



Victrex AE™250 LM PAEK with Hexcel AS4 12k Unitape 34% RC Qualification Material Property Data Report

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1. Introduction

1.1 Scope

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

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

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

This report contains material property data only. Statistical analysis of the data including the calculations of b-basis values is given in a separate report, VICTREX AE™250 LM PAEK with Hexcel AS4 12k Unitape 34% RC Material Allowables Statistical Analysis Report NCP-RP-2021-015 N/C . The qualification material was procured to NCAMP Material Specification NMS 125/1 Rev A dated February 25, 2021. The qualification test panels were consolidated in accordance with NCAMP Process Specification NPS 81250 Rev - dated October 07, 2020 with Baseline “C” Consolidation Cycle. The NCAMP Test Plan NTP 1250Q1 Rev A was used for this qualification program.

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

program.

Aircraft companies should not use the data published in this report without specifying NCAMP Material Specification NMS 125/1. NMS 125/1 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 125/1.* NMS 125/1 is a free, publicly available, non-proprietary aerospace industry material specification.

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

1.2 Symbols Used

ν_{12}^t	major Poisson's ratio, tension
$\mu\epsilon$	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}^{su}	in-plane shear ultimate peak strength
F_{12}^{smax}	in-plane shear peak strength before 5% strain
$F_{12}^{s5\% \text{ strain}}$	in-plane shear strength at 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	consolidated 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 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 D790-17 – Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- ASTM D2344/D2344M-00(2006) – Standard Test Method for Short-Beam Strength of Polymer Matrix Composite Materials and Their Laminates
- ASTM D3039/D3039M-08 – Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials
- ASTM D3418-15 – Standard Test Method for Transition Temperatures and Enthalpies of Fusion and Crystallization of Polymers by Differential Scanning Calorimetry
- ASTM D3846-08 (2015) – Standard Test Method for In-Plane Shear Strength of Reinforced Plastics
- ASTM D3518/D3518M-94(2007) – Standard Test Method for In-Plane Shear Response of Polymer Matrix Composite Materials by Tensile Test of a $\pm 45^\circ$ Laminate In-Plane Shear Strength and Modulus
- ASTM D5766/D5766M-11 – Standard Test Method for Open Hole Tensile Strength of Polymer Matrix Composite Laminates
- ASTM D5961/D5961M-10 – Standard Test Method for Bearing Response of Polymer Matrix Composite Laminates
- ASTM D6415-06ae1 – Standard Test Method for Measuring the Curved Beam Strength of a Fiber-Reinforced Polymer-Matrix Composite
- ASTM D6484/D6484M-09 – Standard Test Method for Open-Hole Compressive Strength of Polymer Matrix Composite Laminates
- ASTM D6641/D6641M-09 – Standard Test Method for Determining the Compressive Properties of Polymer Matrix Composite Laminates Using a Combined Loading Compression (CLC) Test Fixture
- ASTM D6742/D6742M-07 – Standard Practice for Filled-Hole Tension and Compression Testing of Polymer Matrix Composite Laminates
- ASTM D7028-07e1 – Standard Test Method for Glass Transition Temperature (DMA Tg) of Polymer Matrix Composites by Dynamic Mechanical Analysis (DMA)
- ASTM D7078/7078M-12 – Standard Test Method for Shear Properties of Composite Materials by V-Notched Rail Shear Method

- ASTM D7136/D7136M-07 – Standard Test Method for Measuring the Damage Resistance of a Fiber-Reinforced Polymer Matrix Composite to a Drop-Weight Impact Event
- ASTM D7137/D7137M-07 – Standard Test Method for Compressive Residual Strength Properties of Damaged Polymer Matrix Composite Plates

1.4 Methodology

1.4.1 Process Definition

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

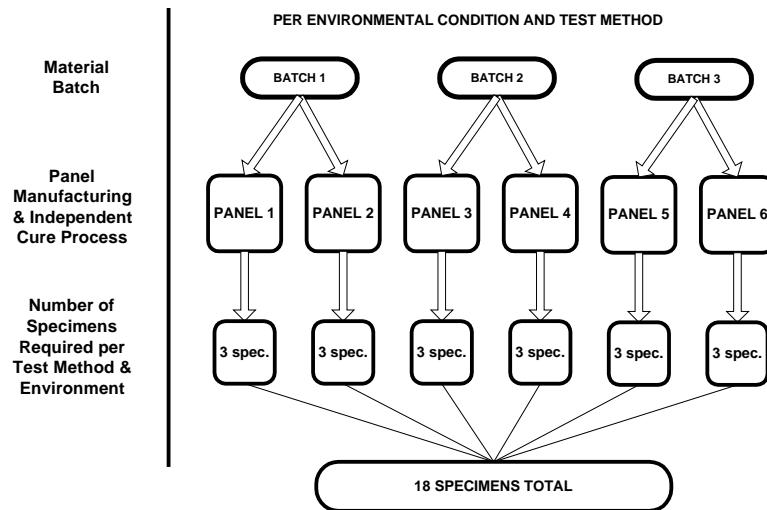


Figure 1-1: Specimen Selection Methodology

All panels were fabricated in accordance with NCAMP Process Specification 81250 base Consolidation 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 1-2.

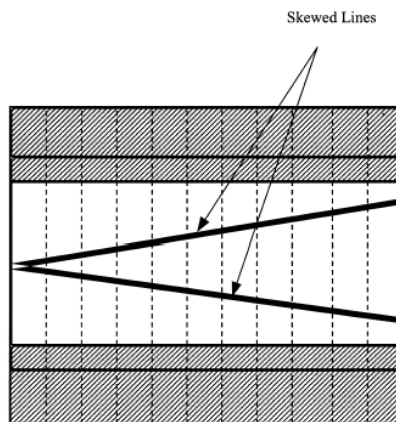


Figure 1-2: Specimen Traceability Line

1.4.2 Specimen & Testing Details

1.4.2.1 Tabbing

Longitudinal tension specimens were tabbed with Solvay FM300-2 for ambient condition testing and Scotch Weld AF163-2k for wet conditioned testing. Beveled tabstock made from the same test material was used.

For the retest of the LT panels, the adhesive mentioned was used with unbeveled tabstock of +/- 45 layup. Only data for the retested LT is presented in this report. Details for the deviation/retest can be found in Section 10 a.

1.4.2.2 Specimen Dimensions & Test Configuration

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 $\pm 5^\circ\text{F}$ 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 21297-04004 bolts with NASM 21084 nuts and MS21206 washers for FHT and FHC
- 2) NASM 21297-04016 bolts with MS 21084 nuts and MS21206 washers for SSB

1.4.2.3 Specimen Strain Device Used

Uniaxial gages were used on:

All of CTD Tension specimens except Longitudinal Tension specimens.

Two of RTD Tension specimens except Longitudinal Tension for obtaining full stress strain curves.

All conditions of combined loading compression specimens except Longitudinal Compression.

Two of RTD Open Hole Compression specimens for detecting buckling.

One of CAI specimen for balancing.

Biaxial gages were used on:

All conditions of IPS, V-Notch Rail Shear, and Longitudinal Compression specimens.

All of CTD Longitudinal Tension specimens.

Two of RTD Longitudinal Tension specimens for obtaining full stress strain curves.

Uniaxial Extensometers were used on:

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

Biaxial Extensometers were used on:

All of RTD and ETW Longitudinal Tension specimens.

Deflectometers were used for Flex testing and **Clip Gages** for Bearing testing.

1.4.3 Test Matrix

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

Layup	Test Type and Direction	Property	Number of Batches x Number of Panels x Number of Test Specimens			
			Test Temperature/Moisture Condition			
			CTA	RTA	ETA	ETW
[0] ₈	ASTM D3039 0° Tension	Strength, Poisson's Ratio, and Modulus	3x2x3	3x2x3 (3)	1x2x3	3x2x3 (3)
[0] ₂₀	ASTM D6641 0° Compression (4,5)	Poisson's Ratio and Modulus	3x2x3	3x2x3 (1,3)	1x2x3	3x2x3 (3)
[90°] ₂₀	ASTM D6641 90° Compression	Strength and Modulus	3x2x3	3x2x3 (1)	1x2x3	3x2x3
[90/0] _{4s}	ASTM D6641 0° Compression (5)	Strength and Modulus	3x2x3	3x2x3 (1,3)	1x2x3	3x2x3
[+45/-45°] _{4s}	ASTM D3518 In-Plane Shear (2)	Strength and Modulus	3x2x3	3x2x3 (3)	1x2x3	3x2x3
[0/90] _{6s}	ASTM D7078 V-Notched Rail Shear	Strength and Modulus	3x2x3	3x2x3	1x2x3	3x2x3
[0] ₂₂	ASTM D790 Proc. A Flex	Strength	3x2x3	3x2x3	1x2x3	3x2x3
[90] ₂₂	ASTM D790 Proc. A Flex (6)	Strength		3x2x3		
[0] ₃₄	ASTM D3846 In-Plane Shear – Double Notch Shear (7)	Strength	3x2x3	3x2x3	1x2x3	3x2x3

Table 1-1: Lamina Level Test Matrix

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

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

Note 3: At least two specimens must be gaged to obtain full stress-strain curve to failure. An appropriate extensometer may be used in place of the strain gage for the remaining specimens.

Note 4: Strength is not required. Test may be stopped after reaching 5000 µε .

Note 5: Derive the 0 compression strength $F_{0^\circ \text{ plies}}^{cu}$ as follows:

$$F_{0^\circ \text{ plies}}^{cu} = F_{0^\circ/90^\circ}^{cu} \frac{E_1}{E_{0^\circ/90^\circ}}$$

Where:

$$F_{0^\circ \text{ plies}}^{cu} = 0^\circ \text{ ply strength,}$$

$$F_{0^\circ/90^\circ}^{cu} = 0^\circ/90^\circ \text{ or } 90^\circ/0^\circ \text{ cross-ply laminate strength,}$$

$E_1 = 0^\circ$ modulus,

and $E_{0^\circ/90^\circ} = 0^\circ/90^\circ$ or $90^\circ/0^\circ$ cross-ply laminate modulus.

Note 6: Specimens may be taken from [0]22 ASTM D790 Flex panels.

Note 7: Round notch configuration, radius target of the notch is 0.03”.



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

In the case of the fabric materials, certain laminates, such as the quasi isotropic layup, have an unequal number of $+45^\circ$ and -45° plies. While such lay-ups are mid-plane symmetric, there exists the possibility of differences in warp and fill modulus values leading to a slight deviation from perfect balanced – i.e. the A_{16} and A_{26} terms in the in plane stiffness matrix are nonzero. Again, the effect on in plane stiffness and strength properties is expected to be minimal and if anything will yield slightly conservative results.

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.

(%0°/%±45°/%90°) Actual Test Type	Test Type and Layout (5)	Property	Number of Batches x Number of Panels x Number of Test Specimens			
			Test Temperature/Moisture Condition			
			CTA	RTA	ETA	ETW
(25/50/25 - QI) UNT1	ASTM D3039 Un-notched Tension [45/0/-45/90]2S	Strength & modulus	3x2x3	3x2x3 (6)	1x2x3	3x2x3 (6)
(10/80/10) UNT2	ASTM D3039 Un-notched Tension [45/-45/0/45/-45/90/45/-45/45/-45]S	Strength & modulus	3x2x3	3x2x3 (6)		3x2x3 (6)
(50/40/10) UNT3	ASTM D3039 Un-notched Tension [0/45/0/90/0/-45/0/45/0/-45]S	Strength & modulus	3x2x3	3x2x3 (6)		3x2x3 (6)
(25/50/25 - QI) UNC1	ASTM D6641 Un-notched Compression [45/0/-45/90]3S	Strength & modulus		3x2x3 (4,6)	1x2x3	3x2x3
(10/80/10) UNC2	ASTM D6641 Un-notched Compression [45/-45/0/45/-45/90/45/-45/45/-45]S	Strength & modulus		3x2x3 (4,6)		3x2x3
(50/40/10) UNC3	ASTM D6641 Un-notched Compression [0/45/0/90/0/-45/0/45/0/-45]S	Strength & modulus		3x2x3 (4,6)		3x2x3
(25/50/25 - QI) VNS	ASTM D7078 V-Notched Rail Shear [45/0/-45/90]3S (specimens may be taken from panels of similar layout - e.g. UNC1)	Strength & modulus		3x2x3	1x2x3	3x2x3
(25/50/25 - QI) DNS1	ASTM D3846 Double Notch Shear (8) [45/0/-45/90]3S (specimens may be taken from panels of similar layout - e.g. UNC1)	Strength		3x2x3	1x2x3	3x2x3
(25/50/25 - QI) OHT1	ASTM D5766 Open Hole Tension (1) [45/0/-45/90]2S	Strength	3x2x3	3x2x3	1x2x3	3x2x3
(10/80/10) OHT2	ASTM D5766 Open Hole Tension (1) [45/-45/0/45/-45/90/45/-45/45/-45]S	Strength	3x2x3	3x2x3		3x2x3
(50/40/10) OHT3	ASTM D5766 Open Hole Tension (1) [0/45/0/90/0/-45/0/45/0/-45]S	Strength	3x2x3	3x2x3		3x2x3
(25/50/25 - QI) FHT1	ASTM D6742 Filled Hole Tension (2) [45/0/-45/90]2S	Strength	3x2x3	3x2x3	1x2x3	3x2x3
(10/80/10) FHT2	ASTM D6742 Filled Hole Tension (2) [45/-45/0/45/-45/90/45/-45/45/-45]S	Strength	3x2x3	3x2x3		3x2x3
(50/40/10) FHT3	ASTM D6742 Filled Hole Tension (2) [0/45/0/90/0/-45/0/45/0/-45]S	Strength	3x2x3	3x2x3		3x2x3
(25/50/25 - QI) OHC1	ASTM D6484 Open Hole Compression (1) [45/0/-45/90]4S	Strength		3x2x3 (4)	1x2x3	3x2x3
(10/80/10) OHC2	ASTM D6484 Open Hole Compression (1) [45/-45/0/45/-45/90/45/-45/45/-45]2S	Strength		3x2x3 (4)		3x2x3
(50/40/10) OHC3	ASTM D6484 Open Hole Compression (1) [0/45/0/90/0/-45/0/45/0/-45]2S	Strength		3x2x3 (4)		3x2x3
(25/50/25 - QI) FHC1	ASTM D6742 Filled Hole Compression (2) [45/0/-45/90]4S	Strength		3x2x3	1x2x3	3x2x3
(10/80/10) FHC2	ASTM D6742 Filled Hole Compression (2) [45/-45/0/45/-45/90/45/-45/45/-45]2S	Strength		3x2x3		3x2x3
(50/40/10) FHC3	ASTM D6742 Filled Hole Compression (2) [0/45/0/90/0/-45/0/45/0/-45]2S	Strength		3x2x3		3x2x3
(25/50/25 - QI) SSB1	ASTM D5961 Single Shear Bearing (3) [45/0/-45/90]2S	Strength & Deformation		3x2x3	1x2x3	3x2x3
(10/80/10) SSB2	ASTM D5961 Single Shear Bearing (3) [45/-45/0/45/-45/90/45/-45/45/-45]S	Strength & Deformation		3x2x3		3x2x3
(50/40/10) SSB3	ASTM D5961 Single Shear Bearing (3) [0/45/0/90/0/-45/0/45/0/-45]S	Strength & Deformation		3x2x3		3x2x3
(100/0/0) ILT	ASTM D6415 Interlaminar Tension Strength [0]30 (note: curved panel)	Strength	1x1x6	1x1x6	1x1x6	1x1x6
(25/50/25 - QI) CAI1	ASTM D7136 & D7137 Compression After Impact (1500 in.lb/in) [45/0/-45/90]4S (7)	Strength		1x1x6	1x1x6	1x1x6

Table 1-2: Laminate Level Test Matrix

- Note 1:** Open-hole test configuration: 0.25" hole diameter, 1.5" width.
- Note 2:** Filled-hole test configuration: 0.25" hole diameter, see section 1.4.2.2 for fastener callout, 1.5" width.
- Note 3:** Single-shear bearing test configuration: 0.25" hole diameter, 1.5" width, see section 1.4.2.2 for fastener callout, $e/D=3$, ASTM D5961 Procedure C.
- Note 4:** Back-to-back strain gages needed on the first two specimens of each environment. If no buckling is observed, the remaining modulus specimens will require strain gage on one side of the specimens only. Appropriate extensometer may be used in place of the strain gage.
- Note 5:** Loading direction is generally along the 0-degree direction
- Note 6:** At least two specimens must be gaged to obtain full stress-strain curve to failure. An appropriate extensometer may be used in place of the strain gage for the remaining specimens.
- Note 7:** Back-to-back strain gages on two locations (a total of four strain gages) are needed on the first specimen. The specimen should be equivalent to the test specimens in terms of material, layup, and geometry, shall be un-damaged. Alternatively, an instrumented metallic plate, equivalent in thickness to the test specimens to within ± 0.25 mm [± 0.010 in.], may be used.
- Note 8:** Round notch configuration, radius target of the notch is 0.03". Specimens may be taken from panels of same layup.



1.4.4 Consolidated 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. 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
Consolidated Ply Thickness	ASTM D3171-15	All data from mechanical test specimens
Laminate Density	ASTM D792-17	Per Note 5
Fiber Volume, % by Volume	ASTM D3171-15(Note 2)	3
Resin Content, % by Weight	ASTM D3171-15(Note 2)	3
Void Content, % by Volume	ASTM D3171-15	Per Note 5
Ultrasonic Through Transmission, C-Scan (panels)	ASTM E1316, ASTM E2580 & NAS 410 (Note 3)	1
Differential Scanning Calorimetry (DSC)	ASTM D3418 or SACMA SRM 25R-94	1 Ambient (Note 4, Dry only)
Glass Transition Temp., Tg		
Melt Temp. (Peak)		
Cold Crystallization Temp.		
Hot Crystallization Temp. (Peak)		
Crystallinity Percentage		
Dynamic Mechanical Analysis (DMA)	ASTM D7028	1 Ambient, 1 Wet (Note 4)
Glass Transition Temp., Tg		

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.

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Note 3: Five MHz is preferred for solid laminates. Panels with anomaly should be segregated. Microscopy images may be taken from questionable areas. NCAMP must be involved in the review of all C-scans.

Note 4: Minimum total of 24 dry and 24 wet for each material system.

Note 5: A minimum of 4 panels per batch, 3 specimens per panel.

1.4.5 Environmental Conditioning

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

CTA = $-65\pm 5^{\circ}\text{F}$, ambient

RTA = $70\pm 10^{\circ}\text{F}$, room temperature ambient

ETA = $275\pm 5^{\circ}\text{F}$, ambient

ETW = $275\pm 5^{\circ}\text{F}$, wet

ETW2 = $250\pm 5^{\circ}\text{F}$, wet (added later for UNC1 and OHC1)

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

For ambient testing, as-fabricated condition, specimens were kept at ambient laboratory condition, defined as $70^{\circ}\text{F}\pm 10^{\circ}\text{F}$. Since moisture absorption and desorption rate is very slow at ambient temperature, there was no requirement to maintain relative humidity levels.

For wet conditioning, specimens were conditioned to equilibrium at $160^{\circ}\text{F}\pm 5^{\circ}\text{F}$ and $85\% \pm 5\%$ RH. Effective moisture equilibrium was achieved when the average moisture content of the traveler specimen changed by less than 0.02% for three 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.

1.4.6 Non-ambient Testing

The chamber was of adequate size so that all test fixtures and load frame grips were contained within the chamber. For elevated temperature testing, the temperature chamber, test fixture, and grips were preheated to the specified temperature. Each specimen was heated to the required test temperature as verified by a thermocouple in direct contact with and taped to the specimen gage section. The heat-up time of the specimen did not exceed 5 minutes, unless otherwise specified in individual test summary sheets. The test was started 5_{-0}^{+1} minutes after the specimen reached the test temperature. During the test, the temperature, as measured on the specimen, was within $\pm 5^{\circ}\text{F}$ 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_{-0}^{+1} minutes after the specimen reached the test temperature. During the test, the temperature, as measured on the specimen, was within $\pm 5^{\circ}\text{F}$ of the required test temperature.

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

1.4.7 Fluid Sensitivity Screening

Table 1-4 lists the requirements for fluid sensitivity screening, which requires ASTM D6641 Unnotched Compression Strength testing on [90/0]4s lamina level specimens subjected to the conditions indicated, five replicates per fluid and one consolidation cycle. Specimens were cleaned with a dry towel prior to the tests. In addition to strength properties, load versus displacement curves were plotted to aid in the identification of matrix/polymer 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 when possible. It is intended that the fluid resistance testing be performed on a limited number of reinforcement types and that engineering judgment be used to determine the necessity of repetition for other reinforcement configurations. Users must evaluate the applicability of the exposure conditions and time on case-by-case basis. For example, the exposure condition for jet fuel may not fully represent the condition of integral fuel tanks.

<u>Extended Contact:</u> ⁽¹⁾	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	275°F	FS11ET
ASTM D1655 Jet A Fuel (other jet fuel may be used but its type must be reported)	90 days min. @ 70°F±10°F	70°F	FS12RT
	90 days min. @ 70°F±10°F	275°F	FS12ET
MIL-PRF-5606 Hydraulic Oil	90 days min. @ 70°F±10°F	70°F	FS13RT
	90 days min. @ 70°F±10°F	275°F	FS13ET
MIL-PRF-83282 Hydraulic Oil	90 days min. @ 70°F±10°F	70°F	FS14RT
	90 days min. @ 70°F±10°F	275°F	FS14ET
MIL-PRF-7808 Engine Oil	90 days min. @ 70°F±10°F	70°F	FS15RT
	90 days min. @ 70°F±10°F	275°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	275°F	FS16ET
Salt Water (ASTM D1141 or equiv.)	90 days min. @ 70°F±10°F	70°F	FS17RT
	90 days min. @ 70°F±10°F	275°F	FS17ET
Skydrol 5, (SAE AS1241, Type V)	90 days min. @ 70°F±10°F	70°F	FS18RT
	90 days min. @ 70°F±10°F	275°F	FS18ET
50% Water with 50% Skydrol 5, (SAE AS1241, Type V)	90 days min. @ 70°F±10°F	70°F	FS19RT
	90 days min. @ 70°F±10°F	275°F	FS19ET
<u>Short Duration Contact:</u>			
MEK washing fluid. ASTM D740	90 minutes min. @ 70°F±10°F	70°F	FS21RT
	90 minutes min. @ 70°F±10°F	275°F	FS21ET
Polypropylene Glycol Deicer (Type I) SAE AMS 1424	90 minutes min. @ 70°F±10°F	70°F	FS22RT
	90 minutes min. @ 70°F±10°F	275°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	275°F	FS23ET
<u>Control Tests:</u>			
Distilled Water	90 days min. at 70°F±10°F	70°F	FS31RT
	90 days min. at 70°F±10°F	275°F	FS31ET
Ambient	Ambient	70°F	FS32RT
	Ambient	275°F	FS32ET
85% Relative Humidity	Per section 1.4.5	70°F	FS33RT
	Per section 1.4.5	275°F	FS33ET

Table 1-4: Fluid Sensitivity Screening

1.4.8 Normalization Procedures

Most lamina level tension and compression strength and modulus properties, and all laminate level properties were normalized according to nominal consolidated ply thickness. Lamina level properties that were not normalized include 90° compressive strength and modulus (unidirectional only), in-plane shear strength and modulus, Poisson's ratio, 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 theoretically consolidated ply thickness of 0.0054 inches has been used as the nominal consolidated ply thickness (CPT) for normalization purpose. The following normalization formula was used:

$$\text{Normalized Value} = \text{Measured Value} \times \text{Measured CPT} / \text{Nominal CPT}$$

1.4.9 Inspection Verification

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

Testing was witnessed by NCAMP. Witnessing was delegated to an AER. Mechanical testing was carried out at the National Institute for Aviation Research, Wichita State University.

1.4.10 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.

2. Test Results

2.1 Lamina Level Test Summary

Prepreg Material: VICTREX AE™ 250 AS4 12k Unitape 143 gsm 34% RC Material Specification: NMS 125/1 Process Specification: NPS 81250 Reinforcement: Hexcel HexTow® AS4 12k carbon fiber Resin: VICTREX AE™ 250T-071						VICTREX AE™ 250 AS4 12k Unitape 143 gsm 34% RC Lamina Properties Summary			
DMA Tg (ambient): 290.4°F DMA Tg (wet): 276.7°F		DSC Tg (ambient): 293.8°F DSC, Melting Temp. (Peak): 585.4°F DSC, Hot Crystallization Temp. (Peak): 504.5°F				Tg METHOD: DMA (ASTM D7028) & DSC (ASTM D3418)			
Fiber Lot		Lot #1 91M0025704	Lot #2 91M0013609	Lot #3 91M0013609	Date of fiber manufacture: 10/26/2018 9/6/2019 9/6/2019				
Date of fiber manufacture		Resin Lot V038362 V038361 V038360			Date of testing: June 2021 - Oct 2021, June 2022				
Date of resin manufacture		Date of resin manufacture 5/2/2019 6/10/2019 5/2/2019			Date of data submittal: 7/1/2022				
Prepreg Lot V040438 V046461 V049419		Date of prepreg manufacture 7/31/2019 10/4/2019 11/21/2019							
Date of prepreg manufacture		Date of composite manufacture: Jan 2021 - March 2021							
LAMINA MECHANICAL PROPERTY SUMMARY Data reported as: Normalized & Measured (Normalized by CPT=0.0054 inch)									
Properties	CTA (-65°F) Mean		RTA (70°F) Mean		ETA (275°F) Mean		ETW (275°F) Mean		
	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured	
F ₁ ^{tu} [ksi]	342.6	357.1	310.1	320.4	282.7	297.9	272.1	281.1	
E ₁ ^t [Msi]	18.96	19.76	19.10	19.72	18.13	19.10	19.58	20.20	
ν ₁₂ ^t	--	0.3190	--	0.3192	--	0.3072	--	0.3349	
F ₂ ^{cu} [ksi]	--	37.07	--	27.99	--	15.29	--	14.16	
E ₂ ^c [Msi]	--	1.494	--	1.406	--	1.285	--	1.034	
F ₁ ^{cu} [ksi] ¹ from UNC0	225.6	223.5	207.7	206.4	172.1	171.8	164.0	163.9	
E ₁ ^c [Msi]	16.72	17.38	16.91	17.58	17.38	18.00	17.24	17.70	
ν ₁₂ ^c	--	0.3263	--	0.3363	--	0.3422	--	0.3577	
(90/0) UNC0 Strength [ksi]	120.6	119.5	111.7	111.0	88.13	88.00	83.15	83.11	
(90/0) UNC0 Modulus [Msi]	9.386	9.294	9.514	9.451	9.217	9.220	8.991	8.976	
F ₁₂ ^{s0.2%} [ksi]	--	6.514	--	5.106	--	1.900	--	1.2457	
F ₁₂ ^{5%strain} [ksi]	--	12.10	--	9.053	--	4.280	--	3.596	
G ₁₂ ^s [Msi]	--	0.7000	--	0.6562	--	0.4991	--	0.3590	
F ₁₂ ^{s0.2%} [ksi] ²	--	6.745	--	5.535	--	2.604	--	1.618	
F ₁₂ ^{s5%strain} [ksi] ²	--	12.76	--	9.406	--	4.769	--	3.840	
G ₁₂ ^s [Msi] ²	--	0.7119	--	0.6715	--	0.5826	--	0.4211	
0FLEX Proc. A Strength [ksi]	232.6	239.3	197.1	203.5	128.2	132.2	104.8	107.2	
90FLEX Proc. A Strength [ksi]			13.85	15.81					
Round Notch DNS In-Plane (Interlaminar) Shear Strength [ksi]	--	14.25	--	12.01	--	6.660	--	6.670	

¹ Derived from cross-ply using back-out factor.

² ASTM D7078 V-Notched Rail shear (0/90)

Table 2-1: Lamina Summary Data

2.2 Laminate Level Test Summary

Prepreg Material: VICTREX AE™ 250 AS4 12k Unitape 143 gsm 34% RC Material Specification: NMS 125/1 Process Specification: NPS 81250 Reinforcement: Hexcel HexTow® AS4 12k carbon fiber Resin: VICTREX AE™ 250T-071						VICTREX AE™ 250 AS4 12k Unitape 143 gsm 34% RC Laminate Properties Summary	
DMA Tg (ambient): 290.4°F DMA Tg (wet): 276.7°F		DSC Tg (ambient): 293.8°F DSC, Melting Temp. (Peak): 585.4°F DSC, Hot Crystallization Temp. (Peak): 504.5°F		Tg METHOD: DMA (ASTM D7028) & DSC (ASTM D3418)			
Fiber Lot Date of fiber manufacture Resin Lot Date of resin manufacture Prepreg Lot Date of prepreg manufacture Date of composite manufacture		Lot #1 91M0025704 V038362 5/2/2019 V040438 7/31/2019	Lot #2 91M0013609 V038361 6/10/2019 V046461 10/4/2019	Lot #3 91M0013609 V038360 5/2/2019 V049419 11/21/2019	Date of testing: June 2021 - Oct 2021, June 2022 Date of data submittal: 7/1/2022		
LAMINATE MECHANICAL PROPERTY SUMMARY Data reported as: Normalized & Measured (Normalized by CPT=0.0054 inch)							
Properties	Layup Test Condition	25/50/25 (Quasi)		10/80/10 (Soft)		50/40/10 (Hard)	
		Normalized	Measured	Normalized	Measured	Normalized	Measured
UNT Strength [ksi]	CTA (-65°F)	120.1	120.5	69.61	70.57	166.9	170.7
	RTA (70°F)	115.4	114.4	62.77	63.26	167.7	170.2
	ETA (275°F)	105.9	103.4	--	--	--	--
	ETW (275°F)	103.0	103.2	52.52	53.24	157.6	160.7
UNT Modulus [Msi]	CTA (-65°F)	7.067	7.087	4.602	4.666	10.96	11.21
	RTA (70°F)	7.259	7.194	4.553	4.587	10.98	11.15
	ETA (275°F)	6.654	6.500	--	--	--	--
	ETW (275°F)	6.486	6.504	3.516	3.564	10.35	10.56
UNC Strength [ksi]	RTA (70°F)	81.36	81.89	58.36	58.70	108.79	111.6
	ETA (275°F)	65.99	67.67	--	--	--	--
	ETW2 (250°F)	66.56	67.76	--	--	--	--
	ETW (275°F)	61.08	62.60	40.48	40.80	75.14	76.93
UNC Modulus [Msi]	RTA (70°F)	6.599	6.642	4.308	4.331	9.980	10.24
	ETA (275°F)	6.340	6.499	--	--	--	--
	ETW2 (250°F)	6.342	6.455	--	--	--	--
	ETW (275°F)	6.024	6.173	3.598	3.625	9.470	9.691
OHT Strength [ksi]	CTA (-65°F)	58.22	58.94	47.85	48.08	78.39	80.4
	RTA (70°F)	56.60	56.73	44.02	43.64	78.08	78.7
	ETA (275°F)	51.90	53.20	--	--	--	--
	ETW (275°F)	51.18	51.98	32.73	33.16	75.28	77.76
OHC Strength [ksi]	RTA (70°F)	45.57	45.60	--	--	--	--
	ETA (275°F)	33.57	34.14	42.09	41.91	57.27	58.21
	ETW2 (250°F)	34.91	35.31	--	--	--	--
	ETW (275°F)	30.95	31.33	28.29	28.36	39.39	40.29
FHT Strength [ksi]	CTA (-65°F)	64.13	64.87	53.66	54.02	83.79	85.82
	RTA (70°F)	59.65	60.25	47.09	46.99	79.85	80.91
	ETA (275°F)	55.73	57.11	--	--	--	--
	ETW (275°F)	54.65	55.39	35.2	35.5	75.23	77.14
FHC Strength [ksi]	RTA (70°F)	74.84	75.41	57.09	57.04	89.56	91.32
	ETA (275°F)	56.91	57.90	--	--	--	--
	ETW (275°F)	51.45	52.20	37.75	37.90	62.09	63.70
	RTA (70°F)	--	42.92	--	--	--	--
F ₁₂ ^{smax} [ksi] ¹	ETA (275°F)	--	36.11	--	--	--	--
	ETW (275°F)	--	30.36	--	--	--	--
	RTA (70°F)	--	2.633	--	--	--	--
G ₁₂ ^s [Msi] ¹	ETA (275°F)	--	2.494	--	--	--	--
	ETW (275°F)	--	2.504	--	--	--	--
	RTA (70°F)	--	10.17	--	--	--	--
Round Notch DNS1 In-Plane (Interlaminar) Shear Strength [ksi]	ETA (275°F)	--	5.989	--	--	--	--
	ETW (275°F)	--	5.783	--	--	--	--
	RTA (70°F)	--	108.2	110.0	110.8	109.3	111.4
Bearing Proc. C 2% Offset Strength [ksi]	ETA (275°F)	82.55	82.58	--	--	--	--
	ETW (275°F)	87.69	88.47	84.52	86.50	80.77	83.10
	RTA (70°F)	124.7	124.3	132.7	133.7	127.0	129.5
Bearing Proc. C Ultimate Strength [ksi]	ETA (275°F)	95.06	95.09	--	--	--	--
	ETW (275°F)	94.63	95.46	92.81	94.99	90.19	92.80
	CTA (-65°F)	--	652.3	--	--	--	--
CBS [lb] ²	RTA (70°F)	--	455.1	--	--	--	--
	ETA (275°F)	--	298.8	--	--	--	--
	ETW (275°F)	--	180.9	--	--	--	--
	CTA (-65°F)	--	19.16	--	--	--	--
ILT [ksi] ²	RTA (70°F)	--	13.50	--	--	--	--
	ETA (275°F)	--	8.944	--	--	--	--
	ETW (275°F)	--	5.387	--	--	--	--
	RTA (70°F)	42.40	42.29	--	--	--	--
CAI Strength [ksi] (1500 in.lb/in)	ETA (275°F)	32.63	32.86	--	--	--	--
	ETW (275°F)	29.63	29.68	--	--	--	--

¹ ASTM D7078 V-Notched Rail Shear Quasi

² The actual layup for ILT/CBS is [0]30, (100/0/0).

Table 2-2: Laminate Summary Data

2.3 Individual Test Summaries

2.3.1 Longitudinal Tension Properties (LT)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Tension, 1-axis □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [0]8							
Resin content:	32.35 %wt	Comp. density:		1.585 g/cc					
Fiber volume:	59.92 %vol								
Ply count:	8								
Test method:	ASTM D3039-17	Modulus calculation:		1000-3000 microstrain					
Normalized by:	0.0054	in. CPT							
		CTA		RTA		ETA		ETW	
Test Temperature [°F]		-65		70		275		275	
Moisture Conditioning		Dry		Dry		Dry		Equilibrium	
Equilibrium at T, RH								160F,85%	
Source code		LT-X-X-R-CTA-X		LT-X-X-R-RTA-X		LT-X-X-R-ETA-X		LT-X-X-R-ETW-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
F₁^{tu} [ksi]	Mean	342.6	357.1	310.1	320.4	282.7	297.9	272.1	281.1
	Minimum	322.5	333.2	281.0	291.4	265.4	277.5	225.3	228.8
	Maximum	364.7	381.2	346.6	370.6	296.2	314.1	312.1	324.3
	C.V.(%)	3.175	4.380	6.094	7.317	4.992	5.685	8.600	9.346
	No. Specimens	18		19		6		19	
No. Prepreg Lots	3		3		1		3		
E₁^t [Msi]	Mean	18.96	19.76	19.10	19.72	18.13	19.10	19.58	20.20
	Minimum	18.03	18.63	18.42	18.99	18.04	18.91	18.83	19.53
	Maximum	19.70	20.61	19.55	20.24	18.22	19.32	20.29	20.78
	C.V.(%)	2.528	2.469	1.766	1.613	0.4683	0.7452	1.707	1.475
	No. Specimens	18		19		6		19	
No. Prepreg Lots	3		3		1		3		
v₁₂^s	Mean		0.3190		0.3192		0.3072		0.3349
	Minimum		0.1995		0.2962		0.2751		0.3075
	Maximum		0.4510		0.3467		0.3279		0.4139
	C.V.(%)		18.78		4.056		6.361		8.008
	No. Specimens	18		19		6		19	
No. Prepreg Lots	3		3		1		3		

2.3.2 Longitudinal Compression Properties (LC)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Compression, 1-axis Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC [0]20							
Resin content:	30.85 %wt	Comp. density:		1.588 g/cc					
Fiber volume:	61.37 %vol								
Ply count:	20								
Test method:	ASTM D6641-16ε1	Modulus calculation:		1000-3000 microstrain					
Normalized by:	0.0054	in. CPT							
		CTA		RTA		ETA		ETW	
Test Temperature [°F]		-65		70		275		275	
Moisture Conditioning		Dry		Dry		Dry		Equilibrium	
Equilibrium at T, RH								160F,85%	
Source code		LC-X-X-CTA-X		LC-X-X-RTA-X		LC-X-X-ETA-X		LC-X-X-ETW-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
E₁^c [Msi]	Mean	16.72	17.38	16.91	17.58	17.38	18.00	17.24	17.70
	Minimum	15.90	16.86	16.21	16.99	17.18	17.80	16.86	17.16
	Maximum	17.06	17.65	17.22	17.89	17.60	18.27	17.72	18.14
	C.V.(%)	2.043	1.656	1.498	1.408	0.8512	0.9014	1.350	1.598
	No. Specimens	18		18		6		18	
No. Material Lots	3		3		1		3		
v₁₂^c	Mean	0.3263		0.3363		0.3422		0.3577	
	Minimum	0.2801		0.3075		0.3329		0.3334	
	Maximum	0.3626		0.3679		0.3543		0.3912	
	C.V.(%)	6.178		5.343		2.276		4.173	
	No. Specimens	18		18		6		18	
No. Prepreg Lots	3		3		1		3		

Shares panel with TC.

2.3.3 Transverse Compression Properties (TC)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Compression, 2-axis Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC [90]20			
Resin content: 30.85 %wt	Comp. density: 1.588 g/cc				
Fiber volume: 61.37 %vol					
Ply count: 20					
Test method: ASTM D6641-16ε1	Modulus calculation: 1000-3000 microstrain				
Normalized by: NA					
	CTA	RTA	ETA	ETW	
Test Temperature [°F]	-65	70	275	275	
Moisture Conditioning	Dry	Dry	Dry	Equilibrium	
Equilibrium at T, RH				160F,85%	
Source code	TC-X-X-CTA-X	TC-X-X-RTA-X	TC-X-X-ETA-X	TC-X-X-ETW-X	
	Normalized	Measured	Normalized	Measured	Normalized
					Measured
F₂^{cu} [ksi]					
Mean		37.07	27.99	15.29	14.16
Minimum		32.96	26.98	15.01	13.60
Maximum		38.49	29.08	15.89	14.79
C.V.(%)		3.884	2.025	2.191	2.199
No. Specimens	18	18	6	18	
No. Material Lots	3	3	1	3	
E₂^c [Msi]					
Mean		1.494	1.406	1.285	1.034
Minimum		1.432	1.377	1.245	0.9531
Maximum		1.577	1.436	1.377	1.153
C.V.(%)		2.583	1.076	3.690	6.206
No. Specimens	18	18	6	18	
No. Material Lots	3	3	1	3	

Shares panel with LC.

2.3.4 Unnotched Compression Properties (UNC0)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Unnotched Compression 90/0 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC [90/0]4s							
Resin content:	32.01 %wt	Comp. density:		1.575 g/cc					
Fiber volume:	59.83 %vol								
Ply count:	16								
Test method:	ASTM D6641-16ε1	Modulus calculation: 1000-3000 microstrain							
Normalized by:	0.0054	in. CPT							
		CTA		RTA		ETA		ETW	
Test Temperature [°F]		-65		70		275		275	
Moisture Conditioning		Dry		Dry		Dry		Equilibrium	
Equilibrium at T, RH								160F,85%	
Source code		UNC0-X-X-CTA-X		UNC0-X-X-RTA-X		UNC0-X-X-ETA-X		UNC0-X-X-ETW-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
Mean		120.6	119.5	111.7	111.0	88.13	88.00	83.15	83.11
Minimum		112.1	112.0	104.42	100.3	86.75	86.13	72.83	70.98
Maximum		129.2	127.3	118.7	118.6	90.64	90.12	88.00	87.56
UNC0 Strength [ksi] C.V.(%)		4.033	3.920	3.358	3.444	1.782	1.999	4.712	4.679
No. Specimens		18		18		5		19	
No. Material Lots		3		3		1		3	
Mean		9.386	9.294	9.514	9.451	9.217	9.220	8.991	8.976
Minimum		9.058	8.879	9.286	9.201	9.129	9.125	8.768	8.684
Maximum		9.770	9.980	9.807	9.699	9.284	9.354	9.194	9.258
UNC0 Modulus [Msi] C.V.(%)		1.893	3.202	1.523	1.500	0.6355	0.9104	1.153	1.706
No. Specimens		18		18		6		18	
No. Material Lots		3		3		1		3	

2.3.5 In-Plane Shear Properties (IPS)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		In-Plane Shear □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [45/-45]4S				
Resin content:	33.60 %wt	Comp. density:	1.576 g/cc			
Fiber volume:	58.49 %vol					
Ply count:	16					
Test method:	ASTM D3518-18	Modulus calculation:	CTA and RTA 1000-3000 microstrain; ETA and ETW at 200-1000 microstrain			
Normalized by:	NA					
	CTA	RTA	ETA	ETW		
Test Temperature [°F]	-65	70	275	275		
Moisture Conditioning Equilibrium at T, RH	Dry	Dry	Dry	Equilibrium 160F,85%		
Source code	IPS-X-X-CTA-X	IPS-X-X-RTA-X	IPS-X-X-ETA-X	IPS-X-X-ETW-X		
	Normalized	Measured	Normalized	Measured	Normalized	Measured
F₁₂^{s0.2%} [ksi]	Mean	6.514	5.106	1.900	1.246	
	Minimum	6.267	4.953	1.762	1.086	
	Maximum	6.678	5.301	2.203	1.404	
	C.V.(%)	1.788	1.889	8.885	7.559	
	No. Specimens	18	18	6	18	
	No. Material Lots	3	3	1	3	
F₁₂^{s5%strain} [ksi]	Mean	12.10	9.053	4.280	3.596	
	Minimum	11.69	8.644	4.038	3.313	
	Maximum	12.50	9.641	4.381	3.899	
	C.V.(%)	1.776	2.647	2.888	4.977	
	No. Specimens	18	18	6	18	
	No. Material Lots	3	3	1	3	
G₁₂^s [Msi]	Mean	0.7000	0.6562	0.4991	0.3590	
	Minimum	0.6859	0.6330	0.4688	0.3084	
	Maximum	0.7159	0.6728	0.5533	0.3934	
	C.V.(%)	1.250	1.796	6.219	6.337	
	No. Specimens	18	18	6	18	
	No. Material Lots	3	3	1	3	

2.3.6 V-Notched Rail Shear Properties (VNS)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		V-Notched Rail Shear □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [0/90]6s						
Resin content:	34.95 (32.70) %wt	Comp. density:	1.568 (1.575) g/cc					
Fiber volume:	57.01 (59.24) %vol							
Ply count:	24							
Test method:	ASTM D7078-12	Modulus calculation:	1000-3000 microstrain					
Normalized by:	NA							
	CTA	RTA	ETA	ETW				
Test Temperature [°F]	-65	70	275	275				
Moisture Conditioning Equilibrium at T, RH	Dry	Dry	Dry	Equilibrium 160F,85%				
Source code	VNS-X-X-CTA-X	VNS-X-X-RTA-X	VNS-X-X-ETA-X	VNS-X-X-ETW-X				
	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
F₁₂^{s0.2%} [ksi]	Mean	6.745	5.535	2.604	1.618			
	Minimum	6.576	5.367	2.449	1.071			
	Maximum	6.927	5.701	2.862	2.479			
	C.V.(%)	1.417	1.720	6.155	18.35			
	No. Specimens	18	18	6	21			
No. Material Lots	3	3	1	3				
F₁₂^{s5%strain} [ksi]	Mean	12.76	9.406	4.769	3.840			
	Minimum	12.03	9.271	4.674	3.159			
	Maximum	13.87	9.566	5.041	4.633			
	C.V.(%)	3.146	1.093	3.126	8.616			
	No. Specimens	18	18	6	21			
No. Material Lots	3	3	1	3				
G₁₂^s [Msi]	Mean	0.7119	0.6715	0.5826	0.4211			
	Minimum	0.6922	0.6571	0.5682	0.3155			
	Maximum	0.7356	0.6881	0.6059	0.5284			
	C.V.(%)	1.500	1.239	2.501	13.45			
	No. Specimens	18	18	6	21			
No. Material Lots	3	3	1	3				

RC, FV, and density computed by matrix digestion. Values in parenthesis are computed with Method II

2.3.7 Double Notch Shear Properties (DNS)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Double Notched Shear □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [0]34							
Resin content:	30.56 %wt	Comp. density:		1.587 g/cc					
Fiber volume:	61.57 %vol								
Ply count:	34								
Test method: ASTM D3846-08 (2015)									
Normalized by: NA									
		CTA	RTA	ETA	ETW				
Test Temperature [°F]		-65	70	275	275				
Moisture Conditioning		Dry	Dry	Dry	Equilibrium				
Equilibrium at T, RH					160F,85%				
Source code		DNS-X-X-CTA-X	DNS-X-X-RTA-X	DNS-X-X-ETA-X	DNS-X-X-ETW-X				
		Normalized	Measured	Normalized	Measured				
DNS Strength [ksi]	Mean		14.25		12.01		6.660		6.670
	Minimum		12.46		11.06		6.349		6.050
	Maximum		15.27		12.62		6.981		7.246
	C.V.(%)		5.300		3.545		4.061		4.784
	No. Specimens		18		18		6		18
	No. Material Lots		3		3		1		3

2.3.8 0 Flex Properties (0 Flex)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Flex □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [0]22							
Resin content:	32.98 (31.56) %wt	Comp. density:		1.576 (1.582) g/cc					
Fiber volume:	59.03 (60.52) %vol								
Ply count:	22								
Test method:	ASTM D790-17								
Normalized by:	0.0054	in. CPT							
		CTA		RTA		ETA		ETW	
Test Temperature [°F]		-65		70		275		275	
Moisture Conditioning		Dry		Dry		Dry		Equilibrium	
Equilibrium at T, RH								160F,85%	
Source code		FLEX-X-X-0-CTA-X		FLEX-X-X-0-RTA-X		FLEX-X-X-0-ETA-X		FLEX-X-X-0-ETW-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
Mean		232.6	239.3	197.1	203.5	128.2	132.2	104.8	107.2
Minimum		223.4	227.7	177.1	183.9	124.1	128.2	99.86	102.3
Maximum		242.8	248.8	213.9	223.0	132.8	137.0	112.6	116.5
FLEX Strength [ksi]		2.559	2.165	5.611	5.963	2.992	2.943	3.261	3.949
C.V.(%)									
No. Specimens		18		18		6		19	
No. Material Lots		3		3		1		3	

RC, FV, and density computed by matrix digestion. Values in parenthesis are computed with Method II

2.3.9 90 Flex Properties (90 Flex)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Flex □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [90]22	
Resin content: 32.98 (31.56) %wt Fiber volume: 59.03 (60.52) %vol Ply count: 22	Comp. density: 1.576 (1.582) g/cc		
Test method: ASTM D790-17			
Normalized by: 0.0054 in. CPT RTA			
Test Temperature [°F] Moisture Conditioning Equilibrium at T, RH Source code	70 Dry FLEX-X-X-90-RTA-X		
	Normalized	Measured	
FLEX Strength [ksi] Mean Minimum Maximum C.V.(%) No. Specimens No. Material Lots	13.85 8.208 18.19 22.64 19 3	15.81 9.483 20.69 22.22 	

RC, FV, and density computed by matrix digestion. Values in parenthesis are computed with Method II

2.3.10 “25/50/25” Unnotched Tension 1 Properties (UNT1)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Unnotched Tension 1 □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [45/0/-45/90]2S						
Resin content: 33.97 %wt	Comp. density: 1.575 g/cc							
Fiber volume: 58.12 %vol								
Ply count: 16								
Test method: ASTM D3039-17	Modulus calculation: 1000-3000 microstrain							
Normalized by: 0.0054	in. CPT							
	CTA	RTA	ETA	ETW				
Test Temperature [°F]	-65	70	275	275				
Moisture Conditioning	Dry	Dry	Dry	Equilibrium				
Equilibrium at T, RH				160F,85%				
Source code	UNT1-X-X-CTA-X	UNT1-X-X-RTA-X	UNT1-X-X-ETA-X	UNT1-X-X-ETW-X				
	Normalized	Measured	Normalized	Measured	Normalized			
	Measured	Normalized	Measured	Normalized	Measured			
Mean	120.1	120.5	115.4	114.4	105.9	103.4	103.0	103.2
Minimum	109.4	106.3	108.6	105.7	99.24	98.18	98.44	95.42
Maximum	127.0	130.1	121.5	121.2	110.5	106.3	107.1	107.2
UNT1 Strength [ksi] C.V.(%)	3.669	4.861	2.893	3.810	3.699	2.802	1.995	2.617
No. Specimens	18		18		6		18	
No. Material Lots	3		3		1		3	
Mean	7.067	7.087	7.259	7.194	6.654	6.500	6.486	6.504
Minimum	6.361	6.440	6.969	6.758	6.532	6.458	6.198	6.008
Maximum	7.361	7.458	7.757	7.717	6.744	6.587	6.682	6.811
UNT1 Modulus [Msi] C.V.(%)	3.048	3.314	3.001	3.951	1.343	0.6894	2.260	3.794
No. Specimens	18		18		6		18	
No. Material Lots	3		3		1		3	

Shares panel with SSB1.

2.3.11 “10/80/10” Unnotched Tension 2 Properties (UNT2)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Unnotched Tension 2 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC [45/-45/0/45/-45/90/45/-45/45/-45]S					
Resin content:	33.09 %wt	Comp. density:		1.583 g/cc			
Fiber volume:	59.18 %vol						
Ply count:	20						
Test method:	ASTM D3039-17	Modulus calculation: 1000-3000 microstrain					
Normalized by:	0.0054	in. CPT					
		CTA		RTA		ETW	
Test Temperature [°F]		-65		70		275	
Moisture Conditioning		Dry		Dry		Equilibrium	
Equilibrium at T, RH						160F,85%	
Source code		UNT2-X-X-CTA-X		UNT2-X-X-RTA-X		UNT2-X-X-ETW-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured
Mean		69.61	70.57	62.77	63.26	52.52	53.24
Minimum		66.24	66.33	59.96	60.07	49.75	50.76
Maximum		73.91	75.09	66.41	67.27	55.80	56.77
UNT2 Strength [ksi] C.V.(%)		3.317	3.095	3.141	3.138	3.015	3.022
No. Specimens		18		19		18	
No. Material Lots		3		3		3	
Mean		4.602	4.666	4.619	4.656	3.516	3.564
Minimum		4.431	4.543	4.371	4.374	3.355	3.359
Maximum		4.747	4.800	5.816	5.909	3.763	3.824
UNT2 Modulus [Msi] C.V.(%)		1.742	1.690	6.928	7.333	2.523	2.959
No. Specimens		18		19		18	
No. Material Lots		3		3		3	

Shares panel with SSB2.

2.3.12 “40/20/40” Unnotched Tension 3 Properties (UNT3)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Unnotched Tension 3 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC [0/45/0/90/0/-45/0/45/0/-45]S					
Resin content:	32.76 %wt	Comp. density:		1.582 g/cc			
Fiber volume:	59.43 %vol						
Ply count:	20						
Test method:	ASTM D3039-17	Modulus calculation: 1000-3000 microstrain					
Normalized by:	0.0054	in. CPT					
		CTA		RTA		ETW	
Test Temperature [°F]		-65		70		275	
Moisture Conditioning		Dry		Dry		Equilibrium	
Equilibrium at T, RH						160F,85%	
Source code		UNT3-X-X-CTA-X		UNT3-X-X-RTA-X		UNT3-X-X-ETW-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured
Mean		166.9	170.7	167.7	170.2	157.6	160.7
Minimum		156.9	160.1	155.0	157.9	145.6	146.2
Maximum		177.1	180.7	180.0	181.4	172.4	174.4
UNT3 Strength [ksi] C.V.(%)		3.117	3.136	3.599	3.783	3.680	3.866
No. Specimens		18		18		19	
No. Material Lots		3		3		3	
Mean		10.96	11.21	10.98	11.15	10.35	10.56
Minimum		10.71	10.91	10.71	10.80	9.906	10.06
Maximum		11.21	11.46	11.26	11.65	10.68	10.92
UNT3 Modulus [Msi] C.V.(%)		1.280	1.597	1.489	2.103	1.641	2.043
No. Specimens		18		18		20	
No. Material Lots		3		3		3	

Shares panel with SSB3.

2.3.13 “25/50/25” Unnotched Compression 1 Properties (UNC1)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Unnotched Compression 1 □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [45/0/-45/90]3S						
Resin content:	33.74 (30.99) %wt	Comp. density:	1.579 (1.581) g/cc					
Fiber volume:	58.46 (60.98) %vol							
Ply count:	24							
Test method:	ASTM D6641-16ε1	Modulus calculation:	1000-3000 microstrain					
Normalized by:	0.0054	in. CPT						
	RTA	ETA	ETW2		ETW			
Test Temperature [°F]	70	275	250		275			
Moisture Conditioning Equilibrium at T, RH	Dry	Dry	Equilibrium 160F,85%		Equilibrium 160F,85%			
Source code	UNC1-X-X-RTA-X	UNC1-X-X-ETA-X	UNC1-X-X-ETW2-X		UNC1-X-X-ETW-X			
	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
UNC1 Strength [ksi]	81.36	81.89	65.99	67.67	66.56	67.76	61.08	62.60
Minimum	75.26	75.82	61.62	62.30	61.14	61.77	54.38	55.31
Maximum	87.53	88.70	68.28	70.88	70.11	72.72	69.50	72.33
C.V.(%)	3.784	3.722	3.461	4.329	3.323	3.730	5.273	5.872
No. Specimens	18		6		18		18	
No. Material Lots	3		1		3		3	
UNC1 Modulus [Msi]	6.599	6.642	6.340	6.499	6.342	6.455	6.024	6.173
Minimum	6.316	6.380	6.212	6.449	6.158	6.268	5.806	5.906
Maximum	6.890	6.956	6.396	6.589	6.488	6.615	6.186	6.478
C.V.(%)	1.997	2.046	1.043	0.9044	1.293	1.440	1.591	2.482
No. Specimens	18		6		18		18	
No. Material Lots	3		1		3		3	

RC, FV, and density computed by matrix digestion. Values in parenthesis are computed with Method II

2.3.14 “10/80/10” Unnotched Compression 2 Properties (UNC2)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Unnotched Compression 2 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC [45/-45/0/45/-45/90/45/-45/45/-45]S			
Resin content:	32.67 %wt	Comp. density:	1.576 g/cc		
Fiber volume:	59.28 %vol				
Ply count:	20				
Test method:	ASTM D6641-16e1	Modulus calculation:	1000-3000 microstrain		
Normalized by:	0.0054	in. CPT			
	RTA	ETW			
Test Temperature [°F]	70		275		
Moisture Conditioning	Dry		Equilibrium		
Equilibrium at T, RH			160F,85%		
Source code	UNC2-X-X-RTA-X		UNC2-X-X-ETW-X		
	Normalized	Measured	Normalized	Measured	
Mean	58.36	58.70	40.48	40.80	
Minimum	53.22	51.50	35.50	34.55	
Maximum	62.10	63.55	43.50	44.43	
UNC2 Strength [ksi] C.V.(%)	3.802	5.196	5.043	5.951	
No. Specimens	18		18		
No. Material Lots	3		3		
Mean	4.308	4.331	3.598	3.625	
Minimum	4.199	4.129	3.420	3.477	
Maximum	4.457	4.454	3.715	3.774	
UNC2 Modulus [Msi] C.V.(%)	1.733	2.036	2.217	2.343	
No. Specimens	18		18		
No. Material Lots	3		3		

2.3.15 “40/20/40” Unnotched Compression 3 Properties (UNC3)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Unnotched Compression 3 □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [45/0/90/0/-45/0/45/0/-45/0]S			
Resin content:	31.49 %wt	Comp. density:	1.580 g/cc		
Fiber volume:	60.48 %vol				
Ply count:	20				
Test method:	ASTM D6641-16e1	Modulus calculation:	1000-3000 microstrain		
Normalized by:	0.0054	in. CPT			
		RTA	ETW		
Test Temperature [°F]	70		275		
Moisture Conditioning	Dry		Equilibrium		
Equilibrium at T, RH			160F,85%		
Source code	UNC3-X-X-RTA-X		UNC3-X-X-ETW-X		
	Normalized	Measured	Normalized	Measured	
UNC3 Strength [ksi]	108.8	111.6	75.14	76.93	
Mean	102.5	102.6	66.68	66.18	
Minimum	113.9	118.0	80.91	83.18	
Maximum	2.938	3.367	5.125	6.410	
C.V.(%)					
No. Specimens	18		18		
No. Material Lots	3		3		
UNC3 Modulus [Msi]	9.980	10.24	9.470	9.691	
Mean	9.689	9.979	8.838	8.772	
Minimum	10.21	10.57	9.789	10.02	
Maximum	1.464	1.481	3.030	4.237	
C.V.(%)					
No. Specimens	18		18		
No. Material Lots	3		3		

2.3.16 “25/50/25” V-Notched Rail Shear Properties (VNS1)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		V-Notched Rail Shear □			
Resin content: 31.30 %wt	Comp. density: 1.579 g/cc	Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [45/0/-45/90]3S			
Fiber volume: 60.61 %vol					
Ply count: 24					
Test method: ASTM D7078-12	Modulus calculation: 2000-6000 microstrain				
Normalized by: NA					
	RTA	ETA	ETW		
Test Temperature [°F]	70	275	275		
Moisture Conditioning	Dry	Dry	Equilibrium		
Equilibrium at T, RH			160F,85%		
Source code	VNS1-X-X-RTA-X	VNS1-X-X-ETA-X	VNS1-X-X-ETW-X		
	Normalized	Measured	Normalized	Measured	Normalized
Mean	42.92	36.11	30.36		
Minimum	36.86	32.35	20.91		
Maximum	50.19	38.69	36.61		
F₁₂^{smax} [ksi]	7.285	6.017	15.24		
C.V.(%)					
No. Specimens	20	6	19		
No. Prepreg Lots	3	1	3		
Mean	2.633	2.494	2.504		
Minimum	2.549	2.456	2.374		
Maximum	2.719	2.525	2.639		
G₁₂^s [Msi]	1.987	0.9822	3.057		
C.V.(%)					
No. Specimens	20	6	18		
No. Material Lots	3	1	3		

Shares panel with UNC1.

2.3.17 “25/50/25” Double Notch Shear Properties (DNS1)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Double Notched Shear 1			
Resin content: 31.30 %wt	Comp. density: 1.579 g/cc	Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [45/0/-45/90]3S			
Fiber volume: 60.61 %vol					
Ply count: 24					
Test method: ASTM D3846-08 (2015)					
Normalized by: NA					
	RTA	ETA	ETW		
Test Temperature [°F]	70	275	275		
Moisture Conditioning Equilibrium at T, RH	Dry	Dry	Equilibrium 160F,85%		
Source code	DNS1-X-X-RTA-X	DNS1-X-X-ETA-X	DNS1-X-X-ETW-X		
	Normalized	Measured	Normalized	Measured	Normalized
Mean		10.17		5.989	5.783
Minimum		8.905		5.760	5.255
Maximum		11.04		6.249	6.356
C.V.(%)		6.113		2.726	6.515
No. Specimens		18		6	18
No. Material Lots		3		1	3

Shares panel with UNC1.

2.3.18 “25/50/25” Open-Hole Tension 1 Properties (OHT1)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Open-Hole Tension 1 □						
Resin content: 33.17 (32.17) %wt	Comp. density: 1.583 (1.580) g/cc	Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [45/0/-45/90]2S						
Fiber volume: 59.11 (59.88) %vol								
Ply count: 16								
Test method: ASTM D5766-11(2018)								
Normalized by: 0.0054	in. CPT							
	CTA	RTA	ETA	ETW				
Test Temperature [°F]	-65	70	275	275				
Moisture Conditioning Equilibrium at T, RH	Dry	Dry	Dry	Equilibrium 160F,85%				
Source code	OHT1-X-X-CTA-X	OHT1-X-X-RTA-X	OHT1-X-X-ETA-X	OHT1-X-X-ETW-X				
	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
Mean	58.22	58.94	56.60	56.73	51.90	53.20	51.18	51.98
Minimum	56.71	57.37	54.10	54.54	50.75	52.12	49.33	49.92
Maximum	59.54	61.01	58.97	59.57	52.56	53.92	53.55	54.74
OHT1 Strength [ksi] C.V.(%)	1.352	1.819	2.042	2.236	1.522	1.490	2.430	2.840
No. Specimens	18		18		6		18	
No. Material Lots	3		3		1		3	

Shares panel with FHT1.

RC, FV, and density computed by matrix digestion. Values in parenthesis are computed with Method II

2.3.19 “10/80/10” Open-Hole Tension 2 Properties (OHT2)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Open-Hole Tension 2 <input type="checkbox"/>				
Resin content: 32.34 %wt	Comp. density: 1.581 g/cc	Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC <input type="checkbox"/>				
Fiber volume: 59.77 %vol		[45/-45/0/45/-45/90/45/-45/45/-45]S				
Ply count: 20						
Test method: ASTM D5766-11(2018)						
Normalized by: 0.0054	in. CPT					
	CTA	RTA		ETW		
Test Temperature [°F]	-65	70		275		
Moisture Conditioning Equilibrium at T, RH	Dry	Dry		Equilibrium 160F,85%		
Source code	OHT2-X-X-CTA-X	OHT2-X-X-RTA-X		OHT2-X-X-ETW-X		
	Normalized	Measured	Normalized	Measured	Normalized	Measured
Mean	47.85	48.08	44.02	43.64	32.73	33.16
Minimum	44.66	45.57	41.28	41.12	31.86	31.99
Maximum	52.02	51.51	47.72	46.34	33.73	34.05
OHT2 Strength [ksi] C.V.(%)	4.482	3.760	4.166	3.174	1.438	1.759
No. Specimens	18		18		18	
No. Material Lots	3		3		3	

Shares panel with FHT2.

2.3.20 “40/20/40” Open-Hole Tension 3 Properties (OHT3)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Open-Hole Tension 3 <input type="checkbox"/>					
Resin content:	31.76 %wt	Comp. density:		1.576 g/cc			
Fiber volume:	60.09 %vol	Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC <input type="checkbox"/> [0/45/0/90/0/-45/0/45/0/-45]S					
Ply count:	20						
Test method:	ASTM D5766-11(2018)						
Normalized by:	0.0054	in. CPT					
		CTA		RTA		ETW	
Test Temperature [°F]		-65		70		275	
Moisture Conditioning Equilibrium at T, RH		Dry		Dry		Equilibrium 160F,85%	
Source code		OHT3-X-X-CTA-X		OHT3-X-X-RTA-X		OHT3-X-X-ETW-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured
Mean		78.39	80.35	78.08	78.65	75.28	77.76
Minimum		72.61	74.77	71.90	72.16	70.02	72.75
Maximum		86.80	87.48	83.62	82.90	81.96	83.41
OHT3 Strength [ksi] C.V.(%)		5.142	4.611	4.299	4.154	4.603	4.031
No. Specimens		18		19		18	
No. Material Lots		3		3		3	

Shares panel with FHT3.

2.3.21 “25/50/25” Filled-Hole Tension 1 Properties (FHT1)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Filled-Hole Tension 1 □						
Resin content: 33.17 (32.17) %wt	Comp. density: 1.583 (1.580) g/cc	Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [45/0/-45/90]2S						
Fiber volume: 59.11 (59.88) %vol								
Ply count: 16								
Test method: ASTM D6742-17								
Normalized by: 0.0054	in. CPT							
	CTA	RTA	ETA	ETW				
Test Temperature [°F]	-65	70	275	275				
Moisture Conditioning Equilibrium at T, RH	Dry	Dry	Dry	Equilibrium 160F,85%				
Source code	FHT1-X-X-CTA-X	FHT1-X-X-RTA-X	FHT1-X-X-ETA-X	FHT1-X-X-ETW-X				
	Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
Mean	64.13	64.87	59.65	60.25	55.73	57.11	54.65	55.39
Minimum	61.61	61.42	57.43	58.39	52.99	54.86	53.35	53.19
Maximum	66.37	67.09	62.06	62.80	57.09	58.18	55.96	57.28
FHT1 Strength [ksi] C.V.(%)	2.088	2.309	1.879	1.877	2.770	2.336	1.863	2.217
No. Specimens	18		18		6		18	
No. Material Lots	3		3		1		3	

Shares panel with OHT1.

RC, FV, and density computed by matrix digestion. Values in parenthesis are computed with Method II

2.3.22 “10/80/10” Filled-Hole Tension 2 Properties (FHT2)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Filled-Hole Tension 2 □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [45/-45/0/45/-45/90/45/-45/45/-45]S					
Resin content:	32.34 %wt	Comp. density:		1.581 g/cc			
Fiber volume:	59.77 %vol						
Ply count:	20						
Test method:	ASTM D6742-17						
Normalized by:	0.0054	in. CPT					
		CTA	RTA		ETW		
Test Temperature [°F]		-65	70		275		
Moisture Conditioning Equilibrium at T, RH		Dry	Dry		Equilibrium 160F,85%		
Source code		FHT2-X-X-CTA-X	FHT2-X-X-RTA-X		FHT2-X-X-ETW-X		
		Normalized	Measured	Normalized	Measured	Normalized	
		Measured		Measured		Measured	
Mean		53.66	54.02	47.09	46.99	35.24	35.50
Minimum		47.78	48.62	45.49	45.64	34.39	34.09
Maximum		57.08	57.41	49.27	49.20	36.54	37.23
FHT2 Strength [ksi] C.V.(%)		4.510	4.135	2.723	2.372	2.037	2.256
No. Specimens		18		18		18	
No. Material Lots		3		3		3	

Shares panel with OHT2.

2.3.23 “40/20/40” Filled-Hole Tension 3 Properties (FHT3)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Filled-Hole Tension 3 □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [0/45/0/90/0/-45/0/45/0/-45]S					
Resin content:	31.76 %wt	Comp. density:		1.576 g/cc			
Fiber volume:	60.09 %vol						
Ply count:	20						
Test method:	ASTM D6742-17						
Normalized by:	0.0054	in. CPT					
		CTA	RTA		ETW		
Test Temperature [°F]		-65	70		275		
Moisture Conditioning Equilibrium at T, RH		Dry	Dry		Equilibrium 160F,85%		
Source code		FHT3-X-X-CTA-X	FHT3-X-X-RTA-X		FHT3-X-X-ETW-X		
		Normalized	Measured	Normalized	Measured	Normalized	
		Measured		Measured		Measured	
Mean		83.79	85.82	79.85	80.91	75.23	77.14
Minimum		79.15	81.37	74.71	76.59	70.99	73.33
Maximum		90.34	91.90	83.98	84.94	80.01	81.37
FHT3 Strength [ksi] C.V.(%)		4.665	4.255	3.884	3.629	3.920	3.421
No. Specimens		18		18		18	
No. Material Lots		3		3		3	

Shares panel with OHT3.

2.3.24 “25/50/25” Open-Hole Compression 1 Properties (OHC1)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Open-Hole Compression 1 <input type="checkbox"/>									
Resin content: 32.19 %wt		Comp. density: 1.582 g/cc		Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC <input type="checkbox"/> [45/0/-45/90]4S							
Fiber volume: 59.97 %vol											
Ply count: 32											
Test method: ASTM D6484-14											
Normalized by: 0.0054 in. CPT											
		RTA		ETA		ETW2		ETW			
Test Temperature [°F]		70		275		250		275			
Moisture Conditioning		Dry		Dry		Equilibrium		Equilibrium			
Equilibrium at T, RH						160F,85%		160F,85%			
Source code		OHC1-X-X-RTA-X		OHC1-X-X-ETA-X		OHC1-X-X-ETW2-X		OHC1-X-X-ETW-X			
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured		
Mean		45.57	45.60	33.57	34.14	34.91	35.31	30.95	31.33		
Minimum		43.20	43.58	33.09	33.55	33.50	33.65	28.29	29.04		
Maximum		47.62	47.49	34.40	35.21	36.36	36.83	33.69	34.39		
OHC1 Strength [ksi] C.V.(%)		2.941	2.412	1.609	1.958	2.551	2.818	3.787	3.614		
No. Specimens		18		6		18		18			
No. Prepreg Lots		3		1		3		3			

2.3.25 “10/80/10” Open-Hole Compression 2 Properties (OHC2)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Open-Hole Compression 2 <input type="checkbox"/>			
Resin content:	34.00 (33.10) %wt	Comp. density:	1.568 (1.577) g/cc		
Fiber volume:	57.82 (58.95) %vol	Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC <input type="checkbox"/> [45/-45/0/45/-45/90/45/-45/45/-45]2S			
Ply count:	40				
Test method:	ASTM D6484-14				
Normalized by:	0.0054	in. CPT			
	RTA		ETW		
Test Temperature [°F]	70		275		
Moisture Conditioning	Dry		Equilibrium		
Equilibrium at T, RH			160F,85%		
Source code	OHC2-X-X-RTA-X		OHC2-X-X-ETW-X		
	Normalized	Measured	Normalized	Measured	
Mean	42.09	41.91	28.29	28.36	
Minimum	38.81	39.13	25.93	26.08	
Maximum	43.83	43.45	30.85	31.08	
OHC2 Strength [ksi] C.V.(%)	3.447	3.314	3.682	3.866	
No. Specimens	18		18		
No. Material Lots	3		3		

Shares panel with FHC2.

RC, FV, and density computed by matrix digestion. Values in parenthesis are computed with Method II

2.3.26 “40/20/40” Open-Hole Compression 3 Properties (OHC3)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Open-Hole Compression 3 □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [0/45/0/90/0/-45/0/45/0/-45]2S			
Resin content:	34.33 (32.18) %wt	Comp. density:	1.570 (1.586) g/cc		
Fiber volume:	57.61 (59.93) %vol				
Ply count:	40				
Test method:	ASTM D6484-14				
Normalized by:	0.0054	in. CPT			
	RTA		ETW		
Test Temperature [°F]	70		275		
Moisture Conditioning Equilibrium at T, RH	Dry		Equilibrium 160F,85%		
Source code	OHC3-X-X-RTA-X		OHC3-X-X-ETW-X		
	Normalized	Measured	Normalized	Measured	
Mean	57.27	58.21	39.39	40.29	
Minimum	53.53	54.05	36.77	37.05	
Maximum	61.76	63.93	42.33	44.00	
OHC3 Strength [ksi] C.V.(%)	4.591	5.672	4.411	5.606	
No. Specimens	19		18		
No. Material Lots	3		3		

Shares panel with FHC3.

RC, FV, and density computed by matrix digestion. Values in parenthesis are computed with Method II

2.3.27 “25/50/25” Filled-Hole Compression 1 Properties (FHC1)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Filled-Hole Compression 1 □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [45/0/-45/90]4S					
Resin content:	32.19 %wt	Comp. density:		1.582 g/cc			
Fiber volume:	59.97 %vol						
Ply count:	32						
Test method:	ASTM D6742-17						
Normalized by:	0.0054	in. CPT					
		RTA	ETA		ETW		
Test Temperature [°F]		70	275		275		
Moisture Conditioning Equilibrium at T, RH		Dry	Dry		Equilibrium 160F,85%		
Source code		FHC1-X-X-RTA-X	FHC1-X-X-ETA-X		FHC1-X-X-ETW-X		
		Normalized	Measured	Normalized	Measured	Normalized	Measured
Mean		74.84	75.41	56.91	57.90	51.45	52.20
Minimum		69.60	69.35	55.43	56.65	48.10	48.94
Maximum		80.12	80.86	58.44	59.54	53.55	54.75
FHC1 Strength [ksi] C.V.(%)		3.354	3.367	1.979	1.885	3.172	3.418
No. Specimens		18		6		18	
No. Material Lots		3		1		3	

Shares panel with OHC1.

2.3.28 “10/80/10” Filled-Hole Compression 2 Properties (FHC2)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Filled-Hole Compression 2 <input type="checkbox"/>			
Resin content:	34.00 (33.10) %wt	Comp. density:	1.568 (1.577) g/cc		
Fiber volume:	57.82 (58.95) %vol	Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC <input type="checkbox"/>			
Ply count:	40	[45/-45/0/45/-45/90/45/-45/45/-45]2S			
Test method:	ASTM D6742-17				
Normalized by:	0.0054	in. CPT			
		RTA	ETW		
Test Temperature [°F]	70		275		
Moisture Conditioning Equilibrium at T, RH	Dry		Equilibrium 160F,85%		
Source code	FHC2-X-X-RTA-X		FHC2-X-X-ETW-X		
	Normalized	Measured	Normalized	Measured	
Mean	57.09	57.04	37.75	37.90	
Minimum	52.60	52.94	35.10	35.42	
Maximum	59.75	59.64	40.64	40.78	
FHC2 Strength [ksi] C.V.(%)	3.126	3.442	4.802	4.227	
No. Specimens	18		18		
No. Material Lots	3		3		

Shares panel with OHC2.

RC, FV, and density computed by matrix digestion. Values in parenthesis are computed with Method II

2.3.29 “40/20/40” Filled-Hole Compression 3 Properties (FHC3)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Filled-Hole Compression 3 □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [0/45/0/90/0/-45/0/45/0/-45]2S			
Resin content:	34.33 (32.18) %wt	Comp. density:	1.570 (1.586) g/cc		
Fiber volume:	57.61 (59.93) %vol				
Ply count:	40				
Test method:	ASTM D6742-17				
Normalized by:	0.0054	in. CPT			
		RTA	ETW		
Test Temperature [°F]	70		275		
Moisture Conditioning Equilibrium at T, RH	Dry		Equilibrium 160F,85%		
Source code	FHC3-X-X-RTA-X		FHC3-X-X-ETW-X		
	Normalized	Measured	Normalized	Measured	
Mean	89.56	91.32	62.09	63.70	
Minimum	84.33	84.92	57.93	58.75	
Maximum	95.40	96.47	66.36	69.63	
FHC3 Strength [ksi] C.V.(%)	3.418	3.747	3.495	4.379	
No. Specimens	19		18		
No. Material Lots	3		3		

Shares panel with OHC3.

RC, FV, and density computed by matrix digestion. Values in parenthesis are computed with Method II

2.3.30 “25/50/25” Single-Shear Bearing 1 Properties (SSB1)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Single-Shear Bearing 1 □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [45/0/-45/90]2S					
Resin content:	33.97 %wt	Comp. density:		1.575 g/cc			
Fiber volume:	58.12 %vol						
Ply count:	16						
Test method:	ASTM D5961-17						
Normalized by:	0.0054	in. CPT					
		RTA		ETA		ETW	
Test Temperature [°F]		70		275		275	
Moisture Conditioning Equilibrium at T, RH		Dry		Dry		Equilibrium 160F,85%	
Source code		SSB1-X-X-RTA-X		SSB1-X-X-ETA-X		SSB1-X-X-ETW-X	
		Normalized	Measured	Normalized	Measured	Normalized	
						Measured	
SSB1 Initial Peak Strength [ksi]	Mean		107.8		83.35		
	Minimum		103.3		77.99		
	Maximum		112.0		88.70		
	C.V.(%)		4.060		9.087		
	No. Specimens	3		2			
	No. Material Lots	2		1			
SSB1 2% Offset Strength [ksi]	Mean	108.5	108.2	82.55	82.58	87.69	
	Minimum	101.3	100.1	76.25	75.87	83.61	
	Maximum	116.7	114.0	88.58	88.52	99.26	
	C.V.(%)	4.258	3.666	5.961	5.736	4.870	
	No. Specimens	18		6		18	
	No. Material Lots	3		1		3	
SSB1 Ultimate Strength [ksi]	Mean	124.7	124.3	95.06	95.09	94.63	
	Minimum	120.5	119.9	87.15	88.50	88.72	
	Maximum	131.3	131.1	103.0	102.6	104.8	
	C.V.(%)	2.291	2.357	5.538	5.000	4.957	
	No. Specimens	18		6		18	
	No. Material Lots	3		1		3	

Shares panel with UNT1.

2.3.31 “10/80/10” Single-Shear Bearing 2 Properties (SSB2)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Single-Shear Bearing 2 □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [45/-45/0/45/-45/90/45/-45/45/-45]S			
Resin content:	33.09 %wt	Comp. density:	1.583 g/cc		
Fiber volume:	59.18 %vol				
Ply count:	20				
Test method:	ASTM D5961-17				
Normalized by:	0.0054	in. CPT			
		RTA	ETW		
Test Temperature [°F]	70		275		
Moisture Conditioning	Dry		Equilibrium		
Equilibrium at T, RH			160F,85%		
Source code	SSB2-X-X-RTA-X		SSB2-X-X-ETW-X		
	Normalized	Measured	Normalized	Measured	
SSB2 2% Offset Strength [ksi]	Mean	110.0	110.8	84.52	86.50
	Minimum	104.9	106.3	75.71	78.60
	Maximum	115.6	116.6	90.28	93.07
	C.V.(%)	2.763	2.617	4.405	4.142
	No. Specimens	18		18	
No. Material Lots	3		3		
SSB2 Ultimate Strength [ksi]	Mean	132.7	133.7	92.81	94.99
	Minimum	127.0	127.9	86.82	90.01
	Maximum	136.8	139.3	98.13	99.67
	C.V.(%)	2.446	2.464	3.174	2.736
	No. Specimens	18		18	
No. Material Lots	3		3		

Shares panel with UNT2.

2.3.32 “40/20/40” Single-Shear Bearing 3 Properties (SSB3)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Single-Shear Bearing 3 □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [0/45/0/90/0/-45/0/45/0/-45]S			
Resin content:	32.76 %wt	Comp. density:		1.582 g/cc	
Fiber volume:	59.43 %vol				
Ply count:	20				
Test method:	ASTM D5961-17				
Normalized by:	0.0054	in. CPT			
		RTA		ETW	
Test Temperature [°F]	70		275		
Moisture Conditioning	Dry		Equilibrium		
Equilibrium at T, RH			160F,85%		
Source code	SSB3-X-X-RTA-X		SSB3-X-X-ETW-X		
	Normalized	Measured	Normalized	Measured	
SSB3 Initial Peak Strength [ksi]	Mean	111.4	82.16		
	Minimum	105.8	78.18		
	Maximum	115.4	97.40		
	C.V.(%)	3.516	7.262		
	No. Specimens	7	9		
No. Material Lots	3	3			
SSB3 2% Offset Strength [ksi]	Mean	109.3	83.10		
	Minimum	101.9	67.69		
	Maximum	113.7	100.8		
	C.V.(%)	3.027	10.81		
	No. Specimens	18	19		
No. Prepreg Lots	3	3			
SSB3 Ultimate Strength [ksi]	Mean	127.0	92.80		
	Minimum	120.7	86.39		
	Maximum	136.9	102.6		
	C.V.(%)	3.053	4.441		
	No. Specimens	18	19		
No. Prepreg Lots	3	3			

Shares panel with UNT3.

2.3.33 “25/50/25” Compression After Impact 1 Properties (CAI1)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Compression After Impact 1 <input type="checkbox"/>				
Resin content: 31.77 %wt	Comp. density: 1.574 g/cc	Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC <input type="checkbox"/> [45/0/-45/90]4S				
Fiber volume: 60.02 %vol						
Ply count: 32						
Test method: ASTM D7136-15/D7137-17						
Normalized by: 0.0054	in. CPT					
	RTA	ETA	ETW			
Test Temperature [°F]	70	275	275			
Moisture Conditioning	Dry	Dry	Equilibrium			
Equilibrium at T, RH			160F,85%			
Source code	CAI1-X-X-RTA-X	CAI1-X-X-ETA-X	CAI1-X-X-ETW-X			
	Normalized	Measured	Normalized	Measured	Normalized	Measured
Mean	42.40	42.29	32.63	32.86	29.63	29.68
Minimum	34.44	34.58	31.54	31.86	28.82	28.78
Maximum	45.31	45.07	34.29	34.52	31.25	31.20
CAI1 Strength [ksi] C.V.(%)	8.647	8.430	3.278	3.077	3.117	3.048
No. Specimens	7		6		6	
No. Material Lots	1		1		1	

2.3.34 Interlaminar Tension Properties (ILT)

Material: Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC		Interlaminar Tension □ Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC □ [0]30 (note: curved panel)							
Resin content:	33.38 (31.97) %wt	Comp. density:		1.563 (1.57) g/cc					
Fiber volume:	58.17 (59.68) %vol								
Ply count:	30								
Test method: ASTM D6415-06a(2013)									
Normalized by: NA									
		CTA		RTA		ETA		ETW	
Test Temperature [°F]		-65		70		275		275	
Moisture Conditioning		Dry		Dry		Dry		Equilibrium	
Equilibrium at T, RH								160F,85%	
Source code		ILT-X-X-CTA-X		ILT-X-X-RTA-X		ILT-X-X-ETA-X		ILT-X-X-ETW-X	
		Normalized	Measured	Normalized	Measured	Normalized	Measured	Normalized	Measured
CBS [lb]	Mean		652.3		455.1		298.8		180.9
	Minimum		531.0		397.8		220.6		170.8
	Maximum		731.0		547.2		336.7		188.2
	C.V.(%)		9.884		12.81		15.10		3.441
	No. Specimens		7		7		7		6
	No. Material Lots		1		1		1		1
ILT [ksi]	Mean		19.16		13.50		8.944		5.387
	Minimum		15.65		11.79		6.566		5.076
	Maximum		21.68		16.11		9.943		5.538
	C.V.(%)		10.07		12.54		14.62		3.428
	No. Specimens		7		7		7		6
	No. Material Lots		1		1		1		1

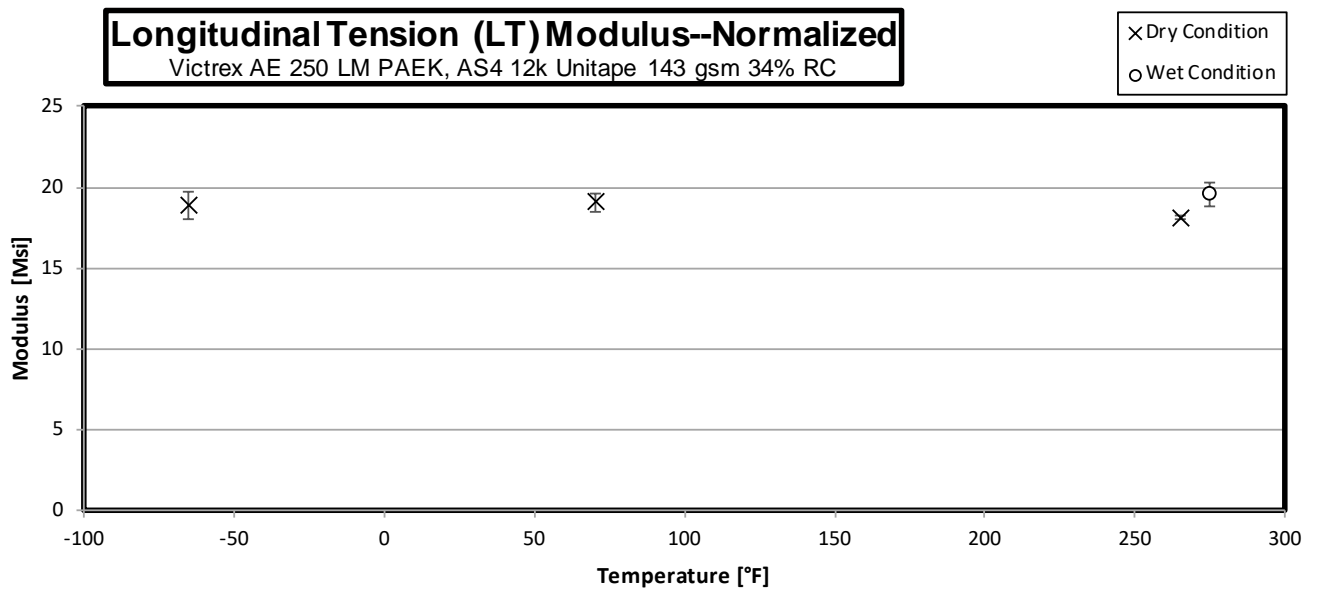
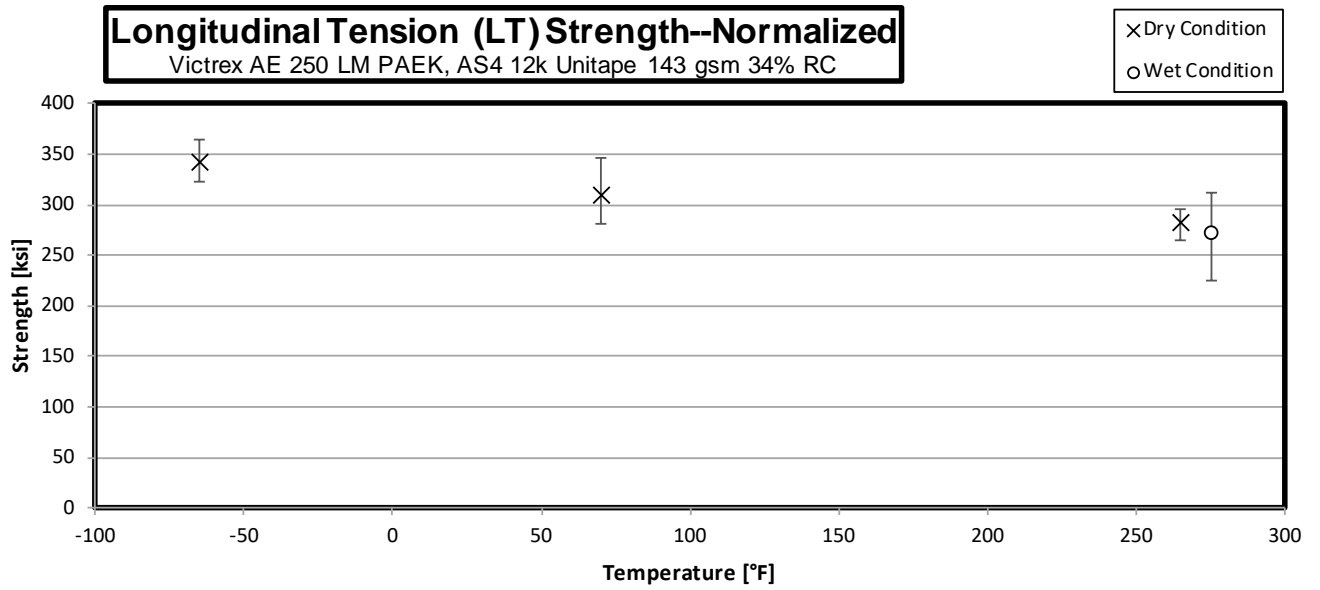
RC, FV, and density computed by matrix digestion. Values in parenthesis are computed with Method II

3. Individual Test Charts

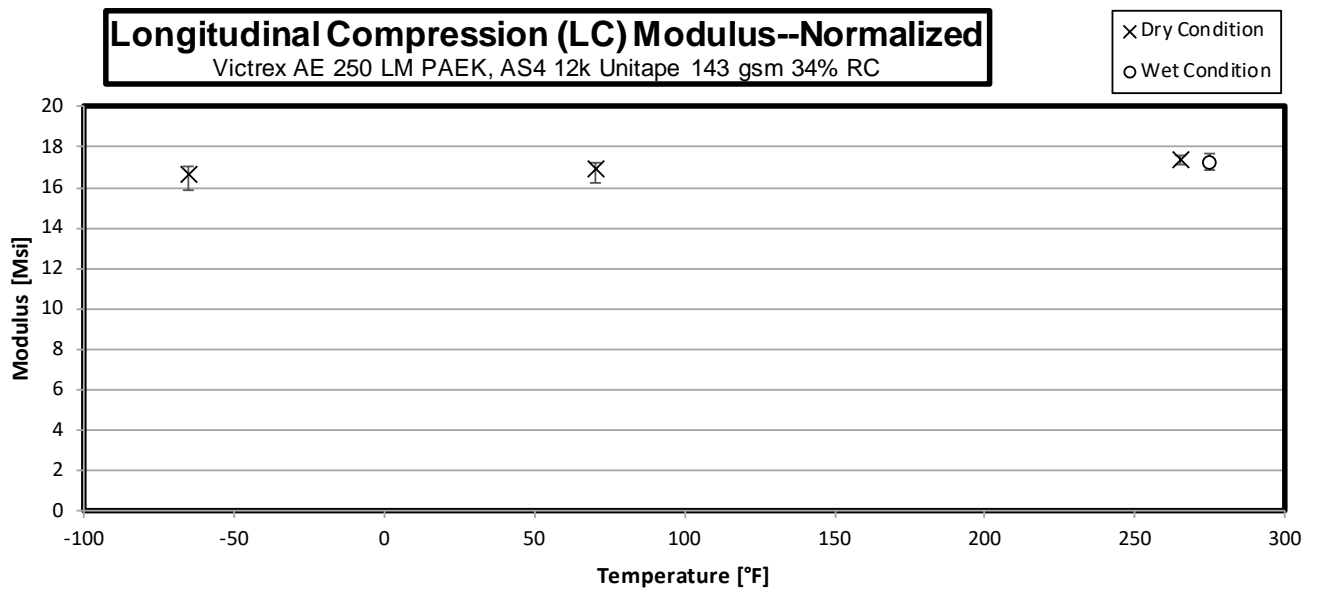
These charts combine all three batches of data and plot the minimum and maximum modulus and strength range based on the test temperature.

Test temperature for ETA is 275°F but it is offset to 265°F in the charts below to allow clarity when reviewing plots.

