Cytec Cycom 5250-5 T650 6K-135-5HS fabric 36% RC
Qualification Material Property Data Report

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1. Introduction

1.1 Scope

The test methods and results described in this document are intended to provide basic composite properties essential to most methods of analysis and are consistent with MIL-HDBK-17-1F—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 FAA oversight through FAA Special Project Number SP4613WI-Q, and also meet the requirements of NCAMP Standard Operating Procedure NSP 100; the test panels, test specimens, and test setups have been conformed by the FAA, and the testing has been witnessed by the FAA. However, the data may not fulfill all the needs of any specific company's programs. Specific properties, environments, laminate architecture, and loading situations that individual companies may require additional testing.

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

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

This report contains material property data only. Statistical analysis of the data including the calculations of b-basis values is given in a separate report, Cytec 5250-5 T650 6K-135-5HS fabric 36% RC Qualification Statistical Analysis Report NCP-RP-2010-065 N/C. The qualification material was procured to NCAMP Material Specification NMS 226/2 Rev Initial Release dated July 17, 2007. The qualification test panels were cured in accordance with NCAMP Process Specification NPS 81226 Revision C dated July 23, 2008 Baseline “C” Cure Cycle. The NCAMP Test Plan NTP 2262Q1 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 MIL-HDBK-17-1F. 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 MIL-HDBK-17-1F are adequate for the given program.

Aircraft companies should not use the data published in this report without specifying NCAMP Material Specification NMS 226/2. NMS 226/2 may have additional requirements that are listed in its prepreg process control document (PCD), fiber specification, fiber PCD, and other raw material specifications and PCDs which impose essential quality controls on the raw materials and raw material manufacturing equipment and processes. *Aircraft companies and certifying agencies should assume that the material property data published in this report is not applicable when the material is not procured to NMS 226/2.* NMS 226/2 is a free, publicly available, non-proprietary aerospace industry material specification.

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

1.2 Symbols Used

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

Superscripts

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

Subscripts

1 – axis; longitudinal / warp direction (parallel to warp direction of reinforcement)

2 – axis; transverse / fill direction (parallel to fill direction of reinforcement)

12 - in-plane

Acronyms and Definitions

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

1.3 NIAR– Cytec 5250-5 Specimen Naming Format

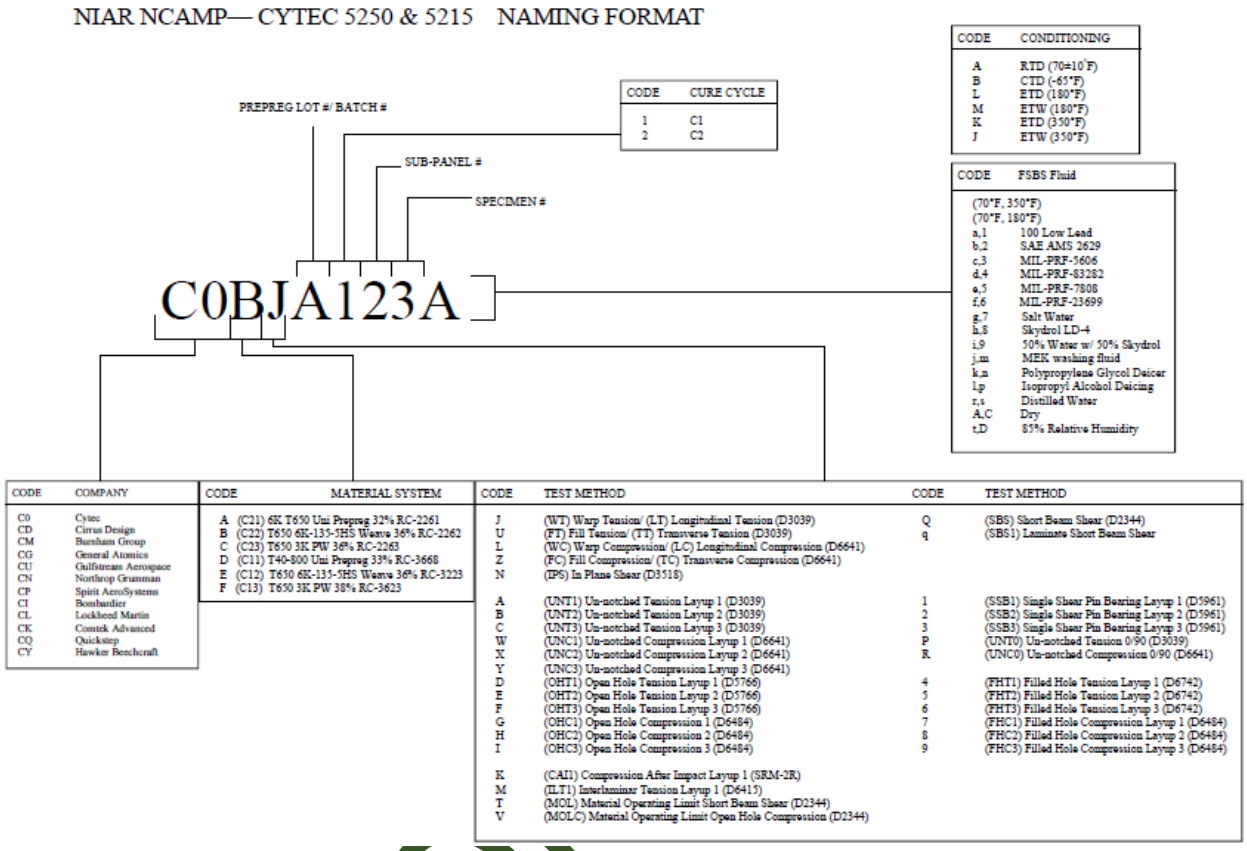


Figure 1-1: Naming Format

1.4 References

ASTM Standards

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

- ASTM D2344/D2344M-00(2006) – Standard Test Method for Short-Beam Strength of Polymer Matrix Composite Materials and Their Laminates
- ASTM D3039/D3039M-00(2006) – Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials
- ASTM D3518/D3518M-94(2007) – Standard Test Method for In-Plane Shear Response of Polymer Matrix Composite Materials by Tensile Test of a ± 45º Laminate In-Plane Shear Strength and Modulus
- ASTM D5766/D5766M-02a – Standard Test Method for Open Hole Tensile Strength of Polymer Matrix Composite Laminates
- ASTM D5961/D5961M-05e1 – Standard Test Method for Bearing Response of Polymer Matrix Composite Laminates
- ASTM D6415-06ae1 – Standard Test Method for Measuring the Curved Beam Strength of a Fiber-Reinforced Polymer-Matrix Composite
- ASTM D6484/D6484M-04 – Standard Test Method for Open-Hole Compressive Strength of Polymer Matrix Composite Laminates
- ASTM D6641/D6641M-01e1 – Standard Test Method for Determining the Compressive Properties of Polymer Matrix Composite Laminates Using a Combined Loading Compression (CLC) Test Fixture
- ASTM D6742/D6742M-02 – Standard Practice for Filled-Hole Tension and Compression Testing of Polymer Matrix Composite Laminates
- ASTM D7136/D7136M-05e1 – Standard Test Method for Measuring the Damage Resistance of a Fiber-Reinforced Polymer Matrix Composite to a Drop-Weight Impact Event
- ASTM D7137/D7137M-05e1 – Standard Test Method for Compressive Residual Strength Properties of Damaged Polymer Matrix Composite Plates

1.5 Methodology

1.5.1 Process Definition

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

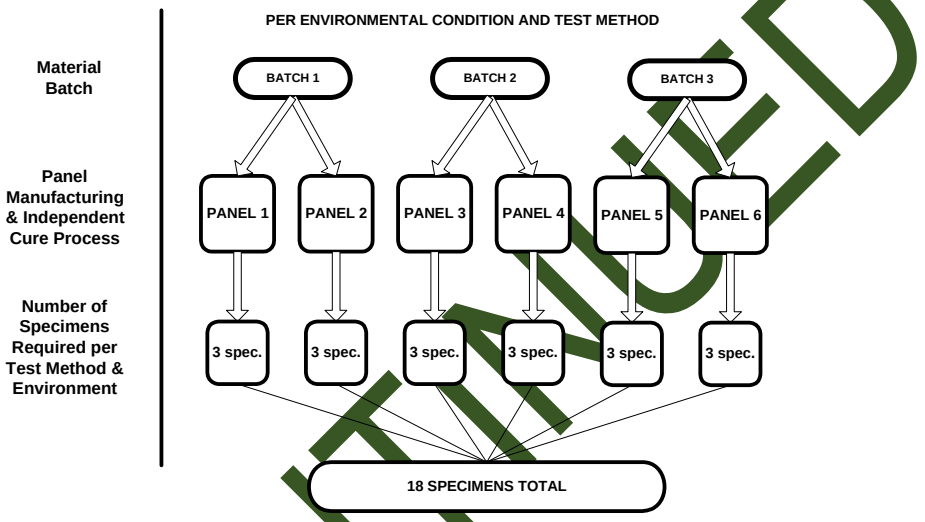


Figure 1-2: Specimen Selection Methodology

All panels were fabricated in accordance with NCAMP Process Specification 81226 “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.

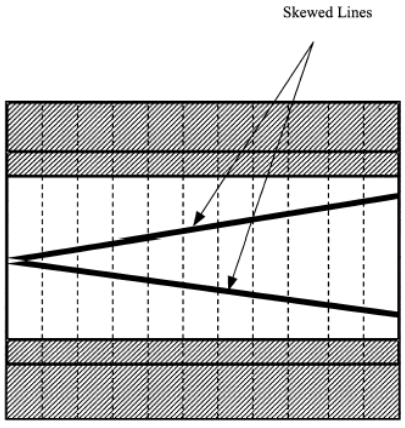


Figure 1-3: Specimen Traceability Line

For the single shear bearing tests, the ASTM D5961 was used with one of the pairs of specimens replaced by a steel fixture. The configuration is shown in Figure 1-4 below.

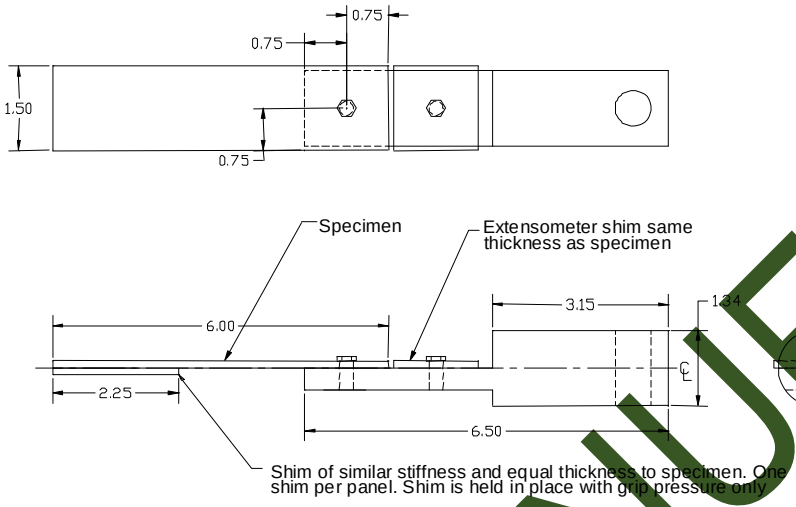


Figure 1-4: Modified ASTM D5961 (Single Shear Bearing) Specimen and Loading Arrangement

1.5.2 Specimen & Testing Details

1.5.2.1 Tabbing

No tabs were used for this program.

1.5.2.2 Specimen Dimensions & Test Configuration

For filled-hole and bearing tests, the hole diameter was 0.25 in -0.000 +0.003 in. For filled-hole tension tests, the fasteners were installed to 85±5 in-lb. For filled-hole compression and bearing tests, the fasteners were installed to 30±5 in-lb. Fasteners were installed after moisture conditioning. Unless otherwise specified, a tolerance of ±5°F applied to all temperature conditions specified in this document. For filled-hole and bearing tests, the hole diameter was 0.25 in -0.000 +0.003 in. The following fasteners were used:

1) NASM 21297-04003 bolts with NASM 21084 nuts and MS21206 washers for FHT and FHC
2) NASM 21297-04013 bolts with MS 21084 nuts and MS21206 washers for SSB

1.5.3 Test Matrix

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

Layup (warp direction)	Test Type and Direction	Property	Number of Batches x Number of Panels x Number of Test Specimens			
			Test Temperature/Moisture Condition			
			CTD	RTD	ETD	ETW
$[0]_{4S}$	ASTM D3039 Warp Tension	Strength, Modulus, and Poisson's Ratio	3x2x3	3x2x3		3x2x3
$[0]_{4S}$	ASTM D6641 Warp Compression (Note 1)	Strength and Modulus	3x2x3	3x2x3	3x2x3	3x2x3
$[90]_{4S}$	ASTM D3039 Fill Tension	Strength and Modulus	3x2x3	3x2x3		3x2x3
$[90]_{4S}$	ASTM D6641 Fill Compression (Note 1)	Strength and Modulus	3x2x3	3x2x3	3x2x3	3x2x3
$[45/-45]_{2S}$	ASTM D3518 In-Plane Shear	Strength and Modulus	3x2x3	3x2x3		3x2x3
$[0]_{17}$	ASTM D2344 Short Beam	Strength	3x2x3	3x2x3	3x2x3	3x2x3

Table 1-1: Lamina Level Test Matrix

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

Table 1-2 below summarizes the laminate level tests carried out. The layup angles 0º, 45º, -45º, and 90º refer to the orientation of the warp/longitudinal fiber direction. The laminate stacking sequences in this program are not specific to any design. Therefore, careful consideration should be given to the validity of properties derived from this program based on the design specific laminates in a structure to be certified.

Table 1-2 also emphasizes those properties and test condition combinations believed to constitute the worst case, which in general is cold dry for tension and hot wet for compression and other matrix dominated properties.

(%0º/%±45º/%90º) Actual Test Type	Test Type and Layup (5)	Property	Number of Batches x Number of Panels x Number of Test Specimens		
			Test Temperature/Moisture Condition		
			CTD	RTD	ETW
(25/50/25 - QI) UNT1	ASTM D3039 Un-notched Tension [45/0/-45/90]S	Strength & modulus	3x2x3	3x2x3	3x2x3
(10/80/10) UNT2	ASTM D3039 Un-notched Tension [45/-45/90/45/-45]S	Strength & modulus	3x2x3	3x2x3	3x2x3
(40/20/40) UNT3	ASTM D3039 Un-notched Tension [0/90/45/0/90]S	Strength & modulus	3x2x3	3x2x3	3x2x3
(25/50/25 - QI) UNC1	ASTM D6641 Un-notched Compression (4) [45/0/-45/90]S	Strength & modulus		3x2x3	3x2x3
(10/80/10) UNC2	ASTM D6641 Un-notched Compression (4) [45/-45/90/45/-45]S	Strength & modulus		3x2x3	3x2x3
(40/20/40) UNC3	ASTM D6641 Un-notched Compression (4) [0/90/45/0/90]S	Strength & modulus		3x2x3	3x2x3
(25/50/25 - QI) SBS1	ASTM D2344 Short Beam [45/0/-45/90/-45/90]S (specimens may be taken from panels designed for (25/50/25 - QI) CAI1)	Strength		3x2x3	3x2x3
(25/50/25 - QI) OHT1	ASTM D5766 Open Hole Tension (1) [45/0/-45/90]S	Strength	3x2x3	3x2x3	3x2x3
(10/80/10) OHT2	ASTM D5766 Open Hole Tension (1) [45/-45/90/45/-45]S	Strength	3x2x3	3x2x3	3x2x3
(40/20/40) OHT3	ASTM D5766 Open Hole Tension (1) [0/90/45/0/90]S	Strength	3x2x3	3x2x3	3x2x3
(25/50/25 - QI) FHT1	ASTM D6742 Filled Hole Tension (2) [45/0/-45/90]S	Strength	3x2x3	3x2x3	3x2x3
(10/80/10) FHT2	ASTM D6742 Filled Hole Tension (2) [45/-45/90/45/-45]S	Strength	3x2x3	3x2x3	3x2x3
(40/20/40) FHT3	ASTM D6742 Filled Hole Tension (2) [0/90/45/0/90]S	Strength	3x2x3	3x2x3	3x2x3
(25/50/25 - QI) OHC1	ASTM D6484 Open Hole Compression (1)(4) [45/0/-45/90/-45/90]S	Strength		3x2x3	3x2x3
(10/80/10) OHC2	ASTM D6484 Open Hole Compression (1)(4) [45/-45/90/45/-45]S	Strength		3x2x3	3x2x3
(40/20/40) OHC3	ASTM D6484 Open Hole Compression (1)(4) [0/90/45/0/90]S	Strength		3x2x3	3x2x3
(25/50/25 - QI) FHC1	ASTM D6484 Filled Hole Compression (2) [45/0/-45/90/-45/90]S	Strength		3x2x3	3x2x3
(10/80/10) FHC2	ASTM D6484 Filled Hole Compression (2) [45/-45/90/45/-45]S	Strength		3x2x3	3x2x3
(40/20/40) FHC3	ASTM D6484 Filled Hole Compression (2) [0/90/45/0/90]S	Strength		3x2x3	3x2x3
(25/50/25 - QI) SSB1	ASTM D5961 Single Shear Bearing (3) (6) [45/0/-45/90]S	Strength & Deformation		3x2x3	3x2x3
(10/80/10) SSB2	ASTM D5961 Single Shear Bearing (3) (6) [45/-45/90/-45/45]	Strength & Deformation		3x2x3	3x2x3
(40/20/40) SSB3	ASTM D5961 Single Shear Bearing (3) (6) [0/90/45/90/0]	Strength & Deformation		3x2x3	3x2x3
(50/0/50) ILT	ASTM D6415 Interlaminar Tension [0]11	Strength	1x1x6	1x1x6	1x1x6
(25/50/25 - QI) CAI1	ASTM D7136 & D7137 Compression After Impact (1500 in.lb/in) (4) [45/0/-45/90/-45/90]S	Strength		1x1x6	

Table 1-2: Laminate Level Test Matrix

Note 1: Open-hole configuration: 0.25” hole diameter, 1.5 inch width.
Note 2: Filled-hole test configuration: 0.25” diameter, see section 1.5.2.2 for fastener callout, 1.5” width.
Note 3: Single shear bearing test configuration: 0.25: hole diameter, 1.5” width, see section 1.5.2.2 for fastener callout, e/D=3
Note 4: Back-to-back strain gages needed on the first two specimens of each environment. If no buckling is observed, the remaining modulus specimens will require strain gage on one side of the specimens only. Appropriate extensometer may be used in place of the strain gage.
Note 5: Loading direction is generally along the 0-degree direction
Note 6: Use modified ASTM D5961 per Figure 1-4

1.5.4 Cured Laminate Physical Testing

The properties in Table 1-3 were determined for each panel used for test coupons with the exception of Tg by DMA which were conducted on one laminate per batch from each oven cure conducted where that batch is present. The tests were performed by the National Institute for Aviation Research (NIAR) Composites Laboratory under the supervision of NCAMP.

Property	**Condition/Method** (Note 1)	**Min Replicates per panel**
Cured Ply Thickness	ASTM D3171-06	All data from mechanical test specimens
Laminate Density	ASTM D792-00	3
Fiber Volume, % by Volume	ASTM D3171-06(Note 2)	3
Resin Content, % by Weight	ASTM D3171-06(Note 2)	3
Ultrasonic Through Transmission, C-Scan	MIL-HDBK-787A (Note 3)	1
Glass Transition Temperature, Tg by DMA	Dry and Wet – SACMA SRM 18R-94	1 Dry, 1 Wet (Note 4)

Table 1-3: Physical Testing Matrix

Note 1: Where the applicable standard allows variations in specimen form or test method, the specific parameters to be used will be specified in the test work instructions and reported in the final test report.
Note 2: Method II, except for laminates of materials where actual fiber weight is not accurately known prior to impregnation, as in the case for unidirectional materials. For these materials, in order to verify Method II is accurate, a minimum of 12 samples per batch shall be tested by Method I, Procedure B.
Note 3: Five MHz is preferred for solid laminates. Panels with anomaly should be segregated. Microscopy images may be taken from questionable areas. NCAMP must be involved in the review of all C-scans.
Note 4: Minimum total of 24 dry and 24 wet for each material system.

1.5.5 Environmental Conditioning

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

CTD = -65±5°F, dry

RTD = 70±10°F, room temperature dry

ETD = 350±5°F, dry

ETW = 350±5°F, wet (equilibrium moisture content)

Elevated temperature level of 350±5°F may be reduced if wet glass transition temperature is not 400°F or higher. The elevated temperature level may be adjusted to approximately 50°F below the measured wet glass transition temperature.

Within each test method and test environment, the failure mode was evaluated immediately after each test by an FAA DER. All tested specimens were digitally photographed after each test in order to pictorially document failure modes. Representative photos are included in the CD accompanying this report.

For dry testing, specimens were dried at 160°F±5°F for 120 to 130 hours. After drying, specimens were kept in a desiccator until mechanical testing. Alternatively, the specimens may have been left at ambient laboratory condition for a maximum of 14 days until mechanical testing (no drying was required if specimens were tested within 14 days from the date they were cured). Ambient laboratory condition is defined as 70°F±10°F. Since moisture absorption and desorption rate for BMI is very slow at ambient temperature, there was no requirement to maintain relative humidity levels.
For wet conditioning, specimens were dried at 160°F±5°F for 120 to 130 hours before being conditioned to equilibrium at 160°F±5°F and 85% ± 5%. Effective moisture equilibrium was achieved when the average moisture content of the traveler specimen changed by less than 0.02% for two consecutive readings which are 7 ±0.5 days apart and may be expressed by:

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

Where:

W_i = weight at current time

W_{i-1} = weight at previous time

W_b = baseline weight prior to conditioning

When representative specimens could not be measured to determine the moisture content (due to size, fastener and tab effects), traveler coupons of at least 1” by 1” by specimen thickness and weighing at least 15 grams were used to establish weight gain measurements. If the specimens or traveler coupons pass the criteria for two consecutive readings which are 7 ±0.5 days apart, the specimens were kept in the

environmental chamber for up to an additional 60 days. Alternatively, the specimens may have been removed from the environmental chamber and placed in a sealed plastic bag along with a moist cotton towel for a maximum of 14 days until mechanical testing. Strain-gaged specimens were removed from the controlled environment for a maximum of 2 hours for application of gages in ambient laboratory conditions.

1.5.6 Non-ambient Testing

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

For elevated temperature testing, the temperature chamber, test fixture, and grips were preheated to the specified temperature. Each specimen was heated to the required test temperature as verified by a thermocouple in direct contact with and taped to the specimen gage section. The heat-up time of the specimen did not exceed 8 minutes, unless otherwise specified in individual test summary sheets. The test was started 5^{+1}_{-0} minutes after the specimen reached the test temperature. During the test, the temperature, as measured on the specimen, was within ±5°F of the required test temperature.

For subzero temperature testing, each specimen was cooled to the required test temperature as verified by a thermocouple in direct contact with and taped to the specimen gage section. The test started 5^{+1}_{-0} minutes after the specimen reached the test temperature. During the test, the temperature, as measured on the specimen, was within ±5°F of the required test temperature.

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

1.5.7 Fluid Sensitivity Screening

Table 1-4 lists the requirements for fluid sensitivity screening, which requires ASTM D2344 Short Beam Strength testing on $[0°]_{17}$ lamina level specimens dried at 160°F±5°F for 120 to 130 hours before being subjected to the conditions indicated, five replicates per fluid and one cure cycle. Specimens were cleaned with a dry towel prior to the tests. In addition to short beam strength, load versus displacement curves were plotted to aid in the identification of matrix/resin softening. Since load versus displacement curves are influenced by test machine and fixture compliance, all the tests were performed with the identical machine and fixture, through a single setup. Experience suggests that for the vast majority of epoxy resins, water is the fluid with the most deleterious effect on properties. Should screening tests for fluid sensitivity indicate this to be the case, further testing of this type might be unnecessary since exposure to water moisture to equilibrium level is an inherent part of the multi batch allowables test program.

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	350°F*	FS11ET
SAE AMS 2629 Jet Reference Fluid	90 days min. @ 70°F±10°F	70°F	FS12RT
	90 days min. @ 70°F±10°F	350°F*	FS12ET
MIL-PRF-5606 Hydraulic Oil	90 days min. @ 70°F±10°F	70°F	FS13RT
	90 days min. @ 70°F±10°F	350°F*	FS13ET
MIL-PRF-83282 Hydraulic Oil	90 days min. @ 70°F±10°F	70°F	FS14RT
	90 days min. @ 70°F±10°F	350°F*	FS14ET
MIL-PRF-7808 Engine Oil	90 days min. @ 70°F±10°F	70°F	FS15RT
	90 days min. @ 70°F±10°F	350°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	350°F*	FS16ET
Sea Water (ASTM D1141 or equiv)	90 days min. @ 70°F±10°F	70°F	FS17RT
	90 days min. @ 70°F±10°F	350°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	350°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	350°F*	FS19ET
Short Duration Contact:			
MEK washing fluid. ASTM D740	90 minutes min. @ 70°F±10°F	70°F	FS21RT
	90 minutes min. @ 70°F±10°F	350°F*	FS21ET
Polypropylene Glycol Deicer (Type I) Mil-A-824 3	90 minutes min. @ 70°F±10°F	70°F	FS22RT
	90 minutes min. @ 70°F±10°F	350°F*	FS22ET
Isopropyl Alcohol Deicing Agent (TT-I-735)	48±4 hours @70°F±10°F	70°F	FS23RT
	48±4 hours @70°F±10°F	350°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	350°F*	FS31ET
Dry	Dry per section 6.1	70°F	FS32RT
	Dry per section 6.1	350°F*	FS32ET
85% Relative Humidity	Per section 6.1	70°F	FS33RT
	Per section 6.1	350°F*	FS33ET

* Elevated temperature level of 350±5°F may be reduced if wet glass transition temperature is not 400°F or higher. The elevated temperature level may be adjusted to approximately 50°F below the measured wet glass transition temperature.

Table 1-4: Fluid Sensitivity Matrix

1.5.8 Normalization Procedures

Most lamina level tension and compression strength and modulus properties, and all laminate level properties were normalized according to nominal cured ply thickness. Lamina level properties that were not normalized include 90º tensile strength and modulus (unidirectional only), 90º compressive strength and modulus (unidirectional only), in-plane shear strength and modulus, Poisson's ratio, SBS, and ILT. After normalizing, data scatter reduced or remained the same. If data scatter increased significantly after normalizing, the reason was investigated. Wherever properties are normalized, both measured and normalized data were reported.

The average cured ply thickness of 0.0152 inch 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 Cytec 5250-5 5 Harness, the predicted cured ply thickness was 0.01475 inch. However, the as-measured cured ply thickness of the qualification panels was 0.0152 inch and Spirit is 0.0133 and Burnham is 0.0145 inch. The grand average of all qualification and equivalency panel thickness is 0.0143 inch. We suggested using 0.0152 inch as the nominal CPT and all participants agreed it was acceptable.

1.5.9 Conformity

The 3-batch qualification panels have been fabricated according to the requirements of the test plan and conformed by the FAA. The test specimens and test setups have also been conformed by the FAA.

Testing was witnessed by the FAA. Witnessing was delegated to a DER. Mechanical testing was carried out at the National Institute for Aviation Research, Wichita State University. The test setup and procedures were reviewed by NCAMP IAB and NCAMP staff during a facility audit. FAA conformity inspection records and approvals are included in the CD accompanying this report.

1.5.10 Material Pedigree Information

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

2. Test Results

2.1 Lamina Level Test Summary

Prepreg Material:	Cytec Cycom® 5250-5 T650 6K-135-5HS fabric				**Cytec Cycom® 5250-5 T650 6K-135-5HS Lamina Properties Summary**
Material Specification:	NMS 226/2				
Fabric:	T650 6K-135-5HS weave	**Resin:**	Cycom® 5250-5		
Tg(dry): (1)	466.88 °F & 522.83°F	**Tg(wet): (2)**	378.38 °F	**Tg METHOD:**	DMA (SRM 18R-94)
PROCESSING:	NPS 81226 Process Specification "C" Cure Cycle				

Date of fiber manufacture	8/16/2006	**Date of testing**	10/9/2008-8/11/2010
Date of resin manufacture	7/9/2007-7/11/2007	**Date of data submittal**	November 2010
Date of prepreg manufacture	7/9/2007-7/11/2007		
Date of composite manufacture	3/31/2008		

LAMINA MECHANICAL PROPERTY SUMMARY
Data reported as: Normalized & Measured
(Normalized by CPT= .0152 inch)

	CTD Mean		RTD Mean		ETD Mean		ETW Mean	
	Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
F_1^{tu} (ksi)	123.56	122.35	128.78	128.61	---	---	125.53	124.94
E_1^t (Msi)	9.86	9.75	9.82	9.81	---	---	9.22	9.18
ν_{12}	---	0.024	---	0.037	---	---	---	---
F_2^{tu} (ksi)	118.51	117.88	126.47	125.92	---	---	116.98	116.30
E_2^t (Msi)	9.60	9.55	9.62	9.57	---	---	9.18	9.13
F_1^{cu} (ksi)	112.92	112.76	109.07	109.03	86.11	85.77	56.03	55.57
E_1^c (Msi)	9.18	9.15	8.88	8.87	8.87	8.85	8.83	8.79
F_2^{cu} (ksi)	112.18	113.39	106.50	107.44	81.98	82.85	52.63	52.96
E_2^c (Msi)	8.69	8.78	8.77	8.85	8.56	8.68	8.29	8.30
$F_{12}^{s\ max}$ (ksi)	---	14.91	---	---	---	---	---	---
$F_{12}^{s\ 5\%strain}$ (ksi)	---	---	---	---	---	---	---	4.23
$F_{12}^{s\ 0.2\%}$ (ksi)	---	10.87	---	8.37	---	---	---	2.01
G_{12}^s (Msi)	---	0.80	---	0.71	---	---	---	0.20
SBS (ksi)	---	10.99	---	11.53	---	6.93	---	4.07

Table 2-1: Lamina Summary Data

2.2 Laminate Level Test Summary

Prepreg Material:	Cytec Cycom® 5250-5 T650 6K-135-5HS fabric			**Cytec Cycom® 5250-5 T650 6K-135-5HS Laminate Properties Summary**	
Material Specification:	NMS 226/2				
Fabric:	T650 6K-135-5HS weave	**Resin:**	Cycom® 5250-5		
Tg(dry): (1)	466.88 ◦F & 522.83°F	**Tg(wet): (2)**	378.38 °F	**Tg METHOD:**	DMA (SRM 18R-94)
PROCESSING:	NPS 81226 Process Specification "C" Cure Cycle				

Date of fiber manufacture	8/16/2006	**Date of testing**	10/9/2008-8/11/2010
Date of resin manufacture	7/9/2007-7/11/2007	**Date of data submittal**	November 2010
Date of prepreg manufacture	7/9/2007-7/11/2007		
Date of composite manufacture	3/31/2008		

LAMINATE MECHANICAL PROPERTY SUMMARY
Data reported as: Normalized & Measured
(Normalized by CPT= .0152 inch)

	Layup:	25/50/25		10/80/10		40/20/40	
	Test Condition	Normalized	Measured	Normalized	Measured	Normalized	Measured
OHT Strength (ksi)	CTD	48.43	48.39	40.13	40.01	58.84	58.44
	RTD	50.74	51.08	39.60	39.66	61.89	61.87
	ETW	54.53	54.33	28.23	28.19	70.16	69.92
OHC Strength (ksi)	RTD	46.54	46.65	37.37	37.26	49.58	49.43
	ETW	27.59	27.68	22.77	22.78	32.09	32.10
UNT Strength (ksi)	CTD	83.91	83.85	55.60	55.77	101.26	101.35
	RTD	85.99	85.68	54.43	54.70	107.44	108.05
	ETW	77.98	78.09	38.39	38.57	100.59	100.77
Modulus (msi)	CTD	6.95	6.94	4.70	4.71	8.68	8.68
	RTD	6.95	6.93	4.75	4.78	8.72	8.77
	ETW	6.20	6.21	3.35	3.37	8.28	8.30
UNC Strength (ksi)	RTD	88.16	89.35	58.07	58.98	85.91	86.19
	ETW	40.27	40.12	25.95	25.90	47.29	47.02
Modulus (msi)	RTD	6.32	6.41	4.23	4.30	7.86	7.88
	ETW	5.67	5.66	3.32	3.32	7.61	7.55
FHT Strength (ksi)	CTD	53.78	53.85	45.79	45.89	60.18	60.39
	RTD	55.15	55.06	44.82	44.95	61.87	61.49
	ETW	52.03	51.84	28.92	28.90	61.44	61.39
FHC Strength (ksi)	RTD	77.20	77.25	56.52	56.45	*	*
	ETW	41.92	42.00	29.02	29.03	46.95	46.86
LSBS Strength (ksi)	RTD	---	10.49	---	---	---	---
	ETW	---	5.08	---	---	---	---
SSB Ultimate Strength (ksi)	ETW	92.83	93.32	94.71	94.39	81.48	81.23
2% Offset Strength (ksi)	RTD	108.01	108.88	109.41	110.07	104.05	104.70
	ETW	77.67	78.05	75.47	75.20	66.67	66.48
ILT Strength (ksi)	CTD	---	7.85	---	---	---	---
	RTD	---	8.35	---	---	---	---
	ETW	---	2.55	---	---	---	---
CAI Strength (ksi)	RTD	30.83	31.60	---	---	---	---

***Bad failures obtained - no data available.**

Table 2-2: Laminate Summary Data

Note (1): See Section 8 for clarification on having two values for dry Tg

Note (2): For organic matrix composites, the typical rule of thumb is to maintain a 50 degree margin between the materials maximum operating limit (MOL) and its wet glass transition temperature. Users of ETW condition data are cautioned of the fact that ETW test temperature of 350°F is not 50°F (28°C) or more below the wet glass transition temperature, and are advised to refer to MIL-HDBK-17-1F section 2.2.8 for more information about establishing MOL.

2.3 Individual Test Summaries

2.3.1 Warp Tension Properties (WT)

Material: Cytec 5250-5 5 Harness

Tension, 1-axis
Gr/ Ep
Cytec 5250-5 5 Harness
[0]4S

Resin content: 36.60 % wt **Comp. density:** 1.53 [g/cc]
Fiber volume: 54.90 % vol
Ply count: 8

Test method: ASTM D3039-00 **Modulus calculation:** 1000 to 3000 microstrain

Normalized by: 0.0152 in. CPT

		CTD		RTD		ETW	
Test Temperature [°F]		-65		70		250	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160 F,85%	
Source code		CNBJX X1XB		CNBJX X1XA		CNBJX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
F_1^{tu} (ksi)	**Mean**	123.56	122.35	128.78	128.61	125.53	124.94
	Minimum	104.89	103.78	109.83	108.81	115.15	113.33
	Maximum	130.47	130.88	140.59	142.52	134.92	133.51
	C.V.(%)	5.02	5.13	5.73	6.19	3.92	3.77
	No. Specimens	23		20		21	
	No. Prepreg Lots	3		3		3	
E_1^t (Msi)	**Mean**	9.86	9.75	9.82	9.81	9.22	9.18
	Minimum	9.61	9.49	9.70	9.56	8.19	7.97
	Maximum	10.90	10.77	9.92	10.10	10.45	10.55
	C.V.(%)	3.09	3.02	0.70	1.45	6.01	6.83
	No. Specimens	22		20		21	
	No. Prepreg Lots	3		3		3	
ν_{12}	**Mean**	0.024		0.037			
	No. Specimens	7		19			
	No. Prepreg Lots	3		3			

2.3.2 Fill Tension Properties (FT)

Material:	Cytec 5250-5 5 Harness					**Tension, 2-axis**		
						Gr/ Ep		
Resin content:	36.06 % wt		**Comp. density:** 1.54 [g/cc]			**Cytec 5250-5 5 Harness**		
Fiber volume:	55.59 % vol					**[90]4S**		
Ply count:	8							
Test method:	ASTM D3039-00		**Modulus calculation:** 1000 to 3000 microstrain					
Normalized by:	0.0152	in. CPT						
			CTD		**RTD**		**ETW**	
Test Temperature [°F]			-65		70		350	
Moisture Conditioning			dry		dry		equilibrium	
Equilibrium at T, RH							160 F,85%	
Source code			CNBUX X1XB		CNBUX X1XA		CNBUX X1XJ	
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean		118.51	117.88	126.47	125.92	116.98	116.30
	Minimum		107.90	106.21	115.82	116.01	108.32	107.69
	Maximum		129.01	130.23	139.02	139.54	128.38	128.93
F_2^{tu} (ksi)	**C.V.(%)**		5.05	5.78	4.55	4.73	4.40	4.42
	No. Specimens		19		19		21	
	No. Prepreg Lots		3		3		3	
	Mean		9.60	9.55	9.62	9.57	9.18	9.13
	Minimum		9.31	9.35	9.44	9.32	8.55	8.55
	Maximum		10.01	10.00	9.74	9.76	9.87	9.93
E_2^t (Msi)	**C.V.(%)**		2.07	1.90	0.89	1.30	3.51	3.58
	No. Specimens		19		19		21	
	No. Prepreg Lots		3		3		3	

2.3.3 Warp Compression Properties (WC)

Material: Cytec 5250-5 5 Harness

Resin content: 35.53 % w t **Comp. density:** 1.54 [g/cc]
Fiber volume: 56.08 % vol
Ply count: 8

Compression, 1-axis
Gr/ Ep
Cytec 5250-5 5 Harness
[0]4S

Test method: ASTM D6641-01e1 **Modulus calculation:** 1000 to 3000 microstrain

Normalized by: 0.0152 in. CPT

		CTD		RTD		ETD		ETW	
Test Temperature [°F]		-65		70		350		350	
Moisture Conditioning		dry		dry		dry		equilibrium	
Equilibrium at T, RH								160 F,85%	
Source code		CNBLX X1XB		CNBLX X1XA		CNBLX X1XK		CNBLX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
F_1^{cu} (ksi)	**Mean**	112.92	112.76	109.07	109.03	86.11	85.77	56.03	55.57
	Minimum	97.53	94.68	100.31	96.89	74.99	75.48	43.28	42.99
	Maximum	124.58	122.58	115.87	116.25	94.84	94.85	72.01	71.56
	C.V.(%)	6.25	6.62	3.97	4.55	6.42	6.60	11.94	12.19
	No. Specimens	20		18		26		20	
	No. Prepreg Lots	3		3		3		3	
E_1^c (Msi)	**Mean**	9.18	9.15	8.88	8.87	8.87	8.85	8.83	8.79
	Minimum	8.67	8.54	8.48	8.47	8.34	8.20	8.14	7.88
	Maximum	9.86	9.88	9.29	9.32	9.22	9.25	9.56	9.65
	C.V.(%)	3.04	3.37	2.39	2.94	2.51	6.60	5.15	5.58
	No. Specimens	21		18		19		18	
	No. Prepreg Lots	3		3		3		3	

2.3.4 Fill Compression Properties (FC)

Material: Cytec 5250-5 5 Harness

Compression, 2-axis
Gr/ Ep
Cytec 5250-5 5 Harness
[90]4S

Resin content: 36.33 % w t **Comp. density:** 1.54 [g/cc]
Fiber volume: 55.20 % vol
Ply count: 8

Test method: ASTM D6641-01e1 **Modulus calculation:** 1000 to 3000 microstrain

Normalized by: 0.0152 in. CPT

		CTD		RTD		ETD		ETW	
Test Temperature [°F]		-65		70		350		350	
Moisture Conditioning		dry		dry		dry		equilibrium	
Equilibrium at T, RH								160 F,85%	
Source code		CNBZX X1XB		CNBZX X1XA		CNBZX X1XK		CNBZX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
F_2^{cu} (ksi)	**Mean**	112.18	113.39	106.50	107.44	81.98	82.85	52.63	52.96
	Minimum	93.43	93.15	94.92	96.28	65.03	65.21	41.66	42.76
	Maximum	125.92	128.74	116.76	114.38	92.99	92.67	61.78	61.05
	C.V.(%)	7.00	7.23	5.44	4.93	7.94	8.35	10.25	9.38
	No. Specimens	19		19		23		21	
	No. Prepreg Lots	3		3		3		3	
E_2^c (Msi)	**Mean**	8.69	8.78	8.77	8.85	8.56	8.68	8.29	8.30
	Minimum	7.97	8.03	8.31	8.25	8.24	8.35	7.70	7.73
	Maximum	9.27	9.33	9.04	9.37	8.85	9.13	8.88	8.95
	C.V.(%)	3.79	4.08	2.66	3.50	2.20	2.53	3.52	3.39
	No. Specimens	21		19		19		21	
	No. Prepreg Lots	3		3		3		3	

2.3.5 In-Plane Shear Properties (IPS)

Material:	Cytec 5250-5 5 Harness					**In-Plane Shear**	
						Gr/ Ep	
Resin content:	35.72 % w t	**Comp. densit**	1.54 [g/cc]			**Cytec 5250-5 5 Harness**	
Fiber volume:	55.90 % vol					**[45/-45]2S**	
Ply count:	8						
Test method:	ASTM D3518-94						
		Modulus calculation:	2000 to 6000 microstrain				
Normalized by:	N/A						
		CTD		**RTD**		**ETW**	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160 F,85%	
Source code		CNBNX X1XB		CNBNX X1XA		CNBNX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
$F_{12}^{s\ max}$ (ksi)	**Mean**		14.91				
	Minimum		14.20				
	Maximum		15.86				
	C.V.(%)		3.29				
	No. Specimens	22					
	No. Prepreg Lots	3					
$F_{12}^{s5\%\ strain}$ (ksi)	**Mean**						4.23
	Minimum						3.95
	Maximum						4.48
	C.V.(%)						3.71
	No. Specimens					16	
	No. Prepreg Lots					3	
$F_{12}^{s0.2\%}$ (ksi)	**Mean**		10.87		8.37		2.01
	Minimum		10.32		8.08		1.83
	Maximum		11.27		8.72		2.18
	C.V.(%)		2.40		1.90		4.65
	No. Specimens	20		21		21	
	No. Prepreg Lots	3		3		3	
G_{12}^{s} (Msi)	**Mean**		0.80		0.71		0.20
	Minimum		0.76		0.69		0.18
	Maximum		0.87		0.73		0.22
	C.V.(%)		2.85		2.01		4.94
	No. Specimens	20		21		21	
	No. Prepreg Lots	3		3		3	

2.3.6 “25/50/25” Unnotched Tension 1 Properties (UNT1)

Material:	Cytec 5250-5 5 Harness						**Unnotched Tension 1** Gr/ Ep Cytec 5250-5 5 Harness [45/0/-45/90]S	
Resin content:	36.91 % w t		**Comp. density:** 1.54 [g/cc]					
Fiber volume:	54.87 % vol							
Ply count:	8							
Test method:	ASTM D3039-00		**Modulus calculation:** 1000 to 3000 microstrain					
Normalized by:	0.0152	in. CPT						
			CTD		**RTD**		**ETW**	
Test Temperature [°F]			-65		70		350	
Moisture Conditioning			dry		dry		equilibrium	
Equilibrium at T, RH							160 F,85%	
Source code			CNBAX X1XB		CNBAX X1XA		CNBAX X1XJ	
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean		83.91	83.85	85.99	85.68	77.98	78.09
	Minimum		78.31	76.91	82.75	80.65	72.09	71.72
	Maximum		88.53	89.83	91.44	90.55	83.58	85.13
UNT1 Strength (ksi)	**C.V.(%)**		3.56	4.43	3.19	3.76	5.28	5.08
	No. Specimens		20		19		19	
	No. Prepreg Lots		3		3		3	
	Mean		6.95	6.94	6.95	6.98	6.20	6.21
	Minimum		6.70	6.60	6.77	6.64	6.02	5.98
	Maximum		7.65	7.68	7.17	7.29	6.36	6.53
UNT1 Modulus (Msi)	**C.V.(%)**		2.86	3.53	1.79	2.62	1.41	2.17
	No. Specimens		19		19		19	
	No. Prepreg Lots		3		3		3	

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

Material:	Cytec 5250-5 5 Harness					**Unnotched Tension 2** **Gr/ Ep** **Cytec 5250-5 5 Harness** **[45/-45/90/45/-45]S**	
Resin content:	35.93 % wt		**Comp. density:** 1.55 [g/cc]				
Fiber volume:	55.90 % vol						
Ply count:	10						
Test method:	ASTM D3039-00		**Modulus calculation:** 1000 to 3000 microstrain				
Normalized by:	0.0152	in. CPT					
			CTD		**RTD**		**ETW**
Test Temperature [°F]			-65		70		350
Moisture Conditioning			dry		dry		equilibrium
Equilibrium at T, RH							160 F,85%
Source code			CNBBX X1XB		CNBBX X1XA		CNBBX X1XJ
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized** **Measured**
	Mean		55.60	55.77	54.43	54.70	38.39 38.57
	Minimum		52.05	52.44	50.39	50.99	34.98 35.13
	Maximum		58.23	59.04	57.70	57.35	41.54 41.64
UNT2 Strength (ksi)	**C.V.(%)**		2.60	3.16	3.72	3.40	5.24 5.35
	No. Specimens		19		21		19
	No. Prepreg Lots		3		3		3
	Mean		4.70	4.71	4.75	4.78	3.35 3.37
	Minimum		4.58	4.52	4.42	4.47	3.19 3.21
	Maximum		4.86	5.05	5.66	5.70	3.50 3.57
UNT2 Modulus (Msi)	**C.V.(%)**		1.54	2.50	5.59	5.61	2.73 2.95
	No. Specimens		19		19		19
	No. Prepreg Lots		3		3		3

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

Material	Cytec 5250-5 5 Harness					**Unnotched Tension 3** **Gr/ Ep** **Cytec 5250-5 5 Harness** **[0/90/45/0/90]S**	
Resin content:	36.73 % w t		**Comp. density:** 1.54 [g/cc]				
Fiber volume:	54.97 % vol						
Ply count:	10						
Test method:	ASTM D3039-00		**Modulus calculation:** 1000 to 3000 microstrain				
Normalized by:	0.0152	in. CPT					
		CTD		**RTD**		**ETW**	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160 F,85%	
Source code		CNBCX X1XB		CNBCX X1XA		CNBCX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean	101.26	101.35	107.44	108.05	100.59	100.77
	Minimum	92.42	91.80	101.22	100.59	91.17	90.02
	Maximum	107.16	108.26	115.68	117.81	111.14	112.44
UNT3 Strength (ksi)	**C.V.(%)**	4.30	4.59	3.50	4.10	5.94	6.42
	No. Specimens	19		20		21	
	No. Prepreg Lots	3		3		3	
	Mean	8.68	8.68	8.72	8.77	8.28	8.30
	Minimum	8.47	8.51	8.54	8.53	7.87	7.93
	Maximum	8.88	8.97	9.53	9.47	8.57	8.57
UNT3 Modulus (Msi)	**C.V.(%)**	1.13	1.50	2.42	2.54	2.28	2.06
	No. Specimens	19		20		21	
	No. Prepreg Lots	3		3		3	

2.3.9 "25/50/25" Unnotched Compression 1 Properties (UNC1)

Material:	Cytec 5250-5 5 Harness					**Unnotched Compression 1** Gr/ Ep Cytec 5250-5 5 Harness [45/0/-45/90]S	
Resin content:	37.08 % wt	**Comp. density:** 1.54 [g/cc]					
Fiber volume:	54.57 % vol						
Ply count:	8						
Test method:	ASTM D6641-01e1	**Modulus calculation:** 1000 to 3000 microstrain					
Normalized by:	0.0152	in. CPT					
		RTD		**ETW**			
Test Temperature [°F]		70		350			
Moisture Conditioning		dry		equilibrium			
Equilibrium at T, RH				160 F,85%			
Source code		CNBWX X1XA		CNBWX X1XJ			
		Normalized	**Measured**	**Normalized**	**Measured**		
	Mean	88.16	89.35	40.27	40.12		
	Minimum	75.37	75.63	34.80	35.14		
	Maximum	95.27	96.33	46.72	46.42		
UNC1 Strength (ksi)	**C.V.(%)**	6.70	7.04	7.74	7.75		
	No. Specimens	19		21			
	No. Prepreg Lots	3		3			
	Mean	6.32	6.41	5.67	5.66		
	Minimum	5.77	6.02	5.24	5.22		
	Maximum	6.52	6.65	6.20	6.18		
UNC1 Modulus (Msi)	**C.V.(%)**	2.72	2.89	4.99	5.27		
	No. Specimens	19		19			
	No. Prepreg Lots	3		3			

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

Material:	Cytec 5250-5 5 Harness					**Unnotched Compression 2** **Gr/ Ep** **Cytec 5250-5 5 Harness** **[45/-45/90/45/-45]S**	
Resin content:	36.38 % wt		**Comp. density:** 1.54 [g/cc]				
Fiber volume:	55.35 % vol						
Ply count:	10						
Test method:	ASTM D6641-01e1		**Modulus calculation:** 1000 to 3000 microstrain				
Normalized by:	0.0152	in. CPT					
			RTD		**ETW**		
Test Temperature [°F]			70		350		
Moisture Conditioning			dry		equilibrium		
Equilibrium at T, RH					160 F,85%		
Source code			CNBXX X1XA		CNBXX X1XJ		
			Normalized	**Measured**	**Normalized**	**Measured**	
	Mean		58.07	58.98	25.95	25.90	
	Minimum		53.60	55.23	22.21	22.22	
	Maximum		63.90	65.32	30.19	30.78	
UNC2 Strength (ksi)	**C.V.(%)**		5.10	5.23	9.17	9.53	
	No. Specimens		19		19		
	No. Prepreg Lots		3		3		
	Mean		4.23	4.30	3.32	3.32	
	Minimum		4.06	4.13	3.07	3.06	
	Maximum		4.38	4.55	3.56	3.58	
UNC2 Modulus (Msi)	**C.V.(%)**		2.12	2.86	4.27	4.32	
	No. Specimens		19		19		
	No. Prepreg Lots		3		3		

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

Material:	Cytec 5250-5 5 Harness					**Unnotched Compression 3** **Gr/ Ep** **Cytec 5250-5 5 Harness** **[0/90/45/0/90]S**	
Resin content:	36.93 % w t		**Comp. density:** 1.54 [g/cc]				
Fiber volume:	54.89 % vol						
Ply count:	10						
Test method:	ASTM D6641-01e1		**Modulus calculation:** 1000 to 3000 microstrain				
Normalized by:	0.0152	in. CPT					
			RTD		**ETW**		
Test Temperature [°F]			70		350		
Moisture Conditioning			dry		equilibrium		
Equilibrium at T, RH					160 F,85%		
Source code			CNBYX X1XA		CNBYX X1XJ		
			Normalized	**Measured**	**Normalized**	**Measured**	
	Mean		85.91	86.19	47.29	47.02	
	Minimum		80.18	79.94	39.58	39.15	
	Maximum		92.90	93.73	53.61	53.22	
UNC3 Strength (ksi)	**C.V.(%)**		4.39	5.05	7.58	7.89	
	No. Specimens		19		24		
	No. Prepreg Lots		3		3		
	Mean		7.86	7.88	7.61	7.55	
	Minimum		7.57	7.46	7.15	7.02	
	Maximum		8.28	8.26	8.14	8.03	
UNC3 Modulus (Msi)	**C.V.(%)**		2.52	2.59	3.64	3.80	
	No. Specimens		19		19		
	No. Prepreg Lots		3		3		

2.3.12 Lamina Short-Beam Strength Properties (SBS)

Material: Cytec 5250-5 5 Harness

Resin content: 36.29 % w t **Comp. density:** 1.54 [g/cc]
Fiber volume: 55.47 % vol
Ply count: 17

Test method: ASTM D2344-00

Normalized by: NA

Short Beam Strength
Gr/ Ep
Cytec 5250-5 5 Harness
[0]17

		CTD		RTD		ETD		ETW	
Test Temperature [°F]		-65		70		350		350	
Moisture Conditioning		dry		dry		dry		equilibrium	
Equilibrium at T, RH								160 F,85%	
Source code		CNBQX X1XB		CNBQX X1XA		CNBQX X1XK		CNBQX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
SBS Strength (ksi)	**Mean**		10.99		11.53		6.93		4.07
	Minimum		9.90		10.67		6.71		3.93
	Maximum		12.77		12.48		7.16		4.32
	C.V.(%)		6.28		4.34		2.18		2.69
	No. Specimens	21		22		21		21	
	No. Prepreg Lots	3		3		3		3	

2.3.13 Laminate Short-Beam Strength Properties (SBS1)

Material:	Cytec 5250-5 5 Harness					**Laminate Short Beam Strength**	
Resin content:	see OHC1	**Comp. density:**	see OHC1			**Gr/ Ep**	
Fiber volume:	see OHC1					**Cytec 5250-5 Harness**	
Ply count:	12					**[45/0/-45/90/-45/90]S**	
Test method:	ASTM D2344-00						
Normalized by:	NA						
		RTD		**ETW**			
Test Temperature [°F]		70		350			
Moisture Conditioning		dry		equilibrium			
Equilibrium at T, RH				160 F,85%			
Source code		CNBqX XGXA		CNBqX XGXJ			
		Normalized	**Measured**	**Normalized**	**Measured**		
	Mean		10.49		5.08		
	Minimum		9.53		4.60		
	Maximum		11.56		6.07		
LSBS (ksi)	**C.V.(%)**		5.65		8.65		
	No. Specimens		20		21		
	No. Prepreg Lots		3		3		

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

Material:	Cytec 5250-5 5 Harness					**Open Hole Tension 1** **Gr/ Ep** **Cytec 5250-5 5 Harness** **[45/0/-45/90]S**	
Resin content:	35.69 % w t		**Comp. density** 1.54 [g/cc]				
Fiber volume:	55.94 % vol						
Ply count:	8						
Test method:	ASTM D5766-02a						
Normalized by:	0.0152	in. CPT					
		CTD		**RTD**		**ETW**	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160 F,85%	
Source code		CNBDX X1XB		CNBDX X1XA		CNBDX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean	48.43	48.39	50.74	51.08	54.53	54.33
	Minimum	46.11	46.17	47.85	47.82	51.62	51.11
	Maximum	51.54	51.20	55.04	55.41	57.63	57.94
OHT1	**C.V.(%)**	2.90	2.63	4.20	4.45	2.71	2.98
Strength (ksi)							
	No. Specimens	19		19		21	
	No. Prepreg Lots	3		3		3	

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

Material:	Cytec 5250-5 5 Harness					**Open Hole Tension 2** **Gr/ Ep** **Cytec 5250-5 5 Harness** **[45/-45/90/45/-45]S**		
Resin content:	36.51 % w t		**Comp. density** 1.54 [g/cc]					
Fiber volume:	55.20 % vol							
Ply count:	10							
Test method:	ASTM D5766-02a							
Normalized by:	0.0152	in. CPT						
			CTD		**RTD**		**ETW**	
Test Temperature [°F]			-65		70		350	
Moisture Conditioning			dry		dry		equilibrium	
Equilibrium at T, RH							160 F,85%	
Source code			CNBEX X1XB		CNBEX X1XA		CNBEX X1XJ	
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean		40.13	40.01	39.60	39.66	28.28	28.19
	Minimum		38.69	38.27	38.09	38.64	23.56	23.78
	Maximum		41.71	42.15	41.10	40.97	30.45	30.40
OHT2	**C.V.(%)**		2.20	2.51	1.98	1.85	6.30	6.02
Strength (ksi)								
	No. Specimens		19		19		19	
	No. Prepreg Lots		3		3		3	

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

Material:	Cytec 5250-5 5 Harness					**Open Hole Tension 3**		
						Gr/ Ep		
Resin content:	36.32 % w t		**Comp. density:**	1.54 [g/cc]		**Cytec 5250-5 5 Harness**		
Fiber volume:	55.35 % vol					**[0/90/45/0/90]S**		
Ply count:	10							
Test method:	ASTM D5766-02a							
Normalized by:	0.0152	in. CPT						
			CTD		**RTD**		**ETW**	
Test Temperature [°F]			-65		70		350	
Moisture Conditioning			dry		dry		equilibrium	
Equilibrium at T, RH							160 F,85%	
Source code			CNBFX X1XB		CNBFX X1XA		CNBFX X1XJ	
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean		58.84	58.44	61.89	61.87	70.16	69.92
	Minimum		53.94	53.75	56.10	55.95	66.86	66.41
	Maximum		62.82	63.30	66.98	66.83	74.64	74.31
OHT3	**C.V.(%)**		4.86	5.05	4.72	4.71	3.37	3.49
Strength (ksi)								
	No. Specimens		19		20		19	
	No. Prepreg Lots		3		3		3	

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

Material:	Cytec 5250-5 5 Harness					**Filled-Hole Tension 1**	
						Gr/ Ep	
Resin content:	36.03 % wt [1]		**Comp. density:** 1.54 [g/cc] [1]			**Cytec 5250-5 5 Harness**	
Fiber volume:	55.69 % vol [1]					**[45/0/-45/90]S**	
Ply count:	8						
Test method:	ASTM D6742-02						
Normalized by:	0.0152	in. CPT					
			CTD		**RTD**		**ETW**	
Test Temperature [°F]			-65		70		350	
Moisture Conditioning			dry		dry		equilibrium	
Equilibrium at T, RH							160 F,85%	
Source code			CNB4X X1XB		CNB4X X1XA		CNB4X X1XJ	
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean		53.78	53.85	55.15	55.06	52.03	51.84
	Minimum		50.38	50.69	50.87	50.35	48.51	48.77
	Maximum		58.74	58.72	58.73	59.19	56.14	55.44
FHT1 Strength (ksi)	**C.V.(%)**		3.42	3.46	4.30	4.80	3.07	2.92
	No. Specimens		19		19		21	
	No. Prepreg Lots		3		3		3	

Note 1: Data from FHT1-A-C1 and FHT1-A-C2 are not included due to insufficient material for testing.

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

Material:	Cytec 5250-5 5 Harness					**Filled-Hole Tension 2**	
						Gr/ Ep	
Resin content:	35.71 % wt [1]		**Comp. density:** 1.55 [g/cc] [1]			**Cytec 5250-5 5 Harness**	
Fiber volume:	56.10 % vol [1]					**[45/-45/90/45/-45]S**	
Ply count:	10						
Test method:	ASTM D6742-02						
Normalized by:	0.0152	in. CPT					
		CTD		**RTD**		**ETW**	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160 F,85%	
Source code		CNB5X X1XB		CNB5X X1XA		CNB5X X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean	45.79	45.89	44.82	44.95	28.92	28.90
	Minimum	43.66	44.36	42.84	43.47	27.17	27.03
	Maximum	47.19	48.55	46.56	47.10	30.93	30.70
FHT2 Strength (ksi)	**C.V.(%)**	2.12	1.86	1.93	2.08	3.35	3.30
	No. Specimens	19		19		19	
	No. Prepreg Lots	3		3		3	

Note 1: Data from FHT2-A-C2, FHT2-B-C2 and FHT2-C-C2 are not included due to insufficient material for testing.

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

Material:	Cytec 5250-5 5 Harness					**Filled-Hole Tension 3**	
						Gr/ Ep	
Resin content:	35.88 % wt [1]		**Comp. density:** 1.54 [g/cc] [1]			**Cytec 5250-5 5 Harness**	
Fiber volume:	55.74 % vol [1]					**[0/90/45/0/90]S**	
Ply count:	10						
Test method:	ASTM D6742-02						
Normalized by:	0.0152	in. CPT					
		CTD		**RTD**		**ETW**	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160 F,85%	
Source code		CNB6X X1XB		CNB6X X1XA		CNB6X X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean	60.18	60.39	61.87	61.49	61.44	61.39
	Minimum	55.33	54.86	57.15	56.32	57.46	56.91
	Maximum	63.92	65.06	67.16	67.24	64.25	64.47
FHT3 Strength (ksi)	**C.V.(%)**	4.04	4.28	4.61	4.93	2.96	3.27
	No. Specimens	19		19		19	
	No. Prepreg Lots	3		3		3	

Note 1: Data from FHT3-A-C2, FHT3-B-C1 and FHT3-B-C2 are not included due to insufficient material for testing.

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

Material:	Cytec 5250-5 5 Harness					**Open Hole Compression 1**	
						Gr/ Ep	
Resin content:	36.70 % w t		**Comp. density:**	1.54 [g/cc]		**Cytec 5250-5 5 Harness**	
Fiber volume:	55.08 % vol					**[45/0/-45/90/-45/90]S**	
Ply count:	12						
Test method:	ASTM D6484-04						
Normalized by:	0.0152	in. CPT					
			RTD		**ETW**		
Test Temperature [°F]			70		350		
Moisture Conditioning			dry		equilibrium		
Equilibrium at T, RH					160 F,85%		
Source code			CNBGX X1XA		CNBGX X1XJ		
			Normalized	**Measured**	**Normalized**	**Measured**	
	Mean		46.54	46.65	27.59	27.68	
	Minimum		44.25	44.98	25.23	25.18	
	Maximum		47.56	47.81	30.40	30.53	
OHC1	**C.V.(%)**		2.03	1.90	6.15	6.01	
Strength (ksi)							
	No. Specimens			21		21	
	No. Prepreg Lots			3		3	

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

Material:	Cytec 5250-5 5 Harness					**Open Hole Compression 2**	
						Gr/ Ep	
Resin content:	36.27 % w t [1]		**Comp. density** 1.54 [g/cc] [1]			**Cytec 5250-5 5 Harness**	
Fiber volume:	55.49 % vol [1]					**[45/-45/90/45/-45]S**	
Ply count:	10						
Test method:	ASTM D6484-04						
Normalized by:	0.0152	in. CPT					
			RTD		**ETW**		
Test Temperature [°F]			70		350		
Moisture Conditioning			dry		equilibrium		
Equilibrium at T, RH					160 F,85%		
Source code			CNBHX X1XA		CNBHX X1XJ		
			Normalized	**Measured**	**Normalized**	**Measured**	
	Mean		37.37	37.26	22.77	22.78	
	Minimum		34.83	34.42	21.18	21.49	
	Maximum		39.33	38.93	24.62	24.86	
OHC2	**C.V.(%)**		3.15	3.26	4.26	4.08	
Strength (ksi)							
	No. Specimens		19		19		
	No. Prepreg Lots		3		3		

Note 1: Data from OHC2-A-C2 is not included due to insufficient material for testing.

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

Material:	Cytec 5250-5 5 Harness			**Open Hole Compression 3** **Gr/ Ep** **Cytec 5250-5 5 Harness** **[0/90/45/0/90]S**
Resin content:	36.20 % wt [1]	**Comp. density:**	1.54 [g/cc] [1]	
Fiber volume:	55.51 % vol [1]			
Ply count:	10			
Test method:	ASTM D6484-04			
Normalized by:	0.0152	in. CPT		

		RTD		ETW			
Test Temperature [°F]		75		350			
Moisture Conditioning		dry		equilibrium			
Equilibrium at T, RH				160 F,85%			
Source code		CNBIX X1XA		CNBIX X1XJ			
		Normalized	**Measured**	**Normalized**	**Measured**		
	Mean	49.58	49.43	32.09	32.10		
	Minimum	44.19	43.62	29.72	29.77		
	Maximum	53.06	53.39	35.31	35.12		
OHC3	**C.V.(%)**	4.63	4.85	4.89	5.01		
Strength (ksi)							
	No. Specimens	19		19			
	No. Prepreg Lots	3		3			

Note 1: Only data from OHC3-C-C2 is included because there was insufficient material for sampling on other panels

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

Material:	Cytec 5250-5 5 Harness					**Filled-Hole Compression 1** **Gr/ Ep** **Cytec 5250-5 5 Harness** **[45/0/-45/90/-45/90]S**
Resin content:	36.65 % wt [1]		**Comp. density:**	1.54 [g/cc] [1]		
Fiber volume:	55.10 % vol [1]					
Ply count:	12					
Test method:	ASTM D6742-02					
Normalized by:	0.0152	in. CPT				
		RTD		**ETW**		
Test Temperature [°F]		70		350		
Moisture Conditioning		dry		equilibrium		
Equilibrium at T, RH				160 F,85%		
Source code		CNB7X X1XA		CNB7X X1XJ		
		Normalized	**Measured**	**Normalized**	**Measured**	
	Mean	77.20	77.25	41.92	42.00	
	Minimum	69.09	69.28	31.73	31.83	
	Maximum	84.99	84.56	54.94	54.73	
FHC1	**C.V.(%)**	5.53	5.38	14.35	14.50	
Strength (ksi)						
	No. Specimens	19		24		
	No. Prepreg Lots	3		3		

Note 1: Data from FHC1-A-C1,FHC1-A-C2 and FHC1-C-C2 are not included due to insufficient material for testing.

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

Material:	Cytec 5250-5 5 Harness					**Filled-Hole Compression 2** **Gr/ Ep** **Cytec 5250-5 5 Harness** **[45/-45/90/45/-45]S**
Resin content:	36.32 % wt [1]		**Comp. density:** 1.54 [g/cc] [1]			
Fiber volume:	55.47 % vol [1]					
Ply count:	10					
Test method:	ASTM D6742-02					
Normalized by:	0.0152	in. CPT				
			RTD		**ETW**	
Test Temperature [°F]			70		350	
Moisture Conditioning			dry		equilibrium	
Equilibrium at T, RH					160 F,85%	
Source code			CNB8X X1XA		CNB8X X1XJ	
			Normalized	**Measured**	**Normalized**	**Measured**
	Mean		56.52	56.45	29.02	29.03
	Minimum		52.98	52.75	24.31	24.60
	Maximum		59.58	58.99	36.19	36.26
FHC2 Strength (ksi)	**C.V.(%)**		3.34	3.05	10.48	10.59
	No. Specimens		19		22	
	No. Prepreg Lots		3		3	

Note 1: Data from FHC2-B-C1, FHC2-B-C2, FHC2-C-C1 and FHC2-C-C2 are not included due to insufficient material for testing.

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

Material:	Cytec 5250-5 5 Harness				**Filled-Hole Compression 3**	
Resin content:	37.08 % w t	**Comp. density:**	1.54 [g/cc]		**Gr/ Ep**	
Fiber volume:	54.64 % vol				**Cytec 5250-5 5 Harness**	
Ply count:	10				**[0/90/45/0/90]S**	
Test method:	ASTM D6742-02					
Normalized by:	0.0152	in. CPT				
		RTD - Bad failure		**ETW**		
Test Temperature [°F]		70		350		
Moisture Conditioning		dry		equilibrium		
Equilibrium at T, RH				160 F,85%		
Source code		CNB9X X1XA		CNB9X X1XJ		
		Normalized	**Measured**	**Normalized**	**Measured**	
	Mean			46.95	46.86	
	Minimum			43.86	43.65	
	Maximum			51.20	51.49	
FHC3	**C.V.(%)**			5.42	5.73	
Strength (ksi)						
	No. Specimens			18		
	No. Prepreg Lots			3		

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

Material:	Cytec 5250-5 5 Harness					**Single Shear Bearing 1** **Gr/ Ep** **Cytec 5250-5 5 Harness** **[45/0/-45/90]S**
Resin content:	37.03 % wt [1]		**Comp. density:** 1.54 [g/cc] [1]			
Fiber volume:	54.62 % vol [1]					
Ply count:	8					
Test method:	ASTM D5961-05e1					
Normalized by:	0.0152 in CPT					
		RTD		**ETW**		
Test Temperature [°F]		70		350		
Moisture Conditioning		dry		equilibrium		
Equilibrium at T, RH				160 F,85%		
Source code		CNB1X X1XA		CNB1X X1XJ		
		Normalized	**Measured**	**Normalized**	**Measured**	
	Mean			92.83	93.32	
	Minimum			81.43	82.25	
	Maximum			106.69	113.38	
SSB1	**C.V.(%)**			8.24	8.86	
Ultimate Bearing						
(ksi)	**No. Specimens**			20		
	No. Prepreg Lots			3		
	Mean	108.01	108.88	77.67	78.05	
	Minimum	98.07	100.76	64.60	64.39	
	Maximum	121.23	122.52	91.22	91.14	
SSB1	**C.V.(%)**	6.40	6.33	10.01	10.12	
2% offset Strength						
(ksi)	**No. Specimens**	19		20		
	No. Prepreg Lots	3		3		

Testing was stopped after reaching 2% offset, so ultimate strength is not reported for RTD

Note 1: Data from SSB1-B-C2 are not included due to insufficient material for testing.

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

Material:	Cytec 5250-5 5 Harness					**Single Shear Bearing 2** Gr/ Ep Cytec 5250-5 5 Harness [45/-45/90/-45/45]	
Resin content:	36.04 % wt [1]	**Comp. density** 1.54 [g/cc] [1]					
Fiber volume:	55.71 % vol [1]						
Ply count:	5						
Test method:	ASTM D5961-05e1						
Normalized by:	0.0152 in CPT						
		RTD		**ETW**			
Test Temperature [°F]		70		350			
Moisture Conditioning		dry		equilibrium			
Equilibrium at T, RH				160 F,85%			
Source code		CNB2X X1XA		CNB2X X1XJ			
		Normalized	**Measured**	**Normalized**	**Measured**		
	Mean			94.71	94.39		
	Minimum			83.79	83.82		
	Maximum			106.60	106.95		
SSB2	**C.V.(%)**			6.66	6.62		
Ultimate Bearing Strength							
(ksi)	**No. Specimens**			21			
	No. Prepreg Lots			3			
	Mean	109.41	110.07	75.47	75.20		
	Minimum	103.19	104.35	65.57	66.15		
	Maximum	116.00	117.31	87.10	88.63		
SSB2	**C.V.(%)**	3.51	3.72	9.40	9.24		
2% offset Strength							
(ksi)	**No. Specimens**	18		21			
	No. Prepreg Lots	3		3			

Testing was stopped after reaching 2% offset, so ultimate strength is not reported for RTD

Note 1: Data from SSB2-A-C1 and SSB2-B-C1 are not included due to insufficient material for testing.

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

Material:	Cytec 5250-5 5 Harness					**Single Shear Bearing 3 Gr/ Ep Cytec 5250-5 5 Harness [0/90/45/90/0]**	
Resin content:	36.26 % wt [1]	**Comp. density** 1.54 [g/cc] [1]					
Fiber volume:	55.36 % vol [1]						
Ply count:	5						
Test method:	ASTM D5961-05e1						
Normalized by:	0.0152 in CPT						
		RTD		**ETW**			
Test Temperature [°F]		70		350			
Moisture Conditioning		dry		equilibrium			
Equilibrium at T, RH				160 F,85%			
Source code		CNB3X X1XA		CNB3X X1XJ			
		Normalized	**Measured**	**Normalized**	**Measured**		
	Mean			81.48	81.23		
	Minimum			70.31	71.20		
SSB3	**Maximum**			88.22	87.01		
Ultimate Strength	**C.V.(%)**			5.13	5.24		
(ksi)							
	No. Specimens			21			
	No. Prepreg Lots			3			
	Mean	104.05	104.70	66.67	66.48		
	Minimum	84.64	82.94	56.14	56.85		
	Maximum	115.19	114.56	73.26	75.37		
SSB3	**C.V.(%)**	7.27	7.28	7.08	7.67		
2% offset Strength							
(ksi)	**No. Specimens**	19		21			
	No. Prepreg Lots	3		3			

Testing was stopped after reaching 2% offset, so ultimate strength is not reported for RTD

Note 1: Data from SSB3-A-C1 and SSB3-C-C1 are not included due to insufficient material for testing.

2.3.29 Compression After Impact 1 Properties (CAI1)

Material:	Cytec 5250-5 5 Harness			**Compression After Impact** Gr/ Ep Cytec 5250-5 5 Harness [45/0/-45/90/-45/90]S	
Resin content:	36.55 % wt	**Comp. density:**	1.55 [g/cc]		
Fiber volume:	55.30 % vol				
Ply count:	12				
Test method:	ASTM D7136/D7137-05e1				
Normalized by:	0.0152	in. CPT			
			RTD		
Test Temperature [°F]			70		
Moisture Conditioning			dry		
Equilibrium at T, RH					
Source code			CNBKX X1XA		
		Normalized	**Measured**		
	Mean	30.83	31.60		
	Minimum	29.43	30.48		
	Maximum	32.06	32.77		
CAI Strength (ksi)	**C.V.(%)**	2.97	2.65		
	No. Specimens		6		
	No. Prepreg Lots		1		

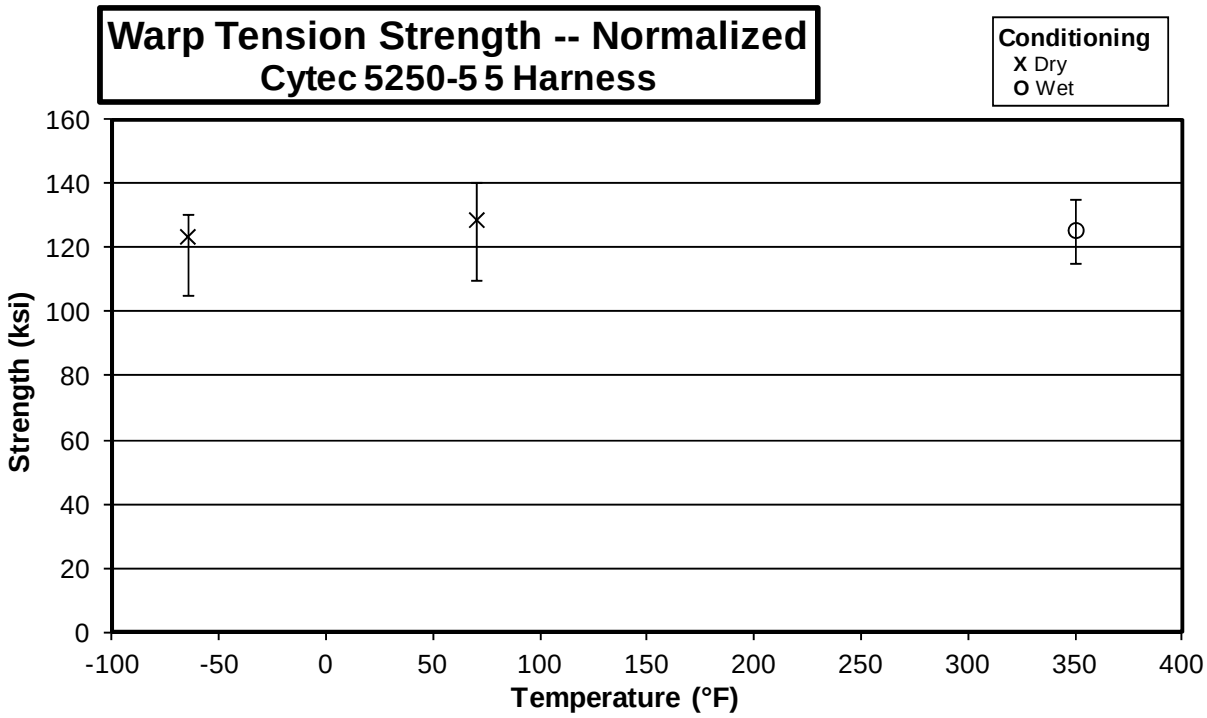
2.3.30 Interlaminar Tension Properties (ILT)

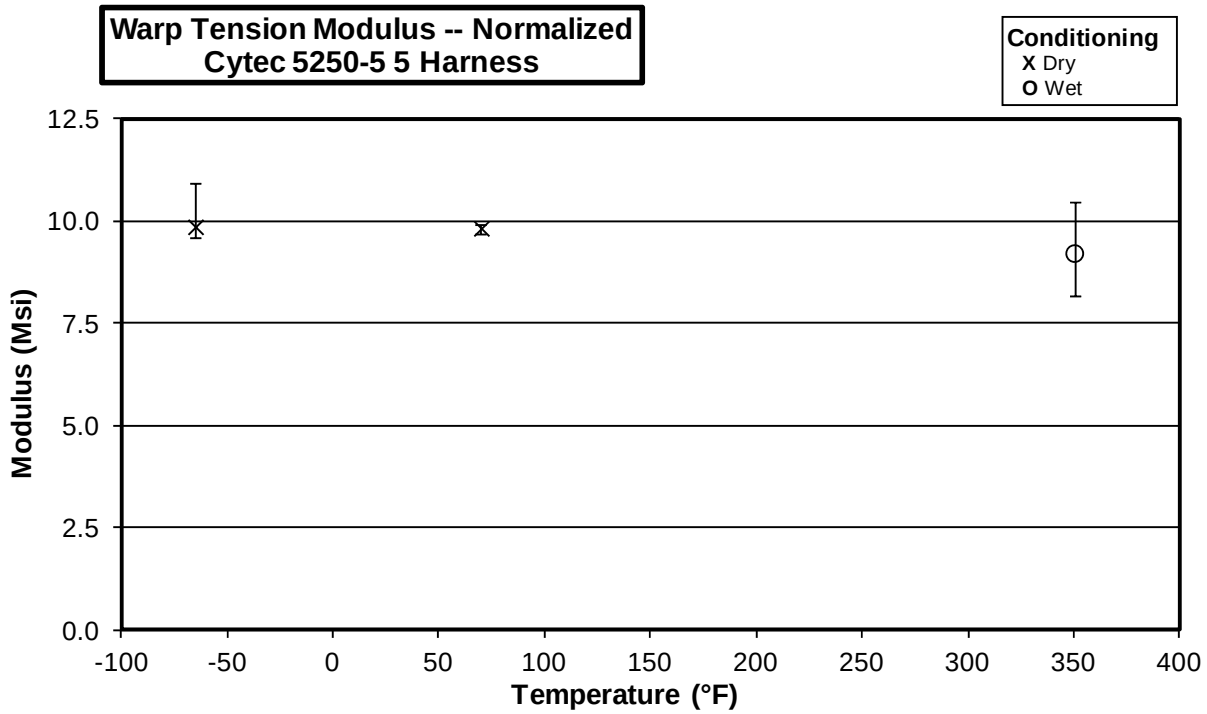
Material:	Cytec 5250-5 5 Harness					**Interlaminar Tension**	
						Gr/ Ep	
Resin content:	34.14 % wt	**Comp. density:**	1.55 [g/cc]			**Cytec 5250-5 5 Harness**	
Fiber volume:	57.66 % vol					**[0]11**	
Ply count:	11						
Test method:	ASTM D6415-06ae1						
Normalized by:	NA						
		CTD		**RTD**		**ETW**	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160 F,85%	
Source code		CNBMX X1XB		CNBMX X1XA		CNBMX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean		7.85		8.35		2.55
	Minimum		5.59		4.72		2.29
	Maximum		9.61		10.33		2.99
ILT	**C.V.(%)**		17.81		22.94		9.43
Strength (ksi)							
	No. Specimens	7		6		6	
	No. Prepreg Lots	1		1		1	

3. Individual Test Charts

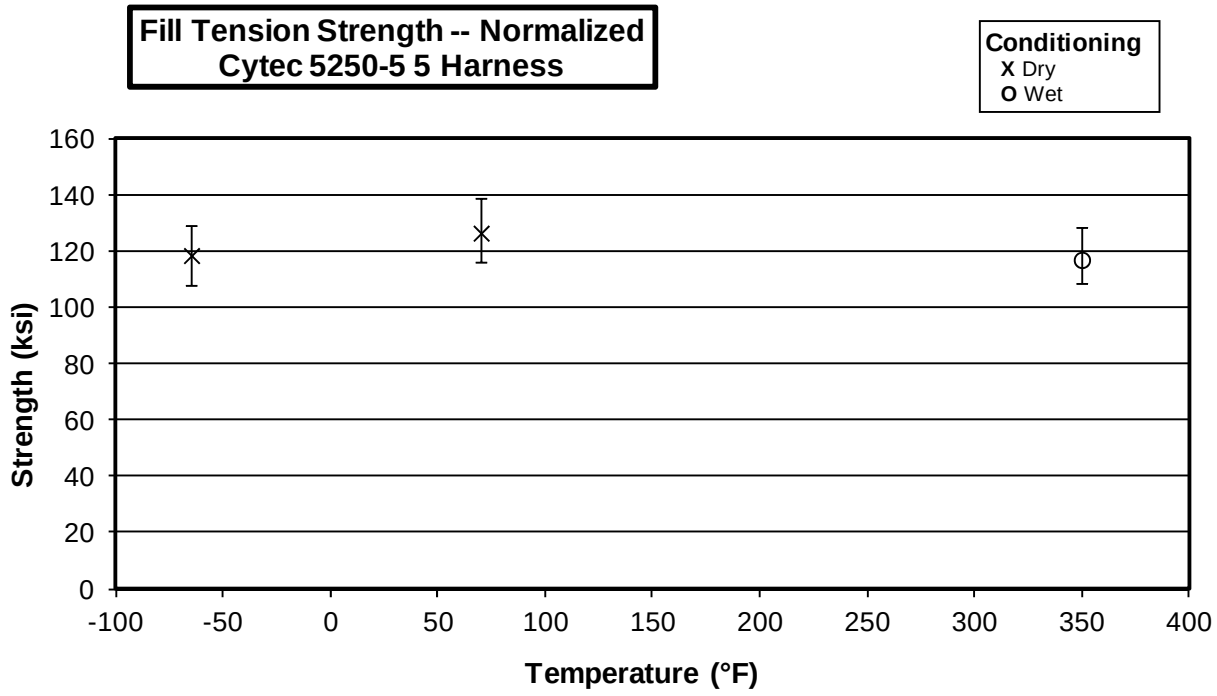
These charts combine all three batches of data and plot the minimum and maximum modulus and strength range based on the test temperature.

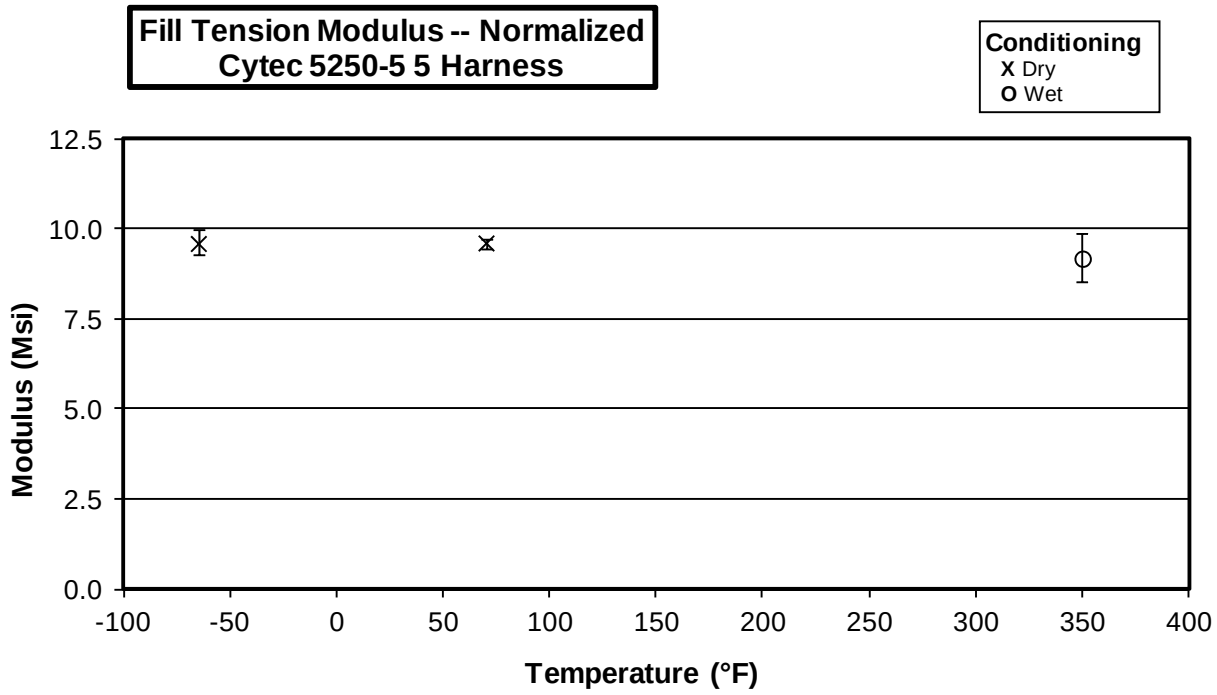
3.1 Warp Tension Properties (WT)



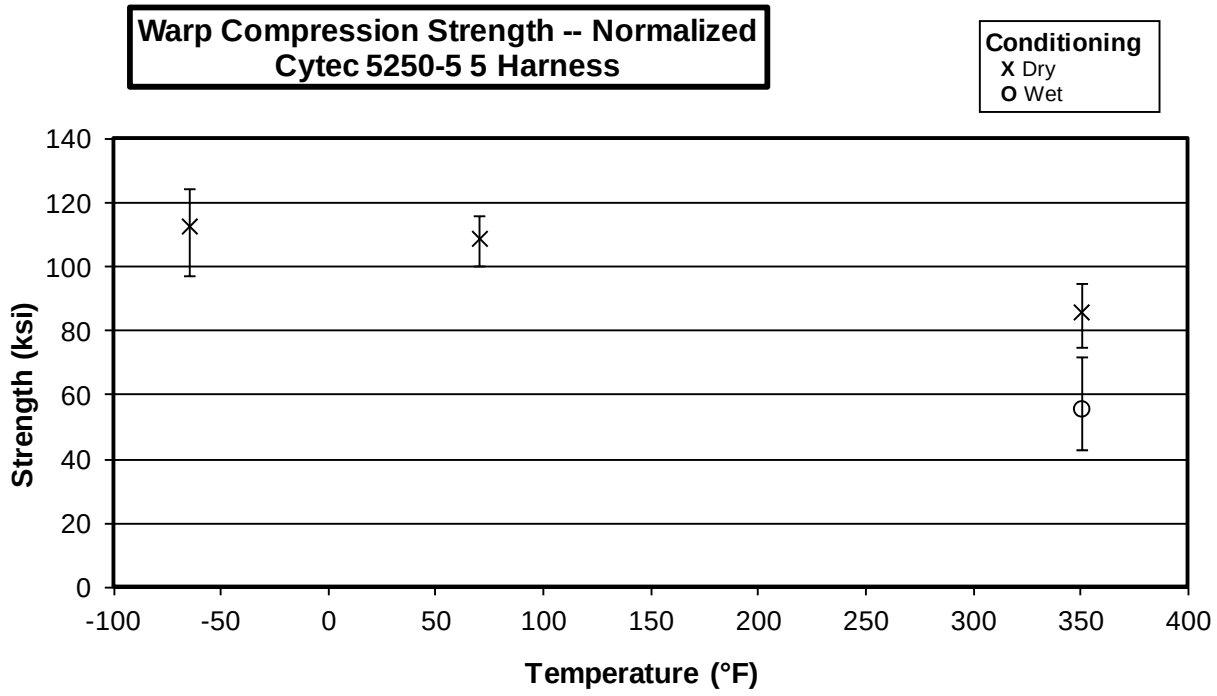


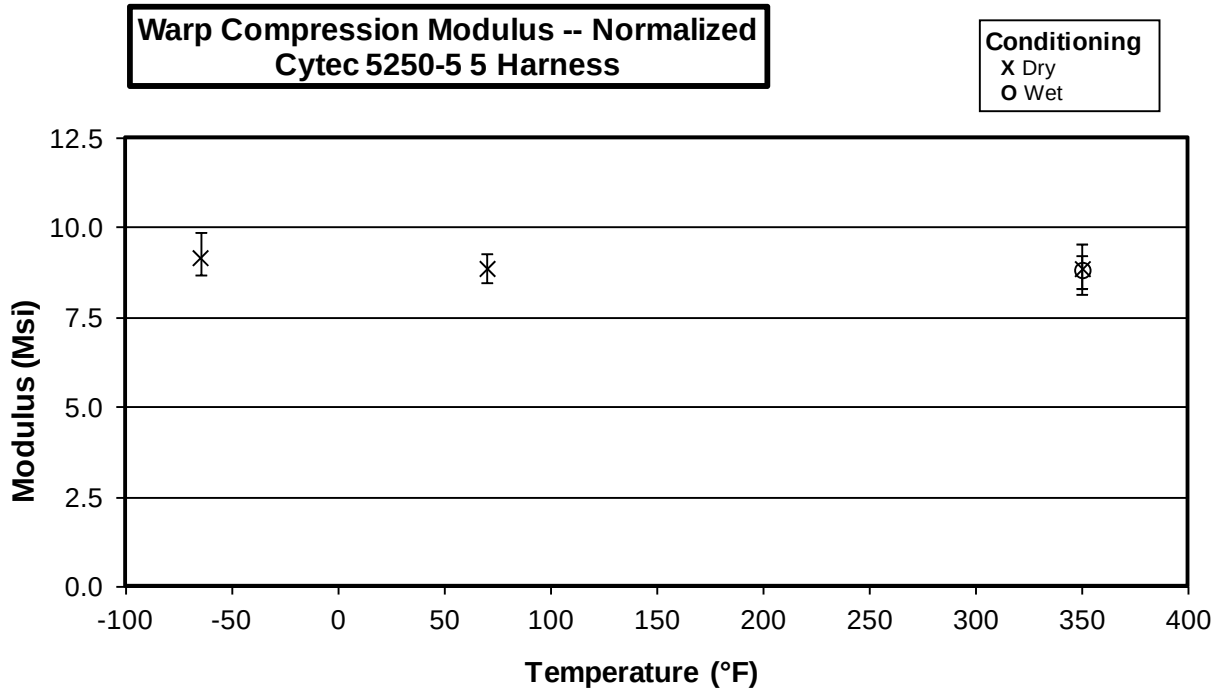
3.2 Fill Tension Properties (FT)



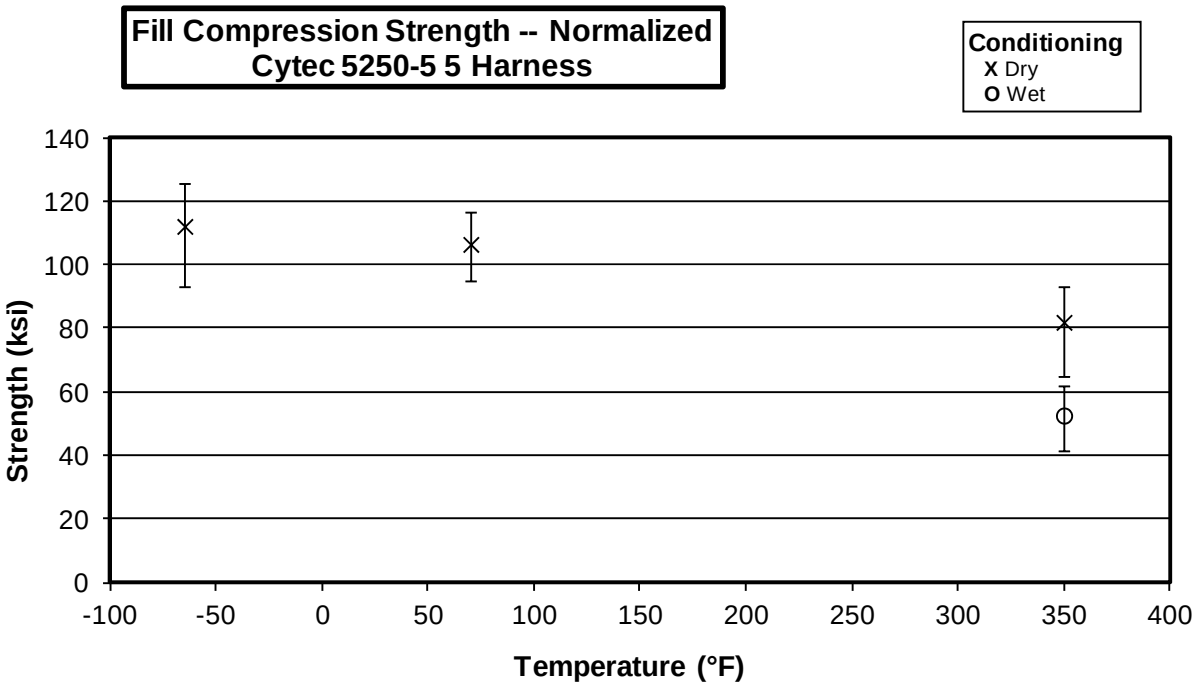


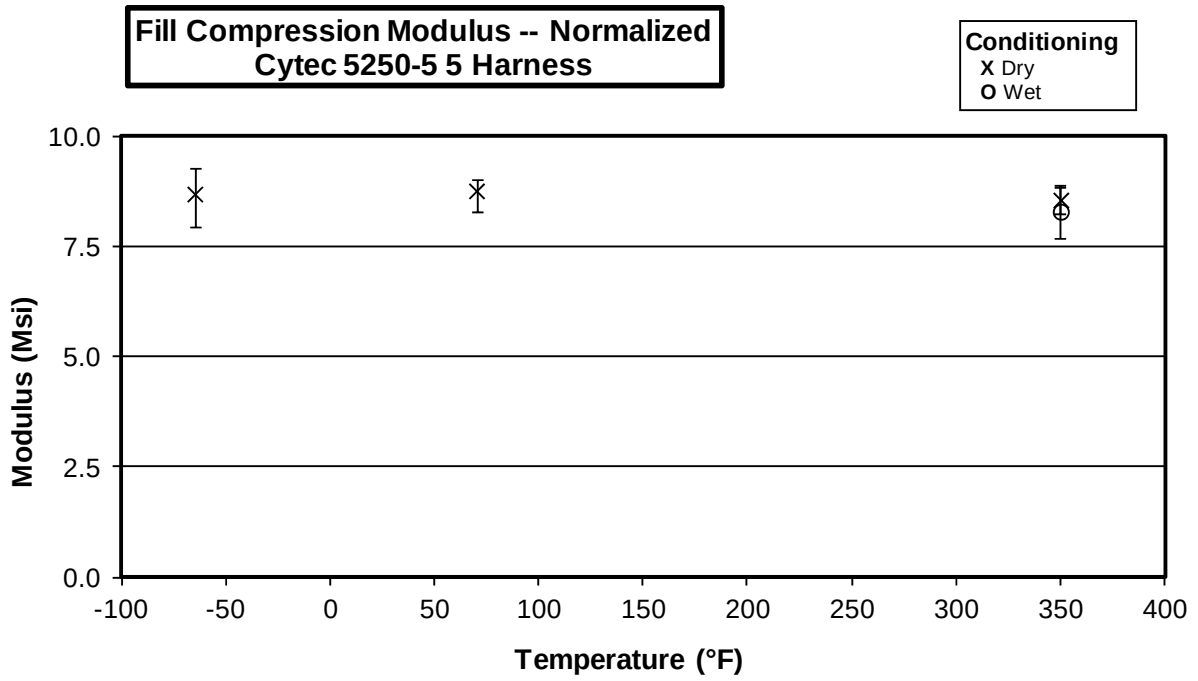
3.3 Warp Compression Properties (WC)



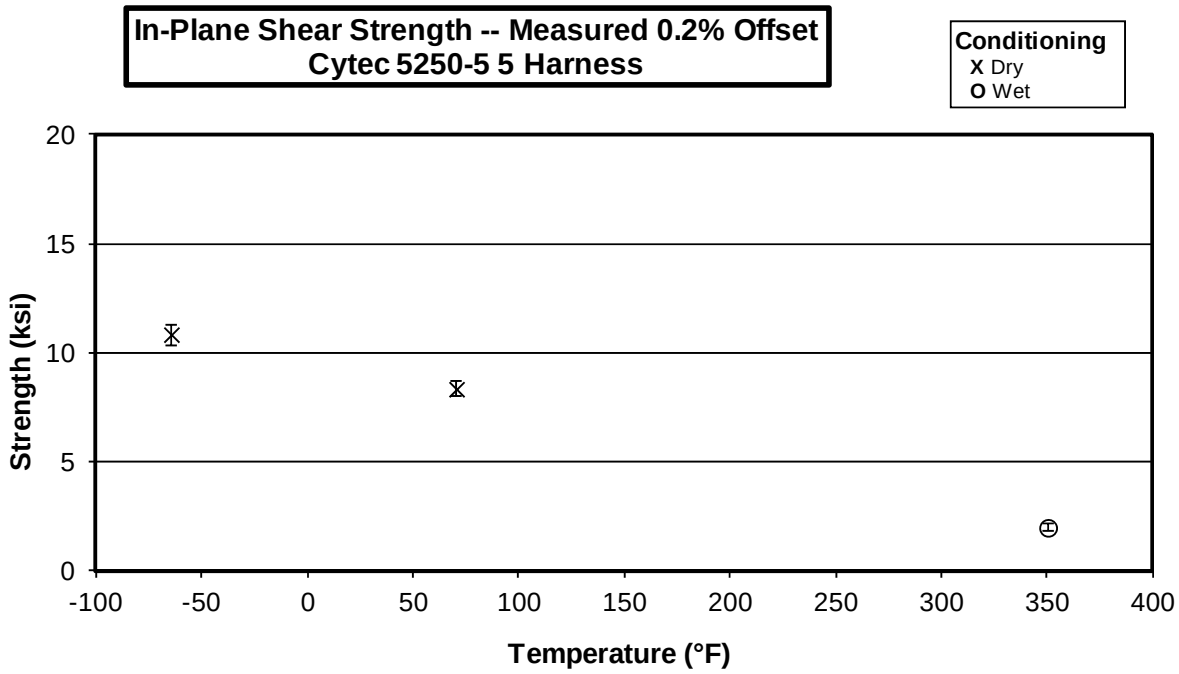


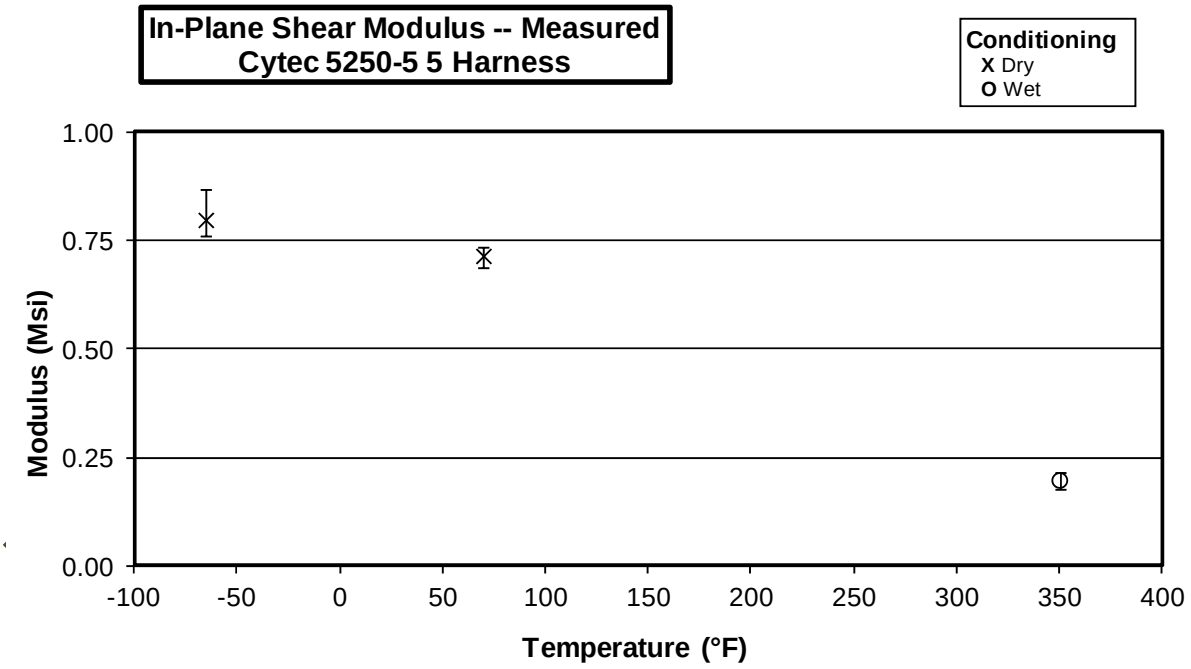
3.4 Fill Compression Properties (FC)



