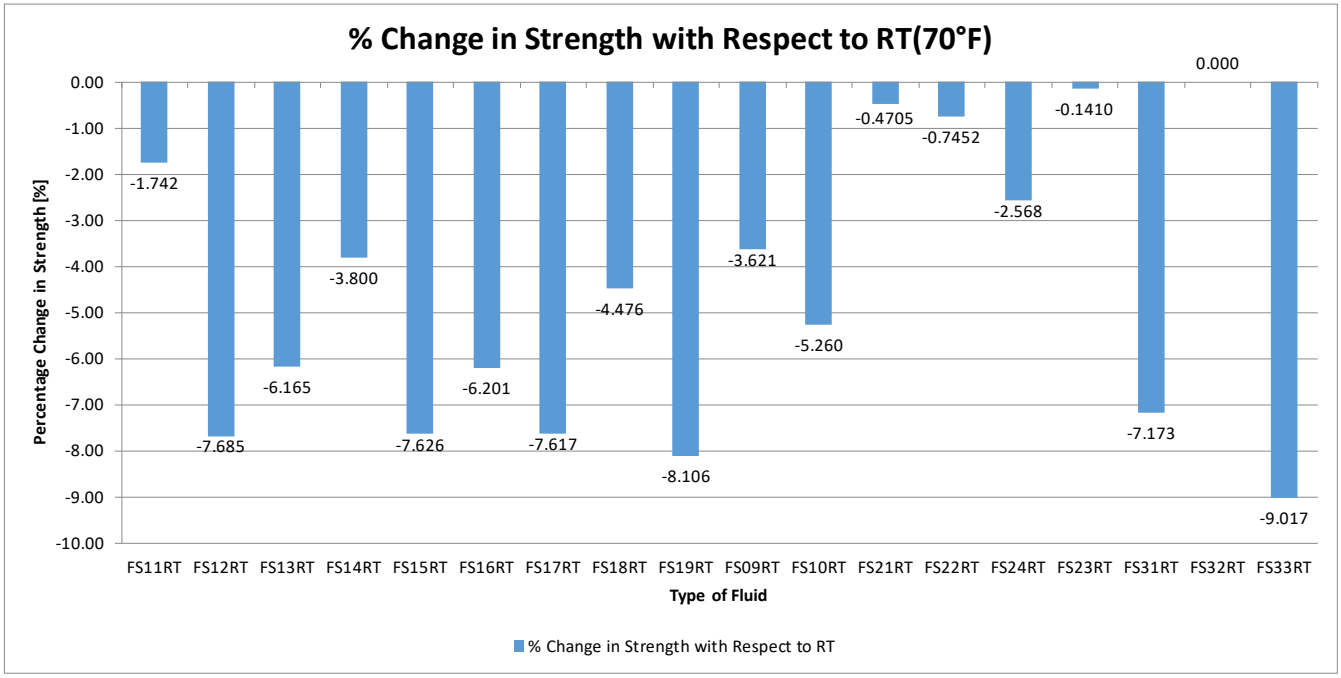


7. Fluid Sensitivity Comparison

7.1 Room Temperature Test Data

Code	Type of Fluid	Exposure
FS11RT	100 Low Lead Fuel	90 days min @ 70°F ± 10F
FS12RT	Jet A Fuel	
FS13RT	MIL-PRF-5606 Hydraulic Oil	
FS14RT	MIL-PRF-83282 Hydraulic Oil	
FS15RT	MIL-PRF-7808 Engine Oil	
FS16RT	MIL-PRF-23699 Engine Oil	
FS17RT	Salt Water	
FS18RT	Skydrol LD-4	
FS19RT	50% Water w/ 50% Skydrol	
FS09RT	Degreasing Solvent per MIL-PRF-680, Type III	
FS10RT	Preservation Oil per MIL-PRF-6081	
FS31RT	Distilled Water	
FS21RT	MEK washing fluid	90 mins @ 70°F ± 10F
FS22RT	Polypropylene Glycol Deicer	
FS24RT	Detergent per MIL-D-16791, Type I	
FS23RT	Isopropyl Alcohol Deicing	48±4 hrs @ 70°F ± 10F
FS32RT	Dry	Per section 6.2 Test Plan
FS33RT	85% Relative Humidity	


RT(70°F) SBS Fluid Sensitivity Comparison
Short-Beam Strength [ksi]
20.00
19.00
18.00
17.00
16.00
15.00
14.00
13.00
12.00
17.57
16.51
16.78
17.20
16.52
16.77
16.52
17.08
16.43
17.23
16.94
17.80
17.75
17.42
17.85
16.60
17.88
16.27
FS11RT FS12RT FS13RT FS14RT FS15RT FS16RT FS17RT FS18RT FS19RT FS09RT FS10RT FS21RT FS22RT FS24RT FS23RT FS31RT FS32RT FS33RT
Type of Fluid
Same Environment Short-Beam Strength Without Fluid (ksi) (RT, FS32RT)
Worst Case Environment Short-Beam Strength (ksi) (FS33RT)
Average Short-Beam Strength With Fluid (ksi)

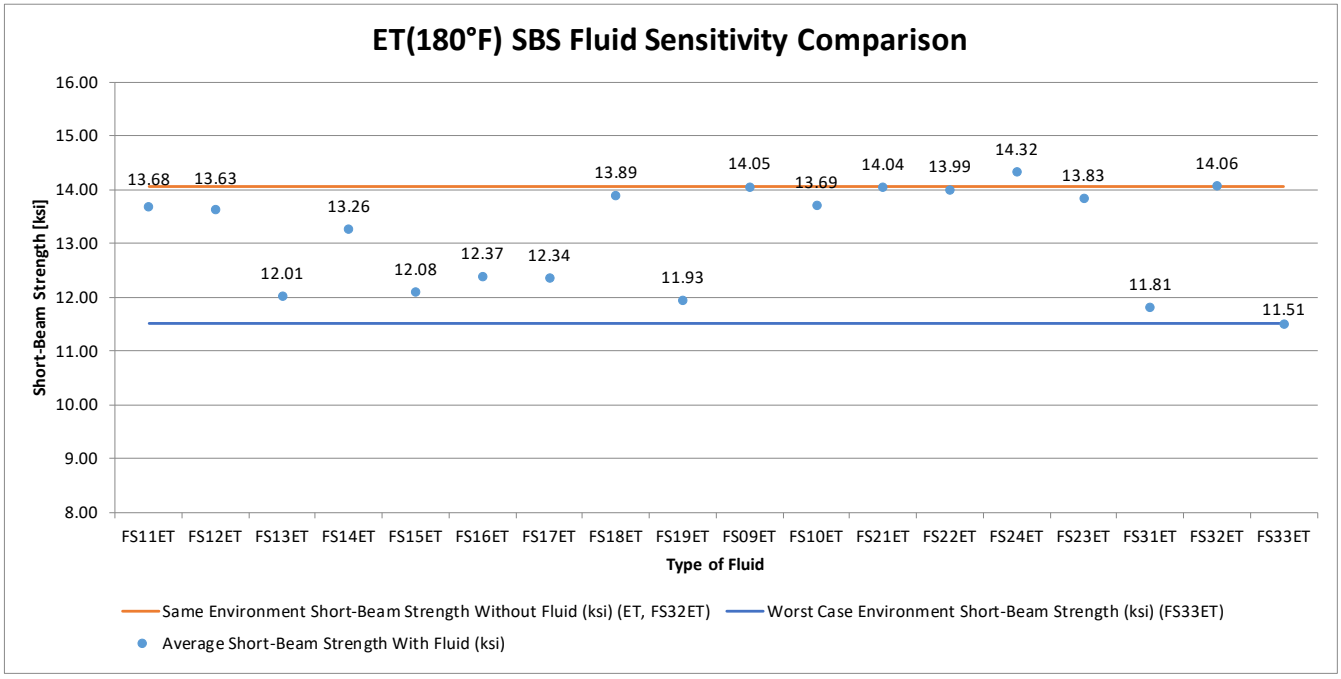

% Change in Strength with Respect to RT(70°F)
Percentage Change in Strength [%]
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
-6.00
-7.00
-8.00
-9.00
-10.00
-1.742
-7.685
-6.165
-3.800
-7.626
-6.201
-7.617
-4.476
-8.106
-3.621
-5.260
-0.4705
-0.7452
-2.568
-0.1410
-7.173
0.000
-9.017
FS11RT FS12RT FS13RT FS14RT FS15RT FS16RT FS17RT FS18RT FS19RT FS09RT FS10RT FS21RT FS22RT FS24RT FS23RT FS31RT FS32RT FS33RT
Type of Fluid
% Change in Strength with Respect to RT

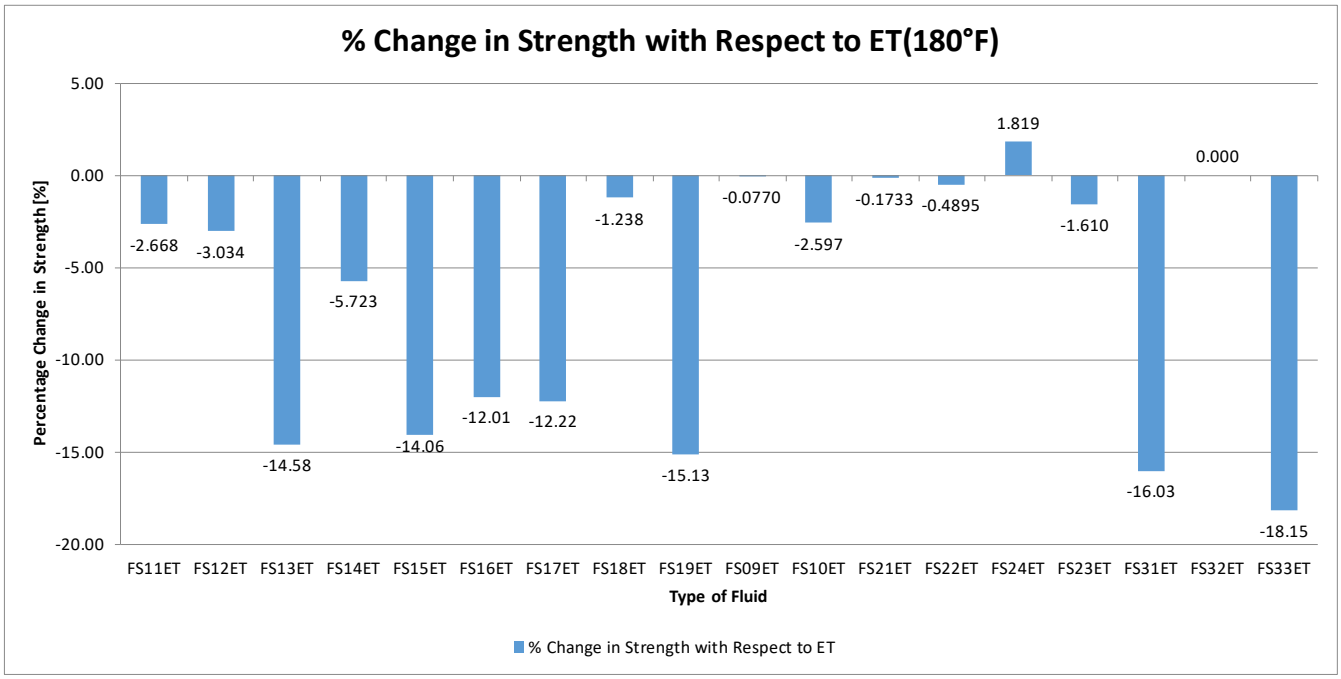
Fluid Sensitivity Screening
Short-Beam Strength Properties (FSSBS)--RT(70°F) Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