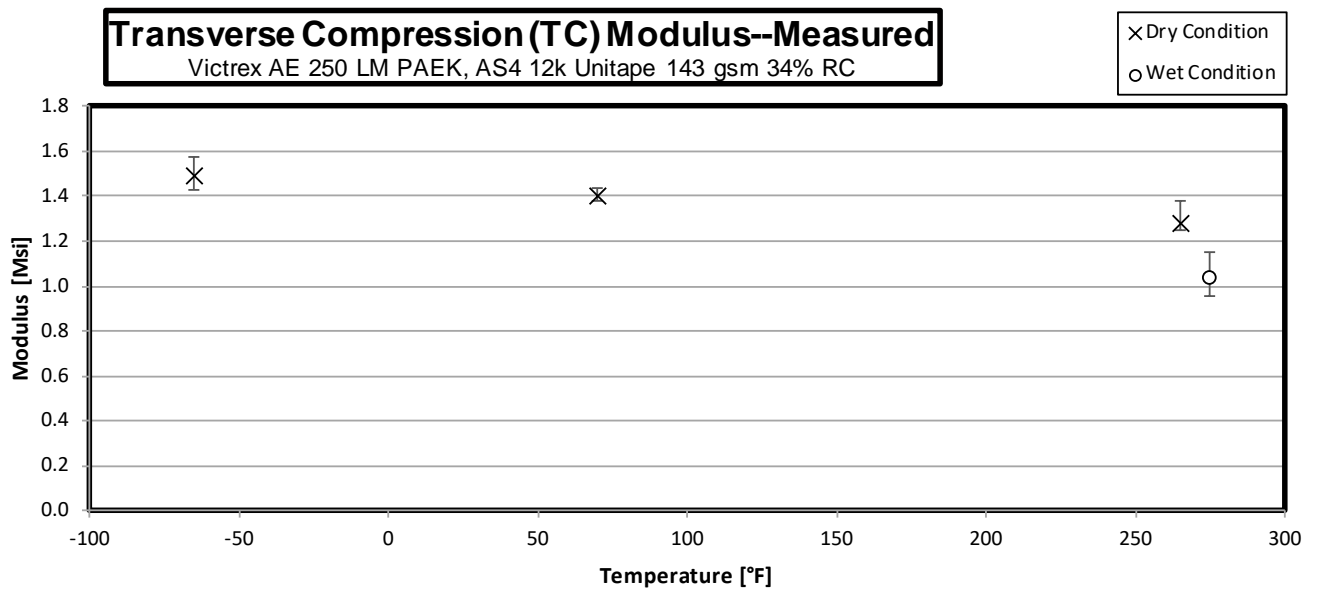
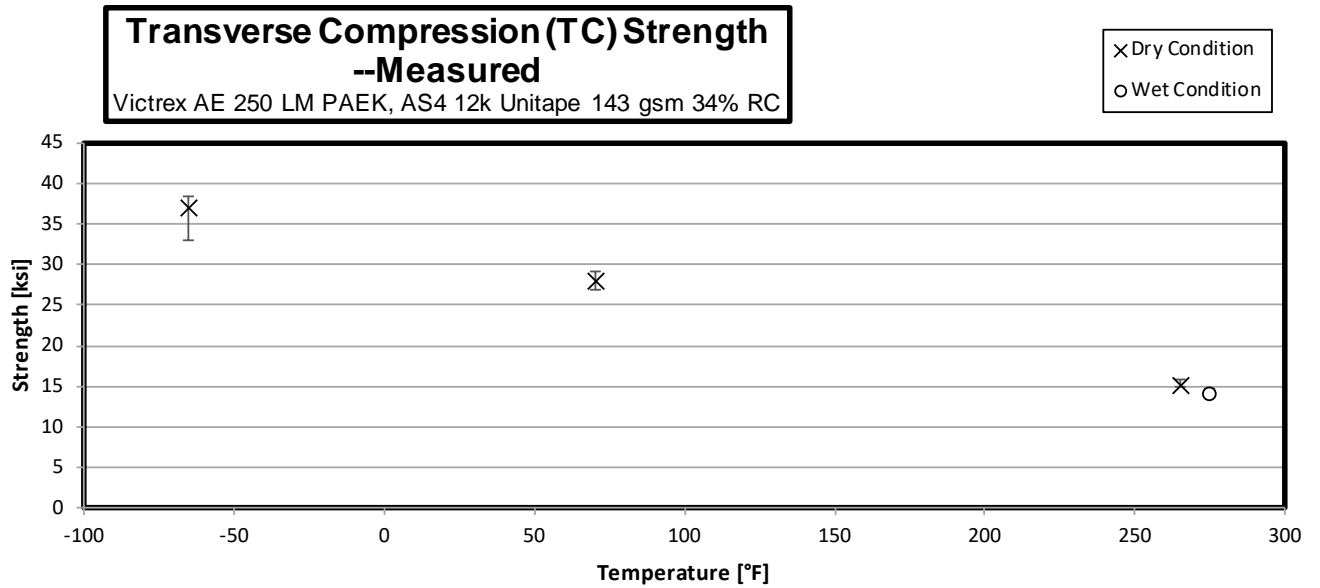
3.1 Longitudinal Tension Properties (LT)



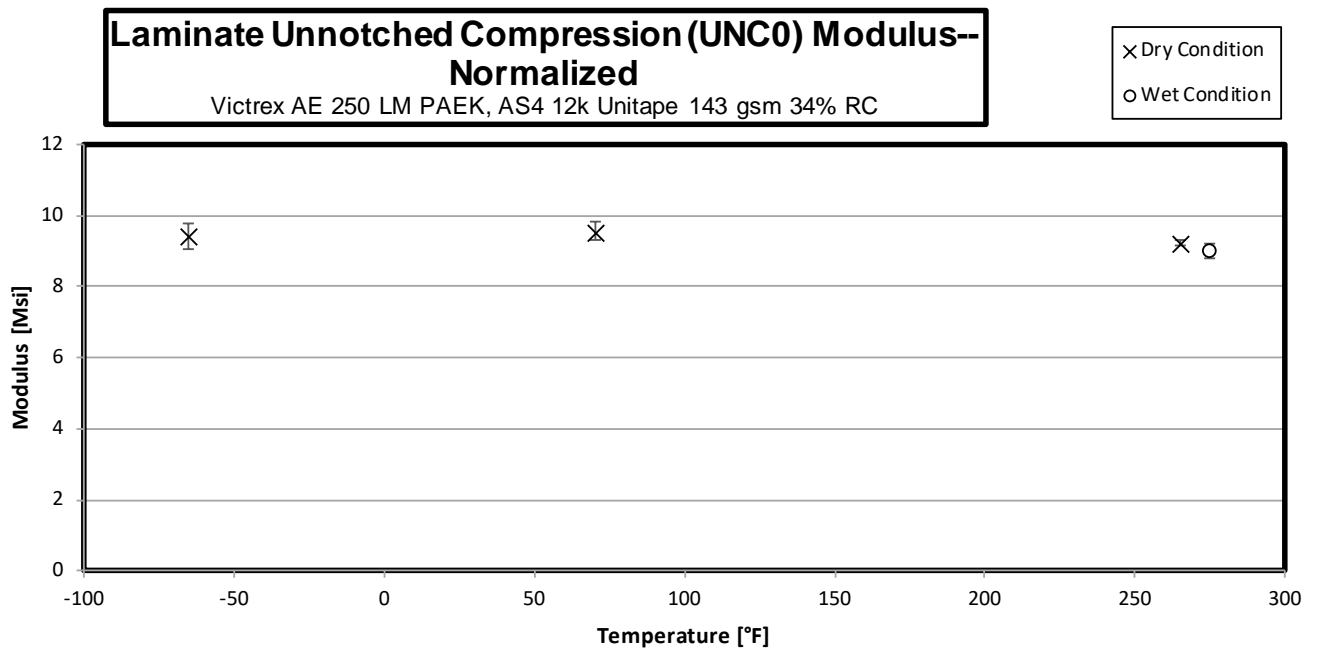
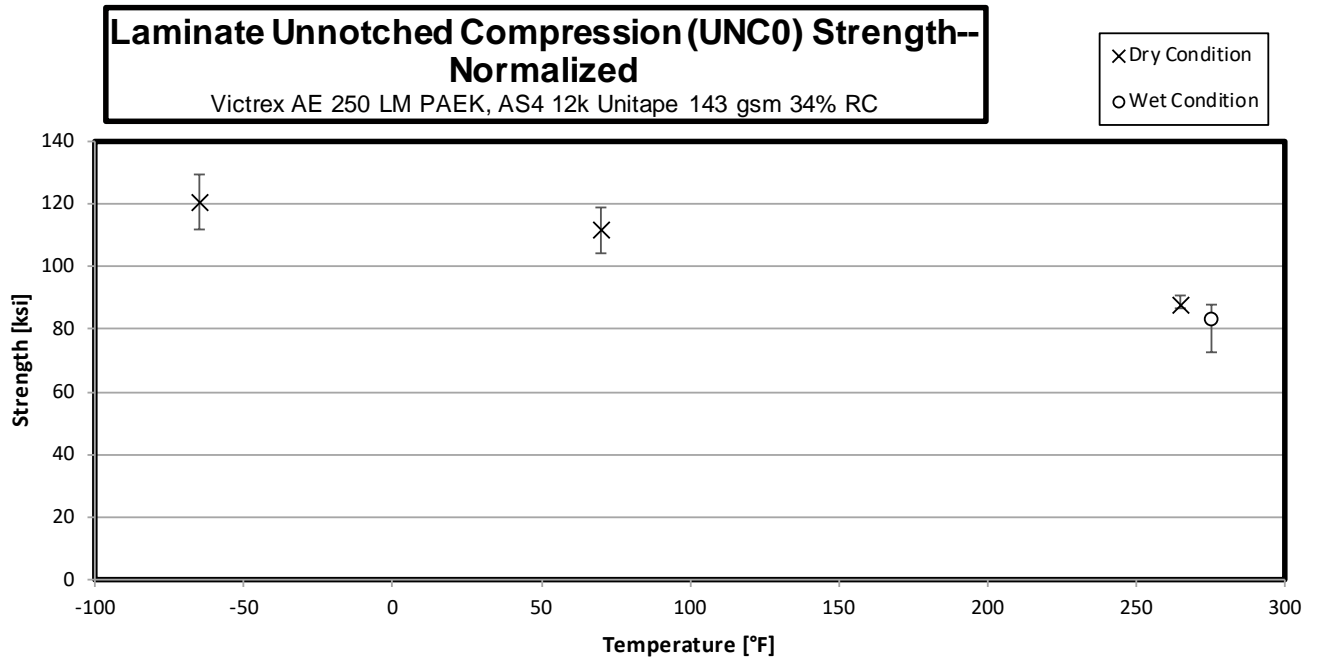
3.2 Longitudinal Compression Properties (LC)



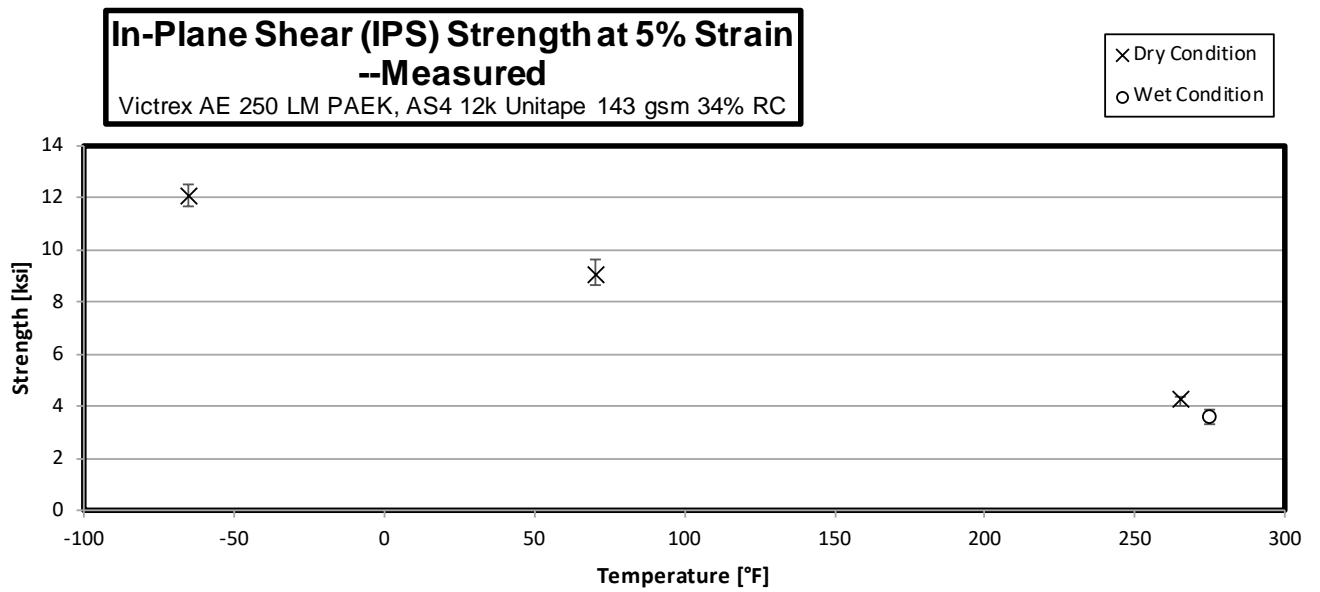
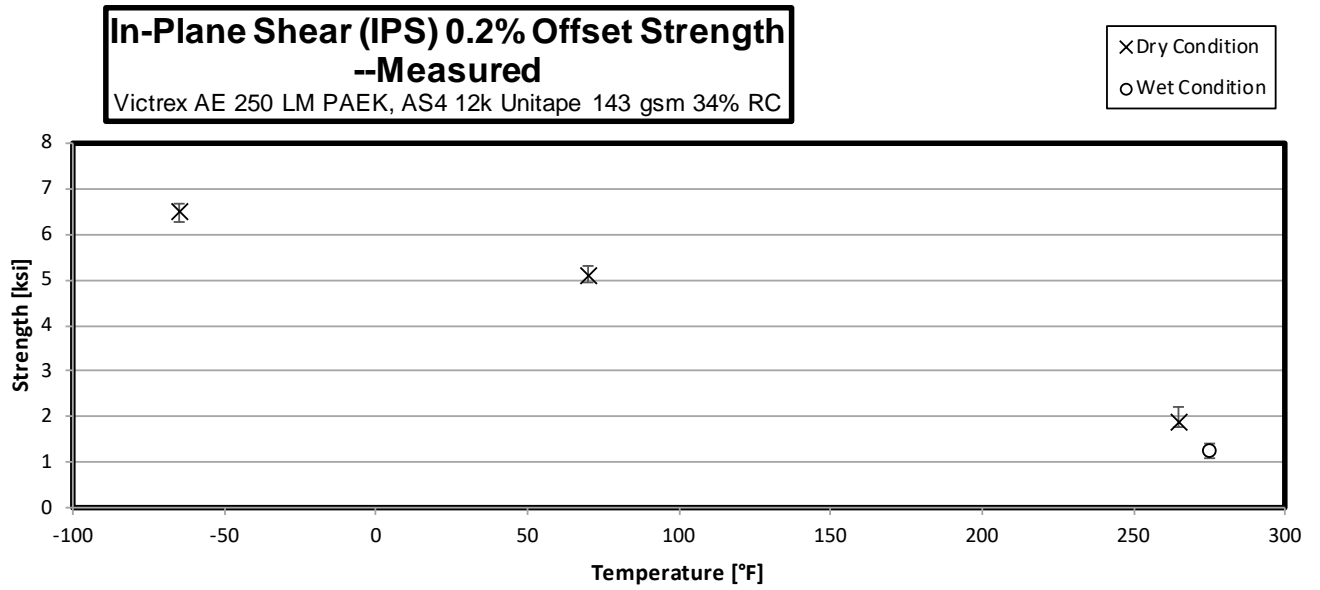
3.3 Transverse Compression Properties (TC)

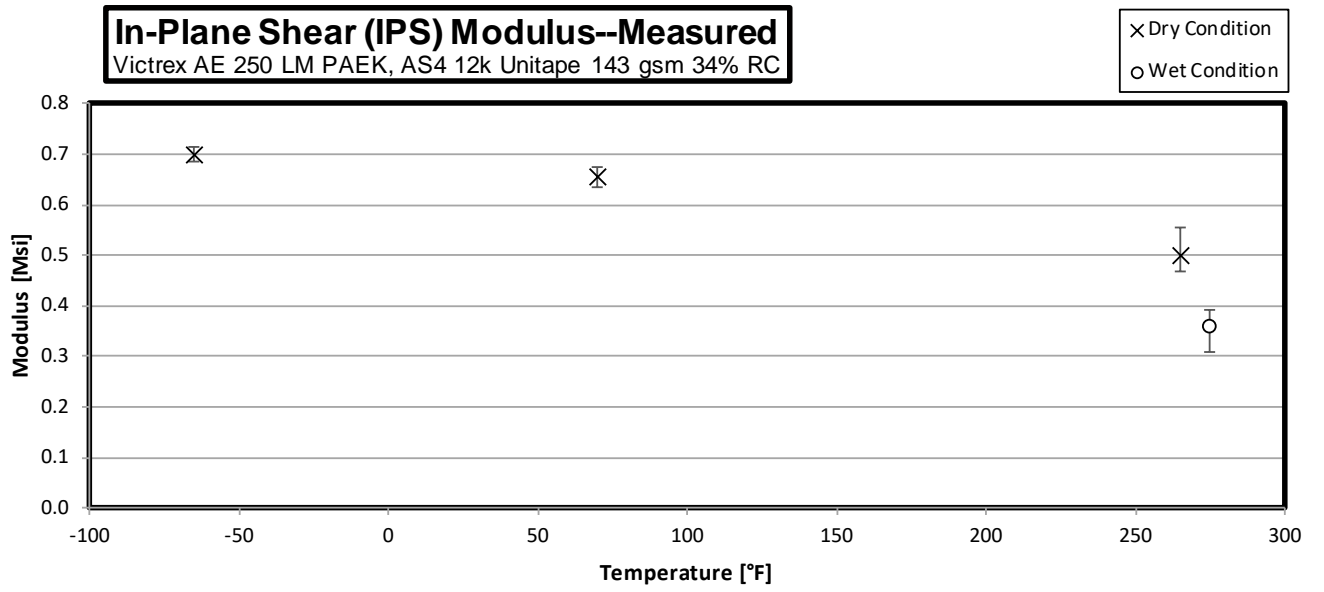


3.4 Unnotched Compression Properties (UNC0)

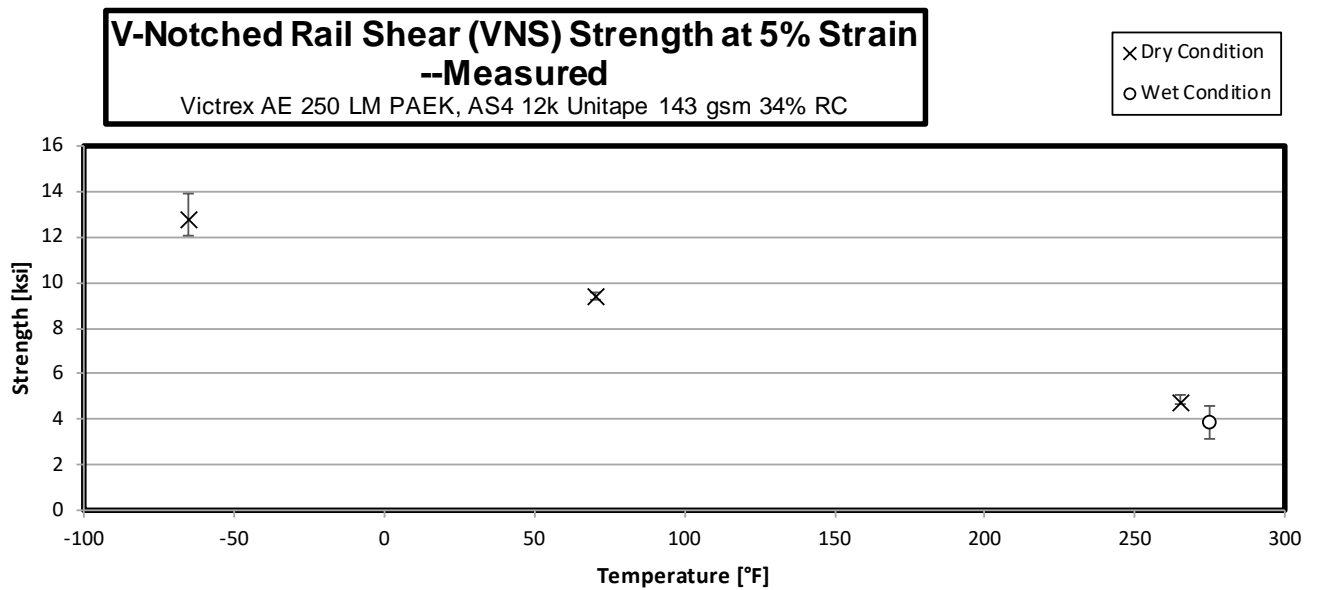
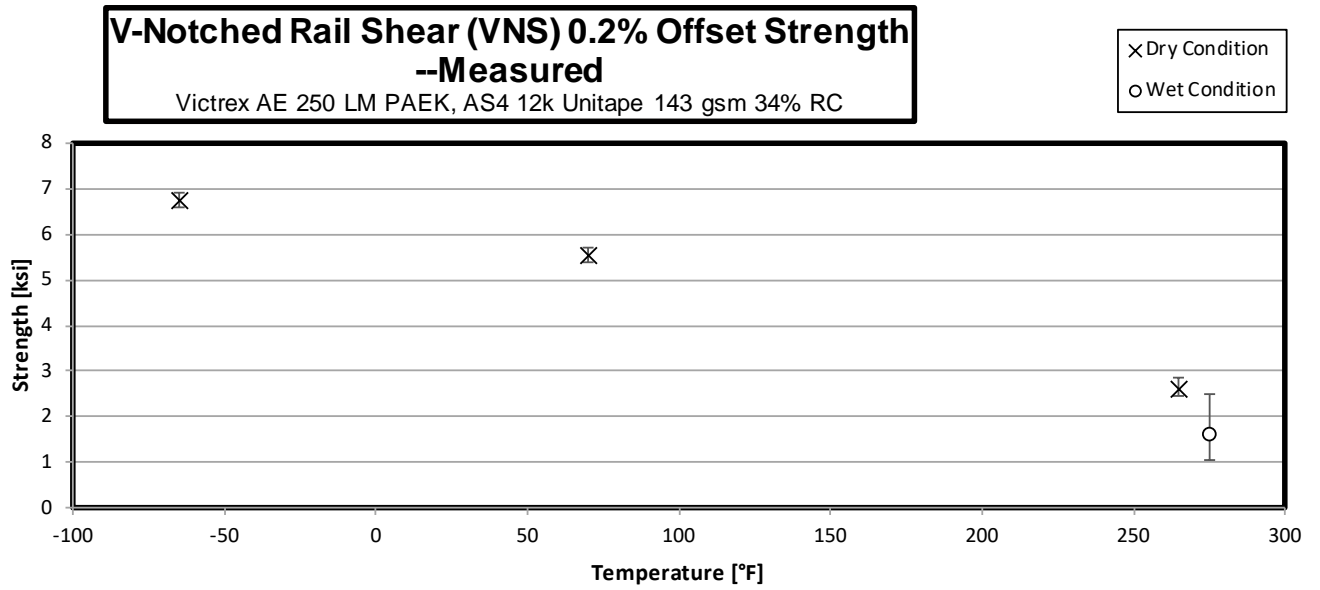


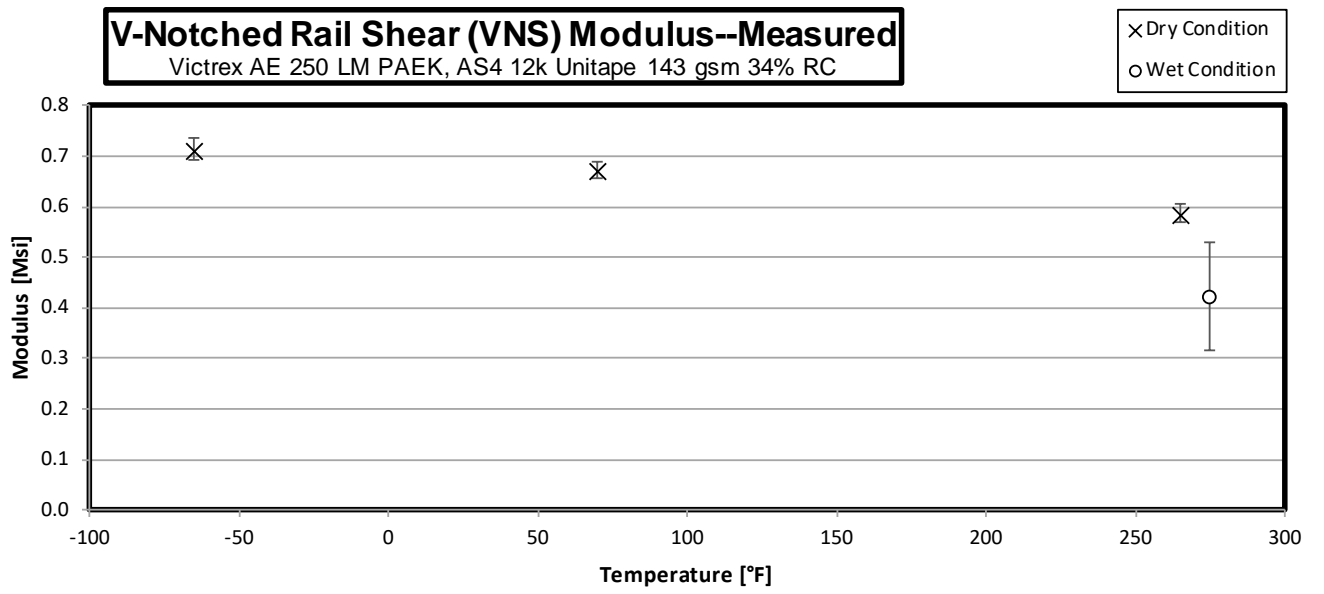
3.5 In-Plane Shear Properties (IPS)



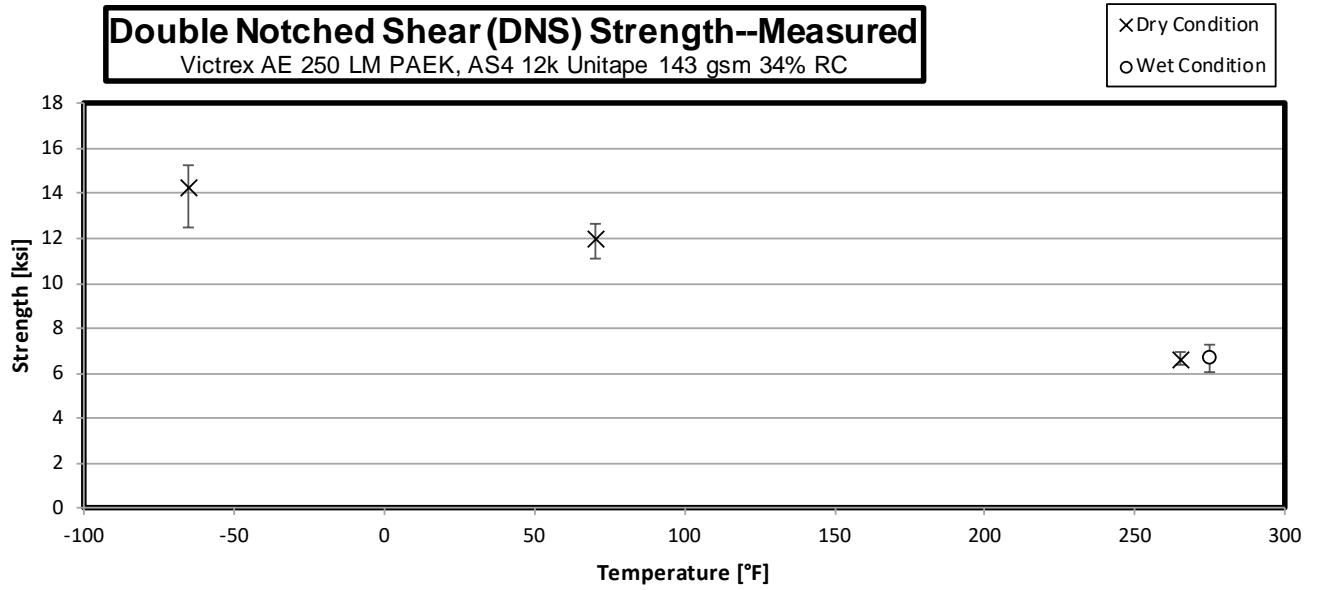


3.6 V-Notched Rail Shear Properties (VNS)

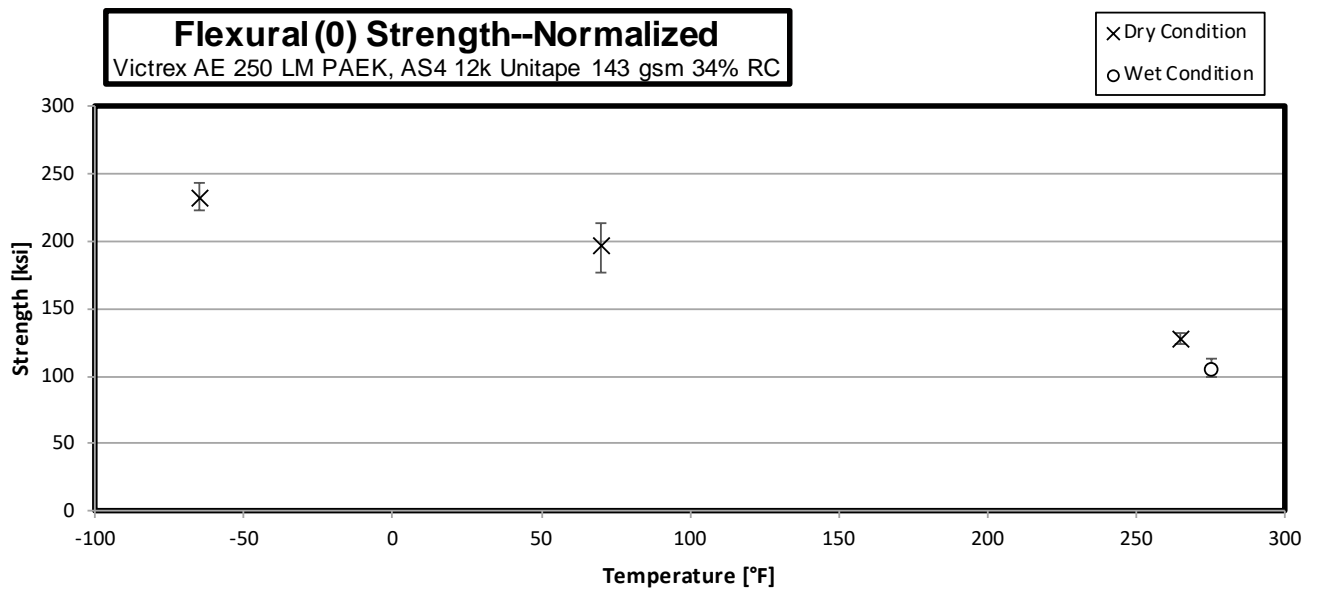




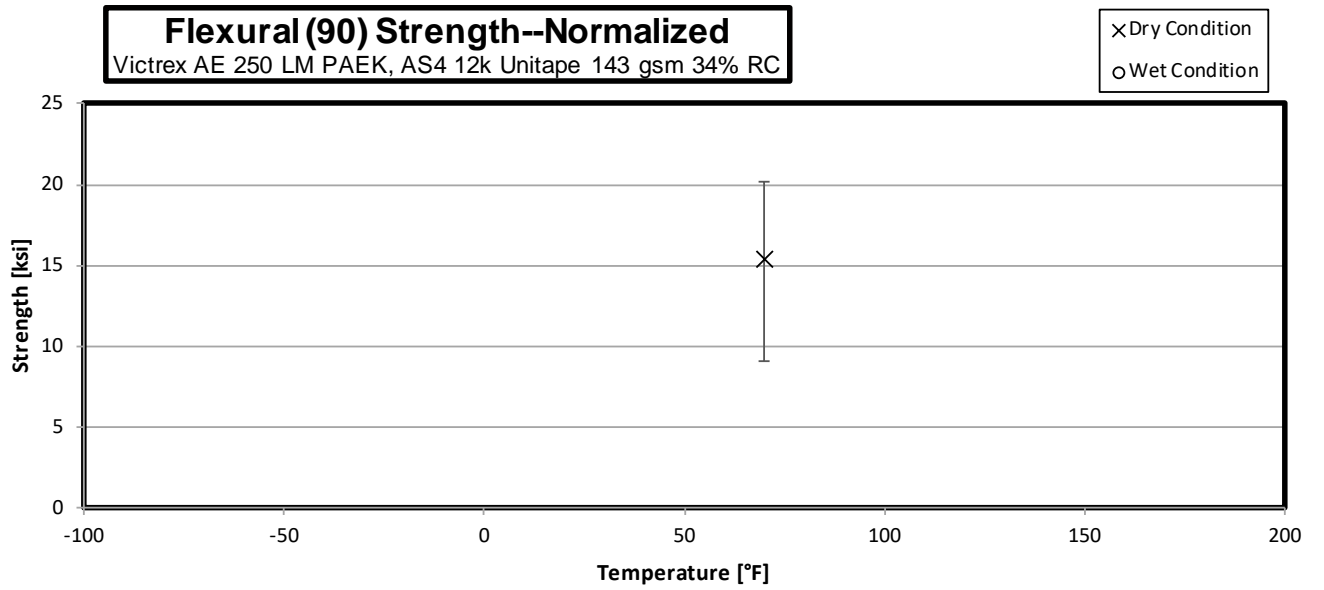
3.7 Double Notch Shear Properties (DNS)



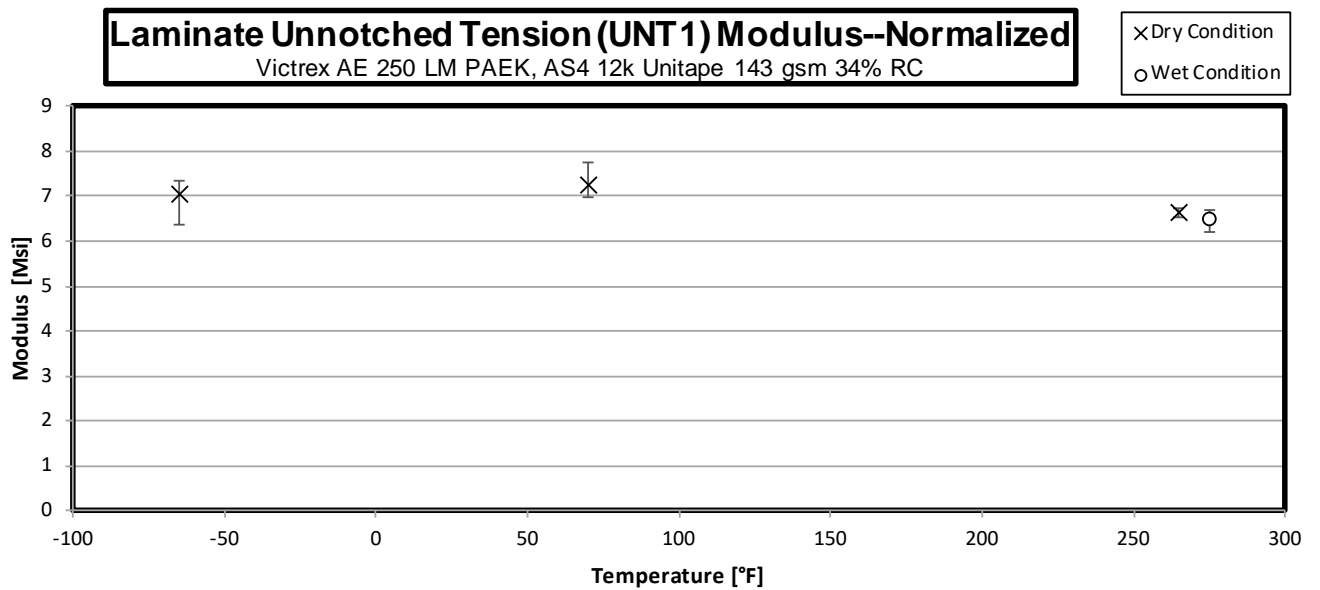
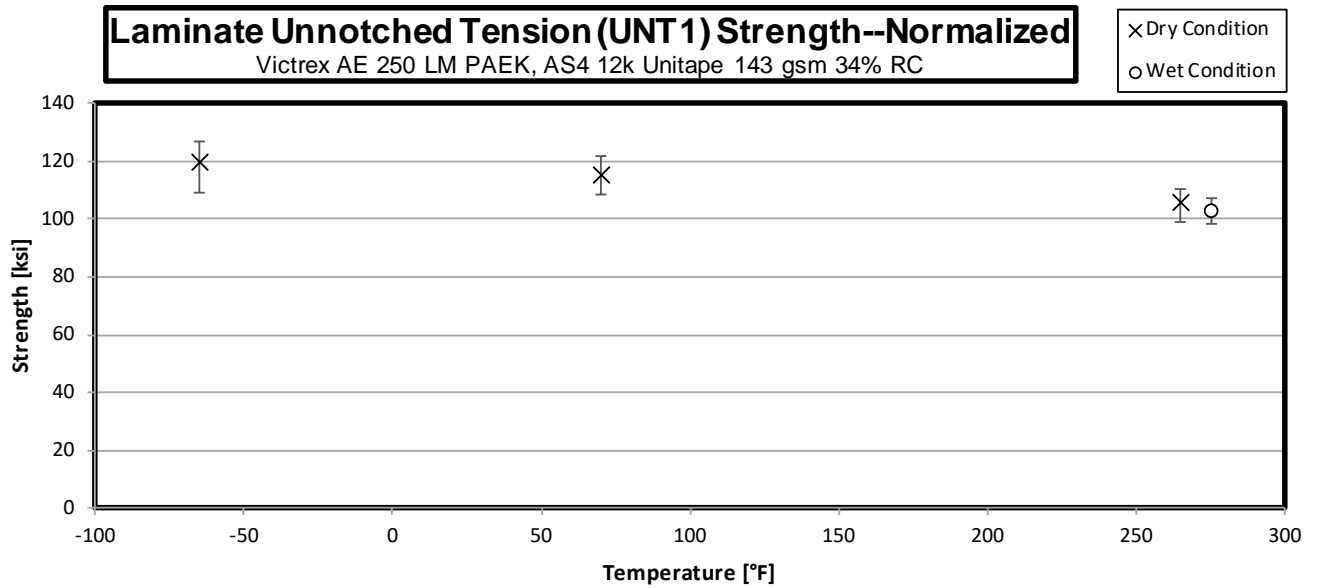
3.8 0 Flex Properties (0 Flex)



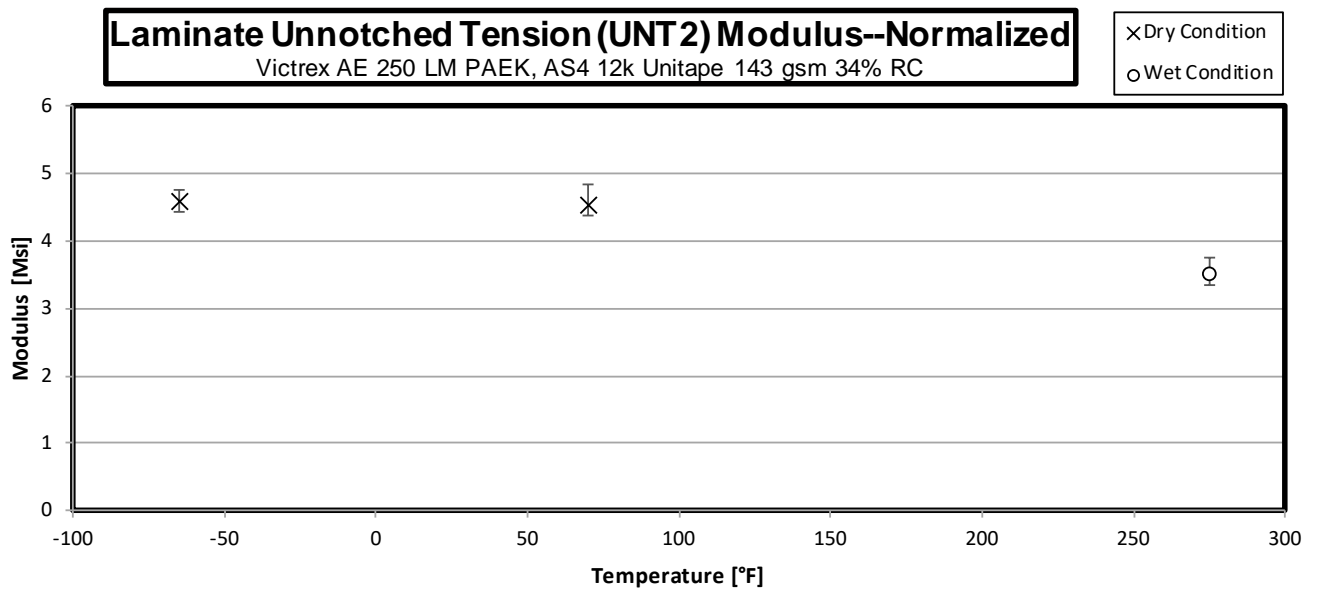
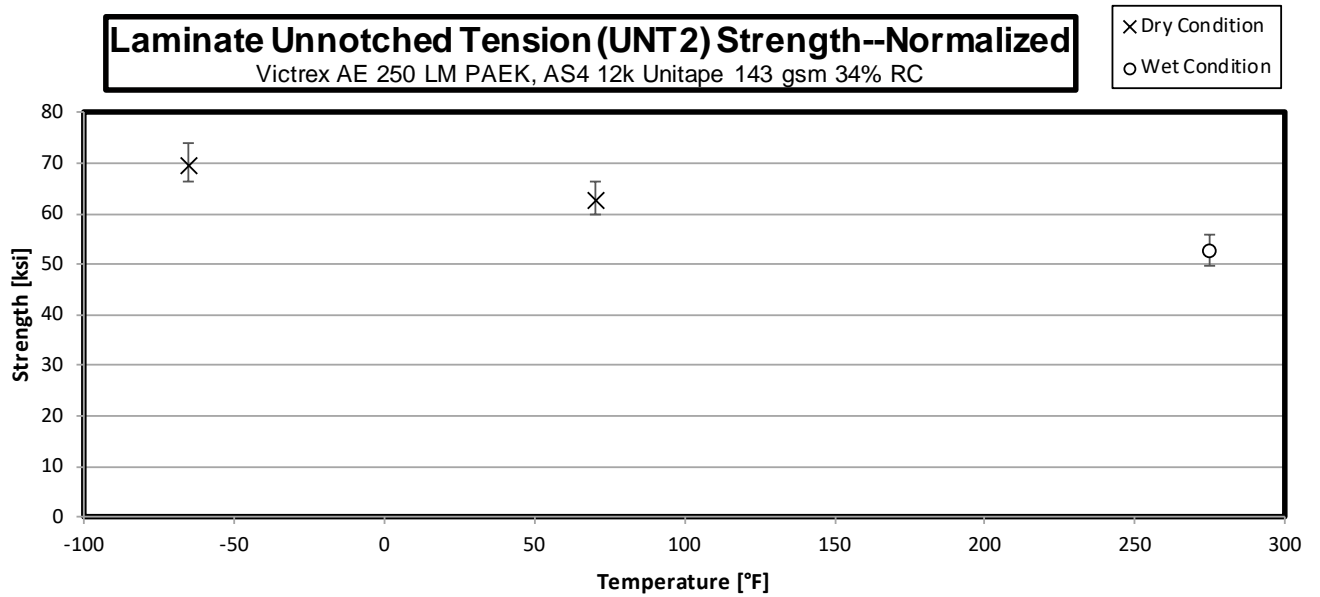
3.9 90 Flex Properties (90 Flex)



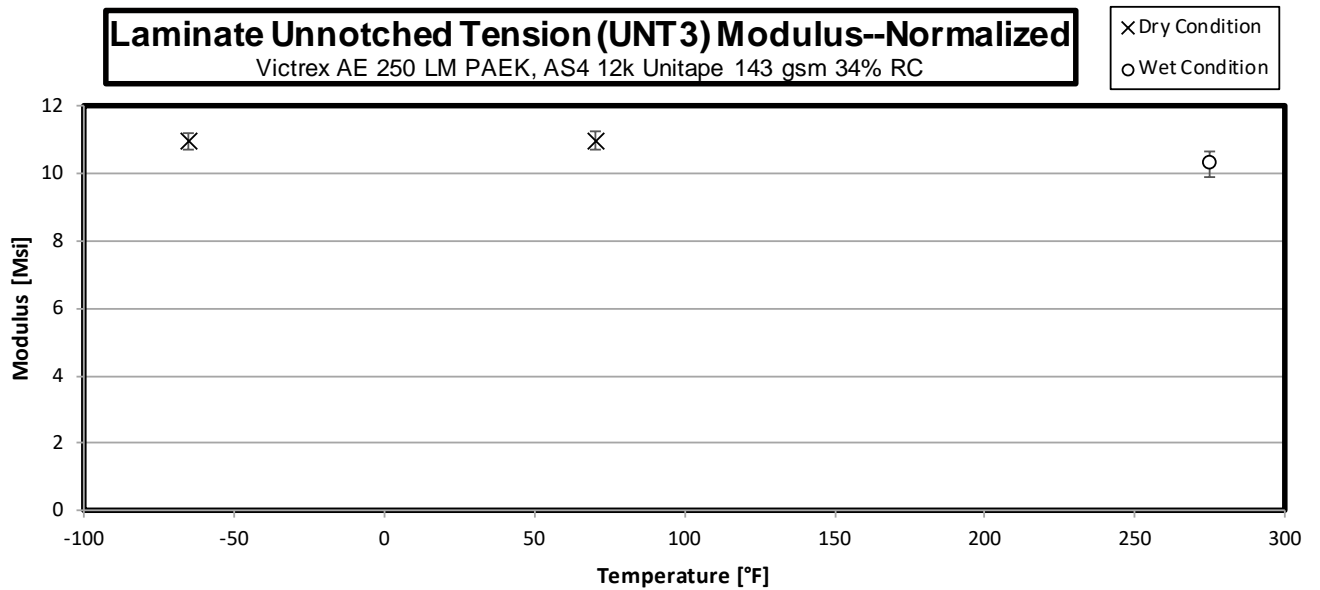
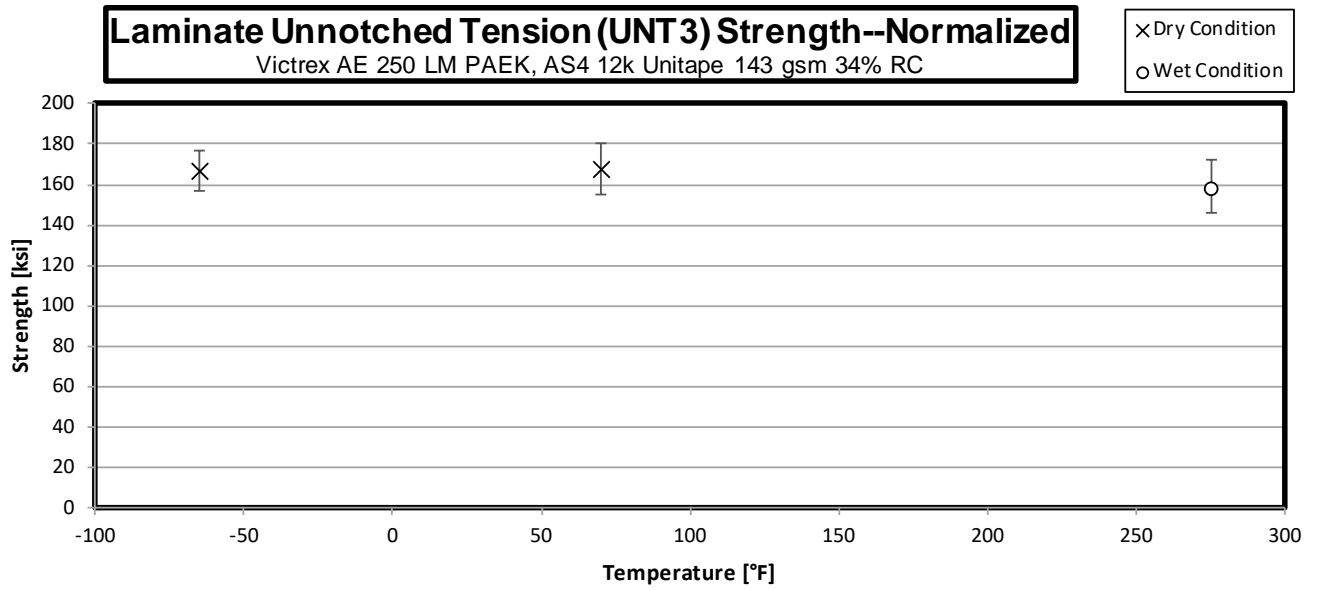
3.10 “25/50/25” Unnotched Tension 1 Properties (UNT1)



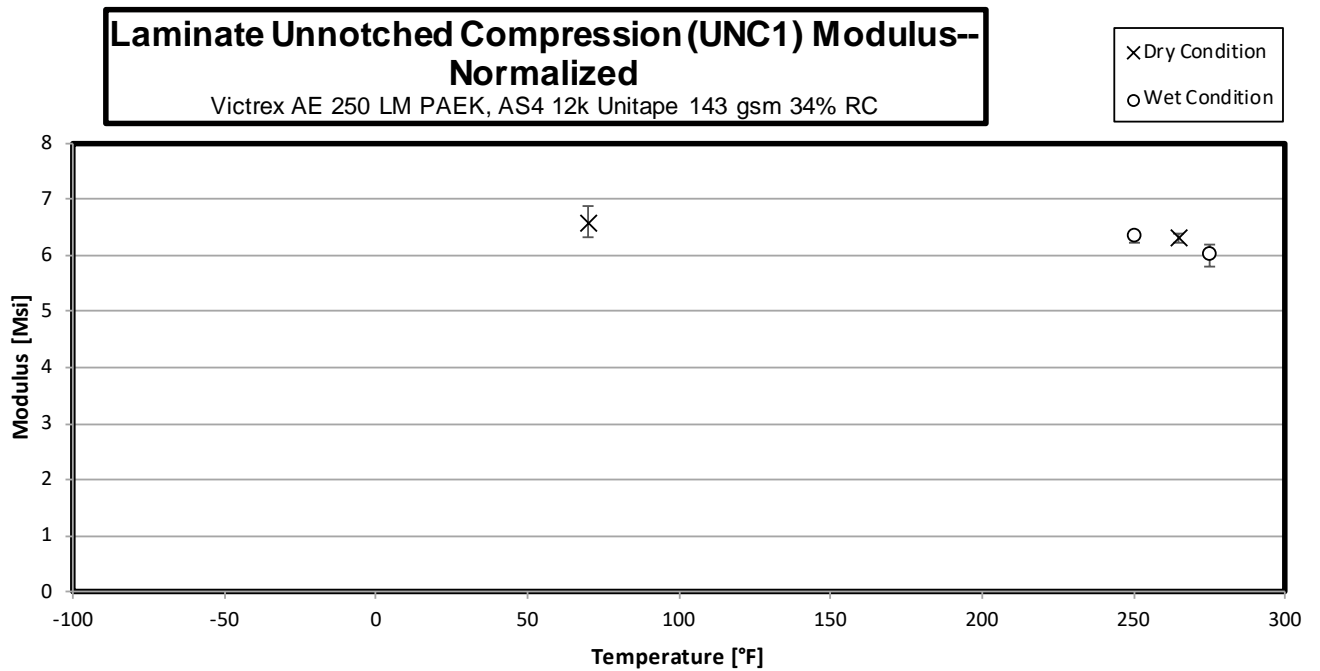
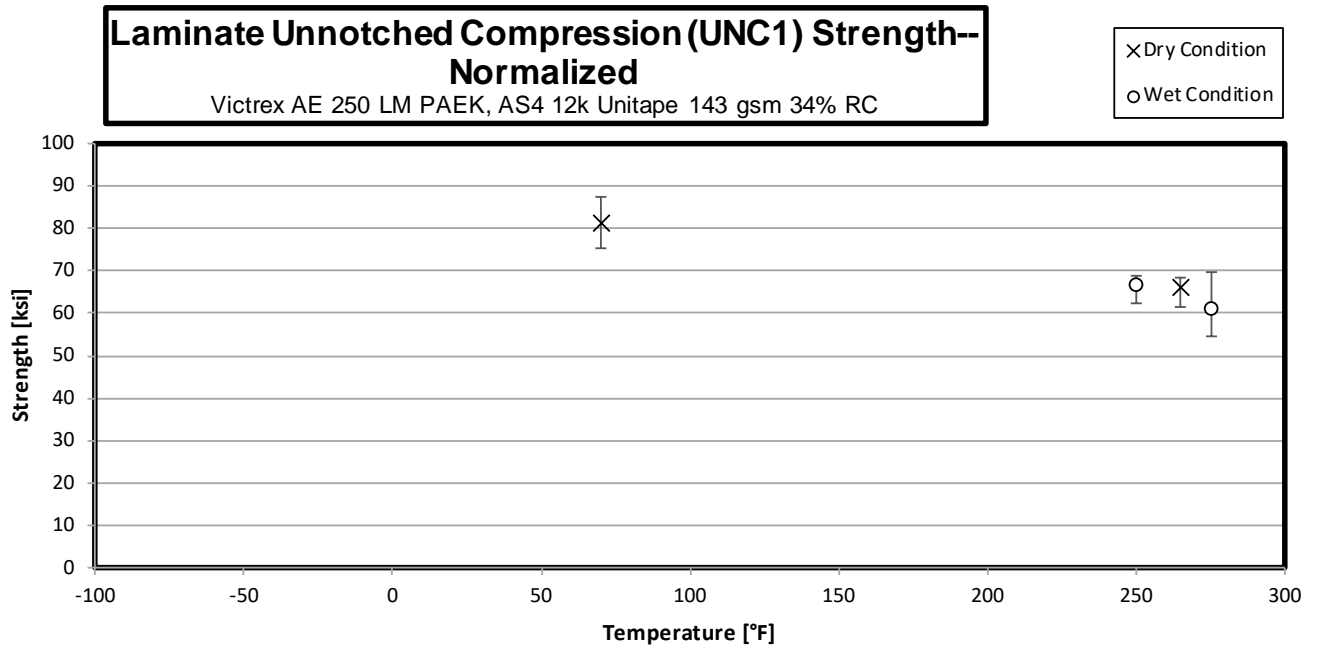
3.11 “10/80/10” Unnotched Tension 2 Properties (UNT2)



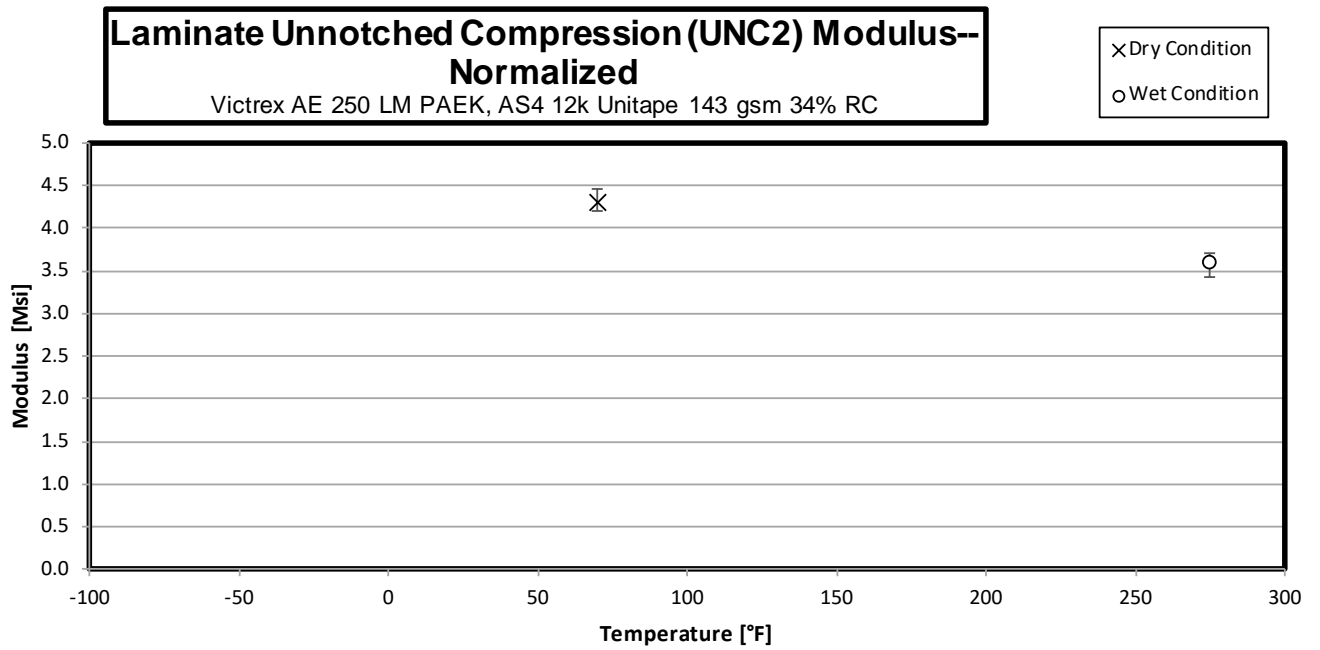
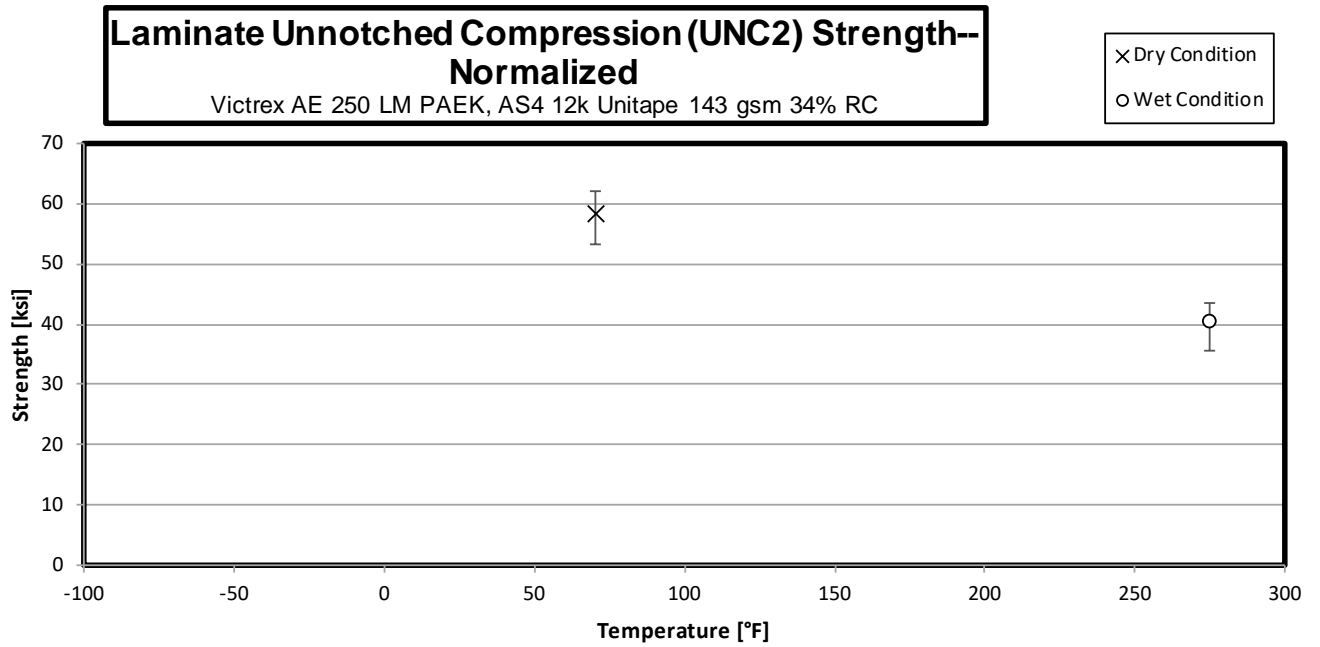
3.12 “40/20/40” Unnotched Tension 3 Properties (UNT3)



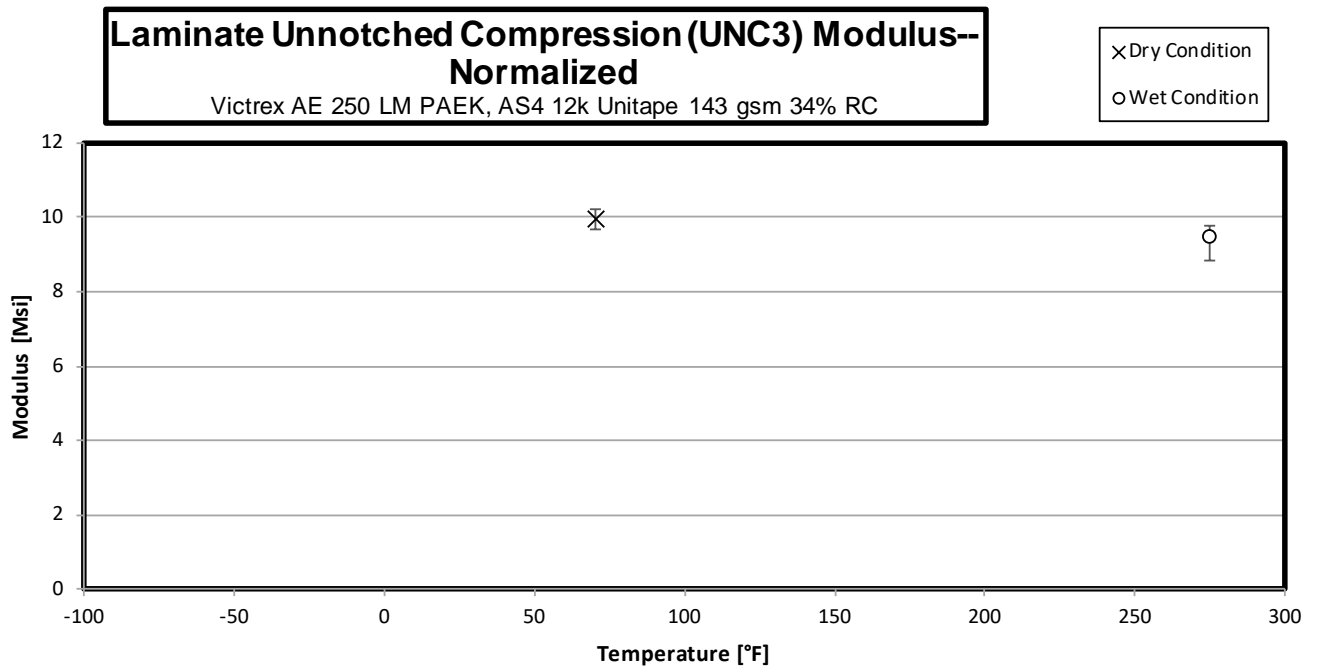
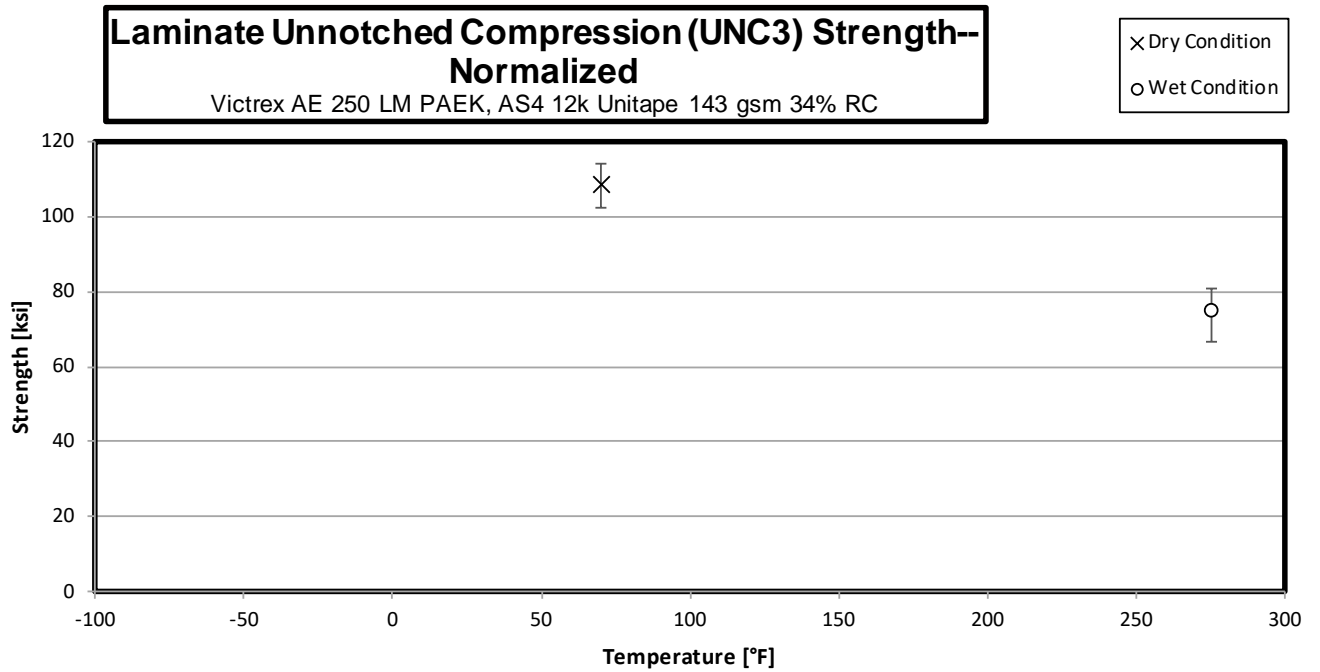
3.13 “25/50/25” Unnotched Compression 1 Properties (UNC1)



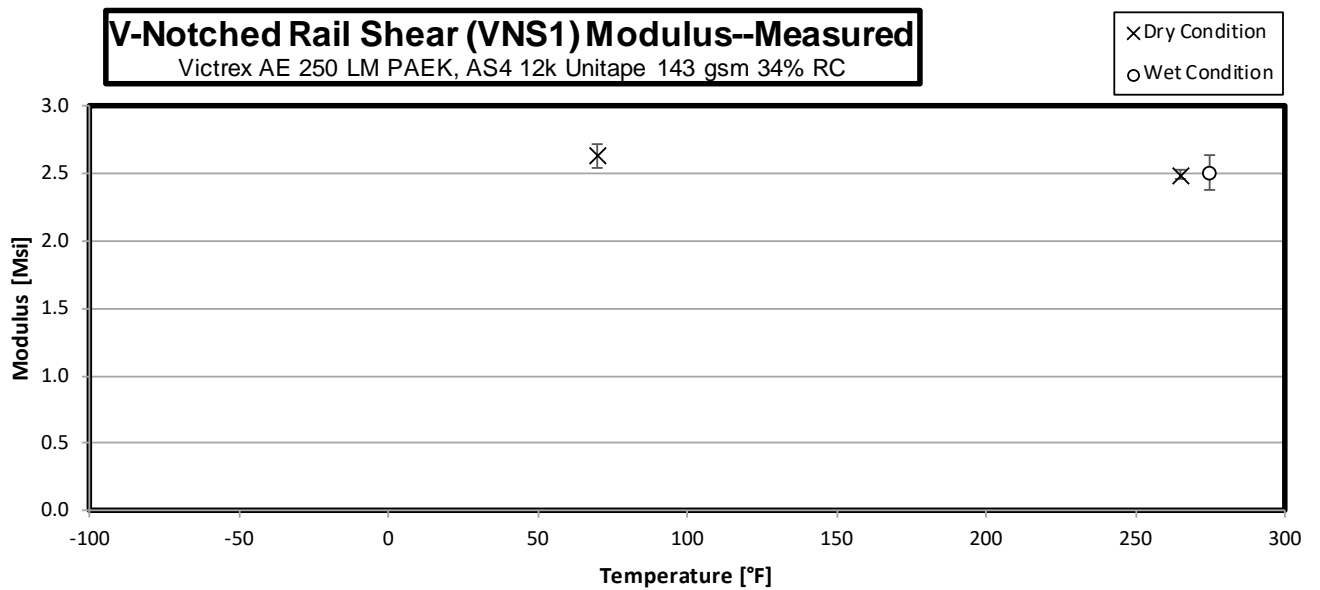
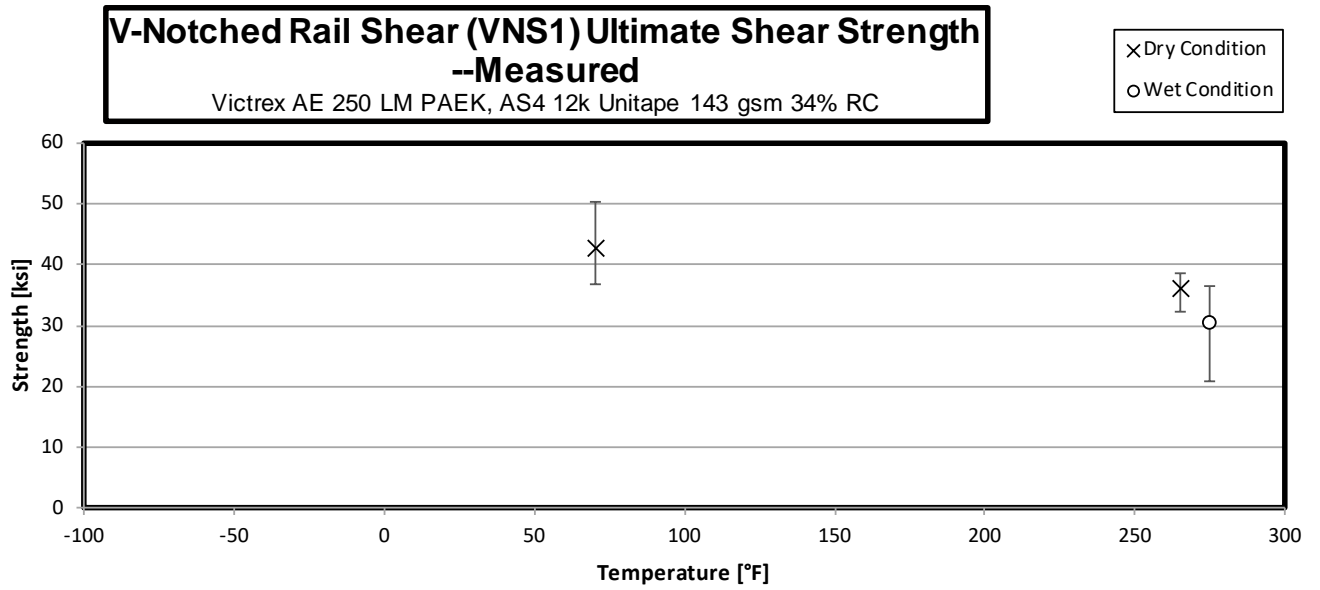
3.14 “10/80/10” Unnotched Compression 2 Properties (UNC2)



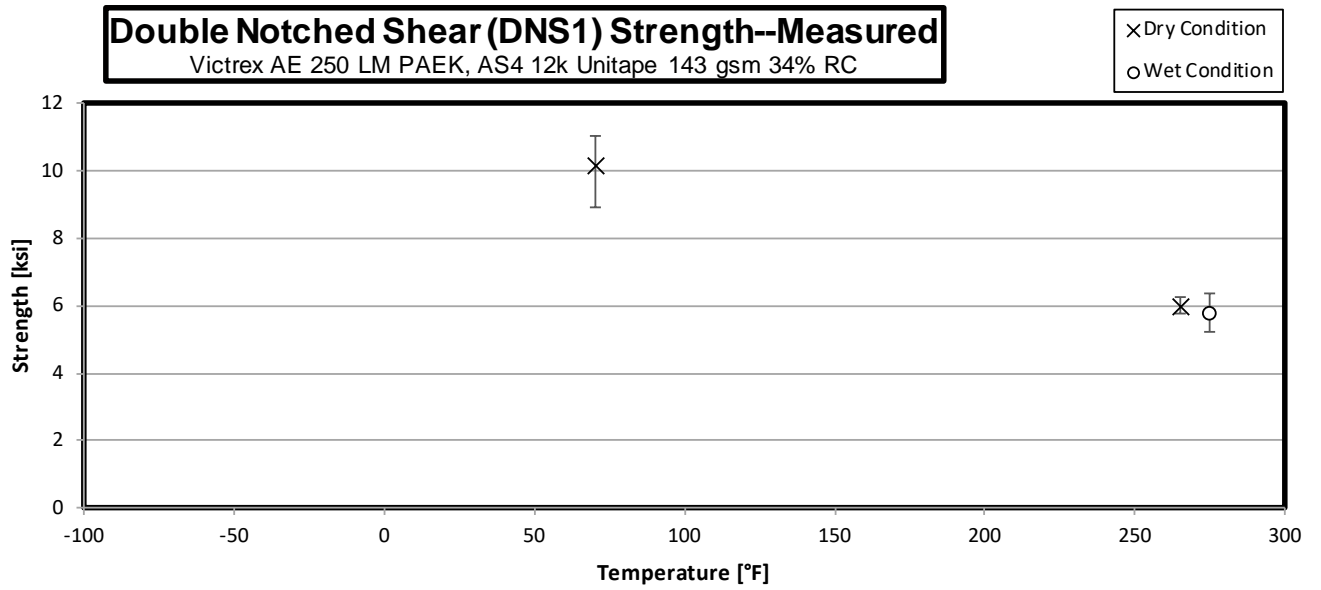
3.15 “40/20/40” Unnotched Compression 3 Properties (UNC3)



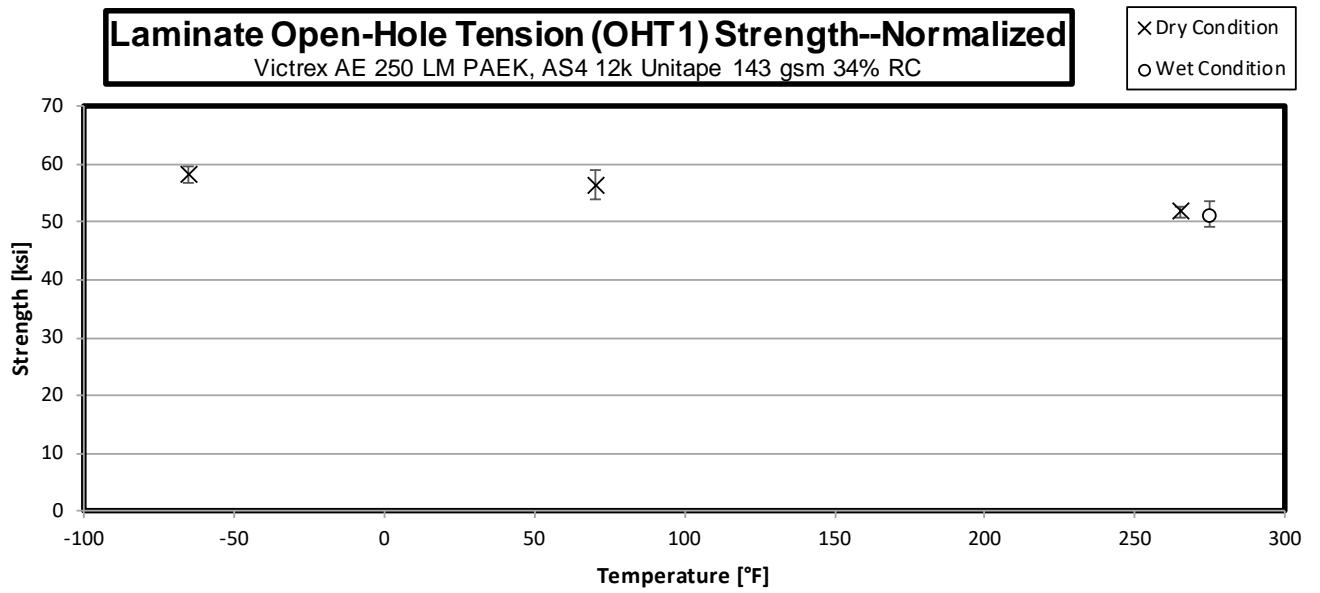
3.16 “25/50/25” V-Notched Rail Shear Properties (VNS1)



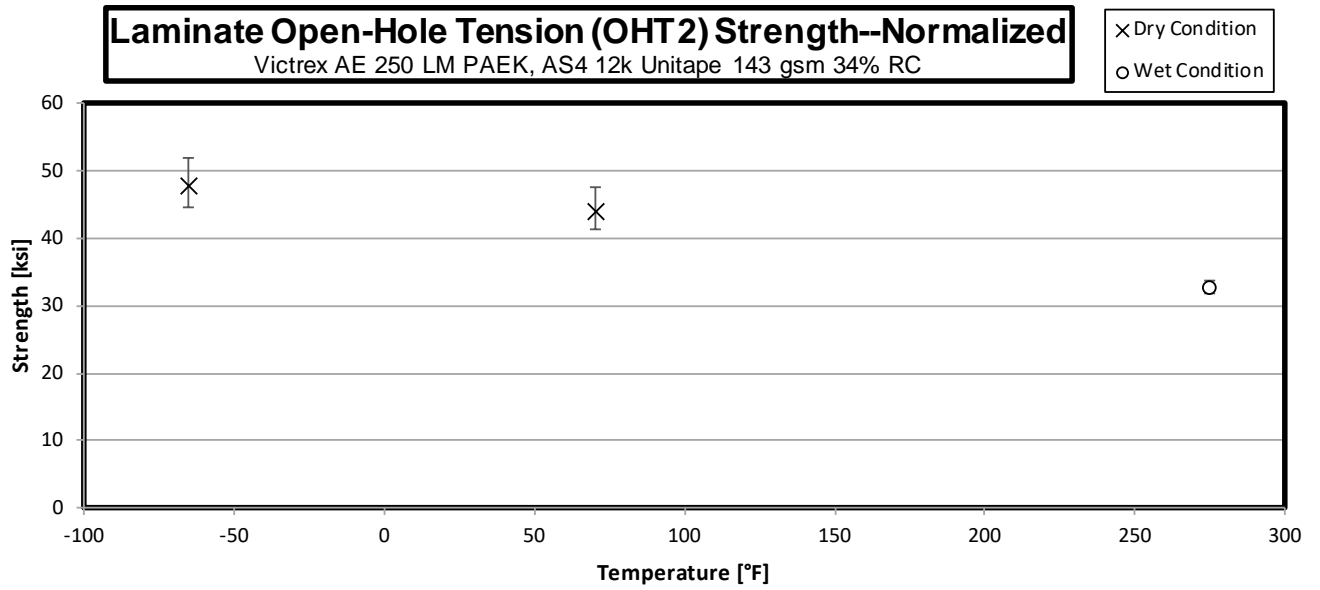
3.17 “25/50/25” Double Notch Shear Properties (DNS1)



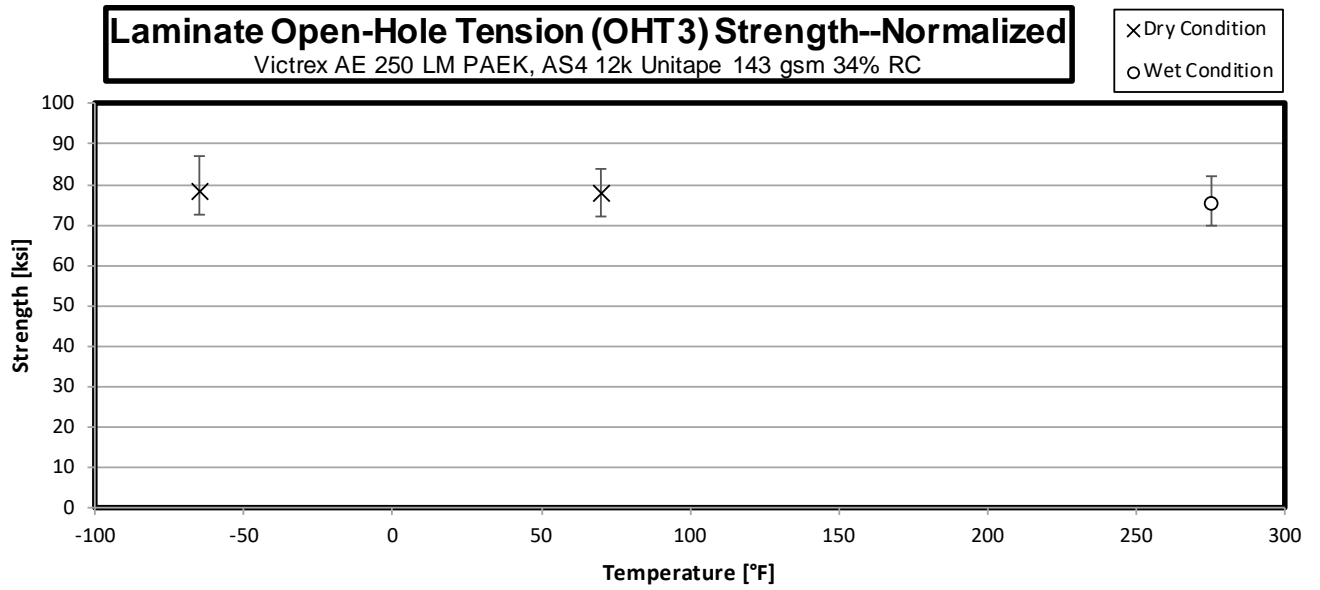
3.18 “25/50/25” Open-Hole Tension 1 Properties (OHT1)



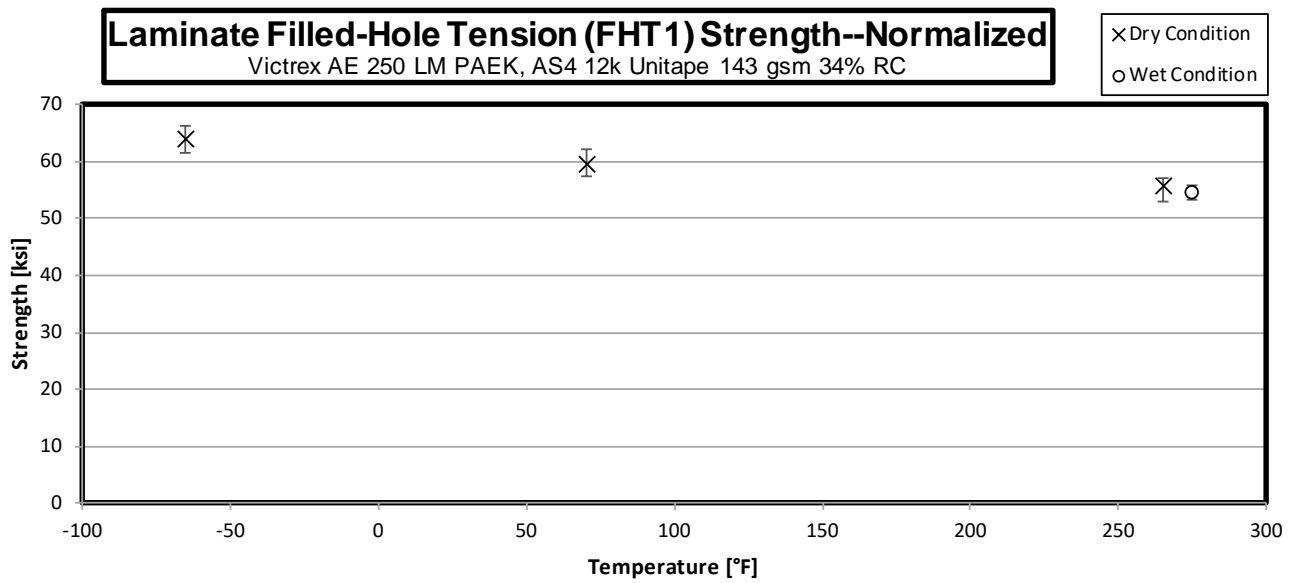
3.19 “10/80/10” Open-Hole Tension 2 Properties (OHT2)



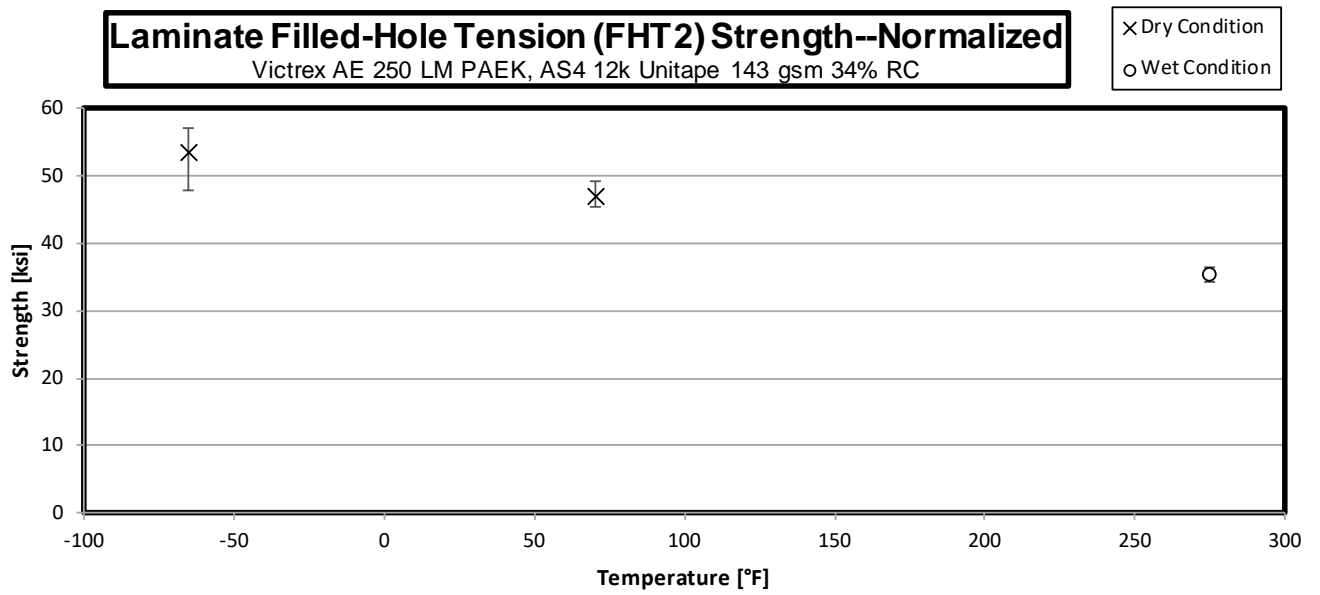
3.20 “40/20/40” Open-Hole Tension 3 Properties (OHT3)



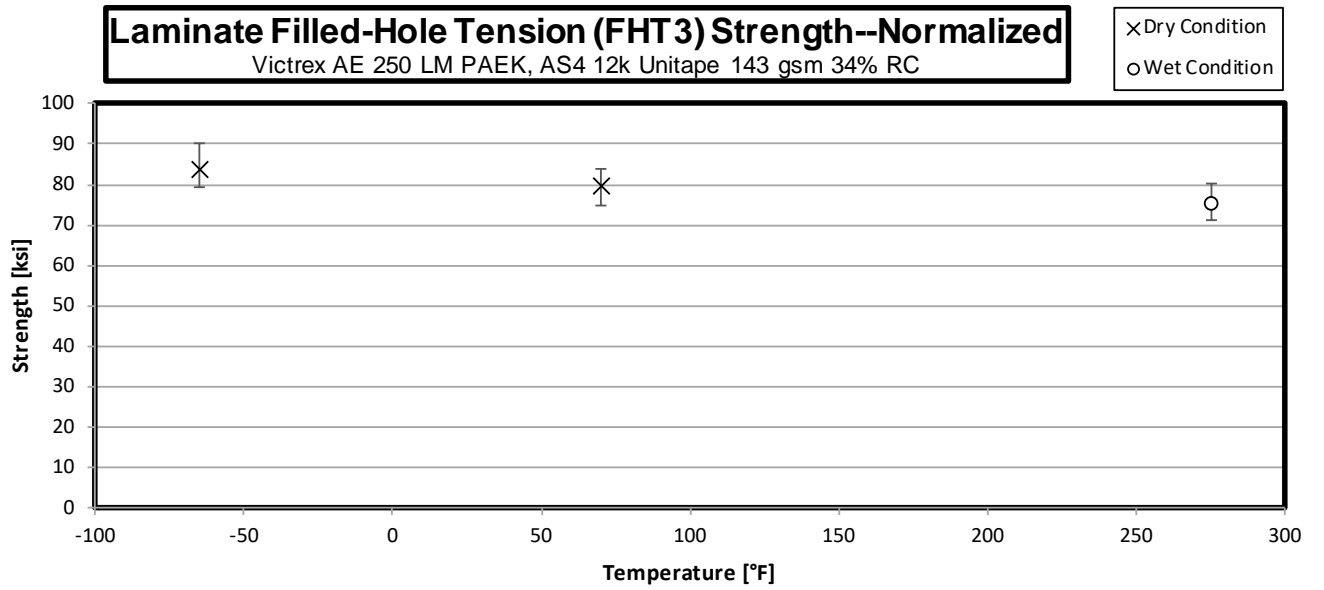
3.21 “25/50/25” Filled-Hole Tension 1 Properties (FHT1)



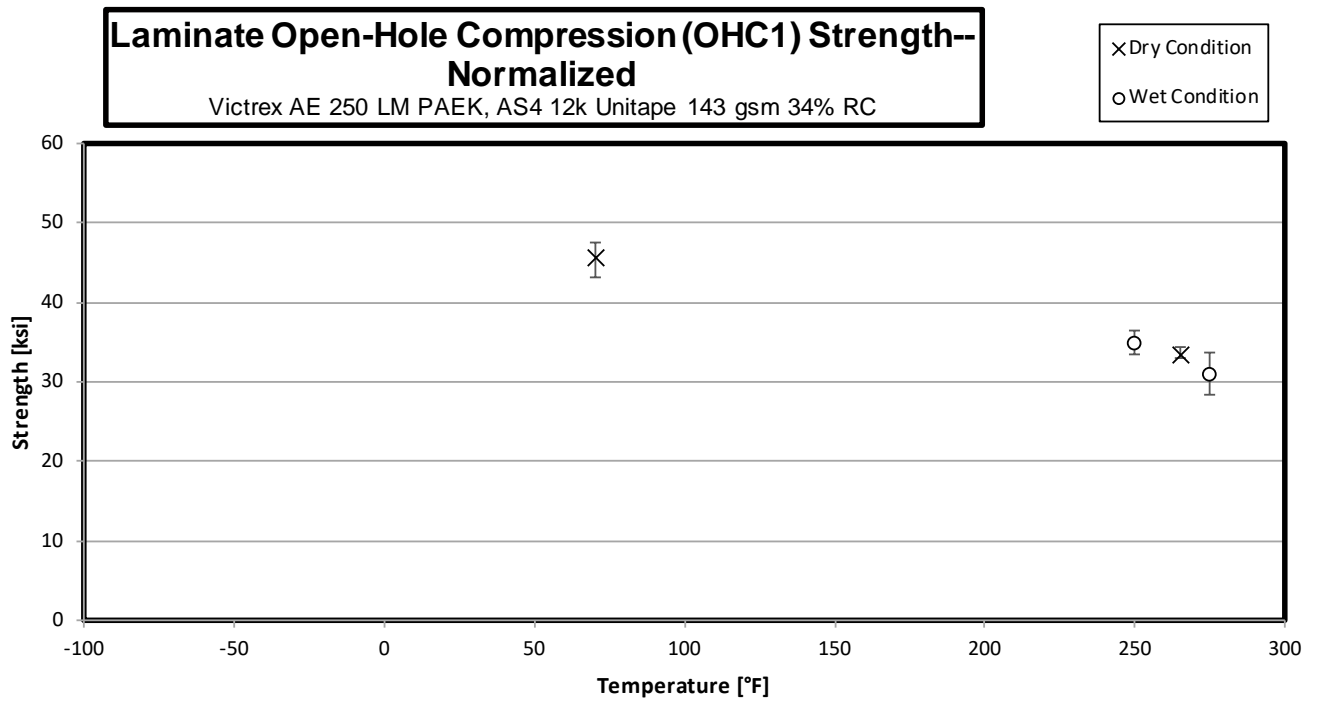
3.22 “10/80/10” Filled-Hole Tension 2 Properties (FHT2)



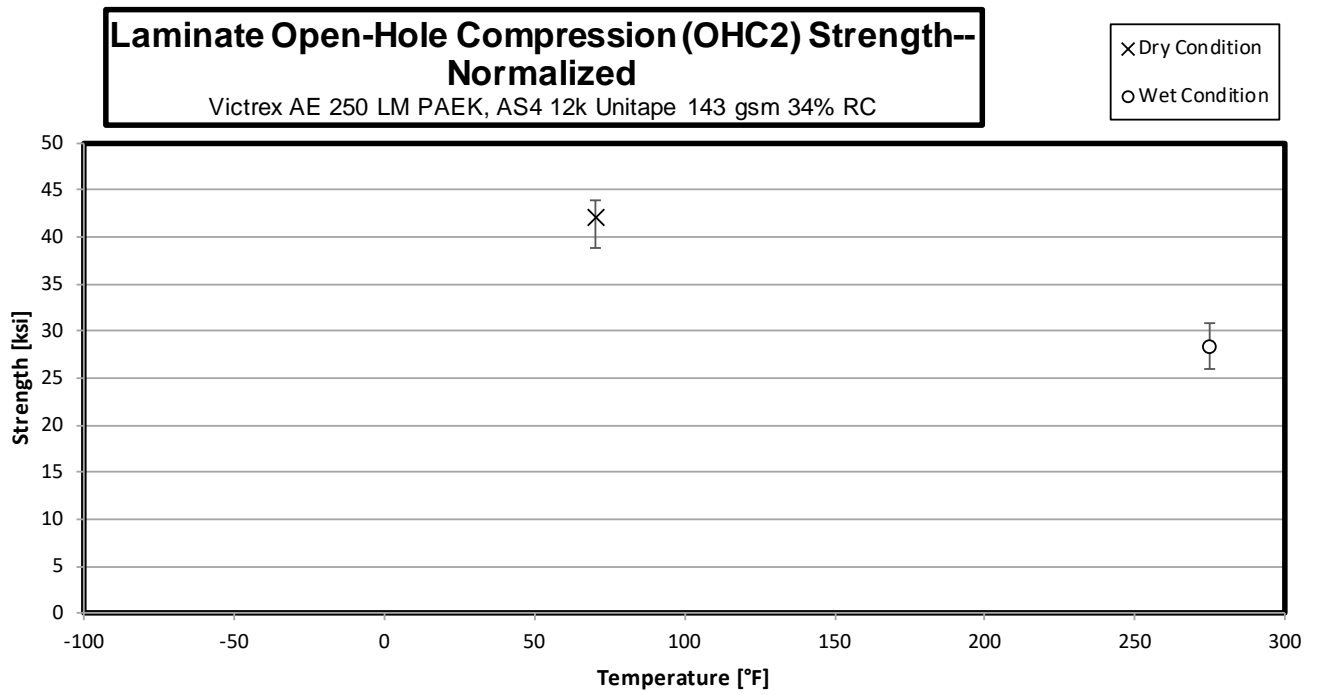
3.23 “40/20/40” Filled-Hole Tension 3 Properties (FHT3)



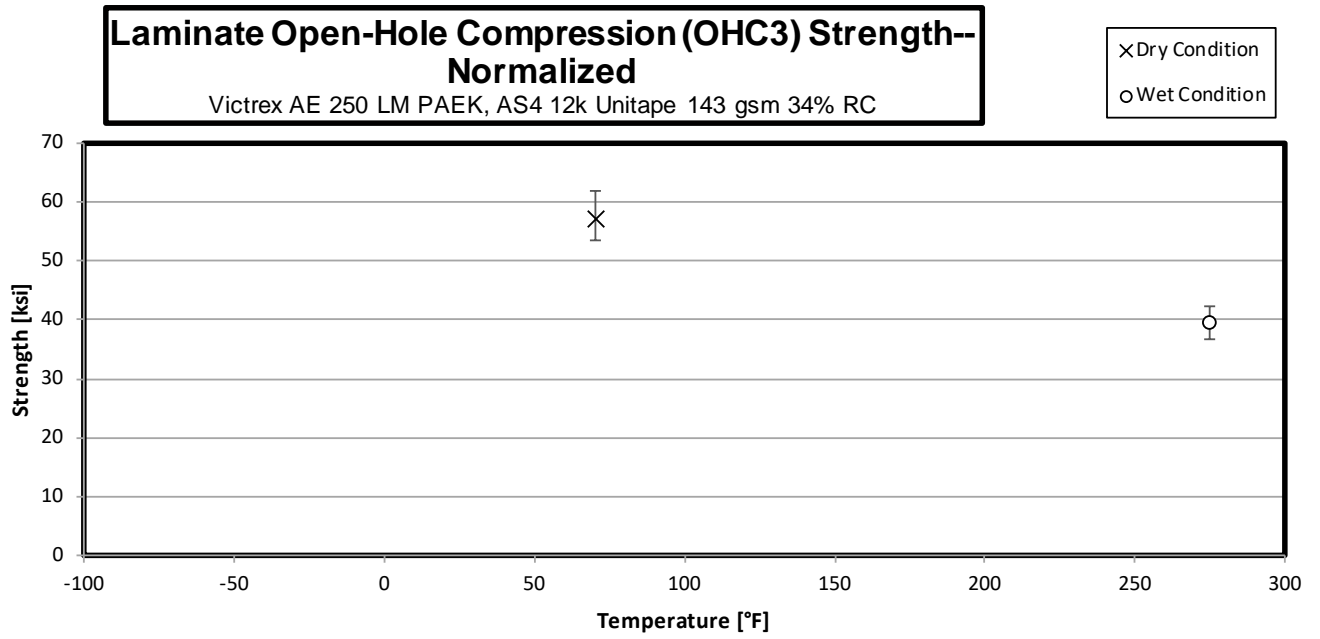
3.24 “25/50/25” Open-Hole Compression 1 Properties (OHC1)



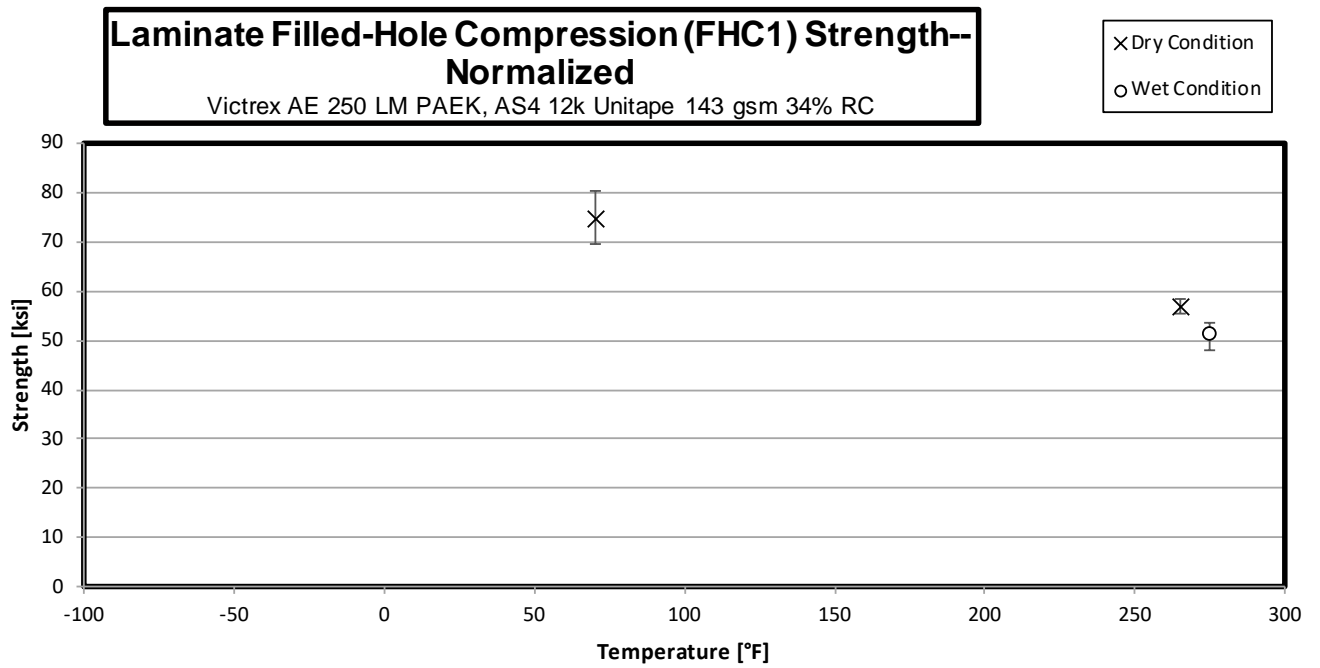
3.25 “10/80/10” Open-Hole Compression 2 Properties (OHC2)



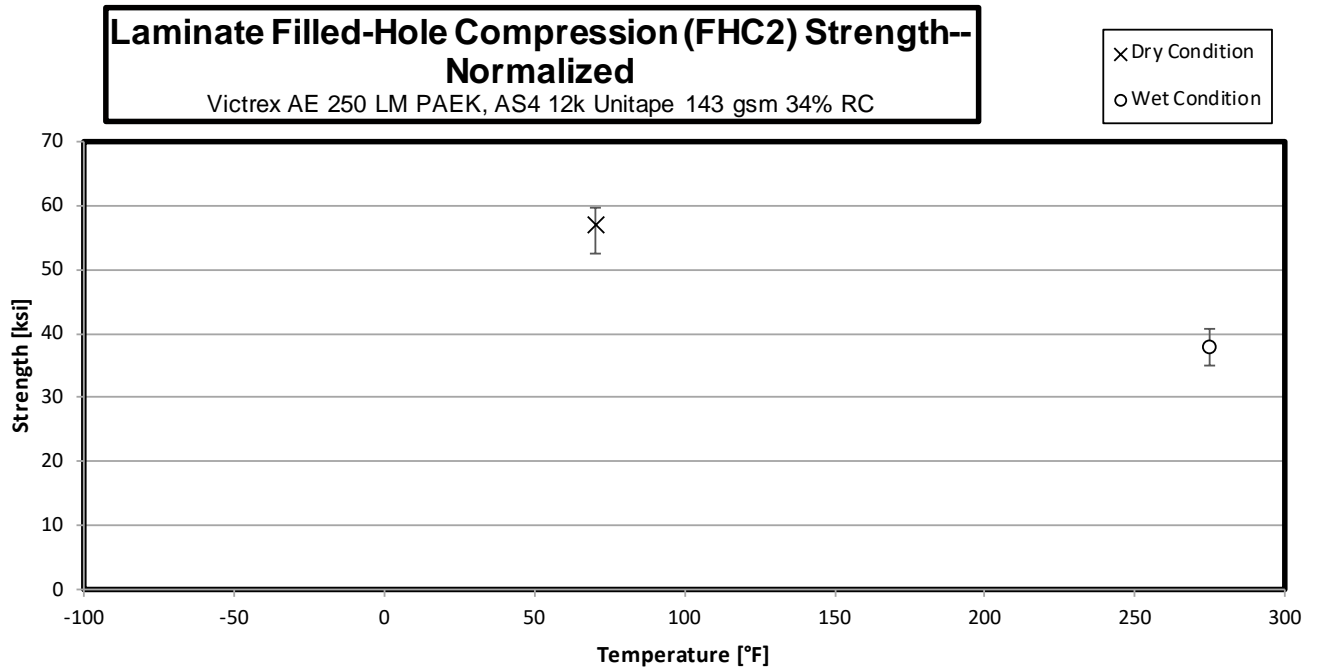
3.26 “40/20/40” Open-Hole Compression 3 Properties (OHC3)



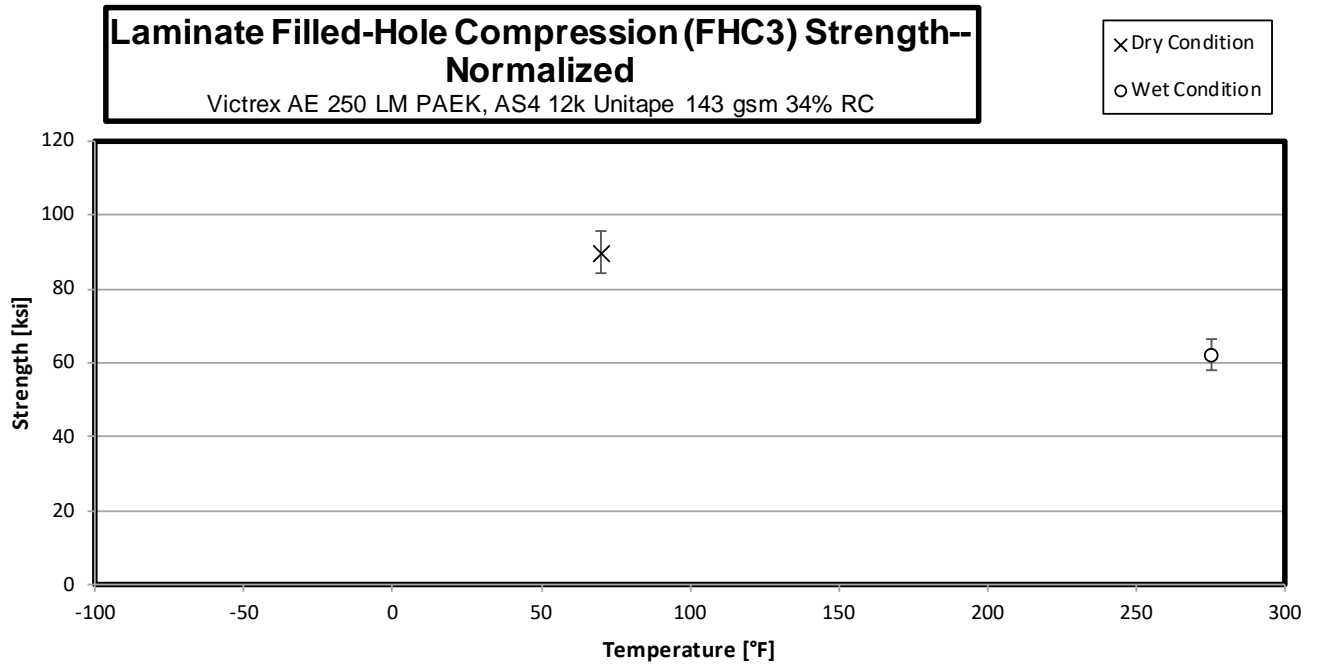
3.27 “25/50/25” Filled-Hole Compression 1 Properties (FHC1)



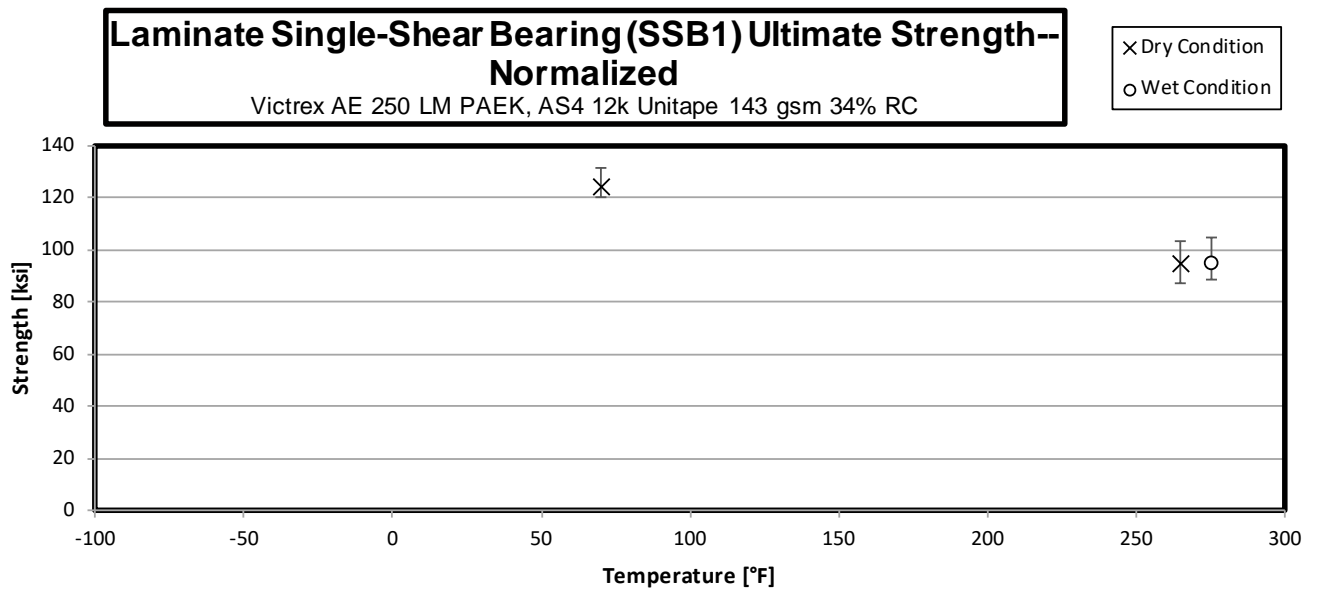
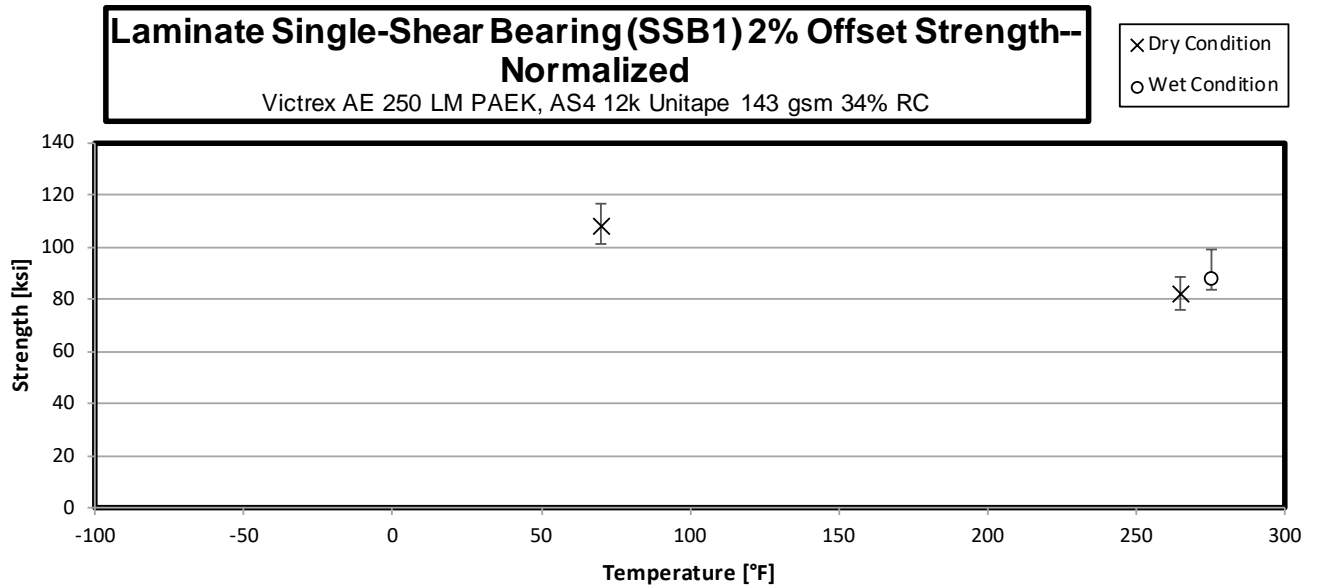
3.28 “10/80/10” Filled-Hole Compression 2 Properties (FHC2)



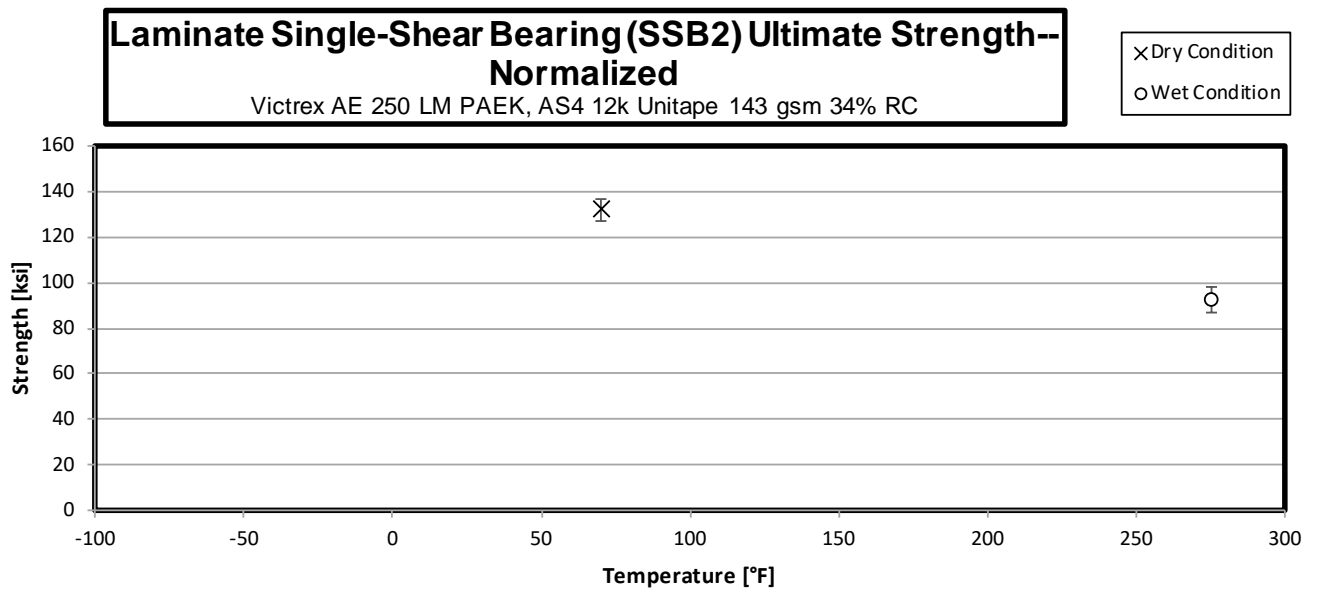
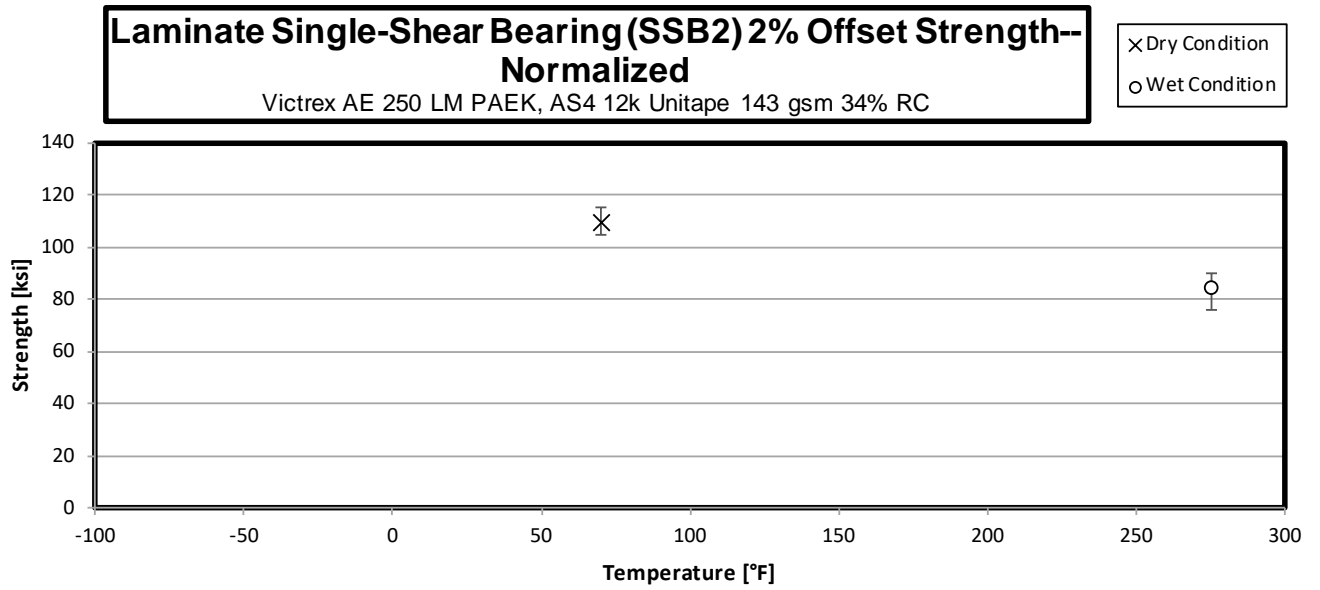
3.29 “40/20/40” Filled-Hole Compression 3 Properties (FHC3)