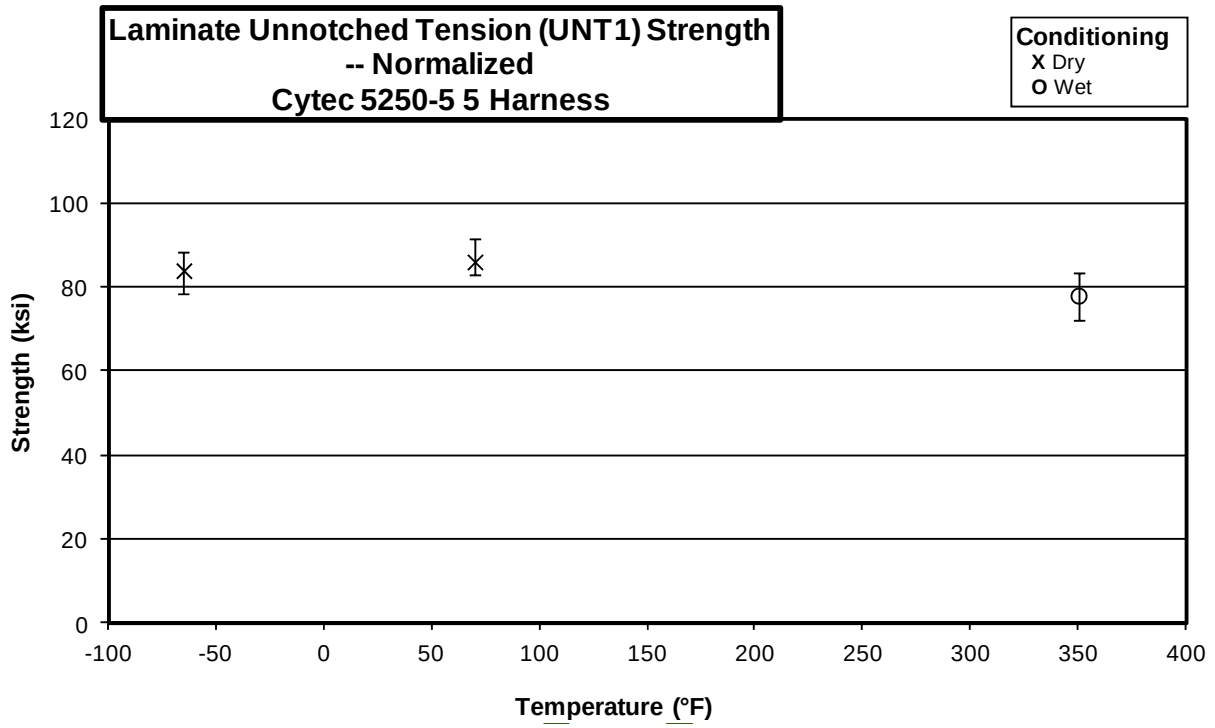


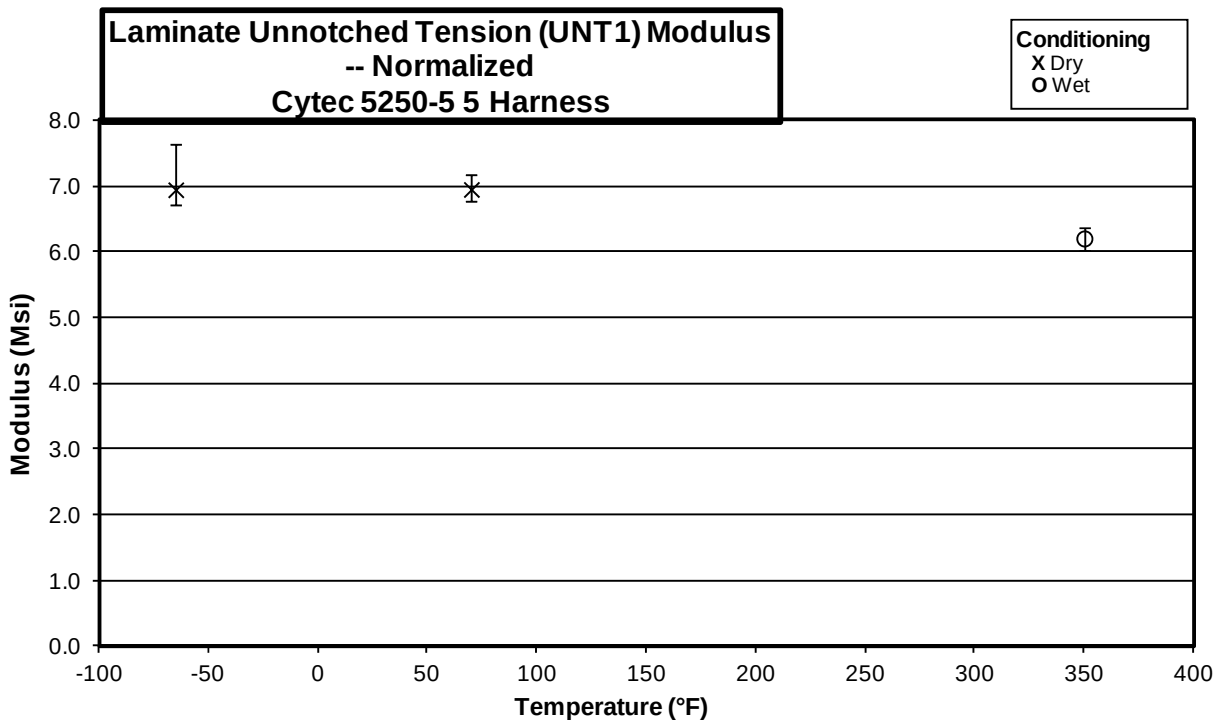
3.5 In-Plane Shear Properties (IPS)



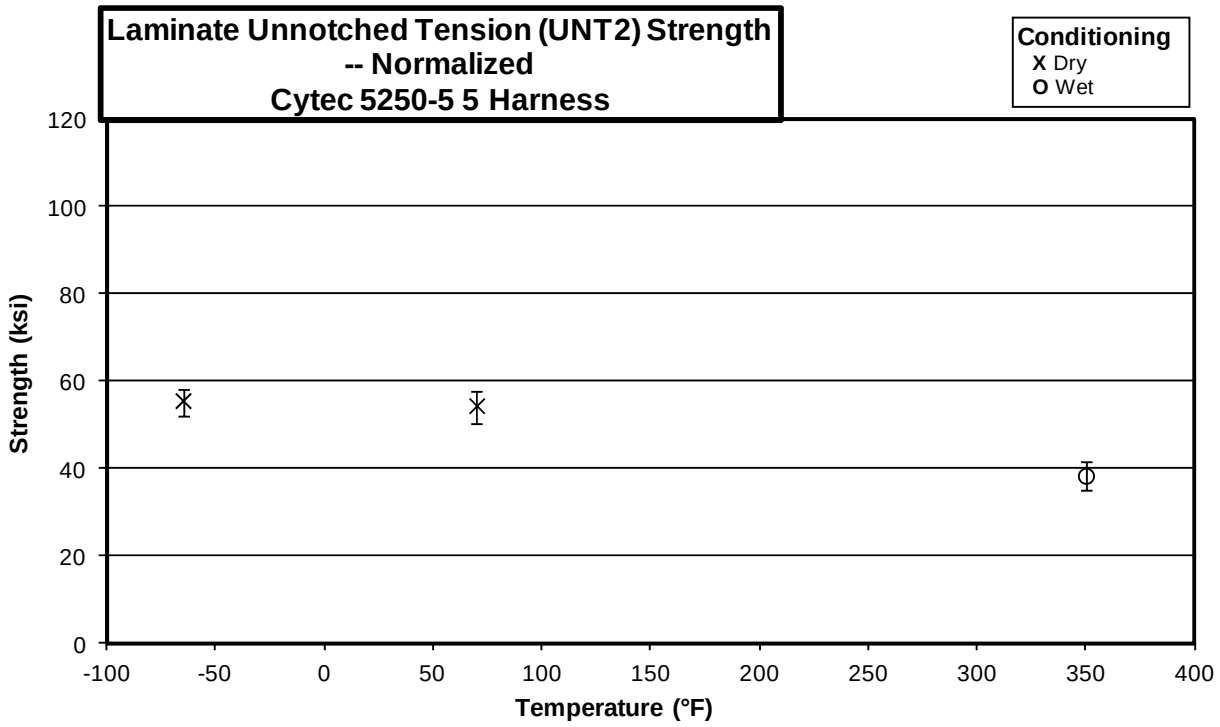


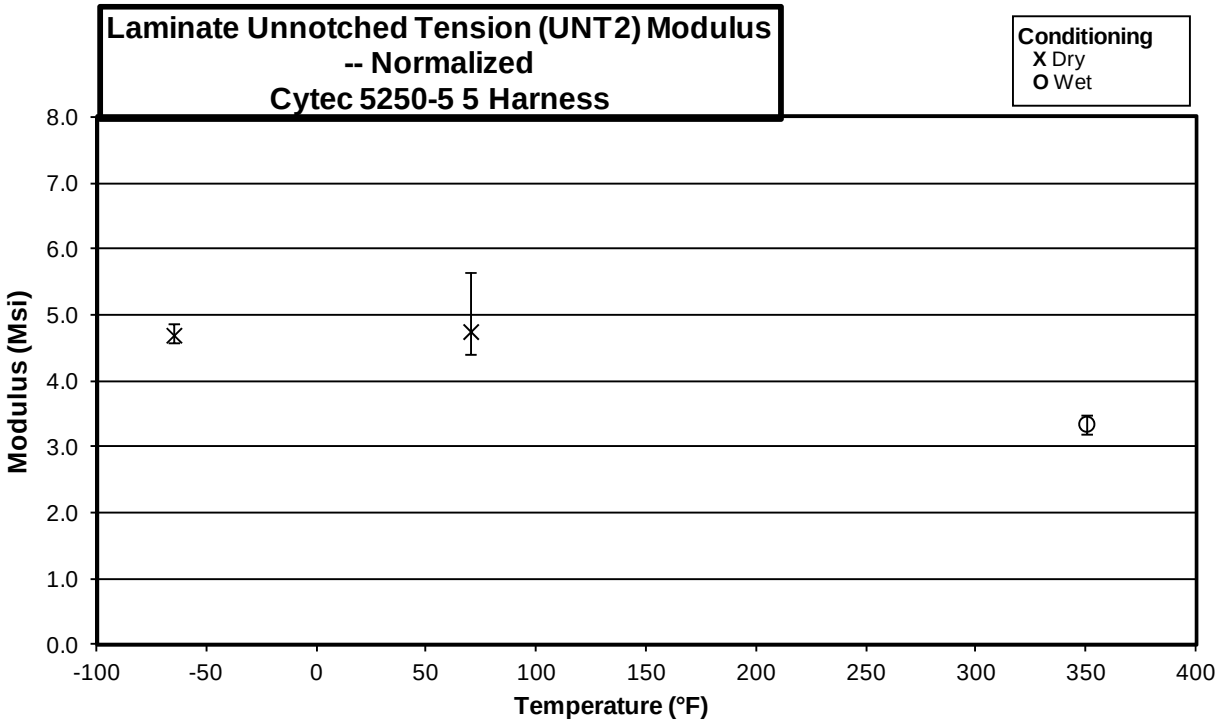
3.6 "25/50/25" Unnotched Tension 1 Properties (UNT1)



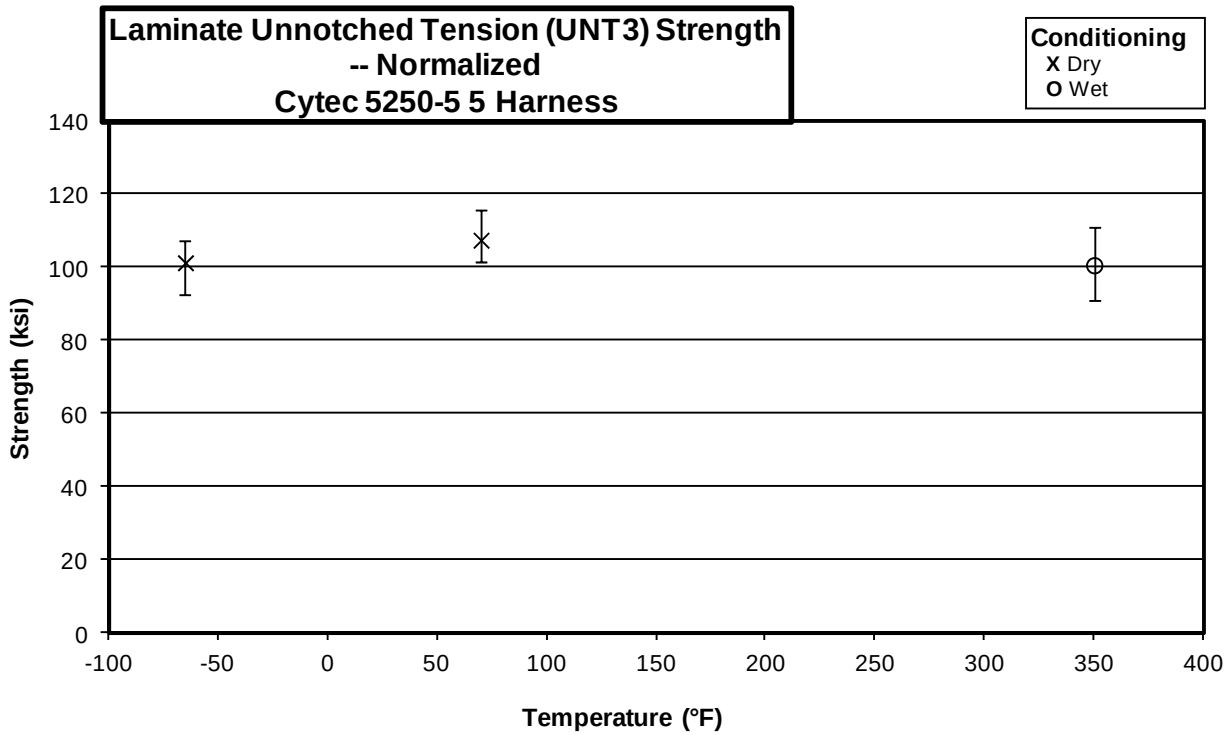


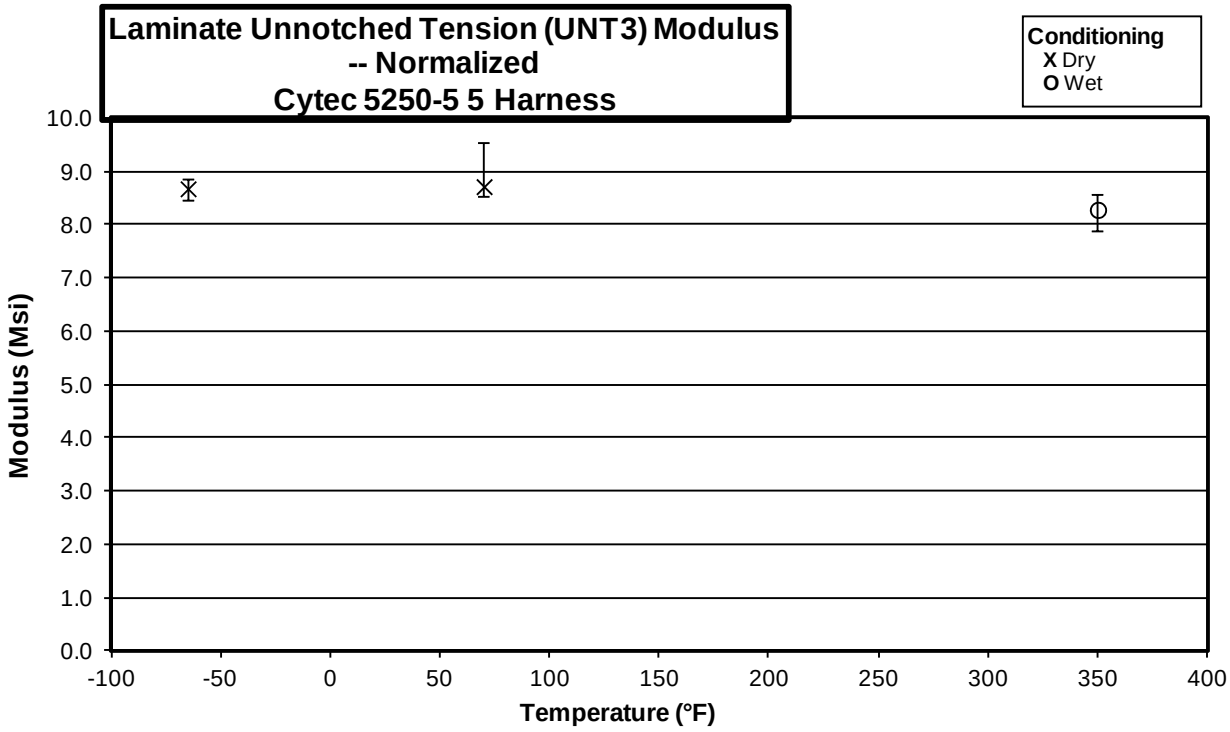
3.7 "10/80/10" Unnotched Tension 2 Properties (UNT2)



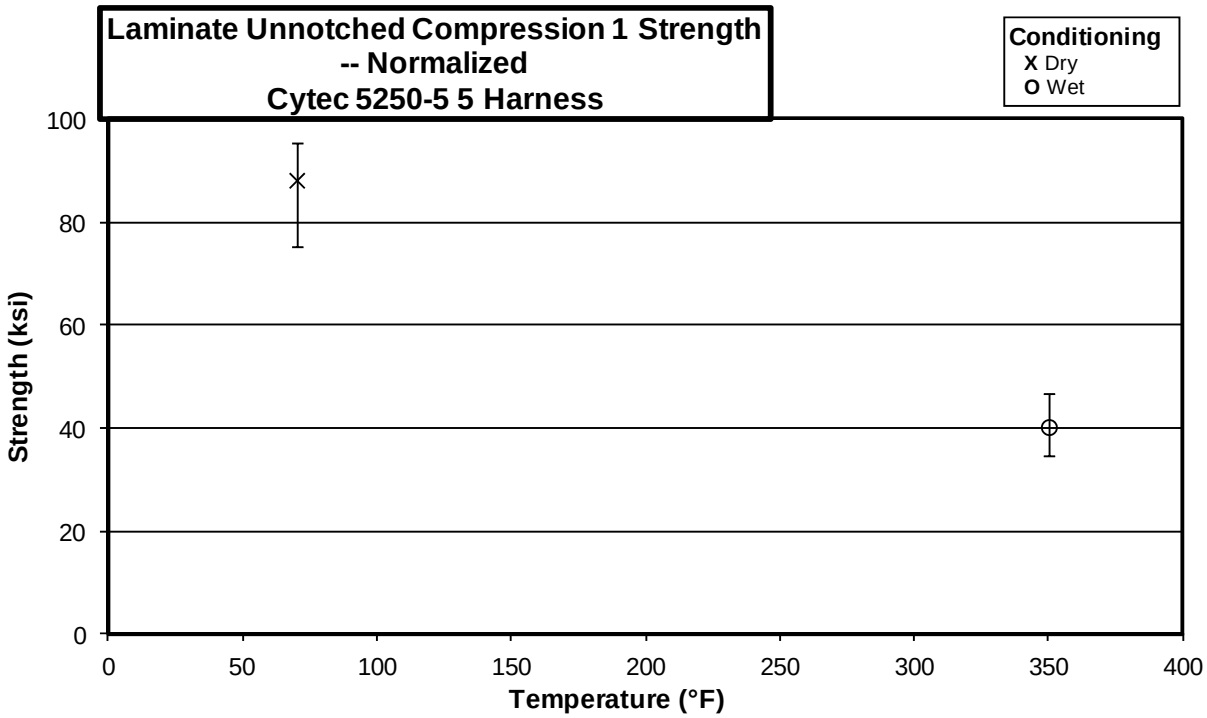


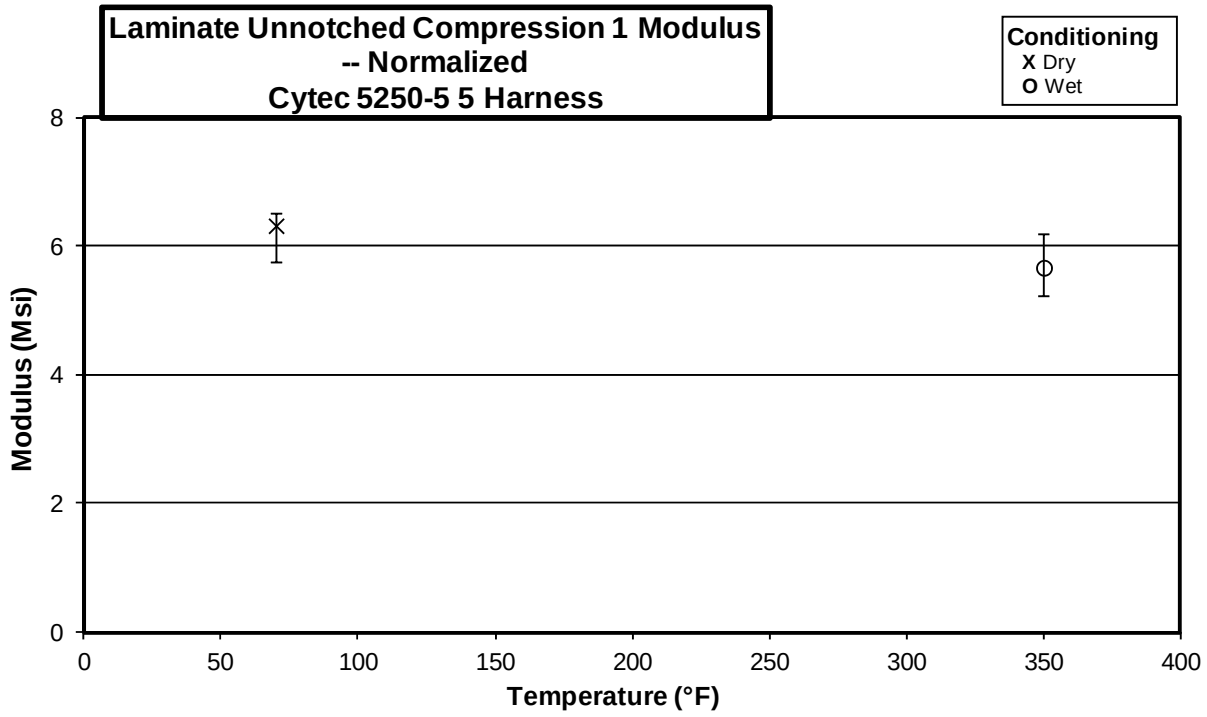
3.8 "40/20/40" Unnotched Tension 3 Properties (UNT3)



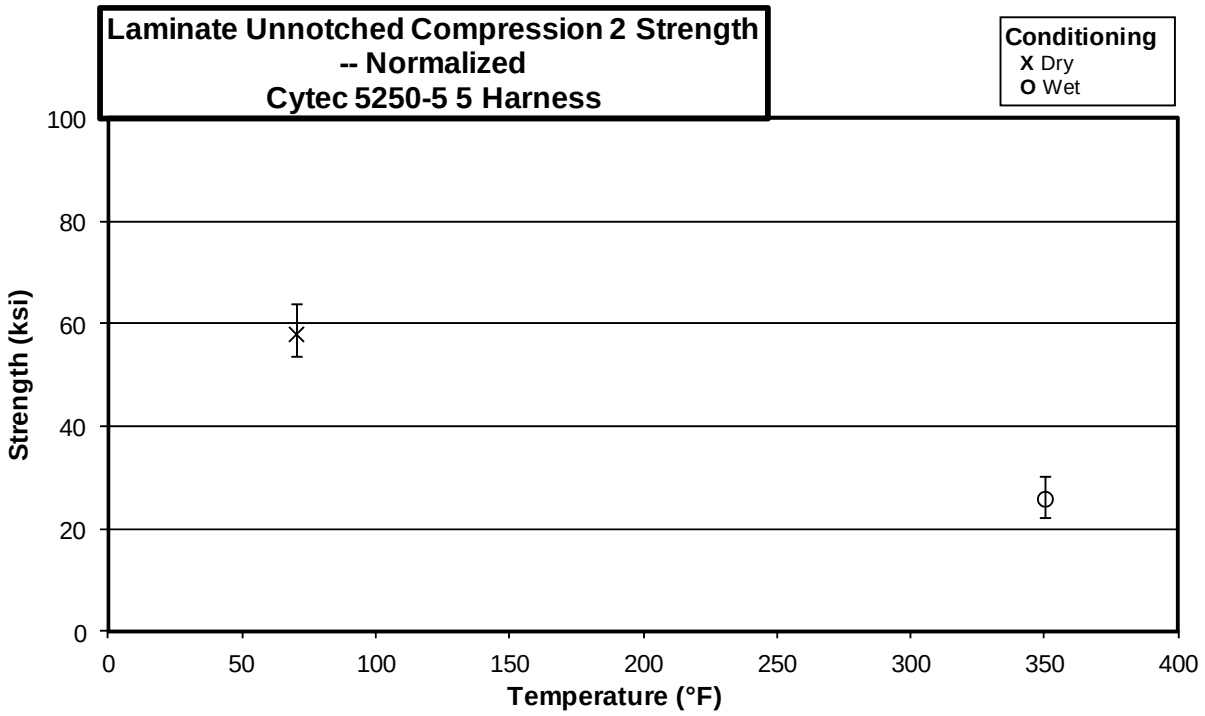


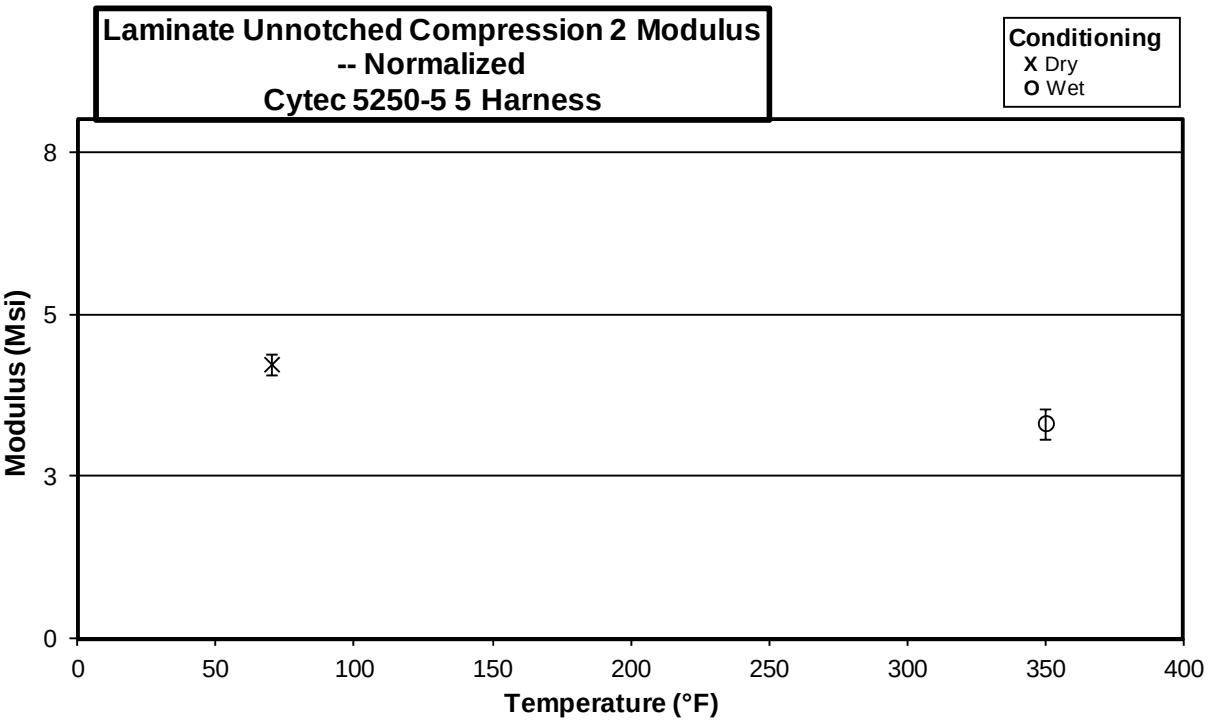
3.9 "25/50/25" Unnotched Compression 1 Properties (UNC1)



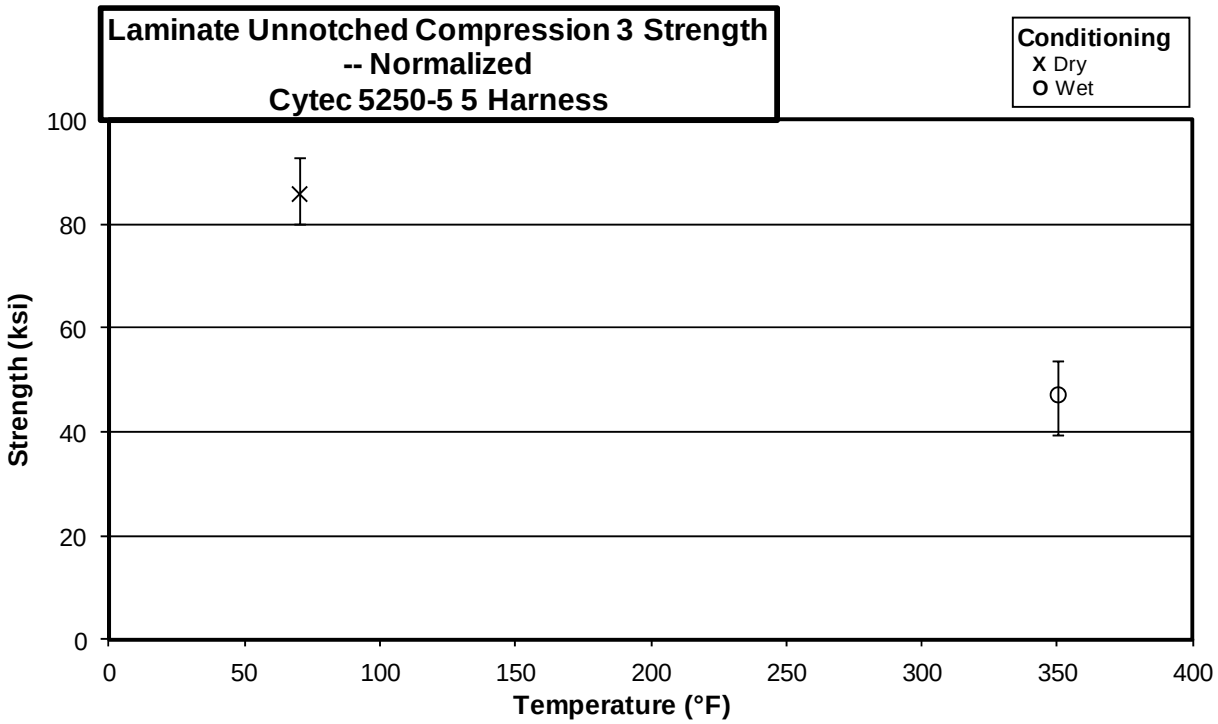


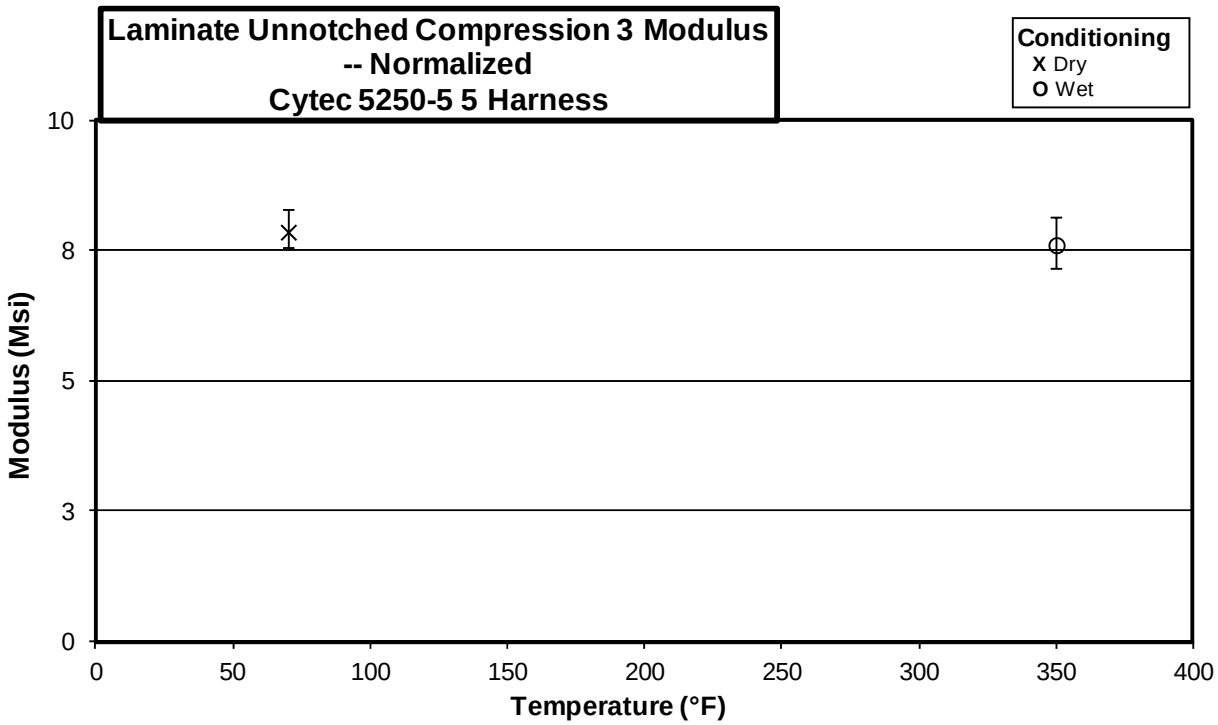
3.10 "10/80/10" Unnotched Compression 2 Properties (UNC2)



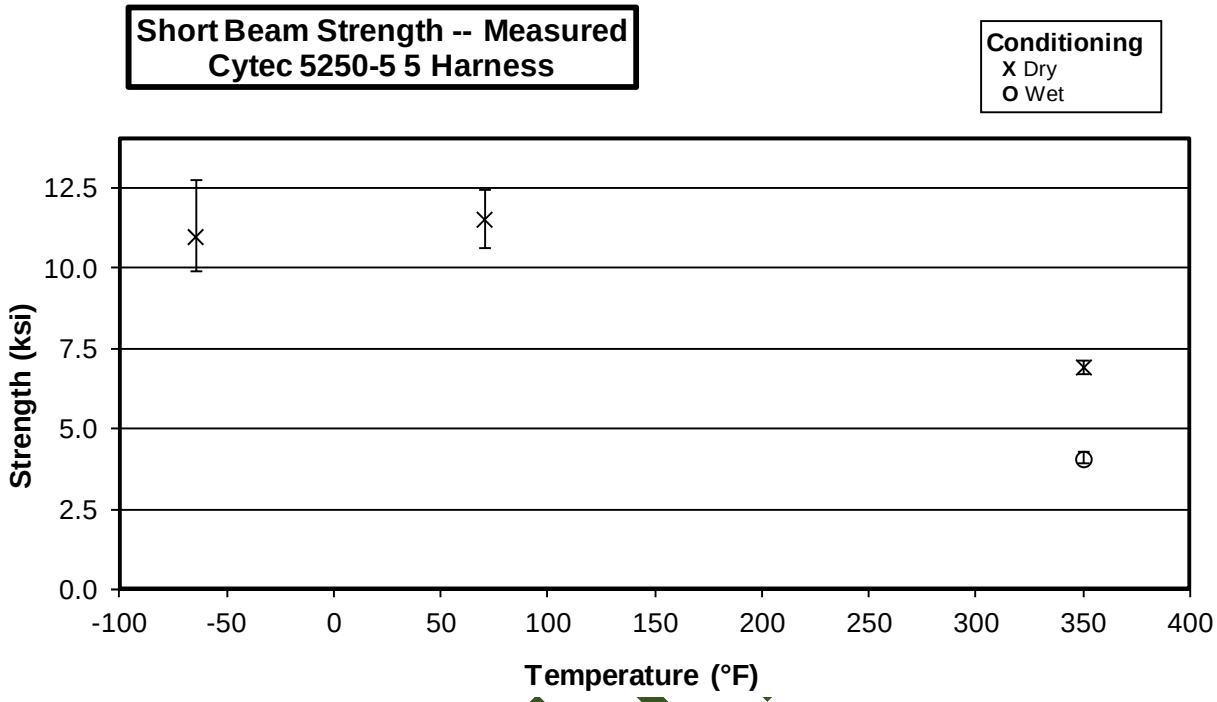


3.11 "40/20/40" Unnotched Compression 3 Properties (UNC3)

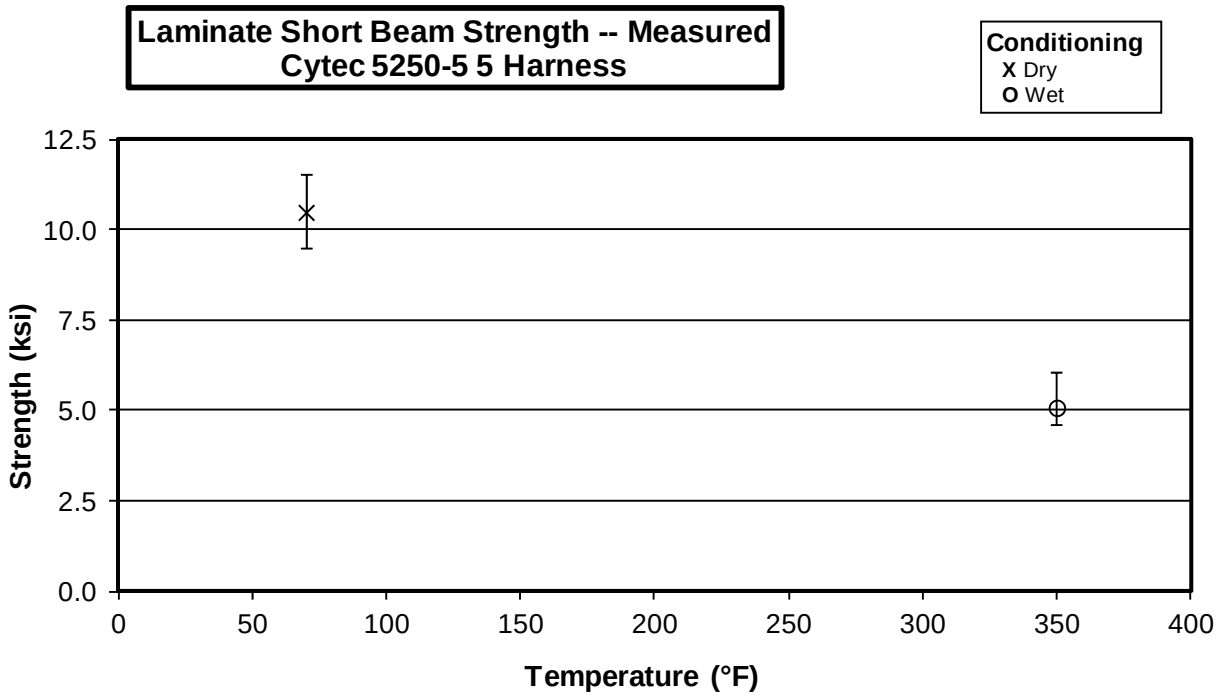




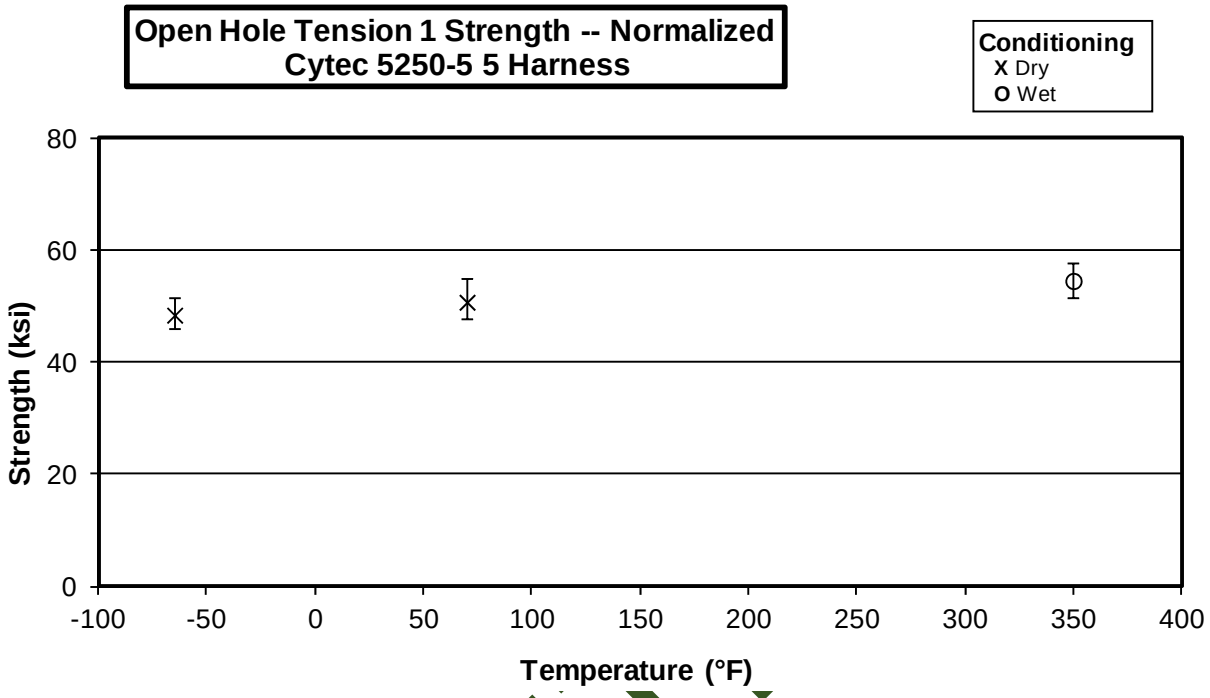
3.12 Lamina Short-Beam Strength Properties (SBS)



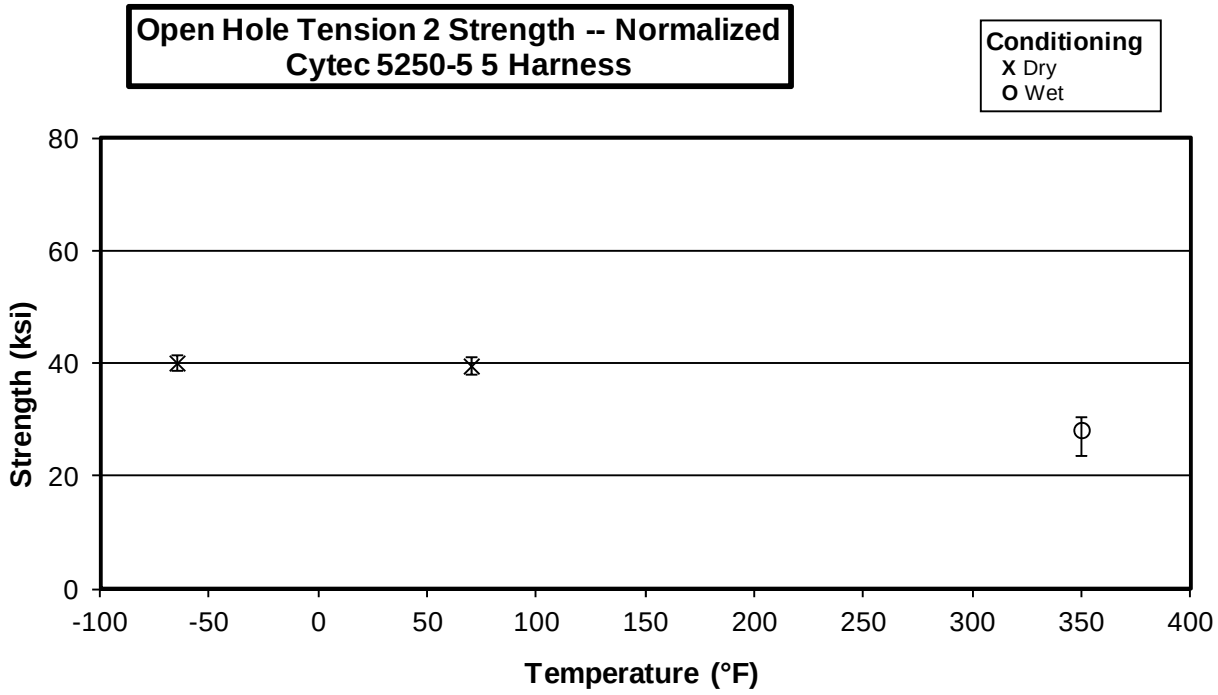
3.13 Laminate Short-Beam Strength Properties (SBS1)



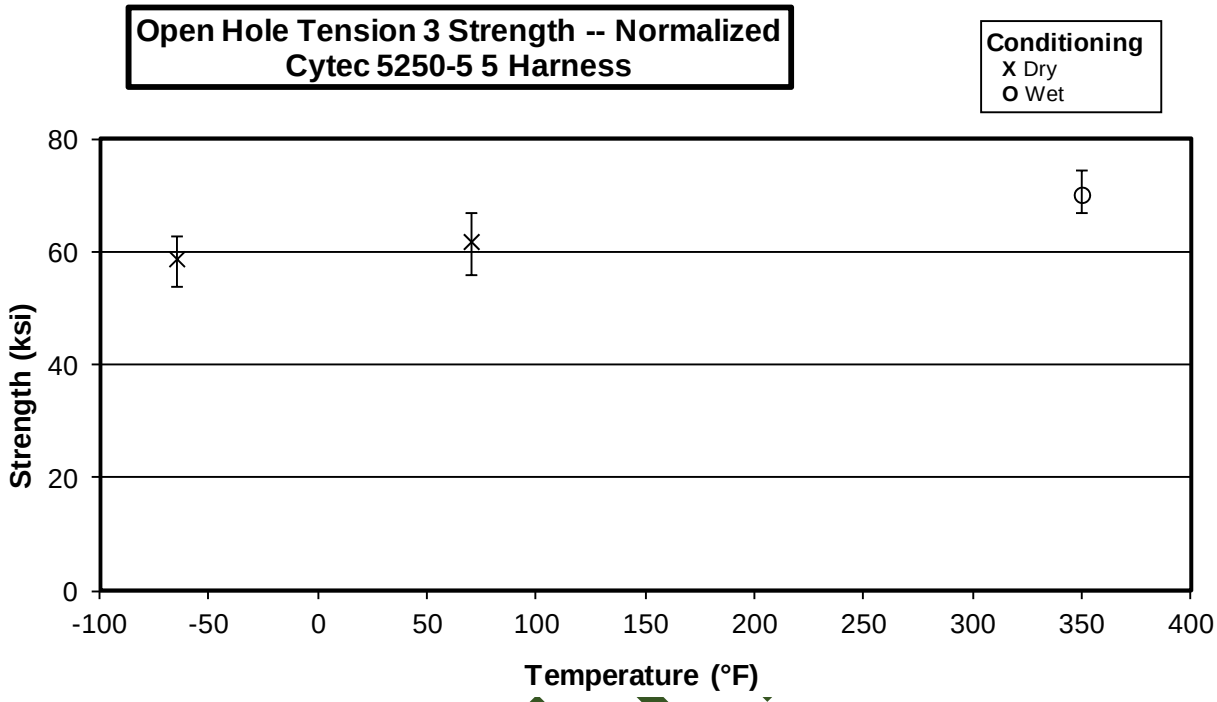
3.14 "25/50/25" Open-Hole Tension 1 Properties (OHT1)



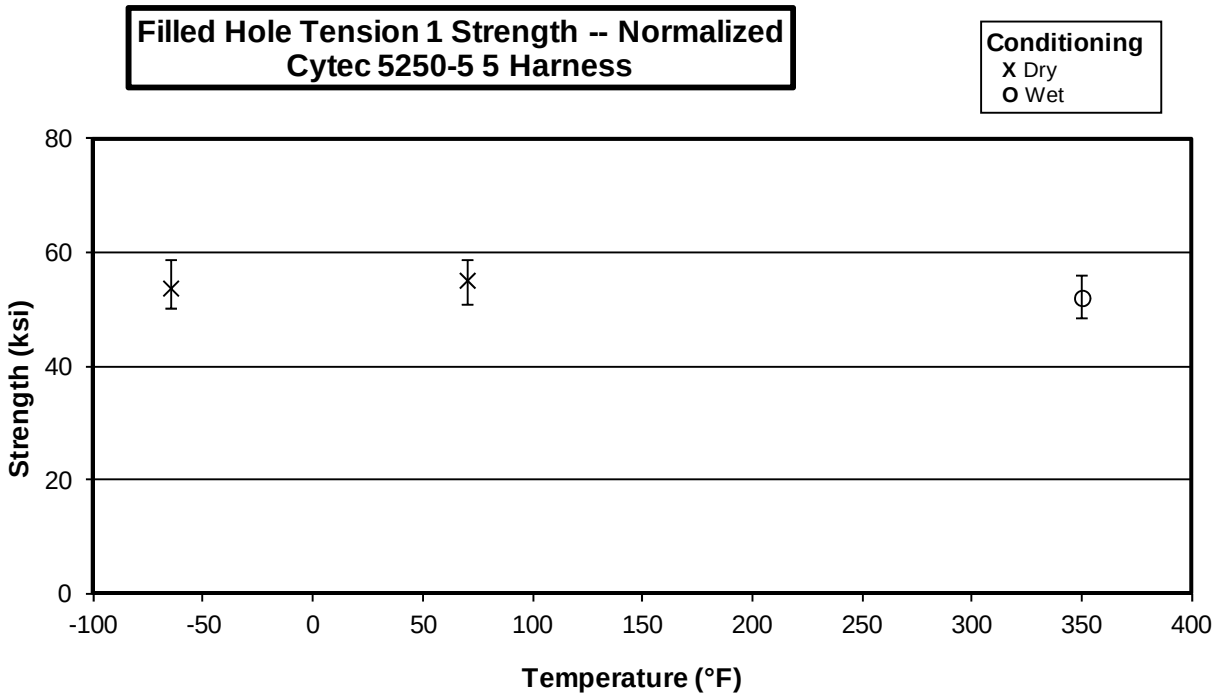
3.15 "10/80/10" Open-Hole Tension 2 Properties (OHT2)



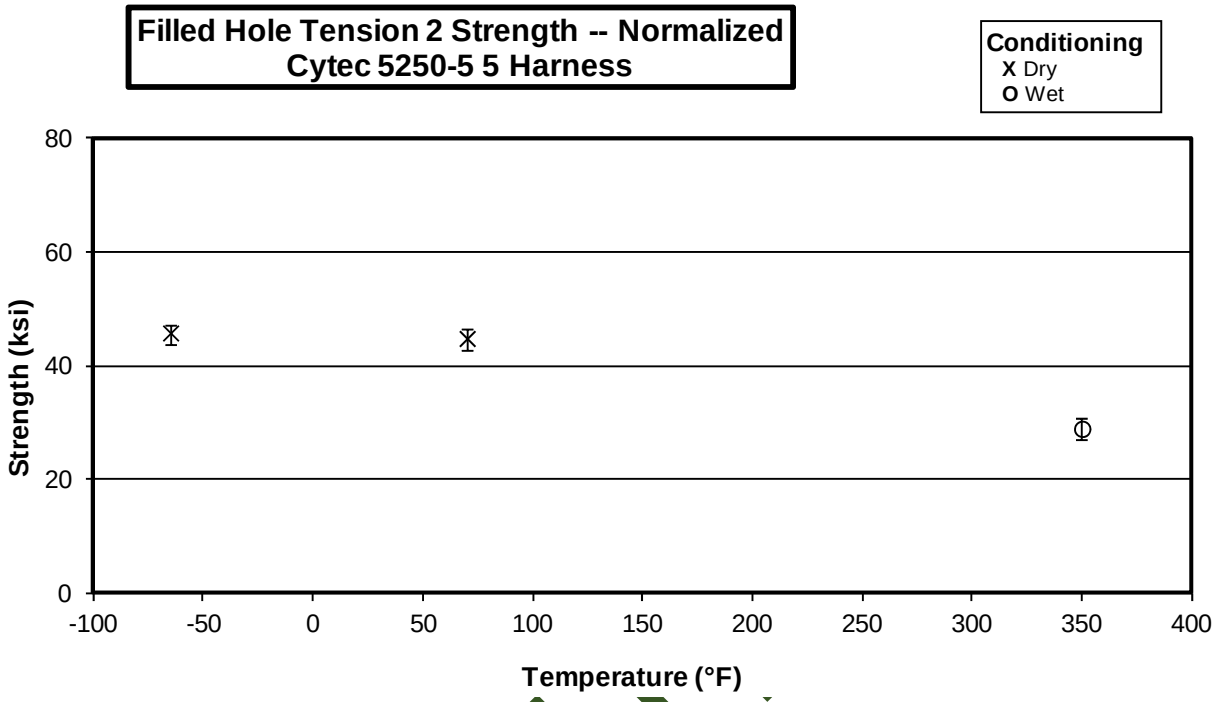
3.16 "40/20/40" Open-Hole Tension 3 Properties (OHT3)



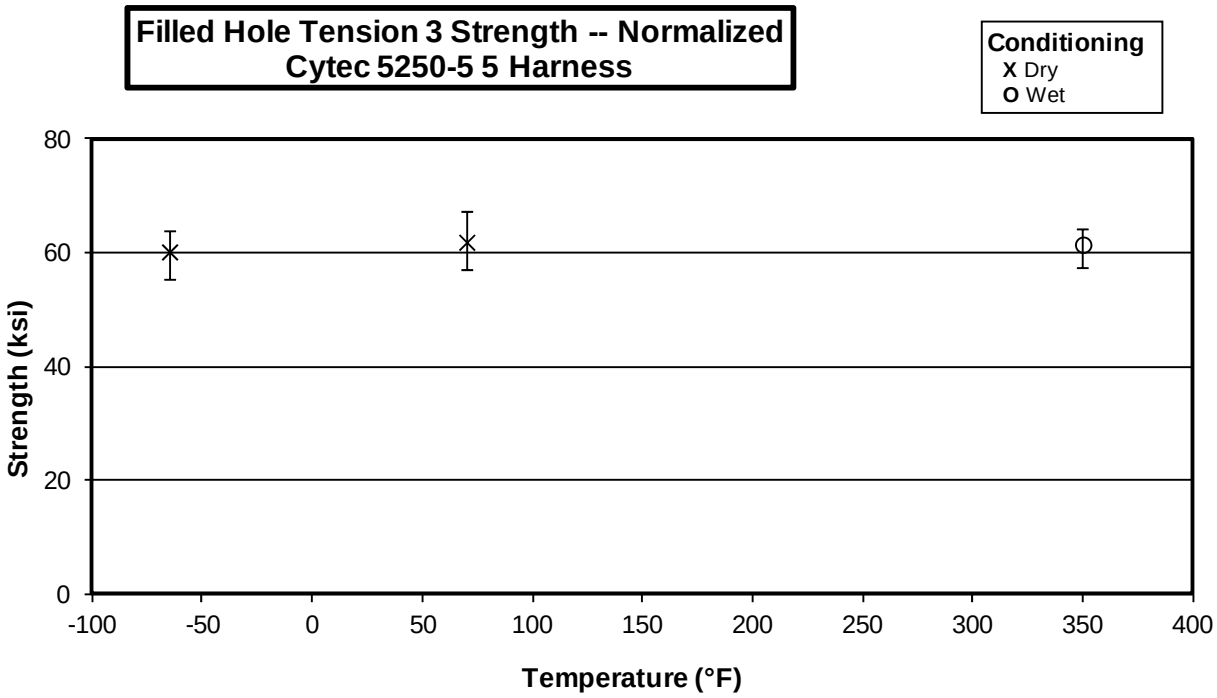
3.17 "25/50/25" Filled-Hole Tension 1 Properties (FHT1)



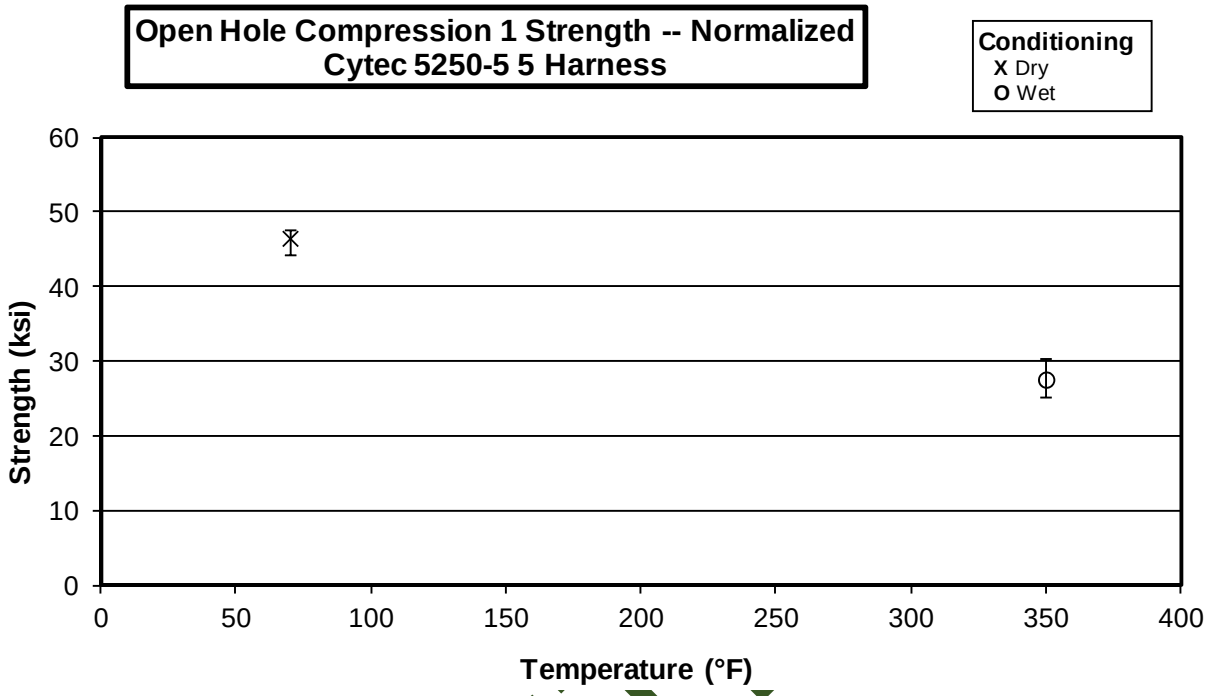
3.18 "10/80/10" Filled-Hole Tension 2 Properties (FHT2)



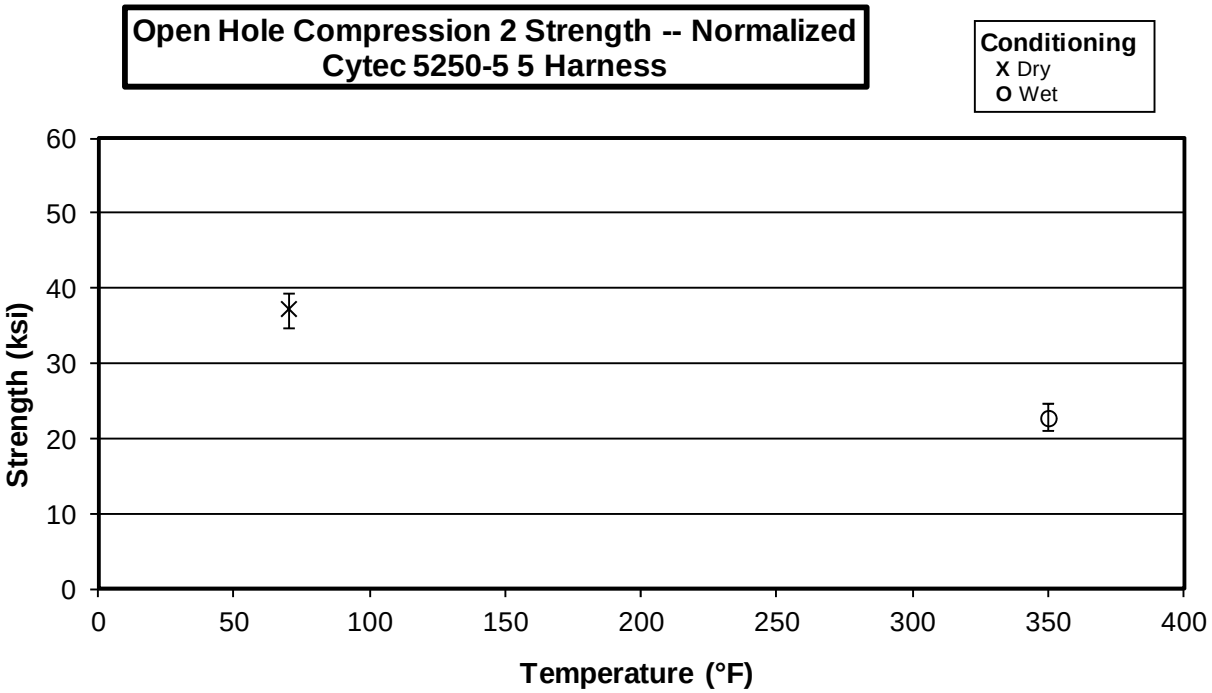
3.19 "40/20/40" Filled-Hole Tension 3 Properties (FHT3)



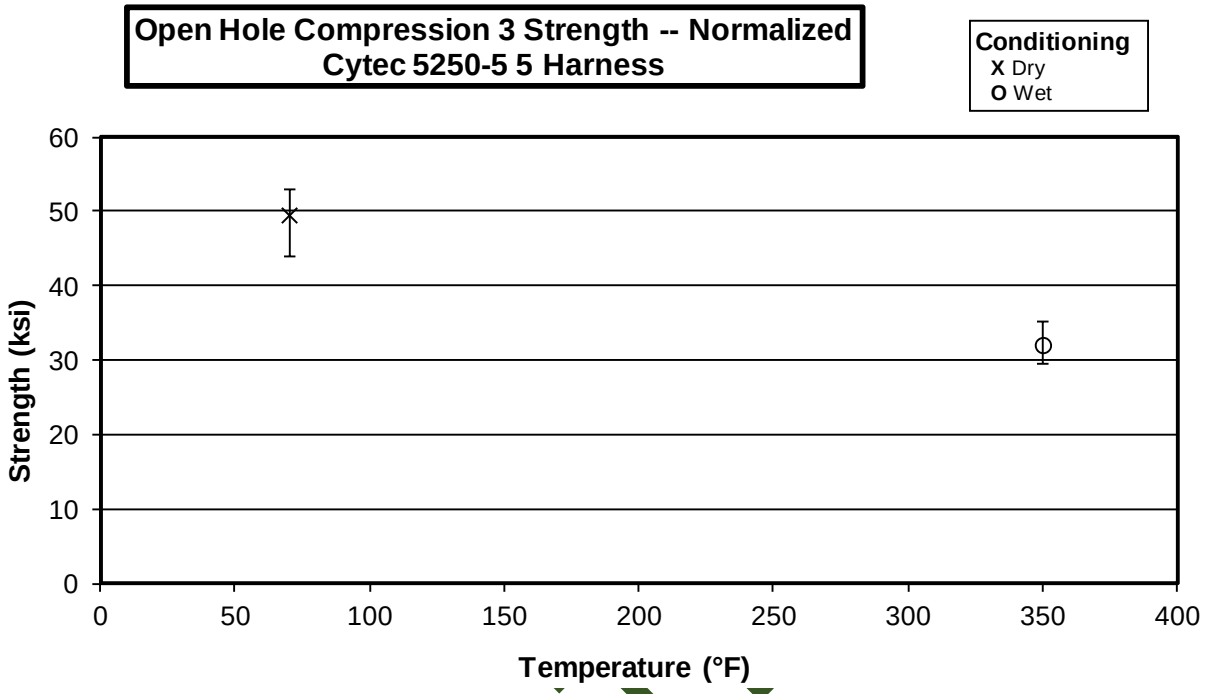
3.20 "25/50/25" Open-Hole Compression 1 Properties (OHC1)



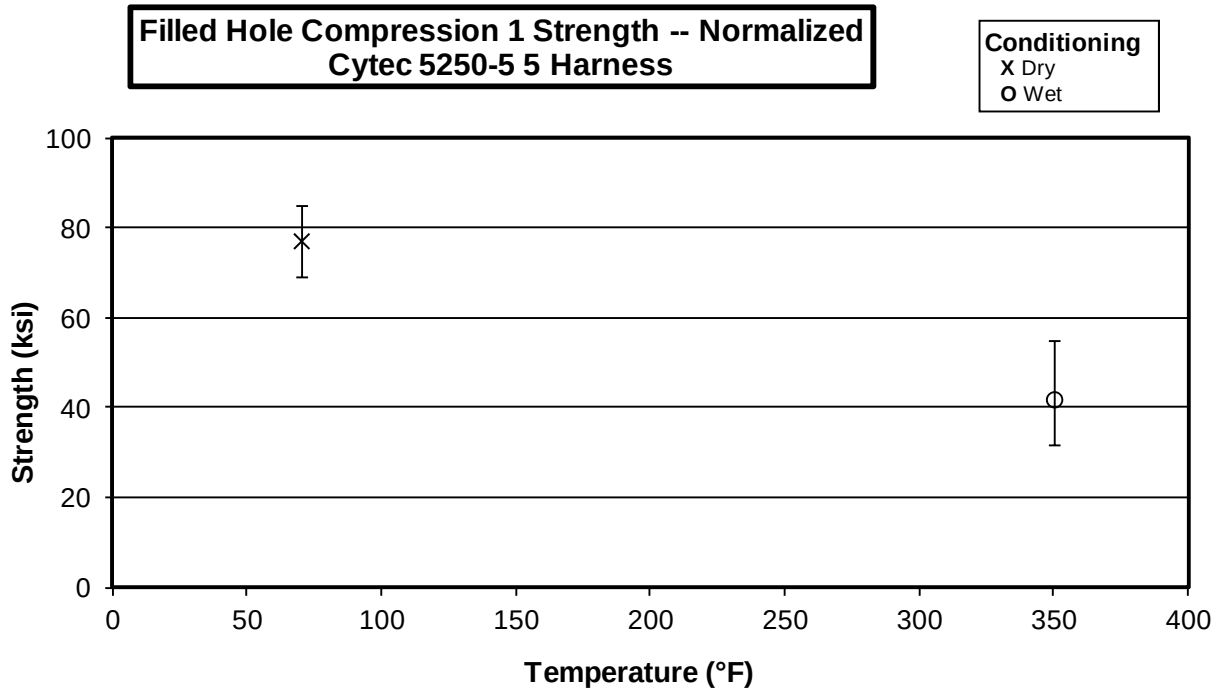
3.21 "10/80/10" Open-Hole Compression 2 Properties (OHC2)



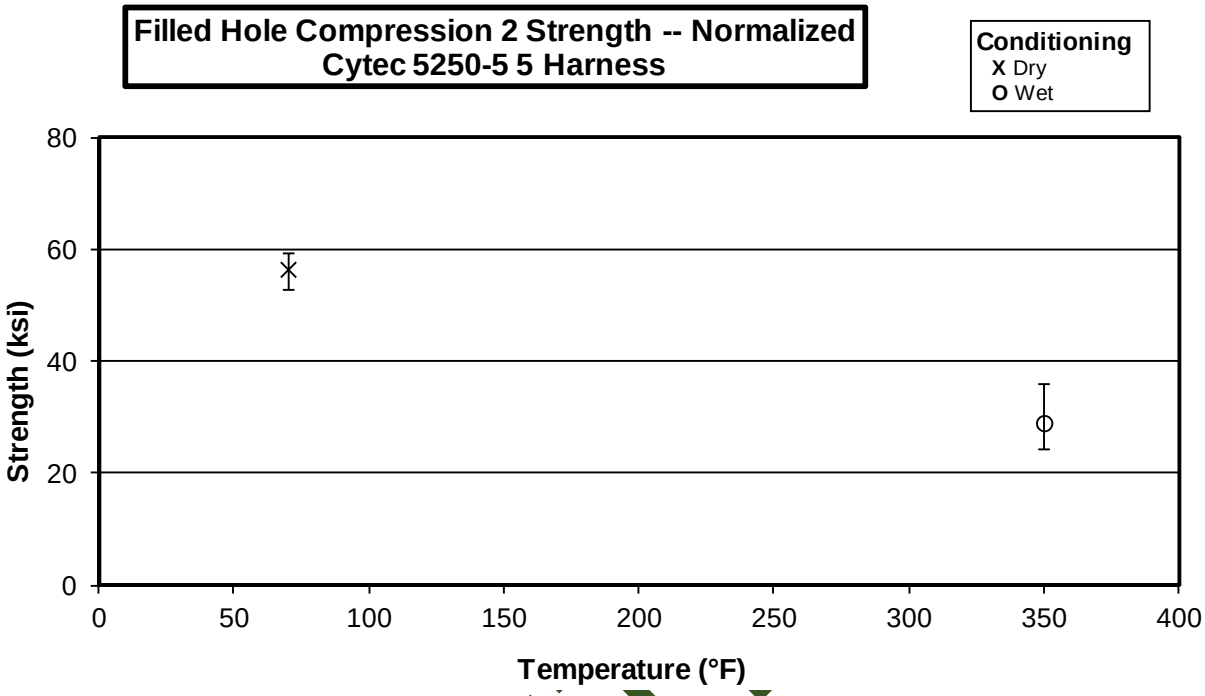
3.22 "40/20/40" Open-Hole Compression 3 Properties (OHC3)



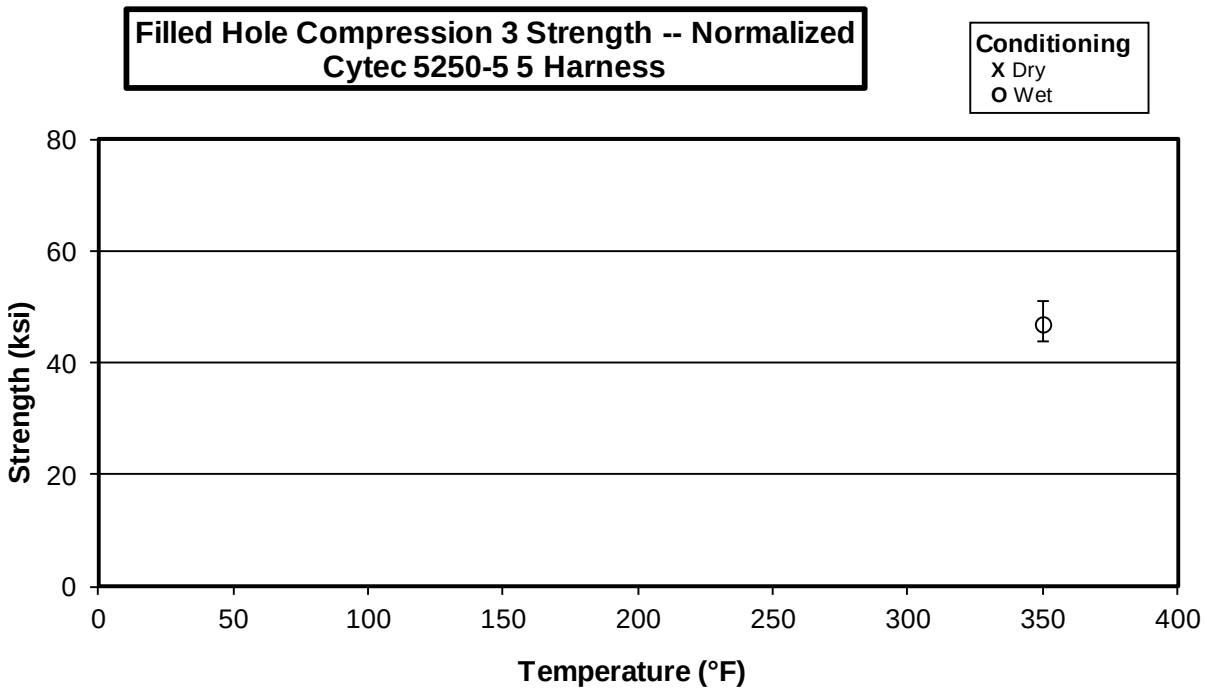
3.23 "25/50/25" Filled-Hole Compression 1 Properties (FHC1)



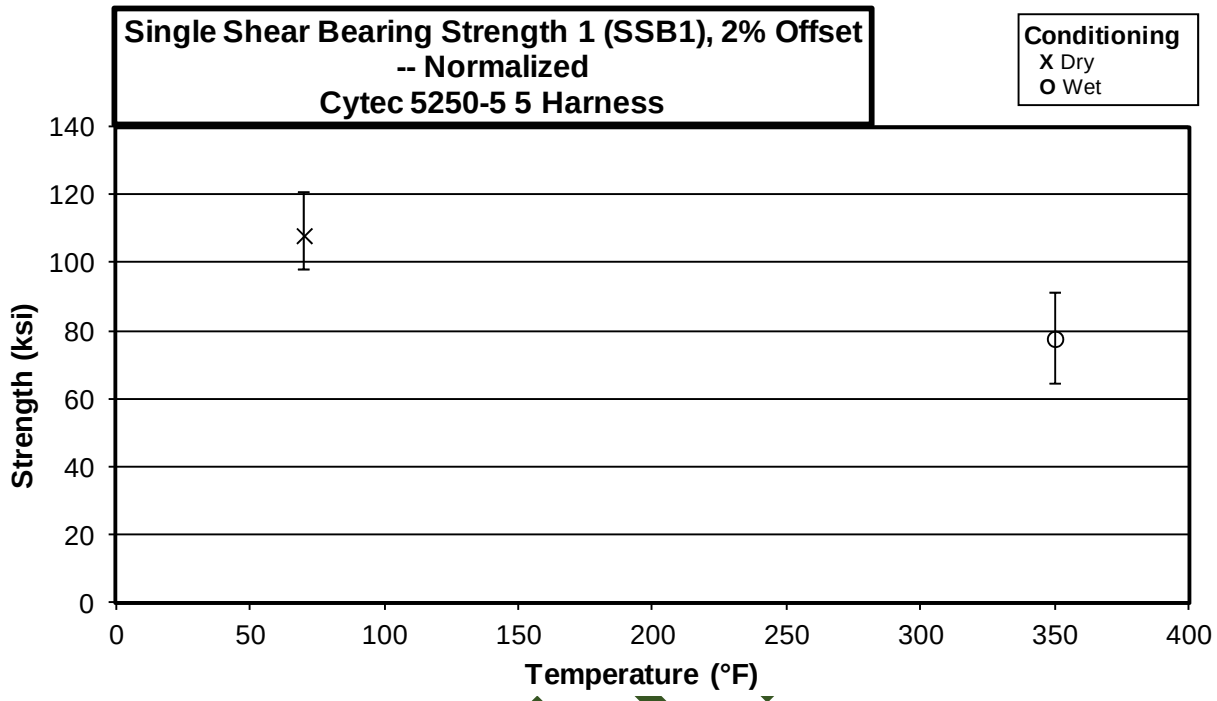
3.24 "10/80/10" Filled-Hole Compression 2 Properties (FHC2)



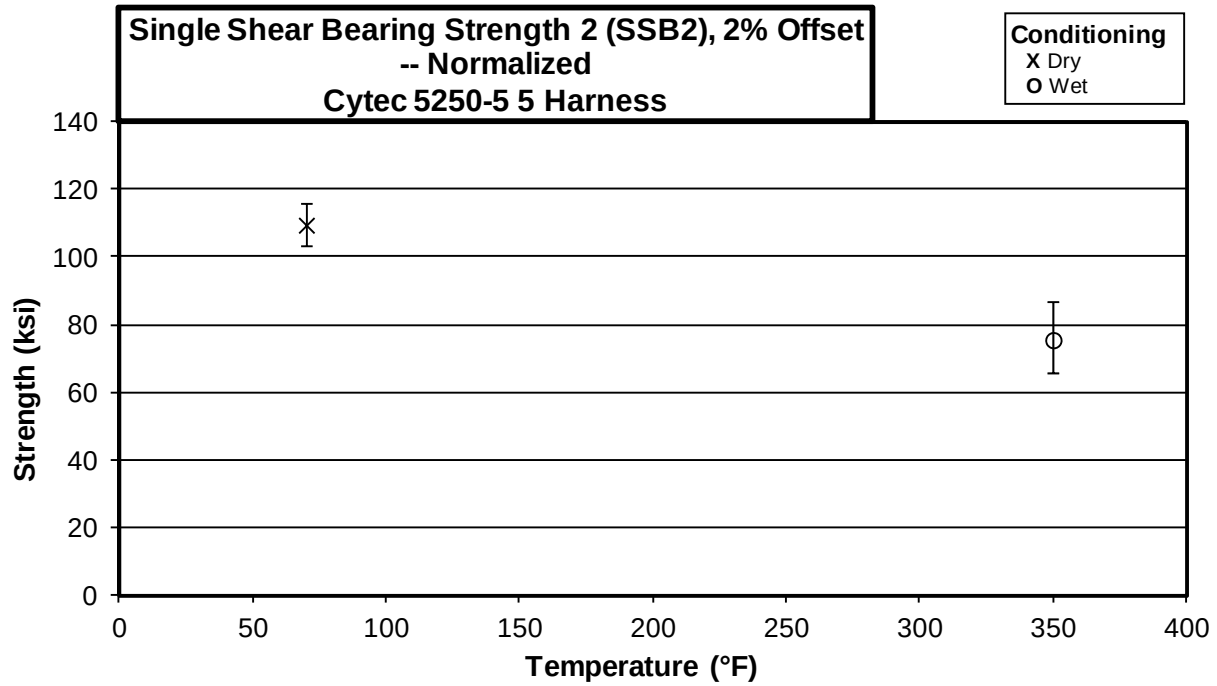
3.25 "40/20/40" Filled-Hole Compression 3 Properties (FHC3)



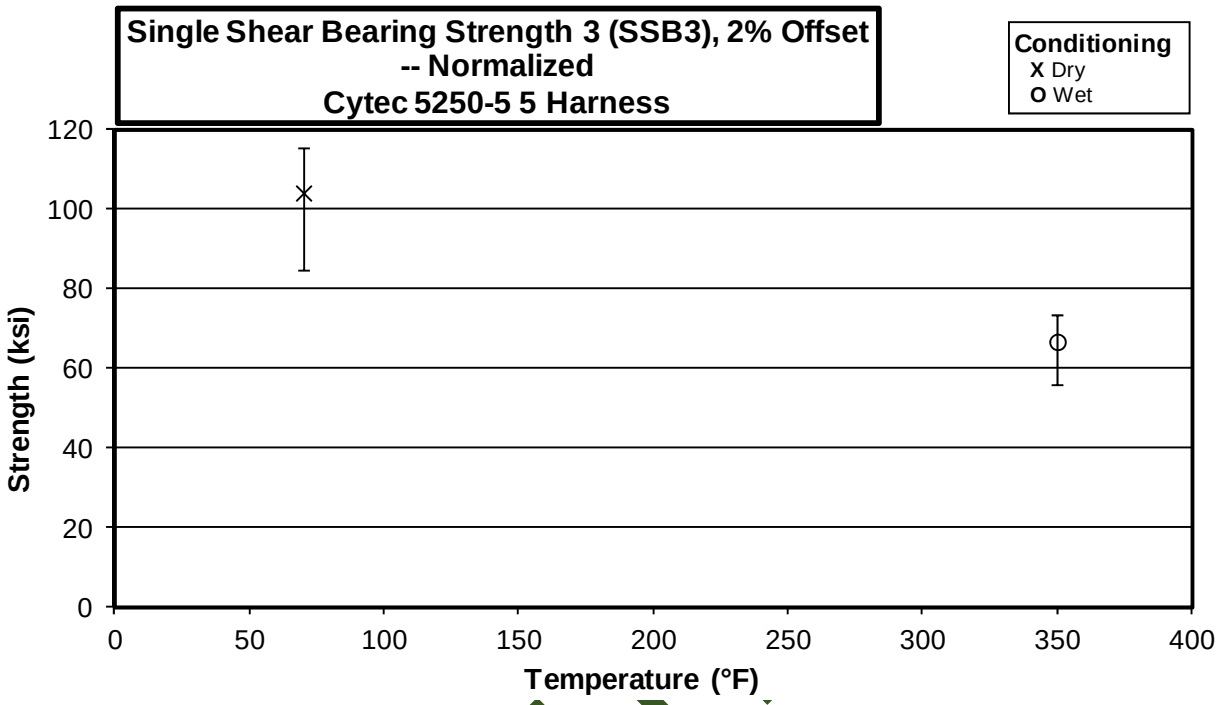
3.26 "25/50/25" Single-Shear Bearing 1 Properties (SSB1)



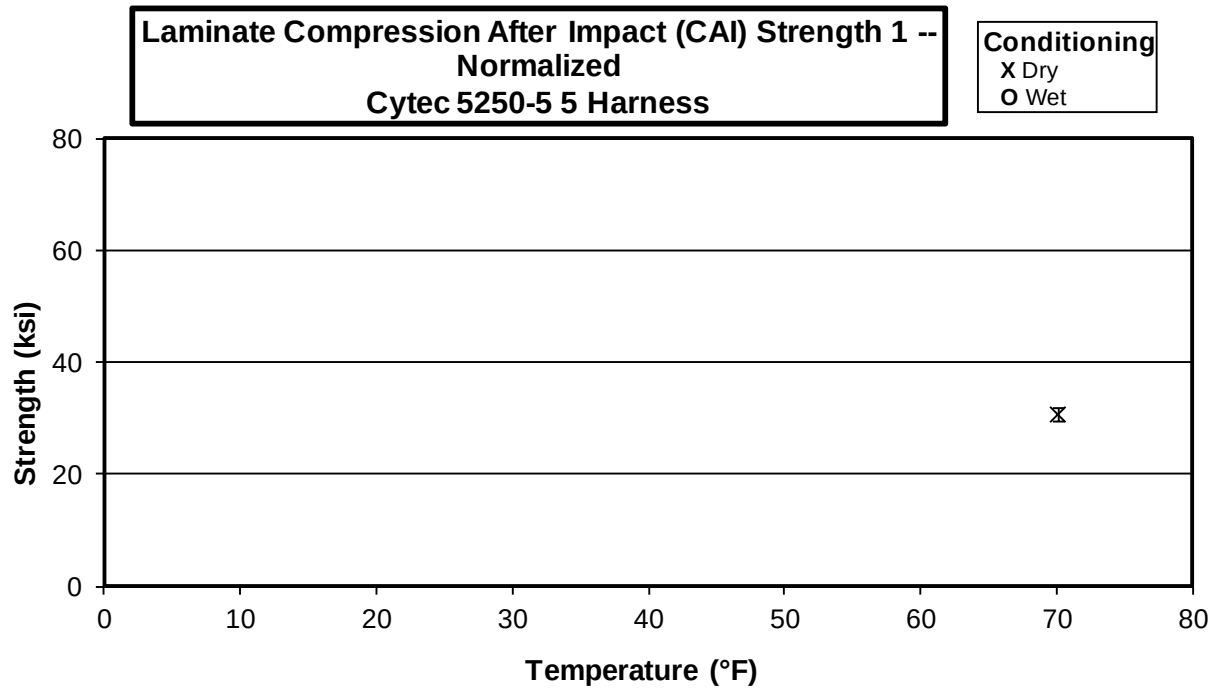
3.27 "10/80/10" Single-Shear Bearing 2 Properties (SSB2)



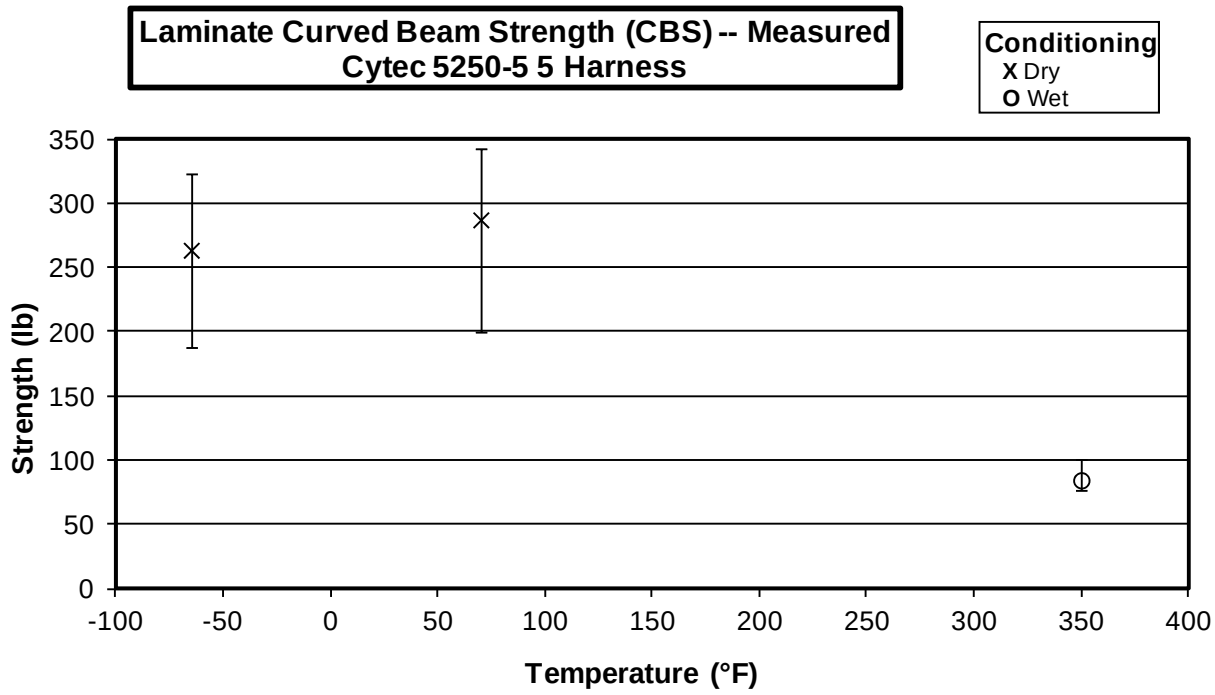
3.28 "40/20/40" Single-Shear Bearing 3 Properties (SSB3)

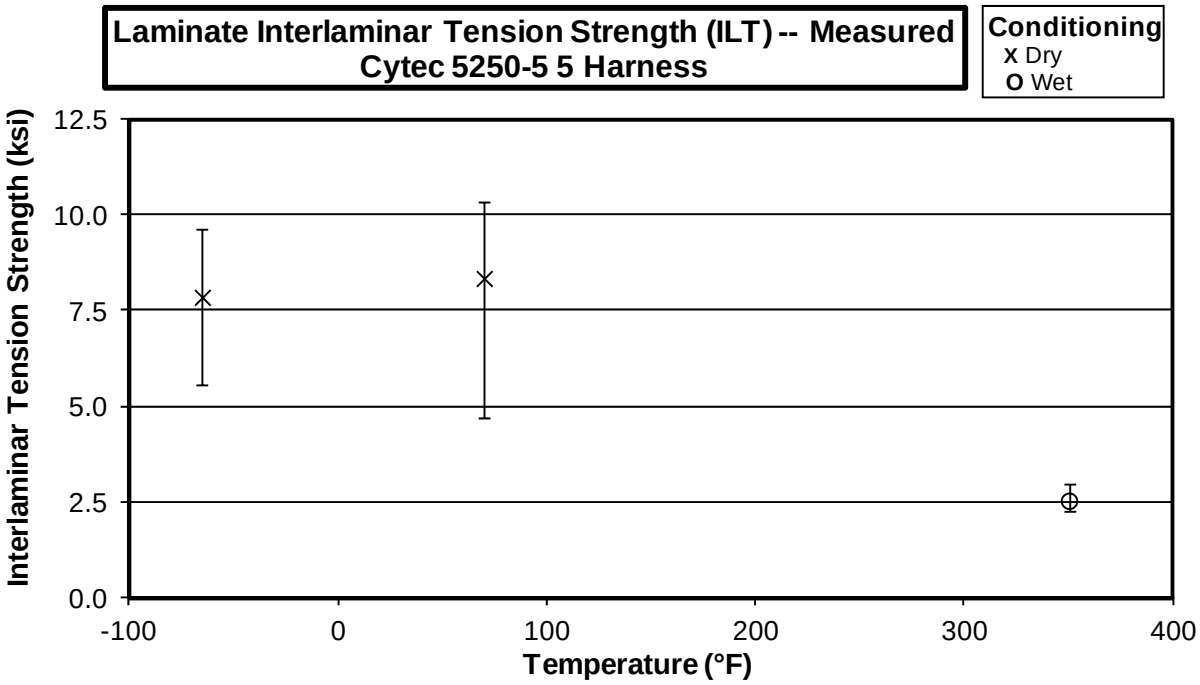


3.29 Compression After Impact 1 Properties (CAI1)



3.30 Interlaminar Tension Properties (ILT)





4. Raw Data

4.1 Warp Tension Properties (WT)

Warp Tension Properties (WT) -- (CTD)
Strength & Modulus
Cytec 5250-5 5 Harness

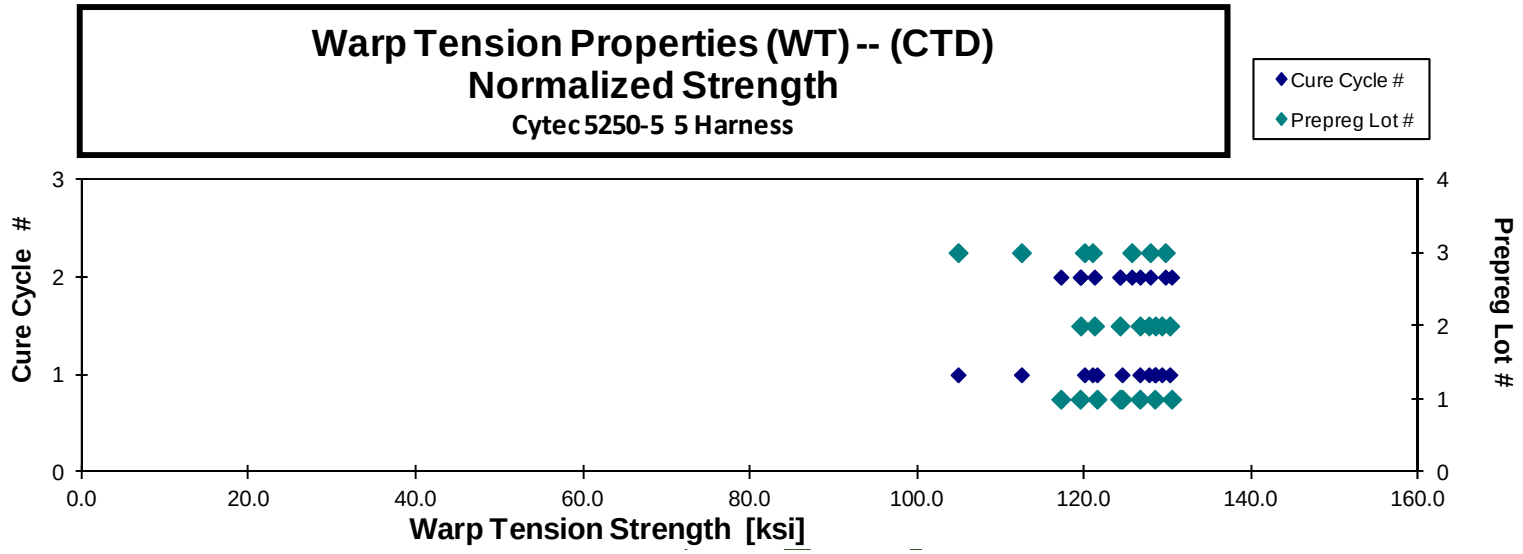
normalizing t_{ply} [in]: 0.0152

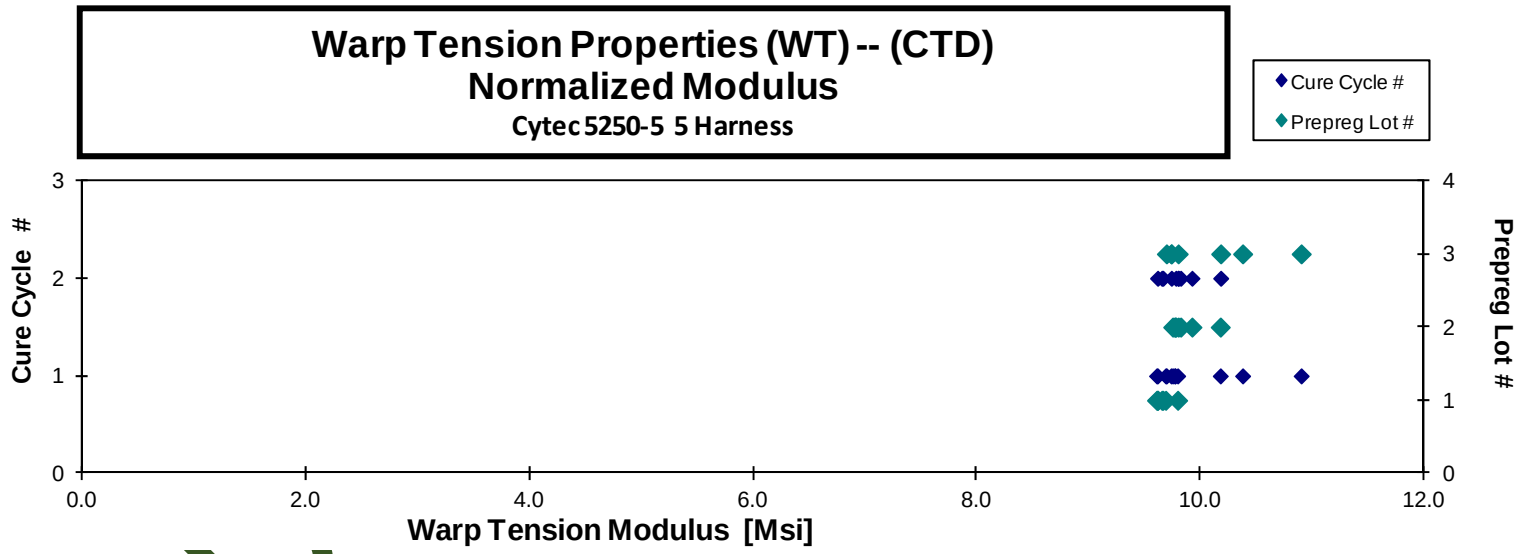
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBJA115B	A	C1	1	1	121.356	9.675	*	0.122	8	LGM	0.0152	121.522	9.688
CNBJA116B	A	C1	1	1	123.801	9.559	0.021	0.122	8	LWB	0.0153	124.530	9.616
CNBJA117B	A	C1	1	1	126.067	9.563	*	0.122	8	LGM	0.0153	126.655	9.607
CNBJA118B	A	C1	1	1	126.581	9.654	*	0.123	8	LGM	0.0154	128.438	9.795
CNBJA215B	A	C2	1	2	118.808	9.560	0.029	0.122	8	LGM	0.0153	119.509	9.617
CNBJA216B	A	C2	1	2	124.248	9.662	*	0.122	8	LGM	0.0152	124.265	9.663
CNBJA217B	A	C2	1	2	116.924	9.632	0.026	0.122	8	LGM	0.0152	117.197	9.654
CNBJA218B	A	C2	1	2	130.879			0.121	8	LGM	0.0152	130.466	
CNBJB115B	B	C1	2	1	127.257	9.736	*	0.122	8	LWT	0.0153	127.745	9.773
CNBJB116B	B	C1	2	1	129.555	9.717	*	0.122	8	LGM	0.0153	130.247	9.769
CNBJB117B	B	C1	2	1	127.979	9.710	*	0.122	8	LGM	0.0153	128.523	9.751
CNBJB118B	B	C1	2	1	129.039	10.157	0.031	0.122	8	LAB	0.0152	129.286	10.177
CNBJB215B	B	C2	2	2	122.327	9.667	*	0.124	8	LAB	0.0154	124.288	9.822
CNBJB216B	B	C2	2	2	125.223	9.809	*	0.123	8	LGM	0.0154	126.681	9.923
CNBJB217B	B	C2	2	2	119.864	9.670	*	0.123	8	LWT	0.0154	121.227	9.780
CNBJB218B	B	C2	2	2	118.887	9.745	*	0.122	8	LGM	0.0153	119.572	9.801
CNBJC115B	C	C1	3	1	119.588	10.775	*	0.123	8	LGM	0.0154	120.981	10.900
CNBJC116B	C	C1	3	1	118.196	10.218	*	0.123	8	LGM	0.0154	120.026	10.377
CNBJC117B	C	C1	3	1	110.375	9.514	*	0.124	8	LGM	0.0155	112.478	9.695
CNBJC118B	C	C1	3	1	103.785	9.634	*	0.123	8	LGM	0.0154	104.894	9.737
CNBJC215B	C	C2	3	2	124.624	9.490	0.022	0.125	8	LGM	0.0156	127.904	9.739
CNBJC216B	C	C2	3	2	126.539	9.931	0.017	0.125	8	LGM	0.0156	129.713	10.180
CNBJC217B	C	C2	3	2	122.189	9.527	0.021	0.125	8	LGM	0.0156	125.689	9.800

CNBJA218B - Tensile modulus and Poisson's ratio are not reported due to biaxial extensometer malfunction.
***Poisson's ratio is not reported due to non-linear data**
CNBJC118B - Specimen reviewed, but no reason to remove.