Fluid Code	Specimen Number	Toray Batch #	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode	Average
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS11-RT-1	A	1	1	17.35	0.09975	14	0.007125	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS11-RT-2	A	1	1	17.55	0.09922	14	0.007087	ILS, COMPRESSION	
FS11RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS11-RT-3	A	1	1	17.38	0.09950	14	0.007107	ILS, COMPRESSION	17.57
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS11-RT-4	A	1	1	17.80	0.09970	14	0.007121	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS11-RT-5	A	1	1	17.77	0.09958	14	0.007113	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS12-RT-1	A	1	1	16.84	0.09958	14	0.007113	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS12-RT-2	A	1	1	16.55	0.09905	14	0.007075	ILS, COMPRESSION	
FS12RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS12-RT-3	A	1	1	16.28	0.09840	14	0.007029	ILS, COMPRESSION	16.51
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS12-RT-4	A	1	1	16.38	0.09867	14	0.007048	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS12-RT-5	A	1	1	16.47	0.09952	14	0.007108	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS13-RT-1	A	1	1	16.80	0.09828	14	0.007020	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS13-RT-2	A	1	1	16.44	0.09917	14	0.007083	ILS	
FS13RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS13-RT-3	A	1	1	16.76	0.09862	14	0.007044	ILS	16.78
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS13-RT-4	A	1	1	17.03	0.09828	14	0.007020	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS13-RT-5	A	1	1	16.86	0.09875	14	0.007054	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS14-RT-1	A	1	1	17.34	0.09838	14	0.007027	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS14-RT-2	A	1	1	16.94	0.09758	14	0.006970	ILS	
FS14RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS14-RT-3	A	1	1	16.97	0.09768	14	0.006977	ILS	17.20
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS14-RT-4	A	1	1	17.39	0.09745	14	0.006961	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS14-RT-5	A	1	1	17.36	0.09838	14	0.007027	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS15-RT-1	A	1	1	16.72	0.09725	14	0.006946	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS15-RT-2	A	1	1	16.28	0.09705	14	0.006932	ILS	
FS15RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS15-RT-3	A	1	1	16.41	0.09657	14	0.006898	ILS	16.52
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS15-RT-4	A	1	1	16.54	0.09650	14	0.006893	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS15-RT-5	A	1	1	16.62	0.09675	14	0.006911	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS16-RT-1	A	1	2	16.66	0.09772	14	0.006980	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS16-RT-2	A	1	2	16.81	0.09808	14	0.007006	ILS	
FS16RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS16-RT-3	A	1	2	16.52	0.09840	14	0.007029	ILS	16.77
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS16-RT-4	A	1	2	16.83	0.09770	14	0.006979	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS16-RT-5	A	1	2	17.04	0.09802	14	0.007001	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS17-RT-1	A	1	2	16.52	0.09835	14	0.007025	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS17-RT-2	A	1	2	16.42	0.09795	14	0.006996	ILS	
FS17RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS17-RT-3	A	1	2	16.39	0.09780	14	0.006986	ILS	16.52
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS17-RT-4	A	1	2	16.71	0.09795	14	0.006996	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS17-RT-5	A	1	2	16.54	0.09853	14	0.007038	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS18-RT-1	A	1	2	17.09	0.09800	14	0.007000	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS18-RT-2	A	1	2	16.96	0.09772	14	0.006980	ILS, COMPRESSION	
FS18RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS18-RT-3	A	1	2	16.87	0.09772	14	0.006980	ILS, COMPRESSION	17.08
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS18-RT-4	A	1	2	17.07	0.09760	14	0.006971	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS18-RT-5	A	1	2	17.41	0.09790	14	0.006993	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS19-RT-1	A	1	2	16.52	0.09788	14	0.006992	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS19-RT-2	A	1	2	16.43	0.09815	14	0.007011	ILS	
FS19RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS19-RT-3	A	1	2	16.51	0.09828	14	0.007020	ILS	16.43
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS19-RT-4	A	1	2	16.40	0.09847	14	0.007033	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS19-RT-5	A	1	2	16.30	0.09852	14	0.007037	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS09-RT-1	A	1	2	18.01	0.10260	14	0.007329	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS09-RT-2	A	1	2	16.92	0.10188	14	0.007277	ILS	
FS09RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS09-RT-3	A	1	2	16.93	0.10080	14	0.007200	ILS	17.23
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS09-RT-4	A	1	2	17.25	0.09980	14	0.007129	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS09-RT-5	A	1	2	17.05	0.09948	14	0.007106	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS10-RT-1	A	1	2	16.64	0.09832	14	0.007023	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS10-RT-2	A	1	2	16.93	0.09793	14	0.006995	ILS	
FS10RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS10-RT-3	A	1	2	17.24	0.09778	14	0.006985	ILS	16.94
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS10-RT-4	A	1	2	16.94	0.09818	14	0.007013	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS10-RT-5	A	1	2	16.95	0.09813	14	0.007010	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS21-RT-1	A	1	2	17.79	0.09867	14	0.007048	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS21-RT-2	A	1	2	17.60	0.09842	14	0.007030	ILS	
FS21RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS21-RT-3	A	1	2	17.77	0.09823	14	0.007017	ILS	17.80
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS21-RT-4	A	1	2	17.97	0.09825	14	0.007018	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS21-RT-5	A	1	2	17.84	0.09807	14	0.007005	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS22-RT-1	A	1	1	17.72	0.09813	14	0.007010	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS22-RT-2	A	1	1	17.78	0.09758	14	0.006970	ILS	
FS22RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS22-RT-3	A	1	1	17.61	0.09733	14	0.006952	ILS	17.75
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS22-RT-4	A	1	1	17.62	0.09768	14	0.006977	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS22-RT-5	A	1	1	18.00	0.09782	14	0.006987	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS24-RT-1	A	1	1	17.47	0.09748	14	0.006963	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS24-RT-2	A	1	1	17.48	0.09750	14	0.006964	ILS	
FS24RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS24-RT-3	A	1	1	17.14	0.09772	14	0.006980	ILS, COMPRESSION	17.42
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS24-RT-4	A	1	1	17.39	0.09763	14	0.006974	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS24-RT-5	A	1	1	17.62	0.09940	14	0.007100	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS23-RT-1	A	1	1	18.00	0.09778	14	0.006985	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS23-RT-2	A	1	1	17.94	0.09738	14	0.006956	ILS, COMPRESSION	
FS23RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS23-RT-3	A	1	1	17.60	0.09767	14	0.006976	ILS, COMPRESSION	17.85
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS23-RT-4	A	1	1	17.88	0.09772	14	0.006980	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS23-RT-5	A	1	1	17.85	0.09798	14	0.006999	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS31-RT-1	A	1	1	16.71	0.09768	14	0.006977	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS31-RT-2	A	1	1	16.54	0.09732	14	0.006951	ILS	
FS31RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS31-RT-3	A	1	1	16.38	0.09737	14	0.006955	ILS	16.60
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS31-RT-4	A	1	1	16.69	0.09765	14	0.006975	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS31-RT-5	A	1	1	16.66	0.09712	14	0.006937	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS32-RT-1	A	1	1	18.10	0.09753	14	0.006967	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS32-RT-2	A	1	1	17.75	0.09717	14	0.006940	ILS	
FS32RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS32-RT-3	A	1	1	17.85	0.09683	14	0.006917	ILS, COMPRESSION	17.88
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS32-RT-4	A	1	1	17.76	0.09673	14	0.006910	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS32-RT-5	A	1	1	17.93	0.09745	14	0.006961	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS33-RT-1	A	1	1	16.54	0.09665	14	0.006904	ILS, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS33-RT-2	A	1	1	16.26	0.09760	14	0.006971	ILS, COMPRESSION	
FS33RT	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS33-RT-3	A	1	1	15.90	0.09748	14	0.006963	ILS	16.27
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS33-RT-4	A	1	1	16.30	0.09748	14	0.006963	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS33-RT-5	A	1	1	16.33	0.09723	14	0.006945	ILS, COMPRESSION	

7.2 Elevated Temperature Test Data

Code	Type of Fluid	Exposure
FS11ET	100 Low lead Fuel	90 days min @ 70°F ± 10F
FS12ET	Jet A Fuel	
FS13ET	MIL-PRF-5606 Hydraulic Oil	
FS14ET	MIL-PRF-83282 Hydraulic Oil	
FS15ET	MIL-PRF-7808 Engine Oil	
FS16ET	MIL-PRF-23699 Engine Oil	
FS17ET	Sea Water	
FS18ET	Skydrol LD-4	
FS19ET	50% Water w/ 50% Skydrol	
FS09ET	Degreasing Solvent per MIL-PRF-680, Type III	
FS10ET	Preservation Oil per MIL-PRF-6081	
FS31ET	Distilled Water	
FS21ET	MEK washing fluid	90 mins @ 70°F ± 10F
FS22ET	Polypropylene Glycol Deicer	
FS24ET	Detergent per MIL-D-16791, Type I	
FS23ET	Isopropyl Alcohol Deicing	48±4 hrs @ 70°F ± 10F
FS32ET	Dry	Per section 6.2 Test Plan
FS33ET	85% Relative Humidity	