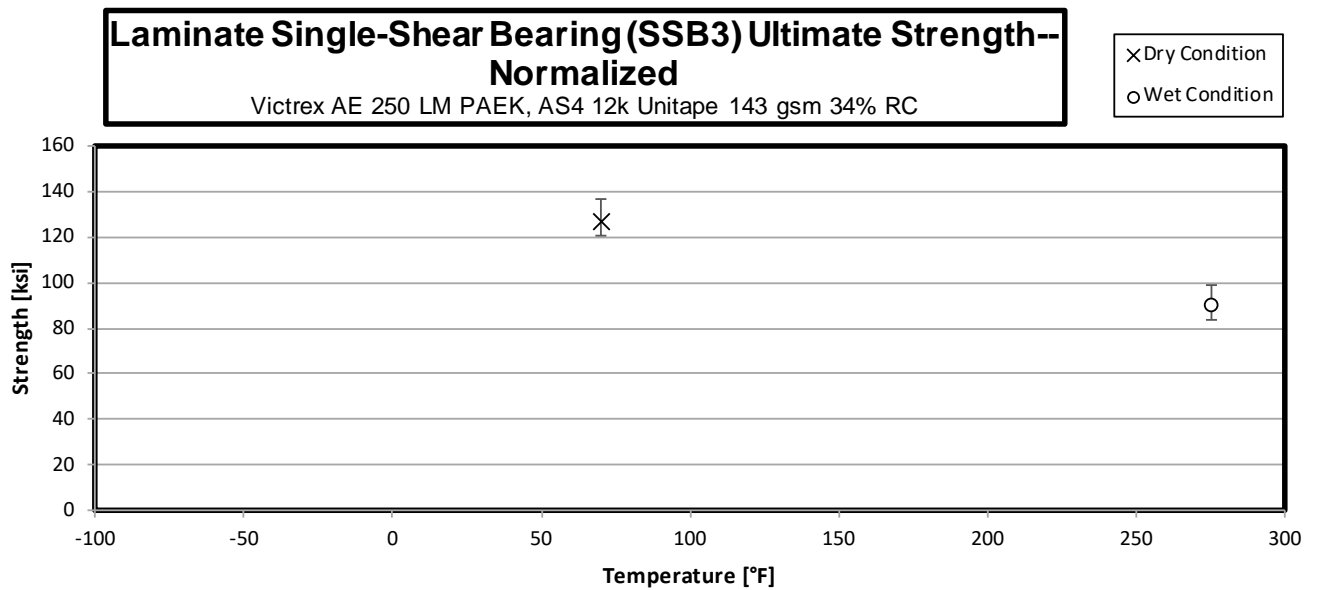
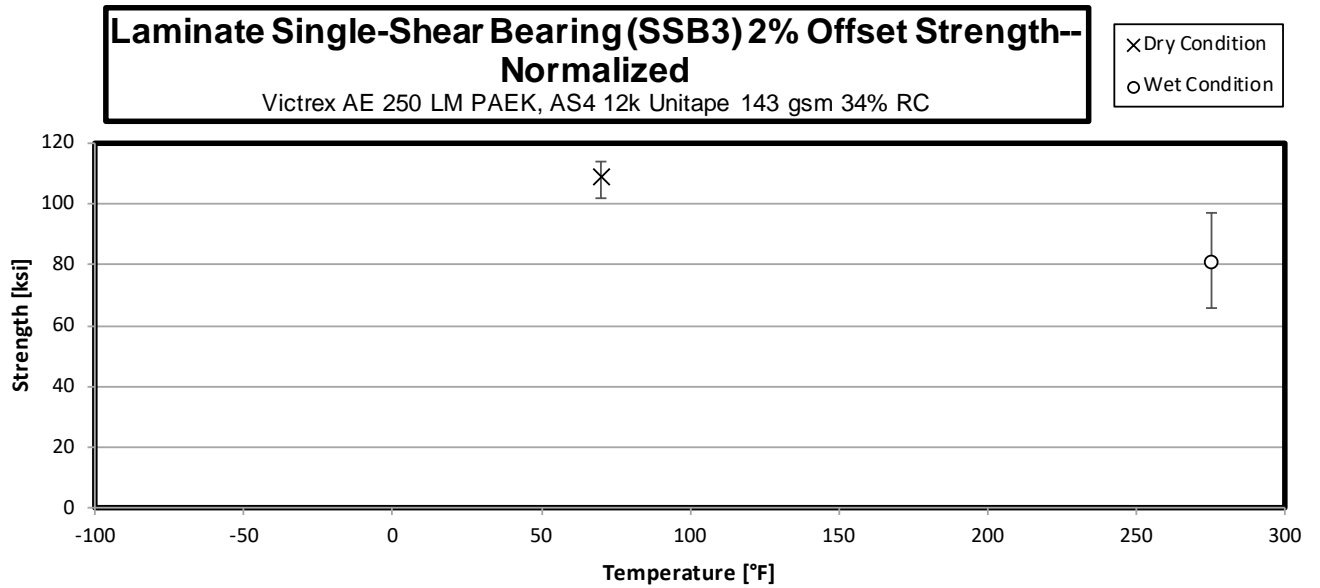
3.30 “25/50/25” Single-Shear Bearing 1 Properties (SSB1)



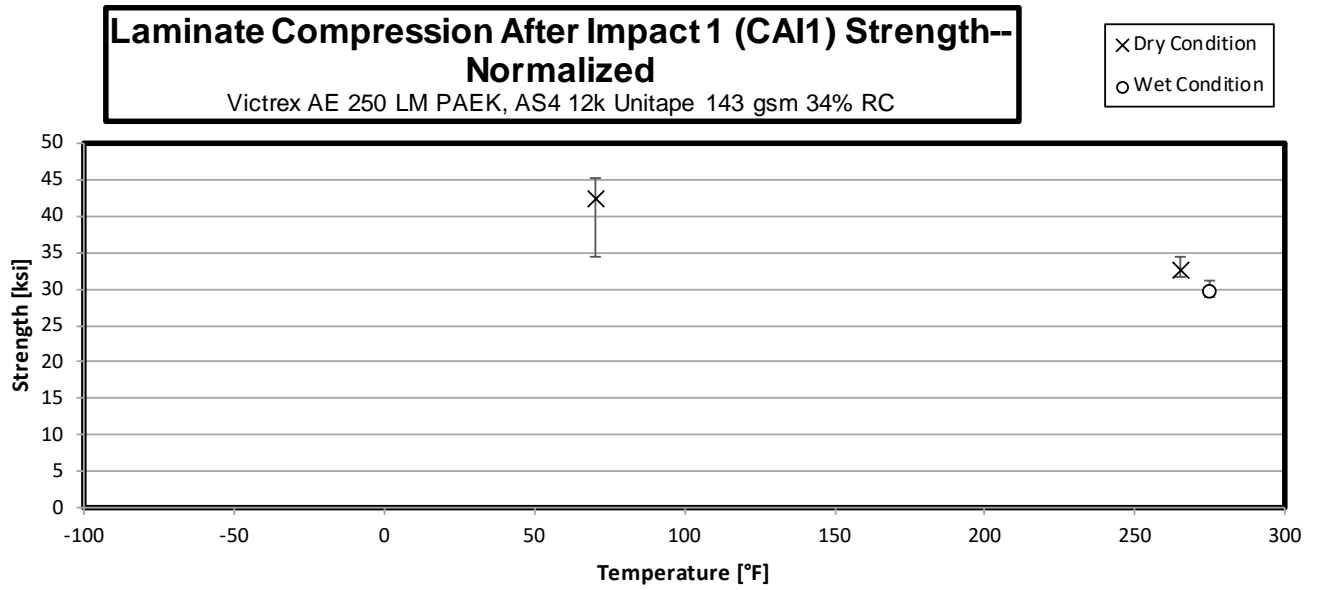
3.31 “10/80/10” Single-Shear Bearing 2 Properties (SSB2)



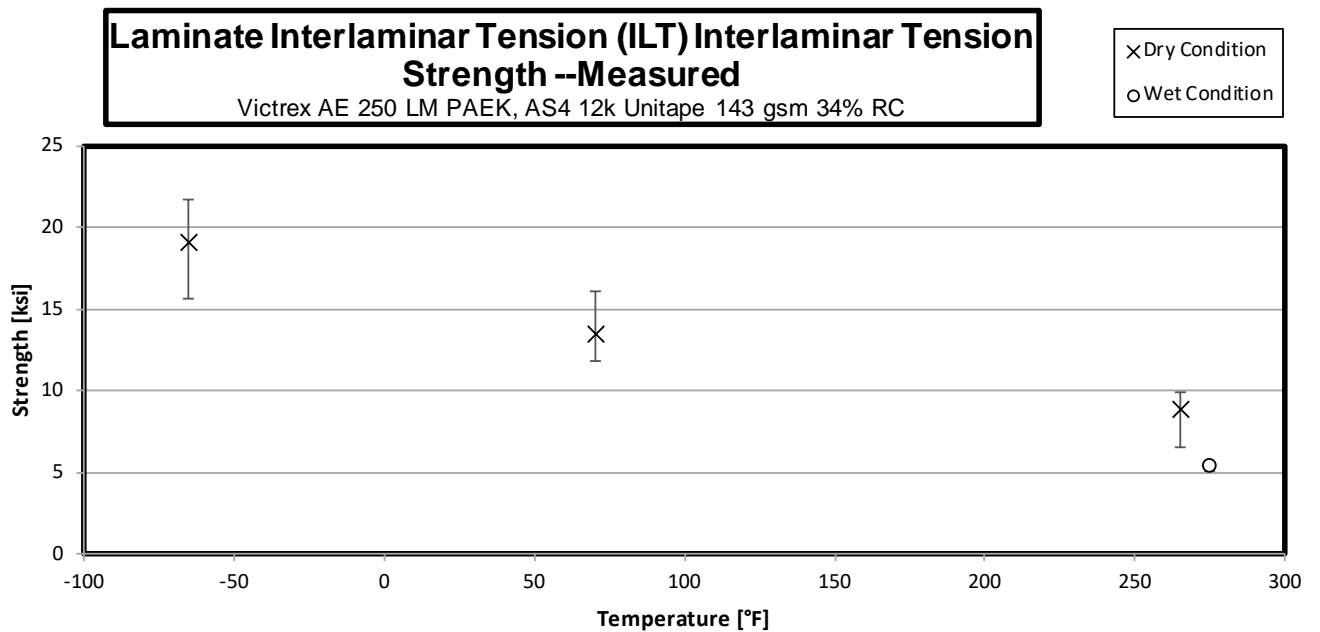
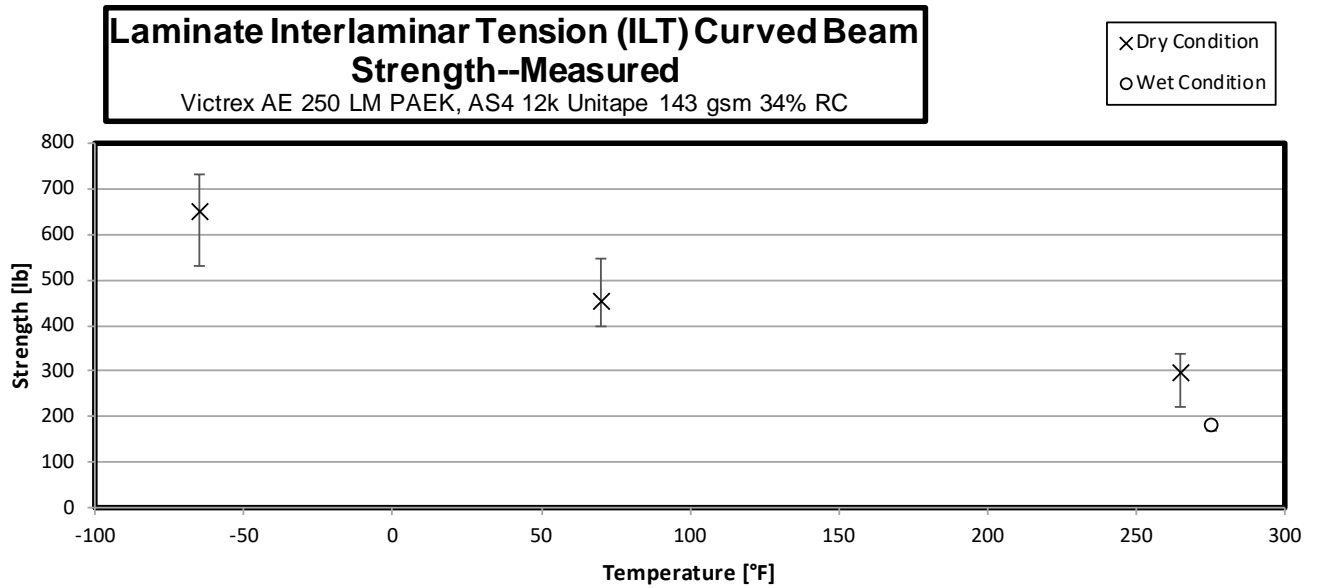
3.32 “40/20/40” Single-Shear Bearing 3 Properties (SSB3)



3.33 “25/50/25” Compression After Impact 1 Properties (CAI1)



3.34 Interlaminar Tension Properties (ILT)



4. Raw Data

4.1 Longitudinal Tension Properties (LT)

Longitudinal Tension Properties (LT)--CTA (-65°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

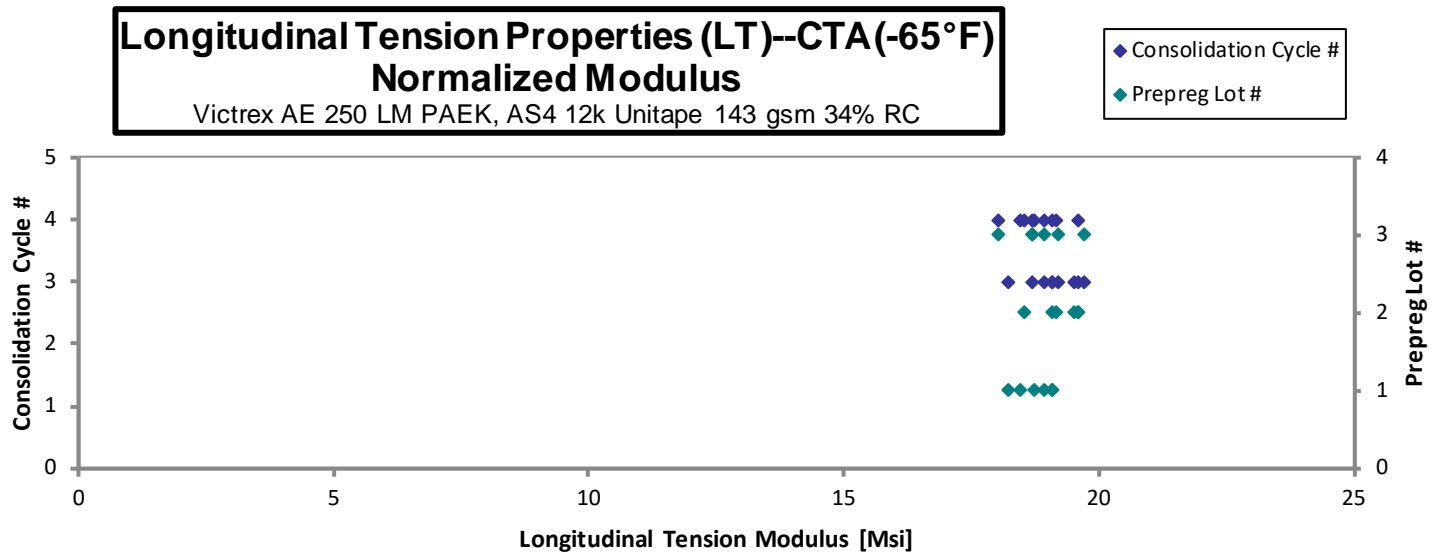
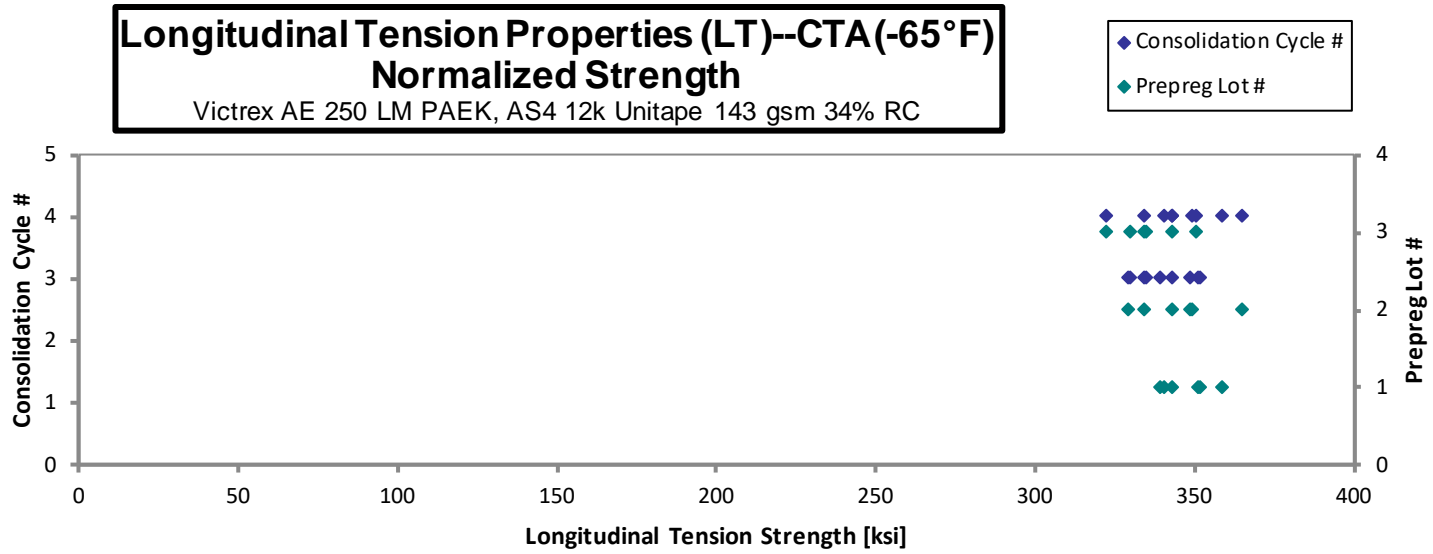
normalizing
 t_{ply} [in]
 0.0054

Specimen Number*	Victrex Batch #	Victrex Consolidation Cycle	Prepreg Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
LT-A-C3-R-CTA-1	A	C3	1	3	378.2	19.61	0.2466	0.0401	8	XGM
LT-A-C3-R-CTA-2	A	C3	1	3	379.6	20.61	0.3461	0.0400	8	XGM
LT-A-C3-R-CTA-3	A	C3	1	3	363.8	20.30	0.3245	0.0403	8	XGM
LT-A-C4-R-CTA-1	A	C4	1	4	362.2	20.30	0.3640	0.0406	8	XGM
LT-A-C4-R-CTA-2	A	C4	1	4	381.2	19.61	0.2785	0.0407	8	XGM
LT-A-C4-R-CTA-3	A	C4	1	4	365.6	19.98	0.3347	0.0405	8	XGM
LT-B-C3-R-CTA-1	B	C3	2	3	338.9	19.88	0.3427	0.0426	8	XGM
LT-B-C3-R-CTA-2	B	C3	2	3	333.3	19.34	0.3464	0.0427	8	XGM
LT-B-C3-R-CTA-3	B	C3	2	3	351.9	19.71	0.3245	0.0428	8	XGM
LT-B-C4-R-CTA-1	B	C4	2	4	355.2	19.87	0.3439	0.0417	8	XGM
LT-B-C4-R-CTA-2	B	C4	2	4	360.7	20.26	0.3906	0.0418	8	XGM
LT-B-C4-R-CTA-3	B	C4	2	4	377.2	19.16	0.1995	0.0418	8	XGM
LT-C-C3-R-CTA-1	C	C3	3	3	341.3	19.35	0.3008	0.0418	8	XGM
LT-C-C3-R-CTA-2	C	C3	3	3	353.5	19.81	0.3463	0.0419	8	XGM, LGB
LT-C-C3-R-CTA-3	C	C3	3	3	343.5	20.23	0.4510	0.0421	8	XGM
LT-C-C4-R-CTA-1	C	C4	3	4	347.3	19.42	0.2547	0.0416	8	XGM
LT-C-C4-R-CTA-2	C	C4	3	4	333.2	18.63	0.2349	0.0418	8	XGM
LT-C-C4-R-CTA-3	C	C4	3	4	361.3	19.54	0.3125	0.0419	8	XGM

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0050	351.2	18.21
0.0050	351.6	19.09
0.0050	339.4	18.93
0.0051	340.5	19.09
0.0051	358.7	18.45
0.0051	343.0	18.75
0.0053	333.9	19.59
0.0053	329.1	19.10
0.0054	348.6	19.52
0.0052	342.7	19.17
0.0052	349.0	19.60
0.0052	364.7	18.52
0.0052	330.0	18.71
0.0052	342.9	19.22
0.0053	334.6	19.70
0.0052	334.0	18.68
0.0052	322.5	18.03
0.0052	350.3	18.94

*ID prefixed by NTP1250Q1-V-A1-TA-

Average	357.1	19.76	0.3190	Average _{norm}	0.0052	342.6	18.96
Standard Dev.	15.64	0.4877	0.0599	Standard Dev. _{norm}		10.88	0.4793
Coeff. of Var. [%]	4.380	2.469	18.78	Coeff. of Var. [%] _{norm}		3.175	2.528
Min.	333.2	18.63	0.1995	Min.	0.0050	322.5	18.03
Max.	381.2	20.61	0.4510	Max.	0.0054	364.7	19.70
Number of Spec.	18	18	18	Number of Spec.	18	18	18



November 18, 2022

CAM-RP-2021-025 Rev N/C

Longitudinal Tension Properties (LT)--RTA (70°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
 t_{ply} [in]
 0.0054

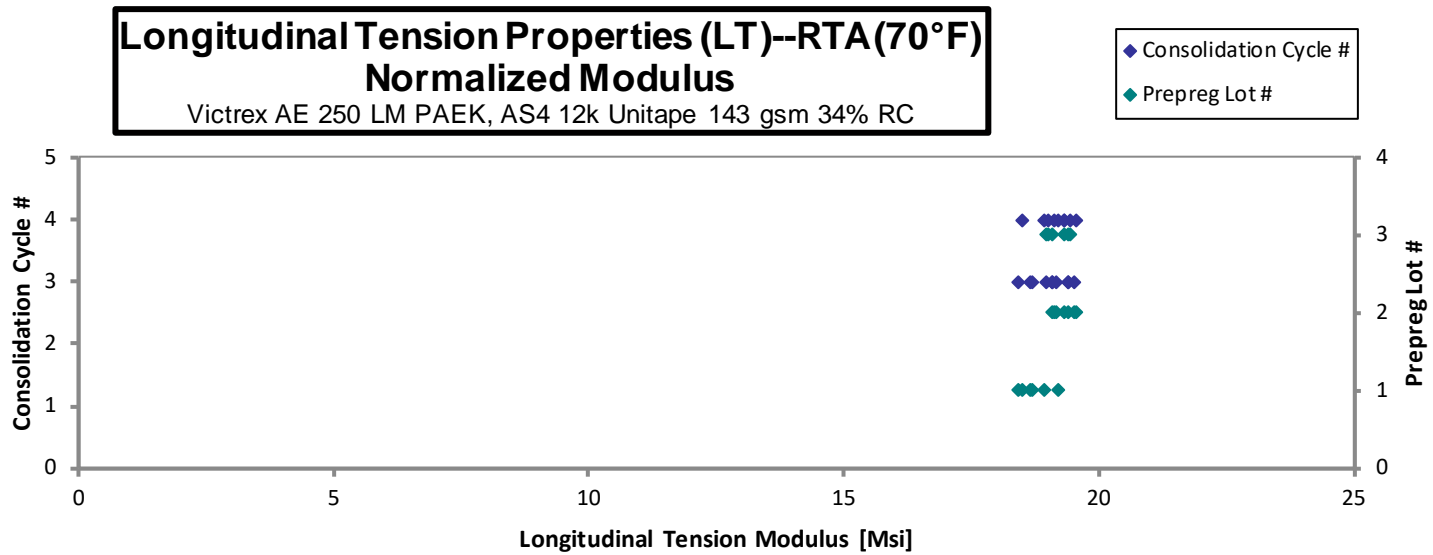
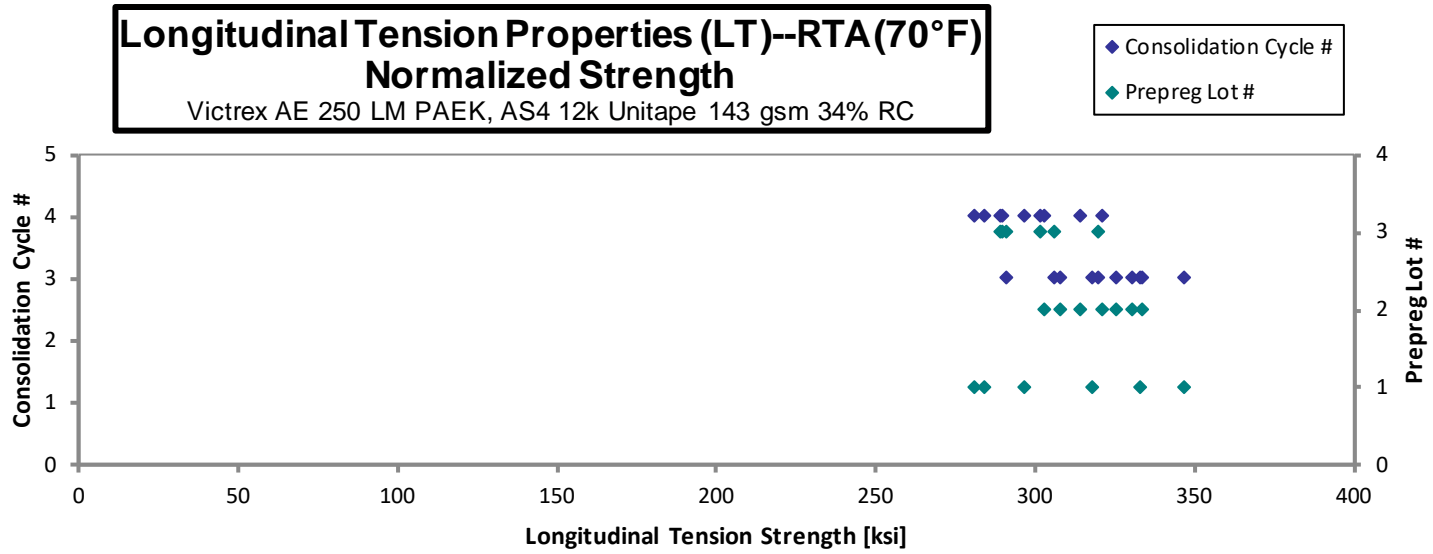
Specimen Number*	Victrex Batch #	Victrex Consolidation Cycle	Prepreg Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
LT-A-C3-R-RTA-1	A	C3	1	3	338.2	19.89	0.3131	0.0406	8	XGM
LT-A-C3-R-RTA-2	A	C3	1	3	356.8	19.98	0.3280	0.0403	8	XGM
LT-A-C3-R-RTA-3	A	C3	1	3	370.6	19.70	0.3124	0.0404	8	XGM
LT-A-C4-R-RTA-1	A	C4	1	4	291.4	19.44	0.3053	0.0421	8	XGM
LT-A-C4-R-RTA-2	A	C4	1	4	291.9	19.96	0.3216	0.0416	8	XGM
LT-A-C4-R-RTA-3	A	C4	1	4	304.2	18.99	0.3094	0.0421	8	M(S,L)GM
LT-B-C3-R-RTA-1	B	C3	2	3	337.5	19.86	0.2962	0.0417	8	XGM
LT-B-C3-R-RTA-2	B	C3	2	3	321.3	20.24	0.3194	0.0414	8	XGM
LT-B-C3-R-RTA-3	B	C3	2	3	345.7	19.80	0.3243	0.0417	8	XGM
LT-B-C3-R-RTA-4	B	C3	2	3	339.6	20.08	0.3459	0.0420	8	XGM
LT-B-C4-R-RTA-1	B	C4	2	4	328.2	20.00	0.3095	0.0422	8	XGM
LT-B-C4-R-RTA-2	B	C4	2	4	308.8	19.71	0.3296	0.0423	8	XGM
LT-B-C4-R-RTA-3	B	C4	2	4	318.8	19.39	0.3195	0.0426	8	XGM
LT-C-C3-R-RTA-1	C	C3	3	3	328.3	19.47	0.3198	0.0421	8	XGM
LT-C-C3-R-RTA-2	C	C3	3	3	316.5	19.73	0.3467	0.0418	8	XGM, AWB
LT-C-C3-R-RTA-3	C	C3	3	3	299.8	20.01	0.3170	0.0419	8	XGM, LGB, LWT
LT-C-C4-R-RTA-1	C	C4	3	4	304.1	19.49	0.3232	0.0428	8	XGM, LGB
LT-C-C4-R-RTA-2	C	C4	3	4	292.5	19.67	0.3016	0.0427	8	XGM, LGB
LT-C-C4-R-RTA-3	C	C4	3	4	292.7	19.24	0.3217	0.04272	8	M(S,L)GM

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0051	317.7	18.69
0.0050	332.8	18.64
0.0051	346.6	18.42
0.0053	283.9	18.93
0.0052	281.0	19.22
0.0053	296.6	18.51
0.0052	325.5	19.16
0.0052	308.0	19.40
0.0052	333.4	19.09
0.0053	330.3	19.53
0.0053	320.9	19.55
0.0053	302.6	19.32
0.0053	314.5	19.12
0.0053	320.1	18.98
0.0052	306.2	19.09
0.0052	290.9	19.41
0.0054	301.4	19.32
0.0053	289.2	19.45
0.0053	289.4	19.02

*ID prefixed by NTP1250Q1-V-A1-TA-

Average	320.4	19.72	0.3192
Standard Dev.	23.44	0.3180	0.0129
Coeff. of Var. [%]	7.317	1.613	4.056
Min.	291.4	18.99	0.2962
Max.	370.6	20.24	0.3467
Number of Spec.	19	19	19

Average _{norm}	0.0052	310.1	19.10
Standard Dev. _{norm}		18.89	0.3374
Coeff. of Var. [%] _{norm}		6.094	1.766
Min.	0.0050	281.0	18.42
Max.	0.0054	346.6	19.55
Number of Spec.	19	19	19



November 18, 2022

CAM-RP-2021-025 Rev N/C

**Longitudinal Tension Properties (LT)--ETA (275°F) □
Strength & Modulus □**

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
t_{ply} [in]
0.0054

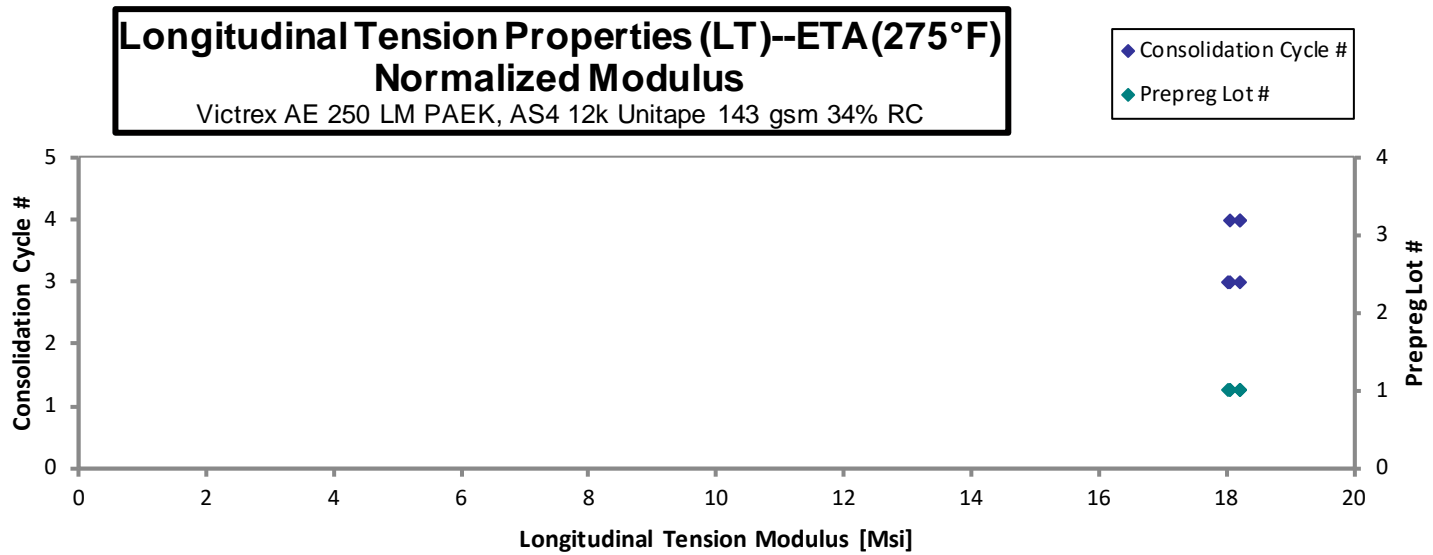
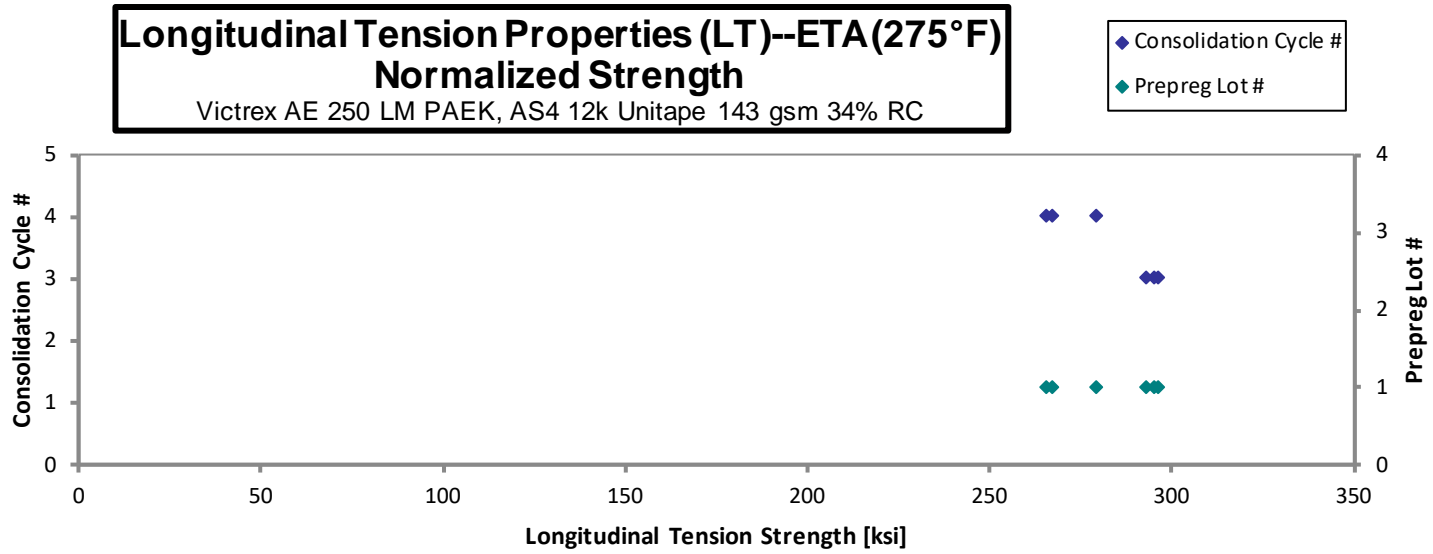
Specimen Number*	Victrax Batch #	Victrax Consolidation Cycle	Prepreg Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
LT-A-C3-R-ETA-1	A	C3	1	3	310.9	19.14	0.2751	0.0407	8	XGM
LT-A-C3-R-ETA-2	A	C3	1	3	314.1	19.32	0.3098	0.0407	8	XGM
LT-A-C3-R-ETA-3	A	C3	1	3	312.6	19.12	0.3251	0.0408	8	XGM
LT-A-C4-R-ETA-1	A	C4	1	4	279.2	19.15	0.3091	0.0411	8	XGM
LT-A-C4-R-ETA-2	A	C4	1	4	277.5	18.91	0.2963	0.0416	8	XGM
LT-A-C4-R-ETA-3	A	C4	1	4	293.1	18.98	0.3279	0.0411	8	XGM

Avg. t _{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0051	293.0	18.04
0.0051	296.2	18.22
0.0051	295.1	18.05
0.0051	265.4	18.21
0.0052	267.2	18.21
0.0051	279.1	18.07

*ID prefixed by NTP1250Q1-V-A1-TA-

Average	297.9	19.10	0.3072
Standard Dev.	16.94	0.1424	0.01954
Coeff. of Var. [%]	5.685	0.7452	6.361
Min.	277.5	18.91	0.2751
Max.	314.1	19.32	0.3279
Number of Spec.	6	6	6

Average_{norm}	0.0051	282.7	18.13
Standard Dev_{norm}		14.11	0.08491
Coeff. of Var. [%]_{norm}		4.992	0.4683
Min.	0.0051	265.4	18.04
Max.	0.0052	296.2	18.22
Number of Spec.	6	6	6



November 18, 2022

CAM-RP-2021-025 Rev N/C

Longitudinal Tension Properties (LT)--ETW (275°F) □
Strength & Modulus □

Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
 t_{ply} [in]
 0.0054

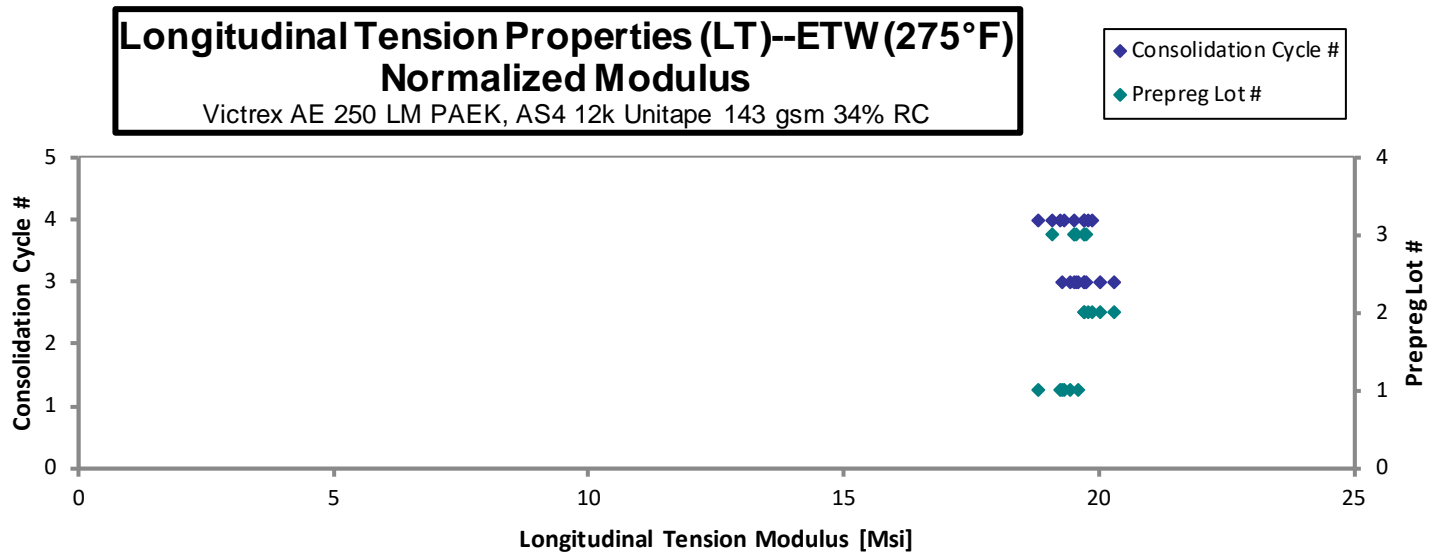
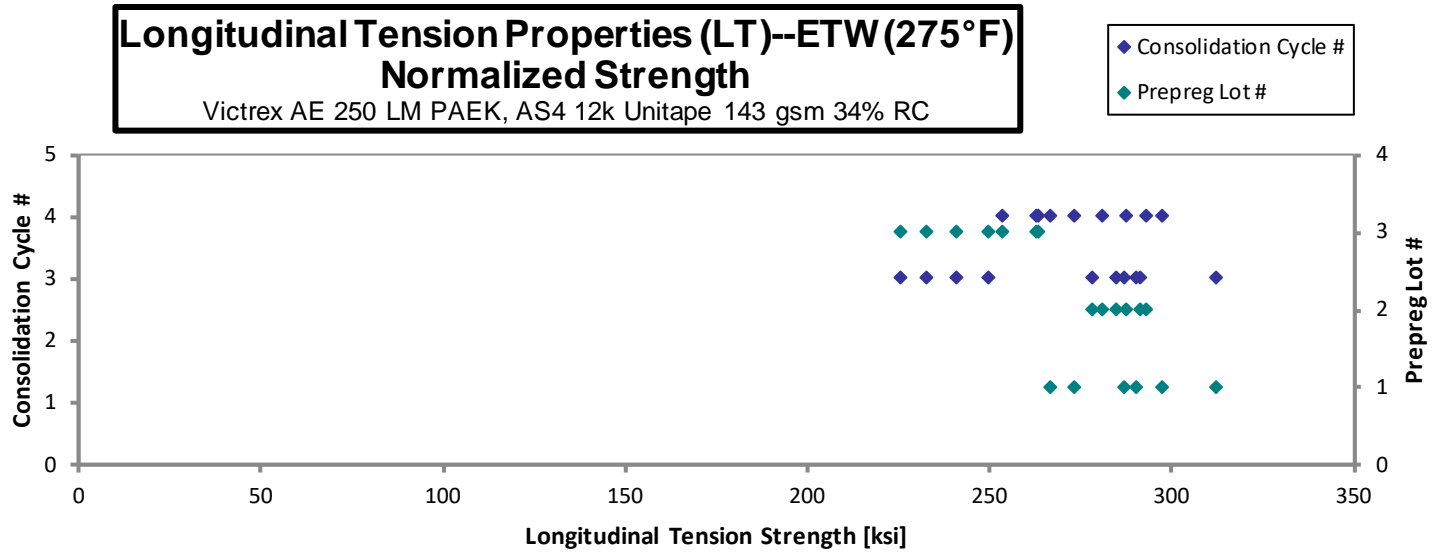
Specimen Number*	Victrix Batch #	Victrix Consolidation Cycle	Prepreg Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
LT-A-C3-R-ETW-1	A	C3	1	3	324.3	20.20	0.3084	0.0416	8	SGM
LT-A-C3-R-ETW-2	A	C3	1	3	302.3	20.41	0.3350	0.0415	8	SGM
LT-A-C3-R-ETW-3	A	C3	1	3	298.0	20.04	0.3653	0.0416	8	SGM
LT-A-C4-R-ETW-1	A	C4	1	4	286.0	20.20	0.3426	0.0413	8	SGM
LT-A-C4-R-ETW-2	A	C4	1	4	312.3	20.22	0.3344	0.0411	8	SGM, LAT
LT-A-C4-R-ETW-3	A	C4	1	4	283.1	20.01	0.3077	0.0407	8	SGM
LT-B-C3-R-ETW-1	B	C3	2	3	295.2	20.78	0.3444	0.0417	8	SGM, LAT
LT-B-C3-R-ETW-2	B	C3	2	3	300.8	20.38	0.3075	0.0418	8	AWB
LT-B-C3-R-ETW-3	B	C3	2	3	283.8	20.69	0.3214	0.0424	8	SGM, LAB
LT-B-C4-R-ETW-1	B	C4	2	4	297.5	20.54	0.4139	0.0418	8	SGM
LT-B-C4-R-ETW-2	B	C4	2	4	301.7	20.36	0.3800	0.0420	8	SGM, LAT
LT-B-C4-R-ETW-3	B	C4	2	4	290.5	20.36	0.3309	0.0418	8	SGM, LAT
LT-C-C3-R-ETW-1	C	C3	3	3	228.8	19.83	0.3142	0.0425	8	SGM, LAT
LT-C-C3-R-ETW-2	C	C3	3	3	254.1	20.04	0.3289	0.0425	8	SGM, LGB
LT-C-C3-R-ETW-3	C	C3	3	3	244.1	20.00	0.3199	0.0427	8	SGM, LAT
LT-C-C3-R-ETW-4	C	C3	3	3	237.4	19.98	0.3288	0.0423	8	SGM, LAT
LT-C-C4-R-ETW-1	C	C4	3	4	260.0	20.20	0.3389	0.0421	8	SGM
LT-C-C4-R-ETW-2	C	C4	3	4	269.7	19.53	0.3242	0.0422	8	SGM, LAT
LT-C-C4-R-ETW-3	C	C4	3	4	270.3	20.06	0.3163	0.04203	8	SGM, LAB

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0052	312.1	19.44
0.0052	290.2	19.59
0.0052	287.0	19.30
0.0052	273.5	19.32
0.0051	297.1	19.24
0.0051	266.4	18.83
0.0052	284.6	20.03
0.0052	291.2	19.72
0.0053	278.4	20.29
0.0052	287.6	19.85
0.0052	293.2	19.78
0.0052	281.0	19.69
0.0053	225.3	19.52
0.0053	249.7	19.69
0.0053	241.0	19.76
0.0053	232.5	19.56
0.0053	253.5	19.70
0.0053	263.6	19.09
0.0053	263.0	19.52

*ID prefixed by NTP1250Q1-V-A1-TA-

Average	281.1	20.20	0.3349
Standard Dev.	26.27	0.2979	0.0268
Coeff. of Var. [%]	9.346	1.475	8.008
Min.	228.8	19.53	0.3075
Max.	324.3	20.78	0.4139
Number of Spec.	19	19	19

Average _{norm}	0.0052	272.1	19.58
Standard Dev _{norm}		23.40	0.3342
Coeff. of Var. [%] _{norm}		8.600	1.707
Min.	0.0051	225.3	18.83
Max.	0.0053	312.1	20.29
Number of Spec.	19	19	19



4.2 Longitudinal Compression Properties (LC)

Longitudinal Compression Properties (LC)--CTA (-65°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
 t_{ply} [in]
 0.0054

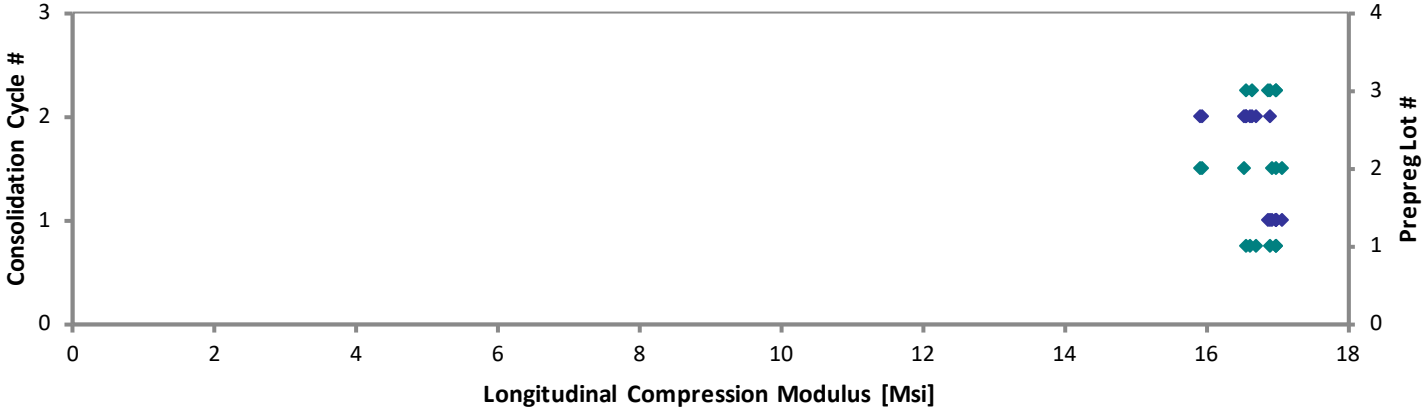
Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate
LC-A-C1-CTA-1	A	C1	1	1	17.60	0.3121	0.1038	20
LC-A-C1-CTA-2	A	C1	1	1	17.65	0.3080	0.1039	20
LC-A-C1-CTA-3	A	C1	1	1	17.63	0.3287	0.1040	20
LC-A-C2-CTA-1	A	C2	1	2	17.61	0.3313	0.1019	20
LC-A-C2-CTA-2	A	C2	1	2	17.57	0.3104	0.1019	20
LC-A-C2-CTA-3	A	C2	1	2	17.59	0.3398	0.1025	20
LC-B-C1-CTA-1	B	C1	2	1	17.45	0.3410	0.1048	20
LC-B-C1-CTA-2	B	C1	2	1	17.59	0.3198	0.1048	20
LC-B-C1-CTA-3	B	C1	2	1	17.59	0.3122	0.1044	20
LC-B-C2-CTA-1	B	C2	2	2	17.57	0.3570	0.1016	20
LC-B-C2-CTA-2	B	C2	2	2	16.86	0.2801	0.1021	20
LC-B-C2-CTA-3	B	C2	2	2	16.90	0.3626	0.1016	20
LC-C-C1-CTA-1	C	C1	3	1	17.39	0.3210	0.1048	20
LC-C-C1-CTA-2	C	C1	3	1	17.46	0.3309	0.1050	20
LC-C-C1-CTA-3	C	C1	3	1	17.40	0.3223	0.1054	20
LC-C-C2-CTA-1	C	C2	3	2	17.02	0.3505	0.1056	20
LC-C-C2-CTA-2	C	C2	3	2	16.87	0.3364	0.1059	20
LC-C-C2-CTA-3	C	C2	3	2	17.12	0.3090	0.1066	20

Avg. t_{ply} [in]	Modulus _{norm} [Msi]
0.0052	16.91
0.0052	16.98
0.0052	16.97
0.0051	16.61
0.0051	16.57
0.0051	16.69
0.0052	16.93
0.0052	17.06
0.0052	17.00
0.0051	16.53
0.0051	15.94
0.0051	15.90
0.0052	16.87
0.0053	16.98
0.0053	16.98
0.0053	16.65
0.0053	16.55
0.0053	16.89

Average	17.38	0.3263	Average_{norm}	0.0052	16.72
Standard Dev.	0.2878	0.0202	Standard Dev._{norm}		0.3416
Coeff. of Var. [%]	1.656	6.178	Coeff. of Var. [%]_{norm}		2.043
Min.	16.86	0.2801	Min.	0.0051	15.90
Max.	17.65	0.3626	Max.	0.0053	17.06
Number of Spec.	18	18	Number of Spec.	18	18

**Longitudinal Compression Properties (LC)--CTA(-65°F)
Normalized Modulus**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

◆ Consolidation Cycle #
◆ Prepreg Lot #



**Longitudinal Compression Properties (LC)--RTA (70°F) □
Strength & Modulus □**

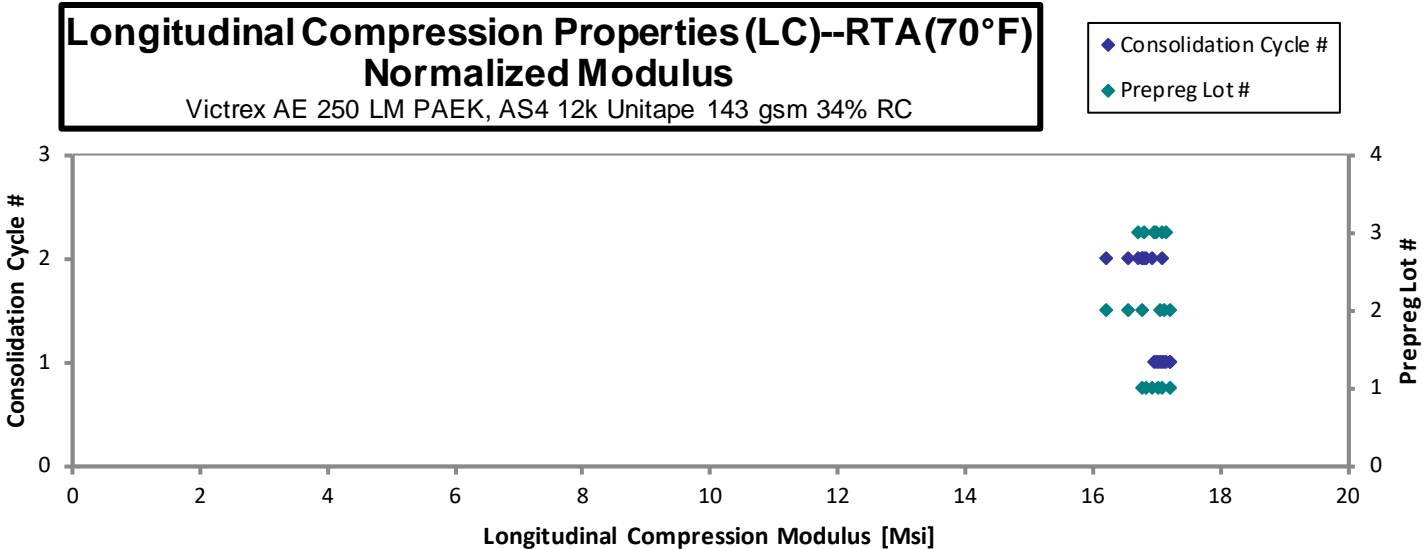
Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrix Batch #	Victrix Consolidation Cycle	Material Lot #	Consolidation Cycle #	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate
LC-A-C1-RTA-1	A	C1	1	1	17.86	0.3277	0.1041	20
LC-A-C1-RTA-2	A	C1	1	1	17.74	0.3322	0.1040	20
LC-A-C1-RTA-3	A	C1	1	1	17.72	0.3132	0.1038	20
LC-A-C2-RTA-1	A	C2	1	2	17.76	0.3533	0.1021	20
LC-A-C2-RTA-2	A	C2	1	2	17.81	0.3149	0.1020	20
LC-A-C2-RTA-3	A	C2	1	2	17.89	0.3368	0.1021	20
LC-B-C1-RTA-1	B	C1	2	1	17.66	0.3231	0.1052	20
LC-B-C1-RTA-2	B	C1	2	1	17.71	0.3208	0.1040	20
LC-B-C1-RTA-3	B	C1	2	1	17.69	0.3266	0.1046	20
LC-B-C2-RTA-1	B	C2	2	2	17.23	0.3075	0.1016	20
LC-B-C2-RTA-2	B	C2	2	2	17.55	0.3658	0.1019	20
LC-B-C2-RTA-3	B	C2	2	2	17.76	0.3509	0.1019	20
LC-C-C1-RTA-1	C	C1	3	1	17.52	0.3342	0.1057	20
LC-C-C1-RTA-2	C	C1	3	1	17.37	0.3679	0.1055	20
LC-C-C1-RTA-3	C	C1	3	1	17.49	0.3613	0.1050	20
LC-C-C2-RTA-1	C	C2	3	2	16.99	0.3415	0.1063	20
LC-C-C2-RTA-2	C	C2	3	2	17.23	0.3427	0.1053	20
LC-C-C2-RTA-3	C	C2	3	2	17.47	0.3337	0.1055	20

Avg. t _{ply} [in]	Modulus _{norm} [Msi]
0.0052	17.22
0.0052	17.09
0.0052	17.04
0.0051	16.79
0.0051	16.82
0.0051	16.91
0.0053	17.20
0.0052	17.05
0.0052	17.12
0.0051	16.21
0.0051	16.57
0.0051	16.76
0.0053	17.14
0.0053	16.96
0.0053	17.01
0.0053	16.72
0.0053	16.79
0.0053	17.07

Average	17.58	0.34	Average_{norm}	0.0052	16.91
Standard Dev.	0.2476	0.0180	Standard Dev._{norm}		0.2533
Coeff. of Var. [%]	1.408	5.343	Coeff. of Var. [%]_{norm}		1.498
Min.	16.99	0.3075	Min.	0.0051	16.21
Max.	17.89	0.3679	Max.	0.0053	17.22
Number of Spec.	18	18	Number of Spec.	18	18



**Longitudinal Compression Properties (LC)--ETA (275°F) □
Strength & Modulus □**

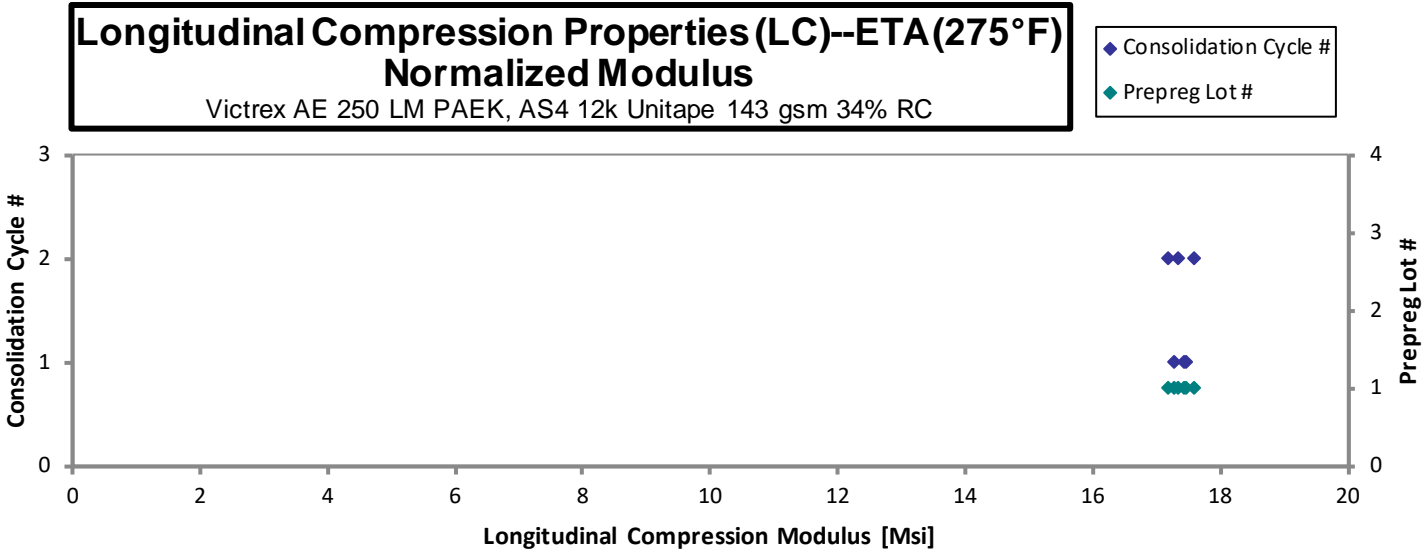
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate
LC-A-C1-ETA-1	A	C1	1	1	18.00	0.3418	0.1047	20
LC-A-C1-ETA-2	A	C1	1	1	17.98	0.3438	0.1048	20
LC-A-C1-ETA-3	A	C1	1	1	17.80	0.3543	0.1049	20
LC-A-C2-ETA-1	A	C2	1	2	18.08	0.3459	0.1036	20
LC-A-C2-ETA-2	A	C2	1	2	17.88	0.3349	0.1038	20
LC-A-C2-ETA-3	A	C2	1	2	18.27	0.3329	0.1040	20

Avg. t _{ply} [in]	Modulus _{norm} [Msi]
0.0052	17.45
0.0052	17.44
0.0052	17.28
0.0052	17.33
0.0052	17.18
0.0052	17.60

Average	18.00	0.3422	Average_{norm}	0.0052	17.38
Standard Dev.	0.1623	0.0078	Standard Dev._{norm}		0.1479
Coeff. of Var. [%]	0.9014	2.2759	Coeff. of Var. [%]_{norm}		0.8512
Min.	17.80	0.3329	Min.	0.0052	17.18
Max.	18.27	0.3543	Max.	0.0052	17.60
Number of Spec.	6	6	Number of Spec.	6	6



**Longitudinal Compression Properties (LC)--ETW (275°F) □
Strength & Modulus □**

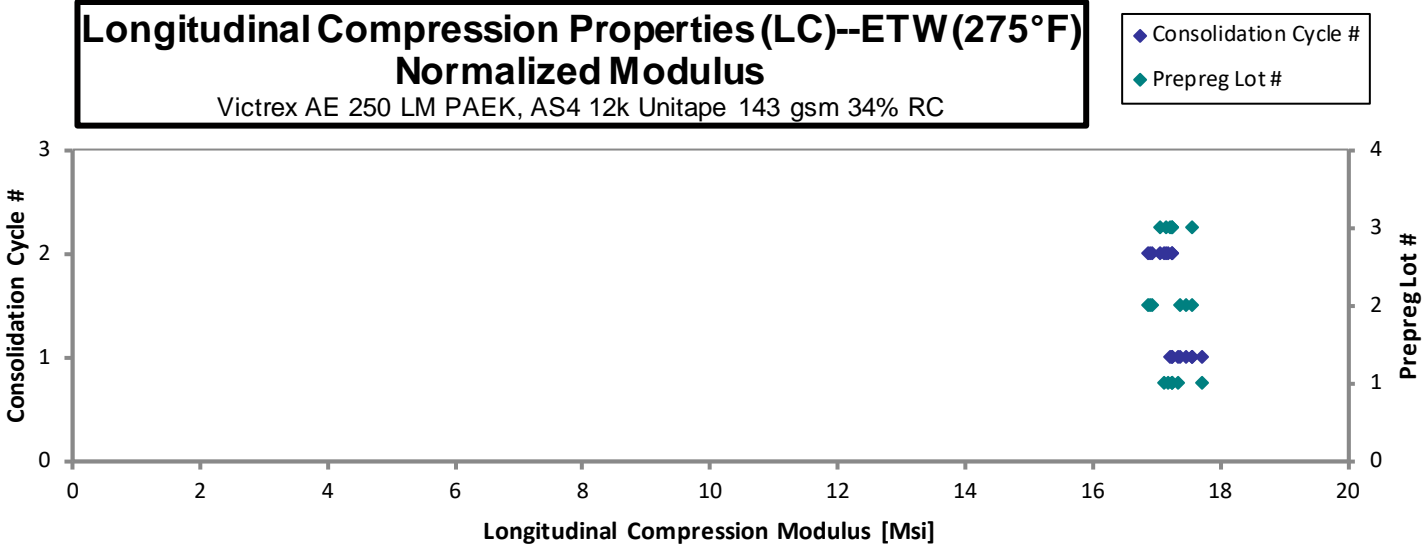
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickness [in]	# Plies in Laminate
LC-A-C1-ETW-1	A	C1	1	1	18.14	0.3716	0.1055	20
LC-A-C1-ETW-2	A	C1	1	1	17.84	0.3757	0.1049	20
LC-A-C1-ETW-3	A	C1	1	1	17.79	0.3566	0.1047	20
LC-A-C2-ETW-1	A	C2	1	2	17.85	0.3523	0.1037	20
LC-A-C2-ETW-3	A	C2	1	2	17.90	0.3709	0.1038	20
LC-A-C2-ETW-4	A	C2	1	2	17.97	0.3477	0.1036	20
LC-B-C1-ETW-1	B	C1	2	1	17.93	0.3521	0.1047	20
LC-B-C1-ETW-2	B	C1	2	1	18.10	0.3912	0.1043	20
LC-B-C1-ETW-3	B	C1	2	1	17.94	0.3337	0.1057	20
LC-B-C2-ETW-1	B	C2	2	2	17.61	0.3471	0.1034	20
LC-B-C2-ETW-2	B	C2	2	2	17.51	0.3600	0.1043	20
LC-B-C2-ETW-3	B	C2	2	2	17.43	0.3741	0.1047	20
LC-C-C1-ETW-1	C	C1	3	1	17.81	0.3520	0.1064	20
LC-C-C1-ETW-2	C	C1	3	1	17.45	0.3646	0.1068	20
LC-C-C1-ETW-3	C	C1	3	1	17.45	0.3451	0.1066	20
LC-C-C2-ETW-1	C	C2	3	2	17.32	0.3580	0.1069	20
LC-C-C2-ETW-2	C	C2	3	2	17.48	0.3334	0.1065	20
LC-C-C2-ETW-3	C	C2	3	2	17.16	0.3529	0.1074	20

Avg. t _{ply} [in]	Modulus _{norm} [Msi]
0.0053	17.72
0.0052	17.32
0.0052	17.25
0.0052	17.13
0.0052	17.19
0.0052	17.24
0.0052	17.37
0.0052	17.48
0.0053	17.55
0.0052	16.86
0.0052	16.92
0.0052	16.90
0.0053	17.54
0.0053	17.24
0.0053	17.22
0.0053	17.15
0.0053	17.23
0.0054	17.06

Average	17.70	0.3577	Average _{norm}	0.0053	17.24
Standard Dev.	0.2830	0.0149	Standard Dev. _{norm}		0.2327
Coeff. of Var. [%]	1.598	4.173	Coeff. of Var. [%] _{norm}		1.350
Min.	17.16	0.3334	Min.	0.0052	16.86
Max.	18.14	0.3912	Max.	0.0054	17.72
Number of Spec.	18	18	Number of Spec.	18	18

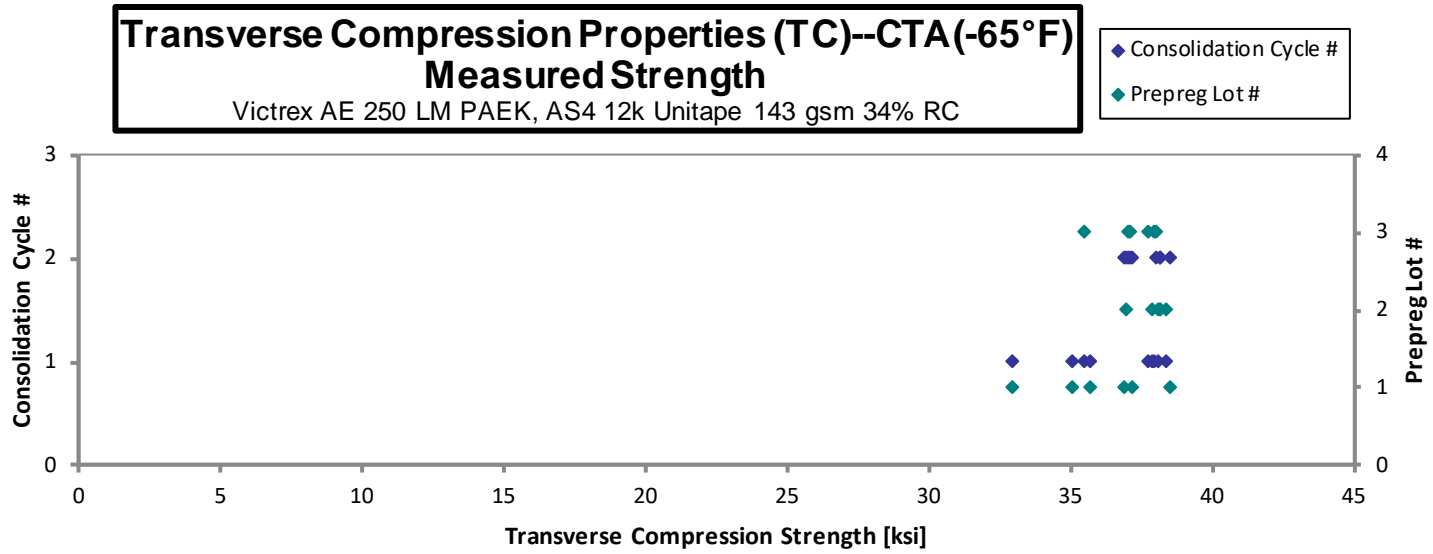


4.3 Transverse Compression Properties (TC)

Transverse Compression Properties (TC)--CTA (-65°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
TC-A-C1-CTA-1	A	C1	1	1	32.96	1.492	0.1050	20	0.0052	HGM, LAT
TC-A-C1-CTA-2	A	C1	1	1	35.70	1.522	0.1051	20	0.0053	LAB, LAT
TC-A-C1-CTA-3	A	C1	1	1	35.09	1.514	0.1054	20	0.0053	HGM, LAT
TC-A-C2-CTA-1	A	C2	1	2	37.16	1.439	0.1039	20	0.0052	HGM, LAT
TC-A-C2-CTA-2	A	C2	1	2	36.87	1.533	0.1032	20	0.0052	BGM, LAT
TC-A-C2-CTA-3	A	C2	1	2	38.49	1.499	0.1023	20	0.0051	HGM, LAT
TC-B-C1-CTA-1	B	C1	2	1	37.91	1.523	0.1045	20	0.0052	HGM, LAT
TC-B-C1-CTA-2	B	C1	2	1	38.38	1.541	0.1048	20	0.0052	HGM, LAT
TC-B-C1-CTA-3	B	C1	2	1	38.12	1.577	0.1050	20	0.0052	LAB, LAT
TC-B-C2-CTA-1	B	C2	2	2	38.16	1.496	0.1033	20	0.0052	LAT, LAB
TC-B-C2-CTA-2	B	C2	2	2	36.98	1.507	0.1035	20	0.0052	HGM, LAT
TC-B-C2-CTA-3	B	C2	2	2	38.19	1.478	0.1035	20	0.0052	LAT, LAB
TC-C-C1-CTA-1	C	C1	3	1	35.48	1.479	0.1056	20	0.0053	BGM, LAT
TC-C-C1-CTA-2	C	C1	3	1	37.70	1.461	0.1055	20	0.0053	LAT, LAB
TC-C-C1-CTA-3	C	C1	3	1	37.97	1.499	0.1054	20	0.0053	HGM, LAT
TC-C-C2-CTA-1	C	C2	3	2	37.99	1.432	0.1054	20	0.0053	HGM, LAT
TC-C-C2-CTA-2	C	C2	3	2	37.05	1.451	0.1050	20	0.0052	BGM, LAT
TC-C-C2-CTA-3	C	C2	3	2	37.07	1.448	0.1061	20	0.0053	HGM, LAT

Average	37.07	1.494	0.0052
Standard Dev.	1.440	0.03860	
Coeff. of Var. [%]	3.884	2.583	
Min.	32.96	1.432	0.0051
Max.	38.49	1.577	0.0053
Number of Spec.	18	18	18



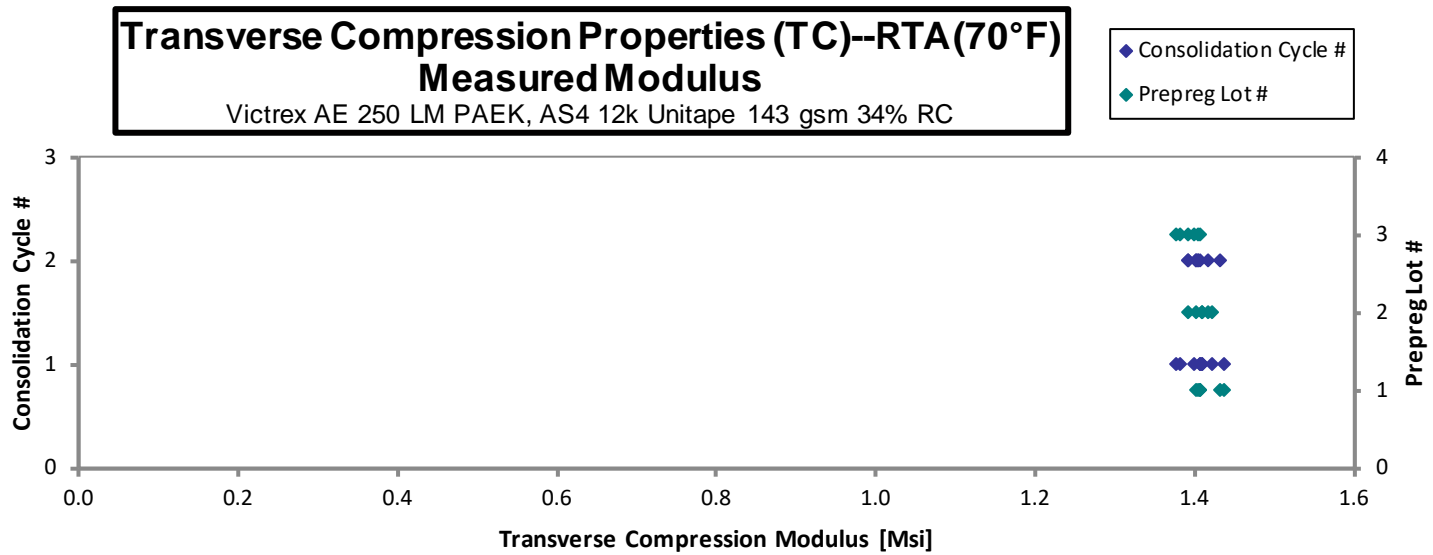
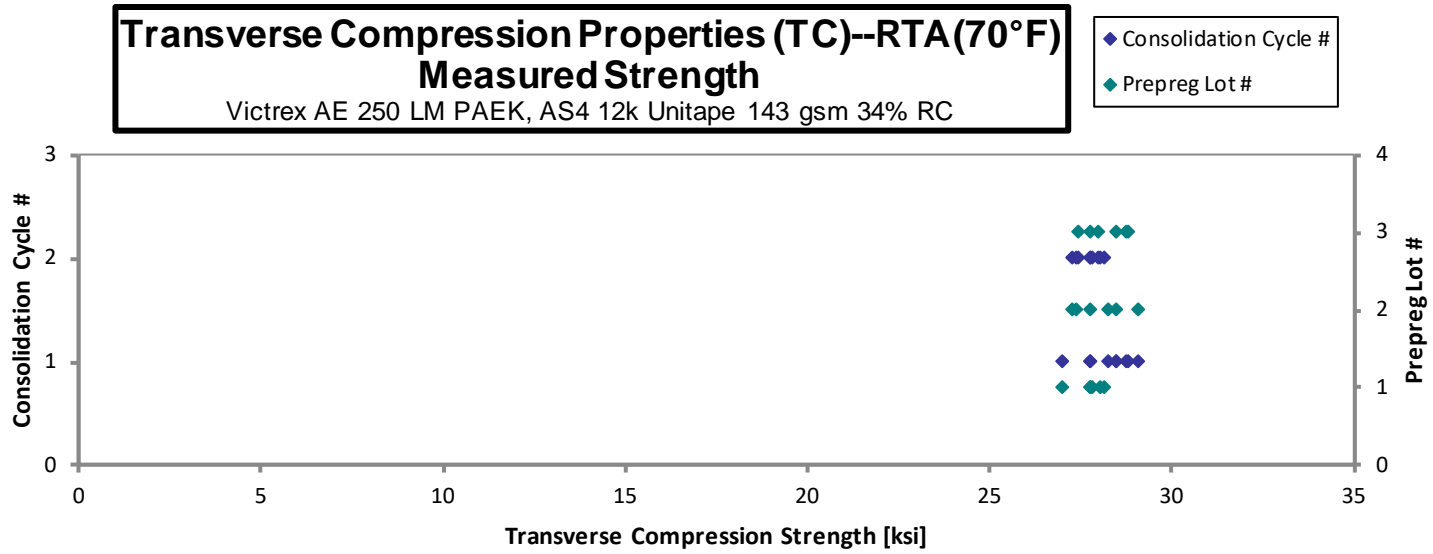
Transverse Compression Properties (TC)--RTA (70°F) □

Strength & Modulus □

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrax Batch #	Victrax Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
TC-A-C1-RTA-1	A	C1	1	1	27.79	1.408	0.1042	20	0.0052	HGM, LAB
TC-A-C1-RTA-2	A	C1	1	1	27.75	1.407	0.1046	20	0.0052	BGM
TC-A-C1-RTA-3	A	C1	1	1	26.98	1.436	0.1045	20	0.0052	LAB, LAT
TC-A-C2-RTA-1	A	C2	1	2	27.81	1.431	0.1027	20	0.0051	HAB, LAT
TC-A-C2-RTA-2	A	C2	1	2	28.01	1.402	0.1028	20	0.0051	HGM, LAT
TC-A-C2-RTA-3	A	C2	1	2	28.16	1.404	0.1034	20	0.0052	HAB, LAT
TC-B-C1-RTA-1	B	C1	2	1	29.08	1.408	0.1048	20	0.0052	HAB, LAT
TC-B-C1-RTA-2	B	C1	2	1	28.47	1.423	0.1048	20	0.0052	HAB, LAT
TC-B-C1-RTA-3	B	C1	2	1	28.26	1.410	0.1046	20	0.0052	HAB, LAT
TC-B-C2-RTA-1	B	C2	2	2	27.25	1.417	0.1030	20	0.0051	HAB, LAT
TC-B-C2-RTA-2	B	C2	2	2	27.74	1.393	0.1035	20	0.0052	HAB, LAT
TC-B-C2-RTA-3	B	C2	2	2	27.40	1.402	0.1035	20	0.0052	HAB, LAT
TC-C-C1-RTA-1	C	C1	3	1	28.46	1.399	0.1059	20	0.0053	HAB, LAT
TC-C-C1-RTA-2	C	C1	3	1	28.81	1.381	0.1060	20	0.0053	HAB, LAT
TC-C-C1-RTA-3	C	C1	3	1	28.76	1.377	0.1061	20	0.0053	HGM, LAT
TC-C-C2-RTA-1	C	C2	3	2	27.96	1.404	0.1051	20	0.0053	HAB, LAT
TC-C-C2-RTA-2	C	C2	3	2	27.76	1.392	0.1059	20	0.0053	HAB, LAT
TC-C-C2-RTA-3	C	C2	3	2	27.45	1.406	0.1057	20	0.0053	HAB, LAT

Average	27.99	1.406	0.0052
Standard Dev.	0.5670	0.01512	
Coeff. of Var. [%]	2.025	1.076	
Min.	26.98	1.377	0.0051
Max.	29.08	1.436	0.0053
Number of Spec.	18	18	18



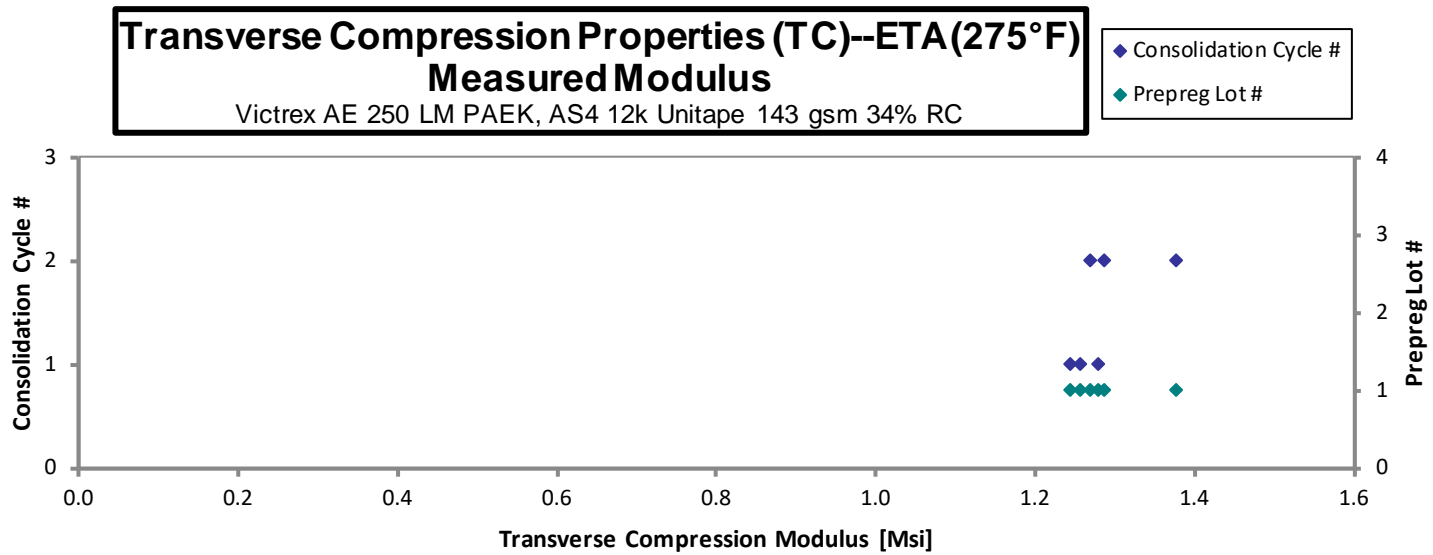
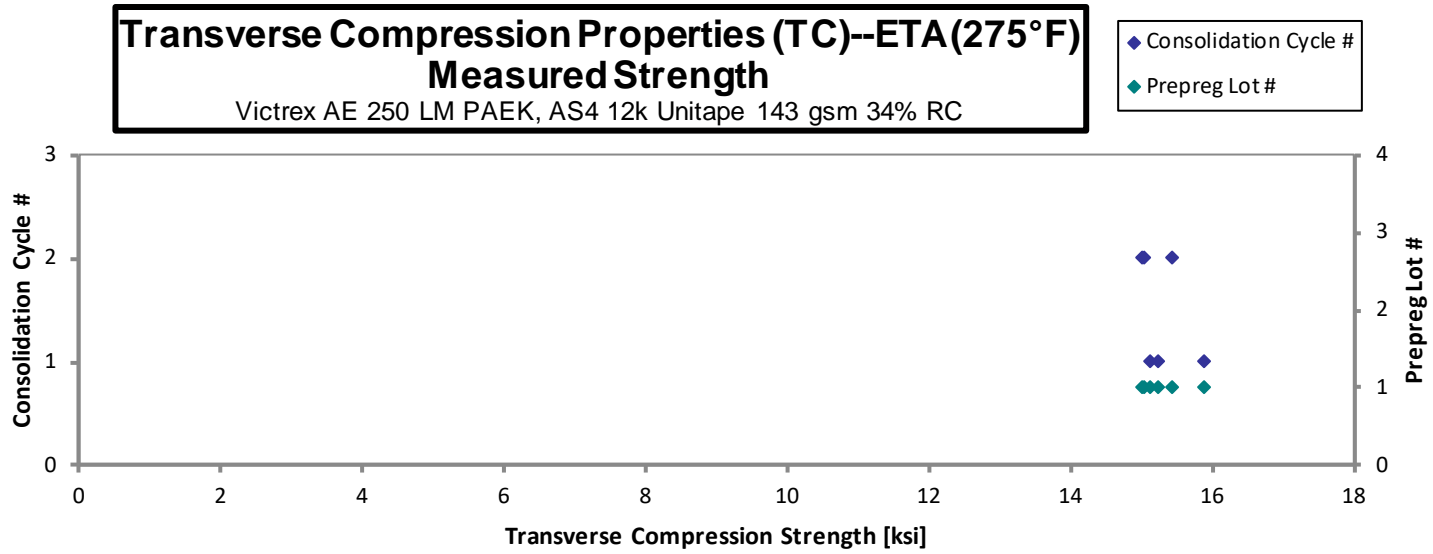
Transverse Compression Properties (TC)--ETA (275°F) □

Strength & Modulus □

Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrix Batch #	Victrix Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
TC-A-C1-ETA-1	A	C1	1	1	15.13	1.245	0.1053	20	0.0053	HGM
TC-A-C1-ETA-2	A	C1	1	1	15.89	1.279	0.1049	20	0.0052	HGM
TC-A-C1-ETA-3	A	C1	1	1	15.25	1.256	0.1051	20	0.0053	HGM
TC-A-C2-ETA-1	A	C2	1	2	15.03	1.268	0.1039	20	0.0052	HGM
TC-A-C2-ETA-2	A	C2	1	2	15.43	1.377	0.1040	20	0.0052	HGM
TC-A-C2-ETA-3	A	C2	1	2	15.01	1.285	0.1039	20	0.0052	HGM

Average	15.29	1.285	0.0052
Standard Dev.	0.3349	0.04741	
Coeff. of Var. [%]	2.191	3.690	
Min.	15.01	1.245	0.0052
Max.	15.89	1.377	0.0053
Number of Spec.	6	6	6

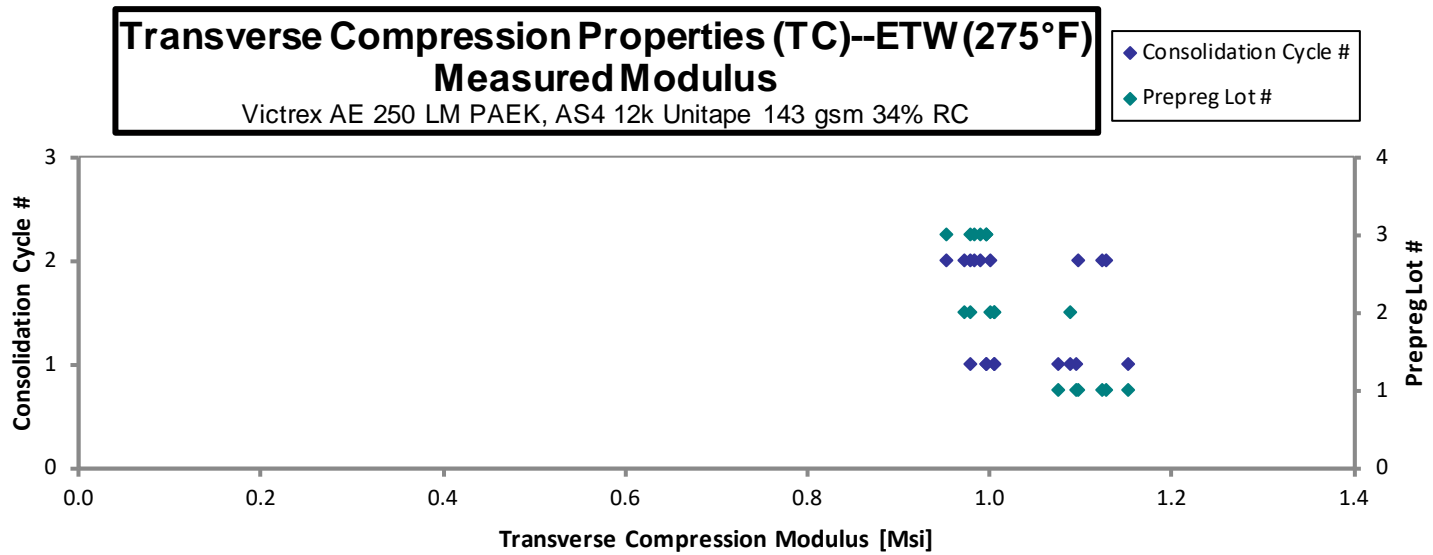
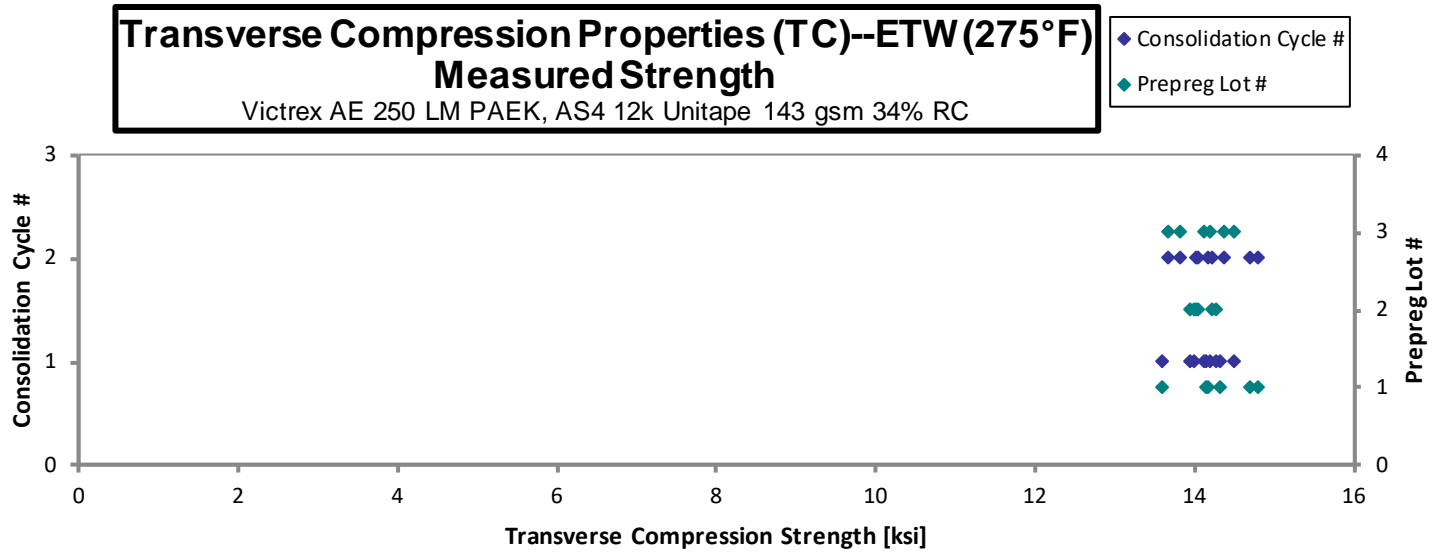


Transverse Compression Properties (TC)--ETW (275°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
TC-A-C1-ETW-1	A	C1	1	1	14.32	1.153	0.1047	20	0.0052	HGM
TC-A-C1-ETW-2	A	C1	1	1	14.14	1.076	0.1045	20	0.0052	HGM
TC-A-C1-ETW-3	A	C1	1	1	13.60	1.094	0.1047	20	0.0052	HGM
TC-A-C2-ETW-1	A	C2	1	2	14.17	1.097	0.1041	20	0.0052	HGM
TC-A-C2-ETW-2	A	C2	1	2	14.69	1.128	0.1037	20	0.0052	HGM
TC-A-C2-ETW-3	A	C2	1	2	14.79	1.124	0.1036	20	0.0052	HGM
TC-B-C1-ETW-1	B	C1	2	1	14.27	1.088	0.1055	20	0.0053	HGM
TC-B-C1-ETW-2	B	C1	2	1	14.00	1.004	0.1052	20	0.0053	HGM
TC-B-C1-ETW-3	B	C1	2	1	13.95	1.006	0.1054	20	0.0053	HGM
TC-B-C2-ETW-1	B	C2	2	2	14.04	1.000	0.1030	20	0.0051	HGM
TC-B-C2-ETW-2	B	C2	2	2	14.22	0.9780	0.1035	20	0.0052	HGM
TC-B-C2-ETW-3	B	C2	2	2	14.02	0.9714	0.1033	20	0.0052	HGM
TC-C-C1-ETW-1	C	C1	3	1	14.20	0.9784	0.1056	20	0.0053	HGM
TC-C-C1-ETW-2	C	C1	3	1	14.11	0.9970	0.1060	20	0.0053	HGM
TC-C-C1-ETW-3	C	C1	3	1	14.51	0.9964	0.1060	20	0.0053	HGM
TC-C-C2-ETW-1	C	C2	3	2	13.67	0.9531	0.1057	20	0.0053	HGM
TC-C-C2-ETW-2	C	C2	3	2	13.82	0.9827	0.1060	20	0.0053	HGM
TC-C-C2-ETW-3*	C	C2	3	2		0.9895	0.1063	20	0.0053	HGM
TC-C-C2-ETW-4	C	C2	3	2	14.36		0.1065	20	0.0053	HGM

*Strength not reported because specimen was not properly loaded

Average	14.16	1.034	0.0052
Standard Dev.	0.3114	0.06418	
Coeff. of Var. [%]	2.199	6.206	
Min.	13.60	0.9531	0.0051
Max.	14.79	1.153	0.0053
Number of Spec.	18	18	19



4.4 Unnotched Compression Properties (UNC0)

Laminate Unnotched Compression Properties (UNC0)--CTA (-65°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNC0-A-C1-CTA-1	A	C1	1	1	123.9	9.324	0.0864	16	M(B,H)AT, CIB
UNC0-A-C1-CTA-2	A	C1	1	1	125.0	9.281	0.0863	16	BAT
UNC0-A-C1-CTA-4	A	C1	1	1	123.4	9.492	0.0861	16	BAT
UNC0-A-C2-CTA-1	A	C2	1	2	123.5	9.247	0.0878	16	BAB, HIB, CIT
UNC0-A-C2-CTA-2	A	C2	1	2	120.0	9.144	0.0879	16	BAT, HIT
UNC0-A-C2-CTA-3	A	C2	1	2	116.2	9.269	0.0875	16	BAT, HIB
UNC0-B-C1-CTA-1	B	C1	2	1	115.5	9.765	0.0851	16	BAT
UNC0-B-C1-CTA-2	B	C1	2	1	120.7	9.791	0.0845	16	BAT
UNC0-B-C1-CTA-3	B	C1	2	1	114.5	9.980	0.0846	16	BAT
UNC0-B-C2-CTA-1	B	C2	2	2	118.8	9.304	0.0872	16	BAT
UNC0-B-C2-CTA-2	B	C2	2	2	127.3	9.019	0.0877	16	BAT
UNC0-B-C2-CTA-3	B	C2	2	2	126.3	8.902	0.0879	16	M(B,H)AT, HIT
UNC0-C-C1-CTA-1	C	C1	3	1	117.4	9.282	0.0884	16	BAT, HAB, HIB
UNC0-C-C1-CTA-2	C	C1	3	1	117.9	9.123	0.0887	16	BAT
UNC0-C-C1-CTA-3*	C	C1	3	1		9.236	0.0898	16	CIB, CIT
UNC0-C-C1-CTA-4	C	C1	3	1	120.4		0.0882	16	HAB
UNC0-C-C2-CTA-1*	C	C2	3	2		9.190	0.0873	16	CIT, CIB
UNC0-C-C2-CTA-2	C	C2	3	2	115.9	9.059	0.0886	16	BAT
UNC0-C-C2-CTA-3	C	C2	3	2	112.0	8.879	0.0896	16	BAT
UNC0-C-C2-CTA-4	C	C2	3	2	112.0		0.0879	16	BAT

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0054	123.9	9.326
0.0054	124.8	9.267
0.0054	123.0	9.461
0.0055	125.4	9.392
0.0055	122.2	9.307
0.0055	117.7	9.387
0.0053	113.8	9.617
0.0053	118.1	9.579
0.0053	112.1	9.770
0.0054	119.9	9.388
0.0055	129.2	9.155
0.0055	128.5	9.058
0.0055	120.2	9.501
0.0055	121.0	9.361
0.0056		9.596
0.0055	122.9	
0.0055		9.289
0.0055	118.8	9.284
0.0056	116.2	9.212
0.0055	114.0	

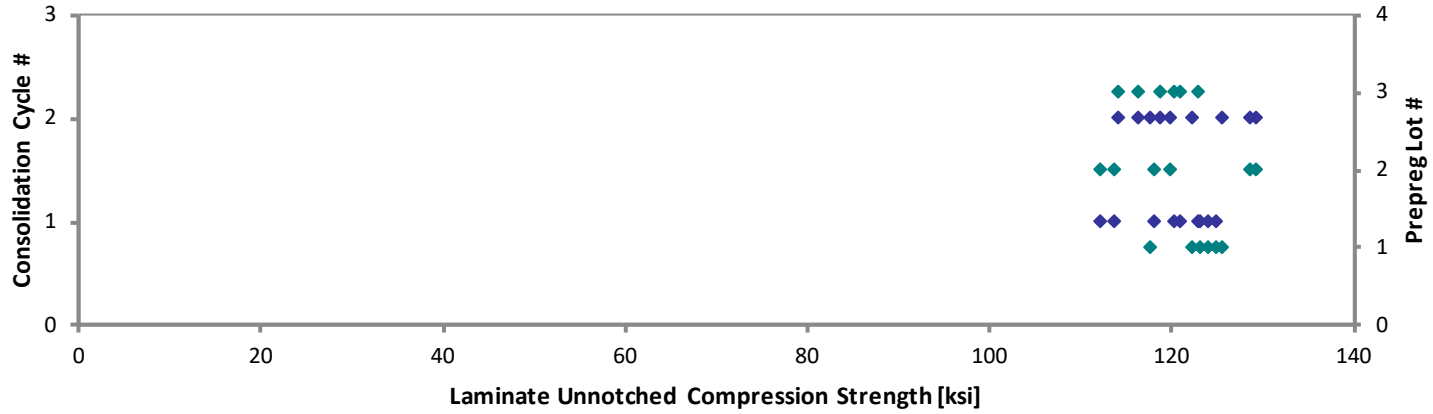
*Strength not reported due to unacceptable failure mode

Average	119.5	9.294
Standard Dev.	4.684	0.2976
Coeff. of Var. [%]	3.920	3.202
Min.	112.0	8.879
Max.	127.3	9.980
Number of Spec.	18	18

Average _{norm}	0.0055	120.6	9.386
Standard Dev. _{norm}		4.866	0.1777
Coeff. of Var. [%] _{norm}		4.033	1.893
Min.	0.0053	112.1	9.058
Max.	0.0056	129.2	9.770
Number of Spec.	20	18	18

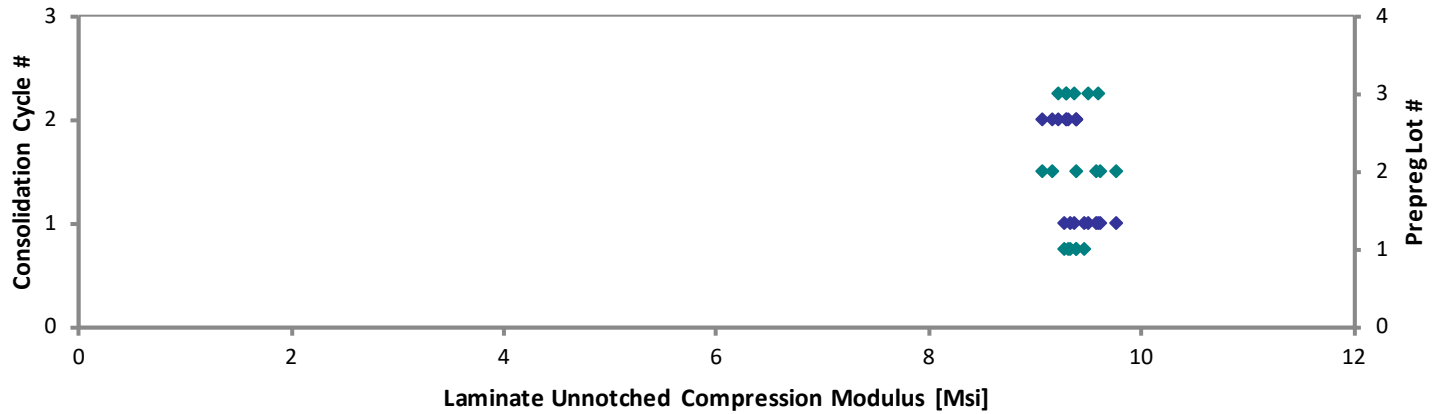
**Laminate Unnotched Compression Properties (UNC0)--CTA
(-65°F) Normalized Strength**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

◆ Consolidation Cycle #
◆ Prepreg Lot #



**Laminate Unnotched Compression Properties (UNC0)--CTA
(-65°F) Normalized Modulus**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