Average	122.352	9.755	0.024
Standard Dev.	6.280	0.294	0.005
Coeff. of Var. [%]	5.133	3.016	21.022
Min.	103.785	9.490	0.017
Max.	130.879	10.775	0.031
Number of Spec.	23	22	7

$Average_{norm}$	0.0154	123.558	9.857
$Standard\ Dev._{norm}$		6.203	0.305
$Coeff.\ of\ Var.\ [\%]_{norm}$		5.020	3.094
Min.	0.0152	104.894	9.607
Max.	0.0156	130.466	10.900
Number of Spec.		23	22


Warp Tension Properties (WT) -- (CTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Warp Tension Strength [ksi]
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0


Warp Tension Properties (WT) -- (CTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Warp Tension Modulus [Msi]
0.0
2.0
4.0
6.0
8.0
10.0
12.0

Warp Tension Properties (WT) -- (RTD)
Strength & Modulus
Cytec 5250-5 5 Harness

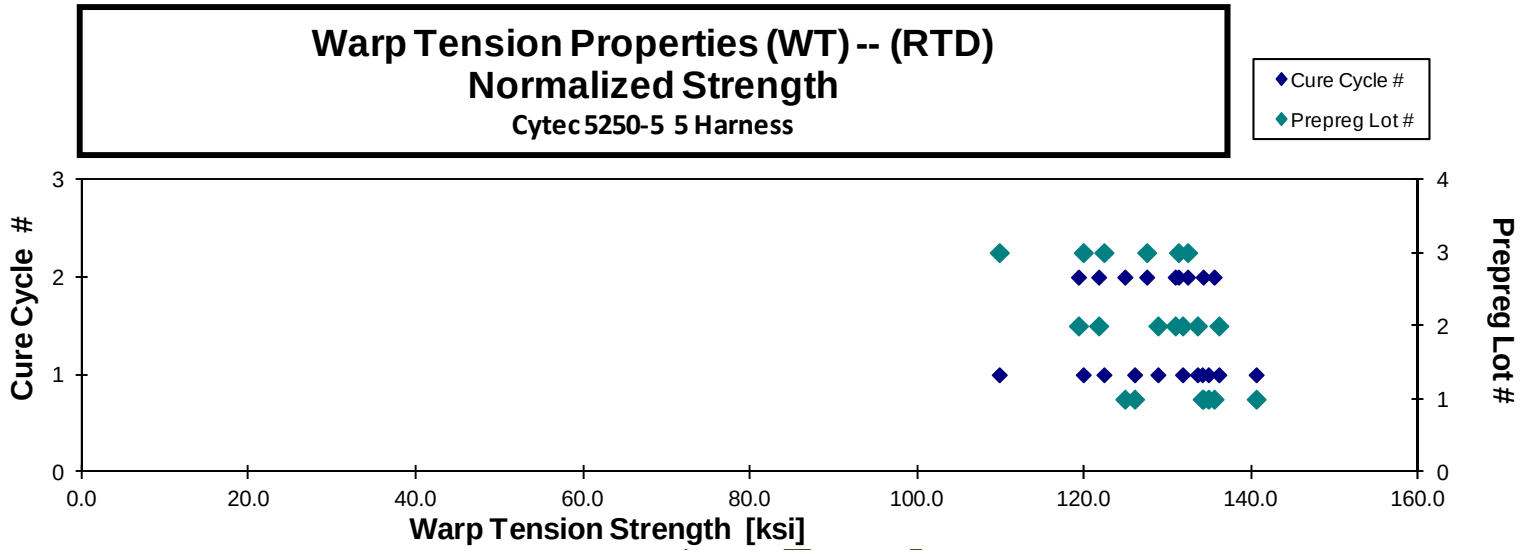
normalizing t_{ply} [in]: 0.0152

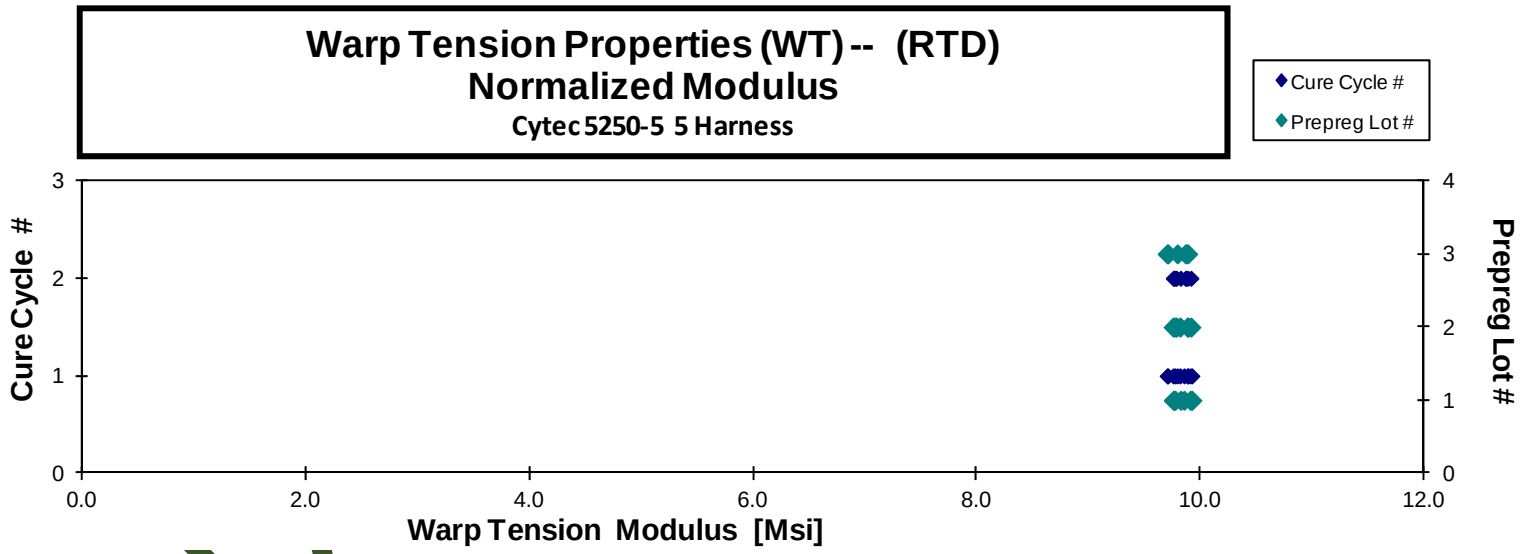
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBJA111A	A	C1	1	1	142.520	10.059	0.038	0.120	8	LAB	0.0150	140.586	9.923
CNBJA112A	A	C1	1	1	135.375	9.946	0.044	0.121	8	LAT	0.0151	134.855	9.908
CNBJA113A	A	C1	1	1	134.161	9.856	0.040	0.122	8	LWT/LWB	0.0152	134.124	9.853
CNBJA114A	A	C1	1	1	126.571	9.814	0.040	0.121	8	LGM	0.0151	126.034	9.772
CNBJA211A	A	C2	1	2	136.189	9.867	*	0.121	8	LGM	0.0151	135.555	9.821
CNBJA212A	A	C2	1	2	134.905	9.805	0.033	0.121	8	LGM	0.0151	134.239	9.756
CNBJA213A	A	C2	1	2	125.155	9.785	0.037	0.121	8	LWB	0.0152	124.863	9.762
CNBJB111A	B	C1	2	1	132.705	9.886	0.043	0.121	8	LWT / LAB	0.0151	131.778	9.817
CNBJB112A	B	C1	2	1	129.569	9.811	0.038	0.121	8	LGM	0.0151	128.823	9.755
CNBJB113A	B	C1	2	1	136.457	9.907	0.034	0.121	8	LAT / LAB	0.0152	136.120	9.883
CNBJB114A	B	C1	2	1	133.538	9.885	0.035	0.122	8	LAT / LWB	0.0152	133.556	9.886
CNBJB211A	B	C2	2	2	133.322	10.098	0.037	0.119	8	LGM	0.0149	130.892	9.914
CNBJB212A	B	C2	2	2	119.822	9.825	0.035	0.121	8	LWT	0.0151	119.313	9.783
CNBJB213A	B	C2	2	2	121.613	9.764	0.034	0.122	8	LWT	0.0152	121.729	9.773
CNBJC111A	C	C1	3	1	118.153	9.562	0.038	0.123	8	LGM	0.0154	119.886	9.702
CNBJC112A	C	C1	3	1	108.814	9.702	0.038	0.123	8	LGM	0.0153	109.828	9.793
CNBJC113A	C	C1	3	1	121.182	9.614	0.034	0.123	8	LGM	0.0153	122.362	9.707
CNBJC211A	C	C2	3	2	125.029	9.696	0.036	0.124	8	LGM	0.0155	127.479	9.886
CNBJC212A	C	C2	3	2	129.385	9.642	0.036	0.124	8	LWB	0.0156	132.382	9.865
CNBJC213A	C	C2	3	2	127.791	9.608	0.034	0.125	8	LWB	0.0156	131.276	9.870

*Poisson's ratio is not reported due to non linear data

Average	128.613	9.807	0.037
Standard Dev.	7.966	0.143	0.003
Coeff. of Var. [%]	6.194	1.455	8.187
Min.	108.814	9.562	0.033
Max.	142.520	10.098	0.044
Number of Spec.	20	20	19

$Average_{norm}$	0.0152	128.784	9.822
$Standard\ Dev._{norm}$		7.374	0.069
$Coeff.\ of\ Var.\ [\%]_{norm}$		5.726	0.702
Min.	0.0149	109.828	9.702
Max.	0.0156	140.586	9.923
Number of Spec.		20	20


Warp Tension Properties (WT) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
Warp Tension Strength [ksi]


Warp Tension Properties (WT) -- (RTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Warp Tension Modulus [Msi]

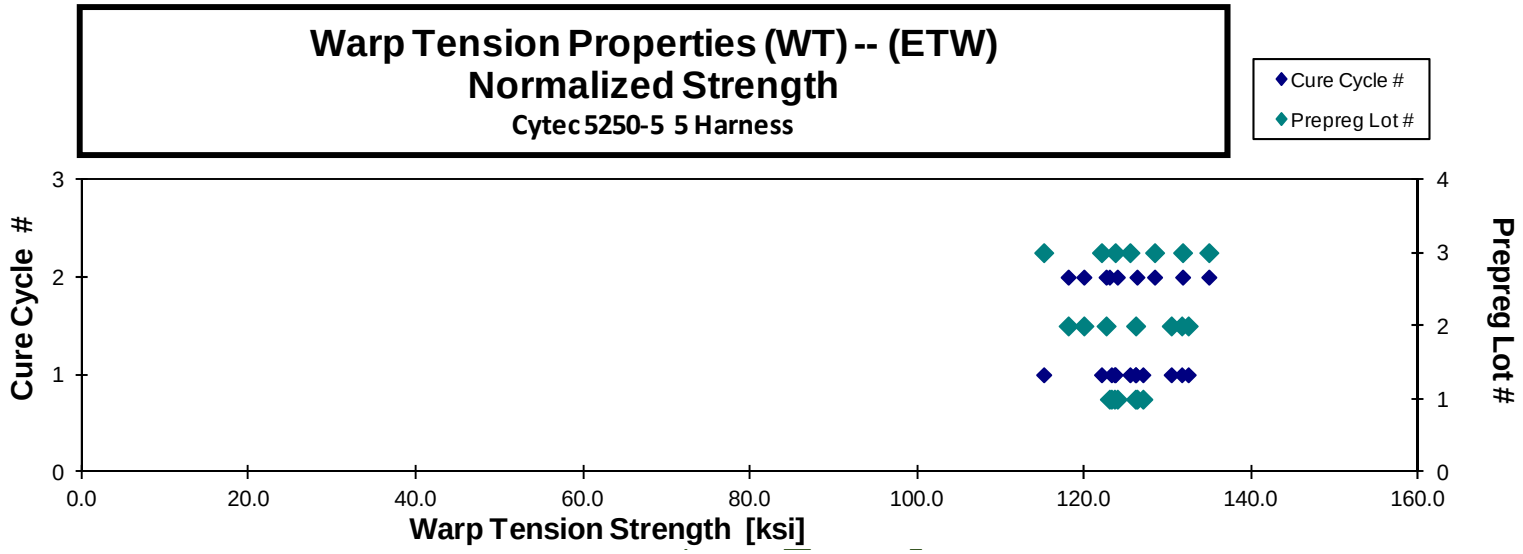
Warp Tension Properties (WT) -- (ETW)
Strength & Modulus
Cytec 5250-5 5 Harness

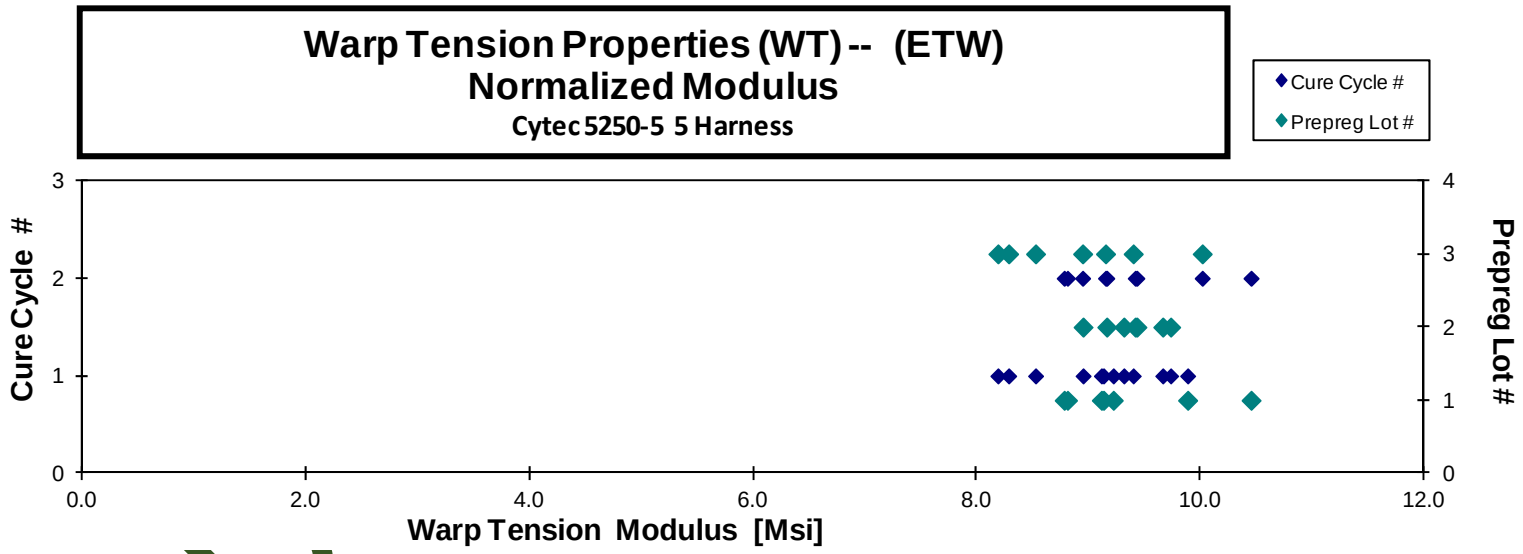
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBJA119J	A	C1	1	1	128.057	9.295	0.121	8	LGM	0.0151	127.022	9.220
CNBJA11AJ	A	C1	1	1	123.161	9.126	0.122	8	LGM	0.0152	123.246	9.132
CNBJA11BJ	A	C1	1	1	124.168	9.928	0.121	8	LWT/LWB	0.0151	123.623	9.885
CNBJA11CJ	A	C1	1	1	127.036	9.179	0.121	8	LWT/LWB	0.0151	126.130	9.114
CNBJA219J	A	C2	1	2	125.108	10.549	0.120	8	LWT/LGM	0.0151	123.959	10.452
CNBJA21AJ	A	C2	1	2	123.827	8.869	0.121	8	LWT/LWB	0.0151	123.012	8.810
CNBJA21BJ	A	C2	1	2	126.312	8.781	0.122	8	LWT/LWB	0.0152	126.312	8.781
CNBJB119J	B	C1	2	1	133.515	9.740	0.121	8	LWB / LWT	0.0151	132.453	9.663
CNBJB11AJ	B	C1	2	1	126.607	9.348	0.121	8	LWB / LWT	0.0151	126.156	9.315
CNBJB11CJ	B	C1	2	1	131.185	8.917	0.122	8	LWB / LWT	0.0153	131.671	8.950
CNBJB11DJ	B	C1	2	1	129.832	9.689	0.122	8	LGM	0.0153	130.420	9.733
CNBJB219J	B	C2	2	2	121.546	9.708	0.118	8	LWB	0.0148	118.081	9.431
CNBJB21AJ	B	C2	2	2	121.419	9.274	0.120	8	LWT/LGM	0.0150	119.955	9.162
CNBJB21BJ	B	C2	2	2	123.261	9.466	0.121	8	LGM	0.0151	122.619	9.417
CNBJC119J	C	C1	3	1	113.333	9.250	0.124	8	LWT/LGM	0.0154	115.150	9.398
CNBJC11AJ	C	C1	3	1	118.751	7.966	0.125	8	LWT/LGM	0.0156	122.071	8.188
CNBJC11BJ	C	C1	3	1	120.259	8.288	0.125	8	LGM	0.0156	123.704	8.525
CNBJC11CJ	C	C1	3	1	122.538	8.090	0.125	8	LWT/LGM	0.0156	125.477	8.284
CNBJC219J	C	C2	3	2	**	8.879	0.125	8		0.0157		9.151
CNBJC21AJ	C	C2	3	2	131.617	9.770	0.125	8	LGM	0.0156	134.918	10.015
CNBJC21BJ	C	C2	3	2	123.910	*	0.126	8	LGM	0.0158	128.427	
CNBJC21CJ	C	C2	3	2	128.319	8.711	0.125	8	LWT/LGM	0.0156	131.783	8.946

***Poisson's ratio is not reported due to anomalous experimental data.**
****Tensile strength is not reported due to specimen slippage during testing.**
CNBJC21BJ - Tensile modulus and Poisson's ratio are not reported because strain gages broke while soaking.

Average	124.941	9.182	$Average_{norm}$	0.0153	125.533	9.218
Standard Dev.	4.716	0.627	$Standard\ Dev._{norm}$		4.922	0.554
Coeff. of Var. [%]	3.774	6.830	$Coeff.\ of\ Var.\ [\%]_{norm}$		3.921	6.007
Min.	113.333	7.966	Min.	0.0148	115.150	8.188
Max.	133.515	10.549	Max.	0.0158	134.918	10.452
Number of Spec.	21	21	Number of Spec.		21	21


Warp Tension Properties (WT) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
Warp Tension Strength [ksi]


Warp Tension Properties (WT) -- (ETW)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Warp Tension Modulus [Msi]

4.2 Fill Tension Properties (FT)

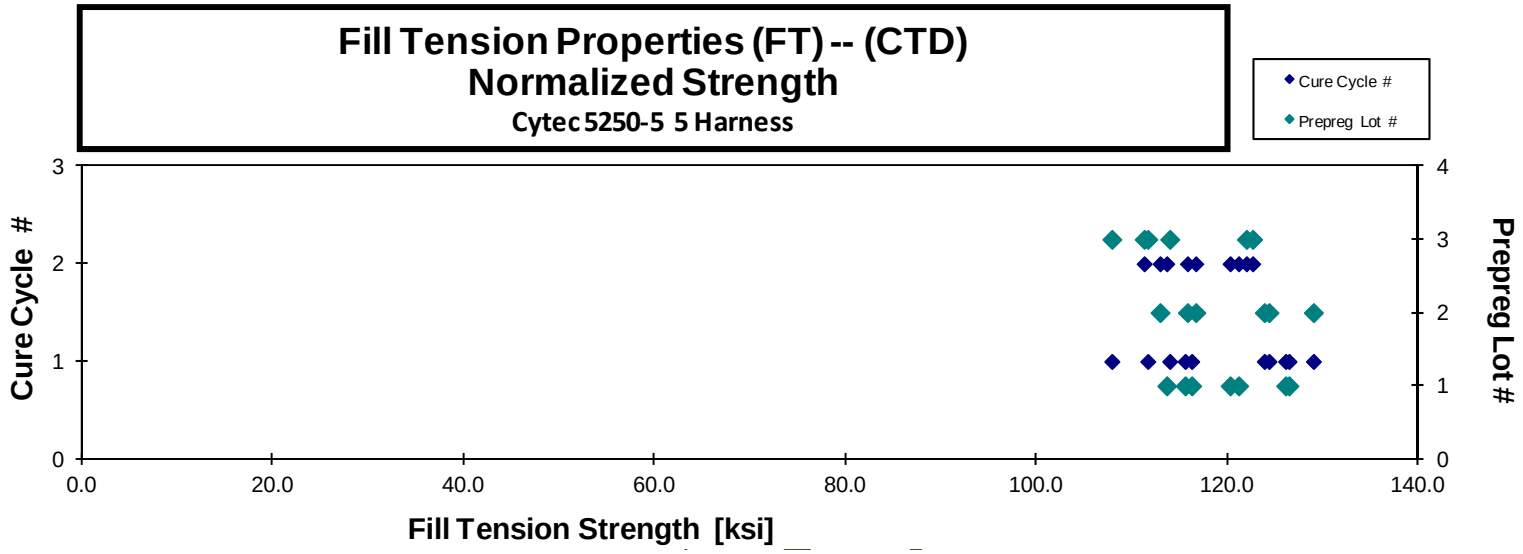
Fill Tension Properties (FT) -- (CTD)
Strength & Modulus
Cytec 5250-5 5 Harness

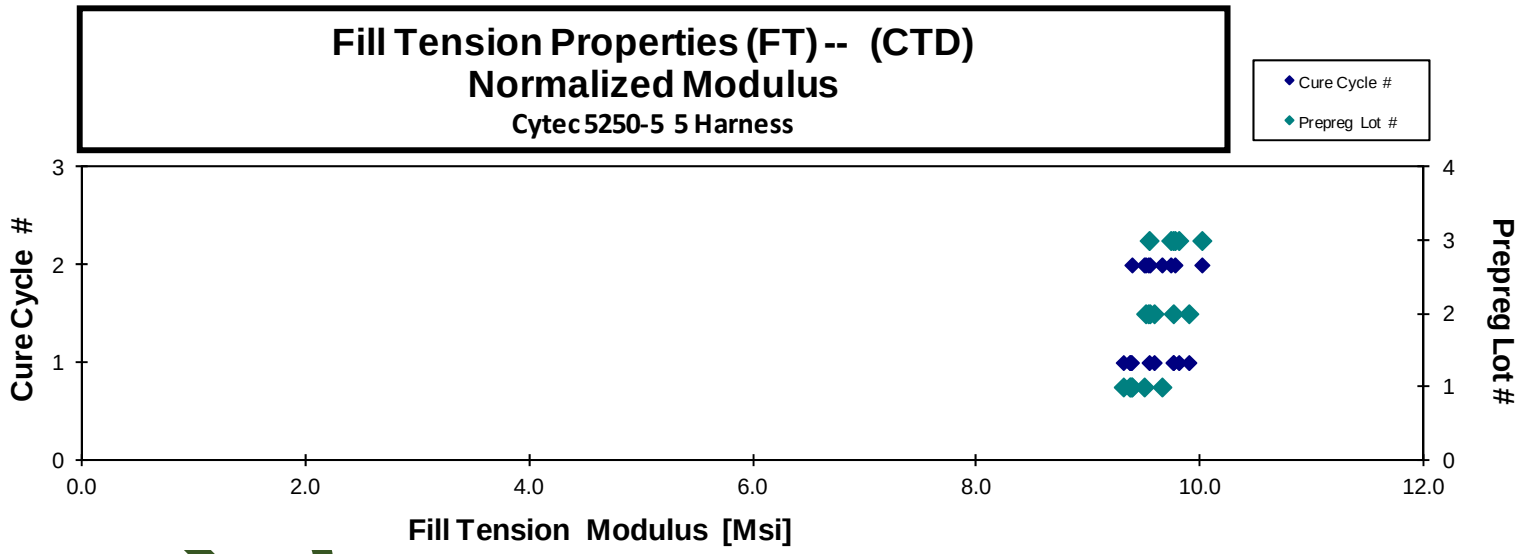
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBUA116B	A	C1	1	1	126.337	9.373	0.122	8	LGM	0.0152	126.458	9.382
CNBUA117B	A	C1	1	1	116.133	9.354	0.121	8	LGM	0.0151	115.575	9.310
CNBUA118B	A	C1	1	1	116.582	9.392	0.121	8	LGM	0.0152	116.262	9.366
CNBUA119B	A	C1	1	1	126.411	9.395	0.121	8	LAT	0.0152	126.100	9.372
CNBUA216B	A	C2	1	2	113.539	9.378	0.122	8	LGM	0.0152	113.647	9.387
CNBUA217B	A	C2	1	2	120.795	9.696	0.121	8	LWB	0.0151	120.282	9.655
CNBUA218B	A	C2	1	2	122.471	9.598	0.120	8	LWT	0.0150	121.179	9.496
CNBUB116B	B	C1	2	1	124.709	9.650	0.121	8	LGM	0.0151	123.871	9.585
CNBUB117B	B	C1	2	1	130.225	9.849	0.120	8	LAT	0.0151	129.012	9.757
CNBUB118B	B	C1	2	1	125.689	10.001	0.120	8	LAT / LWB	0.0150	124.362	9.896
CNBUB216B	B	C2	2	2	115.642	9.424	0.123	8	LGM	0.0153	116.688	9.509
CNBUB217B	B	C2	2	2	111.903	9.459	0.123	8	LWT / LGM	0.0153	112.946	9.547
CNBUB218B	B	C2	2	2	114.794	9.448	0.123	8	LWT / LGM	0.0153	115.817	9.532
CNBUC116B	C	C1	3	1	111.965	9.373	0.124	8	LWB	0.0155	113.960	9.540
CNBUC117B	C	C1	3	1	106.208	9.652	0.124	8	LGM	0.0154	107.897	9.805
CNBUC118B	C	C1	3	1	110.552	9.658	0.123	8	LGM	0.0154	111.658	9.755
CNBUC216B	C	C2	3	2	107.837	9.702	0.125	8	LGM	0.0157	111.280	10.012
CNBUC217B	C	C2	3	2	118.740	9.474	0.125	8	LGM	0.0156	121.995	9.734
CNBUC218B	C	C2	3	2	119.263	9.502	0.125	8	LGM	0.0156	122.646	9.771

Average	117.884	9.546	
Standard Dev.	6.816	0.182	
Coeff. of Var. [%]	5.782	1.902	
Min.	106.208	9.354	
Max.	130.225	10.001	
Number of Spec.	19	19	

$Average_{norm}$	0.0153	118.507	9.601
$Standard\ Dev._{norm}$		5.986	0.199
$Coeff.\ of\ Var.\ [\%]_{norm}$		5.051	2.072
Min.	0.0150	107.897	9.310
Max.	0.0157	129.012	10.012
Number of Spec.		19	19


Fill Tension Properties (FT) -- (CTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Fill Tension Strength [ksi]


Fill Tension Properties (FT) -- (CTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Fill Tension Modulus [Msi]

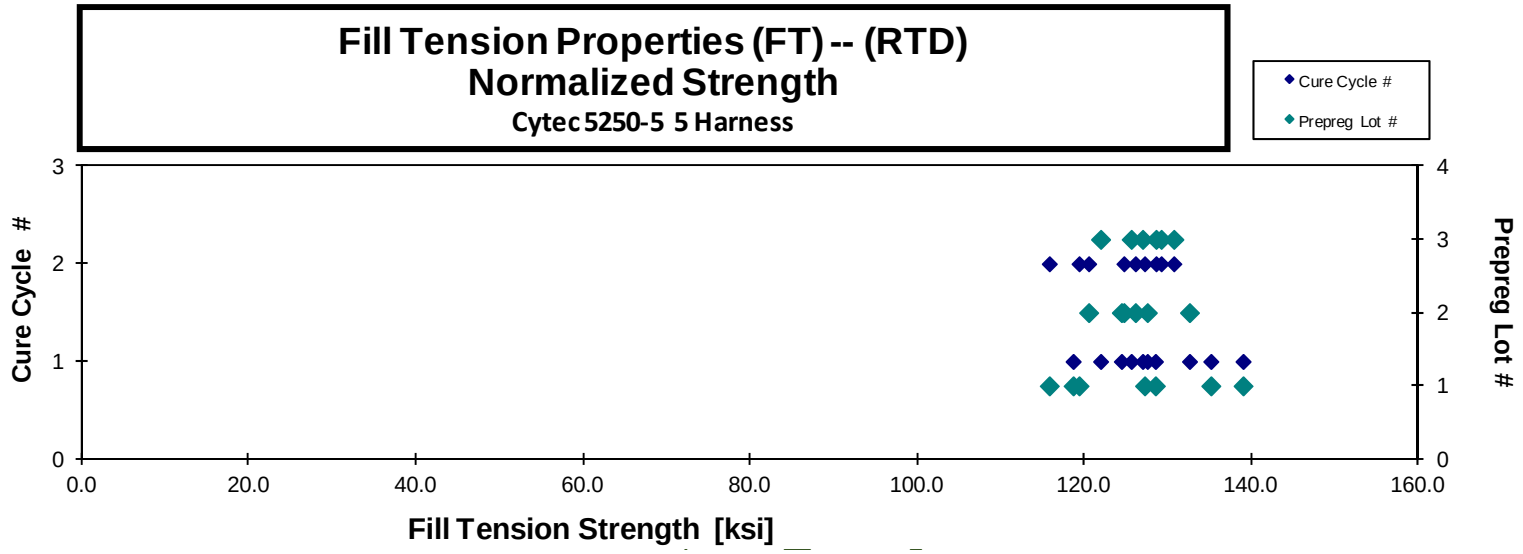
Fill Tension Properties (FT) -- (RTD)
Strength & Modulus
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBUA111A	A	C1	1	1	129.335	9.716	0.121	8	LWT	0.0151	128.520	9.655
CNBUA112A	A	C1	1	1	135.812	9.700	0.121	8	LGM	0.0151	135.160	9.654
CNBUA113A	A	C1	1	1	139.538	9.629	0.121	8	LWT	0.0151	139.022	9.594
CNBUA114A	A	C1	1	1	119.197	9.718	0.121	8	LWT	0.0151	118.674	9.676
CNBUA211A	A	C2	1	2	116.010	9.759	0.121	8	LGM	0.0152	115.820	9.743
CNBUA212A	A	C2	1	2	118.568	9.676	0.122	8	LWB	0.0153	119.381	9.742
CNBUA213A	A	C2	1	2	126.119	9.503	0.123	8	LGM	0.0153	127.226	9.586
CNBUB111A	B	C1	2	1	125.535	9.590	0.121	8	LGM	0.0151	124.451	9.507
CNBUB112A	B	C1	2	1	128.769	9.550	0.120	8	LGM	0.0151	127.552	9.460
CNBUB113A	B	C1	2	1	133.891	9.533	0.120	8	LWT/LWB	0.0151	132.606	9.441
CNBUB211A	B	C2	2	2	124.327	9.639	0.122	8	LGM	0.0153	124.753	9.672
CNBUB212A	B	C2	2	2	119.988	9.510	0.122	8	LGM	0.0153	120.530	9.553
CNBUB213A	B	C2	2	2	125.986	9.574	0.122	8	LGM	0.0152	126.124	9.584
CNBUC111A	C	C1	3	1	127.463	9.661	0.121	8	LAT / LWB	0.0151	126.991	9.625
CNBUC112A	C	C1	3	1	120.475	9.600	0.123	8	LGM	0.0154	121.961	9.719
CNBUC113A	C	C1	3	1	123.977	9.460	0.123	8	LGM	0.0154	125.625	9.586
CNBUC211A	C	C2	3	2	126.888	9.320	0.125	8	LGM	0.0157	130.731	9.603
CNBUC212A	C	C2	3	2	125.126	9.365	0.125	8	LGM	0.0156	128.590	9.625
CNBUC213A	C	C2	3	2	125.462	9.403	0.125	8	LGM	0.0157	129.211	9.684

Average	**125.919**	**9.574**	
Standard Dev.	**5.961**	**0.124**	
Coeff. of Var. [%]	**4.734**	**1.300**	
Min.	**116.010**	**9.320**	
Max.	**139.538**	**9.759**	
Number of Spec.	**19**	**19**	

$Average_{norm}$	**0.0153**	**126.470**	**9.616**
$Standard\ Dev._{norm}$		**5.750**	**0.085**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**4.546**	**0.888**
Min.	**0.0151**	**115.820**	**9.441**
Max.	**0.0157**	**139.022**	**9.743**
Number of Spec.		**19**	**19**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Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Tension Strength [ksi]
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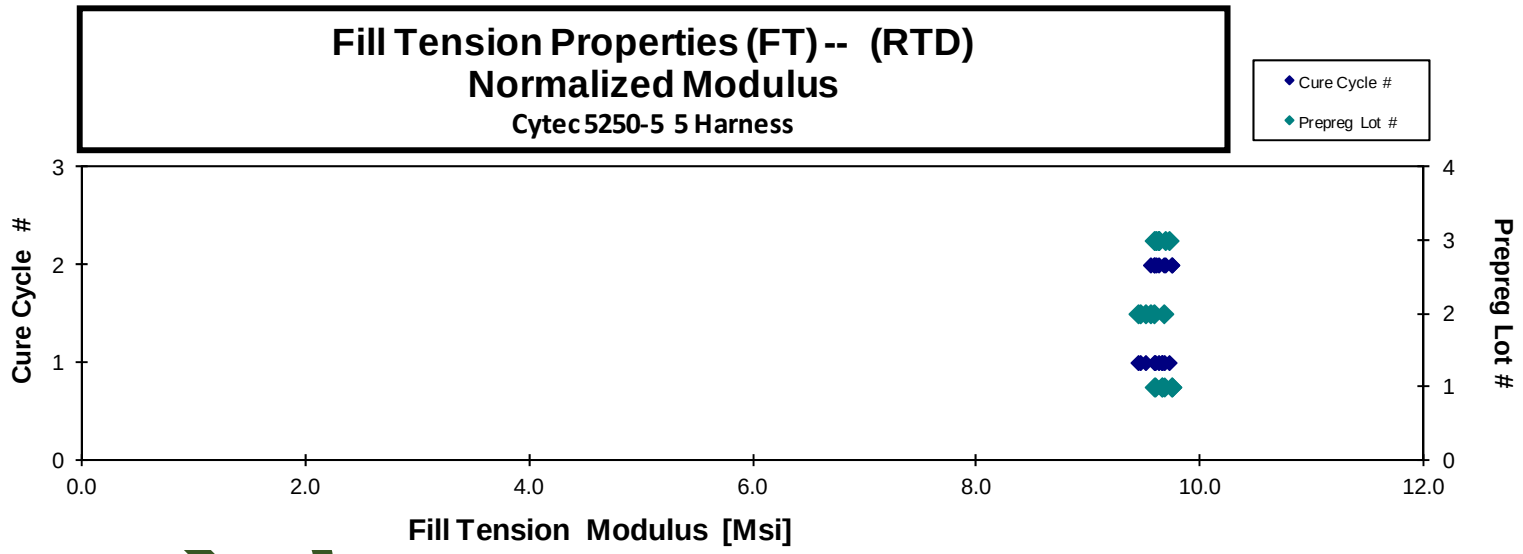
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0


Fill Tension Properties (FT) -- (RTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Tension Modulus [Msi]
0.0
2.0
4.0
6.0
8.0
10.0
12.0

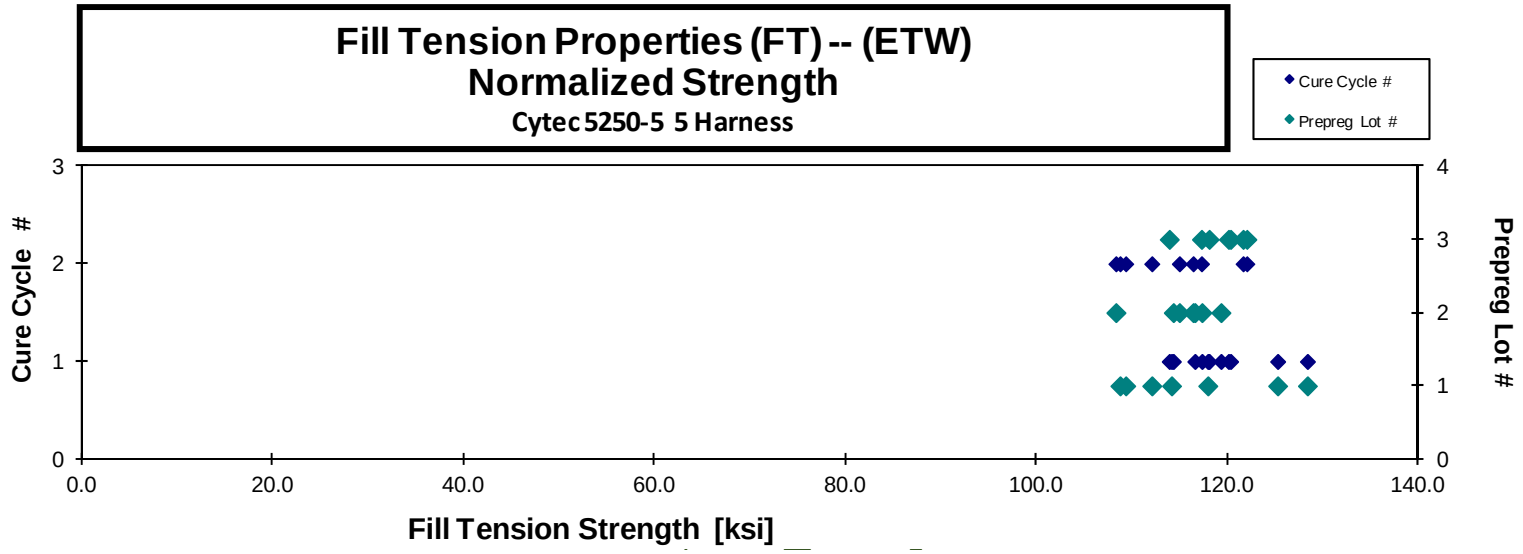
Fill Tension Properties (FT) -- (ETW)
Strength & Modulus
Cytec 5250-5 5 Harness

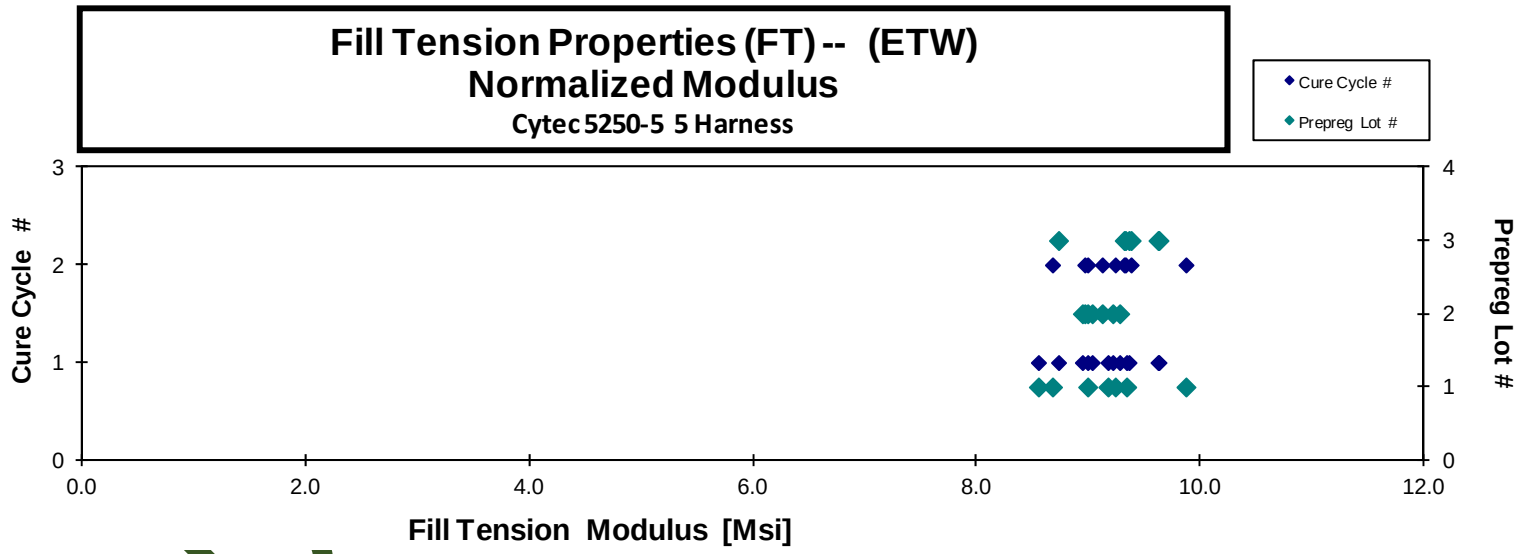
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBUA11BJ	A	C1	1	1	128.933	9.379	0.121	8	LGM	0.0151	128.385	9.339
CNBUA11CJ	A	C1	1	1	114.184	8.553	0.122	8	LGM	0.0152	114.153	8.550
CNBUA11DJ	A	C1	1	1	125.576	9.195	0.121	8	LGM	0.0152	125.266	9.172
CNBUA11EJ	A	C1	1	1	118.077	9.001	0.121	8	LGM	0.0152	117.948	8.991
CNBUA21BJ	A	C2	1	2	111.850	8.659	0.122	8	LGM	0.0152	112.080	8.676
CNBUA21CJ	A	C2	1	2	109.736	9.271	0.121	8	LWB / LGM	0.0151	109.345	9.238
CNBUA21DJ	A	C2	1	2	109.403	9.930	0.121	8	LGM	0.0151	108.744	9.870
CNBUB11BJ	B	C1	2	1	118.549	9.311	0.120	8	LWB	0.0150	117.331	9.216
CNBUB11CJ	B	C1	2	1	120.829	9.057	0.120	8	LGM	0.0150	119.322	8.944
CNBUB11DJ	B	C1	2	1	115.539	9.375	0.120	8	LGM	0.0150	114.335	9.278
CNBUB11EJ	B	C1	2	1	117.857	9.129	0.120	8	LGM	0.0150	116.597	9.031
CNBUB21BJ	B	C2	2	2	107.686	8.913	0.122	8	LGM	0.0153	108.321	8.965
CNBUB21CJ	B	C2	2	2	113.632	8.887	0.123	8	LGM	0.0154	114.971	8.992
CNBUB21DJ	B	C2	2	2	115.755	9.071	0.122	8	LGM	0.0153	116.405	9.122
CNBUC11BJ	C	C1	3	1	118.451	9.478	0.124	8	LWT / LGM	0.0154	120.334	9.629
CNBUC11CJ	C	C1	3	1	116.579	9.498	0.123	8	LGM	0.0154	118.081	9.620
CNBUC11DJ	C	C1	3	1	111.644	8.557	0.124	8	LGM	0.0155	113.909	8.730
CNBUC11EJ	C	C1	3	1	118.525	9.237	0.123	8	LGM	0.0154	120.117	9.361
CNBUC21BJ	C	C2	3	2	118.970	9.084	0.125	8	LGM	0.0156	122.036	9.318
CNBUC21CJ	C	C2	3	2	112.626	8.958	0.127	8	LGM	0.0158	117.288	9.329
CNBUC21DJ	C	C2	3	2	117.993	9.098	0.125	8	LGM	0.0157	121.648	9.380

Average	116.305	9.126	
Standard Dev.	5.142	0.327	
Coeff. of Var. [%]	4.421	3.580	
Min.	107.686	8.553	
Max.	128.933	9.930	
Number of Spec.	21	21	

$Average_{norm}$	0.0153	116.982	9.179
$Standard\ Dev._{norm}$		5.143	0.322
$Coeff.\ of\ Var.\ [\%]_{norm}$		4.397	3.509
Min.	0.0150	108.321	8.550
Max.	0.0158	128.385	9.870
Number of Spec.		21	21


Fill Tension Properties (FT) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Fill Tension Strength [ksi]


Fill Tension Properties (FT) -- (ETW)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Fill Tension Modulus [Msi]

4.3 Warp Compression Properties (WC)

Warp Compression Properties (WC) -- (CTD)
Strength & Modulus
Cytec 5250-5 5 Harness

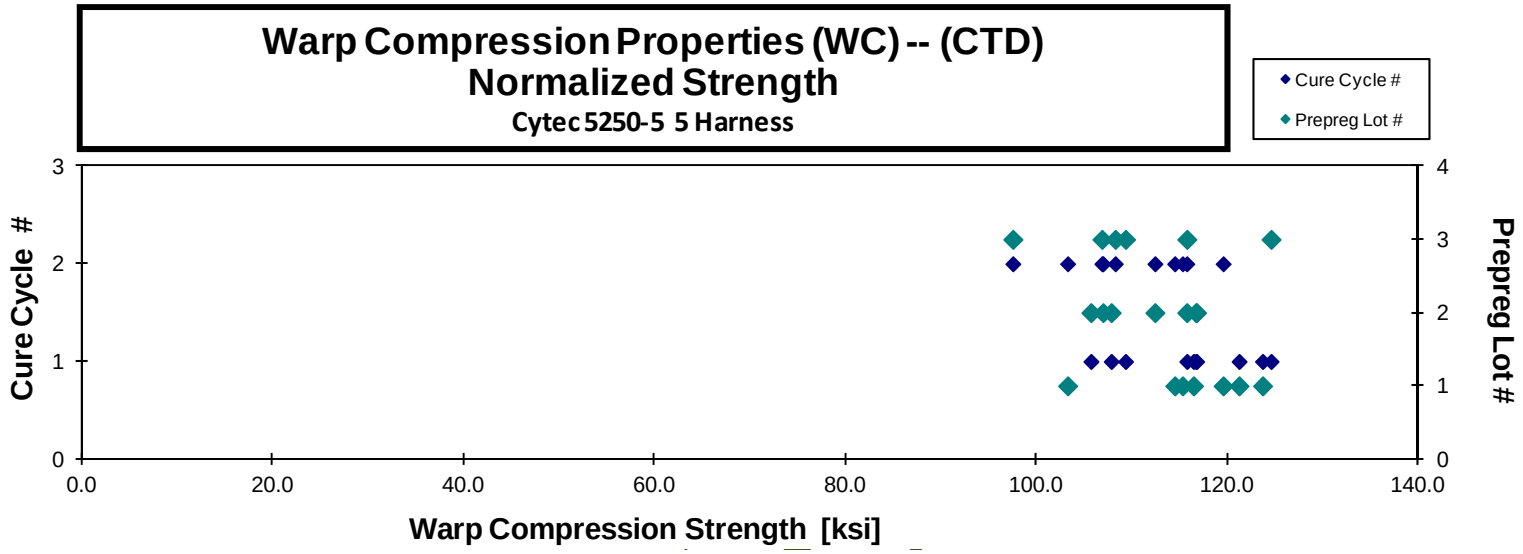
normalizing t_{ply} [in]: 0.0152

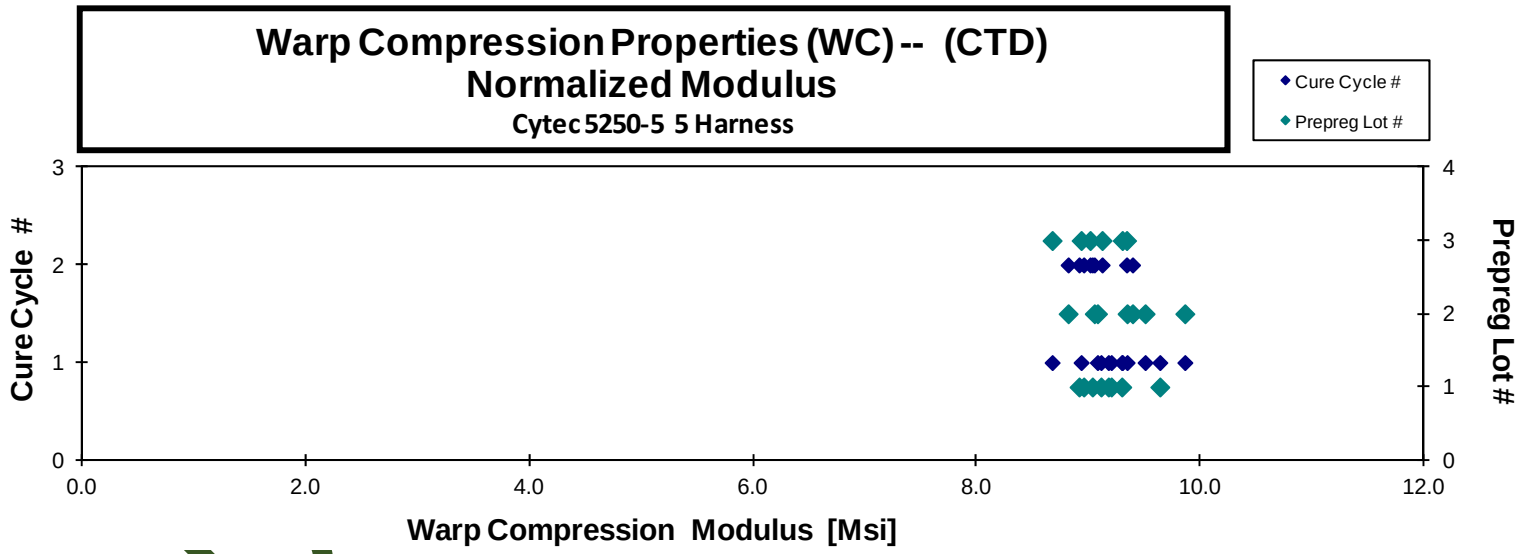
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBLA115B	A	C1	1	1	*	9.234	0.122	8	END CRUSH	0.0153		9.296
CNBLA116B	A	C1	1	1	115.768	9.057	0.122	8	BGM	0.0153	116.451	9.110
CNBLA117B	A	C1	1	1	122.577	9.550	0.123	8	BGM	0.0153	123.686	9.636
CNBLA118B	A	C1	1	1	120.090	9.090	0.123	8	BGM	0.0153	121.226	9.176
CNBLA119B	A	C1	1	1	*	9.144	0.122	8	HIT / BGM	0.0153		9.202
CNBLA215B	A	C2	1	2	115.652	9.006	0.120	8	BGM	0.0150	114.479	8.915
CNBLA216B	A	C2	1	2	121.233	9.081	0.120	8	BGM	0.0150	119.555	8.955
CNBLA217B	A	C2	1	2	117.502	9.206	0.119	8	BGM	0.0149	115.296	9.033
CNBLA218B	A	C2	1	2	105.442		0.119	8	BGM	0.0149	103.260	
CNBLB116B	B	C1	2	1	106.111	9.380	0.121	8	BGM	0.0151	105.704	9.344
CNBLB117B	B	C1	2	1	117.005	9.097	0.121	8	BGM	0.0152	116.765	9.079
CNBLB118B	B	C1	2	1	108.069	9.882	0.121	8	BGM	0.0152	107.832	9.860
CNBLB119B	B	C1	2	1	116.508	9.489	0.122	8	BGM	0.0152	116.700	9.504
CNBLB215B	B	C2	2	2	115.414	9.052	0.118	8	BGM	0.0148	112.408	8.816
CNBLB216B	B	C2	2	2	118.062	9.580	0.119	8	BGM	0.0149	115.748	9.392
CNBLB217B	B	C2	2	2	108.677	9.196	0.120	8	BGM	0.0150	106.964	9.051
CNBLC115B	C	C1	3	1	113.863	9.149	0.124	8	BGM	0.0155	115.751	9.301
CNBLC116B	C	C1	3	1	107.586	8.535	0.124	8	BGM	0.0154	109.326	8.673
CNBLC117B	C	C1	3	1	122.396	8.776	0.124	8	BGM	0.0155	124.576	8.932
CNBLC215B	C	C2	3	2	103.451	8.830	0.126	8	BGM	0.0157	106.854	9.120
CNBLC216B	C	C2	3	2	94.683	9.067	0.125	8	BGM	0.0157	97.525	9.339
CNBLC217B	C	C2	3	2	105.091	8.750	0.125	8	BGM	0.0157	108.245	9.013

***Compressive strength is not reported due to bad failure mode.**
Specimen CNBLA218B was ungaged.

	Strength	Modulus
Average	112.759	9.150
Standard Dev.	7.464	0.308
Coeff. of Var. [%]	6.620	3.366
Min.	94.683	8.535
Max.	122.577	9.882
Number of Spec.	20	21

		$Strength_{norm}$	$Modulus_{norm}$
$Average_{norm}$	0.0152	112.918	9.178
$Standard\ Dev._{norm}$		7.056	0.279
$Coeff.\ of\ Var.\ [\%]_{norm}$		6.249	3.040
Min.	0.0148	97.525	8.673
Max.	0.0157	124.576	9.860
Number of Spec.		20	21


Warp Compression Properties (WC) -- (CTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Warp Compression Strength [ksi]


Warp Compression Properties (WC) -- (CTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Warp Compression Modulus [Msi]

Warp Compression Properties (WC) -- (RTD)
Strength & Modulus
Cytec 5250-5 5 Harness

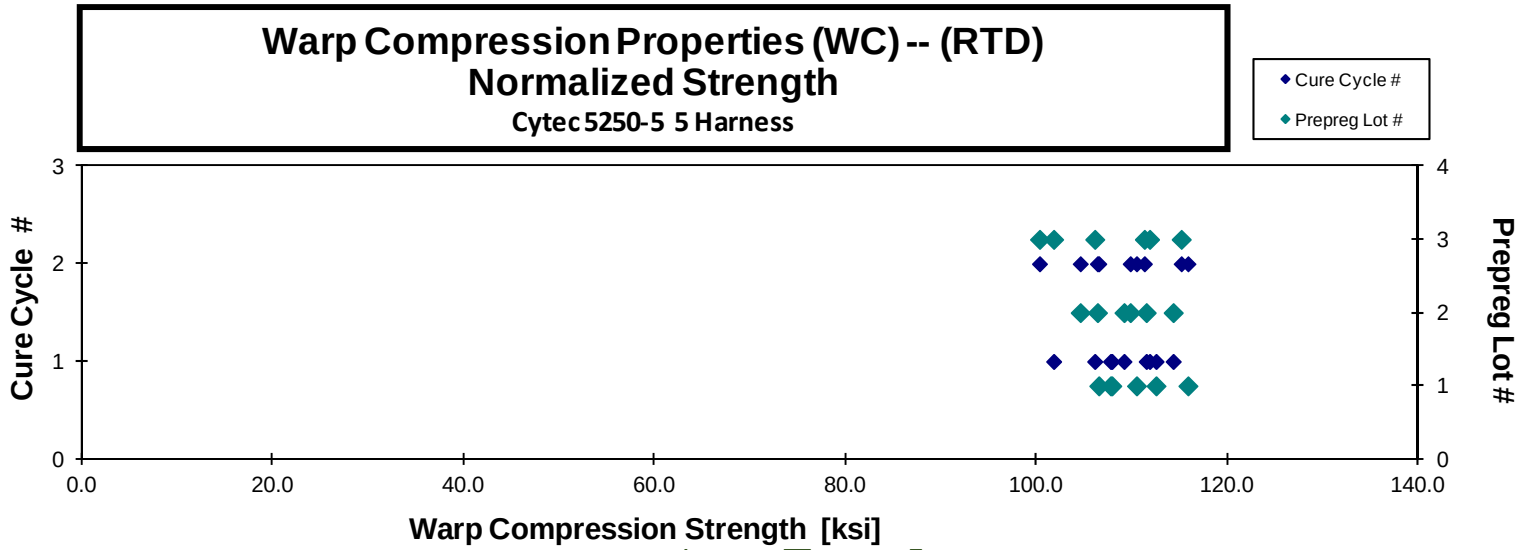
normalizing t_{ply} [in]: 0.0152

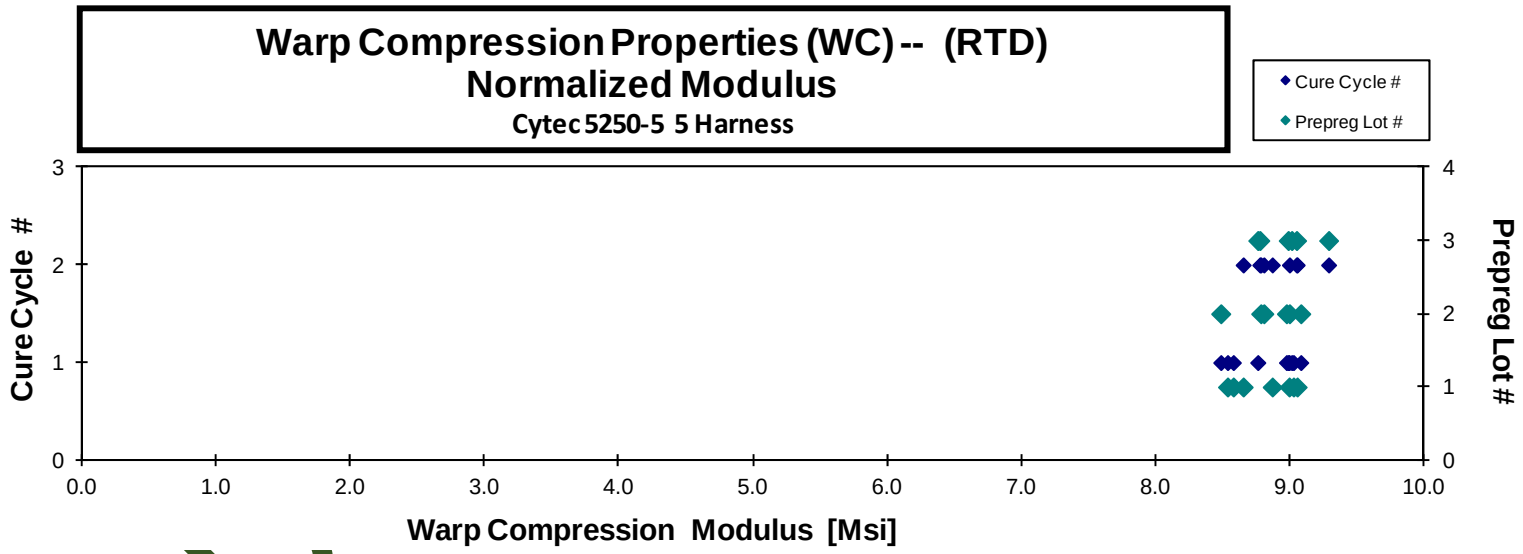
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBLA111A	A	C1	1	1	*	8.924	0.123	8	HIB	0.0153		8.993
CNBLA112A	A	C1	1	1	107.300	8.988	0.122	8	BGM	0.0153	107.756	9.026
CNBLA113A	A	C1	1	1	111.289	8.483	0.123	8	BGM	0.0154	112.525	8.577
CNBLA114A	A	C1	1	1	107.142	8.475	0.122	8	BGM	0.0153	107.891	8.535
CNBLA211A	A	C2	1	2	116.106	8.669	0.121	8	BGM	0.0152	115.867	8.651
CNBLA212A	A	C2	1	2	*	8.946	0.121	8	END CRUSH	0.0151		8.868
CNBLA213A	A	C2	1	2	107.185	9.110	0.121	8	BGM	0.0151	106.524	9.053
CNBLA214A	A	C2	1	2	110.873		0.121	8	BGM	0.0151	110.477	
CNBLB111A	B	C1	2	1	116.251	9.125	0.120	8	BGM	0.0149	114.323	8.974
CNBLB112A	B	C1	2	1	110.576	8.594	0.120	8	BAT	0.0150	109.167	8.484
CNBLB113A	B	C1	2	1	112.827	9.189	0.120	8	BGM	0.0150	111.497	9.080
CNBLB211A	B	C2	2	2	113.830	9.324	0.117	8	BGM	0.0147	109.820	8.996
CNBLB212A	B	C2	2	2	109.957	9.077	0.118	8	BGM	0.0147	106.385	8.782
CNBLB213A	B	C2	2	2	108.112	9.102	0.118	8	BGM	0.0147	104.585	8.805
CNBLC111A	C	C1	3	1	110.452	8.900	0.123	8	BGM	0.0154	111.845	9.013
CNBLC112A	C	C1	3	1	100.311	8.632	0.123	8	BGM	0.0154	101.796	8.760
CNBLC113A	C	C1	3	1	104.457	8.847	0.124	8	BGM	0.0154	106.104	8.987
CNBLC211A	C	C2	3	2	111.598	9.000	0.125	8	BGM	0.0157	115.162	9.288
CNBLC212A	C	C2	3	2	107.375	8.465	0.126	8	BGM	0.0158	111.305	8.775
CNBLC213A	C	C2	3	2	96.886	8.740	0.126	8	BGM	0.0157	100.313	9.049

***Compressive strength is not reported due to bad failure mode.**
Specimen CNBLA214A was ungaged.

	Strength [ksi]	Modulus [Msi]
Average	109.029	8.873
Standard Dev.	4.958	0.261
Coeff. of Var. [%]	4.548	2.942
Min.	96.886	8.465
Max.	116.251	9.324
Number of Spec.	18	19

		$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.0152	109.075	8.879
$Standard\ Dev._{norm}$		4.334	0.212
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.973	2.390
Min.	0.0147	100.313	8.484
Max.	0.0158	115.867	9.288
Number of Spec.		18	19


Warp Compression Properties (WC) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Warp Compression Strength [ksi]


Warp Compression Properties (WC) -- (RTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Warp Compression Modulus [Msi]

Warp Compression Properties (WC) -- (ETD)
Strength & Modulus
Cytec 5250-5 5 Harness

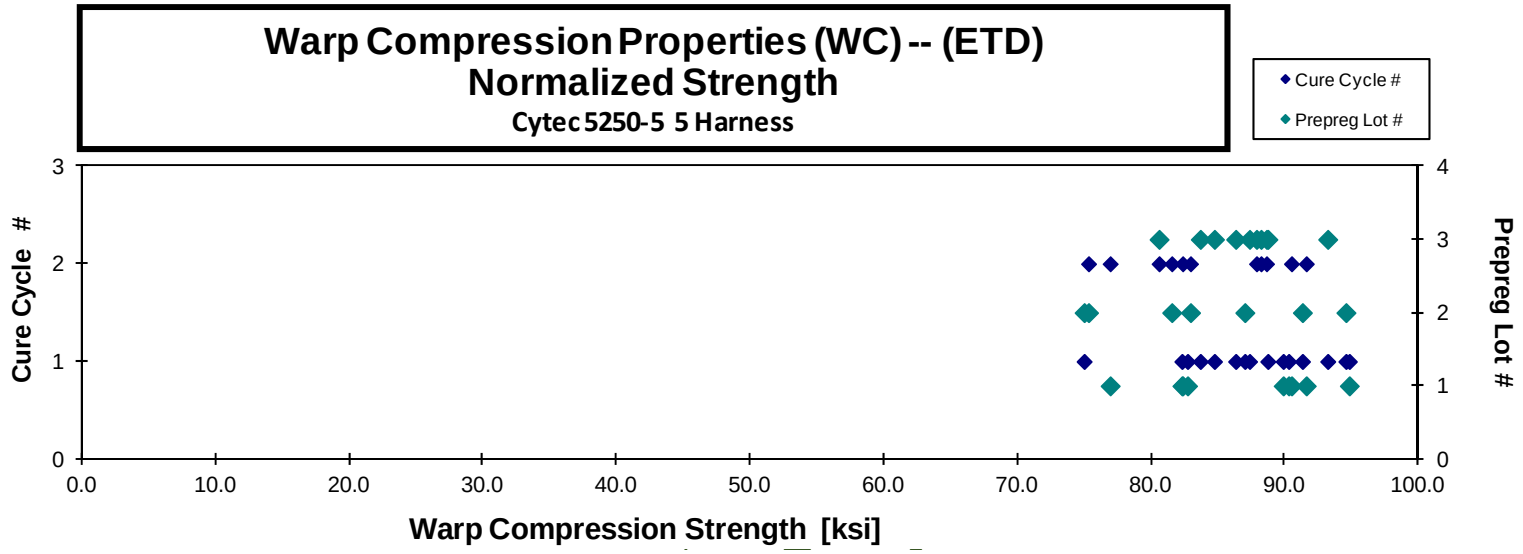
normalizing t_{ply} [in]: 0.0152

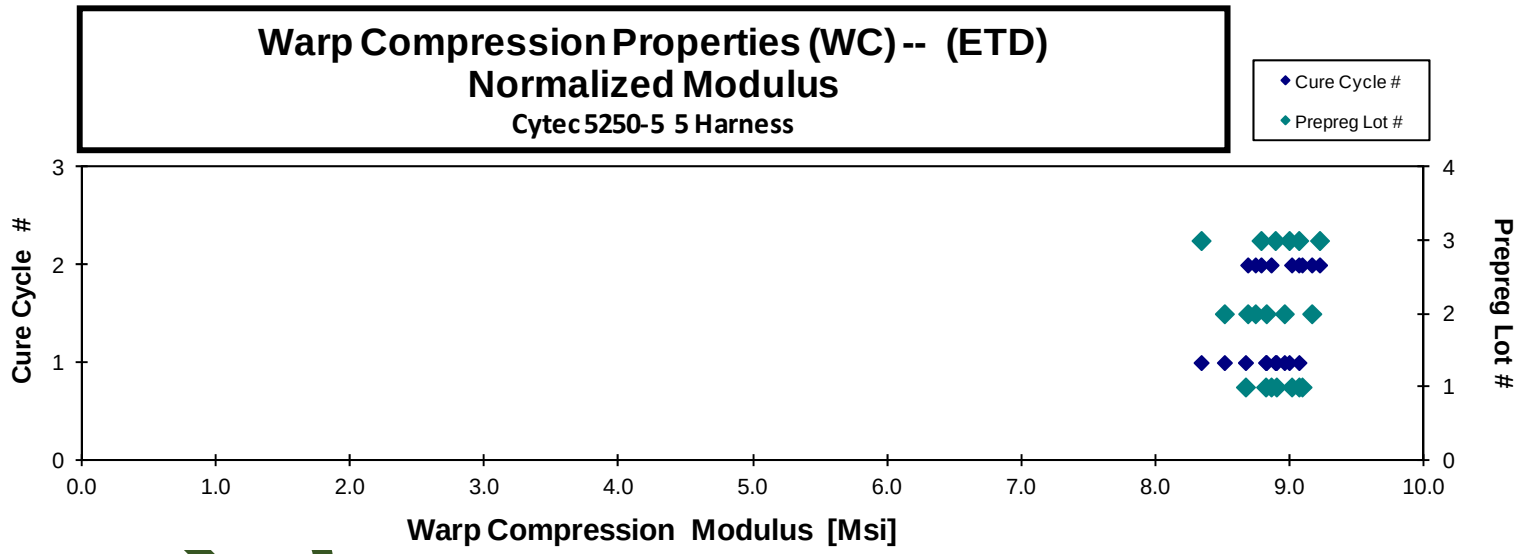
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBLA11AK	A	C1	1	1	89.592	8.600	0.123	8	BGM / HIT	0.0153	90.305	8.668
CNBLA11BK	A	C1	1	1	89.473	8.857	0.122	8	BGM	0.0153	89.890	8.898
CNBLA11CK	A	C1	1	1	94.490	9.033	0.122	8	BGM	0.0153	94.839	9.067
CNBLA11DK	A	C1	1	1	81.707	8.753	0.123	8	BGM	0.0153	82.312	8.818
CNBLA11EK	A	C1	1	1	82.035	**	0.123	8	BAT	0.0153	82.732	
CNBLA21AK	A	C2	1	2	92.920	9.252	0.118	8	BGM	0.0148	90.513	9.012
CNBLA21BK	A	C2	1	2	94.296	9.118	0.118	8	BGM / HIB	0.0148	91.621	8.859
CNBLA21CK	A	C2	1	2	82.332	9.086	0.122	8	BGM	0.0152	82.366	9.090
CNBLA21DK	A	C2	1	2	77.058	**	0.121	8	BGM / HAT	0.0152	76.942	
CNBLB11BK	B	C1	2	1	94.847	8.982	0.121	8	BGM / HAT	0.0152	94.587	8.958
CNBLB11CK	B	C1	2	1	92.136	8.587	0.121	8	BGM / HAT	0.0151	91.328	8.511
CNBLB11DK	B	C1	2	1	87.719	8.894	0.121	8	BGM / HIT	0.0151	87.022	8.823
CNBLB11FK	B	C1	2	1	75.479	**	0.121	8	BGM / HAB	0.0151	74.993	
CNBLB21AK	B	C2	2	2	83.091	8.699	0.121	8	BGM	0.0152	82.954	8.685
CNBLB21BK	B	C2	2	2	*	9.155	0.122	8	BGM / HIB	0.0152		9.162
CNBLB21CK	B	C2	2	2	*	8.910	0.119	8	BGM / HIT	0.0149		8.741
CNBLB21DK	B	C2	2	2	76.169	**	0.120	8	BGM	0.0150	75.323	
CNBLB214K	B	C2	2	2	84.065	**	0.118	8	BGM	0.0147	81.553	
CNBLC11AK	C	C1	3	1	87.272	8.199	0.124	8	HGM / HIT	0.0155	88.743	8.338
CNBLC11BK	C	C1	3	1	83.484	8.860	0.123	8	BGM / HIB	0.0154	84.743	8.994
CNBLC11CK	C	C1	3	1	92.239	8.796	0.123	8	BGM	0.0154	93.225	8.890
CNBLC11DK	C	C1	3	1	86.308	**	0.123	8	BGM / HIT	0.0154	87.373	
CNBLC11EK	C	C1	3	1	82.635	**	0.123	8	BGM / HIB	0.0154	83.688	
CNBLC114A	C	C1	3	1	84.964	**	0.124	8	BGM / HIT	0.0154	86.338	
CNBLC21AK	C	C2	3	2	86.404	8.562	0.125	8	BGM	0.0156	88.642	8.784
CNBLC21BK	C	C2	3	2	85.677	8.836	0.125	8	BGM	0.0156	87.896	9.065
CNBLC21CK	C	C2	3	2	78.068	8.930	0.126	8	BGM	0.0157	80.604	9.220
CNBLC214A	C	C2	3	2	85.525	**	0.125	8	BAT / HIT	0.0157	88.233	

Note: CNBLB 214A was taken from RTD and renamed as CNBLB 214K.
Note: CNBLC 214A was taken from RTD.
***Compressive strength is not reported due to bad failure mode.**
****Specimens were ungaged.**

Average	85.769	8.848	
Standard Dev.	5.661	0.249	
Coeff. of Var. [%]	6.600	2.817	
Min.	75.479	8.199	
Max.	94.847	9.252	
Number of Spec.	26	19	

$Average_{norm}$	0.0152	86.106	8.873
$Standard\ Dev._{norm}$		5.527	0.223
$Coeff.\ of\ Var.\ [\%]_{norm}$		6.419	2.511
Min.	0.0147	74.993	8.338
Max.	0.0157	94.839	9.220
Number of Spec.		26	19


Warp Compression Properties (WC) -- (ETD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Warp Compression Strength [ksi]
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0


Warp Compression Properties (WC) -- (ETD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Warp Compression Modulus [Msi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0

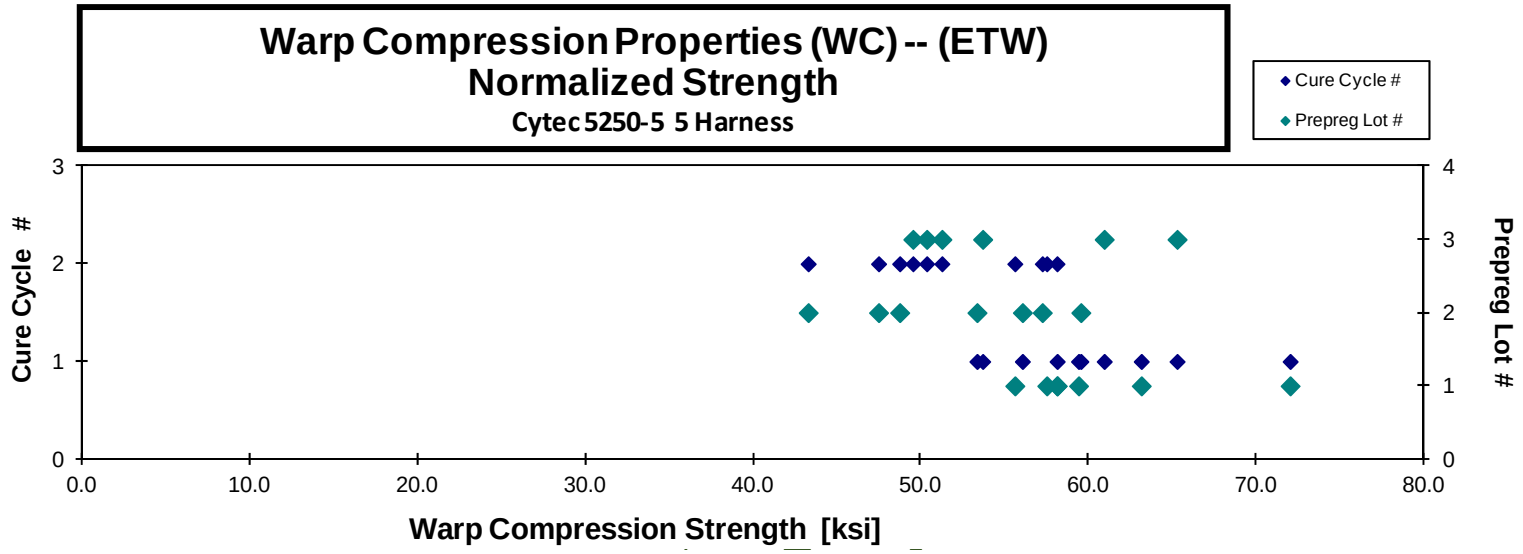
Warp Compression Properties (WC) -- (ETW)
Strength & Modulus
Cytec 5250-5 5 Harness

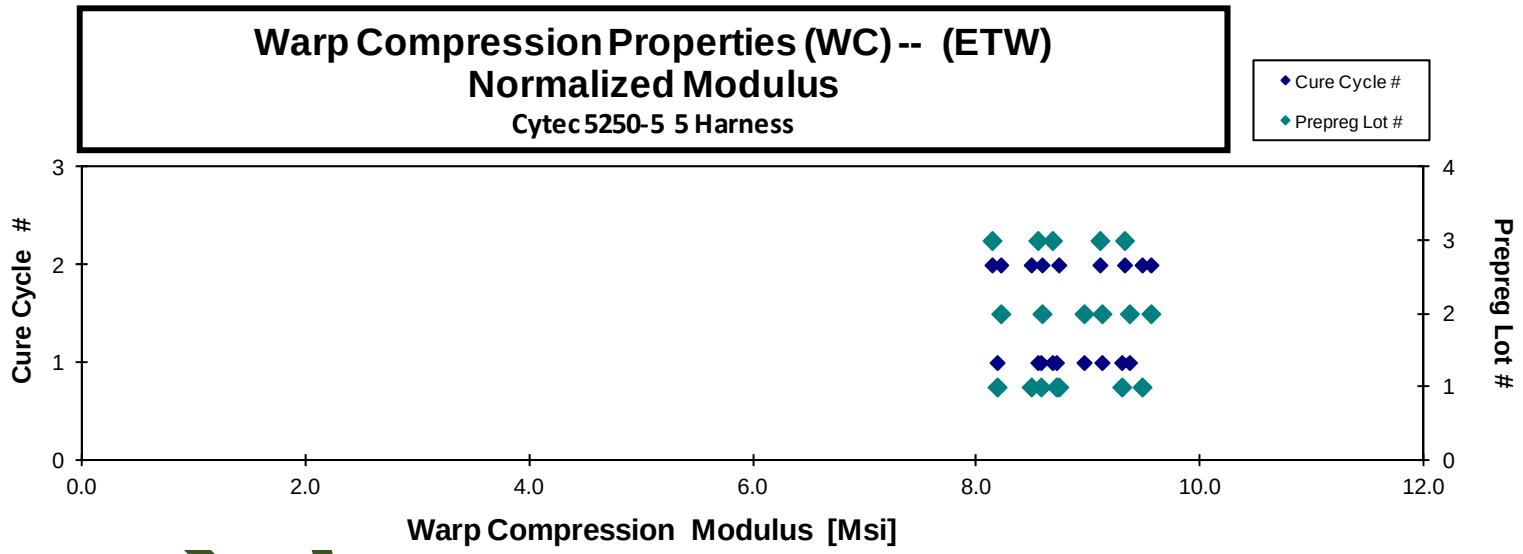
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBLA11FJ	A	C1	1	1		8.641	0.123	8	HAB	0.0153		8.711
CNBLA11GJ	A	C1	1	1		8.518	0.122	8	BGM	0.0153		8.573
CNBLA11HJ	A	C1	1	1		9.226	0.123	8	HAB	0.0153		9.296
CNBLA11IJ	A	C1	1	1		8.123	0.122	8	BGM	0.0153		8.181
CNBLA11JJ	A	C1	1	1	58.783		0.123	8	HAB	0.0154	59.395	
CNBLA11KJ	A	C1	1	1	57.946		0.122	8	BGM	0.0152	58.121	
CNBLA11LJ	A	C1	1	1	71.558		0.122	8	BGM	0.0153	72.009	
CNBLA11MJ	A	C1	1	1	62.791		0.122	8	BGM	0.0153	63.135	
CNBLA21FJ	A	C2	1	2		8.453	0.122	8	HGM	0.0153		8.486
CNBLA21GJ	A	C2	1	2		9.648	0.119	8	BGM	0.0149		9.477
CNBLA21HJ	A	C2	1	2		8.854	0.120	8	BGM	0.0150		8.733
CNBLA21IJ	A	C2	1	2	58.847		0.120	8	BGM	0.0150	58.113	
CNBLA21J	A	C2	1	2	56.223		0.120	8	BAB	0.0150	55.599	
CNBLA21KJ	A	C2	1	2	57.700		0.121	8	HAT	0.0151	57.503	
CNBLB11HJ	B	C1	2	1		9.424	0.121	8	BGM	0.0151		9.365
CNBLB11IJ	B	C1	2	1		8.994	0.121	8	HAB	0.0151		8.958
CNBLB11JJ	B	C1	2	1		9.139	0.121	8	BGM	0.0152		9.118
CNBLB11KJ	B	C1	2	1	55.949		0.122	8	BGM	0.0152	56.049	
CNBLB11LJ	B	C1	2	1	59.346		0.122	8	BAB	0.0152	59.533	
CNBLB11MJ	B	C1	2	1	53.299		0.122	8	HAB	0.0152	53.343	
CNBLB21FJ	B	C2	2	2		8.311	0.120	8	HGM	0.0150		8.214
CNBLB21GJ	B	C2	2	2		8.650	0.121	8	HGM	0.0151		8.583
CNBLB21HJ	B	C2	2	2		9.584	0.121	8	HGM	0.0152		9.556
CNBLB21IJ	B	C2	2	2	47.339		0.122	8	BAB	0.0152	47.475	
CNBLB21JJ	B	C2	2	2	42.993		0.122	8	BAB	0.0153	43.282	
CNBLB21KJ	B	C2	2	2	56.661		0.123	8	BAB	0.0154	57.236	
CNBLB21LJ	B	C2	2	2	48.175		0.123	8	HGM	0.0154	48.736	
CNBLC11FJ	C	C1	3	1		8.569	0.123	8	BGM	0.0154		8.676
CNBLC11GJ	C	C1	3	1		8.430	0.123	8	BGM	0.0154		8.545
CNBLC11IJ	C	C1	3	1	59.916		0.124	8	BGM	0.0155	60.926	
CNBLC11JJ	C	C1	3	1	64.204		0.124	8	BAB	0.0155	65.269	
CNBLC11KJ	C	C1	3	1	52.606		0.124	8	BAB	0.0155	53.681	
CNBLC21FJ	C	C2	3	2		8.799	0.126	8	HGM	0.0157		9.100
CNBLC21GJ	C	C2	3	2		7.884	0.125	8	HGM	0.0157		8.136
CNBLC21HJ	C	C2	3	2		9.036	0.125	8	HGM	0.0157		9.321
CNBLC21IJ	C	C2	3	2	48.968		0.125	8	HGM	0.0156	50.344	
CNBLC21JJ	C	C2	3	2	49.964		0.125	8	HAB	0.0156	51.251	
CNBLC21KJ	C	C2	3	2	48.202		0.125	8	HAB	0.0156	49.523	

	Strength	Modulus
Average	55.573	8.793
Standard Dev.	6.776	0.490
Coeff. of Var. [%]	12.192	5.577
Min.	42.993	7.884
Max.	71.558	9.648
Number of Spec.	20	18

	Avg. t_{ply}	$Strength_{norm}$	$Modulus_{norm}$
$Average_{norm}$	0.0153	56.026	8.835
$Standard\ Dev._{norm}$		6.690	0.455
$Coeff.\ of\ Var.\ [\%]_{norm}$		11.941	5.149
Min.	0.0149	43.282	8.136
Max.	0.0157	72.009	9.556
Number of Spec.		20	18


Warp Compression Properties (WC) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Warp Compression Strength [ksi]
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0


Warp Compression Properties (WC) -- (ETW)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Warp Compression Modulus [Msi]
0.0
2.0
4.0
6.0
8.0
10.0
12.0

4.4 Fill Compression Properties (FC)

Fill Compression Properties (FC) -- (CTD)
Strength & Modulus
Cytec 5250-5 5 Harness

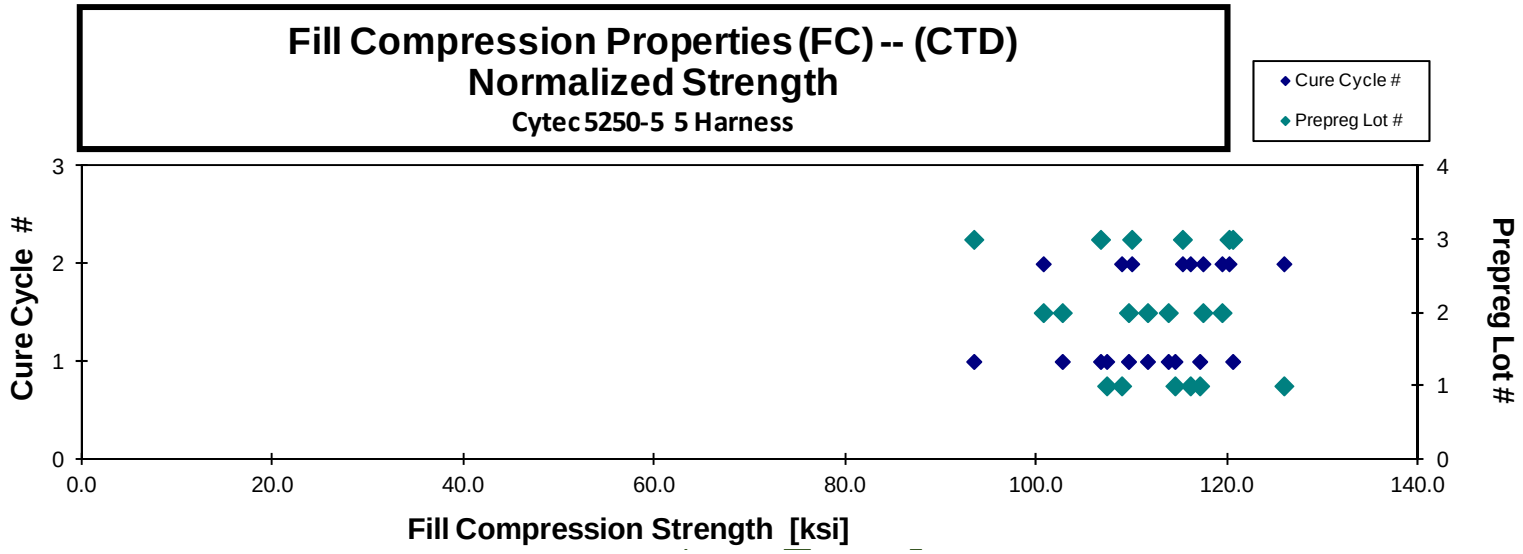
normalizing t_{ply} [in]: 0.0152

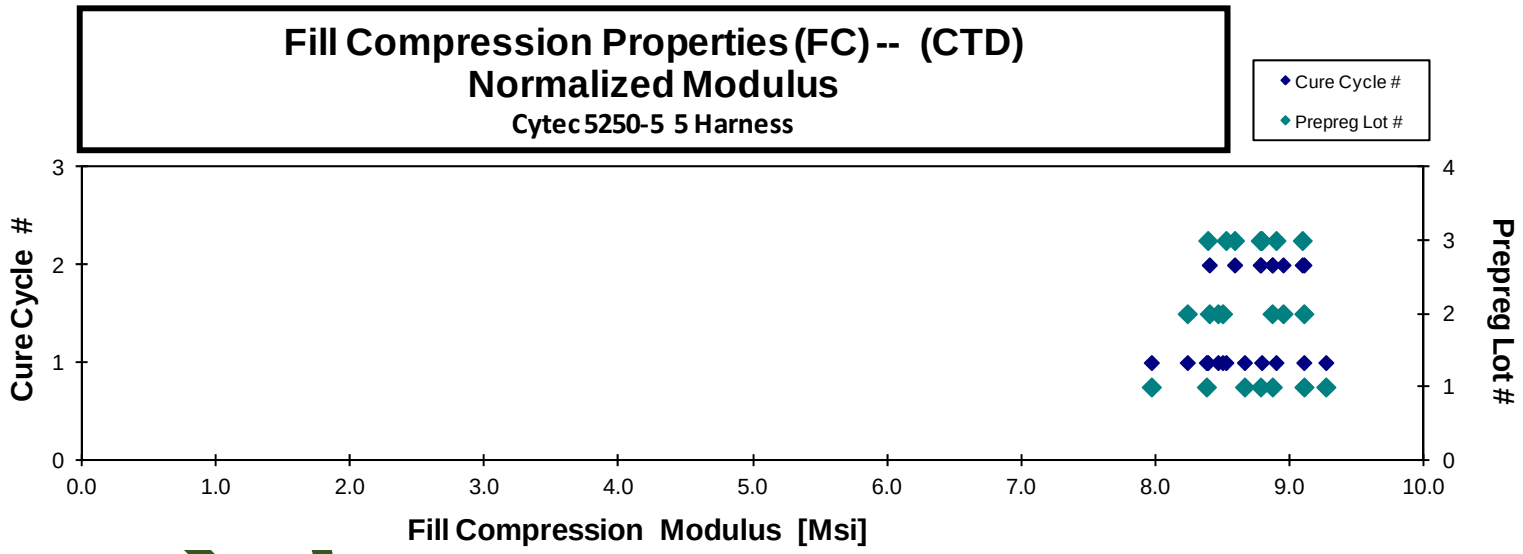
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBZA116B	A	C1	1	1	*	8.031	0.121	8	END CRUSH	0.0151		7.967
CNBZA117B	A	C1	1	1	107.898	9.314	0.121	8	BGM	0.0151	107.351	9.267
CNBZA118B	A	C1	1	1	115.179	8.427	0.121	8	BGM	0.0151	114.500	8.377
CNBZA119B	A	C1	1	1	117.678	8.704	0.121	8	BGM	0.0151	117.097	8.661
CNBZA216B	A	C2	1	2	128.745	9.308	0.119	8	BGM	0.0149	125.922	9.104
CNBZA217B	A	C2	1	2	*	9.032	0.118	8	END CRUSH	0.0148		8.781
CNBZA218B	A	C2	1	2	119.928	9.159	0.118	8	BGM	0.0147	116.115	8.868
CNBZA219B	A	C2	1	2	112.813		0.117	8	BGM	0.0147	108.917	
CNBZB116B	B	C1	2	1	114.116	8.687	0.119	8	BGM	0.0149	111.629	8.498
CNBZB117B	B	C1	2	1	105.224	9.327	0.119	8	BGM	0.0148	102.700	9.103
CNBZB118B	B	C1	2	1	112.823	8.474	0.118	8	BGM	0.0148	109.638	8.235
CNBZB119B	B	C1	2	1	117.590	8.744	0.118	8	BGM	0.0147	113.803	8.463
CNBZB216B	B	C2	2	2	119.319	9.009	0.120	8	BGM	0.0150	117.439	8.867
CNBZB217B	B	C2	2	2	102.820	8.575	0.119	8	BGM	0.0149	100.706	8.399
CNBZB218B	B	C2	2	2	122.491	9.177	0.119	8	BGM	0.0148	119.435	8.948
CNBZC116B	C	C1	3	1	*	8.883	0.122	8	HIT	0.0152		8.896
CNBZC117B	C	C1	3	1	93.148	8.497	0.122	8	BGM	0.0152	93.429	8.522
CNBZC118B	C	C1	3	1	106.402	8.764	0.122	8	BGM	0.0152	106.708	8.789
CNBZC119B	C	C1	3	1	120.080	8.354	0.122	8	BGM	0.0153	120.558	8.387
CNBZC216B	C	C2	3	2	107.282	8.563	0.125	8	BGM	0.0156	109.972	8.778
CNBZC217B	C	C2	3	2	112.689	8.887	0.124	8	BGM	0.0156	115.284	9.092
CNBZC218B	C	C2	3	2	118.099	8.439	0.124	8	BGM	0.0155	120.170	8.587

***Compressive strength is not reported due to bad failure mode.**
Specimen CNBZA219B was ungaged.

	Strength [ksi]	Modulus [Msi]
Average	113.385	8.779
Standard Dev.	8.195	0.358
Coeff. of Var. [%]	7.227	4.080
Min.	93.148	8.031
Max.	128.745	9.327
Number of Spec.	19	21

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.0150	112.177	8.695
Standard $Dev._{norm}$		7.850	0.329
Coeff. of Var. $[\%]_{norm}$		6.998	3.785
Min.	0.0147	93.429	7.967
Max.	0.0156	125.922	9.267
Number of Spec.		19	21


Fill Compression Properties (FC) -- (CTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Compression Strength [ksi]
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0


Fill Compression Properties (FC) -- (CTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Compression Modulus [Msi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0

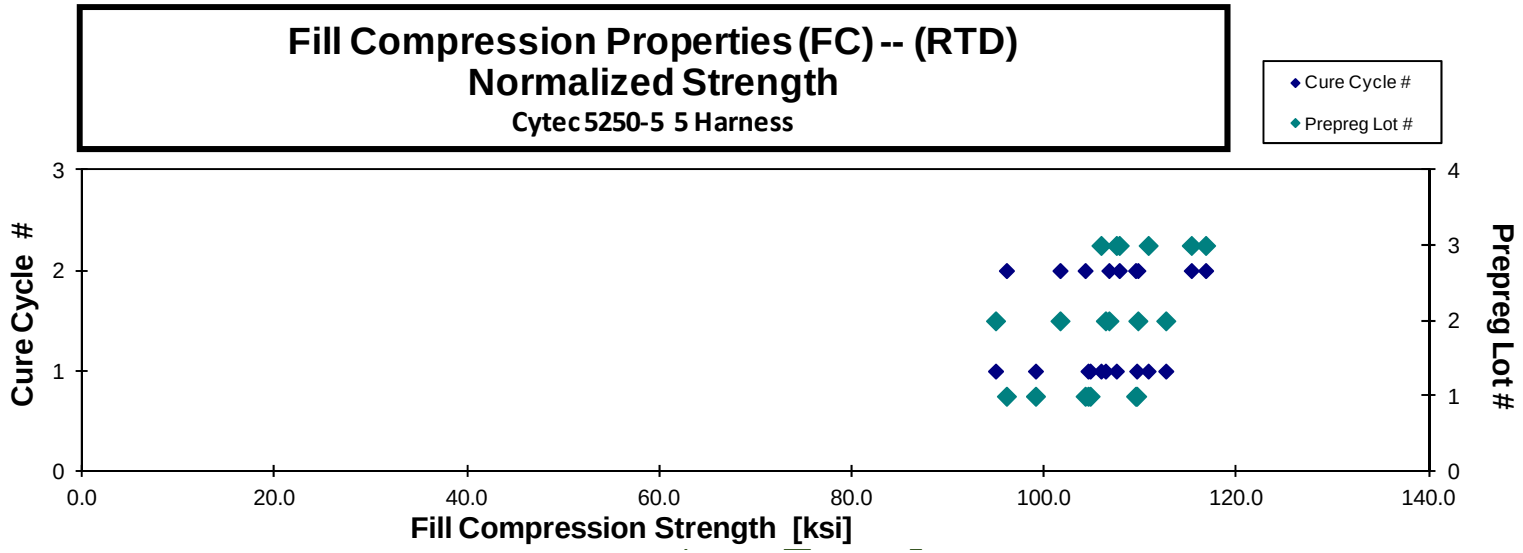
Fill Compression Properties (FC) -- (RTD)
Strength & Modulus
Cytec 5250-5 5 Harness

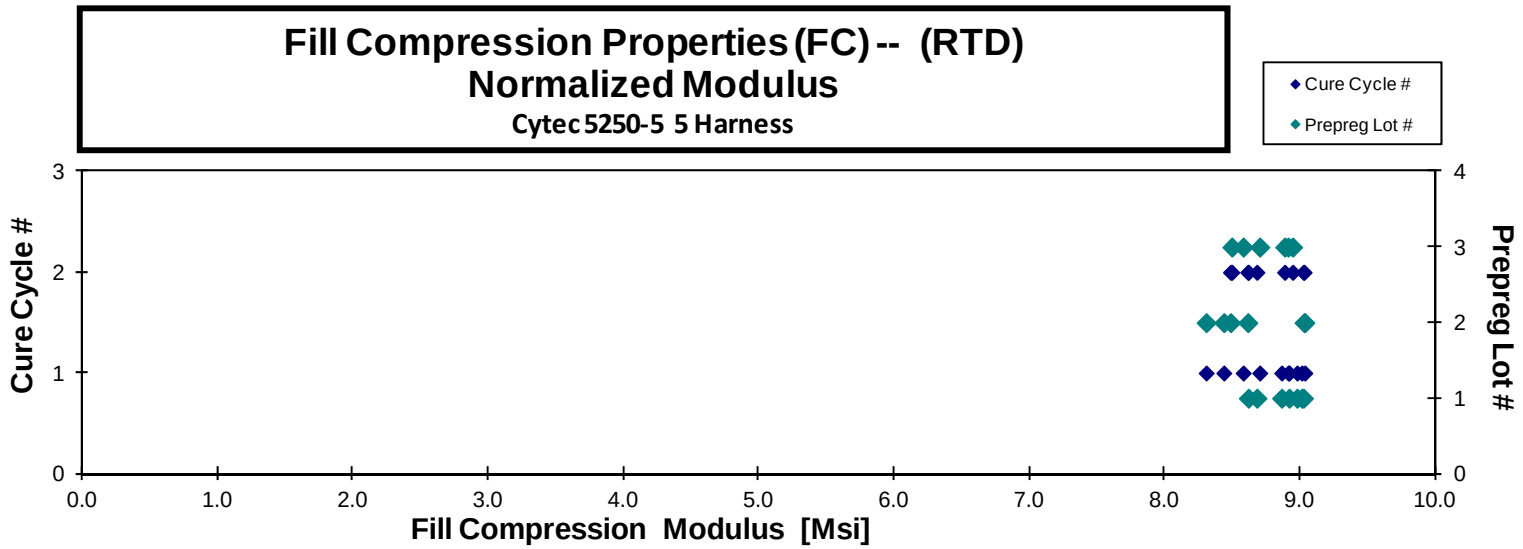
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBZA111A	A	C1	1	1	114.377	9.371	0.117	8	BAB	0.0146	109.595	8.979
CNBZA112A	A	C1	1	1	107.688	9.190	0.118	8	BGM	0.0148	104.530	8.921
CNBZA113A	A	C1	1	1	107.052	9.212	0.119	8	BGM	0.0149	104.748	9.014
CNBZA114A	A	C1	1	1	100.392	8.984	0.120	8	BGM	0.0150	99.071	8.866
CNBZA211A	A	C2	1	2	111.124	8.813	0.120	8	BGM	0.0150	109.479	8.682
CNBZA212A	A	C2	1	2	97.698	9.181	0.120	8	BGM	0.0149	96.051	9.027
CNBZA213A	A	C2	1	2	106.270	8.788	0.119	8	BGM	0.0149	104.231	8.620
CNBZB111A	B	C1	2	1	113.959	9.145	0.120	8	BGM	0.0150	112.615	9.037
CNBZB112A	B	C1	2	1	96.278	8.559	0.120	8	BGM	0.0150	94.919	8.438
CNBZB113A	B	C1	2	1	107.937	8.432	0.120	8	BGM	0.0150	106.340	8.307
CNBZB211A	B	C2	2	2	101.735	8.625	0.121	8	BGM	0.0152	101.623	8.615
CNBZB212A	B	C2	2	2	107.412	9.091	0.121	8	BGM	0.0151	106.705	9.032
CNBZB213A	B	C2	2	2	110.457	8.545	0.121	8	BGM	0.0151	109.715	8.488
CNBZC111A	C	C1	3	1	108.144	9.104	0.119	8	BGM	0.0149	105.876	8.913
CNBZC112A	C	C1	3	1	112.465	8.712	0.120	8	BGM	0.0150	110.785	8.581
CNBZC113A	C	C1	3	1	108.532	8.789	0.120	8	BGM	0.0151	107.476	8.704
CNBZC211A	C	C2	3	2	*	8.679	0.125	8	BGM/HIB	0.0157		8.947
CNBZC212A	C	C2	3	2	104.677	8.253	0.125	8	BGM	0.0157	107.776	8.497
CNBZC213A	C	C2	3	2	111.897	8.628	0.125	8	BGM	0.0157	115.271	8.888
CNBZC214A	C	C2	3	2	113.310		0.125	8	BAB	0.0157	116.758	

***Compressive strength is not reported due to bad failure mode.**
Specimen CNBZC214A was ungaged.

Average	107.442	8.847		$Average_{norm}$	0.0151	106.503	8.766
Standard Dev.	5.301	0.309		$Standard\ Dev._{norm}$		5.793	0.233
Coeff. of Var. [%]	4.933	3.496		$Coeff.\ of\ Var.\ [\%]_{norm}$		5.440	2.660
Min.	96.278	8.253		Min.	0.0146	94.919	8.307
Max.	114.377	9.371		Max.	0.0157	116.758	9.037
Number of Spec.	19	19		Number of Spec.		19	19


Fill Compression Properties (FC) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Fill Compression Strength [ksi]


Fill Compression Properties (FC) -- (RTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Fill Compression Modulus [Msi]

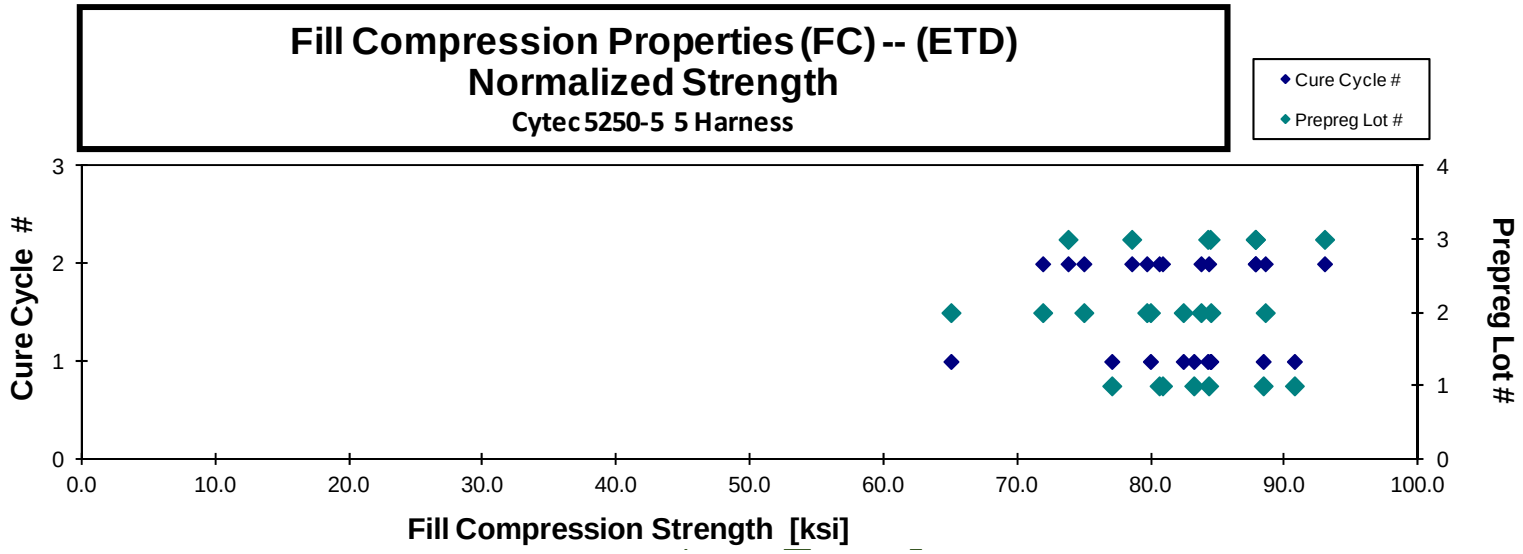
Fill Compression Properties (FC) -- (ETD)
Strength & Modulus
Cytec 5250-5 5 Harness

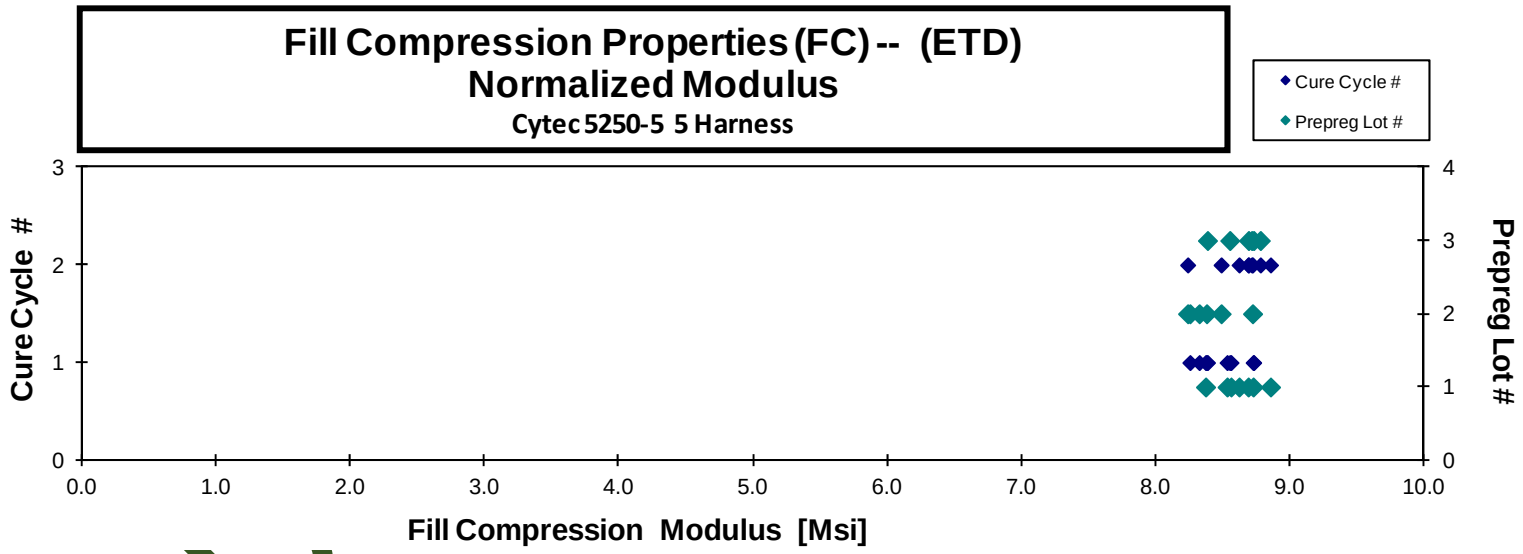
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBZA11AK	A	C1	1	1	91.229	8.774	0.121	8	BGM	0.0151	90.728	8.726
CNBZA11BK	A	C1	1	1	*	8.589	0.121	8	HIB/HAB	0.0152		8.560
CNBZA11CK	A	C1	1	1	88.746	8.404	0.121	8	BGM	0.0151	88.393	8.371
CNBZA11DK	A	C1	1	1	86.396	8.859	0.117	8	BGM	0.0146	83.199	8.532
CNBZA11EK	A	C1	1	1	78.768	**	0.119	8	BGM	0.0149	77.063	
CNBZA21AK	A	C2	1	2	84.099	8.994	0.117	8	BGM	0.0146	80.607	8.621
CNBZA21BK	A	C2	1	2	88.552	9.125	0.116	8	BGM	0.0145	84.316	8.689
CNBZA21CK	A	C2	1	2	*	8.892	0.121	8	BAB/HIB	0.0151		8.855
CNBZA21EK	A	C2	1	2	81.180	**	0.121	8	BAB	0.0151	80.858	
CNBZB11AK	B	C1	2	1	85.859	8.671	0.117	8	BAT/HIT	0.0146	82.411	8.323
CNBZB11BK	B	C1	2	1	88.947	8.692	0.115	8	BGM	0.0144	84.473	8.255
CNBZB11CK	B	C1	2	1	80.119	8.396	0.121	8	BGM	0.0152	79.955	8.378
CNBZB11DK	B	C1	2	1	65.214		0.121	8	BGM	0.0152	65.027	
CNBZB21AK	B	C2	2	2	86.036	8.464	0.118	8	BGM/HIT	0.0148	83.737	8.237
CNBZB21BK	B	C2	2	2	81.882	8.962	0.118	8	BGM/HIT	0.0148	79.683	8.721
CNBZB21CK	B	C2	2	2	87.919	8.427	0.122	8	BGM	0.0153	88.545	8.487
CNBZB21DK	B	C2	2	2	71.325	**	0.123	8	HGM	0.0153	71.892	
CNBZB21EK	B	C2	2	2	74.644	**	0.122	8	HGM	0.0153	74.971	
CNBZC11AK	C	C1	3	1	*	8.348	0.122	8	HIB / BGM	0.0153		8.385
CNBZC11BK	C	C1	3	1	83.856	8.671	0.122	8	BGM	0.0153	84.419	8.729
CNBZC11CK	C	C1	3	1	85.674	8.697	0.120	8	HAT / BGM	0.0149	84.241	8.551
CNBZC21AK	C	C2	3	2	87.050	8.704	0.123	8	BGM	0.0153	87.802	8.779
CNBZC21BK	C	C2	3	2	92.669	8.661	0.122	8	BAT	0.0153	92.987	8.691
CNBZC21CK	C	C2	3	2	86.110	8.546	0.124	8	BGM	0.0155	87.810	8.715
CNBZC21DK	C	C2	3	2	77.016	**	0.124	8	BAB	0.0155	78.557	
CNBZC21EK	C	C2	3	2	72.283	**	0.124	8	BAB	0.0155	73.789	

*Compressive strength is not reported due to bad failure mode.
*Specimens were ungaged.