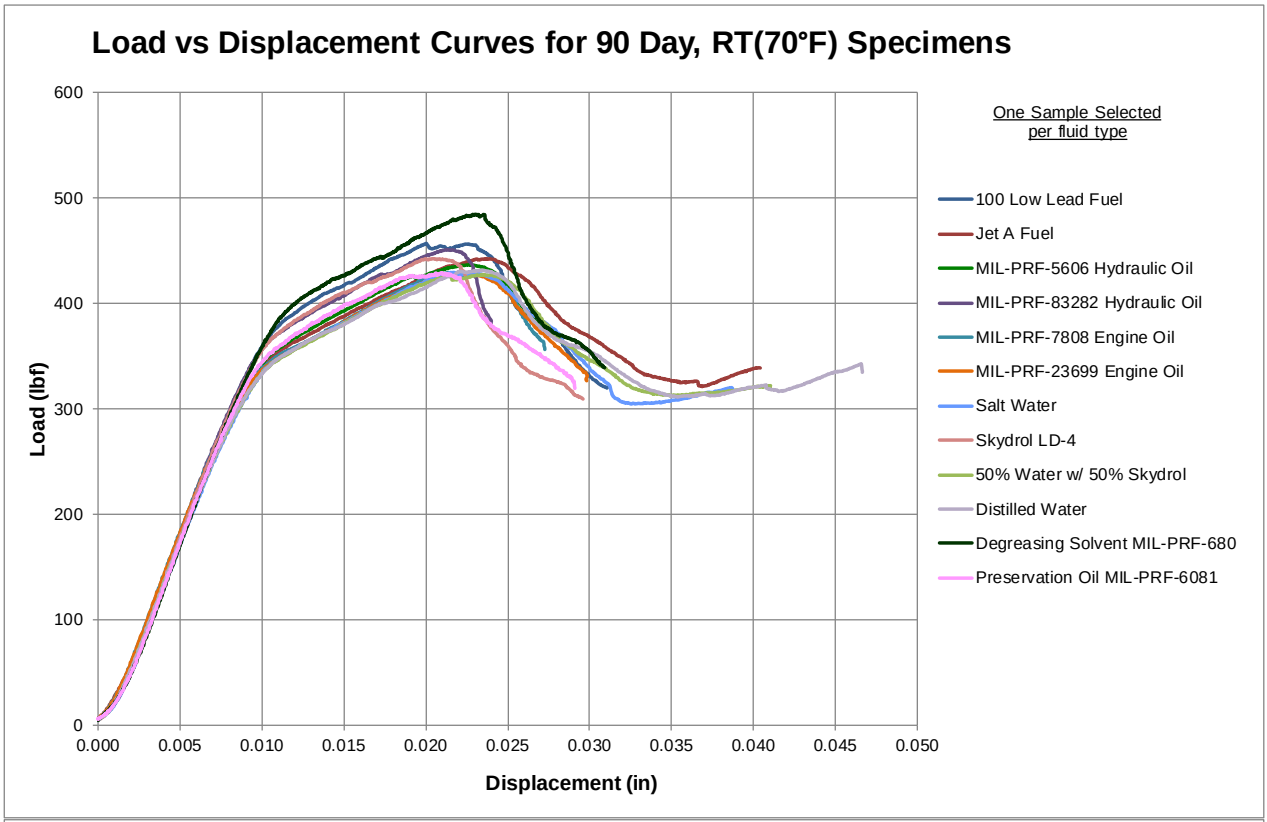

ET(180°F) SBS Fluid Sensitivity Comparison
Short-Beam Strength [ksi]
16.00
15.00
14.00
13.00
12.00
11.00
10.00
9.00
8.00
13.68
13.63
12.01
13.26
12.08
12.37
12.34
13.89
11.93
14.05
13.69
14.04
13.99
14.32
13.83
11.81
14.06
11.51
FS11ET FS12ET FS13ET FS14ET FS15ET FS16ET FS17ET FS18ET FS19ET FS09ET FS10ET FS21ET FS22ET FS24ET FS23ET FS31ET FS32ET FS33ET
Type of Fluid
Same Environment Short-Beam Strength Without Fluid (ksi) (ET, FS32ET)
Worst Case Environment Short-Beam Strength (ksi) (FS33ET)
Average Short-Beam Strength With Fluid (ksi)

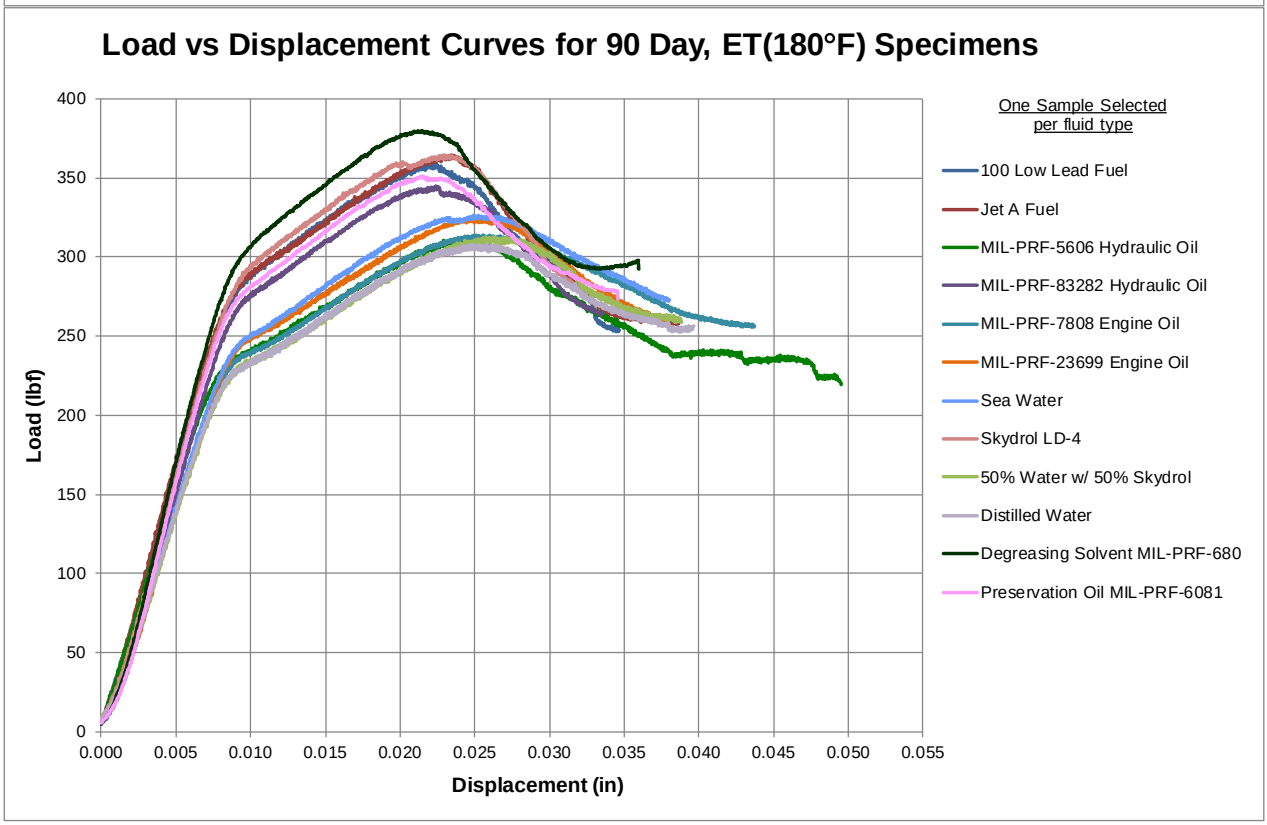

% Change in Strength with Respect to ET(180°F)
Percentage Change in Strength [%]
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-2.668
-3.034
-14.58
-5.723
-14.06
-12.01
-12.22
-1.238
-15.13
-0.0770
-2.597
-0.1733
-0.4895
1.819
-1.610
0.000
-16.03
-18.15
FS11ET FS12ET FS13ET FS14ET FS15ET FS16ET FS17ET FS18ET FS19ET FS09ET FS10ET FS21ET FS22ET FS24ET FS23ET FS31ET FS32ET FS33ET
Type of Fluid
% Change in Strength with Respect to ET

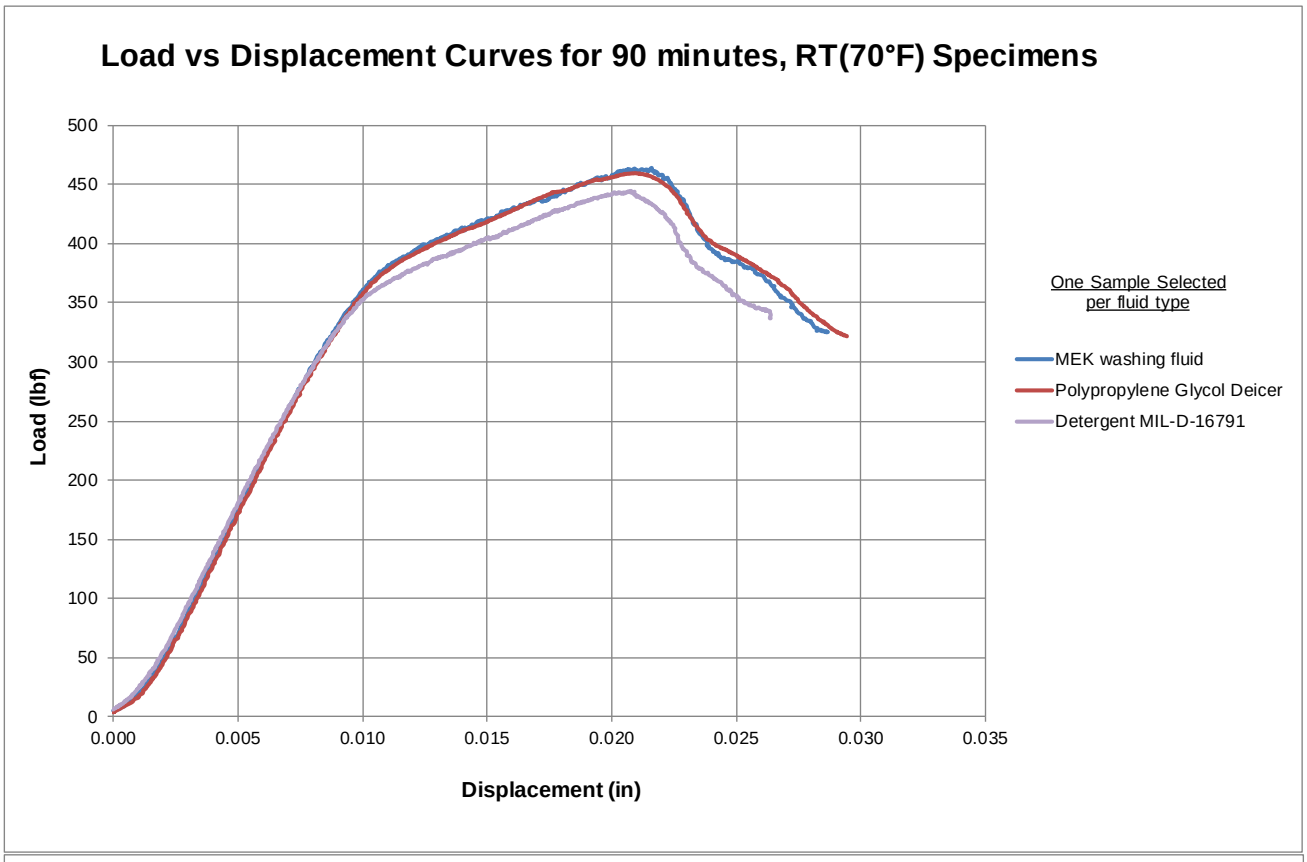
Fluid Sensitivity Screening
Short-Beam Strength Properties (FSSBS)--ET(180°F) Strength
Toray 3960/T1100GC 71E Gr 192 RC 33.5% 24K Unidirectional Slit Tape (0.25 inch)