◆ Consolidation Cycle #
◆ Prepreg Lot #



**Laminate Unnotched Compression Properties (UNC0)--RTA (70°F) □
Strength & Modulus □**

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
t_{ply} [in]
0.0054

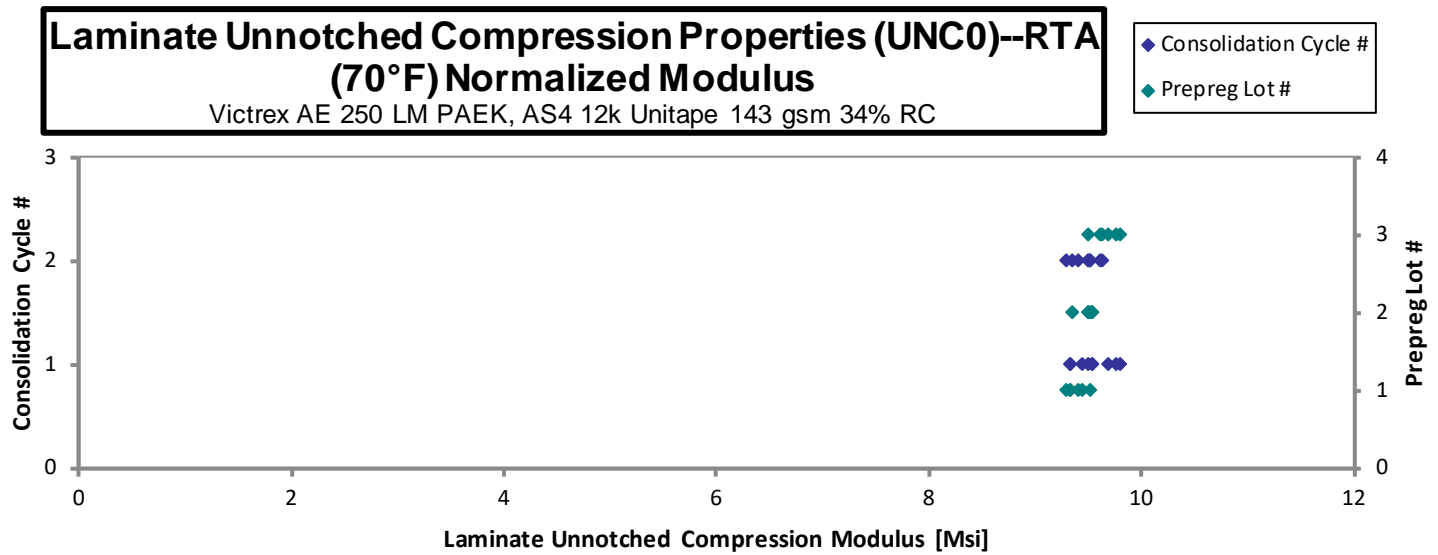
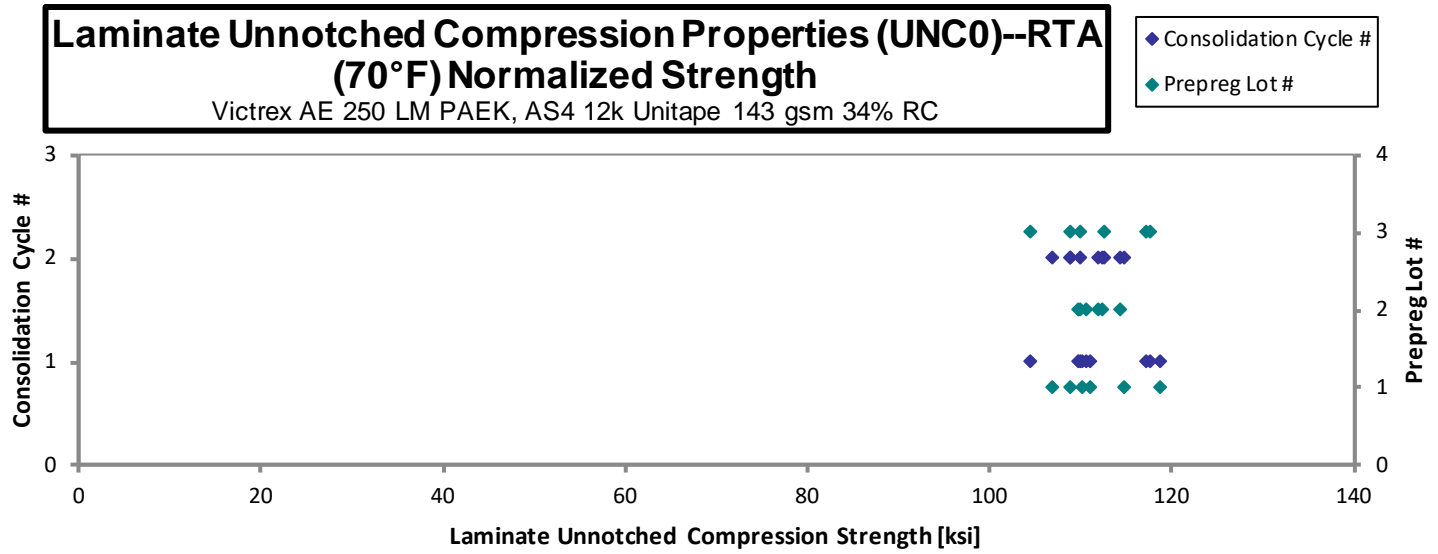
Specimen Number	Victrax Batch #	Victrax Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNC0-A-C1-RTA-1*	A	C1	1	1		9.307	0.0866	16	CIT
UNC0-A-C1-RTA-2	A	C1	1	1	118.6	9.328	0.0865	16	BAB, CIT
UNC0-A-C1-RTA-3	A	C1	1	1	111.5	9.483	0.0860	16	BAT
UNC0-A-C1-RTA-4	A	C1	1	1	110.3		0.0863	16	BAT
UNC0-A-C2-RTA-1	A	C2	1	2	106.4	9.370	0.0868	16	BAB
UNC0-A-C2-RTA-2	A	C2	1	2	107.8	9.201	0.0872	16	M(B,H)AB
UNC0-A-C2-RTA-3	A	C2	1	2	112.7	9.358	0.0880	16	M(B,H)AB
UNC0-B-C1-RTA-1	B	C1	2	1	111.0	9.585	0.0860	16	BAB
UNC0-B-C1-RTA-2	B	C1	2	1	111.6	9.660	0.0850	16	BAB
UNC0-B-C1-RTA-3	B	C1	2	1	111.5	9.664	0.0852	16	BAB
UNC0-B-C2-RTA-1	B	C2	2	2	114.1	9.474	0.0867	16	BAB
UNC0-B-C2-RTA-2	B	C2	2	2	112.0	9.349	0.0864	16	BAB
UNC0-B-C2-RTA-3	B	C2	2	2	111.0	9.391	0.0876	16	M(B,H)AT
UNC0-C-C1-RTA-1	C	C1	3	1	114.1	9.494	0.0888	16	BAT
UNC0-C-C1-RTA-2	C	C1	3	1	100.3	9.299	0.0899	16	BAB, HIB
UNC0-C-C1-RTA-3	C	C1	3	1	114.9	9.578	0.0885	16	BAB
UNC0-C-C2-RTA-1	C	C2	3	2	108.8	9.476	0.0866	16	BAB
UNC0-C-C2-RTA-2	C	C2	3	2	110.9	9.699	0.0856	16	HAB, HIB
UNC0-C-C2-RTA-3	C	C2	3	2	110.0	9.404	0.0885	16	BAT

Avg. t _{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0054		9.331
0.0054	118.7	9.337
0.0054	111.0	9.443
0.0054	110.2	
0.0054	106.9	9.409
0.0055	108.8	9.286
0.0055	114.7	9.526
0.0054	110.5	9.542
0.0053	109.8	9.504
0.0053	110.0	9.533
0.0054	114.4	9.505
0.0054	112.0	9.349
0.0055	112.5	9.519
0.0055	117.2	9.756
0.0056	104.4	9.680
0.0055	117.6	9.807
0.0054	108.9	9.492
0.0054	109.9	9.613
0.0055	112.6	9.627

*Strength not reported due to unacceptable failure mode

Average	111.0	9.451
Standard Dev.	3.822	0.1417
Coeff. of Var. [%]	3.444	1.500
Min.	100.3	9.201
Max.	118.6	9.699
Number of Spec.	18	18

Average _{norm}	0.0054	111.7	9.514
Standard Dev. _{norm}		3.750	0.1449
Coeff. of Var. [%] _{norm}		3.358	1.523
Min.	0.0053	104.42	9.286
Max.	0.0056	118.7	9.807
Number of Spec.	19	18	18



November 18, 2022

CAM-RP-2021-025 Rev N/C

**Laminate Unnotched Compression Properties (UNC0)--ETA (275°F) □
Strength & Modulus □**

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
t_{ply} [in]
0.0054

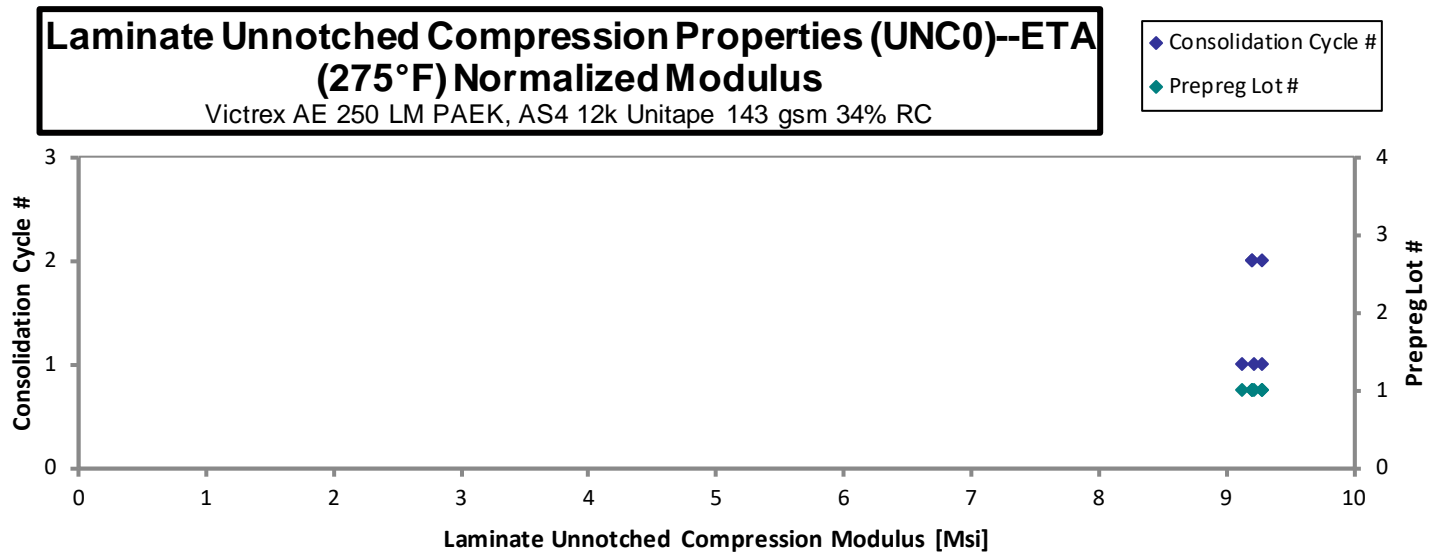
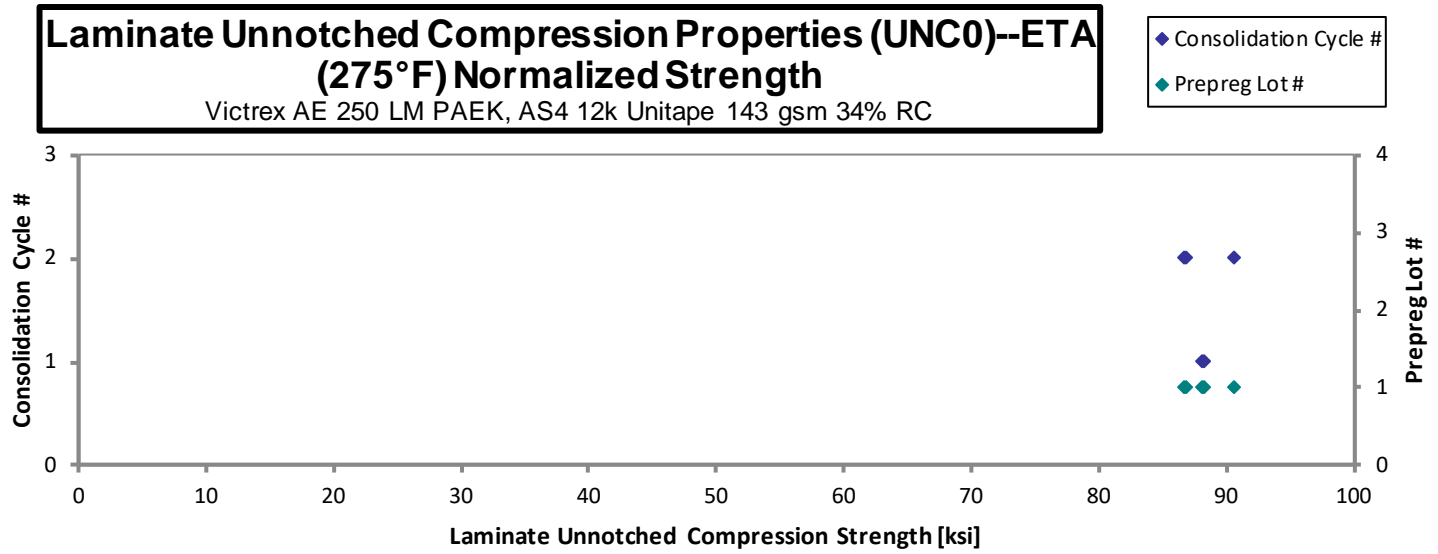
Specimen Number	Victrax Batch #	Victrax Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNC0-A-C1-ETA-2	A	C1	1	1	88.81	9.354	0.0857	16	HAT, CIB, CIT
UNC0-A-C1-ETA-3*	A	C1	1	1		9.216	0.0856	16	HIB
UNC0-A-C1-ETA-4	A	C1	1	1	88.73	9.267	0.0860	16	HAB, HIB, CIB, CIT
UNC0-A-C2-ETA-1	A	C2	1	2	86.13	9.218	0.0870	16	HAT, CIT
UNC0-A-C2-ETA-2	A	C2	1	2	90.12	9.142	0.0869	16	HAT, CIT
UNC0-A-C2-ETA-3	A	C2	1	2	86.20	9.125	0.0871	16	HAB, HIB, CIT, CIB

Avg. t _{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0054	88.11	9.280
0.0053		9.129
0.0054	88.32	9.224
0.0054	86.75	9.284
0.0054	90.64	9.195
0.0054	86.85	9.193

*Strength not reported due to unacceptable failure mode

Average 88.00 9.220
Standard Dev. 1.759 0.08394
Coeff. of Var. [%] 1.999 0.9104
Min. 86.13 9.125
Max. 90.12 9.354
Number of Spec. 5 6

Average_{norm} 0.0054 88.13 9.217
Standard Dev._{norm} 1.571 0.05857
Coeff. of Var. [%]_{norm} 1.782 0.6355
Min. 0.0053 86.75 9.129
Max. 0.0054 90.64 9.284
Number of Spec. 6 5 6



**Laminate Unnotched Compression Properties (UNC0)--ETW (275°F) □
Strength & Modulus □**

Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrix Batch #	Victrix Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksj]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNC0-A-C1-ETW-1	A	C1	1	1	78.72	9.046	0.0855	16	M(B,H)AB, HIB
UNC0-A-C1-ETW-2	A	C1	1	1	79.75	8.996	0.0855	16	M(B,H)AB, HIB
UNC0-A-C1-ETW-3	A	C1	1	1	87.56	8.955	0.0859	16	HAB, HIB
UNC0-A-C2-ETW-1	A	C2	1	2	82.97	8.873	0.0872	16	M(B,H)AB, HIB
UNC0-A-C2-ETW-2	A	C2	1	2	83.35	8.684	0.0872	16	M(B,H)AB, HIB
UNC0-A-C2-ETW-3	A	C2	1	2	84.23	9.067	0.0871	16	M(B,H)AB, HIB
UNC0-B-C1-ETW-1	B	C1	2	1	84.98	9.258	0.0843	16	BAB, HIB
UNC0-B-C1-ETW-2	B	C1	2	1	80.10	9.158	0.0844	16	M(B,H)AB, HIB
UNC0-B-C1-ETW-3	B	C1	2	1	86.63		0.0844	16	M(B,H)AB, HIB
UNC0-B-C1-ETW-4	B	C1	2	1	83.77	9.252	0.0845	16	M(B,H)AB
UNC0-B-C2-ETW-1	B	C2	2	2	87.23	9.069	0.0854	16	M(B,H)AB
UNC0-B-C2-ETW-2	B	C2	2	2	85.72	8.899	0.0866	16	M(B,H)AB
UNC0-B-C2-ETW-3	B	C2	2	2	80.56	8.980	0.0860	16	M(B,H)AB, HIB
UNC0-C-C1-ETW-1	C	C1	3	1	83.35	8.800	0.0882	16	M(B,H)AB, HIB
UNC0-C-C1-ETW-2	C	C1	3	1	70.98	8.848	0.0887	16	M(B,H)AB
UNC0-C-C1-ETW-3	C	C1	3	1	86.22	8.835	0.0882	16	M(B,H)AB, HIB
UNC0-C-C2-ETW-1	C	C2	3	2	83.43	9.007	0.0882	16	M(B,H)AB, HIB
UNC0-C-C2-ETW-2	C	C2	3	2	85.84	9.002	0.0879	16	BAB
UNC0-C-C2-ETW-3	C	C2	3	2	83.74	8.847	0.0876	16	M(B,H)AB, HIB

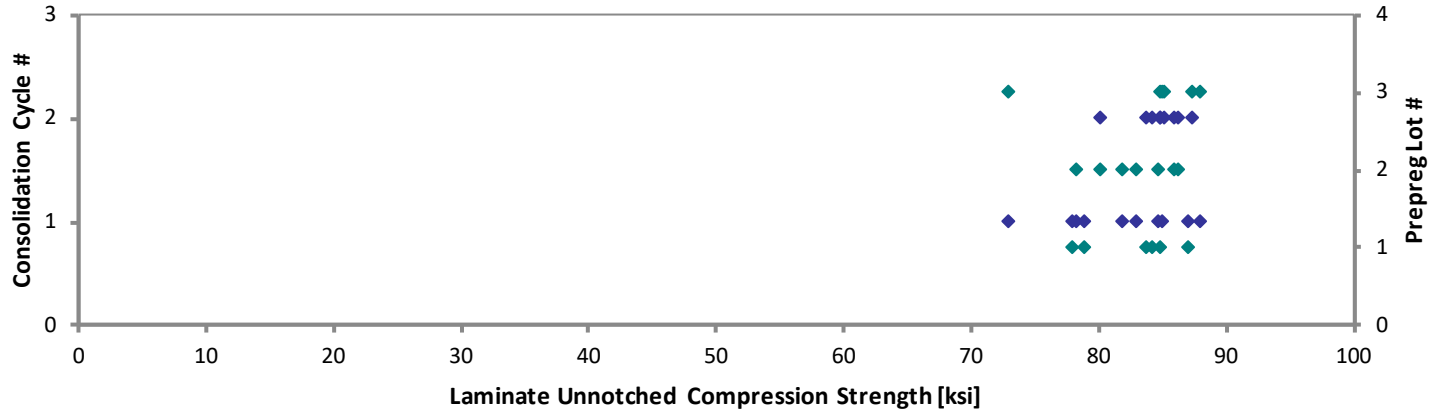
Avg. t _{ply} [in]	Strength _{norm} [ksj]	Modulus _{norm} [Msi]
0.0053	77.91	8.954
0.0053	78.89	8.899
0.0054	87.02	8.900
0.0054	83.72	8.953
0.0055	84.15	8.768
0.0054	84.87	9.135
0.0053	82.93	9.035
0.0053	78.28	8.949
0.0053	84.66	
0.0053	81.89	9.045
0.0053	86.20	8.962
0.0054	85.94	8.922
0.0054	80.17	8.936
0.0055	85.03	8.978
0.0055	72.83	9.079
0.0055	88.00	9.017
0.0055	85.17	9.194
0.0055	87.30	9.155
0.0055	84.86	8.965

Average 83.11 8.976
Standard Dev. 3.889 0.1531
Coeff. of Var. [%] 4.679 1.706
Min. 70.98 8.684
Max. 87.56 9.258
Number of Spec. 19 18

Average_{norm} 0.0054 83.15 8.991
Standard Dev._{norm} 3.918 0.10369
Coeff. of Var. [%]_{norm} 4.712 1.153
Min. 0.0053 72.83 8.768
Max. 0.0055 88.00 9.194
Number of Spec. 19 19 18

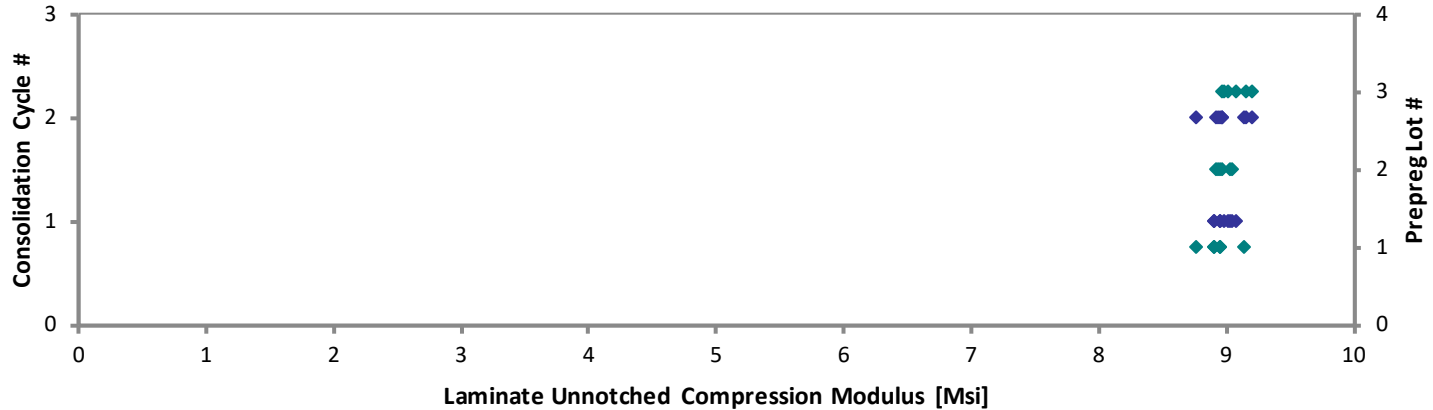
**Laminate Unnotched Compression Properties (UNC0)--ETW
(275°F) Normalized Strength**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

◆ Consolidation Cycle #
◆ Prepreg Lot #



**Laminate Unnotched Compression Properties (UNC0)--ETW
(275°F) Normalized Modulus**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

◆ Consolidation Cycle #
◆ Prepreg Lot #

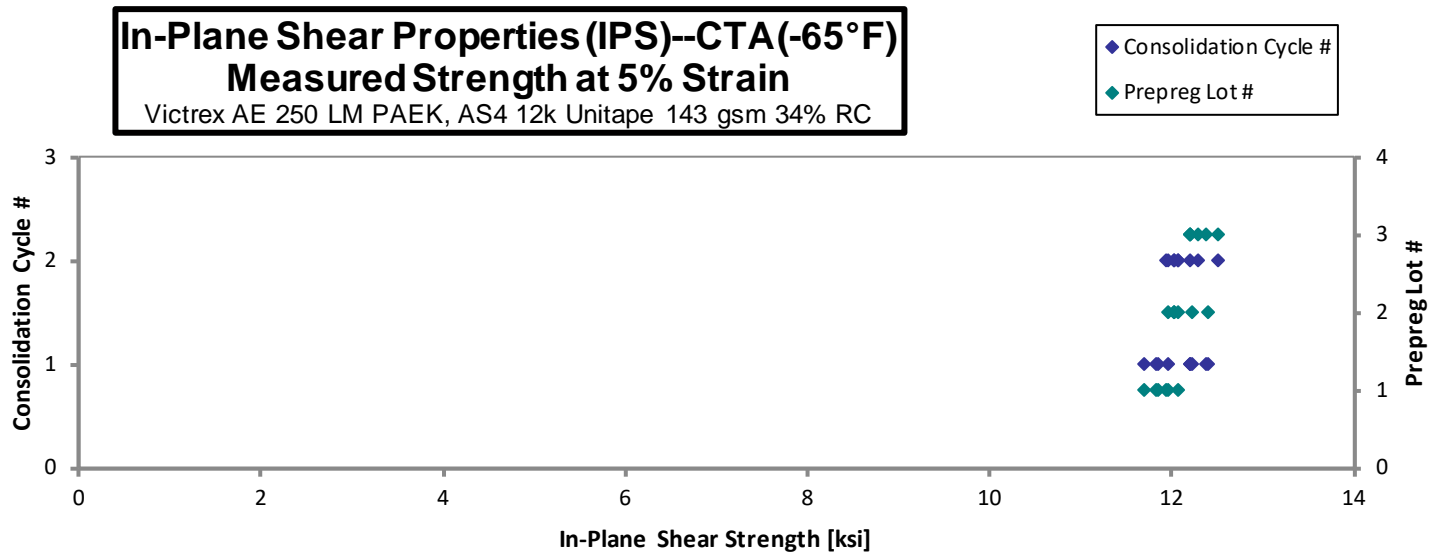
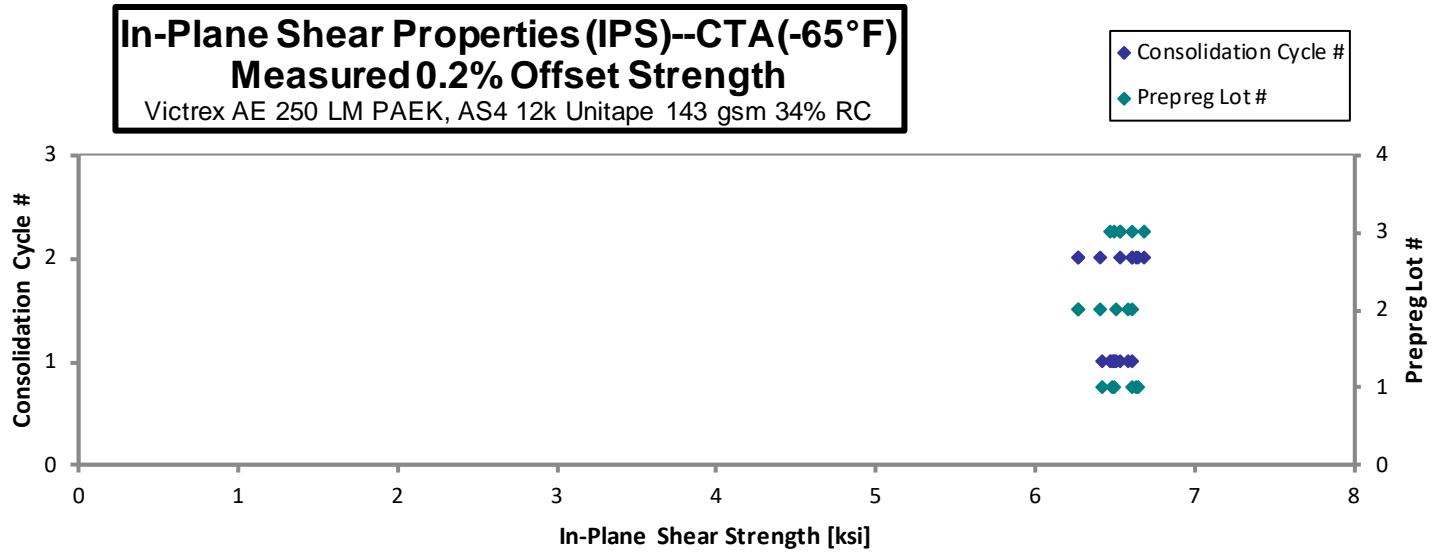


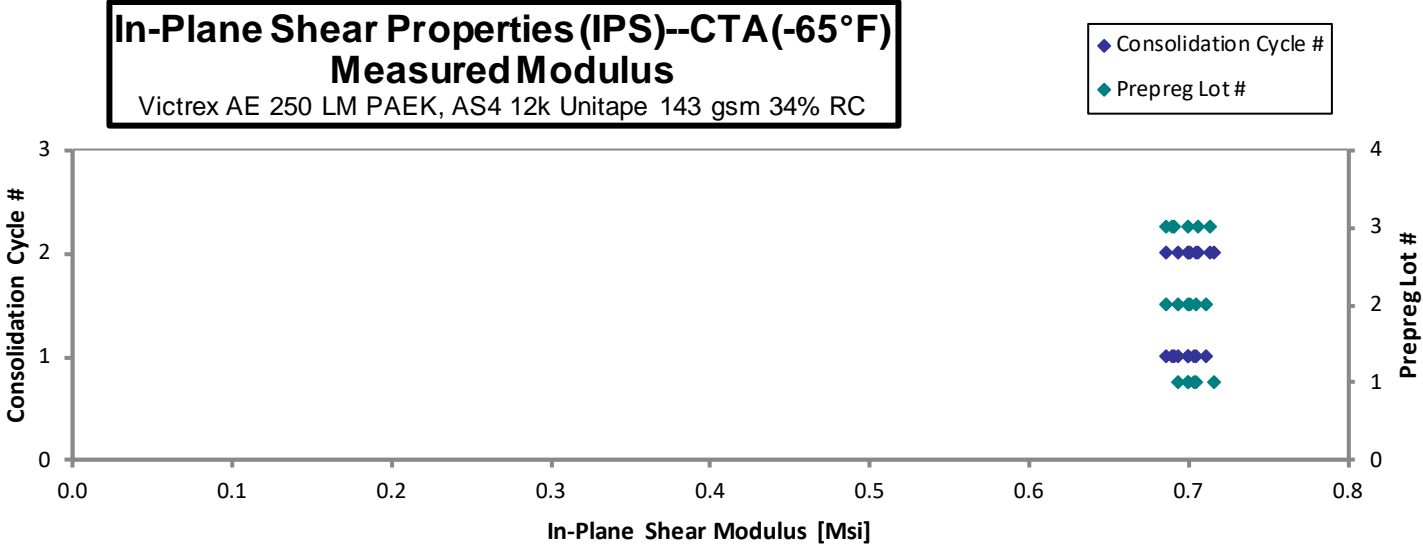
4.5 In-Plane Shear Properties (IPS)

In-Plane Shear Properties (IPS)--CTA (-65°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
IPS-A-C1-CTA-1	A	C1	1	1	6.427	11.83	0.7038	0.0879	16	0.0055	AWT
IPS-A-C1-CTA-2	A	C1	1	1	6.502	11.86	0.7003	0.0873	16	0.0055	AGT
IPS-A-C1-CTA-3	A	C1	1	1	6.486	11.69	0.6938	0.0870	16	0.0054	AGT
IPS-A-C2-CTA-1	A	C2	1	2	6.634	12.06	0.7045	0.0869	16	0.0054	AWT
IPS-A-C2-CTA-2	A	C2	1	2	6.641	11.94	0.6993	0.0867	16	0.0054	AGB
IPS-A-C2-CTA-3	A	C2	1	2	6.605	11.96	0.7159	0.0863	16	0.0054	AWB
IPS-B-C1-CTA-1	B	C1	2	1	6.582	12.39	0.7049	0.0852	16	0.0053	AGT
IPS-B-C1-CTA-2	B	C1	2	1	6.611	12.23	0.7107	0.0850	16	0.0053	AGT
IPS-B-C1-CTA-3	B	C1	2	1	6.513	11.96	0.7000	0.0848	16	0.0053	AWT
IPS-B-C2-CTA-1	B	C2	2	2	6.275	12.02	0.7009	0.0864	16	0.0054	AGT
IPS-B-C2-CTA-2	B	C2	2	2	6.404	12.07	0.6931	0.0854	16	0.0053	AGB
IPS-B-C2-CTA-3	B	C2	2	2	6.267	12.02	0.6859	0.0848	16	0.0053	AGT
IPS-C-C1-CTA-1	C	C1	3	1	6.493	12.39	0.6863	0.0868	16	0.0054	AGT
IPS-C-C1-CTA-2	C	C1	3	1	6.470	12.20	0.6911	0.0865	16	0.0054	AGT
IPS-C-C1-CTA-3	C	C1	3	1	6.530	12.20	0.6899	0.0863	16	0.0054	AGT
IPS-C-C2-CTA-1	C	C2	3	2	6.678	12.50	0.6998	0.0858	16	0.0054	AGT
IPS-C-C2-CTA-2	C	C2	3	2	6.611	12.28	0.7056	0.0860	16	0.0054	AGB
IPS-C-C2-CTA-3	C	C2	3	2	6.531	12.19	0.7137	0.0853	16	0.0053	AWT

Average	6.514	12.10	0.7000	0.0054
Standard Dev.	0.1165	0.2149	0.008747	
Coeff. of Var. [%]	1.788	1.776	1.250	
Min.	6.267	11.69	0.6859	0.0053
Max.	6.678	12.50	0.7159	0.0055
Number of Spec.	18	18	18	18

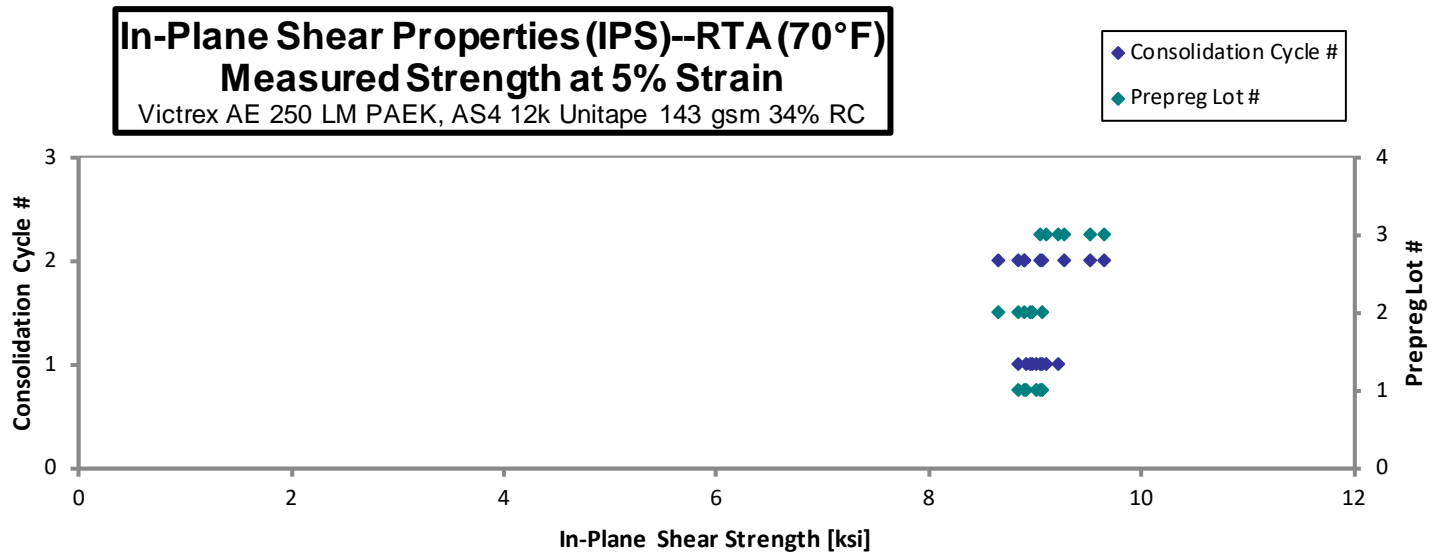
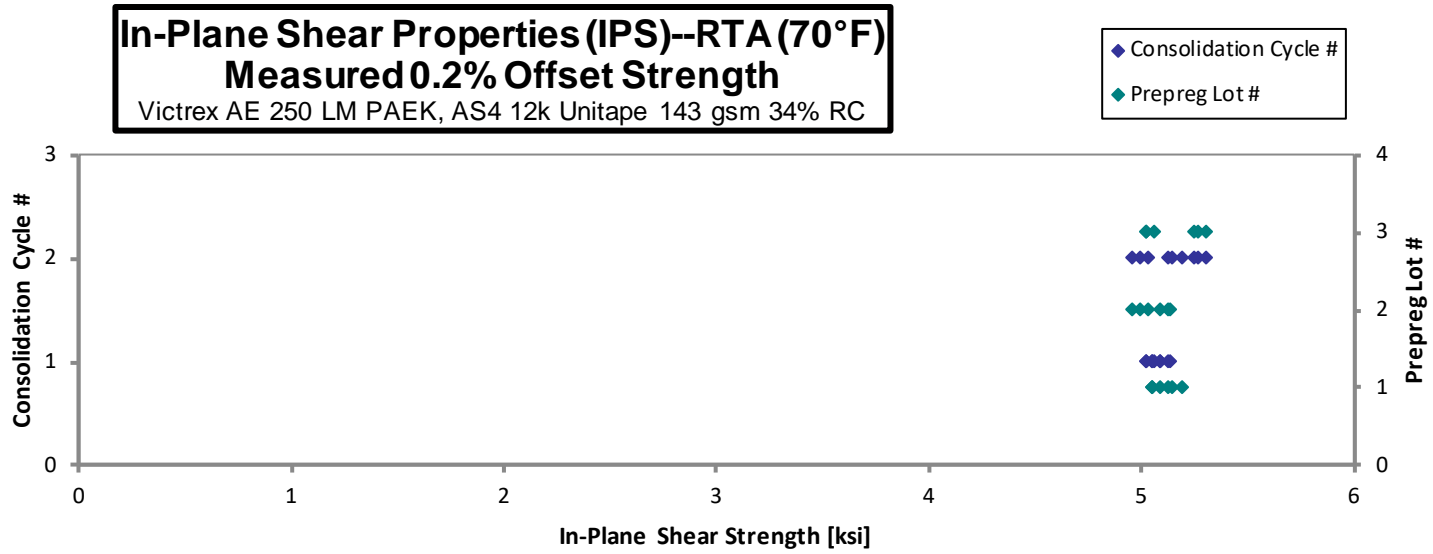


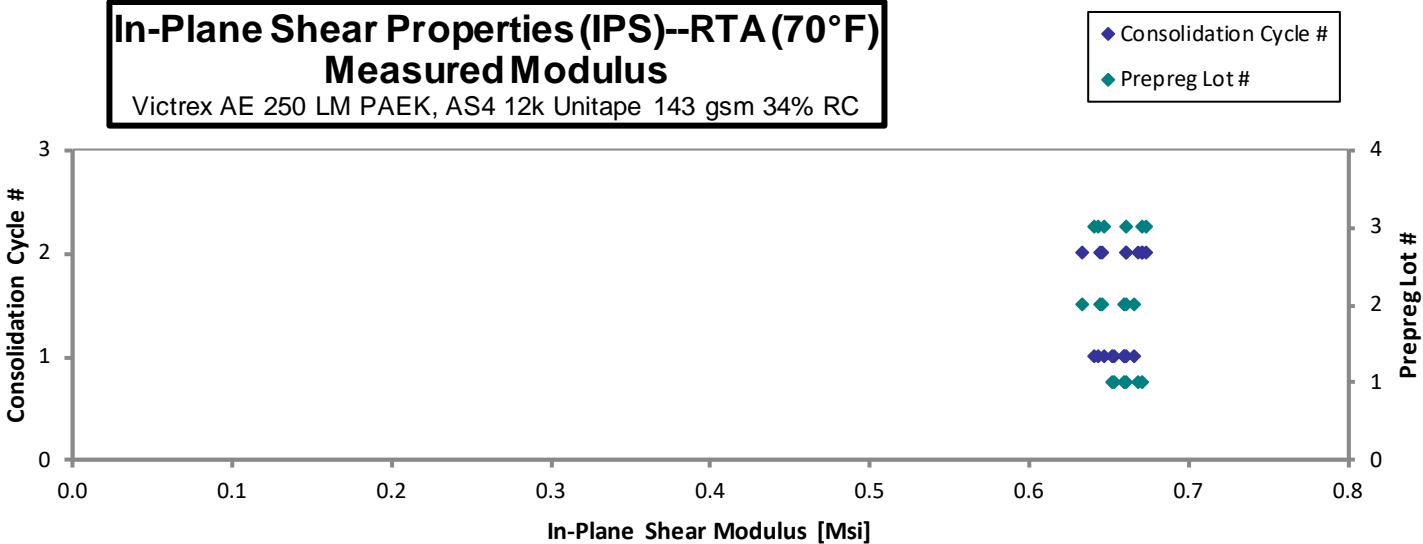


In-Plane Shear Properties (IPS)--RTA (70°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
IPS-A-C1-RTA-1	A	C1	1	1	5.084	9.016	0.6597	0.0893	16	0.0056	AGT
IPS-A-C1-RTA-2	A	C1	1	1	5.049	8.917	0.6525	0.0891	16	0.0056	AGM
IPS-A-C1-RTA-3	A	C1	1	1	5.054	8.846	0.6534	0.0884	16	0.0055	AGB
IPS-A-C2-RTA-1	A	C2	1	2	5.189	9.070	0.6708	0.0883	16	0.0055	AGT
IPS-A-C2-RTA-2	A	C2	1	2	5.146	9.042	0.6687	0.0879	16	0.0055	AGM
IPS-A-C2-RTA-3	A	C2	1	2	5.128	8.902	0.6606	0.0875	16	0.0055	AGM
IPS-B-C1-RTA-1	B	C1	2	1	5.138	9.066	0.6658	0.0859	16	0.0054	AGM
IPS-B-C1-RTA-2	B	C1	2	1	5.092	8.967	0.6600	0.0856	16	0.0053	AWT
IPS-B-C1-RTA-3	B	C1	2	1	5.122	8.946	0.6608	0.0855	16	0.0053	AGT
IPS-B-C2-RTA-1	B	C2	2	2	4.953	8.644	0.6330	0.0857	16	0.0054	AGB
IPS-B-C2-RTA-2	B	C2	2	2	4.998	8.845	0.6444	0.0858	16	0.0054	AGT
IPS-B-C2-RTA-3	B	C2	2	2	5.027	8.901	0.6461	0.0859	16	0.0054	AGT
IPS-C-C1-RTA-1	C	C1	3	1	5.059	9.213	0.6468	0.0891	16	0.0056	AGB
IPS-C-C1-RTA-2	C	C1	3	1	5.022	9.101	0.6436	0.0891	16	0.0056	AGT
IPS-C-C1-RTA-3	C	C1	3	1	5.025	9.048	0.6402	0.0877	16	0.0055	AGB
IPS-C-C2-RTA-1	C	C2	3	2	5.301	9.641	0.6728	0.0873	16	0.0055	AGB
IPS-C-C2-RTA-2	C	C2	3	2	5.267	9.512	0.6714	0.0871	16	0.0054	AGB
IPS-C-C2-RTA-3	C	C2	3	2	5.247	9.283	0.6613	0.0872	16	0.0054	AGB

Average	5.106	9.053	0.6562	0.0055
Standard Dev.	0.09645	0.2396	0.01179	
Coeff. of Var. [%]	1.889	2.647	1.796	
Min.	4.953	8.644	0.6330	0.0053
Max.	5.301	9.641	0.6728	0.0056
Number of Spec.	18	18	18	18

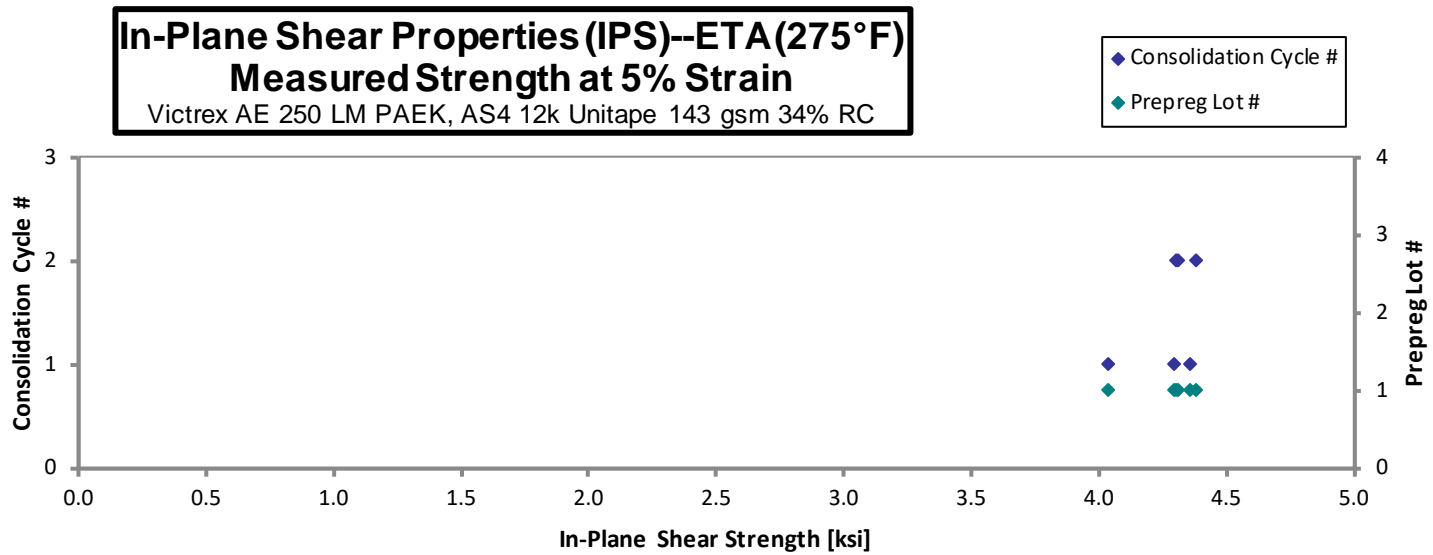
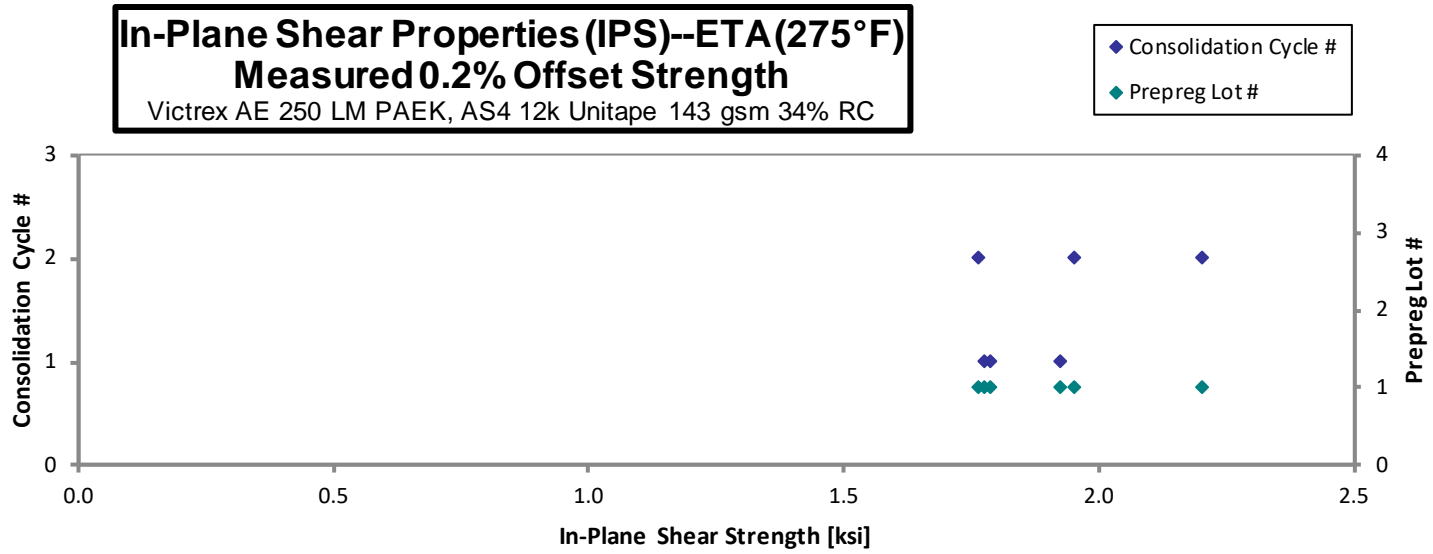


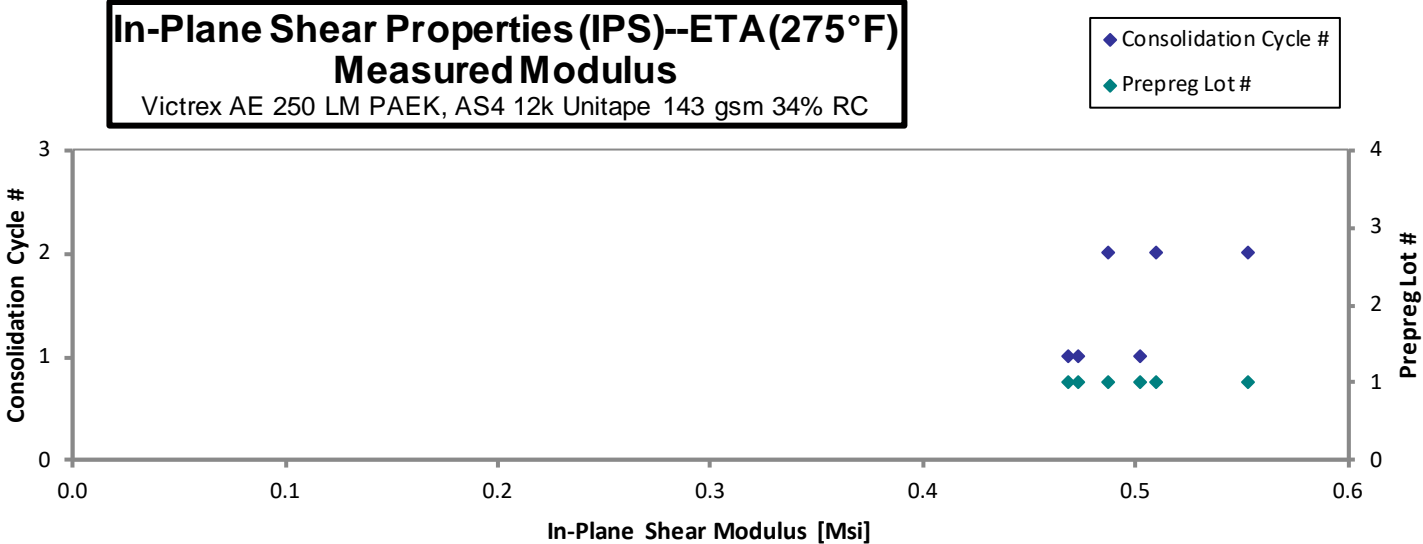


In-Plane Shear Properties (IPS)--ETA (275°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
IPS-A-C1-ETA-1	A	C1	1	1	1.787	4.359	0.4729	0.0868	16	0.0054	AGB
IPS-A-C1-ETA-2	A	C1	1	1	1.775	4.038	0.4688	0.0869	16	0.0054	AGM
IPS-A-C1-ETA-3	A	C1	1	1	1.924	4.293	0.5018	0.0867	16	0.0054	AGB
IPS-A-C2-ETA-1	A	C2	1	2	2.203	4.381	0.5533	0.0864	16	0.0054	AGM
IPS-A-C2-ETA-2	A	C2	1	2	1.762	4.308	0.4873	0.0860	16	0.0054	AGT
IPS-A-C2-ETA-3	A	C2	1	2	1.951	4.301	0.5102	0.0859	16	0.0054	AGT

Average	1.900	4.280	0.4991	0.0054
Standard Dev.	0.1688	0.1236	0.03104	
Coeff. of Var. [%]	8.885	2.888	6.219	
Min.	1.762	4.038	0.4688	0.0054
Max.	2.203	4.381	0.5533	0.0054
Number of Spec.	6	6	6	6



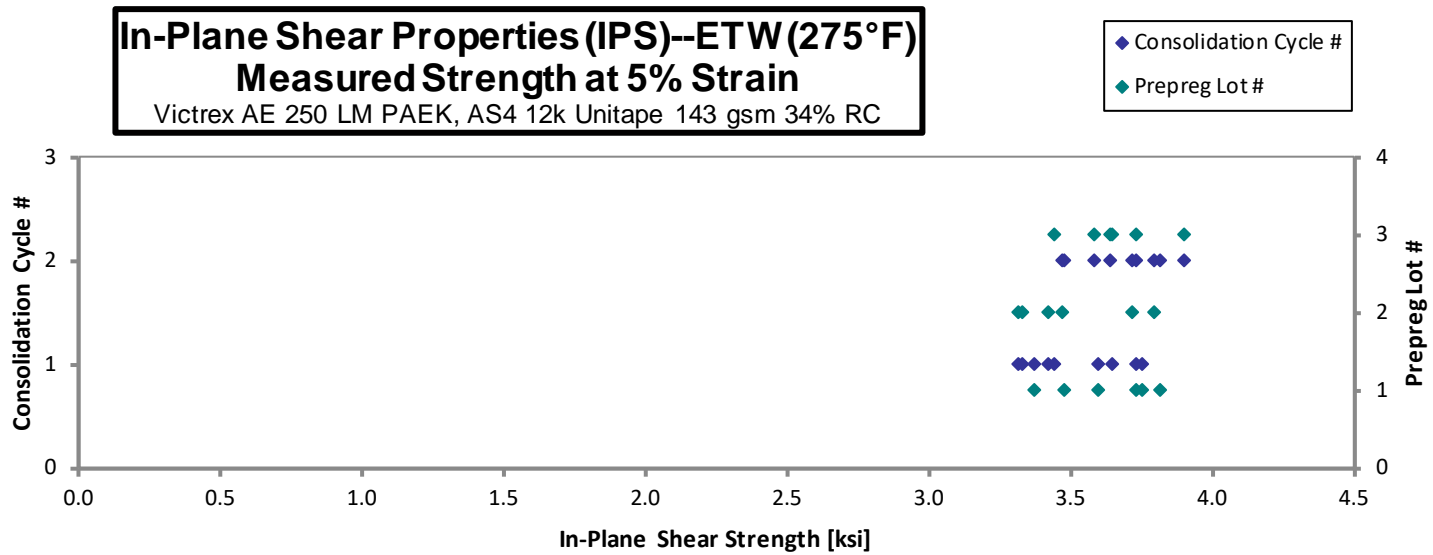
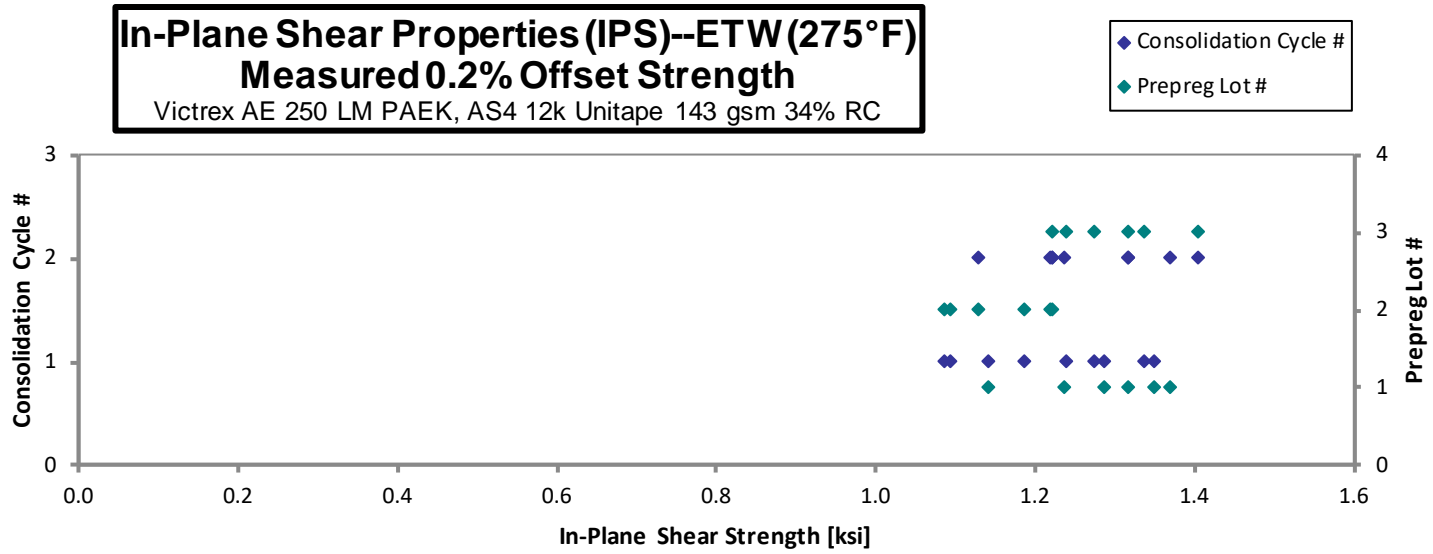


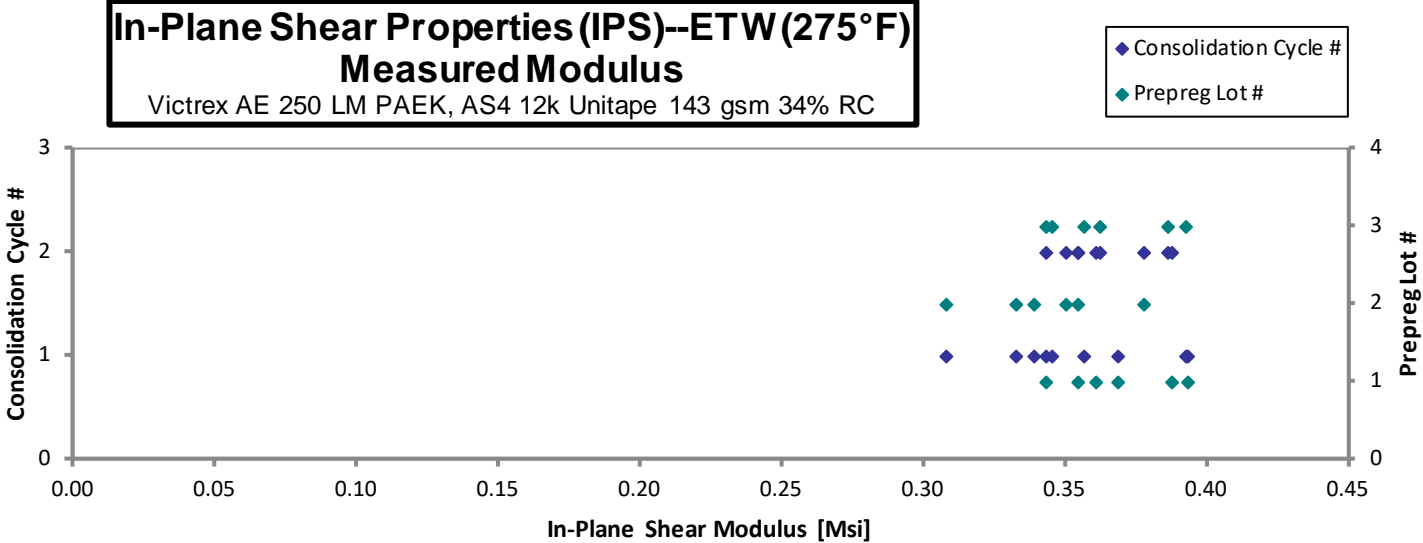
In-Plane Shear Properties (IPS)--ETW (275°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode*
IPS-A-C1-ETW-1	A	C1	1	1	1.349	3.750	0.3934	0.0869	16	0.0054	
IPS-A-C1-ETW-2	A	C1	1	1	1.140	3.370	0.3432	0.0876	16	0.0055	
IPS-A-C1-ETW-3	A	C1	1	1	1.286	3.599	0.3687	0.0871	16	0.0054	
IPS-A-C2-ETW-1	A	C2	1	2	1.236	3.476	0.3613	0.0861	16	0.0054	
IPS-A-C2-ETW-2	A	C2	1	2	1.317	3.817	0.3881	0.0865	16	0.0054	
IPS-A-C2-ETW-3	A	C2	1	2	1.369	3.728	0.3546	0.0865	16	0.0054	
IPS-B-C1-ETW-1	B	C1	2	1	1.086	3.313	0.3084	0.0850	16	0.0053	
IPS-B-C1-ETW-2	B	C1	2	1	1.094	3.331	0.3395	0.0850	16	0.0053	
IPS-B-C1-ETW-3	B	C1	2	1	1.187	3.418	0.3332	0.0844	16	0.0053	
IPS-B-C2-ETW-1	B	C2	2	2	1.128	3.796	0.3546	0.0845	16	0.0053	
IPS-B-C2-ETW-2	B	C2	2	2	1.221	3.716	0.3783	0.0844	16	0.0053	
IPS-B-C2-ETW-3	B	C2	2	2	1.219	3.473	0.3506	0.0855	16	0.0053	
IPS-C-C1-ETW-1	C	C1	3	1	1.336	3.732	0.3930	0.0867	16	0.0054	
IPS-C-C1-ETW-2	C	C1	3	1	1.274	3.443	0.3458	0.0865	16	0.0054	
IPS-C-C1-ETW-3	C	C1	3	1	1.239	3.648	0.3571	0.0862	16	0.0054	
IPS-C-C2-ETW-1	C	C2	3	2	1.221	3.637	0.3626	0.0857	16	0.0054	
IPS-C-C2-ETW-2	C	C2	3	2	1.404	3.899	0.3863	0.0854	16	0.0053	
IPS-C-C2-ETW-3	C	C2	3	2	1.316	3.587	0.3436	0.0854	16	0.0053	

* Specimens were not taken to failure. Test stopped after obtaining 5% Strain

Average	1.246	3.596	0.3590	0.0054
Standard Dev.	0.09417	0.1790	0.02275	
Coeff. of Var. [%]	7.559	4.977	6.337	
Min.	1.086	3.313	0.3084	0.0053
Max.	1.404	3.899	0.3934	0.0055
Number of Spec.	18	18	18	18



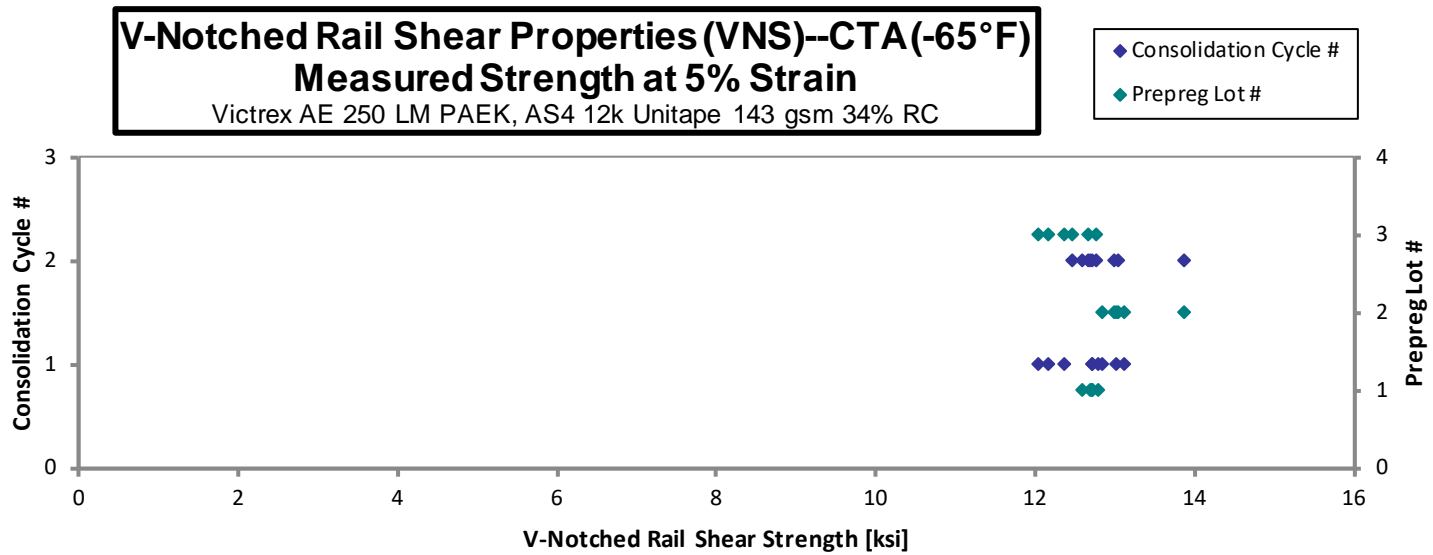
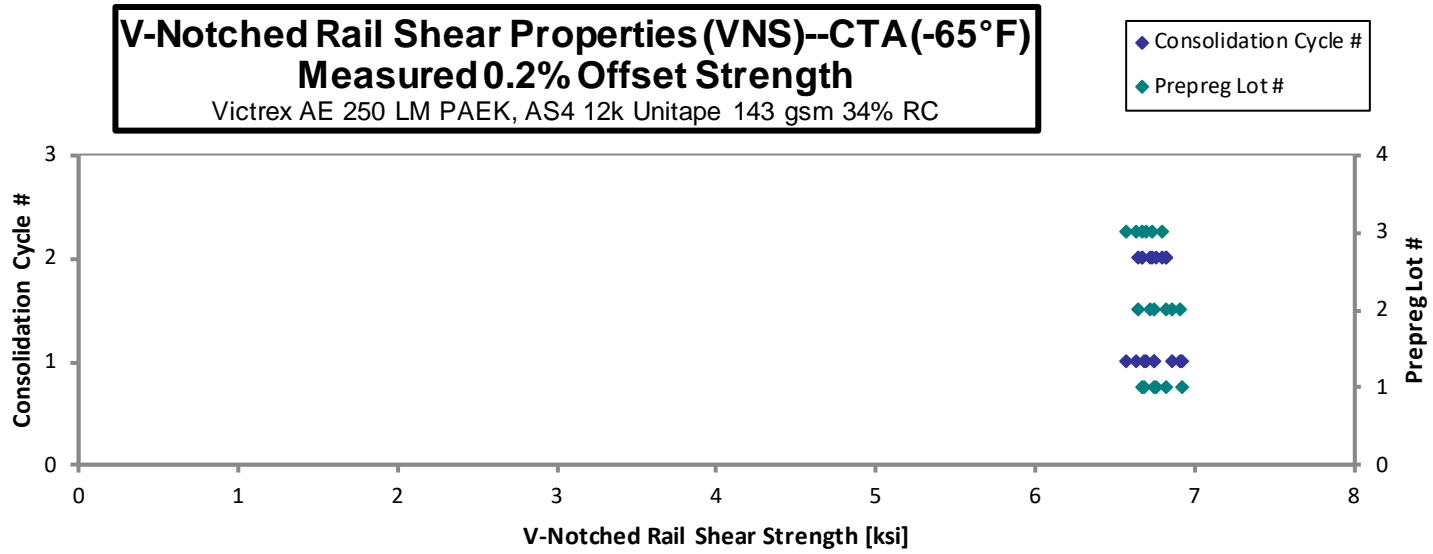


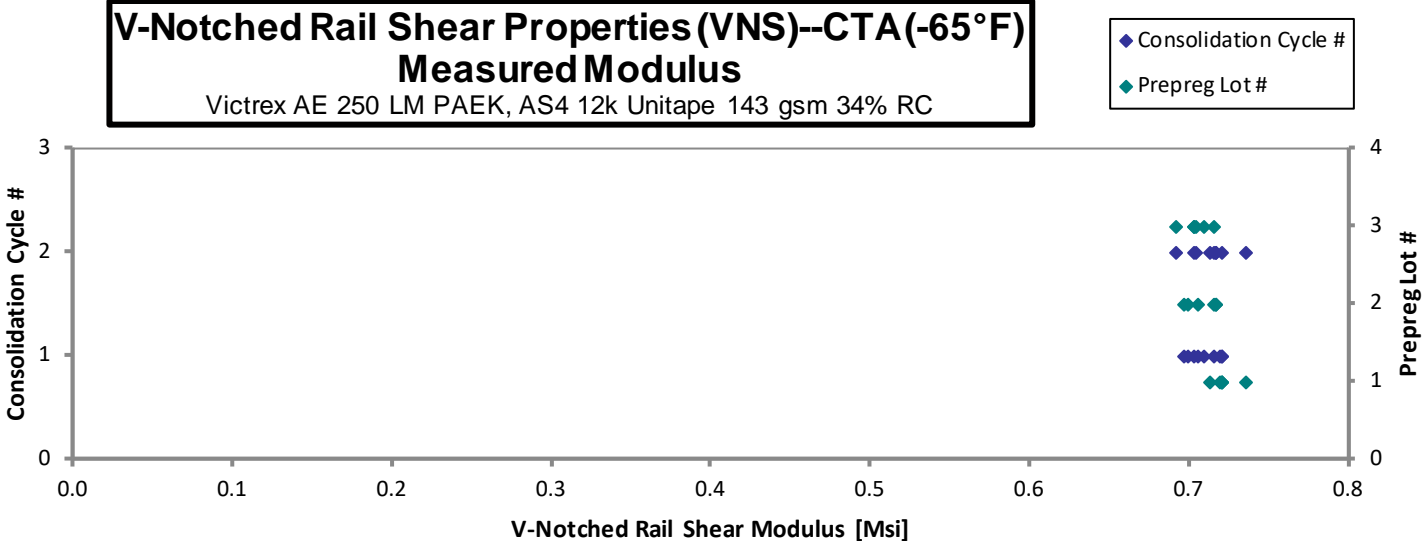
4.6 V-Notched Rail Shear Properties (VNS)

V-Notched Rail Shear Properties (VNS)--CTA (-65°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]
VNS-A-C1-CTA-1	A	C1	1	1	6.927	12.72	0.7207	0.1272	24	0.0053
VNS-A-C1-CTA-2	A	C1	1	1	6.678	12.80	0.7198	0.1268	24	0.0053
VNS-A-C1-CTA-3	A	C1	1	1	6.740	12.71	0.7205	0.1265	24	0.0053
VNS-A-C2-CTA-1	A	C2	1	2	6.822	12.60	0.7207	0.1258	24	0.0052
VNS-A-C2-CTA-2	A	C2	1	2	6.667	12.69	0.7139	0.1260	24	0.0052
VNS-A-C2-CTA-3	A	C2	1	2	6.756	12.71	0.7356	0.1257	24	0.0052
VNS-B-C1-CTA-1	B	C1	2	1	6.904	13.13	0.7003	0.1287	24	0.0054
VNS-B-C1-CTA-2	B	C1	2	1	6.751	12.85	0.7054	0.1286	24	0.0054
VNS-B-C1-CTA-3	B	C1	2	1	6.859	13.02	0.6970	0.1286	24	0.0054
VNS-B-C2-CTA-1	B	C2	2	2	6.828	13.87	0.7165	0.1319	24	0.0055
VNS-B-C2-CTA-2	B	C2	2	2	6.647	13.04	0.7172	0.1311	24	0.0055
VNS-B-C2-CTA-3	B	C2	2	2	6.727	12.99	0.7173	0.1304	24	0.0054
VNS-C-C1-CTA-1	C	C1	3	1	6.700	12.36	0.7038	0.1304	24	0.0054
VNS-C-C1-CTA-2	C	C1	3	1	6.633	12.17	0.7164	0.1291	24	0.0054
VNS-C-C1-CTA-3	C	C1	3	1	6.576	12.03	0.7093	0.1288	24	0.0054
VNS-C-C2-CTA-1	C	C2	3	2	6.670	12.67	0.6922	0.1324	24	0.0055
VNS-C-C2-CTA-2	C	C2	3	2	6.738	12.48	0.7041	0.1322	24	0.0055
VNS-C-C2-CTA-3	C	C2	3	2	6.791	12.76	0.7038	0.1315	24	0.0055

Average	6.745	12.76	0.7119	0.0054
Standard Dev.	0.09560	0.4012	0.01068	
Coeff. of Var. [%]	1.417	3.146	1.500	
Min.	6.576	12.03	0.6922	0.0052
Max.	6.927	13.87	0.7356	0.0055
Number of Spec.	18	18	18	18





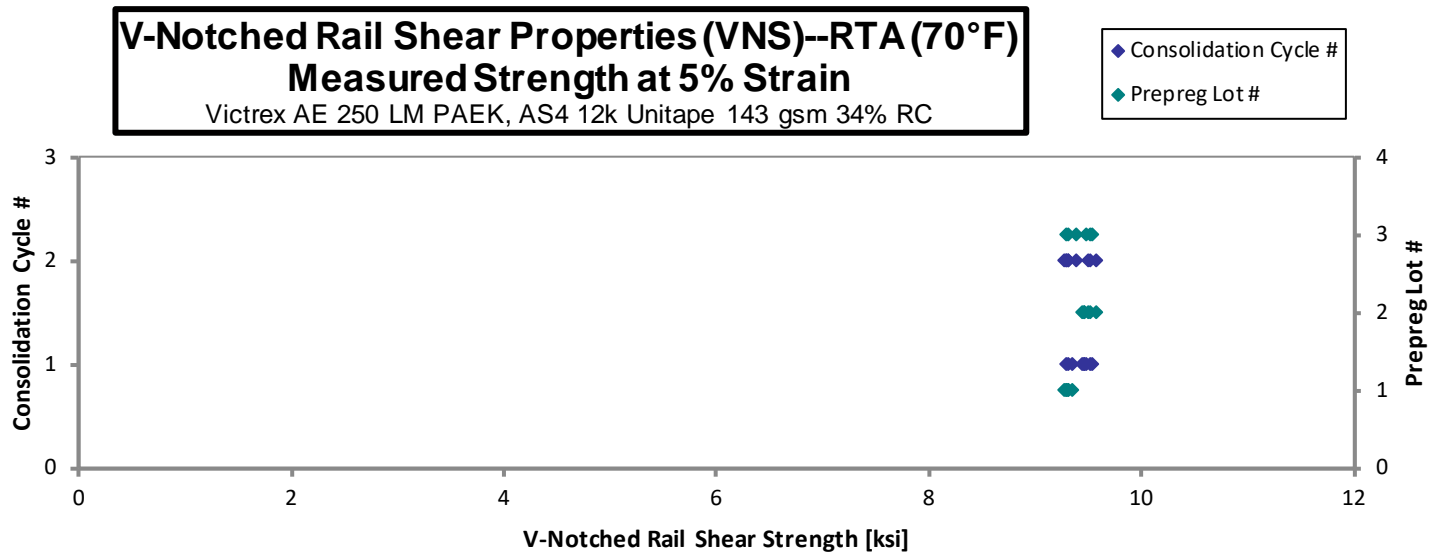
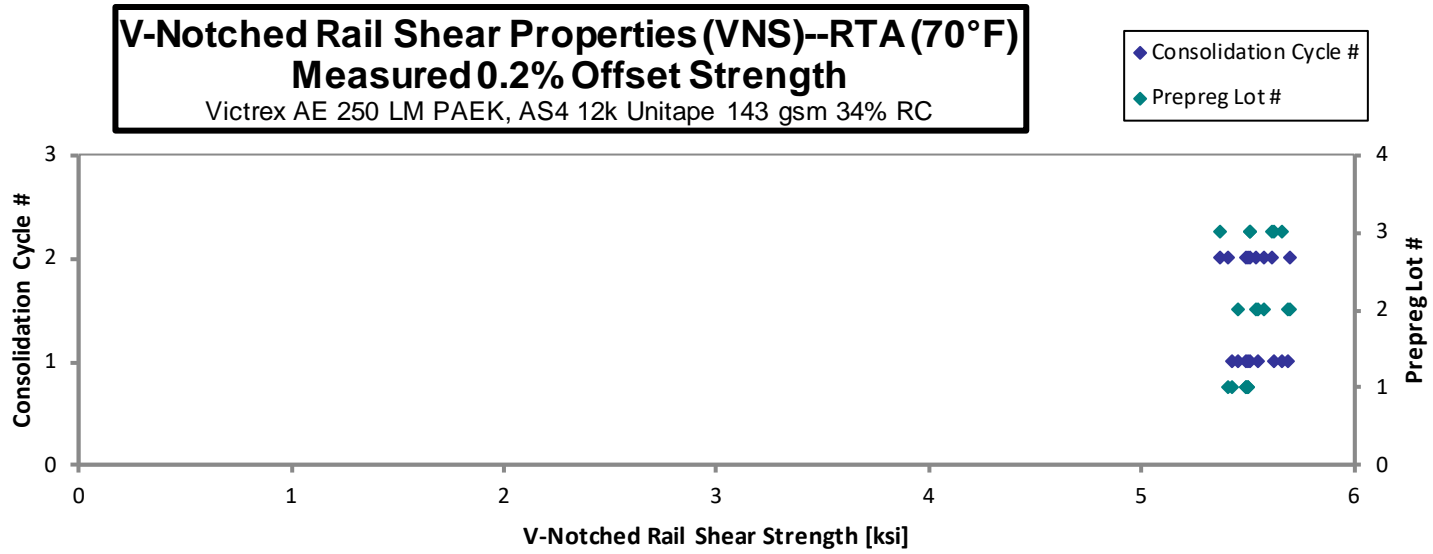
V-Notched Rail Shear Properties (VNS)--RTA (70°F)

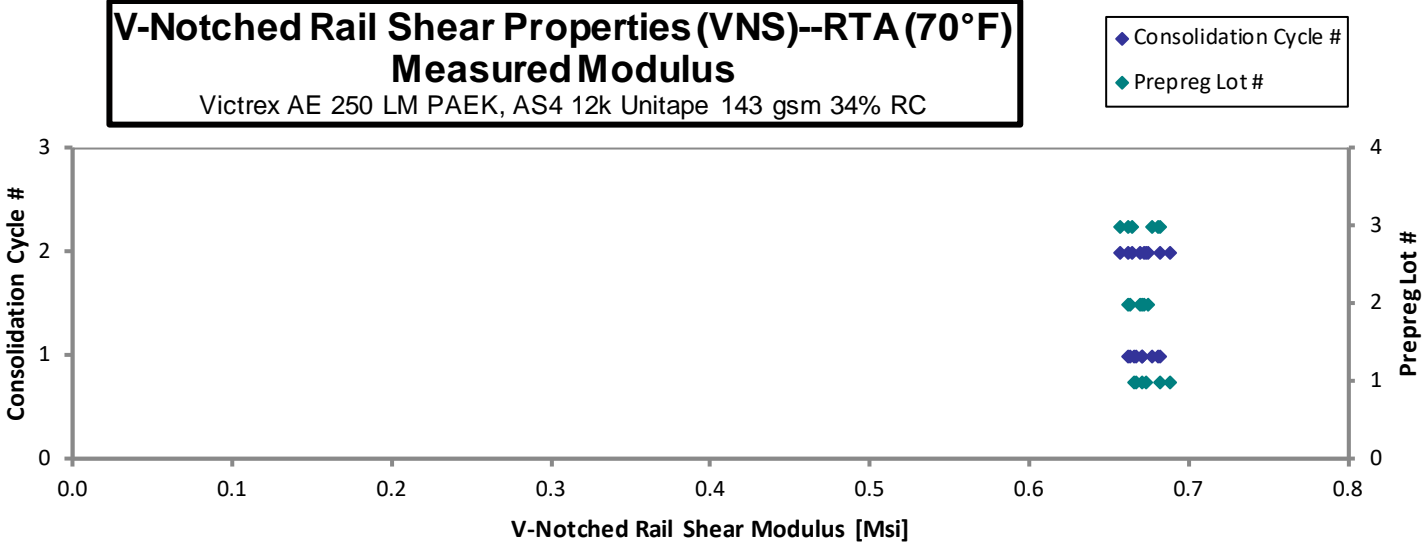
Strength & Modulus

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]
VNS-A-C1-RTA-1	A	C1	1	1	5.499	9.314	0.6707	0.1270	24	0.0053
VNS-A-C1-RTA-2	A	C1	1	1	5.495	9.292	0.6669	0.1274	24	0.0053
VNS-A-C1-RTA-3	A	C1	1	1	5.430	9.354	0.6656	0.1269	24	0.0053
VNS-A-C2-RTA-1	A	C2	1	2	5.496	9.312	0.6824	0.1257	24	0.0052
VNS-A-C2-RTA-2	A	C2	1	2	5.502	9.287	0.6881	0.1268	24	0.0053
VNS-A-C2-RTA-3	A	C2	1	2	5.408	9.271	0.6734	0.1259	24	0.0052
VNS-B-C1-RTA-1	B	C1	2	1	5.689	9.460	0.6713	0.1288	24	0.0054
VNS-B-C1-RTA-2	B	C1	2	1	5.548	9.437	0.6639	0.1278	24	0.0053
VNS-B-C1-RTA-3	B	C1	2	1	5.453	9.467	0.6626	0.1276	24	0.0053
VNS-B-C2-RTA-1	B	C2	2	2	5.701	9.566	0.6700	0.1308	24	0.0055
VNS-B-C2-RTA-2	B	C2	2	2	5.574	9.496	0.6726	0.1323	24	0.0055
VNS-B-C2-RTA-3	B	C2	2	2	5.542	9.519	0.6743	0.1334	24	0.0056
VNS-C-C1-RTA-1	C	C1	3	1	5.665	9.525	0.6774	0.1305	24	0.0054
VNS-C-C1-RTA-2	C	C1	3	1	5.627	9.477	0.6815	0.1294	24	0.0054
VNS-C-C1-RTA-3	C	C1	3	1	5.508	9.540	0.6819	0.1295	24	0.0054
VNS-C-C2-RTA-1	C	C2	3	2	5.618	9.292	0.6571	0.1342	24	0.0056
VNS-C-C2-RTA-2	C	C2	3	2	5.511	9.308	0.6651	0.1340	24	0.0056
VNS-C-C2-RTA-3	C	C2	3	2	5.367	9.384	0.6625	0.1334	24	0.0056

Average	5.535	9.406	0.6715	0.0054
Standard Dev.	0.09523	0.1028	0.008319	
Coeff. of Var. [%]	1.720	1.093	1.239	
Min.	5.367	9.271	0.6571	0.0052
Max.	5.701	9.566	0.6881	0.0056
Number of Spec.	18	18	18	18

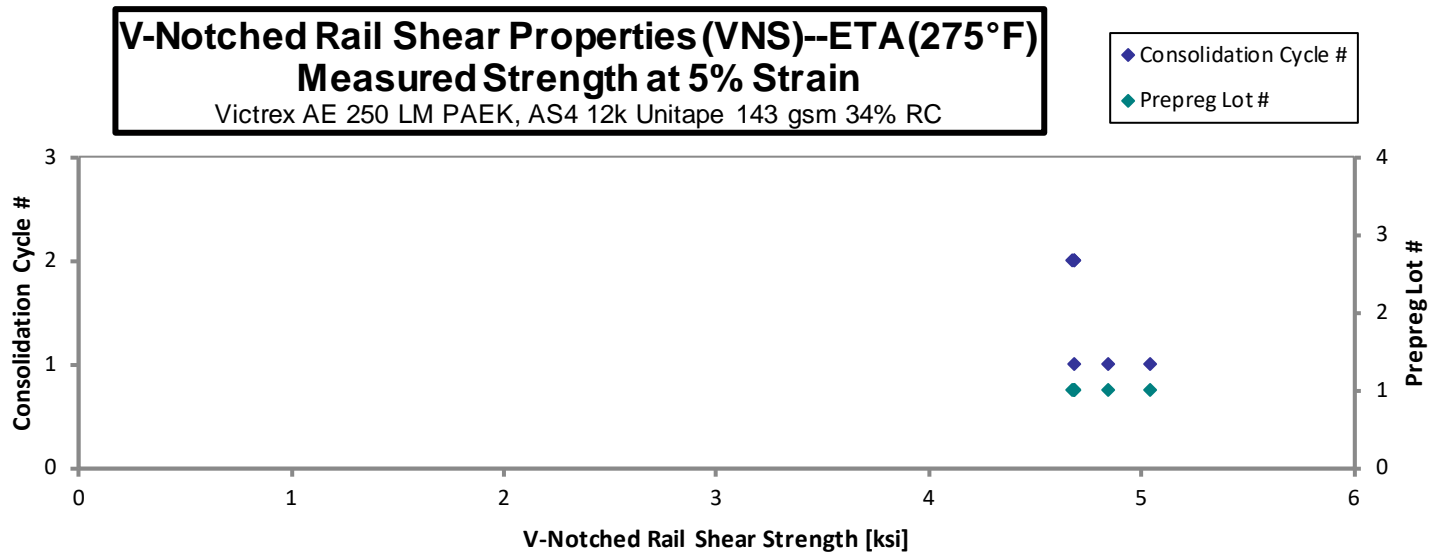
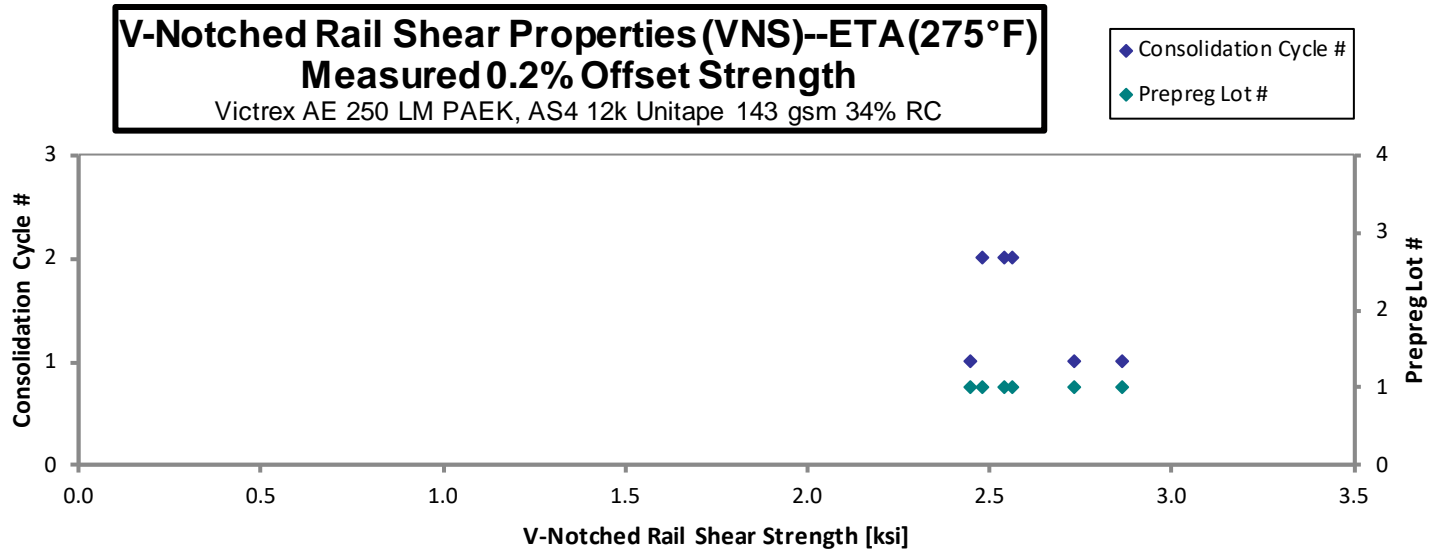


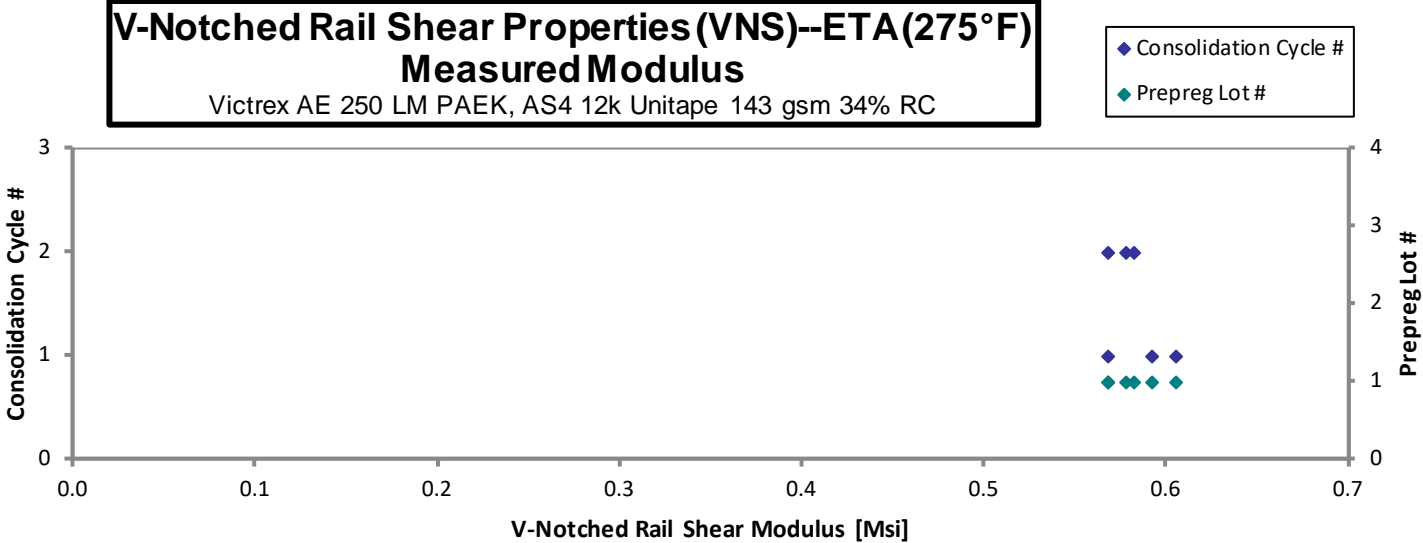


V-Notched Rail Shear Properties (VNS)--ETA (275°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]
VNS-A-C1-ETA-1	A	C1	1	1	2.449	4.680	0.5687	0.1259	24	0.0052
VNS-A-C1-ETA-2	A	C1	1	1	2.862	5.041	0.6059	0.1259	24	0.0052
VNS-A-C1-ETA-4	A	C1	1	1	2.732	4.848	0.5924	0.1256	24	0.0052
VNS-A-C2-ETA-1	A	C2	1	2	2.479	4.685	0.5823	0.1249	24	0.0052
VNS-A-C2-ETA-2	A	C2	1	2	2.563	4.674	0.5682	0.1252	24	0.0052
VNS-A-C2-ETA-3	A	C2	1	2	2.540	4.686	0.5779	0.1252	24	0.0052

Average	2.604	4.769	0.5826	0.0052
Standard Dev.	0.1603	0.1491	0.01457	
Coeff. of Var. [%]	6.155	3.126	2.501	
Min.	2.449	4.674	0.5682	0.0052
Max.	2.862	5.041	0.6059	0.0052
Number of Spec.	6	6	6	6





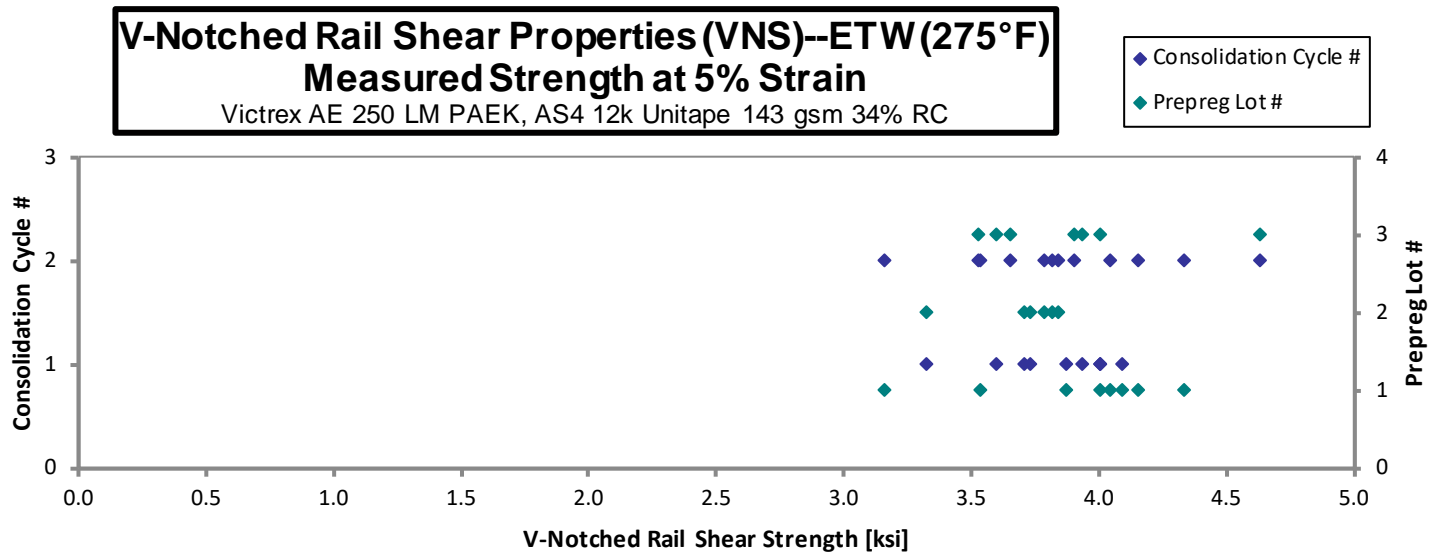
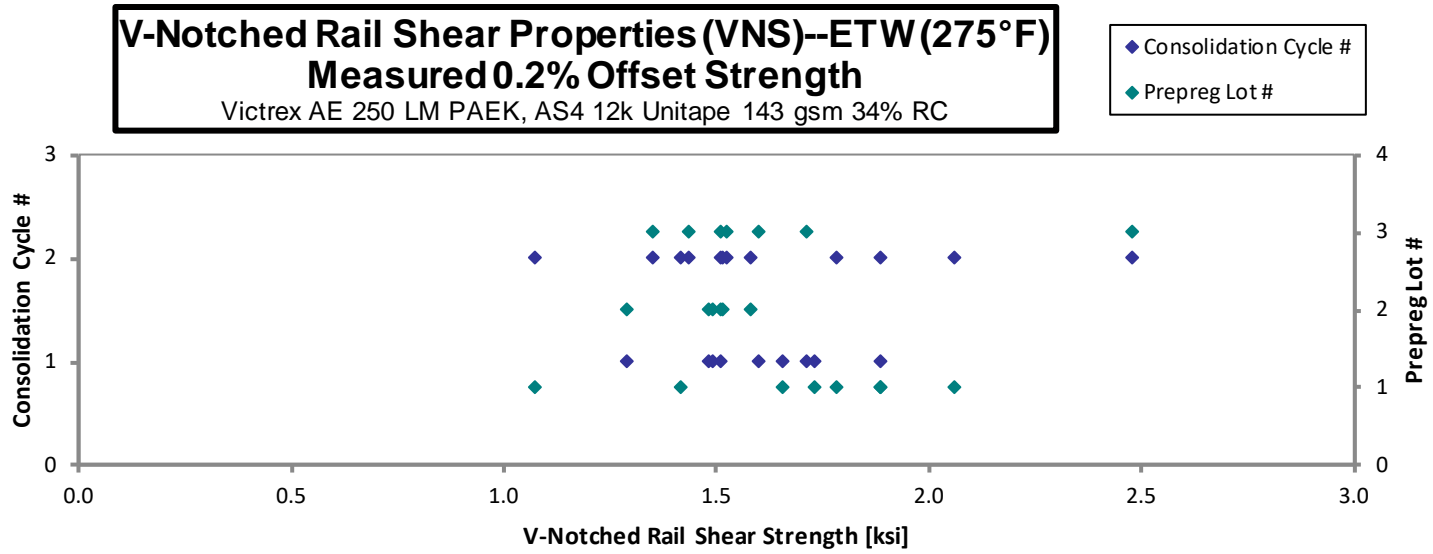
V-Notched Rail Shear Properties (VNS)--ETW (275°F)

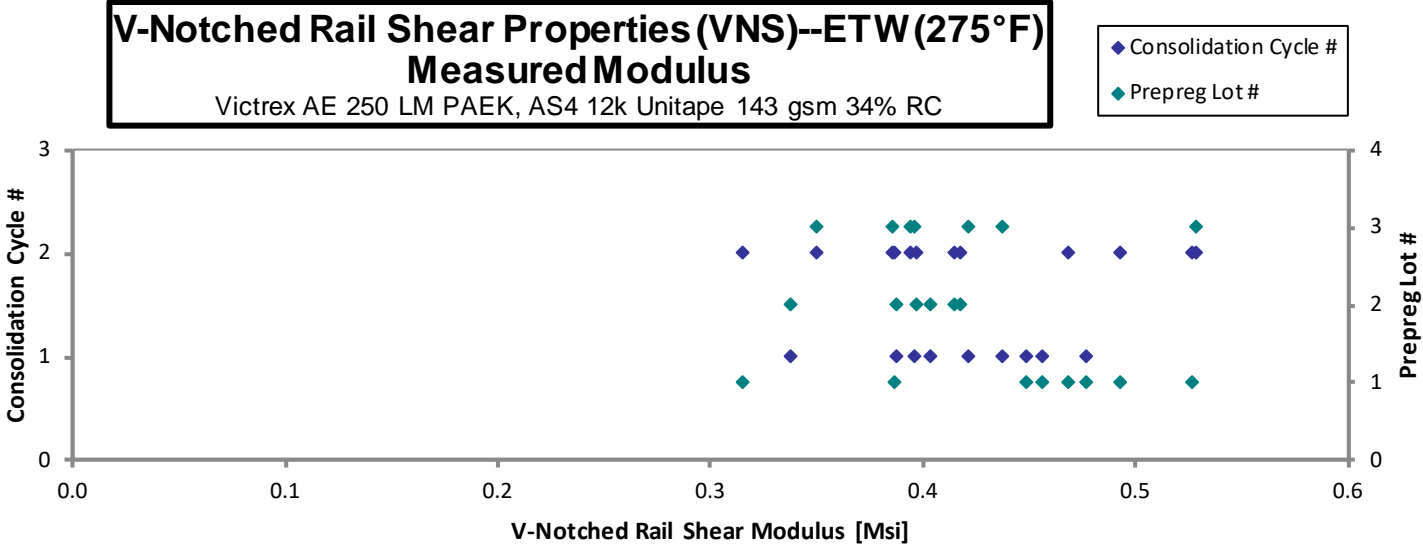
Strength & Modulus

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	0.2% Offset Strength [ksi]	Strength at 5% Strain [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]
VNS-A-C1-ETW-1	A	C1	1	1	1.733	4.003	0.4560	0.1256	24	0.0052
VNS-A-C1-ETW-2	A	C1	1	1	1.657	3.875	0.4484	0.1250	24	0.0052
VNS-A-C1-ETW-3	A	C1	1	1	1.888	4.087	0.4767	0.1252	24	0.0052
VNS-A-C2-ETW-1	A	C2	1	2	1.417	3.534	0.3866	0.1245	24	0.0052
VNS-A-C2-ETW-2	A	C2	1	2	1.071	3.159	0.3155	0.1254	24	0.0052
VNS-A-C2-ETW-3	A	C2	1	2	2.058	4.332	0.5264	0.1249	24	0.0052
VNS-A-C2-ETW-4	A	C2	1	2	1.888	4.154	0.4927	0.1243	24	0.0052
VNS-A-C2-ETW-5	A	C2	1	2	1.783	4.047	0.4686	0.1239	24	0.0052
VNS-B-C1-ETW-1	B	C1	2	1	1.491	3.729	0.4036	0.1301	24	0.0054
VNS-B-C1-ETW-2	B	C1	2	1	1.481	3.707	0.3876	0.1300	24	0.0054
VNS-B-C1-ETW-3	B	C1	2	1	1.292	3.324	0.3382	0.1319	24	0.0055
VNS-B-C2-ETW-1	B	C2	2	2	1.510	3.818	0.3973	0.1283	24	0.0053
VNS-B-C2-ETW-2	B	C2	2	2	1.581	3.843	0.4151	0.1281	24	0.0053
VNS-B-C2-ETW-3	B	C2	2	2	1.514	3.787	0.4174	0.1266	24	0.0053
VNS-C-C1-ETW-1	C	C1	3	1	1.711	4.004	0.4377	0.1294	24	0.0054
VNS-C-C1-ETW-2	C	C1	3	1	1.601	3.933	0.4210	0.1294	24	0.0054
VNS-C-C1-ETW-3	C	C1	3	1	1.510	3.598	0.3959	0.1317	24	0.0055
VNS-C-C2-ETW-1	C	C2	3	2	1.351	3.649	0.3504	0.1308	24	0.0055
VNS-C-C2-ETW-2	C	C2	3	2	2.479	4.633	0.5284	0.1308	24	0.0055
VNS-C-C2-ETW-3	C	C2	3	2	1.434	3.528	0.3856	0.1302	24	0.0054
VNS-C-C2-ETW-4	C	C2	3	2	1.524	3.906	0.3944	0.1306	24	0.0054

Average	1.618	3.840	0.4211	0.0053
Standard Dev.	0.2968	0.3309	0.05666	
Coeff. of Var. [%]	18.35	8.616	13.45	
Min.	1.071	3.159	0.3155	0.0052
Max.	2.479	4.633	0.5284	0.0055
Number of Spec.	21	21	21	21





4.7 Double Notch Shear Properties (DNS)

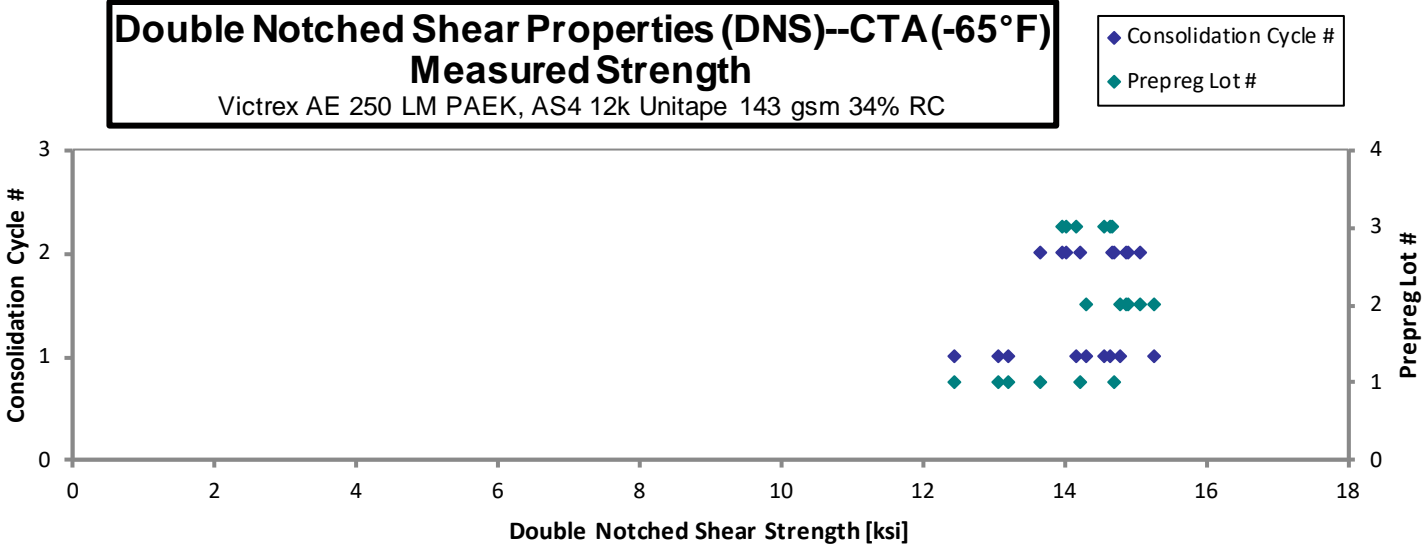
Double Notched Shear Properties (DNS)--CTA (-65°F) □