Average	82.851	8.678	$Average_{norm}$	0.0151	81.977	8.558
Standard Dev.	6.915	0.220	$Standard\ Dev._{norm}$		6.506	0.188
Coeff. of Var. [%]	8.347	2.530	$Coeff.\ of\ Var.\ [\%]_{norm}$		7.936	2.199
Min.	65.214	8.348	Min.	0.0144	65.027	8.237
Max.	92.669	9.125	Max.	0.0155	92.987	8.855
Number of Spec.	23	19	Number of Spec.		23	19


Fill Compression Properties (FC) -- (ETD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Compression Strength [ksi]
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0


Fill Compression Properties (FC) -- (ETD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Compression Modulus [Msi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0

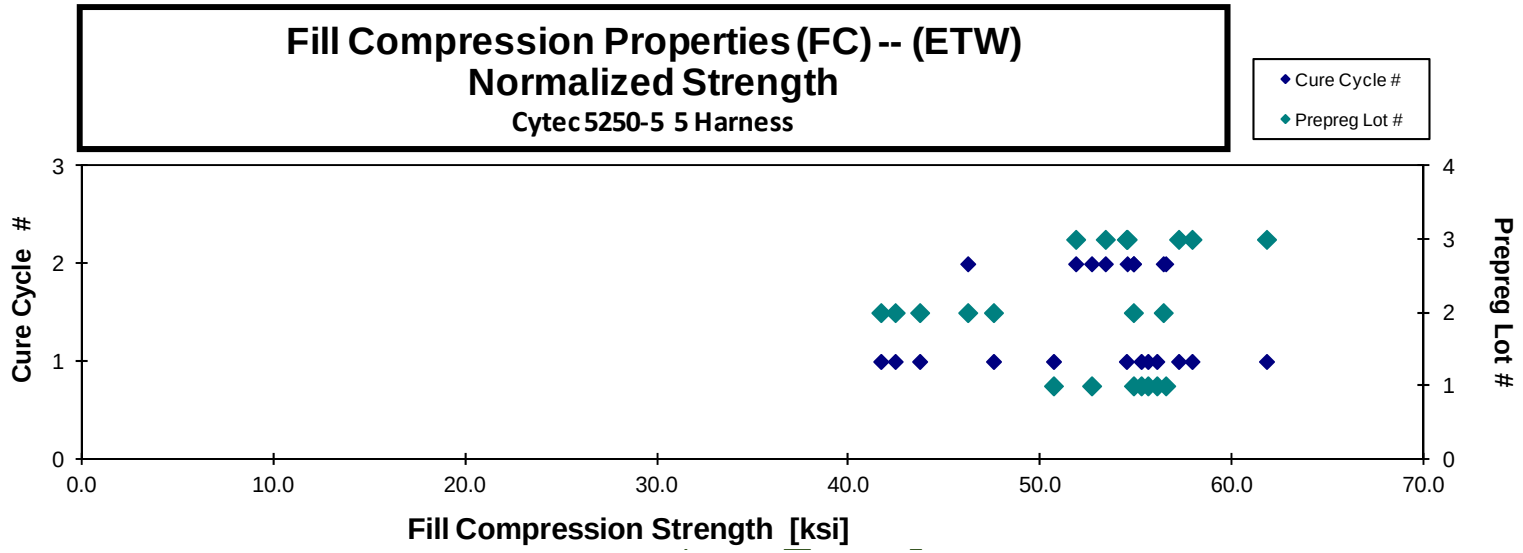
Fill Compression Properties (FC) -- (ETW)
Strength & Modulus
Cytec 5250-5 5 Harness

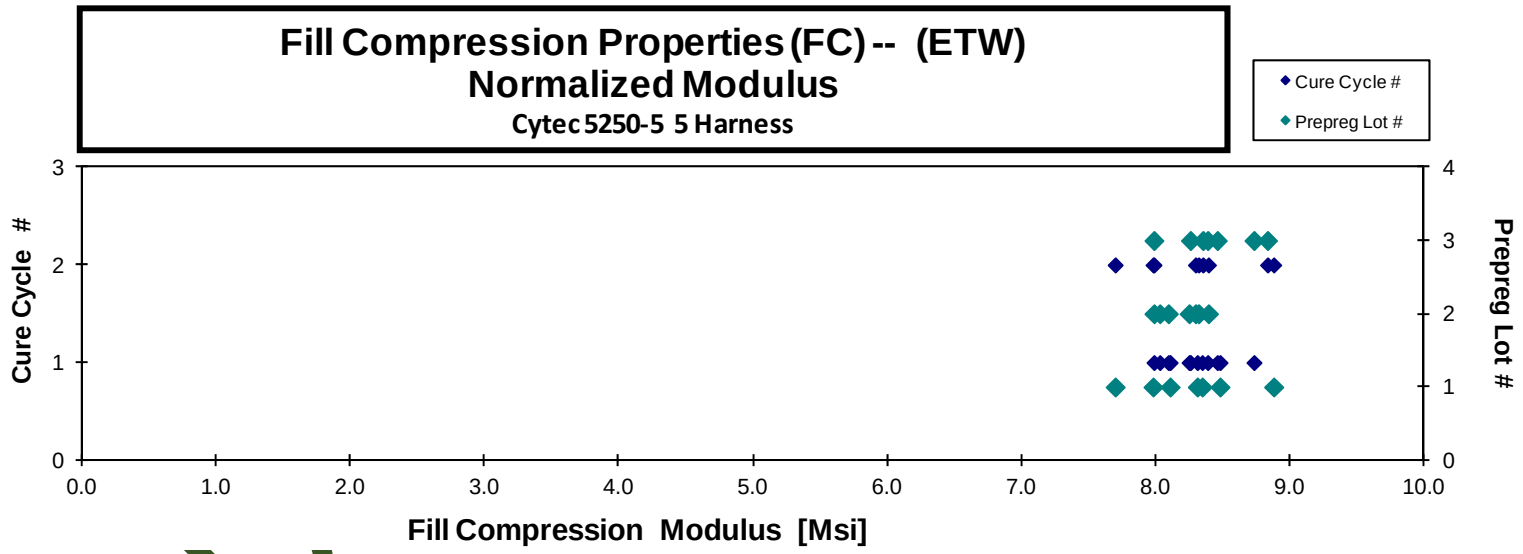
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBZA11FJ	A	C1	1	1		8.442	0.120	8	BGM	0.0150		8.346
CNBZA11GJ	A	C1	1	1		8.521	0.121	8	BAB	0.0151		8.479
CNBZA11HJ	A	C1	1	1		8.110	0.122	8	HAT	0.0152		8.107
CNBZA11IJ	A	C1	1	1		8.300	0.122	8	HAB	0.0152		8.310
CNBZA11JJ	A	C1	1	1	55.335		0.122	8	HGM	0.0153	55.585	
CNBZA11KJ	A	C1	1	1	54.874		0.122	8	HAT	0.0153	55.235	
CNBZA11LJ	A	C1	1	1	56.022		0.122	8	HGM/BGM	0.0152	56.052	
CNBZA11MJ	A	C1	1	1	50.259		0.123	8	HAB	0.0153	50.665	
CNBZA21FJ	A	C2	1	2		7.730	0.121	8	HGM	0.0151		7.698
CNBZA21GJ	A	C2	1	2		8.948	0.121	8	BAT / HGM	0.0151		8.879
CNBZA21HJ	A	C2	1	2		8.065	0.120	8	BGM	0.0150		7.980
CNBZA21IJ	A	C2	1	2	55.583		0.120	8	BGM	0.0150	54.836	
CNBZA21JJ	A	C2	1	2	57.510		0.120	8	BGM	0.0149	56.517	
CNBZA21KJ	A	C2	1	2	54.152		0.118	8	HGM	0.0148	52.653	
CNBZB11FJ	B	C1	2	1		8.142	0.121	8	BAT	0.0151		8.093
CNBZB11GJ	B	C1	2	1		8.050	0.121	8	HAB	0.0151		7.987
CNBZB11HJ	B	C1	2	1		8.335	0.120	8	BAB	0.0150		8.248
CNBZB11IJ	B	C1	2	1		8.153	0.120	8	BAB	0.0150		8.030
CNBZB11JJ	B	C1	2	1	44.552		0.119	8	HGM	0.0149	43.685	
CNBZB11KJ	B	C1	2	1	42.756		0.118	8	HGM	0.0148	41.660	
CNBZB11LJ	B	C1	2	1	49.223		0.117	8	HAB	0.0147	47.536	
CNBZB11MJ	B	C1	2	1	44.118		0.117	8	BAB	0.0146	42.406	
CNBZB21FJ	B	C2	2	2		8.295	0.122	8	BGM	0.0152		8.296
CNBZB21GJ	B	C2	2	2		8.381	0.121	8	BAT	0.0151		8.319
CNBZB21HJ	B	C2	2	2		8.390	0.122	8	BAT	0.0152		8.392
CNBZB21IJ	B	C2	2	2	46.841		0.120	8	BAT	0.0150	46.192	
CNBZB21JJ	B	C2	2	2	55.912		0.119	8	BGM	0.0149	54.831	
CNBZB21KJ	B	C2	2	2	57.776		0.119	8	BAB	0.0148	56.390	
CNBZC11FJ	C	C1	3	1		8.411	0.121	8	HGM/HIB	0.0152		8.386
CNBZC11GJ	C	C1	3	1		8.454	0.122	8	HGM	0.0152		8.458
CNBZC11HJ	C	C1	3	1		8.714	0.122	8	BAB	0.0152		8.732
CNBZC11IJ	C	C1	3	1		8.197	0.123	8	BAT	0.0153		8.258
CNBZC11JJ	C	C1	3	1	57.291		0.123	8	BGM	0.0154	57.887	
CNBZC11KJ	C	C1	3	1	53.810		0.123	8	HGM	0.0154	54.466	
CNBZC11LJ	C	C1	3	1	56.633		0.123	8	HAB	0.0154	57.191	
CNBZC11MJ	C	C1	3	1	61.047		0.123	8	BGM	0.0154	61.775	
CNBZC21FJ	C	C2	3	2		8.656	0.124	8	HAT	0.0155		8.833
CNBZC21GJ	C	C2	3	2		8.185	0.124	8	BAB	0.0155		8.351
CNBZC21HJ	C	C2	3	2		7.858	0.124	8	BGM	0.0154		7.987
CNBZC21IJ	C	C2	3	2	53.711		0.123	8	HAT	0.0154	54.506	
CNBZC21JJ	C	C2	3	2	51.330		0.123	8	HGM	0.0153	51.822	
CNBZC21LJ	C	C2	3	2	53.381		0.122	8	BGM	0.0152	53.367	

	Strength [ksi]	Modulus [Msi]
Average	52.958	8.302
Standard Dev.	4.965	0.281
Coeff. of Var. [%]	9.376	3.389
Min.	42.756	7.730
Max.	61.047	8.948
Number of Spec.	21	21

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.0151	52.631	8.294
$Standard\ Dev._{norm}$		5.397	0.292
$Coeff.\ of\ Var.\ [\%]_{norm}$		10.254	3.517
Min.	0.0146	41.660	7.698
Max.	0.0155	61.775	8.879
Number of Spec.		21	21


Fill Compression Properties (FC) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Fill Compression Strength [ksi]


Fill Compression Properties (FC) -- (ETW)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Fill Compression Modulus [Msi]

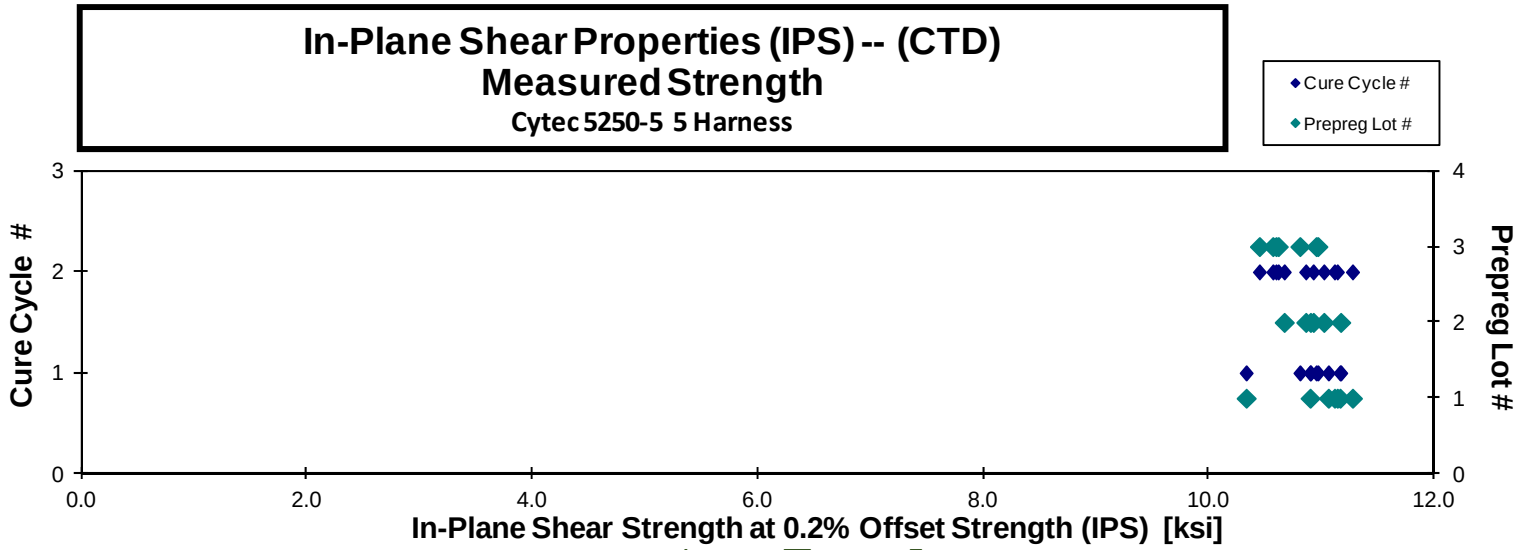
4.5 In-Plane Shear Properties (IPS)

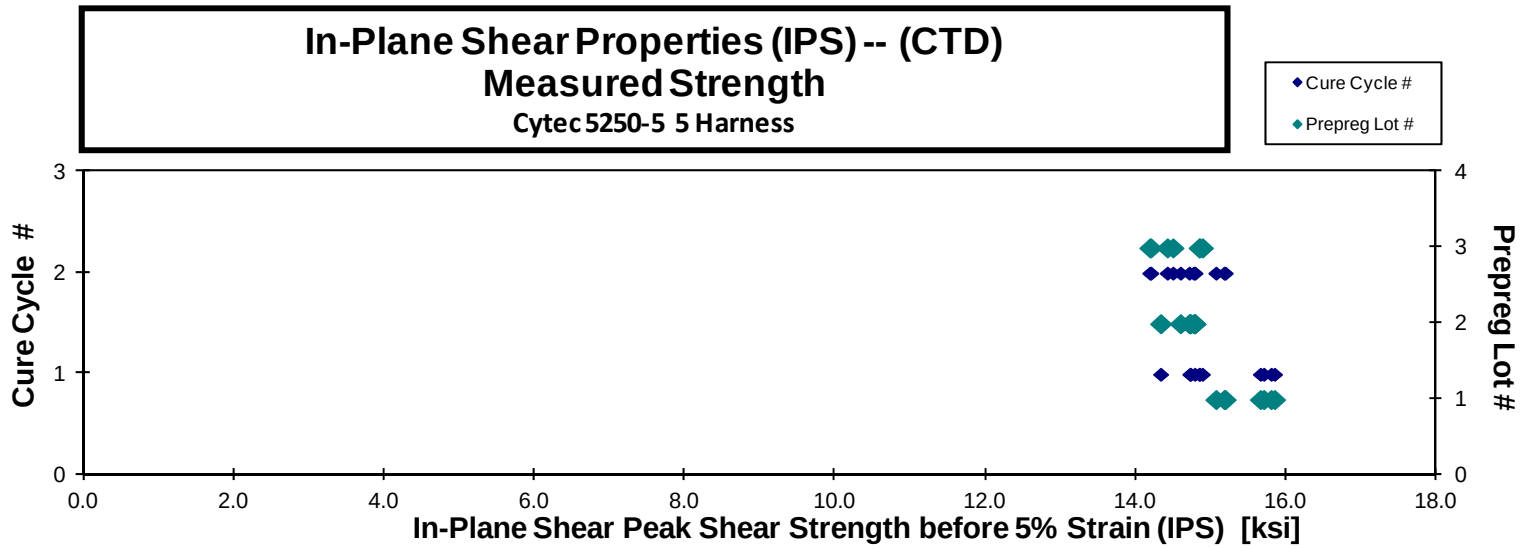
In-Plane Shear Properties (IPS) -- (CTD)
Strength & Modulus
Cytec 5250-5 5 Harness

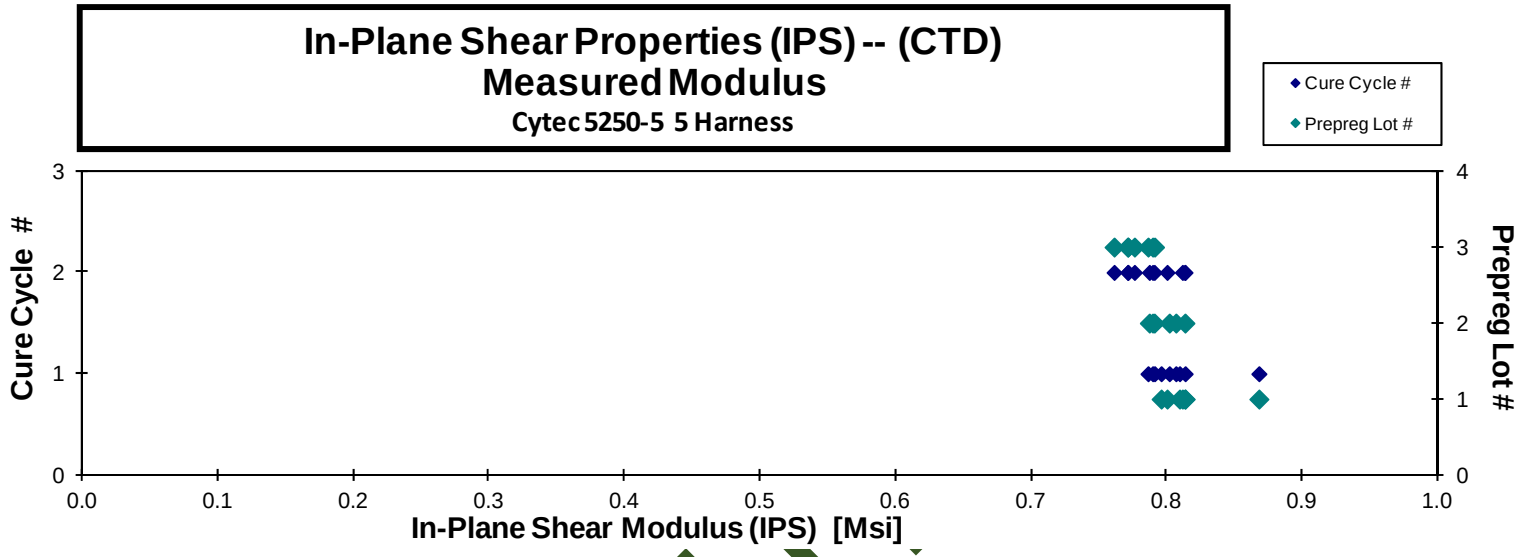
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Peak Shear Strength Before 5 % Strain [ksi]	0.2% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]
CNBNA115B	A	C1	1	1	15.675	10.891	0.796	0.122	8	0.0153
CNBNA116B	A	C1	1	1	15.817	11.053	0.810	0.121	8	0.0152
CNBNA117B	A	C1	1	1	15.863	11.156	0.814	0.121	8	0.0151
CNBNA118B	A	C1	1	1	15.719	10.324	0.868	0.121	8	0.0152
CNBNA215B	A	C2	1	2	15.192	11.132	0.800	0.121	8	0.0151
CNBNA216B	A	C2	1	2	15.083	11.267	0.812	0.121	8	0.0151
CNBNA217B	A	C2	1	2	15.206	11.107	0.813	0.121	8	0.0151
CNBNB115B	B	C1	2	1	14.347	11.163	0.807	0.123	8	0.0153
CNBNB116B	B	C1	2	1	14.737	10.894	0.802	0.121	8	0.0152
CNBNB117B*	B	C1	2	1	14.800			0.121	8	0.0152
CNBNB118B*	B	C1	2	1	14.745			0.121	8	0.0151
CNBNB215B	B	C2	2	2	14.804	11.013	0.790	0.123	8	0.0154
CNBNB216B	B	C2	2	2	14.610	10.853	0.791	0.124	8	0.0155
CNBNB217B	B	C2	2	2	14.728	10.919	0.813	0.122	8	0.0153
CNBNB218B	B	C2	2	2	14.786	10.661	0.787	0.122	8	0.0152
CNBNC115B	C	C1	3	1	14.863	10.801	0.790	0.124	8	0.0155
CNBNC116B	C	C1	3	1	14.903	10.960	0.786	0.124	8	0.0155
CNBNC117B	C	C1	3	1	14.862	10.945	0.791	0.124	8	0.0155
CNBNC215B	C	C2	3	2	14.204	10.589	0.771	0.125	8	0.0156
CNBNC216B	C	C2	3	2	14.217	10.561	0.761	0.124	8	0.0156
CNBNC217B	C	C2	3	2	14.436	10.441	0.771	0.124	8	0.0155
CNBNC218B	C	C2	3	2	14.511	10.609	0.776	0.123	8	0.0154

CNBNB117B & CNBNB118B: Shear modulus, 0.2% offset shear strength removed due to ice on the extensometers sensors.

Average	**14.914**	**10.867**	**0.797**	**Average**	**0.0153**
Standard Dev.	**0.491**	**0.261**	**0.023**	**Standard Dev.**	
Coeff. of Var. [%]	**3.294**	**2.402**	**2.847**	**Coeff. of Var. [%]**	
Min.	**14.204**	**10.324**	**0.761**	**Min.**	**0.0151**
Max.	**15.863**	**11.267**	**0.868**	**Max.**	**0.0156**
Number of Spec.	**22**	**20**	**20**	**Number of Spec.**	**22**


In-Plane Shear Properties (IPS) -- (CTD)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
In-Plane Shear Strength at 0.2% Offset Strength (IPS) [ksi]


In-Plane Shear Properties (IPS) -- (CTD)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
In-Plane Shear Peak Shear Strength before 5% Strain (IPS) [ksi]

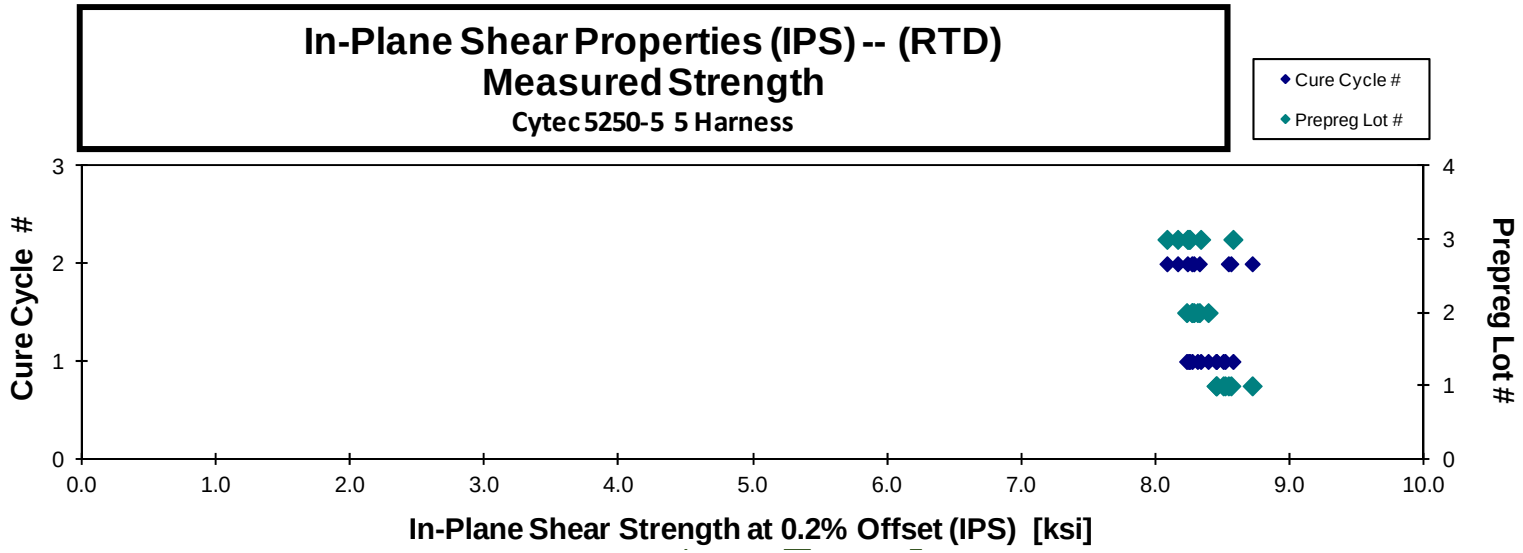

In-Plane Shear Properties (IPS) -- (CTD)
Measured Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Modulus (IPS) [Msi]
0
1
2
3
4
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

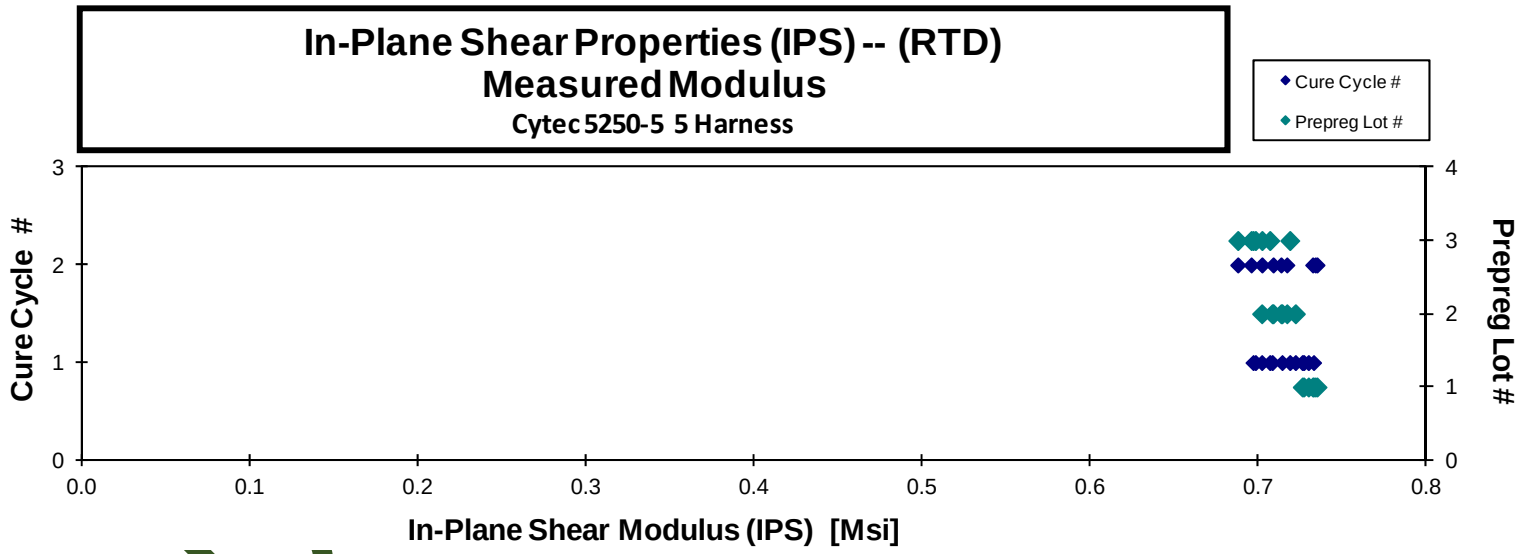
In-Plane Shear Properties (IPS) -- (RTD) Strength & Modulus

Cytec 5250-5 5 Harness

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]
CNBNA111A	A	C1	1	1	8.451	0.730	0.119	8	0.0148
CNBNA112A	A	C1	1	1	8.449	0.727	0.120	8	0.0150
CNBNA113A	A	C1	1	1	8.515	0.733	0.120	8	0.0151
CNBNA114A	A	C1	1	1	8.502	0.726	0.122	8	0.0152
CNBNA211A	A	C2	1	2	8.559	0.734	0.119	8	0.0149
CNBNA212A	A	C2	1	2	8.718	0.735	0.120	8	0.0149
CNBNA213A	A	C2	1	2	8.541	0.732	0.120	8	0.0150
CNBNB111A	B	C1	2	1	8.390	0.722	0.118	8	0.0147
CNBNB112A	B	C1	2	1	8.310	0.714	0.120	8	0.0150
CNBNB113A	B	C1	2	1	8.270	0.708	0.120	8	0.0150
CNBNB114A	B	C1	2	1	8.230	0.702	0.123	8	0.0153
CNBNB211A	B	C2	2	2	8.283	0.717	0.120	8	0.0150
CNBNB212A	B	C2	2	2	8.324	0.713	0.122	8	0.0152
CNBNB213A	B	C2	2	2	8.269	0.709	0.122	8	0.0152
CNBNC111A	C	C1	3	1	8.244	0.697	0.123	8	0.0153
CNBNC112A	C	C1	3	1	8.252	0.698	0.123	8	0.0153
CNBNC113A	C	C1	3	1	8.334	0.707	0.123	8	0.0153
CNBNC114A	C	C1	3	1	8.575	0.719	0.123	8	0.0154
CNBNC211A	C	C2	3	2	8.235	0.702	0.121	8	0.0151
CNBNC212A	C	C2	3	2	8.163	0.696	0.122	8	0.0152
CNBNC213A	C	C2	3	2	8.083	0.688	0.123	8	0.0153

Average	**8.367**	**0.714**	**Average**	**0.0151**
Standard Dev.	**0.159**	**0.014**	**Standard Dev.**	
Coeff. of Var. [%]	**1.903**	**2.012**	**Coeff. of Var. [%]**	
Min.	**8.083**	**0.688**	**Min.**	**0.0147**
Max.	**8.718**	**0.735**	**Max.**	**0.0154**
Number of Spec.	**21**	**21**	**Number of Spec.**	**21**


In-Plane Shear Properties (IPS) -- (RTD)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
In-Plane Shear Strength at 0.2% Offset (IPS) [ksi]

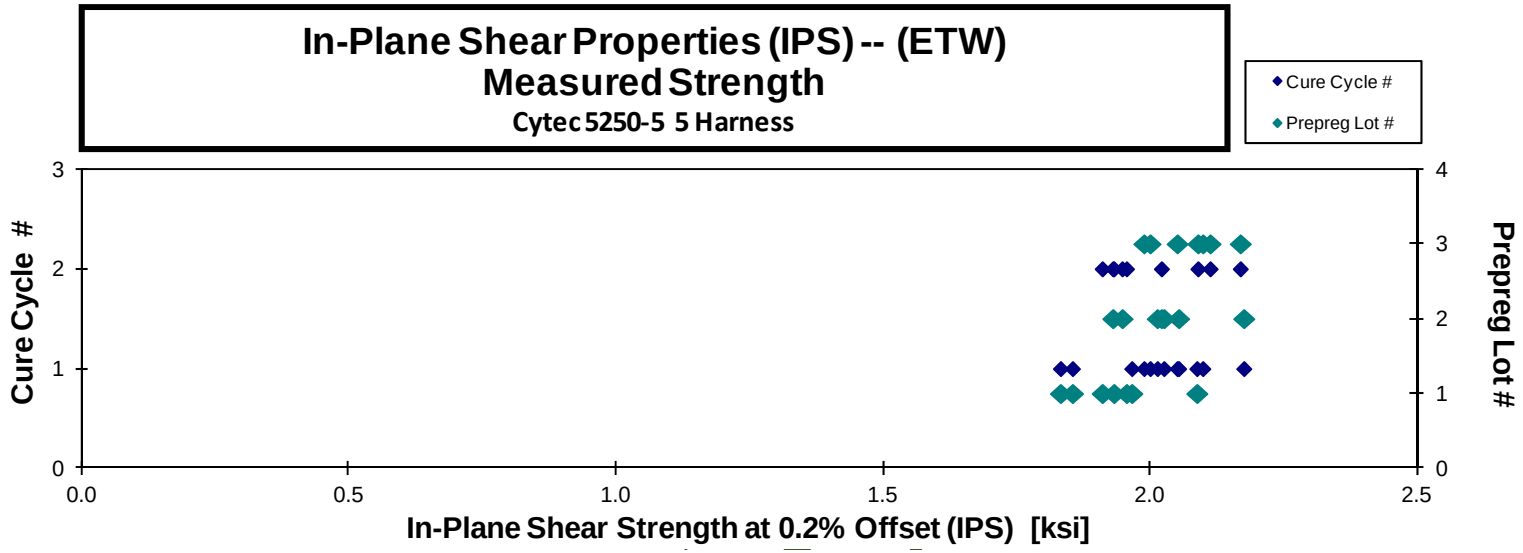

In-Plane Shear Properties (IPS) -- (RTD)
Measured Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
In-Plane Shear Modulus (IPS) [Msi]

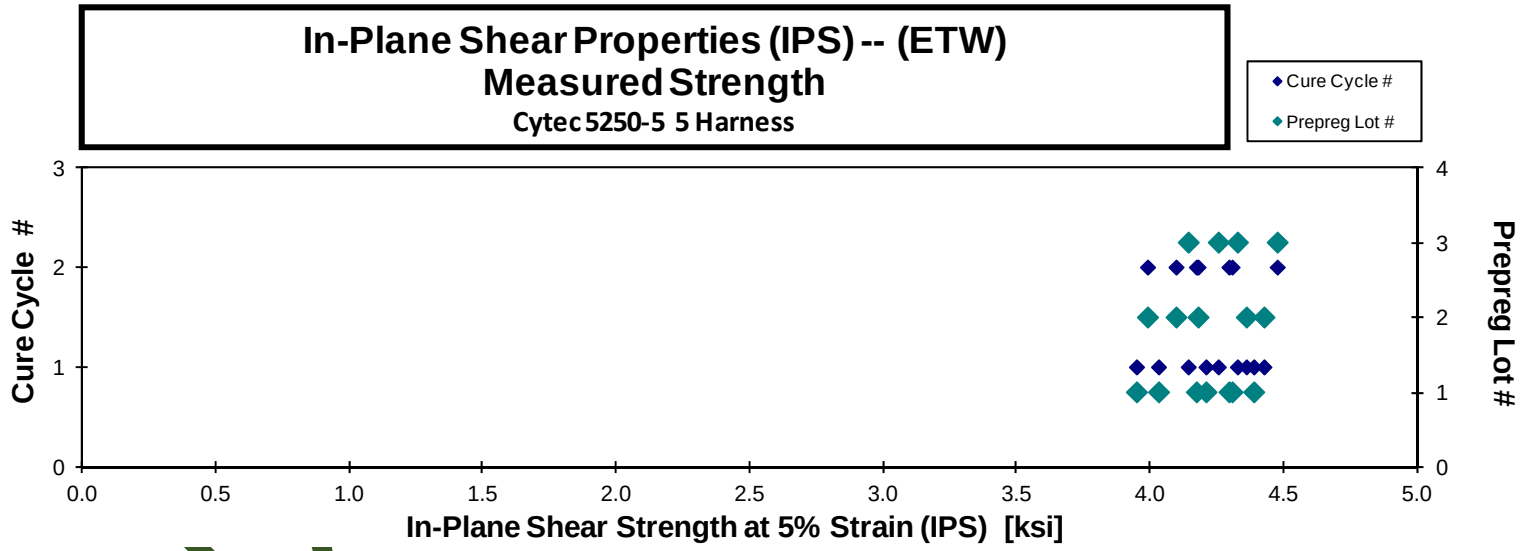
In-Plane Shear Properties (IPS) -- (ETW)
Strength & Modulus
Cytec 5250-5 5 Harness

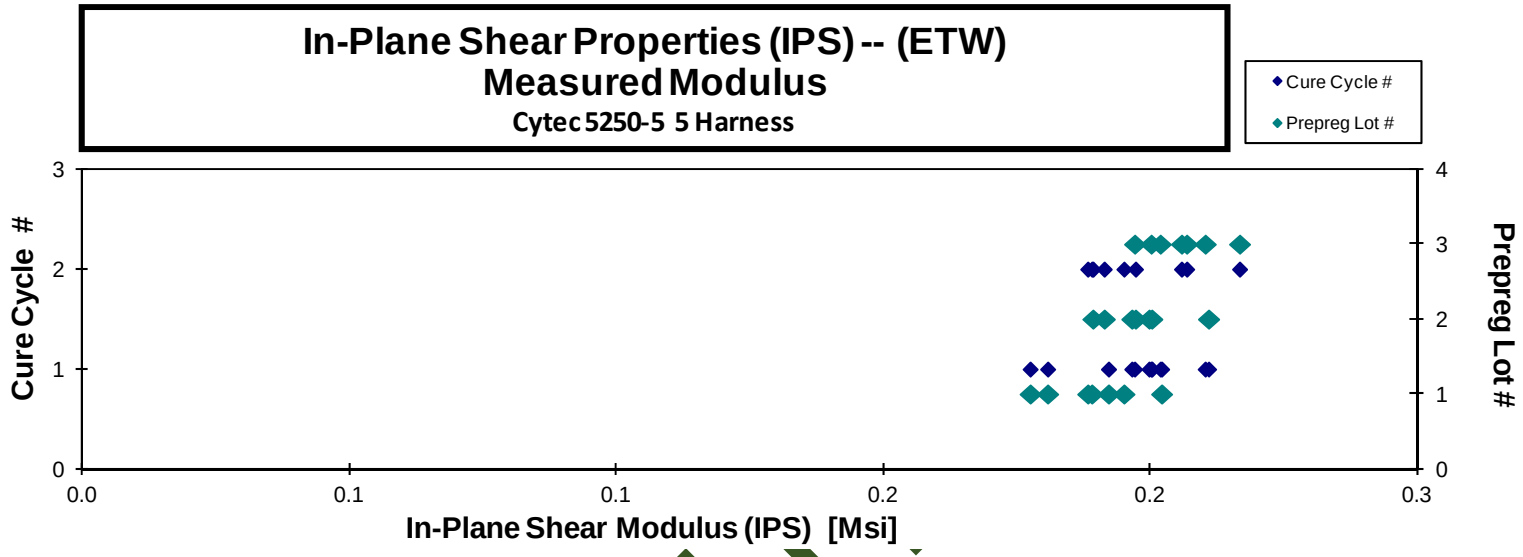
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength at 5% Strain [ksi]	0.2% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]
CNBNA119J	A	C1	1	1	4.390	2.088	0.202	0.119	8	0.0148
CNBNA11AJ	A	C1	1	1	4.211	1.967	0.192	0.120	8	0.0150
CNBNA11BJ	A	C1	1	1	4.033	1.856	0.181	0.121	8	0.0151
CNBNA11CJ	A	C1	1	1	3.951	1.833	0.178	0.121	8	0.0152
CNBNA219J	A	C2	1	2	4.309	1.957	0.195	0.118	8	0.0148
CNBNA21AJ	A	C2	1	2	4.175	1.911	0.189	0.120	8	0.0150
CNBNA21BJ	A	C2	1	2	4.297	1.933	0.188	0.120	8	0.0150
CNBNB119J	B	C1	2	1	4.428	2.027	0.200	0.117	8	0.0147
CNBNB11AJ	B	C1	2	1	*	2.176	0.211	0.119	8	0.0149
CNBNB11BJ	B	C1	2	1	*	2.054	0.200	0.121	8	0.0152
CNBNB11CJ	B	C1	2	1	4.362	2.014	0.197	0.121	8	0.0151
CNBNB219J	B	C2	2	2	4.181	2.022	0.197	0.121	8	0.0151
CNBNB21AJ	B	C2	2	2	3.992	1.931	0.189	0.122	8	0.0152
CNBNB21BJ	B	C2	2	2	4.099	1.949	0.192	0.122	8	0.0152
CNBNC119J	C	C1	3	1	4.145	2.001	0.200	0.122	8	0.0152
CNBNC11AJ	C	C1	3	1	4.257	2.052	0.202	0.122	8	0.0152
CNBNC11BJ	C	C1	3	1	4.329	2.100	0.210	0.122	8	0.0152
CNBNC11CJ	C	C1	3	1	*	1.989	0.197	0.122	8	0.0153
CNBNC219J	C	C2	3	2	*	2.090	0.206	0.122	8	0.0153
CNBNC21AJ	C	C2	3	2	4.478	2.170	0.217	0.122	8	0.0153
CNBNC21BJ	C	C2	3	2	*	2.113	0.207	0.123	8	0.0154

***Test stopped either after specimens reached 5% strain or after strain gauge failure.**

Average	**4.227**	**2.011**	**0.198**	**Average**	**0.0151**
Standard Dev.	**0.157**	**0.093**	**0.010**	**Standard Dev.**	
Coeff. of Var. [%]	**3.708**	**4.648**	**4.938**	**Coeff. of Var. [%]**	
Min.	**3.951**	**1.833**	**0.178**	**Min.**	**0.0147**
Max.	**4.478**	**2.176**	**0.217**	**Max.**	**0.0154**
Number of Spec.	**16**	**21**	**21**	**Number of Spec.**	**21**


In-Plane Shear Properties (IPS) -- (ETW)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
0.5
1.0
1.5
2.0
2.5
In-Plane Shear Strength at 0.2% Offset (IPS) [ksi]


In-Plane Shear Properties (IPS) -- (ETW)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
In-Plane Shear Strength at 5% Strain (IPS) [ksi]


In-Plane Shear Properties (IPS) -- (ETW)
Measured Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
In-Plane Shear Modulus (IPS) [Msi]
0
1
2
3
4
0.0
0.1
0.1
0.2
0.2
0.3

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

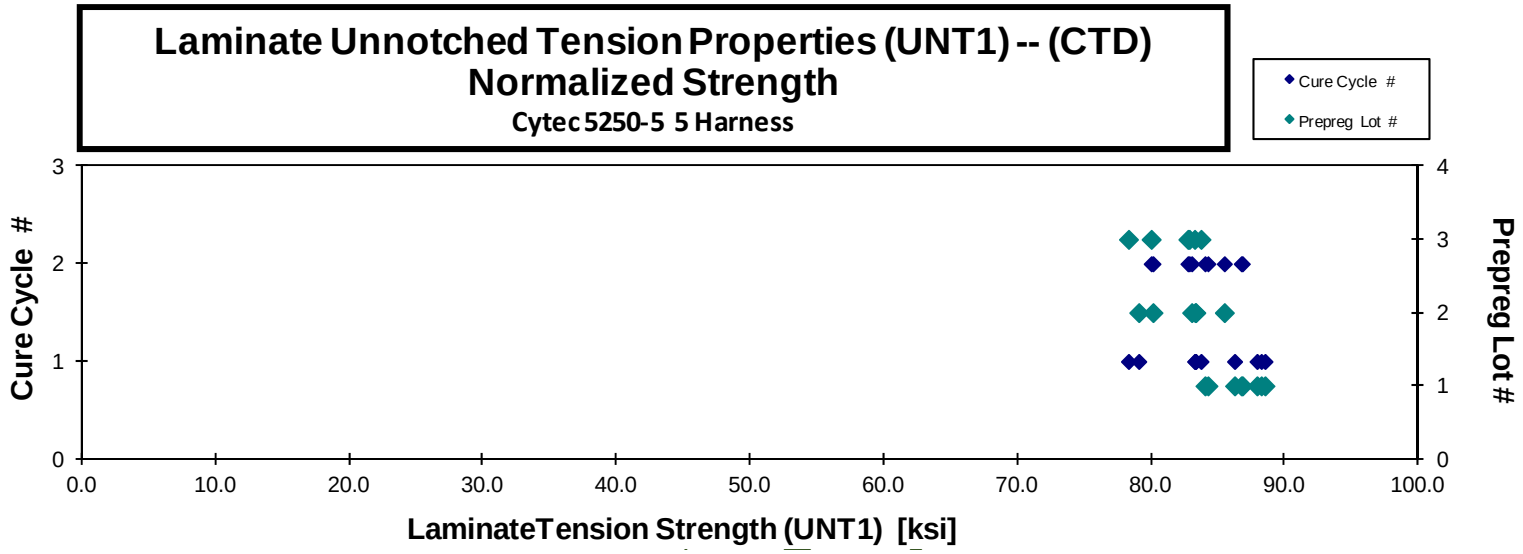
Laminate Unnotched Tension Properties (UNT1) -- (CTD)
Strength & Modulus
Cytec 5250-5 5 Harness

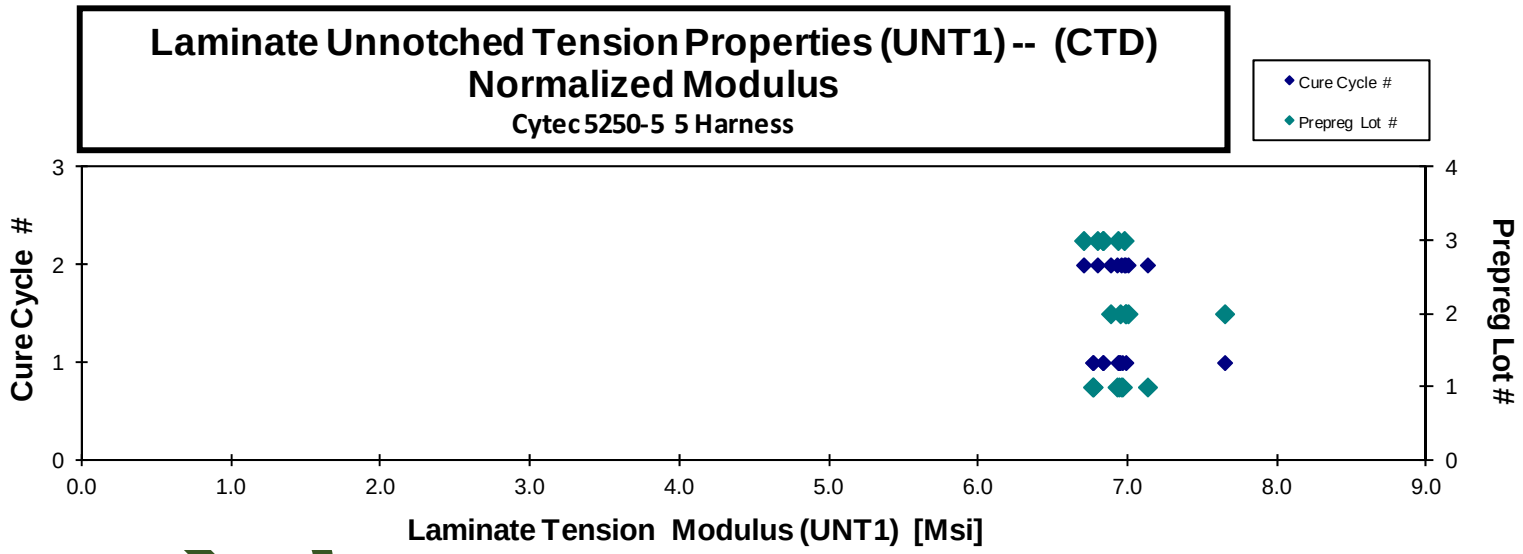
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBAA116B	A	C1	1	1	88.216	6.938	0.122	8	LGM	0.0153	88.530	6.962
CNBAA117B	A	C1	1	1	88.246	6.940	0.122	8	LGM	0.0152	88.246	6.940
CNBAA118B	A	C1	1	1	88.356	6.800	0.121	8	LGM	0.0151	87.932	6.767
CNBAA119B	A	C1	1	1	88.187	6.915	0.119	8	LGM	0.0149	86.253	6.763
CNBAA216B	A	C2	1	2	85.028	6.990	0.121	8	LGM	0.0151	84.259	6.927
CNBAA217B	A	C2	1	2	89.829	7.201	0.117	8	LGM	0.0147	86.751	6.955
CNBAA218B*	A	C2	1	2	84.732		0.121	8	LGM	0.0151	84.035	
CNBAA219B	A	C2	1	2	87.702	7.202	0.120	8	LWT	0.0151	86.836	7.131
CNBAB116B	B	C1	2	1	82.722	6.937	0.122	8	LGM	0.0153	83.300	6.986
CNBAB117B	B	C1	2	1	83.761	7.685	0.121	8	LGM	0.0151	83.348	7.647
CNBAB118B	B	C1	2	1	79.387	6.975	0.121	8	LGM	0.0151	79.082	6.948
CNBAB216B	B	C2	2	2	85.254	6.963	0.122	8	LGM	0.0152	85.488	6.982
CNBAB217B	B	C2	2	2	80.311	6.898	0.121	8	LGM	0.0152	80.145	6.884
CNBAB218B	B	C2	2	2	83.626	7.050	0.121	8	LGM	0.0151	83.042	7.000
CNBAC116B	C	C1	3	1	81.940	6.784	0.124	8	LGM	0.0155	83.737	6.933
CNBAC117B	C	C1	3	1	80.943	6.644	0.125	8	LGM	0.0156	83.262	6.834
CNBAC118B	C	C1	3	1	76.909	6.709	0.124	8	LGM	0.0155	78.311	6.831
CNBAC216B	C	C2	3	2	81.431	6.596	0.124	8	LWT	0.0154	82.759	6.703
CNBAC217B	C	C2	3	2	78.917	6.879	0.123	8	LGM	0.0154	80.009	6.974
CNBAC218B	C	C2	3	2	81.525	6.686	0.124	8	LWT	0.0155	82.865	6.796

SPECIMEN REMOVED DUE TO INCONSISTENT MODULUS*

Average	**83.851**	**6.936**	**$Average_{norm}$**	**0.0152**	**83.909**	**6.945**
Standard Dev.	**3.712**	**0.245**	**$Standard\ Dev._{norm}$**		**2.986**	**0.199**
Coeff. of Var. [%]	**4.427**	**3.535**	**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**3.559**	**2.859**
Min.	**76.909**	**6.596**	**Min.**	**0.0147**	**78.311**	**6.703**
Max.	**89.829**	**7.685**	**Max.**	**0.0156**	**88.530**	**7.647**
Number of Spec.	**20**	**19**	**Number of Spec.**		**20**	**19**


Laminate Unnotched Tension Properties (UNT1) -- (CTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
LaminateTension Strength (UNT1) [ksi]


Laminate Unnotched Tension Properties (UNT1) -- (CTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
Laminate Tension Modulus (UNT1) [Msi]

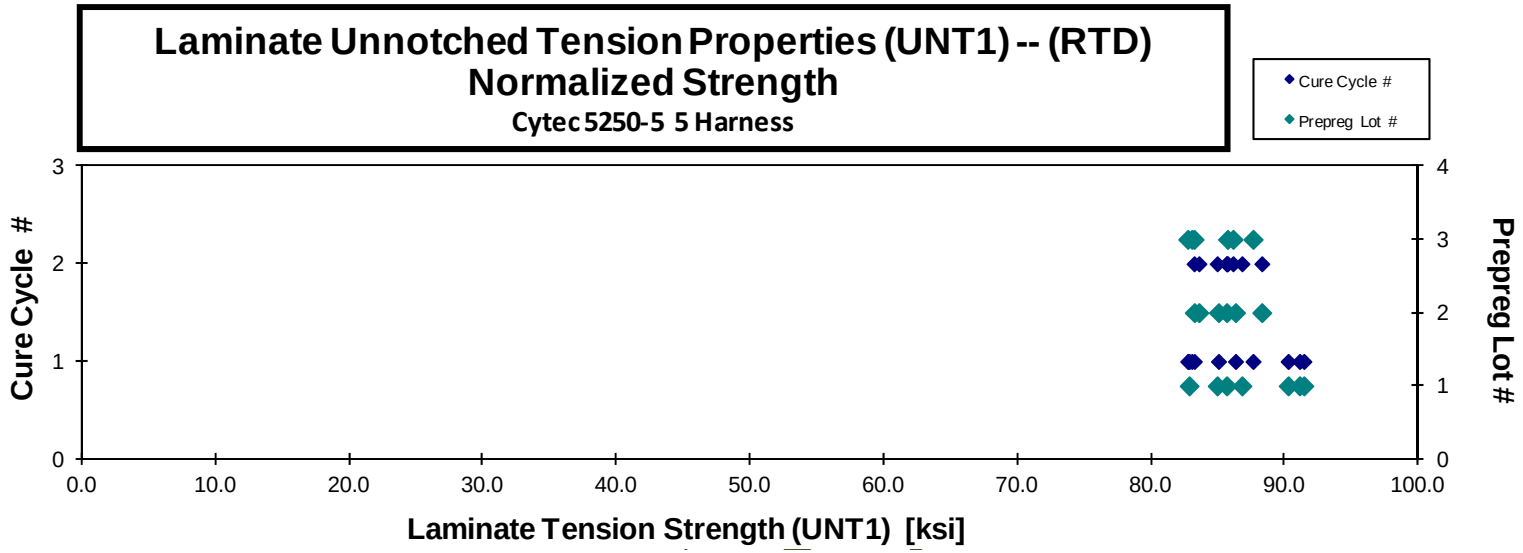
Laminate Unnotched Tension Properties (UNT1) -- (RTD)
Strength & Modulus
Cytec 5250-5 5 Harness

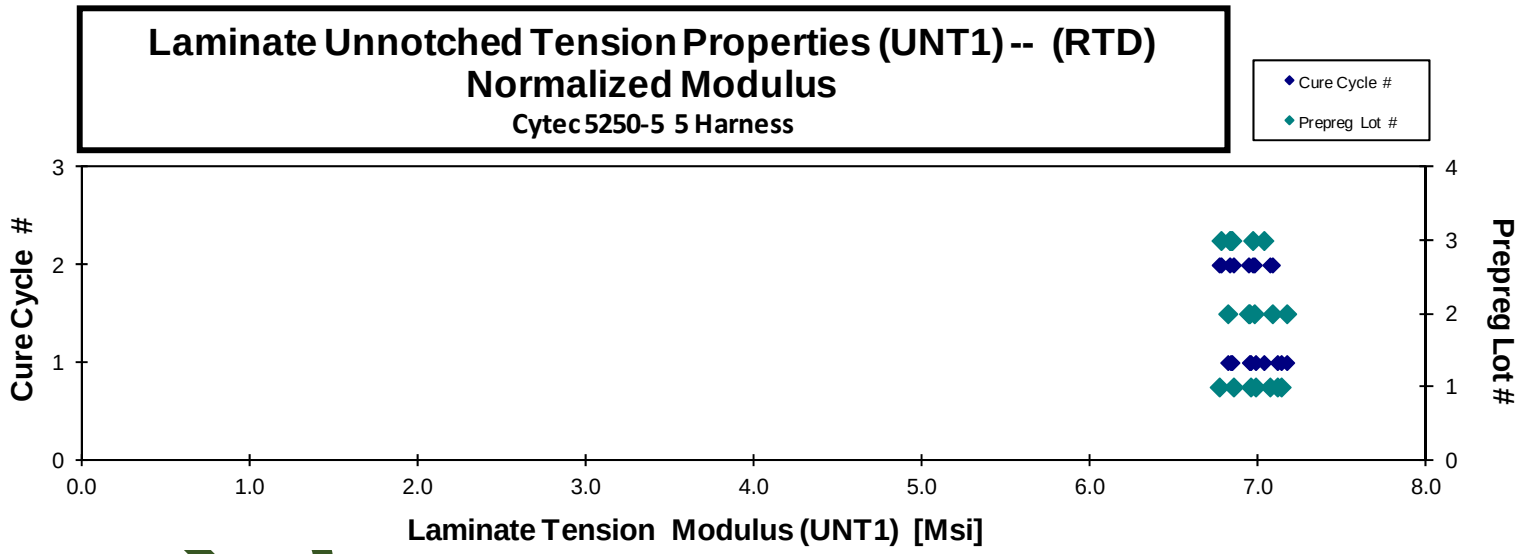
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBAA111A	A	C1	1	1	90.547	7.064	0.123	8	LGM	0.0154	91.441	7.134
CNBAA112A	A	C1	1	1	89.954	6.929	0.122	8	LGM	0.0153	90.262	6.952
CNBAA113A	A	C1	1	1	81.835	6.896	0.123	8	LGM	0.0154	82.855	6.982
CNBAA114A	A	C1	1	1	89.476	6.982	0.124	8	LGM	0.0155	91.119	7.111
CNBAA211A	A	C2	1	2	90.350	7.285	0.114	8	LGM	0.0143	84.951	6.850
CNBAA212A	A	C2	1	2	87.318	7.108	0.121	8	LGM	0.0151	86.804	7.067
CNBAA213A	A	C2	1	2	86.476	6.830	0.120	8	LWT	0.0151	85.658	6.765
CNBAB111A	B	C1	2	1	86.509	6.831	0.121	8	LWT	0.0152	86.320	6.816
CNBAB112A	B	C1	2	1	87.830	7.172	0.118	8	LWT	0.0147	85.049	6.945
CNBAB113A	B	C1	2	1	82.990	7.145	0.122	8	LWT	0.0152	83.240	7.167
CNBAB211A	B	C2	2	2	88.049	6.920	0.122	8	LGM	0.0152	88.290	6.939
CNBAB212A	B	C2	2	2	83.296	6.950	0.122	8	LGM	0.0153	83.581	6.974
CNBAB213A	B	C2	2	2	85.331	7.054	0.122	8	LWT	0.0153	85.658	7.082
CNBAC111A	C	C1	3	1	81.212	6.706	0.124	8	LGM	0.0155	82.748	6.833
CNBAC112A	C	C1	3	1	86.019	6.902	0.124	8	LGM	0.0155	87.635	7.031
CNBAC113A	C	C1	3	1	80.651	6.643	0.125	8	LGM	0.0157	83.050	6.840
CNBAC211A	C	C2	3	2	83.660	6.797	0.125	8	LWT/LWB	0.0156	85.724	6.965
CNBAC212A	C	C2	3	2	81.711	6.703	0.124	8	LGM/LWB	0.0155	83.223	6.827
CNBAC213A	C	C2	3	2	84.726	6.664	0.124	8	LWB	0.0155	86.137	6.776

Average	85.681	6.925	
Standard Dev.	3.218	0.182	
Coeff. of Var. [%]	3.755	2.621	
Min.	80.651	6.643	
Max.	90.547	7.285	
Number of Spec.	19	19	

$Average_{norm}$	0.0153	85.987	6.950
$Standard\ Dev._{norm}$		2.742	0.125
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.189	1.792
Min.	0.0143	82.748	6.765
Max.	0.0157	91.441	7.167
Number of Spec.		19	19


Laminate Unnotched Tension Properties (UNT1) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
Laminate Tension Strength (UNT1) [ksi]


Laminate Unnotched Tension Properties (UNT1) -- (RTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
Laminate Tension Modulus (UNT1) [Msi]

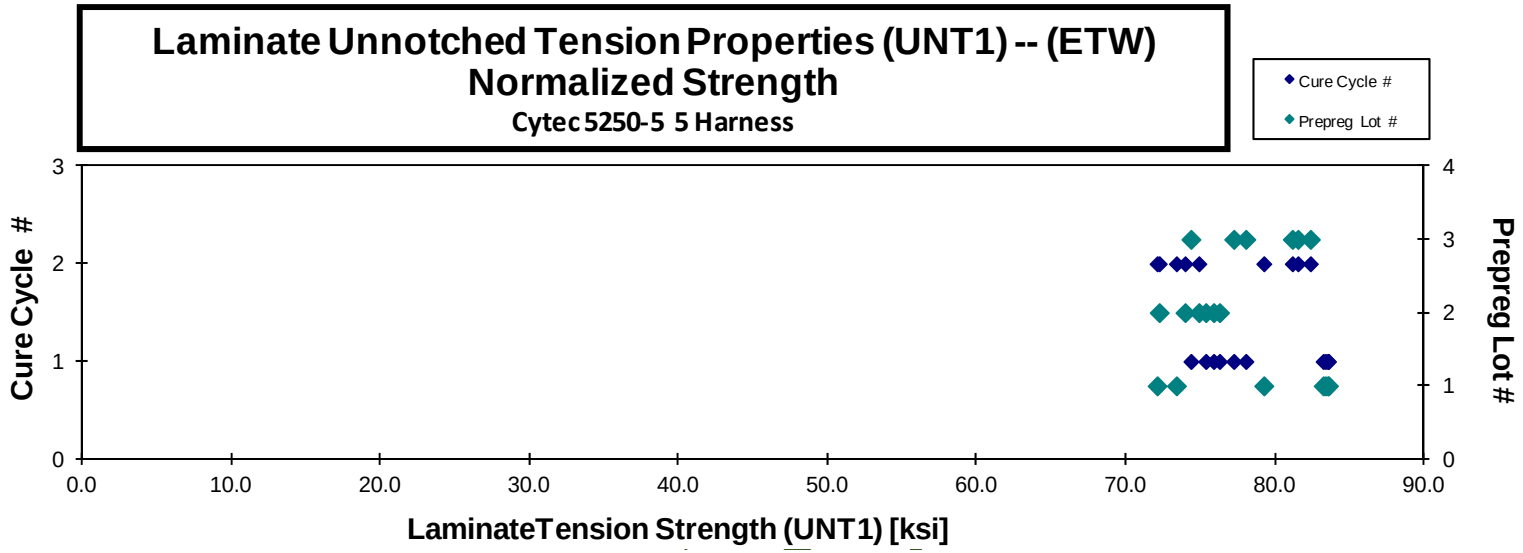
Laminate Unnotched Tension Properties (UNT1) -- (ETW)
Strength & Modulus
Cytec 5250-5 5 Harness

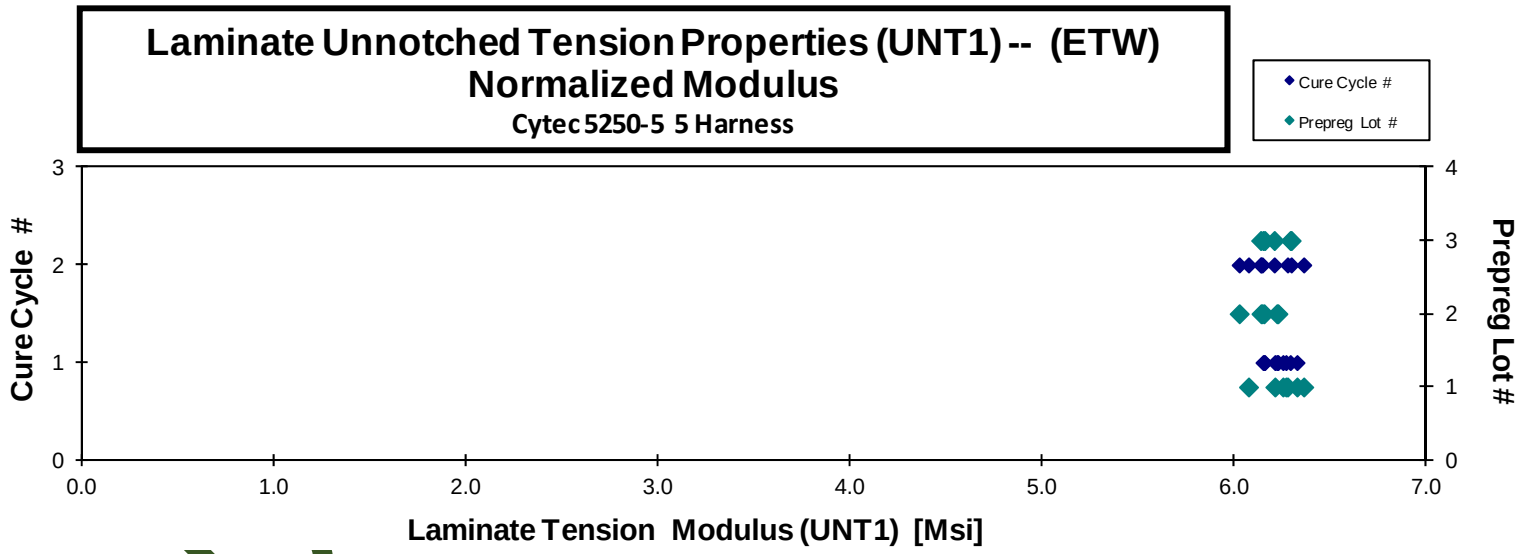
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBAA11CJ	A	C1	1	1	82.474	6.256	0.123	8	LWT / LWB	0.0154	83.378	6.325
CNBAA11DJ	A	C1	1	1	85.128	6.328	0.119	8	LGM	0.0149	83.530	6.209
CNBAA11EJ	A	C1	1	1	82.381	6.203	0.123	8	LGM	0.0154	83.228	6.267
CNBAA11FJ	A	C1	1	1	82.807	6.194	0.123	8	LWB / LGM	0.0153	83.579	6.251
CNBAA21AJ	A	C2	1	2	81.420	6.534	0.118	8	LGM	0.0148	79.244	6.359
CNBAA21BJ	A	C2	1	2	72.688	6.123	0.121	8	LGM	0.0151	72.090	6.072
CNBAA21CJ	A	C2	1	2	74.239	6.348	0.120	8	LGM	0.0150	73.385	6.275
CNBAB11AJ	B	C1	2	1	78.269	6.347	0.118	8	LGM	0.0147	75.877	6.153
CNBAB11BJ	B	C1	2	1	75.754	6.183	0.122	8	LGM	0.0153	76.273	6.225
CNBAB11CJ	B	C1	2	1	75.362	6.221	0.122	8	LWB	0.0152	75.351	6.220
CNBAB21AJ	B	C2	2	2	77.426	6.352	0.118	8	LGM	0.0147	74.890	6.144
CNBAB21BJ	B	C2	2	2	73.210	6.075	0.123	8	LGM	0.0154	73.963	6.137
CNBAB21CJ	B	C2	2	2	71.721	5.981	0.122	8	LGM	0.0153	72.232	6.024
CNBAC11AJ	C	C1	3	1	76.014	6.285	0.119	8	LGM	0.0149	74.358	6.148
CNBAC11BJ	C	C1	3	1	75.429	6.012	0.125	8	LGM	0.0156	77.228	6.156
CNBAC11CJ	C	C1	3	1	76.281	6.148	0.124	8	LGM	0.0156	78.037	6.290
CNBAC21AJ	C	C2	3	2	81.543	6.207	0.122	8	LGM	0.0152	81.532	6.206
CNBAC21BJ	C	C2	3	2	80.202	6.063	0.123	8	LGM	0.0154	81.159	6.135
CNBAC21CJ	C	C2	3	2	81.287	6.212	0.123	8	LGM	0.0154	82.367	6.294

Average	78.086	6.214	
Standard Dev.	3.969	0.135	
Coeff. of Var. [%]	5.083	2.174	
Min.	71.721	5.981	
Max.	85.128	6.534	
Number of Spec.	19	19	

$Average_{norm}$	0.0152	77.984	6.205
$Standard\ Dev._{norm}$		4.115	0.087
$Coeff.\ of\ Var.\ [\%]_{norm}$		5.277	1.406
Min.	0.0147	72.090	6.024
Max.	0.0156	83.579	6.359
Number of Spec.		19	19


Laminate Unnotched Tension Properties (UNT1) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
LaminateTension Strength (UNT1) [ksi]


Laminate Unnotched Tension Properties (UNT1) -- (ETW)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
Laminate Tension Modulus (UNT1) [Msi]

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

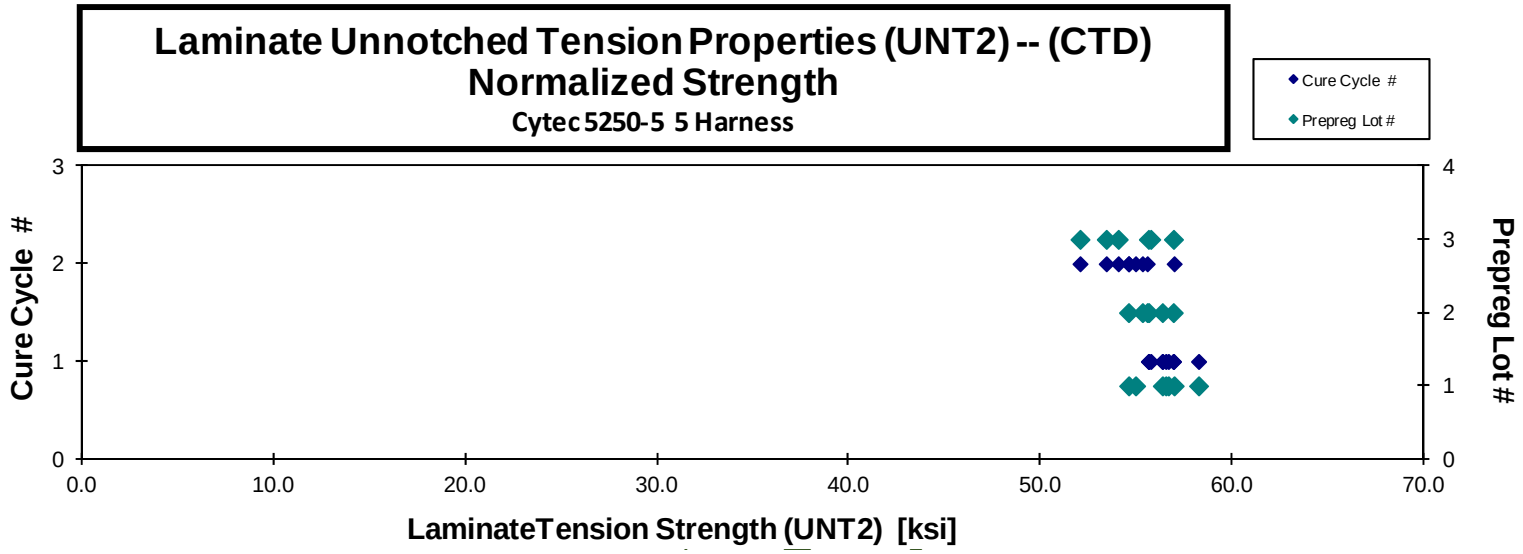
Laminate Unnotched Tension Properties (UNT2) -- (CTD)
Strength & Modulus
Cytec 5250-5 5 Harness

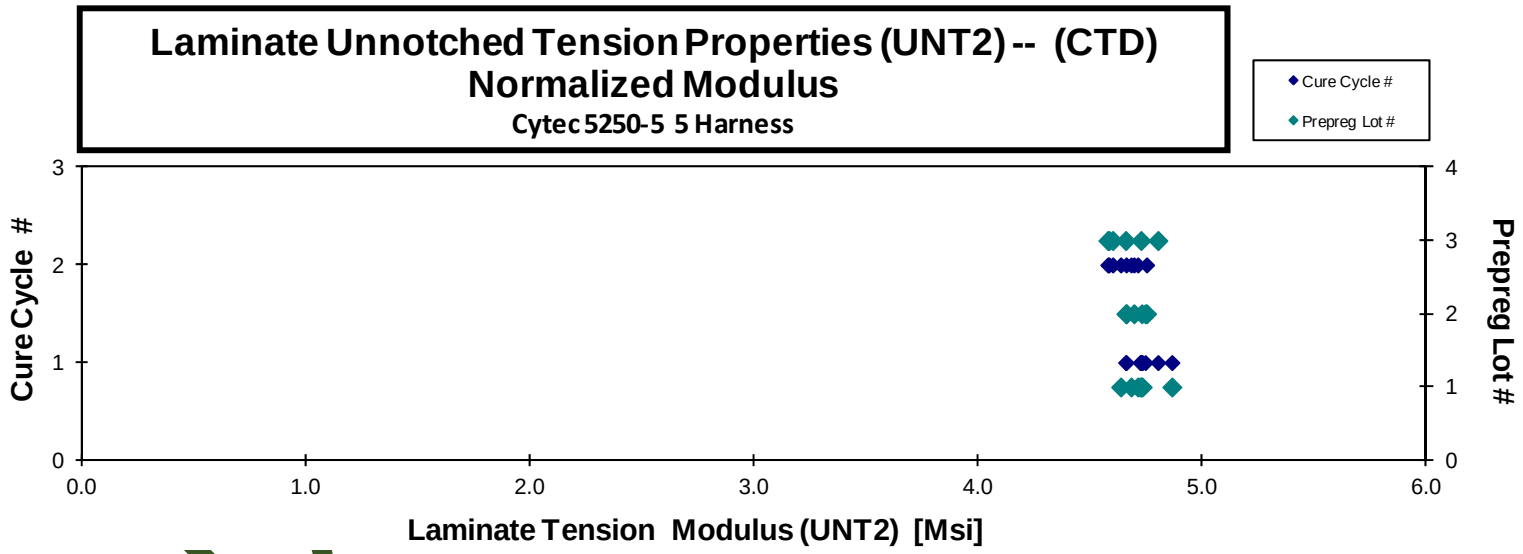
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBBA116B	A	C1	1	1	57.209	4.776	0.151	10	AGM	0.0151	56.657	4.730
CNBBA117B	A	C1	1	1	59.041	4.786	0.150	10	AGM	0.0150	58.231	4.721
CNBBA118B	A	C1	1	1	58.003	4.864	0.148	10	AGM	0.0148	56.343	4.725
CNBBA119B	A	C1	1	1	58.753	5.055	0.146	10	AWB	0.0146	56.524	4.863
CNBBA216B	A	C2	1	2	54.395	4.694	0.153	10	AWB	0.0153	54.586	4.711
CNBBA217B	A	C2	1	2	56.729	4.662	0.153	10	AWT	0.0153	56.959	4.681
CNBBA218B	A	C2	1	2	55.269	4.662	0.151	10	AWB	0.0151	54.948	4.634
CNBBB116B	B	C1	2	1	56.473	4.669	0.152	10	LWB	0.0152	56.343	4.659
CNBBB117B	B	C1	2	1	55.641	4.729	0.152	10	LWB	0.0152	55.629	4.728
CNBBB118B	B	C1	2	1	57.131	4.762	0.151	10	LGM	0.0151	56.911	4.744
CNBBB216B	B	C2	2	2	55.489	4.653	0.152	10	AGM	0.0152	55.556	4.659
CNBBB217B	B	C2	2	2	54.837	4.773	0.151	10	AGM	0.0151	54.578	4.750
CNBBB218B	B	C2	2	2	56.273	4.776	0.149	10	AGM	0.0149	55.304	4.693
CNBBC116B	C	C1	3	1	55.262	4.521	0.157	10	LWB	0.0157	56.923	4.656
CNBBC117B	C	C1	3	1	54.272	4.684	0.156	10	LGM	0.0156	55.617	4.800
CNBBC118B	C	C1	3	1	54.695	4.636	0.155	10	AWB	0.0155	55.738	4.725
CNBBC216B	C	C2	3	2	53.483	4.587	0.152	10	AGM	0.0152	53.418	4.581
CNBBC217B	C	C2	3	2	54.195	4.612	0.152	10	AGM	0.0152	54.040	4.599
CNBBC218B	C	C2	3	2	52.438	4.611	0.151	10	AGM	0.0151	52.047	4.577

Average	55.768	4.711	
Standard Dev.	1.760	0.118	
Coeff. of Var. [%]	3.156	2.503	
Min.	52.438	4.521	
Max.	59.041	5.055	
Number of Spec.	19	19	

$Average_{norm}$	0.0152	55.598	4.697
$Standard\ Dev._{norm}$		1.448	0.072
$Coeff.\ of\ Var.\ [\%]_{norm}$		2.604	1.536
Min.	0.0146	52.047	4.577
Max.	0.0157	58.231	4.863
Number of Spec.		19	19


Laminate Unnotched Tension Properties (UNT2) -- (CTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
LaminateTension Strength (UNT2) [ksi]


Laminate Unnotched Tension Properties (UNT2) -- (CTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
Laminate Tension Modulus (UNT2) [Msi]

Laminate Unnotched Tension Properties (UNT2) -- (RTD)
Strength & Modulus
Cytec 5250-5 5 Harness

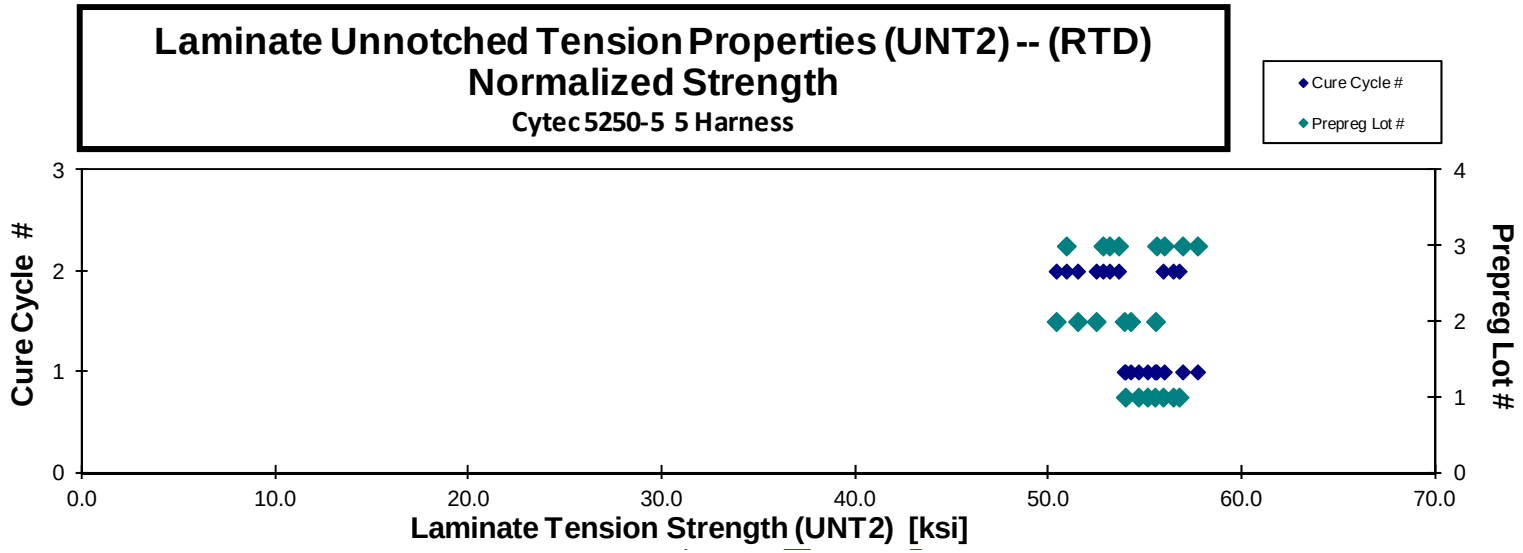
normalizing t_{ply} [in]: 0.0152

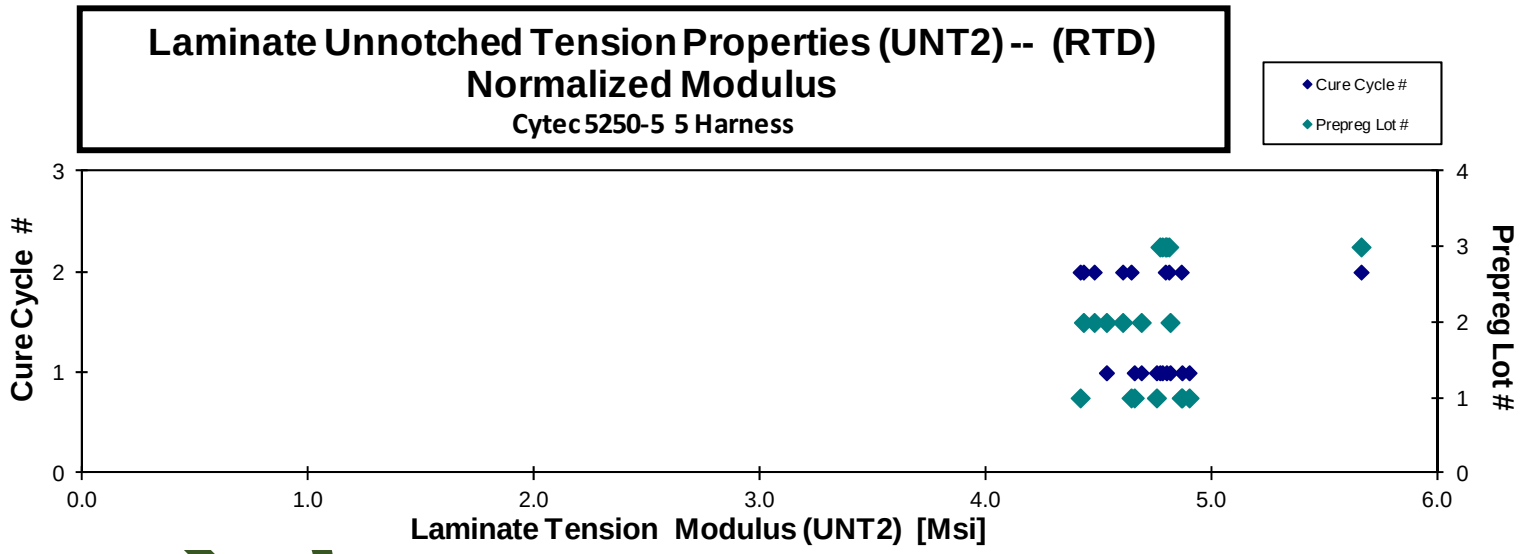
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBBA111A	A	C1	1	1	56.478	4.914	0.147	10	AGM	0.0147	54.645	4.755
CNBBA112A	A	C1	1	1	55.207	4.764	0.149	10	AGM	0.0149	53.966	4.657
CNBBA113A	A	C1	1	1	56.240	4.934	0.150	10	AWT	0.0150	55.494	4.868
CNBBA114A	A	C1	1	1	55.525	4.936	0.151	10	AGM	0.0151	55.111	4.899
CNBBA211A	A	C2	1	2	56.550	4.467	0.150	10	AGM	0.0150	55.918	4.417
CNBBA212A	A	C2	1	2	57.352	4.916	0.150	10	AGM	0.0150	56.748	4.865
CNBBA213A	A	C2	1	2	56.621	4.657	0.152	10	AGM	0.0152	56.441	4.643
CNBBB111A	B	C1	2	1	55.413	4.660	0.148	10	AWB	0.0148	53.913	4.533
CNBBB112A	B	C1	2	1	54.929	4.747	0.150	10	AWB	0.0150	54.243	4.687
CNBBB113A	B	C1	2	1	55.896	4.846	0.151	10	AGM	0.0151	55.534	4.815
CNBBB211A	B	C2	2	2	52.587	4.703	0.149	10	AWT	0.0149	51.497	4.605
CNBBB212A	B	C2	2	2	50.987	4.484	0.150	10	AWB	0.0150	50.389	4.432
CNBBB213A	B	C2	2	2	52.384	4.473	0.152	10	AWB	0.0152	52.458	4.479
CNBBC111A	C	C1	3	1	56.030	4.705	0.154	10	AGM	0.0154	56.934	4.780
CNBBC112A	C	C1	3	1	56.424	4.664	0.155	10	AGM	0.0155	57.704	4.770
CNBBC113A	C	C1	3	1	54.073	*	0.156	10	AGM	0.0156	55.585	
CNBBC114A	C	C1	3	1	54.332	4.658	0.157	10	AGM	0.0157	55.982	4.799
CNBBC211A	C	C2	3	2	54.031	4.889	0.150	10	AWT	0.0150	53.148	4.809
CNBBC212A	C	C2	3	2	53.158	5.698	0.151	10	AGM	0.0151	52.809	5.661
CNBBC213A	C	C2	3	2	51.014	*	0.152	10	AGM	0.0152	50.913	
CNBBC214A	C	C2	3	2	53.564	4.789	0.152	10	AGM	0.0152	53.617	4.794

*Tensile modulus is not reported due to non linear data.