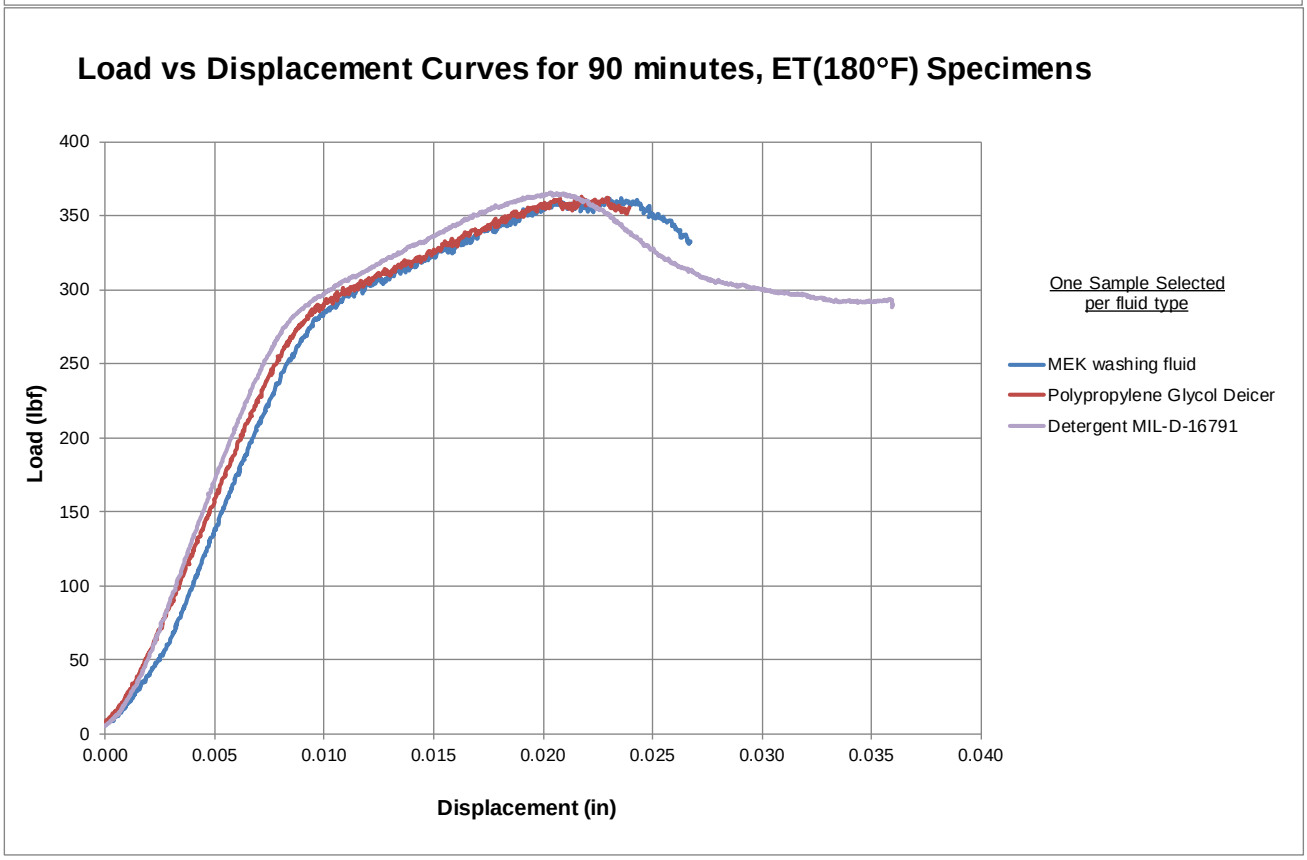
Fluid Code	Specimen Number	Toray Batch #	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode	Average
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS11-ET-1	A	1	1	13.62	0.09988	14	0.007135	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS11-ET-2	A	1	1	13.68	0.09967	14	0.007119	ILS, INELASTIC DEFORMATION	
FS11ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS11-ET-3	A	1	1	13.58	0.09993	14	0.007138	ILS, INELASTIC DEFORMATION, COMPRESSION	13.68
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS11-ET-4	A	1	1	13.90	0.09950	14	0.007107	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS11-ET-5	A	1	1	13.65	0.09990	14	0.007136	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS12-ET-1	A	1	1	13.73	0.10050	14	0.007179	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS12-ET-4	A	1	1	13.69	0.09838	14	0.007027	ILS, INELASTIC DEFORMATION	
FS12ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS12-ET-5	A	1	1	13.51	0.09867	14	0.007048	ILS, INELASTIC DEFORMATION	13.63
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS12-SP-4	A	1	1	13.69	0.09858	14	0.007042	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS12-SP-5	A	1	1	13.55	0.09828	14	0.007020	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS13-ET-1	A	1	1	11.97	0.09870	14	0.007050	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS13-ET-2	A	1	1	12.10	0.09878	14	0.007056	ILS, INELASTIC DEFORMATION	
FS13ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS13-ET-3	A	1	1	11.75	0.09848	14	0.007035	ILS, INELASTIC DEFORMATION, COMPRESSION	12.01
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS13-ET-4	A	1	1	12.35	0.09792	14	0.006994	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS13-ET-5	A	1	1	11.88	0.09757	14	0.006969	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS14-ET-1	A	1	1	13.27	0.09837	14	0.007026	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS14-ET-2	A	1	1	13.18	0.09743	14	0.006960	ILS, INELASTIC DEFORMATION	
FS14ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS14-ET-3	A	1	1	13.22	0.09755	14	0.006968	ILS, INELASTIC DEFORMATION	13.26
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS14-ET-4	A	1	1	13.28	0.09777	14	0.006983	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS14-ET-5	A	1	1	13.32	0.09803	14	0.007002	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS15-ET-1	A	1	1	12.07	0.09842	14	0.007030	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS15-ET-2	A	1	1	12.30	0.09927	14	0.007090	ILS, INELASTIC DEFORMATION	
FS15ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS15-ET-4	A	1	1	12.04	0.09788	14	0.006992	ILS, INELASTIC DEFORMATION	12.08
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS15-ET-5	A	1	1	11.90	0.09758	14	0.006970	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS15-SP-4	A	1	1	12.10	0.09800	14	0.007000	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS16-ET-1	A	1	2	12.53	0.09793	14	0.006995	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS16-ET-2	A	1	2	12.41	0.09772	14	0.006980	ILS, INELASTIC DEFORMATION	
FS16ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS16-ET-3	A	1	2	12.30	0.09778	14	0.006985	ILS, INELASTIC DEFORMATION	12.37
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS16-ET-4	A	1	2	12.37	0.09730	14	0.006950	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS16-ET-5	A	1	2	12.24	0.09678	14	0.006913	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS17-ET-1	A	1	2	12.61	0.09800	14	0.007000	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS17-ET-2	A	1	2	12.39	0.09782	14	0.006987	ILS, INELASTIC DEFORMATION	
FS17ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS17-ET-3	A	1	2	12.39	0.09815	14	0.007011	ILS, INELASTIC DEFORMATION	12.34
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS17-ET-4	A	1	2	12.26	0.09767	14	0.006976	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS17-ET-5	A	1	2	12.05	0.09823	14	0.007017	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS18-ET-1	A	1	2	13.99	0.09858	14	0.007042	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS18-ET-2	A	1	2	13.91	0.10023	14	0.007160	ILS, INELASTIC DEFORMATION	
FS18ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS18-ET-4	A	1	2	13.83	0.09852	14	0.007037	ILS, INELASTIC DEFORMATION	13.89
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS18-ET-5	A	1	2	13.81	0.09810	14	0.007007	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS18-SP-4	A	1	2	13.88	0.09860	14	0.007043	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS19-ET-1	A	1	2	12.03	0.09840	14	0.007029	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS19-ET-2	A	1	2	12.07	0.09810	14	0.007007	ILS, INELASTIC DEFORMATION	
FS19ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS19-ET-3	A	1	2	11.86	0.09830	14	0.007021	ILS, INELASTIC DEFORMATION	11.93
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS19-ET-4	A	1	2	11.89	0.09813	14	0.007010	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS19-ET-5	A	1	2	11.81	0.09802	14	0.007001	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS09-ET-1	A	1	2	14.58	0.09932	14	0.007094	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS09-ET-2	A	1	2	13.86	0.09917	14	0.007083	ILS	
FS09ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS09-ET-3	A	1	2	13.88	0.09917	14	0.007083	ILS	14.05
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS09-ET-4	A	1	2	13.87	0.09957	14	0.007112	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS09-ET-5	A	1	2	14.07	0.09970	14	0.007121	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS10-ET-1	A	1	2	13.67	0.09830	14	0.007021	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS10-ET-2	A	1	2	13.80	0.09863	14	0.007045	ILS	
FS10ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS10-ET-3	A	1	2	13.70	0.09863	14	0.007045	ILS	13.69
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS10-ET-4	A	1	2	13.78	0.10000	14	0.007143	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS10-ET-5	A	1	2	13.51	0.09978	14	0.007127	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS21-ET-1	A	1	2	13.96	0.09800	14	0.007000	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS21-ET-2	A	1	2	14.00	0.09815	14	0.007011	ILS, INELASTIC DEFORMATION	
FS21ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS21-ET-3	A	1	2	14.06	0.09788	14	0.006992	ILS, INELASTIC DEFORMATION, COMPRESSION	14.04
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS21-ET-4	A	1	2	14.04	0.09793	14	0.006995	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS21-ET-5	A	1	2	14.11	0.09753	14	0.006967	ILS, INELASTIC DEFORMATION, COMPRESSION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS22-ET-1	A	1	1	13.93	0.09868	14	0.007049	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS22-ET-2	A	1	1	14.18	0.09972	14	0.007123	ILS, INELASTIC DEFORMATION	
FS22ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS22-ET-3	A	1	1	14.07	0.10127	14	0.007233	ILS, INELASTIC DEFORMATION	13.99
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS22-ET-4	A	1	1	13.95	0.09773	14	0.006981	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS22-ET-5	A	1	1	13.83	0.09783	14	0.006988	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS24-ET-1	A	1	1	14.03	0.09933	14	0.007095	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS24-ET-2	A	1	1	14.45	0.09867	14	0.007048	ILS	
FS24ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS24-ET-3	A	1	1	14.58	0.09780	14	0.006986	ILS	14.32
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS24-ET-4	A	1	1	14.29	0.09785	14	0.006989	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS24-ET-5	A	1	1	14.23	0.09765	14	0.006975	ILS	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS23-ET-1	A	1	1	13.77	0.09767	14	0.006976	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS23-ET-2	A	1	1	13.83	0.09797	14	0.006998	ILS, INELASTIC DEFORMATION	
FS23ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS23-ET-3	A	1	1	13.90	0.09748	14	0.006963	ILS, INELASTIC DEFORMATION	13.83
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS23-ET-4	A	1	1	13.88	0.09735	14	0.006954	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS23-ET-5	A	1	1	13.77	0.09713	14	0.006938	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS31-ET-1	A	1	1	11.97	0.09748	14	0.006963	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS31-ET-2	A	1	1	11.69	0.09757	14	0.006969	ILS, INELASTIC DEFORMATION	
FS31ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS31-ET-3	A	1	1	11.81	0.09742	14	0.006958	ILS, INELASTIC DEFORMATION	11.81
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS31-ET-4	A	1	1	11.85	0.09760	14	0.006971	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS31-ET-5	A	1	1	11.71	0.09733	14	0.006952	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS32-ET-1	A	1	1	14.07	0.09795	14	0.006996	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS32-ET-2	A	1	1	14.08	0.09913	14	0.007081	ILS, INELASTIC DEFORMATION	
FS32ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS32-ET-3	A	1	1	14.00	0.10015	14	0.007154	ILS, INELASTIC DEFORMATION	14.06
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS32-ET-4	A	1	1	14.12	0.09750	14	0.006964	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS32-ET-5	A	1	1	14.03	0.09750	14	0.006964	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS33-ET-1	A	1	1	13.07	0.09767	14	0.006976	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS33-ET-2	A	1	1	10.68	0.09733	14	0.006952	ILS, INELASTIC DEFORMATION	
FS33ET	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS33-ET-3	A	1	1	11.01	0.09762	14	0.006973	ILS, INELASTIC DEFORMATION	11.51
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS33-ET-4	A	1	1	11.15	0.09772	14	0.006980	ILS, INELASTIC DEFORMATION	
	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-SBSFS33-ET-5	A	1	1	11.63	0.09700	14	0.006929	ILS, INELASTIC DEFORMATION	