Strength □

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
DNS-A-C1-CTA-2	A	C1	1	1	12.46	0.1799	34	0.0053	GAGE SECTION SHEAR
DNS-A-C1-CTA-3	A	C1	1	1	13.22	0.1765	34	0.0052	GAGE SECTION SHEAR
DNS-A-C1-CTA-4	A	C1	1	1	13.06	0.1755	34	0.0052	GAGE SECTION SHEAR
DNS-A-C2-CTA-1	A	C2	1	2	14.21	0.1767	34	0.0052	GAGE SECTION SHEAR
DNS-A-C2-CTA-2	A	C2	1	2	14.71	0.1775	34	0.0052	GAGE SECTION SHEAR
DNS-A-C2-CTA-3	A	C2	1	2	13.65	0.1751	34	0.0052	GAGE SECTION SHEAR
DNS-B-C1-CTA-1	B	C1	2	1	14.31	0.1783	34	0.0052	GAGE SECTION SHEAR
DNS-B-C1-CTA-2	B	C1	2	1	15.27	0.1763	34	0.0052	GAGE SECTION SHEAR
DNS-B-C1-CTA-3	B	C1	2	1	14.80	0.1769	34	0.0052	GAGE SECTION SHEAR
DNS-B-C2-CTA-1	B	C2	2	2	14.86	0.1758	34	0.0052	GAGE SECTION SHEAR
DNS-B-C2-CTA-2	B	C2	2	2	15.07	0.1758	34	0.0052	GAGE SECTION SHEAR
DNS-B-C2-CTA-3	B	C2	2	2	14.90	0.1763	34	0.0052	GAGE SECTION SHEAR
DNS-C-C1-CTA-1	C	C1	3	1	14.57	0.1772	34	0.0052	GAGE SECTION SHEAR
DNS-C-C1-CTA-2	C	C1	3	1	14.16	0.1763	34	0.0052	GAGE SECTION SHEAR
DNS-C-C1-CTA-3	C	C1	3	1	14.65	0.1755	34	0.0052	GAGE SECTION SHEAR
DNS-C-C2-CTA-1	C	C2	3	2	14.68	0.1776	34	0.0052	GAGE SECTION SHEAR
DNS-C-C2-CTA-2	C	C2	3	2	14.01	0.1754	34	0.0052	GAGE SECTION SHEAR
DNS-C-C2-CTA-3	C	C2	3	2	13.97	0.1745	34	0.0051	GAGE SECTION SHEAR

Average	14.25	0.0052
Standard Dev.	0.7554	
Coeff. of Var. [%]	5.300	
Min.	12.46	0.0051
Max.	15.27	0.0053
Number of Spec.	18	18



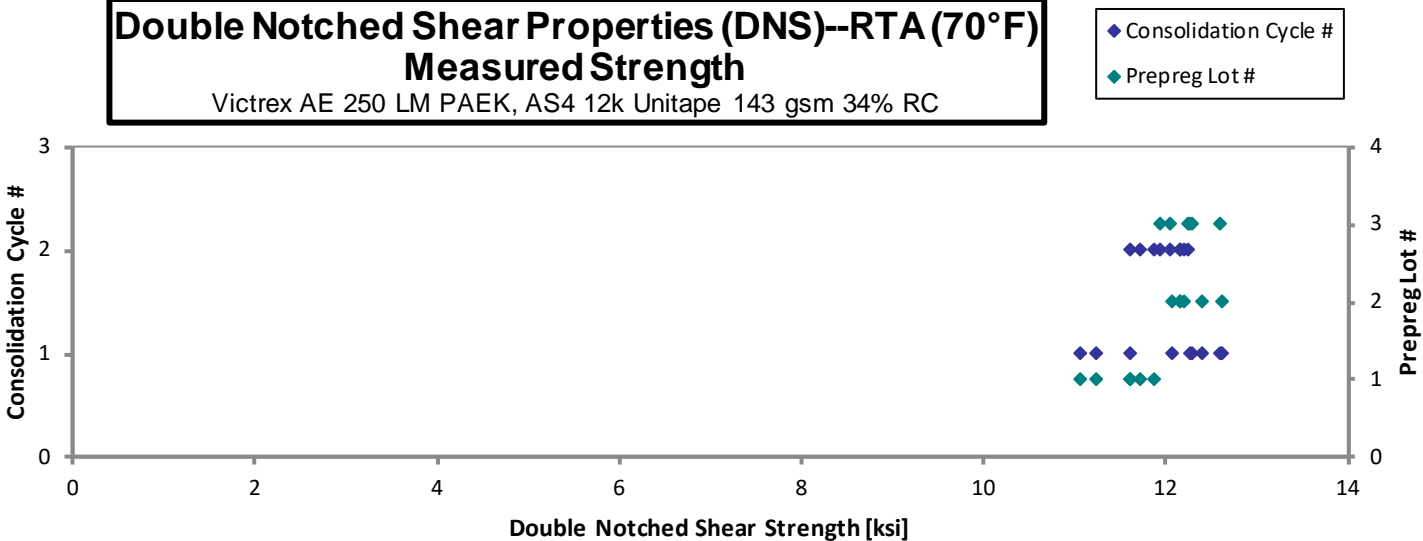
Double Notched Shear Properties (DNS)--RTA (70°F) □

Strength □

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
DNS-A-C1-RTA-1	A	C1	1	1	11.06	0.1793	34	0.0053	GAGE SECTION SHEAR
DNS-A-C1-RTA-2	A	C1	1	1	11.24	0.1764	34	0.0052	GAGE SECTION SHEAR
DNS-A-C1-RTA-3	A	C1	1	1	11.60	0.1748	34	0.0051	GAGE SECTION SHEAR
DNS-A-C2-RTA-1	A	C2	1	2	11.61	0.1769	34	0.0052	GAGE SECTION SHEAR
DNS-A-C2-RTA-2	A	C2	1	2	11.88	0.1742	34	0.0051	GAGE SECTION SHEAR
DNS-A-C2-RTA-3	A	C2	1	2	11.73	0.1740	34	0.0051	GAGE SECTION SHEAR
DNS-B-C1-RTA-1	B	C1	2	1	12.07	0.1777	34	0.0052	GAGE SECTION SHEAR
DNS-B-C1-RTA-2	B	C1	2	1	12.62	0.1745	34	0.0051	GAGE SECTION SHEAR
DNS-B-C1-RTA-3	B	C1	2	1	12.40	0.1757	34	0.0052	GAGE SECTION SHEAR
DNS-B-C2-RTA-1	B	C2	2	2	12.19	0.1745	34	0.0051	GAGE SECTION SHEAR
DNS-B-C2-RTA-2	B	C2	2	2	12.17	0.1725	34	0.0051	GAGE SECTION SHEAR
DNS-B-C2-RTA-3	B	C2	2	2	12.16	0.1747	34	0.0051	GAGE SECTION SHEAR
DNS-C-C1-RTA-1	C	C1	3	1	12.28	0.1745	34	0.0051	GAGE SECTION SHEAR
DNS-C-C1-RTA-2	C	C1	3	1	12.59	0.1732	34	0.0051	GAGE SECTION SHEAR
DNS-C-C1-RTA-3	C	C1	3	1	12.30	0.1733	34	0.0051	GAGE SECTION SHEAR
DNS-C-C2-RTA-1	C	C2	3	2	12.04	0.1774	34	0.0052	GAGE SECTION SHEAR
DNS-C-C2-RTA-2	C	C2	3	2	12.25	0.1750	34	0.0051	GAGE SECTION SHEAR
DNS-C-C2-RTA-3	C	C2	3	2	11.94	0.1733	34	0.0051	GAGE SECTION SHEAR

Average	12.01	0.0052
Standard Dev.	0.4257	
Coeff. of Var. [%]	3.545	
Min.	11.06	0.0051
Max.	12.62	0.0053
Number of Spec.	18	18



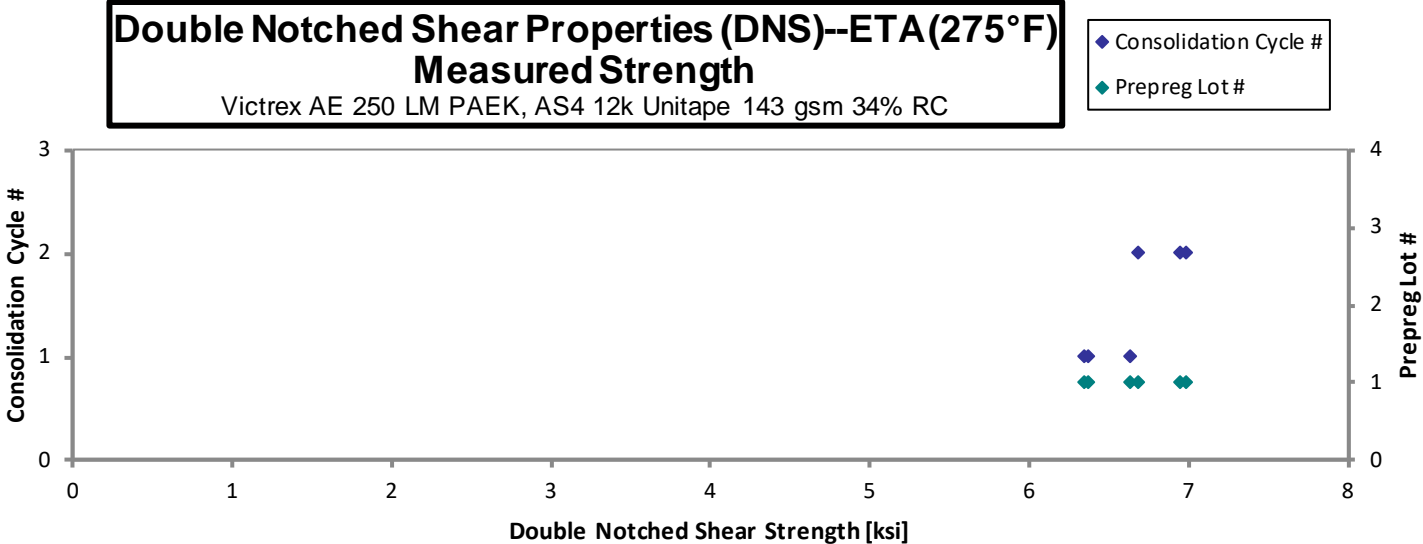
Double Notched Shear Properties (DNS)--ETA (275°F) □

Strength □

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
DNS-A-C1-ETA-1	A	C1	1	1	6.631	0.1752	34	0.0052	GAGE SECTION SHEAR
DNS-A-C1-ETA-2	A	C1	1	1	6.349	0.1779	34	0.0052	GAGE SECTION SHEAR
DNS-A-C1-ETA-3	A	C1	1	1	6.371	0.1796	34	0.0053	GAGE SECTION SHEAR
DNS-A-C2-ETA-1	A	C2	1	2	6.981	0.1747	34	0.0051	GAGE SECTION SHEAR
DNS-A-C2-ETA-2	A	C2	1	2	6.683	0.1777	34	0.0052	GAGE SECTION SHEAR
DNS-A-C2-ETA-3	A	C2	1	2	6.946	0.1748	34	0.0051	GAGE SECTION SHEAR

Average	6.660	0.0052
Standard Dev.	0.2705	
Coeff. of Var. [%]	4.061	
Min.	6.349	0.0051
Max.	6.981	0.0053
Number of Spec.	6	6



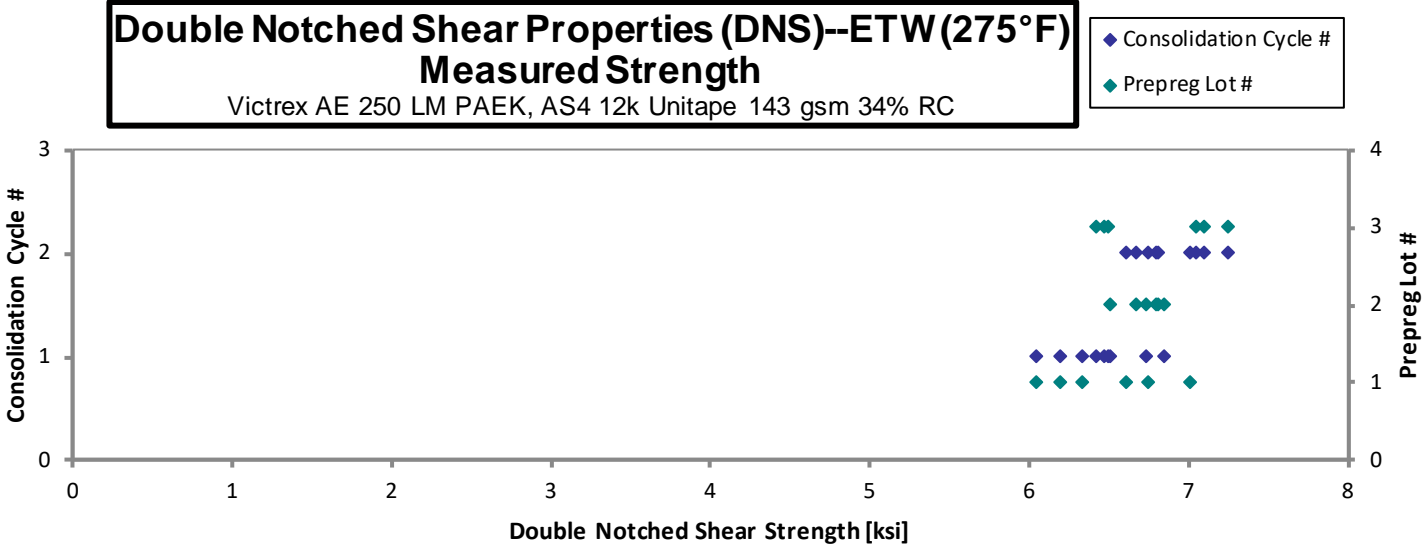
Double Notched Shear Properties (DNS)--ETW (275°F) □

Strength □

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
DNS-A-C1-ETW-1	A	C1	1	1	6.197	0.1763	34	0.0052	GAGE SECTION SHEAR
DNS-A-C1-ETW-2	A	C1	1	1	6.050	0.1797	34	0.0053	GAGE SECTION SHEAR
DNS-A-C1-ETW-3	A	C1	1	1	6.332	0.1764	34	0.0052	GAGE SECTION SHEAR
DNS-A-C2-ETW-1	A	C2	1	2	7.012	0.1743	34	0.0051	GAGE SECTION SHEAR
DNS-A-C2-ETW-2	A	C2	1	2	6.604	0.1773	34	0.0052	GAGE SECTION SHEAR
DNS-A-C2-ETW-3	A	C2	1	2	6.749	0.1766	34	0.0052	GAGE SECTION SHEAR
DNS-B-C1-ETW-1	B	C1	2	1	6.503	0.1773	34	0.0052	GAGE SECTION SHEAR
DNS-B-C1-ETW-2	B	C1	2	1	6.735	0.1769	34	0.0052	GAGE SECTION SHEAR
DNS-B-C1-ETW-3	B	C1	2	1	6.841	0.1787	34	0.0053	GAGE SECTION SHEAR
DNS-B-C2-ETW-1	B	C2	2	2	6.668	0.1756	34	0.0052	GAGE SECTION SHEAR
DNS-B-C2-ETW-2	B	C2	2	2	6.810	0.1759	34	0.0052	GAGE SECTION SHEAR
DNS-B-C2-ETW-3	B	C2	2	2	6.797	0.1742	34	0.0051	GAGE SECTION SHEAR
DNS-C-C1-ETW-1	C	C1	3	1	6.491	0.1750	34	0.0051	GAGE SECTION SHEAR
DNS-C-C1-ETW-2	C	C1	3	1	6.416	0.1746	34	0.0051	GAGE SECTION SHEAR
DNS-C-C1-ETW-3	C	C1	3	1	6.476	0.1757	34	0.0052	GAGE SECTION SHEAR
DNS-C-C2-ETW-1	C	C2	3	2	7.246	0.1761	34	0.0052	GAGE SECTION SHEAR
DNS-C-C2-ETW-2	C	C2	3	2	7.045	0.1749	34	0.0051	GAGE SECTION SHEAR
DNS-C-C2-ETW-3	C	C2	3	2	7.091	0.1753	34	0.0052	GAGE SECTION SHEAR

Average	6.670	0.0052
Standard Dev.	0.3191	
Coeff. of Var. [%]	4.784	
Min.	6.050	0.0051
Max.	7.246	0.0053
Number of Spec.	18	18



4.8 0 Flex Properties (0 Flex)

Flexural Properties (0)--CTA (-65°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

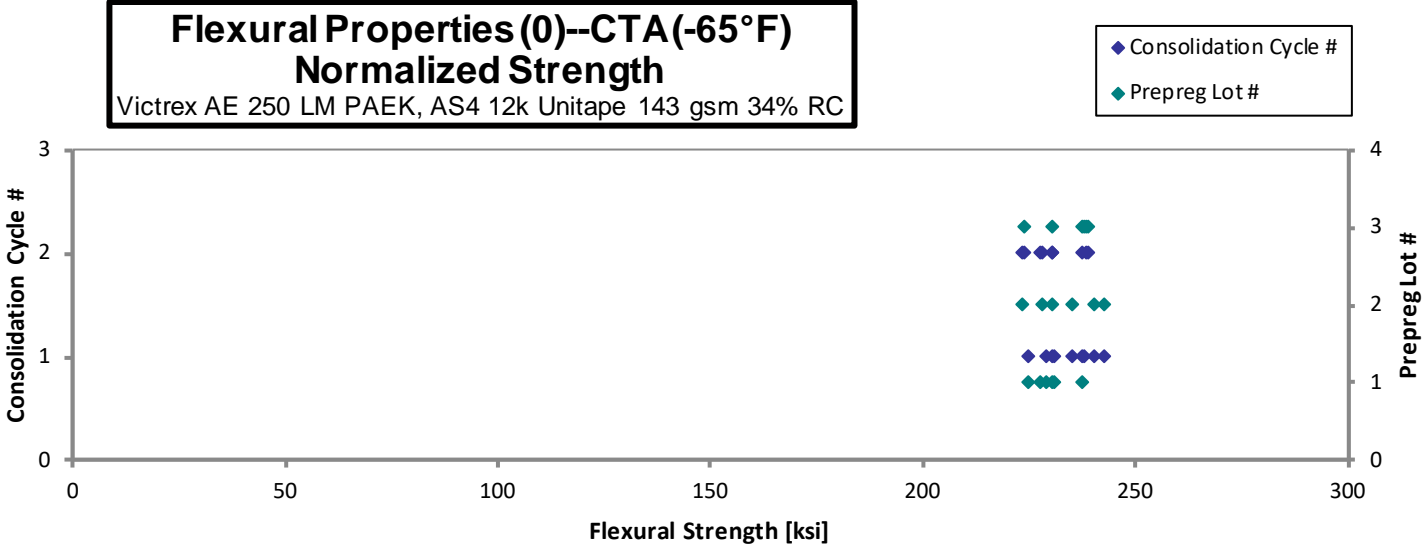
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Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FLEX-A-C1-0-CTA-1	A	C1	1	1	235.7	0.1134	22	CAT
FLEX-A-C1-0-CTA-2	A	C1	1	1	240.9	0.1139	22	CAT
FLEX-A-C1-0-CTA-3	A	C1	1	1	238.2	0.1143	22	CAT
FLEX-A-C2-0-CTA-1	A	C2	1	2	239.6	0.1143	22	CAT
FLEX-A-C2-0-CTA-2	A	C2	1	2	235.5	0.1148	22	CAT
FLEX-A-C2-0-CTA-3	A	C2	1	2	245.0	0.1152	22	CAT
FLEX-B-C1-0-CTA-1	B	C1	2	1	240.8	0.1160	22	CAT
FLEX-B-C1-0-CTA-2	B	C1	2	1	248.8	0.1159	22	CAT
FLEX-B-C1-0-CTA-3	B	C1	2	1	245.5	0.1162	22	CAT
FLEX-B-C2-0-CTA-1	B	C2	2	2	232.2	0.1143	22	CAT
FLEX-B-C2-0-CTA-2	B	C2	2	2	235.7	0.1151	22	CAT
FLEX-B-C2-0-CTA-3	B	C2	2	2	237.4	0.1155	22	CAT
FLEX-C-C1-0-CTA-1	C	C1	3	1	241.7	0.1167	22	CAT
FLEX-C-C1-0-CTA-2	C	C1	3	1	243.2	0.1162	22	CAT
FLEX-C-C1-0-CTA-3	C	C1	3	1	234.8	0.1166	22	CAT
FLEX-C-C2-0-CTA-1	C	C2	3	2	243.0	0.1168	22	CAT
FLEX-C-C2-0-CTA-2	C	C2	3	2	227.7	0.1169	22	CAT
FLEX-C-C2-0-CTA-3	C	C2	3	2	241.4	0.1173	22	CAT

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0052	224.9
0.0052	230.9
0.0052	229.0
0.0052	230.5
0.0052	227.6
0.0052	237.5
0.0053	235.0
0.0053	242.8
0.0053	240.1
0.0052	223.4
0.0052	228.3
0.0052	230.7
0.0053	237.3
0.0053	237.9
0.0053	230.4
0.0053	238.8
0.0053	224.0
0.0053	238.4

Average **239.3**
 Standard Dev. **5.180**
 Coeff. of Var. [%] **2.165**
 Min. **227.7**
 Max. **248.8**
 Number of Spec. **18**

Average_{norm} **0.0053** **232.6**
 Standard Dev._{norm} **5.953**
 Coeff. of Var. [%]_{norm} **2.559**
 Min. **0.0052** **223.4**
 Max. **0.0053** **242.8**
 Number of Spec. **18** **18**



**Flexural Properties (0)--RTA (70°F) □
Strength □**

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]

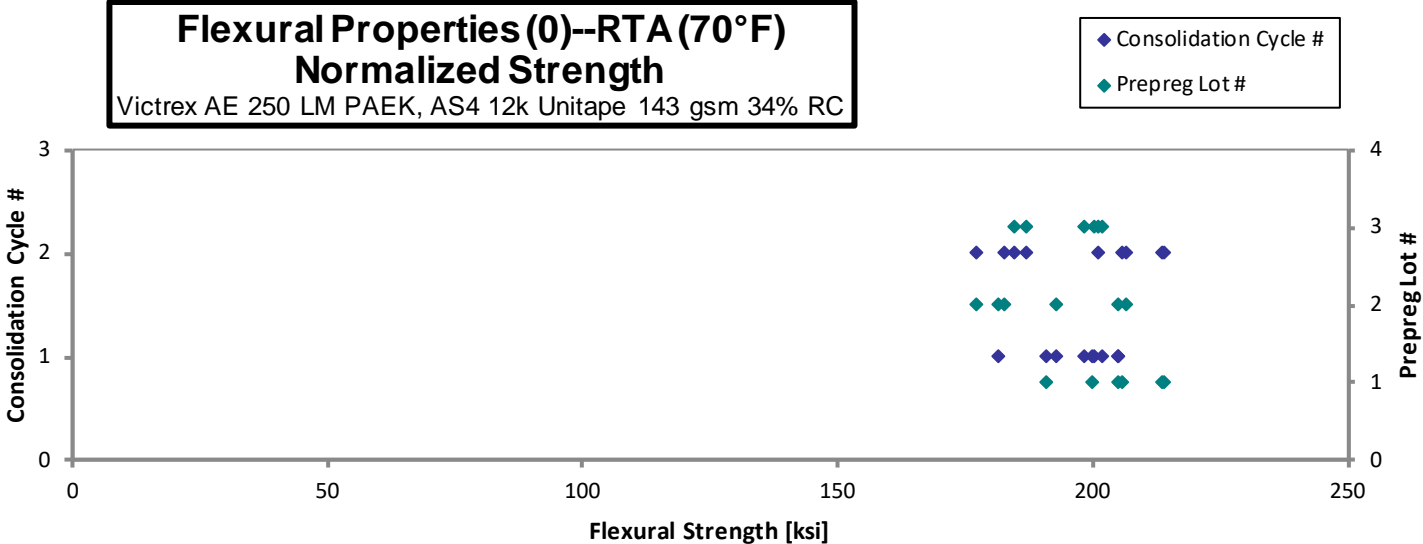
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Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FLEX-A-C1-0-RTA-1	A	C1	1	1	208.9	0.1137	22	CAT
FLEX-A-C1-0-RTA-2	A	C1	1	1	214.3	0.1137	22	CAT
FLEX-A-C1-0-RTA-3	A	C1	1	1	200.2	0.1133	22	CAT
FLEX-A-C2-0-RTA-1	A	C2	1	2	222.3	0.1142	22	CAT
FLEX-A-C2-0-RTA-2	A	C2	1	2	215.0	0.1137	22	CAT
FLEX-A-C2-0-RTA-3	A	C2	1	2	223.0	0.1140	22	CAT
FLEX-B-C1-0-RTA-1	B	C1	2	1	197.7	0.1160	22	CAT
FLEX-B-C1-0-RTA-2	B	C1	2	1	210.3	0.1157	22	CAT
FLEX-B-C1-0-RTA-3	B	C1	2	1	186.4	0.1157	22	CAT
FLEX-B-C2-0-RTA-1	B	C2	2	2	183.9	0.1144	22	CAT
FLEX-B-C2-0-RTA-2	B	C2	2	2	190.2	0.1140	22	CAT
FLEX-B-C2-0-RTA-3	B	C2	2	2	214.8	0.1143	22	CAT
FLEX-C-C1-0-RTA-1	C	C1	3	1	201.5	0.1169	22	CAT
FLEX-C-C1-0-RTA-2	C	C1	3	1	205.3	0.1168	22	CAT
FLEX-C-C1-0-RTA-3	C	C1	3	1	204.0	0.1168	22	CAT
FLEX-C-C2-0-RTA-1	C	C2	3	2	189.4	0.1172	22	CAT
FLEX-C-C2-0-RTA-2	C	C2	3	2	189.3	0.1159	22	CAT
FLEX-C-C2-0-RTA-3	C	C2	3	2	206.5	0.1157	22	CAT

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0052	200.0
0.0052	205.0
0.0052	190.9
0.0052	213.7
0.0052	205.7
0.0052	213.9
0.0053	193.0
0.0053	204.9
0.0053	181.5
0.0052	177.1
0.0052	182.5
0.0052	206.6
0.0053	198.3
0.0053	201.8
0.0053	200.4
0.0053	186.8
0.0053	184.6
0.0053	201.1

Average 203.5
Standard Dev. 12.13
Coeff. of Var. [%] 5.963
Min. 183.9
Max. 223.0
Number of Spec. 18

Average_{norm} 0.0052 197.1
Standard Dev._{norm} 11.060
Coeff. of Var. [%]_{norm} 5.611
Min. 0.0052 177.1
Max. 0.0053 213.9
Number of Spec. 18 18



Flexural Properties (0)--ETA (275°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

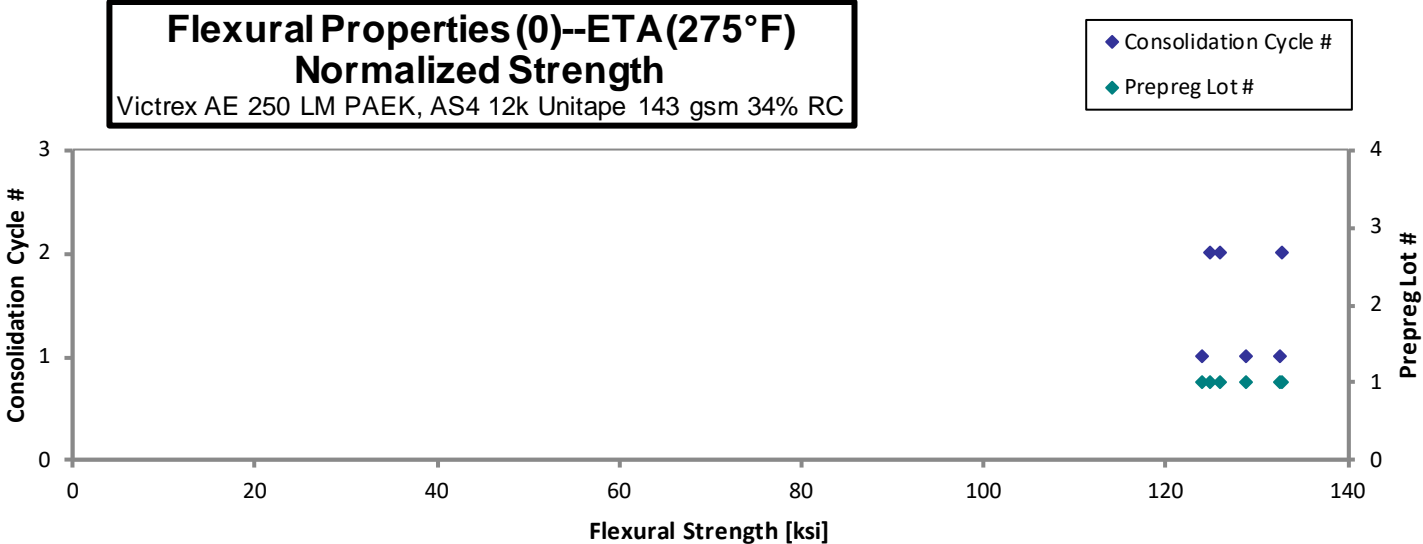
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Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FLEX-A-C1-0-ETA-1	A	C1	1	1	128.7	0.1145	22	CAT
FLEX-A-C1-0-ETA-2	A	C1	1	1	132.6	0.1154	22	CAT
FLEX-A-C1-0-ETA-3	A	C1	1	1	136.5	0.1154	22	CAT
FLEX-A-C2-0-ETA-1	A	C2	1	2	137.0	0.1151	22	CAT
FLEX-A-C2-0-ETA-2	A	C2	1	2	129.9	0.1153	22	CAT
FLEX-A-C2-0-ETA-3	A	C2	1	2	128.2	0.1158	22	CAT

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0052	124.1
0.0052	128.8
0.0052	132.6
0.0052	132.8
0.0052	126.0
0.0053	124.9

Average 132.2
 Standard Dev. 3.890
 Coeff. of Var. [%] 2.943
 Min. 128.2
 Max. 137.0
 Number of Spec. 6

Average_{norm} 0.0052
 Standard Dev_{norm} 3.835
 Coeff. of Var. [%]_{norm} 2.992
 Min. 0.0052
 Max. 0.0053
 Number of Spec. 6



Flexural Properties (0)--ETW (275°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

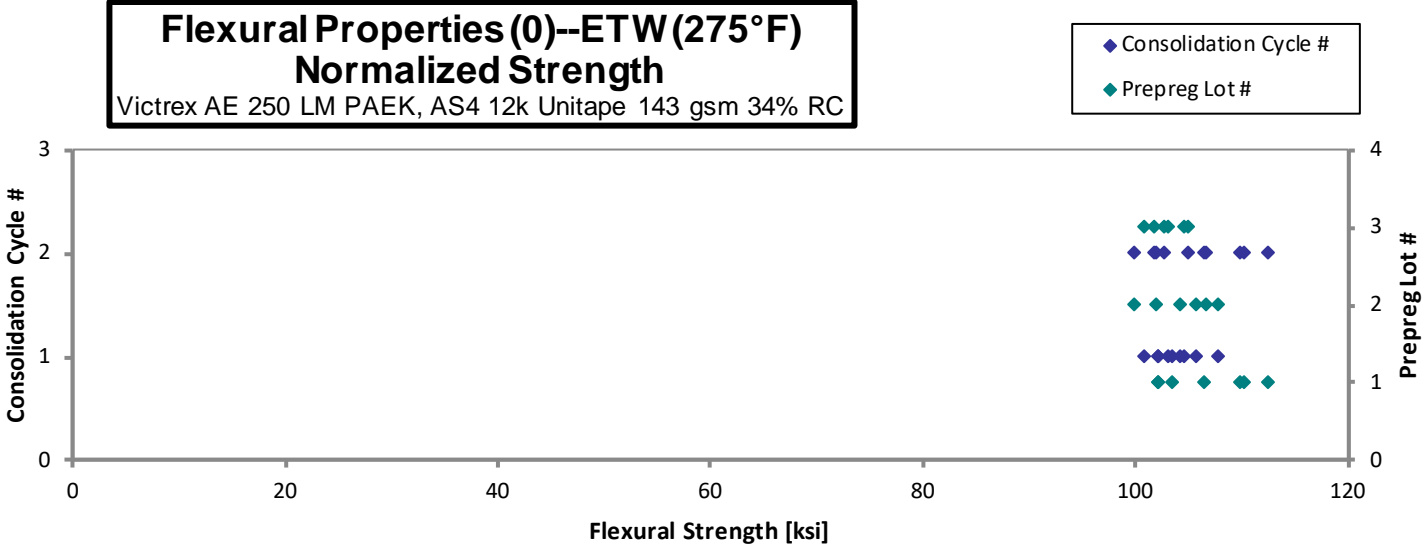
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Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FLEX-A-C1-0-ETW-1	A	C1	1	1	105.8	0.1148	22	CAT
FLEX-A-C1-0-ETW-2	A	C1	1	1	107.4	0.1145	22	CAT
FLEX-A-C1-0-ETW-3	A	C1	1	1	106.0	0.1145	22	CAT
FLEX-A-C2-0-ETW-1	A	C2	1	2	116.5	0.1148	22	CAT
FLEX-A-C2-0-ETW-2	A	C2	1	2	110.3	0.1146	22	CAT
FLEX-A-C2-0-ETW-3	A	C2	1	2	114.4	0.1144	22	CAT
FLEX-A-C2-0-ETW-4	A	C2	1	2	114.5	0.1140	22	CAT
FLEX-B-C1-0-ETW-1	B	C1	2	1	109.3	0.1170	22	CAT
FLEX-B-C1-0-ETW-2	B	C1	2	1	107.2	0.1171	22	CAT
FLEX-B-C1-0-ETW-3	B	C1	2	1	105.9	0.1168	22	CAT
FLEX-B-C2-0-ETW-1	B	C2	2	2	102.4	0.1158	22	CAT
FLEX-B-C2-0-ETW-2	B	C2	2	2	109.2	0.1159	22	CAT
FLEX-B-C2-0-ETW-3	B	C2	2	2	104.3	0.1162	22	CAT
FLEX-C-C1-0-ETW-1	C	C1	3	1	106.4	0.1168	22	CAT
FLEX-C-C1-0-ETW-2	C	C1	3	1	102.3	0.1171	22	CAT
FLEX-C-C1-0-ETW-3	C	C1	3	1	104.2	0.1175	22	CAT
FLEX-C-C2-0-ETW-1	C	C2	3	2	102.3	0.1181	22	CAT
FLEX-C-C2-0-ETW-2	C	C2	3	2	105.6	0.1180	22	CAT
FLEX-C-C2-0-ETW-3	C	C2	3	2	103.2	0.1183	22	CAT

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0052	102.2
0.0052	103.5
0.0052	102.2
0.0052	112.6
0.0052	106.4
0.0052	110.2
0.0052	109.9
0.0053	107.7
0.0053	105.6
0.0053	104.1
0.0053	99.9
0.0053	106.6
0.0053	102.0
0.0053	104.6
0.0053	100.9
0.0053	103.0
0.0054	101.7
0.0054	104.9
0.0054	102.7

Average **107.2**
 Standard Dev. **4.234**
 Coeff. of Var. [%] **3.949**
 Min. **102.3**
 Max. **116.5**
 Number of Spec. **19**

Average_{norm} **104.77**
 Standard Dev_{norm} **3.417**
 Coeff. of Var. [%]_{norm} **3.261**
 Min. **99.86**
 Max. **112.6**
 Number of Spec. **19**



4.9 90 Flex Properties (90 Flex)

Flexural Properties (90)--RTA (70°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

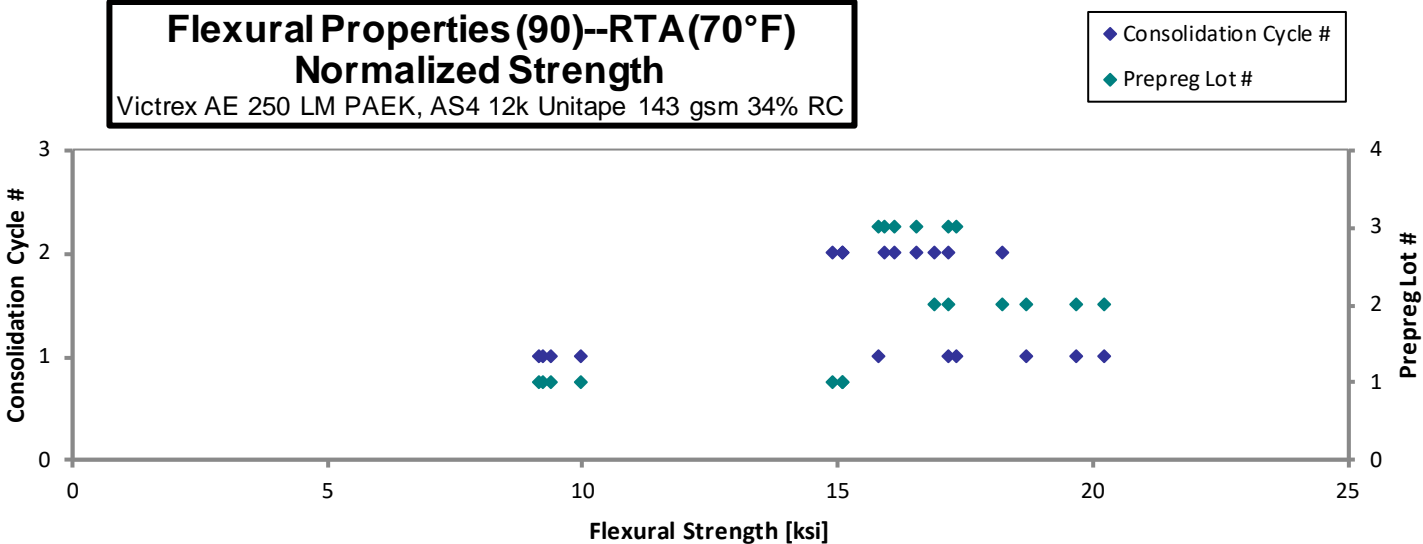
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 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksj]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FLEX-A-C1-90-RTA-1	A	C1	1	1	9.789	0.1139	22	TAB
FLEX-A-C1-90-RTA-2	A	C1	1	1	10.38	0.1141	22	TAB
FLEX-A-C1-90-RTA-3	A	C1	1	1	9.483	0.1143	22	TAB
FLEX-A-C1-90-RTA-4	A	C1	1	1	9.562	0.1143	22	TAB
FLEX-A-C2-90-RTA-1	A	C2	1	2	15.62	0.1147	22	CAT, TAB
FLEX-A-C2-90-RTA-2	A	C2	1	2	15.42	0.1147	22	CAT, TAB
FLEX-A-C2-90-RTA-3	A	C2	1	2	15.61	0.1148	22	CAT, TAB
FLEX-B-C1-90-RTA-1	B	C1	2	1	19.16	0.1159	22	CAT, TAB
FLEX-B-C1-90-RTA-2	B	C1	2	1	20.69	0.1160	22	CAT, TAB
FLEX-B-C1-90-RTA-3	B	C1	2	1	20.09	0.1163	22	CAT, TAB
FLEX-B-C2-90-RTA-1	B	C2	2	2	18.93	0.1143	22	CAT, TAB
FLEX-B-C2-90-RTA-2	B	C2	2	2	17.80	0.1145	22	CAT, TAB
FLEX-B-C2-90-RTA-3	B	C2	2	2	17.44	0.1150	22	CAT, TAB
FLEX-C-C1-90-RTA-1	C	C1	3	1	17.40	0.1173	22	CAT, TAB
FLEX-C-C1-90-RTA-2	C	C1	3	1	16.04	0.1169	22	CAT, TAB
FLEX-C-C1-90-RTA-3	C	C1	3	1	17.59	0.1170	22	CAT, TAB
FLEX-C-C2-90-RTA-1	C	C2	3	2	16.13	0.1171	22	CAT, TAB
FLEX-C-C2-90-RTA-2	C	C2	3	2	16.34	0.1171	22	CAT, TAB
FLEX-C-C2-90-RTA-3	C	C2	3	2	16.84	0.1168	22	CAT, TAB

Avg. t_{ply} [in]	Strength _{norm} [ksj]
0.0052	9.383
0.0052	9.970
0.0052	9.120
0.0052	9.198
0.0052	15.08
0.0052	14.88
0.0052	15.08
0.0053	18.69
0.0053	20.21
0.0053	19.67
0.0052	18.21
0.0052	17.15
0.0052	16.87
0.0053	17.18
0.0053	15.78
0.0053	17.33
0.0053	15.90
0.0053	16.11
0.0053	16.56

Average 15.81
 Standard Dev. 3.512
 Coeff. of Var. [%] 22.22
 Min. 9.483
 Max. 20.69
 Number of Spec. 19

Average_{norm} 0.0053 15.39
 Standard Dev_{norm} 3.485
 Coeff. of Var. [%]_{norm} 22.64
 Min. 0.0052 9.120
 Max. 0.0053 20.21
 Number of Spec. 19 19



4.10 “25/50/25” Unnotched Tension 1 Properties (UNT1)

Laminate Unnotched Tension Properties (UNT1)--CTA (-65°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

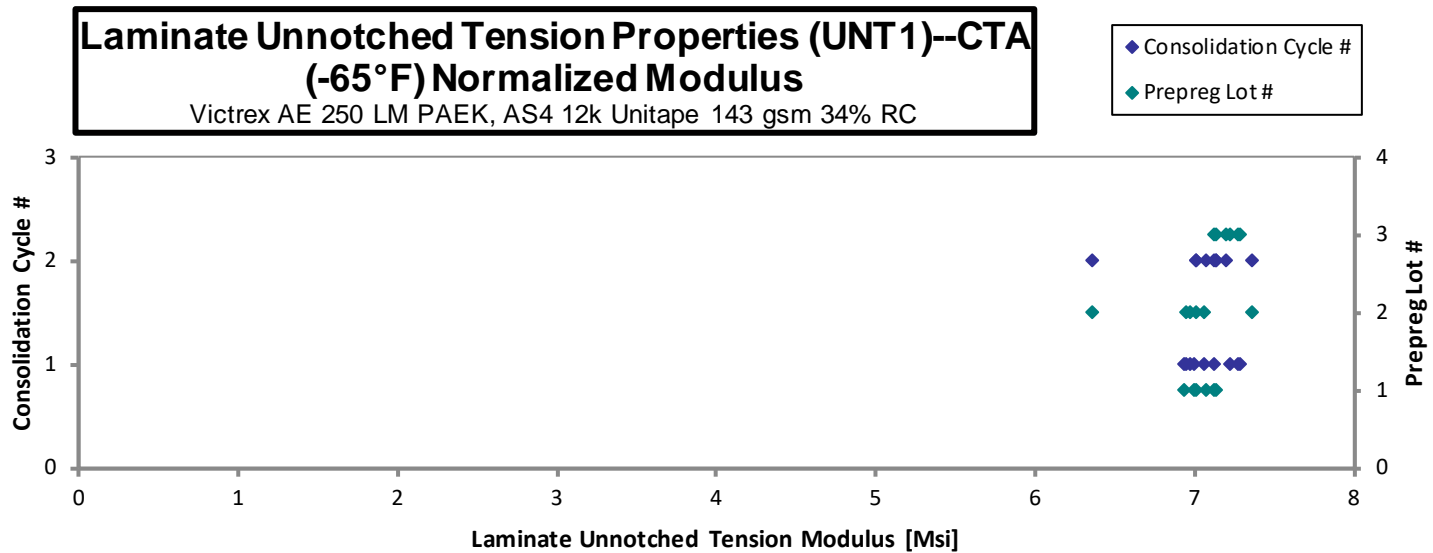
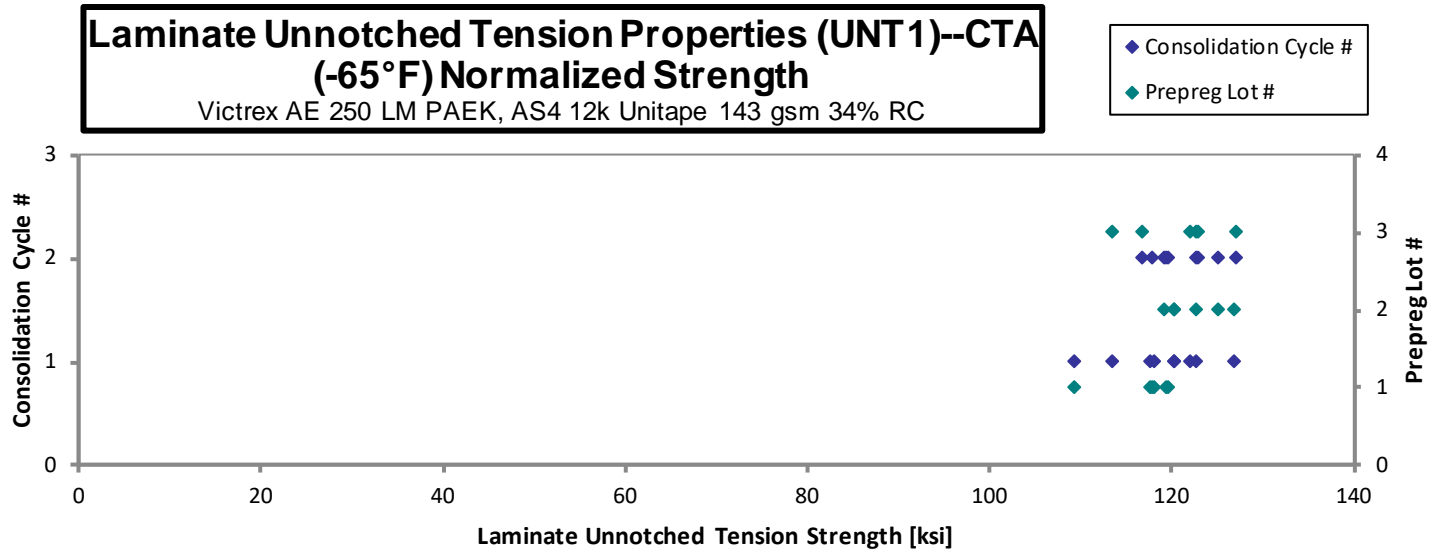
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNT1-A-C1-CTA-1	A	C1	1	1	106.3	6.922	0.0889	16	M(A,L)WT, M(A,L)WB
UNT1-A-C1-CTA-2	A	C1	1	1	116.4	6.890	0.0877	16	AGB
UNT1-A-C1-CTA-3	A	C1	1	1	115.8	6.821	0.0878	16	M(A,L)AT
UNT1-A-C2-CTA-1	A	C2	1	2	117.4	7.017	0.0878	16	LGT
UNT1-A-C2-CTA-2	A	C2	1	2	116.1	6.904	0.0878	16	LWB, AWT
UNT1-A-C2-CTA-3	A	C2	1	2	118.2	6.984	0.0875	16	LWB, M(A,L)WT
UNT1-B-C1-CTA-1	B	C1	2	1	130.1	7.145	0.0843	16	AGT
UNT1-B-C1-CTA-2	B	C1	2	1	124.1	7.283	0.0838	16	LWT, AWB
UNT1-B-C1-CTA-3	B	C1	2	1	124.2	7.168	0.0837	16	LWB, AWT
UNT1-B-C2-CTA-1	B	C2	2	2	126.4	7.083	0.0855	16	M(A,L)GT
UNT1-B-C2-CTA-2	B	C2	2	2	124.3	7.458	0.0853	16	M(A,L)GB, M(A,L)WB
UNT1-B-C2-CTA-3	B	C2	2	2	120.7	6.440	0.0853	16	AGM
UNT1-C-C1-CTA-1	C	C1	3	1	121.9	7.242	0.0870	16	M(A,L)WB
UNT1-C-C1-CTA-2	C	C1	3	1	113.4	7.270	0.0864	16	AGT
UNT1-C-C1-CTA-3	C	C1	3	1	121.9	7.215	0.0865	16	M(A,L)GM
UNT1-C-C2-CTA-1	C	C2	3	2	124.7	7.242	0.0851	16	LWB, LWT
UNT1-C-C2-CTA-2	C	C2	3	2	117.9	7.205	0.0855	16	M(A,L)GB
UNT1-C-C2-CTA-3	C	C2	3	2	128.3	7.275	0.0855	16	LWB, LWT

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0056	109.4	7.122
0.0055	118.1	6.991
0.0055	117.7	6.934
0.0055	119.3	7.133
0.0055	117.9	7.012
0.0055	119.6	7.069
0.0053	126.9	6.969
0.0052	120.3	7.060
0.0052	120.3	6.943
0.0053	125.0	7.005
0.0053	122.7	7.361
0.0053	119.2	6.361
0.0054	122.8	7.291
0.0054	113.4	7.270
0.0054	122.1	7.221
0.0053	122.8	7.133
0.0053	116.7	7.128
0.0053	127.0	7.198

Average 120.5 7.087
 Standard Dev. 5.855 0.2348
 Coeff. of Var. [%] 4.861 3.314
 Min. 106.3 6.440
 Max. 130.1 7.458
 Number of Spec. 18 18

Average_{norm} 0.0054 120.1 7.067
 Standard Dev_{norm} 4.405 0.2154
 Coeff. of Var. [%]_{norm} 3.669 3.048
 Min. 0.0052 109.4 6.361
 Max. 0.0056 127.0 7.361
 Number of Spec. 18 18 18



Laminate Unnotched Tension Properties (UNT1)--RTA (70°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

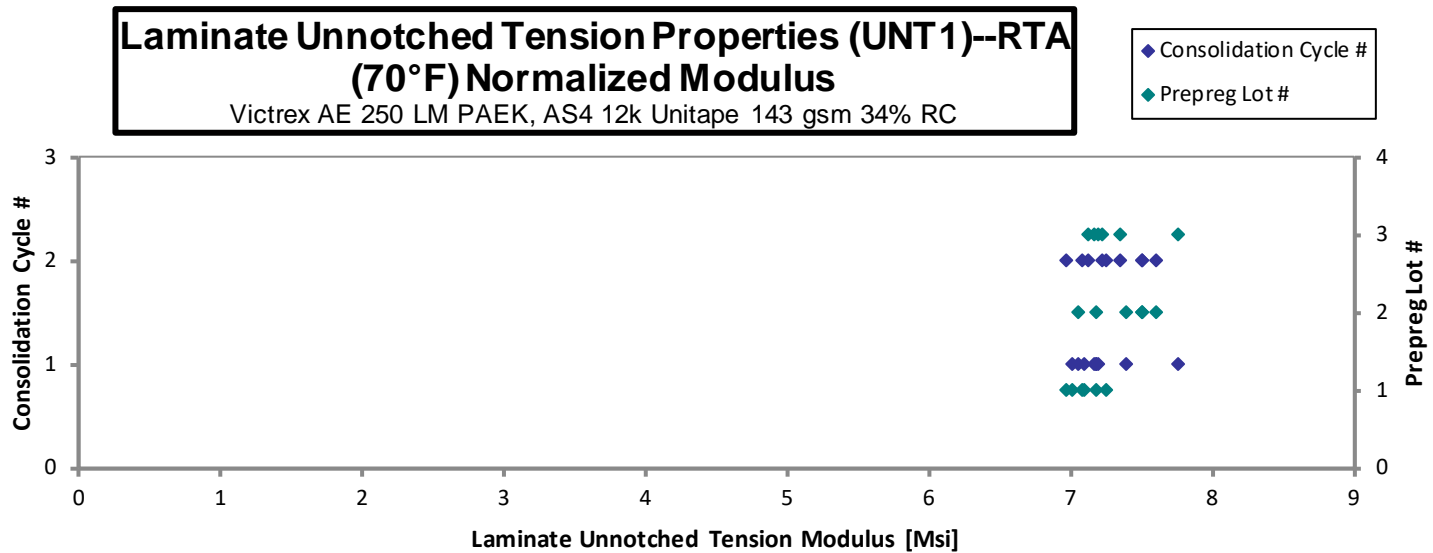
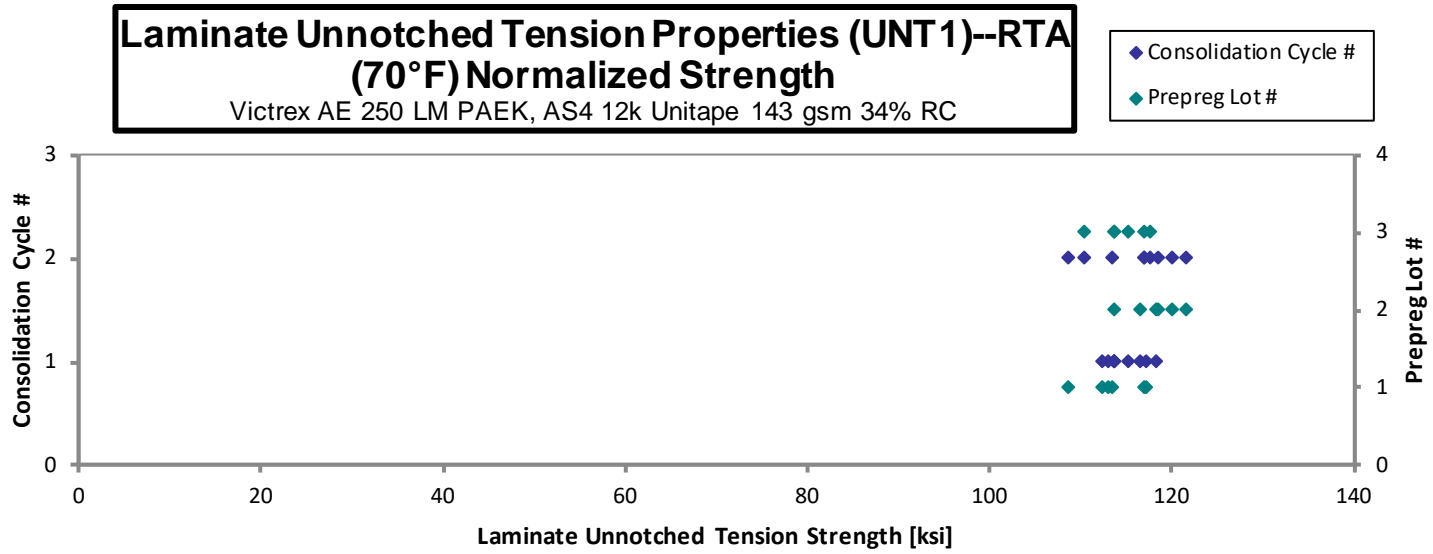
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNT1-A-C1-RTA-1	A	C1	1	1	108.1	6.787	0.0904	16	LGB
UNT1-A-C1-RTA-2	A	C1	1	1	113.1	6.930	0.0895	16	AGM
UNT1-A-C1-RTA-3	A	C1	1	1	108.3	6.758	0.0897	16	M(A,L)WT
UNT1-A-C2-RTA-1	A	C2	1	2	105.7	6.784	0.0888	16	M(A,L)G M
UNT1-A-C2-RTA-2	A	C2	1	2	114.2	7.076	0.0885	16	AGM
UNT1-A-C2-RTA-3	A	C2	1	2	111.3	6.947	0.0881	16	M(A,L)WT
UNT1-B-C1-RTA-1	B	C1	2	1	117.4	7.227	0.0858	16	AGB
UNT1-B-C1-RTA-2	B	C1	2	1	115.1	7.490	0.0853	16	LGT
UNT1-B-C1-RTA-3	B	C1	2	1	119.5	7.128	0.0855	16	LWT, LAB
UNT1-B-C2-RTA-1	B	C2	2	2	117.2	7.522	0.0874	16	M(A,L)WT
UNT1-B-C2-RTA-2	B	C2	2	2	121.2	7.490	0.0866	16	M(A,L)GM
UNT1-B-C2-RTA-3	B	C2	2	2	120.1	7.515	0.0864	16	AWT, LWB
UNT1-C-C1-RTA-1	C	C1	3	1	113.2	7.159	0.0868	16	LWB, LWT
UNT1-C-C1-RTA-2	C	C1	3	1	114.4	7.122	0.0870	16	AGT
UNT1-C-C1-RTA-3	C	C1	3	1	113.2	7.717	0.0869	16	LWB
UNT1-C-C2-RTA-1	C	C2	3	2	111.5	7.205	0.0855	16	LWB, LWT
UNT1-C-C2-RTA-2	C	C2	3	2	117.1	7.353	0.0863	16	LWT
UNT1-C-C2-RTA-3	C	C2	3	2	118.7	7.285	0.0857	16	LAB, LWT

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0057	113.1	7.101
0.0056	117.2	7.181
0.0056	112.4	7.013
0.0055	108.6	6.969
0.0055	117.0	7.248
0.0055	113.5	7.086
0.0054	116.6	7.175
0.0053	113.7	7.393
0.0053	118.2	7.051
0.0055	118.5	7.605
0.0054	121.5	7.509
0.0054	120.1	7.510
0.0054	113.8	7.192
0.0054	115.1	7.167
0.0054	113.8	7.757
0.0053	110.4	7.129
0.0054	116.9	7.345
0.0054	117.7	7.223

Average 114.4 7.194
 Standard Dev. 4.359 0.2843
 Coeff. of Var. [%] 3.810 3.951
 Min. 105.7 6.758
 Max. 121.2 7.717
 Number of Spec. 18 18

Average_{norm} 0.0055 115.4 7.259
 Standard Dev_{norm} 3.340 0.2178
 Coeff. of Var. [%]_{norm} 2.893 3.001
 Min. 0.0053 108.6 6.969
 Max. 0.0057 121.5 7.757
 Number of Spec. 18 18 18



Laminate Unnotched Tension Properties (UNT1)--ETA (275°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

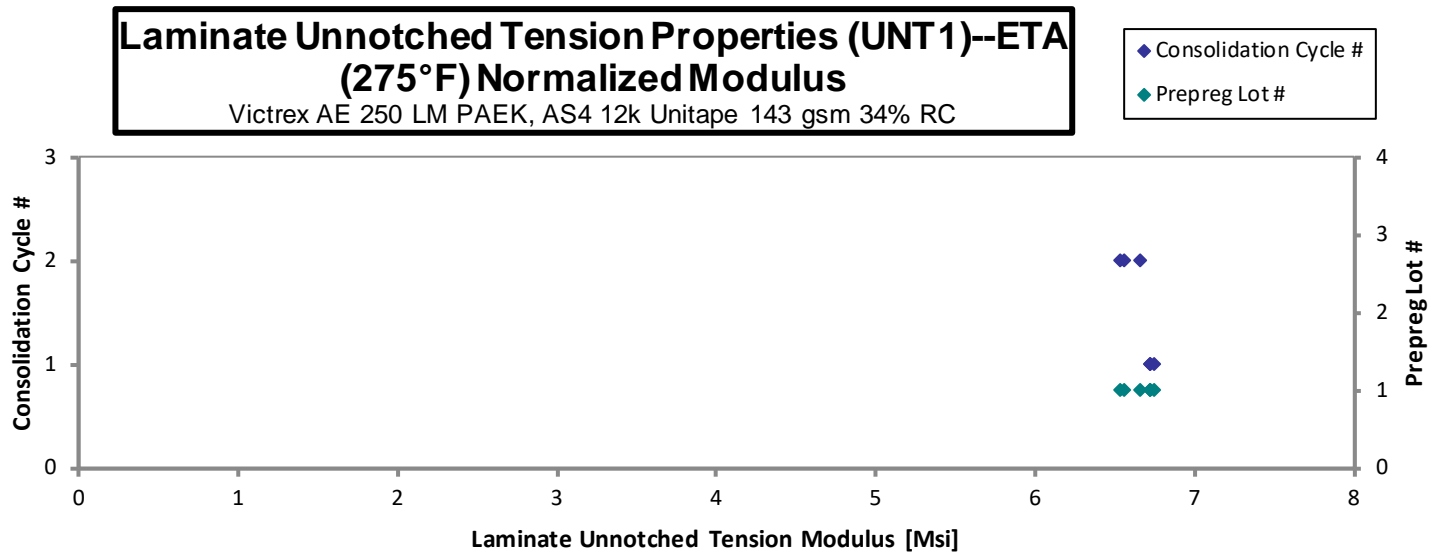
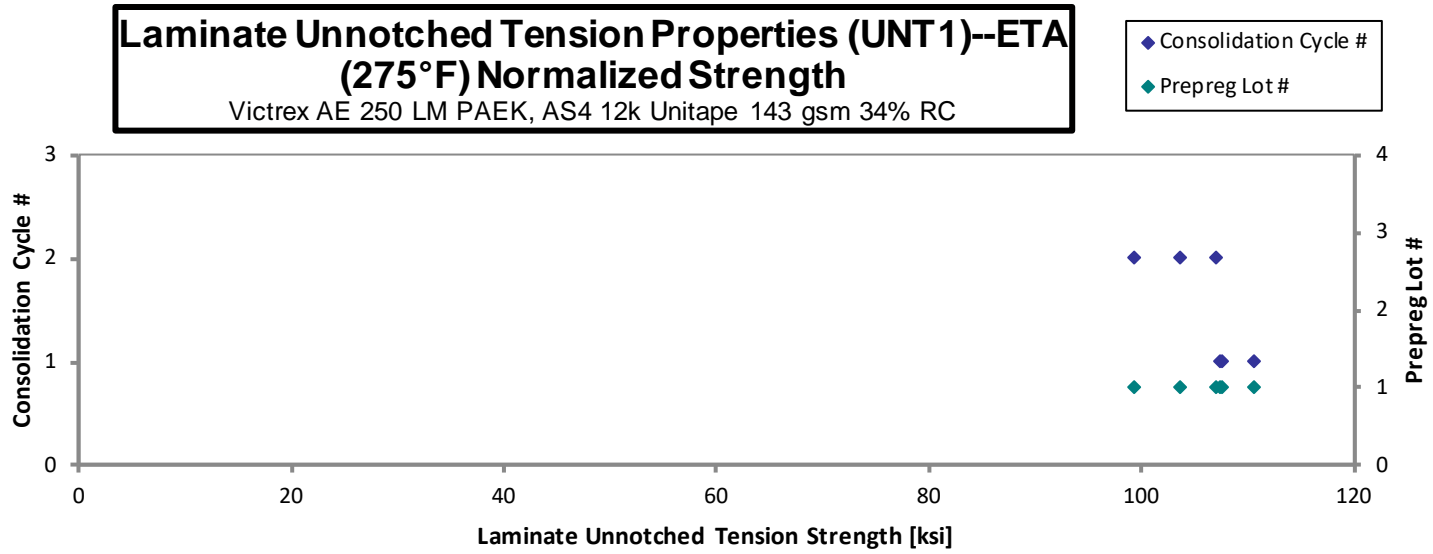
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNT1-A-C1-ETA-1	A	C1	1	1	103.5	6.502	0.0896	16	M(A,L)GT
UNT1-A-C1-ETA-2	A	C1	1	1	103.8	6.477	0.0896	16	M(A,L)GT
UNT1-A-C1-ETA-3	A	C1	1	1	106.3	6.458	0.0899	16	AGT
UNT1-A-C2-ETA-1	A	C2	1	2	103.0	6.484	0.0870	16	M(A,L)GT
UNT1-A-C2-ETA-2	A	C2	1	2	98.18	6.587	0.0873	16	M(A,L)WB
UNT1-A-C2-ETA-3	A	C2	1	2	105.9	6.493	0.0873	16	AGM

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0056	107.4	6.744
0.0056	107.6	6.717
0.0056	110.5	6.716
0.0054	103.7	6.532
0.0055	99.24	6.658
0.0055	107.0	6.559

Average 103.4 6.500
 Standard Dev. 2.898 0.04481
 Coeff. of Var. [%] 2.802 0.6894
 Min. 98.18 6.458
 Max. 106.3 6.587
 Number of Spec. 6 6

Average_{norm} 0.0055 105.9 6.654
 Standard Dev._{norm} 3.917 0.08937
 Coeff. of Var. [%]_{norm} 3.699 1.343
 Min. 0.0054 99.24 6.532
 Max. 0.0056 110.5 6.744
 Number of Spec. 6 6 6



November 18, 2022

CAM-RP-2021-025 Rev N/C

**Laminate Unnotched Tension Properties (UNT1)--ETW (275°F) □
Strength & Modulus □**

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

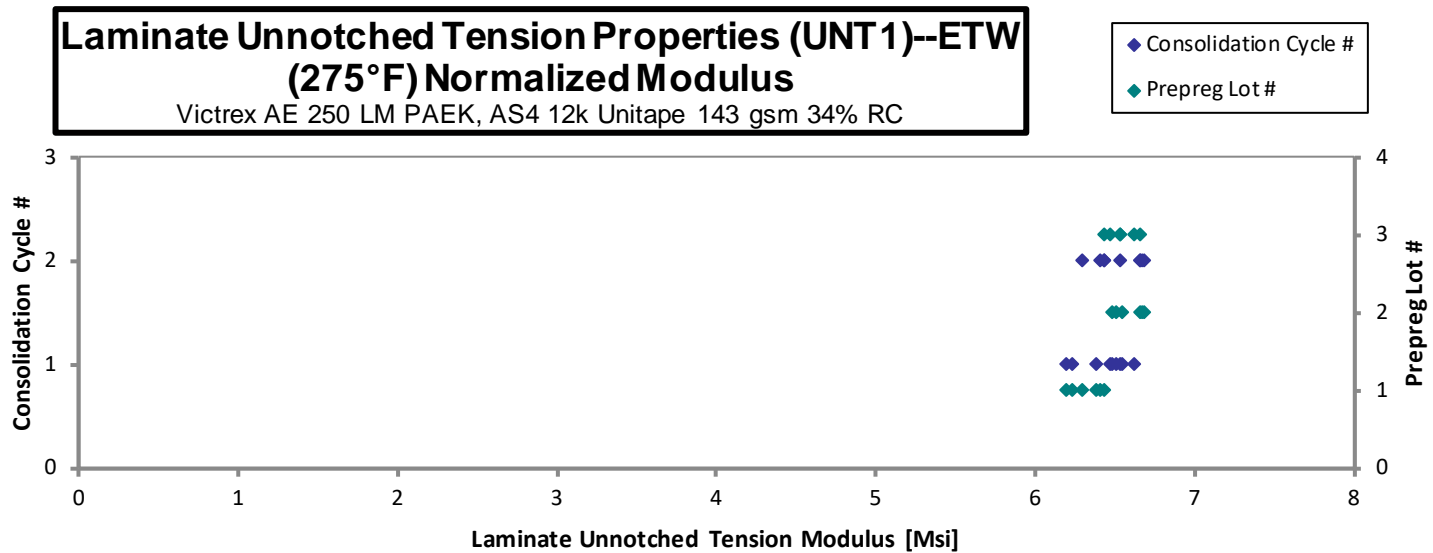
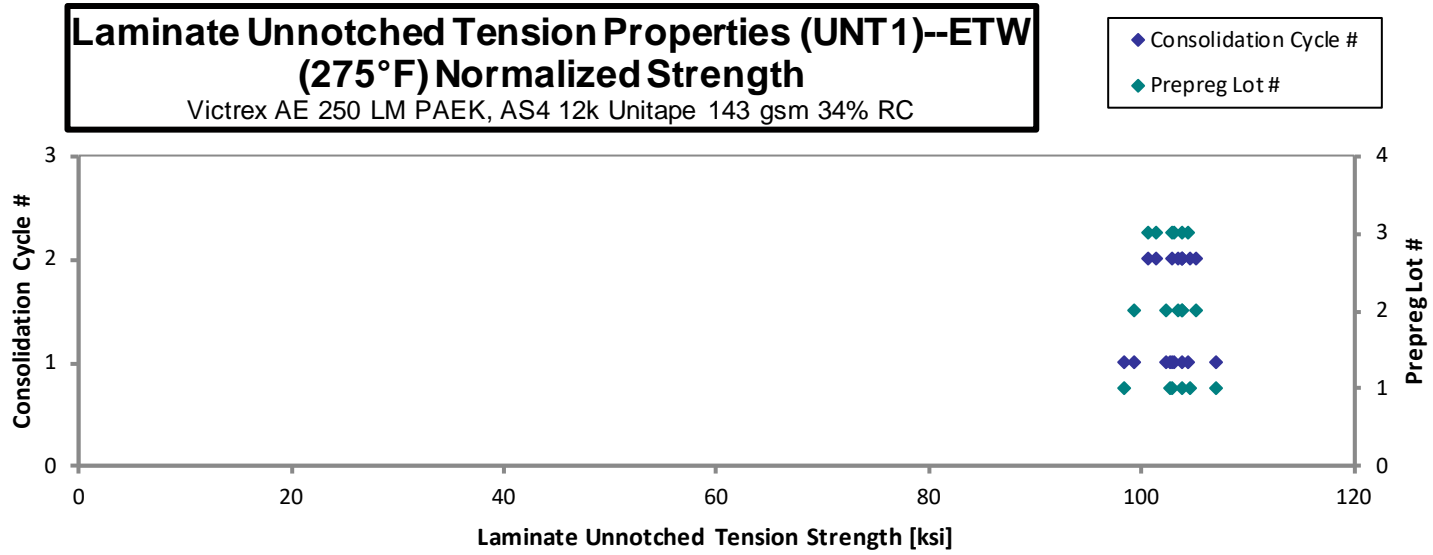
normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrax Batch #	Victrax Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNT1-A-C1-ETW-1	A	C1	1	1	103.0	6.137	0.0898	16	LWT, AWB
UNT1-A-C1-ETW-2	A	C1	1	1	99.58	6.045	0.0891	16	M(A,L)GB
UNT1-A-C1-ETW-3	A	C1	1	1	95.42	6.008	0.0891	16	LWT, M(A,L)WB
UNT1-A-C2-ETW-1	A	C2	1	2	103.7	6.424	0.0865	16	M(A,L)GM
UNT1-A-C2-ETW-2	A	C2	1	2	104.5	6.397	0.0865	16	M(A,L)GT, LWB
UNT1-A-C2-ETW-3	A	C2	1	2	102.9	6.301	0.0864	16	M(A,L)GT
UNT1-B-C1-ETW-1	B	C1	2	1	105.3	6.577	0.0852	16	LWT, M(A,L)WB
UNT1-B-C1-ETW-2	B	C1	2	1	104.1	6.622	0.0849	16	M(A,L)GM
UNT1-B-C1-ETW-3	B	C1	2	1	101.4	6.676	0.0847	16	M(A,L)GB
UNT1-B-C2-ETW-1	B	C2	2	2	105.9	6.811	0.0848	16	M(A,L)GM
UNT1-B-C2-ETW-2	B	C2	2	2	105.4	6.787	0.0848	16	M(A,L)GM
UNT1-B-C2-ETW-3	B	C2	2	2	107.2	6.799	0.0848	16	M(A,L)GT
UNT1-C-C1-ETW-1	C	C1	3	1	104.9	6.512	0.0859	16	LWT, AWB
UNT1-C-C1-ETW-2	C	C1	3	1	103.8	6.664	0.0858	16	M(A,L)GM
UNT1-C-C1-ETW-3	C	C1	3	1	103.2	6.555	0.0862	16	M(A,L)GM
UNT1-C-C2-ETW-1	C	C2	3	2	104.7	6.712	0.0857	16	M(A,L)GB
UNT1-C-C2-ETW-2	C	C2	3	2	102.4	6.495	0.0856	16	AGM
UNT1-C-C2-ETW-3	C	C2	3	2	100.8	6.550	0.0862	16	M(A,L)GT

Avg. t _{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0056	107.1	6.380
0.0056	102.7	6.236
0.0056	98.44	6.198
0.0054	103.8	6.431
0.0054	104.6	6.405
0.0054	102.9	6.297
0.0053	103.8	6.482
0.0053	102.3	6.504
0.0053	99.39	6.541
0.0053	103.9	6.682
0.0053	103.5	6.663
0.0053	105.2	6.674
0.0054	104.4	6.477
0.0054	103.1	6.619
0.0054	102.9	6.536
0.0054	103.9	6.657
0.0054	101.5	6.435
0.0054	100.5	6.535

Average 103.2 6.504
Standard Dev. 2.702 0.2468
Coeff. of Var. [%] 2.617 3.794
Min. 95.42 6.008
Max. 107.2 6.811
Number of Spec. 18 18

Average_{norm} 0.0054 103.0 6.486
Standard Dev._{norm} 2.055 0.1466
Coeff. of Var. [%]_{norm} 1.995 2.260
Min. 0.0053 98.44 6.198
Max. 0.0056 107.1 6.682
Number of Spec. 18 18 18



4.11 “10/80/10” Unnotched Tension 2 Properties (UNT2)

Laminate Unnotched Tension Properties (UNT2)--CTA (-65°F)
Strength & Modulus
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

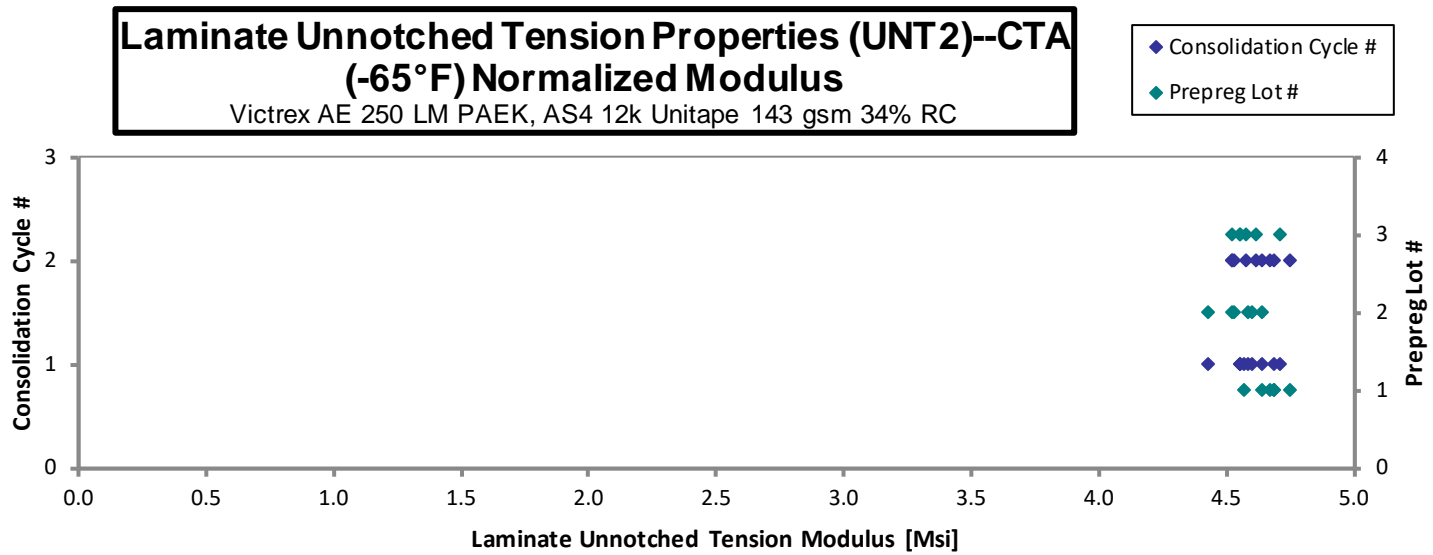
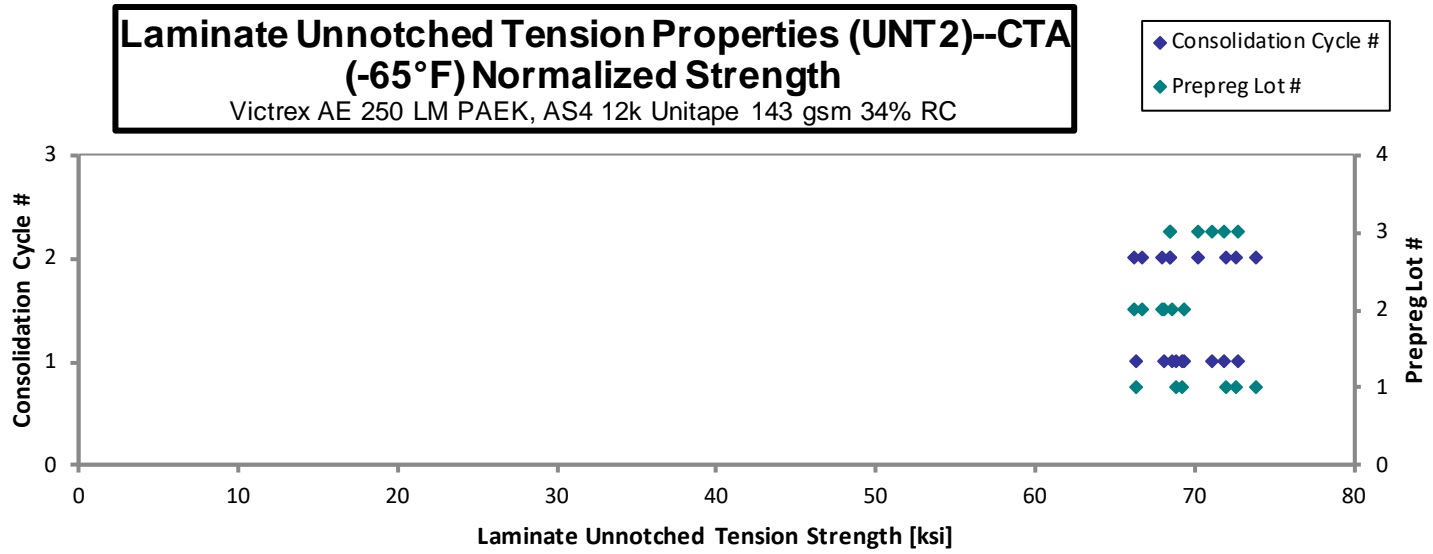
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksj]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNT2-A-C1-CTA-1	A	C1	1	1	68.77	4.637	0.1081	20	AGB
UNT2-A-C1-CTA-2	A	C1	1	1	66.33	4.686	0.1080	20	AWT
UNT2-A-C1-CTA-3	A	C1	1	1	69.87	4.608	0.1071	20	AGB
UNT2-A-C2-CTA-1	A	C2	1	2	72.82	4.800	0.1068	20	AGB
UNT2-A-C2-CTA-2	A	C2	1	2	75.09	4.761	0.1063	20	AWB
UNT2-A-C2-CTA-3	A	C2	1	2	74.16	4.768	0.1058	20	AWB
UNT2-B-C1-CTA-1	B	C1	2	1	69.90	4.706	0.1052	20	AWB
UNT2-B-C1-CTA-2	B	C1	2	1	70.82	4.697	0.1059	20	AGM
UNT2-B-C1-CTA-3	B	C1	2	1	70.38	4.543	0.1053	20	AGB
UNT2-B-C2-CTA-1	B	C2	2	2	69.65	4.753	0.1054	20	AWT
UNT2-B-C2-CTA-2	B	C2	2	2	68.37	4.670	0.1046	20	AGT
UNT2-B-C2-CTA-3	B	C2	2	2	68.60	4.658	0.1050	20	AGM
UNT2-C-C1-CTA-1	C	C1	3	1	72.69	4.710	0.1081	20	AGT
UNT2-C-C1-CTA-2	C	C1	3	1	71.65	4.546	0.1082	20	AGM
UNT2-C-C1-CTA-3	C	C1	3	1	71.35	4.570	0.1076	20	AWT
UNT2-C-C2-CTA-1	C	C2	3	2	69.41	4.676	0.1066	20	AGM
UNT2-C-C2-CTA-2	C	C2	3	2	71.43	4.654	0.1063	20	AWT
UNT2-C-C2-CTA-3	C	C2	3	2	68.96	4.553	0.1073	20	AWT

Avg. t_{ply} [in]	Strength _{norm} [ksj]	Modulus _{norm} [Msi]
0.0054	68.86	4.642
0.0054	66.34	4.687
0.0054	69.28	4.569
0.0053	72.02	4.747
0.0053	73.91	4.686
0.0053	72.65	4.671
0.0053	68.09	4.584
0.0053	69.41	4.603
0.0053	68.63	4.431
0.0053	67.94	4.636
0.0052	66.24	4.525
0.0052	66.66	4.526
0.0054	72.73	4.713
0.0054	71.79	4.555
0.0054	71.09	4.553
0.0053	68.50	4.615
0.0053	70.28	4.579
0.0054	68.50	4.523

Average 70.57 4.666
 Standard Dev. 2.184 0.07885
 Coeff. of Var. [%] 3.095 1.690
 Min. 66.33 4.543
 Max. 75.09 4.800
 Number of Spec. 18 18

Average_{norm} 0.0053 69.61 4.602
 Standard Dev_{norm} 2.309 0.08017
 Coeff. of Var. [%]_{norm} 3.317 1.742
 Min. 0.0052 66.24 4.431
 Max. 0.0054 73.91 4.747
 Number of Spec. 18 18 18



Laminate Unnotched Tension Properties (UNT2)--RTA (70°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
 t_{ply} [in]
 0.0054

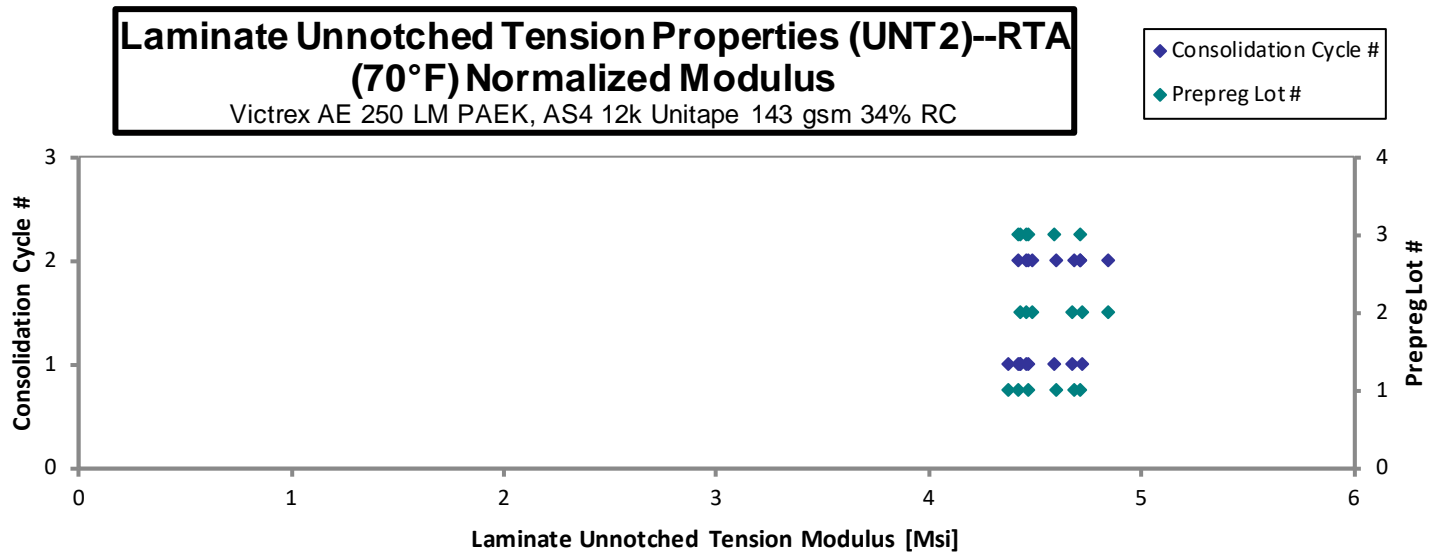
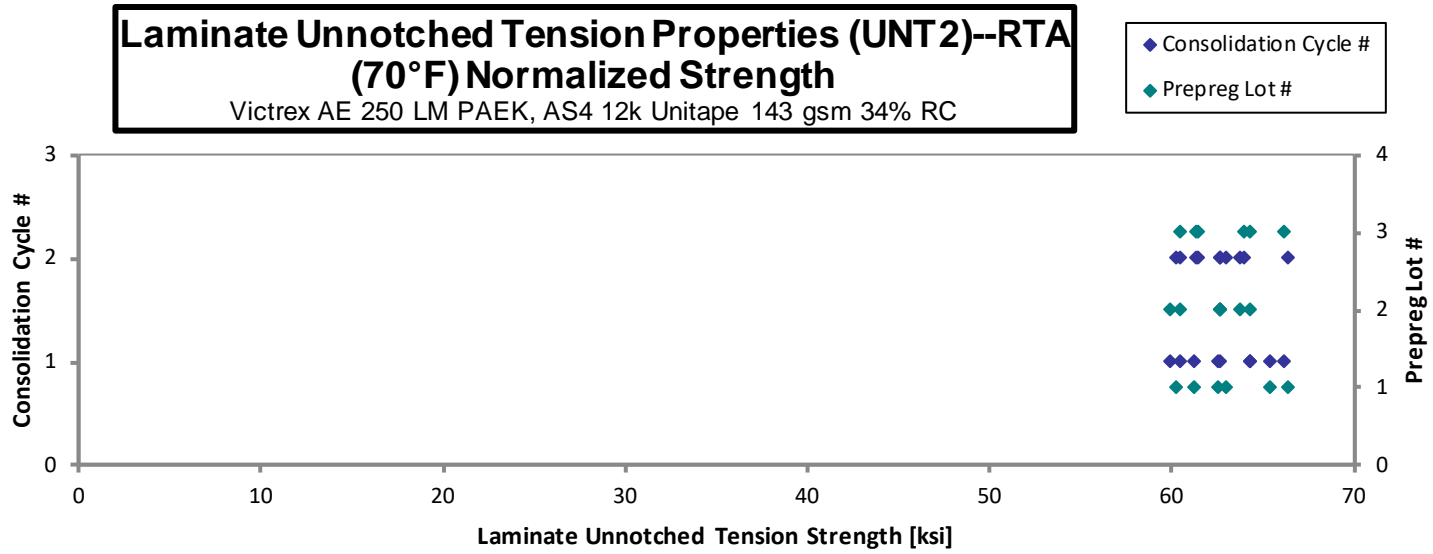
Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNT2-A-C1-RTA-1	A	C1	1	1	60.96	4.402	0.1085	20	AGM
UNT2-A-C1-RTA-2	A	C1	1	1	62.55	4.374	0.1079	20	AWT
UNT2-A-C1-RTA-3	A	C1	1	1	64.87	4.438	0.1088	20	AWB
UNT2-A-C2-RTA-1	A	C2	1	2	63.51	4.633	0.1072	20	AGM
UNT2-A-C2-RTA-2	A	C2	1	2	67.27	4.741	0.1066	20	AGM
UNT2-A-C2-RTA-3	A	C2	1	2	60.92	4.774	0.1067	20	AGB
UNT2-B-C1-RTA-1	B	C1	2	1	60.59	4.722	0.1069	20	AWB
UNT2-B-C1-RTA-2	B	C1	2	1	64.90	4.770	0.1069	20	AGM
UNT2-B-C1-RTA-3	B	C1	2	1	63.66	4.505	0.1062	20	AGB
UNT2-B-C2-RTA-1	B	C2	2	2	61.24	4.517	0.1067	20	AGM
UNT2-B-C2-RTA-2	B	C2	2	2	63.70	4.919	0.1063	20	AWT
UNT2-B-C2-RTA-3*	B	C2	2	2	63.65		0.1063	20	AWT
UNT2-B-C2-RTA-4	B	C2	2	2	65.02	4.574	0.1059	20	AWT
UNT2-C-C1-RTA-1	C	C1	3	1	65.90	4.570	0.1084	20	AGT
UNT2-C-C1-RTA-2	C	C1	3	1	60.07	4.429	0.1087	20	AGB
UNT2-C-C1-RTA-3	C	C1	3	1	64.09	4.416	0.1084	20	AWB
UNT2-C-C2-RTA-1	C	C2	3	2	64.90	4.488	0.1065	20	AWB
UNT2-C-C2-RTA-2	C	C2	3	2	61.91	4.512	0.1069	20	AGB
UNT2-C-C2-RTA-3	C	C2	3	2	62.18	4.775	0.1066	20	AWT

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0054	61.23	4.422
0.0054	62.50	4.371
0.0054	65.36	4.472
0.0054	63.03	4.599
0.0053	66.41	4.680
0.0053	60.19	4.716
0.0053	59.96	4.673
0.0053	64.25	4.722
0.0053	62.60	4.430
0.0053	60.50	4.462
0.0053	62.70	4.842
0.0053	62.65	
0.0053	63.73	4.483
0.0054	66.12	4.586
0.0054	60.44	4.457
0.0054	64.33	4.432
0.0053	64.00	4.426
0.0053	61.28	4.466
0.0053	61.39	4.714

* modulus not reported because of anomalous strain data

Average 63.26 4.587
Standard Dev. 1.985 0.1611
Coeff. of Var. [%] 3.138 3.513
Min. 60.07 4.374
Max. 67.27 4.919
Number of Spec. 19 18

Average_{norm} 0.0054 62.77 4.553
Standard Dev._{norm} 1.972 0.1397
Coeff. of Var. [%]_{norm} 3.141 3.068
Min. 0.0053 59.96 4.371
Max. 0.0054 66.41 4.842
Number of Spec. 19 19 18



Laminate Unnotched Tension Properties (UNT2)--ETW (275°F)
Strength & Modulus
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

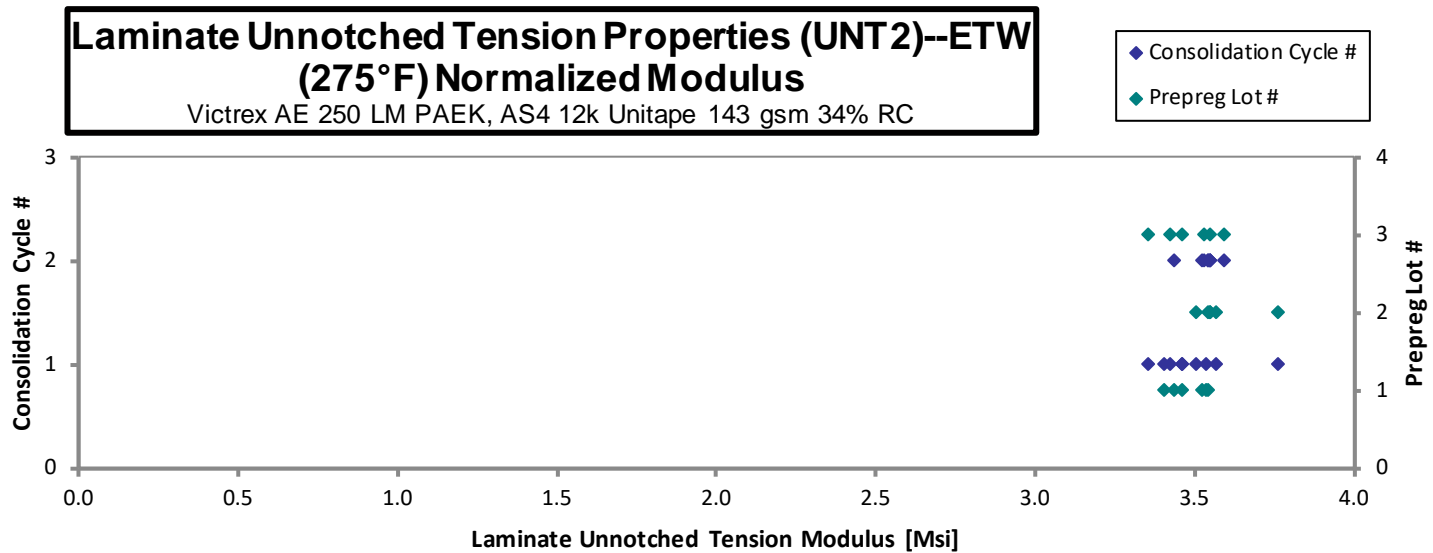
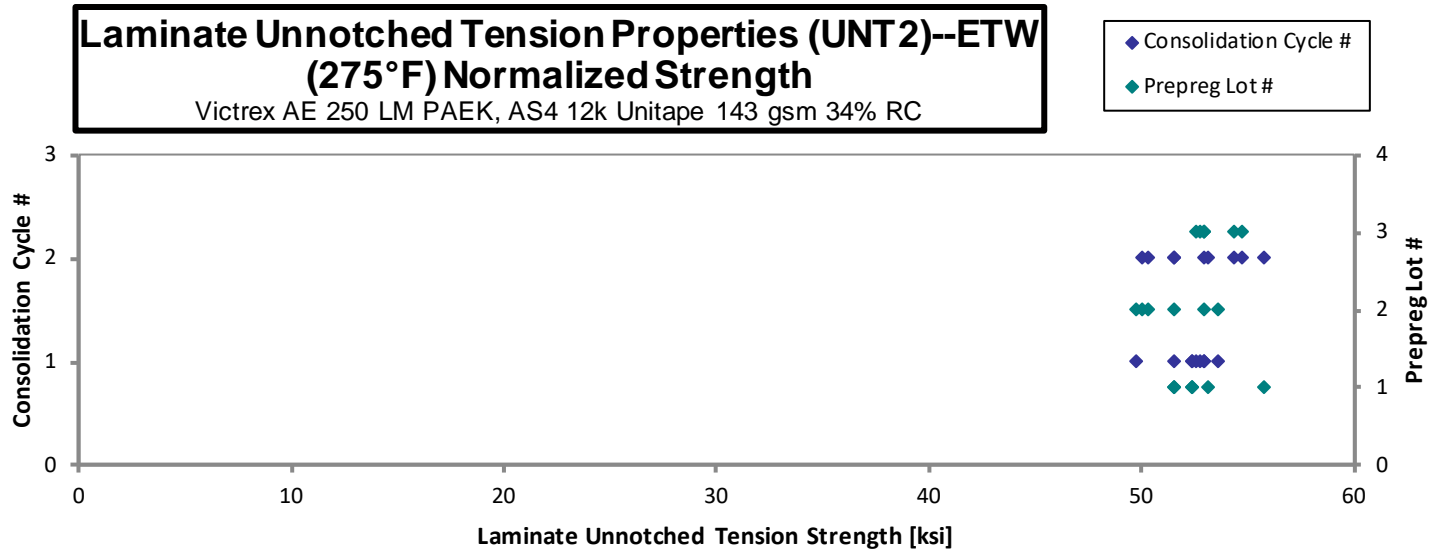
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNT2-A-C1-ETW-1	A	C1	1	1	51.83	3.423	0.1074	20	AGM
UNT2-A-C1-ETW-2	A	C1	1	1	52.47	3.464	0.1079	20	AGM
UNT2-A-C1-ETW-3	A	C1	1	1	52.45	3.537	0.1079	20	AGT
UNT2-A-C2-ETW-1	A	C2	1	2	56.77	3.586	0.1062	20	AGT
UNT2-A-C2-ETW-2	A	C2	1	2	54.30	3.615	0.1058	20	AWB
UNT2-A-C2-ETW-3	A	C2	1	2	52.87	3.522	0.1053	20	AGM
UNT2-B-C1-ETW-1	B	C1	2	1	54.44	3.824	0.1063	20	AWB
UNT2-B-C1-ETW-2	B	C1	2	1	53.79	3.624	0.1064	20	AGM
UNT2-B-C1-ETW-3	B	C1	2	1	50.76	3.578	0.1059	20	AGM
UNT2-B-C2-ETW-1	B	C2	2	2	51.28	3.614	0.1060	20	AGT
UNT2-B-C2-ETW-2	B	C2	2	2	52.47	3.615	0.1061	20	AWB
UNT2-B-C2-ETW-3	B	C2	2	2	51.21	3.627	0.1056	20	AGT
UNT2-C-C1-ETW-1	C	C1	3	1	53.23	3.445	0.1074	20	AGM
UNT2-C-C1-ETW-2	C	C1	3	1	53.06	3.482	0.1074	20	AGM
UNT2-C-C1-ETW-3	C	C1	3	1	52.65	3.359	0.1079	20	AGM
UNT2-C-C2-ETW-1	C	C2	3	2	53.79	3.604	0.1063	20	AGM
UNT2-C-C2-ETW-2	C	C2	3	2	55.56	3.583	0.1063	20	AGM
UNT2-C-C2-ETW-3	C	C2	3	2	55.38	3.655	0.1061	20	AGM

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0054	51.55	3.405
0.0054	52.43	3.461
0.0054	52.39	3.533
0.0053	55.80	3.524
0.0053	53.17	3.539
0.0053	51.57	3.435
0.0053	53.58	3.763
0.0053	52.97	3.569
0.0053	49.75	3.506
0.0053	50.31	3.545
0.0053	51.52	3.550
0.0053	50.07	3.546
0.0054	52.91	3.425
0.0054	52.76	3.462
0.0054	52.58	3.355
0.0053	52.94	3.547
0.0053	54.70	3.528
0.0053	54.40	3.590

Average 53.24 3.564
 Standard Dev. 1.609 0.1055
 Coeff. of Var. [%] 3.022 2.959
 Min. 50.76 3.359
 Max. 56.77 3.824
 Number of Spec. 18 18

Average_{norm} 0.0053 52.52 3.516
 Standard Dev._{norm} 1.584 0.08872
 Coeff. of Var. [%]_{norm} 3.015 2.523
 Min. 0.0053 49.75 3.355
 Max. 0.0054 55.80 3.763
 Number of Spec. 18 18 18



4.12 “40/20/40” Unnotched Tension 3 Properties (UNT3)

Laminate Unnotched Tension Properties (UNT3)--CTA (-65°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

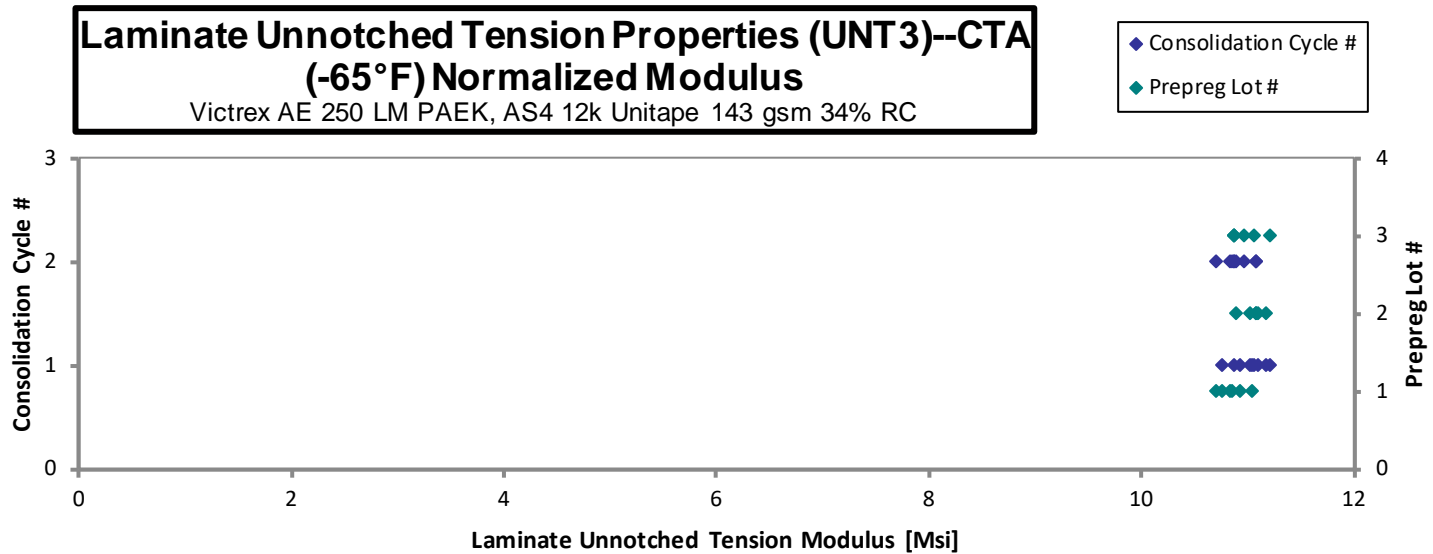
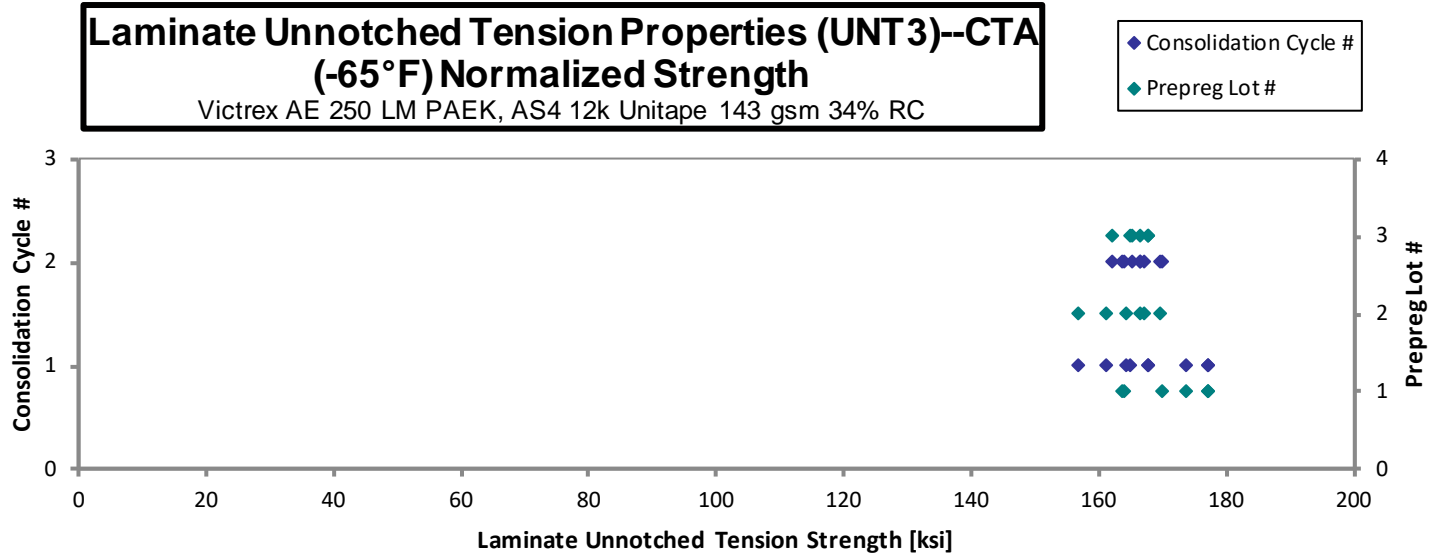
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNT3-A-C1-CTA-1	A	C1	1	1	177.9	11.31	0.1055	20	M(A,D)GT
UNT3-A-C1-CTA-2	A	C1	1	1	180.7	11.15	0.1058	20	M(A,L)WB
UNT3-A-C1-CTA-3	A	C1	1	1	180.7	10.99	0.1058	20	AWB
UNT3-A-C2-CTA-1	A	C2	1	2	165.9	10.99	0.1066	20	LWT, AWB
UNT3-A-C2-CTA-2	A	C2	1	2	172.8	11.02	0.1062	20	DGM, LWT
UNT3-A-C2-CTA-3	A	C2	1	2	167.0	10.91	0.1060	20	M(A,L)WB
UNT3-B-C1-CTA-1	B	C1	2	1	160.1	11.41	0.1058	20	DGM, LWB, M(A,L)AT
UNT3-B-C1-CTA-2	B	C1	2	1	163.6	11.19	0.1063	20	DGB, M(A,L)AB
UNT3-B-C1-CTA-3	B	C1	2	1	169.3	11.44	0.1048	20	AWB, AAB
UNT3-B-C2-CTA-1	B	C2	2	2	167.7	11.16	0.1072	20	LWT
UNT3-B-C2-CTA-2	B	C2	2	2	168.5	10.98	0.1071	20	DGT, AWT
UNT3-B-C2-CTA-3	B	C2	2	2	171.2	11.20	0.1069	20	DGB, AWB
UNT3-C-C1-CTA-1	C	C1	3	1	171.5	11.46	0.1057	20	DGB, M(A,L)AB
UNT3-C-C1-CTA-2	C	C1	3	1	171.9	11.15	0.1054	20	DGT, AWT
UNT3-C-C1-CTA-3	C	C1	3	1	168.9	11.33	0.1055	20	LWT
UNT3-C-C2-CTA-1	C	C2	3	2	169.5	11.39	0.1032	20	LWT
UNT3-C-C2-CTA-2	C	C2	3	2	171.9	11.31	0.1038	20	LWT, M(A,L)AB
UNT3-C-C2-CTA-3	C	C2	3	2	173.4	11.41	0.1038	20	M(A,L)AB