Average	54.704	4.784	
Standard Dev.	1.860	0.268	
Coeff. of Var. [%]	3.400	5.605	
Min.	50.987	4.467	
Max.	57.352	5.698	
Number of Spec.	21	19	

$Average_{norm}$	0.0151	54.431	4.751
$Standard\ Dev._{norm}$		2.023	0.266
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.717	5.591
Min.	0.0147	50.389	4.417
Max.	0.0157	57.704	5.661
Number of Spec.		21	19


Laminate Unnotched Tension Properties (UNT2) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Tension Strength (UNT2) [ksi]


Laminate Unnotched Tension Properties (UNT2) -- (RTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
Laminate Tension Modulus (UNT2) [Msi]

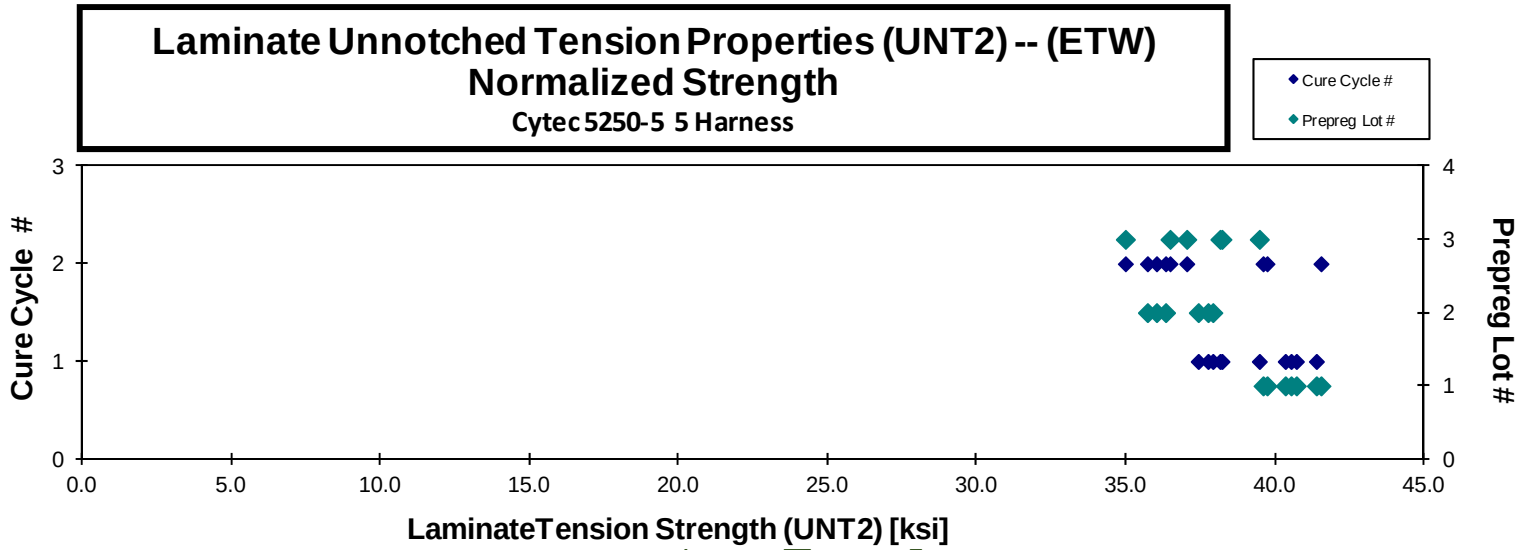
Laminate Unnotched Tension Properties (UNT2) -- (ETW)
Strength & Modulus
Cytec 5250-5 5 Harness

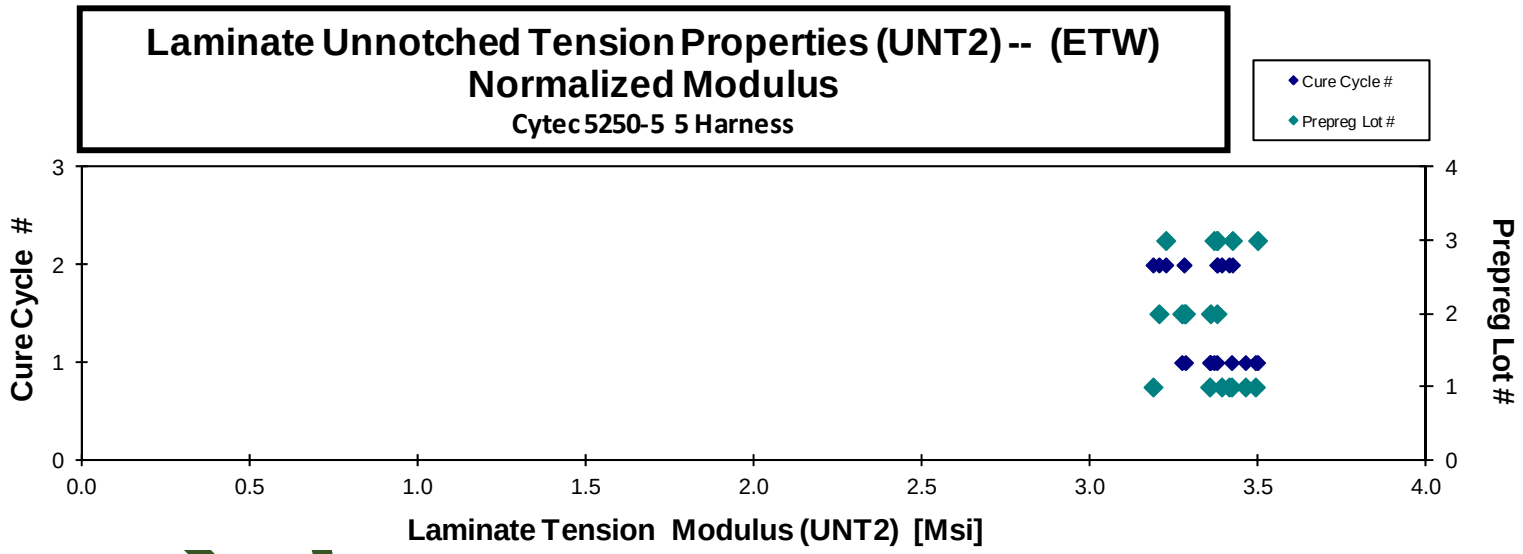
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBBA11BJ	A	C1	1	1	41.472	3.571	0.149	10	DGM	0.0149	40.535	3.490
CNBBA11CJ	A	C1	1	1	41.242	3.464	0.150	10	DGM	0.0150	40.713	3.419
CNBBA11DJ	A	C1	1	1	41.636	3.481	0.151	10	DGM	0.0151	41.385	3.460
CNBBA11EJ	A	C1	1	1	40.311	3.351	0.152	10	DGM	0.0152	40.342	3.354
CNBBA21AJ	A	C2	1	2	41.521	3.388	0.152	10	DGM	0.0152	41.540	3.390
CNBBA21BJ	A	C2	1	2	39.907	3.211	0.151	10	DWT	0.0151	39.596	3.186
CNBBA21CJ	A	C2	1	2	39.900	3.427	0.151	10	DGM	0.0151	39.730	3.412
CNBBB11AJ	B	C1	2	1	39.004	3.453	0.148	10	DGM	0.0148	37.914	3.357
CNBBB11BJ	B	C1	2	1	37.928	3.315	0.150	10	DGM	0.0150	37.425	3.271
CNBBB11CJ	B	C1	2	1	38.101	3.313	0.151	10	DGM	0.0151	37.750	3.282
CNBBB21AJ	B	C2	2	2	36.903	3.429	0.150	10	DGM	0.0150	36.328	3.376
CNBBB21BJ	B	C2	2	2	36.021	3.306	0.151	10	DGM	0.0151	35.720	3.278
CNBBB21CJ	B	C2	2	2	36.156	3.215	0.151	10	DGM	0.0151	36.026	3.203
CNBBC11AJ	C	C1	3	1	38.925	3.448	0.154	10	DGM	0.0154	39.472	3.497
CNBBC11BJ	C	C1	3	1	37.447	3.299	0.155	10	DGM	0.0155	38.219	3.367
CNBBC11CJ	C	C1	3	1	37.225	3.293	0.156	10	DGM / AGM	0.0156	38.152	3.375
CNBBC21AJ	C	C2	3	2	37.436	3.459	0.150	10	DGM	0.0150	37.038	3.422
CNBBC21BJ	C	C2	3	2	35.127	3.237	0.151	10	DWB	0.0151	34.981	3.224
CNBBC21CJ	C	C2	3	2	36.529	3.381	0.152	10	DGM	0.0152	36.477	3.376

	Strength [ksi]	Modulus [Msi]
Average	38.568	3.371
Standard Dev.	2.064	0.100
Coeff. of Var. [%]	5.352	2.953
Min.	35.127	3.211
Max.	41.636	3.571
Number of Spec.	19	19

	t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.0151	38.386	3.355
$Standard\ Dev._{norm}$		2.012	0.092
$Coeff.\ of\ Var.\ [\%]_{norm}$		5.241	2.732
Min.	0.0148	34.981	3.186
Max.	0.0156	41.540	3.497
Number of Spec.		19	19


Laminate Unnotched Tension Properties (UNT2) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
LaminateTension Strength (UNT2) [ksi]


Laminate Unnotched Tension Properties (UNT2) -- (ETW)
Normalized Modulus
Cytec 5250-5 5 Harness
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
Laminate Tension Modulus (UNT2) [Msi]

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

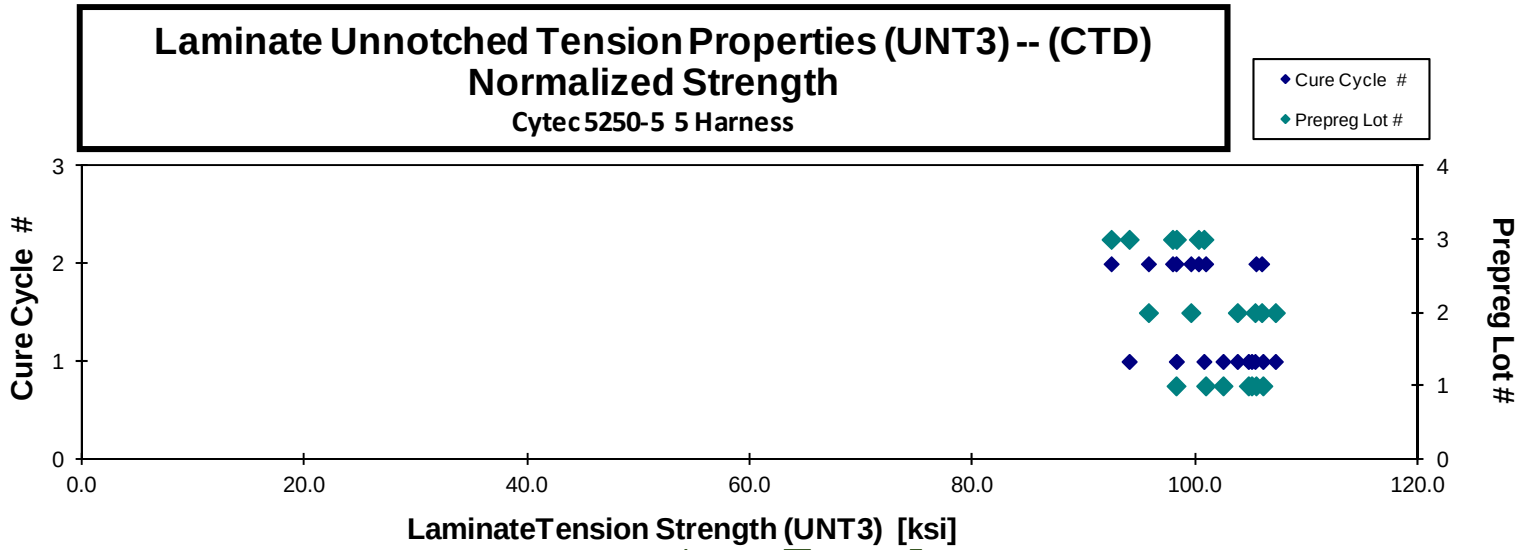
Laminate Unnotched Tension Properties (UNT3) -- (CTD)
Strength & Modulus
Cytec 5250-5 5 Harness

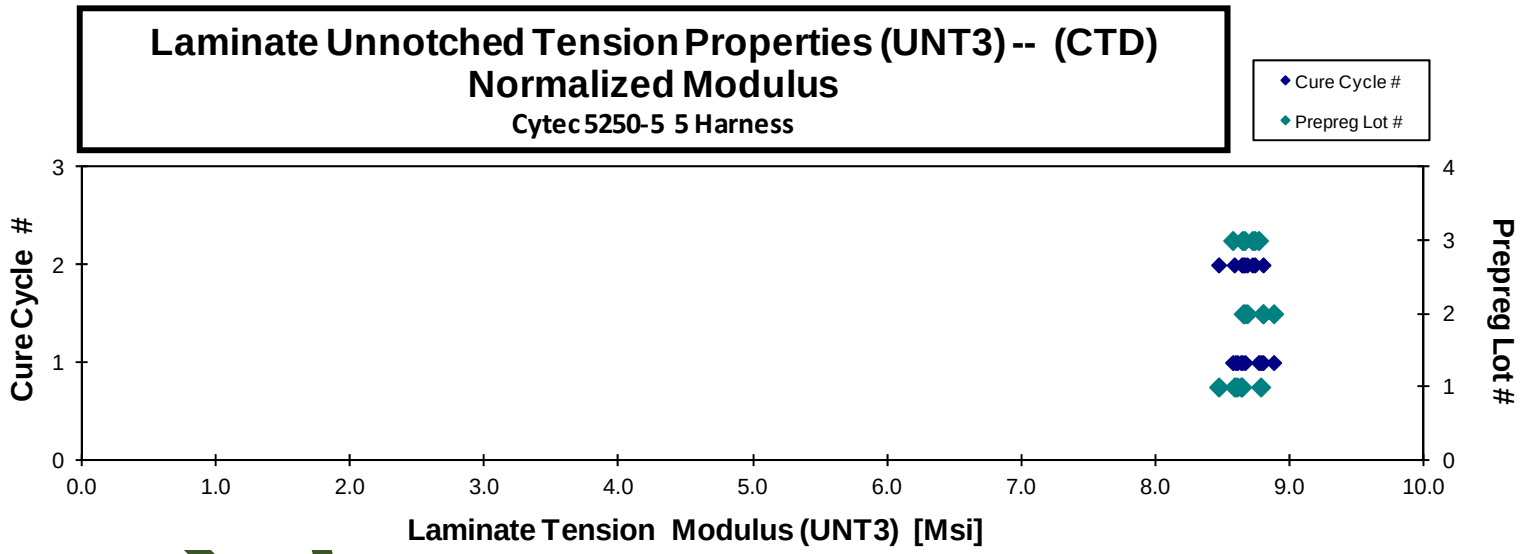
Normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBCA116B	A	C1	1	1	101.451	8.549	0.154	10	LGM	0.0154	102.463	8.634
CNBCA117B	A	C1	1	1	105.326	8.550	0.153	10	LGM	0.0153	106.042	8.608
CNBCA118B	A	C1	1	1	104.619	8.747	0.153	10	LGM	0.0153	105.032	8.781
CNBCA119B	A	C1	1	1	104.712	8.590	0.152	10	LGM	0.0152	104.735	8.592
CNBCA216B	A	C2	1	2	101.371	8.508	0.151	10	LGM	0.0151	100.904	8.468
CNBCA217B	A	C2	1	2	106.038	8.635	0.151	10	LGM	0.0151	105.422	8.585
CNBCA218B	A	C2	1	2	99.700	8.768	0.150	10	LGM	0.0150	98.247	8.640
CNBCB116B	B	C1	2	1	104.197	8.702	0.151	10	LWT/LWB	0.0151	103.751	8.665
CNBCB117B	B	C1	2	1	108.257	8.969	0.150	10	LGM	0.0150	107.165	8.878
CNBCB118B	B	C1	2	1	106.871	8.927	0.150	10	LWB	0.0150	105.336	8.798
CNBCB216B	B	C2	2	2	106.670	8.712	0.151	10	LAB	0.0151	105.934	8.652
CNBCB217B	B	C2	2	2	100.077	8.725	0.151	10	LGM	0.0151	99.572	8.681
CNBCB218B	B	C2	2	2	96.454	8.862	0.151	10	LGM	0.0151	95.766	8.799
CNBCC116B	C	C1	3	1	97.385	8.687	0.153	10	LGM	0.0153	98.272	8.766
CNBCC117B	C	C1	3	1	99.981	8.579	0.153	10	LGM	0.0153	100.748	8.644
CNBCC118B	C	C1	3	1	93.818	8.553	0.152	10	LGM	0.0152	94.034	8.573
CNBCC216B	C	C2	3	2	96.849	8.623	0.154	10	LGM	0.0154	97.932	8.719
CNBCC217B	C	C2	3	2	91.804	8.604	0.153	10	LGM	0.0153	92.418	8.661
CNBCC218B	C	C2	3	2	100.026	8.717	0.152	10	LWB	0.0152	100.256	8.737

Average	101.348	8.684	
Standard Dev.	4.656	0.130	
Coeff. of Var. [%]	4.594	1.496	
Min.	91.804	8.508	
Max.	108.257	8.969	
Number of Spec.	19	19	

$Average_{norm}$	0.0152	101.265	8.678
$Standard\ Dev._{norm}$		4.355	0.098
$Coeff.\ of\ Var.\ [\%]_{norm}$		4.300	1.135
Min.	0.0150	92.418	8.468
Max.	0.0154	107.165	8.878
Number of Spec.		19	19


Laminate Unnotched Tension Properties (UNT3) -- (CTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
LaminateTension Strength (UNT3) [ksi]


Laminate Unnotched Tension Properties (UNT3) -- (CTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Laminate Tension Modulus (UNT3) [Msi]

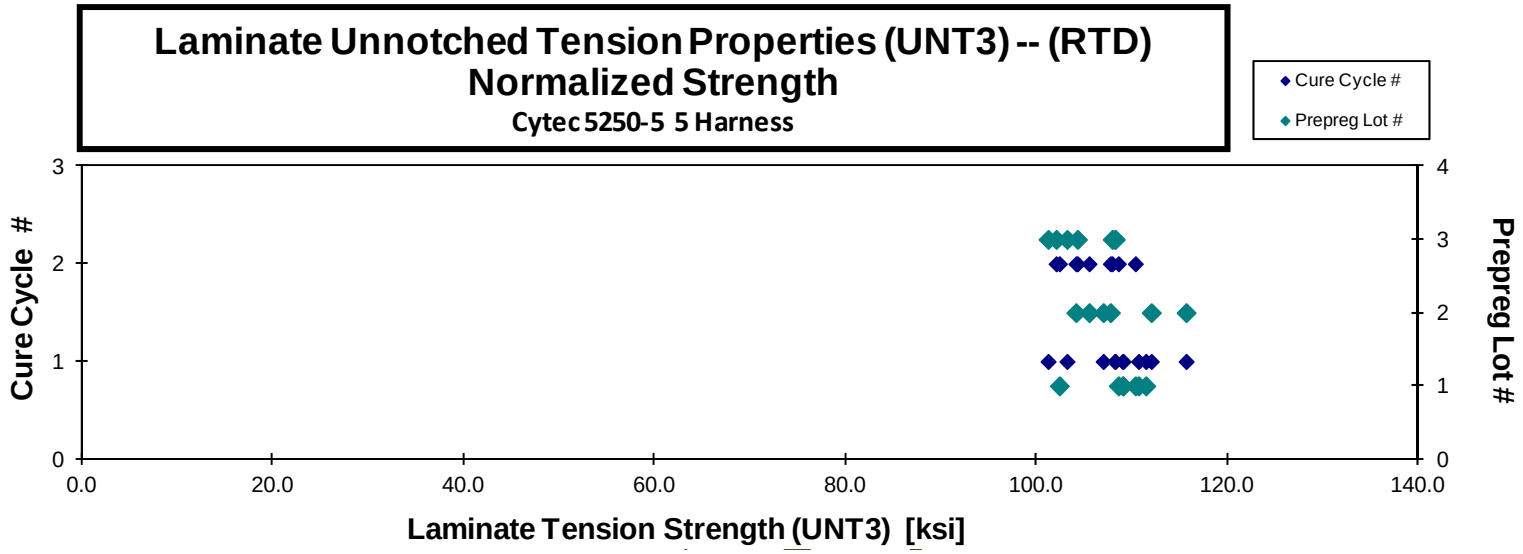
Laminate Unnotched Tension Properties (UNT3) -- (RTD)
Strength & Modulus
Cytec 5250-5 5 Harness

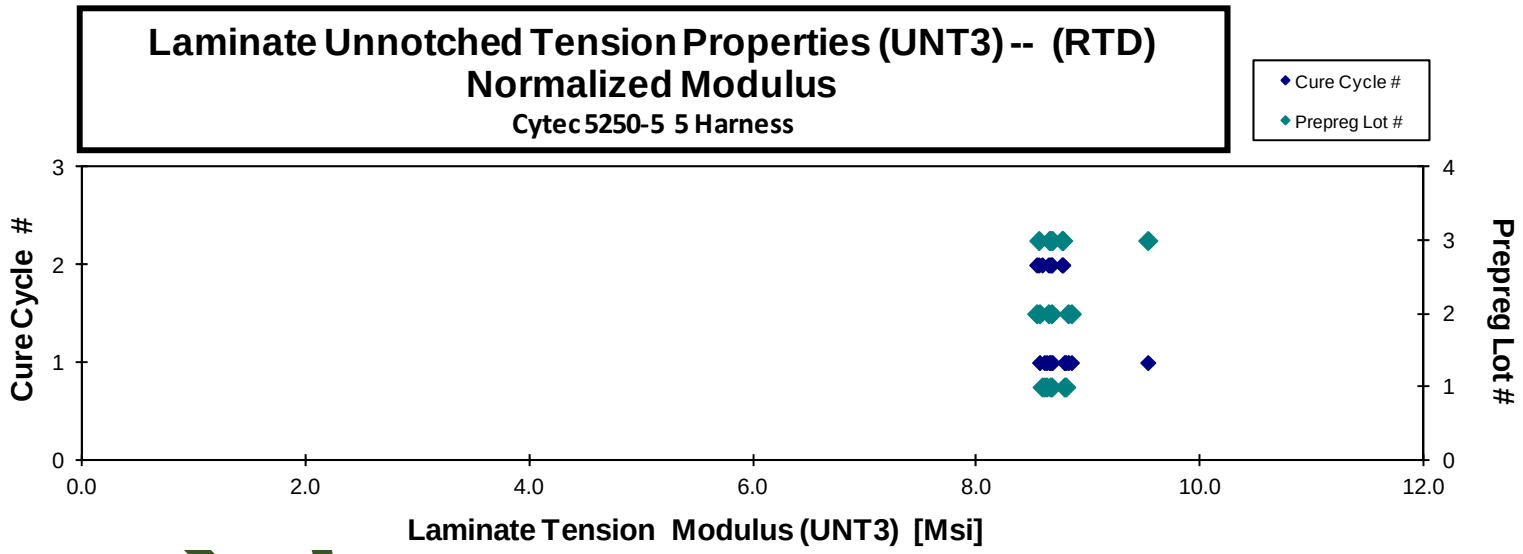
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBCA111A	A	C1	1	1	114.097	9.004	0.148	10	LWT/LWB	0.0148	111.445	8.795
CNBCA112A	A	C1	1	1	109.462	8.636	0.151	10	LWT	0.0151	109.053	8.604
CNBCA113A	A	C1	1	1	110.182	8.584	0.153	10	LWT	0.0153	110.689	8.623
CNBCA114A	A	C1	1	1	107.913	8.692	0.154	10	LWT	0.0154	109.038	8.783
CNBCA211A	A	C2	1	2	113.109	8.870	0.148	10	LGM	0.0148	110.355	8.654
CNBCA212A	A	C2	1	2	104.239	8.824	0.149	10	LGM	0.0149	102.398	8.669
CNBCA213A	A	C2	1	2	109.537	8.660	0.151	10	LGM	0.0151	108.577	8.584
CNBCB111A	B	C1	2	1	109.301	8.746	0.149	10	LGM	0.0149	106.988	8.561
CNBCB112A	B	C1	2	1	117.810	9.008	0.149	10	LGM	0.0149	115.678	8.845
CNBCB113A	B	C1	2	1	113.570	8.938	0.150	10	LWT	0.0150	112.026	8.816
CNBCB211A	B	C2	2	2	106.904	8.648	0.150	10	LWB	0.0150	105.509	8.535
CNBCB212A	B	C2	2	2	109.825	8.808	0.149	10	LGM/LWB	0.0149	107.742	8.641
CNBCB213A	B	C2	2	2	106.239	8.843	0.149	10	LGM	0.0149	104.131	8.667
CNBCC111A	C	C1	3	1	100.588	9.469	0.153	10	LGM	0.0153	101.216	9.529
CNBCC112A	C	C1	3	1	102.095	8.565	0.154	10	LGM	0.0154	103.193	8.657
CNBCC113A	C	C1	3	1	106.982	8.548	0.154	10	LGM	0.0154	108.237	8.648
CNBCC114A	C	C1	3	1	106.882	8.567	0.154	10	LGM	0.0154	108.218	8.674
CNBCC211A	C	C2	3	2	103.957	8.527	0.152	10	LWT/LWB	0.0152	104.288	8.554
CNBCC212A	C	C2	3	2	101.798	8.739	0.152	10	LWT	0.0152	102.055	8.761
CNBCC213A	C	C2	3	2	106.568	8.657	0.154	10	LGM	0.0154	107.935	8.768

Average	108.053	8.767	
Standard Dev.	4.426	0.222	
Coeff. of Var. [%]	4.096	2.537	
Min.	100.588	8.527	
Max.	117.810	9.469	
Number of Spec.	20	20	

$Average_{norm}$	0.0151	107.439	8.718
$Standard\ Dev._{norm}$		3.756	0.211
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.496	2.423
Min.	0.0148	101.216	8.535
Max.	0.0154	115.678	9.529
Number of Spec.		20	20


Laminate Unnotched Tension Properties (UNT3) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Laminate Tension Strength (UNT3) [ksi]


Laminate Unnotched Tension Properties (UNT3) -- (RTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Laminate Tension Modulus (UNT3) [Msi]

Laminate Unnotched Tension Properties (UNT3) -- (ETW)
Strength & Modulus
Cytec 5250-5 5 Harness

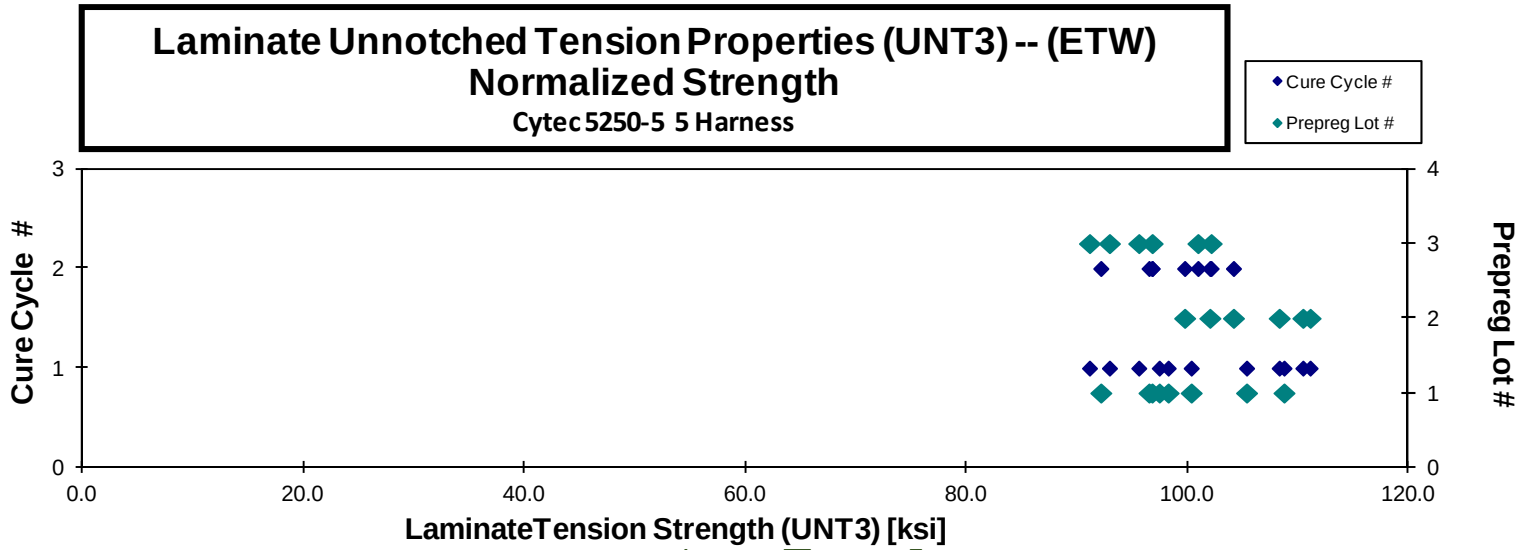
normalizing t_{ply} [in]: 0.0152

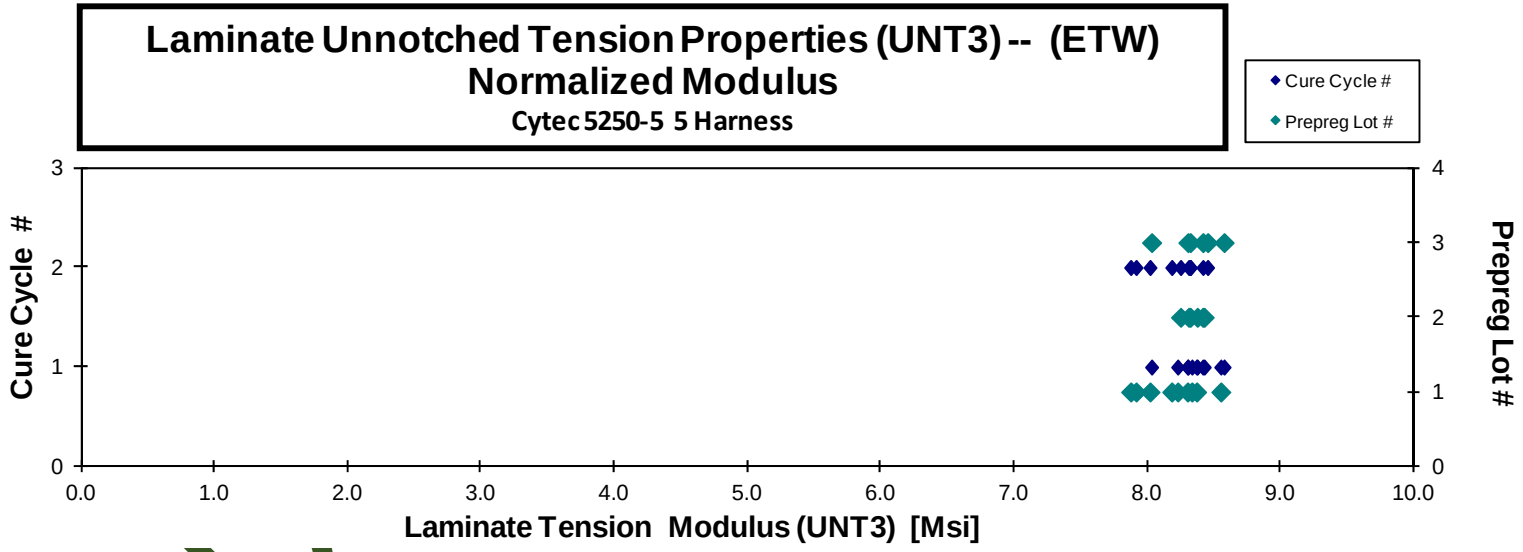
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBCA11BJ	A	C1	1	1	109.300	8.266	0.151	10	LGM / LWB	0.0151	108.772	8.226
CNBCA11CJ	A	C1	1	1	98.282	8.367	0.152	10	LGM / LWB	0.0152	98.292	8.368
CNBCA11DJ	A	C1	1	1	105.107	8.528	0.152	10	LGM / LWB	0.0152	105.383	8.550
CNBCA11EJ	A	C1	1	1	99.439	8.255	0.153	10	LGM / LWT	0.0153	100.376	8.333
CNBCA11FJ	A	C1	1	1	96.764	8.239	0.153	10	LGM	0.0153	97.486	8.300
CNBCA21AJ	A	C2	1	2	94.511	8.070	0.148	10	LGM	0.0148	92.200	7.873
CNBCA21BJ	A	C2	1	2	98.140	8.150	0.150	10	LGM	0.0150	96.558	8.018
CNBCA21CJ	A	C2	1	2		8.002	0.150	10	NO FAILURE	0.0150		7.914
CNBCA21DJ	A	C2	1	2	97.690	8.254	0.151	10	LGM	0.0151	96.833	8.181
CNBCB11AJ	B	C1	2	1	112.390	8.571	0.149	10	LGM / LWT	0.0149	110.480	8.425
CNBCB11BJ	B	C1	2	1	112.442	8.472	0.150	10	LGM / LWT	0.0150	111.135	8.373
CNBCB11CJ	B	C1	2	1	109.575	8.510	0.150	10	LGM	0.0150	108.337	8.414
CNBCB21AJ	B	C2	2	2	104.383	8.323	0.152	10	LWT / LGM	0.0152	104.200	8.308
CNBCB21BJ	B	C2	2	2	102.970	8.321	0.151	10	LGM	0.0151	102.067	8.248
CNBCB21CJ	B	C2	2	2	100.891	8.412	0.150	10	LAT / LGM	0.0150	99.785	8.320
CNBCC11AJ	C	C1	3	1	94.393	8.195	0.154	10	LWT / LGM	0.0154	95.635	8.303
CNBCC11BJ	C	C1	3	1	92.052	8.489	0.154	10	LWT / LGM	0.0154	92.980	8.574
CNBCC11CJ	C	C1	3	1	90.020	7.929	0.154	10	LWB / LGM	0.0154	91.175	8.030
CNBCC21AJ	C	C2	3	2	101.094	8.232	0.154	10	LWB / LGM	0.0154	102.180	8.321
CNBCC21BJ	C	C2	3	2	100.161	8.382	0.153	10	LWB / LGM	0.0153	100.985	8.451
CNBCC21CJ	C	C2	3	2	95.761	8.321	0.154	10	LWT / LGM	0.0154	96.843	8.415

Tensile strength and failure mode are not reported due to slippage of specimen during testing.

Average	100.768	8.299
Standard Dev.	6.471	0.171
Coeff. of Var. [%]	6.422	2.063
Min.	90.020	7.929
Max.	112.442	8.571
Number of Spec.	20	21

$Average_{norm}$	0.0152	100.585	8.283
$Standard\ Dev._{norm}$		5.975	0.189
$Coeff.\ of\ Var.\ [\%]_{norm}$		5.940	2.281
Min.	0.0148	91.175	7.873
Max.	0.0154	111.135	8.574
Number of Spec.		20	21


Laminate Unnotched Tension Properties (UNT3) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
20.0
40.0
60.0
80.0
100.0
120.0
LaminateTension Strength (UNT3) [ksi]


Laminate Unnotched Tension Properties (UNT3) -- (ETW)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Laminate Tension Modulus (UNT3) [Msi]

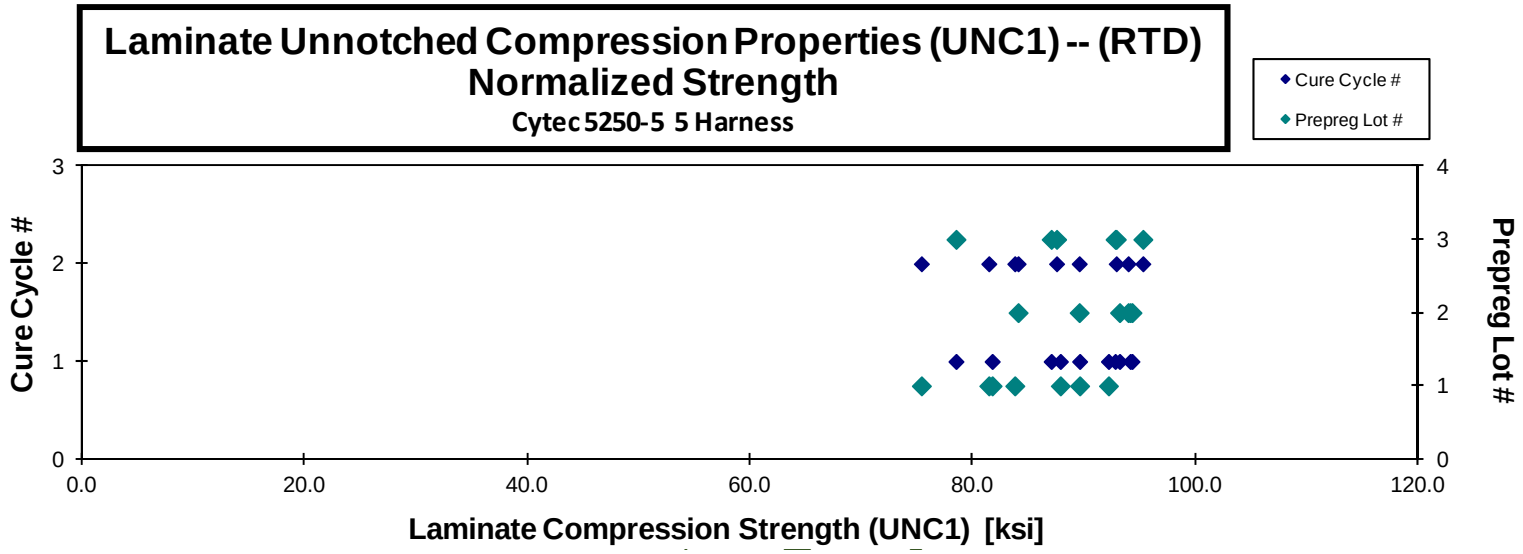
4.9 "25/50/25" Unnotched Compression 1 Properties (UNC1)

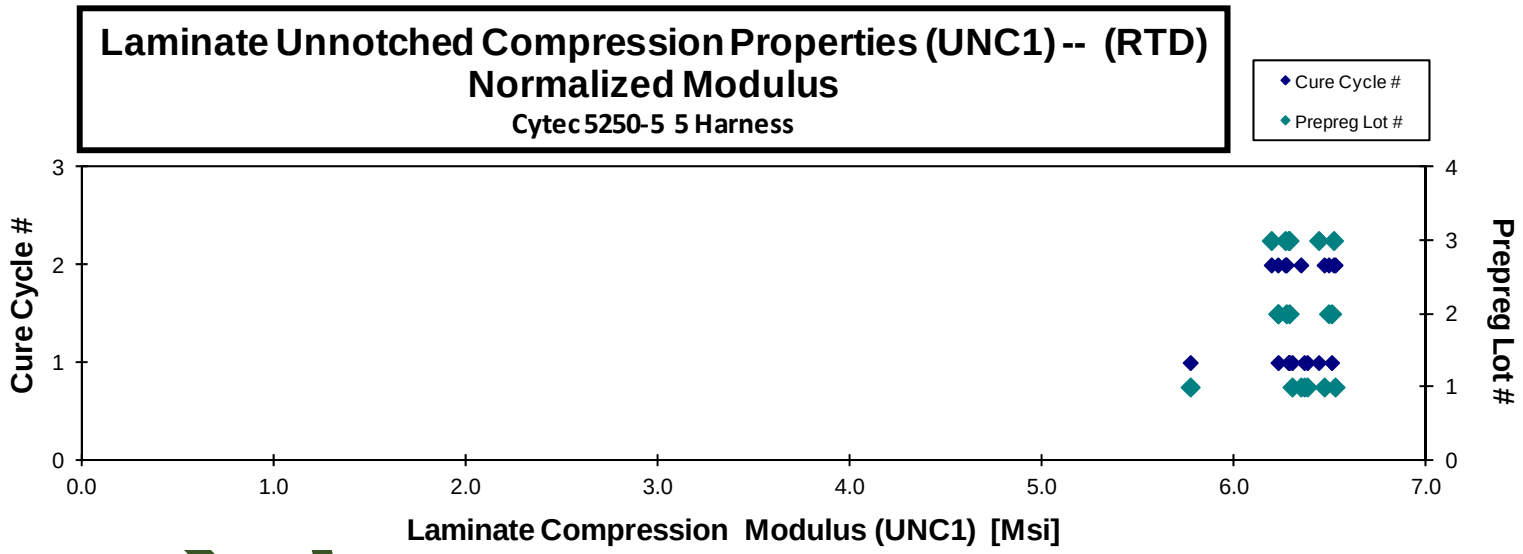
Laminate Unnotched Compression Properties (UNC1) -- (RTD)
Strength & Modulus
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBWA111A	A	C1	1	1	85.322	6.022	0.116	8	BGM	0.0146	81.732	5.769
CNBWA112A	A	C1	1	1	93.363	6.647	0.117	8	BGM	0.0146	89.588	6.378
CNBWA113A	A	C1	1	1	90.688	6.567	0.118	8	BGM	0.0147	87.854	6.362
CNBWA114A	A	C1	1	1	94.734	6.473	0.118	8	BGM	0.0148	92.176	6.299
CNBWA211A	A	C2	1	2	83.257	6.611	0.119	8	BGM	0.0149	81.431	6.466
CNBWA212A	A	C2	1	2	84.623	6.589	0.120	8	BGM	0.0150	83.765	6.523
CNBWA213A	A	C2	1	2	75.634	6.366	0.121	8	BGM	0.0151	75.375	6.344
CNBWB111A	B	C1	2	1	95.996	6.350	0.119	8	BGM	0.0149	94.127	6.226
CNBWB112A	B	C1	2	1	96.334	6.420	0.119	8	BGM	0.0149	94.287	6.284
CNBWB113A	B	C1	2	1	94.708	6.612	0.120	8	BGM	0.0150	93.176	6.505
CNBWB211A	B	C2	2	2	91.621	6.369	0.119	8	BGM	0.0149	89.549	6.225
CNBWB212A	B	C2	2	2	85.076	6.567	0.120	8	BGM	0.0150	84.062	6.489
CNBWB213A	B	C2	2	2	94.564	6.311	0.121	8	BGM	0.0151	93.942	6.269
CNBWC111A	C	C1	3	1	77.150	6.177	0.124	8	BGM	0.0155	78.483	6.284
CNBWC112A	C	C1	3	1	85.222	6.303	0.124	8	BGM	0.0155	87.033	6.437
CNBWC113A	C	C1	3	1	90.676	6.137	0.124	8	BGM	0.0156	92.776	6.279
CNBWC211A	C	C2	3	2	89.081	6.632	0.119	8	BGM	0.0149	87.518	6.515
CNBWC212A	C	C2	3	2	93.841	6.255	0.120	8	BGM	0.0150	92.876	6.191
CNBWC213A	C	C2	3	2	95.765	6.295	0.121	8	BGM	0.0151	95.266	6.262

Average	89.350	6.405	$Average_{norm}$	0.0150	88.159	6.321
Standard Dev.	6.289	0.185	$Standard\ Dev._{norm}$		5.904	0.172
Coeff. of Var. [%]	7.039	2.890	$Coeff.\ of\ Var.\ [\%]_{norm}$		6.697	2.720
Min.	75.634	6.022	Min.	0.0146	75.375	5.769
Max.	96.334	6.647	Max.	0.0156	95.266	6.523
Number of Spec.	19	19	Number of Spec.		19	19


Laminate Unnotched Compression Properties (UNC1) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Compression Strength (UNC1) [ksi]


Laminate Unnotched Compression Properties (UNC1) -- (RTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
Laminate Compression Modulus (UNC1) [Msi]

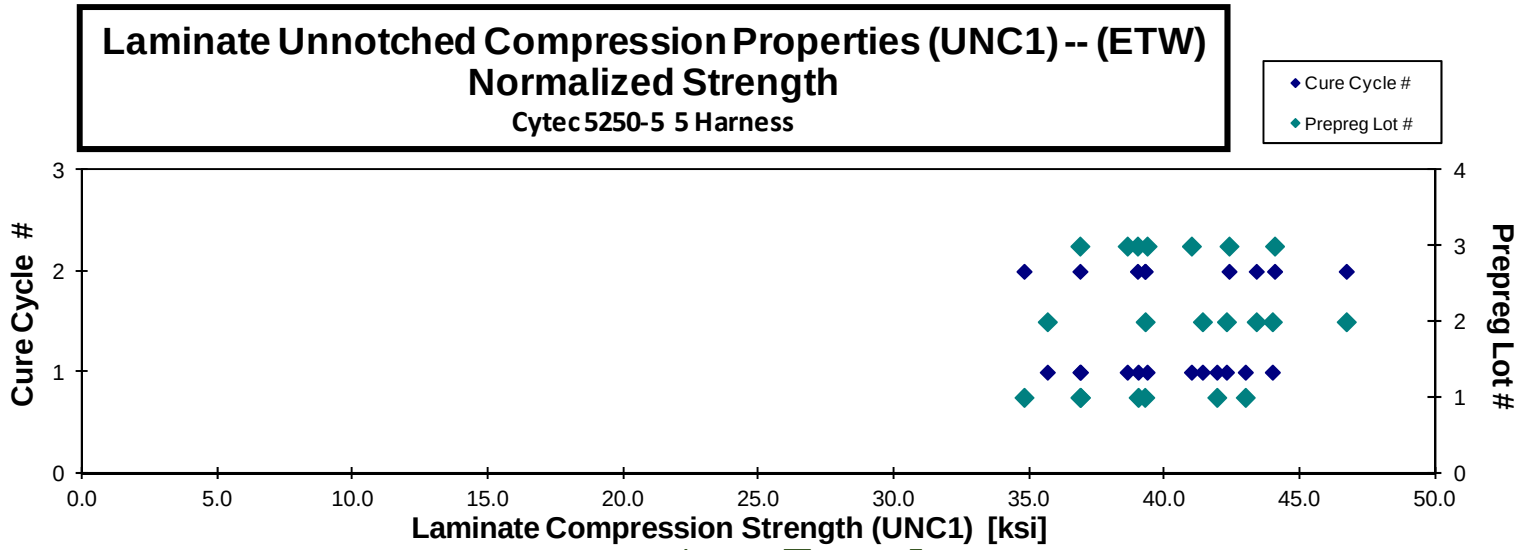
Laminate Unnotched Compression Properties (UNC1) -- (ETW)
Strength & Modulus
Cytec 5250-5 5 Harness

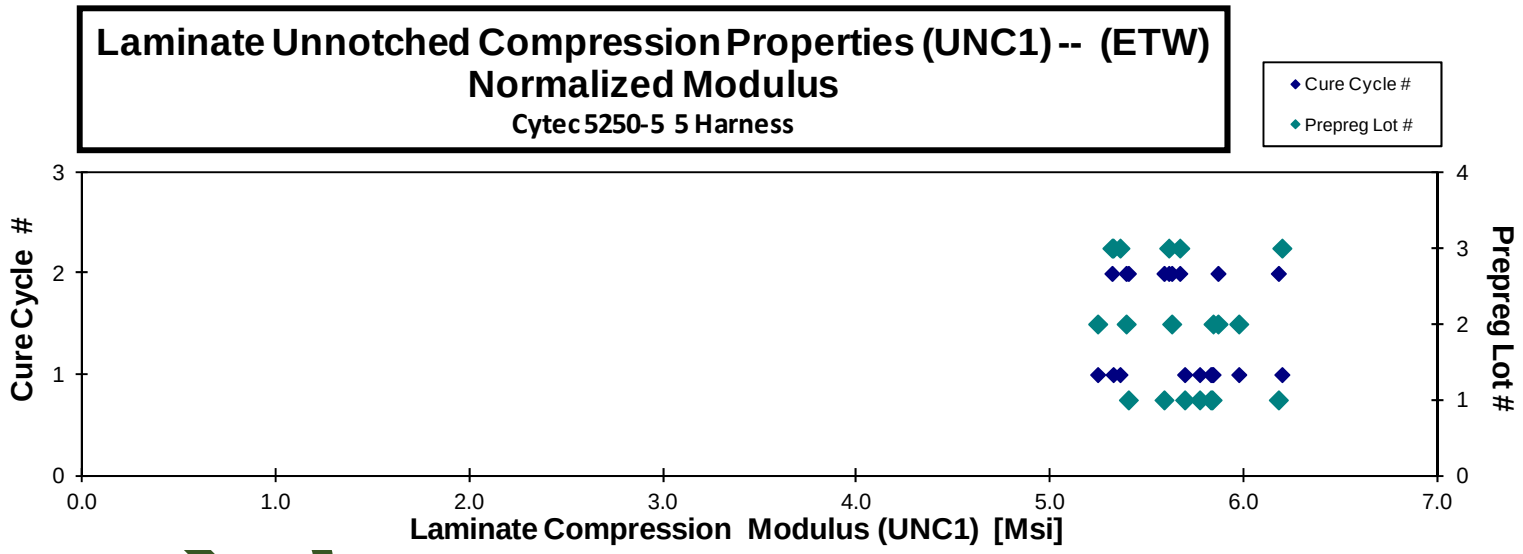
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytech Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBWA117J	A	C1	1	1		5.909	0.120	8	BGM	0.0150		5.835
CNBWA118J	A	C1	1	1		5.885	0.120	8	BGM	0.0151		5.828
CNBWA119J	A	C1	1	1		5.819	0.121	8	BGM	0.0151		5.770
CNBWA11AJ	A	C1	1	1	39.265		0.121	8	BGM	0.0151	39.023	
CNBWA11BJ	A	C1	1	1		5.727	0.121	8	BGM	0.0151		5.693
CNBWA11CJ	A	C1	1	1	37.169		0.121	8	BGM	0.0151	36.889	
CNBWA11DJ	A	C1	1	1	43.238		0.121	8	BGM	0.0151	42.983	
CNBWA11EJ	A	C1	1	1	42.201		0.121	8	BGM	0.0151	41.929	
CNBWA216J	A	C2	1	2		6.185	0.121	8	BGM	0.0152		6.177
CNBWA217J	A	C2	1	2		5.608	0.121	8	BGM	0.0151		5.586
CNBWA218J	A	C2	1	2		5.440	0.121	8	BGM	0.0151		5.402
CNBWA219J	A	C2	1	2	39.407		0.121	8	BGM	0.0151	39.266	
CNBWA21AJ	A	C2	1	2	36.947		0.121	8	BGM	0.0152	36.871	
CNBWA21BJ	A	C2	1	2	35.141		0.120	8	BGM	0.0151	34.804	
CNBWB116J	B	C1	2	1		6.024	0.121	8	BGM	0.0151		5.973
CNBWB117J	B	C1	2	1		5.292	0.121	8	BGM	0.0151		5.244
CNBWB118J	B	C1	2	1		5.884	0.121	8	BGM	0.0151		5.840
CNBWB119J	B	C1	2	1	44.324		0.121	8	BGM	0.0151	43.984	
CNBWB11AJ	B	C1	2	1	42.573		0.121	8	BGM	0.0151	42.288	
CNBWB11BJ	B	C1	2	1	35.979		0.121	8	BGM	0.0151	35.664	
CNBWB11CJ	B	C1	2	1	41.730		0.121	8	BGM	0.0151	41.398	
CNBWB216J	B	C2	2	2		5.615	0.122	8	BGM	0.0152		5.626
CNBWB217J	B	C2	2	2		5.866	0.122	8	BGM	0.0152		5.865
CNBWB218J	B	C2	2	2		5.370	0.122	8	BGM	0.0153		5.391
CNBWB219J	B	C2	2	2	43.135		0.122	8	BGM	0.0153	43.389	
CNBWB21AJ	B	C2	2	2	46.423		0.122	8	BGM	0.0153	46.715	
CNBWB21BJ	B	C2	2	2	38.968		0.123	8	BGM	0.0153	39.283	
CNBWC116J	C	C1	3	1		6.053	0.124	8	BGM	0.0156		6.195
CNBWC117J	C	C1	3	1		5.248	0.124	8	BGM	0.0155		5.359
CNBWC118J	C	C1	3	1		5.221	0.124	8	BGM	0.0155		5.324
CNBWC119J	C	C1	3	1	36.073		0.124	8	BGM	0.0155	36.869	
CNBWC11AJ	C	C1	3	1	37.722		0.124	8	BGM	0.0156	38.617	
CNBWC11BJ	C	C1	3	1	40.128		0.124	8	BGM	0.0155	40.992	
CNBWC11CJ	C	C1	3	1	38.530		0.124	8	BGM	0.0155	39.354	
CNBWC216J	C	C2	3	2		5.275	0.123	8	BGM	0.0153		5.318
CNBWC217J	C	C2	3	2		5.606	0.123	8	BGM	0.0154		5.668
CNBWC218J	C	C2	3	2		5.529	0.123	8	BGM	0.0154		5.611
CNBWC219J	C	C2	3	2	38.412		0.123	8	BGM	0.0154	38.997	
CNBWC21AJ	C	C2	3	2	41.736		0.123	8	BGM	0.0154	42.382	
CNBWC21BJ	C	C2	3	2	43.399		0.123	8	BGM	0.0154	44.065	

CNBWA118J - second transverse strain gage malfunction.

Average	**40.119**	**5.661**		**$Average_{norm}$**	**0.0152**	**40.274**	**5.669**
Standard Dev.	**3.109**	**0.298**		**$Standard\ Dev._{norm}$**		**3.117**	**0.283**
Coeff. of Var. [%]	**7.750**	**5.269**		**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**7.739**	**4.987**
Min.	**35.141**	**5.221**		**Min.**	**0.0150**	**34.804**	**5.244**
Max.	**46.423**	**6.185**		**Max.**	**0.0156**	**46.715**	**6.195**
Number of Spec.	**21**	**19**		**Number of Spec.**		**21**	**19**


Laminate Unnotched Compression Properties (UNC1) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Laminate Compression Strength (UNC1) [ksi]


Laminate Unnotched Compression Properties (UNC1) -- (ETW)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
Laminate Compression Modulus (UNC1) [Msi]

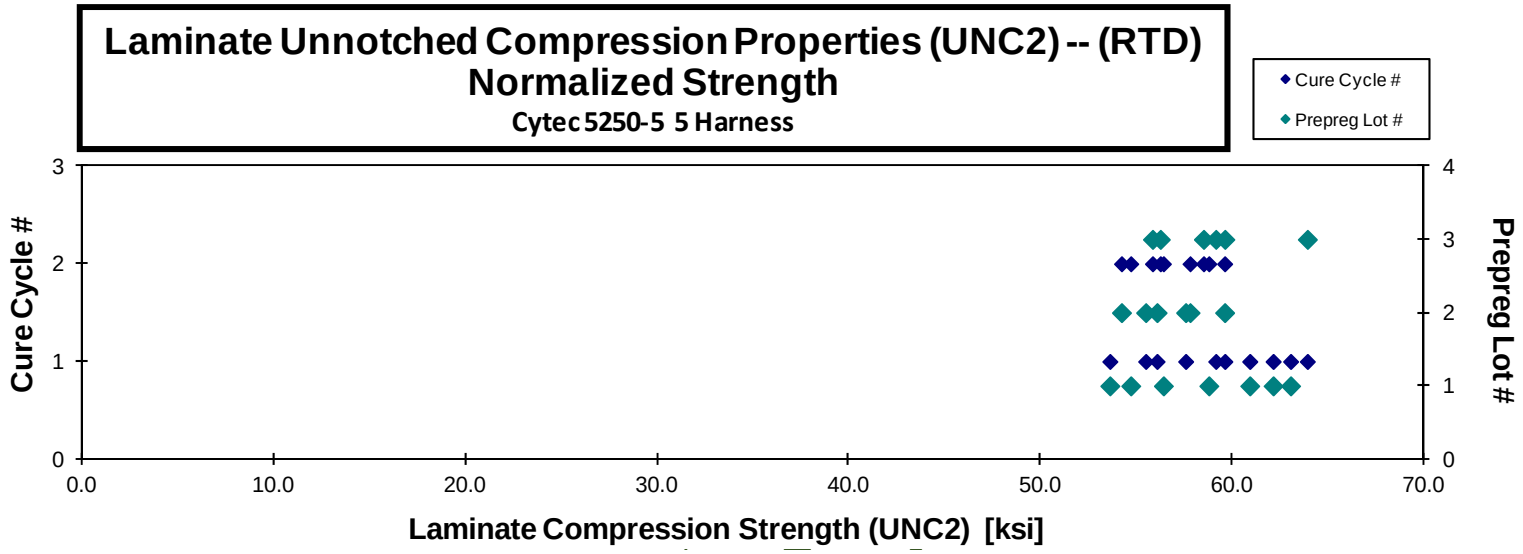
4.10 "10/80/10" Unnotched Compression 2 Properties (UNC2)

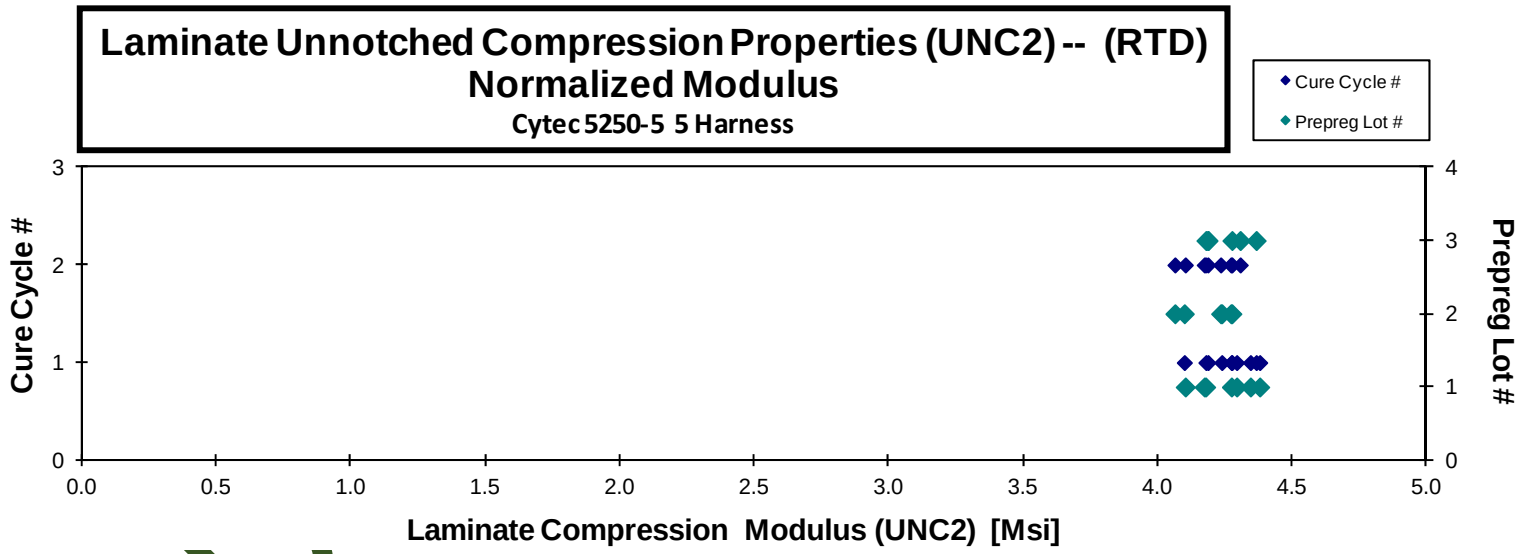
Laminate Unnotched Compression Properties (UNC2) -- (RTD)
Strength & Modulus
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBXA111A	A	C1	1	1	63.339	4.554	0.146	10	BGM	0.0146	60.901	4.379
CNBXA112A	A	C1	1	1	65.325	4.502	0.147	10	BGM	0.0147	63.033	4.344
CNBXA113A	A	C1	1	1	55.334	4.412	0.147	10	BGM	0.0147	53.605	4.274
CNBXA114A	A	C1	1	1	63.820	4.411	0.148	10	BGM	0.0148	62.120	4.293
CNBXA211A	A	C2	1	2	56.935	4.141	0.151	10	BGM	0.0151	56.398	4.102
CNBXA212A	A	C2	1	2	55.229	4.213	0.151	10	BGM	0.0151	54.696	4.173
CNBXA213A	A	C2	1	2	59.288	4.215	0.151	10	BGM	0.0151	58.768	4.178
CNBXB111A	B	C1	2	1	57.135	4.221	0.148	10	BGM	0.0148	55.474	4.099
CNBXB112A	B	C1	2	1	58.763	4.365	0.149	10	BGM	0.0149	57.558	4.275
CNBXB113A	B	C1	2	1	56.832	4.296	0.150	10	BGM	0.0150	56.066	4.238
CNBXB211A	B	C2	2	2	59.268	4.168	0.148	10	BGM	0.0148	57.786	4.064
CNBXB212A	B	C2	2	2	55.515	4.375	0.148	10	BGM	0.0148	54.212	4.272
CNBXB213A	B	C2	2	2	60.914	4.328	0.149	10	BGM	0.0149	59.591	4.234
CNBXC111A	C	C1	3	1	58.962	4.134	0.154	10	BGM	0.0154	59.602	4.179
CNBXC112A	C	C1	3	1	63.356	4.328	0.153	10	BGM	0.0153	63.905	4.366
CNBXC113A	C	C1	3	1	58.481	4.141	0.154	10	BGM	0.0154	59.129	4.186
CNBXC211A	C	C2	3	2	59.406	4.374	0.150	10	BGM	0.0150	58.488	4.307
CNBXC212A	C	C2	3	2	56.676	4.309	0.151	10	BGM	0.0151	56.235	4.276
CNBXC213A	C	C2	3	2	56.069	4.204	0.151	10	BGM	0.0151	55.829	4.186

Average	58.981	4.299	$Average_{norm}$	0.0150	58.073	4.233
Standard Dev.	3.087	0.123	$Standard\ Dev._{norm}$		2.963	0.090
Coeff. of Var. [%]	5.235	2.865	$Coeff.\ of\ Var.\ [\%]_{norm}$		5.102	2.121
Min.	55.229	4.134	Min.	0.0146	53.605	4.064
Max.	65.325	4.554	Max.	0.0154	63.905	4.379
Number of Spec.	19	19	Number of Spec.		19	19


Laminate Unnotched Compression Properties (UNC2) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Compression Strength (UNC2) [ksi]


Laminate Unnotched Compression Properties (UNC2) -- (RTD)
Normalized Modulus
Cytec 5250-5 5 Harness
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 Compression Modulus (UNC2) [Msi]

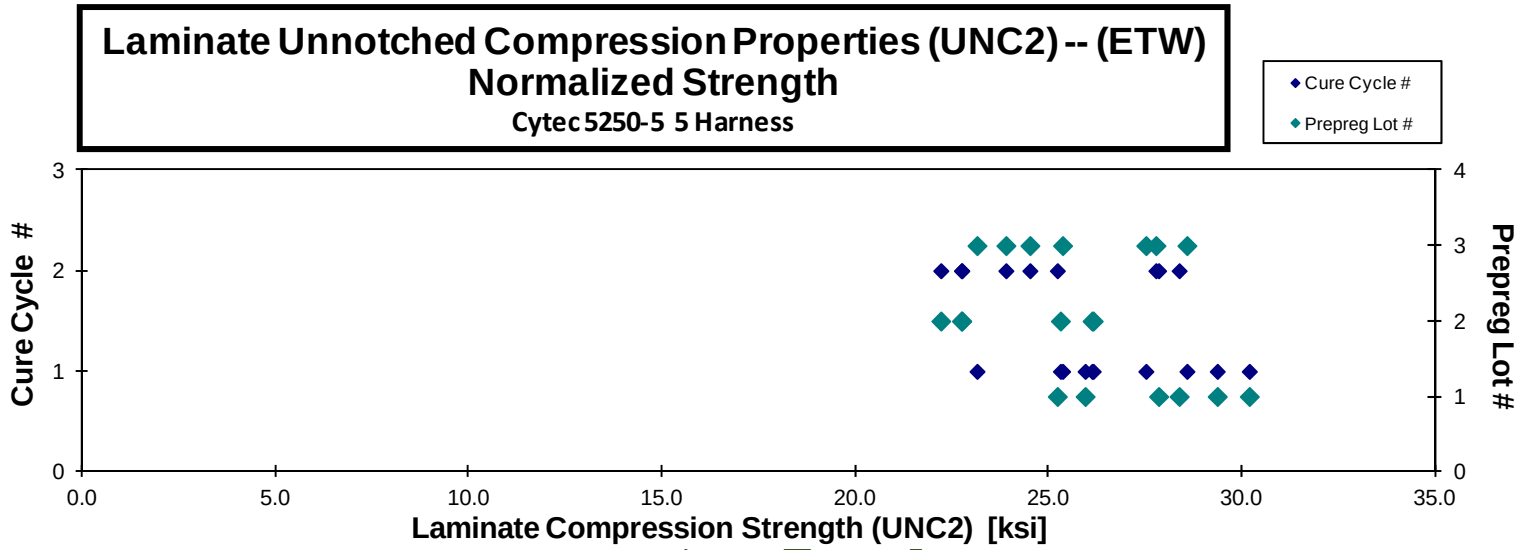
Laminate Unnotched Compression Properties (UNC2) -- (ETW)
Strength & Modulus
Cytec 5250-5 5 Harness

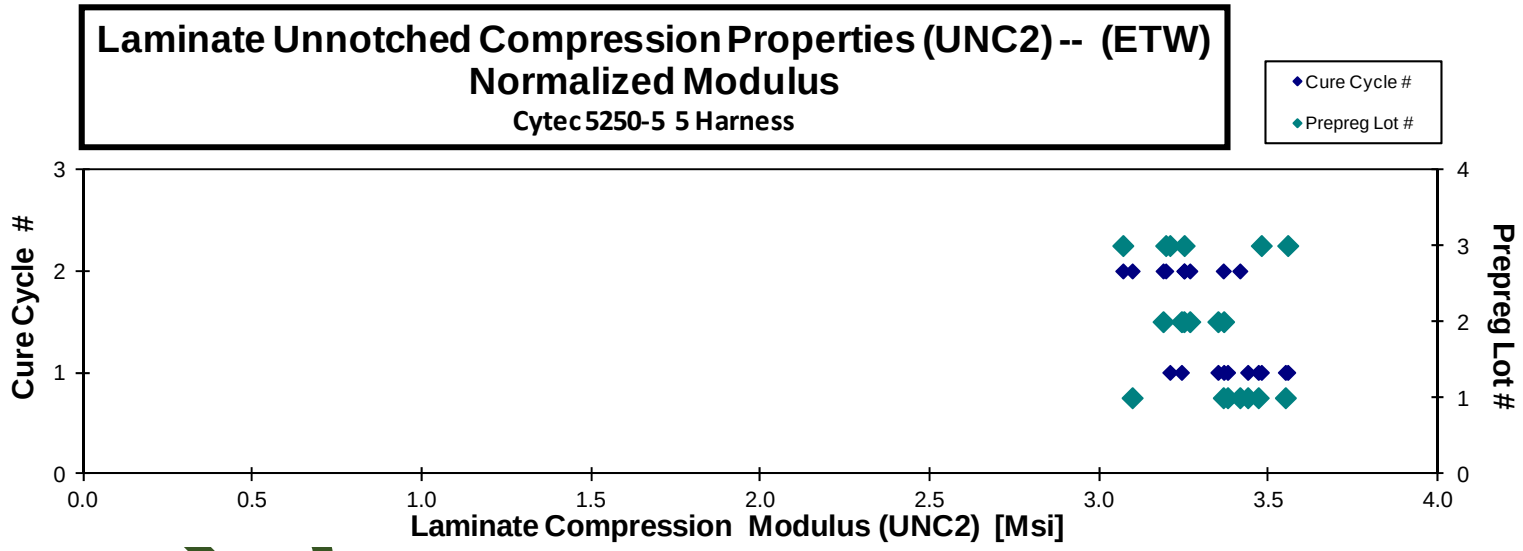
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBXA117J	A	C1	1	1		3.476	0.150	10	BGM	0.0150		3.439
CNBXA118J	A	C1	1	1		3.583	0.151	10	BGM	0.0151		3.550
CNBXA11AJ	A	C1	1	1		3.407	0.151	10	BGM	0.0151		3.380
CNBXA11BJ	A	C1	1	1		3.510	0.150	10	BGM	0.0150		3.470
CNBXA11CJ	A	C1	1	1	30.780		0.149	10	BGM	0.0149	30.193	
CNBXA11DJ	A	C1	1	1	29.964		0.149	10	BGM	0.0149	29.362	
CNBXA11EJ	A	C1	1	1	26.646		0.148	10	BGM	0.0148	25.944	
CNBXA216J	A	C2	1	2		3.099	0.152	10	BGM	0.0152		3.098
CNBXA217J	A	C2	1	2		3.396	0.153	10	BGM	0.0153		3.416
CNBXA218J	A	C2	1	2		3.343	0.153	10	BGM	0.0153		3.367
CNBXA219J	A	C2	1	2	25.025		0.153	10	BGM	0.0153	25.225	
CNBXA21AJ	A	C2	1	2	27.676		0.153	10	BGM	0.0153	27.846	
CNBXA21BJ	A	C2	1	2	28.182		0.153	10	BGM	0.0153	28.377	
CNBXB116J	B	C1	2	1		3.385	0.151	10	BGM	0.0151		3.368
CNBXB117J	B	C1	2	1		3.252	0.152	10	BGM	0.0152		3.244
CNBXB118J	B	C1	2	1		3.361	0.152	10	BGM	0.0152		3.351
CNBXB119J	B	C1	2	1	26.196		0.152	10	BGM	0.0152	26.124	
CNBXB11AJ	B	C1	2	1	25.436		0.151	10	BGM	0.0151	25.304	
CNBXB11BJ	B	C1	2	1	26.379		0.151	10	BGM	0.0151	26.153	
CNBXB216J	B	C2	2	2		3.305	0.150	10	BGM	0.0150		3.268
CNBXB217J	B	C2	2	2		3.270	0.151	10	BGM	0.0151		3.251
CNBXB218J	B	C2	2	2		3.205	0.151	10	BGM	0.0151		3.190
CNBXB219J	B	C2	2	2	22.783		0.152	10	BGM	0.0152	22.745	
CNBXB21AJ	B	C2	2	2	22.219		0.152	10	BGM	0.0152	22.209	
CNBXB21BJ	B	C2	2	2	22.834		0.151	10	BGM	0.0151	22.752	
CNBXC116J	C	C1	3	1		3.148	0.155	10	BGM	0.0155		3.210
CNBXC117J	C	C1	3	1		3.479	0.155	10	BGM	0.0155		3.557
CNBXC118J	C	C1	3	1		3.393	0.156	10	BGM	0.0156		3.479
CNBXC119J	C	C1	3	1	24.729		0.156	10	BGM	0.0156	25.360	
CNBXC11AJ	C	C1	3	1	26.810		0.156	10	BGM	0.0156	27.516	
CNBXC11BJ	C	C1	3	1	22.550		0.156	10	BGM	0.0156	23.146	
CNBXC11CJ	C	C1	3	1	27.878		0.156	10	BGM	0.0156	28.578	
CNBXC216J	C	C2	3	2		3.241	0.153	10	BGM	0.0153		3.252
CNBXC217J	C	C2	3	2		3.060	0.153	10	BGM	0.0153		3.071
CNBXC218J	C	C2	3	2		3.187	0.153	10	BGM	0.0153		3.197
CNBXC219J	C	C2	3	2	27.673		0.153	10	BGM	0.0153	27.776	
CNBXC21AJ	C	C2	3	2	23.847		0.152	10	BGM	0.0152	23.894	
CNBXC21BJ	C	C2	3	2	24.571		0.152	10	BGM	0.0152	24.515	

Average	**25.904**	**3.321**	
Standard Dev.	**2.468**	**0.144**	
Coeff. of Var. [%]	**9.529**	**4.323**	
Min.	**22.219**	**3.060**	
Max.	**30.780**	**3.583**	
Number of Spec.	**19**	**19**	

$Average_{norm}$	**0.0152**	**25.948**	**3.324**
$Standard\ Dev._{norm}$		**2.378**	**0.142**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**9.166**	**4.274**
Min.	**0.0148**	**22.209**	**3.071**
Max.	**0.0156**	**30.193**	**3.557**
Number of Spec.		**19**	**19**


Laminate Unnotched Compression Properties (UNC2) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Compression Strength (UNC2) [ksi]
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0


Laminate Unnotched Compression Properties (UNC2) -- (ETW)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Compression Modulus (UNC2) [Msi]
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0

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

Laminate Unnotched Compression Properties (UNC3) -- (RTD)
Strength & Modulus
Cytec 5250-5 5 Harness

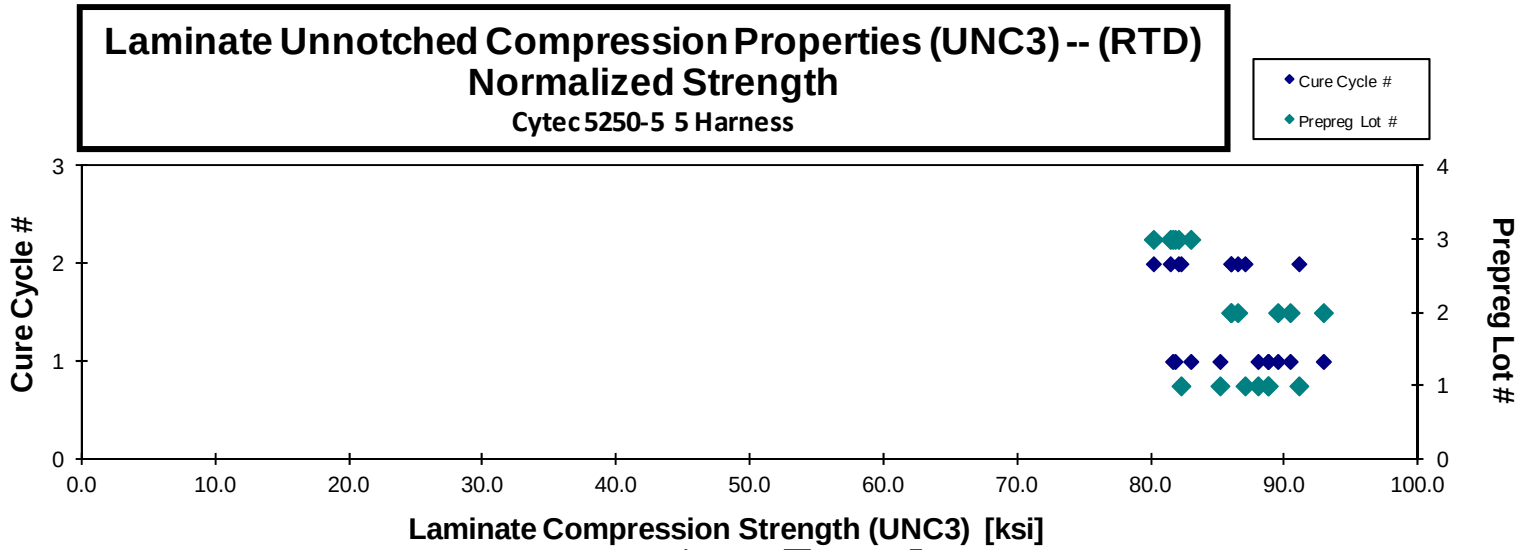
normalizing t_{ply} [in]: 0.0152

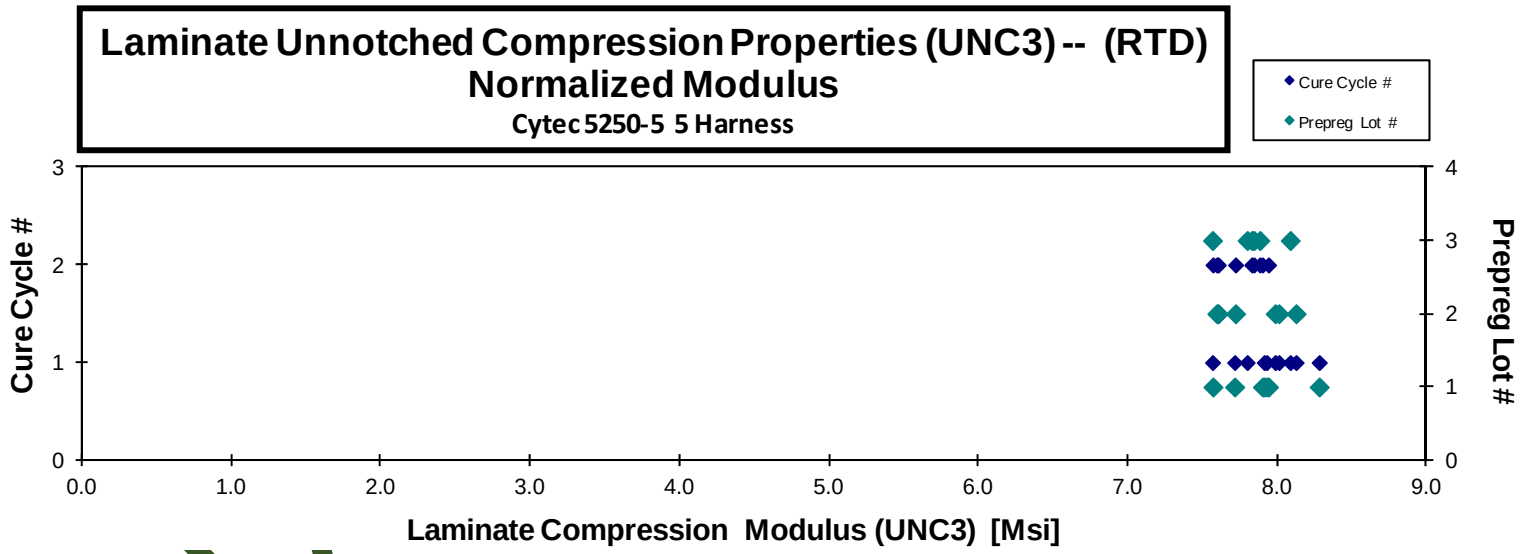
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBYA111A	A	C1	1	1	89.434	7.774	0.151	10	BGM	0.0151	88.747	7.714
CNBYA112A	A	C1	1	1	88.314	7.940	0.151	10	BGM	0.0151	88.004	7.912
CNBYA113A	A	C1	1	1	88.507	8.256	0.152	10	BGM	0.0152	88.769	8.280
CNBYA114A	A	C1	1	1	84.784	7.894	0.153	10	BGM	0.0153	85.156	7.929
CNBYA211A	A	C2	1	2	92.328	8.010	0.150	10	BGM	0.0150	91.062	7.901
CNBYA212A	A	C2	1	2	87.858	7.642	0.151	10	BGM	0.0151	87.030	7.569
CNBYA213A	A	C2	1	2	82.947	8.009	0.151	10	BGM	0.0151	82.238	7.941
CNBYB111A	B	C1	2	1	90.383	8.091	0.150	10	BGM	0.0150	89.481	8.011
CNBYB112A	B	C1	2	1	93.731	8.058	0.151	10	BGM	0.0151	92.899	7.986
CNBYB113A	B	C1	2	1	91.421	8.216	0.150	10	BGM	0.0150	90.408	8.125
CNBYB211A	B	C2	2	2	86.899	7.687	0.150	10	BGM	0.0150	85.974	7.605
CNBYB212A	B	C2	2	2	87.638	7.696	0.150	10	BGM	0.0150	86.484	7.595
CNBYB213A	B	C2	2	2	87.110	7.823	0.150	10	BGM	0.0150	85.974	7.720
CNBYC111A	C	C1	3	1	80.976	8.023	0.153	10	BGM	0.0153	81.615	8.087
CNBYC112A	C	C1	3	1	82.048	7.711	0.154	10	BGM	0.0154	82.975	7.798
CNBYC113A	C	C1	3	1	80.689	7.464	0.154	10	BGM	0.0154	81.795	7.566
CNBYC211A	C	C2	3	2	81.619	7.802	0.153	10	BGM	0.0153	82.049	7.843
CNBYC212A	C	C2	3	2	80.973	7.785	0.153	10	BGM	0.0153	81.435	7.829
CNBYC213A	C	C2	3	2	79.939	7.860	0.152	10	BGM	0.0152	80.175	7.883

A burnout was conducted on batch C panels to verify the stacking sequence and it was correct

	Strength [ksi]	Modulus [Msi]
Average	86.189	7.881
Standard Dev.	4.349	0.204
Coeff. of Var. [%]	5.045	2.588
Min.	79.939	7.464
Max.	93.731	8.256
Number of Spec.	19	19

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.0152	85.909	7.858
$Standard\ Dev._{norm}$		3.775	0.198
$Coeff.\ of\ Var.\ [\%]_{norm}$		4.394	2.518
Min.	0.0150	80.175	7.566
Max.	0.0154	92.899	8.280
Number of Spec.		19	19


Laminate Unnotched Compression Properties (UNC3) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
Laminate Compression Strength (UNC3) [ksi]


Laminate Unnotched Compression Properties (UNC3) -- (RTD)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
Laminate Compression Modulus (UNC3) [Msi]

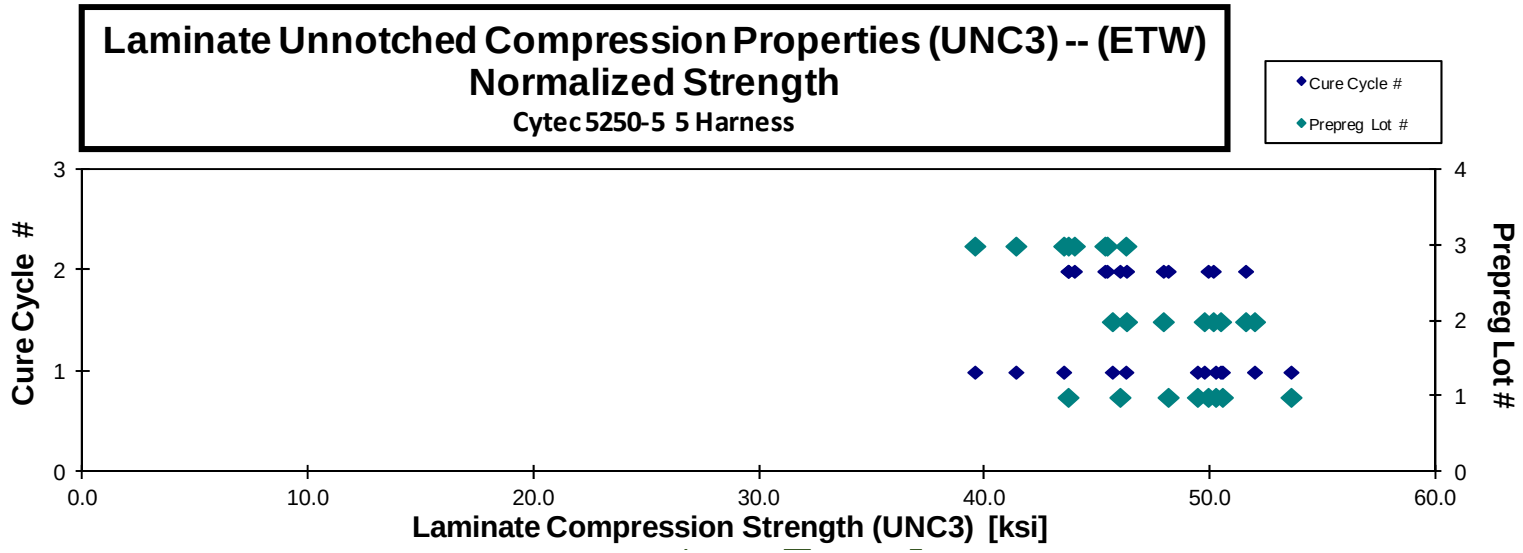
Laminate Unnotched Compression Properties (UNC3) -- (ETW)
Strength & Modulus
Cytec 5250-5 5 Harness

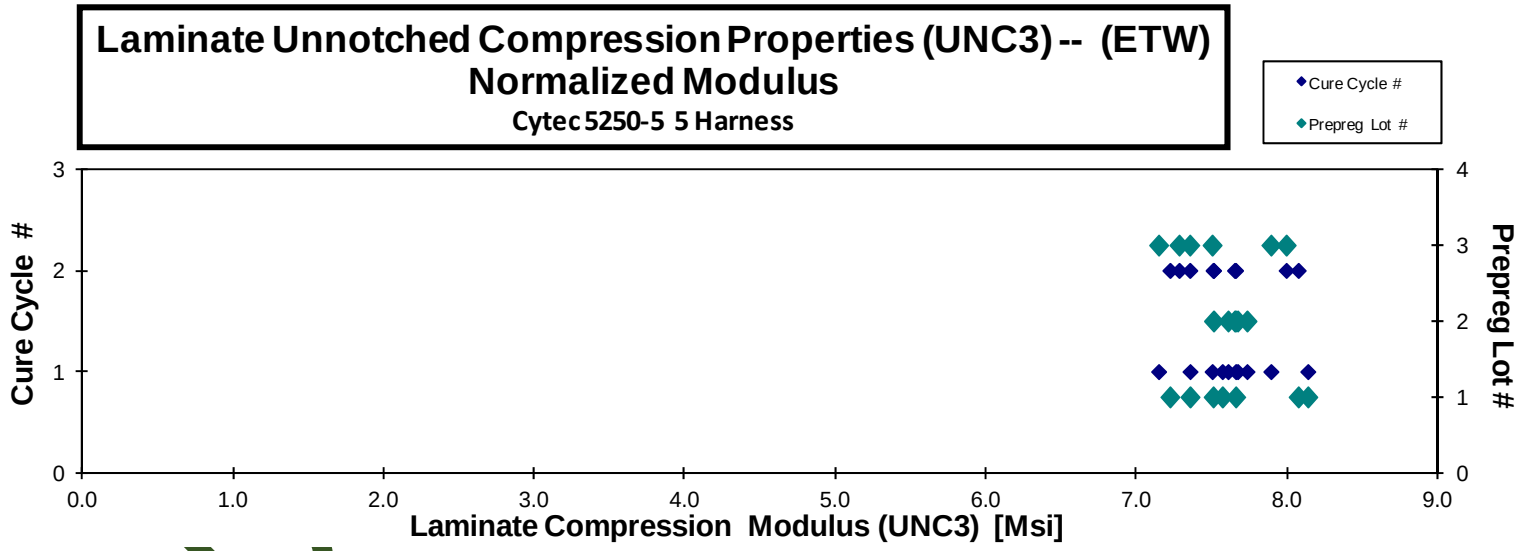
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNBYA117J	A	C1	1	1		7.565	0.154	10	BAB	0.0154		7.659
CNBYA118J	A	C1	1	1		8.035	0.154	10	BAB	0.0154		8.138
CNBYA119J	A	C1	1	1		7.271	0.154	10	BGM	0.0154		7.355
CNBYA11AJ	A	C1	1	1		7.508	0.153	10	HAB	0.0153		7.570
CNBYA11BJ	A	C1	1	1	49.273		0.153	10	BGM	0.0153	49.456	
CNBYA11CJ	A	C1	1	1	50.106		0.152	10	BAB	0.0152	50.265	
CNBYA11DJ	A	C1	1	1	53.223		0.153	10	BGM	0.0153	53.608	
CNBYA11EJ	A	C1	1	1	50.168		0.153	10	BGM	0.0153	50.564	
CNBYA216J	A	C2	1	2		7.486	0.152	10	BGM	0.0152		7.509
CNBYA217J	A	C2	1	2		7.182	0.153	10	BGM	0.0153		7.222
CNBYA218J	A	C2	1	2		8.025	0.153	10	BGM	0.0153		8.074
CNBYA219J	A	C2	1	2	49.551		0.153	10	BAB	0.0153	49.931	
CNBYA21AJ	A	C2	1	2	47.871		0.153	10	BGM	0.0153	48.155	
CNBYA21BJ	A	C2	1	2	43.636		0.152	10	BGM	0.0152	43.718	
CNBYA21CJ	A	C2	1	2	46.035		0.152	10	BGM	0.0152	46.020	
CNBYB116J	B	C1	2	1		7.659	0.151	10	BGM	0.0151		7.608
CNBYB117J	B	C1	2	1		7.703	0.151	10	BAB	0.0151		7.671
CNBYB118J	B	C1	2	1		7.758	0.152	10	BGM	0.0152		7.734
CNBYB119J	B	C1	2	1	50.601		0.152	10	BAB	0.0152	50.485	
CNBYB11AJ	B	C1	2	1	52.155		0.152	10	BGM	0.0152	51.989	
CNBYB11BJ	B	C1	2	1	45.872		0.151	10	BGM	0.0151	45.681	
CNBYB11CJ	B	C1	2	1	50.132		0.151	10	BGM	0.0151	49.758	
CNBYB216J	B	C2	2	2		7.586	0.151	10	HGM	0.0151		7.511
CNBYB217J	B	C2	2	2		7.690	0.151	10	BGM	0.0151		7.658
CNBYB218J	B	C2	2	2		7.646	0.152	10	BGM	0.0152		7.651
CNBYB219J	B	C2	2	2	46.178		0.152	10	BGM	0.0152	46.310	
CNBYB21AJ	B	C2	2	2	49.974		0.153	10	BGM	0.0153	50.155	
CNBYB21BJ	B	C2	2	2	51.374		0.153	10	BGM	0.0153	51.593	
CNBYB21CJ	B	C2	2	2	47.562		0.153	10	BGM	0.0153	47.943	
CNBYC116J	C	C1	3	1		7.024	0.155	10	BGM	0.0155		7.147
CNBYC117J	C	C1	3	1		7.366	0.155	10	BGM	0.0155		7.502
CNBYC118J	C	C1	3	1		7.751	0.155	10	BGM	0.0155		7.892
CNBYC119J	C	C1	3	1	42.848		0.154	10	BGM	0.0154	43.525	
CNBYC11AJ	C	C1	3	1	45.740		0.154	10	BGM	0.0154	46.281	
CNBYC11BJ	C	C1	3	1	40.887		0.154	10	BGM	0.0154	41.403	
CNBYC11CJ	C	C1	3	1	39.146		0.154	10	BGM	0.0154	39.584	
CNBYC216J	C	C2	3	2		7.178	0.154	10	BGM	0.0154		7.282
CNBYC217J	C	C2	3	2		7.204	0.155	10	BGM	0.0155		7.354
CNBYC218J	C	C2	3	2		7.838	0.155	10	BGM	0.0155		7.994
CNBYC219J	C	C2	3	2	44.543		0.155	10	BGM	0.0155	45.447	
CNBYC21AJ	C	C2	3	2	44.656		0.154	10	BGM	0.0154	45.351	
CNBYC21BJ	C	C2	3	2	43.263		0.154	10	BGM	0.0154	43.728	
CNBYC21CJ	C	C2	3	2	43.741		0.153	10	BGM	0.0153	43.996	

	Strength [ksi]	Modulus [Msi]
Average	47.022	7.551
Standard Dev.	3.710	0.287
Coeff. of Var. [%]	7.891	3.800
Min.	39.146	7.024
Max.	53.223	8.035
Number of Spec.	24	19

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.0153	47.289	7.607
$Standard\ Dev._{norm}$		3.583	0.277
$Coeff.\ of\ Var.\ [\%]_{norm}$		7.577	3.643
Min.	0.0151	39.584	7.147
Max.	0.0155	53.608	8.138
Number of Spec.		24	19


Laminate Unnotched Compression Properties (UNC3) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Compression Strength (UNC3) [ksi]

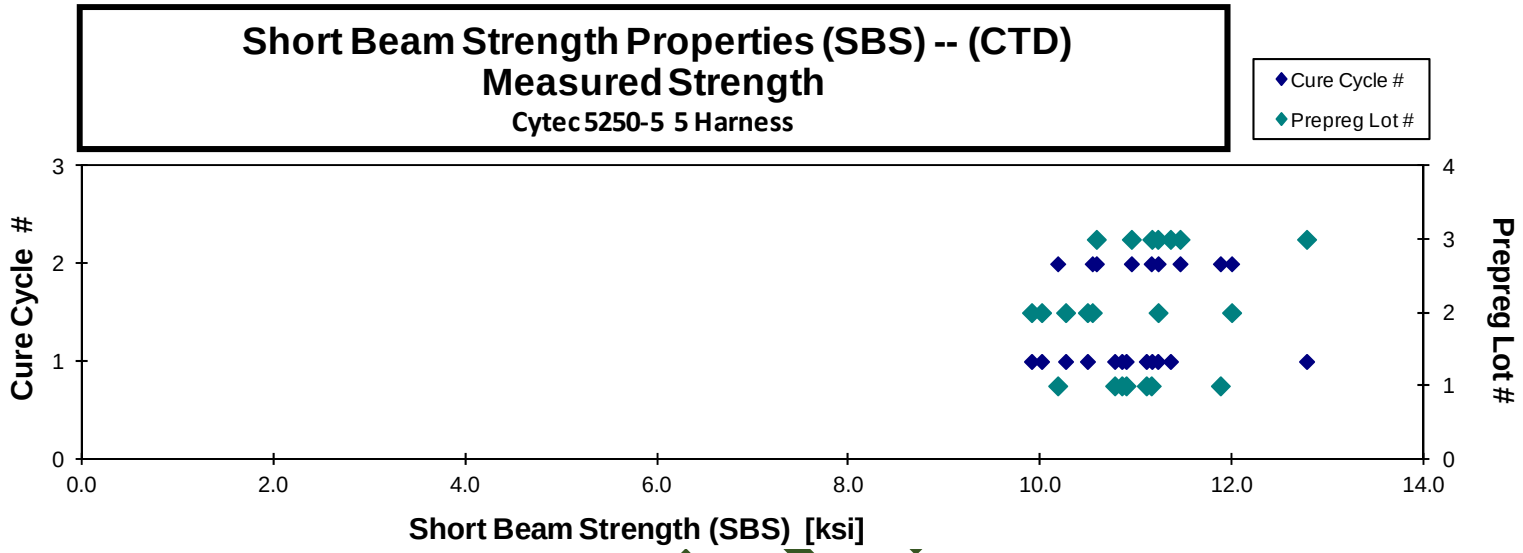

Laminate Unnotched Compression Properties (UNC3) -- (ETW)
Normalized Modulus
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
Laminate Compression Modulus (UNC3) [Msi]

4.12 Lamina Short-Beam Strength Properties (SBS)

Short Beam Strength Properties (SBS) -- (CTD) Strength
Cytec 5250-5 5 Harness

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]	Failure Mode
CNBQA117B	A	C1	1	1	11.101	0.254	17	0.0149	INTERLAMINAR SHEAR
CNBQA118B	A	C1	1	1	10.890	0.255	17	0.0150	INTERLAMINAR SHEAR
CNBQA119B	A	C1	1	1	10.771	0.255	17	0.0150	INTERLAMINAR SHEAR
CNBQA11AB	A	C1	1	1	10.845	0.255	17	0.0150	INTERLAMINAR SHEAR
CNBQA217B	A	C2	1	2	10.177	0.256	17	0.0151	INTERLAMINAR SHEAR
CNBQA218B	A	C2	1	2	11.874	0.256	17	0.0151	INTERLAMINAR SHEAR
CNBQA219B	A	C2	1	2	11.152	0.256	17	0.0151	INTERLAMINAR SHEAR
CNBQB116B	B	C1	2	1	10.259	0.256	17	0.0150	INTERLAMINAR SHEAR
CNBQB117B	B	C1	2	1	10.009	0.257	17	0.0151	INTERLAMINAR SHEAR
CNBQB118B	B	C1	2	1	10.487	0.257	17	0.0151	INTERLAMINAR SHEAR
CNBQB119B	B	C1	2	1	9.904	0.257	17	0.0151	INTERLAMINAR SHEAR
CNBQB216B	B	C2	2	2	11.224	0.257	17	0.0151	INTERLAMINAR SHEAR
CNBQB217B	B	C2	2	2	10.537	0.257	17	0.0151	INTERLAMINAR SHEAR
CNBQB218B	B	C2	2	2	11.991	0.257	17	0.0151	INTERLAMINAR SHEAR
CNBQC116B	C	C1	3	1	12.773	0.263	17	0.0155	INTERLAMINAR SHEAR
CNBQC117B	C	C1	3	1	11.220	0.264	17	0.0155	INTERLAMINAR SHEAR
CNBQC118B	C	C1	3	1	11.159	0.264	17	0.0156	INTERLAMINAR SHEAR
CNBQC119B	C	C1	3	1	11.353	0.265	17	0.0156	INTERLAMINAR SHEAR
CNBQC215B	C	C2	3	2	10.580	0.262	17	0.0154	INTERLAMINAR SHEAR
CNBQC217B	C	C2	3	2	10.945	0.261	17	0.0154	INTERLAMINAR SHEAR
CNBQC218B	C	C2	3	2	11.453	0.260	17	0.0153	INTERLAMINAR SHEAR

Average	**10.986**	**Average**	**0.0152**
Standard Dev.	**0.690**	**Standard Dev.**	
Coeff. of Var. [%]	**6.283**	**Coeff. of Var. [%]**	
Min.	**9.904**	**Min.**	**0.0149**
Max.	**12.773**	**Max.**	**0.0156**
Number of Spec.	**21**	**Number of Spec.**	**21**

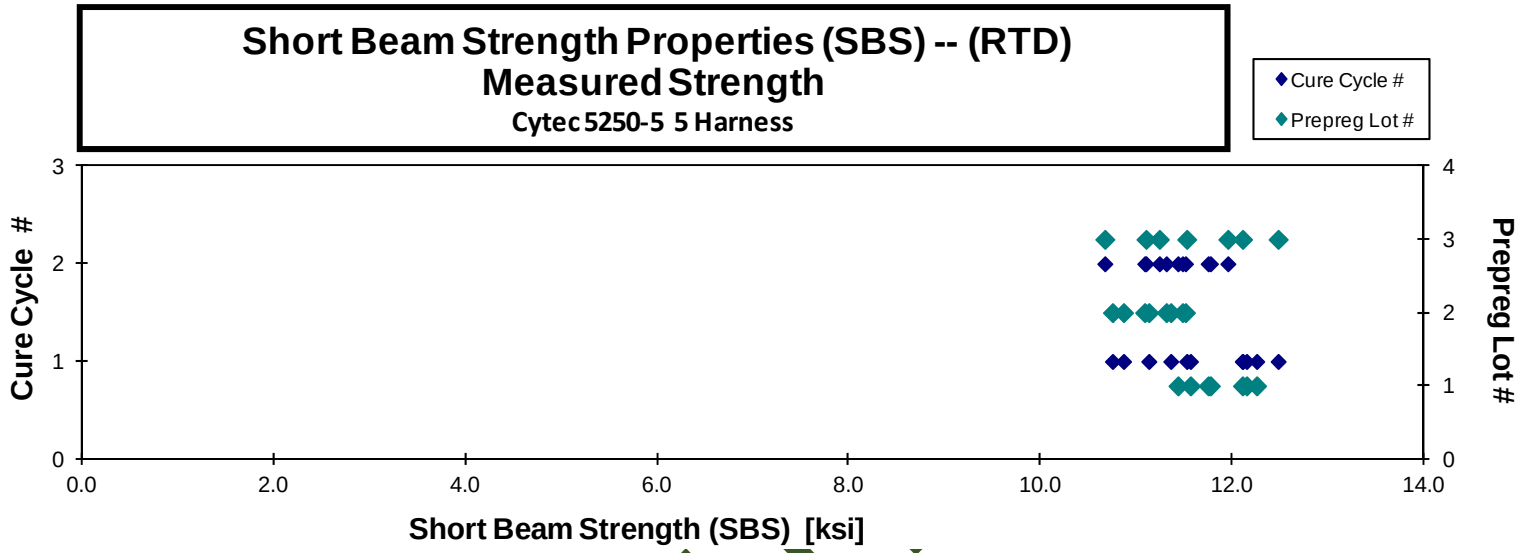

Short Beam Strength Properties (SBS) -- (CTD)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
Short Beam Strength (SBS) [ksi]

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

Cytec 5250-5 5 Harness

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]	Failure Mode
CNBQA111A	A	C1	1	1	12.253	0.245	17	0.0144	INTERLAMINAR SHEAR
CNBQA112A	A	C1	1	1	12.147	0.247	17	0.0145	INTERLAMINAR SHEAR
CNBQA113A	A	C1	1	1	11.562	0.248	17	0.0146	INTERLAMINAR SHEAR
CNBQA114A	A	C1	1	1	12.104	0.249	17	0.0147	INTERLAMINAR SHEAR
CNBQA212A	A	C2	1	2	11.431	0.255	17	0.0150	INTERLAMINAR SHEAR
CNBQA213A	A	C2	1	2	11.770	0.254	17	0.0150	INTERLAMINAR SHEAR
CNBQA214A	A	C2	1	2	11.746	0.255	17	0.0150	INTERLAMINAR SHEAR
CNBQB111A	B	C1	2	1	11.127	0.252	17	0.0148	INTERLAMINAR SHEAR
CNBQB112A	B	C1	2	1	11.357	0.252	17	0.0148	INTERLAMINAR SHEAR
CNBQB113A	B	C1	2	1	10.748	0.253	17	0.0149	INTERLAMINAR SHEAR
CNBQB114A	B	C1	2	1	10.863	0.254	17	0.0149	INTERLAMINAR SHEAR
CNBQB211A	B	C2	2	2	11.509	0.249	17	0.0146	INTERLAMINAR SHEAR
CNBQB212A	B	C2	2	2	11.084	0.251	17	0.0148	INTERLAMINAR SHEAR
CNBQB213A	B	C2	2	2	11.479	0.254	17	0.0149	INTERLAMINAR SHEAR
CNBQB214A	B	C2	2	2	11.310	0.255	17	0.0150	INTERLAMINAR SHEAR/COMPRESSION
CNBQC112A	C	C1	3	1	11.523	0.251	17	0.0148	INTERLAMINAR SHEAR
CNBQC113A	C	C1	3	1	12.477	0.256	17	0.0151	INTERLAMINAR SHEAR
CNBQC114A	C	C1	3	1	12.105	0.258	17	0.0152	INTERLAMINAR SHEAR
CNBQC211A	C	C2	3	2	11.098	0.261	17	0.0153	INTERLAMINAR SHEAR
CNBQC212A	C	C2	3	2	11.952	0.257	17	0.0151	INTERLAMINAR SHEAR
CNBQC213A	C	C2	3	2	10.668	0.260	17	0.0153	INTERLAMINAR SHEAR
CNBQC214A	C	C2	3	2	11.237	0.258	17	0.0152	INTERLAMINAR SHEAR

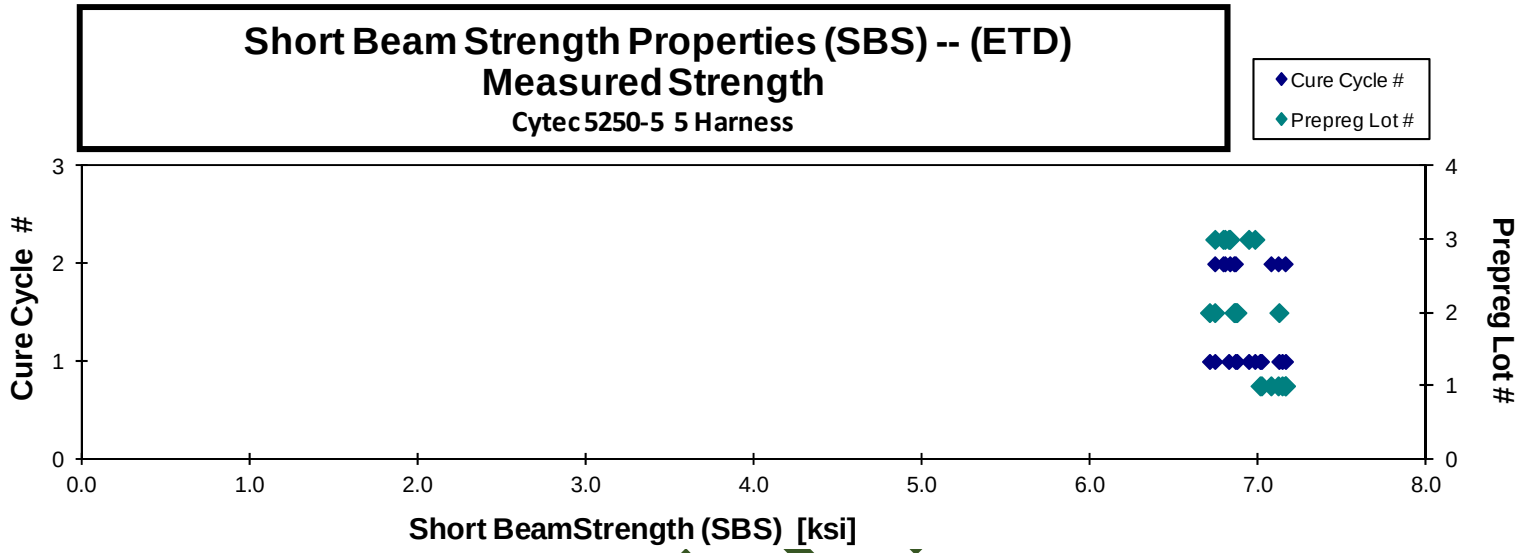
Average	**11.525**	**Average**	**0.0149**
Standard Dev.	**0.501**	**Standard Dev.**	
Coeff. of Var. [%]	**4.344**	**Coeff. of Var. [%]**	
Min.	**10.668**	**Min.**	**0.0144**
Max.	**12.477**	**Max.**	**0.0153**
Number of Spec.	**22**	**Number of Spec.**	**22**


Short Beam Strength Properties (SBS) -- (RTD)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
Short Beam Strength (SBS) [ksi]

Short Beam Strength Properties (SBS) -- (ETD)
Strength
Cytec 5250-5 5 Harness

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]	Failure Mode
CNBQA11BK	A	C1	1	1	7.160	0.255	17	0.0150	INTERLAMINAR SHEAR
CNBQA11CK	A	C1	1	1	7.008	0.254	17	0.0150	INTERLAMINAR SHEAR
CNBQA11DK	A	C1	1	1	7.139	0.253	17	0.0149	INTERLAMINAR SHEAR
CNBQA11EK	A	C1	1	1	7.017	0.251	17	0.0148	INTERLAMINAR SHEAR
CNBQA21BK	A	C2	1	2	7.157	0.256	17	0.0150	INTERLAMINAR SHEAR
CNBQA21CK	A	C2	1	2	7.116	0.255	17	0.0150	INTERLAMINAR SHEAR
CNBQA21DK	A	C2	1	2	7.073	0.254	17	0.0149	INTERLAMINAR SHEAR
CNBQB11AK	B	C1	2	1	7.120	0.257	17	0.0151	INTERLAMINAR SHEAR
CNBQB11BK	B	C1	2	1	6.862	0.257	17	0.0151	INTERLAMINAR SHEAR
CNBQB11CK	B	C1	2	1	6.870	0.258	17	0.0152	INTERLAMINAR SHEAR
CNBQB11DK	B	C1	2	1	6.708	0.256	17	0.0150	INTERLAMINAR SHEAR
CNBQB21AK	B	C2	2	2	6.862	0.258	17	0.0152	INTERLAMINAR SHEAR
CNBQB21BK	B	C2	2	2	6.738	0.258	17	0.0152	INTERLAMINAR SHEAR
CNBQB21CK	B	C2	2	2	6.853	0.258	17	0.0152	INTERLAMINAR SHEAR
CNBQC11AK	C	C1	3	1	6.940	0.265	17	0.0156	INTERLAMINAR SHEAR
CNBQC11BK	C	C1	3	1	6.977	0.264	17	0.0156	INTERLAMINAR SHEAR
CNBQC11CK	C	C1	3	1	6.739	0.263	17	0.0155	INTERLAMINAR SHEAR
CNBQC11DK	C	C1	3	1	6.821	0.262	17	0.0154	INTERLAMINAR SHEAR
CNBQC21AK	C	C2	3	2	6.788	0.263	17	0.0155	INTERLAMINAR SHEAR
CNBQC21CK	C	C2	3	2	6.828	0.263	17	0.0155	INTERLAMINAR SHEAR
CNBQC21EK	C	C2	3	2	6.799	0.263	17	0.0155	INTERLAMINAR SHEAR