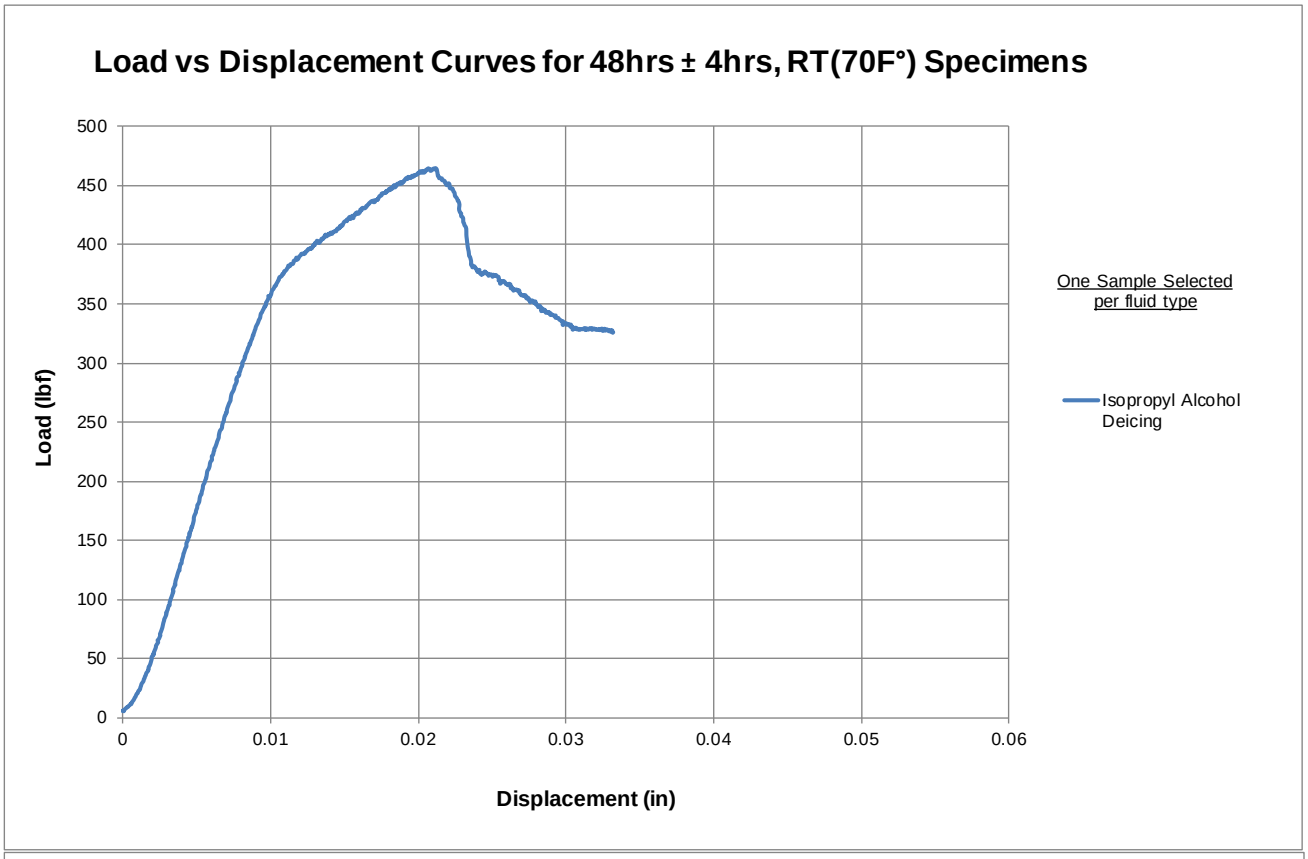
7.3 Load Displacement Curves

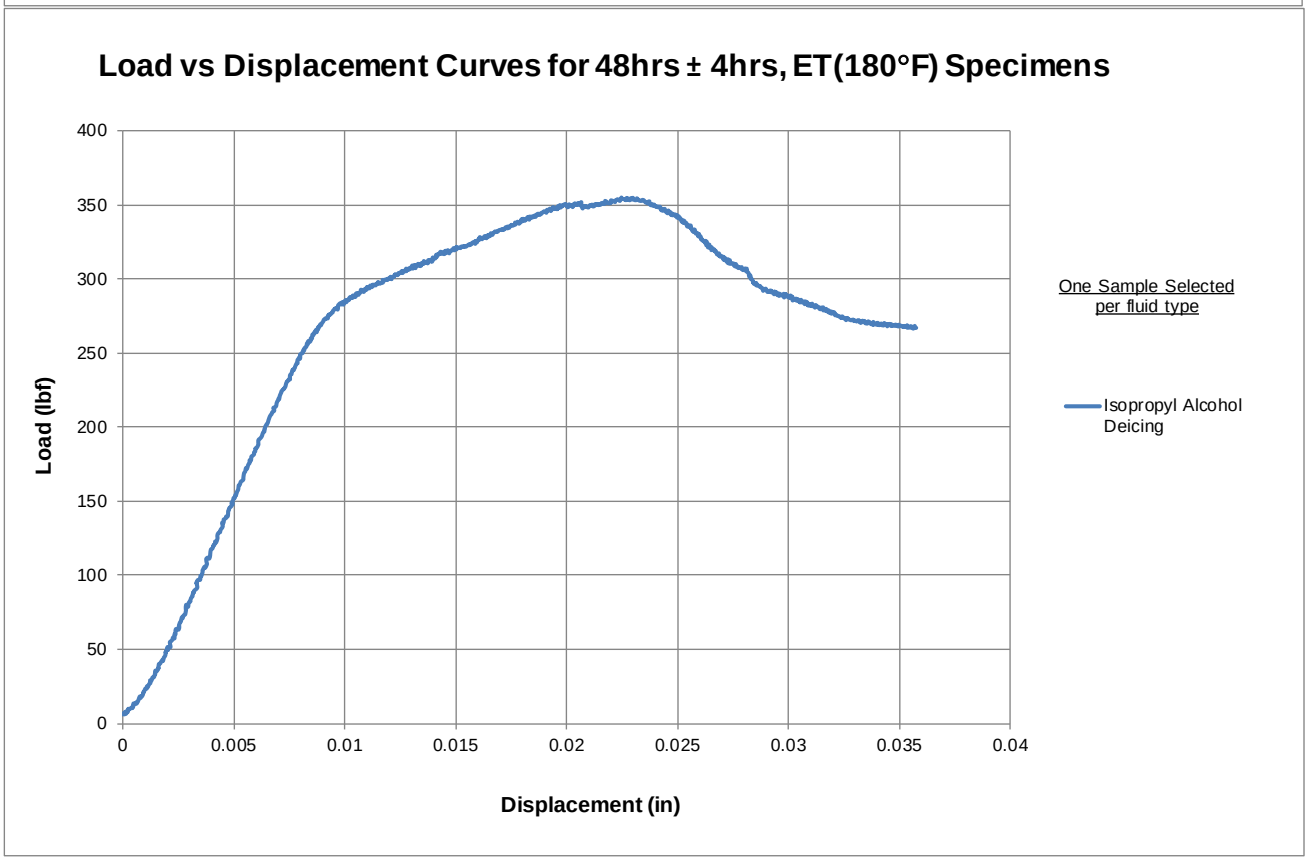


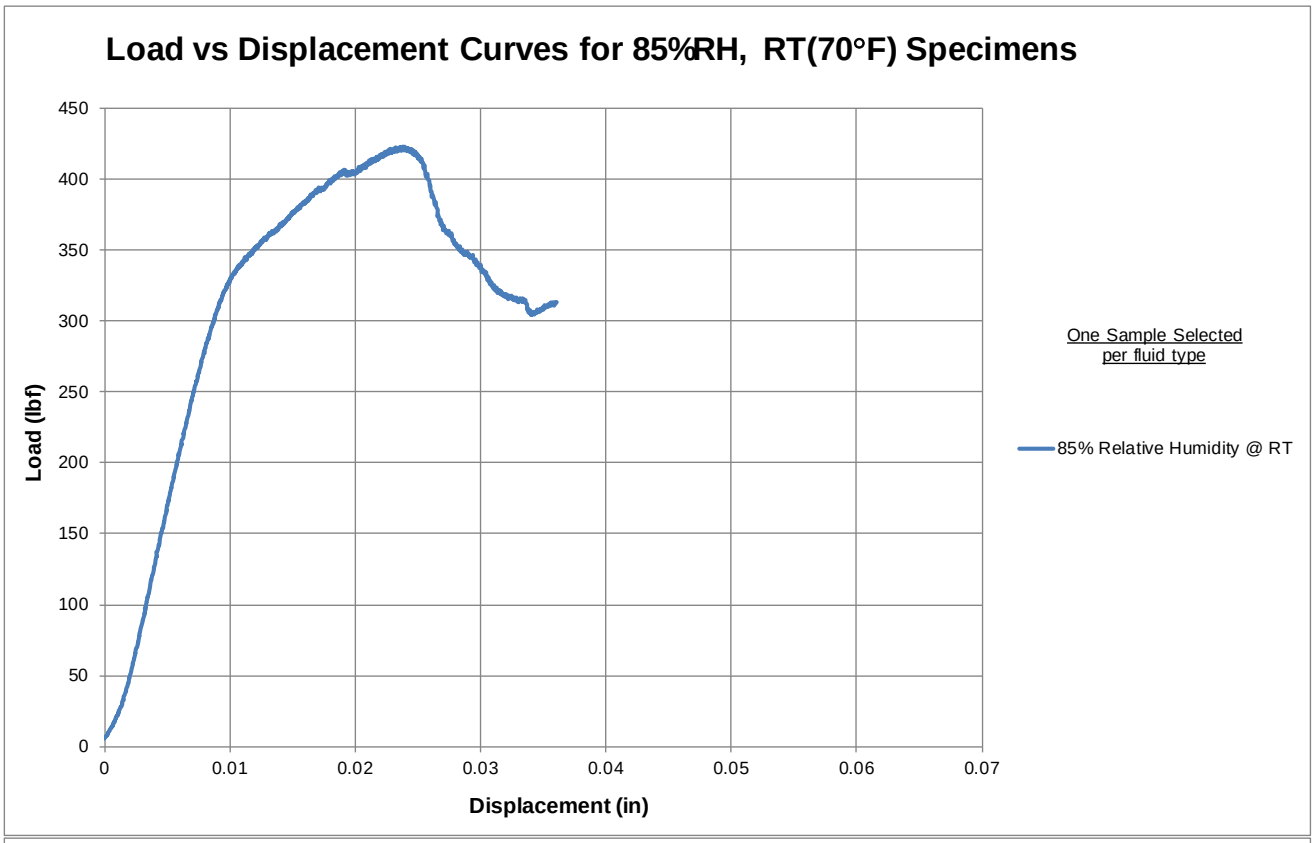


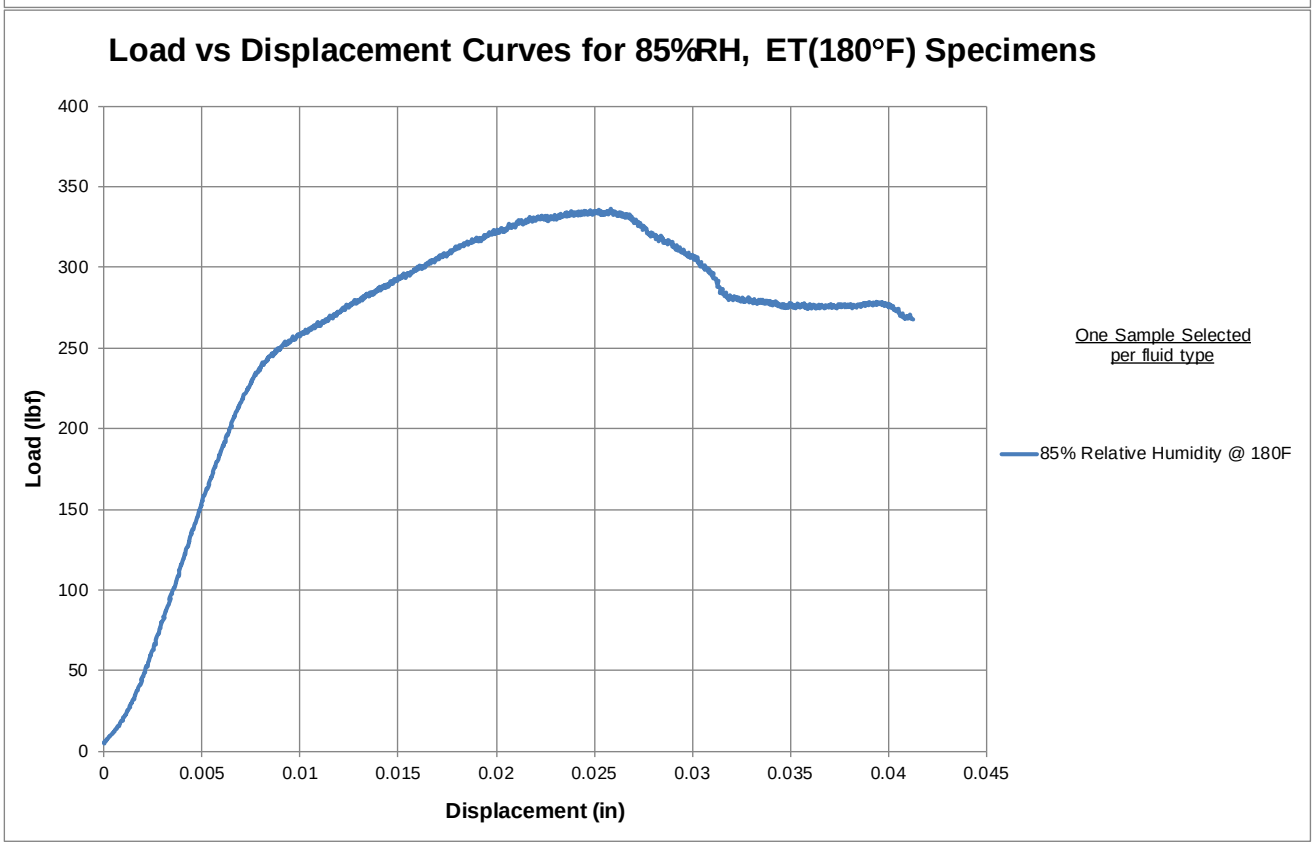

Load vs Displacement Curves for 90 minutes, RT(70°F) Specimens
Load (lbf)
500
450
400
350
300
250
200
150
100
50
0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
Displacement (in)
One Sample Selected per fluid type
MEK washing fluid
Polypropylene Glycol Deicer
Detergent MIL-D-16791


Load vs Displacement Curves for 90 minutes, ET(180°F) Specimens
Load (lbf)
400
350
300
250
200
150
100
50
0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
0.040
Displacement (in)
One Sample Selected per fluid type