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0053	173.7	11.04
0.0053	177.1	10.92
0.0053	177.0	10.76
0.0053	163.7	10.85
0.0053	169.9	10.84
0.0053	163.9	10.71
0.0053	156.9	11.18
0.0053	161.0	11.02
0.0052	164.3	11.10
0.0054	166.5	11.07
0.0054	167.1	10.88
0.0053	169.5	11.08
0.0053	167.8	11.21
0.0053	167.7	10.88
0.0053	164.9	11.07
0.0052	162.0	10.88
0.0052	165.2	10.87
0.0052	166.6	10.97

Average 170.7 11.21
 Standard Dev. 5.353 0.1790
 Coeff. of Var. [%] 3.136 1.597
 Min. 160.1 10.91
 Max. 180.7 11.46
 Number of Spec. 18 18

Average_{norm} 0.0053 166.9 10.96
 Standard Dev_{norm} 5.204 0.1404
 Coeff. of Var. [%]_{norm} 3.117 1.280
 Min. 0.0052 156.9 10.71
 Max. 0.0054 177.1 11.21
 Number of Spec. 18 18 18



Laminate Unnotched Tension Properties (UNT3)--RTA (70°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

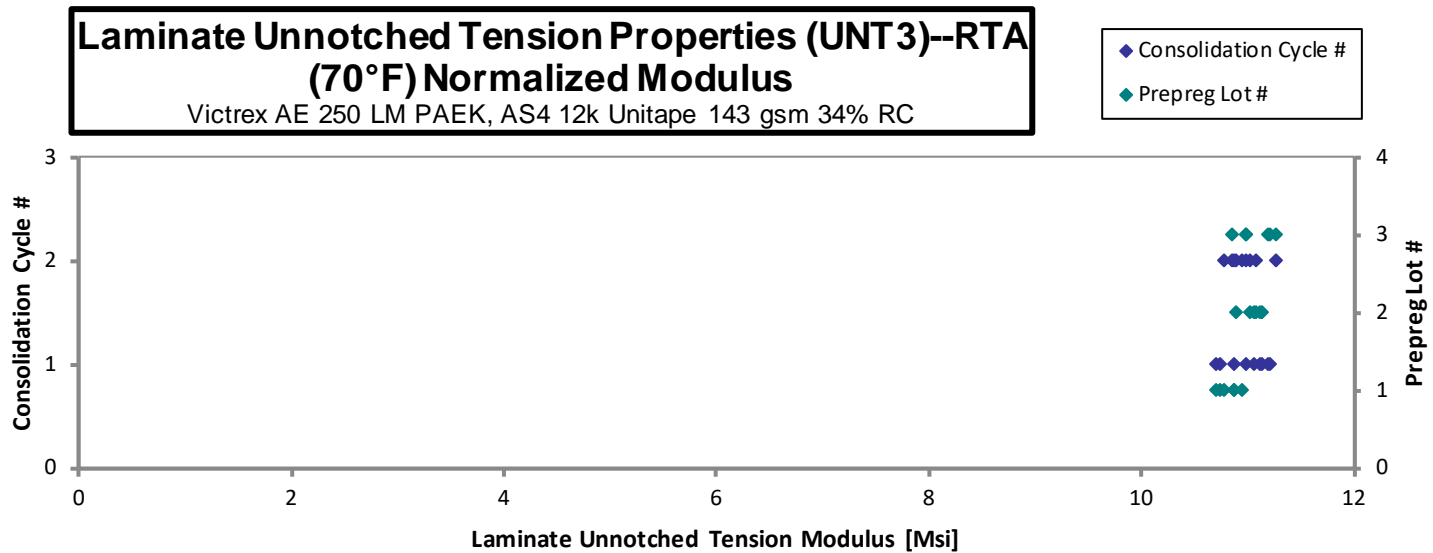
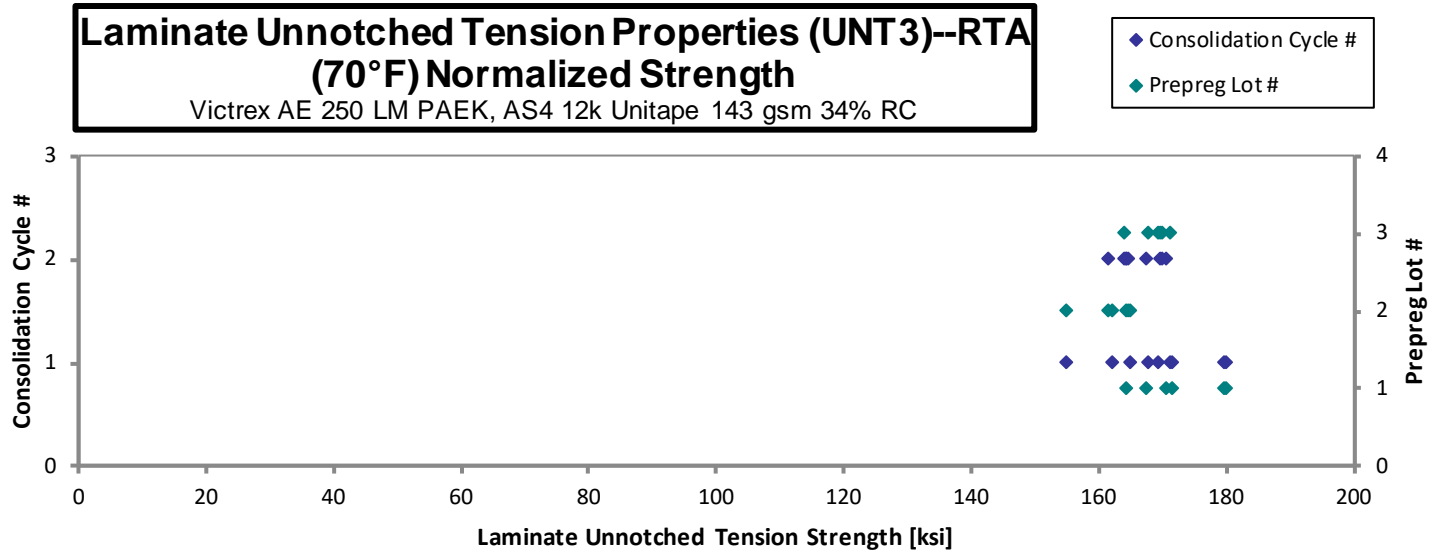
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNT3-A-C1-RTA-1	A	C1	1	1	181.4	10.96	0.1071	20	LAB, M(A,L)AT
UNT3-A-C1-RTA-2	A	C1	1	1	173.6	10.87	0.1067	20	DGM, LGB, AWB
UNT3-A-C1-RTA-3	A	C1	1	1	181.1	10.80	0.1071	20	M(A,L)AB
UNT3-A-C2-RTA-1	A	C2	1	2	170.8	11.09	0.1059	20	DGT, LWB
UNT3-A-C2-RTA-2	A	C2	1	2	171.7	11.04	0.1072	20	DGB, M(A,L)AB
UNT3-A-C2-RTA-3	A	C2	1	2	166.6	10.93	0.1066	20	DGM, LWT, M(A,L)WB
UNT3-B-C1-RTA-1	B	C1	2	1	167.2	11.26	0.1065	20	DGM, M(A,L)WB
UNT3-B-C1-RTA-2	B	C1	2	1	157.9	11.27	0.1060	20	M(A,D,L)GM
UNT3-B-C1-RTA-3	B	C1	2	1	165.8	11.38	0.1056	20	DGB, LWT
UNT3-B-C2-RTA-1	B	C2	2	2	164.0	11.04	0.1084	20	DGT, AWB
UNT3-B-C2-RTA-2	B	C2	2	2	160.6	10.96	0.1086	20	DGM, M(A,L)WT, M(A,L)WB
UNT3-B-C2-RTA-3	B	C2	2	2	164.3	10.88	0.1081	20	DGM, M(A,L)WB
UNT3-C-C1-RTA-1	C	C1	3	1	171.4	11.34	0.1068	20	DGB, M(A,L)AB
UNT3-C-C1-RTA-2	C	C1	3	1	170.5	11.16	0.1063	20	DGM, M(A,L)WT, LWB
UNT3-C-C1-RTA-3	C	C1	3	1	174.3	11.39	0.1060	20	DGM, LWT, LAB
UNT3-C-C2-RTA-1	C	C2	3	2	175.7	11.65	0.1044	20	DGM, LWB
UNT3-C-C2-RTA-2	C	C2	3	2	176.4	11.40	0.1041	20	DGT, LWB
UNT3-C-C2-RTA-3	C	C2	3	2	170.1	11.25	0.1041	20	DGM, LWT, AWB

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0054	180.0	10.87
0.0053	171.5	10.74
0.0054	179.5	10.71
0.0053	167.4	10.87
0.0054	170.4	10.95
0.0053	164.4	10.79
0.0053	165.0	11.11
0.0053	155.0	11.07
0.0053	162.2	11.13
0.0054	164.6	11.08
0.0054	161.5	11.03
0.0054	164.4	10.88
0.0053	169.4	11.21
0.0053	167.8	10.98
0.0053	171.1	11.18
0.0052	169.7	11.26
0.0052	170.0	10.99
0.0052	164.0	10.85

Average 170.2 11.15
 Standard Dev. 6.438 0.2345
 Coeff. of Var. [%] 3.783 2.103
 Min. 157.9 10.80
 Max. 181.4 11.65
 Number of Spec. 18 18

Average_{norm} 0.0053 167.7 10.98
 Standard Dev._{norm} 6.033 0.1635
 Coeff. of Var. [%]_{norm} 3.599 1.489
 Min. 0.0052 155.0 10.71
 Max. 0.0054 180.0 11.26
 Number of Spec. 18 18 18



Laminate Unnotched Tension Properties (UNT3)--ETW (275°F)
Strength & Modulus

Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

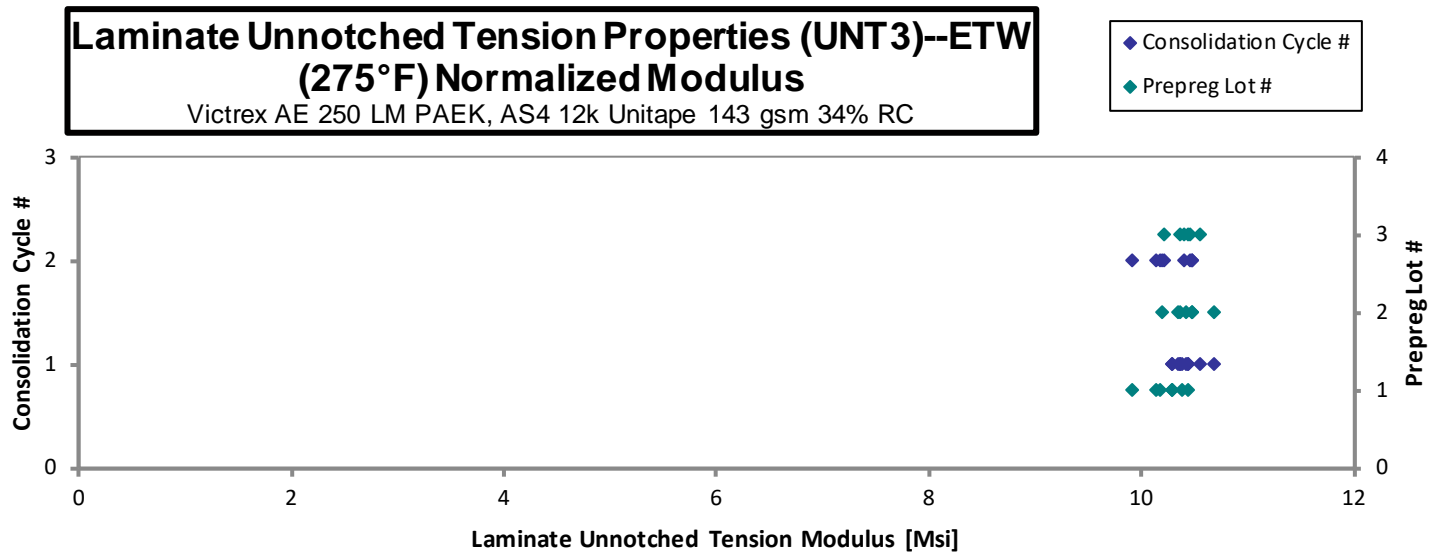
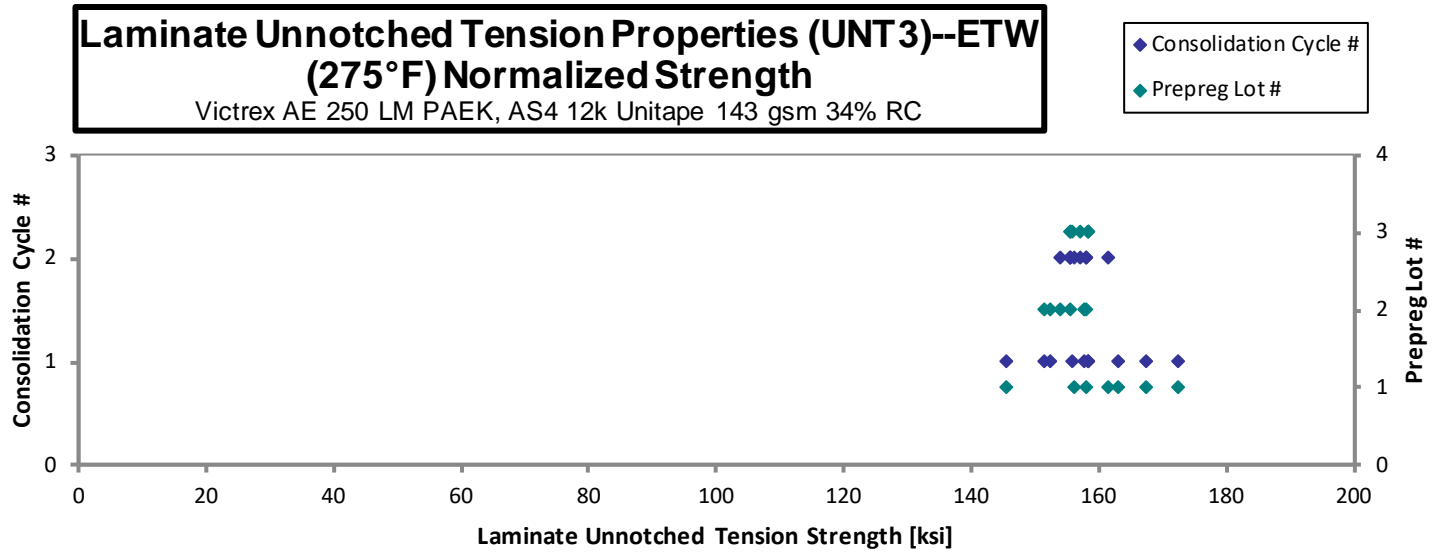
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrix Batch #	Victrix Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNT3-A-C1-ETW-1	A	C1	1	1	146.2	10.49	0.1075	20	M(A,D,L)GM
UNT3-A-C1-ETW-2	A	C1	1	1	169.2	10.38	0.1070	20	DGM, AGT, LWB
UNT3-A-C1-ETW-3	A	C1	1	1	174.4	10.50	0.1068	20	M(A,D,L)GM, LWB
UNT3-A-C1-ETW-4	A	C1	1	1	165.3	10.43	0.1065	20	M(A,D,L)GM, LAB
UNT3-A-C2-ETW-1	A	C2	1	2	158.6	10.06	0.1064	20	DGM, AWT
UNT3-A-C2-ETW-2	A	C2	1	2	161.8	10.41	0.1055	20	M(D,L)GM, LWT
UNT3-A-C2-ETW-3	A	C2	1	2	166.2	10.43	0.1050	20	DGM, AAT
UNT3-B-C1-ETW-1	B	C1	2	1		10.88	0.1061	20	M(A,L)IT
UNT3-B-C1-ETW-2	B	C1	2	1	153.7	10.58	0.1065	20	DGM, LWB, AWT
UNT3-B-C1-ETW-3	B	C1	2	1	155.0	10.55	0.1061	20	DGM, LWT, AWB
UNT3-B-C1-ETW-4	B	C1	2	1	162.0	10.62	0.1052	20	DGM, LWB, LAT
UNT3-B-C2-ETW-1	B	C2	2	2	158.4	10.50	0.1077	20	DGM, AWT
UNT3-B-C2-ETW-2	B	C2	2	2	156.3	10.23	0.1076	20	LWB, M(A,L)AT
UNT3-B-C2-ETW-3	B	C2	2	2	154.5	10.50	0.1077	20	DGM, AGT, LWB
UNT3-C-C1-ETW-1	C	C1	3	1	162.1	10.62	0.1055	20	DGM, M(A,L)WB
UNT3-C-C1-ETW-2	C	C1	3	1	159.4	10.68	0.1055	20	DGM, LWB
UNT3-C-C1-ETW-3	C	C1	3	1	162.1	10.80	0.1054	20	DGM, LGT, LWB
UNT3-C-C2-ETW-1	C	C2	3	2	163.8	10.92	0.1036	20	DGM, LWB, AWT
UNT3-C-C2-ETW-2	C	C2	3	2	162.8	10.69	0.1032	20	DGM, AGB, LAT
UNT3-C-C2-ETW-3	C	C2	3	2	162.4	10.86	0.1034	20	DGM, LWB, AWT

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0054	145.6	10.44
0.0053	167.5	10.28
0.0053	172.4	10.38
0.0053	163.0	10.28
0.0053	156.2	9.906
0.0053	158.1	10.17
0.0052	161.5	10.14
0.0053		10.68
0.0053	151.5	10.43
0.0053	152.3	10.37
0.0053	157.8	10.34
0.0054	158.0	10.48
0.0054	155.6	10.19
0.0054	154.0	10.47
0.0053	158.3	10.37
0.0053	155.7	10.43
0.0053	158.2	10.54
0.0052	157.0	10.47
0.0052	155.5	10.21
0.0052	155.5	10.40

Average 160.7 10.56
 Standard Dev. 6.214 0.2157
 Coeff. of Var. [%] 3.866 2.043
 Min. 146.2 10.06
 Max. 174.4 10.92
 Number of Spec. 19 20

Average_{norm} 0.0053 157.6 10.35
 Standard Dev._{norm} 5.798 0.1698
 Coeff. of Var. [%]_{norm} 3.680 1.641
 Min. 0.0052 145.6 9.906
 Max. 0.0054 172.4 10.68
 Number of Spec. 20 19 20



4.13 “25/50/25” Unnotched Compression 1 Properties (UNC1)

Laminate Unnotched Compression Properties (UNC1)--RTA (70°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

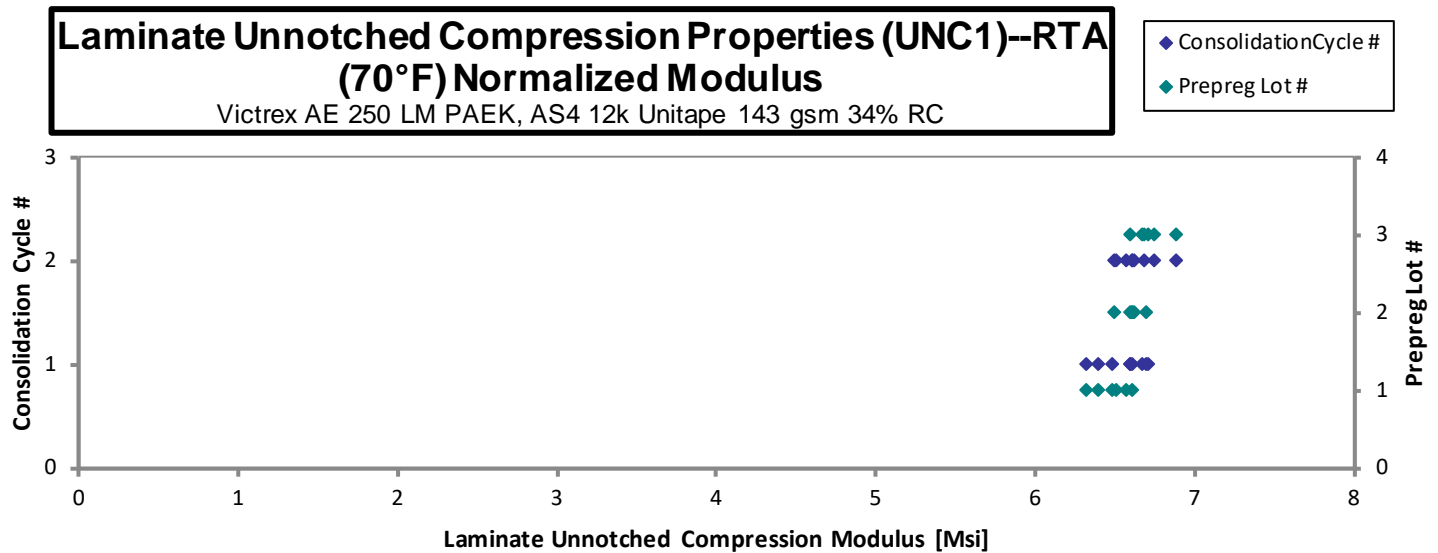
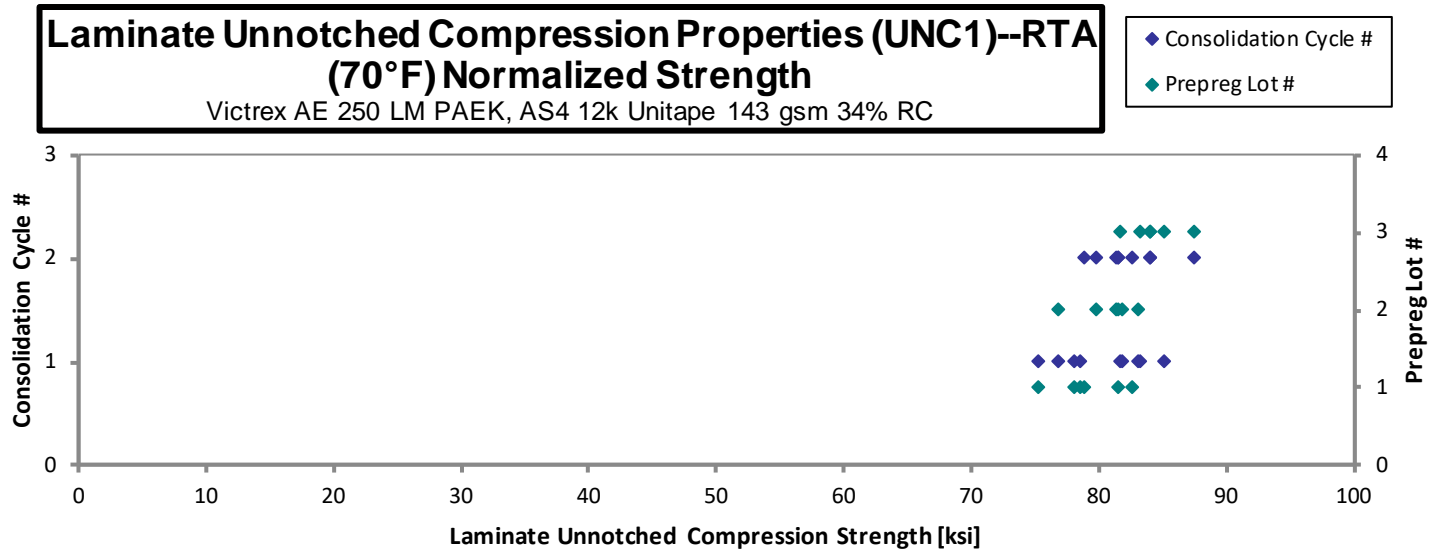
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNC1-A-C1-RTA-1	A	C1	1	1	81.49	6.558	0.1248	24	BGM
UNC1-A-C1-RTA-2	A	C1	1	1	78.42	6.658	0.1244	24	BGM
UNC1-A-C1-RTA-3	A	C1	1	1	80.68	6.705	0.1254	24	BAB
UNC1-A-C2-RTA-1	A	C2	1	2	82.12	6.660	0.1285	24	BAT
UNC1-A-C2-RTA-2	A	C2	1	2	83.74	6.597	0.1279	24	BAT
UNC1-A-C2-RTA-3	A	C2	1	2	80.17	6.684	0.1274	24	BAT
UNC1-B-C1-RTA-1	B	C1	2	1	82.32	6.644	0.1307	24	BGM
UNC1-B-C1-RTA-2	B	C1	2	1	75.82	6.514	0.1312	24	BAT
UNC1-B-C1-RTA-3	B	C1	2	1	81.34	6.559	0.1305	24	BAB
UNC1-B-C2-RTA-1	B	C2	2	2	79.56	6.461	0.1327	24	BGM
UNC1-B-C2-RTA-2	B	C2	2	2	78.63	6.504	0.1316	24	BAT
UNC1-B-C2-RTA-3	B	C2	2	2	79.84	6.380	0.1320	24	BAB
UNC1-C-C1-RTA-1	C	C1	3	1	82.48	6.773	0.1283	24	BAT
UNC1-C-C1-RTA-2	C	C1	3	1	85.86	6.729	0.1285	24	BAT
UNC1-C-C1-RTA-3	C	C1	3	1	83.77	6.648	0.1287	24	BAT
UNC1-C-C2-RTA-1	C	C2	3	2	84.89	6.956	0.1284	24	BAT
UNC1-C-C2-RTA-2	C	C2	3	2	88.70	6.775	0.1279	24	BAT
UNC1-C-C2-RTA-3	C	C2	3	2	84.20	6.759	0.1293	24	BAB

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0052	78.49	6.316
0.0052	75.26	6.390
0.0052	78.04	6.486
0.0054	81.44	6.604
0.0053	82.62	6.508
0.0053	78.79	6.568
0.0054	83.04	6.702
0.0055	76.77	6.596
0.0054	81.89	6.604
0.0055	81.49	6.617
0.0055	79.84	6.603
0.0055	81.32	6.499
0.0053	81.64	6.704
0.0054	85.15	6.673
0.0054	83.16	6.600
0.0053	84.08	6.890
0.0053	87.53	6.686
0.0054	83.98	6.741

Average 81.89 6.642
 Standard Dev. 3.048 0.1359
 Coeff. of Var. [%] 3.722 2.046
 Min. 75.82 6.380
 Max. 88.70 6.956
 Number of Spec. 18 18

Average_{norm} 0.0054 81.36 6.599
 Standard Dev._{norm} 3.078 0.1318
 Coeff. of Var. [%]_{norm} 3.784 1.997
 Min. 0.0052 75.26 6.316
 Max. 0.0055 87.53 6.890
 Number of Spec. 18 18 18



November 18, 2022

CAM-RP-2021-025 Rev N/C

**Laminate Unnotched Compression Properties (UNC1)--ETA (275°F) □
Strength & Modulus □**

Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

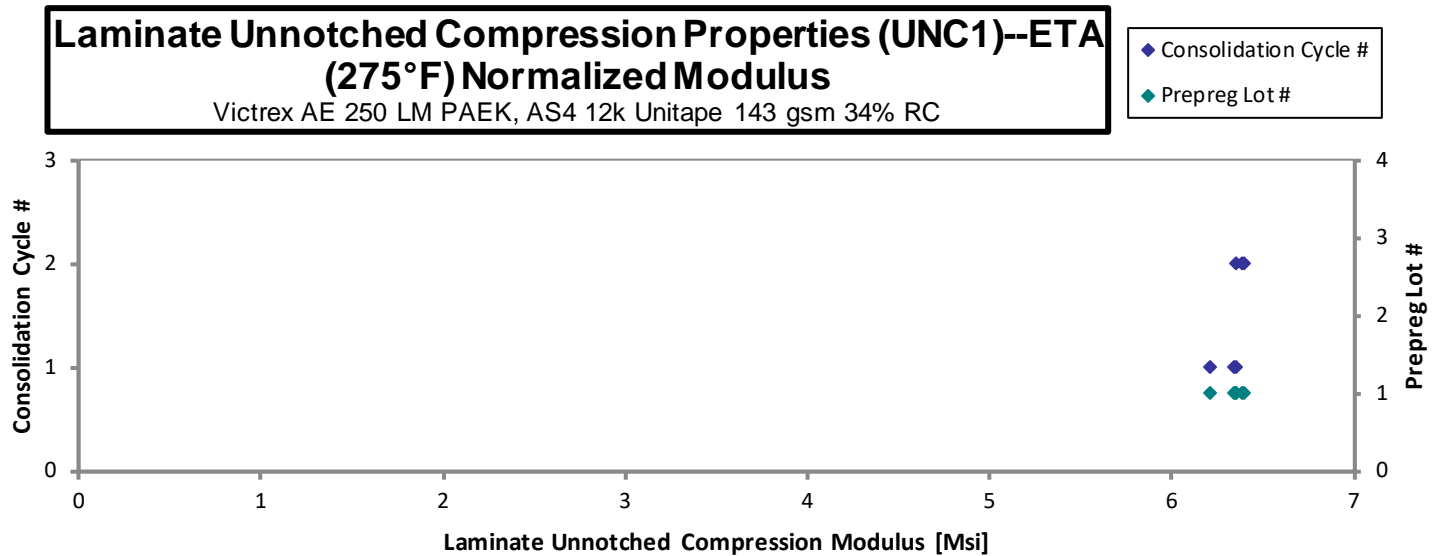
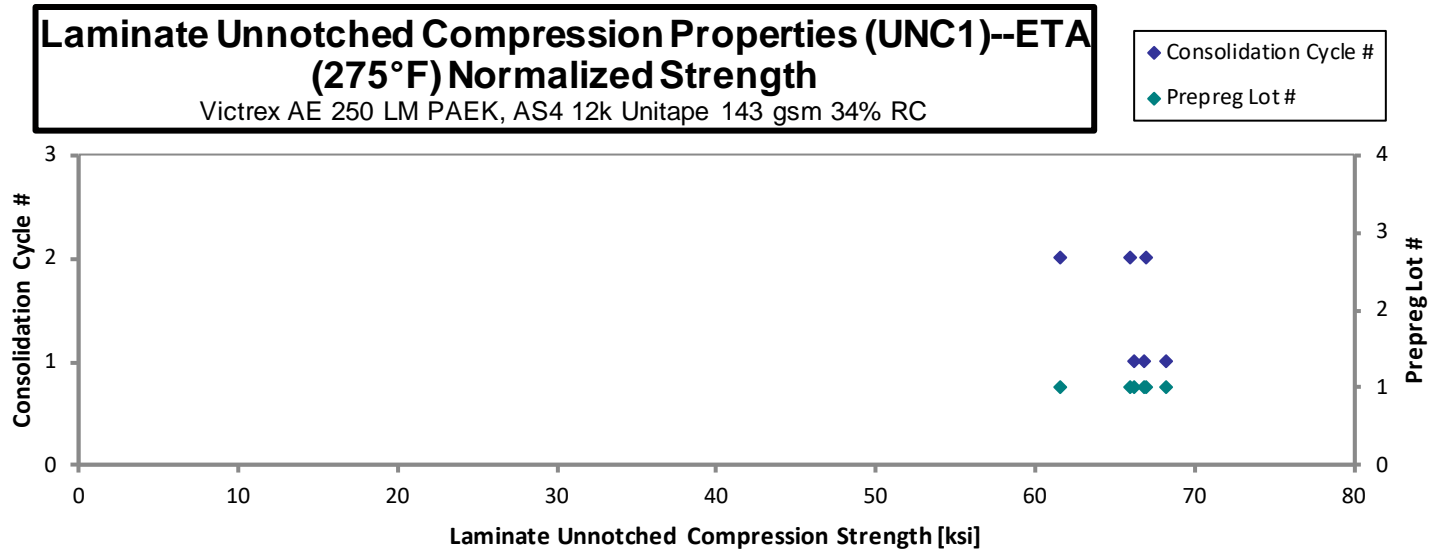
normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrix Batch #	Victrix Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNC1-A-C1-ETA-1	A	C1	1	1	70.88	6.449	0.1248	24	M(B,H)AT, HIT
UNC1-A-C1-ETA-2	A	C1	1	1	69.40	6.589	0.1248	24	HAT, HIT
UNC1-A-C1-ETA-3	A	C1	1	1	68.43	6.555	0.1255	24	BAB
UNC1-A-C2-ETA-1	A	C2	1	2	62.30	6.457	0.1282	24	M(B,H)AT, HIT
UNC1-A-C2-ETA-2	A	C2	1	2	67.26	6.472	0.1272	24	HAB, HIB
UNC1-A-C2-ETA-3	A	C2	1	2	67.74	6.468	0.1282	24	BAT

Avg. t _{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0052	68.28	6.212
0.0052	66.81	6.344
0.0052	66.27	6.348
0.0053	61.62	6.386
0.0053	66.02	6.352
0.0053	66.98	6.396

Average 67.67 6.499
Standard Dev. 2.930 0.05877
Coeff. of Var. [%] 4.329 0.9044
Min. 62.30 6.449
Max. 70.88 6.589
Number of Spec. 6 6

Average_{norm} 0.0053 65.99 6.340
Standard Dev._{norm} 2.284 0.06609
Coeff. of Var. [%]_{norm} 3.461 1.043
Min. 0.0052 61.62 6.212
Max. 0.0053 68.28 6.396
Number of Spec. 6 6 6



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

Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
t_{ply} [in]
0.0054

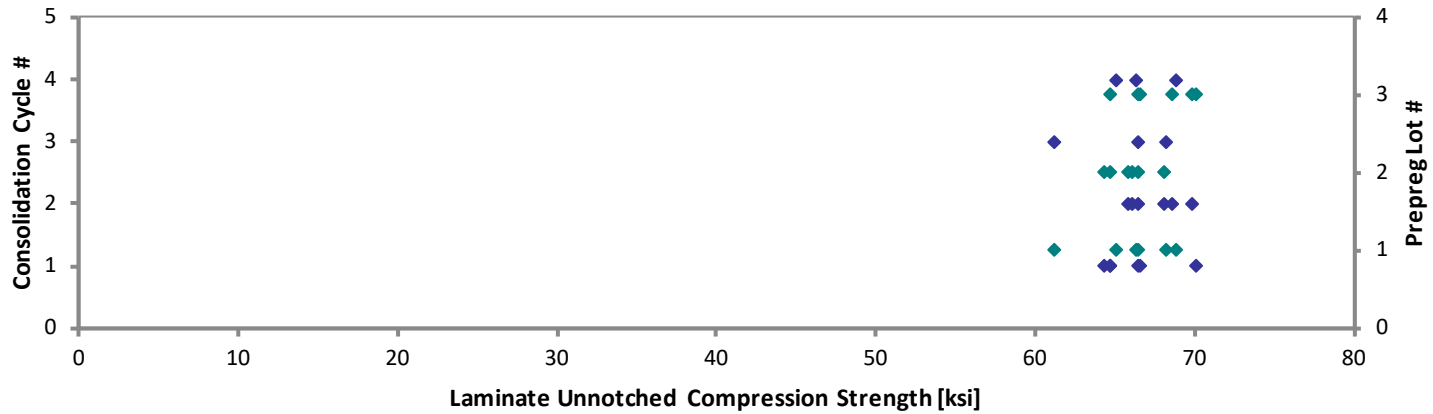
Specimen Number	Victrix Batch #	Victrix Consolidation Cycle	Prepreg Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNC1-A-C3-ETW2-1	A	C3	1	3	69.28	6.482	0.1277	24	BAT
UNC1-A-C3-ETW2-2	A	C3	1	3	61.77	6.488	0.1283	24	BAB
UNC1-A-C3-ETW2-3	A	C3	1	3	66.91	6.470	0.1287	24	BAT
UNC1-A-C4-ETW2-1	A	C4	1	4	70.71	6.572	0.1263	24	BAT
UNC1-A-C4-ETW2-2	A	C4	1	4	67.63	6.523	0.1272	24	BGM
UNC1-A-C4-ETW2-3	A	C4	1	4	66.27	6.460	0.1273	24	BAT
UNC1-B-C1-ETW2-1	B	C1	2	1	65.43	6.268	0.1273	24	BGM
UNC1-B-C1-ETW2-2	B	C1	2	1	67.48	6.333	0.1277	24	BGM
UNC1-B-C1-ETW2-3	B	C1	2	1	65.63	6.364	0.1277	24	BGM
UNC1-B-C2-ETW2-1	B	C2	2	2	66.18	6.297	0.1289	24	BAT
UNC1-B-C2-ETW2-2	B	C2	2	2	68.33	6.384	0.1292	24	BAT
UNC1-B-C2-ETW2-3	B	C2	2	2	66.24	6.506	0.1293	24	BGM, BAT
UNC1-C-C1-ETW2-1	C	C1	3	1	66.98	6.454	0.1251	24	BAT
UNC1-C-C1-ETW2-2	C	C1	3	1	72.72	6.549	0.1250	24	BAT
UNC1-C-C1-ETW2-3	C	C1	3	1	69.08	6.615	0.1250	24	BAT
UNC1-C-C2-ETW2-1	C	C2	3	2	70.02	6.488	0.1270	24	BAT
UNC1-C-C2-ETW2-2	C	C2	3	2	71.15	6.477	0.1273	24	BAT
UNC1-C-C2-ETW2-3	C	C2	3	2	67.79	6.469	0.1272	24	BAT

Avg. t _{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0053	68.26	6.386
0.0053	61.14	6.421
0.0054	66.44	6.425
0.0053	68.88	6.402
0.0053	66.38	6.402
0.0053	65.11	6.347
0.0053	64.28	6.158
0.0053	66.51	6.242
0.0053	64.66	6.270
0.0054	65.84	6.264
0.0054	68.12	6.365
0.0054	66.06	6.488
0.0052	64.67	6.231
0.0052	70.11	6.314
0.0052	66.64	6.381
0.0053	68.59	6.355
0.0053	69.88	6.361
0.0053	66.52	6.347

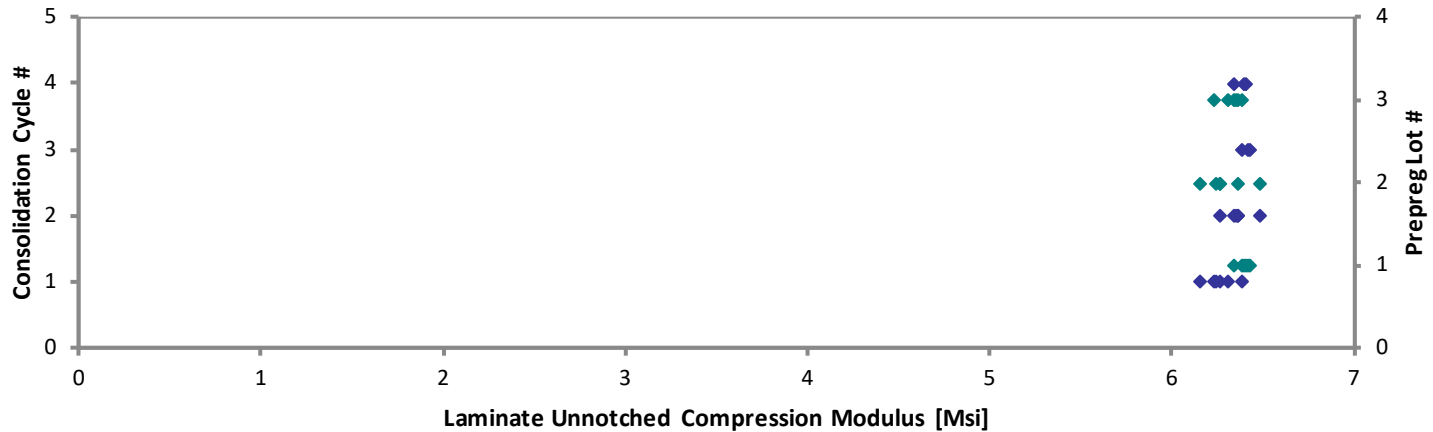
Average 67.76 6.455
Standard Dev. 2.527 0.093
Coeff. of Var. [%] 3.730 1.440
Min. 61.77 6.268
Max. 72.72 6.615
Number of Spec. 18 18

Average_{norm} 0.0053 66.56 6.342
Standard Dev_{norm} 2.212 0.082
Coeff. of Var. [%]_{norm} 3.323 1.293
Min. 0.0052 61.14 6.158
Max. 0.0054 70.11 6.488
Number of Spec. 18 18 18

**Laminate Unnotched Compression Properties (UNC1)--ETW2
(250°F) Normalized Strength**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC



**Laminate Unnotched Compression Properties (UNC1)--ETW2
(250°F) Normalized Modulus**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC



November 18, 2022

CAM-RP-2021-025 Rev N/C

**Laminate Unnotched Compression Properties (UNC1)--ETW (275°F) □
Strength & Modulus □**

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrax Batch #	Victrax Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNC1-A-C1-ETW-1	A	C1	1	1	59.52	6.249	0.1260	24	BGM
UNC1-A-C1-ETW-2	A	C1	1	1	59.20	6.114	0.1260	24	BGM, HIB
UNC1-A-C1-ETW-3	A	C1	1	1	60.78	6.185	0.1262	24	BAB
UNC1-A-C2-ETW-1	A	C2	1	2	64.71	6.136	0.1279	24	BAB
UNC1-A-C2-ETW-2	A	C2	1	2	63.56	6.135	0.1280	24	BAB
UNC1-A-C2-ETW-3	A	C2	1	2	63.53	6.100	0.1272	24	BAB
UNC1-B-C1-ETW-1	B	C1	2	1	55.31	5.906	0.1274	24	M(B,H)GM
UNC1-B-C1-ETW-2	B	C1	2	1	61.46	6.178	0.1265	24	BAB
UNC1-B-C1-ETW-3	B	C1	2	1	62.75	6.130	0.1264	24	BAB
UNC1-B-C2-ETW-1	B	C2	2	2	59.76	5.962	0.1299	24	BGM
UNC1-B-C2-ETW-2	B	C2	2	2	59.47	6.060	0.1291	24	BAB
UNC1-B-C2-ETW-3	B	C2	2	2	62.25	6.032	0.1303	24	BGM
UNC1-C-C1-ETW-1	C	C1	3	1	63.44	6.198	0.1248	24	BGM, HIB
UNC1-C-C1-ETW-2	C	C1	3	1	72.33	6.439	0.1245	24	BAB
UNC1-C-C1-ETW-3	C	C1	3	1	67.31	6.478	0.1233	24	BAB
UNC1-C-C2-ETW-1	C	C2	3	2	62.07	6.114	0.1244	24	BGM
UNC1-C-C2-ETW-2	C	C2	3	2	64.96	6.334	0.1245	24	BGM, HIB
UNC1-C-C2-ETW-3	C	C2	3	2	64.36	6.367	0.1248	24	BGM

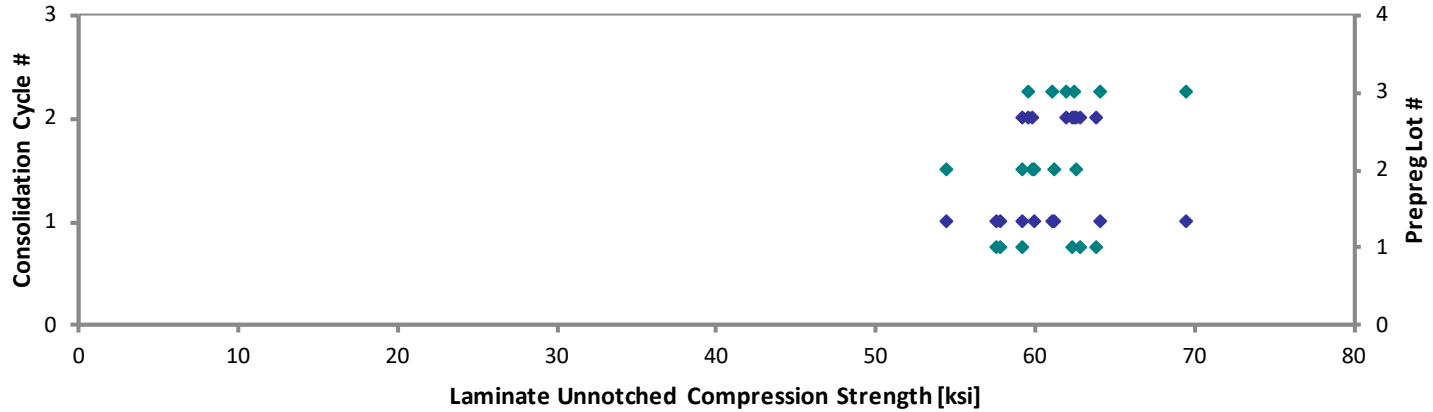
Avg. t _{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0053	57.86	6.076
0.0052	57.54	5.943
0.0053	59.19	6.024
0.0053	63.86	6.056
0.0053	62.77	6.059
0.0053	62.37	5.988
0.0053	54.38	5.806
0.0053	60.01	6.032
0.0053	61.18	5.976
0.0054	59.87	5.973
0.0054	59.26	6.039
0.0054	62.59	6.066
0.0052	61.07	5.967
0.0052	69.50	6.186
0.0051	64.06	6.165
0.0052	59.57	5.868
0.0052	62.42	6.085
0.0052	61.97	6.131

Average 62.60 6.173
Standard Dev. 3.676 0.1532
Coeff. of Var. [%] 5.872 2.482
Min. 55.31 5.906
Max. 72.33 6.478
Number of Spec. 18 18

Average_{norm} 0.0053 61.08 6.024
Standard Dev._{norm} 3.221 0.09583
Coeff. of Var. [%]_{norm} 5.273 1.591
Min. 0.0051 54.38 5.806
Max. 0.0054 69.50 6.186
Number of Spec. 18 18 18

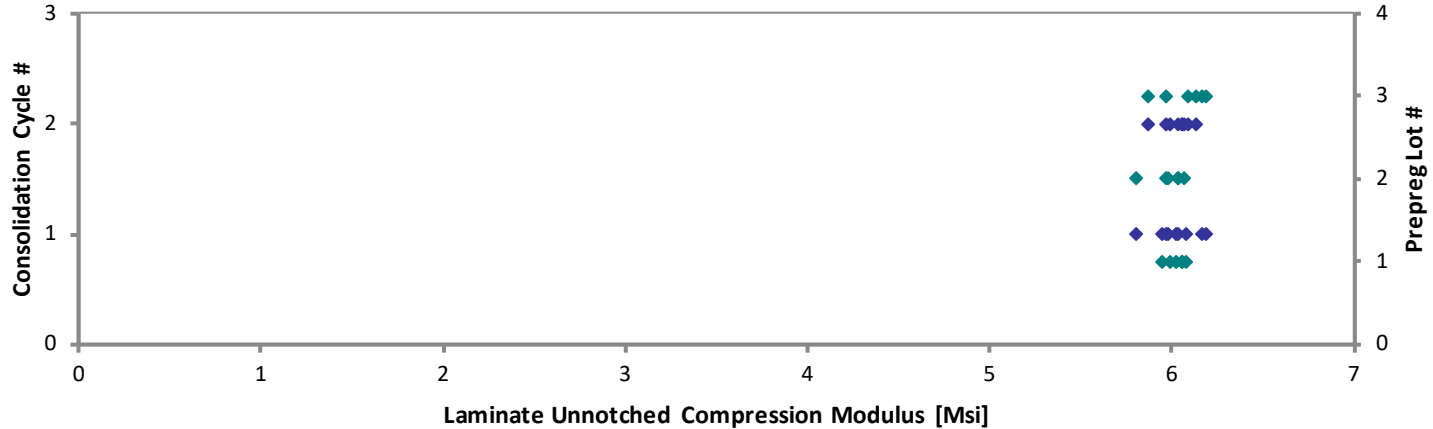
**Laminate Unnotched Compression Properties (UNC1)--ETW
(275°F) Normalized Strength**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

◆ Consolidation Cycle #
◆ Prepreg Lot #



**Laminate Unnotched Compression Properties (UNC1)--ETW
(275°F) Normalized Modulus**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

◆ Consolidation Cycle #
◆ Prepreg Lot #



4.14 “10/80/10” Unnotched Compression 2 Properties (UNC2)

Laminate Unnotched Compression Properties (UNC2)--RTA (70°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

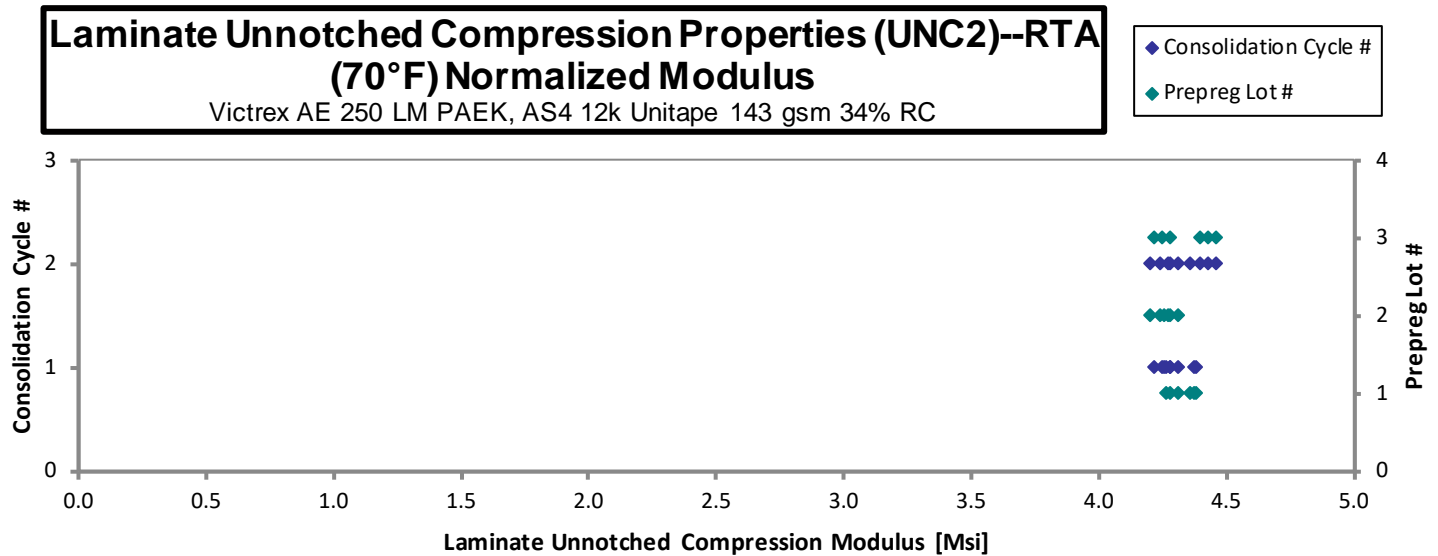
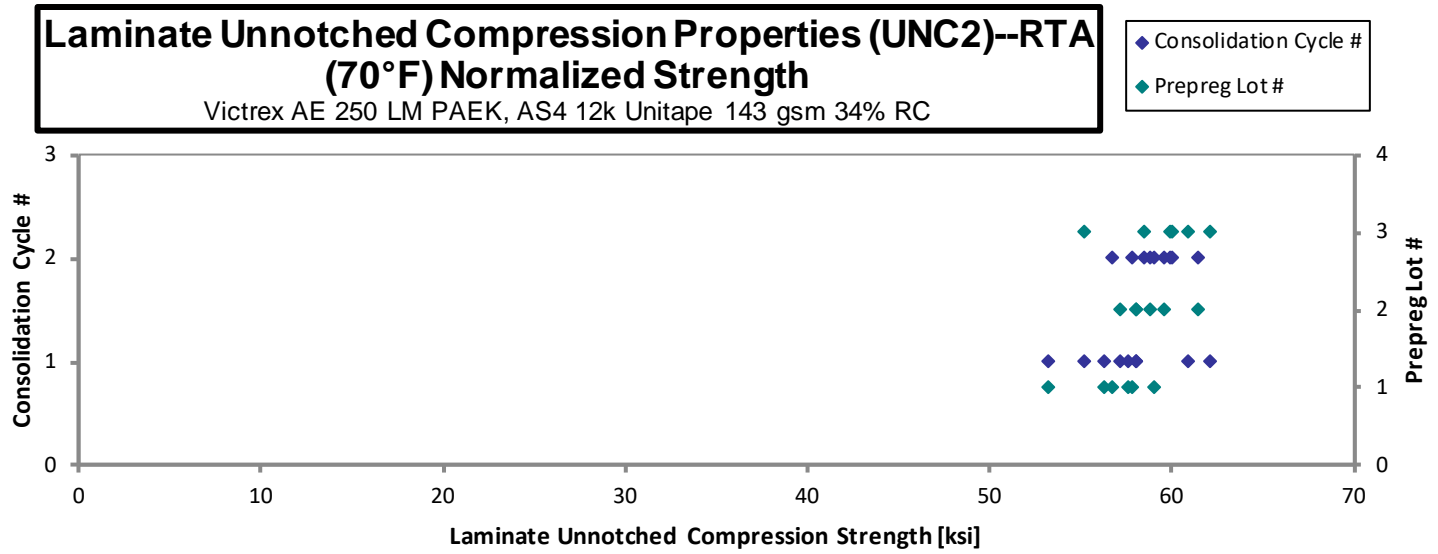
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNC2-A-C1-RTA-1	A	C1	1	1	51.50	4.243	0.1116	20	BAB
UNC2-A-C1-RTA-2	A	C1	1	1	55.80	4.129	0.1115	20	BGM
UNC2-A-C1-RTA-3	A	C1	1	1	54.57	4.236	0.1114	20	BGM
UNC2-A-C2-RTA-1	A	C2	1	2	57.31	4.237	0.1090	20	BGM
UNC2-A-C2-RTA-2	A	C2	1	2	56.51	4.293	0.1084	20	BGM
UNC2-A-C2-RTA-3	A	C2	1	2	58.48	4.321	0.1090	20	BGM
UNC2-B-C1-RTA-1	B	C1	2	1	58.73	4.395	0.1051	20	BGM
UNC2-B-C1-RTA-2	B	C1	2	1	59.38	4.359	0.1055	20	BGM
UNC2-B-C1-RTA-3	B	C1	2	1	59.33	4.403	0.1057	20	BGM
UNC2-B-C2-RTA-1	B	C2	2	2	60.68	4.331	0.1047	20	BGM
UNC2-B-C2-RTA-2	B	C2	2	2	61.27	4.361	0.1050	20	BGM
UNC2-B-C2-RTA-3	B	C2	2	2	63.55	4.418	0.1045	20	BGM
UNC2-C-C1-RTA-1	C	C1	3	1	55.74	4.323	0.1069	20	BGM
UNC2-C-C1-RTA-2	C	C1	3	1	62.76	4.291	0.1069	20	BGM
UNC2-C-C1-RTA-3	C	C1	3	1	61.73	4.270	0.1066	20	BGM
UNC2-C-C2-RTA-1	C	C2	3	2	59.94	4.454	0.1081	20	BGM
UNC2-C-C2-RTA-2	C	C2	3	2	58.78	4.450	0.1075	20	BGM
UNC2-C-C2-RTA-3	C	C2	3	2	60.45	4.434	0.1070	20	BGM

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0056	53.22	4.384
0.0056	57.61	4.263
0.0056	56.29	4.369
0.0055	57.85	4.277
0.0054	56.70	4.308
0.0054	59.01	4.361
0.0053	57.17	4.278
0.0053	57.99	4.257
0.0053	58.07	4.310
0.0052	58.83	4.199
0.0052	59.56	4.240
0.0052	61.48	4.275
0.0053	55.17	4.278
0.0053	62.10	4.246
0.0053	60.93	4.215
0.0054	59.98	4.457
0.0054	58.52	4.431
0.0054	59.91	4.394

Average 58.70 4.331
 Standard Dev. 3.050 0.08815
 Coeff. of Var. [%] 5.196 2.036
 Min. 51.50 4.129
 Max. 63.55 4.454
 Number of Spec. 18 18

Average_{norm} 0.0054 58.36 4.308
 Standard Dev._{norm} 2.219 0.07467
 Coeff. of Var. [%]_{norm} 3.802 1.733
 Min. 0.0052 53.22 4.199
 Max. 0.0056 62.10 4.457
 Number of Spec. 18 18 18



November 18, 2022

CAM-RP-2021-025 Rev N/C

**Laminate Unnotched Compression Properties (UNC2)--ETW (275°F) □
Strength & Modulus □**

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

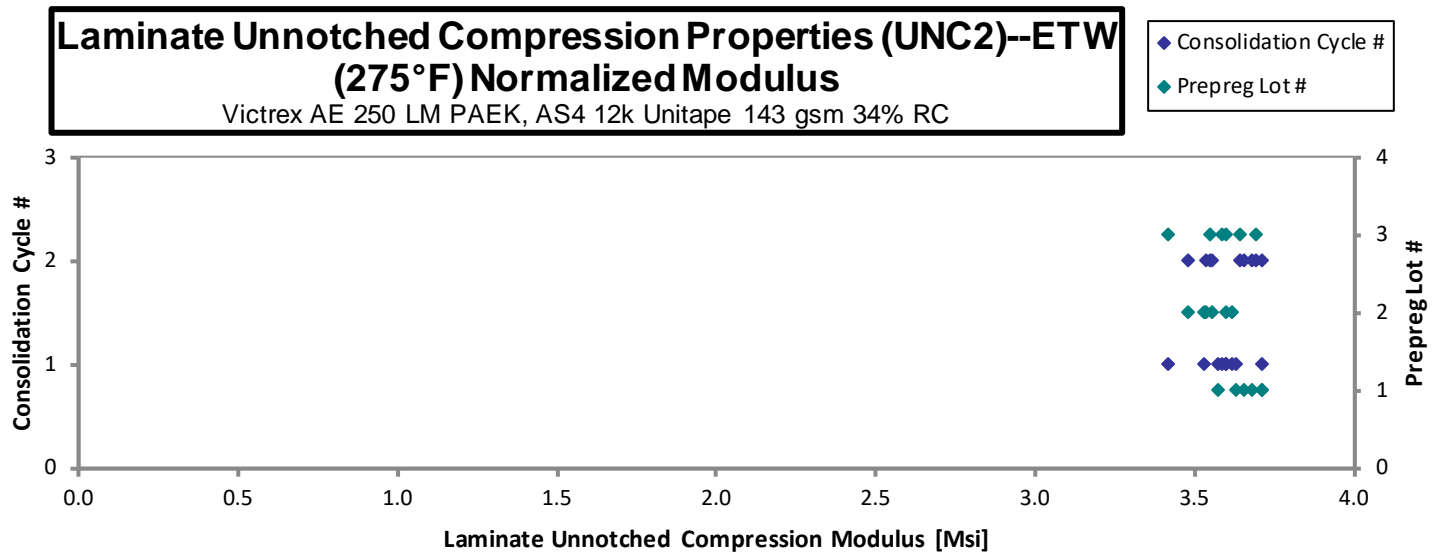
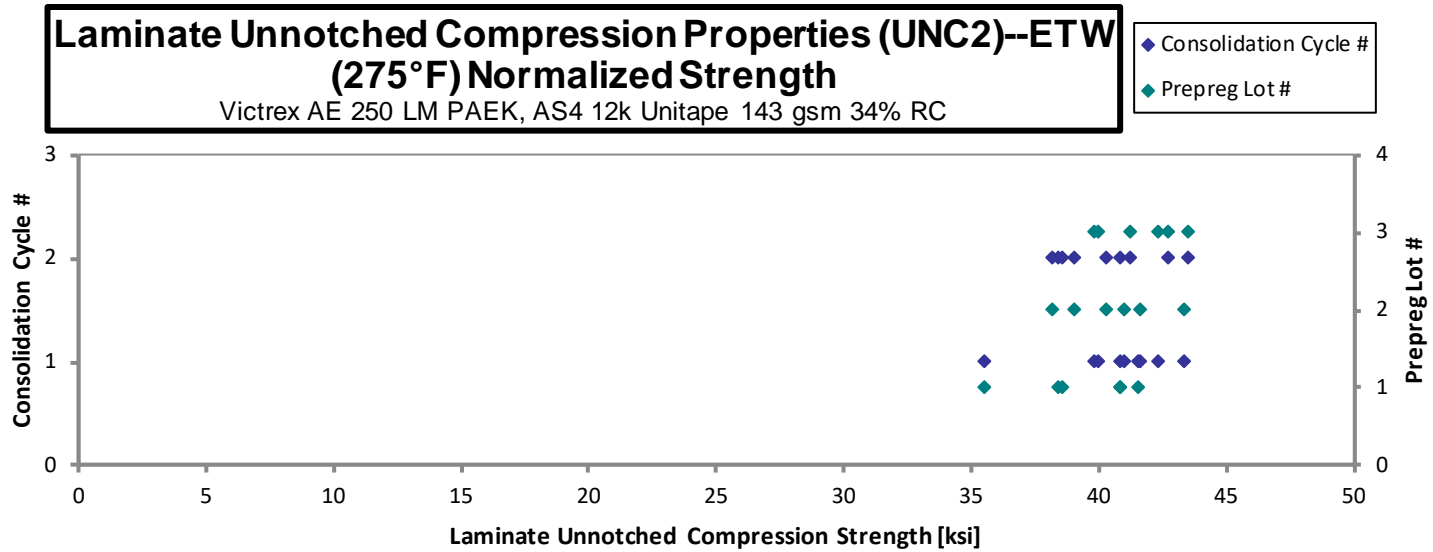
normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrax Batch #	Victrax Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNC2-A-C1-ETW-1	A	C1	1	1	40.32	3.601	0.1113	20	BAB
UNC2-A-C1-ETW-2	A	C1	1	1	39.83	3.481	0.1108	20	BGM
UNC2-A-C1-ETW-3	A	C1	1	1	34.55	3.532	0.1110	20	BGM
UNC2-A-C2-ETW-1	A	C2	1	2	38.46	3.687	0.1078	20	BGM
UNC2-A-C2-ETW-2	A	C2	1	2	41.08	3.738	0.1073	20	BGM
UNC2-A-C2-ETW-3	A	C2	1	2	38.69	3.668	0.1075	20	BGM
UNC2-B-C1-ETW-1	B	C1	2	1	41.77	3.671	0.1060	20	BAB
UNC2-B-C1-ETW-2	B	C1	2	1	44.25	3.689	0.1059	20	BGM
UNC2-B-C1-ETW-3	B	C1	2	1	42.43	3.597	0.1060	20	BAB
UNC2-B-C2-ETW-1	B	C2	2	2	39.46	3.579	0.1068	20	BAB
UNC2-B-C2-ETW-2	B	C2	2	2	38.63	3.521	0.1067	20	BAB
UNC2-B-C2-ETW-3	B	C2	2	2	40.83	3.605	0.1065	20	BAT
UNC2-C-C1-ETW-1	C	C1	3	1	43.21	3.671	0.1059	20	BAB
UNC2-C-C1-ETW-2	C	C1	3	1	40.48	3.477	0.1062	20	BAB
UNC2-C-C1-ETW-3	C	C1	3	1	40.48	3.633	0.1066	20	BAB
UNC2-C-C2-ETW-1	C	C2	3	2	43.53	3.709	0.1060	20	BGM
UNC2-C-C2-ETW-2	C	C2	3	2	41.94	3.611	0.1061	20	BAB
UNC2-C-C2-ETW-3	C	C2	3	2	44.43	3.774	0.1057	20	BAB

Avg. t _{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0056	41.54	3.710
0.0055	40.86	3.571
0.0055	35.50	3.629
0.0054	38.38	3.680
0.0054	40.82	3.715
0.0054	38.52	3.652
0.0053	40.98	3.602
0.0053	43.37	3.616
0.0053	41.63	3.529
0.0053	39.01	3.537
0.0053	38.16	3.478
0.0053	40.28	3.556
0.0053	42.36	3.598
0.0053	39.81	3.420
0.0053	39.94	3.585
0.0053	42.73	3.641
0.0053	41.21	3.548
0.0053	43.50	3.695

Average 40.80 3.625
Standard Dev. 2.428 0.08491
Coeff. of Var. [%] 5.951 2.343
Min. 34.55 3.477
Max. 44.43 3.774
Number of Spec. 18 18

Average_{norm} 0.0054 40.48 3.598
Standard Dev._{norm} 2.042 0.07976
Coeff. of Var. [%]_{norm} 5.043 2.217
Min. 0.0053 35.50 3.420
Max. 0.0056 43.50 3.715
Number of Spec. 18 18 18



4.15 “40/20/40” Unnotched Compression 3 Properties (UNC3)

Laminate Unnotched Compression Properties (UNC3)--RTA (70°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
 t_{ply} [in]
 0.0054

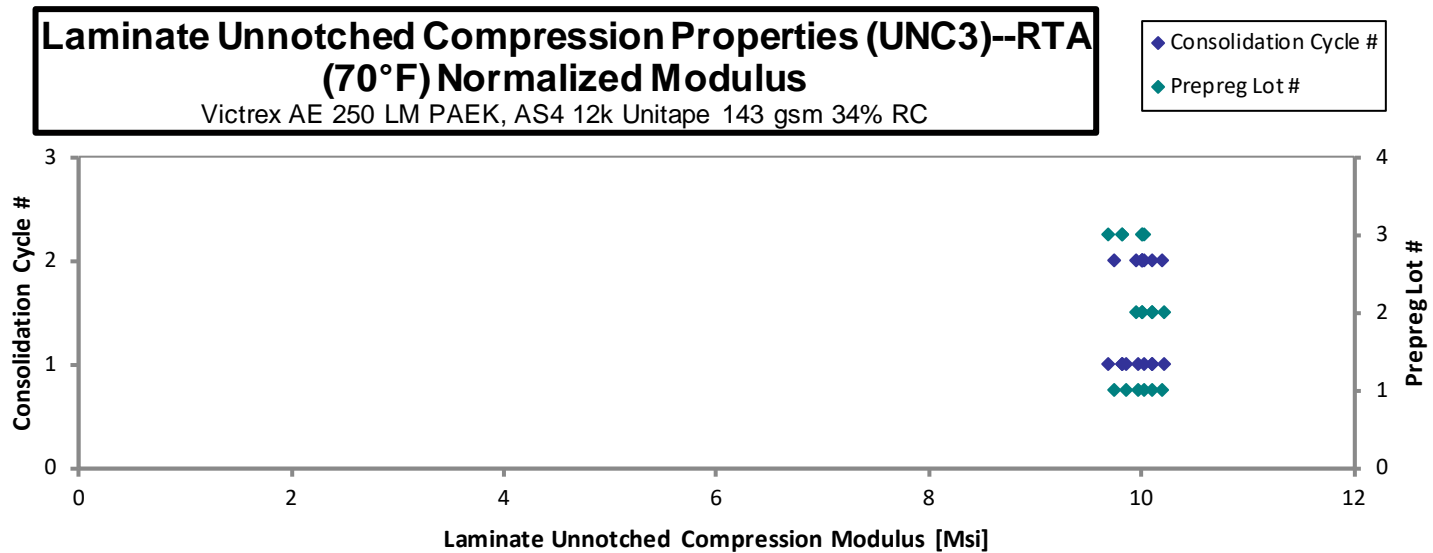
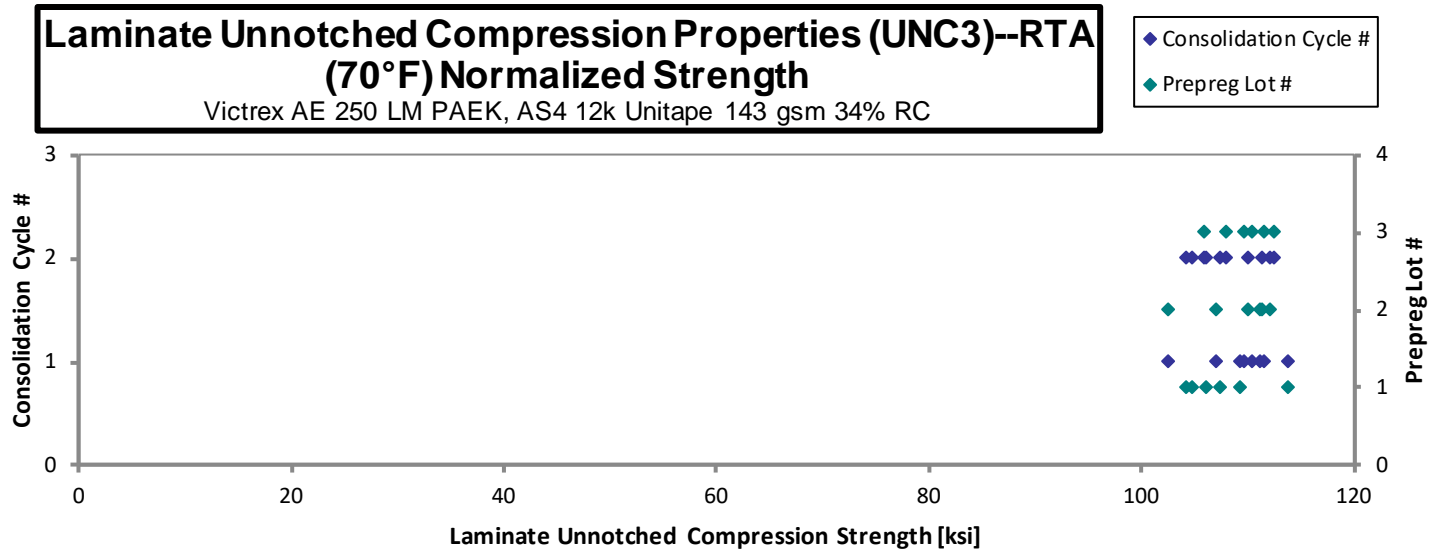
Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNC3-A-C1-RTA-1	A	C1	1	1	118.0	10.33	0.1042	20	BAB
UNC3-A-C1-RTA-2*	A	C1	1	1		10.31	0.1032	20	CIT
UNC3-A-C1-RTA-3*	A	C1	1	1		10.48	0.1033	20	CIT
UNC3-A-C1-RTA-4	A	C1	1	1	114.7		0.1029	20	BAB
UNC3-A-C2-RTA-1	A	C2	1	2	111.5	10.48	0.1040	20	BAT, HIT
UNC3-A-C2-RTA-2	A	C2	1	2	109.9	10.57	0.1043	20	BAT
UNC3-A-C2-RTA-3	A	C2	1	2	109.2	10.16	0.1036	20	BAT
UNC3-A-C2-RTA-4	A	C2	1	2	108.4		0.1038	20	BAT
UNC3-B-C1-RTA-1	B	C1	2	1	106.8	10.08	0.1082	20	BAB
UNC3-B-C1-RTA-2	B	C1	2	1	111.0	10.07	0.1082	20	BAB, HIB
UNC3-B-C1-RTA-3	B	C1	2	1	102.6	10.23	0.1079	20	BAB, HIB
UNC3-B-C2-RTA-1	B	C2	2	2	113.8	10.24	0.1056	20	BAT
UNC3-B-C2-RTA-2	B	C2	2	2	112.2	10.20	0.1060	20	BAB, HIB
UNC3-B-C2-RTA-3	B	C2	2	2	115.1	10.23	0.1052	20	BAT
UNC3-C-C1-RTA-1	C	C1	3	1	113.8	9.979	0.1049	20	TAT
UNC3-C-C1-RTA-2	C	C1	3	1	113.2	10.13	0.1046	20	BAT, HIT
UNC3-C-C1-RTA-3	C	C1	3	1	115.3	10.15	0.1045	20	HAB, HIB
UNC3-C-C2-RTA-1	C	C2	3	2	108.0	10.21	0.1060	20	BAT
UNC3-C-C2-RTA-2	C	C2	3	2	110.6	10.25	0.1054	20	BAB
UNC3-C-C2-RTA-3	C	C2	3	2	115.3	10.26	0.1054	20	BAT

Avg. t_{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0052	113.9	9.963
0.0052		9.858
0.0052		10.03
0.0051	109.3	
0.0052	107.4	10.10
0.0052	106.1	10.20
0.0052	104.8	9.744
0.0052	104.3	
0.0054	107.0	10.10
0.0054	111.2	10.09
0.0054	102.5	10.21
0.0053	111.3	10.01
0.0053	110.1	10.01
0.0053	112.0	9.957
0.0052	110.5	9.689
0.0052	109.7	9.810
0.0052	111.6	9.822
0.0053	106.0	10.02
0.0053	108.0	10.01
0.0053	112.6	10.01

*Strength not reported due to unacceptable failure mode

Average	111.6	10.24
Standard Dev.	3.759	0.1517
Coeff. of Var. [%]	3.367	1.481
Min.	102.6	9.979
Max.	118.0	10.57
Number of Spec.	18	18

Average _{norm}	0.0053	108.8	9.980
Standard Dev. _{norm}		3.197	0.1461
Coeff. of Var. [%] _{norm}		2.938	1.464
Min.	0.0051	102.5	9.689
Max.	0.0054	113.9	10.21
Number of Spec.	20	18	18



November 18, 2022

CAM-RP-2021-025 Rev N/C

**Laminate Unnotched Compression Properties (UNC3)--ETW (275°F) □
Strength & Modulus □**

Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrix Batch #	Victrix Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
UNC3-A-C1-ETW-1	A	C1	1	1	78.05	9.917	0.1040	20	HAB, HIB
UNC3-A-C1-ETW-2	A	C1	1	1	82.51	9.884	0.1037	20	M(B,H)AB
UNC3-A-C1-ETW-3	A	C1	1	1	80.30	9.750	0.1040	20	HAB, HIB
UNC3-A-C2-ETW-1	A	C2	1	2	81.13	9.835	0.1040	20	M(B,H)AB, HIB
UNC3-A-C2-ETW-2	A	C2	1	2	79.29	9.933	0.1039	20	M(B,H)AB, HIB
UNC3-A-C2-ETW-3	A	C2	1	2	78.49	9.817	0.1038	20	M(B,H)AB, HIB
UNC3-B-C1-ETW-1	B	C1	2	1	67.44	8.863	0.1092	20	BAB
UNC3-B-C1-ETW-2	B	C1	2	1	66.18	8.772	0.1088	20	BAB
UNC3-B-C1-ETW-3	B	C1	2	1	69.34	8.820	0.1090	20	BAB
UNC3-B-C2-ETW-1	B	C2	2	2	77.61	9.903	0.1058	20	BAB
UNC3-B-C2-ETW-2	B	C2	2	2	74.19	9.731	0.1058	20	BAB
UNC3-B-C2-ETW-3	B	C2	2	2	79.65	9.799	0.1062	20	M(B,H)AB, HIB
UNC3-C-C1-ETW-1	C	C1	3	1	81.19	10.02	0.1055	20	M(B,H)AB, HIB
UNC3-C-C1-ETW-2	C	C1	3	1	83.18	9.804	0.1051	20	M(B,H)AB, HIB
UNC3-C-C1-ETW-3	C	C1	3	1	75.80	9.746	0.1053	20	HAB, HIB
UNC3-C-C2-ETW-1	C	C2	3	2	74.84	9.896	0.1061	20	M(B,H)AB, HIB
UNC3-C-C2-ETW-2*	C	C2	3	2		10.01	0.1055	20	CIB
UNC3-C-C2-ETW-3	C	C2	3	2	78.48	9.947	0.1052	20	BAB
UNC3-C-C2-ETW-4	C	C2	3	2	76.98		0.1053	20	M(B,H)AB, HIB

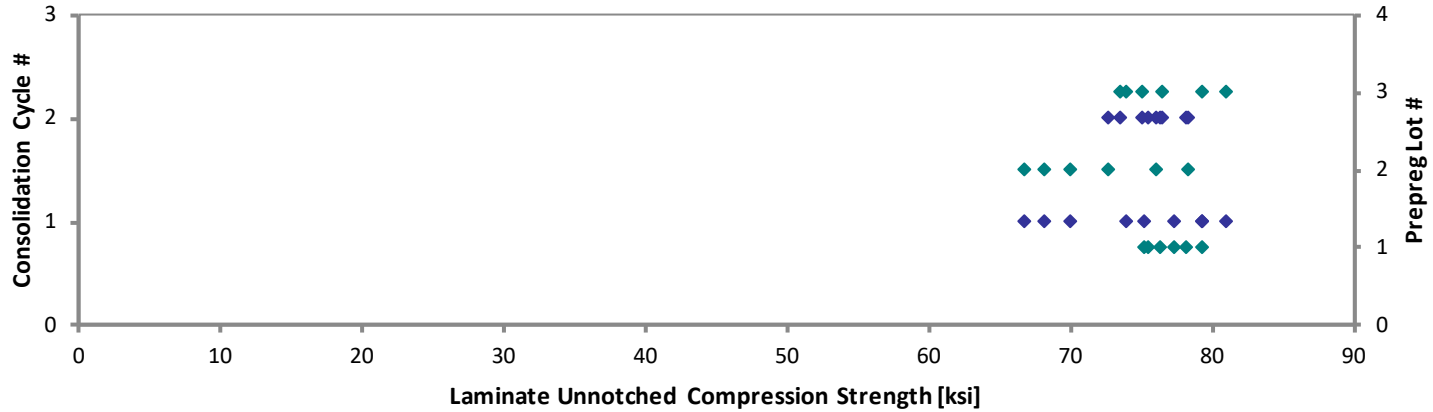
Avg. t _{ply} [in]	Strength _{norm} [ksi]	Modulus _{norm} [Msi]
0.0052	75.13	9.545
0.0052	79.23	9.490
0.0052	77.32	9.389
0.0052	78.10	9.468
0.0052	76.29	9.558
0.0052	75.44	9.435
0.0055	68.18	8.960
0.0054	66.68	8.838
0.0054	69.97	8.901
0.0053	76.00	9.697
0.0053	72.65	9.529
0.0053	78.28	9.631
0.0053	79.34	9.789
0.0053	80.91	9.536
0.0053	73.93	9.505
0.0053	73.49	9.717
0.0053		9.782
0.0053	76.45	9.689
0.0053	75.07	

*Strength not reported due to unacceptable failure mode

Average	76.93	9.691	Average_{norm}	0.0053	75.14	9.470
Standard Dev.	4.931	0.4106	Standard Dev._{norm}		3.850	0.2869
Coeff. of Var. [%]	6.410	4.237	Coeff. of Var. [%]_{norm}		5.125	3.030
Min.	66.18	8.772	Min.	0.0052	66.68	8.838
Max.	83.18	10.02	Max.	0.0055	80.91	9.789
Number of Spec.	18	18	Number of Spec.	19	18	18

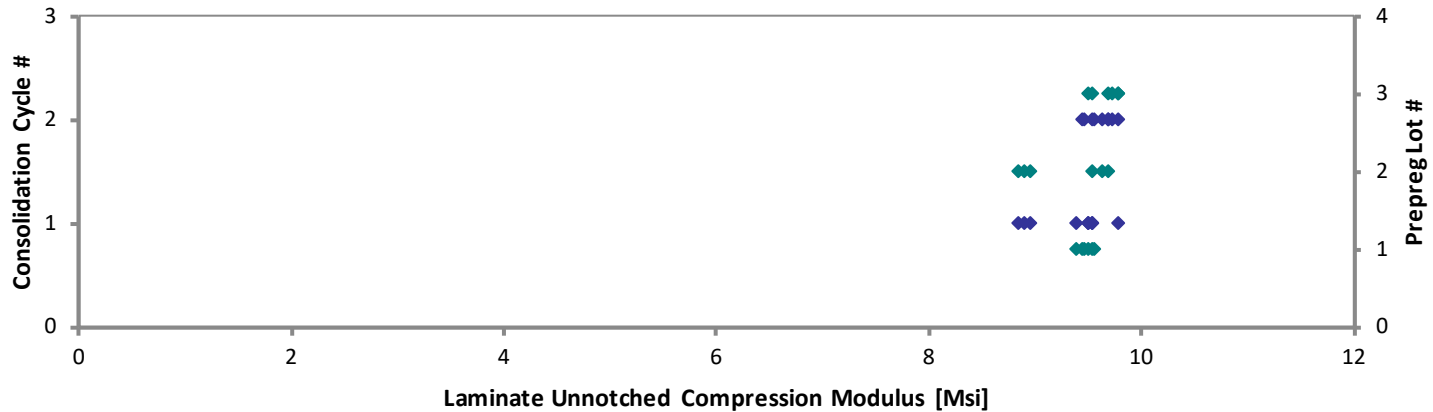
**Laminate Unnotched Compression Properties (UNC3)--ETW
(275°F) Normalized Strength**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

◆ Consolidation Cycle #
◆ Prepreg Lot #



**Laminate Unnotched Compression Properties (UNC3)--ETW
(275°F) Normalized Modulus**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

◆ Consolidation Cycle #
◆ Prepreg Lot #

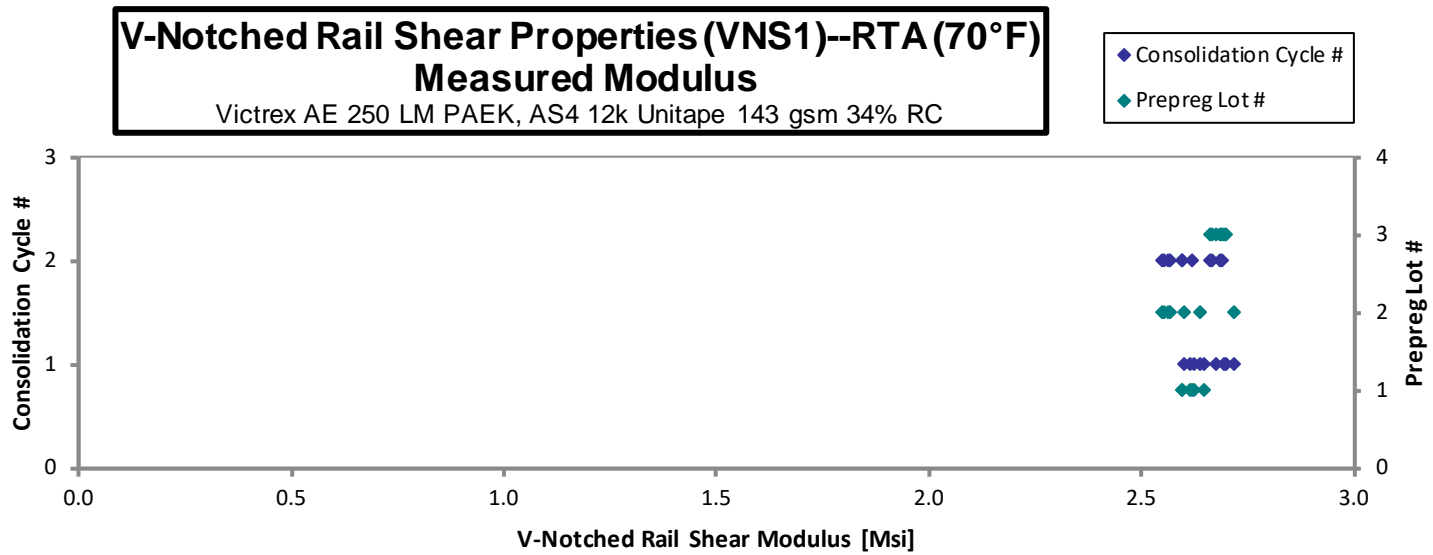
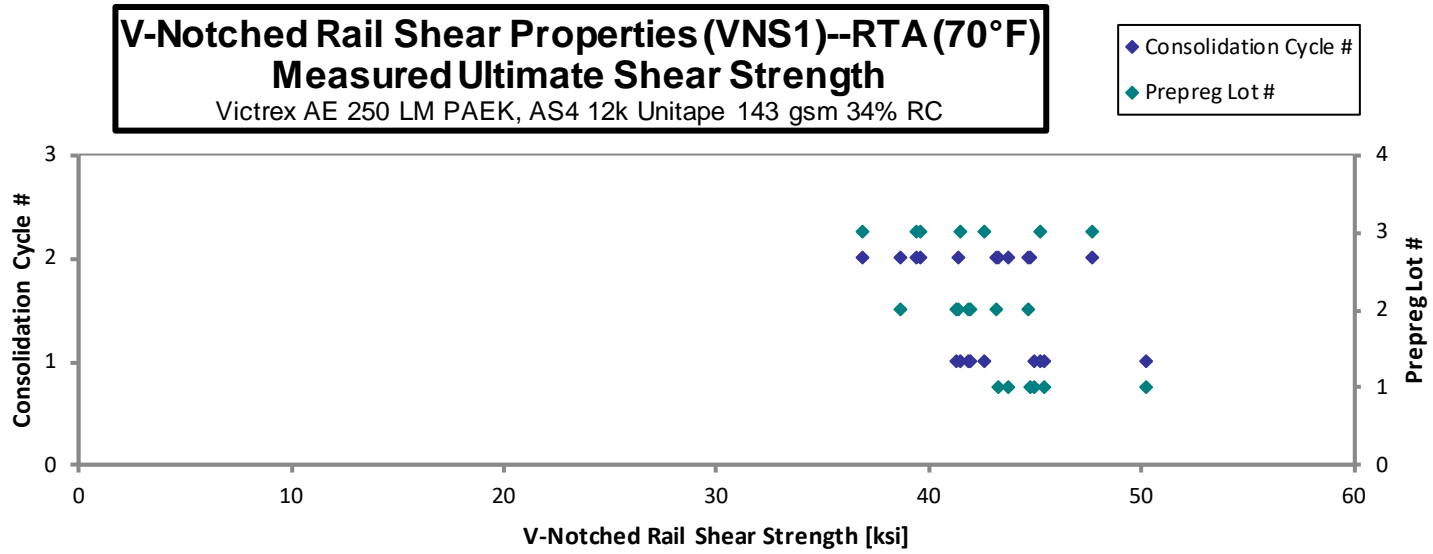


4.16 “25/50/25” V-Notched Rail Shear Properties (VNS1)

V-Notched Rail Shear Properties (VNS1)--RTA (70°F) □
Strength & Modulus □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Ultimate Shear Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
VNS1-A-C1-RTA-1	A	C1	1	1	45.39	2.647	0.1248	24	0.0052	M(V,A)GN
VNS1-A-C1-RTA-2	A	C1	1	1	44.94	2.623	0.1257	24	0.0052	M(H,A)GN
VNS1-A-C1-RTA-3	A	C1	1	1	50.19	2.613	0.1264	24	0.0053	M(V,A)GN
VNS1-A-C2-RTA-1	A	C2	1	2	43.30	2.594	0.1273	24	0.0053	AGN
VNS1-A-C2-RTA-2	A	C2	1	2	44.76	2.619	0.1270	24	0.0053	AGN
VNS1-A-C2-RTA-3	A	C2	1	2	43.77	2.595	0.1274	24	0.0053	M(A,H,V)GN
VNS1-B-C1-RTA-1	B	C1	2	1	41.91	2.719	0.1317	24	0.0055	M(A,H,V)GN
VNS1-B-C1-RTA-2	B	C1	2	1	41.90	2.601	0.1313	24	0.0055	M(A,H,V)GN
VNS1-B-C1-RTA-3	B	C1	2	1	41.31	2.636	0.1311	24	0.0055	M(A,H,V)GN
VNS1-B-C2-RTA-1	B	C2	2	2	44.69	2.549	0.1336	24	0.0056	M(A,V,H)GN
VNS1-B-C2-RTA-2	B	C2	2	2	43.19	2.553	0.1331	24	0.0055	M(A,V,H)GN
VNS1-B-C2-RTA-3	B	C2	2	2	41.35	2.568	0.1333	24	0.0056	M(A,V,H)GN
VNS1-B-C2-RTA-4	B	C2	2	2	38.68	2.565	0.1307	24	0.0054	M(A,V,H)GN
VNS1-C-C1-RTA-1	C	C1	3	1	42.62	2.692	0.1285	24	0.0054	M(A,V,H)GN
VNS1-C-C1-RTA-2	C	C1	3	1	45.27	2.698	0.1284	24	0.0053	M(A,V,H)GN
VNS1-C-C1-RTA-3	C	C1	3	1	41.51	2.675	0.1280	24	0.0053	M(A,V,H)GN
VNS1-C-C2-RTA-1	C	C2	3	2	39.63	2.661	0.1297	24	0.0054	M(A,H)GN
VNS1-C-C2-RTA-2	C	C2	3	2	39.42	2.665	0.1302	24	0.0054	M(A,V,H)GN
VNS1-C-C2-RTA-3	C	C2	3	2	47.69	2.686	0.1303	24	0.0054	M(A,H)GN
VNS1-C-C2-RTA-4	C	C2	3	2	36.86	2.690	0.1276	24	0.0053	M(A,V,H)GN

Average	42.92	2.633	0.0054
Standard Dev.	3.126	0.05231	
Coeff. of Var. [%]	7.285	1.987	
Min.	36.86	2.549	0.0052
Max.	50.19	2.719	0.0056
Number of Spec.	20	20	20



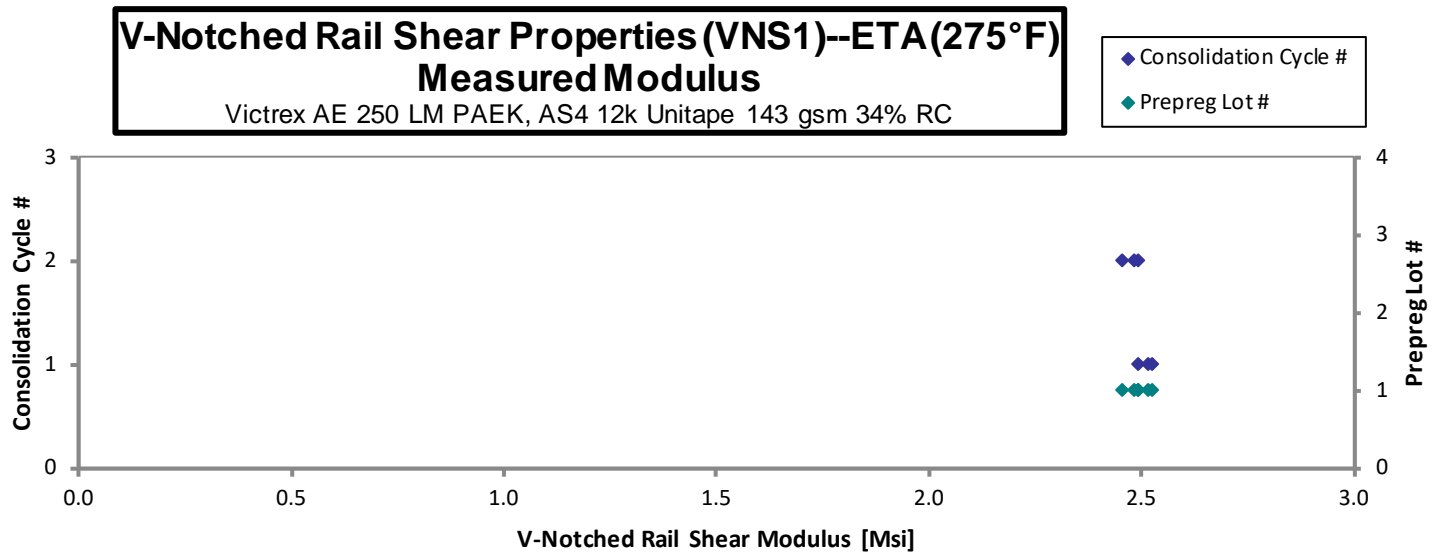
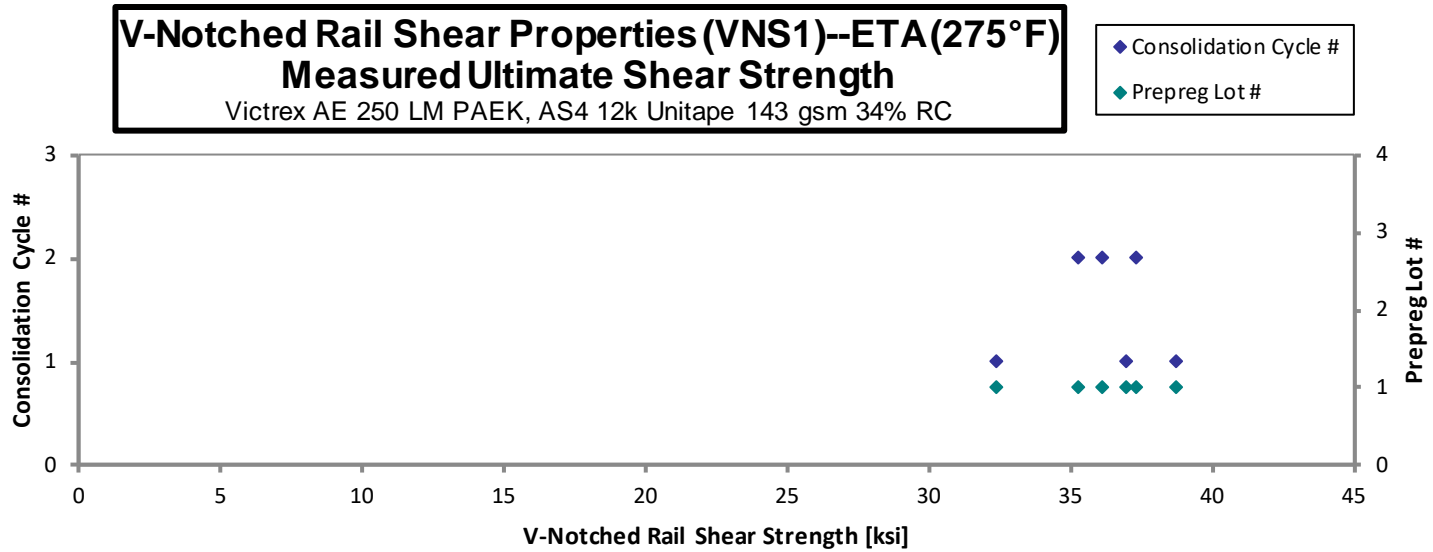
V-Notched Rail Shear Properties (VNS1)--ETA (275°F) □

Strength & Modulus □

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Ultimate Shear Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
VNS1-A-C1-ETA-1	A	C1	1	1	38.69	2.515	0.1259	24	0.0052	M(A,H)GN
VNS1-A-C1-ETA-2	A	C1	1	1	36.93	2.494	0.1258	24	0.0052	AGN
VNS1-A-C1-ETA-3	A	C1	1	1	32.35	2.525	0.1262	24	0.0053	AGN
VNS1-A-C2-ETA-1	A	C2	1	2	35.25	2.493	0.1270	24	0.0053	M(A,H)GN
VNS1-A-C2-ETA-2	A	C2	1	2	37.30	2.456	0.1271	24	0.0053	M(A,H)GN
VNS1-A-C2-ETA-3	A	C2	1	2	36.11	2.481	0.1274	24	0.0053	AGN

Average	36.11	2.494	0.0053
Standard Dev.	2.172	0.02450	
Coeff. of Var. [%]	6.017	0.9822	
Min.	32.35	2.456	0.0052
Max.	38.69	2.525	0.0053
Number of Spec.	6	6	6



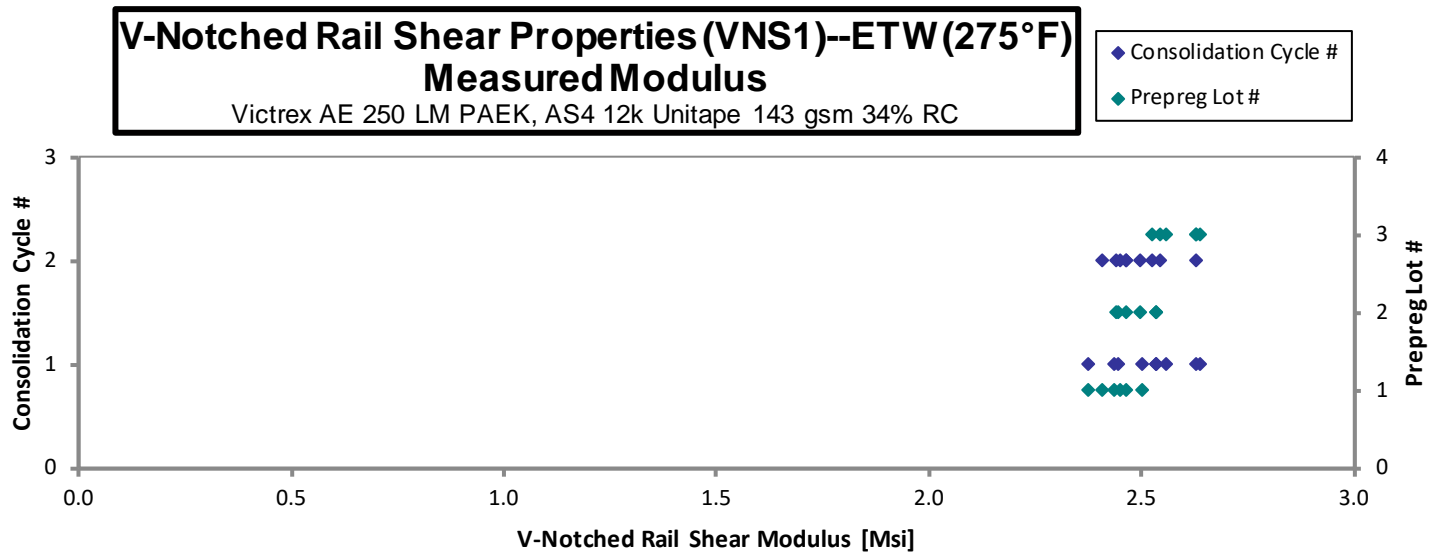
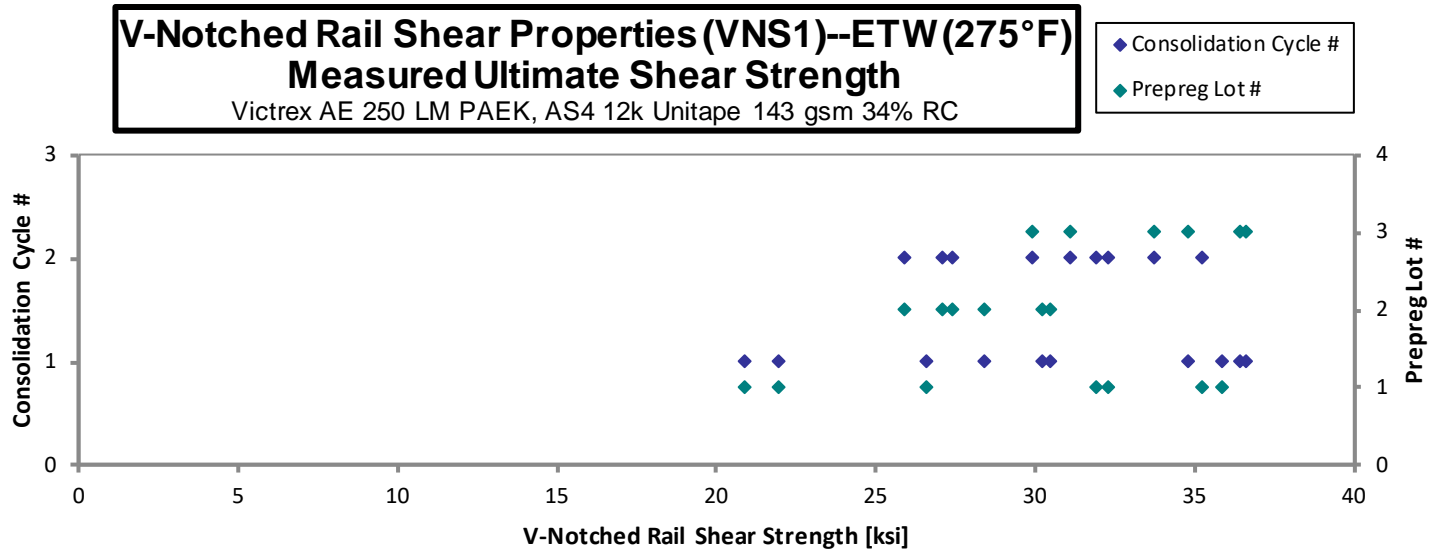
V-Notched Rail Shear Properties (VNS1)--ETW (275°F) □

Strength & Modulus □

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Ultimate Shear Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
VNS1-A-C1-ETW-1	A	C1	1	1	21.97	2.374	0.1266	24	0.0053	M(A,H)GN
VNS1-A-C1-ETW-2	A	C1	1	1	26.58	2.438	0.1270	24	0.0053	M(A,V)GN
VNS1-A-C1-ETW-3	A	C1	1	1	20.91		0.1267	24	0.0053	M(A,V)GN
VNS1-A-C1-ETW-4	A	C1	1	1	35.89	2.500	0.1283	24	0.0053	M(A,V)GN
VNS1-A-C2-ETW-1	A	C2	1	2	32.28	2.409	0.1280	24	0.0053	M(V,A)GN
VNS1-A-C2-ETW-2	A	C2	1	2	35.21	2.465	0.1279	24	0.0053	AGN
VNS1-A-C2-ETW-3	A	C2	1	2	31.94	2.450	0.1281	24	0.0053	M(V,A)GN
VNS1-B-C1-ETW-1	B	C1	2	1	28.39	2.444	0.1285	24	0.0054	M(V,A)GN
VNS1-B-C1-ETW-2	B	C1	2	1	30.46	2.536	0.1256	24	0.0052	M(V,A)GN
VNS1-B-C1-ETW-3	B	C1	2	1	30.21	2.537	0.1261	24	0.0053	M(V,A)GN
VNS1-B-C2-ETW-1	B	C2	2	2	25.91	2.441	0.1308	24	0.0055	M(H,A)GN
VNS1-B-C2-ETW-2	B	C2	2	2	27.40	2.466	0.1284	24	0.0053	M(H,A)GN
VNS1-B-C2-ETW-3	B	C2	2	2	27.11	2.499	0.1284	24	0.0053	M(V,A)GN
VNS1-C-C1-ETW-1	C	C1	3	1	34.78	2.628	0.1258	24	0.0052	M(H,A)GN
VNS1-C-C1-ETW-2	C	C1	3	1	36.61	2.639	0.1243	24	0.0052	M(V,A)GN
VNS1-C-C1-ETW-3	C	C1	3	1	36.44	2.558	0.1240	24	0.0052	AGN
VNS1-C-C2-ETW-1	C	C2	3	2	29.89	2.525	0.1276	24	0.0053	M(V,A)GN
VNS1-C-C2-ETW-2	C	C2	3	2	33.74	2.628	0.1254	24	0.0052	M(V,A)GN
VNS1-C-C2-ETW-3	C	C2	3	2	31.07	2.543	0.1255	24	0.0052	M(V,A)GN