Average	**6.932**	**Average**	**0.0152**
Standard Dev.	**0.151**	**Standard Dev.**	
Coeff. of Var. [%]	**2.179**	**Coeff. of Var. [%]**	
Min.	**6.708**	**Min.**	**0.0148**
Max.	**7.160**	**Max.**	**0.0156**
Number of Spec.	**21**	**Number of Spec.**	**21**

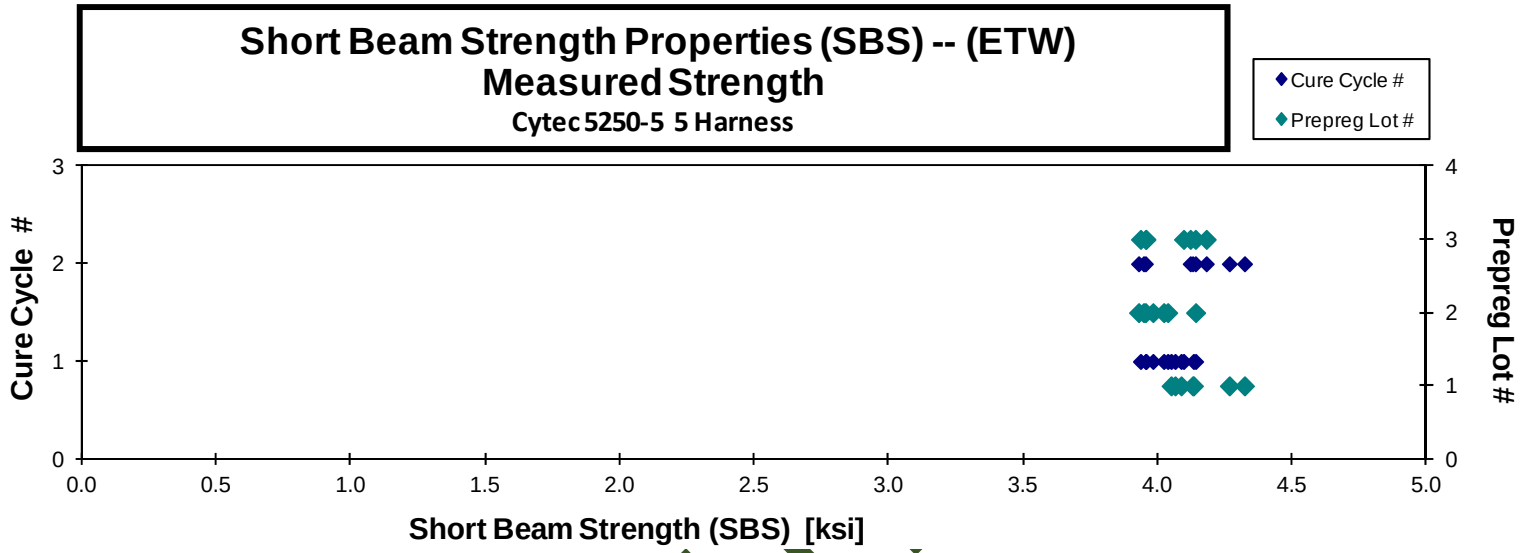

Short Beam Strength Properties (SBS) -- (ETD)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
Short BeamStrength (SBS) [ksi]

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

Cytec 5250-5 5 Harness

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]	Failure Mode
CNBQA11GJ	A	C1	1	1	4.064	0.248	17	0.0146	INTERLAMINAR SHEAR
CNBQA11HJ	A	C1	1	1	4.049	0.249	17	0.0147	INTERLAMINAR SHEAR
CNBQA11JJ	A	C1	1	1	4.133	0.252	17	0.0148	INTERLAMINAR SHEAR
CNBQA11KJ	A	C1	1	1	4.086	0.250	17	0.0147	INTERLAMINAR SHEAR
CNBQA21GJ	A	C2	1	2	4.322	0.251	17	0.0148	INTERLAMINAR SHEAR
CNBQA21HJ	A	C2	1	2	4.129	0.256	17	0.0151	INTERLAMINAR SHEAR
CNBQA21IJ	A	C2	1	2	4.266	0.256	17	0.0150	INTERLAMINAR SHEAR
CNBQB11FJ	B	C1	2	1	3.982	0.254	17	0.0149	INTERLAMINAR SHEAR
CNBQB11GJ	B	C1	2	1	4.022	0.251	17	0.0148	INTERLAMINAR SHEAR
CNBQB11JJ	B	C1	2	1	4.037	0.251	17	0.0147	INTERLAMINAR SHEAR
CNBQB11KJ	B	C1	2	1	4.141	0.250	17	0.0147	INTERLAMINAR SHEAR
CNBQB21FJ	B	C2	2	2	3.929	0.255	17	0.0150	INTERLAMINAR SHEAR
CNBQB21GJ	B	C2	2	2	3.947	0.255	17	0.0150	INTERLAMINAR SHEAR
CNBQB21JJ	B	C2	2	2	3.954	0.250	17	0.0147	INTERLAMINAR SHEAR
CNBQC11FJ	C	C1	3	1	4.096	0.257	17	0.0151	INTERLAMINAR SHEAR
CNBQC11JJ	C	C1	3	1	3.936	0.255	17	0.0150	INTERLAMINAR SHEAR
CNBQC11KJ	C	C1	3	1	3.956	0.257	17	0.0151	INTERLAMINAR SHEAR
CNBQC11-EXTRAJ	C	C1	3	1	3.954	0.258	17	0.0152	INTERLAMINAR SHEAR
CNBQC21IJ	C	C2	3	2	4.180	0.255	17	0.0150	INTERLAMINAR SHEAR
CNBQC21JJ	C	C2	3	2	4.140	0.256	17	0.0151	INTERLAMINAR SHEAR
CNBQC21KJ	C	C2	3	2	4.121	0.258	17	0.0152	INTERLAMINAR SHEAR

Average	**4.069**	**Average**	**0.0149**
Standard Dev.	**0.109**	**Standard Dev.**	
Coeff. of Var. [%]	**2.691**	**Coeff. of Var. [%]**	
Min.	**3.929**	**Min.**	**0.0146**
Max.	**4.322**	**Max.**	**0.0152**
Number of Spec.	**21**	**Number of Spec.**	**21**

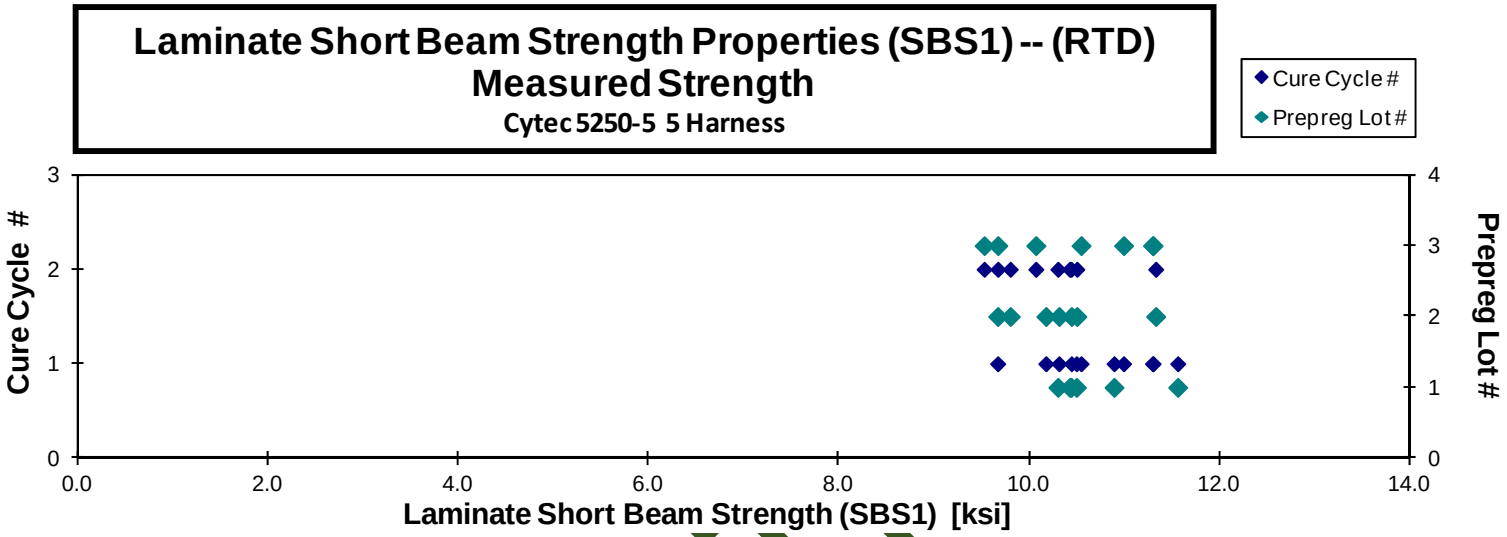

Short Beam Strength Properties (SBS) -- (ETW)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Short Beam Strength (SBS) [ksi]

4.13 Laminate Short-Beam Strength Properties (SBS1)

Laminate Short Beam Strength Properties (SBS1) -- (RTD) Strength
Cytec 5250-5 5 Harness

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure
CNBqA1G2A	A	C1	1	1	11.564	0.177	12	0.0147	INTERLAMINAR SHEAR
CNBqA1G3A	A	C1	1	1	10.895	0.176	12	0.0147	INTERLAMINAR SHEAR
CNBqA1G4A	A	C1	1	1	10.499	0.176	12	0.0147	INTERLAMINAR SHEAR
CNBqA2G1A	A	C2	1	2	10.443	0.183	12	0.0152	INTERLAMINAR SHEAR
CNBqA2G2A	A	C2	1	2	10.305	0.183	12	0.0152	INTERLAMINAR SHEAR
CNBqA2G3A	A	C2	1	2	10.428	0.183	12	0.0152	INTERLAMINAR SHEAR
CNBqB1G1A	B	C1	2	1	10.316	0.178	12	0.0149	INTERLAMINAR SHEAR
CNBqB1G2A	B	C1	2	1	10.446	0.179	12	0.0149	INTERLAMINAR SHEAR
CNBqB1G3A	B	C1	2	1	10.178	0.178	12	0.0149	INTERLAMINAR SHEAR
CNBqB1G4A	B	C1	2	1	9.672	0.178	12	0.0148	INTERLAMINAR SHEAR
CNBqB2G1A	B	C2	2	2	10.504	0.181	12	0.0151	INTERLAMINAR SHEAR
CNBqB2G2A	B	C2	2	2	11.333	0.181	12	0.0151	INTERLAMINAR SHEAR
CNBqB2G3A	B	C2	2	2	9.804	0.181	12	0.0151	INTERLAMINAR SHEAR
CNBqC1G1A	C	C1	3	1	11.305	0.182	12	0.0152	INTERLAMINAR SHEAR
CNBqC1G2A	C	C1	3	1	10.548	0.182	12	0.0152	INTERLAMINAR SHEAR
CNBqC1G3A	C	C1	3	1	11.299	0.182	12	0.0152	INTERLAMINAR SHEAR
CNBqC1G4A	C	C1	3	1	10.995	0.182	12	0.0152	INTERLAMINAR SHEAR
CNBqC2G1A	C	C2	3	2	9.530	0.181	12	0.0151	INTERLAMINAR SHEAR
CNBqC2G2A	C	C2	3	2	9.673	0.181	12	0.0151	INTERLAMINAR SHEAR
CNBqC2G3A	C	C2	3	2	10.073	0.181	12	0.0151	INTERLAMINAR SHEAR

Average	**10.491**	**Average**	**0.0150**
Standard Dev.	**0.593**	**Standard Dev.**	
Coeff. of Var. [%]	**5.653**	**Coeff. of Var. [%]**	
Min.	**9.530**	**Min.**	**0.0147**
Max.	**11.564**	**Max.**	**0.0152**
Number of Spec.	**20**	**Number of Spec.**	**20**

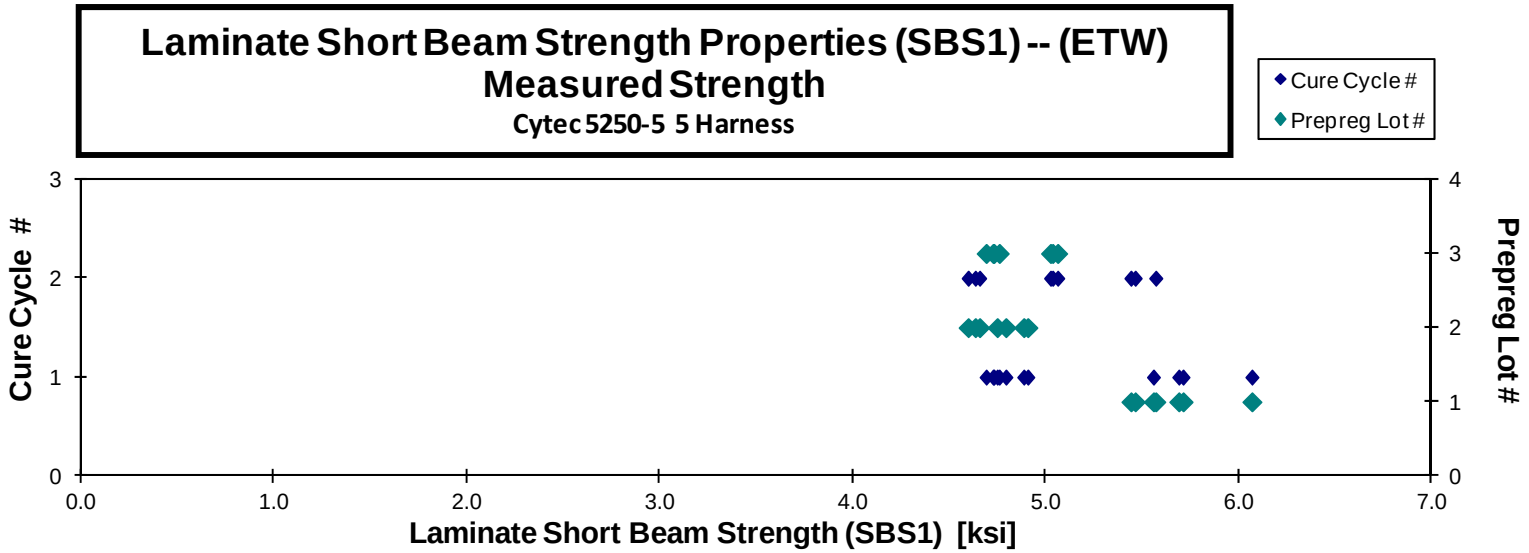

Laminate Short Beam Strength Properties (SBS1) -- (RTD)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
Laminate Short Beam Strength (SBS1) [ksi]

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

Cytec 5250-5 5 Harness

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
CNBqA1G6J	A	C1	1	1	6.065	0.175	12	0.0146	INTERLAMINAR SHEAR
CNBqA1G8J	A	C1	1	1	5.686	0.176	12	0.0147	INTERLAMINAR SHEAR
CNBqA1G9J	A	C1	1	1	5.709	0.176	12	0.0146	INTERLAMINAR SHEAR
CNBqA1GAJ	A	C1	1	1	5.555	0.176	12	0.0146	INTERLAMINAR SHEAR
CNBqA2G5J	A	C2	1	2	5.567	0.183	12	0.0152	INTERLAMINAR SHEAR
CNBqA2G6J	A	C2	1	2	5.460	0.183	12	0.0152	INTERLAMINAR SHEAR
CNBqA2G7J	A	C2	1	2	5.438	0.183	12	0.0152	INTERLAMINAR SHEAR
CNBqB1G5J	B	C1	2	1	4.745	0.178	12	0.0148	INTERLAMINAR SHEAR
CNBqB1G6J	B	C1	2	1	4.904	0.178	12	0.0148	INTERLAMINAR SHEAR
CNBqB1G7J	B	C1	2	1	4.883	0.178	12	0.0148	INTERLAMINAR SHEAR
CNBqB1G8J	B	C1	2	1	4.791	0.178	12	0.0148	INTERLAMINAR SHEAR
CNBqB2G5J	B	C2	2	2	4.654	0.181	12	0.0151	INTERLAMINAR SHEAR
CNBqB2G6J	B	C2	2	2	4.595	0.180	12	0.0150	INTERLAMINAR SHEAR
CNBqB2G7J	B	C2	2	2	4.632	0.181	12	0.0151	INTERLAMINAR SHEAR
CNBqC1G5J	C	C1	3	1	4.728	0.182	12	0.0152	INTERLAMINAR SHEAR
CNBqC1G6J	C	C1	3	1	4.688	0.182	12	0.0152	INTERLAMINAR SHEAR
CNBqC1G7J	C	C1	3	1	4.724	0.182	12	0.0152	INTERLAMINAR SHEAR
CNBqC1G8J	C	C1	3	1	4.756	0.183	12	0.0152	INTERLAMINAR SHEAR
CNBqC2G5J	C	C2	3	2	5.022	0.182	12	0.0151	INTERLAMINAR SHEAR
CNBqC2G6J	C	C2	3	2	5.033	0.181	12	0.0151	INTERLAMINAR SHEAR
CNBqC2G7J	C	C2	3	2	5.059	0.181	12	0.0151	INTERLAMINAR SHEAR

Average	**5.081**	**Average**	**0.0150**
Standard Dev.	**0.440**	**Standard Dev.**	
Coeff. of Var. [%]	**8.655**	**Coeff. of Var. [%]**	
Min.	**4.595**	**Min.**	**0.0146**
Max.	**6.065**	**Max.**	**0.0152**
Number of Spec.	**21**	**Number of Spec.**	**21**



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

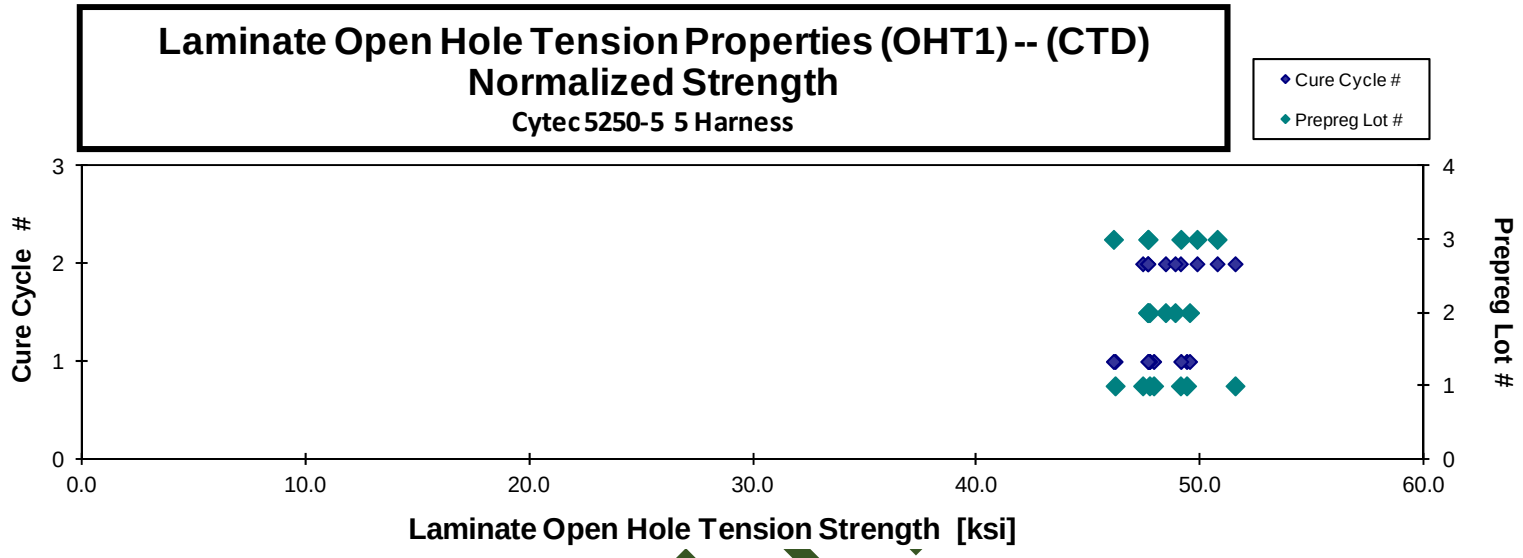
Laminate Open Hole Tension Properties (OHT1) -- (CTD)
Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBDA116B	A	C1	1	1	47.389	0.122	8	LGM	0.0153	47.720
CNBDA117B	A	C1	1	1	49.574	0.121	8	LGM	0.0151	49.377
CNBDA118B	A	C1	1	1	48.700	0.120	8	LGM	0.0150	47.905
CNBDA11BB	A	C1	1	1	46.169	0.122	8	LGM	0.0152	46.182
CNBDA216B	A	C2	1	2	48.834	0.122	8	LGM	0.0153	49.101
CNBDA217B	A	C2	1	2	51.200	0.122	8	LGM	0.0153	51.543
CNBDA218B	A	C2	1	2	47.245	0.122	8	LGM	0.0153	47.413
CNBDB116B	B	C1	2	1	47.976	0.121	8	LGM	0.0151	47.719
CNBDB117B	B	C1	2	1	47.813	0.121	8	LGM	0.0152	47.656
CNBDB118B	B	C1	2	1	49.570	0.121	8	LGM	0.0152	49.509
CNBDB216B	B	C2	2	2	47.803	0.121	8	LGM	0.0151	47.633
CNBDB217B	B	C2	2	2	48.652	0.121	8	LGM	0.0151	48.432
CNBDB218B	B	C2	2	2	49.020	0.121	8	LGM	0.0152	48.859
CNBDC116B	C	C1	3	1	47.140	0.123	8	LGM	0.0154	47.650
CNBDC117B	C	C1	3	1	49.171	0.121	8	LGM	0.0152	49.117
CNBDC118B	C	C1	3	1	46.768	0.120	8	LGM	0.0150	46.108
CNBDC216B	C	C2	3	2	50.048	0.123	8	LGM	0.0154	50.741
CNBDC217B	C	C2	3	2	47.156	0.123	8	LGM	0.0154	47.647
CNBDC218B	C	C2	3	2	49.119	0.123	8	LGM	0.0154	49.840

Average	**48.387**	
Standard Dev.	**1.273**	
Coeff. of Var. [%]	**2.630**	
Min.	**46.169**	
Max.	**51.200**	
Number of Spec.	**19**	

$Average_{norm}$	**0.0152**	**48.429**
Standard $Dev._{norm}$		**1.403**
Coeff. of Var. $[\%]_{norm}$		**2.896**
Min.	**0.0150**	**46.108**
Max.	**0.0154**	**51.543**
Number of Spec.		**19**


Laminate Open Hole Tension Properties (OHT1) -- (CTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Open Hole Tension Strength [ksi]

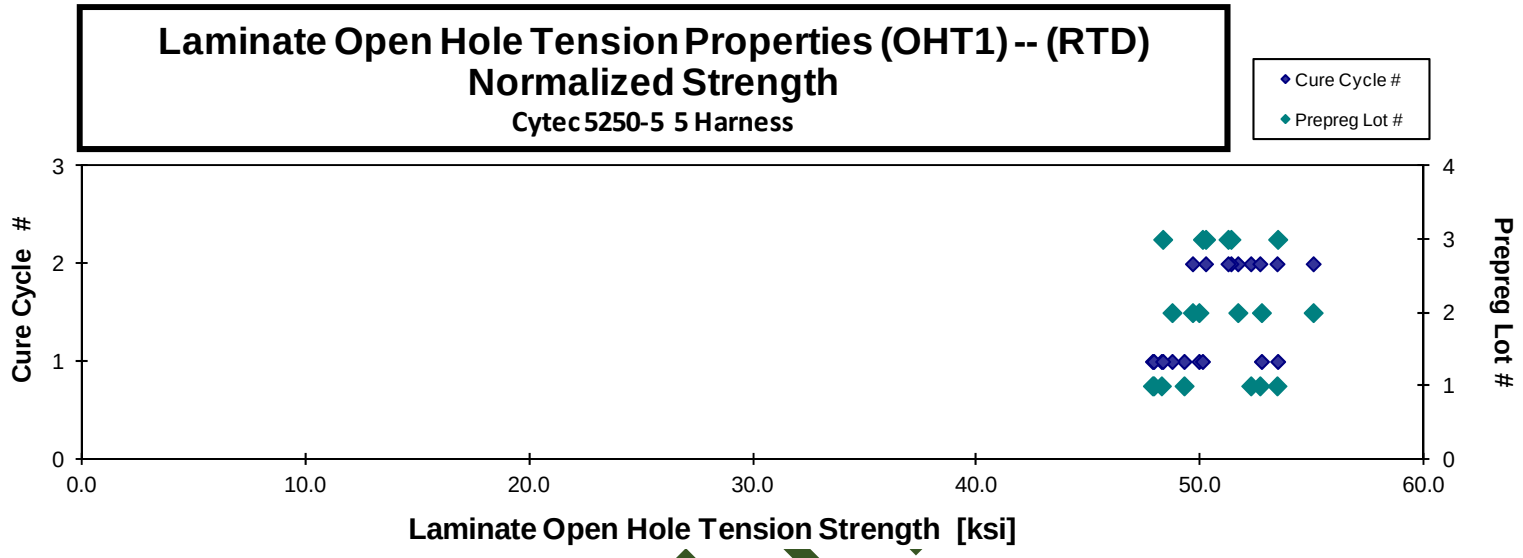
Laminate Open Hole Tension Properties (OHT1) -- (RTD) Strength

Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBDA111A	A	C1	1	1	48.290	0.122	8	LGM	0.0152	48.250
CNBDA112A	A	C1	1	1	49.598	0.121	8	LGM	0.0151	49.265
CNBDA113A	A	C1	1	1	47.825	0.122	8	LGM/AGM	0.0152	47.851
CNBDA114A	A	C1	1	1	48.052	0.121	8	LGM	0.0152	47.901
CNBDA211A	A	C2	1	2	53.045	0.120	8	LGM/AGM	0.0150	52.245
CNBDA212A	A	C2	1	2	53.609	0.121	8	LGM	0.0151	53.417
CNBDA213A	A	C2	1	2	52.603	0.122	8	LGM	0.0152	52.653
CNBDB111A	B	C1	2	1	51.496	0.118	8	AGM	0.0147	49.929
CNBDB112A	B	C1	2	1	53.486	0.120	8	LGM/AGM	0.0150	52.723
CNBDB113A	B	C1	2	1	48.979	0.121	8	AGM	0.0151	48.724
CNBDB211A	B	C2	2	2	53.230	0.118	8	LGM	0.0148	51.669
CNBDB212A	B	C2	2	2	50.493	0.120	8	AGM	0.0149	49.642
CNBDB213A	B	C2	2	2	55.409	0.121	8	LGM/AGM	0.0151	55.037
CNBDC111A	C	C1	3	1	48.019	0.122	8	LGM	0.0153	48.309
CNBDC112A	C	C1	3	1	52.963	0.123	8	LGM	0.0153	53.449
CNBDC113A	C	C1	3	1	49.639	0.123	8	LGM	0.0153	50.088
CNBDC211A	C	C2	3	2	52.210	0.120	8	LGM	0.0150	51.358
CNBDC212A	C	C2	3	2	50.580	0.121	8	LGM	0.0151	50.227
CNBDC213A	C	C2	3	2	51.089	0.122	8	LGM/AGM	0.0152	51.229

	Strength	Avg. t_{ply}	$Strength_{norm}$
Average	51.085	$Average_{norm}$ 0.01510	50.735
Standard Dev.	2.272	$Standard\ Dev._{norm}$	2.130
Coeff. of Var. [%]	4.448	$Coeff.\ of\ Var.\ [\%]_{norm}$	4.197
Min.	47.825	Min. 0.0147	47.851
Max.	55.409	Max. 0.0153	55.037
Number of Spec.	19	Number of Spec.	19


Laminate Open Hole Tension Properties (OHT1) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Open Hole Tension Strength [ksi]

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

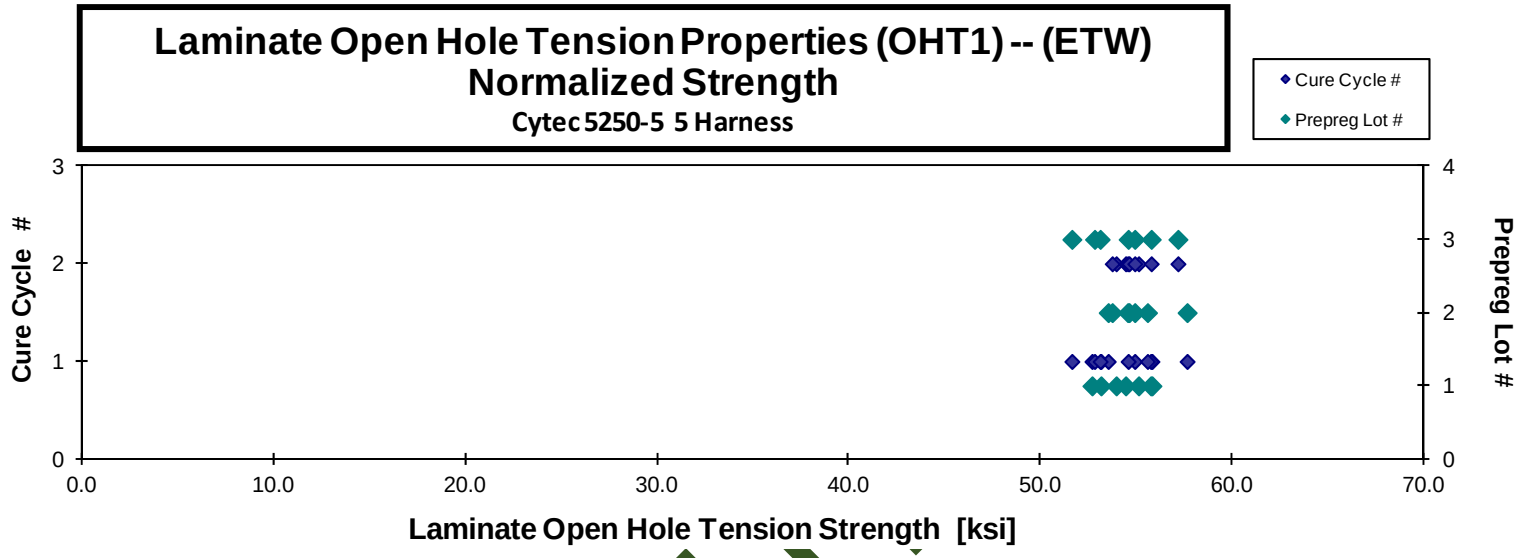
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBDA11CJ	A	C1	1	1	55.566	0.122	8	LGM/AGM	0.0153	55.802
CNBDA11DJ	A	C1	1	1	52.299	0.122	8	MGM	0.0153	52.672
CNBDA11EJ	A	C1	1	1	55.458	0.122	8	LGM/AGM	0.0153	55.739
CNBDA11FJ	A	C1	1	1	53.476	0.121	8	LGM	0.0151	53.139
CNBDA21BJ	A	C2	1	2	54.885	0.122	8	AGM	0.0153	55.104
CNBDA21CJ	A	C2	1	2	53.406	0.123	8	AGM	0.0154	53.933
CNBDA21DJ	A	C2	1	2	53.824	0.123	8	AGM	0.0154	54.429
CNBDB11BJ	B	C1	2	1	55.181	0.121	8	LGM/AGM	0.0151	54.901
CNBDB11CJ	B	C1	2	1	53.608	0.121	8	LGM/AGM	0.0152	53.520
CNBDB11DJ	B	C1	2	1	57.944	0.121	8	LGM/AGM	0.0151	57.634
CNBDB11EJ	B	C1	2	1	55.927	0.121	8	LGM/AGM	0.0151	55.566
CNBDB21BJ	B	C2	2	2	54.685	0.121	8	AGM	0.0152	54.535
CNBDB21CJ	B	C2	2	2	53.276	0.123	8	LGM	0.0153	53.729
CNBDB21DJ	B	C2	2	2	54.118	0.123	8	LGM	0.0153	54.608
CNBDC11BJ	C	C1	3	1	52.340	0.123	8	LGM/AGM	0.0153	52.806
CNBDC11CJ	C	C1	3	1	52.501	0.123	8	LGM/AGM	0.0154	53.098
CNBDC11DJ	C	C1	3	1	51.106	0.123	8	AGM	0.0154	51.625
CNBDC11EJ	C	C1	3	1	54.397	0.122	8	LGM/AGM	0.0152	54.561
CNBDC21BJ	C	C2	3	2	54.798	0.122	8	AGM	0.0152	54.903
CNBDC21CJ	C	C2	3	2	55.437	0.122	8	AGM	0.0153	55.764
CNBDC21DJ	C	C2	3	2	56.797	0.122	8	MGM	0.0153	57.155

Average	54.335	
Standard Dev.	1.619	
Coeff. of Var. [%]	2.980	
Min.	51.106	
Max.	57.944	
Number of Spec.	21	

$Average_{norm}$	0.01526	54.535
$Standard\ Dev._{norm}$		1.478
$Coeff.\ of\ Var.\ [\%]_{norm}$		2.711
Min.	0.0151	51.625
Max.	0.0154	57.634
Number of Spec.		21


Laminate Open Hole Tension Properties (OHT1) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Open Hole Tension Strength [ksi]

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

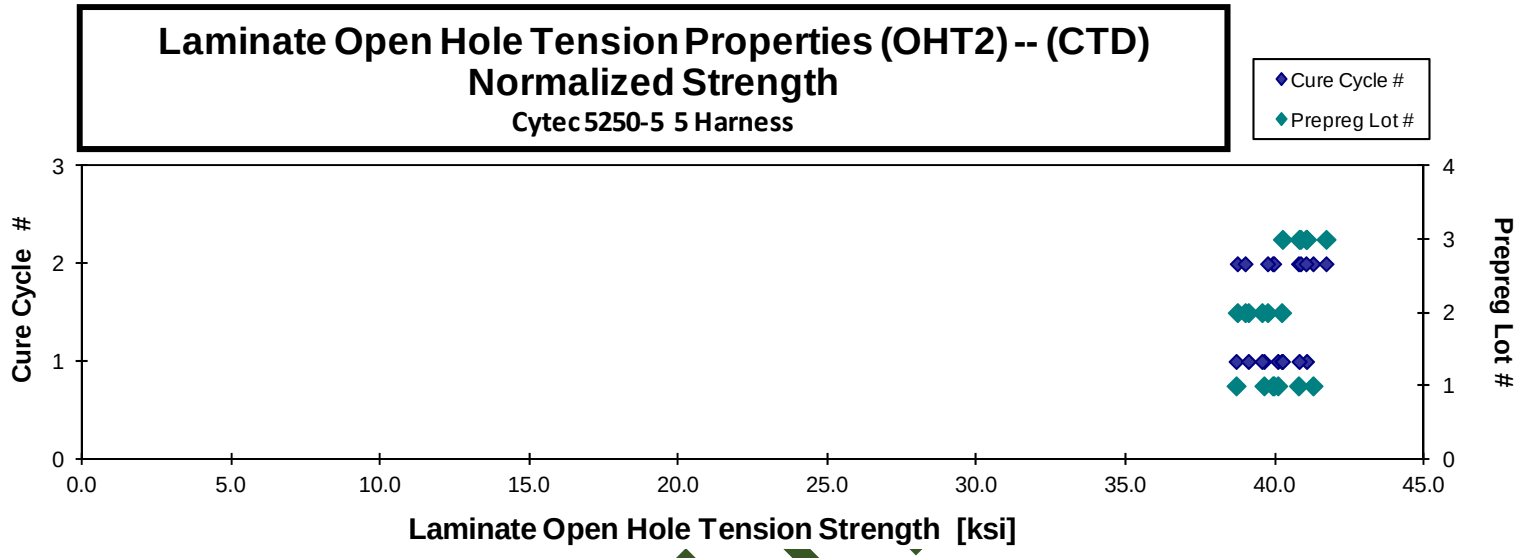
Laminate Open Hole Tension Properties (OHT2) -- (CTD)
Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBEA116B	A	C1	1	1	40.383	0.151	10	AGM	0.0151	40.091
CNBEA117B	A	C1	1	1	40.026	0.150	10	AGM	0.0150	39.626
CNBEA118B	A	C1	1	1	38.945	0.151	10	AGM	0.0151	38.693
CNBEA215B	A	C2	1	2	39.550	0.153	10	AGM	0.0153	39.919
CNBEA216B	A	C2	1	2	41.034	0.153	10	AGM	0.0153	41.273
CNBEA217B	A	C2	1	2	41.046	0.151	10	AGM	0.0151	40.785
CNBEA218B	A	C2	1	2	40.897	0.149	10	AGM	0.0149	39.955
CNBEB115B	B	C1	2	1	39.865	0.153	10	AGM	0.0153	40.219
CNBEB116B	B	C1	2	1	38.823	0.153	10	AGM	0.0153	39.104
CNBEB117B	B	C1	2	1	39.398	0.153	10	AGM	0.0153	39.558
CNBEB215B	B	C2	2	2	38.275	0.154	10	AGM	0.0154	38.732
CNBEB216B	B	C2	2	2	38.618	0.153	10	AGM	0.0153	38.995
CNBEB217B	B	C2	2	2	39.250	0.154	10	AGM	0.0154	39.749
CNBEC115B	C	C1	3	1	40.390	0.155	10	AGM	0.0155	41.054
CNBEC116B	C	C1	3	1	40.248	0.154	10	AGM	0.0154	40.804
CNBEC117B	C	C1	3	1	39.658	0.154	10	AGM	0.0154	40.245
CNBEC215B	C	C2	3	2	40.691	0.153	10	AGM	0.0153	40.852
CNBEC216B	C	C2	3	2	41.030	0.152	10	AGM	0.0152	41.034
CNBEC217B	C	C2	3	2	42.147	0.150	10	AGM	0.0150	41.708

Average		40.014
Standard Dev.		1.003
Coeff. of Var. [%]		2.507
Min.		38.275
Max.		42.147
Number of Spec.		19

$Average_{norm}$	0.0152	40.126
$Standard\ Dev._{norm}$		0.884
$Coeff.\ of\ Var.\ [\%]_{norm}$		2.202
Min.	0.0149	38.693
Max.	0.0155	41.708
Number of Spec.		19


Laminate Open Hole Tension Properties (OHT2) -- (CTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
Laminate Open Hole Tension Strength [ksi]

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

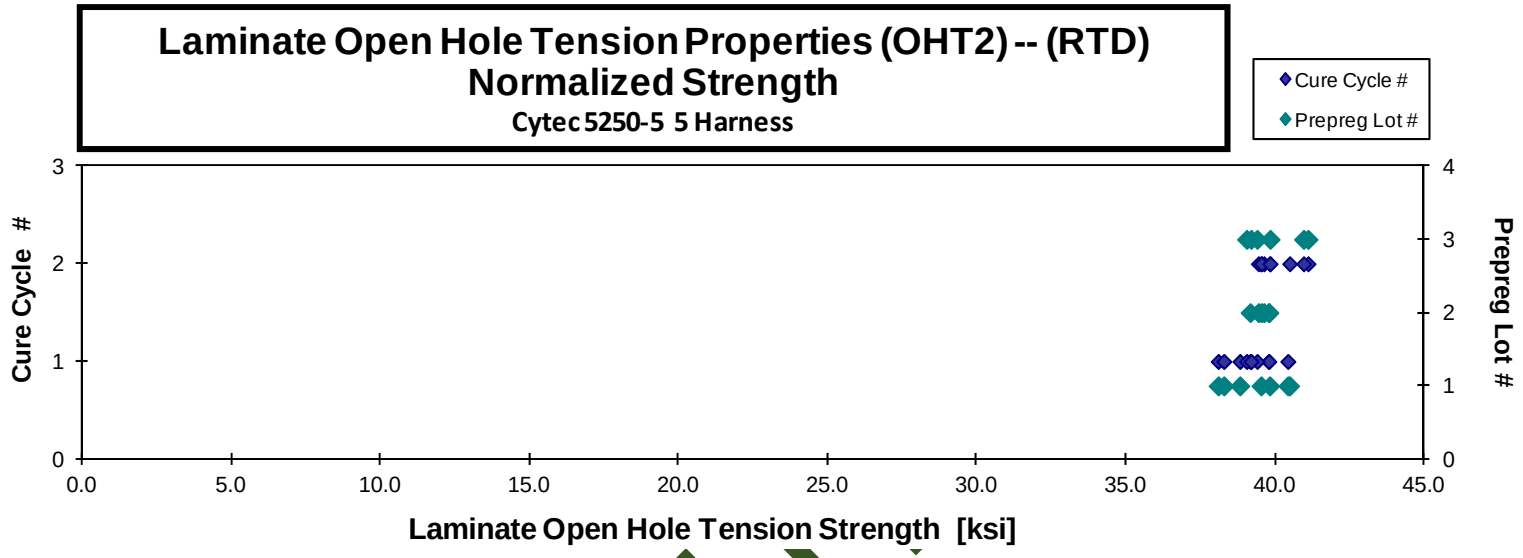
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBEA111A	A	C1	1	1	39.026	0.148	10	AGM	0.0148	38.093
CNBEA112A	A	C1	1	1	39.425	0.150	10	AGM	0.0150	38.820
CNBEA113A	A	C1	1	1	38.651	0.151	10	AGM	0.0151	38.283
CNBEA114A	A	C1	1	1	40.808	0.151	10	AGM	0.0151	40.428
CNBEA211A	A	C2	1	2	40.238	0.153	10	AGM	0.0153	40.489
CNBEA212A	A	C2	1	2	39.563	0.153	10	AGM	0.0153	39.819
CNBEA213A	A	C2	1	2	39.358	0.153	10	AGM	0.0153	39.527
CNBEB111A	B	C1	2	1	39.627	0.153	10	AGM	0.0153	39.783
CNBEB112A	B	C1	2	1	39.654	0.153	10	AGM	0.0153	39.789
CNBEB113A	B	C1	2	1	38.636	0.154	10	AGM	0.0154	39.165
CNBEB211A	B	C2	2	2	40.456	0.149	10	AGM	0.0149	39.626
CNBEB212A	B	C2	2	2	39.346	0.152	10	AGM	0.0152	39.441
CNBEB213A	B	C2	2	2	39.106	0.154	10	AGM	0.0154	39.543
CNBEC111A	C	C1	3	1	40.288	0.149	10	AGM	0.0149	39.395
CNBEC112A	C	C1	3	1	39.095	0.152	10	AGM	0.0152	39.043
CNBEC113A	C	C1	3	1	38.826	0.153	10	AGM	0.0153	39.196
CNBEC211A	C	C2	3	2	39.734	0.152	10	AGM	0.0152	39.834
CNBEC212A	C	C2	3	2	40.974	0.152	10	AGM	0.0152	41.104
CNBEC213A	C	C2	3	2	40.786	0.153	10	AGM	0.0153	40.956

Average	39.663	
Standard Dev.	0.735	
Coeff. of Var. [%]	1.853	
Min.	38.636	
Max.	40.974	
Number of Spec.	19	

$Average_{norm}$	0.0152	39.597
$Standard\ Dev._{norm}$		0.785
$Coeff.\ of\ Var.\ [\%]_{norm}$		1.984
Min.	0.0148	38.093
Max.	0.0154	41.104
Number of Spec.		19


Laminate Open Hole Tension Properties (OHT2) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
Laminate Open Hole Tension Strength [ksi]

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

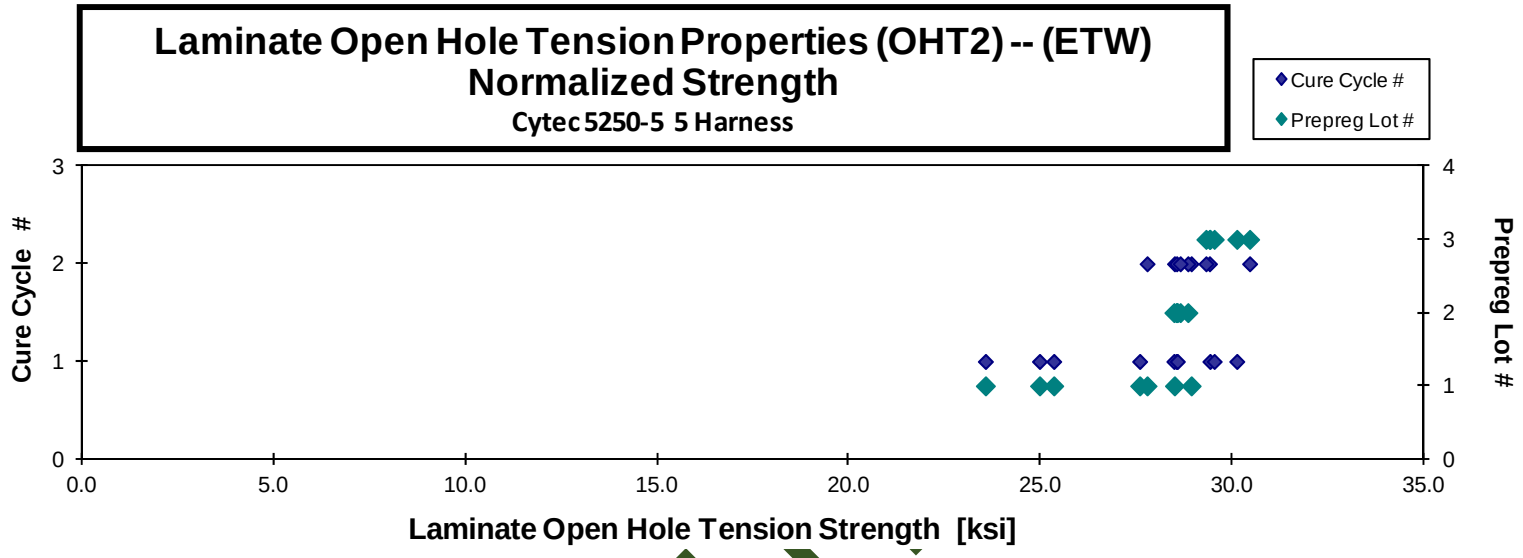
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBEA11AJ	A	C1	1	1	23.781	0.151	10	AGM	0.0151	23.557
CNBEA11BJ	A	C1	1	1	25.144	0.151	10	AGM	0.0151	24.968
CNBEA11CJ	A	C1	1	1	25.431	0.151	10	AGM	0.0151	25.338
CNBEA11DJ	A	C1	1	1	27.701	0.151	10	AGM	0.0151	27.579
CNBEA21AJ	A	C2	1	2	27.628	0.153	10	AGM	0.0153	27.774
CNBEA21BJ	A	C2	1	2	28.224	0.153	10	AGM	0.0153	28.487
CNBEA21CJ	A	C2	1	2	28.529	0.154	10	AGM	0.0154	28.923
CNBEB11AJ	B	C1	2	1	28.535	0.152	10	AGM	0.0152	28.535
CNBEB11BJ	B	C1	2	1	28.421	0.152	10	AGM	0.0152	28.474
CNBEB11CJ	B	C1	2	1	28.525	0.152	10	AGM	0.0152	28.562
CNBEB21AJ	B	C2	2	2	28.732	0.151	10	AGM	0.0151	28.543
CNBEB21BJ	B	C2	2	2	28.742	0.153	10	AGM	0.0153	28.837
CNBEB21CJ	B	C2	2	2	28.594	0.152	10	AGM	0.0152	28.638
CNBEC11AJ	C	C1	3	1	30.262	0.151	10	AGM	0.0151	30.112
CNBEC11BJ	C	C1	3	1	29.094	0.154	10	AGM	0.0154	29.413
CNBEC11CJ	C	C1	3	1	29.083	0.154	10	AGM	0.0154	29.523
CNBEC21AJ	C	C2	3	2	29.485	0.152	10	AGM	0.0152	29.401
CNBEC21BJ	C	C2	3	2	29.360	0.152	10	AGM	0.0152	29.308
CNBEC21CJ	C	C2	3	2	30.397	0.152	10	AGM	0.0152	30.447

	Strength [ksi]
Average	28.193
Standard Dev.	1.698
Coeff. of Var. [%]	6.021
Min.	23.781
Max.	30.397
Number of Spec.	19

	t_{ply} [in]	$Strength_{norm}$ [ksi]
$Average_{norm}$	0.0152	28.233
$Standard\ Dev._{norm}$		1.779
$Coeff.\ of\ Var.\ [\%]_{norm}$		6.302
Min.	0.0151	23.557
Max.	0.0154	30.447
Number of Spec.		19


Laminate Open Hole Tension Properties (OHT2) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
Laminate Open Hole Tension Strength [ksi]

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

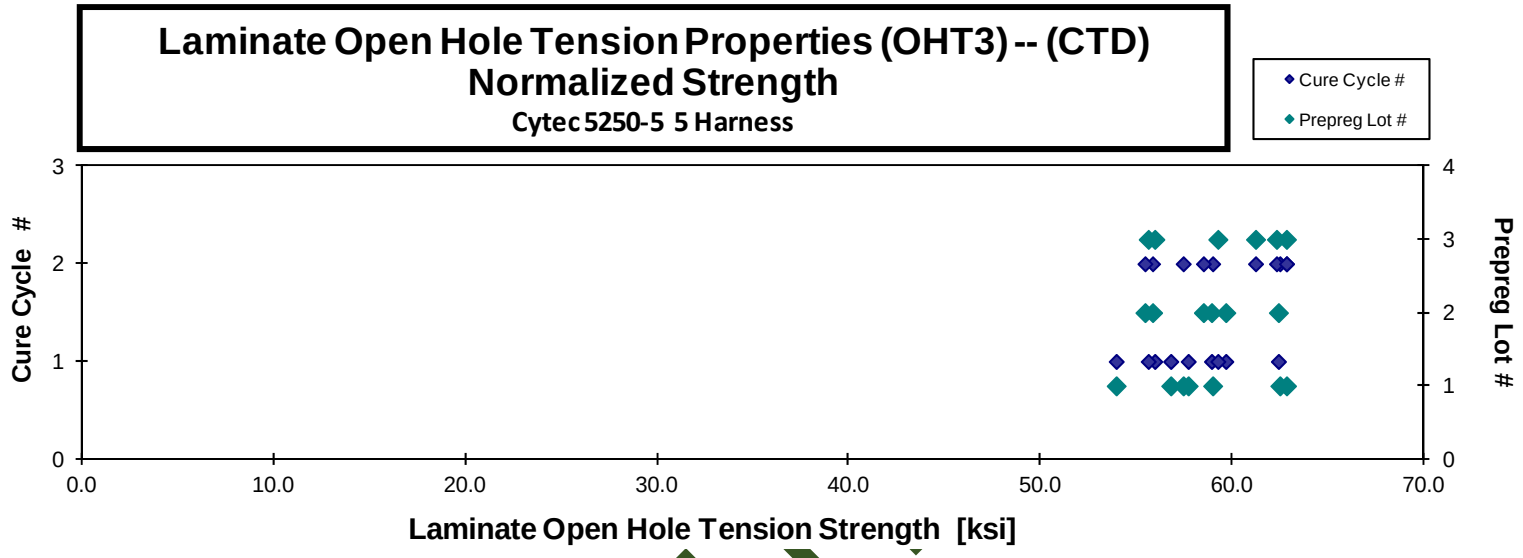
Laminate Open Hole Tension Properties (OHT3) -- (CTD) Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]
0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBFA116B	A	C1	1	1	57.749	0.152	10	LGM	0.0152	57.692
CNBFA117B	A	C1	1	1	56.743	0.152	10	LGM	0.0152	56.781
CNBFA118B	A	C1	1	1	53.748	0.153	10	LGM	0.0153	53.936
CNBFA215B	A	C2	1	2	56.955	0.153	10	LGM	0.0153	57.430
CNBFA216B	A	C2	1	2	62.609	0.152	10	LGM	0.0152	62.472
CNBFA217B	A	C2	1	2	59.331	0.151	10	LGM	0.0151	58.967
CNBFA218B	A	C2	1	2	63.297	0.151	10	LGM	0.0151	62.818
CNBFB115B	B	C1	2	1	59.139	0.153	10	LGM	0.0153	59.651
CNBFB116B	B	C1	2	1	58.434	0.153	10	LGM	0.0153	58.908
CNBFB117B	B	C1	2	1	62.307	0.152	10	LGM	0.0152	62.396
CNBFB215B	B	C2	2	2	54.847	0.155	10	LGM	0.0155	55.833
CNBFB216B	B	C2	2	2	54.438	0.155	10	LGM	0.0155	55.435
CNBFB217B	B	C2	2	2	57.508	0.155	10	LGM	0.0155	58.486
CNBFC115B	C	C1	3	1	58.317	0.154	10	LGM	0.0154	59.238
CNBFC116B	C	C1	3	1	55.468	0.153	10	LGM	0.0153	55.949
CNBFC117B	C	C1	3	1	55.668	0.152	10	LGM	0.0152	55.607
CNBFC215B	C	C2	3	2	61.281	0.155	10	LGM	0.0155	62.296
CNBFC216B	C	C2	3	2	60.481	0.154	10	LGM	0.0154	61.204
CNBFC217B	C	C2	3	2	62.095	0.154	10	LGM	0.0154	62.816

Average		58.443
Standard Dev.		2.951
Coeff. of Var. [%]		5.049
Min.		53.748
Max.		63.297
Number of Spec.		19

$Average_{norm}$	0.0153	58.838
$Standard\ Dev._{norm}$		2.858
$Coeff.\ of\ Var.\ [\%]_{norm}$		4.857
Min.	0.0151	53.936
Max.	0.0155	62.818
Number of Spec.		19


Laminate Open Hole Tension Properties (OHT3) -- (CTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Open Hole Tension Strength [ksi]

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

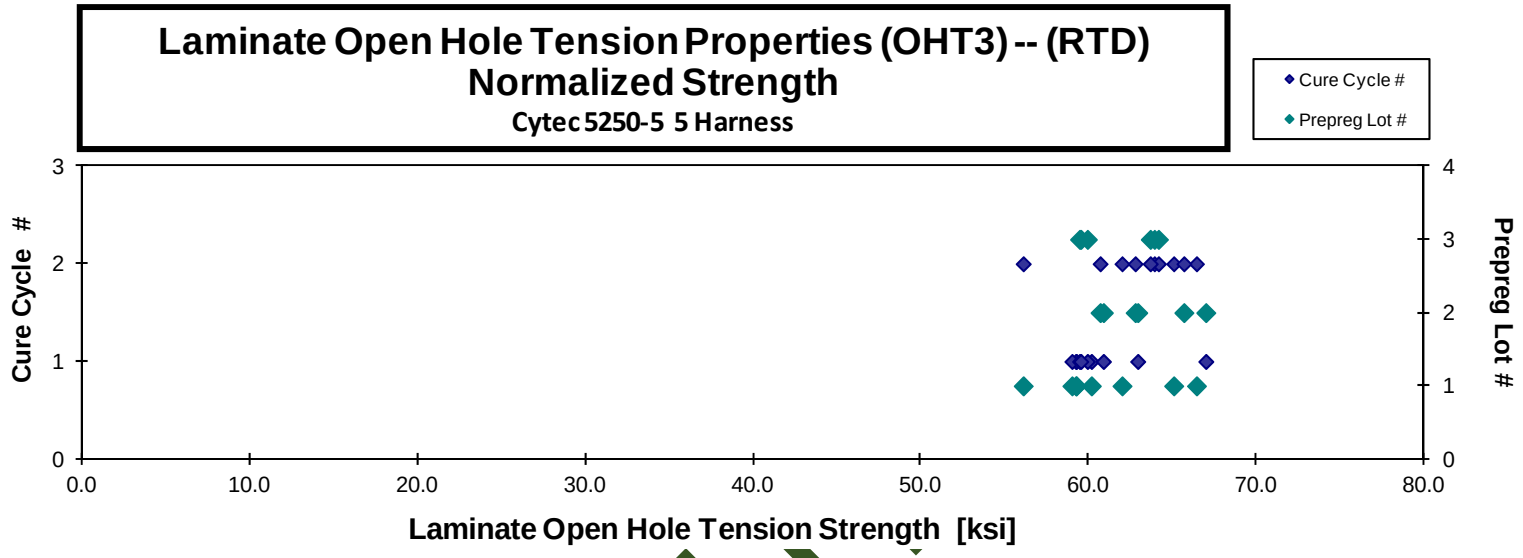
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBFA111A	A	C1	1	1	61.478	0.146	10	LGM	0.0146	59.240
CNBFA112A	A	C1	1	1	61.758	0.148	10	LGM	0.0148	60.160
CNBFA113A	A	C1	1	1	59.945	0.150	10	LGM	0.0150	59.255
CNBFA114A	A	C1	1	1	59.229	0.151	10	LGM	0.0151	59.002
CNBFA211A	A	C2	1	2	63.115	0.149	10	LGM	0.0149	61.987
CNBFA212A	A	C2	1	2	66.828	0.151	10	LGM	0.0151	66.425
CNBFA213A	A	C2	1	2	55.953	0.152	10	LGM	0.0152	56.100
CNBFA214A	A	C2	1	2	64.826	0.153	10	LGM	0.0153	65.068
CNBFB111A	B	C1	2	1	62.683	0.153	10	LGM	0.0153	62.923
CNBFB112A	B	C1	2	1	66.625	0.153	10	LGM	0.0153	66.983
CNBFB113A	B	C1	2	1	60.432	0.153	10	LGM	0.0153	60.875
CNBFB211A	B	C2	2	2	61.105	0.151	10	LGM	0.0151	60.683
CNBFB212A	B	C2	2	2	62.159	0.154	10	LGM	0.0154	62.772
CNBFB213A	B	C2	2	2	64.412	0.155	10	LGM	0.0155	65.676
CNBFC111A	C	C1	3	1	58.579	0.155	10	LGM	0.0155	59.922
CNBFC112A	C	C1	3	1	58.340	0.155	10	LGM	0.0155	59.459
CNBFC113A	C	C1	3	1	58.516	0.155	10	LGM	0.0155	59.530
CNBFC211A	C	C2	3	2	64.645	0.150	10	LGM	0.0150	63.915
CNBFC212A	C	C2	3	2	64.101	0.152	10	LGM	0.0152	64.157
CNBFC213A	C	C2	3	2	62.730	0.154	10	LGM	0.0154	63.672

Average	61.873	
Standard Dev.	2.912	
Coeff. of Var. [%]	4.707	
Min.	55.953	
Max.	66.828	
Number of Spec.	20	

$Average_{norm}$	0.0152	61.890
$Standard\ Dev._{norm}$		2.919
$Coeff.\ of\ Var.\ [\%]_{norm}$		4.716
Min.	0.0146	56.100
Max.	0.0155	66.983
Number of Spec.		20


Laminate Open Hole Tension Properties (OHT3) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
Laminate Open Hole Tension Strength [ksi]

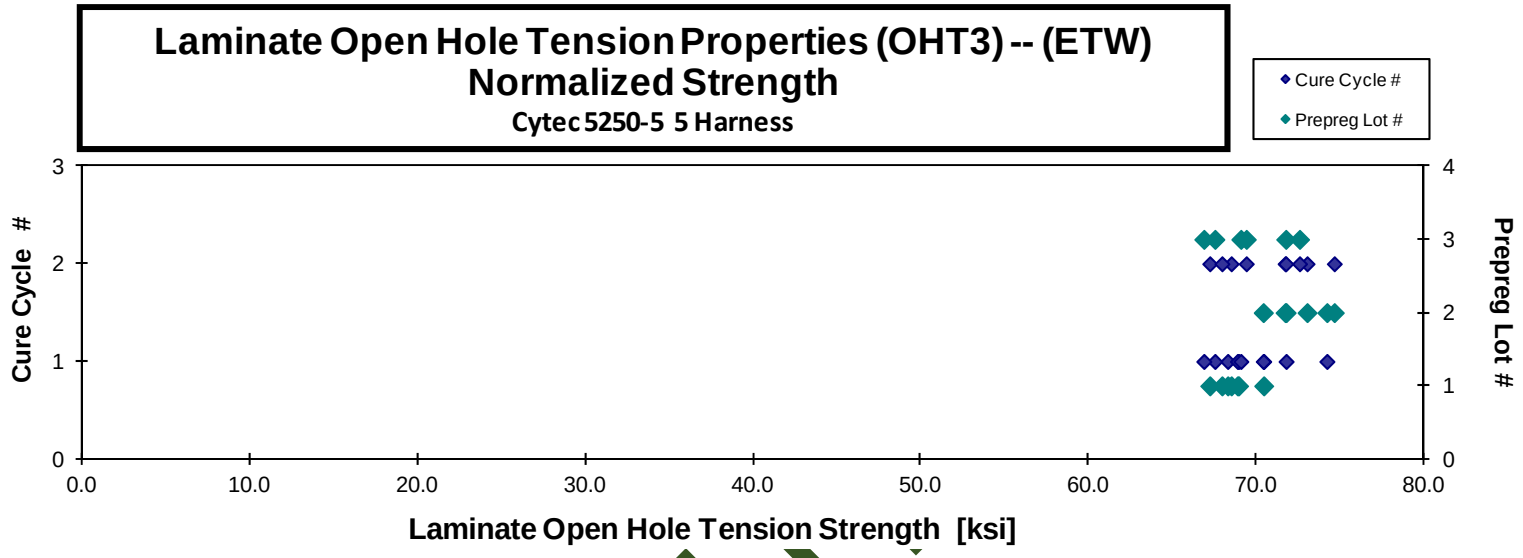
Laminate Open Hole Tension Properties (OHT3) -- (ETW)
Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBFA11AJ	A	C1	1	1	71.869	0.149	10	LGM	0.0149	70.435
CNBFA11BJ	A	C1	1	1	69.927	0.150	10	LGM	0.0150	68.938
CNBFA11CJ	A	C1	1	1	68.946	0.151	10	LGM	0.0151	68.288
CNBFA11DJ	A	C1	1	1	68.915	0.152	10	LGM	0.0152	68.870
CNBFA21AJ	A	C2	1	2	68.309	0.152	10	LGM	0.0152	68.496
CNBFA21BJ	A	C2	1	2	66.620	0.153	10	LGM	0.0153	67.219
CNBFA21CJ	A	C2	1	2	67.063	0.154	10	LGM	0.0154	67.945
CNBFB11AJ	B	C1	2	1	74.306	0.152	10	LGM	0.0152	74.200
CNBFB11BJ	B	C1	2	1	71.887	0.152	10	LGM	0.0152	71.769
CNBFB11CJ	B	C1	2	1	70.123	0.153	10	LGM	0.0153	70.408
CNBFB21AJ	B	C2	2	2	72.692	0.153	10	LGM	0.0153	73.019
CNBFB21BJ	B	C2	2	2	73.912	0.154	10	LGM	0.0154	74.641
CNBFB21CJ	B	C2	2	2	71.118	0.153	10	LGM	0.0153	71.710
CNBFC11AJ	C	C1	3	1	66.861	0.154	10	LGM	0.0154	67.521
CNBFC11BJ	C	C1	3	1	66.413	0.153	10	LGM	0.0153	66.865
CNBFC11CJ	C	C1	3	1	68.648	0.153	10	LGM	0.0153	69.070
CNBFC21AJ	C	C2	3	2	72.212	0.153	10	LGM	0.0153	72.569
CNBFC21BJ	C	C2	3	2	70.422	0.155	10	LGM	0.0155	71.750
CNBFC21CJ	C	C2	3	2	68.211	0.155	10	LGM	0.0155	69.393

Average	69.919	
Standard Dev.	2.442	
Coeff. of Var. [%]	3.492	
Min.	66.413	
Max.	74.306	
Number of Spec.	19	

$Average_{norm}$	0.0153	70.163
$Standard\ Dev._{norm}$		2.364
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.370
Min.	0.0149	66.865
Max.	0.0155	74.641
Number of Spec.		19


Laminate Open Hole Tension Properties (OHT3) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
Laminate Open Hole Tension Strength [ksi]

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

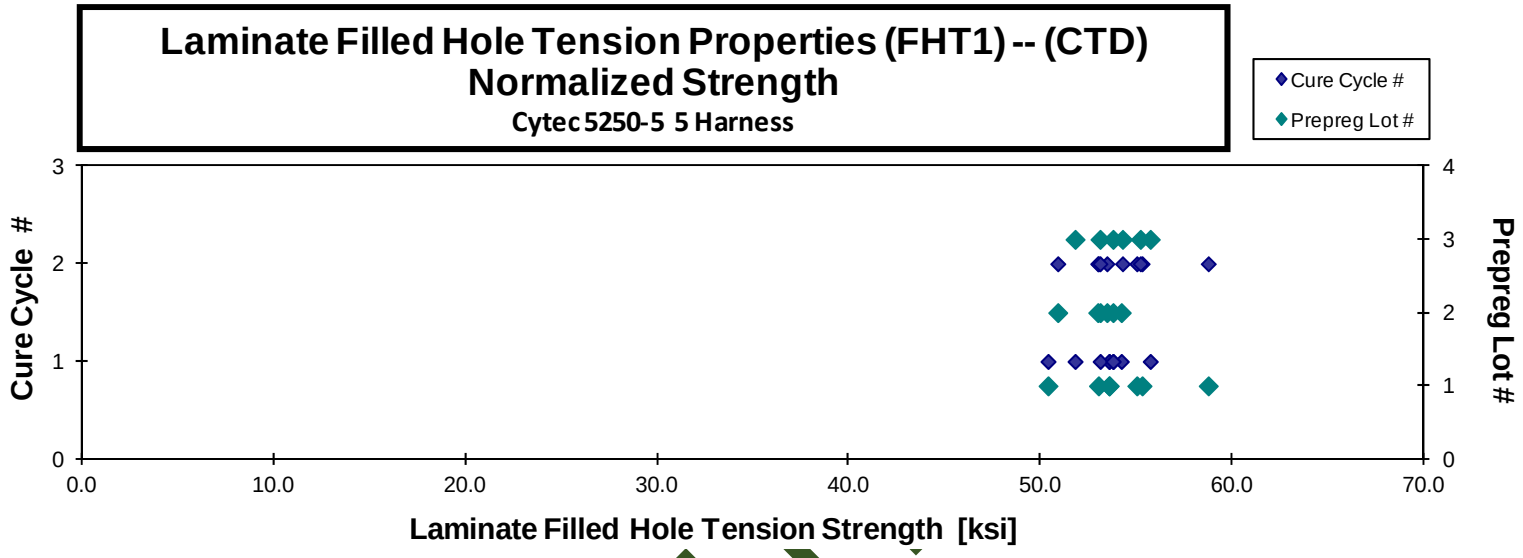
Laminate Filled Hole Tension Properties (FHT1) -- (CTD) Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNB4A116B	A	C1	1	1	52.824	0.123	8	LGM	0.0154	53.563
CNB4A117B	A	C1	1	1	54.038	0.121	8	LGM	0.0151	53.564
CNB4A118B	A	C1	1	1	52.006	0.118	8	LGM	0.0147	50.381
CNB4A216B	A	C2	1	2	58.721	0.122	8	LGM	0.0152	58.737
CNB4A217B	A	C2	1	2	55.157	0.122	8	LGM	0.0152	55.285
CNB4A218B	A	C2	1	2	53.082	0.121	8	LGM	0.0152	53.010
CNB4A219B	A	C2	1	2	55.970	0.120	8	LGM	0.0149	55.011
CNB4B115B	B	C1	2	1	54.402	0.121	8	LGM	0.0151	54.200
CNB4B116B	B	C1	2	1	53.222	0.121	8	LGM	0.0152	53.098
CNB4B117B	B	C1	2	1	53.968	0.121	8	LGM	0.0151	53.768
CNB4B217B	B	C2	2	2	52.980	0.122	8	LGM	0.0152	52.972
CNB4B218B	B	C2	2	2	50.686	0.122	8	LGM	0.0153	50.888
CNB4B219B	B	C2	2	2	54.696	0.119	8	LGM	0.0149	53.452
CNB4C115B	C	C1	3	1	51.007	0.123	8	LGM	0.0154	51.790
CNB4C116B	C	C1	3	1	53.097	0.123	8	LGM	0.0154	53.767
CNB4C117B	C	C1	3	1	55.827	0.121	8	LGM	0.0152	55.712
CNB4C217B	C	C2	3	2	52.486	0.123	8	LGM	0.0154	53.090
CNB4C218B	C	C2	3	2	54.596	0.123	8	LGM	0.0154	55.195
CNB4C219B	C	C2	3	2	54.421	0.121	8	LGM	0.0152	54.265

Average	53.852	
Standard Dev.	1.863	
Coeff. of Var. [%]	3.460	
Min.	50.686	
Max.	58.721	
Number of Spec.	19	

$Average_{norm}$	0.0152	53.776
$Standard\ Dev._{norm}$		1.837
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.417
Min.	0.0147	50.381
Max.	0.0154	58.737
Number of Spec.		19


Laminate Filled Hole Tension Properties (FHT1) -- (CTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Filled Hole Tension Strength [ksi]

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

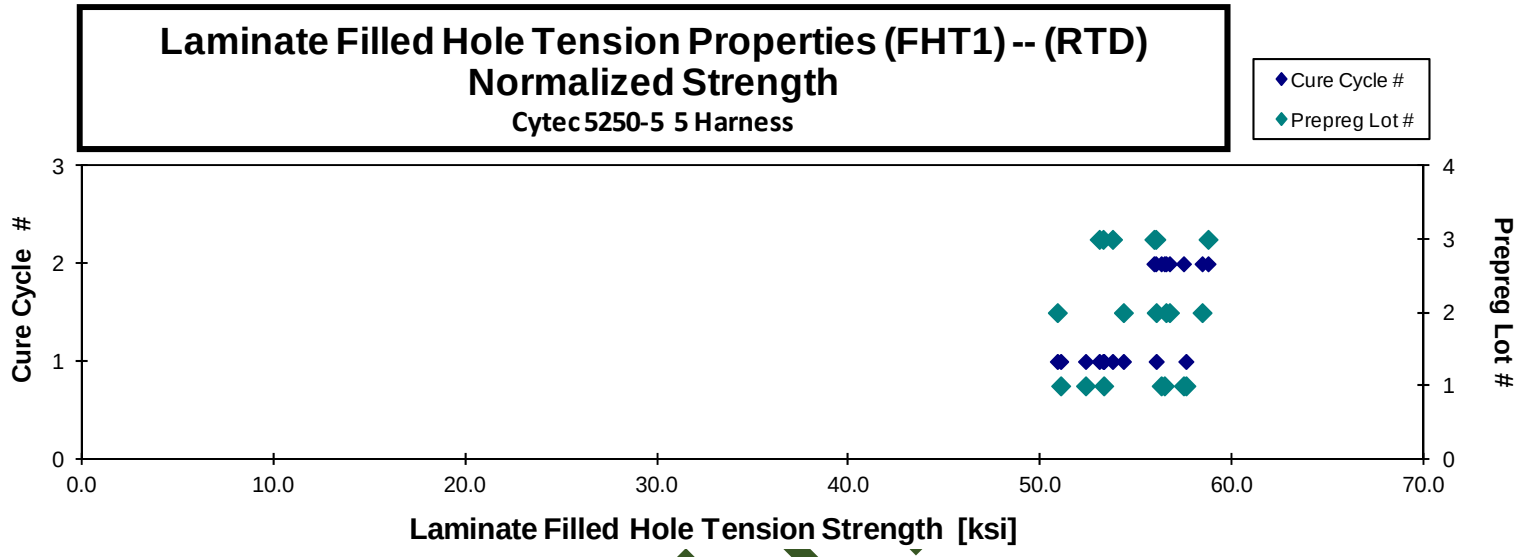
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNB4A111A	A	C1	1	1	52.136	0.122	8	LGM	0.0153	52.336
CNB4A112A	A	C1	1	1	57.389	0.122	8	LGM	0.0152	57.570
CNB4A114A	A	C1	1	1	52.648	0.123	8	LGM	0.0154	53.283
CNB4A115A	A	C1	1	1	50.349	0.123	8	LGM	0.0154	51.039
CNB4A211A	A	C2	1	2	58.716	0.119	8	LGM	0.0149	57.444
CNB4A212A	A	C2	1	2	56.483	0.121	8	LGM	0.0151	56.281
CNB4A213A	A	C2	1	2	56.468	0.122	8	LGM	0.0152	56.444
CNB4B112A	B	C1	2	1	51.594	0.120	8	LGM	0.0150	50.865
CNB4B113A	B	C1	2	1	56.045	0.122	8	LGM	0.0152	56.022
CNB4B114A	B	C1	2	1	54.216	0.122	8	LGM	0.0152	54.312
CNB4B212A	B	C2	2	2	59.193	0.120	8	LGM	0.0150	58.414
CNB4B213A	B	C2	2	2	56.808	0.121	8	LGM	0.0152	56.715
CNB4B214A	B	C2	2	2	56.312	0.122	8	LGM	0.0153	56.529
CNB4C112A	C	C1	3	1	52.666	0.123	8	LGM	0.0154	53.251
CNB4C113A	C	C1	3	1	52.387	0.123	8	LGM	0.0154	53.048
CNB4C114A	C	C1	3	1	52.759	0.124	8	LGM	0.0155	53.743
CNB4C211A	C	C2	3	2	56.253	0.121	8	LGM	0.0151	55.999
CNB4C212A	C	C2	3	2	58.414	0.122	8	LGM	0.0153	58.726
CNB4C213A	C	C2	3	2	55.297	0.123	8	LGM	0.0154	55.903

Average	55.060	
Standard Dev.	2.642	
Coeff. of Var. [%]	4.799	
Min.	50.349	
Max.	59.193	
Number of Spec.	19	

$Average_{norm}$	0.0152	55.154
$Standard\ Dev._{norm}$		2.372
$Coeff.\ of\ Var.\ [\%]_{norm}$		4.301
Min.	0.0149	50.865
Max.	0.0155	58.726
Number of Spec.		19


Laminate Filled Hole Tension Properties (FHT1) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Filled Hole Tension Strength [ksi]

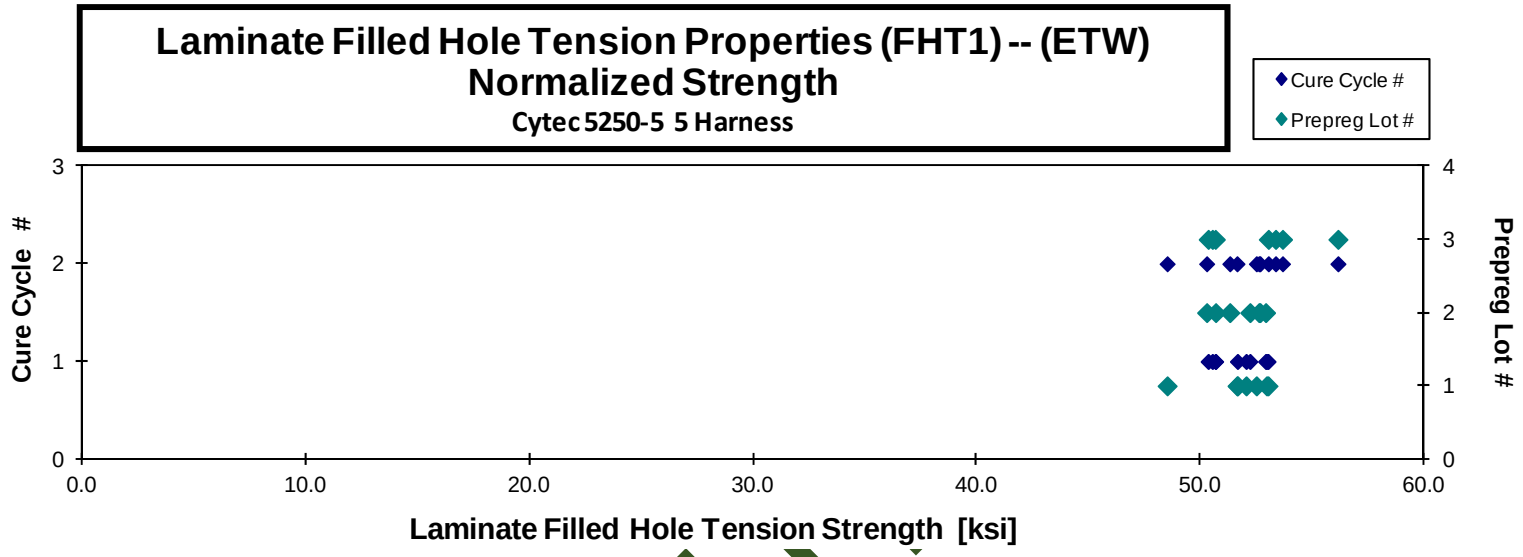
Laminate Filled Hole Tension Properties (FHT1) -- (ETW)
Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNB4A11AJ	A	C1	1	1	52.021	0.122	8	AGM	0.0152	52.035
CNB4A11BJ	A	C1	1	1	51.921	0.121	8	AGM	0.0151	51.651
CNB4A11CJ	A	C1	1	1	52.974	0.122	8	AGM	0.0152	53.018
CNB4A11DJ	A	C1	1	1	52.823	0.122	8	AGM	0.0152	52.954
CNB4A21AJ	A	C2	1	2	48.769	0.121	8	AGM	0.0151	48.508
CNB4A21BJ	A	C2	1	2	51.407	0.122	8	AGM	0.0153	51.632
CNB4A21CJ	A	C2	1	2	52.155	0.122	8	AGM	0.0153	52.498
CNB4B11AJ	B	C1	2	1	53.800	0.120	8	AGM	0.0149	52.908
CNB4B11BJ	B	C1	2	1	50.766	0.121	8	AGM	0.0152	50.675
CNB4B11CJ	B	C1	2	1	52.314	0.121	8	AGM	0.0152	52.207
CNB4B21AJ	B	C2	2	2	51.807	0.120	8	AGM	0.0151	51.310
CNB4B21BJ	B	C2	2	2	49.966	0.122	8	AGM	0.0153	50.274
CNB4B21CJ	B	C2	2	2	52.031	0.123	8	AGM	0.0154	52.609
CNB4B21DJ	B	C2	2	2	52.016	0.123	8	AGM	0.0154	52.658
CNB4C11AJ	C	C1	3	1	50.103	0.122	8	AGM	0.0153	50.344
CNB4C11BJ	C	C1	3	1	50.047	0.123	8	AGM	0.0153	50.527
CNB4C11CJ	C	C1	3	1	50.131	0.123	8	AGM	0.0154	50.660
CNB4C21AJ	C	C2	3	2	53.100	0.122	8	AGM	0.0153	53.355
CNB4C21BJ	C	C2	3	2	55.436	0.123	8	AGM	0.0154	56.143
CNB4C21CJ	C	C2	3	2	52.860	0.123	8	AGM	0.0154	53.665
CNB4C21DJ	C	C2	3	2	52.272	0.123	8	AGM	0.0154	53.032

Average	51.844	
Standard Dev.	1.512	
Coeff. of Var. [%]	2.916	
Min.	48.769	
Max.	55.436	
Number of Spec.	21	

$Average_{norm}$	0.0153	52.031
$Standard\ Dev._{norm}$		1.598
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.070
Min.	0.0149	48.508
Max.	0.0154	56.143
Number of Spec.		21


Laminate Filled Hole Tension Properties (FHT1) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Filled Hole Tension Strength [ksi]

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

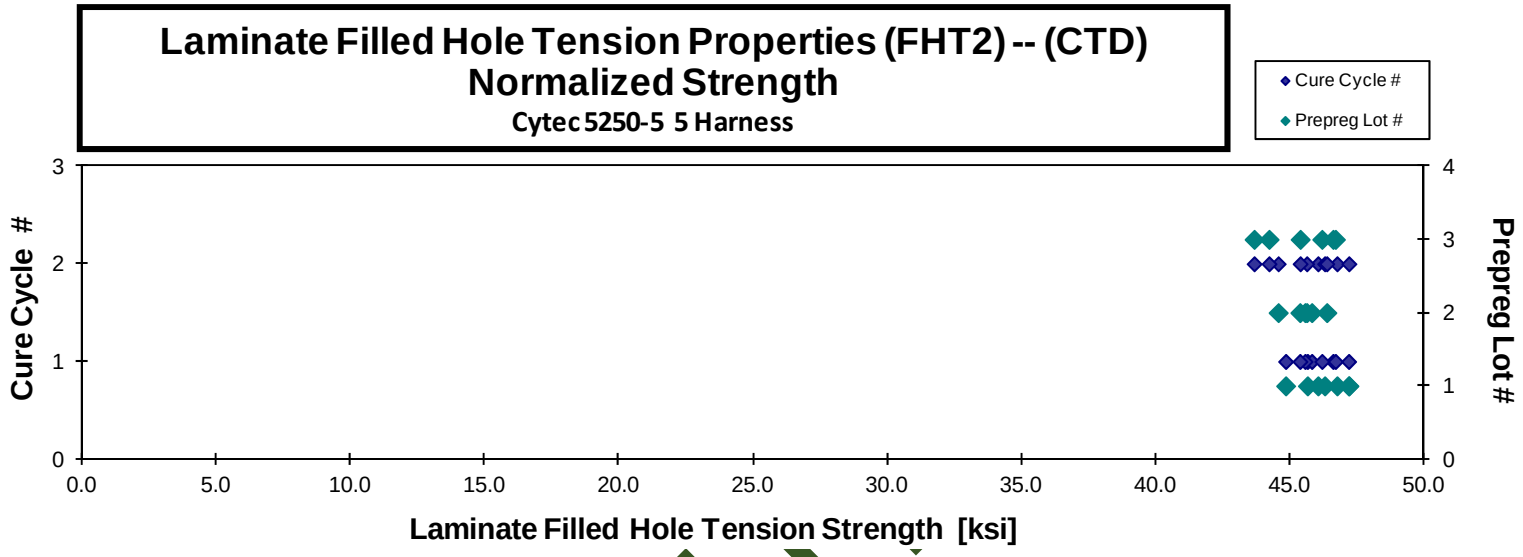
Laminate Filled Hole Tension Properties (FHT2) -- (CTD) Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]
0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNB5A116B	A	C1	1	1	46.237	0.150	10	AGM	0.0150	45.648
CNB5A117B	A	C1	1	1	45.635	0.149	10	AGM	0.0149	44.839
CNB5A118B	A	C1	1	1	48.546	0.148	10	AGM	0.0148	47.184
CNB5A215B	A	C2	1	2	45.490	0.154	10	AGM	0.0154	46.039
CNB5A216B	A	C2	1	2	46.078	0.154	10	AGM	0.0154	46.750
CNB5A217B	A	C2	1	2	46.611	0.154	10	AGM	0.0154	47.194
CNB5A218B	A	C2	1	2	46.185	0.152	10	AGM	0.0152	46.292
CNB5B116B	B	C1	2	1	45.616	0.153	10	AGM	0.0153	45.806
CNB5B117B	B	C1	2	1	45.167	0.153	10	AGM	0.0153	45.558
CNB5B118B	B	C1	2	1	45.221	0.153	10	AGM	0.0153	45.370
CNB5B217B	B	C2	2	2	45.873	0.151	10	AGM	0.0151	45.622
CNB5B218B	B	C2	2	2	45.620	0.148	10	AGM	0.0148	44.560
CNB5B219B	B	C2	2	2	46.028	0.153	10	AGM	0.0153	46.371
CNB5C116B	C	C1	3	1	46.012	0.154	10	AGM	0.0154	46.602
CNB5C117B	C	C1	3	1	45.603	0.154	10	AGM	0.0154	46.188
CNB5C118B	C	C1	3	1	46.261	0.153	10	AGM	0.0153	46.693
CNB5C215B	C	C2	3	2	44.869	0.150	10	AGM	0.0150	44.219
CNB5C216B	C	C2	3	2	44.359	0.150	10	AGM	0.0150	43.664
CNB5C217B	C	C2	3	2	45.484	0.148	10	AGM	0.0148	45.378

Average	**45.889**	
Standard Dev.	**0.855**	
Coeff. of Var. [%]	**1.863**	
Min.	**44.359**	
Max.	**48.546**	
Number of Spec.	**19**	

$Average_{norm}$	**0.0152**	**45.788**
Standard $Dev._{norm}$		**0.971**
Coeff. of Var. $[\%]_{norm}$		**2.121**
Min.	**0.0148**	**43.664**
Max.	**0.0154**	**47.194**
Number of Spec.		**19**


Laminate Filled Hole Tension Properties (FHT2) -- (CTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Laminate Filled Hole Tension Strength [ksi]

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

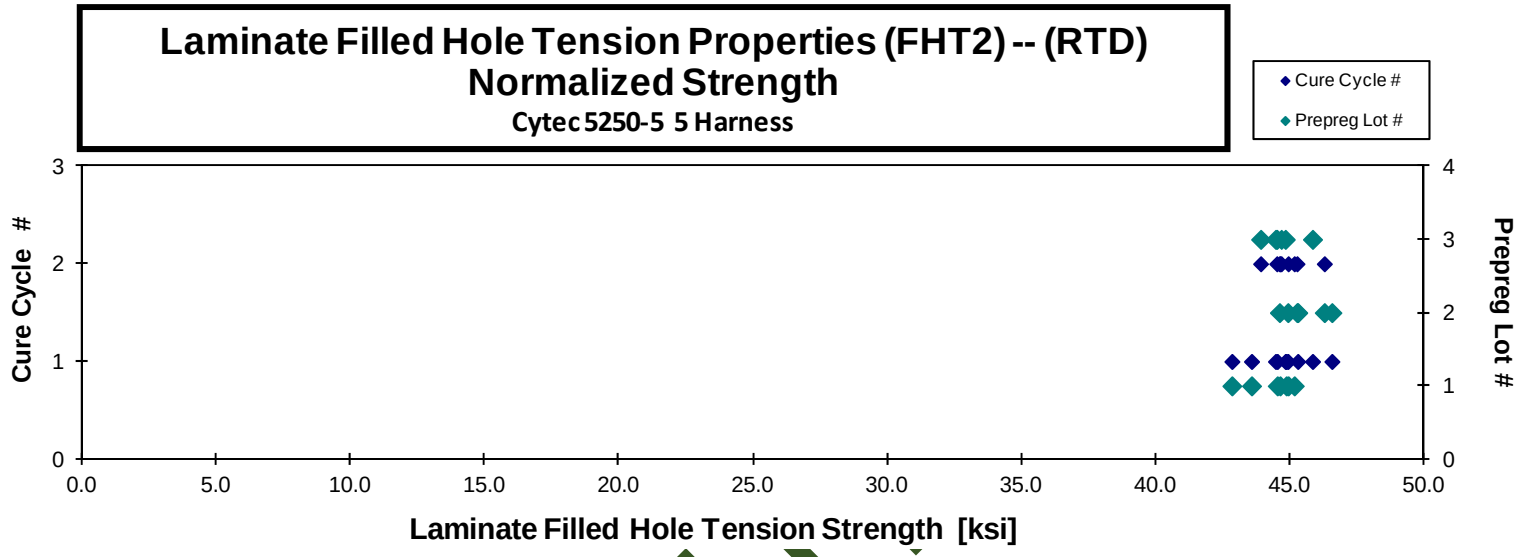
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNB5A111A	A	C1	1	1	43.470	0.150	10	AGM	0.0150	42.836
CNB5A112A	A	C1	1	1	45.154	0.150	10	AGM	0.0150	44.525
CNB5A113A	A	C1	1	1	44.153	0.150	10	AGM	0.0150	43.567
CNB5A114A	A	C1	1	1	45.448	0.150	10	AGM	0.0150	44.860
CNB5A211A	A	C2	1	2	44.366	0.154	10	AGM	0.0154	44.930
CNB5A212A	A	C2	1	2	44.510	0.154	10	AGM	0.0154	45.159
CNB5A213A	A	C2	1	2	43.952	0.154	10	AGM	0.0154	44.626
CNB5B111A	B	C1	2	1	46.686	0.147	10	AGM	0.0147	45.288
CNB5B112A	B	C1	2	1	47.104	0.150	10	AGM	0.0150	46.561
CNB5B113A	B	C1	2	1	44.617	0.153	10	AGM	0.0153	44.920
CNB5B211A	B	C2	2	2	45.942	0.153	10	AGM	0.0153	46.280
CNB5B212A	B	C2	2	2	44.296	0.153	10	AGM	0.0153	44.607
CNB5B213A	B	C2	2	2	44.868	0.153	10	AGM	0.0153	45.262
CNB5C111A	C	C1	3	1	44.859	0.152	10	AGM	0.0152	44.824
CNB5C112A	C	C1	3	1	45.638	0.153	10	AGM	0.0153	45.838
CNB5C113A	C	C1	3	1	44.009	0.154	10	AGM	0.0154	44.462
CNB5C211A	C	C2	3	2	44.447	0.150	10	AGM	0.0150	43.906
CNB5C212A	C	C2	3	2	45.159	0.150	10	AGM	0.0150	44.510
CNB5C213A	C	C2	3	2	45.430	0.149	10	AGM	0.0149	44.673

	Strength [ksi]
Average	44.953
Standard Dev.	0.935
Coeff. of Var. [%]	2.079
Min.	43.470
Max.	47.104
Number of Spec.	19

	t_{ply} [in]	$Strength_{norm}$ [ksi]
$Average_{norm}$	0.0152	44.823
$Standard\ Dev._{norm}$		0.866
$Coeff.\ of\ Var.\ [\%]_{norm}$		1.933
Min.	0.0147	42.836
Max.	0.0154	46.561
Number of Spec.		19


Laminate Filled Hole Tension Properties (FHT2) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Laminate Filled Hole Tension Strength [ksi]

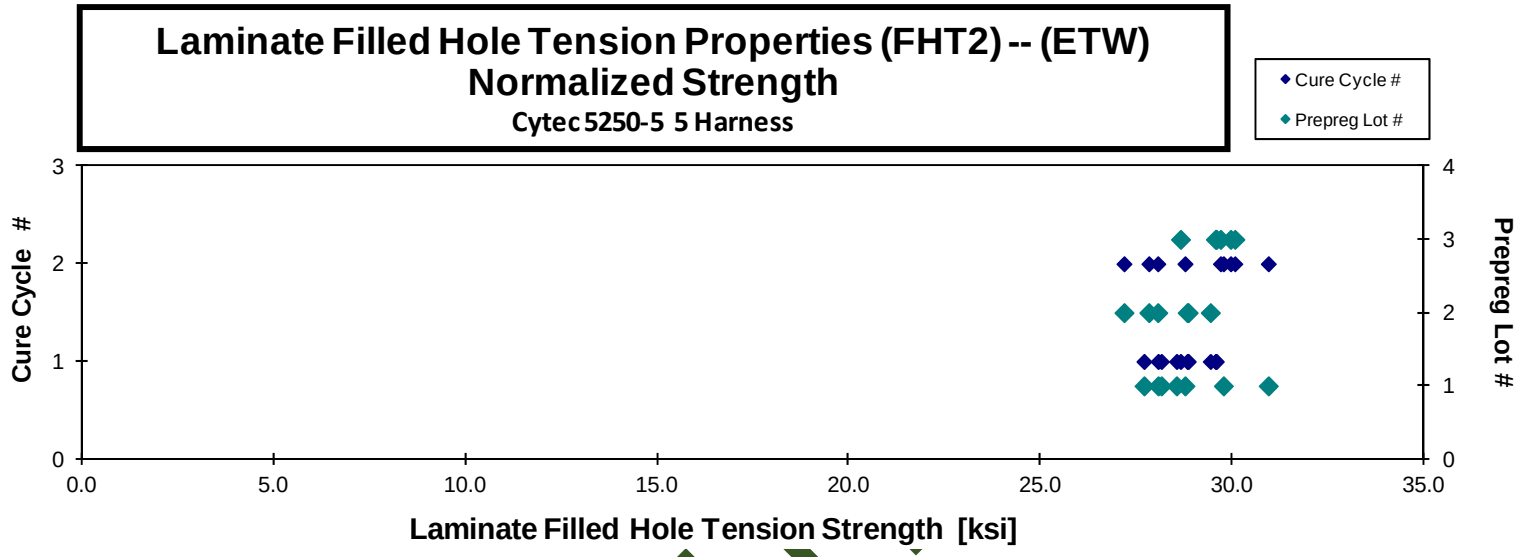
Laminate Filled Hole Tension Properties (FHT2) -- (ETW)
Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNB5A11AJ	A	C1	1	1	28.947	0.150	10	AGM	0.0150	28.541
CNB5A11BJ	A	C1	1	1	28.115	0.150	10	MGM	0.0150	27.692
CNB5A11CJ	A	C1	1	1	28.509	0.150	10	AGM	0.0150	28.059
CNB5A11DJ	A	C1	1	1	28.511	0.150	10	MGM	0.0150	28.146
CNB5A21AJ	A	C2	1	2	29.460	0.154	10	MGM	0.0154	29.763
CNB5A21BJ	A	C2	1	2	28.421	0.154	10	MGM	0.0154	28.761
CNB5A21EJ	A	C2	1	2	30.702	0.153	10	MGM	0.0153	30.934
CNB5B11AJ	B	C1	2	1	29.243	0.150	10	MGM	0.0150	28.819
CNB5B11BJ	B	C1	2	1	29.359	0.152	10	MGM	0.0152	29.423
CNB5B11CJ	B	C1	2	1	28.573	0.153	10	MGM	0.0153	28.845
CNB5B21AJ	B	C2	2	2	27.034	0.153	10	MGM	0.0153	27.171
CNB5B21BJ	B	C2	2	2	27.987	0.152	10	MGM	0.0152	28.052
CNB5B21CJ	B	C2	2	2	27.584	0.153	10	MGM	0.0153	27.820
CNB5C11AJ	C	C1	3	1	28.312	0.154	10	MGM	0.0154	28.645
CNB5C11BJ	C	C1	3	1	29.024	0.155	10	MGM	0.0155	29.556
CNB5C11CJ	C	C1	3	1	28.891	0.156	10	MGM	0.0156	29.578
CNB5C21AJ	C	C2	3	2	30.347	0.151	10	MGM	0.0151	30.061
CNB5C218J	C	C2	3	2	29.961	0.151	10	MGM	0.0151	29.688
CNB5C21CJ	C	C2	3	2	30.182	0.151	10	MGM	0.0151	29.951

Average	28.903	
Standard Dev.	0.955	
Coeff. of Var. [%]	3.304	
Min.	27.034	
Max.	30.702	
Number of Spec.	19	

$Average_{norm}$	0.0152	28.921
$Standard\ Dev._{norm}$		0.970
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.355
Min.	0.0150	27.171
Max.	0.0156	30.934
Number of Spec.		19


Laminate Filled Hole Tension Properties (FHT2) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
Laminate Filled Hole Tension Strength [ksi]

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

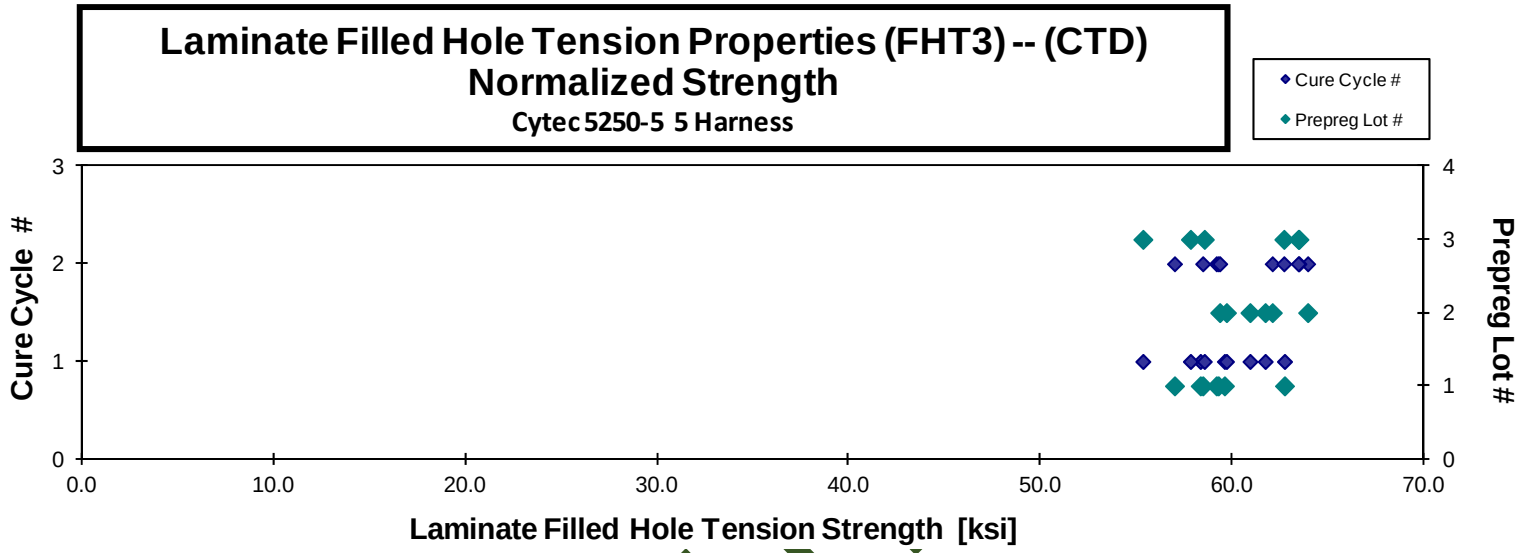
Laminate Filled Hole Tension Properties (FHT3) -- (CTD) Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]
0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNB6A116B	A	C1	1	1	62.976	0.151	10	LGM	0.0151	62.714
CNB6A117B	A	C1	1	1	59.145	0.150	10	LGM	0.0150	58.321
CNB6A118B	A	C1	1	1	61.586	0.147	10	LGM	0.0147	59.580
CNB6A215B	A	C2	1	2	58.743	0.153	10	LGM	0.0153	59.162
CNB6A216B	A	C2	1	2	58.091	0.153	10	LGM	0.0153	58.448
CNB6A217B	A	C2	1	2	57.008	0.152	10	LGM	0.0152	56.977
CNB6A218B	A	C2	1	2	60.193	0.150	10	LGM	0.0150	59.255
CNB6B117B	B	C1	2	1	60.367	0.150	10	LGM	0.0150	59.685
CNB6B118B	B	C1	2	1	63.566	0.148	10	LGM	0.0148	61.705
CNB6B119B	B	C1	2	1	60.960	0.152	10	LGM	0.0152	60.913
CNB6B216B	B	C2	2	2	61.609	0.153	10	LGM	0.0153	62.075
CNB6B217B	B	C2	2	2	59.702	0.151	10	LGM	0.0151	59.336
CNB6B218B	B	C2	2	2	65.063	0.149	10	LGM	0.0149	63.922
CNB6C116B	C	C1	3	1	57.032	0.154	10	LGM	0.0154	57.808
CNB6C117B	C	C1	3	1	54.856	0.153	10	LGM	0.0153	55.325
CNB6C118B	C	C1	3	1	59.165	0.150	10	LGM	0.0150	58.530
CNB6C217B	C	C2	3	2	61.996	0.156	10	LGM	0.0156	63.464
CNB6C218B	C	C2	3	2	62.238	0.155	10	LGM	0.0155	63.427
CNB6C219B	C	C2	3	2	63.146	0.151	10	LGM	0.0151	62.682