MEK washing fluid
Polypropylene Glycol Deicer
Detergent MIL-D-16791


Load vs Displacement Curves for 48hrs ± 4hrs, RT(70F°) Specimens
Load (lbf)
500
450
400
350
300
250
200
150
100
50
0
0
0.01
0.02
0.03
0.04
0.05
0.06
Displacement (in)
One Sample Selected per fluid type
Isopropyl Alcohol Deicing

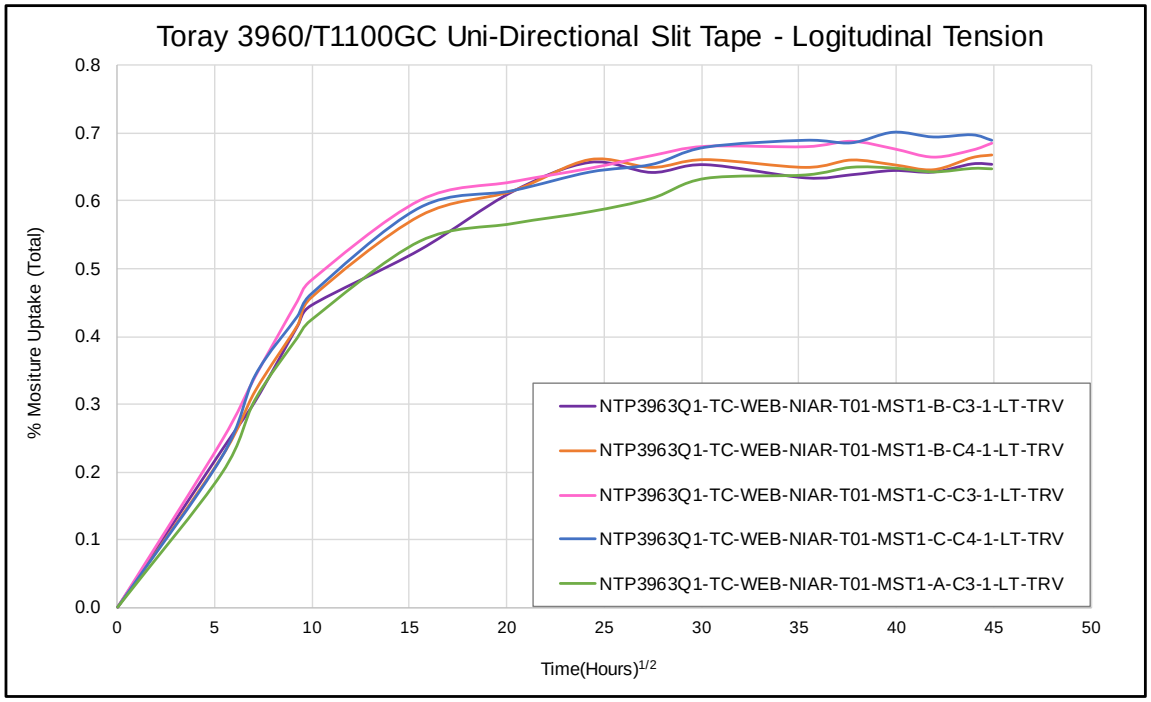

Load vs Displacement Curves for 48hrs ± 4hrs, ET(180°F) Specimens
Load (lbf)
400
350
300
250
200
150
100
50
0
0
0.005
0.01
0.015
0.02
0.025
0.03
0.035
0.04
Displacement (in)
One Sample Selected per fluid type
Isopropyl Alcohol Deicing


Load vs Displacement Curves for 85%RH, RT(70°F) Specimens
Load (lbf)
450
400
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 @ RT