Average	30.36	2.504	0.0053
Standard Dev.	4.626	0.07657	
Coeff. of Var. [%]	15.24	3.057	
Min.	20.91	2.374	0.0052
Max.	36.61	2.639	0.0055
Number of Spec.	19	18	19

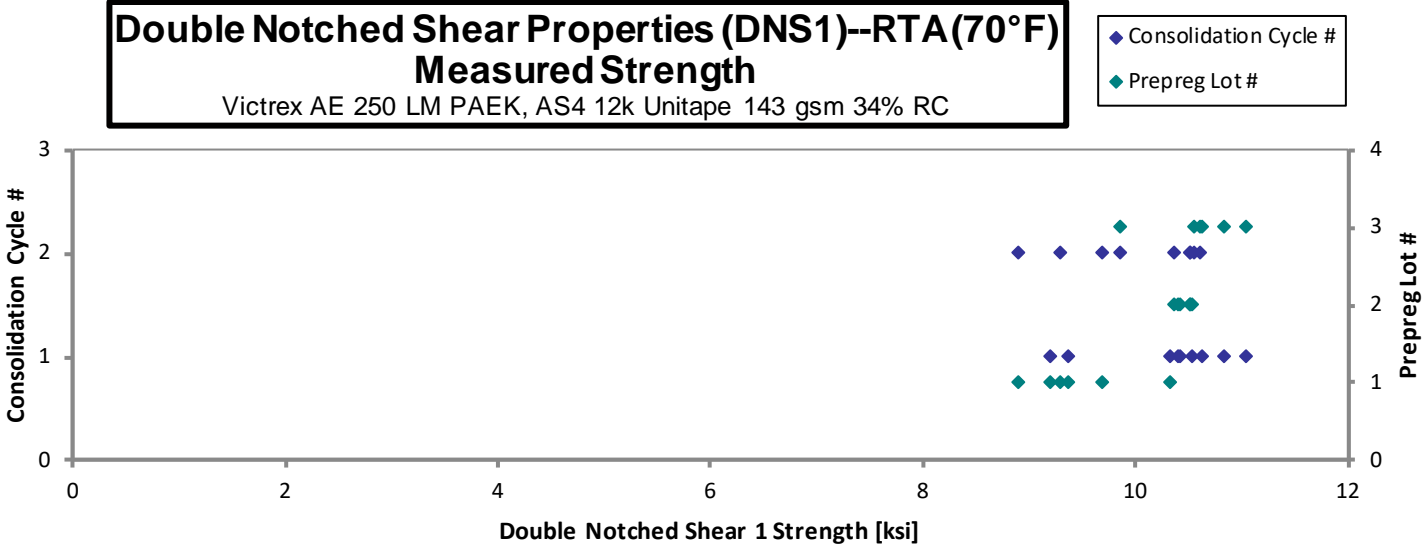


4.17 “25/50/25” Double Notch Shear Properties (DNS1)

Double Notched Shear Properties (DNS1)--RTA (70°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
DNS1-A-C1-RTA-1	A	C1	1	1	9.203	0.1249	24	0.0052	GAGE SECTION SHEAR
DNS1-A-C1-RTA-2	A	C1	1	1	10.32	0.1247	24	0.0052	GAGE SECTION SHEAR
DNS1-A-C1-RTA-3	A	C1	1	1	9.374	0.1248	24	0.0052	GAGE SECTION SHEAR
DNS1-A-C2-RTA-1	A	C2	1	2	8.905	0.1273	24	0.0053	GAGE SECTION SHEAR
DNS1-A-C2-RTA-2	A	C2	1	2	9.691	0.1272	24	0.0053	GAGE SECTION SHEAR
DNS1-A-C2-RTA-3	A	C2	1	2	9.283	0.1270	24	0.0053	GAGE SECTION SHEAR
DNS1-B-C1-RTA-1	B	C1	2	1	10.42	0.1315	24	0.0055	GAGE SECTION SHEAR
DNS1-B-C1-RTA-2	B	C1	2	1	10.40	0.1313	24	0.0055	GAGE SECTION SHEAR
DNS1-B-C1-RTA-3	B	C1	2	1	10.53	0.1314	24	0.0055	GAGE SECTION SHEAR
DNS1-B-C2-RTA-1	B	C2	2	2	10.52	0.1333	24	0.0056	GAGE SECTION SHEAR
DNS1-B-C2-RTA-2	B	C2	2	2	10.36	0.1334	24	0.0056	GAGE SECTION SHEAR
DNS1-B-C2-RTA-3	B	C2	2	2	10.52	0.1333	24	0.0056	GAGE SECTION SHEAR
DNS1-C-C1-RTA-1	C	C1	3	1	10.62	0.1279	24	0.0053	GAGE SECTION SHEAR
DNS1-C-C1-RTA-2	C	C1	3	1	10.83	0.1278	24	0.0053	GAGE SECTION SHEAR
DNS1-C-C1-RTA-3	C	C1	3	1	11.04	0.1280	24	0.0053	GAGE SECTION SHEAR
DNS1-C-C2-RTA-1	C	C2	3	2	10.55	0.1295	24	0.0054	GAGE SECTION SHEAR
DNS1-C-C2-RTA-2	C	C2	3	2	10.60	0.1295	24	0.0054	GAGE SECTION SHEAR
DNS1-C-C2-RTA-3	C	C2	3	2	9.862	0.1297	24	0.0054	GAGE SECTION SHEAR

Average	10.17	0.0054
Standard Dev.	0.6216	
Coeff. of Var. [%]	6.113	
Min.	8.905	0.0052
Max.	11.04	0.0056
Number of Spec.	18	18



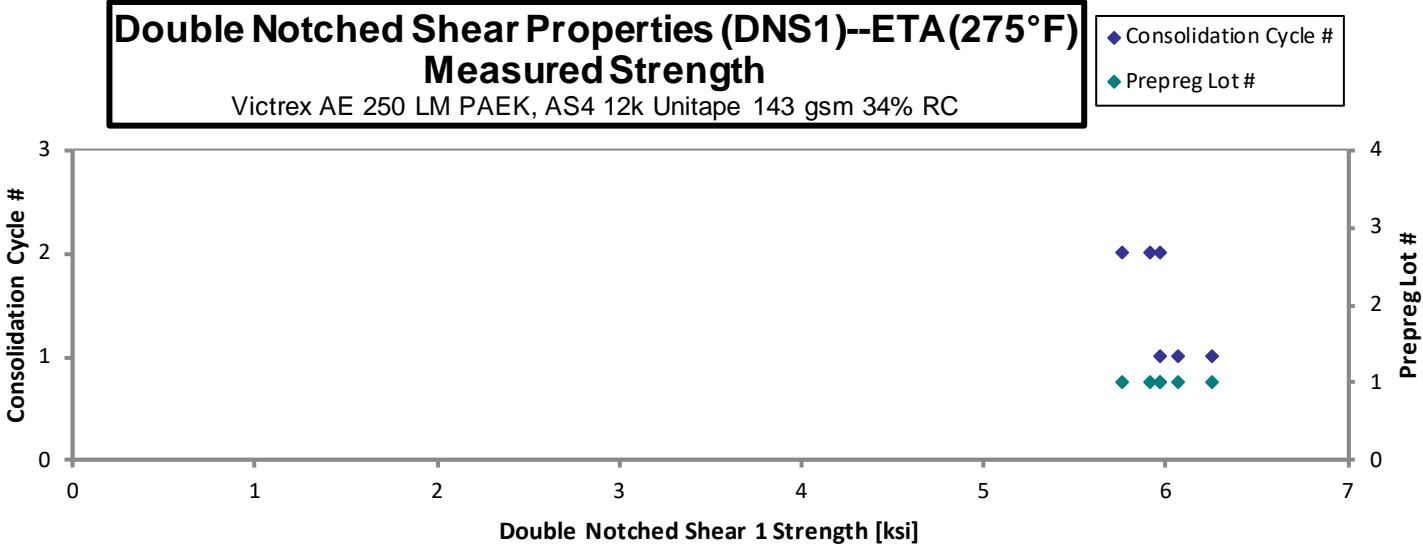
Double Notched Shear Properties (DNS1)--ETA (275°F) □

Strength □

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksj]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
DNS1-A-C1-ETA-1	A	C1	1	1	6.249	0.1252	24	0.0052	GAGE SECTION SHEAR
DNS1-A-C1-ETA-2	A	C1	1	1	6.073	0.1250	24	0.0052	GAGE SECTION SHEAR
DNS1-A-C1-ETA-3	A	C1	1	1	5.969	0.1251	24	0.0052	GAGE SECTION SHEAR
DNS1-A-C2-ETA-1	A	C2	1	2	5.965	0.1271	24	0.0053	GAGE SECTION SHEAR
DNS1-A-C2-ETA-2	A	C2	1	2	5.760	0.1270	24	0.0053	GAGE SECTION SHEAR
DNS1-A-C2-ETA-3	A	C2	1	2	5.917	0.1270	24	0.0053	GAGE SECTION SHEAR

Average	5.989	0.0053
Standard Dev.	0.1632	
Coeff. of Var. [%]	2.726	
Min.	5.760	0.0052
Max.	6.249	0.0053
Number of Spec.	6	6

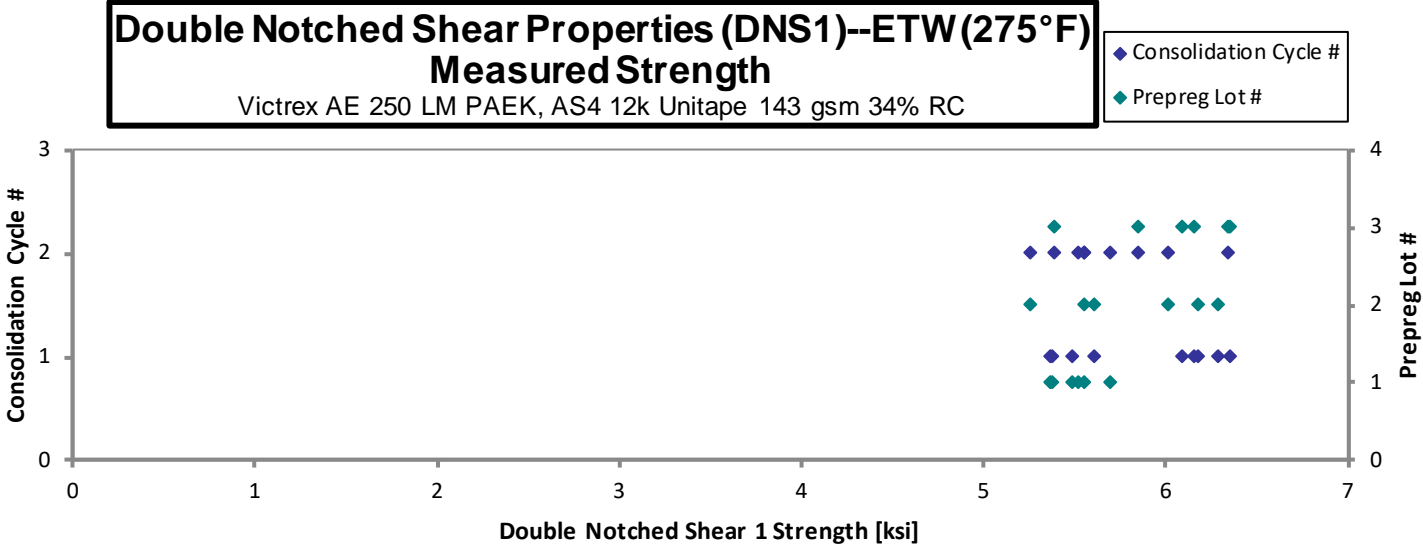


**Double Notched Shear Properties (DNS1)--ETW (275°F) □
Strength □**

Vitrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Vitrex Batch #	Vitrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
DNS1-A-C1-ETW-1	A	C1	1	1	5.366	0.1267	24	0.0053	GAGE SECTION SHEAR
DNS1-A-C1-ETW-2	A	C1	1	1	5.377	0.1273	24	0.0053	GAGE SECTION SHEAR
DNS1-A-C1-ETW-3	A	C1	1	1	5.491	0.1258	24	0.0052	GAGE SECTION SHEAR
DNS1-A-C2-ETW-1	A	C2	1	2	5.553	0.1277	24	0.0053	GAGE SECTION SHEAR
DNS1-A-C2-ETW-2	A	C2	1	2	5.700	0.1275	24	0.0053	GAGE SECTION SHEAR
DNS1-A-C2-ETW-3	A	C2	1	2	5.520	0.1284	24	0.0053	GAGE SECTION SHEAR
DNS1-B-C1-ETW-1	B	C1	2	1	5.612	0.1286	24	0.0054	GAGE SECTION SHEAR
DNS1-B-C1-ETW-2	B	C1	2	1	6.175	0.1259	24	0.0052	GAGE SECTION SHEAR
DNS1-B-C1-ETW-3	B	C1	2	1	6.288	0.1258	24	0.0052	GAGE SECTION SHEAR
DNS1-B-C2-ETW-1	B	C2	2	2	5.255	0.1304	24	0.0054	GAGE SECTION SHEAR
DNS1-B-C2-ETW-2	B	C2	2	2	5.556	0.1279	24	0.0053	GAGE SECTION SHEAR
DNS1-B-C2-ETW-3	B	C2	2	2	6.015	0.1283	24	0.0053	GAGE SECTION SHEAR
DNS1-C-C1-ETW-1	C	C1	3	1	6.157	0.1256	24	0.0052	GAGE SECTION SHEAR
DNS1-C-C1-ETW-2	C	C1	3	1	6.092	0.1234	24	0.0051	GAGE SECTION SHEAR
DNS1-C-C1-ETW-3	C	C1	3	1	6.356	0.1233	24	0.0051	GAGE SECTION SHEAR
DNS1-C-C2-ETW-1	C	C2	3	2	5.386	0.1271	24	0.0053	GAGE SECTION SHEAR
DNS1-C-C2-ETW-2	C	C2	3	2	6.342	0.1250	24	0.0052	GAGE SECTION SHEAR
DNS1-C-C2-ETW-3	C	C2	3	2	5.846	0.1248	24	0.0052	GAGE SECTION SHEAR

Average	5.783	0.0053
Standard Dev.	0.3767	
Coeff. of Var. [%]	6.515	
Min.	5.255	0.0051
Max.	6.356	0.0054
Number of Spec.	18	18



4.18 “25/50/25” Open-Hole Tension 1 Properties (OHT1)

Laminate Open-Hole Tension Properties (OHT1)--CTA (-65°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

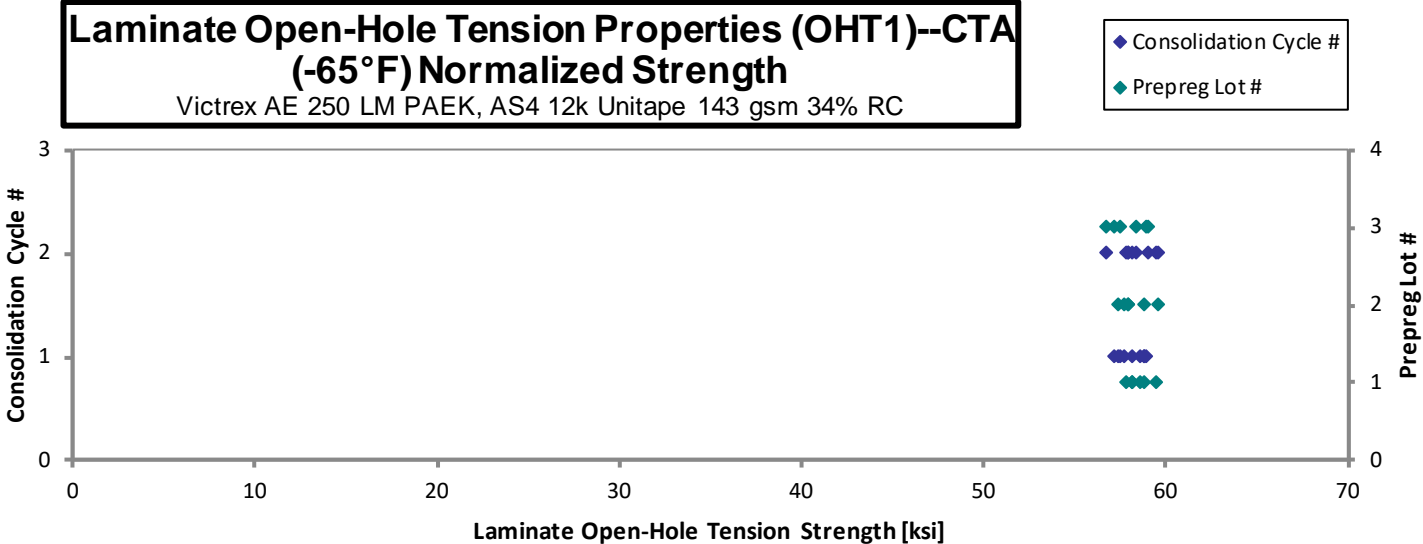
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHT1-A-C1-CTA-1	A	C1	1	1	60.09	0.0843	16	AGM
OHT1-A-C1-CTA-2	A	C1	1	1	59.30	0.0847	16	M(A,L)GM
OHT1-A-C1-CTA-3	A	C1	1	1	60.30	0.0843	16	AGM
OHT1-A-C2-CTA-1	A	C2	1	2	59.51	0.0844	16	M(A,L)GM
OHT1-A-C2-CTA-2	A	C2	1	2	59.39	0.0841	16	AGM
OHT1-A-C2-CTA-3	A	C2	1	2	61.01	0.0843	16	M(A,L)GM
OHT1-B-C1-CTA-1	B	C1	2	1	57.46	0.0863	16	AGM
OHT1-B-C1-CTA-2	B	C1	2	1	58.23	0.0856	16	M(A,L)GM
OHT1-B-C1-CTA-3	B	C1	2	1	59.78	0.0851	16	M(A,L)GM
OHT1-B-C2-CTA-1	B	C2	2	2	59.92	0.0859	16	M(A,L)GM
OHT1-B-C2-CTA-2	B	C2	2	2	58.58	0.0855	16	M(A,L)GM
OHT1-B-C2-CTA-3	B	C2	2	2	58.81	0.0851	16	M(A,L)GM
OHT1-C-C1-CTA-1	C	C1	3	1	58.74	0.0866	16	AGM
OHT1-C-C1-CTA-2	C	C1	3	1	57.38	0.0860	16	AGM
OHT1-C-C1-CTA-3	C	C1	3	1	57.68	0.0862	16	M(A,L)GM
OHT1-C-C2-CTA-1	C	C2	3	2	58.30	0.0866	16	M(A,L)GM
OHT1-C-C2-CTA-2	C	C2	3	2	59.09	0.0863	16	AGM
OHT1-C-C2-CTA-3	C	C2	3	2	57.37	0.0854	16	M(A,L)GM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	58.63
0.0053	58.13
0.0053	58.80
0.0053	58.11
0.0053	57.82
0.0053	59.49
0.0054	57.39
0.0053	57.68
0.0053	58.84
0.0054	59.54
0.0053	57.99
0.0053	57.95
0.0054	58.88
0.0054	57.14
0.0054	57.53
0.0054	58.41
0.0054	58.99
0.0053	56.71

Average 58.94
 Standard Dev. 1.072
 Coeff. of Var. [%] 1.819
 Min. 57.37
 Max. 61.01
 Number of Spec. 18

Average_{norm} 0.0053 58.22
 Standard Dev._{norm} 0.7872
 Coeff. of Var. [%]_{norm} 1.352
 Min. 0.0053 56.71
 Max. 0.0054 59.54
 Number of Spec. 18 18



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

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

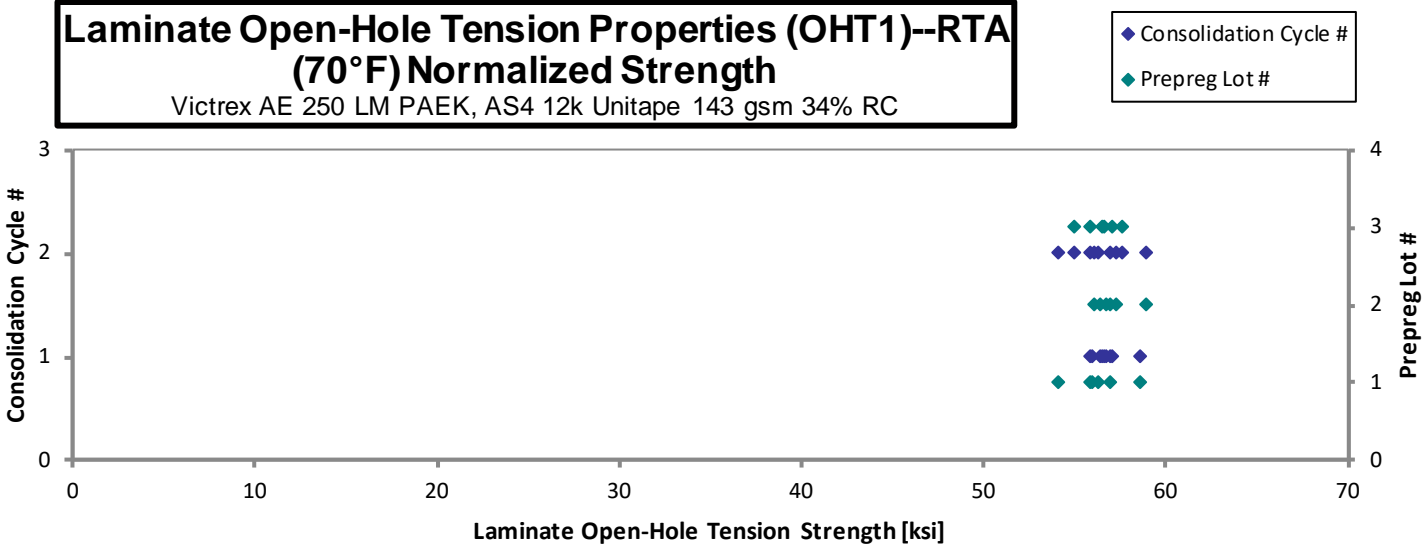
normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHT1-A-C1-RTA-1	A	C1	1	1	59.57	0.0851	16	M(A,L)GM
OHT1-A-C1-RTA-2	A	C1	1	1	56.82	0.0851	16	M(A,L)GM
OHT1-A-C1-RTA-3	A	C1	1	1	57.21	0.0843	16	M(A,L)GM
OHT1-A-C2-RTA-1	A	C2	1	2	57.76	0.0852	16	AGM
OHT1-A-C2-RTA-2	A	C2	1	2	57.20	0.0850	16	M(A,L)GM
OHT1-A-C2-RTA-3	A	C2	1	2	55.39	0.0844	16	M(A,L)GM
OHT1-B-C1-RTA-1	B	C1	2	1	56.50	0.0867	16	M(A,L)GM
OHT1-B-C1-RTA-2	B	C1	2	1	56.34	0.0865	16	M(A,L)GM
OHT1-B-C1-RTA-3	B	C1	2	1	56.87	0.0865	16	M(A,L)GM
OHT1-B-C2-RTA-1	B	C2	2	2	59.07	0.0863	16	M(A,L)GM
OHT1-B-C2-RTA-2	B	C2	2	2	57.62	0.0859	16	M(A,L)GM
OHT1-B-C2-RTA-3	B	C2	2	2	56.15	0.0863	16	M(A,L)GM
OHT1-C-C1-RTA-1	C	C1	3	1	55.64	0.0886	16	M(A,L)GM
OHT1-C-C1-RTA-2	C	C1	3	1	55.72	0.0878	16	M(A,L)GM
OHT1-C-C1-RTA-3	C	C1	3	1	56.00	0.0872	16	M(A,L)GM
OHT1-C-C2-RTA-1	C	C2	3	2	54.54	0.0871	16	M(A,L)GM
OHT1-C-C2-RTA-2	C	C2	3	2	57.18	0.0871	16	M(A,L)GM
OHT1-C-C2-RTA-3	C	C2	3	2	55.54	0.0868	16	M(A,L)GM

Avg. t _{ply} [in]	Strength _{norm} [ksi]
0.0053	58.64
0.0053	55.98
0.0053	55.84
0.0053	56.92
0.0053	56.28
0.0053	54.10
0.0054	56.69
0.0054	56.43
0.0054	56.92
0.0054	58.97
0.0054	57.29
0.0054	56.11
0.0055	57.08
0.0055	56.61
0.0055	56.52
0.0054	54.97
0.0054	57.65
0.0054	55.81

Average 56.73
Standard Dev. 1.269
Coeff. of Var. [%] 2.236
Min. 54.54
Max. 59.57
Number of Spec. 18

Average_{norm} 0.0054 56.60
Standard Dev._{norm} 1.156
Coeff. of Var. [%]_{norm} 2.042
Min. 0.0053 54.10
Max. 0.0055 58.97
Number of Spec. 18 18



Laminate Open-Hole Tension Properties (OHT1)--ETA (275°F)

Strength

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]

0.0054

Specimen Number	Victrax Batch #	Victrax Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHT1-A-C1-ETA-1	A	C1	1	1	53.92	0.0842	16	AGM
OHT1-A-C1-ETA-2	A	C1	1	1	53.62	0.0842	16	AGM
OHT1-A-C1-ETA-3	A	C1	1	1	53.68	0.0843	16	AGM
OHT1-A-C2-ETA-1	A	C2	1	2	52.12	0.0841	16	AGM
OHT1-A-C2-ETA-2	A	C2	1	2	53.60	0.0845	16	AGM
OHT1-A-C2-ETA-3	A	C2	1	2	52.26	0.0844	16	AGM

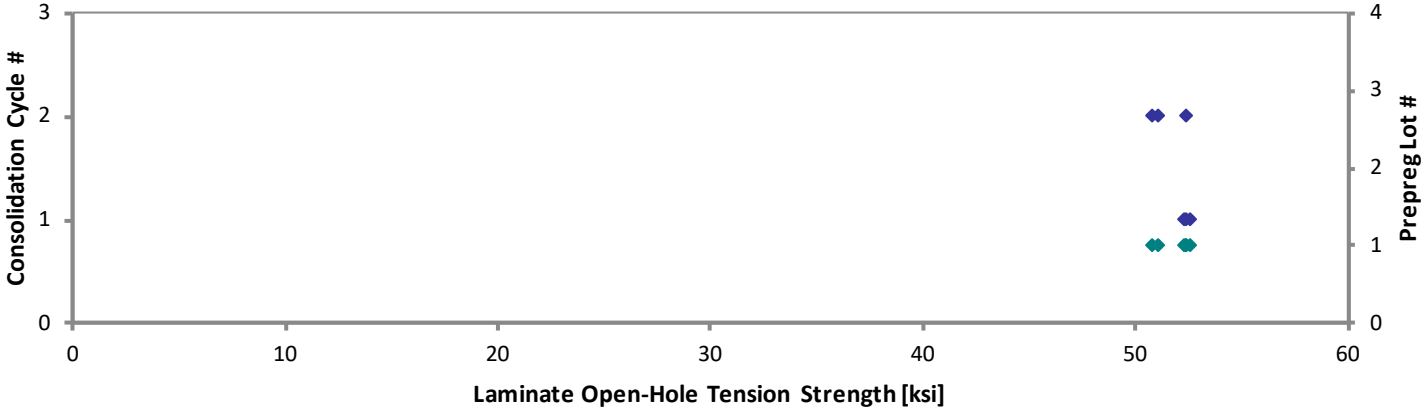
Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	52.56
0.0053	52.27
0.0053	52.38
0.0053	50.75
0.0053	52.40
0.0053	51.04

Average **53.20**
 Standard Dev. **0.7927**
 Coeff. of Var. [%] **1.490**
 Min. **52.12**
 Max. **53.92**
 Number of Spec. **6**

Average_{norm} **0.0053** **51.90**
 Standard Dev._{norm} **0.7902**
 Coeff. of Var. [%]_{norm} **1.522**
 Min. **0.0053** **50.75**
 Max. **0.0053** **52.56**
 Number of Spec. **6** **6**

**Laminate Open-Hole Tension Properties (OHT1)--ETA
(275°F) Normalized Strength**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

◆ Consolidation Cycle #
◆ Prepreg Lot #



**Laminate Open-Hole Tension Properties (OHT1)--ETW (275°F) □
Strength □**

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrax Batch #	Victrax Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHT1-A-C1-ETW-1	A	C1	1	1	54.74	0.0845	16	AGM
OHT1-A-C1-ETW-2	A	C1	1	1	52.21	0.0845	16	AGM
OHT1-A-C1-ETW-3	A	C1	1	1	53.72	0.0845	16	AGM
OHT1-A-C2-ETW-1	A	C2	1	2	54.10	0.0844	16	AGM
OHT1-A-C2-ETW-2	A	C2	1	2	53.83	0.0842	16	AGM
OHT1-A-C2-ETW-3	A	C2	1	2	52.33	0.0844	16	AGM
OHT1-B-C1-ETW-1	B	C1	2	1	50.14	0.0850	16	AGM
OHT1-B-C1-ETW-2	B	C1	2	1	50.66	0.0847	16	AGM
OHT1-B-C1-ETW-3	B	C1	2	1	52.28	0.0852	16	AGM
OHT1-B-C2-ETW-1	B	C2	2	2	49.92	0.0855	16	AGM
OHT1-B-C2-ETW-2	B	C2	2	2	50.79	0.0853	16	AGM
OHT1-B-C2-ETW-3	B	C2	2	2	51.34	0.0858	16	AGM
OHT1-C-C1-ETW-1	C	C1	3	1	50.36	0.0859	16	AGM
OHT1-C-C1-ETW-2	C	C1	3	1	50.37	0.0860	16	AGM
OHT1-C-C1-ETW-3	C	C1	3	1	51.39	0.0860	16	AGM
OHT1-C-C2-ETW-1	C	C2	3	2	53.16	0.0853	16	M(A,L)GM
OHT1-C-C2-ETW-2	C	C2	3	2	52.00	0.0857	16	M(A,L)GM
OHT1-C-C2-ETW-3	C	C2	3	2	52.25	0.0851	16	AGM

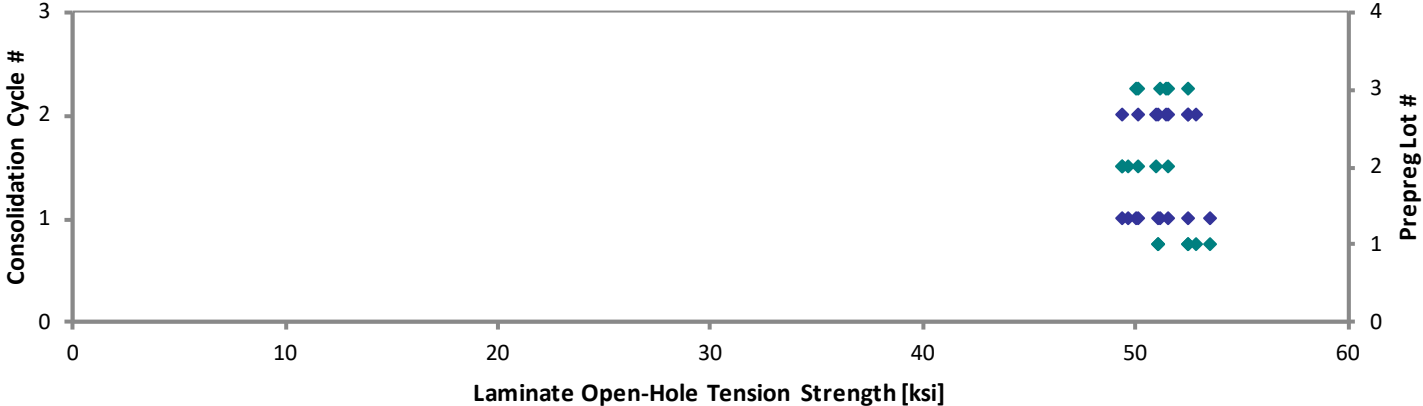
Avg. t _{ply} [in]	Strength _{norm} [ksi]
0.0053	53.55
0.0053	51.03
0.0053	52.52
0.0053	52.82
0.0053	52.46
0.0053	51.10
0.0053	49.33
0.0053	49.66
0.0053	51.52
0.0053	49.37
0.0053	50.14
0.0054	50.99
0.0054	50.04
0.0054	50.14
0.0054	51.14
0.0053	52.48
0.0054	51.57
0.0053	51.47

Average 51.98
Standard Dev. 1.476
Coeff. of Var. [%] 2.840
Min. 49.92
Max. 54.74
Number of Spec. 18

Average_{norm} 0.0053
Standard Dev._{norm} 1.244
Coeff. of Var. [%]_{norm} 2.430
Min. 0.0053
Max. 0.0054
Number of Spec. 18

Laminate Open-Hole Tension Properties (OHT1)--ETW
(275°F) Normalized Strength
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

◆ Consolidation Cycle #
◆ Prepreg Lot #



4.19 “10/80/10” Open-Hole Tension 2 Properties (OHT2)

Laminate Open-Hole Tension Properties (OHT2)--CTA (-65°F)
Strength
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
 t_{ply} [in]
 0.0054

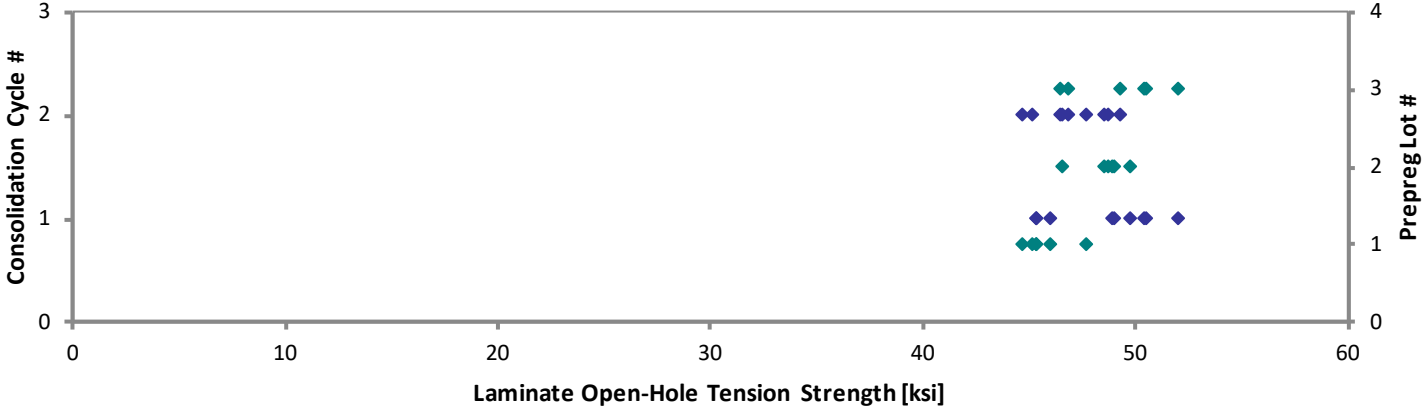
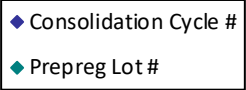
Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHT2-A-C1-CTA-1	A	C1	1	1	45.57	0.1075	20	AGM
OHT2-A-C1-CTA-2	A	C1	1	1	46.44	0.1069	20	AGM
OHT2-A-C1-CTA-3	A	C1	1	1	45.80	0.1069	20	AGM
OHT2-A-C2-CTA-1	A	C2	1	2	46.01	0.1061	20	AGM
OHT2-A-C2-CTA-2	A	C2	1	2	48.96	0.1053	20	AGM
OHT2-A-C2-CTA-3	A	C2	1	2	46.08	0.1047	20	AGM
OHT2-B-C1-CTA-1	B	C1	2	1	48.60	0.1089	20	AGM
OHT2-B-C1-CTA-2	B	C1	2	1	48.41	0.1091	20	AGM
OHT2-B-C1-CTA-3	B	C1	2	1	49.63	0.1083	20	AGM
OHT2-B-C2-CTA-1	B	C2	2	2	49.00	0.1069	20	AGM
OHT2-B-C2-CTA-2	B	C2	2	2	47.04	0.1070	20	AGM
OHT2-B-C2-CTA-3	B	C2	2	2	49.46	0.1065	20	AGM
OHT2-C-C1-CTA-1	C	C1	3	1	51.51	0.1091	20	AGM
OHT2-C-C1-CTA-2	C	C1	3	1	50.06	0.1087	20	AGM
OHT2-C-C1-CTA-3	C	C1	3	1	50.33	0.1083	20	AGM
OHT2-C-C2-CTA-1	C	C2	3	2	49.10	0.1085	20	AGM
OHT2-C-C2-CTA-2	C	C2	3	2	46.87	0.1079	20	AGM
OHT2-C-C2-CTA-3	C	C2	3	2	46.51	0.1079	20	AGM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0054	45.36
0.0053	45.97
0.0053	45.33
0.0053	45.19
0.0053	47.72
0.0052	44.66
0.0054	48.99
0.0055	48.91
0.0054	49.78
0.0053	48.50
0.0053	46.59
0.0053	48.76
0.0055	52.02
0.0054	50.39
0.0054	50.46
0.0054	49.33
0.0054	46.81
0.0054	46.47

Average 48.08
 Standard Dev. 1.808
 Coeff. of Var. [%] 3.760
 Min. 45.57
 Max. 51.51
 Number of Spec. 18

Average_{norm} 0.0054 47.85
 Standard Dev._{norm} 2.145
 Coeff. of Var. [%]_{norm} 4.482
 Min. 0.0052 44.66
 Max. 0.0055 52.02
 Number of Spec. 18 18

Laminate Open-Hole Tension Properties (OHT2)--CTA(-65°F)
Normalized Strength
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC



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

Strength

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]

0.0054

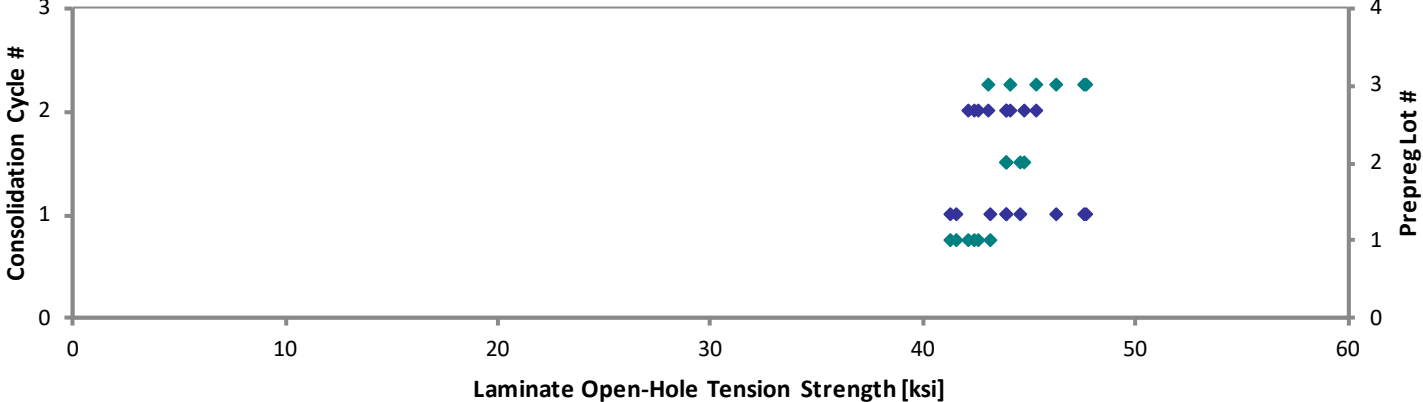
Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHT2-A-C1-RTA-1	A	C1	1	1	41.77	0.1076	20	AGM
OHT2-A-C1-RTA-2	A	C1	1	1	41.12	0.1084	20	AGM
OHT2-A-C1-RTA-3	A	C1	1	1	42.97	0.1086	20	AGM
OHT2-A-C2-RTA-1	A	C2	1	2	42.86	0.1073	20	M(A,D)GM
OHT2-A-C2-RTA-2	A	C2	1	2	42.98	0.1066	20	M(A,D)GM
OHT2-A-C2-RTA-3	A	C2	1	2	42.49	0.1070	20	M(A,D)GM
OHT2-B-C1-RTA-1	B	C1	2	1	42.92	0.1106	20	AGM
OHT2-B-C1-RTA-2	B	C1	2	1	43.68	0.1104	20	AGM
OHT2-B-C1-RTA-3	B	C1	2	1	43.03	0.1103	20	AGM
OHT2-B-C2-RTA-1	B	C2	2	2	43.86	0.1081	20	AGM
OHT2-B-C2-RTA-2	B	C2	2	2	44.32	0.1069	20	AGM
OHT2-B-C2-RTA-3	B	C2	2	2	45.14	0.1071	20	AGM
OHT2-C-C1-RTA-1	C	C1	3	1	45.77	0.1126	20	AGM
OHT2-C-C1-RTA-2	C	C1	3	1	46.34	0.1109	20	AGM
OHT2-C-C1-RTA-3	C	C1	3	1	45.21	0.1105	20	AGM
OHT2-C-C2-RTA-1	C	C2	3	2	42.87	0.1085	20	AGM
OHT2-C-C2-RTA-2	C	C2	3	2	43.48	0.1097	20	AGM
OHT2-C-C2-RTA-3	C	C2	3	2	44.81	0.1093	20	AGM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0054	41.61
0.0054	41.28
0.0054	43.22
0.0054	42.57
0.0053	42.41
0.0054	42.11
0.0055	43.93
0.0055	44.63
0.0055	43.96
0.0054	43.89
0.0053	43.88
0.0054	44.78
0.0056	47.72
0.0055	47.58
0.0055	46.24
0.0054	43.07
0.0055	44.16
0.0055	45.33

Average 43.64
 Standard Dev. 1.385
 Coeff. of Var. [%] 3.174
 Min. 41.12
 Max. 46.34
 Number of Spec. 18

Average_{norm} 0.0054 44.02
 Standard Dev._{norm} 1.834
 Coeff. of Var. [%]_{norm} 4.166
 Min. 0.0053 41.28
 Max. 0.0056 47.72
 Number of Spec. 18 18

Laminate Open-Hole Tension Properties (OHT2)--RTA(70°F)
Normalized Strength
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC



**Laminate Open-Hole Tension Properties (OHT2)--ETW (275°F) □
Strength □**

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

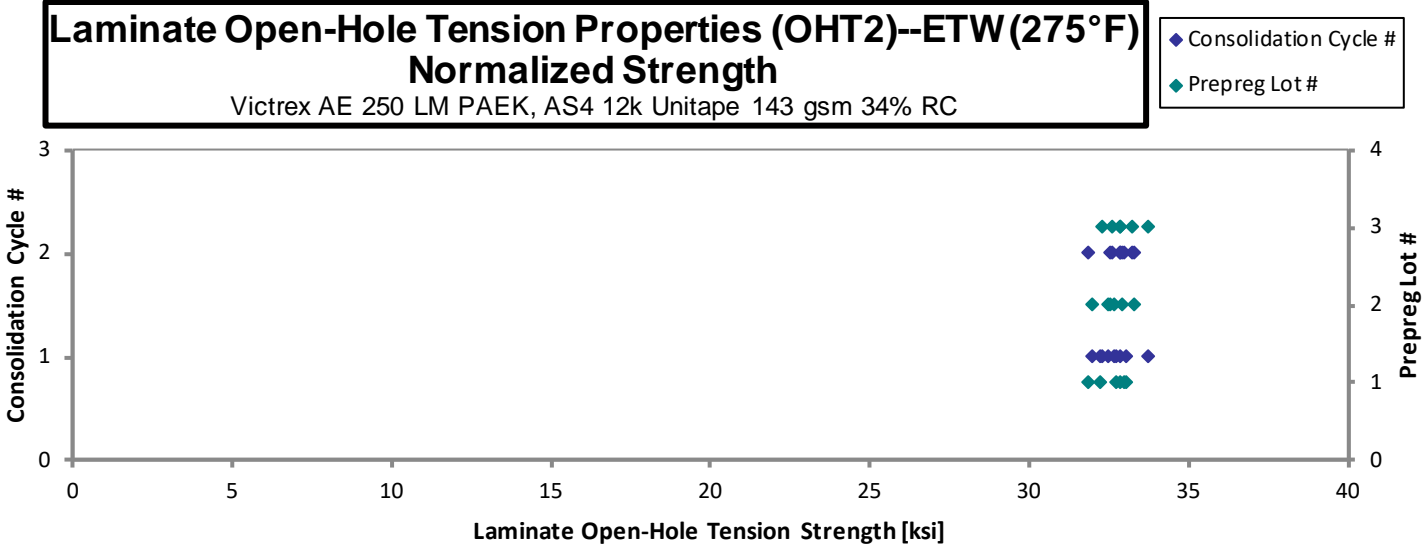
normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrax Batch #	Victrax Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHT2-A-C1-ETW-1	A	C1	1	1	32.59	0.1068	20	AGM
OHT2-A-C1-ETW-2	A	C1	1	1	33.07	0.1070	20	AGM
OHT2-A-C1-ETW-3	A	C1	1	1	33.32	0.1071	20	AGM
OHT2-A-C2-ETW-1	A	C2	1	2	34.05	0.1043	20	AGM
OHT2-A-C2-ETW-2	A	C2	1	2	32.95	0.1044	20	AGM
OHT2-A-C2-ETW-3	A	C2	1	2	33.72	0.1057	20	AGM
OHT2-B-C1-ETW-1	B	C1	2	1	31.99	0.1080	20	AGM
OHT2-B-C1-ETW-2	B	C1	2	1	32.43	0.1081	20	AGM
OHT2-B-C1-ETW-3	B	C1	2	1	32.64	0.1081	20	AGM
OHT2-B-C2-ETW-1	B	C2	2	2	33.23	0.1057	20	AGM
OHT2-B-C2-ETW-2	B	C2	2	2	33.64	0.1058	20	AGM
OHT2-B-C2-ETW-3	B	C2	2	2	33.98	0.1059	20	AGM
OHT2-C-C1-ETW-1	C	C1	3	1	32.51	0.1072	20	AGM
OHT2-C-C1-ETW-2	C	C1	3	1	33.81	0.1077	20	AGM
OHT2-C-C1-ETW-3	C	C1	3	1	33.22	0.1068	20	AGM
OHT2-C-C2-ETW-1	C	C2	3	2	33.10	0.1072	20	AGM
OHT2-C-C2-ETW-2	C	C2	3	2	33.66	0.1066	20	AGM
OHT2-C-C2-ETW-3	C	C2	3	2	32.89	0.1071	20	AGM

Avg. t _{ply} [in]	Strength _{norm} [ksi]
0.0053	32.23
0.0053	32.75
0.0054	33.04
0.0052	32.89
0.0052	31.86
0.0053	33.00
0.0054	31.97
0.0054	32.46
0.0054	32.66
0.0053	32.53
0.0053	32.94
0.0053	33.32
0.0054	32.28
0.0054	33.73
0.0053	32.85
0.0054	32.85
0.0053	33.21
0.0054	32.61

Average **33.16**
Standard Dev. **0.5832**
Coeff. of Var. [%] **1.759**
Min. **31.99**
Max. **34.05**
Number of Spec. **18**

Average_{norm} **0.0053** **32.73**
Standard Dev._{norm} **0.4707**
Coeff. of Var. [%]_{norm} **1.438**
Min. **0.0052** **31.86**
Max. **0.0054** **33.73**
Number of Spec. **18** **18**



4.20 “40/20/40” Open-Hole Tension 3 Properties (OHT3)

Laminate Open-Hole Tension Properties (OHT3)--CTA (-65°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

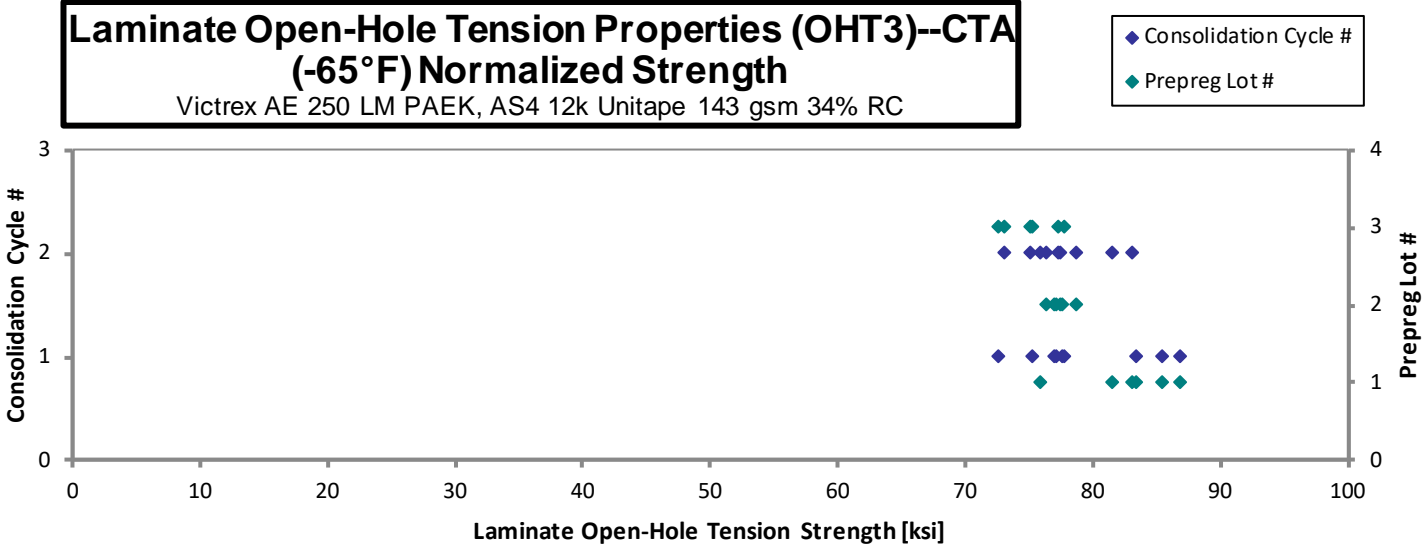
normalizing
 $t_{ply} [in]$
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHT3-A-C1-CTA-1	A	C1	1	1	86.22	0.1070	20	M(A,L)GM
OHT3-A-C1-CTA-2	A	C1	1	1	87.48	0.1072	20	M(A,L)GM
OHT3-A-C1-CTA-3	A	C1	1	1	84.70	0.1063	20	M(A,L)GM
OHT3-A-C2-CTA-1	A	C2	1	2	84.88	0.1056	20	M(A,L)GM
OHT3-A-C2-CTA-2	A	C2	1	2	78.30	0.1046	20	M(A,L)GM
OHT3-A-C2-CTA-3	A	C2	1	2	83.98	0.1049	20	M(A,L)GM
OHT3-B-C1-CTA-1	B	C1	2	1	79.12	0.1054	20	M(A,L)GM
OHT3-B-C1-CTA-2	B	C1	2	1	80.04	0.1048	20	M(A,L)GM
OHT3-B-C1-CTA-3	B	C1	2	1	79.70	0.1043	20	M(A,L)GM
OHT3-B-C2-CTA-1	B	C2	2	2	78.37	0.1052	20	AGM
OHT3-B-C2-CTA-2	B	C2	2	2	79.99	0.1045	20	M(A,L)GM
OHT3-B-C2-CTA-3	B	C2	2	2	81.51	0.1042	20	M(A,L)GM
OHT3-C-C1-CTA-1	C	C1	3	1	79.50	0.1056	20	M(A,L)GM
OHT3-C-C1-CTA-2	C	C1	3	1	77.11	0.1053	20	AGM
OHT3-C-C1-CTA-3	C	C1	3	1	75.09	0.1044	20	AGM
OHT3-C-C2-CTA-1	C	C2	3	2	78.56	0.1063	20	AGM
OHT3-C-C2-CTA-2	C	C2	3	2	74.77	0.1055	20	AGM
OHT3-C-C2-CTA-3	C	C2	3	2	77.07	0.1052	20	M(A,L)GM

Avg. $t_{ply} [in]$	Strength _{norm} [ksi]
0.0054	85.42
0.0054	86.80
0.0053	83.32
0.0053	83.00
0.0052	75.83
0.0052	81.54
0.0053	77.19
0.0052	77.66
0.0052	76.96
0.0053	76.33
0.0052	77.42
0.0052	78.66
0.0053	77.70
0.0053	75.18
0.0052	72.61
0.0053	77.30
0.0053	73.07
0.0053	75.08

Average **80.35**
 Standard Dev. **3.705**
 Coeff. of Var. [%] **4.611**
 Min. **74.77**
 Max. **87.48**
 Number of Spec. **18**

Average_{norm} **0.0053** **78.39**
 Standard Dev._{norm} **4.031**
 Coeff. of Var. [%]_{norm} **5.142**
 Min. **0.0052** **72.61**
 Max. **0.0054** **86.80**
 Number of Spec. **18** **18**



Laminate Open-Hole Tension Properties (OHT3)--RTA (70°F) □

Strength □

Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]

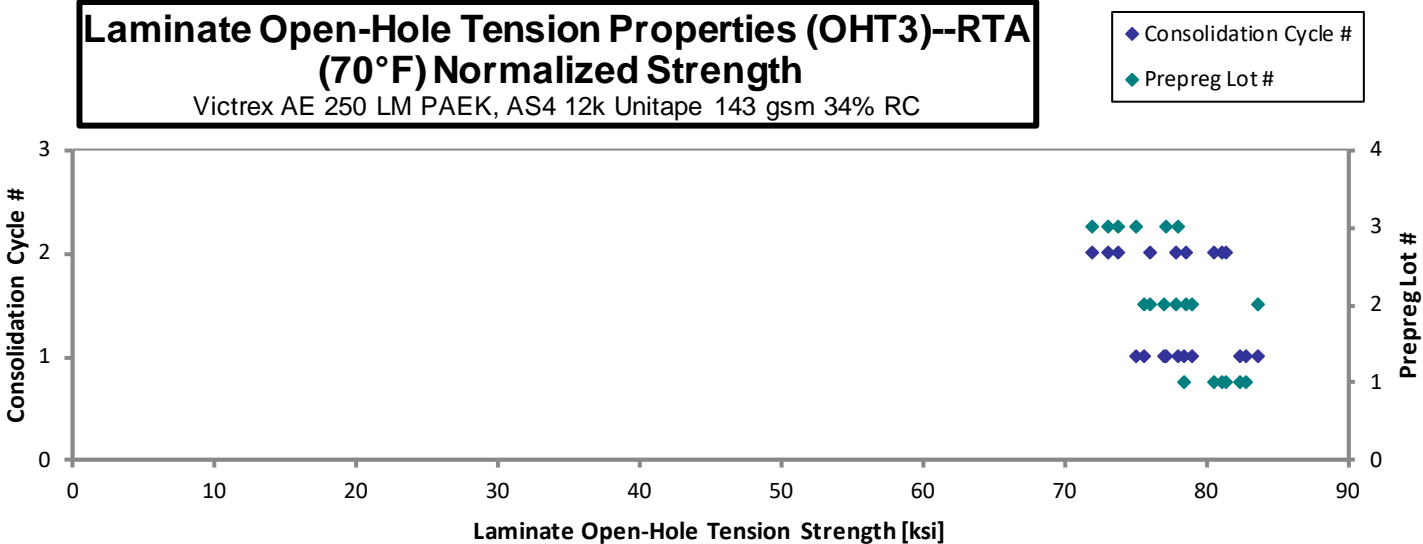
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Specimen Number	Victrix Batch #	Victrix Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHT3-A-C1-RTA-1	A	C1	1	1	82.90	0.1078	20	M(A,L)GM
OHT3-A-C1-RTA-2	A	C1	1	1	82.90	0.1074	20	M(A,L)GM
OHT3-A-C1-RTA-3	A	C1	1	1	79.10	0.1072	20	M(A,L)GM
OHT3-A-C2-RTA-1	A	C2	1	2	81.13	0.1072	20	M(A,L)GM
OHT3-A-C2-RTA-2	A	C2	1	2	82.58	0.1065	20	M(A,L)GM
OHT3-A-C2-RTA-3	A	C2	1	2	82.48	0.1063	20	M(A,L)GM
OHT3-B-C1-RTA-1	B	C1	2	1	82.19	0.1099	20	M(A,L)GM
OHT3-B-C1-RTA-2	B	C1	2	1	79.09	0.1080	20	AGM
OHT3-B-C1-RTA-3	B	C1	2	1	77.60	0.1073	20	M(A,L)GM
OHT3-B-C1-RTA-4	B	C1	2	1	76.78	0.1065	20	AGM
OHT3-B-C2-RTA-1	B	C2	2	2	75.71	0.1085	20	AGM
OHT3-B-C2-RTA-2	B	C2	2	2	77.88	0.1079	20	M(A,L)GM
OHT3-B-C2-RTA-3	B	C2	2	2	80.28	0.1057	20	M(A,L)GM
OHT3-C-C1-RTA-1	C	C1	3	1	75.72	0.1070	20	AGM
OHT3-C-C1-RTA-2	C	C1	3	1	79.04	0.1066	20	AGM
OHT3-C-C1-RTA-3	C	C1	3	1	78.41	0.1063	20	M(A,L)GM
OHT3-C-C2-RTA-1	C	C2	3	2	72.16	0.1076	20	M(A,L)GM
OHT3-C-C2-RTA-2	C	C2	3	2	73.72	0.1071	20	M(A,L)GM
OHT3-C-C2-RTA-3	C	C2	3	2	74.77	0.1066	20	M(A,L)GM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0054	82.77
0.0054	82.42
0.0054	78.48
0.0054	80.54
0.0053	81.44
0.0053	81.18
0.0055	83.62
0.0054	79.06
0.0054	77.06
0.0053	75.67
0.0054	76.02
0.0054	77.82
0.0053	78.55
0.0054	75.02
0.0053	77.99
0.0053	77.16
0.0054	71.90
0.0054	73.09
0.0053	73.76

Average 78.65
 Standard Dev. 3.267
 Coeff. of Var. [%] 4.154
 Min. 72.16
 Max. 82.90
 Number of Spec. 19

Average_{norm} 0.0054 78.08
 Standard Dev._{norm} 3.357
 Coeff. of Var. [%]_{norm} 4.299
 Min. 0.0053 71.90
 Max. 0.0055 83.62
 Number of Spec. 19 19



Laminate Open-Hole Tension Properties (OHT3)--ETW (275°F)

Strength

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]

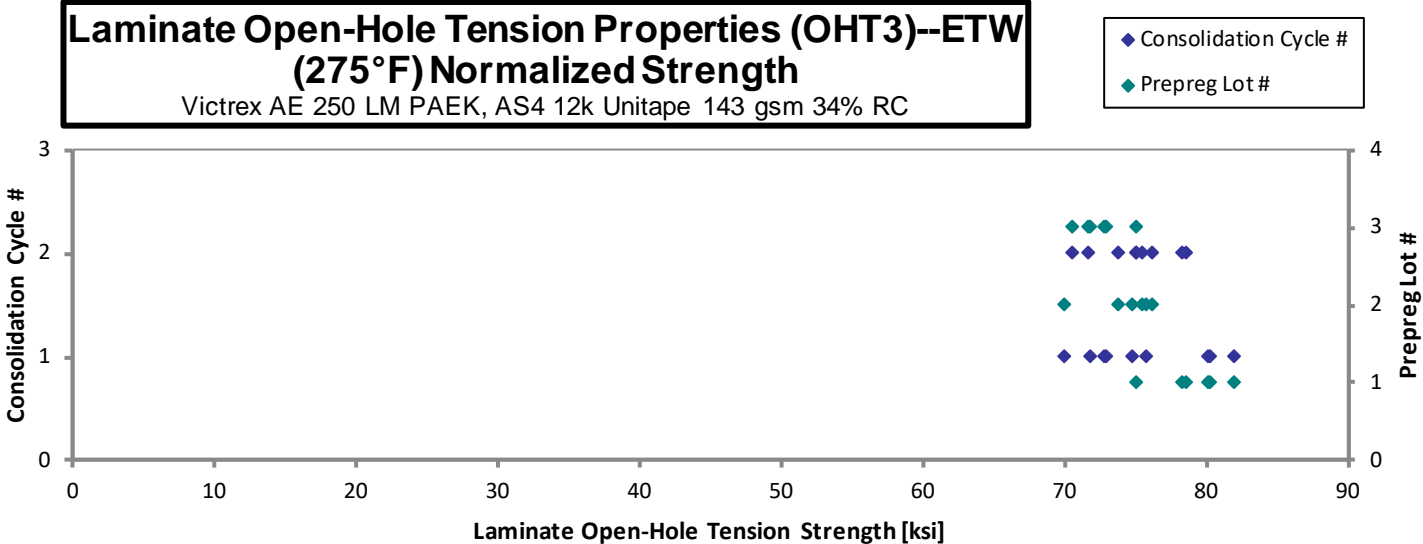
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Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHT3-A-C1-ETW-1	A	C1	1	1	81.60	0.1063	20	AGM
OHT3-A-C1-ETW-2	A	C1	1	1	83.41	0.1061	20	M(A,L)GM
OHT3-A-C1-ETW-3	A	C1	1	1	80.69	0.1073	20	M(A,L)GM
OHT3-A-C2-ETW-1	A	C2	1	2	81.09	0.1042	20	M(A,L)GM
OHT3-A-C2-ETW-2	A	C2	1	2	81.51	0.1041	20	M(A,L)GM
OHT3-A-C2-ETW-3	A	C2	1	2	78.04	0.1039	20	M(A,L)GM
OHT3-B-C1-ETW-1	B	C1	2	1	78.97	0.1037	20	M(A,L)GM
OHT3-B-C1-ETW-2	B	C1	2	1	72.75	0.1040	20	M(A,L)GM
OHT3-B-C1-ETW-3	B	C1	2	1	77.53	0.1042	20	M(A,L)GM
OHT3-B-C2-ETW-1	B	C2	2	2	78.58	0.1037	20	M(A,L)GM
OHT3-B-C2-ETW-2	B	C2	2	2	76.76	0.1039	20	M(A,L)GM
OHT3-B-C2-ETW-3	B	C2	2	2	78.86	0.1043	20	AGM
OHT3-C-C1-ETW-1	C	C1	3	1	75.28	0.1044	20	M(A,L)GM
OHT3-C-C1-ETW-2	C	C1	3	1	75.78	0.1040	20	AGM
OHT3-C-C1-ETW-3	C	C1	3	1	74.52	0.1042	20	AGM
OHT3-C-C2-ETW-1	C	C2	3	2	77.31	0.1048	20	M(A,L)GM
OHT3-C-C2-ETW-2	C	C2	3	2	73.92	0.1046	20	M(A,L)GM
OHT3-C-C2-ETW-3	C	C2	3	2	73.13	0.1041	20	M(A,L)GM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	80.31
0.0053	81.96
0.0054	80.16
0.0052	78.24
0.0052	78.53
0.0052	75.05
0.0052	75.80
0.0052	70.02
0.0052	74.78
0.0052	75.43
0.0052	73.85
0.0052	76.12
0.0052	72.76
0.0052	72.95
0.0052	71.86
0.0052	75.05
0.0052	71.60
0.0052	70.49

Average 77.76
 Standard Dev. 3.135
 Coeff. of Var. [%] 4.031
 Min. 72.75
 Max. 83.41
 Number of Spec. 18

Average_{norm} 0.0052 75.28
 Standard Dev._{norm} 3.465
 Coeff. of Var. [%]_{norm} 4.603
 Min. 0.0052 70.02
 Max. 0.0054 81.96
 Number of Spec. 18 18



4.21 “25/50/25” Filled-Hole Tension 1 Properties (FHT1)

Laminate Filled-Hole Tension Properties (FHT1)--CTA (-65°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

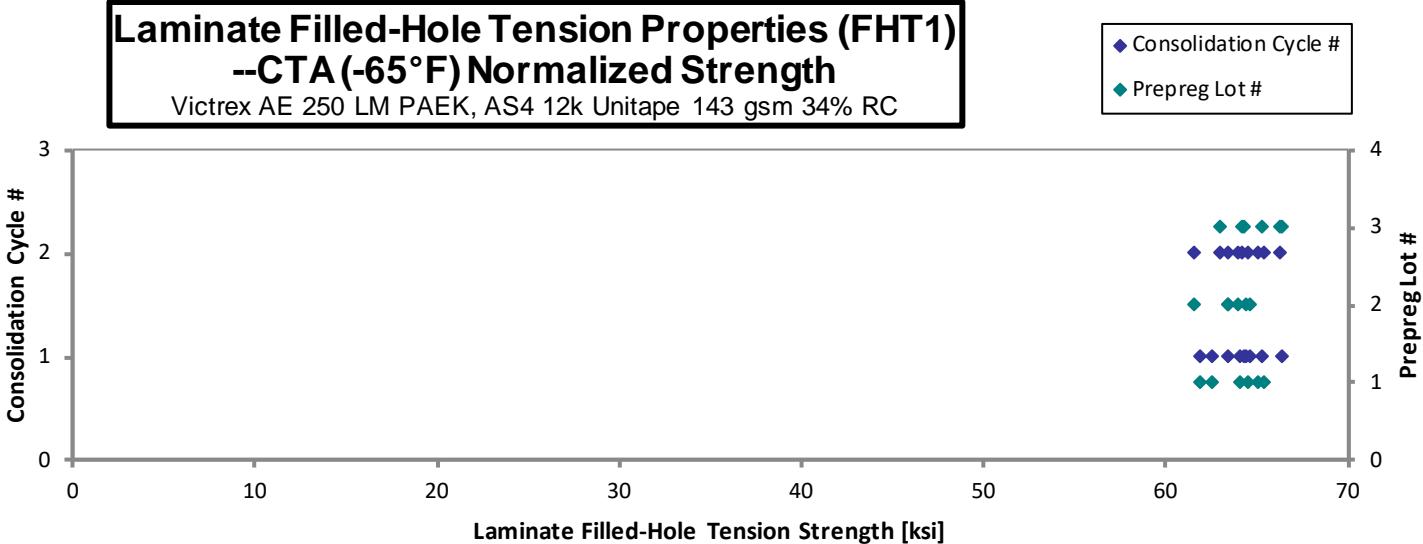
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHT1-A-C1-CTA-1	A	C1	1	1	63.72	0.0849	16	M(A,L)GM
FHT1-A-C1-CTA-2	A	C1	1	1	63.01	0.0848	16	M(A,L)GM
FHT1-A-C1-CTA-3	A	C1	1	1	65.24	0.0849	16	M(A,L)GM
FHT1-A-C2-CTA-1	A	C2	1	2	66.06	0.0844	16	M(A,L)GM
FHT1-A-C2-CTA-2	A	C2	1	2	67.06	0.0839	16	M(A,L)GM
FHT1-A-C2-CTA-3	A	C2	1	2	66.98	0.0844	16	M(A,L)GM
FHT1-B-C1-CTA-1	B	C1	2	1	65.24	0.0856	16	M(A,L)GM
FHT1-B-C1-CTA-2	B	C1	2	1	64.02	0.0856	16	M(A,L)GM
FHT1-B-C1-CTA-3	B	C1	2	1	65.53	0.0850	16	M(A,L)GM
FHT1-B-C2-CTA-1	B	C2	2	2	61.42	0.0867	16	AGM
FHT1-B-C2-CTA-2	B	C2	2	2	64.24	0.0861	16	AGM
FHT1-B-C2-CTA-3	B	C2	2	2	64.14	0.0855	16	AGM
FHT1-C-C1-CTA-1	C	C1	3	1	64.67	0.0872	16	AGM
FHT1-C-C1-CTA-2	C	C1	3	1	66.20	0.0866	16	AGM
FHT1-C-C1-CTA-3	C	C1	3	1	64.19	0.0865	16	AGM
FHT1-C-C2-CTA-1	C	C2	3	2	67.09	0.0854	16	M(A,L)GM
FHT1-C-C2-CTA-2	C	C2	3	2	65.08	0.0852	16	AGM
FHT1-C-C2-CTA-3	C	C2	3	2	63.79	0.0853	16	M(A,L)GM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	62.59
0.0053	61.84
0.0053	64.07
0.0053	64.53
0.0052	65.08
0.0053	65.39
0.0054	64.64
0.0054	63.43
0.0053	64.45
0.0054	61.61
0.0054	64.00
0.0053	63.44
0.0055	65.28
0.0054	66.37
0.0054	64.28
0.0053	66.32
0.0053	64.14
0.0053	62.95

Average 64.87
 Standard Dev. 1.498
 Coeff. of Var. [%] 2.309
 Min. 61.42
 Max. 67.09
 Number of Spec. 18

Average_{norm} 0.0053 64.13
 Standard Dev._{norm} 1.339
 Coeff. of Var. [%]_{norm} 2.088
 Min. 0.0052 61.61
 Max. 0.0055 66.37
 Number of Spec. 18 18



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

Strength □

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]

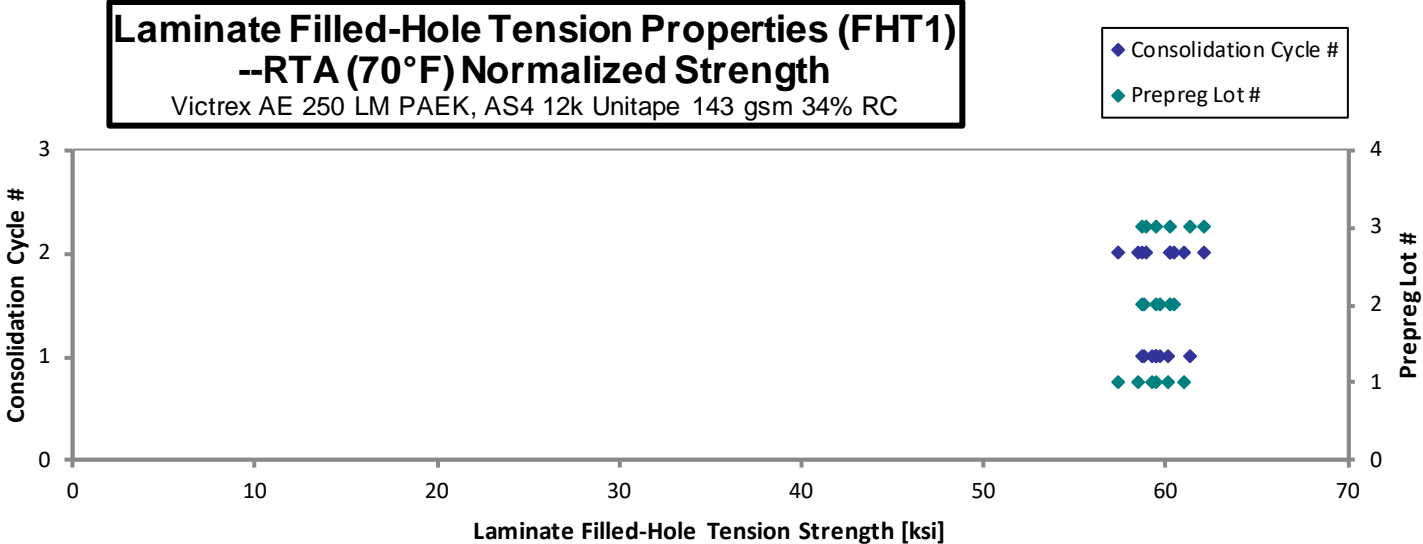
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Specimen Number	Victrax Batch #	Victrax Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHT1-A-C1-RTA-1	A	C1	1	1	60.06	0.0853	16	M(A,L)GM
FHT1-A-C1-RTA-2	A	C1	1	1	60.84	0.0845	16	M(A,L)GM
FHT1-A-C1-RTA-3	A	C1	1	1	61.45	0.0846	16	M(A,L)GM
FHT1-A-C2-RTA-1	A	C2	1	2	62.22	0.0847	16	M(A,L)GM
FHT1-A-C2-RTA-2	A	C2	1	2	59.13	0.0839	16	M(A,L)GM
FHT1-A-C2-RTA-3	A	C2	1	2	60.38	0.0837	16	M(A,L)GM
FHT1-B-C1-RTA-1	B	C1	2	1	59.86	0.0849	16	M(A,L)GM
FHT1-B-C1-RTA-2	B	C1	2	1	60.12	0.0855	16	M(A,L)GM
FHT1-B-C1-RTA-3	B	C1	2	1	60.26	0.0856	16	M(A,L)GM
FHT1-B-C2-RTA-1	B	C2	2	2	60.07	0.0869	16	M(A,L)GM
FHT1-B-C2-RTA-2	B	C2	2	2	59.89	0.0869	16	M(A,L)GM
FHT1-B-C2-RTA-3	B	C2	2	2	58.88	0.0862	16	M(A,L)GM
FHT1-C-C1-RTA-1	C	C1	3	1	60.92	0.0869	16	M(A,L)GM
FHT1-C-C1-RTA-2	C	C1	3	1	58.87	0.0873	16	M(A,L)GM
FHT1-C-C1-RTA-3	C	C1	3	1	58.39	0.0868	16	M(A,L)GM
FHT1-C-C2-RTA-1	C	C2	3	2	60.54	0.0859	16	M(A,L)GM
FHT1-C-C2-RTA-2	C	C2	3	2	59.84	0.0850	16	M(A,L)GM
FHT1-C-C2-RTA-3	C	C2	3	2	62.80	0.0854	16	M(A,L)GM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	59.28
0.0053	59.46
0.0053	60.14
0.0053	60.96
0.0052	57.43
0.0052	58.49
0.0053	58.81
0.0053	59.46
0.0053	59.67
0.0054	60.44
0.0054	60.20
0.0054	58.75
0.0054	61.30
0.0055	59.46
0.0054	58.65
0.0054	60.22
0.0053	58.87
0.0053	62.06

Average 60.25
 Standard Dev. 1.131
 Coeff. of Var. [%] 1.877
 Min. 58.39
 Max. 62.80
 Number of Spec. 18

Average_{norm} 0.0053 59.65
 Standard Dev._{norm} 1.121
 Coeff. of Var. [%]_{norm} 1.879
 Min. 0.0052 57.43
 Max. 0.0055 62.06
 Number of Spec. 18 18



Laminate Filled-Hole Tension Properties (FHT1)--ETA (275°F) □

Strength □

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]

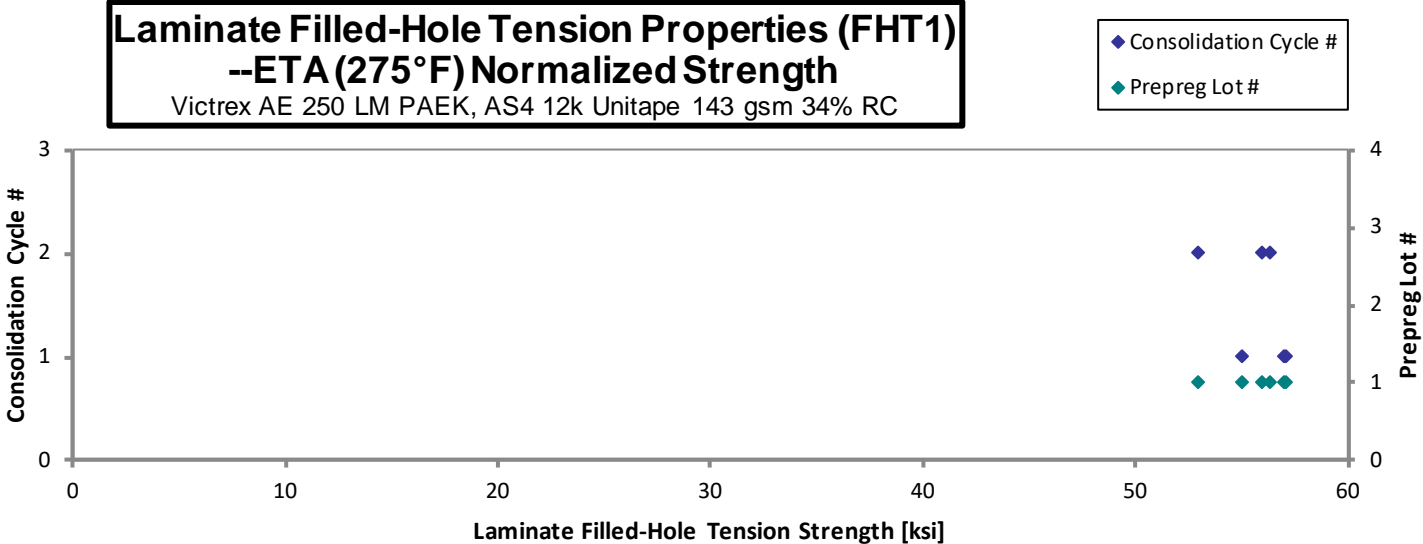
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Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHT1-A-C1-ETA-1	A	C1	1	1	58.18	0.0846	16	M(A,L)GM
FHT1-A-C1-ETA-2	A	C1	1	1	56.11	0.0847	16	M(A,L)GM
FHT1-A-C1-ETA-3	A	C1	1	1	57.73	0.0855	16	AGM
FHT1-A-C2-ETA-1	A	C2	1	2	54.86	0.0835	16	AGM
FHT1-A-C2-ETA-2	A	C2	1	2	57.67	0.0838	16	AGM
FHT1-A-C2-ETA-3	A	C2	1	2	58.09	0.0838	16	AGM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	56.99
0.0053	54.99
0.0053	57.09
0.0052	52.99
0.0052	55.92
0.0052	56.36

Average 57.11
 Standard Dev. 1.334
 Coeff. of Var. [%] 2.336
 Min. 54.86
 Max. 58.18
 Number of Spec. 6

Average_{norm} 0.0053 55.73
 Standard Dev._{norm} 1.544
 Coeff. of Var. [%]_{norm} 2.770
 Min. 0.0052 52.99
 Max. 0.0053 57.09
 Number of Spec. 6 6



**Laminate Filled-Hole Tension Properties (FHT1)--ETW (275°F) □
Strength □**

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

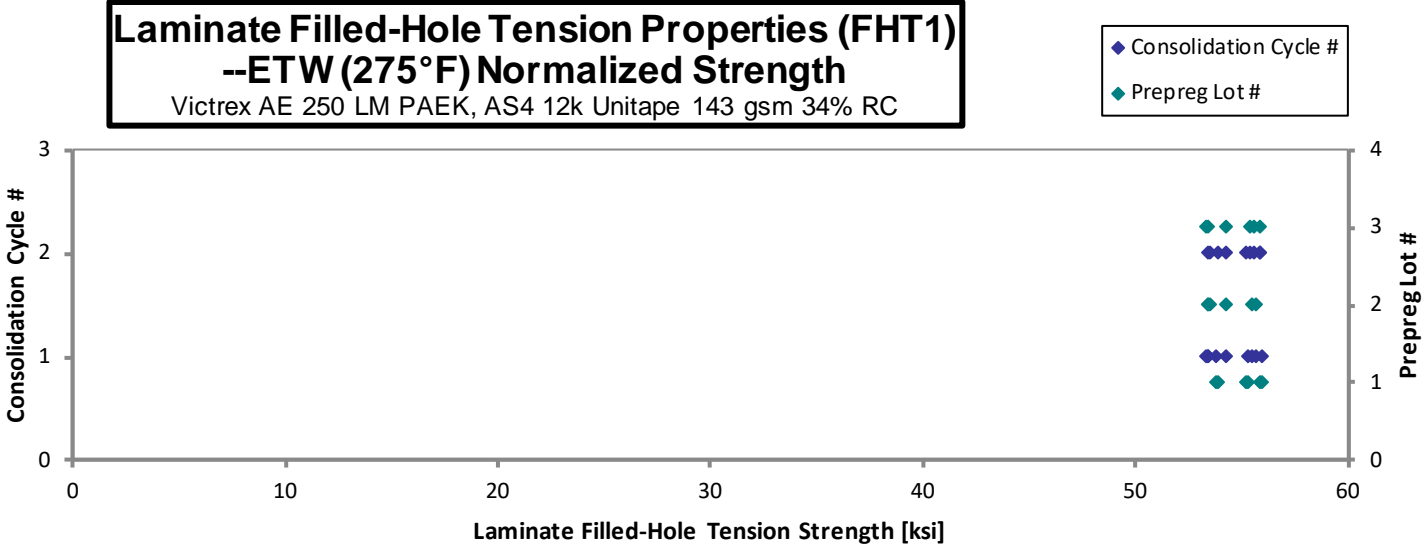
t_{ply} [in]
0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHT1-A-C1-ETW-1	A	C1	1	1	56.87	0.0850	16	M(A,L)GM
FHT1-A-C1-ETW-2	A	C1	1	1	56.07	0.0852	16	M(A,L)GM
FHT1-A-C1-ETW-3	A	C1	1	1	54.62	0.0851	16	M(A,L)GM
FHT1-A-C2-ETW-1	A	C2	1	2	57.28	0.0843	16	M(A,L)GM
FHT1-A-C2-ETW-2	A	C2	1	2	55.11	0.0845	16	AGM
FHT1-A-C2-ETW-3	A	C2	1	2	56.34	0.0847	16	AGM
FHT1-B-C1-ETW-1	B	C1	2	1	54.36	0.0850	16	M(A,L)GM
FHT1-B-C1-ETW-2	B	C1	2	1	56.36	0.0853	16	AGM
FHT1-B-C1-ETW-3	B	C1	2	1	56.05	0.0855	16	M(A,L)GM
FHT1-B-C2-ETW-1	B	C2	2	2	54.40	0.0849	16	M(A,L)GM
FHT1-B-C2-ETW-2	B	C2	2	2	54.32	0.0851	16	AGM
FHT1-B-C2-ETW-3	B	C2	2	2	55.10	0.0851	16	M(A,L)GM
FHT1-C-C1-ETW-1	C	C1	3	1	53.19	0.0868	16	AGM
FHT1-C-C1-ETW-2	C	C1	3	1	54.36	0.0863	16	M(A,L)GM
FHT1-C-C1-ETW-3	C	C1	3	1	53.42	0.0863	16	AGM
FHT1-C-C2-ETW-1	C	C2	3	2	56.50	0.0847	16	M(A,L)GM
FHT1-C-C2-ETW-2	C	C2	3	2	55.94	0.0858	16	M(A,L)GM
FHT1-C-C2-ETW-3	C	C2	3	2	56.76	0.0851	16	AGM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	55.96
0.0053	55.28
0.0053	53.77
0.0053	55.88
0.0053	53.90
0.0053	55.23
0.0053	53.46
0.0053	55.65
0.0053	55.48
0.0053	53.44
0.0053	53.50
0.0053	54.28
0.0054	53.42
0.0054	54.28
0.0054	53.35
0.0053	55.37
0.0054	55.57
0.0053	55.90

Average 55.39
Standard Dev. 1.228
Coeff. of Var. [%] 2.217
Min. 53.19
Max. 57.28
Number of Spec. 18

Average_{norm} 0.0053 54.65
Standard Dev._{norm} 1.0183
Coeff. of Var. [%]_{norm} 1.863
Min. 0.0053 53.35
Max. 0.0054 55.96
Number of Spec. 18 18



4.22 “10/80/10” Filled-Hole Tension 2 Properties (FHT2)

Laminate Filled-Hole Tension Properties (FHT2)--CTA (-65°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

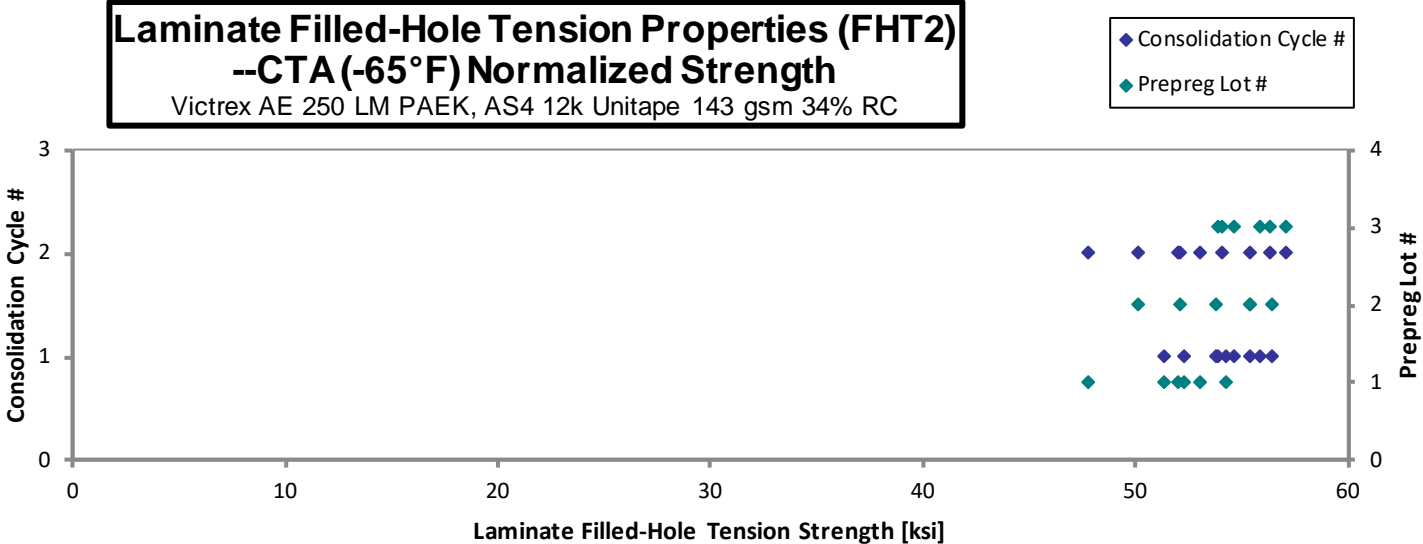
normalizing
 $t_{ply} [in]$
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHT2-A-C1-CTA-1	A	C1	1	1	54.74	0.1071	20	AGM
FHT2-A-C1-CTA-2	A	C1	1	1	52.70	0.1071	20	AGM
FHT2-A-C1-CTA-3	A	C1	1	1	51.87	0.1070	20	AGM
FHT2-A-C2-CTA-1	A	C2	1	2	48.62	0.1061	20	AGM
FHT2-A-C2-CTA-2	A	C2	1	2	53.61	0.1048	20	AGM
FHT2-A-C2-CTA-3	A	C2	1	2	54.34	0.1055	20	AGM
FHT2-B-C1-CTA-1	B	C1	2	1	55.71	0.1074	20	AGM
FHT2-B-C1-CTA-2	B	C1	2	1	56.58	0.1078	20	AGM
FHT2-B-C1-CTA-3	B	C1	2	1	53.96	0.1076	20	AGM
FHT2-B-C2-CTA-1	B	C2	2	2	50.48	0.1072	20	AGM
FHT2-B-C2-CTA-2	B	C2	2	2	52.56	0.1070	20	AGM
FHT2-B-C2-CTA-3	B	C2	2	2	56.05	0.1068	20	AGM
FHT2-C-C1-CTA-1	C	C1	3	1	53.58	0.1087	20	AGM
FHT2-C-C1-CTA-2	C	C1	3	1	53.99	0.1093	20	AGM
FHT2-C-C1-CTA-3	C	C1	3	1	55.30	0.1092	20	AGM
FHT2-C-C2-CTA-1	C	C2	3	2	57.41	0.1074	20	AGM
FHT2-C-C2-CTA-2	C	C2	3	2	54.22	0.1076	20	AGM
FHT2-C-C2-CTA-3	C	C2	3	2	56.65	0.1074	20	AGM

Avg. $t_{ply} [in]$	Strength _{norm} [ksi]
0.0054	54.30
0.0054	52.27
0.0053	51.36
0.0053	47.78
0.0052	52.02
0.0053	53.06
0.0054	55.41
0.0054	56.46
0.0054	53.76
0.0054	50.09
0.0054	52.07
0.0053	55.41
0.0054	53.92
0.0055	54.66
0.0055	55.89
0.0054	57.08
0.0054	54.03
0.0054	56.34

Average 54.02
 Standard Dev. 2.234
 Coeff. of Var. [%] 4.135
 Min. 48.62
 Max. 57.41
 Number of Spec. 18

Average_{norm} 0.0054 53.66
 Standard Dev._{norm} 2.420
 Coeff. of Var. [%]_{norm} 4.510
 Min. 0.0052 47.78
 Max. 0.0055 57.08
 Number of Spec. 18 18



**Laminate Filled-Hole Tension Properties (FHT2)--RTA (70°F) □
Strength □**

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]

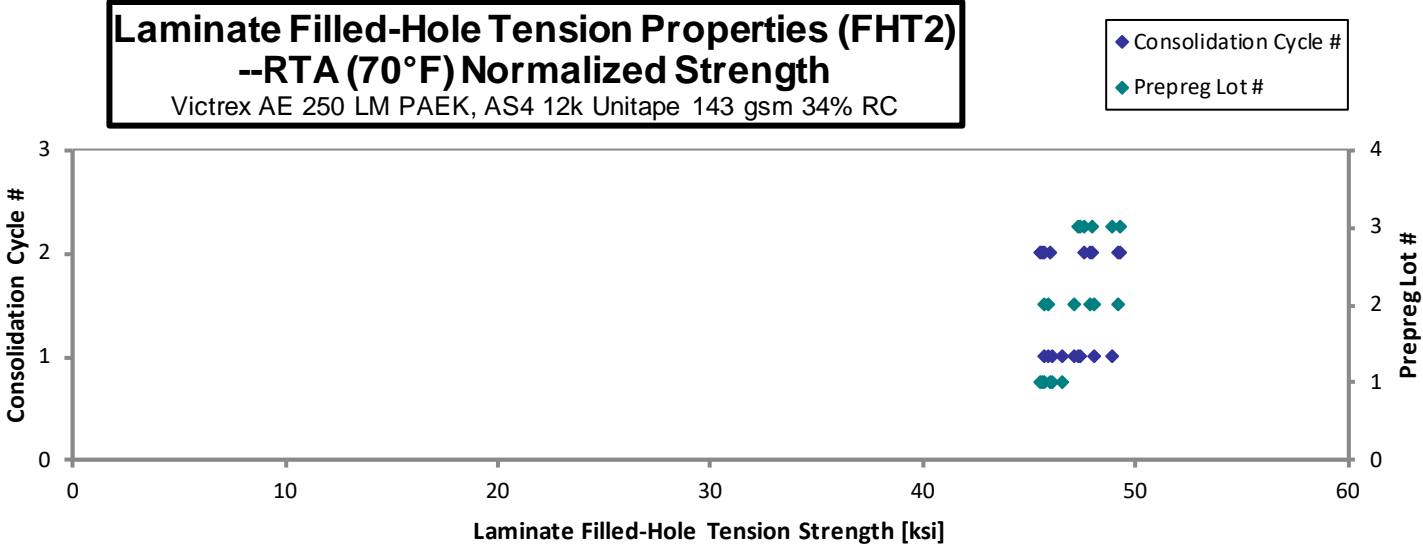
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Specimen Number	Victrax Batch #	Victrax Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHT2-A-C1-RTA-1	A	C1	1	1	45.64	0.1081	20	AGM
FHT2-A-C1-RTA-2	A	C1	1	1	46.04	0.1080	20	AGM
FHT2-A-C1-RTA-3	A	C1	1	1	46.68	0.1078	20	AGM
FHT2-A-C2-RTA-1	A	C2	1	2	46.37	0.1071	20	AGM
FHT2-A-C2-RTA-2	A	C2	1	2	45.84	0.1072	20	AGM
FHT2-A-C2-RTA-3	A	C2	1	2	46.05	0.1069	20	AGM
FHT2-B-C1-RTA-1	B	C1	2	1	47.67	0.1089	20	M(A,L)GM
FHT2-B-C1-RTA-2	B	C1	2	1	47.28	0.1076	20	M(A,L)GM
FHT2-B-C1-RTA-3	B	C1	2	1	46.10	0.1075	20	AGM
FHT2-B-C2-RTA-1	B	C2	2	2	45.83	0.1077	20	AGM
FHT2-B-C2-RTA-2	B	C2	2	2	49.20	0.1080	20	AGM
FHT2-B-C2-RTA-3	B	C2	2	2	48.40	0.1069	20	AGM
FHT2-C-C1-RTA-1	C	C1	3	1	46.49	0.1102	20	M(A,L)GM
FHT2-C-C1-RTA-2	C	C1	3	1	46.29	0.1103	20	AGM
FHT2-C-C1-RTA-3	C	C1	3	1	48.20	0.1095	20	M(A,L)GM
FHT2-C-C2-RTA-1	C	C2	3	2	48.89	0.1089	20	M(A,L)GM
FHT2-C-C2-RTA-2	C	C2	3	2	47.51	0.1091	20	M(A,L)GM
FHT2-C-C2-RTA-3	C	C2	3	2	47.27	0.1088	20	AGM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0054	45.69
0.0054	46.06
0.0054	46.59
0.0054	45.99
0.0054	45.49
0.0053	45.59
0.0054	48.05
0.0054	47.09
0.0054	45.87
0.0054	45.69
0.0054	49.20
0.0053	47.91
0.0055	47.42
0.0055	47.28
0.0055	48.87
0.0054	49.27
0.0055	48.00
0.0054	47.63

Average 46.99
Standard Dev. 1.114
Coeff. of Var. [%] 2.372
Min. 45.64
Max. 49.20
Number of Spec. 18

Average_{norm} 0.0054 47.09
Standard Dev._{norm} 1.282
Coeff. of Var. [%]_{norm} 2.723
Min. 0.0053 45.49
Max. 0.0055 49.27
Number of Spec. 18 18



**Laminate Filled-Hole Tension Properties (FHT2)--ETW (275°F) □
Strength □**

Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

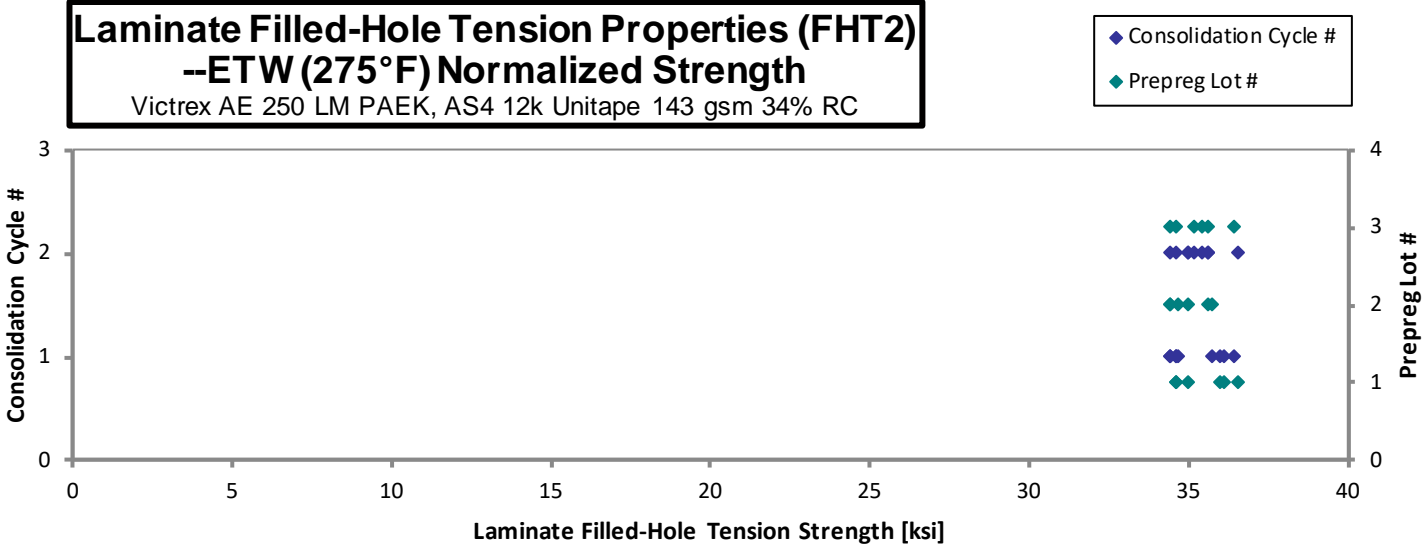
t_{ply} [in]
0.0054

Specimen Number	Victrix Batch #	Victrix Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHT2-A-C1-ETW-1	A	C1	1	1	35.06	0.1066	20	AGM
FHT2-A-C1-ETW-2	A	C1	1	1	36.48	0.1070	20	AGM
FHT2-A-C1-ETW-3	A	C1	1	1	36.15	0.1075	20	AGM
FHT2-A-C2-ETW-1	A	C2	1	2	35.88	0.1053	20	AGM
FHT2-A-C2-ETW-2	A	C2	1	2	35.30	0.1058	20	AGM
FHT2-A-C2-ETW-3	A	C2	1	2	37.23	0.1060	20	AGM
FHT2-B-C1-ETW-1	B	C1	2	1	34.70	0.1072	20	AGM
FHT2-B-C1-ETW-2	B	C1	2	1	35.84	0.1076	20	AGM
FHT2-B-C1-ETW-3	B	C1	2	1	34.90	0.1074	20	AGM
FHT2-B-C2-ETW-1	B	C2	2	2	35.34	0.1069	20	AGM
FHT2-B-C2-ETW-2	B	C2	2	2	35.91	0.1072	20	AGM
FHT2-B-C2-ETW-3	B	C2	2	2	34.67	0.1072	20	AGM
FHT2-C-C1-ETW-1	C	C1	3	1	34.09	0.1090	20	AGM
FHT2-C-C1-ETW-2	C	C1	3	1	36.16	0.1088	20	AGM
FHT2-C-C1-ETW-3	C	C1	3	1	34.25	0.1091	20	AGM
FHT2-C-C2-ETW-1	C	C2	3	2	35.88	0.1073	20	AGM
FHT2-C-C2-ETW-2	C	C2	3	2	35.54	0.1069	20	AGM
FHT2-C-C2-ETW-3	C	C2	3	2	35.59	0.1076	20	AGM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	34.59
0.0053	36.12
0.0054	36.00
0.0053	34.99
0.0053	34.58
0.0053	36.54
0.0054	34.44
0.0054	35.71
0.0054	34.70
0.0053	34.98
0.0054	35.64
0.0054	34.41
0.0054	34.39
0.0054	36.43
0.0055	34.61
0.0054	35.64
0.0053	35.16
0.0054	35.45

Average **35.50**
Standard Dev. **0.8008**
Coeff. of Var. [%] **2.256**
Min. **34.09**
Max. **37.23**
Number of Spec. **18**

Average_{norm} **0.0054** **35.24**
Standard Dev._{norm} **0.0053** **0.7180**
Coeff. of Var. [%]_{norm} **2.037**
Min. **0.0053** **34.39**
Max. **0.0055** **36.54**
Number of Spec. **18** **18**



4.23 “40/20/40” Filled-Hole Tension 3 Properties (FHT3)

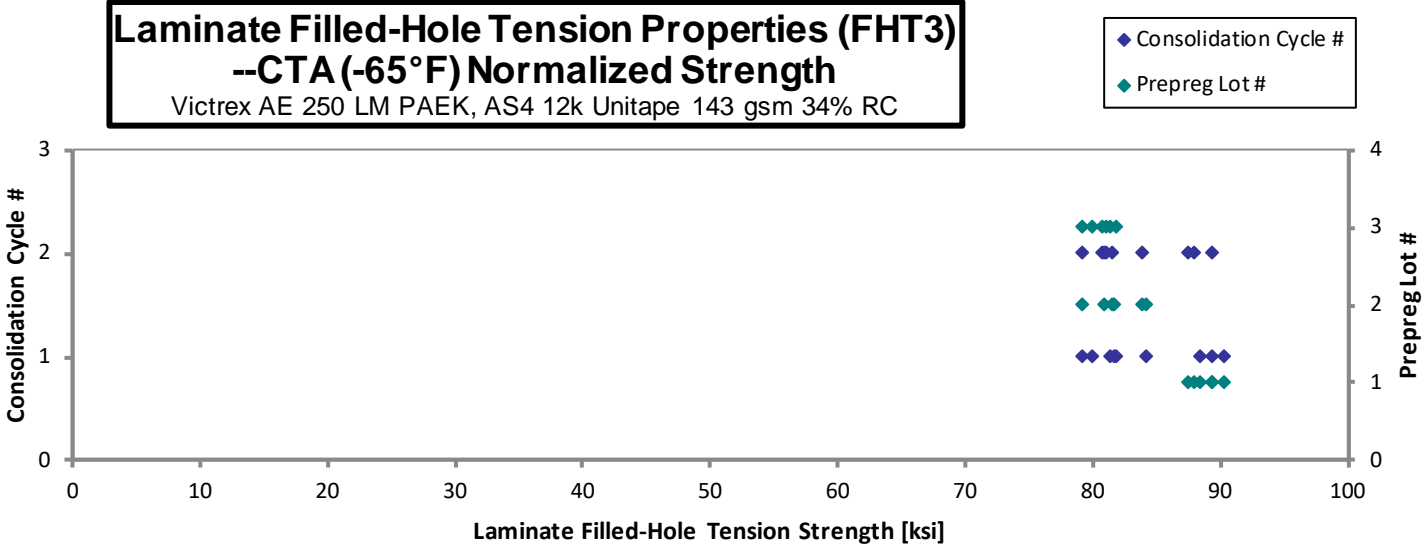
Laminate Filled-Hole Tension Properties (FHT3)--CTA (-65°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHT3-A-C1-CTA-1	A	C1	1	1	88.67	0.1076	20	M(A,L)GM
FHT3-A-C1-CTA-2	A	C1	1	1	90.14	0.1071	20	AGM
FHT3-A-C1-CTA-3	A	C1	1	1	90.77	0.1075	20	M(A,L)GM
FHT3-A-C2-CTA-1	A	C2	1	2	91.90	0.1050	20	M(A,L)GM
FHT3-A-C2-CTA-2	A	C2	1	2	90.51	0.1049	20	M(A,L)GM
FHT3-A-C2-CTA-3	A	C2	1	2	90.33	0.1046	20	M(A,L)GM
FHT3-B-C1-CTA-1	B	C1	2	1	83.12	0.1061	20	M(A,L)GM
FHT3-B-C1-CTA-2	B	C1	2	1	81.37	0.1051	20	M(A,L)GM
FHT3-B-C1-CTA-3	B	C1	2	1	87.22	0.1043	20	M(A,L)GM
FHT3-B-C2-CTA-1	B	C2	2	2	82.44	0.1060	20	M(A,L)GM
FHT3-B-C2-CTA-2	B	C2	2	2	86.31	0.1049	20	M(A,L)GM
FHT3-B-C2-CTA-3	B	C2	2	2	84.26	0.1046	20	M(A,L)GM
FHT3-C-C1-CTA-1	C	C1	3	1	84.03	0.1051	20	M(A,L)GM
FHT3-C-C1-CTA-2	C	C1	3	1	83.72	0.1049	20	M(A,L)GM
FHT3-C-C1-CTA-3	C	C1	3	1	82.31	0.1049	20	M(A,L)GM
FHT3-C-C2-CTA-1	C	C2	3	2	82.98	0.1055	20	M(A,L)GM
FHT3-C-C2-CTA-2	C	C2	3	2	81.59	0.1048	20	M(A,L)GM
FHT3-C-C2-CTA-3	C	C2	3	2	83.17	0.1048	20	M(A,L)GM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0054	88.36
0.0054	89.41
0.0054	90.34
0.0053	89.37
0.0052	87.89
0.0052	87.52
0.0053	81.64
0.0053	79.20
0.0052	84.24
0.0053	80.89
0.0052	83.86
0.0052	81.59
0.0053	81.78
0.0052	81.32
0.0052	79.92
0.0053	81.08
0.0052	79.15
0.0052	80.72