Average	60.392	
Standard Dev.	2.585	
Coeff. of Var. [%]	4.281	
Min.	54.856	
Max.	65.063	
Number of Spec.	19	

$Average_{norm}$	0.0151	60.175
$Standard\ Dev._{norm}$		2.430
$Coeff.\ of\ Var.\ [\%]_{norm}$		4.039
Min.	0.0147	55.325
Max.	0.0156	63.922
Number of Spec.		19


Laminate Filled Hole Tension Properties (FHT3) -- (CTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Filled Hole Tension Strength [ksi]

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

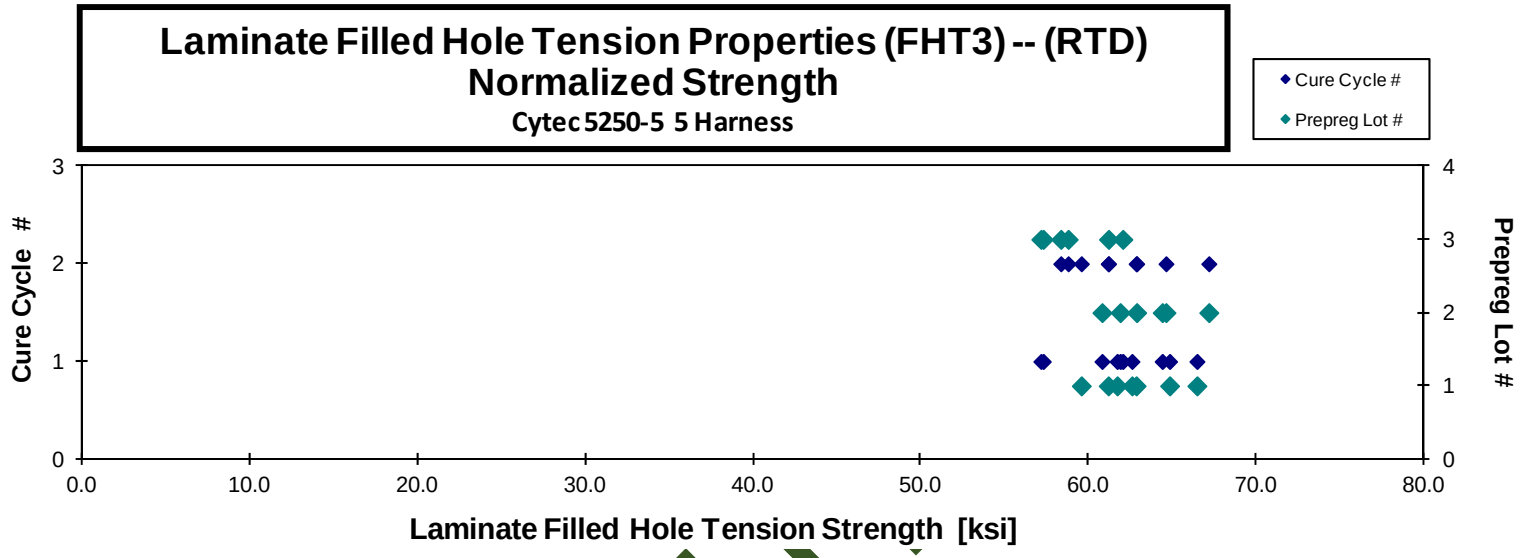
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNB6A111A	A	C1	1	1	62.231	0.153	10	LGM	0.0153	62.579
CNB6A112A	A	C1	1	1	61.543	0.152	10	LGM	0.0152	61.698
CNB6A113A	A	C1	1	1	64.666	0.152	10	LGM	0.0152	64.822
CNB6A114A	A	C1	1	1	66.155	0.153	10	LGM	0.0153	66.452
CNB6A211A	A	C2	1	2	59.095	0.153	10	LGM	0.0153	59.562
CNB6A212A	A	C2	1	2	61.013	0.152	10	LGM	0.0152	61.167
CNB6A213A	A	C2	1	2	62.726	0.152	10	LGM	0.0152	62.829
CNB6B111A	B	C1	2	1	64.071	0.153	10	LGM	0.0153	64.387
CNB6B113A	B	C1	2	1	61.641	0.153	10	LGM	0.0153	61.877
CNB6B114A	B	C1	2	1	60.346	0.153	10	LGM	0.0153	60.796
CNB6B211A	B	C2	2	2	67.242	0.152	10	LGM	0.0152	67.161
CNB6B213A	B	C2	2	2	62.835	0.152	10	LGM	0.0152	62.862
CNB6B214A	B	C2	2	2	64.116	0.153	10	LGM	0.0153	64.608
CNB6C112A	C	C1	3	1	56.494	0.154	10	LGM	0.0154	57.293
CNB6C113A	C	C1	3	1	56.324	0.154	10	LGM	0.0154	57.152
CNB6C114A	C	C1	3	1	61.209	0.154	10	LGM	0.0154	62.034
CNB6C212A	C	C2	3	2	58.888	0.152	10	LGM	0.0152	58.778
CNB6C213A	C	C2	3	2	57.633	0.154	10	LGM	0.0154	58.340
CNB6C214A	C	C2	3	2	60.012	0.155	10	LGM	0.0155	61.183

Average	61.486	
Standard Dev.	3.030	
Coeff. of Var. [%]	4.928	
Min.	56.324	
Max.	67.242	
Number of Spec.	19	

$Average_{norm}$	0.0153	61.873
$Standard\ Dev._{norm}$		2.855
$Coeff.\ of\ Var.\ [\%]_{norm}$		4.614
Min.	0.0152	57.152
Max.	0.0155	67.161
Number of Spec.		19


Laminate Filled Hole Tension Properties (FHT3) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
Laminate Filled Hole Tension Strength [ksi]

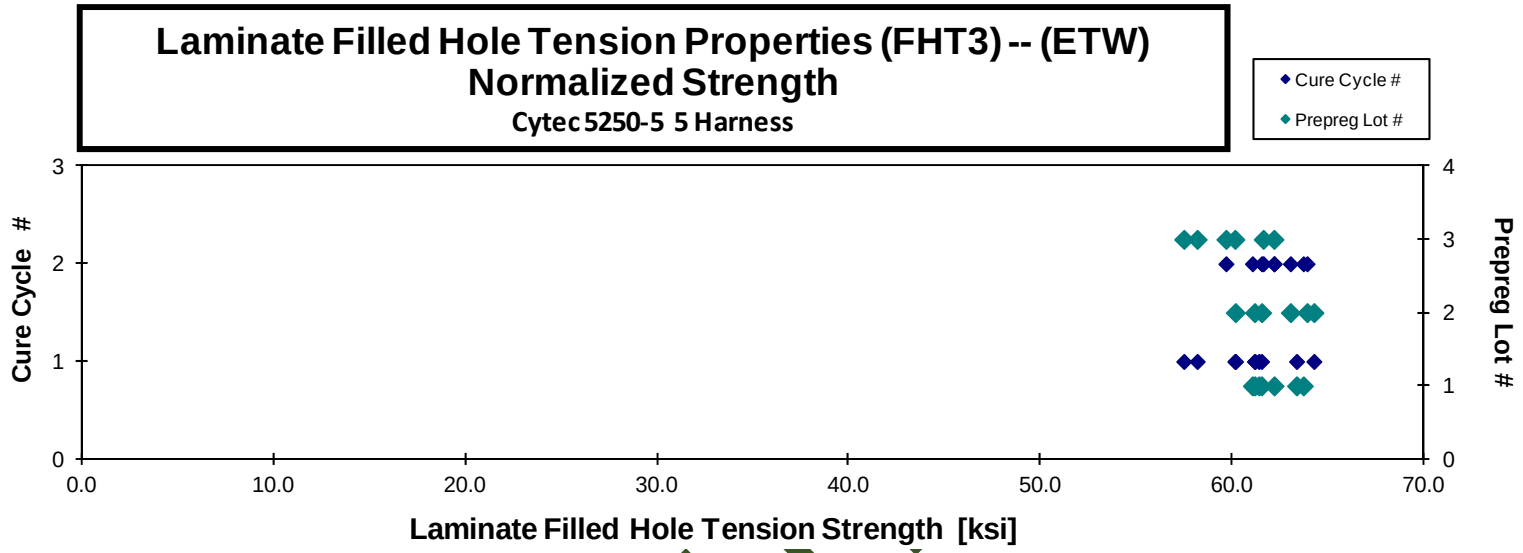
Laminate Filled Hole Tension Properties (FHT3) -- (ETW)
Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNB6A11AJ	A	C1	1	1	63.636	0.151	10	LGM	0.0151	63.342
CNB6A11BJ	A	C1	1	1	61.504	0.151	10	LGM	0.0151	61.160
CNB6A11CJ	A	C1	1	1	61.986	0.151	10	LGM	0.0151	61.375
CNB6A11DJ	A	C1	1	1	62.090	0.151	10	LGM	0.0151	61.511
CNB6A21AJ	A	C2	1	2	62.895	0.150	10	LGM	0.0150	62.171
CNB6A21BJ	A	C2	1	2	61.722	0.150	10	LGM	0.0150	61.038
CNB6A21EJ	A	C2	1	2	63.981	0.151	10	LGM	0.0151	63.694
CNB6B11AJ	B	C1	2	1	64.465	0.151	10	LGM	0.0151	64.246
CNB6B11BJ	B	C1	2	1	60.459	0.151	10	LGM	0.0151	60.154
CNB6B11DJ	B	C1	2	1	61.176	0.152	10	LGM	0.0152	61.156
CNB6B21AJ	B	C2	2	2	61.311	0.153	10	LGM	0.0153	61.519
CNB6B21BJ	B	C2	2	2	63.419	0.153	10	LGM	0.0153	63.892
CNB6B21CJ	B	C2	2	2	62.520	0.153	10	LGM	0.0153	63.020
CNB6C11AJ	C	C1	3	1	57.677	0.153	10	LGM	0.0153	58.158
CNB6C11BJ	C	C1	3	1	59.523	0.154	10	LGM	0.0154	60.124
CNB6C11CJ	C	C1	3	1	56.906	0.153	10	LGM	0.0153	57.461
CNB6C21AJ	C	C2	3	2	59.587	0.152	10	LGM	0.0152	59.658
CNB6C21BJ	C	C2	3	2	61.222	0.154	10	LGM	0.0154	62.162
CNB6C21CJ	C	C2	3	2	60.408	0.155	10	LGM	0.0155	61.607

	Strength [ksi]
Average	61.394
Standard Dev.	2.005
Coeff. of Var. [%]	3.266
Min.	56.906
Max.	64.465
Number of Spec.	19

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
Average	0.0152	61.445
Standard Dev.		1.821
Coeff. of Var. [%]		2.963
Min.	0.0150	57.461
Max.	0.0155	64.246
Number of Spec.		19


Laminate Filled Hole Tension Properties (FHT3) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Filled Hole Tension Strength [ksi]

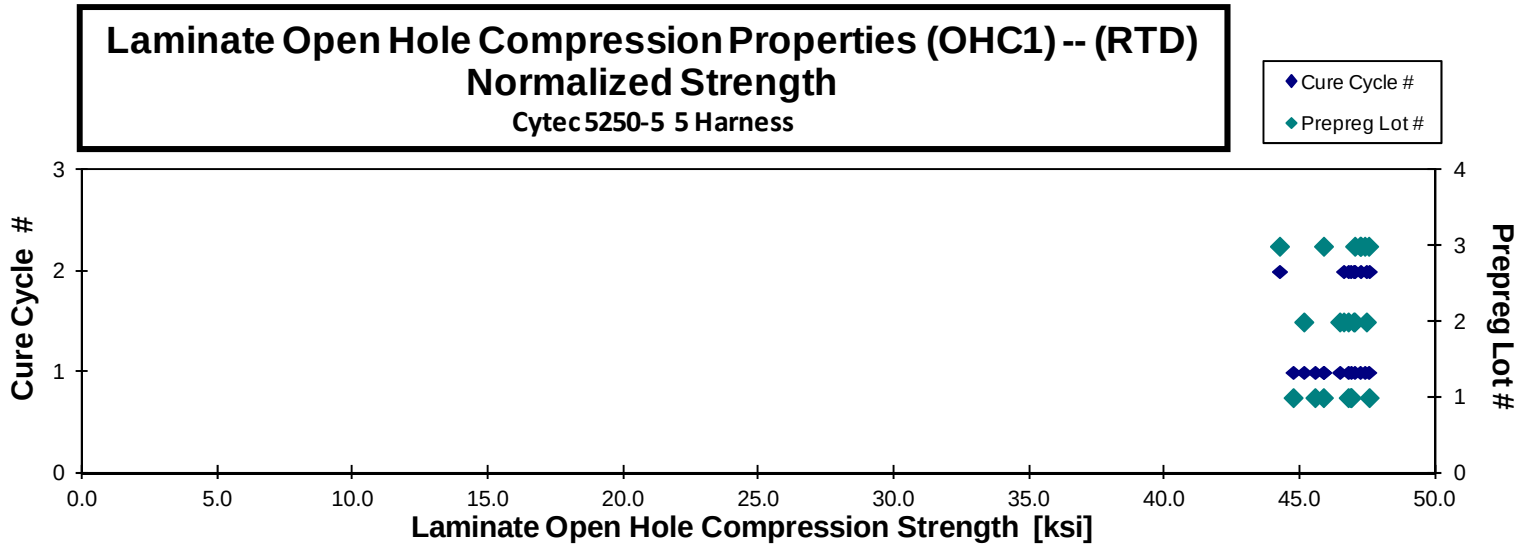
4.20 "25/50/25" Open-Hole Compression 1 Properties (OHC1)

Laminate Open Hole Compression Properties (OHC1) -- (RTD) Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBGA111A	A	C1	1	1	45.994	0.182	12	AGM	0.0152	45.872
CNBGA112A	A	C1	1	1	46.995	0.182	12	MGM	0.0152	46.892
CNBGA113A	A	C1	1	1	45.172	0.181	12	AGM	0.0151	44.751
CNBGA114A	A	C1	1	1	45.868	0.181	12	LGM/AGM	0.0151	45.558
CNBGA211A	A	C2	1	2	46.887	0.182	12	AGM	0.0152	46.789
CNBGA212A	A	C2	1	2	47.502	0.183	12	AGM	0.0152	47.563
CNBGA213A	A	C2	1	2	46.424	0.184	12	AGM	0.0153	46.878
CNBGB111A	B	C1	2	1	47.767	0.177	12	LGM	0.0148	46.475
CNBGB112A	B	C1	2	1	47.223	0.181	12	LGM	0.0151	46.787
CNBGB113A	B	C1	2	1	45.159	0.182	12	LGM	0.0152	45.146
CNBGB114A	B	C1	2	1	46.853	0.183	12	LGM	0.0153	47.020
CNBGB211A	B	C2	2	2	47.810	0.179	12	LGM	0.0149	46.988
CNBGB212A	B	C2	2	2	47.192	0.180	12	LGM	0.0150	46.618
CNBGB213A	B	C2	2	2	47.558	0.182	12	LGM	0.0152	47.458
CNBGC111A	C	C1	3	1	46.951	0.183	12	LGM	0.0153	47.226
CNBGC112A	C	C1	3	1	47.071	0.184	12	LGM	0.0154	47.544
CNBGC113A	C	C1	3	1	46.853	0.185	12	LGM	0.0154	47.397
CNBGC114A	C	C1	3	1	45.299	0.185	12	AGM	0.0154	45.874
CNBGC211A	C	C2	3	2	44.983	0.179	12	LGM	0.0150	44.247
CNBGC212A	C	C2	3	2	47.057	0.182	12	LGM	0.0152	47.027
CNBGC213A	C	C2	3	2	47.022	0.183	12	AGM	0.0153	47.246

	Strength [ksi]		$Strength_{norm}$ [ksi]
Average	46.649	$Average_{norm}$	46.541
Standard Dev.	0.886	$Standard\ Dev._{norm}$	0.946
Coeff. of Var. [%]	1.899	$Coeff.\ of\ Var.\ [\%]_{norm}$	2.032
Min.	44.983	Min.	44.247
Max.	47.810	Max.	47.563
Number of Spec.	21	Number of Spec.	21


Laminate Open Hole Compression Properties (OHC1) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Laminate Open Hole Compression Strength [ksi]

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

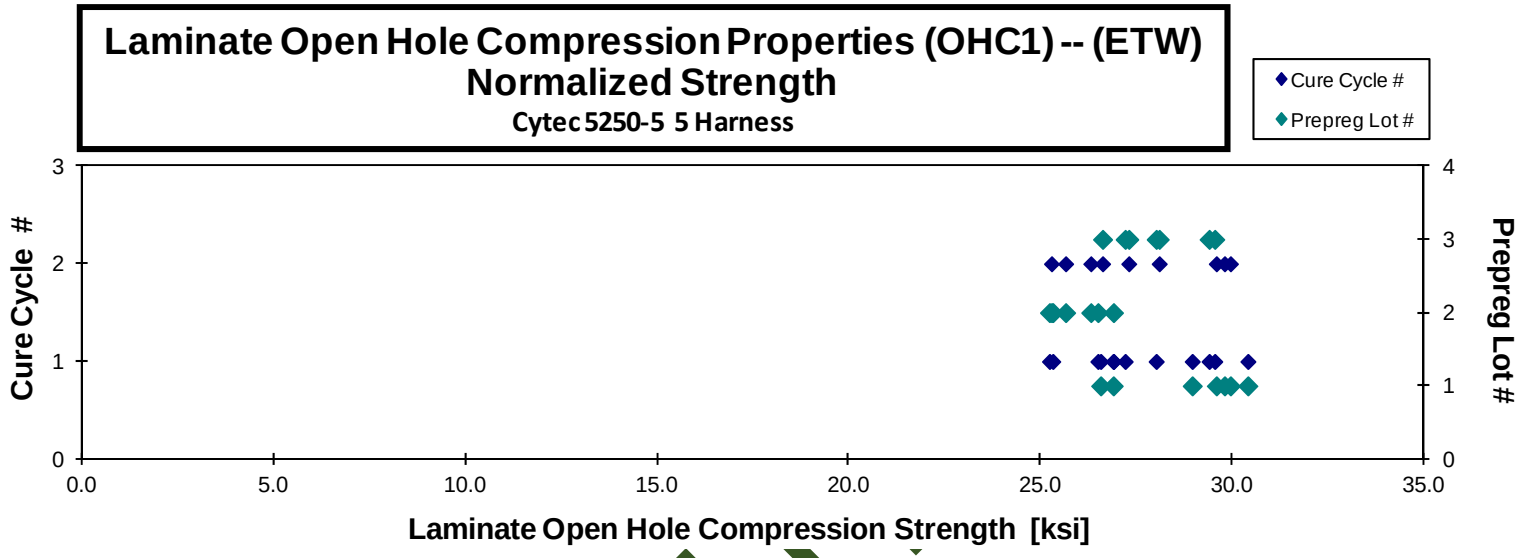
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBGA116J	A	C1	1	1	26.891	0.180	12	LGM / AGM	0.0150	26.562
CNBGA117J	A	C1	1	1	26.955	0.182	12	LGM / AGM	0.0152	26.890
CNBGA118J	A	C1	1	1	30.533	0.182	12	MGM	0.0151	30.402
CNBGA119J	A	C1	1	1	29.070	0.182	12	LGM/AGM	0.0151	28.951
CNBGA215J	A	C2	1	2	29.253	0.184	12	MGM	0.0154	29.579
CNBGA216J	A	C2	1	2	30.223	0.180	12	MGM	0.0150	29.792
CNBGA217J	A	C2	1	2	30.063	0.182	12	MGM	0.0151	29.948
CNBGB115J	B	C1	2	1	25.335	0.182	12	AGM	0.0152	25.314
CNBGB116J	B	C1	2	1	27.004	0.179	12	LGM	0.0149	26.490
CNBGB117J	B	C1	2	1	25.459	0.181	12	LGM/AGM	0.0151	25.229
CNBGB118J	B	C1	2	1	26.873	0.183	12	AGM	0.0152	26.897
CNBGB215J	B	C2	2	2	25.179	0.183	12	MGM	0.0153	25.281
CNBGB216J	B	C2	2	2	26.823	0.179	12	MGM	0.0149	26.306
CNBGB217J	B	C2	2	2	25.945	0.180	12	LGM	0.0150	25.649
CNBGC115J	C	C1	3	1	28.907	0.185	12	MGM	0.0155	29.391
CNBGC116J	C	C1	3	1	29.632	0.182	12	AGM	0.0152	29.538
CNBGC117J	C	C1	3	1	27.032	0.184	12	MGM	0.0153	27.202
CNBGC118J	C	C1	3	1	27.752	0.184	12	LGM/AGM	0.0153	28.011
CNBGC215J	C	C2	3	2	27.103	0.184	12	LGM	0.0153	27.296
CNBGC216J	C	C2	3	2	28.568	0.179	12	MGM	0.0149	28.090
CNBGC217J	C	C2	3	2	26.673	0.182	12	LGM/AGM	0.0152	26.612

Average	27.680	
Standard Dev.	1.662	
Coeff. of Var. [%]	6.005	
Min.	25.179	
Max.	30.533	
Number of Spec.	21	

$Average_{norm}$	0.0152	27.592
$Standard\ Dev._{norm}$		1.696
$Coeff.\ of\ Var.\ [\%]_{norm}$		6.146
Min.	0.0149	25.229
Max.	0.0155	30.402
Number of Spec.		21


Laminate Open Hole Compression Properties (OHC1) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
Laminate Open Hole Compression Strength [ksi]

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

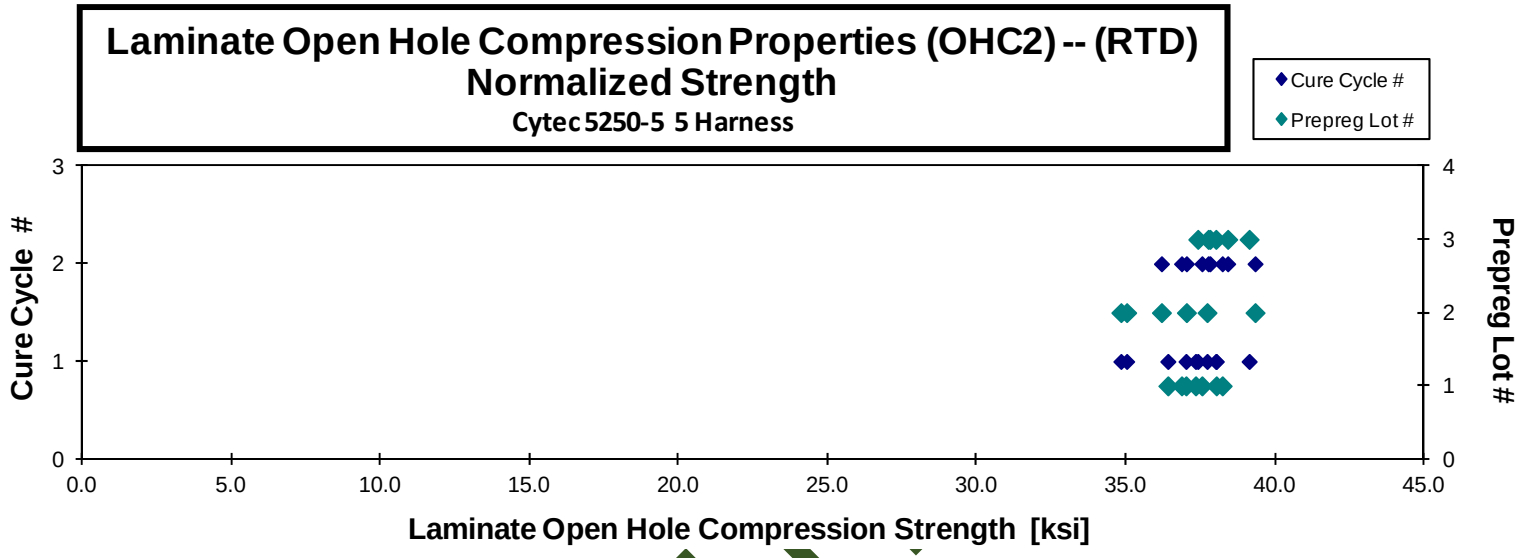
Laminate Open Hole Compression Properties (OHC2) -- (RTD) Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBHA111A	A	C1	1	1	36.538	0.151	10	AGM	0.0151	36.406
CNBHA112A	A	C1	1	1	37.196	0.151	10	AGM	0.0151	37.013
CNBHA113A	A	C1	1	1	38.263	0.151	10	AGM	0.0151	38.028
CNBHA114A	A	C1	1	1	37.420	0.152	10	AGM	0.0152	37.333
CNBHA211A	A	C2	1	2	38.495	0.148	10	AGM	0.0148	37.546
CNBHA212A	A	C2	1	2	38.320	0.152	10	AGM	0.0152	38.228
CNBHA213A	A	C2	1	2	36.527	0.153	10	AGM	0.0153	36.864
CNBHB111A	B	C1	2	1	35.209	0.151	10	LGM	0.0151	35.024
CNBHB112A	B	C1	2	1	34.419	0.154	10	LGM	0.0154	34.831
CNBHB113A	B	C1	2	1	37.390	0.153	10	AGM	0.0153	37.718
CNBHB211A	B	C2	2	2	38.932	0.154	10	AGM	0.0154	39.329
CNBHB212A	B	C2	2	2	36.765	0.153	10	LGM	0.0153	37.027
CNBHB213A	B	C2	2	2	35.670	0.154	10	AGM	0.0154	36.190
CNBHC111A	C	C1	3	1	36.729	0.155	10	AGM	0.0155	37.410
CNBHC112A	C	C1	3	1	37.393	0.155	10	AGM	0.0155	38.012
CNBHC113A	C	C1	3	1	38.364	0.155	10	AGM	0.0155	39.130
CNBHC211A	C	C2	3	2	37.941	0.151	10	AGM	0.0151	37.758
CNBHC212A	C	C2	3	2	37.990	0.151	10	LGM	0.0151	37.815
CNBHC213A	C	C2	3	2	38.441	0.152	10	LGM	0.0152	38.412

Average		37.263
Standard Dev.		1.214
Coeff. of Var. [%]		3.257
Min.		34.419
Max.		38.932
Number of Spec.		19

$Average_{norm}$	0.0152	37.372
$Standard\ Dev._{norm}$		1.176
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.146
Min.	0.0148	34.831
Max.	0.0155	39.329
Number of Spec.		19


Laminate Open Hole Compression Properties (OHC2) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
Laminate Open Hole Compression Strength [ksi]

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

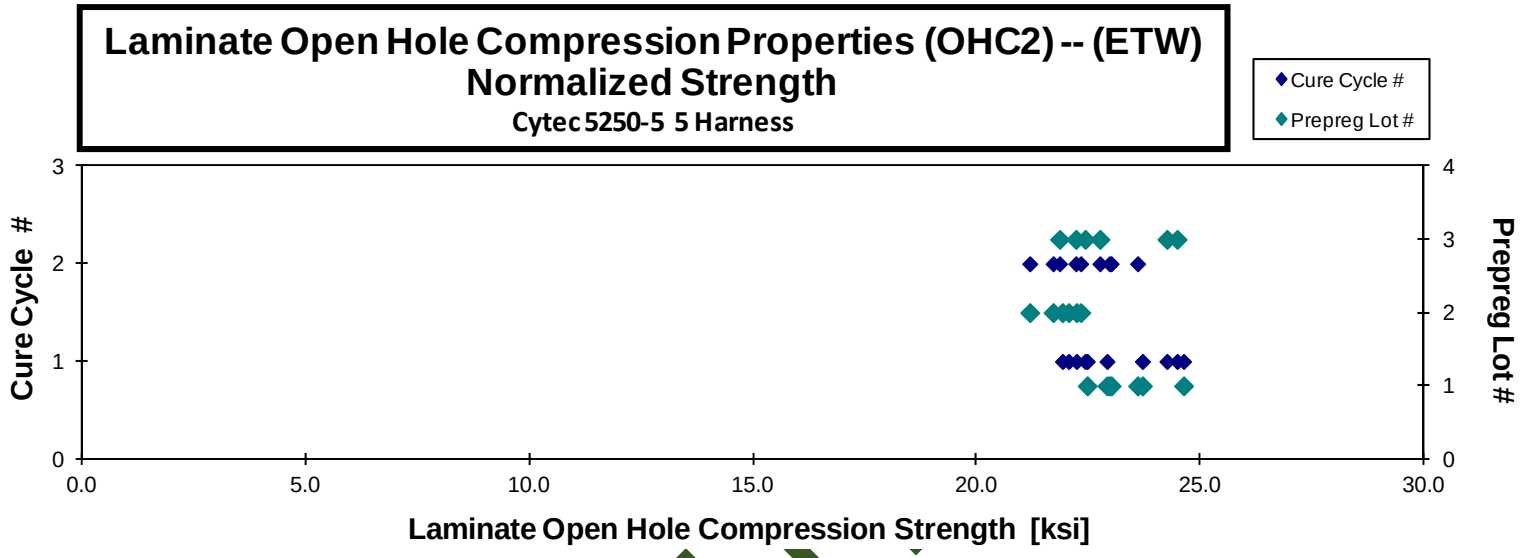
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBHA117J	A	C1	1	1	24.862	0.151	10	MGM	0.0151	24.622
CNBHA118J	A	C1	1	1	22.957	0.149	10	MGM	0.0149	22.468
CNBHA119J	A	C1	1	1	23.089	0.151	10	MGM	0.0151	22.910
CNBHA11AJ	A	C1	1	1	23.839	0.151	10	MGM	0.0151	23.701
CNBHA216J	A	C2	1	2	23.394	0.153	10	MGM	0.0153	23.594
CNBHA217J	A	C2	1	2	22.773	0.153	10	MGM	0.0153	22.963
CNBHA218J	A	C2	1	2	22.788	0.153	10	MGM	0.0153	23.003
CNBHB116J	B	C1	2	1	21.824	0.154	10	MGM	0.0154	22.051
CNBHB117J	B	C1	2	1	21.905	0.152	10	MGM	0.0152	21.914
CNBHB118J	B	C1	2	1	22.193	0.152	10	MGM	0.0152	22.227
CNBHB2116J	B	C2	2	2	22.033	0.154	10	MGM	0.0154	22.323
CNBHB2117J	B	C2	2	2	21.493	0.154	10	MGM	0.0154	21.705
CNBHB2118J	B	C2	2	2	21.553	0.149	10	MGM	0.0149	21.184
CNBHC116J	C	C1	3	1	24.069	0.155	10	MGM	0.0155	24.478
CNBHC117J	C	C1	3	1	24.050	0.153	10	MGM	0.0153	24.250
CNBHC118J	C	C1	3	1	22.176	0.154	10	MGM	0.0154	22.421
CNBHC216J	C	C2	3	2	22.528	0.150	10	MGM	0.0150	22.214
CNBHC217J	C	C2	3	2	22.461	0.148	10	MGM	0.0148	21.850
CNBHC218J	C	C2	3	2	22.920	0.151	10	MGM	0.0151	22.751

Average	22.785	
Standard Dev.	0.929	
Coeff. of Var. [%]	4.077	
Min.	21.493	
Max.	24.862	
Number of Spec.	19	

$Average_{norm}$	0.0152	22.770
$Standard\ Dev._{norm}$		0.970
$Coeff.\ of\ Var.\ [\%]_{norm}$		4.262
Min.	0.0148	21.184
Max.	0.0155	24.622
Number of Spec.		19


Laminate Open Hole Compression Properties (OHC2) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
Laminate Open Hole Compression Strength [ksi]

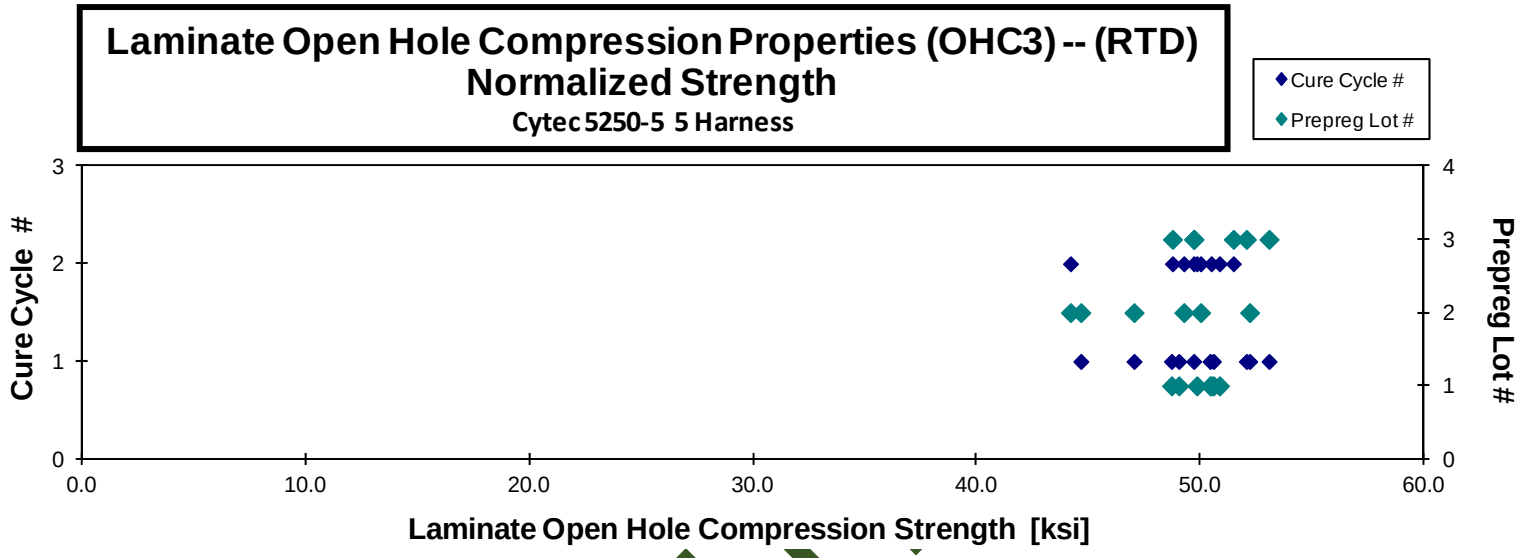
4.22 "40/20/40" Open-Hole Compression 3 Properties (OHC3)

Laminate Open Hole Compression Properties (OHC3) -- (RTD) Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]
0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBIA111A	A	C1	1	1	50.789	0.151	10	LGM	0.0151	50.427
CNBIA112A	A	C1	1	1	49.133	0.151	10	LGM	0.0151	48.702
CNBIA113A	A	C1	1	1	49.629	0.150	10	LGM/AGM	0.0150	49.030
CNBIA114A	A	C1	1	1	51.166	0.150	10	LGM/AGM	0.0150	50.577
CNBIA211A	A	C2	1	2	49.626	0.153	10	AGM	0.0153	49.833
CNBIA212A	A	C2	1	2	50.771	0.152	10	LGM	0.0152	50.849
CNBIA213A	A	C2	1	2	50.613	0.152	10	LGM/AGM	0.0152	50.480
CNBIB111A	B	C1	2	1	44.499	0.153	10	LGM	0.0153	44.650
CNBIB112A	B	C1	2	1	46.944	0.152	10	LGM	0.0152	47.027
CNBIB113A	B	C1	2	1	52.091	0.152	10	LGM/AGM	0.0152	52.194
CNBIB211A	B	C2	2	2	48.690	0.154	10	LGM	0.0154	49.256
CNBIB212A	B	C2	2	2	49.489	0.154	10	LGM	0.0154	50.005
CNBIB213A	B	C2	2	2	43.623	0.154	10	LGM	0.0154	44.187
CNBIC111A	C	C1	3	1	53.385	0.151	10	LGM	0.0151	53.063
CNBIC112A	C	C1	3	1	49.616	0.152	10	LGM	0.0152	49.697
CNBIC113A	C	C1	3	1	51.384	0.154	10	LGM	0.0154	52.049
CNBIC211A	C	C2	3	2	48.004	0.154	10	LGM	0.0154	48.746
CNBIC212A	C	C2	3	2	50.669	0.154	10	LGM	0.0154	51.469
CNBIC213A	C	C2	3	2	49.008	0.154	10	LGM/AGM	0.0154	49.701

	Strength		$Strength_{norm}$
Average	49.428	$Average_{norm}$	49.576
Standard Dev.	2.396	$Standard\ Dev._{norm}$	2.295
Coeff. of Var. [%]	4.847	$Coeff.\ of\ Var.\ [\%]_{norm}$	4.630
Min.	43.623	Min.	44.187
Max.	53.385	Max.	53.063
Number of Spec.	19	Number of Spec.	19


Laminate Open Hole Compression Properties (OHC3) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Open Hole Compression Strength [ksi]

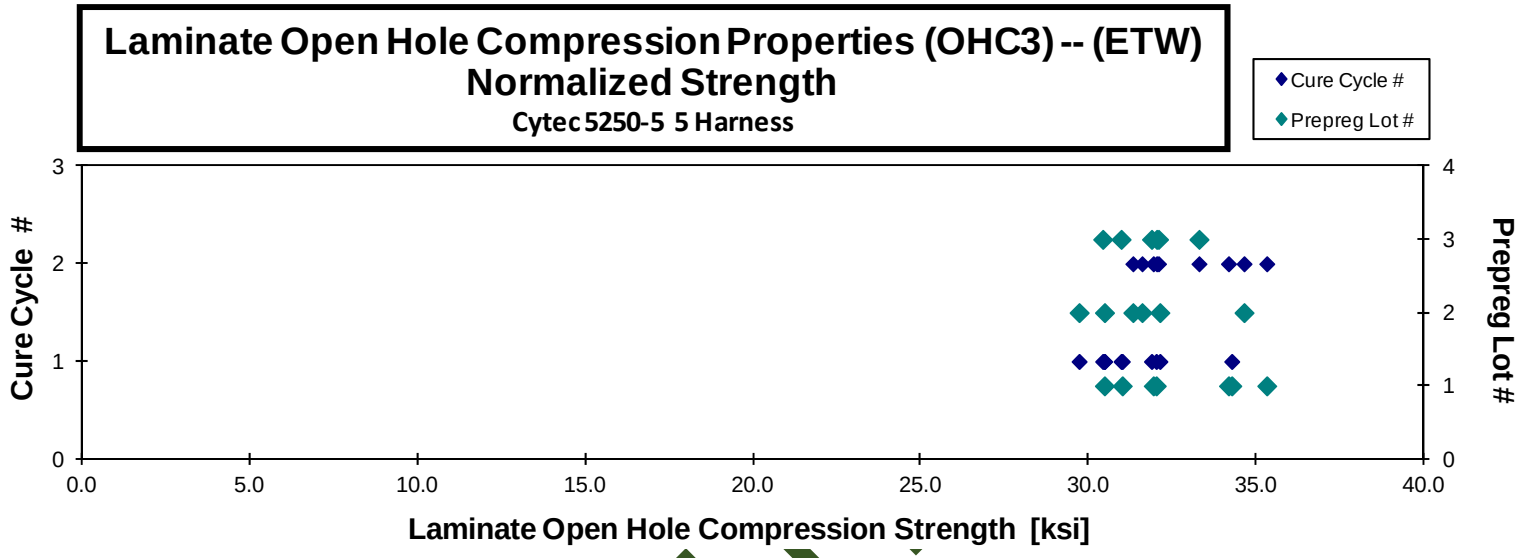
Laminate Open Hole Compression Properties (OHC3) -- (ETW) Strength

Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBIA117J	A	C1	1	1	31.145	0.149	10	LGM	0.0149	30.469
CNBIA119J	A	C1	1	1	32.201	0.151	10	LGM	0.0151	32.014
CNBIA11AJ	A	C1	1	1	34.587	0.151	10	LGM	0.0151	34.264
CNBIA11BJ	A	C1	1	1	31.234	0.151	10	LGM	0.0151	31.001
CNBIA216J	A	C2	1	2	35.123	0.153	10	LGM	0.0153	35.308
CNBIA217J	A	C2	1	2	34.295	0.151	10	LGM	0.0151	34.168
CNBIA218J	A	C2	1	2	32.406	0.150	10	LGM	0.0150	31.926
CNBIB116J	B	C1	2	1	30.647	0.151	10	LGM	0.0151	30.472
CNBIB117J	B	C1	2	1	30.361	0.149	10	LGM	0.0149	29.715
CNBIB118J	B	C1	2	1	33.252	0.147	10	LGM	0.0147	32.122
CNBIB216J	B	C2	2	2	34.252	0.154	10	LGM	0.0154	34.631
CNBIB217J	B	C2	2	2	31.263	0.152	10	LGM/AGM	0.0152	31.318
CNBIB218J	B	C2	2	2	31.339	0.153	10	LGM	0.0153	31.590
CNBIC116J	C	C1	3	1	29.772	0.155	10	LGM	0.0155	30.418
CNBIC117J	C	C1	3	1	31.143	0.156	10	LGM	0.0156	31.874
CNBIC118J	C	C1	3	1	30.143	0.156	10	AGM	0.0156	30.966
CNBIC216J	C	C2	3	2	31.626	0.154	10	LGM	0.0154	32.081
CNBIC217J	C	C2	3	2	31.714	0.154	10	LGM/AGM	0.0154	32.027
CNBIC218J	C	C2	3	2	33.394	0.152	10	LGM	0.0152	33.287

	Strength [ksi]		$Strength_{norm}$ [ksi]
Average	32.100	$Average_{norm}$	32.087
Standard Dev.	1.607	$Standard\ Dev._{norm}$	1.570
Coeff. of Var. [%]	5.007	$Coeff.\ of\ Var.\ [\%]_{norm}$	4.892
Min.	29.772	Min.	29.715
Max.	35.123	Max.	35.308
Number of Spec.	19	Number of Spec.	19


Laminate Open Hole Compression Properties (OHC3) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
Laminate Open Hole Compression Strength [ksi]

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

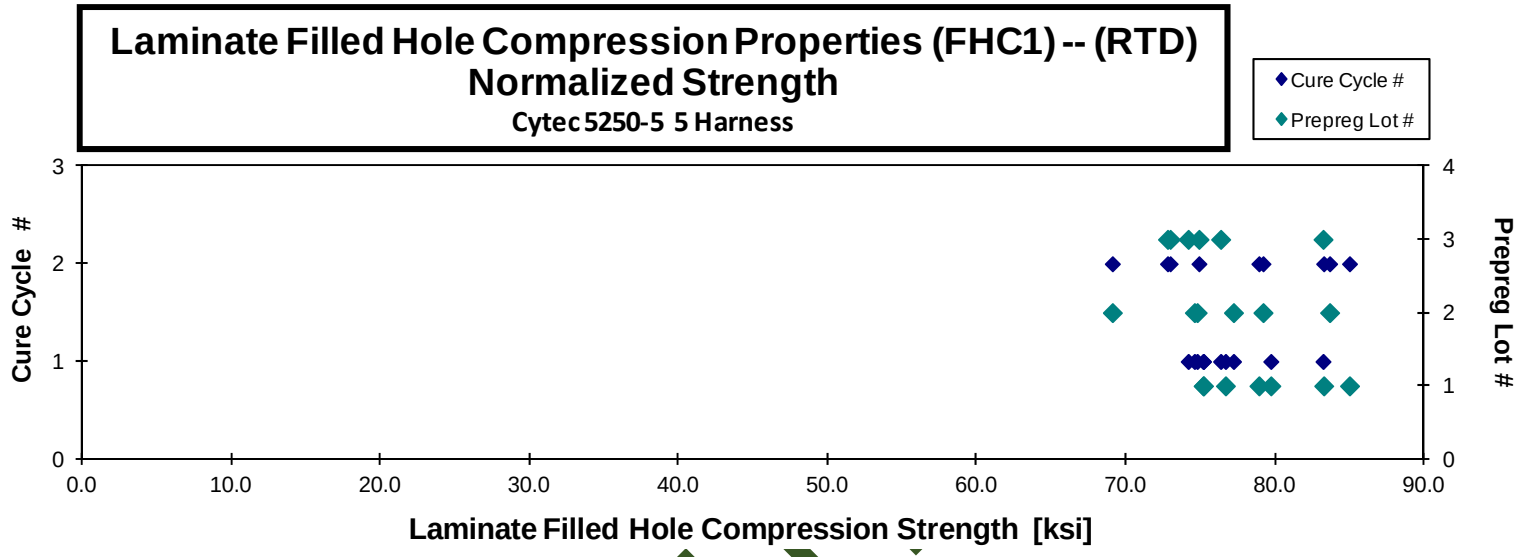
Laminate Filled Hole Compression Properties (FHC1) -- (RTD) Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNB7A111A	A	C1	1	1	75.509	0.182	12	LGF	0.0151	75.192
CNB7A112A	A	C1	1	1	77.120	0.181	12	LGF	0.0151	76.669
CNB7A113A	A	C1	1	1	75.720	0.181	12	LGF	0.0151	75.180
CNB7A116A	A	C1	1	1	80.443	0.181	12	LGO	0.0151	79.715
CNB7A211A	A	C2	1	2	84.559	0.183	12	LGM	0.0153	84.992
CNB7A212A	A	C2	1	2	78.336	0.184	12	LGF	0.0153	78.916
CNB7A214A	A	C2	1	2	82.553	0.184	12	LGM	0.0153	83.262
CNB7B117A	B	C1	2	1	73.962	0.184	12	LGF	0.0153	74.591
CNB7B118A	B	C1	2	1	76.728	0.184	12	LGF	0.0153	77.212
CNB7B11AA	B	C1	2	1	76.638	0.178	12	LGF	0.0148	74.775
CNB7B211A	B	C2	2	2	83.718	0.182	12	LGF	0.0152	83.656
CNB7B212A	B	C2	2	2	69.279	0.182	12	LGO	0.0152	69.089
CNB7B214A	B	C2	2	2	79.233	0.182	12	LGO	0.0152	79.190
CNB7C111A	C	C1	3	1	74.769	0.181	12	LGO	0.0151	74.175
CNB7C112A	C	C1	3	1	83.093	0.183	12	AGM / LGO	0.0152	83.214
CNB7C113A	C	C1	3	1	75.797	0.184	12	AGM / LGO	0.0153	76.351
CNB7C211A	C	C2	3	2	73.620	0.180	12	LGF	0.0150	72.786
CNB7C212A	C	C2	3	2	74.868	0.182	12	LGF	0.0152	74.895
CNB7C214A	C	C2	3	2	71.772	0.185	12	LGF	0.0155	72.966

Average	77.248	
Standard Dev.	4.152	
Coeff. of Var. [%]	5.375	
Min.	69.279	
Max.	84.559	
Number of Spec.	19	

$Average_{norm}$	0.0152	77.201
$Standard\ Dev._{norm}$		4.269
$Coeff.\ of\ Var.\ [\%]_{norm}$		5.529
Min.	0.0148	69.089
Max.	0.0155	84.992
Number of Spec.		19


Laminate Filled Hole Compression Properties (FHC1) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
Laminate Filled Hole Compression Strength [ksi]

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

Cytec 5250-5 5 Harness

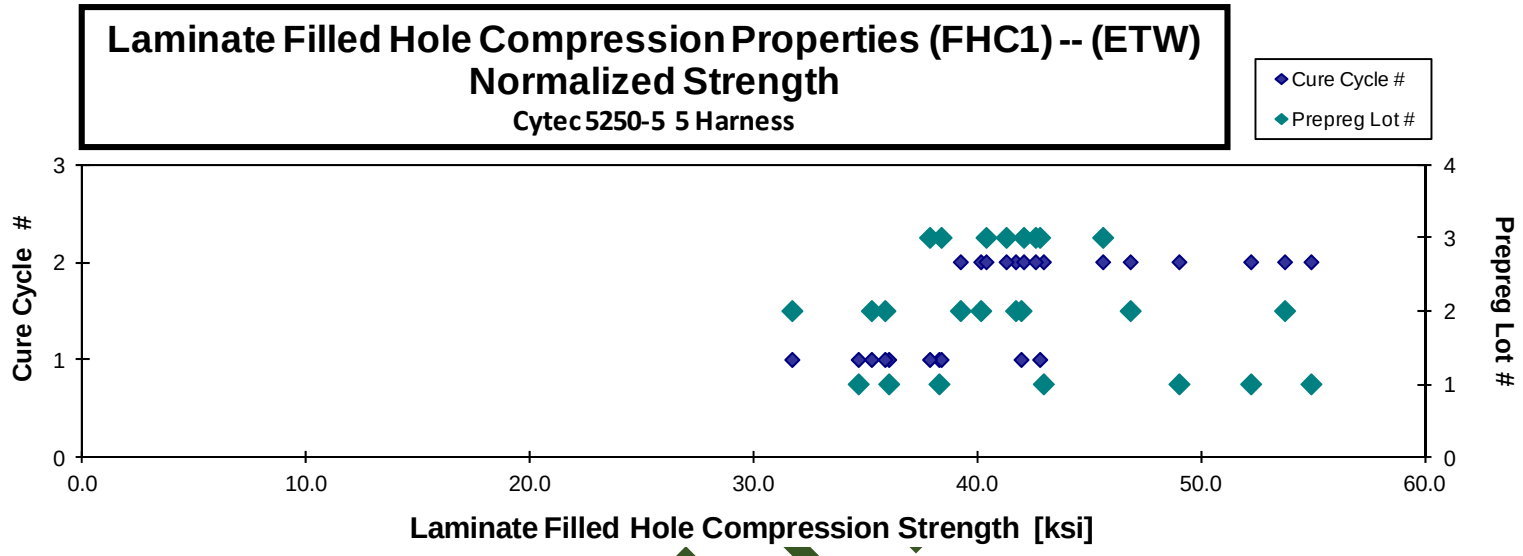
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNB7A119J	A	C1	1	1	38.475	0.182	12	LGF	0.0151	38.306
CNB7A11BJ	A	C1	1	1	36.377	0.181	12	LGO	0.0151	36.061
CNB7A11CJ	A	C1	1	1	35.053	0.181	12	LGO	0.0150	34.697
CNB7A216J	A	C2	1	2	54.727	0.183	12	LGF	0.0153	54.937
CNB7A218J	A	C2	1	2	52.901	0.180	12	MGF	0.0150	52.244
CNB7A219J	A	C2	1	2	48.870	0.183	12	LGF	0.0153	49.035
CNB7A21AJ	A	C2	1	2	42.806	0.183	12	LGF	0.0153	42.974
CNB7B111J	B	C1	2	1	35.462	0.182	12	LGF	0.0151	35.287
CNB7B112J	B	C1	2	1	35.967	0.182	12	LGF	0.0152	35.889
CNB7B113J	B	C1	2	1	31.828	0.182	12	LGF	0.0152	31.732
CNB7B115J	B	C1	2	1	43.257	0.177	12	LGF	0.0148	41.976
CNB7B216J	B	C2	2	2	53.926	0.182	12	LGF	0.0152	53.758
CNB7B217J	B	C2	2	2	47.262	0.181	12	LGF	0.0151	46.856
CNB7B218J	B	C2	2	2	42.158	0.181	12	LGF	0.0150	41.730
CNB7B219J	B	C2	2	2	38.935	0.184	12	LGF	0.0153	39.263
CNB7B21AJ	B	C2	2	2	39.965	0.183	12	LGF	0.0153	40.173
CNB7C117J	C	C1	3	1	37.944	0.185	12	LGO	0.0154	38.402
CNB7C118J	C	C1	3	1	37.395	0.185	12	LGF	0.0154	37.887
CNB7C119J	C	C1	3	1	43.320	0.180	12	LGO	0.0150	42.810
CNB7C216J	C	C2	3	2	41.697	0.184	12	LGO	0.0153	42.090
CNB7C217J	C	C2	3	2	40.849	0.184	12	LGF	0.0154	41.308
CNB7C218J	C	C2	3	2	39.936	0.185	12	MGO	0.0154	40.411
CNB7C219J	C	C2	3	2	46.442	0.179	12	LGF	0.0149	45.627
CNB7C21AJ	C	C2	3	2	42.540	0.183	12	LGF	0.0152	42.618

*** High CV Investigated, Cure Cycle 1 from Batch A seems to have lower strength**

Average	42.004	
Standard Dev.	6.092	
Coeff. of Var. [%]	14.505	
Min.	31.828	
Max.	54.727	
Number of Spec.	24	

$Average_{norm}$	0.0152	41.920
$Standard\ Dev._{norm}$		6.016
$Coeff.\ of\ Var.\ [\%]_{norm}$		14.352
Min.	0.0148	31.732
Max.	0.0154	54.937
Number of Spec.		24


Laminate Filled Hole Compression Properties (FHC1) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Filled Hole Compression Strength [ksi]

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

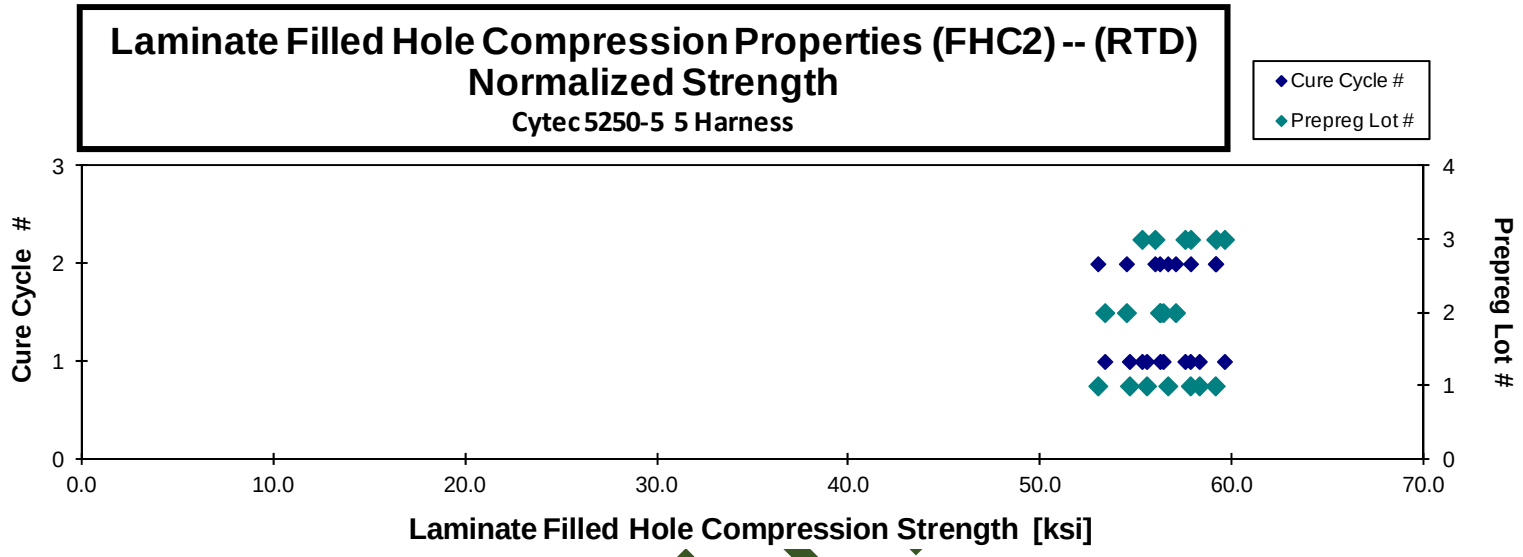
Laminate Filled Hole Compression Properties (FHC2) -- (RTD) Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]
0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNB8A111A	A	C1	1	1	56.191	0.148	10	MGF	0.0148	54.626
CNB8A112A	A	C1	1	1	56.160	0.150	10	MGF	0.0150	55.520
CNB8A113A	A	C1	1	1	57.897	0.152	10	MGF	0.0152	57.802
CNB8A114A	A	C1	1	1	58.175	0.152	10	MGF	0.0152	58.264
CNB8A211A	A	C2	1	2	57.311	0.150	10	MGF	0.0150	56.626
CNB8A212A	A	C2	1	2	52.746	0.153	10	MGF	0.0153	52.978
CNB8A213A	A	C2	1	2	58.454	0.154	10	MGF	0.0154	59.101
CNB8B113A	B	C1	2	1	56.703	0.151	10	AGF	0.0151	56.380
CNB8B114A	B	C1	2	1	53.596	0.151	10	AGF	0.0151	53.338
CNB8B115A	B	C1	2	1	56.349	0.152	10	AGF	0.0152	56.220
CNB8B211A	B	C2	2	2	56.694	0.153	10	MGF	0.0153	57.030
CNB8B212A	B	C2	2	2	55.962	0.153	10	MGF	0.0153	56.201
CNB8B214A	B	C2	2	2	54.220	0.153	10	MGF	0.0153	54.469
CNB8C111A	C	C1	3	1	54.423	0.154	10	AGF	0.0154	55.276
CNB8C112A	C	C1	3	1	58.504	0.155	10	AGF	0.0155	59.582
CNB8C113A	C	C1	3	1	56.523	0.155	10	AGF	0.0155	57.521
CNB8C213A	C	C2	3	2	56.074	0.152	10	LGF	0.0152	55.951
CNB8C214A	C	C2	3	2	58.988	0.152	10	LGF	0.0152	59.130
CNB8C215A	C	C2	3	2	57.580	0.153	10	LGF	0.0153	57.813

Average	56.450	
Standard Dev.	1.722	
Coeff. of Var. [%]	3.051	
Min.	52.746	
Max.	58.988	
Number of Spec.	19	

$Average_{norm}$	0.0152	56.517
$Standard\ Dev._{norm}$		1.886
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.337
Min.	0.0148	52.978
Max.	0.0155	59.582
Number of Spec.		19


Laminate Filled Hole Compression Properties (FHC2) -- (RTD)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Laminate Filled Hole Compression Strength [ksi]

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

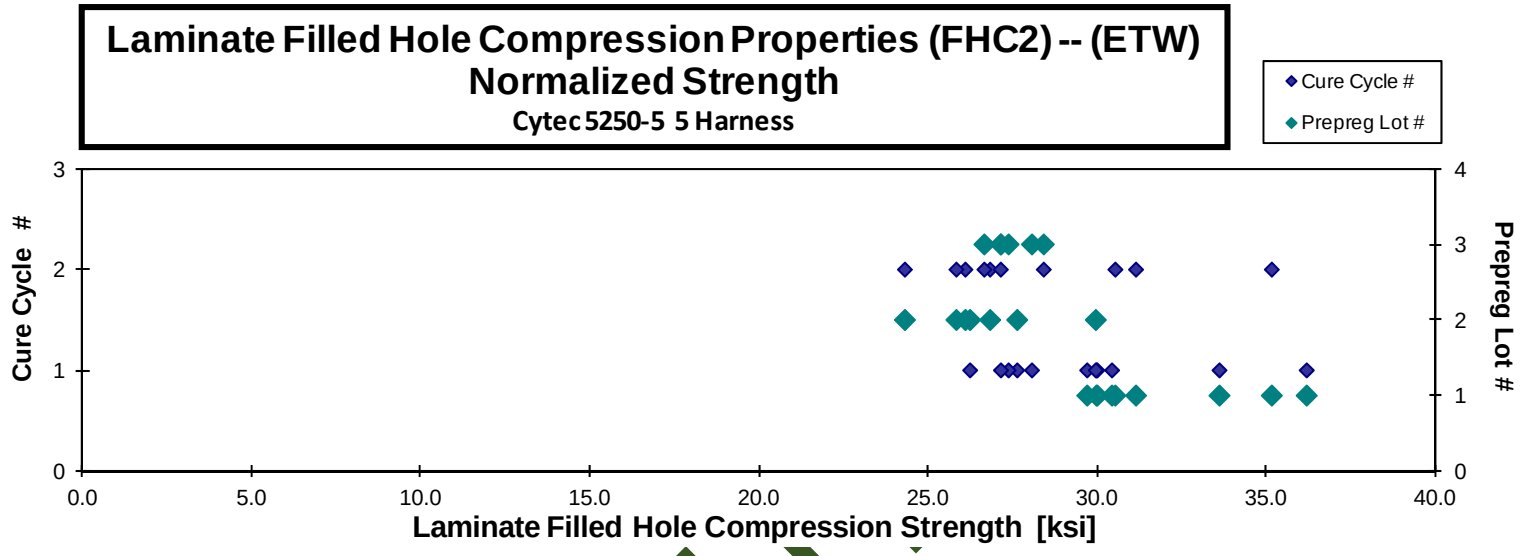
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNB8A117J	A	C1	1	1	33.945	0.151	10	LGF	0.0151	33.610
CNB8A118J	A	C1	1	1	30.259	0.151	10	LGF	0.0151	29.997
CNB8A119J	A	C1	1	1	31.066	0.149	10	LGF	0.0149	30.433
CNB8A11AJ	A	C1	1	1	29.760	0.152	10	MGF	0.0152	29.698
CNB8A11BJ	A	C1	1	1	29.991	0.152	10	LGF	0.0152	29.971
CNB8A11CJ	A	C1	1	1	36.265	0.152	10	LGF	0.0152	36.189
CNB8A217J	A	C2	1	2	34.671	0.154	10	MGF	0.0154	35.157
CNB8A218J	A	C2	1	2	29.972	0.155	10	LGF	0.0155	30.531
CNB8A219J	A	C2	1	2	31.676	0.149	10	LGF	0.0149	31.141
CNB8B116J	B	C1	2	1	30.068	0.151	10	LGF	0.0151	29.952
CNB8B117J	B	C1	2	1	27.820	0.151	10	LGF	0.0151	27.628
CNB8B119J	B	C1	2	1	26.253	0.152	10	LGF	0.0152	26.235
CNB8B216J	B	C2	2	2	26.005	0.153	10	MGF	0.0153	26.096
CNB8B217J	B	C2	2	2	26.810	0.152	10	LGF	0.0152	26.828
CNB8B218J	B	C2	2	2	24.598	0.150	10	MGF	0.0150	24.307
CNB8B219J	B	C2	2	2	25.608	0.153	10	LGF	0.0153	25.830
CNB8C116J	C	C1	3	1	27.013	0.158	10	MGF	0.0158	28.064
CNB8C117J	C	C1	3	1	27.055	0.154	10	MGF	0.0154	27.373
CNB8C118J	C	C1	3	1	27.307	0.151	10	MGF	0.0151	27.148
CNB8C216J	C	C2	3	2	26.993	0.153	10	LGF	0.0153	27.144
CNB8C217J	C	C2	3	2	28.576	0.151	10	LGF	0.0151	28.413
CNB8C219J	C	C2	3	2	26.923	0.151	10	LGF	0.0151	26.657

Average		29.033
Standard Dev.		3.074
Coeff. of Var. [%]		10.588
Min.		24.598
Max.		36.265
Number of Spec.		22

$Average_{norm}$	0.0152	29.018
$Standard\ Dev._{norm}$		3.040
$Coeff.\ of\ Var.\ [\%]_{norm}$		10.478
Min.	0.0149	24.307
Max.	0.0158	36.189
Number of Spec.		22


Laminate Filled Hole Compression Properties (FHC2) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
Laminate Filled Hole Compression Strength [ksi]

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

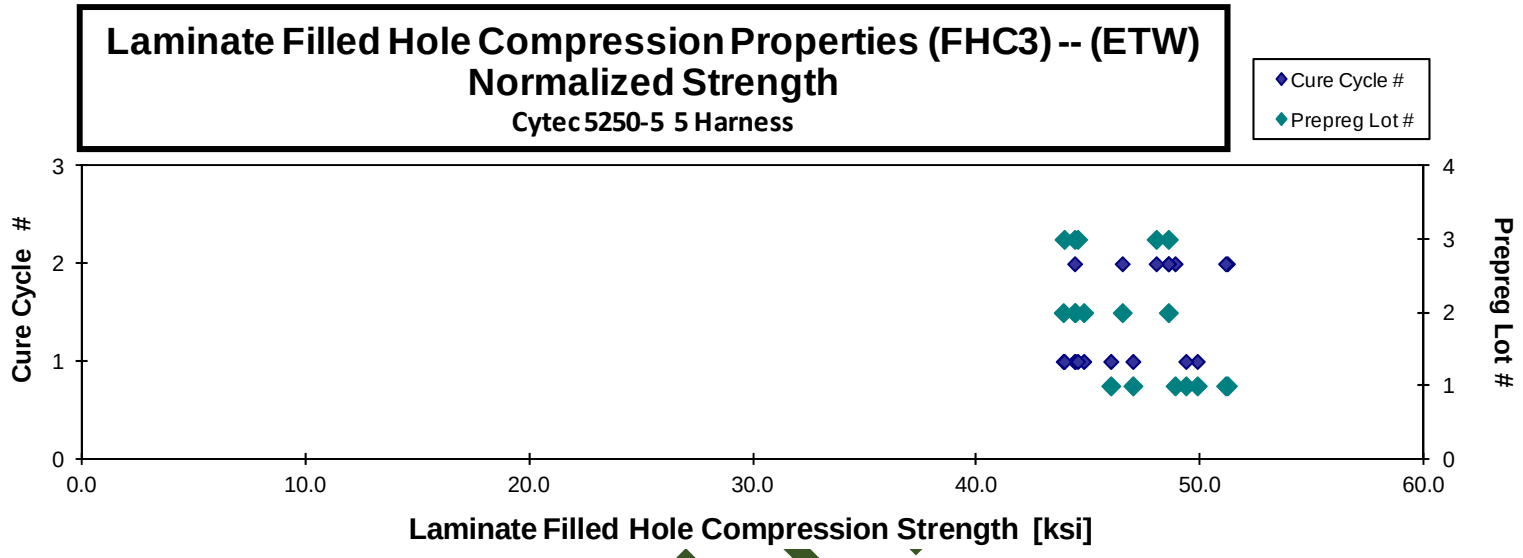
Laminate Filled Hole Compression Properties (FHC3) -- (ETW)
Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNB9A117J	A	C1	1	1	50.405	0.150	10	MGF	0.0150	49.853
CNB9A118J	A	C1	1	1	50.383	0.149	10	LGF	0.0149	49.344
CNB9A11AJ	A	C1	1	1	46.628	0.153	10	LGF	0.0153	46.976
CNB9A11BJ	A	C1	1	1	45.496	0.154	10	LGF	0.0154	45.989
CNB9A216J	A	C2	1	2	48.417	0.153	10	LGF	0.0153	48.863
CNB9A219J	A	C2	1	2	51.493	0.151	10	LGO	0.0151	51.200
CNB9A21AJ	A	C2	1	2	51.415	0.151	10	LGO	0.0151	51.121
CNB9B117J	B	C1	2	1	44.163	0.153	10	LGO	0.0153	44.391
CNB9B118J	B	C1	2	1	44.553	0.153	10	LGO	0.0153	44.778
CNB9B119J	B	C1	2	1	45.416	0.149	10	LGF	0.0149	44.370
CNB9B11AJ	B	C1	2	1	44.057	0.151	10	LGO	0.0151	43.864
CNB9B216J	B	C2	2	2	46.160	0.153	10	LGO	0.0153	46.499
CNB9B219J	B	C2	2	2	48.040	0.154	10	LGO	0.0154	48.561
CNB9C119J	C	C1	3	1	44.475	0.152	10	LGO	0.0152	44.504
CNB9C11AJ	C	C1	3	1	43.720	0.153	10	LGF	0.0153	43.902
CNB9C216J	C	C2	3	2	47.477	0.155	10	LGO	0.0155	48.560
CNB9C217J	C	C2	3	2	47.579	0.153	10	LGO	0.0153	48.017
CNB9C219J	C	C2	3	2	43.653	0.155	10	LGO	0.0155	44.371

Average	46.863	
Standard Dev.	2.686	
Coeff. of Var. [%]	5.732	
Min.	43.653	
Max.	51.493	
Number of Spec.	18	

$Average_{norm}$	0.0152	46.954
$Standard\ Dev._{norm}$		2.545
$Coeff.\ of\ Var.\ [\%]_{norm}$		5.420
Min.	0.0149	43.864
Max.	0.0155	51.200
Number of Spec.		18


Laminate Filled Hole Compression Properties (FHC3) -- (ETW)
Normalized Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Filled Hole Compression Strength [ksi]

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

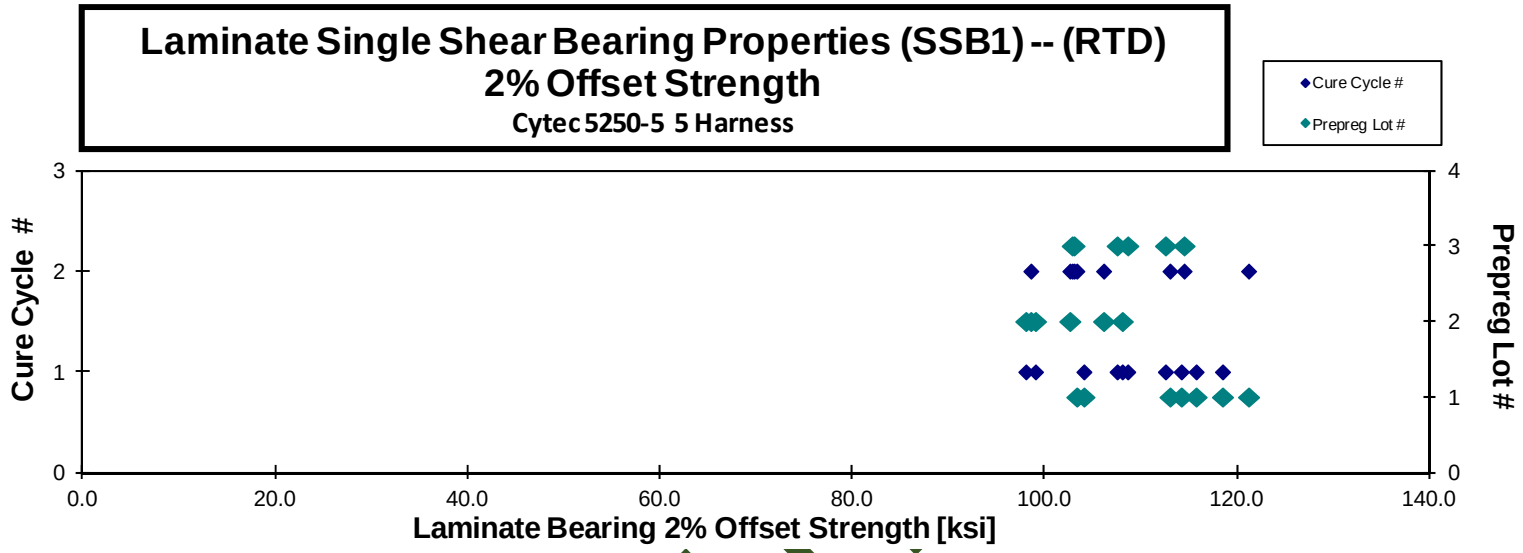
Laminate Single Shear Bearing Properties (SSB1) -- (RTD)
Strength & Deformation
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]
0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]
CNB1A112A	A	C1	1	1	115.929	0.120	8	B1I / 2% OFFSET FOR UBS*	0.0150	114.229
CNB1A113A	A	C1	1	1	121.513	0.119	8	B1I / 2% OFFSET FOR UBS*	0.0148	118.515
CNB1A114A	A	C1	1	1	115.438	0.122	8	B1I / 2% OFFSET FOR UBS*	0.0152	115.771
CNB1A115A	A	C1	1	1	103.681	0.122	8	B1I / 2% OFFSET FOR UBS*	0.0153	104.107
CNB1A211A	A	C2	1	2	122.519	0.120	8	B1I / 2% OFFSET FOR UBS*	0.0150	121.226
CNB1A212A	A	C2	1	2	114.055	0.121	8	B1I / 2% OFFSET FOR UBS*	0.0151	113.055
CNB1A213A	A	C2	1	2	104.094	0.121	8	B1I / 2% OFFSET FOR UBS*	0.0151	103.366
CNB1B111A	B	C1	2	1	101.206	0.118	8	B1I / 2% OFFSET FOR UBS*	0.0147	98.071
CNB1B112A	B	C1	2	1	101.361	0.119	8	B1I / 2% OFFSET FOR UBS*	0.0149	99.069
CNB1B113A	B	C1	2	1	107.802	0.122	8	B1I / 2% OFFSET FOR UBS*	0.0152	108.098
CNB1B211A	B	C2	2	2	100.758	0.119	8	B1I / 2% OFFSET FOR UBS*	0.0149	98.590
CNB1B212A	B	C2	2	2	103.382	0.121	8	B1I / 2% OFFSET FOR UBS*	0.0151	102.645
CNB1B213A	B	C2	2	2	105.866	0.122	8	B1I / 2% OFFSET FOR UBS*	0.0152	106.157
CNB1C111A	C	C1	3	1	112.385	0.122	8	B1I / 2% OFFSET FOR UBS*	0.0152	112.585
CNB1C112A	C	C1	3	1	106.625	0.123	8	B1I / 2% OFFSET FOR UBS*	0.0153	107.560
CNB1C113A	C	C1	3	1	109.022	0.121	8	B1I / 2% OFFSET FOR UBS*	0.0152	108.664
CNB1C211A	C	C2	3	2	104.405	0.120	8	B1I / 2% OFFSET FOR UBS*	0.0150	102.888
CNB1C212A	C	C2	3	2	115.664	0.120	8	B1I / 2% OFFSET FOR UBS*	0.0151	114.522
CNB1C213A	C	C2	3	2	103.045	0.122	8	B1I / 2% OFFSET FOR UBS*	0.0152	103.087
								Ultimate Bearing Strength / B1I: B:Bearing, 1:first hole, I: Inapplicable (not on bolt, nut or head side)		

Testing was stopped after reaching 2%, so ultimate strength is not reported.

Average	**108.882**	**Average**	**0.0151**	**108.011**
Standard Dev.	**6.890**	**Standard Dev.**		**6.913**
Coeff. of Var. [%]	**6.328**	**Coeff. of Var. [%]**		**6.401**
Min.	**100.758**	**Min.**	**0.0147**	**98.071**
Max.	**122.519**	**Max.**	**0.0153**	**121.226**
Number of Spec.	**19**	**Number of Spec.**		**19**


Laminate Single Shear Bearing Properties (SSB1) -- (RTD)
2% Offset Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Laminate Bearing 2% Offset Strength [ksi]

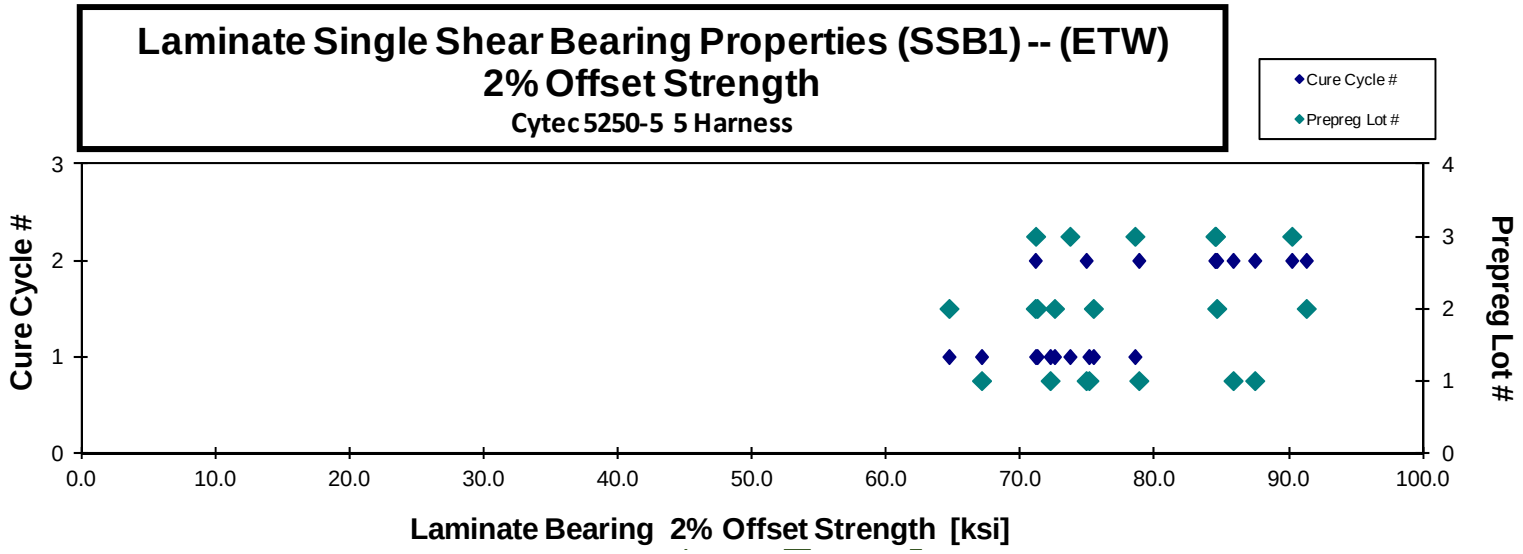
Laminate Single Shear Bearing Properties (SSB1) -- (ETW)
Strength & Deformation
Cytec 5250-5 5 Harness

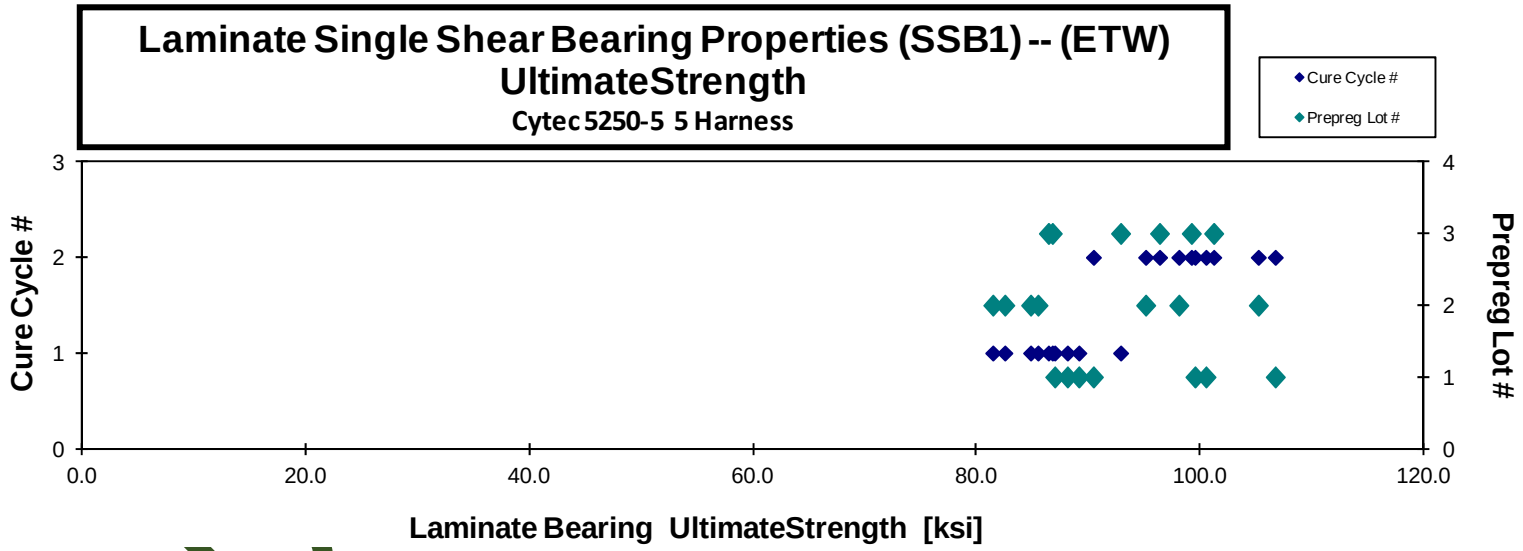
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Bearing Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]
CNB1A116J	A	C1	1	1	73.958	86.851	0.123	8	B1I / 2% OFFSET FOR UBS*	0.0154	75.022	88.101
CNB1A117J	A	C1	1	1	66.275	86.003	0.123	8	B1I / 2% OFFSET FOR UBS*	0.0154	67.020	86.969
CNB1A11CJ	A	C1	1	1	73.504	90.818	0.119	8	B1I / 2% OFFSET FOR UBS*	0.0149	72.134	89.126
CNB1A214J	A	C2	1	2	87.514	99.663	0.121	8	B1I / 2% OFFSET FOR UBS*	0.0152	87.382	99.513
CNB1A215J	A	C2	1	2	91.138	113.377	0.114	8	B1I / 2% OFFSET FOR UBS*	0.0143	85.767	106.695
CNB1A219J	A	C2	1	2	79.286	101.191	0.121	8	B1I / 2% OFFSET FOR UBS*	0.0151	78.743	100.498
CNB1A21AJ	A	C2	1	2	75.271	90.977	0.121	8	B1I / 2% OFFSET FOR UBS*	0.0151	74.817	90.428
CNB1B114J	B	C1	2	1	64.392	82.247	0.122	8	B1I / 2% OFFSET FOR UBS*	0.0152	64.595	82.506
CNB1B115J	B	C1	2	1	73.699	82.828	0.120	8	B1I / 2% OFFSET FOR UBS*	0.0149	72.457	81.431
CNB1B119J	B	C1	2	1	75.302	84.755	0.122	8	B1I / 2% OFFSET FOR UBS*	0.0152	75.354	84.813
CNB1B11AJ	B	C1	2	1	73.190	87.904	0.118	8	B1I / 2% OFFSET FOR UBS*	0.0148	71.164	85.470
CNB1B214J	B	C2	2	2	90.959	104.876	0.122	8	B1I / 2% OFFSET FOR UBS*	0.0152	91.221	105.178
CNB1B218J	B	C2	2	2	72.112	99.572	0.120	8	B1I / 2% OFFSET FOR UBS*	0.0150	71.025	98.071
CNB1B219J	B	C2	2	2	84.979	95.588	0.121	8	B1I / 2% OFFSET FOR UBS*	0.0151	84.548	95.103
CNB1C114J	C	C1	3	1	72.017	90.857	0.124	8	B1I / 2% OFFSET FOR UBS*	0.0155	73.606	92.862
CNB1C115J	C	C1	3	1	73.310	89.154	0.118	8	B1I / 2% OFFSET FOR UBS*	0.0147	71.050	86.404
CNB1C11AJ	C	C1	3	1	77.045	85.198	0.124	8	B1I / 2% OFFSET FOR UBS*	0.0155	78.450	86.751
CNB1C214J	C	C2	3	2	84.195	98.932	0.122	8	B1I / 2% OFFSET FOR UBS*	0.0152	84.414	99.189
CNB1C215J	C	C2	3	2	89.117	95.247	0.123	8	B1I / 2% OFFSET FOR UBS*	0.0154	90.143	96.343
CNB1C219J	C	C2	3	2	83.815	100.416	0.123	8	B1I / 2% OFFSET FOR UBS*	0.0153	84.459	101.187
									Ultimate Bearing Strength / B1I: B:Bearing, 1:first hole, I: Inapplicable (not on bolt, nut or head side)			

Average	**78.054**	**93.323**	
Standard Dev.	**7.901**	**8.271**	
Coeff. of Var. [%]	**10.123**	**8.863**	
Min.	**64.392**	**82.247**	
Max.	**91.138**	**113.377**	
Number of Spec.	**20**	**20**	

Average	**0.0151**	**77.668**	**92.832**
Standard Dev.		**7.777**	**7.653**
Coeff. of Var. [%]		**10.014**	**8.244**
Min.	**0.0143**	**64.595**	**81.431**
Max.	**0.0155**	**91.221**	**106.695**
Number of Spec.		**20**	**20**


Laminate Single Shear Bearing Properties (SSB1) -- (ETW)
2% Offset Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
Laminate Bearing 2% Offset Strength [ksi]


Laminate Single Shear Bearing Properties (SSB1) -- (ETW)
UltimateStrength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Bearing UltimateStrength [ksi]

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

Laminate Single Shear Bearing Properties (SSB2) -- (RTD)
Strength & Deformation
Cytec 5250-5 5 Harness

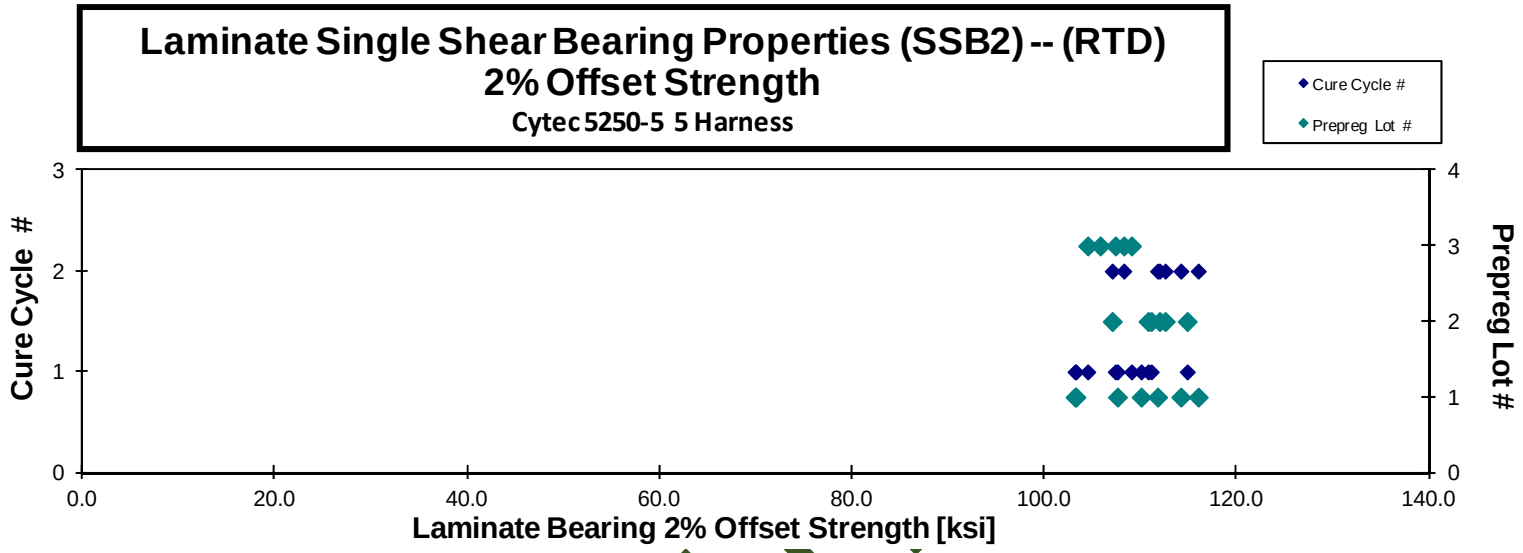
normalizing t_{ply} [in]
0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]
CNB2A111A	A	C1	1	1	104.780	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	103.263
CNB2A112A	A	C1	1	1	106.293	0.074	5	B1I / 2% OFFSET FOR UBS*	0.0148	103.193
CNB2A113A	A	C1	1	1	108.372	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0154	110.060
CNB2A114A	A	C1	1	1	107.589	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0152	107.589
CNB2A211A	A	C2	1	2	114.065	0.074	5	B1I / 2% OFFSET FOR UBS*	0.0149	111.764
CNB2A212A	A	C2	1	2	115.706	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	114.184
CNB2A213A	A	C2	1	2	117.307	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	115.995
CNB2B111A	B	C1	2	1	110.805	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0152	110.781
CNB2B112A	B	C1	2	1	112.989	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0149	111.106
CNB2B113A	B	C1	2	1	116.538	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	114.852
CNB2B211A	B	C2	2	2	111.143	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0153	111.971
CNB2B212A	B	C2	2	2	109.969	0.074	5	B1I / 2% OFFSET FOR UBS*	0.0148	107.051
CNB2B213A	B	C2	2	2	113.079	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0151	112.558
CNB2C111A	C	C1	3	1	104.346	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0152	104.506
CNB2C112A	C	C1	3	1	106.534	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0153	107.375
CNB2C113A	C	C1	3	1	106.576	0.078	5	B1I / 2% OFFSET FOR UBS*	0.0156	109.053
CNB2C211A	C	C2	3	2	108.802	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0151	108.253
CNB2C212A	C	C2	3	2	106.363	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0151	105.803

Ultimate Bearing Strength / B1I: B:Bearing, 1:first hole, I: Inapplicable (not on bolt, nut or head side)

Testing was stopped after reaching 2% offset, so ultimate strength is not reported.