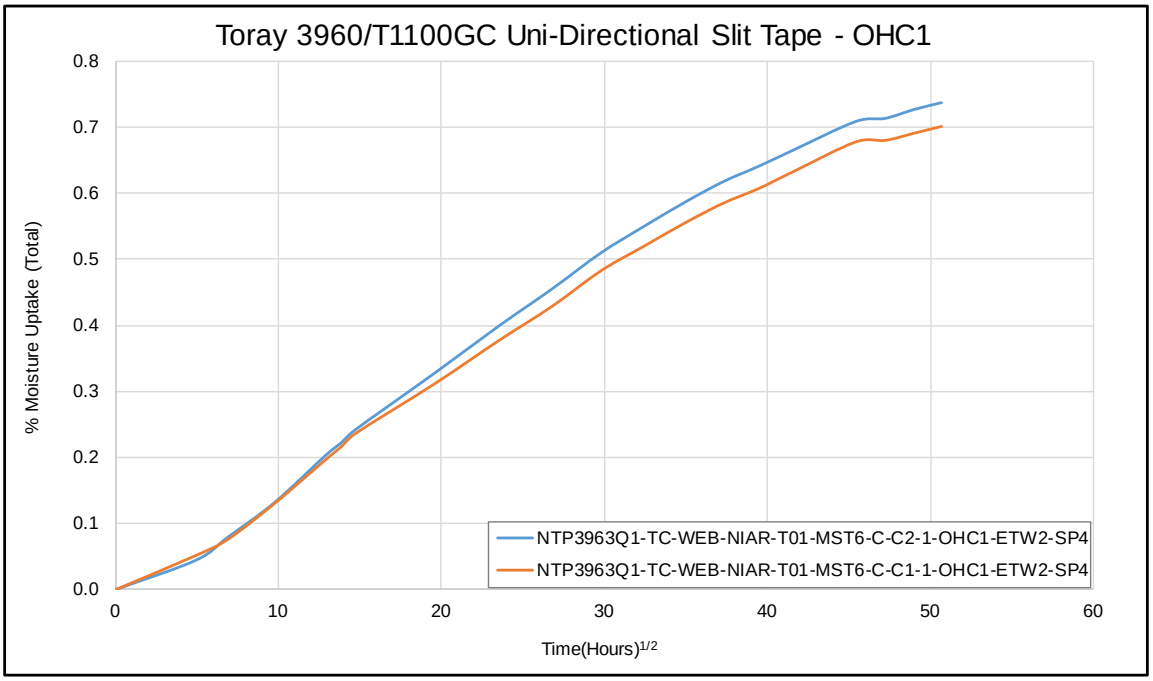

Load vs Displacement Curves for 85%RH, ET(180°F) Specimens
Load (lbf)
400
350
300
250
200
150
100
50
0
0
0.005
0.01
0.015
0.02
0.025
0.03
0.035
0.04
0.045
Displacement (in)
One Sample Selected per fluid type
85% Relative Humidity @ 180F

8. Moisture Conditioning Charts

8.1 Longitudinal Tension (LT) – Thinnest Panel



8.2 "25/50/25" Open Hole Compression 1 (OHC1) – Thickest Panel



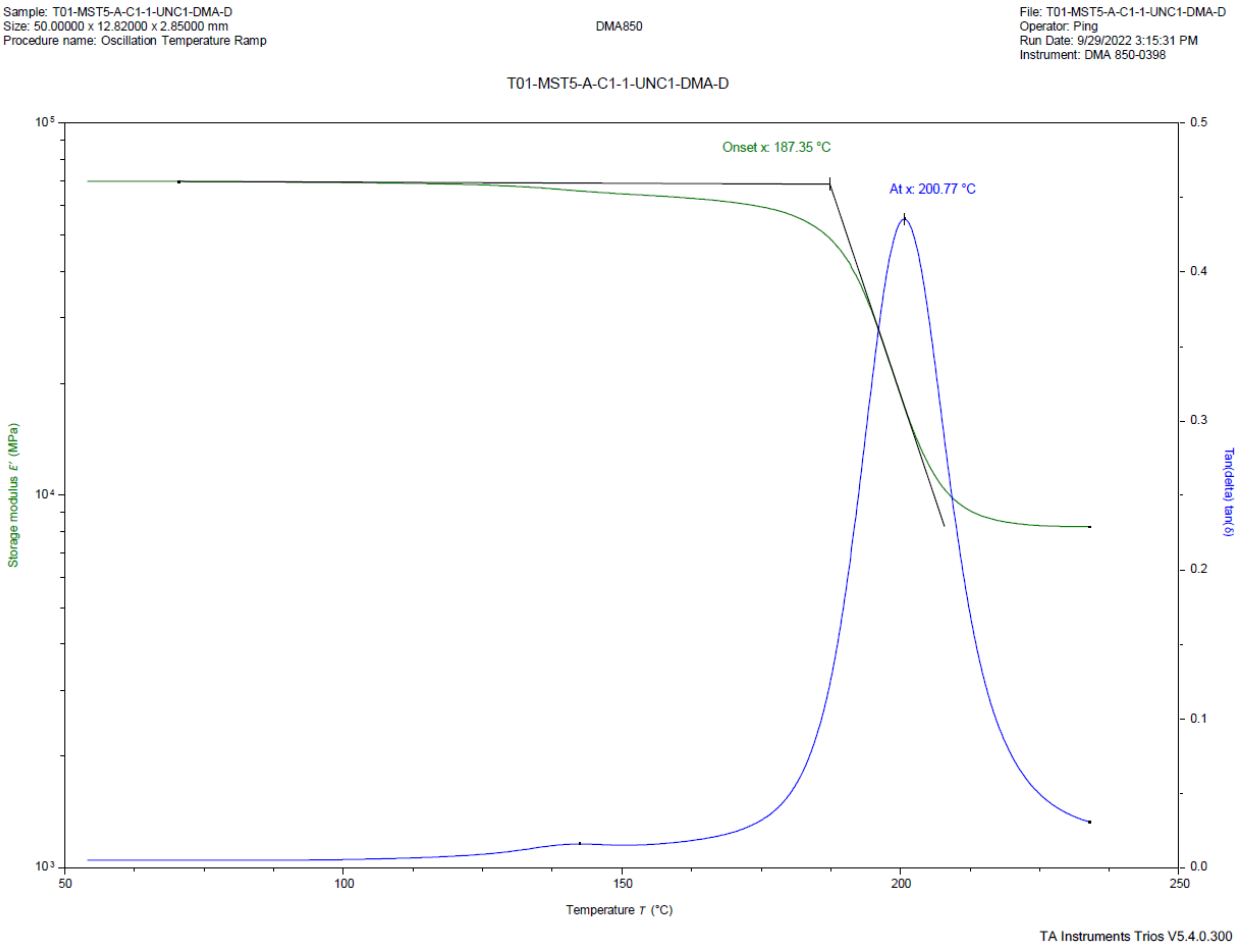
9. DMA Results

DMA Results Summary Toray T1100G/3960 Unidirectional Slit Tape - DMA Dry				
Sample #	Onset Storage Modulus		Peak of Tangent Delta	
	T_g [°C]	T_g [°F]	T_g [°C]	T_g [°F]
T01-MST5-A-C1-1-UNC1-DMA-D	187.35	369.23	200.77	393.39
T01-MST5-A-C2-1-UNC1-DMA-D	189.86	373.75	202.61	396.70
T01-MST5-B-C1-1-UNC1-DMA-D	189.47	373.05	201.64	394.95
T01-MST5-B-C2-1-UNC1-DMA-D	189.08	372.34	201.65	394.97
T01-MST5-C-C1-1-UNC1-DMA-D	189.77	373.59	202.15	395.87
T01-MST5-C-C2-1-UNC1-DMA-D	187.72	369.90	200.85	393.53
T01-MST6-A-C1-1-SBS1-DMA-D	191.43	376.57	204.05	399.29
T01-MST6-A-C2-1-SBS1-DMA-D	191.29	376.32	203.62	398.52
T01-MST6-B-C1-1-SBS1-DMA-D	190.74	375.33	202.95	397.31
T01-MST6-B-C2-1-SBS1-DMA-D	190.33	374.59	202.85	397.13
T01-MST6-C-C1-1-SBS1-DMA-D	190.26	374.47	202.70	396.86
T01-MST6-C-C2-1-SBS1-DMA-D	192.13	377.83	204.28	399.70
T01-MST7-A-C1-1-OHC2-DMA-D	187.53	369.55	204.36	399.85
T01-MST7-A-C2-1-OHC2-DMA-D	188.57	371.43	204.89	400.80
T01-MST7-B-C1-1-OHC2-DMA-D	189.12	372.42	204.57	400.23
T01-MST7-B-C2-1-OHC2-DMA-D	189.13	372.43	204.15	399.47
T01-MST7-C-C1-1-OHC2-DMA-D	185.30	365.54	202.60	396.68
T01-MST7-C-C2-1-OHC2-DMA-D	189.56	373.21	205.04	401.07
T01-MST8-A-C1-1-OHC3-DMA-D	192.25	378.05	203.64	398.55
T01-MST8-A-C2-1-OHC3-DMA-D	192.30	378.14	203.52	398.34
T01-MST8-B-C1-1-OHC3-DMA-D	190.70	375.26	203.11	397.60
T01-MST8-B-C2-1-OHC3-DMA-D	191.25	376.25	202.73	396.91
T01-MST8-C-C1-1-OHC3-DMA-D	188.02	370.44	200.88	393.58
T01-MST8-C-C2-1-OHC3-DMA-D	188.47	371.25	201.25	394.25
Average	189.65	373.37	202.95	397.31
Standard Deviation	1.75	3.14	1.31	2.35

DMA Results Summary Toray T1100G/3960 Unidirectional Slit Tape - DMA Wet				
Sample #	Onset Storage Modulus		Peak of Tangent Delta	
	T_g [°C]	T_g [°F]	T_g [°C]	T_g [°F]
T01-MST5-A-C1-1-UNC1-DMA-W	154.22	309.60	166.86	332.35
T01-MST5-A-C2-1-UNC1-DMA-W	155.30	311.54	167.80	334.04
T01-MST5-B-C1-1-UNC1-DMA-W	153.61	308.50	165.31	329.56
T01-MST5-B-C2-1-UNC1-DMA-W	153.06	307.51	164.57	328.23
T01-MST5-C-C1-1-UNC1-DMA-W	153.97	309.15	166.54	331.77
T01-MST5-C-C2-1-UNC1-DMA-W	153.13	307.63	165.85	330.53
T01-MST6-A-C1-1-SBS1-DMA-W	155.32	311.58	167.98	334.36
T01-MST6-A-C2-1-SBS1-DMA-W	155.49	311.88	168.14	334.65
T01-MST6-B-C1-1-SBS1-DMA-W	154.78	310.60	165.88	330.58
T01-MST6-B-C2-1-SBS1-DMA-W	153.52	308.34	165.09	329.16
T01-MST6-C-C1-1-SBS1-DMA-W	153.49	308.28	166.57	331.83
T01-MST6-C-C2-1-SBS1-DMA-W	154.83	310.69	167.43	333.37
T01-MST7-A-C1-1-OHC2-DMA-W	147.84	298.11	167.45	333.41
T01-MST7-A-C2-1-OHC2-DMA-W	148.85	299.93	167.45	333.41
T01-MST7-B-C1-1-OHC2-DMA-W	149.49	301.08	166.59	331.86
T01-MST7-B-C2-1-OHC2-DMA-W	149.75	301.55	166.25	331.25
T01-MST7-C-C1-1-OHC2-DMA-W	146.97	296.55	165.52	329.94
T01-MST7-C-C2-1-OHC2-DMA-W	149.23	300.61	166.41	331.54
T01-MST8-A-C1-1-OHC3-DMA-W	154.93	310.87	166.00	330.80
T01-MST8-A-C2-1-OHC3-DMA-W	155.37	311.67	166.49	331.68
T01-MST8-B-C1-1-OHC3-DMA-W	154.48	310.06	166.35	331.43
T01-MST8-B-C2-1-OHC3-DMA-W	153.78	308.80	164.60	328.28
T01-MST8-C-C1-1-OHC3-DMA-W	152.30	306.14	164.14	327.45
T01-MST8-C-C2-1-OHC3-DMA-W	152.34	306.21	164.57	328.23
Average	152.75	306.95	166.24	331.24
Standard Deviation	2.60	4.68	1.14	2.05

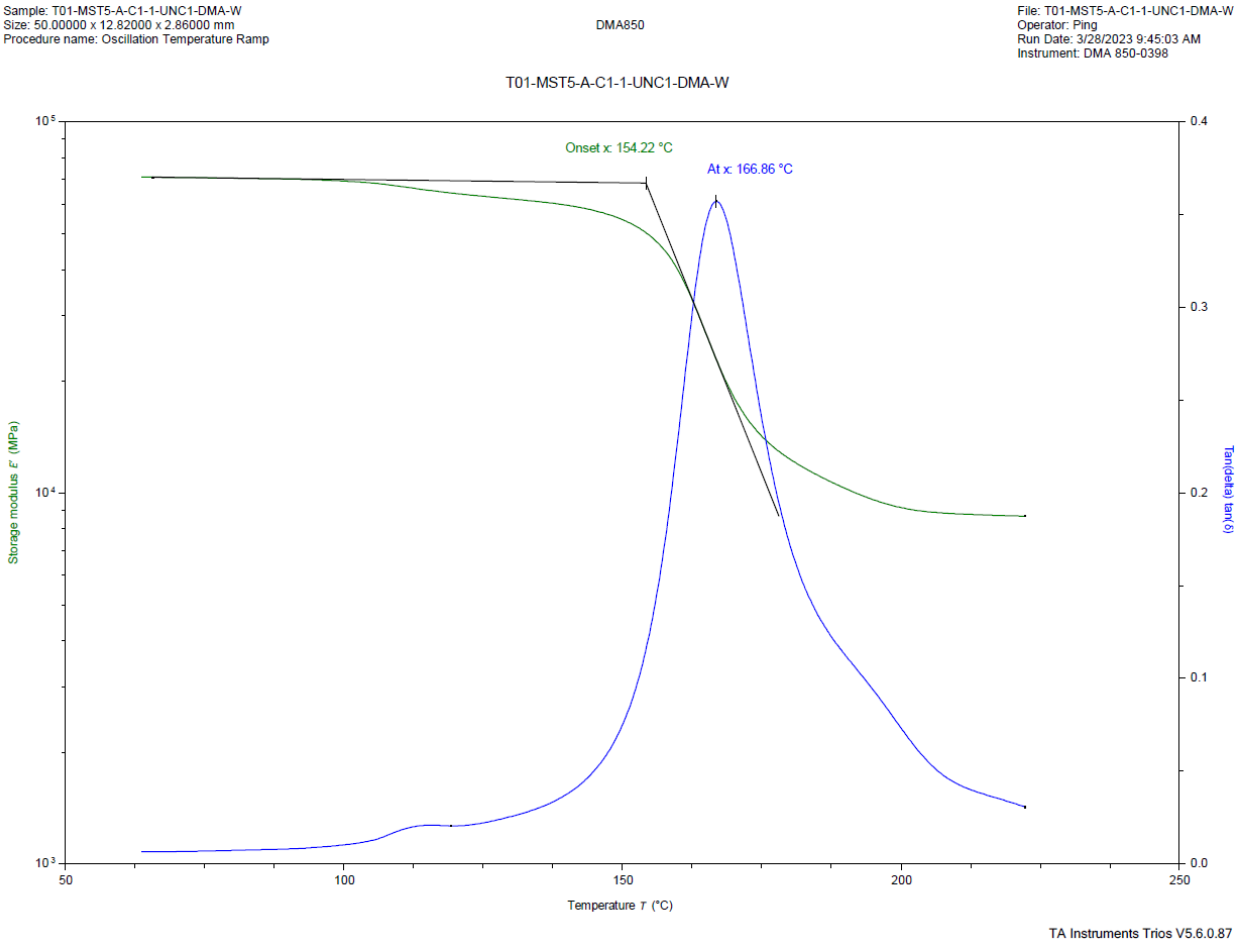
9.1 DMA Dry Batch A

A representative of DMA Dry profile from Batch A is provided below.



9.2 DMA Wet Batch A

A representative of DMA Wet profile from Batch A is provided below.



10. Moisture Loss

A representative specimen was used to measure the moisture loss.

Layup	Test Type	Test Temperature	Specimen ID	Weight Pre-Test (g)	Weight Post-Test (g)	Moisture Loss (g)
[0]6	LT	ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C3-1-LT-TRV	17.80	17.77	0.02560
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LT-TRV	17.34	17.32	0.02140
[0]14	LC	ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC/TC/SBS-TRV	22.63	22.61	0.01930
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST1-B-C1-1-LC/TC-TRV	23.40	23.37	0.02610
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST1-C-C1-1-LC/TC-TRV	23.33	23.29	0.03360
[90]12	TT	ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-TT-TRV	19.42	19.41	0.01480
		ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-TT-TRV	19.61	19.60	0.01000
[90]14	TC	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C2-1-LC/TC-TRV	22.88	22.86	0.02190
[45/-45]4S	IPS	ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C1-1-IPS-SP-6	29.27	29.24	0.02780
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST3-A-C2-1-IPS-SP-8	29.10	29.08	0.01810
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST3-B-C1-1-TRV MACH	19.95	19.93	0.02110
[0/90]5S	VNS	ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST4-A-C1-1-VNS-SP-5	7.936	7.933	0.00340
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST4-C-C1-1-VNS-SP-5	8.117	8.109	0.00760
[0]14	SBS	ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST1-A-C1-1-LC/TC/SBS-TRV	23.18	23.17	0.01190
[45/0/-45/90]3S	SBS1	ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-SBS1-TRV	27.18	27.17	0.00960
[45/0/-45/90]2S	UNT1	ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNT1-TRV	26.50	26.48	0.01300
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-UNT1-TRV	26.33	26.31	0.01570
[45/-45/90/45/-45/45/-45/0/45/-45]S	UNT2	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST7-A-C2-1-UNT2-TRV	23.11	23.10	0.01130
[45/90/-45/0/0/45/0/0/-45/0]S	UNT3	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-UNT3-TRV	23.26	23.24	0.01710
[90/0/90]5	UNC0	ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C2-1-UNC0-TRV	24.42	24.40	0.01810
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST2-A-C1-1-UNC0-TRV	25.02	24.99	0.02840
[45/0/-45/90]2S	UNC1	ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-UNC1-TRV	26.53	26.52	0.01190
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C1-1-UNC1-TRV	26.48	26.46	0.02200
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-UNC1-TRV	19.87	19.85	0.01530
[45/-45/90/45/-45/45/-45/0/45/-45]S	UNC2	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-UNC2-TRV	23.02	23.00	0.01900
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C1-1-UNC2-TRV	23.41	23.39	0.01620
[45/90/-45/0/0/45/0/0/-45/0]S	UNC3	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-UNC3-TRV	23.20	23.19	0.01360
[45/0/-45/90]2S	OHT1	ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-OHT1-SP-6	52.73	52.71	0.02310
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C2-1-OHT1-ETW2-1	52.78	51.95	0.82850
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-OHT1-ETW2-1	52.93	51.98	0.94970
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C2-1-OHT1-SP-5	52.72	52.68	0.04000
[45/-45/90/45/-45/45/-45/0/45/-45]S	OHT2	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-OHT2-ETW2-1	65.69	65.63	0.05840
[45/90/-45/0/0/45/0/0/-45/0]S	OHT3	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-OHT3-SP-5	66.21	66.15	0.05670
[45/0/-45/90]3S	FHC1	ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-FHC1-SP-3	78.38	78.36	0.02310
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-FHC1-SP-5	77.33	77.28	0.04600
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST6-C-C1-1-FHC1-SP-3	78.71	78.67	0.04170
[45/-45/90/45/-45/45/-45/0/45/-45]S	FHC2	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-FHC2-SP-4	66.07	66.01	0.05560
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-FHC2-SP-4	66.31	66.26	0.05390
[45/90/-45/0/0/45/0/0/-45/0]S	FHC3	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C2-1-FHC3-SP-4	66.11	66.05	0.05690
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C2-1-FHC3-SP-4	66.11	66.07	0.04020
[45/0/-45/90]3S	OHC1	ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C2-1-OHC1-SP-4	78.34	78.31	0.02820
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST6-A-C1-1-OHC1-SP-6	77.29	77.26	0.02880
[45/-45/90/45/-45/45/-45/0/45/-45]S	OHC2	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C1-1-OHC2-SP-4	65.96	65.92	0.03780
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST7-C-C2-1-OHC2-SP-4	66.27	66.22	0.05550
[45/90/-45/0/0/45/0/0/-45/0]S	OHC3	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST8-A-C1-1-OHC3-SP-4	66.33	66.27	0.05600
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST8-B-C2-1-OHC3-ETW2-1	65.59	65.55	0.04480
[45/0/-45/90]2S	SSB1	ETW1(180°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST5-A-C2-1-SSB1-SP-4	24.06	24.05	0.01140
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST5-B-C1-1-SSB1-ETW2-1	23.92	23.90	0.02810
		ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST5-C-C1-1-SSB1-SP-4	24.21	24.18	0.02380
[45/-45/90/45/-45/45/-45/0/45/-45]S	SSB2	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST7-B-C2-1-SSB2-SP-4	30.08	30.06	0.02010
[45/90/-45/0/0/45/0/0/-45/0]S	SSB3	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST8-C-C1-1-SSB3-SP-4	30.27	30.24	0.02370
[0]22	ILT	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST9-A-C2-1-ILT-SP-6	32.98	32.95	0.02660
[0]14	FSSBS	ETW2(250°F)	NTP3963Q1-TC-WEB-NIAR-T01-MST10-A-C1-1-TRV	23.20	23.19	0.01090

11. Deviations

N/A