Average	**110.070**	**Average**	**0.0151**	**109.409**
Standard Dev.	**4.097**	**Standard Dev.**		**3.842**
Coeff. of Var. [%]	**3.722**	**Coeff. of Var. [%]**		**3.512**
Min.	**104.346**	**Min.**	**0.0148**	**103.193**
Max.	**117.307**	**Max.**	**0.0156**	**115.995**
Number of Spec.	**18**	**Number of Spec.**		**18**



Laminate Single Shear Bearing Properties (SSB2) -- (ETW) Strength & Deformation

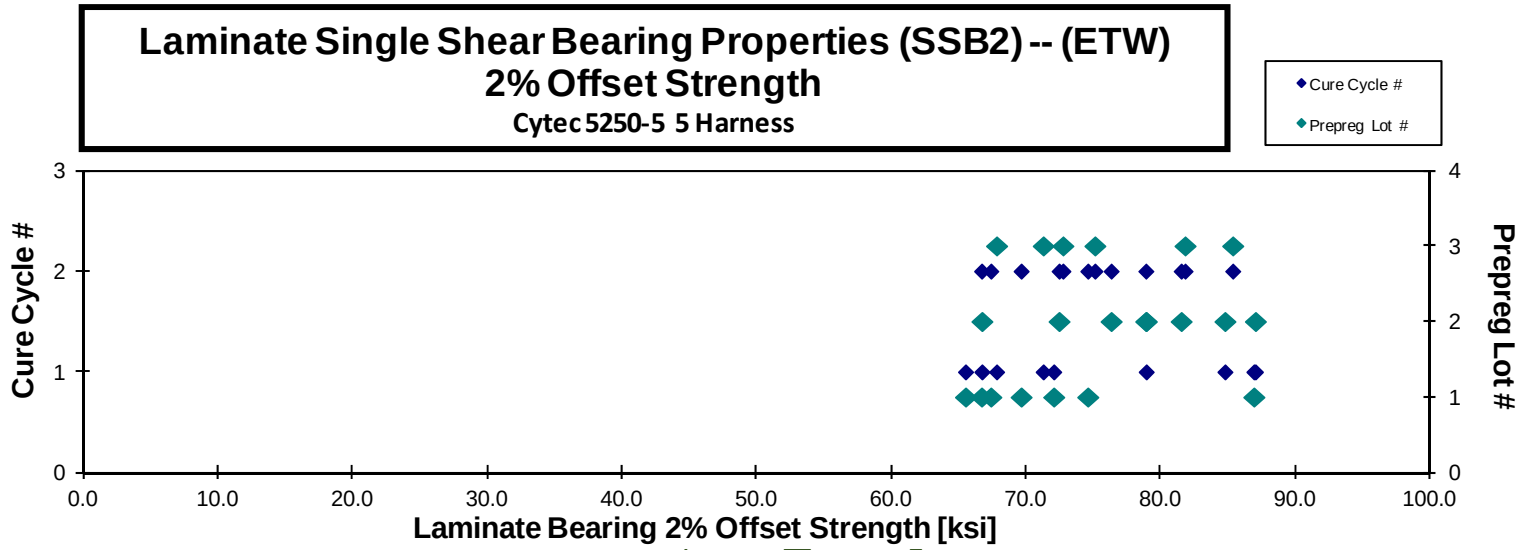
Cytec 5250-5 5 Harness

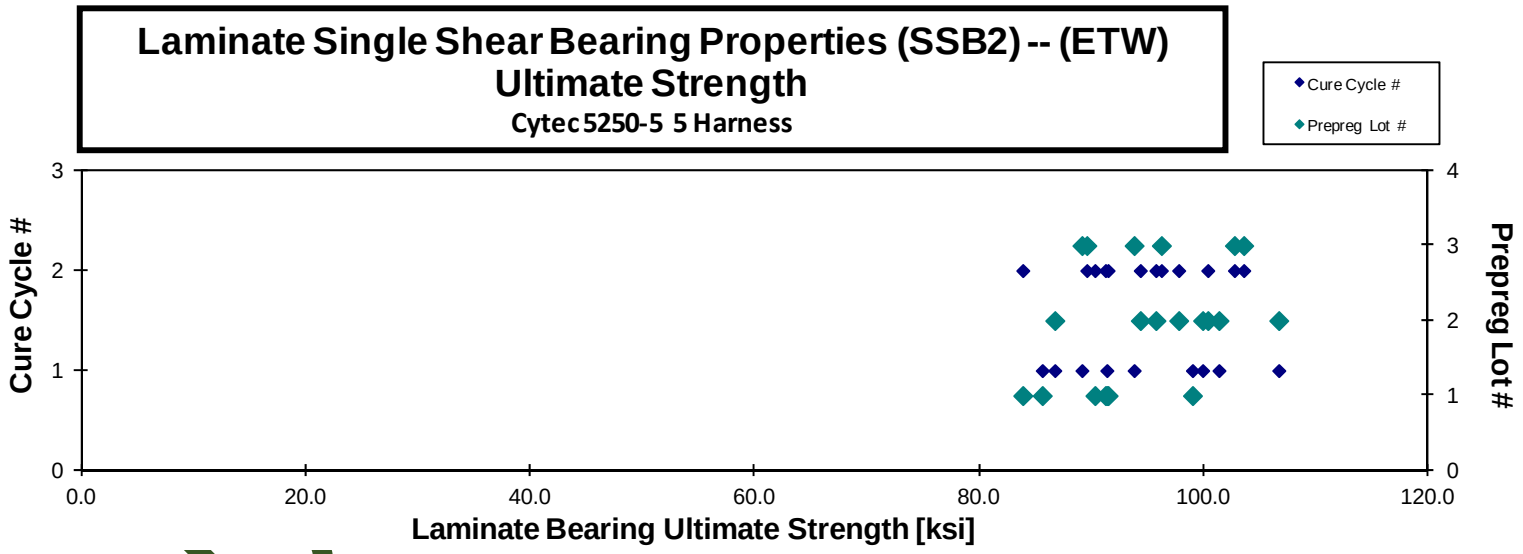
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Bearing Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]
CNB2A115J	A	C1	1	1	86.888	98.799	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0152	86.983	98.908
CNB2A11AJ	A	C1	1	1	66.518	86.762	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	65.570	85.525
CNB2A11BJ	A	C1	1	1	73.261	92.723	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	72.121	91.280
CNB2A214J	A	C2	1	2	70.473	92.400	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	69.700	91.387
CNB2A215J	A	C2	1	2	67.696	91.480	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	66.761	90.217
CNB2A219J	A	C2	1	2	74.683	83.825	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0152	74.650	83.788
CNB2A21AJ	A	C2	1	2	67.959	91.844	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0151	67.452	91.159
CNB2B114J	B	C1	2	1	67.604	101.034	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	66.788	99.815
CNB2B115J	B	C1	2	1	88.632	103.053	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0149	87.097	101.268
CNB2B119J	B	C1	2	1	85.114	106.950	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0152	84.834	106.599
CNB2B11AJ	B	C1	2	1	79.618	87.330	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0151	78.989	86.641
CNB2B214J	B	C2	2	2	71.545	98.928	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0154	72.518	100.273
CNB2B215J	B	C2	2	2	81.854	98.004	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0152	81.584	97.682
CNB2B219J	B	C2	2	2	77.367	93.719	0.078	5	B1I / 2% OFFSET FOR UBS*	0.0155	78.962	95.651
CNB2B21AJ	B	C2	2	2	75.571	93.256	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0154	76.383	94.258
CNB2C114J	C	C1	3	1	66.150	91.326	0.078	5	B1I / 2% OFFSET FOR UBS*	0.0156	67.877	93.710
CNB2C115J	C	C1	3	1	69.930	87.297	0.078	5	B1I / 2% OFFSET FOR UBS*	0.0155	71.341	89.058
CNB2C214J	C	C2	3	2	79.350	100.288	0.078	5	B1I / 2% OFFSET FOR UBS*	0.0157	81.873	103.477
CNB2C215J	C	C2	3	2	74.654	101.929	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0153	75.177	102.645
CNB2C219J	C	C2	3	2	71.410	94.296	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0155	72.804	96.136
CNB2C21AJ	C	C2	3	2	82.905	86.864	0.078	5	B1I / 2% OFFSET FOR UBS*	0.0157	85.414	89.493
									Ultimate Bearing Strength / B1I: B:Bearing, 1:first hole, I: Inapplicable (not on bolt, nut or head side)			

Average	75.199	94.386	
Standard Dev.	6.951	6.249	
Coeff. of Var. [%]	9.244	6.621	
Min.	66.150	83.825	
Max.	88.632	106.950	
Number of Spec.	21	21	

Average	0.0153	75.470	94.713
Standard Dev.		7.097	6.306
Coeff. of Var. [%]		9.404	6.658
Min.	0.0149	65.570	83.788
Max.	0.0157	87.097	106.599
Number of Spec.		21	21


Laminate Single Shear Bearing Properties (SSB2) -- (ETW)
2% Offset Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
Laminate Bearing 2% Offset Strength [ksi]


Laminate Single Shear Bearing Properties (SSB2) -- (ETW)
Ultimate Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Bearing Ultimate Strength [ksi]

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

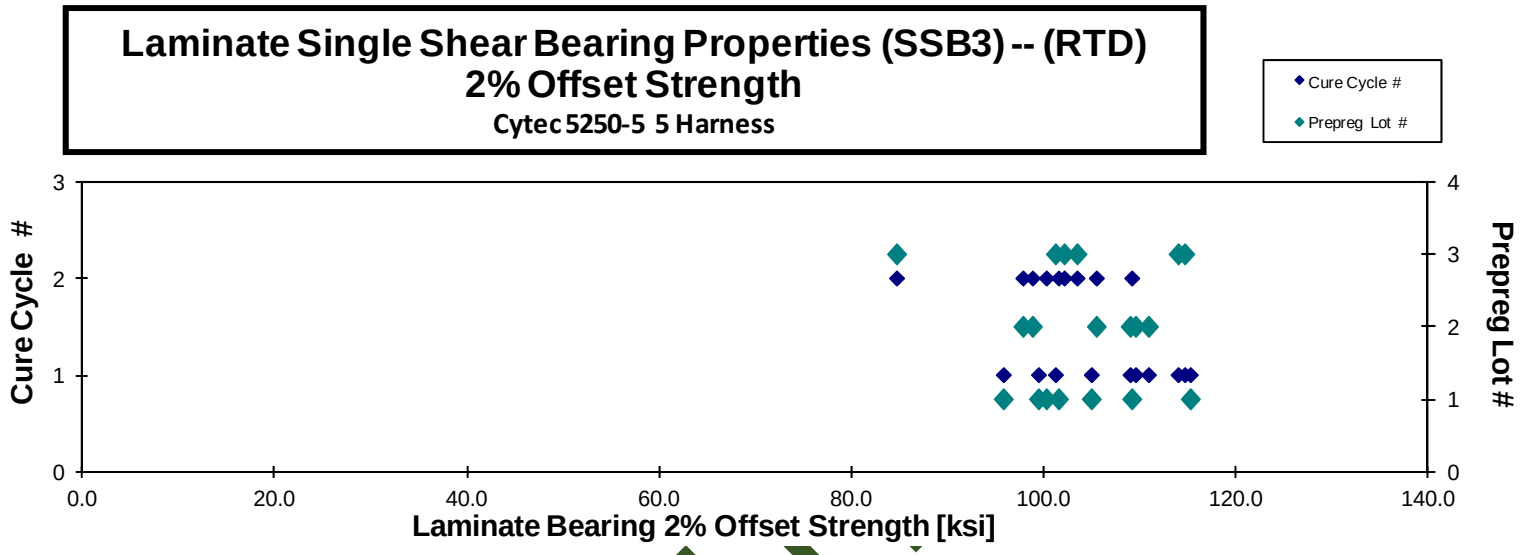
Laminate Single Shear Bearing Properties (SSB3) -- (RTD)
Strength & Deformation
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]
0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]
CNB3A111A	A	C1	1	1	99.767	0.073	5	B1I / 2% OFFSET FOR UBS*	0.0146	95.741
CNB3A112A	A	C1	1	1	114.563	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0153	115.191
CNB3A113A	A	C1	1	1	108.097	0.074	5	B1I / 2% OFFSET FOR UBS*	0.0148	104.897
CNB3A114A	A	C1	1	1	101.900	0.074	5	B1I / 2% OFFSET FOR UBS*	0.0148	99.397
CNB3A211A	A	C2	1	2	102.915	0.074	5	B1I / 2% OFFSET FOR UBS*	0.0148	100.207
CNB3A212A	A	C2	1	2	103.407	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0149	101.480
CNB3A213A	A	C2	1	2	110.211	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	109.099
CNB3B112A	B	C1	2	1	111.849	0.074	5	B1I / 2% OFFSET FOR UBS*	0.0149	109.494
CNB3B113A	B	C1	2	1	111.571	0.074	5	B1I / 2% OFFSET FOR UBS*	0.0148	108.928
CNB3B114A	B	C1	2	1	112.387	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	110.834
CNB3B211A	B	C2	2	2	99.479	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0149	97.777
CNB3B212A	B	C2	2	2	100.352	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	98.767
CNB3B213A	B	C2	2	2	106.162	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0151	105.417
CNB3C111A	C	C1	3	1	113.658	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0153	114.605
CNB3C112A	C	C1	3	1	99.311	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0155	101.162
CNB3C113A	C	C1	3	1	110.717	0.078	5	B1I / 2% OFFSET FOR UBS*	0.0156	113.922
CNB3C211A	C	C2	3	2	100.281	0.078	5	B1I / 2% OFFSET FOR UBS*	0.0157	103.404
CNB3C212A	C	C2	3	2	82.945	0.078	5	B1I / 2% OFFSET FOR UBS*	0.0155	84.636
CNB3C213A	C	C2	3	2	99.665	0.078	5	B1I / 2% OFFSET FOR UBS*	0.0156	102.069
								Ultimate Bearing Strength / B1I: B:Bearing, 1:first hole, I: Inapplicable (not on bolt, nut or head side)		

Testing was stopped after reaching 2%, so ultimate strength is not reported

Average	**104.697**	**Average**	**0.0151**	**104.054**
Standard Dev.	**7.622**	**Standard Dev.**		**7.562**
Coeff. of Var. [%]	**7.280**	**Coeff. of Var. [%]**		**7.268**
Min.	**82.945**	**Min.**	**0.0146**	**84.636**
Max.	**114.563**	**Max.**	**0.0157**	**115.191**
Number of Spec.	**19**	**Number of Spec.**		**19**


Laminate Single Shear Bearing Properties (SSB3) -- (RTD)
2% Offset Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Laminate Bearing 2% Offset Strength [ksi]

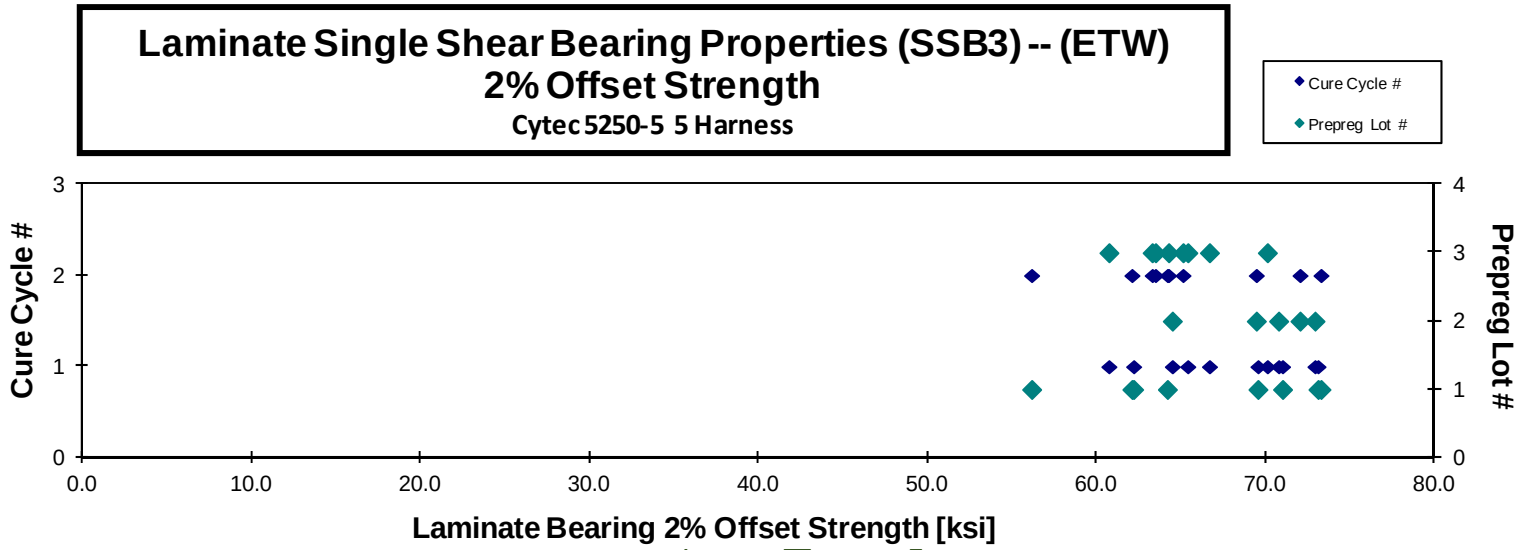
Laminate Single Shear Bearing Properties (SSB3) -- (ETW)
Strength & Deformation
Cytec 5250-5 5 Harness

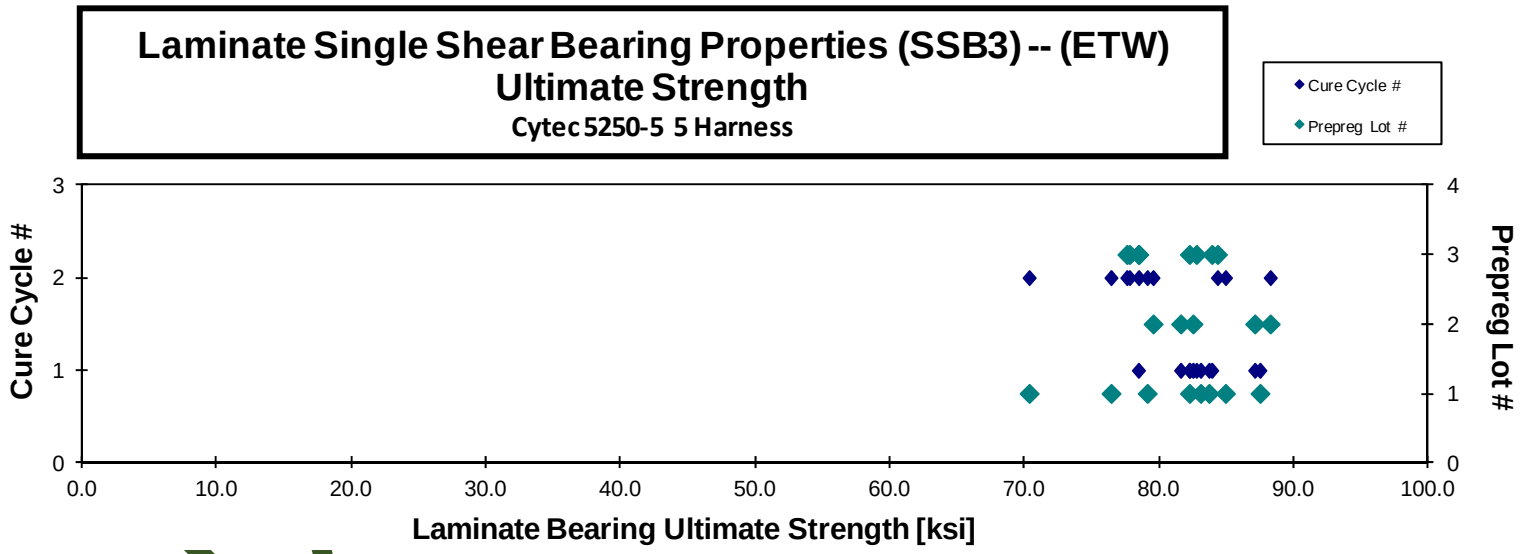
normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Bearing Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	2% Offset Strength$_{norm}$ [ksi]	Ultimate Strength$_{norm}$ [ksi]
CNB3A115J	A	C1	1	1	71.254	84.248	0.074	5	B1I / 2% OFFSET FOR UBS*	0.0148	69.535	82.215
CNB3A116J	A	C1	1	1	75.370	86.274	0.074	5	B1I / 2% OFFSET FOR UBS*	0.0147	78.089	83.663
CNB3A11BJ	A	C1	1	1	61.867	87.015	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0153	62.179	87.454
CNB3A11CJ	A	C1	1	1	71.208	83.297	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0152	70.989	83.041
CNB3A214J	A	C2	1	2	64.518	76.792	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0151	64.178	76.388
CNB3A215J	A	C2	1	2	74.109	85.866	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	73.264	84.887
CNB3A218J	A	C2	1	2	56.855	71.196	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	56.144	70.306
CNB3A21AJ	A	C2	1	2	62.809	80.006	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	62.079	79.076
CNB3B115J	B	C1	2	1	73.069	82.655	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0152	72.909	82.473
CNB3B119J	B	C1	2	1	70.219	86.403	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0153	70.758	87.066
CNB3B11AJ	B	C1	2	1	65.314	82.627	0.075	5	B1I / 2% OFFSET FOR UBS*	0.0150	64.469	81.558
CNB3B214J	B	C2	2	2	68.492	87.014	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0154	69.438	88.216
CNB3B215J	B	C2	2	2	71.992	79.478	0.076	5	B1I / 2% OFFSET FOR UBS*	0.0152	72.024	79.513
CNB3C114J	C	C1	3	1	68.515	80.862	0.078	5	B1I / 2% OFFSET FOR UBS*	0.0156	70.092	82.724
CNB3C115J	C	C1	3	1	63.843	80.272	0.078	5	B1I / 2% OFFSET FOR UBS*	0.0156	65.383	82.209
CNB3C119J	C	C1	3	1	59.236	76.510	0.078	5	B1I / 2% OFFSET FOR UBS*	0.0156	60.717	78.422
CNB3C11AJ	C	C1	3	1	64.501	81.153	0.079	5	B1I / 2% OFFSET FOR UBS*	0.0157	66.665	83.876
CNB3C214J	C	C2	3	2	64.648	77.897	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0153	65.101	78.444
CNB3C215J	C	C2	3	2	63.210	82.932	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0155	64.250	84.296
CNB3C219J	C	C2	3	2	62.092	76.301	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0155	63.277	77.757
CNB3C21AJ	C	C2	3	2	63.043	77.040	0.077	5	B1I / 2% OFFSET FOR UBS*	0.0153	63.471	77.564

Ultimate Bearing Strength / B1I: B:Bearing, 1:first hole, I: Inapplicable (not on bolt, nut or head side)

Average	**66.484**	**81.230**	**Average**	**0.0152**	**66.667**	**81.483**
Standard Dev.	**5.096**	**4.255**	**Standard Dev.**		**4.720**	**4.222**
Coeff. of Var. [%]	**7.665**	**5.238**	**Coeff. of Var. [%]**		**7.079**	**5.182**
Min.	**56.855**	**71.196**	**Min.**	**0.0147**	**56.144**	**70.306**
Max.	**75.370**	**87.015**	**Max.**	**0.0157**	**73.264**	**88.216**
Number of Spec.	**21**	**21**	**Number of Spec.**		**21**	**21**


Laminate Single Shear Bearing Properties (SSB3) -- (ETW)
2% Offset Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
Laminate Bearing 2% Offset Strength [ksi]


Laminate Single Shear Bearing Properties (SSB3) -- (ETW)
Ultimate Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
Laminate Bearing Ultimate Strength [ksi]

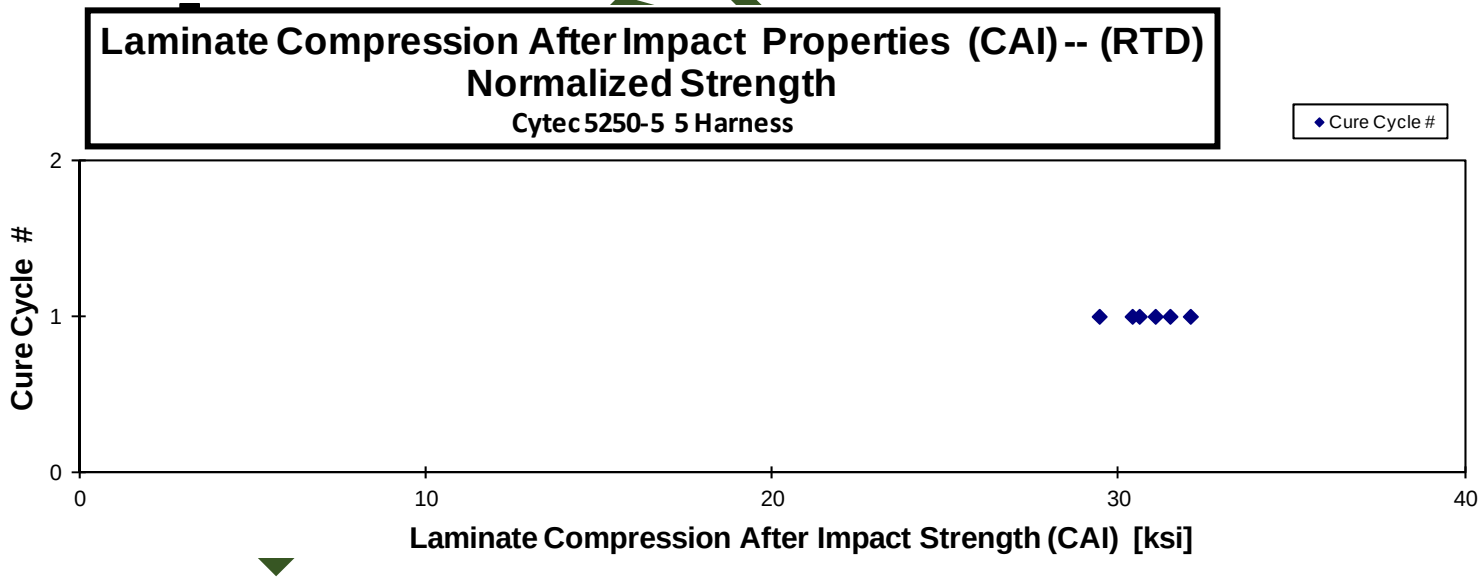
4.29 Compression After Impact 1 Properties (CAI1)

Laminate Compression After Impact Properties (CAI) -- (RTD)
Strength
Cytec 5250-5 5 Harness

normalizing t_{ply} [in]: 0.0152

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Measured Impact Energy (in-lbf)	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNBKA111A	A	C1	1	1	262.39	32.381	0.177	12	LDM	0.0148	31.476
CNBKA113A	A	C1	1	1	264.52	30.483	0.176	12	LDM	0.0147	29.433
CNBKA114A	A	C1	1	1	263.43	31.462	0.177	12	LDM	0.0148	30.588
CNBKA115A	A	C1	1	1	273.50	31.350	0.181	12	LDM	0.0151	31.050
CNBKA116A	A	C1	1	1	269.49	31.165	0.178	12	LDM	0.0148	30.385
CNBKA117A	A	C1	1	1	266.10	32.770	0.178	12	LDM	0.0149	32.063

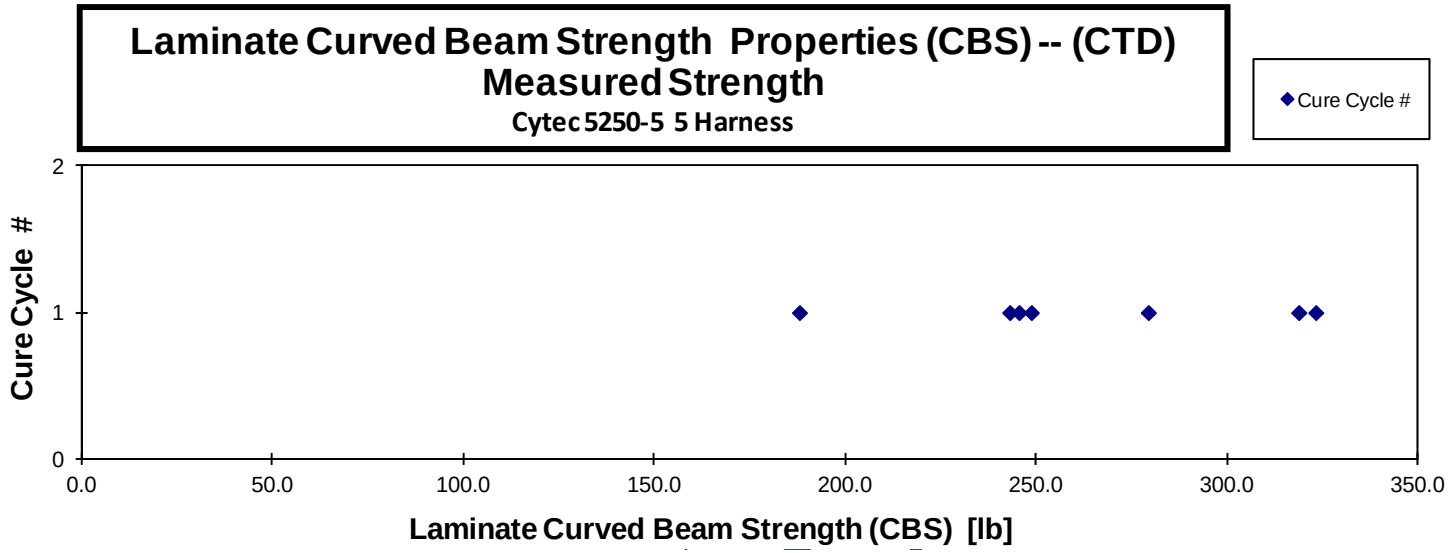
Average	31.602	$Average_{norm}$	0.0148	30.832
Standard Dev.	0.836	$Standard\ Dev._{norm}$		0.916
Coeff. of Var. [%]	2.647	$Coeff.\ of\ Var.\ [\%]_{norm}$		2.971
Min.	30.483	Min.	0.0147	29.433
Max.	32.770	Max.	0.0151	32.063
Number of Spec.	6	Number of Spec.		6

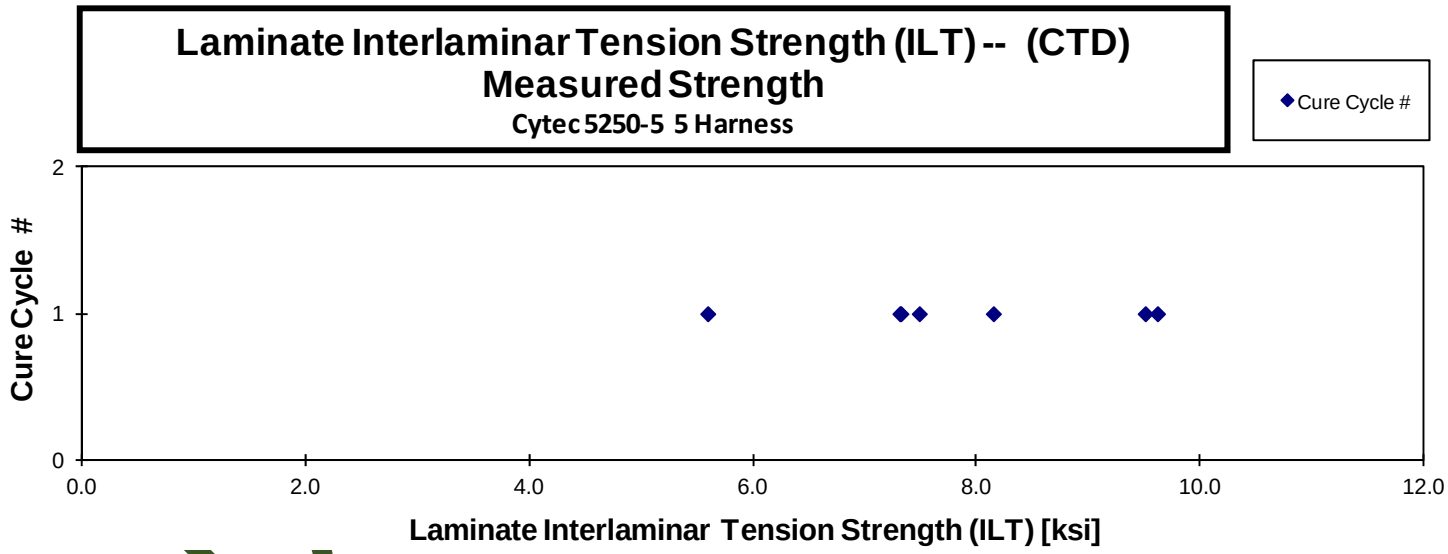


4.30 Interlaminar Tension Properties (ILT)

Laminate Curved Beam Strength Properties (ILT) -- (CTD) Strength
Cytec 5250-5 5 Harness

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Curved Beam Strength [lb]	Interlaminar Tension Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate
CNBMA119B	A	C1	1	1	279.295	8.148	0.161	11
CNBMA11AB	A	C1	1	1	187.907	5.594	0.158	11
CNBMA11BB	A	C1	1	1	323.150	9.615	0.158	11
CNBMA11CB	A	C1	1	1	318.692	9.506	0.158	11
CNBMA11DB	A	C1	1	1	245.427	7.312	0.158	11
CNBMA11EB	A	C1	1	1	248.642	7.486	0.156	11
CNBMA11FB	A	C1	1	1	242.990	7.321	0.156	11
				Average	**263.729**	**7.855**		
				Standard Dev.	**47.497**	**1.399**		
				Coeff. of Var. [%]	**18.010**	**17.806**		
				Min.	**187.907**	**5.594**		
				Max.	**323.150**	**9.615**		
				Number of Spec.	**7**	**7**		

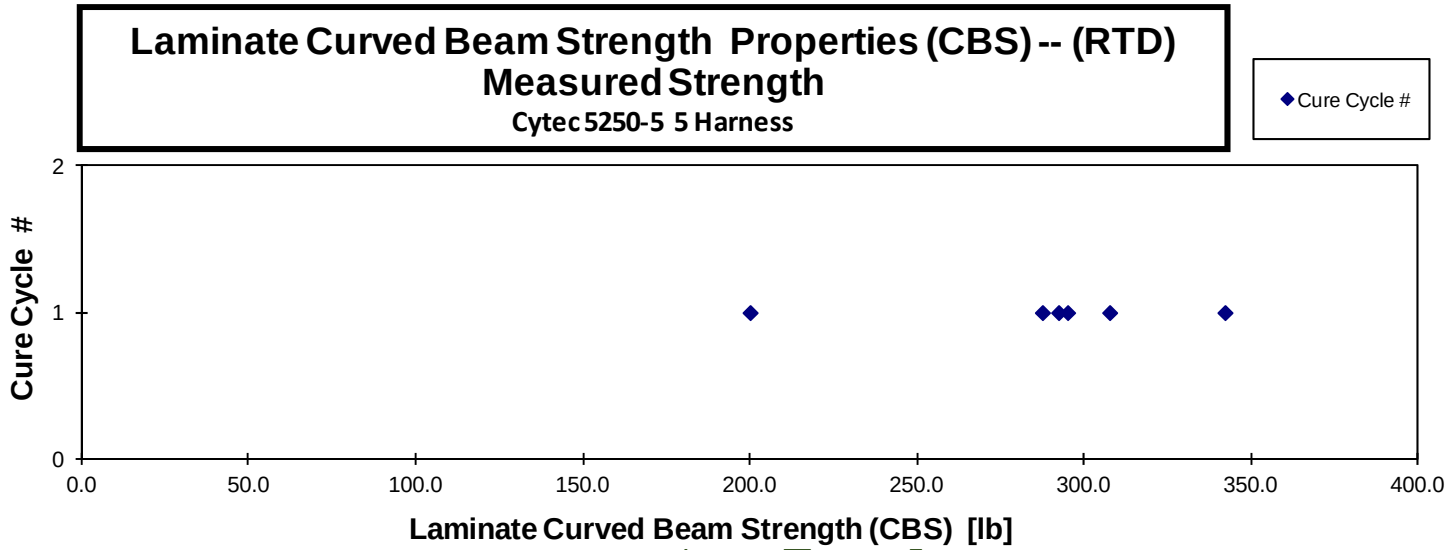

Laminate Curved Beam Strength Properties (CBS) -- (CTD)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Cure Cycle #
2
1
0
0.0
50.0
100.0
150.0
200.0
250.0
300.0
350.0
Laminate Curved Beam Strength (CBS) [lb]

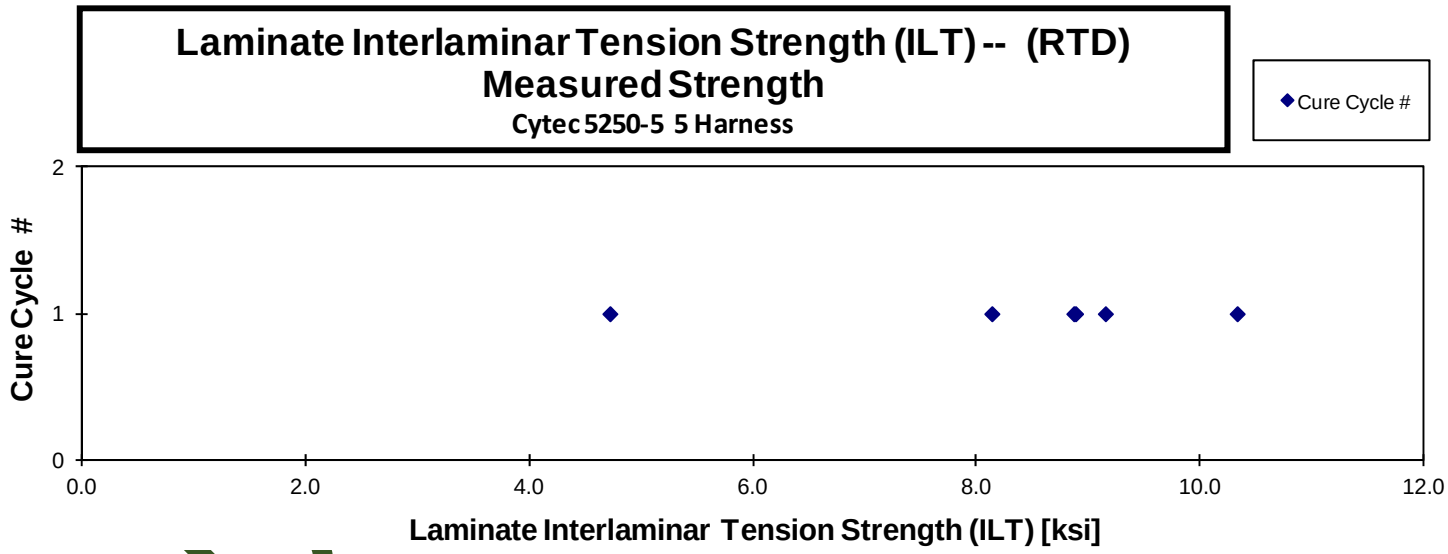

Laminate Interlaminar Tension Strength (ILT) -- (CTD)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Cure Cycle #
2
1
0
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Laminate Interlaminar Tension Strength (ILT) [ksi]

Laminate Curved Beam Strength Properties (ILT) -- (RTD) Strength

Cytec 5250-5 5 Harness

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Curved Beam Strength [lb]	Interlaminar Tension Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate
CNBMA111A	A	C1	1	1	295.032	8.867	0.157	11
CNBMA112A	A	C1	1	1	199.974	4.719	0.191	11
CNBMA113A	A	C1	1	1	287.481	8.134	0.165	11
CNBMA114A	A	C1	1	1	292.337	8.882	0.155	11
CNBMA115A	A	C1	1	1	342.132	10.328	0.156	11
CNBMA116A	A	C1	1	1	307.619	9.149	0.158	11
				Average	287.429	8.347		
				Standard Dev.	47.181	1.915		
				Coeff. of Var. [%]	16.415	22.940		
				Min.	199.974	4.719		
				Max.	342.132	10.328		
				Number of Spec.	6	6		


Laminate Curved Beam Strength Properties (CBS) -- (RTD)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Cure Cycle #
2
1
0
0.0
50.0
100.0
150.0
200.0
250.0
300.0
350.0
400.0
Laminate Curved Beam Strength (CBS) [lb]

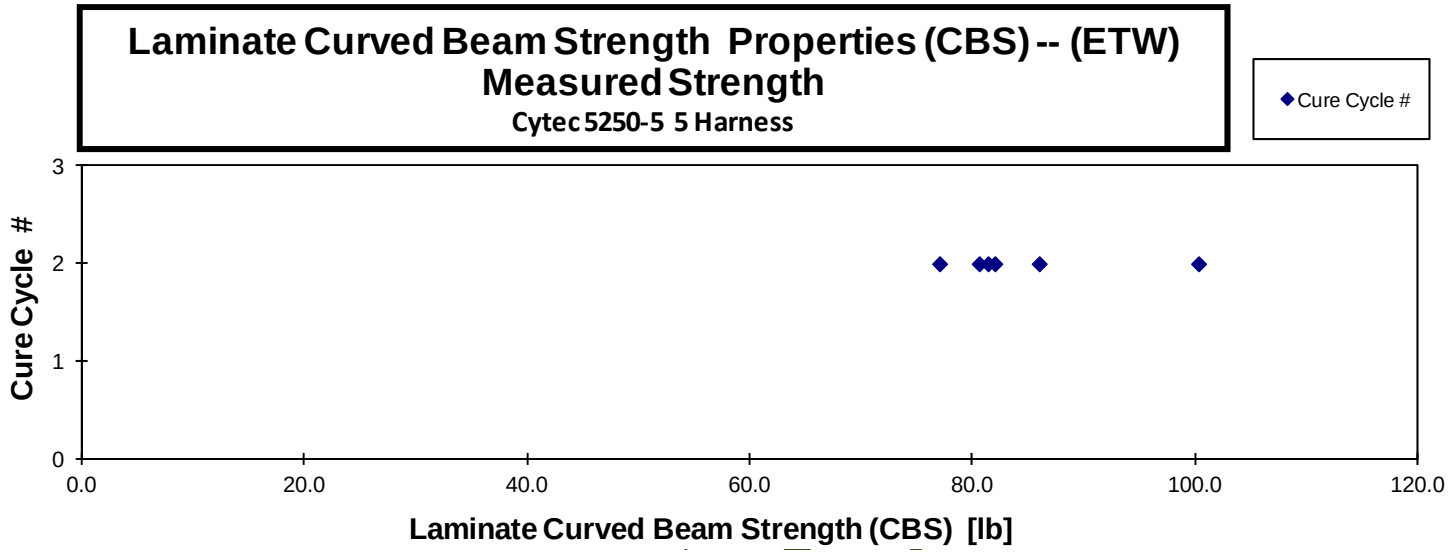

Laminate Interlaminar Tension Strength (ILT) -- (RTD)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Cure Cycle #
2
1
0
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Laminate Interlaminar Tension Strength (ILT) [ksi]

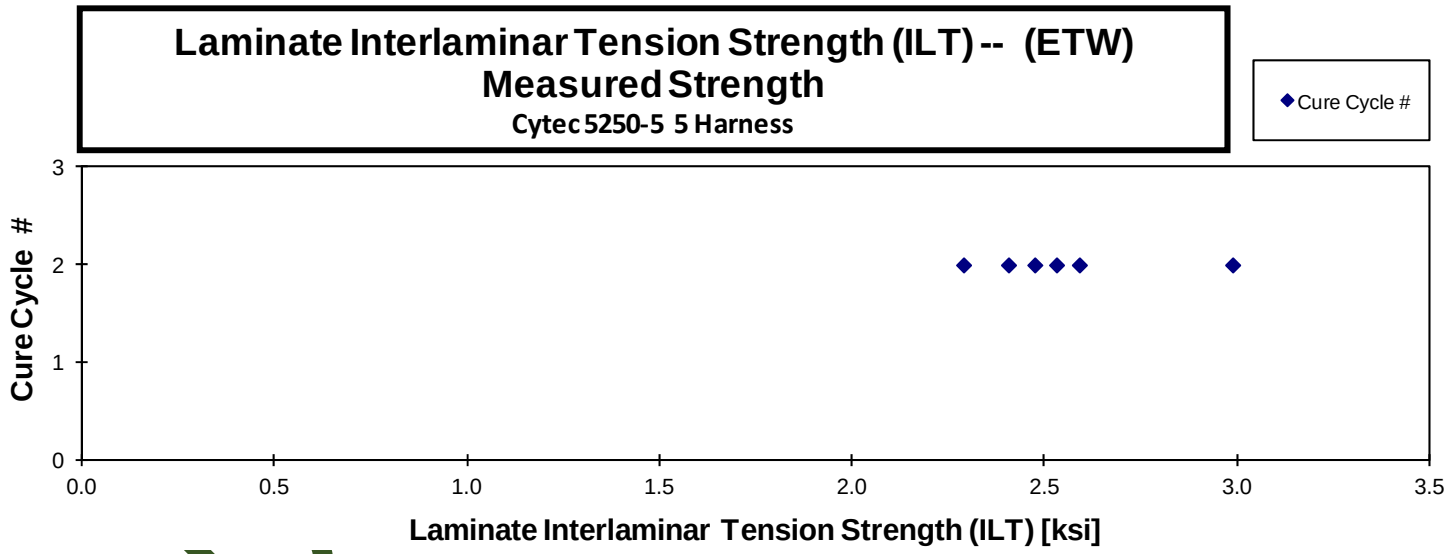
Laminate Curved Beam Strength Properties (ILT) -- (ETW) Strength

Cytec 5250-5 5 Harness

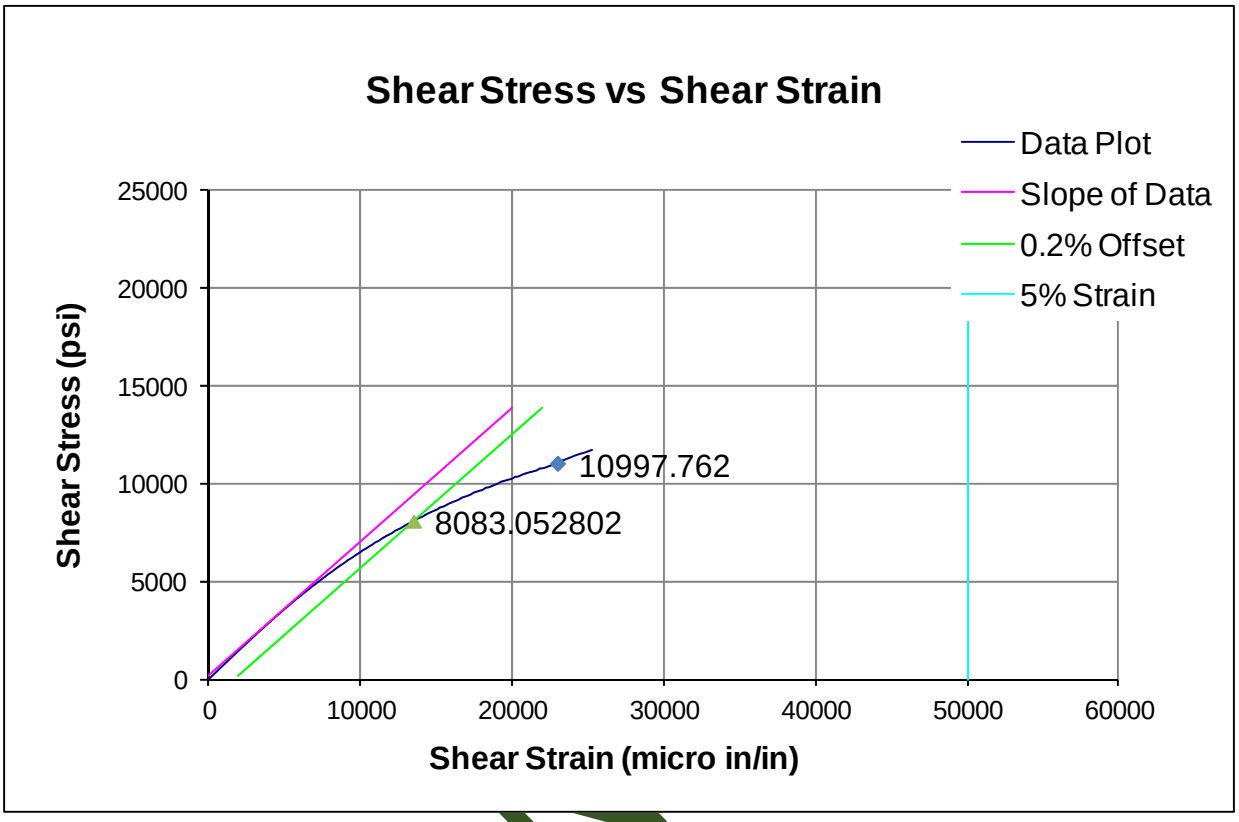
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Curved Beam Strength [lb]	Interlaminar Tension Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate
CNBMA211J	A	C2	1	2	100.268	2.987	0.158	11
CNBMA212J	A	C2	1	2	85.958	2.589	0.156	11
CNBMA213J	A	C2	1	2	81.364	2.474	0.155	11
CNBMA214J	A	C2	1	2	81.974	2.530	0.153	11
CNBMA215J	A	C2	1	2	77.009	2.289	0.158	11
CNBMA216J	A	C2	1	2	80.566	2.405	0.157	11

Average	**84.523**	**2.546**
Standard Dev.	**8.229**	**0.240**
Coeff. of Var. [%]	**9.736**	**9.430**
Min.	**77.009**	**2.289**
Max.	**100.268**	**2.987**
Number of Spec.	**6**	**6**


Laminate Curved Beam Strength Properties (CBS) -- (ETW)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Cure Cycle #
0
1
2
3
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Curved Beam Strength (CBS) [lb]


Laminate Interlaminar Tension Strength (ILT) -- (ETW)
Measured Strength
Cytec 5250-5 5 Harness
Cure Cycle #
Cure Cycle #
0
1
2
3
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Laminate Interlaminar Tension Strength (ILT) [ksi]

5. Shear Stress vs. Shear Strain, RTD



Data up to 5% strain is not available because strain measurement device used was an extensometer, which was removed prior to 5% strain.

6. Fluid Sensitivity Comparison

Fluid	Average Short Beam Strength With Fluid (ksi)	Same Environment Short Beam Strength Without Fluid (ksi) (RTD)	Worst Case Environment Short Beam Strength (ksi) (RTW)	% Strength Reduction With Respect to RTD (no fluid)
a	11.586	10.732	11.934	-7.956
b	11.712	10.732	11.934	-9.124
c	12.002	10.732	11.934	-11.829
d	11.760	10.732	11.934	-9.579
e	11.549	10.732	11.934	-7.609
f	11.229	10.732	11.934	-4.630
g	11.876	10.732	11.934	-10.654
h	11.642	10.732	11.934	-8.474
i	11.788	10.732	11.934	-9.839
j	11.103	10.732	11.934	-3.452
k	11.633	10.732	11.934	-8.394
l	11.611	10.732	11.934	-8.190
r	11.910	10.732	11.934	-10.976
A	10.732	10.732	11.934	0.000
t	11.934	10.732	11.934	-11.200

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

Fluid	Average Short Beam Strength With Fluid (ksi)	Same Environment Short Beam Strength Without Fluid (ksi) (ETD)	Worst Case Environment Short Beam Strength (ksi) (ETW)	% Strength Reduction With Respect to ETD (no fluid)
1	7.948	8.557	4.482	7.111
2	7.944	8.557	4.482	7.168
3	7.824	8.557	4.482	8.562
4	7.827	8.557	4.482	8.536
5	7.687	8.557	4.482	10.166
6	8.266	8.557	4.482	3.396
7	5.372	8.557	4.482	37.221
8	8.266	8.557	4.482	3.403
9	5.055	8.557	4.482	40.920
m	8.631	8.557	4.482	-0.864
n	8.668	8.557	4.482	-1.293
p	8.465	8.557	4.482	1.078
s	5.389	8.557	4.482	37.023
K	8.557	8.557	4.482	0.000
J	4.482	8.557	4.482	47.621

Fluid Sensitivity Screening
Short Beam Strength Properties (SBS) -- (RT) Strength
Cytec 5250-5 5 Harness

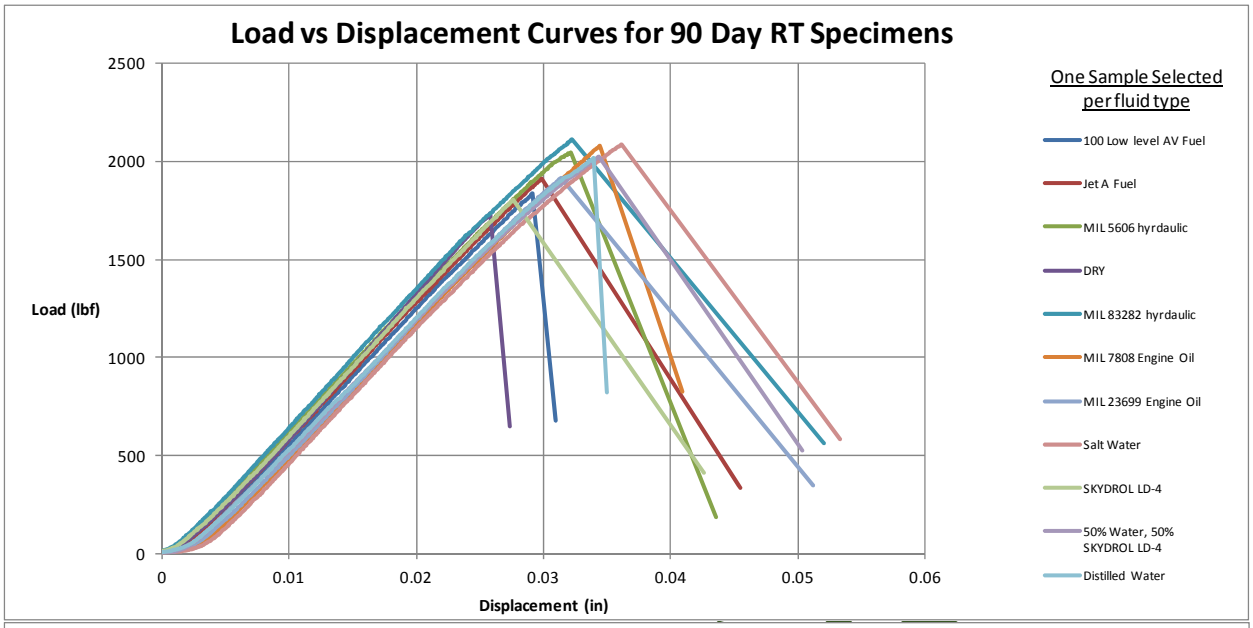
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Fluid	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]	Failure Mode	Average
CNBQA121a	A	C1	1	a	10.973	0.251	17	0.0148	Interlaminar Shear	
CNBQA122a	A	C1	1	a	12.452	0.257	17	0.0151	Interlaminar Shear	
CNBQA123a	A	C1	1	a	12.243	0.253	17	0.0149	Interlaminar Shear	11.586
CNBQA124a	A	C1	1	a	11.681	0.254	17	0.0150	Interlaminar Shear	
CNBQA126a	A	C1	1	a	10.759	0.257	17	0.0151	Interlaminar Shear	
CNBQA127a	A	C1	1	a	11.409	0.259	17	0.0152	Interlaminar Shear	
CNBQA12Fb	A	C1	1	b	11.457	0.250	17	0.0147	Interlaminar Shear	
CNBQA12Gb	A	C1	1	b	12.271	0.248	17	0.0146	Interlaminar Shear	11.712
CNBQA12Hb	A	C1	1	b	11.980	0.258	17	0.0152	Interlaminar Shear	
CNBQA12Ib	A	C1	1	b	10.768	0.250	17	0.0147	Interlaminar Shear	
CNBQA12Kb	A	C1	1	b	12.350	0.248	17	0.0146	Interlaminar Shear	
CNBQA12Lb	A	C1	1	b	11.445	0.246	17	0.0145	Interlaminar Shear	
CNBQA132c	A	C1	1	c	12.310	0.250	17	0.0147	Interlaminar Shear	
CNBQA133c	A	C1	1	c	12.364	0.249	17	0.0147	Interlaminar Shear	
CNBQA134c	A	C1	1	c	10.768	0.255	17	0.0150	Interlaminar Shear	12.002
CNBQA135c	A	C1	1	c	12.594	0.253	17	0.0149	Interlaminar Shear	
CNBQA136c	A	C1	1	c	12.278	0.254	17	0.0149	Interlaminar Shear	
CNBQA137c	A	C1	1	c	11.699	0.254	17	0.0150	Interlaminar Shear	
CNBQA13Fd	A	C1	1	d	12.420	0.255	17	0.0150	Interlaminar Shear	
CNBQA13Gd	A	C1	1	d	11.560	0.251	17	0.0148	Interlaminar Shear	
CNBQA13Hd	A	C1	1	d	10.908	0.259	17	0.0152	Interlaminar Shear	
CNBQA13Id	A	C1	1	d	12.287	0.250	17	0.0147	Interlaminar Shear	11.760
CNBQA13Jd	A	C1	1	d	11.856	0.255	17	0.0150	Interlaminar Shear	
CNBQA13Ld	A	C1	1	d	11.532	0.254	17	0.0149	Interlaminar Shear	
CNBQA141e	A	C1	1	e	12.461	0.251	17	0.0147	Interlaminar Shear	
CNBQA142e	A	C1	1	e	11.137	0.260	17	0.0153	Interlaminar Shear	
CNBQA143e	A	C1	1	e	11.289	0.255	17	0.0150	Interlaminar Shear	11.549
CNBQA144e	A	C1	1	e	10.933	0.256	17	0.0150	Interlaminar Shear	
CNBQA145e	A	C1	1	e	11.610	0.248	17	0.0146	Interlaminar Shear	
CNBQA147e	A	C1	1	e	11.863	0.252	17	0.0148	Interlaminar Shear	
CNBQA14Ff	A	C1	1	f	11.584	0.248	17	0.0146	Interlaminar Shear	
CNBQA14Gf	A	C1	1	f	11.762	0.256	17	0.0151	Interlaminar Shear	
CNBQA14Hf	A	C1	1	f	12.138	0.256	17	0.0151	Interlaminar Shear	11.229
CNBQA14If	A	C1	1	f	10.791	0.259	17	0.0152	Interlaminar Shear	
CNBQA14Kf	A	C1	1	f	9.487	0.258	17	0.0152	Interlaminar Shear	
CNBQA14Lf	A	C1	1	f	11.613	0.253	17	0.0149	Interlaminar Shear	
CNBQA152g	A	C1	1	g	12.230	0.256	17	0.0150	Interlaminar Shear	
CNBQA153g	A	C1	1	g	11.955	0.260	17	0.0153	Interlaminar Shear	
CNBQA154g	A	C1	1	g	11.108	0.260	17	0.0153	Interlaminar Shear	11.876
CNBQA155g	A	C1	1	g	12.102	0.258	17	0.0152	Interlaminar Shear	
CNBQA156g	A	C1	1	g	12.061	0.260	17	0.0153	Interlaminar Shear	
CNBQA157g	A	C1	1	g	11.799	0.259	17	0.0152	Interlaminar Shear	
CNBQA15Fh	A	C1	1	h	10.524	0.259	17	0.0153	Interlaminar Shear	
CNBQA15Gh	A	C1	1	h	11.603	0.254	17	0.0149	Interlaminar Shear	
CNBQA15Hh	A	C1	1	h	12.081	0.252	17	0.0148	Interlaminar Shear	
CNBQA15Ih	A	C1	1	h	12.029	0.260	17	0.0153	Interlaminar Shear	11.642
CNBQA15Jh	A	C1	1	h	10.996	0.252	17	0.0148	Interlaminar Shear	
CNBQA15Kh	A	C1	1	h	11.765	0.259	17	0.0152	Interlaminar Shear	
CNBQA15Lh	A	C1	1	h	12.494	0.259	17	0.0152	Interlaminar Shear	

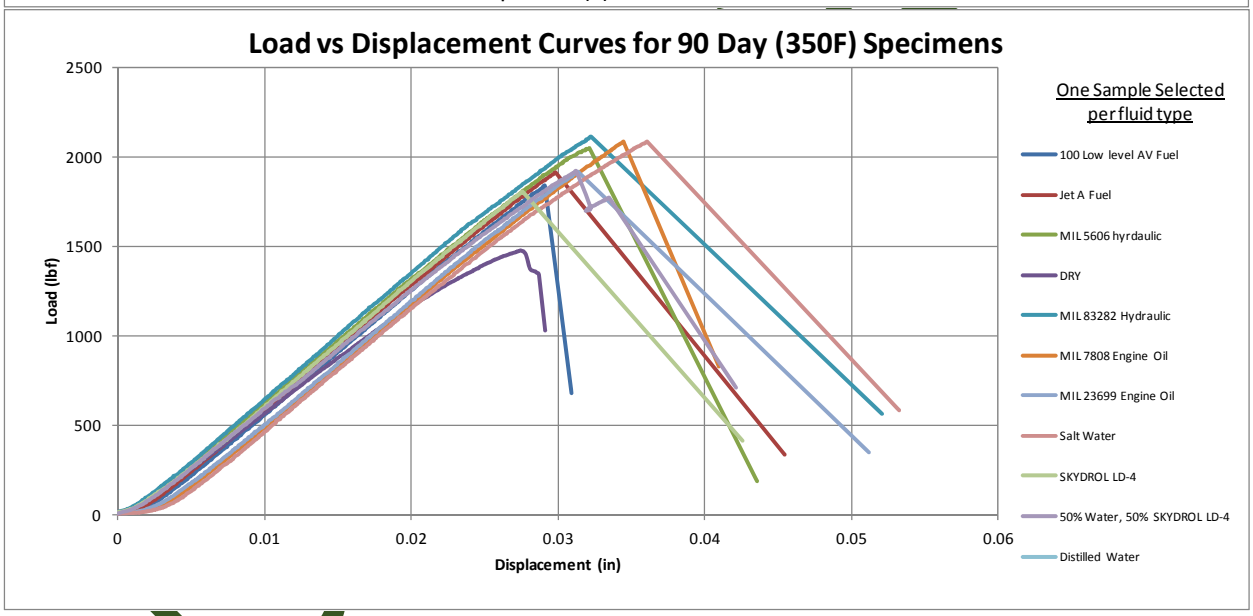
CNBQA161i	A	C1	1	i	11.258	0.256	17	0.0151	Interlaminar Shear	
CNBQA162i	A	C1	1	i	11.951	0.254	17	0.0149	Interlaminar Shear	
CNBQA163i	A	C1	1	i	12.126	0.255	17	0.0150	Interlaminar Shear	11.788
CNBQA164i	A	C1	1	i	11.744	0.253	17	0.0149	Interlaminar Shear	
CNBQA165i	A	C1	1	i	11.945	0.252	17	0.0148	Interlaminar Shear	
CNBQA166i	A	C1	1	i	11.706	0.257	17	0.0151	Interlaminar Shear	
CNBQA16Fj	A	C1	1	j	10.796	0.254	17	0.0149	Interlaminar Shear	
CNBQA16Gj	A	C1	1	j	10.879	0.255	17	0.0150	Interlaminar Shear	
CNBQA16Ij	A	C1	1	j	10.692	0.252	17	0.0148	Interlaminar Shear	11.103
CNBQA16Jj	A	C1	1	j	11.563	0.257	17	0.0151	Interlaminar Shear	
CNBQA16Kj	A	C1	1	j	11.263	0.256	17	0.0150	Interlaminar Shear	
CNBQA16Lj	A	C1	1	j	11.425	0.252	17	0.0148	Interlaminar Shear	
CNBQA171k	A	C1	1	k	11.666	0.247	17	0.0145	Interlaminar Shear	
CNBQA172k	A	C1	1	k	11.468	0.254	17	0.0149	Interlaminar Shear	
CNBQA173k	A	C1	1	k	12.648	0.248	17	0.0146	Interlaminar Shear	11.633
CNBQA174k	A	C1	1	k	12.429	0.254	17	0.0150	Interlaminar Shear	
CNBQA175k	A	C1	1	k	10.350	0.246	17	0.0145	Interlaminar Shear	
CNBQA177k	A	C1	1	k	11.238	0.246	17	0.0144	Interlaminar Shear	
CNBQA17Fl	A	C1	1	l	12.028	0.243	17	0.0143	Interlaminar Shear	
CNBQA17Gl	A	C1	1	l	11.126	0.247	17	0.0146	Interlaminar Shear	
CNBQA17Hl	A	C1	1	l	11.343	0.250	17	0.0147	Interlaminar Shear	11.611
CNBQA17Il	A	C1	1	l	11.521	0.249	17	0.0146	Interlaminar Shear	
CNBQA17Jl	A	C1	1	l	12.069	0.249	17	0.0146	Interlaminar Shear	
CNBQA17Kl	A	C1	1	l	11.582	0.257	17	0.0151	Interlaminar Shear	
CNBQA181r	A	C1	1	r	11.936	0.254	17	0.0149	Interlaminar Shear	
CNBQA182r	A	C1	1	r	11.570	0.253	17	0.0149	Interlaminar Shear	
CNBQA184r	A	C1	1	r	11.939	0.257	17	0.0151	Interlaminar Shear	11.910
CNBQA185r	A	C1	1	r	12.005	0.257	17	0.0151	Interlaminar Shear	
CNBQA186r	A	C1	1	r	11.971	0.253	17	0.0149	Interlaminar Shear	
CNBQA187r	A	C1	1	r	12.041	0.254	17	0.0149	Interlaminar Shear	
CNBQA18FA	A	C1	1	A	10.213	0.254	17	0.0149	Interlaminar Shear	
CNBQA18GA	A	C1	1	A	10.236	0.259	17	0.0153	Interlaminar Shear	
CNBQA18HA	A	C1	1	A	11.713	0.253	17	0.0149	Interlaminar Shear	10.732
CNBQA18IA	A	C1	1	A	10.589	0.253	17	0.0149	Interlaminar Shear	
CNBQA18JA	A	C1	1	A	10.255	0.258	17	0.0152	Interlaminar Shear	
CNBQA18KA	A	C1	1	A	11.388	0.256	17	0.0151	Interlaminar Shear	
CNBQA191t	A	C1	1	t	11.427	0.252	17	0.0148	Interlaminar Shear	
CNBQA192t	A	C1	1	t	12.270	0.251	17	0.0148	Interlaminar Shear	
CNBQA193t	A	C1	1	t	12.263	0.250	17	0.0147	Interlaminar Shear	11.934
CNBQA194t	A	C1	1	t	11.892	0.251	17	0.0148	Interlaminar Shear	
CNBQA195t	A	C1	1	t	12.093	0.253	17	0.0149	Interlaminar Shear	
CNBQA197t	A	C1	1	t	11.661	0.253	17	0.0149	Interlaminar Shear	

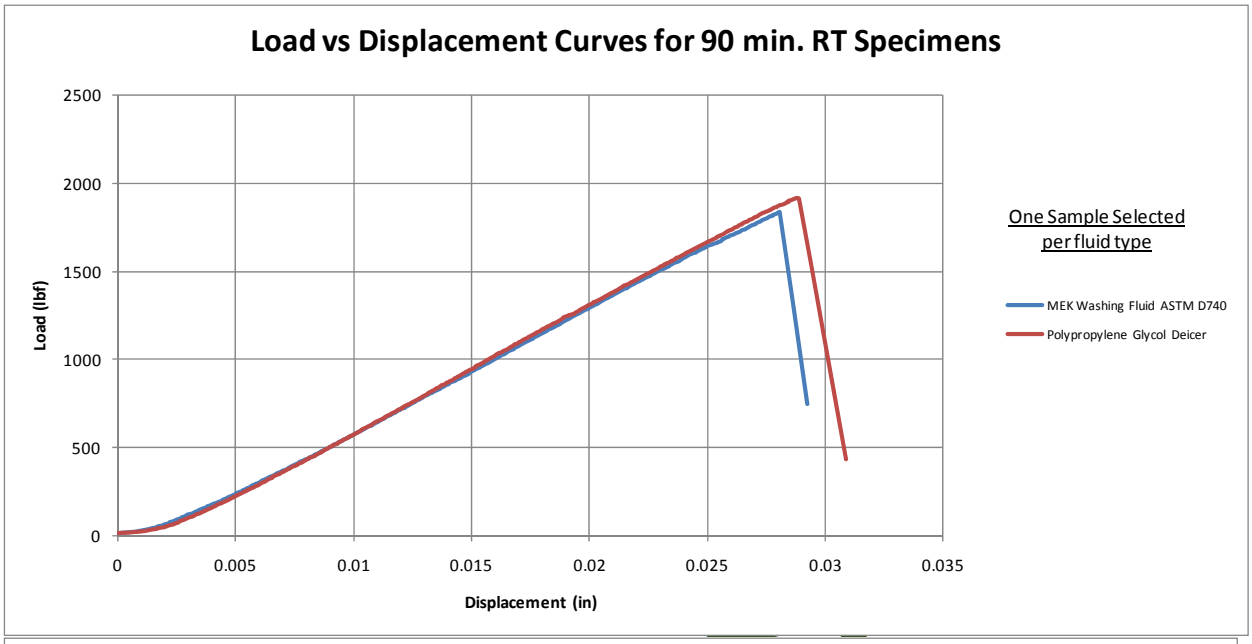
Fluid Sensitivity Screening
Short Beam Strength Properties (SBS) -- (350F) Strength
Cytec 5250-5 5 Harness

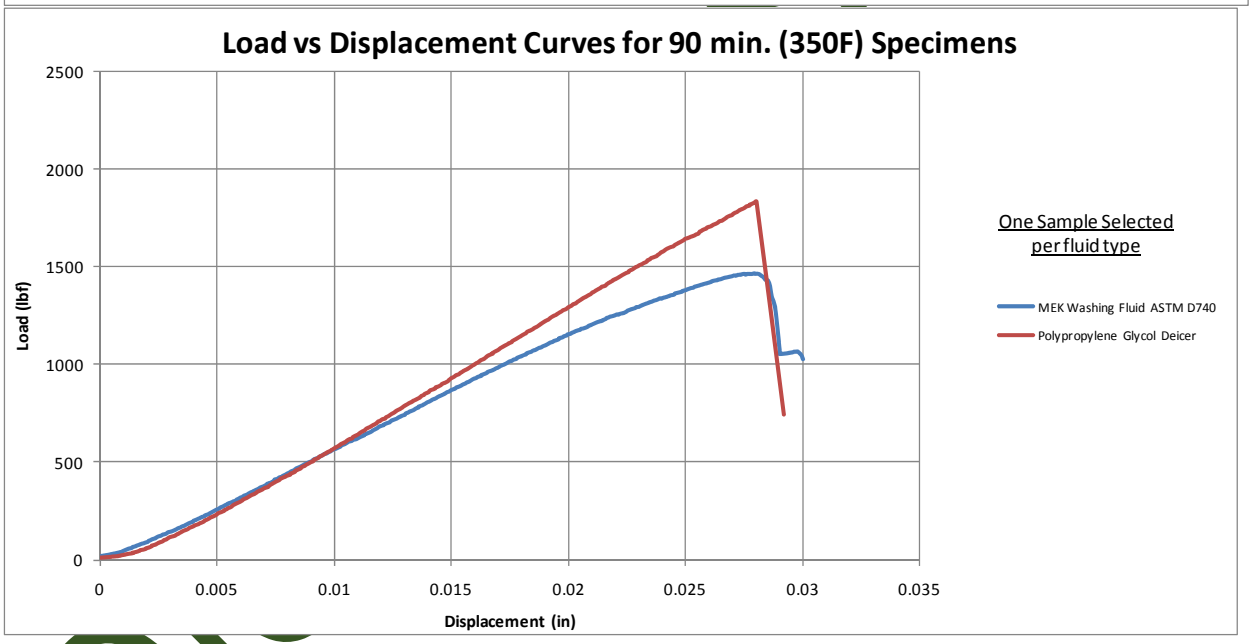
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Fluid	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]	Failure Mode	Average
CNBQA1291	A	C1	1	1	7.991	0.255	17	0.0150	Interlaminar Shear	
CNBQA12A1	A	C1	1	1	7.966	0.246	17	0.0145	Interlaminar Shear	
CNBQA12B1	A	C1	1	1	7.765	0.258	17	0.0152	Interlaminar Shear	7.948
CNBQA12C1	A	C1	1	1	7.680	0.253	17	0.0149	Interlaminar Shear	
CNBQA12D1	A	C1	1	1	8.344	0.249	17	0.0146	Interlaminar Shear	
CNBQA12E1	A	C1	1	1	7.945	0.253	17	0.0149	Interlaminar Shear	
CNBQA12M2	A	C1	1	2	7.894	0.245	17	0.0144	Interlaminar Shear	
CNBQA12N2	A	C1	1	2	7.994	0.255	17	0.0150	Interlaminar Shear	
CNBQA12O2	A	C1	1	2	8.022	0.253	17	0.0149	Interlaminar Shear	7.944
CNBQA12Q2	A	C1	1	2	7.917	0.252	17	0.0148	Interlaminar Shear	
CNBQA12R2	A	C1	1	2	7.837	0.246	17	0.0145	Interlaminar Shear	
CNBQA12S2	A	C1	1	2	7.998	0.252	17	0.0148	Interlaminar Shear	
CNBQA1383	A	C1	1	3	7.724	0.259	17	0.0153	Interlaminar Shear	
CNBQA1393	A	C1	1	3	7.855	0.249	17	0.0146	Interlaminar Shear	
CNBQA13A3	A	C1	1	3	7.965	0.253	17	0.0149	Interlaminar Shear	7.824
CNBQA13B3	A	C1	1	3	7.755	0.259	17	0.0153	Interlaminar Shear	
CNBQA13C3	A	C1	1	3	7.782	0.259	17	0.0153	Interlaminar Shear	
CNBQA13D3	A	C1	1	3	7.865	0.257	17	0.0151	Interlaminar Shear	
CNBQA13M4	A	C1	1	4	7.862	0.255	17	0.0150	Interlaminar Shear	
CNBQA13N4	A	C1	1	4	7.864	0.253	17	0.0149	Interlaminar Shear	
CNBQA13O4	A	C1	1	4	7.820	0.254	17	0.0150	Interlaminar Shear	7.827
CNBQA13P4	A	C1	1	4	7.701	0.256	17	0.0150	Interlaminar Shear	
CNBQA13Q4	A	C1	1	4	7.855	0.251	17	0.0148	Interlaminar Shear	
CNBQA13R4	A	C1	1	4	7.858	0.256	17	0.0151	Interlaminar Shear	
CNBQA1485	A	C1	1	5	7.431	0.256	17	0.0150	Interlaminar Shear	
CNBQA1495	A	C1	1	5	7.624	0.257	17	0.0151	Interlaminar Shear	
CNBQA14A5	A	C1	1	5	7.683	0.259	17	0.0152	Interlaminar Shear	7.687
CNBQA14B5	A	C1	1	5	7.873	0.254	17	0.0149	Interlaminar Shear	
CNBQA14C5	A	C1	1	5	7.748	0.251	17	0.0147	Interlaminar Shear	
CNBQA14D5	A	C1	1	5	7.764	0.251	17	0.0148	Interlaminar Shear	
CNBQA14M6	A	C1	1	6	8.069	0.260	17	0.0153	Interlaminar Shear	
CNBQA14N6	A	C1	1	6	8.407	0.256	17	0.0150	Interlaminar Shear	8.266
CNBQA14O6	A	C1	1	6	8.270	0.250	17	0.0147	Interlaminar Shear	
CNBQA14P6	A	C1	1	6	8.364	0.254	17	0.0150	Interlaminar Shear	
CNBQA14Q6	A	C1	1	6	8.389	0.251	17	0.0147	Interlaminar Shear	
CNBQA14R6	A	C1	1	6	8.099	0.245	17	0.0144	Interlaminar Shear	
CNBQA1587	A	C1	1	7	5.761	0.256	17	0.0151	Interlaminar Shear	
CNBQA1597	A	C1	1	7	5.488	0.258	17	0.0152	Interlaminar Shear	5.372
CNBQA15A7	A	C1	1	7	5.380	0.257	17	0.0151	Interlaminar Shear	
CNBQA15C7	A	C1	1	7	5.342	0.256	17	0.0151	Interlaminar Shear	
CNBQA15D7	A	C1	1	7	4.995	0.257	17	0.0151	Interlaminar Shear	
CNBQA15E7	A	C1	1	7	5.266	0.253	17	0.0149	Interlaminar Shear	

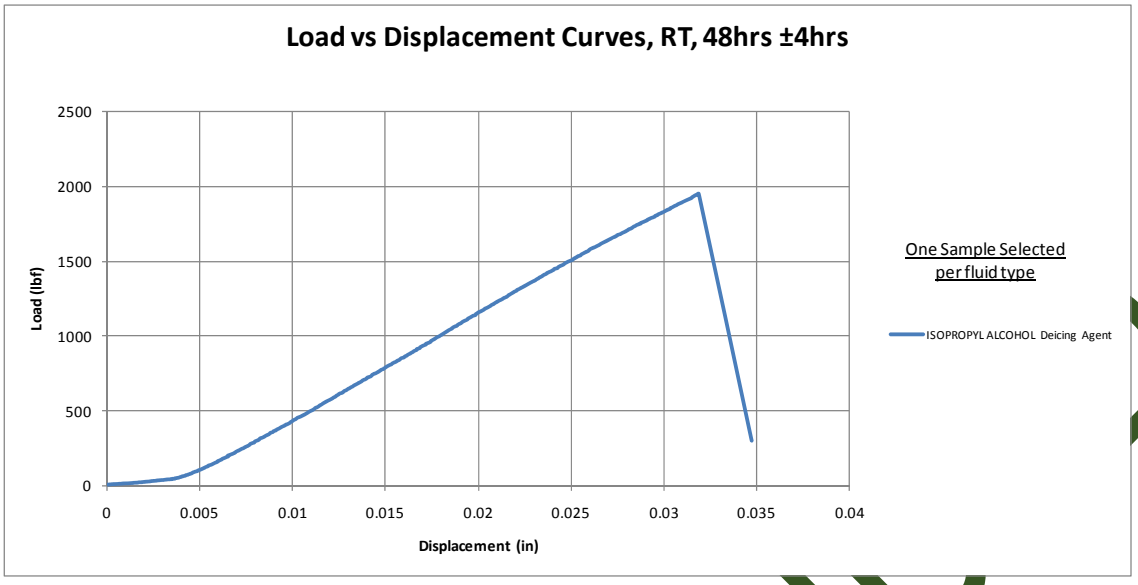
CNBQA15M8	A	C1	1	8	8.043	0.248	17	0.0146	Interlaminar Shear	
CNBQA15N8	A	C1	1	8	8.320	0.254	17	0.0149	Interlaminar Shear	
CNBQA15O8	A	C1	1	8	8.235	0.257	17	0.0151	Interlaminar Shear	8.266
CNBQA15P8	A	C1	1	8	8.261	0.254	17	0.0149	Interlaminar Shear	
CNBQA15Q8	A	C1	1	8	8.316	0.259	17	0.0152	Interlaminar Shear	
CNBQA15R8	A	C1	1	8	8.245	0.260	17	0.0153	Interlaminar Shear	
CNBQA15S8	A	C1	1	8	8.218	0.257	17	0.0151	Interlaminar Shear	
CNBQA1689	A	C1	1	9	5.296	0.255	17	0.0150	Interlaminar Shear	
CNBQA1699	A	C1	1	9	5.029	0.251	17	0.0148	Interlaminar Shear	5.055
CNBQA16A9	A	C1	1	9	4.844	0.258	17	0.0152	Interlaminar Shear	
CNBQA16B9	A	C1	1	9	4.987	0.252	17	0.0149	Interlaminar Shear	
CNBQA16C9	A	C1	1	9	5.079	0.250	17	0.0147	Interlaminar Shear	
CNBQA16D9	A	C1	1	9	5.098	0.258	17	0.0152	Interlaminar Shear	
CNBQA16Mm	A	C1	1	m	8.745	0.252	17	0.0148	Interlaminar Shear	
CNBQA16Pm	A	C1	1	m	8.640	0.253	17	0.0149	Interlaminar Shear	8.631
CNBQA16Qm	A	C1	1	m	8.567	0.255	17	0.0150	Interlaminar Shear	
CNBQA16Rm	A	C1	1	m	8.672	0.256	17	0.0151	Interlaminar Shear	
CNBQA16Sm	A	C1	1	m	8.478	0.256	17	0.0150	Interlaminar Shear	
CNBQA16Tm	A	C1	1	m	8.683	0.253	17	0.0149	Interlaminar Shear	
CNBQA179n	A	C1	1	n	8.568	0.256	17	0.0151	Interlaminar Shear	
CNBQA17An	A	C1	1	n	8.963	0.241	17	0.0142	Interlaminar Shear	8.668
CNBQA17Bn	A	C1	1	n	8.686	0.259	17	0.0153	Interlaminar Shear	
CNBQA17Cn	A	C1	1	n	8.586	0.260	17	0.0153	Interlaminar Shear	
CNBQA17Dn	A	C1	1	n	8.540	0.247	17	0.0145	Interlaminar Shear	
CNBQA17En	A	C1	1	n	8.662	0.239	17	0.0140	Interlaminar Shear	
CNBQA17Mp	A	C1	1	p	8.468	0.249	17	0.0146	Interlaminar Shear	
CNBQA17Np	A	C1	1	p	8.341	0.249	17	0.0147	Interlaminar Shear	8.465
CNBQA17Pp	A	C1	1	p	8.521	0.247	17	0.0145	Interlaminar Shear	
CNBQA17Qp	A	C1	1	p	8.598	0.245	17	0.0144	Interlaminar Shear	
CNBQA17Rp	A	C1	1	p	8.255	0.248	17	0.0146	Interlaminar Shear	
CNBQA17Sp	A	C1	1	p	8.606	0.243	17	0.0143	Interlaminar Shear	
CNBQA189s	A	C1	1	s	5.281	0.257	17	0.0151	Interlaminar Shear	
CNBQA18As	A	C1	1	s	5.387	0.257	17	0.0151	Interlaminar Shear	5.389
CNBQA18Bs	A	C1	1	s	5.674	0.249	17	0.0147	Interlaminar Shear	
CNBQA18Cs	A	C1	1	s	5.364	0.257	17	0.0151	Interlaminar Shear	
CNBQA18Ds	A	C1	1	s	5.226	0.257	17	0.0151	Interlaminar Shear	
CNBQA18Es	A	C1	1	s	5.403	0.251	17	0.0148	Interlaminar Shear	
CNBQA18MK	A	C1	1	K	8.734	0.259	17	0.0153	Interlaminar Shear	
CNBQA18NK	A	C1	1	K	8.545	0.259	17	0.0152	Interlaminar Shear	8.557
CNBQA18OK	A	C1	1	K	8.471	0.255	17	0.0150	Interlaminar Shear	
CNBQA18PK	A	C1	1	K	8.531	0.256	17	0.0150	Interlaminar Shear	
CNBQA18QK	A	C1	1	K	8.479	0.254	17	0.0150	Interlaminar Shear	
CNBQA18RK	A	C1	1	K	8.582	0.258	17	0.0152	Interlaminar Shear	
CNBQA198J	A	C1	1	J	4.518	0.256	17	0.0150	Interlaminar Shear	
CNBQA199J	A	C1	1	J	4.642	0.254	17	0.0149	Interlaminar Shear	4.482
CNBQA19AJ	A	C1	1	J	4.492	0.255	17	0.0150	Interlaminar Shear	
CNBQA19BJ	A	C1	1	J	4.360	0.252	17	0.0148	Interlaminar Shear	
CNBQA19CJ	A	C1	1	J	4.536	0.254	17	0.0150	Interlaminar Shear	
CNBQA19DJ	A	C1	1	J	4.344	0.251	17	0.0148	Interlaminar Shear	

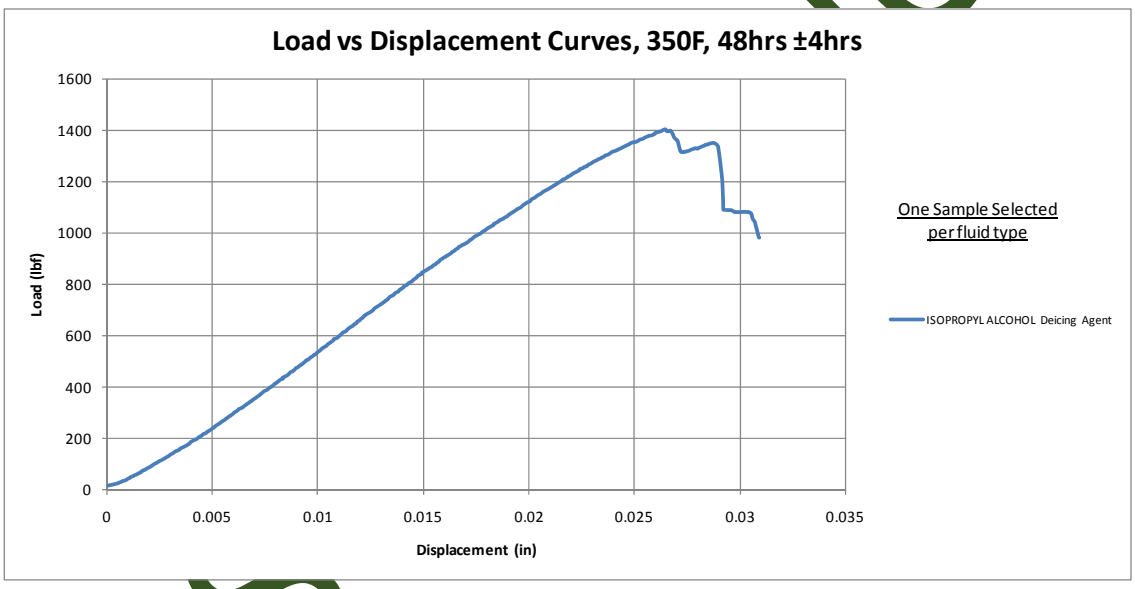

Load vs Displacement Curves for 90 Day RT Specimens
Load (lbf)
Displacement (in)
0
500
1000
1500
2000
2500
0
0.01
0.02
0.03
0.04
0.05
0.06
One Sample Selected per fluid type
100 Low level AV Fuel
Jet A Fuel
MIL 5606 hyrdaulic
DRY
MIL 83282 hyrdaulic
MIL 7808 Engine Oil
MIL 23699 Engine Oil
Salt Water
SKYDROL LD-4
50% Water, 50% SKYDROL LD-4
Distilled Water

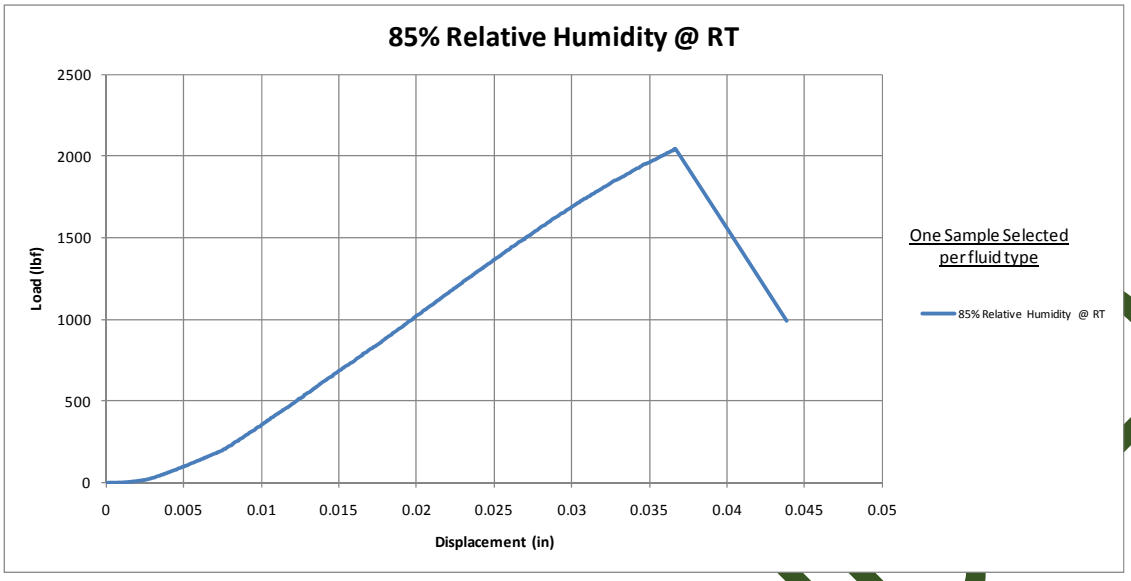

Load vs Displacement Curves for 90 Day (350F) Specimens
Load (lbf)
Displacement (in)
0
500
1000
1500
2000
2500
0
0.01
0.02
0.03
0.04
0.05
0.06
One Sample Selected per fluid type
100 Low level AV Fuel
Jet A Fuel
MIL 5606 hyrdaulic
DRY
MIL 83282 Hydraulic
MIL 7808 Engine Oil
MIL 23699 Engine Oil
Salt Water
SKYDROL LD-4
50% Water, 50% SKYDROL LD-4
Distilled Water

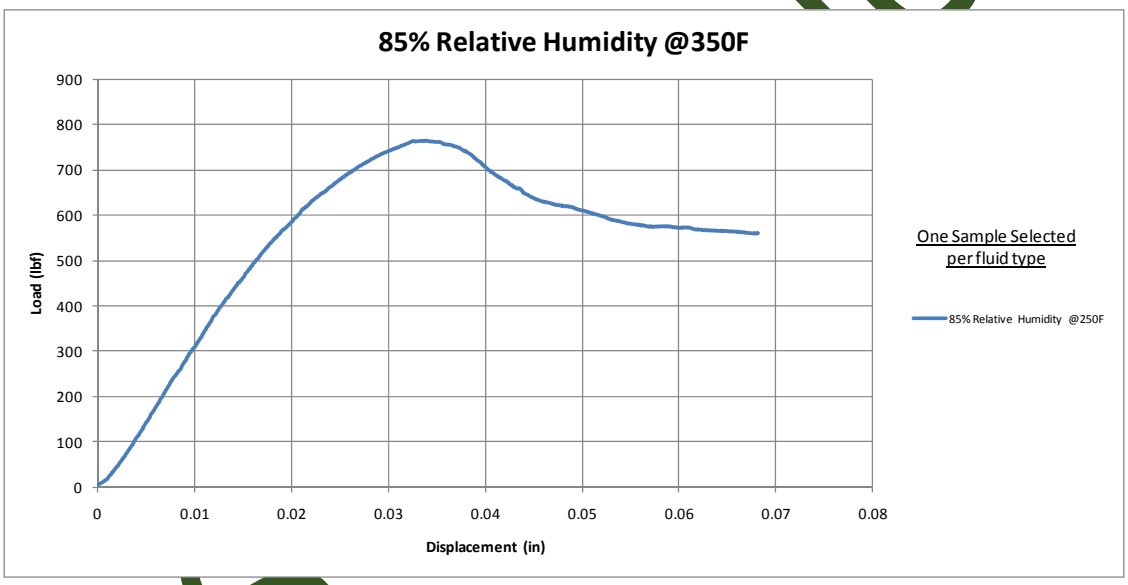

Load vs Displacement Curves for 90 min. RT Specimens
Load (lbf)
2500
2000
1500
1000
500
0
0
0.005
0.01
0.015
0.02
0.025
0.03
0.035
Displacement (in)
One Sample Selected per fluid type
MEK Washing Fluid ASTM D740
Polypropylene Glycol Deicer


Load vs Displacement Curves for 90 min. (350F) Specimens
Load (lbf)
2500
2000
1500
1000
500
0
0
0.005
0.01
0.015
0.02
0.025
0.03
0.035
Displacement (in)
One Sample Selected per fluid type
MEK Washing Fluid ASTM D740
Polypropylene Glycol Deicer


Load vs Displacement Curves, RT, 48hrs ±4hrs
Load (lbf)
2500
2000
1500
1000
500
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 Agent

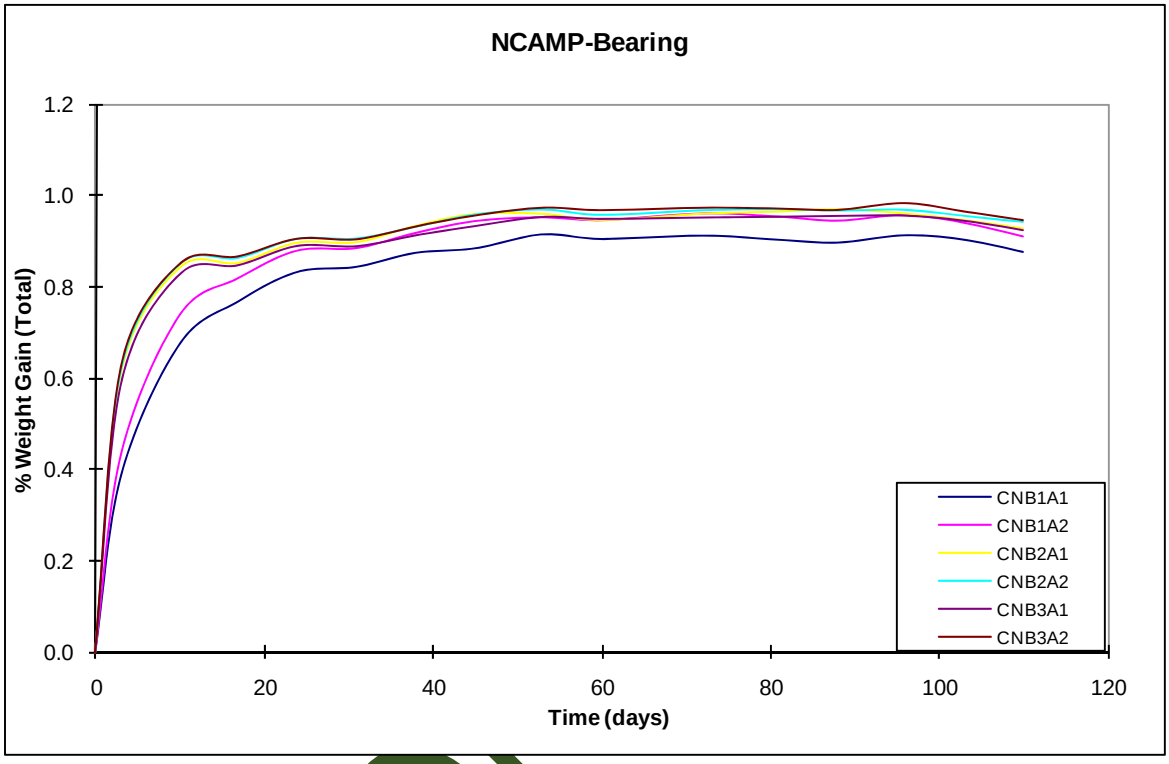

Load vs Displacement Curves, 350F, 48hrs ±4hrs
Load (lbf)
1600
1400
1200
1000
800
600
400
200
0
0
0.005
0.01
0.015
0.02
0.025
0.03
0.035
Displacement (in)
One Sample Selected per fluid type
ISOPROPYL ALCOHOL Deicing Agent


85% Relative Humidity @ RT
Load (lbf)
2500
2000
1500
1000
500
0
0
0.005
0.01
0.015
0.02
0.025
0.03
0.035
0.04
0.045
0.05
Displacement (in)
One Sample Selected per fluid type
85% Relative Humidity @ RT

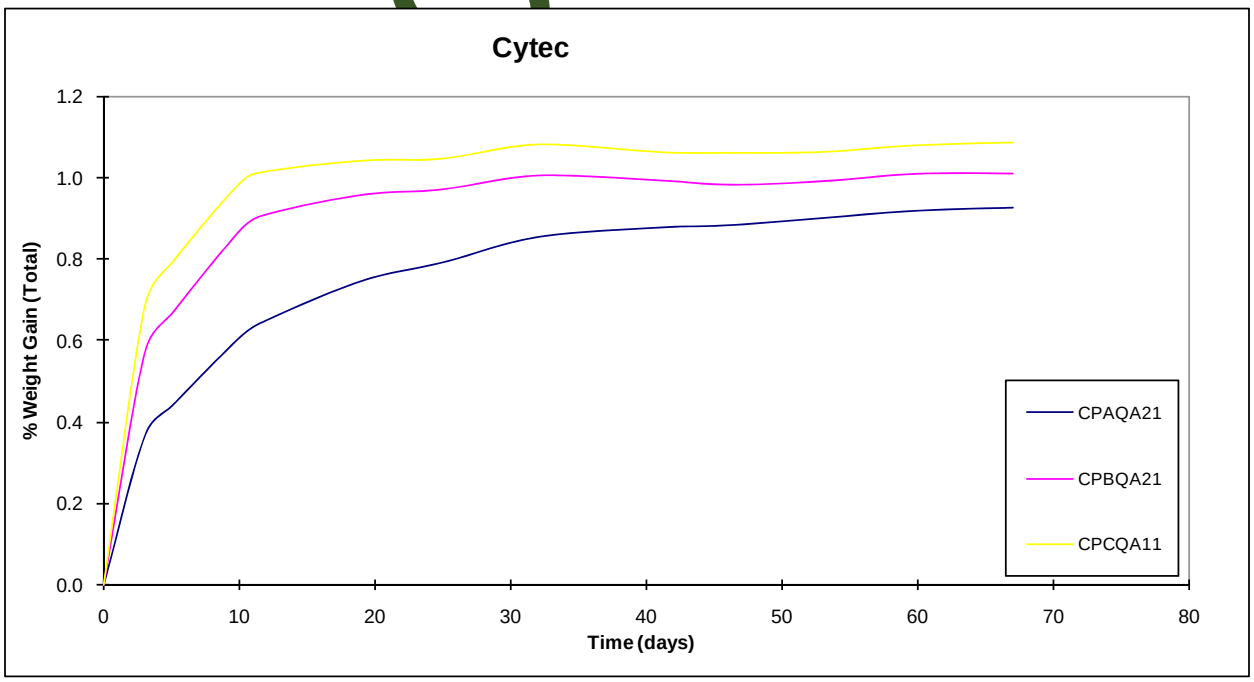

85% Relative Humidity @350F
Load (lbf)
900
800
700
600
500
400
300
200
100
0
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
Displacement (in)
One Sample Selected per fluid type
85% Relative Humidity @250F

7. Moisture Conditioning Charts

7.1 Single-Shear Bearing - Thinnest Panel



7.2 Short-Beam Strength - Thickest Panel



For “wet” mechanical test specimens, the drying procedures may not have completely dried the specimens prior to moisture conditioning, so the total amount of moisture absorbed by the specimens may be higher than those recorded in the moisture gain charts.
The rest of the curves can be found on the CD that accompanies this report.

8. DMA Results

There are two sets of dry DMA data; one set was dried according to the test plan and the other set was “thoroughly dried” at 250F until equilibrium weight loss was achieved. Equilibrium weight loss is met when the difference between two consecutive readings taken seven days apart is less than 0.02%. The drying procedure in the test plan is less rigorous than the “thoroughly dried” procedure. The more rigorous procedure was not included in the test plan because the test plan authors/reviewers expected the test panels to be tested within couple of months from their date of panel fabrication. Due to unexpected delays in the program, the test panels were kept in laboratory environment for approximately 7 months and hence absorbed more moisture than anticipated (panel fabricated- 3/08; mechanical specimens tested - 10/08; DMA specimens tested – 12/10). DMA samples were tested 24 months after initial mechanical testing.

All the “dry” mechanical test specimens were dried in accordance with the drying procedures in the test plan. Since moisture is less detrimental to composite materials properties at room temperature than at elevated temperature, the “thoroughly dried” specimens are expected to have only slightly higher mechanical properties. For comparison purposes, some DMA specimens were dried using both drying methods; however, the sample set dried by means of weight loss monitoring was done with a substantially smaller sample size. Comparing Onset Storage Modulus data, samples dried according to test plan procedures yielded an average dry Tg of ~467F for Qualification samples. Samples that were dried out thoroughly by means of weight loss measurement yielded an average dry Tg of ~ 523F.

DMA Results Summary

Cytec 5250-5 5Harness CXBDX XX DRY

Sample #	Onset Storage Modulus Average		Peak of Tangent Delta Average	
	Tg [°C]	Tg [°F]	Tg [°C]	Tg [°F]
CNBLA 11	241.46	466.63	272.31	522.16
CNBLA 21	238.60	461.48	271.48	520.67
CNBLB 11	248.33	478.99	278.53	533.35
CNBLB 21	243.33	469.99	273.51	524.31
CNBLC 11	234.15	453.46	265.36	509.65
CNBLC 21	243.75	470.75	276.63	529.94
AVERAGE		**466.88**		

DMA Results Summary

Cytec C22 5250-5 5HS CNBLX XX BONE DRY

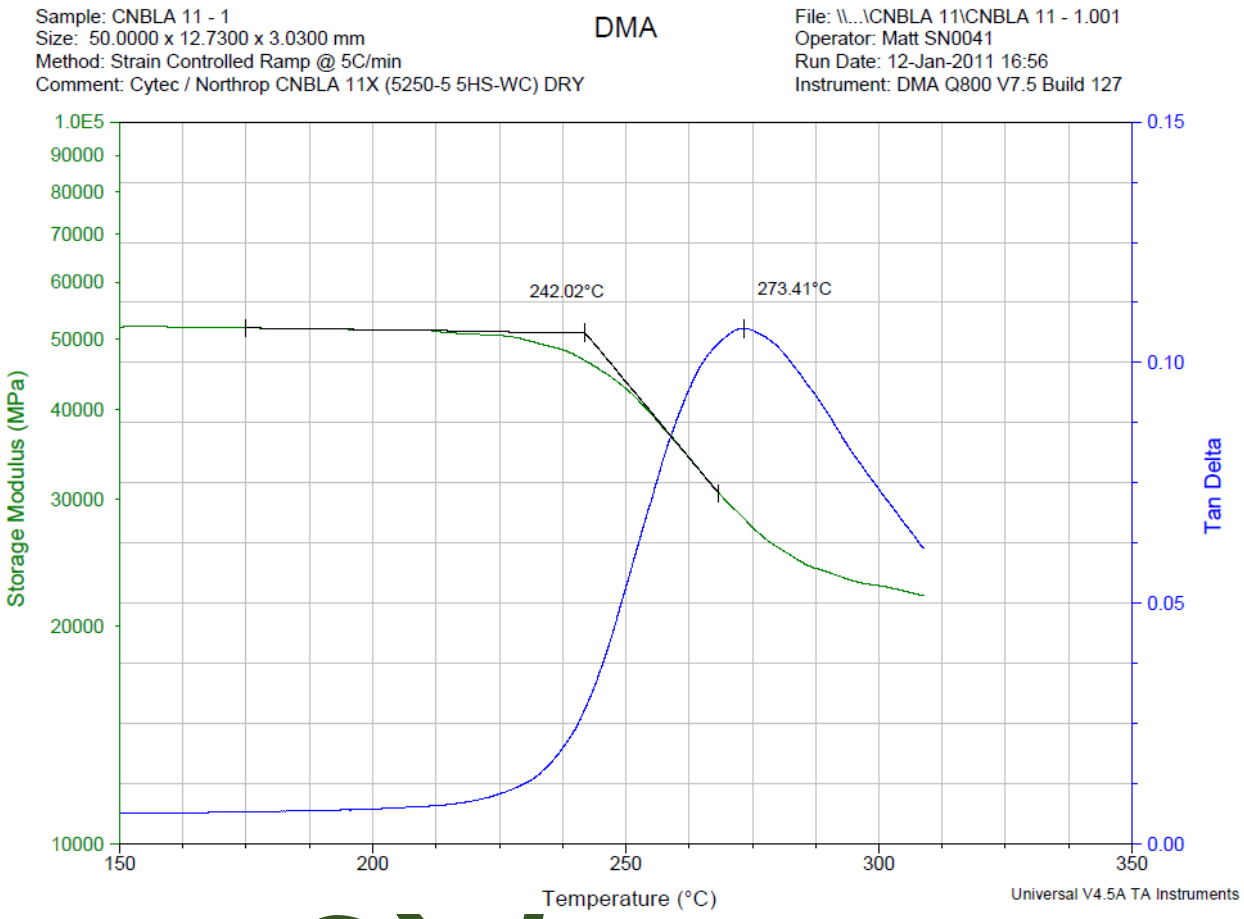
Sample #	Onset Storage Modulus Average		Peak of Tangent Delta Average	
	Tg [°C]	Tg [°F]	Tg [°C]	Tg [°F]
CNBLA 11	272.16	521.89	294.95	562.91
CNBLA 21	268.29	514.91	291.14	556.05
CNBLB 11	277.56	531.60	299.20	570.56
CNBLB 21	272.92	523.25	295.39	563.69
CNBLC 11	268.90	516.02	289.35	552.82
CNBLC 21	276.30	529.34	297.88	568.18
AVERAGE:		**522.83**		

DMA Results Summary

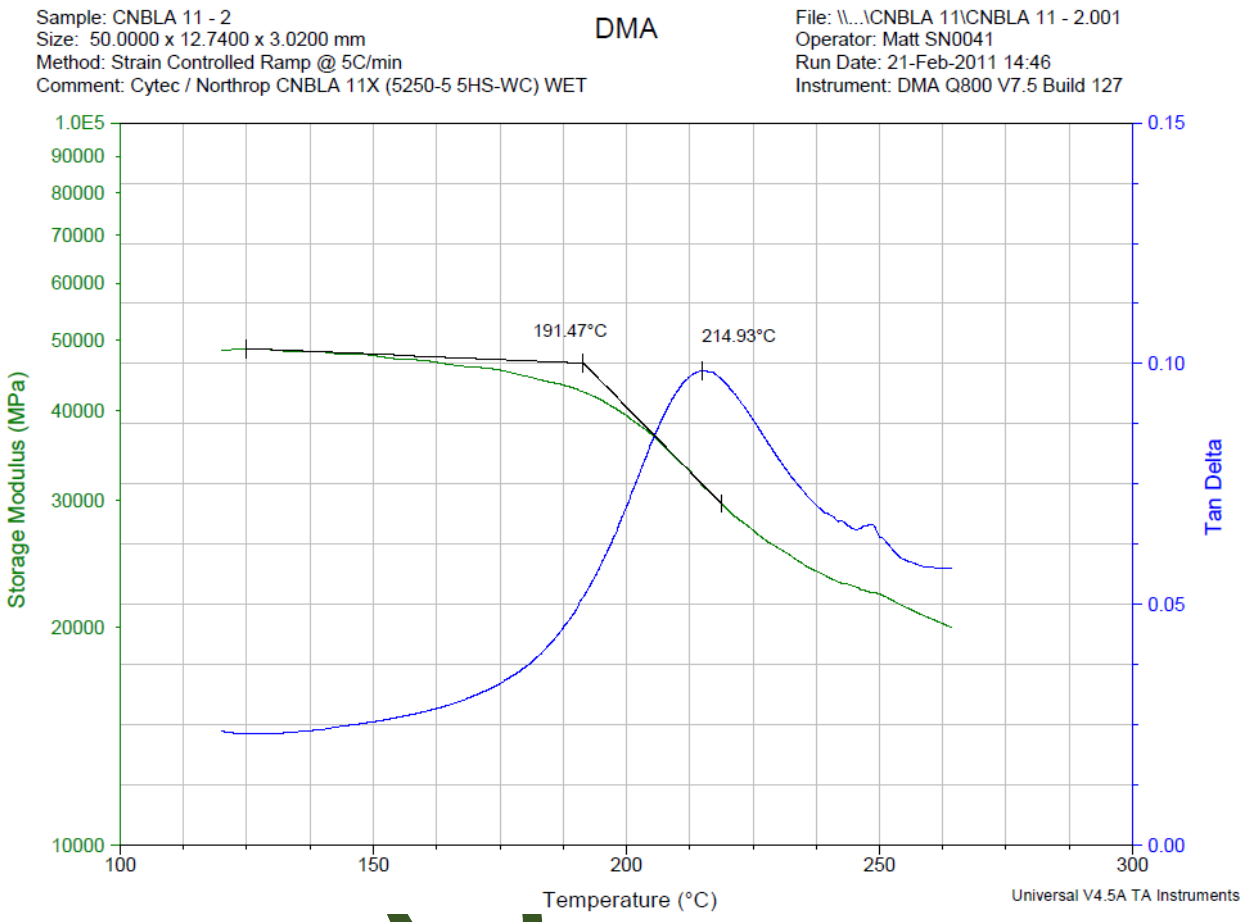
Cytec 5250-5 5Harness CXBDX XX WET

Sample #	Onset Storage Modulus Average		Peak of Tangent Delta Average	
	Tg [°C]	Tg [°F]	Tg [°C]	Tg [°F]
CNBLA 11	192.57	378.63	216.12	421.02
CNBLA 21	191.92	377.46	215.85	420.52
CNBLB 11	196.37	385.47	220.98	429.76
CNBLB 21	190.82	375.47	218.62	425.52
CNBLC 11	188.86	371.95	213.24	415.83
CNBLC 21	194.06	381.30	219.56	427.21
AVERAGE		**378.38**		

8.1 DMA Dry Batch A



8.2 DMA Wet Batch A



9. Physical Test Results

The physical test results are provided in the CD accompanying this report.

10. Deviations

1. For fluid sensitivity testing Jet Reference fluid called out in the NCAMP test plan is a rare fuel and therefore extremely expensive. As a replacement, we used Jet Fuel A per ASTM D1655. AMS2629 is a jet reference fuel intended to simulate jet engine fuel only. This was approved by all participating panel fabricators.
2. SBS1 samplings were taken from OHC1 panel instead of CAI1 panel to fulfill batch requirements.
3. Improper failure modes (failures outside of the hole) were achieved on the Filled Hole Compression 3 (RTD) specimens. With the permission of the FAA DER, David Ostrodka, one specimen was then torqued to 3 in-lbs. over the running torque, but this method also produced improper failure modes. In turn, the lab tested another specimen with only the bolt sitting in the hole with no nut and although a proper failure mode was achieved, the DER was not comfortable with this procedure and all tests were stopped and the data was not recorded.
4. The prepreg resin content as stated in the original material specification and test plan used in the qualification test program was 35%. However, the actual prepreg received and used in the qualification test program had 36% average resin content. In order to reflect the actual material used, the prepreg resin content has been revised from 35% to 36%. The material specification and all test reports have been revised to state 36% resin content.