Average	85.82	Average _{norm}	0.0053	83.79
Standard Dev.	3.652	Standard Dev. _{norm}		3.909
Coeff. of Var. [%]	4.255	Coeff. of Var. [%] _{norm}		4.665
Min.	81.37	Min.	0.0052	79.15
Max.	91.90	Max.	0.0054	90.34
Number of Spec.	18	Number of Spec.	18	18



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

Strength □

Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]

0.0054

Specimen Number	Victrix Batch #	Victrix Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHT3-A-C1-RTA-1	A	C1	1	1	82.69	0.1068	20	AGM
FHT3-A-C1-RTA-2	A	C1	1	1	83.81	0.1069	20	M(A,L)GM
FHT3-A-C1-RTA-3	A	C1	1	1	84.65	0.1072	20	M(A,L)GM
FHT3-A-C2-RTA-1	A	C2	1	2	83.36	0.1064	20	M(A,L)GM
FHT3-A-C2-RTA-2	A	C2	1	2	84.94	0.1055	20	AGM
FHT3-A-C2-RTA-3	A	C2	1	2	84.92	0.1058	20	M(A,L)GM
FHT3-B-C1-RTA-1	B	C1	2	1	78.71	0.1098	20	M(A,L)GM
FHT3-B-C1-RTA-2	B	C1	2	1	82.46	0.1074	20	M(A,L)GM
FHT3-B-C1-RTA-3	B	C1	2	1	82.12	0.1069	20	M(A,L)GM
FHT3-B-C2-RTA-1	B	C2	2	2	80.52	0.1085	20	AGM
FHT3-B-C2-RTA-2	B	C2	2	2	79.86	0.1072	20	AGM
FHT3-B-C2-RTA-3	B	C2	2	2	81.18	0.1066	20	AGM
FHT3-C-C1-RTA-1	C	C1	3	1	81.29	0.1057	20	M(A,L)GM
FHT3-C-C1-RTA-2	C	C1	3	1	78.33	0.1055	20	M(A,L)GM
FHT3-C-C1-RTA-3	C	C1	3	1	76.60	0.1053	20	M(A,L)GM
FHT3-C-C2-RTA-1	C	C2	3	2	76.59	0.1062	20	M(A,L)GM
FHT3-C-C2-RTA-2	C	C2	3	2	76.72	0.1057	20	M(A,L)GM
FHT3-C-C2-RTA-3	C	C2	3	2	77.60	0.1053	20	AGM

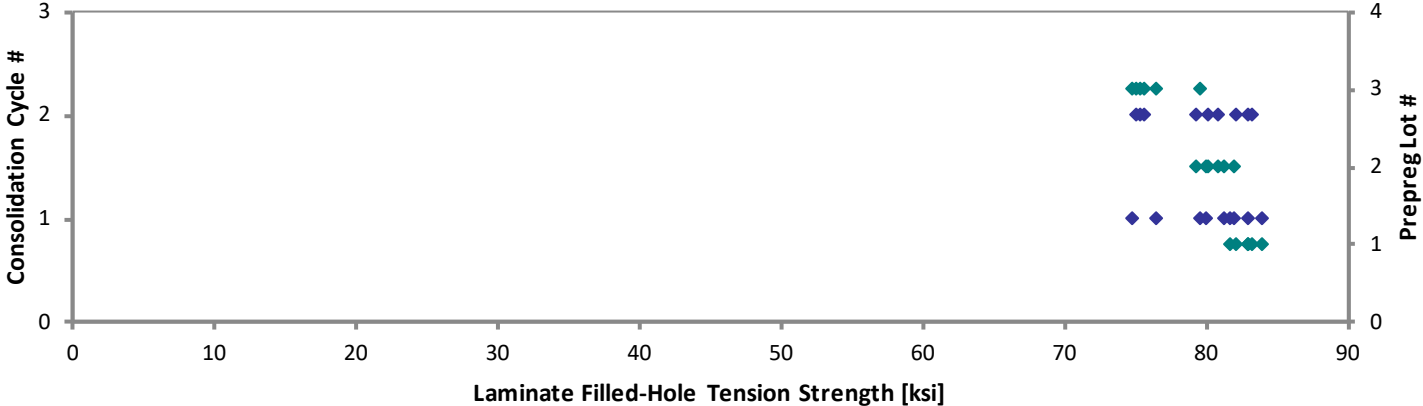
Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	81.73
0.0053	82.99
0.0054	83.98
0.0053	82.12
0.0053	82.99
0.0053	83.18
0.0055	79.99
0.0054	81.97
0.0053	81.27
0.0054	80.85
0.0054	79.26
0.0053	80.10
0.0053	79.58
0.0053	76.49
0.0053	74.71
0.0053	75.30
0.0053	75.07
0.0053	75.65

Average **80.91**
 Standard Dev. **2.936**
 Coeff. of Var. [%] **3.629**
 Min. **76.59**
 Max. **84.94**
 Number of Spec. **18**

Average_{norm} **0.0053** **79.85**
 Standard Dev._{norm} **3.101**
 Coeff. of Var. [%]_{norm} **3.884**
 Min. **0.0053** **74.71**
 Max. **0.0055** **83.98**
 Number of Spec. **18** **18**

Laminate Filled-Hole Tension Properties (FHT3)
--RTA (70°F) Normalized Strength
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

◆ Consolidation Cycle #
◆ Prepreg Lot #



**Laminate Filled-Hole Tension Properties (FHT3)--ETW (275°F) □
Strength □**

Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

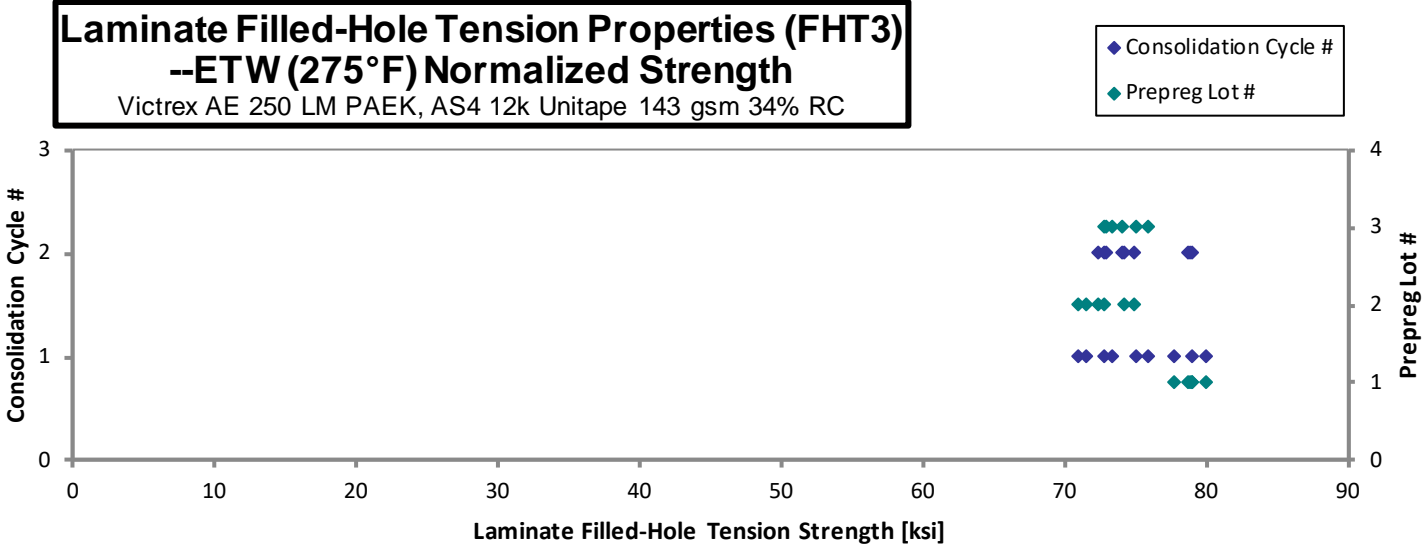
normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrix Batch #	Victrix Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHT3-A-C1-ETW-1	A	C1	1	1	79.38	0.1076	20	AGM
FHT3-A-C1-ETW-2	A	C1	1	1	80.67	0.1071	20	AGM
FHT3-A-C1-ETW-3	A	C1	1	1	77.95	0.1078	20	AGM
FHT3-A-C2-ETW-1	A	C2	1	2	81.05	0.1052	20	AGM
FHT3-A-C2-ETW-2	A	C2	1	2	81.37	0.1048	20	AGM
FHT3-A-C2-ETW-3	A	C2	1	2	80.63	0.1054	20	AGM
FHT3-B-C1-ETW-1	B	C1	2	1	75.54	0.1041	20	AGM
FHT3-B-C1-ETW-2	B	C1	2	1	73.74	0.1047	20	AGM
FHT3-B-C1-ETW-3	B	C1	2	1	73.33	0.1046	20	AGM
FHT3-B-C2-ETW-1	B	C2	2	2	74.87	0.1044	20	AGM
FHT3-B-C2-ETW-2	B	C2	2	2	76.83	0.1043	20	AGM
FHT3-B-C2-ETW-3	B	C2	2	2	76.90	0.1051	20	AGM
FHT3-C-C1-ETW-1	C	C1	3	1	77.17	0.1051	20	AGM
FHT3-C-C1-ETW-2	C	C1	3	1	78.61	0.1043	20	AGM
FHT3-C-C1-ETW-3	C	C1	3	1	75.20	0.1054	20	AGM
FHT3-C-C2-ETW-1	C	C2	3	2	75.27	0.1044	20	AGM
FHT3-C-C2-ETW-2	C	C2	3	2	73.94	0.1065	20	AGM
FHT3-C-C2-ETW-3	C	C2	3	2	76.02	0.1053	20	AGM

Avg. t _{ply} [in]	Strength _{norm} [ksi]
0.0054	79.05
0.0054	80.01
0.0054	77.79
0.0053	78.97
0.0052	78.93
0.0053	78.67
0.0052	72.79
0.0052	71.47
0.0052	70.99
0.0052	72.35
0.0052	74.20
0.0053	74.84
0.0053	75.07
0.0052	75.90
0.0053	73.41
0.0052	72.74
0.0053	72.87
0.0053	74.11

Average 77.14
Standard Dev. 2.639
Coeff. of Var. [%] 3.421
Min. 73.33
Max. 81.37
Number of Spec. 18

Average_{norm} 0.0053 75.23
Standard Dev._{norm} 2.949
Coeff. of Var. [%]_{norm} 3.920
Min. 0.0052 70.99
Max. 0.0054 80.01
Number of Spec. 18 18



4.24 “25/50/25” Open-Hole Compression 1 Properties (OHC1)

Laminate Open-Hole Compression Properties (OHC1)--RTA (70°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHC1-A-C1-RTA-1	A	C1	1	1	44.30	0.1712	32	LGM
OHC1-A-C1-RTA-2	A	C1	1	1	45.56	0.1706	32	LGM
OHC1-A-C1-RTA-3	A	C1	1	1	44.80	0.1694	32	LGM
OHC1-A-C2-RTA-1	A	C2	1	2	43.94	0.1737	32	LGM
OHC1-A-C2-RTA-2	A	C2	1	2	44.65	0.1725	32	LGM
OHC1-A-C2-RTA-3	A	C2	1	2	43.58	0.1713	32	LGM
OHC1-B-C1-RTA-1	B	C1	2	1	47.06	0.1749	32	M(A,L)GM
OHC1-B-C1-RTA-2	B	C1	2	1	46.13	0.1746	32	LGM
OHC1-B-C1-RTA-3	B	C1	2	1	46.33	0.1732	32	LGM
OHC1-B-C2-RTA-1	B	C2	2	2	44.91	0.1756	32	M(A,L)GM
OHC1-B-C2-RTA-2	B	C2	2	2	46.58	0.1755	32	M(A,L)GM
OHC1-B-C2-RTA-3	B	C2	2	2	46.26	0.1748	32	M(A,L)GM
OHC1-C-C1-RTA-1	C	C1	3	1	46.57	0.1723	32	M(A,L)GM
OHC1-C-C1-RTA-2	C	C1	3	1	45.01	0.1714	32	M(A,L)GM
OHC1-C-C1-RTA-3	C	C1	3	1	45.30	0.1713	32	LGM
OHC1-C-C2-RTA-1	C	C2	3	2	46.40	0.1726	32	M(A,L)GM
OHC1-C-C2-RTA-2	C	C2	3	2	47.49	0.1720	32	M(A,L)GM
OHC1-C-C2-RTA-3	C	C2	3	2	45.87	0.1717	32	M(A,L)GM

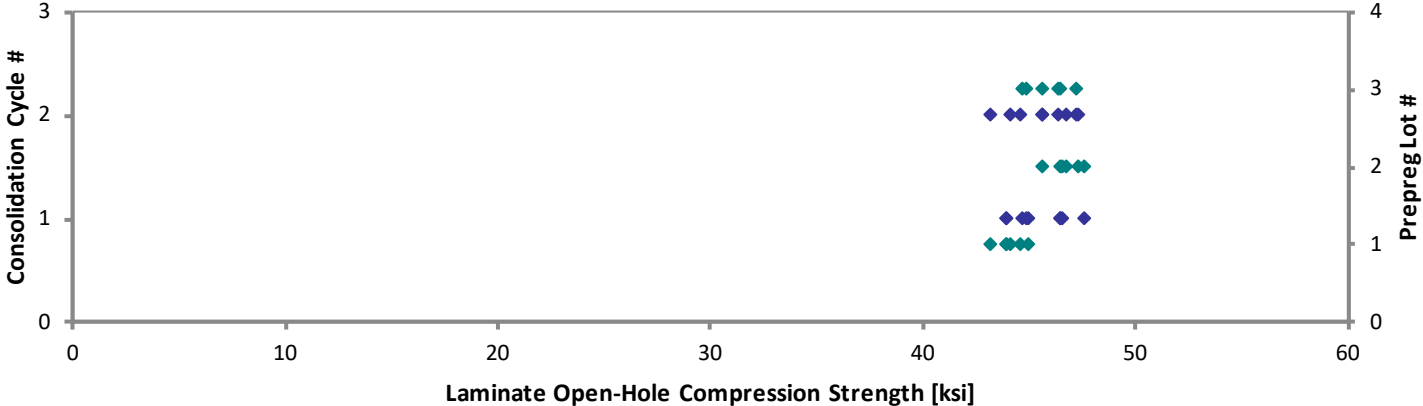
Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	43.89
0.0053	44.98
0.0053	43.91
0.0054	44.15
0.0054	44.59
0.0054	43.20
0.0055	47.62
0.0055	46.60
0.0054	46.42
0.0055	45.64
0.0055	47.32
0.0055	46.78
0.0054	46.42
0.0054	44.64
0.0054	44.91
0.0054	46.33
0.0054	47.26
0.0054	45.58

Average 45.60
 Standard Dev. 1.100
 Coeff. of Var. [%] 2.412
 Min. 43.58
 Max. 47.49
 Number of Spec. 18

Average_{norm} 0.0054 45.57
 Standard Dev._{norm} 1.340
 Coeff. of Var. [%]_{norm} 2.941
 Min. 0.0053 43.20
 Max. 0.0055 47.62
 Number of Spec. 18 18

**Laminate Open-Hole Compression Properties (OHC1)--RTA
(70°F) Normalized Strength**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

- ◆ Consolidation Cycle #
- ◆ Prepreg Lot #



**Laminate Open-Hole Compression Properties (OHC1)--ETA (275°F) □
Strength □**

Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]

0.0054

Specimen Number	Victrix Batch #	Victrix Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHC1-A-C1-ETA-1	A	C1	1	1	33.85	0.1694	32	LGM
OHC1-A-C1-ETA-2	A	C1	1	1	34.69	0.1694	32	LGM
OHC1-A-C1-ETA-3	A	C1	1	1	35.21	0.1688	32	M(A,L)GM
OHC1-A-C2-ETA-1	A	C2	1	2	33.96	0.1711	32	LGM
OHC1-A-C2-ETA-2	A	C2	1	2	33.58	0.1705	32	LGM
OHC1-A-C2-ETA-3	A	C2	1	2	33.55	0.1704	32	LGM

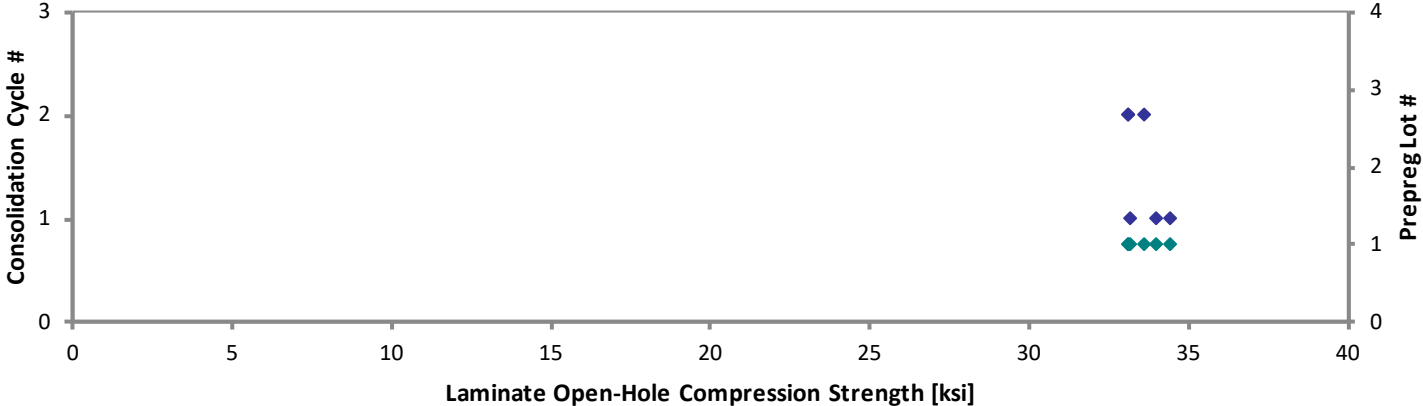
Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	33.18
0.0053	34.00
0.0053	34.40
0.0053	33.63
0.0053	33.14
0.0053	33.09

Average 34.14
Standard Dev. 0.6686
Coeff. of Var. [%] 1.958
Min. 33.55
Max. 35.21
Number of Spec. 6

Average_{norm} 0.0053 33.57
Standard Dev._{norm} 0.5401
Coeff. of Var. [%]_{norm} 1.609
Min. 0.0053 33.09
Max. 0.0053 34.40
Number of Spec. 6 6

**Laminate Open-Hole Compression Properties (OHC1)--ETA
(275°F) Normalized Strength**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

- ◆ Consolidation Cycle #
- ◆ Prepreg Lot #



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

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]

0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHC1-A-C1-ETW2-1	A	C1	1	2	36.08	0.1693	32	LGM
OHC1-A-C1-ETW2-2	A	C1	1	2	34.89	0.1707	32	LGM
OHC1-A-C1-ETW2-3	A	C1	1	2	35.18	0.1714	32	LGM
OHC1-A-C2-ETW2-1	A	C2	1	2	36.80	0.1708	32	LGM
OHC1-A-C2-ETW2-2	A	C2	1	2	35.58	0.1708	32	LGM
OHC1-A-C2-ETW2-3	A	C2	1	2	35.14	0.1724	32	LGM
OHC1-B-C1-ETW2-1	B	C1	2	1	36.40	0.1721	32	LGM
OHC1-B-C1-ETW2-2	B	C1	2	1	36.23	0.1701	32	LGM
OHC1-B-C1-ETW2-3	B	C1	2	1	35.79	0.1717	32	LGM
OHC1-B-C2-ETW2-1	B	C2	2	2	33.65	0.1737	32	LGM
OHC1-B-C2-ETW2-2	B	C2	2	2	34.36	0.1726	32	LGM
OHC1-B-C2-ETW2-3	B	C2	2	2	33.90	0.1725	32	LGM
OHC1-C-C1-ETW2-1	C	C1	3	1	35.62	0.1691	32	LGM
OHC1-C-C1-ETW2-2	C	C1	3	1	35.85	0.1701	32	LGM
OHC1-C-C1-ETW2-3	C	C1	3	1	36.83	0.1693	32	LGM
OHC1-C-C2-ETW2-1	C	C2	3	2	34.39	0.1694	32	LGM
OHC1-C-C2-ETW2-2	C	C2	3	2	33.84	0.1711	32	LGM
OHC1-C-C2-ETW2-3	C	C2	3	2	34.98	0.1691	32	LGM

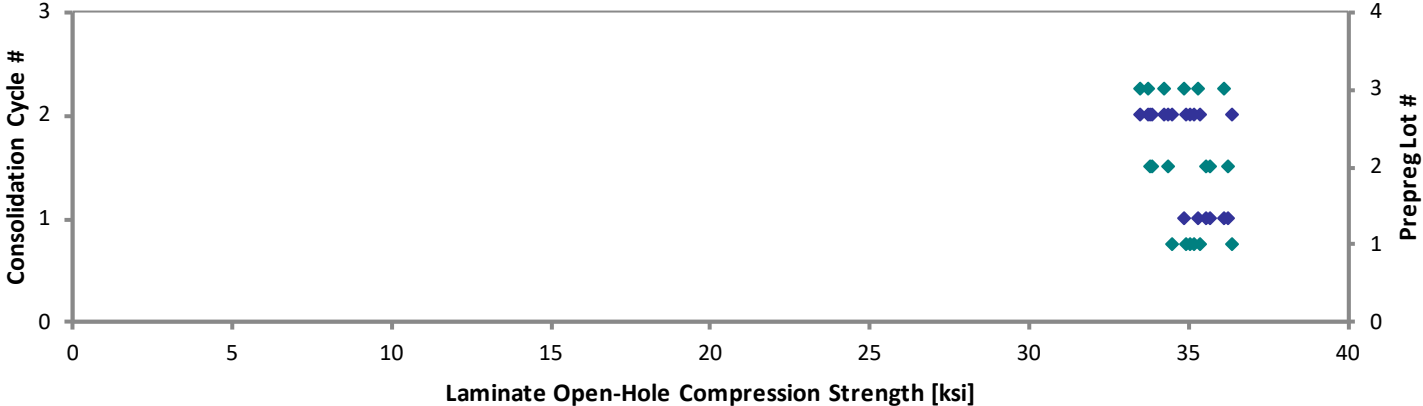
Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	35.33
0.0053	34.46
0.0054	34.90
0.0053	36.36
0.0053	35.15
0.0054	35.05
0.0054	36.26
0.0053	35.67
0.0054	35.57
0.0054	33.82
0.0054	34.33
0.0054	33.83
0.0053	34.87
0.0053	35.29
0.0053	36.09
0.0053	33.72
0.0053	33.50
0.0053	34.23

Average 35.31
 Standard Dev. 0.995
 Coeff. of Var. [%] 2.818
 Min. 33.65
 Max. 36.83
 Number of Spec. 18

Average_{norm} 0.0053
 Standard Dev._{norm} 0.8908
 Coeff. of Var. [%]_{norm} 2.551
 Min. 0.0053
 Max. 0.0054
 Number of Spec. 18

Laminate Open-Hole Compression Properties (OHC1)--ETW2
(250°F) Normalized Strength
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

- ◆ Consolidation Cycle #
- ◆ Prepreg Lot #



**Laminate Open-Hole Compression Properties (OHC1)--ETW (275°F) □
Strength □**

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

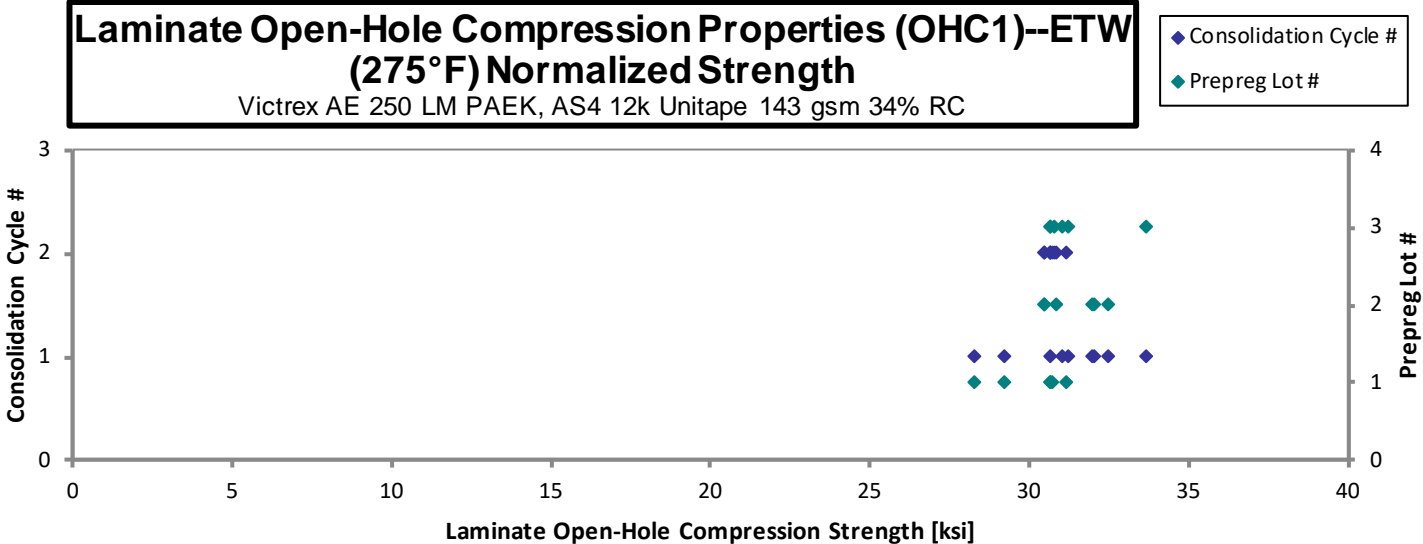
t_{ply} [in]
0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHC1-A-C1-ETW-1	A	C1	1	1	31.62	0.1675	32	LGM
OHC1-A-C1-ETW-2	A	C1	1	1	30.03	0.1681	32	LGM
OHC1-A-C1-ETW-3	A	C1	1	1	29.04	0.1683	32	M(A,L)GM
OHC1-A-C2-ETW-1	A	C2	1	2	31.25	0.1701	32	LGM
OHC1-A-C2-ETW-2	A	C2	1	2	31.79	0.1694	32	LGM
OHC1-A-C2-ETW-3	A	C2	1	2	31.28	0.1694	32	LGM
OHC1-B-C1-ETW-1	B	C1	2	1	32.00	0.1731	32	LGM
OHC1-B-C1-ETW-2	B	C1	2	1	32.08	0.1724	32	LGM
OHC1-B-C1-ETW-3	B	C1	2	1	32.57	0.1724	32	LGM
OHC1-B-C2-ETW-1	B	C2	2	2	30.34	0.1736	32	LGM
OHC1-B-C2-ETW-2	B	C2	2	2	30.75	0.1733	32	LGM
OHC1-B-C2-ETW-3	B	C2	2	2	30.45	0.1729	32	LGM
OHC1-C-C1-ETW-1	C	C1	3	1	31.75	0.1701	32	LGM
OHC1-C-C1-ETW-2	C	C1	3	1	31.58	0.1699	32	LGM
OHC1-C-C1-ETW-3	C	C1	3	1	34.39	0.1693	32	LGM
OHC1-C-C2-ETW-1	C	C2	3	2	30.94	0.1713	32	M(A,L)GM
OHC1-C-C2-ETW-2	C	C2	3	2	31.02	0.1709	32	LGM
OHC1-C-C2-ETW-3	C	C2	3	2	31.12	0.1710	32	AGM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0052	30.64
0.0053	29.20
0.0053	28.29
0.0053	30.76
0.0053	31.17
0.0053	30.67
0.0054	32.06
0.0054	32.01
0.0054	32.49
0.0054	30.47
0.0054	30.83
0.0054	30.47
0.0053	31.25
0.0053	31.05
0.0053	33.69
0.0054	30.68
0.0053	30.68
0.0053	30.78

Average 31.33
Standard Dev. 1.133
Coeff. of Var. [%] 3.614
Min. 29.04
Max. 34.39
Number of Spec. 18

Average_{norm} 0.0053 30.95
Standard Dev._{norm} 1.172
Coeff. of Var. [%]_{norm} 3.787
Min. 0.0052 28.29
Max. 0.0054 33.69
Number of Spec. 18 18



4.25 “10/80/10” Open-Hole Compression 2 Properties (OHC2)

Laminate Open-Hole Compression Properties (OHC2)--RTA (70°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

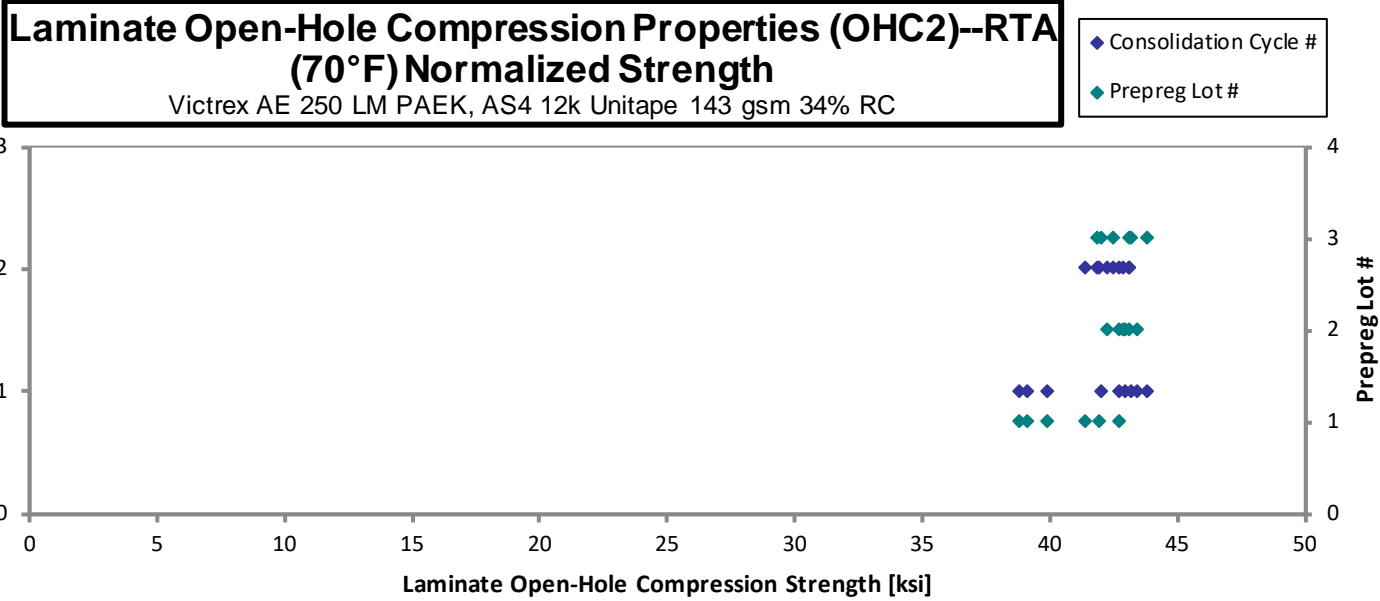
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHC2-A-C1-RTA-1	A	C1	1	1	39.94	0.2155	40	M(A,L)GM
OHC2-A-C1-RTA-2	A	C1	1	1	39.13	0.2142	40	M(A,L)GM
OHC2-A-C1-RTA-3	A	C1	1	1	39.41	0.2143	40	M(A,L)GM
OHC2-A-C2-RTA-1	A	C2	1	2	41.50	0.2224	40	AGM
OHC2-A-C2-RTA-2	A	C2	1	2	40.92	0.2211	40	AGM
OHC2-A-C2-RTA-3	A	C2	1	2	40.47	0.2209	40	M(A,L)GM
OHC2-B-C1-RTA-1	B	C1	2	1	43.39	0.2163	40	AGM
OHC2-B-C1-RTA-2	B	C1	2	1	42.59	0.2165	40	AGM
OHC2-B-C1-RTA-3	B	C1	2	1	42.99	0.2157	40	M(A,L)GM
OHC2-B-C2-RTA-1	B	C2	2	2	42.17	0.2165	40	M(A,L)GM
OHC2-B-C2-RTA-2	B	C2	2	2	42.86	0.2161	40	AGM
OHC2-B-C2-RTA-3	B	C2	2	2	43.24	0.2152	40	AGM
OHC2-C-C1-RTA-1	C	C1	3	1	43.45	0.2179	40	M(A,L)GM
OHC2-C-C1-RTA-2	C	C1	3	1	41.74	0.2173	40	AGM
OHC2-C-C1-RTA-3	C	C1	3	1	42.97	0.2172	40	AGM
OHC2-C-C2-RTA-1	C	C2	3	2	43.00	0.2166	40	AGM
OHC2-C-C2-RTA-2	C	C2	3	2	42.07	0.2148	40	AGM
OHC2-C-C2-RTA-3	C	C2	3	2	42.61	0.2155	40	AGM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0054	39.86
0.0054	38.81
0.0054	39.10
0.0056	42.74
0.0055	41.89
0.0055	41.39
0.0054	43.45
0.0054	42.68
0.0054	42.94
0.0054	42.26
0.0054	42.89
0.0054	43.07
0.0054	43.83
0.0054	41.98
0.0054	43.22
0.0054	43.12
0.0054	41.83
0.0054	42.50

Average 41.91
 Standard Dev. 1.389
 Coeff. of Var. [%] 3.314
 Min. 39.13
 Max. 43.45
 Number of Spec. 18

Average_{norm} 0.0054 42.09
 Standard Dev_{norm} 1.451
 Coeff. of Var. [%]_{norm} 3.447
 Min. 0.0054 38.81
 Max. 0.0056 43.83
 Number of Spec. 18 18



**Laminate Open-Hole Compression Properties (OHC2)--ETW (275°F) □
Strength □**

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]

0.0054

Specimen Number	Victrax Batch #	Victrax Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHC2-A-C1-ETW-1	A	C1	1	1	26.08	0.2148	40	AGM
OHC2-A-C1-ETW-2	A	C1	1	1	27.47	0.2154	40	M(A,L)GM
OHC2-A-C1-ETW-3	A	C1	1	1	27.29	0.2146	40	M(A,L)GM
OHC2-A-C2-ETW-1	A	C2	1	2	28.44	0.2200	40	AGM
OHC2-A-C2-ETW-2	A	C2	1	2	27.89	0.2202	40	AGM
OHC2-A-C2-ETW-3	A	C2	1	2	27.41	0.2192	40	M(A,L)GM
OHC2-B-C1-ETW-1	B	C1	2	1	28.78	0.2148	40	M(A,L)GM
OHC2-B-C1-ETW-2	B	C1	2	1	28.81	0.2137	40	M(A,L)GM
OHC2-B-C1-ETW-3	B	C1	2	1	29.10	0.2135	40	M(A,L)GM
OHC2-B-C2-ETW-1	B	C2	2	2	28.72	0.2143	40	M(A,L)GM
OHC2-B-C2-ETW-2	B	C2	2	2	28.93	0.2142	40	M(A,L)GM
OHC2-B-C2-ETW-3	B	C2	2	2	27.60	0.2134	40	M(A,L)GM
OHC2-C-C1-ETW-1	C	C1	3	1	28.05	0.2160	40	M(A,L)GM
OHC2-C-C1-ETW-2	C	C1	3	1	27.80	0.2163	40	M(A,L)GM
OHC2-C-C1-ETW-3	C	C1	3	1	28.68	0.2159	40	M(A,L)GM
OHC2-C-C2-ETW-1	C	C2	3	2	31.08	0.2144	40	M(A,L)GM
OHC2-C-C2-ETW-2	C	C2	3	2	28.55	0.2147	40	AGM
OHC2-C-C2-ETW-3	C	C2	3	2	29.86	0.2132	40	M(A,L)GM

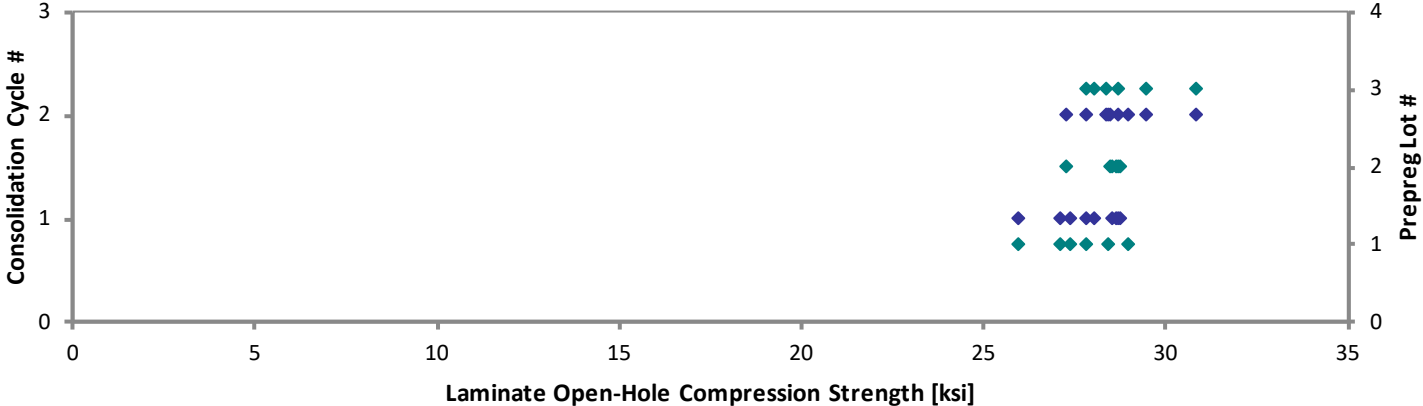
Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0054	25.93
0.0054	27.39
0.0054	27.11
0.0055	28.97
0.0055	28.42
0.0055	27.81
0.0054	28.62
0.0053	28.50
0.0053	28.75
0.0054	28.49
0.0054	28.69
0.0053	27.26
0.0054	28.05
0.0054	27.84
0.0054	28.67
0.0054	30.85
0.0054	28.37
0.0053	29.47

Average 28.36
Standard Dev. 1.096
Coeff. of Var. [%] 3.866
Min. 26.08
Max. 31.08
Number of Spec. 18

Average_{norm} 0.0054 28.29
Standard Dev._{norm} 1.0417
Coeff. of Var. [%]_{norm} 3.682
Min. 0.0053 25.93
Max. 0.0055 30.85
Number of Spec. 18 18

Laminate Open-Hole Compression Properties (OHC2)--ETW
(275°F) Normalized Strength
Vitrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

- ◆ Consolidation Cycle #
- ◆ Prepreg Lot #



4.26 “40/20/40” Open-Hole Compression 3 Properties (OHC3)

Laminate Open-Hole Compression Properties (OHC3)--RTA (70°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHC3-A-C1-RTA-1	A	C1	1	1	57.85	0.2113	40	LGM
OHC3-A-C1-RTA-2	A	C1	1	1	62.23	0.2097	40	LGM
OHC3-A-C1-RTA-3	A	C1	1	1	62.82	0.2094	40	LGM
OHC3-A-C1-RTA-4	A	C1	1	1	63.93	0.2087	40	LGM
OHC3-A-C2-RTA-1	A	C2	1	2	59.82	0.2104	40	LGM
OHC3-A-C2-RTA-2	A	C2	1	2	63.25	0.2084	40	LGM
OHC3-A-C2-RTA-3	A	C2	1	2	59.21	0.2084	40	LGM
OHC3-B-C1-RTA-1	B	C1	2	1	55.00	0.2153	40	LGM
OHC3-B-C1-RTA-2	B	C1	2	1	54.30	0.2153	40	LGM
OHC3-B-C1-RTA-3	B	C1	2	1	55.91	0.2146	40	LGM
OHC3-B-C2-RTA-1	B	C2	2	2	56.16	0.2157	40	LGM
OHC3-B-C2-RTA-2	B	C2	2	2	54.73	0.2143	40	LGM
OHC3-B-C2-RTA-3	B	C2	2	2	54.05	0.2139	40	LGM
OHC3-C-C1-RTA-1	C	C1	3	1	55.29	0.2167	40	LGM
OHC3-C-C1-RTA-2	C	C1	3	1	54.98	0.2149	40	LGM
OHC3-C-C1-RTA-3	C	C1	3	1	59.25	0.2140	40	LGM
OHC3-C-C2-RTA-1	C	C2	3	2	56.69	0.2141	40	LGM
OHC3-C-C2-RTA-2	C	C2	3	2	59.32	0.2133	40	LGM
OHC3-C-C2-RTA-3	C	C2	3	2	61.20	0.2120	40	LGM

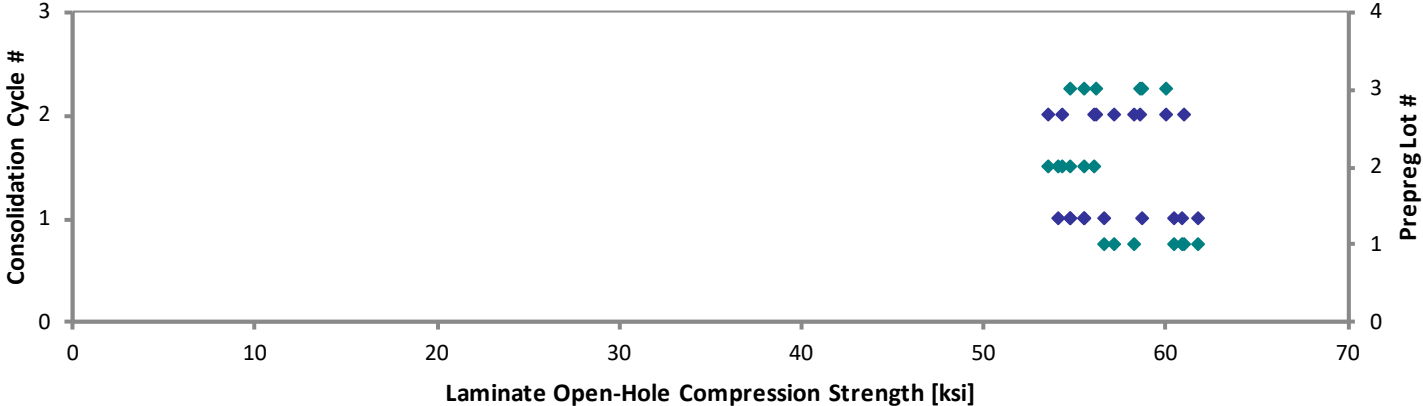
Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	56.60
0.0052	60.40
0.0052	60.91
0.0052	61.76
0.0053	58.27
0.0052	61.03
0.0052	57.12
0.0054	54.81
0.0054	54.13
0.0054	55.54
0.0054	56.08
0.0054	54.31
0.0053	53.53
0.0054	55.47
0.0054	54.71
0.0054	58.70
0.0054	56.19
0.0053	58.59
0.0053	60.06

Average 58.21
 Standard Dev. 3.302
 Coeff. of Var. [%] 5.672
 Min. 54.05
 Max. 63.93
 Number of Spec. 19

Average_{norm} 0.0053 57.27
 Standard Dev._{norm} 2.630
 Coeff. of Var. [%]_{norm} 4.591
 Min. 0.0052 53.53
 Max. 0.0054 61.76
 Number of Spec. 19 19

**Laminate Open-Hole Compression Properties (OHC3)--RTA
(70°F) Normalized Strength**
Vitrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

- ◆ Consolidation Cycle #
- ◆ Prepreg Lot #



**Laminate Open-Hole Compression Properties (OHC3)--ETW (275°F) □
Strength □**

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]
0.0054

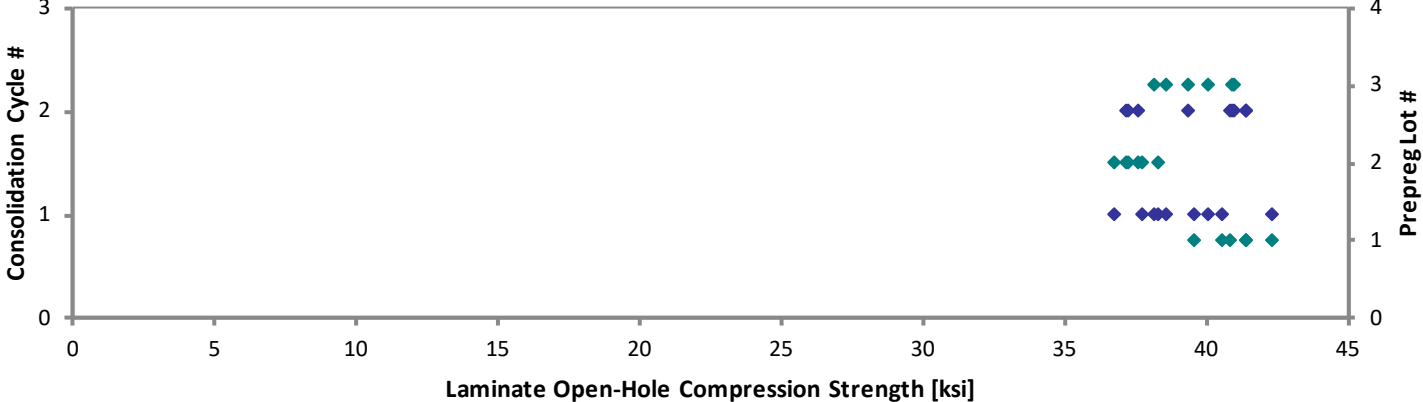
Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
OHC3-A-C1-ETW-1	A	C1	1	1	41.13	0.2077	40	LGM
OHC3-A-C1-ETW-2	A	C1	1	1	44.00	0.2078	40	LGM
OHC3-A-C1-ETW-3	A	C1	1	1	42.26	0.2073	40	LGM
OHC3-A-C2-ETW-1	A	C2	1	2	43.31	0.2064	40	LGM
OHC3-A-C2-ETW-2	A	C2	1	2	42.80	0.2062	40	LGM
OHC3-A-C2-ETW-3	A	C2	1	2	43.36	0.2061	40	LGM
OHC3-B-C1-ETW-1	B	C1	2	1	38.02	0.2145	40	LGM
OHC3-B-C1-ETW-2	B	C1	2	1	37.05	0.2144	40	LGM
OHC3-B-C1-ETW-3	B	C1	2	1	38.73	0.2135	40	LGM
OHC3-B-C2-ETW-1	B	C2	2	2	38.13	0.2128	40	LGM
OHC3-B-C2-ETW-2	B	C2	2	2	37.75	0.2133	40	LGM
OHC3-B-C2-ETW-3	B	C2	2	2	37.72	0.2127	40	LGM
OHC3-C-C1-ETW-1	C	C1	3	1	38.54	0.2138	40	LGM
OHC3-C-C1-ETW-2	C	C1	3	1	40.47	0.2139	40	LGM
OHC3-C-C1-ETW-3	C	C1	3	1	38.92	0.2143	40	LGM
OHC3-C-C2-ETW-2	C	C2	3	2	41.36	0.2137	40	LGM
OHC3-C-C2-ETW-3	C	C2	3	2	41.55	0.2131	40	LGM
OHC3-C-C2-ETW-4	C	C2	3	2	40.10	0.2121	40	LGM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0052	39.54
0.0052	42.33
0.0052	40.56
0.0052	41.39
0.0052	40.87
0.0052	41.38
0.0054	37.75
0.0054	36.77
0.0053	38.28
0.0053	37.56
0.0053	37.28
0.0053	37.15
0.0053	38.15
0.0053	40.08
0.0054	38.61
0.0053	40.92
0.0053	41.00
0.0053	39.37

Average **40.29**
Standard Dev. **2.259**
Coeff. of Var. [%] **5.606**
Min. **37.05**
Max. **44.00**
Number of Spec. **18**

Average_{norm} **0.0053** **39.39**
Standard Dev._{norm} **1.738**
Coeff. of Var. [%]_{norm} **4.411**
Min. **0.0052** **36.77**
Max. **0.0054** **42.33**
Number of Spec. **18** **18**

**Laminate Open-Hole Compression Properties (OHC3)--ETW
(275°F) Normalized Strength**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC



4.27 “25/50/25” Filled-Hole Compression 1 Properties (FHC1)

Laminate Filled-Hole Compression Properties (FHC1)--RTA (70°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

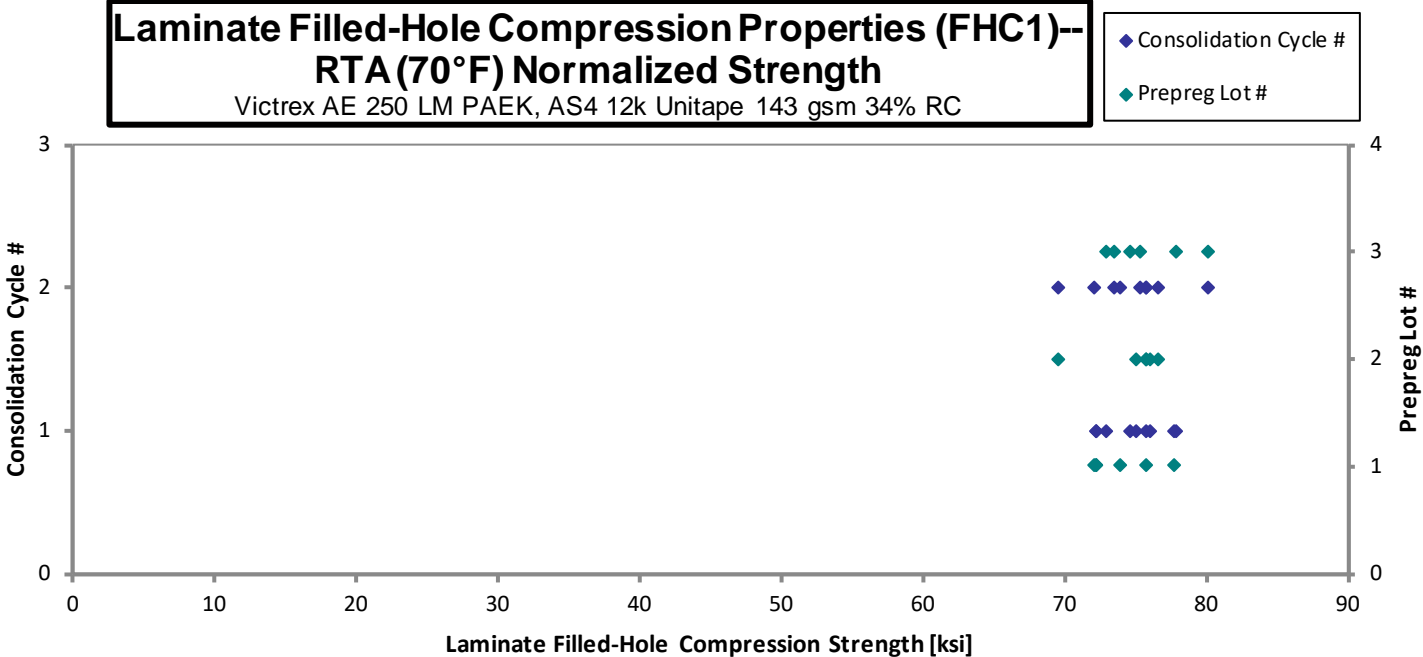
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHC1-A-C1-RTA-1	A	C1	1	1	73.13	0.1707	32	LGF
FHC1-A-C1-RTA-2	A	C1	1	1	73.76	0.1693	32	M(A,L)GF
FHC1-A-C1-RTA-3	A	C1	1	1	79.25	0.1694	32	M(A,L)GF
FHC1-A-C2-RTA-1	A	C2	1	2	74.82	0.1707	32	M(A,L)GF
FHC1-A-C2-RTA-2	A	C2	1	2	76.47	0.1711	32	M(A,L)GF
FHC1-A-C2-RTA-3	A	C2	1	2	73.23	0.1702	32	M(A,L)GF
FHC1-B-C1-RTA-1	B	C1	2	1	75.42	0.1737	32	M(A,L)GF
FHC1-B-C1-RTA-2	B	C1	2	1	75.38	0.1721	32	M(A,L)GF
FHC1-B-C1-RTA-3	B	C1	2	1	76.62	0.1715	32	M(A,L)GF
FHC1-B-C2-RTA-1	B	C2	2	2	75.89	0.1745	32	M(A,L)GF
FHC1-B-C2-RTA-2	B	C2	2	2	75.31	0.1739	32	M(A,L)GF
FHC1-B-C2-RTA-3	B	C2	2	2	69.35	0.1734	32	M(A,L)GF
FHC1-C-C1-RTA-1	C	C1	3	1	78.29	0.1718	32	M(A,L)GF
FHC1-C-C1-RTA-2	C	C1	3	1	75.24	0.1713	32	M(A,L)GO
FHC1-C-C1-RTA-3	C	C1	3	1	73.89	0.1706	32	M(A,L)GF
FHC1-C-C2-RTA-1	C	C2	3	2	74.27	0.1710	32	M(A,L)GF
FHC1-C-C2-RTA-2	C	C2	3	2	76.19	0.1709	32	M(A,L)GF
FHC1-C-C2-RTA-3	C	C2	3	2	80.86	0.1712	32	M(A,L)GF

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	72.24
0.0053	72.25
0.0053	77.66
0.0053	73.89
0.0053	75.74
0.0053	72.11
0.0054	75.82
0.0054	75.09
0.0054	76.03
0.0055	76.62
0.0054	75.78
0.0054	69.60
0.0054	77.83
0.0054	74.58
0.0053	72.95
0.0053	73.51
0.0053	75.37
0.0054	80.12

Average 75.41
 Standard Dev. 2.539
 Coeff. of Var. [%] 3.367
 Min. 69.35
 Max. 80.86
 Number of Spec. 18

Average_{norm} 0.0054 74.84
 Standard Dev._{norm} 2.511
 Coeff. of Var. [%]_{norm} 3.354
 Min. 0.0053 69.60
 Max. 0.0055 80.12
 Number of Spec. 18 18



Laminate Filled-Hole Compression Properties (FHC1)--ETA (275°F) □

Strength □

Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]

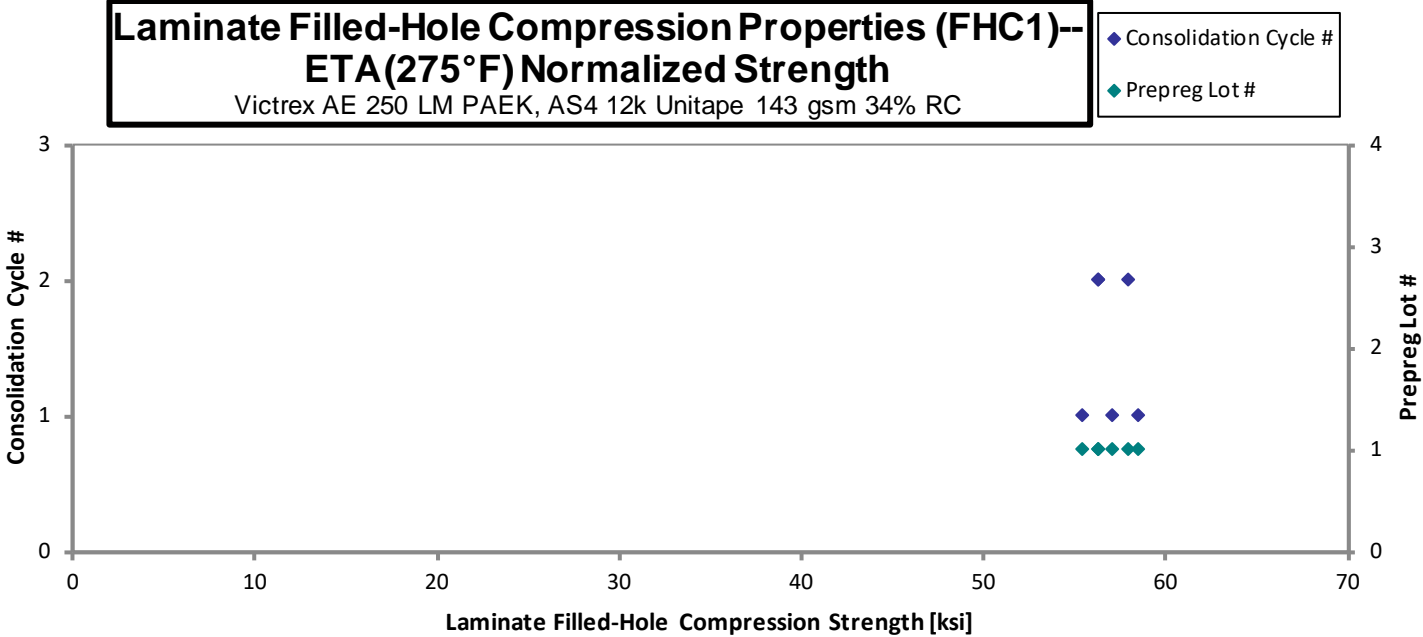
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Specimen Number	Victrix Batch #	Victrix Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHC1-A-C1-ETA-1	A	C1	1	1	59.54	0.1696	32	LGF
FHC1-A-C1-ETA-2	A	C1	1	1	58.21	0.1694	32	LGF
FHC1-A-C1-ETA-3	A	C1	1	1	56.65	0.1691	32	M(A,L)GF
FHC1-A-C2-ETA-1	A	C2	1	2	57.13	0.1704	32	M(A,L)GF
FHC1-A-C2-ETA-2	A	C2	1	2	58.65	0.1707	32	LGF
FHC1-A-C2-ETA-3	A	C2	1	2	57.23	0.1699	32	M(A,L)GF

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	58.44
0.0053	57.05
0.0053	55.43
0.0053	56.34
0.0053	57.93
0.0053	56.27

Average 57.90
 Standard Dev. 1.092
 Coeff. of Var. [%] 1.885
 Min. 56.65
 Max. 59.54
 Number of Spec. 6

Average_{norm} 0.0053 56.91
 Standard Dev._{norm} 1.126
 Coeff. of Var. [%]_{norm} 1.979
 Min. 0.0053 55.43
 Max. 0.0053 58.44
 Number of Spec. 6 6



**Laminate Filled-Hole Compression Properties (FHC1)--ETW (275°F) □
Strength □**

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing

t_{ply} [in]

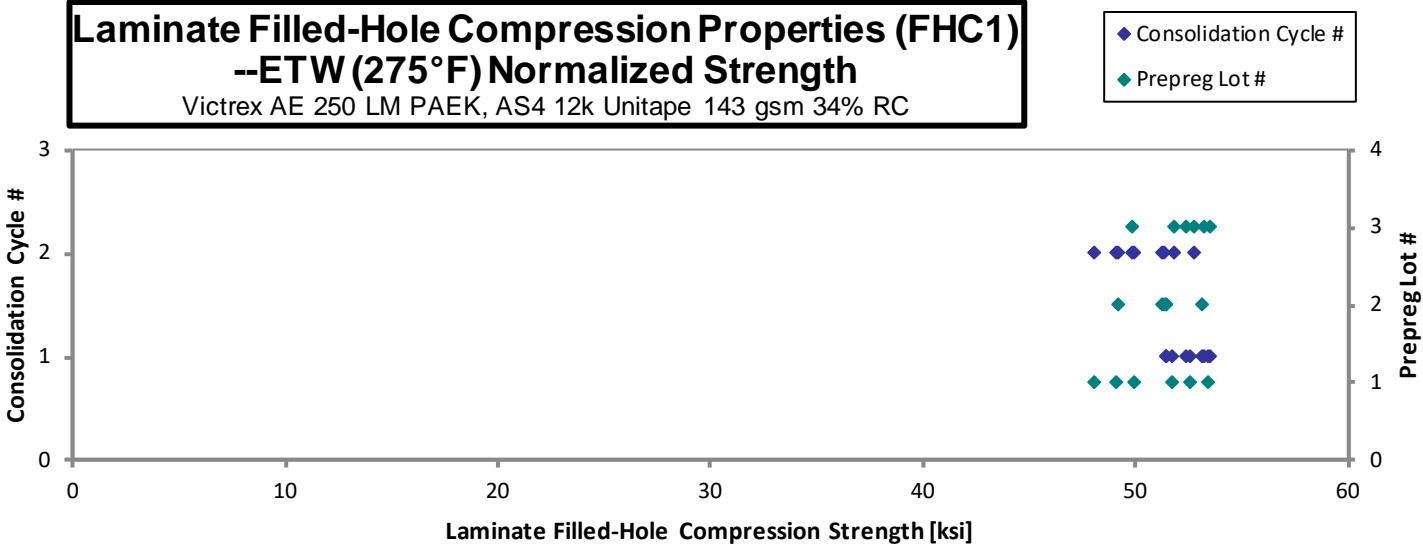
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Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHC1-A-C1-ETW-1	A	C1	1	1	54.75	0.1686	32	LGF
FHC1-A-C1-ETW-2	A	C1	1	1	53.03	0.1684	32	LGF
FHC1-A-C1-ETW-3	A	C1	1	1	53.82	0.1688	32	LGF
FHC1-A-C2-ETW-1	A	C2	1	2	50.93	0.1695	32	LGF
FHC1-A-C2-ETW-2	A	C2	1	2	49.96	0.1697	32	LGF
FHC1-A-C2-ETW-3	A	C2	1	2	48.94	0.1698	32	LGF
FHC1-B-C1-ETW-1	B	C1	2	1	53.86	0.1705	32	LGF
FHC1-B-C1-ETW-2	B	C1	2	1	52.46	0.1694	32	LGF
FHC1-B-C1-ETW-3	B	C1	2	1	52.26	0.1700	32	LGF
FHC1-B-C2-ETW-1	B	C2	2	2	49.11	0.1730	32	LGF
FHC1-B-C2-ETW-2	B	C2	2	2	51.14	0.1731	32	LGF
FHC1-B-C2-ETW-3	B	C2	2	2	51.45	0.1725	32	M(A,L)GF
FHC1-C-C1-ETW-1	C	C1	3	1	53.81	0.1708	32	LGF
FHC1-C-C1-ETW-2	C	C1	3	1	53.16	0.1703	32	LGF
FHC1-C-C1-ETW-3	C	C1	3	1	54.35	0.1703	32	LGF
FHC1-C-C2-ETW-1	C	C2	3	2	52.41	0.1709	32	M(A,L)GF
FHC1-C-C2-ETW-2	C	C2	3	2	50.53	0.1705	32	M(A,L)GF
FHC1-C-C2-ETW-3	C	C2	3	2	53.62	0.1702	32	LGF

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	53.42
0.0053	51.69
0.0053	52.57
0.0053	49.96
0.0053	49.07
0.0053	48.10
0.0053	53.15
0.0053	51.43
0.0053	51.40
0.0054	49.17
0.0054	51.21
0.0054	51.36
0.0053	53.20
0.0053	52.39
0.0053	53.55
0.0053	51.82
0.0053	49.87
0.0053	52.80

Average 52.20
Standard Dev. 1.784
Coeff. of Var. [%] 3.418
Min. 48.94
Max. 54.75
Number of Spec. 18

Average_{norm} 0.0053 51.45
Standard Dev._{norm} 1.632
Coeff. of Var. [%]_{norm} 3.172
Min. 0.0053 48.10
Max. 0.0054 53.55
Number of Spec. 18 18



4.28 “10/80/10” Filled-Hole Compression 2 Properties (FHC2)

Laminate Filled-Hole Compression Properties (FHC2)--RTA (70°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

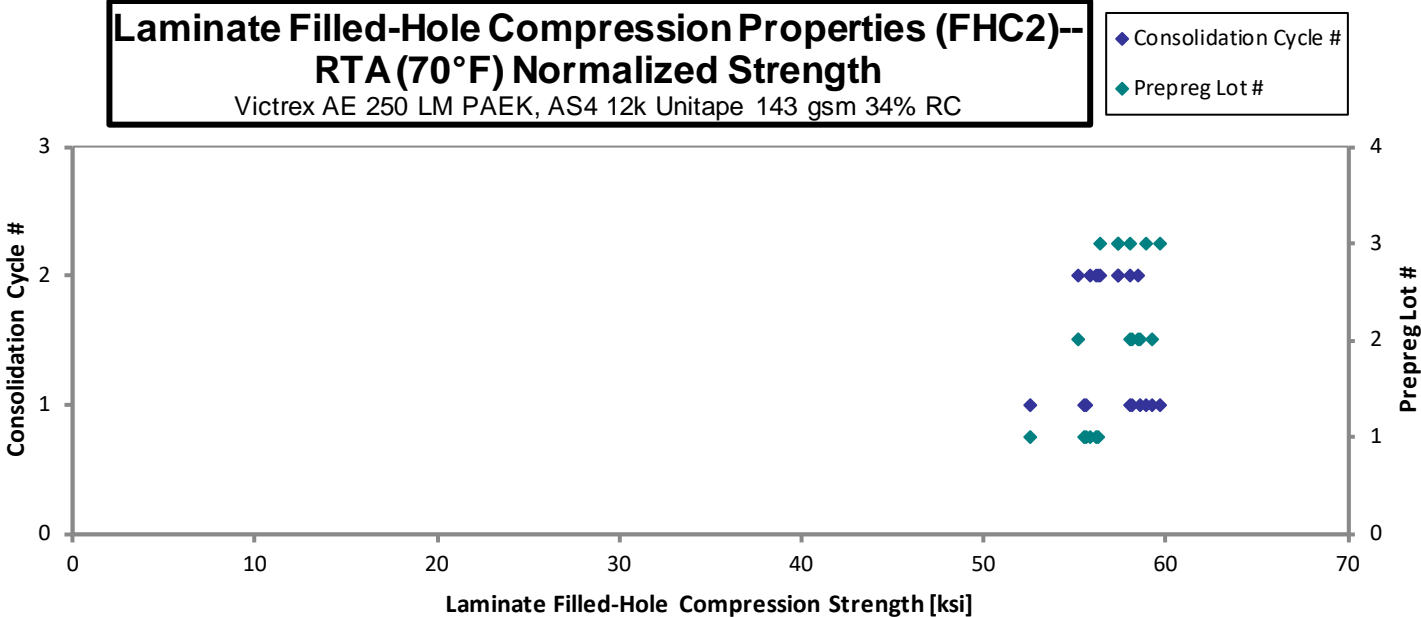
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHC2-A-C1-RTA-1	A	C1	1	1	52.94	0.2146	40	AGF
FHC2-A-C1-RTA-2	A	C1	1	1	55.90	0.2149	40	AGF, M(A,L)WT
FHC2-A-C1-RTA-3	A	C1	1	1	55.84	0.2149	40	AGF
FHC2-A-C2-RTA-1	A	C2	1	2	54.40	0.2219	40	AGO
FHC2-A-C2-RTA-2	A	C2	1	2	54.81	0.2213	40	AGF
FHC2-A-C2-RTA-3	A	C2	1	2	54.94	0.2212	40	AGF
FHC2-B-C1-RTA-1	B	C1	2	1	58.70	0.2155	40	AGF
FHC2-B-C1-RTA-2	B	C1	2	1	59.64	0.2145	40	AGF
FHC2-B-C1-RTA-3	B	C1	2	1	58.52	0.2147	40	M(A,L)GF
FHC2-B-C2-RTA-1	B	C2	2	2	58.66	0.2138	40	AGM
FHC2-B-C2-RTA-2	B	C2	2	2	59.13	0.2137	40	M(A,L)GF
FHC2-B-C2-RTA-3	B	C2	2	2	55.84	0.2134	40	AGF, AWT
FHC2-C-C1-RTA-1	C	C1	3	1	58.50	0.2176	40	M(A,L)GF
FHC2-C-C1-RTA-2	C	C1	3	1	59.46	0.2170	40	AGF
FHC2-C-C1-RTA-3	C	C1	3	1	57.95	0.2165	40	AGF
FHC2-C-C2-RTA-1	C	C2	3	2	57.40	0.2158	40	AGF
FHC2-C-C2-RTA-2	C	C2	3	2	56.56	0.2155	40	AGM
FHC2-C-C2-RTA-3	C	C2	3	2	57.59	0.2151	40	M(A,L)GF

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0054	52.60
0.0054	55.61
0.0054	55.56
0.0055	55.89
0.0055	56.16
0.0055	56.26
0.0054	58.57
0.0054	59.22
0.0054	58.17
0.0053	58.06
0.0053	58.50
0.0053	55.17
0.0054	58.92
0.0054	59.75
0.0054	58.08
0.0054	57.34
0.0054	56.42
0.0054	57.36

Average 57.04
 Standard Dev. 1.963
 Coeff. of Var. [%] 3.442
 Min. 52.94
 Max. 59.64
 Number of Spec. 18

Average_{norm} 0.0054 57.09
 Standard Dev_{norm} 1.785
 Coeff. of Var. [%]_{norm} 3.126
 Min. 0.0053 52.60
 Max. 0.0055 59.75
 Number of Spec. 18 18



**Laminate Filled-Hole Compression Properties (FHC2)--ETW (275°F) □
Strength □**

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

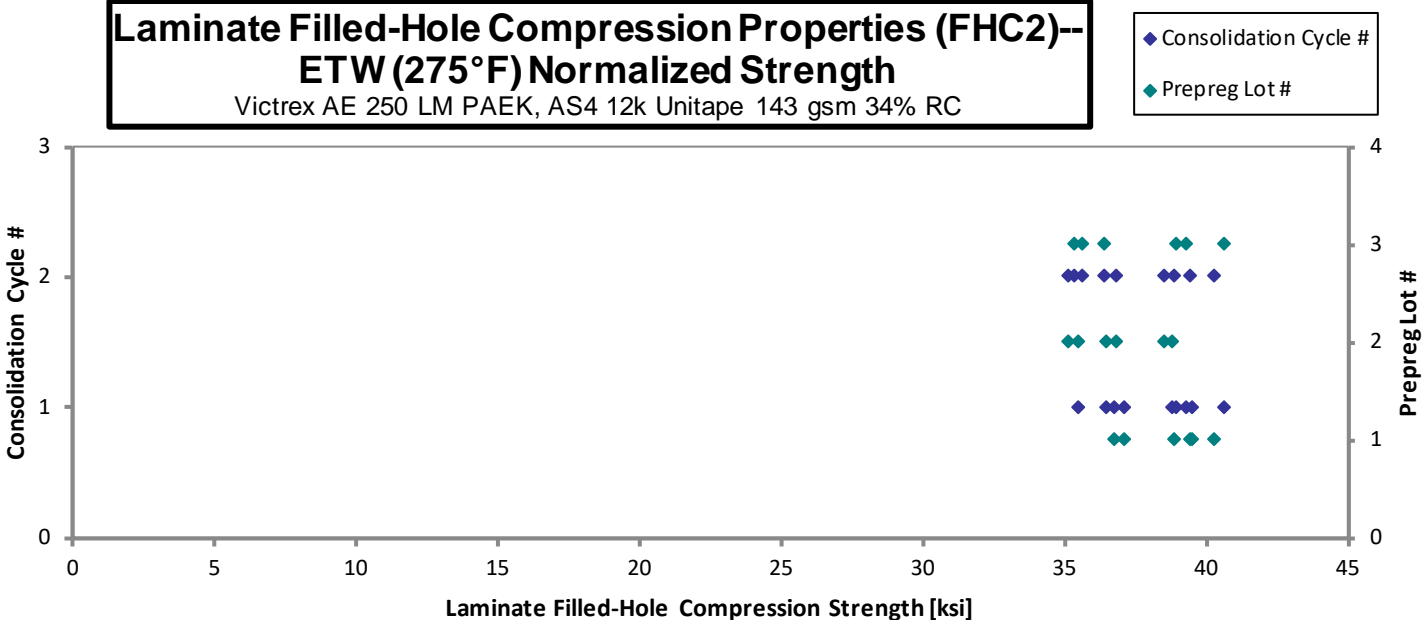
normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHC2-A-C1-ETW-1	A	C1	1	1	37.23	0.2151	40	AGF
FHC2-A-C1-ETW-2	A	C1	1	1	39.70	0.2151	40	AGF
FHC2-A-C1-ETW-3	A	C1	1	1	37.00	0.2144	40	AGF
FHC2-A-C2-ETW-1	A	C2	1	2	38.01	0.2209	40	AGF
FHC2-A-C2-ETW-2	A	C2	1	2	39.49	0.2205	40	M(A,L)GF
FHC2-A-C2-ETW-3	A	C2	1	2	38.68	0.2201	40	AGF
FHC2-B-C1-ETW-1	B	C1	2	1	39.34	0.2132	40	AGF
FHC2-B-C1-ETW-2	B	C1	2	1	35.98	0.2131	40	AGF
FHC2-B-C1-ETW-3	B	C1	2	1	37.05	0.2127	40	AGF
FHC2-B-C2-ETW-1	B	C2	2	2	37.45	0.2125	40	AGF
FHC2-B-C2-ETW-2	B	C2	2	2	39.27	0.2119	40	M(A,L)GF
FHC2-B-C2-ETW-3	B	C2	2	2	35.89	0.2113	40	M(A,L)GF
FHC2-C-C1-ETW-2	C	C1	3	1	39.31	0.2159	40	AGF
FHC2-C-C1-ETW-3	C	C1	3	1	39.04	0.2156	40	AGF
FHC2-C-C1-ETW-4	C	C1	3	1	40.78	0.2153	40	M(A,L)GF
FHC2-C-C2-ETW-1	C	C2	3	2	35.42	0.2154	40	AGF
FHC2-C-C2-ETW-2	C	C2	3	2	35.90	0.2144	40	M(A,L)GF
FHC2-C-C2-ETW-3	C	C2	3	2	36.61	0.2149	40	AGF

Avg. t _{ply} [in]	Strength _{norm} [ksi]
0.0054	37.07
0.0054	39.53
0.0054	36.73
0.0055	38.88
0.0055	40.31
0.0055	39.41
0.0053	38.83
0.0053	35.50
0.0053	36.48
0.0053	36.85
0.0053	38.53
0.0053	35.10
0.0054	39.29
0.0054	38.96
0.0054	40.64
0.0054	35.32
0.0054	35.64
0.0054	36.41

Average 37.90
Standard Dev. 1.602
Coeff. of Var. [%] 4.227
Min. 35.42
Max. 40.78
Number of Spec. 18

Average_{norm} 0.0054
Standard Dev._{norm} 1.813
Coeff. of Var. [%]_{norm} 4.802
Min. 0.0053
Max. 0.0055
Number of Spec. 18



4.29 “40/20/40” Filled-Hole Compression 3 Properties (FHC3)

Laminate Filled-Hole Compression Properties (FHC3)--RTA (70°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

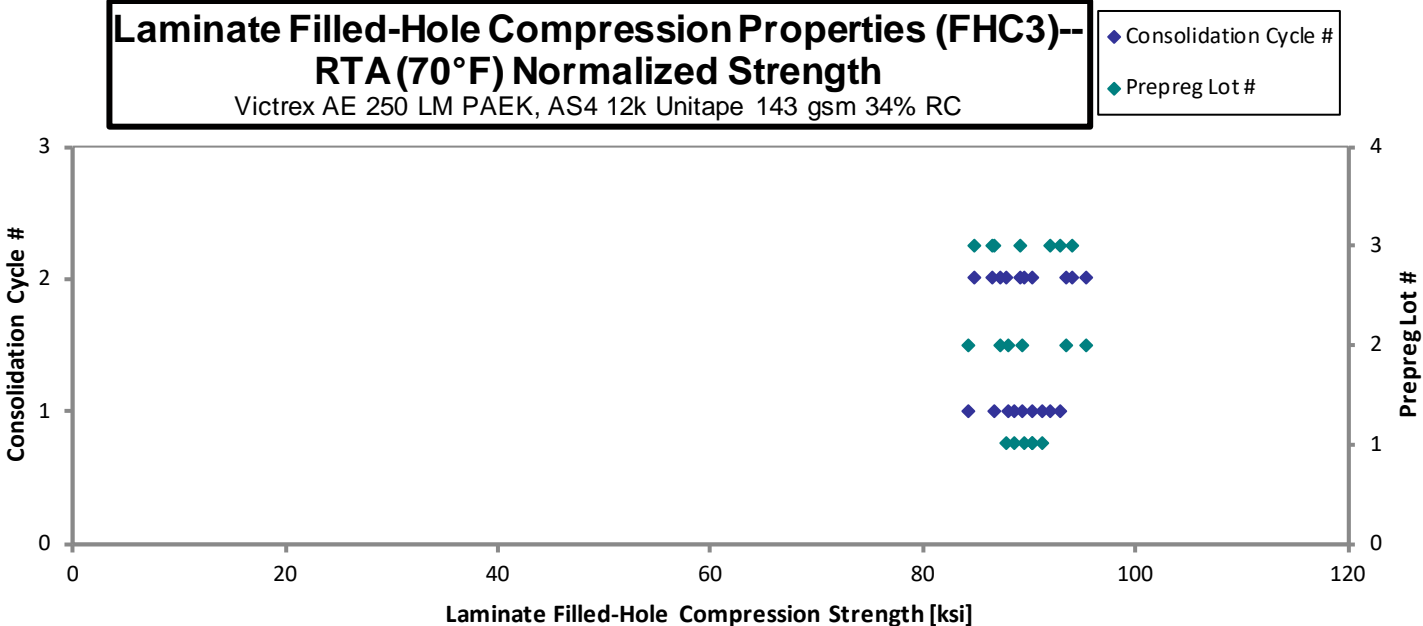
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHC3-A-C1-RTA-1	A	C1	1	1	92.95	0.2100	40	M(A,L)GO
FHC3-A-C1-RTA-2	A	C1	1	1	94.80	0.2078	40	LGM
FHC3-A-C1-RTA-3	A	C1	1	1	92.19	0.2075	40	LGF
FHC3-A-C2-RTA-1	A	C2	1	2	93.12	0.2093	40	M(A,L)GO
FHC3-A-C2-RTA-2	A	C2	1	2	91.28	0.2078	40	M(A,L)GM
FHC3-A-C2-RTA-3	A	C2	1	2	93.13	0.2077	40	M(A,L)GO
FHC3-B-C1-RTA-1	B	C1	2	1	89.75	0.2149	40	M(A,L)GF
FHC3-B-C1-RTA-2	B	C1	2	1	84.92	0.2145	40	LGF
FHC3-B-C1-RTA-3	B	C1	2	1	88.80	0.2142	40	M(A,L)GM
FHC3-B-C2-RTA-1	B	C2	2	2	96.47	0.2136	40	M(A,L)GM
FHC3-B-C2-RTA-2	B	C2	2	2	88.55	0.2131	40	AGF
FHC3-B-C2-RTA-3	B	C2	2	2	95.10	0.2122	40	M(A,L)GF
FHC3-C-C1-RTA-1	C	C1	3	1	87.14	0.2150	40	M(A,L)GM
FHC3-C-C1-RTA-2	C	C1	3	1	93.10	0.2135	40	M(A,L)GM
FHC3-C-C1-RTA-3	C	C1	3	1	94.25	0.2129	40	M(A,L)GF
FHC3-C-C2-RTA-1	C	C2	3	2	85.89	0.2134	40	LGF
FHC3-C-C2-RTA-2	C	C2	3	2	87.51	0.2134	40	M(A,L)GM
FHC3-C-C2-RTA-3	C	C2	3	2	90.68	0.2123	40	M(A,L)GM
FHC3-C-C2-RTA-4	C	C2	3	2	95.42	0.2129	40	M(A,L)GM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0052	90.35
0.0052	91.20
0.0052	88.58
0.0052	90.22
0.0052	87.79
0.0052	89.53
0.0054	89.29
0.0054	84.33
0.0054	88.04
0.0053	95.40
0.0053	87.35
0.0053	93.41
0.0054	86.75
0.0053	92.04
0.0053	92.89
0.0053	84.85
0.0053	86.47
0.0053	89.13
0.0053	94.05

Average 91.32
 Standard Dev. 3.422
 Coeff. of Var. [%] 3.747
 Min. 84.92
 Max. 96.47
 Number of Spec. 19

Average_{norm} 0.0053 89.56
 Standard Dev._{norm} 3.061
 Coeff. of Var. [%]_{norm} 3.418
 Min. 0.0052 84.33
 Max. 0.0054 95.40
 Number of Spec. 19 19



**Laminate Filled-Hole Compression Properties (FHC3)--ETW (275°F) □
Strength □**

Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

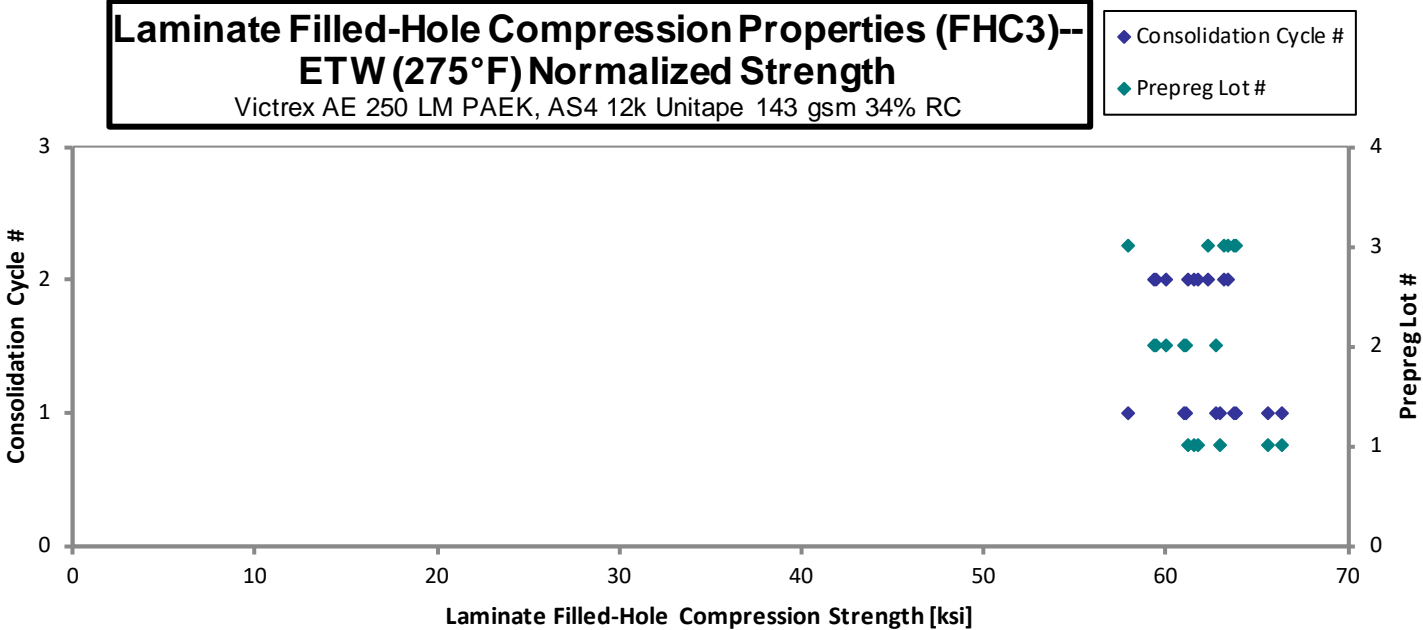
normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
FHC3-A-C1-ETW-1	A	C1	1	1	66.05	0.2061	40	LGF
FHC3-A-C1-ETW-2	A	C1	1	1	69.63	0.2058	40	LGF
FHC3-A-C1-ETW-3	A	C1	1	1	68.95	0.2054	40	LGF
FHC3-A-C2-ETW-1	A	C2	1	2	64.61	0.2065	40	LGF
FHC3-A-C2-ETW-3	A	C2	1	2	64.62	0.2059	40	M(A,L)GF
FHC3-A-C2-ETW-4	A	C2	1	2	64.23	0.2058	40	LGF
FHC3-B-C1-ETW-1	B	C1	2	1	61.61	0.2139	40	LGF
FHC3-B-C1-ETW-2	B	C1	2	1	61.61	0.2141	40	LGF
FHC3-B-C1-ETW-3	B	C1	2	1	63.59	0.2133	40	LGF
FHC3-B-C2-ETW-1	B	C2	2	2	60.54	0.2121	40	LGF
FHC3-B-C2-ETW-2	B	C2	2	2	60.51	0.2117	40	LGF
FHC3-B-C2-ETW-3	B	C2	2	2	61.24	0.2119	40	LGF
FHC3-C-C1-ETW-1	C	C1	3	1	64.64	0.2130	40	LGF
FHC3-C-C1-ETW-2	C	C1	3	1	58.75	0.2130	40	LGF
FHC3-C-C1-ETW-3	C	C1	3	1	64.68	0.2133	40	LGF
FHC3-C-C2-ETW-1	C	C2	3	2	63.13	0.2133	40	LGF
FHC3-C-C2-ETW-2	C	C2	3	2	64.13	0.2135	40	LGF
FHC3-C-C2-ETW-3	C	C2	3	2	64.06	0.2131	40	LGF

Avg. t _{ply} [in]	Strength _{norm} [ksi]
0.0052	63.02
0.0051	66.36
0.0051	65.57
0.0052	61.77
0.0051	61.59
0.0051	61.20
0.0053	61.00
0.0054	61.07
0.0053	62.79
0.0053	59.44
0.0053	59.31
0.0053	60.07
0.0053	63.74
0.0053	57.93
0.0053	63.87
0.0053	62.33
0.0053	63.39
0.0053	63.20

Average **63.70**
Standard Dev. **2.789**
Coeff. of Var. [%] **4.379**
Min. **58.75**
Max. **69.63**
Number of Spec. **18**

Average_{norm} **0.0053** **62.09**
Standard Dev._{norm} **2.170**
Coeff. of Var. [%]_{norm} **3.495**
Min. **0.0051** **57.93**
Max. **0.0054** **66.36**
Number of Spec. **18** **18**



4.30 “25/50/25” Single-Shear Bearing 1 Properties (SSB1)

Laminate Single-Shear Bearing Properties (SSB1)--RTA (70°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Initial Peak Strength [ksi]	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
SSB1-A-C1-RTA-1	A	C1	1	1		109.6	122.9	0.0885	16	B11
SSB1-A-C1-RTA-2	A	C1	1	1		111.3	121.3	0.0877	16	B11
SSB1-A-C1-RTA-3	A	C1	1	1		105.6	122.4	0.0879	16	B11
SSB1-A-C2-RTA-1	A	C2	1	2	112.0	108.2	121.5	0.0893	16	B11
SSB1-A-C2-RTA-2	A	C2	1	2		107.7	123.1	0.0892	16	B11
SSB1-A-C2-RTA-3	A	C2	1	2		113.4	124.8	0.0890	16	B11
SSB1-B-C1-RTA-1	B	C1	2	1		106.5	123.7	0.0854	16	B11
SSB1-B-C1-RTA-2	B	C1	2	1		110.9	125.5	0.0854	16	B11
SSB1-B-C1-RTA-3	B	C1	2	1		110.4	125.2	0.0857	16	B11
SSB1-B-C2-RTA-1	B	C2	2	2		106.2	127.1	0.0843	16	B11
SSB1-B-C2-RTA-2	B	C2	2	2		112.2	129.7	0.0840	16	B11
SSB1-B-C2-RTA-3	B	C2	2	2		107.2	124.4	0.0838	16	B11
SSB1-C-C1-RTA-1	C	C1	3	1	108.3	104.1	119.9	0.0869	16	B11
SSB1-C-C1-RTA-2	C	C1	3	1		100.1	124.3	0.0874	16	B11
SSB1-C-C1-RTA-3	C	C1	3	1		112.6	126.8	0.0871	16	B11
SSB1-C-C2-RTA-1	C	C2	3	2		105.1	122.7	0.0863	16	B11
SSB1-C-C2-RTA-2	C	C2	3	2		114.0	131.1	0.0866	16	B11
SSB1-C-C2-RTA-3	C	C2	3	2	103.3	101.8	121.4	0.0862	16	B11

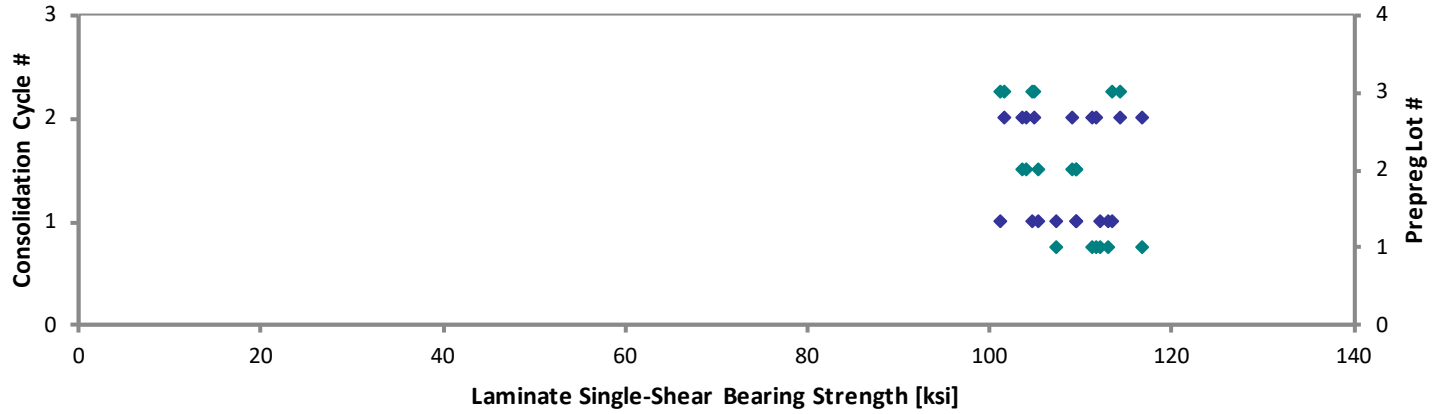
Avg. t_{ply} [in]	2% Offset Strength _{norm} [ksi]	Ultimate Strength _{norm} [ksi]
0.0055	112.2	125.8
0.0055	113.0	123.2
0.0055	107.4	124.5
0.0056	111.8	125.6
0.0056	111.2	127.0
0.0056	116.7	128.5
0.0053	105.2	122.2
0.0053	109.6	124.0
0.0054	109.4	124.1
0.0053	103.5	124.0
0.0052	109.0	126.1
0.0052	104.0	120.7
0.0054	104.6	120.5
0.0055	101.3	125.8
0.0054	113.5	127.8
0.0054	105.0	122.5
0.0054	114.2	131.3
0.0054	101.6	121.1

Average	107.8	108.2	124.3
Standard Dev.	4.379	3.965	2.931
Coeff. of Var. [%]	4.060	3.666	2.357
Min.	103.3	100.1	119.9
Max.	112.0	114.0	131.1
Number of Spec.	3	18	18

Average _{norm}	0.0054	108.5	124.7
Standard Dev _{norm}		4.620	2.857
Coeff. of Var. [%] _{norm}		4.258	2.291
Min.	0.0052	101.3	120.5
Max.	0.0056	116.7	131.3
Number of Spec.	18	18	18

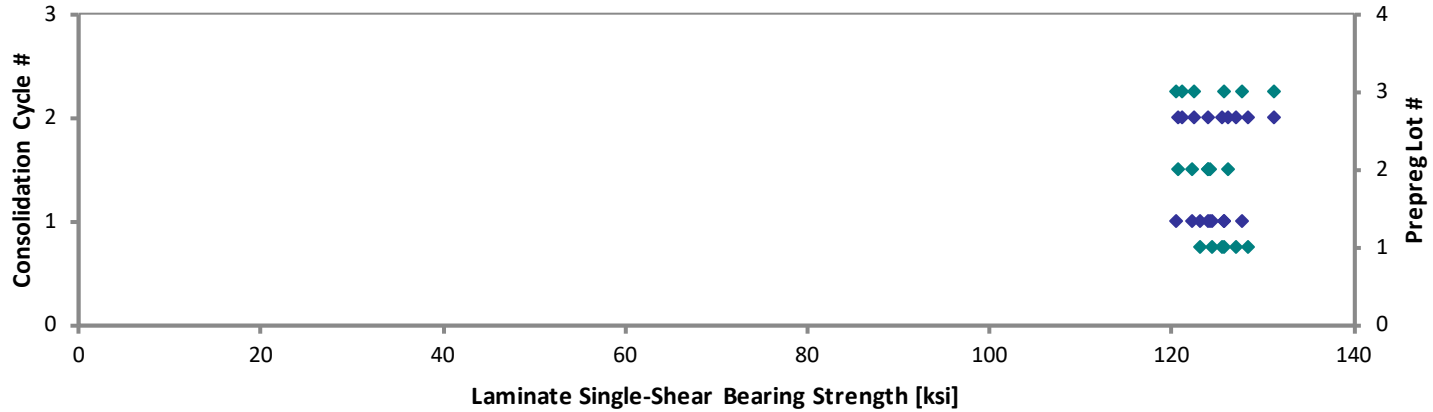
**Laminate Single-Shear Bearing Properties (SSB1)--RTA
(70°F) Normalized 2% Offset Strength**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

◆ Consolidation Cycle #
◆ Prepreg Lot #



**Laminate Single-Shear Bearing Properties (SSB1)--RTA
(70°F) Normalized Ultimate Strength**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

◆ Consolidation Cycle #
◆ Prepreg Lot #



Laminate Single-Shear Bearing Properties (SSB1)--ETA (275°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

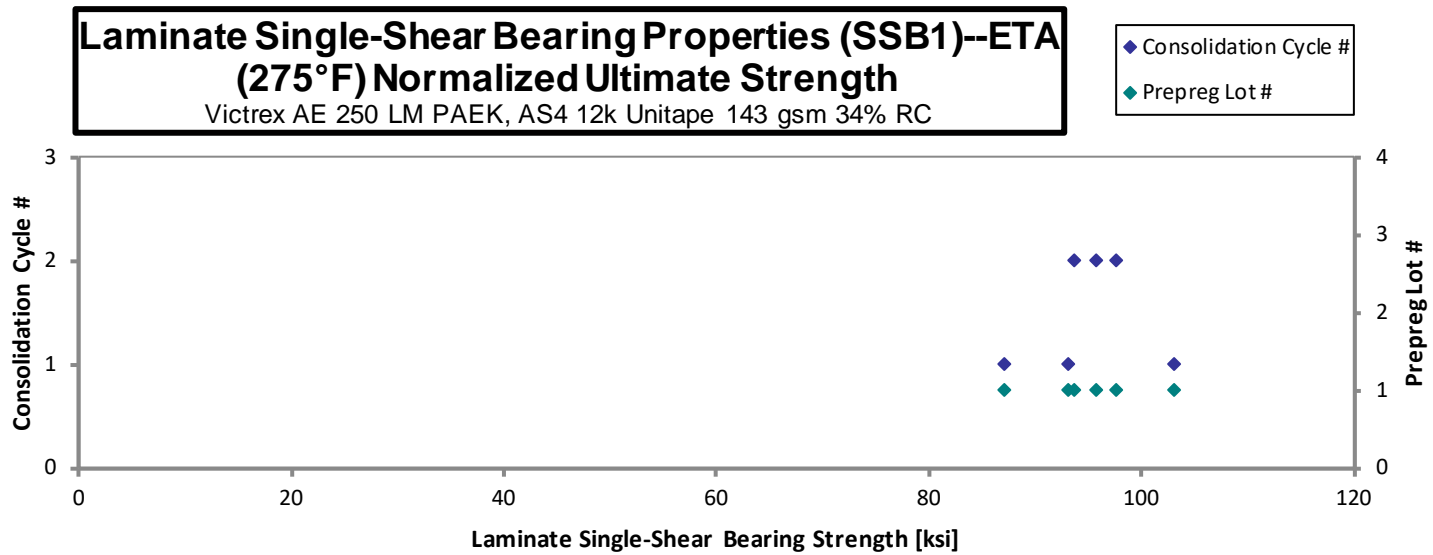
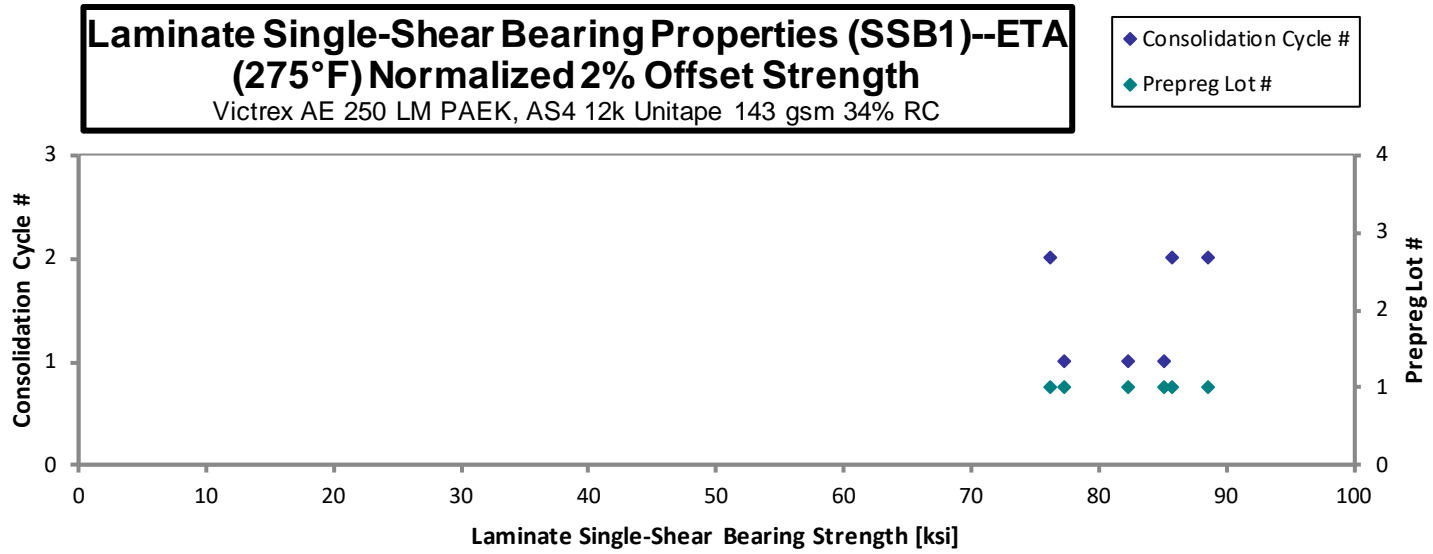
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Initial Peak Strength [ksi]	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
SSB1-A-C1-ETA-1	A	C1	1	1		82.09	93.04	0.0866	16	B1I
SSB1-A-C1-ETA-2	A	C1	1	1		78.49	88.50	0.0851	16	B1I
SSB1-A-C1-ETA-3	A	C1	1	1	88.70	84.80	102.6	0.0867	16	B1I
SSB1-A-C2-ETA-1	A	C2	1	2		88.52	93.60	0.0865	16	B1I
SSB1-A-C2-ETA-2	A	C2	1	2		85.72	97.54	0.0865	16	B1I
SSB1-A-C2-ETA-3	A	C2	1	2	77.99	75.87	95.22	0.0868	16	B1I

Avg. t_{ply} [in]	2% Offset Strength _{norm} [ksi]	Ultimate Strength _{norm} [ksi]
0.0054	82.23	93.20
0.0053	77.29	87.15
0.0054	85.12	103.0
0.0054	88.58	93.66
0.0054	85.82	97.65
0.0054	76.25	95.70

Average 83.35 82.58 95.09
 Standard Dev. 7.574 4.737 4.754
 Coeff. of Var. [%] 9.087 5.736 5.000
 Min. 77.99 75.87 88.50
 Max. 88.70 88.52 102.6
 Number of Spec. 2 6 6

Average_{norm} 0.0054 82.55 95.06
 Standard Dev._{norm} 4.920 5.264
 Coeff. of Var. [%]_{norm} 5.961 5.538
 Min. 0.0053 76.25 87.15
 Max. 0.0054 88.58 103.0
 Number of Spec. 6 6 6



November 18, 2022

CAM-RP-2021-025 Rev N/C

**Laminate Single-Shear Bearing Properties (SSB1)--ETW (275°F) □
Strength □**

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

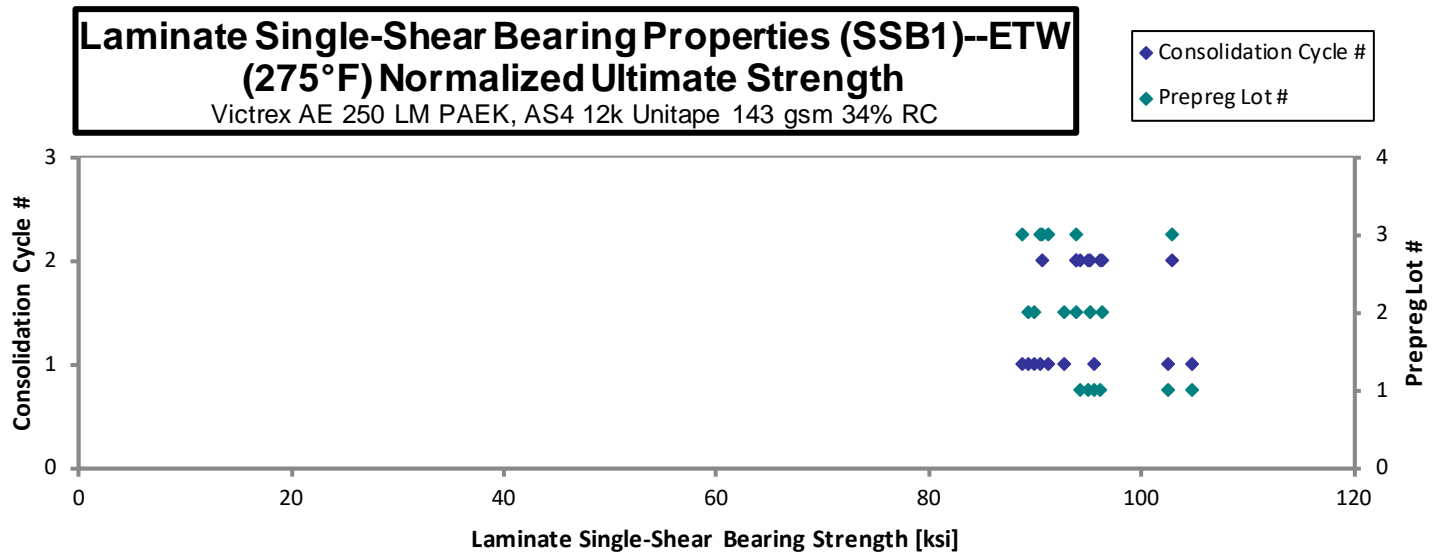
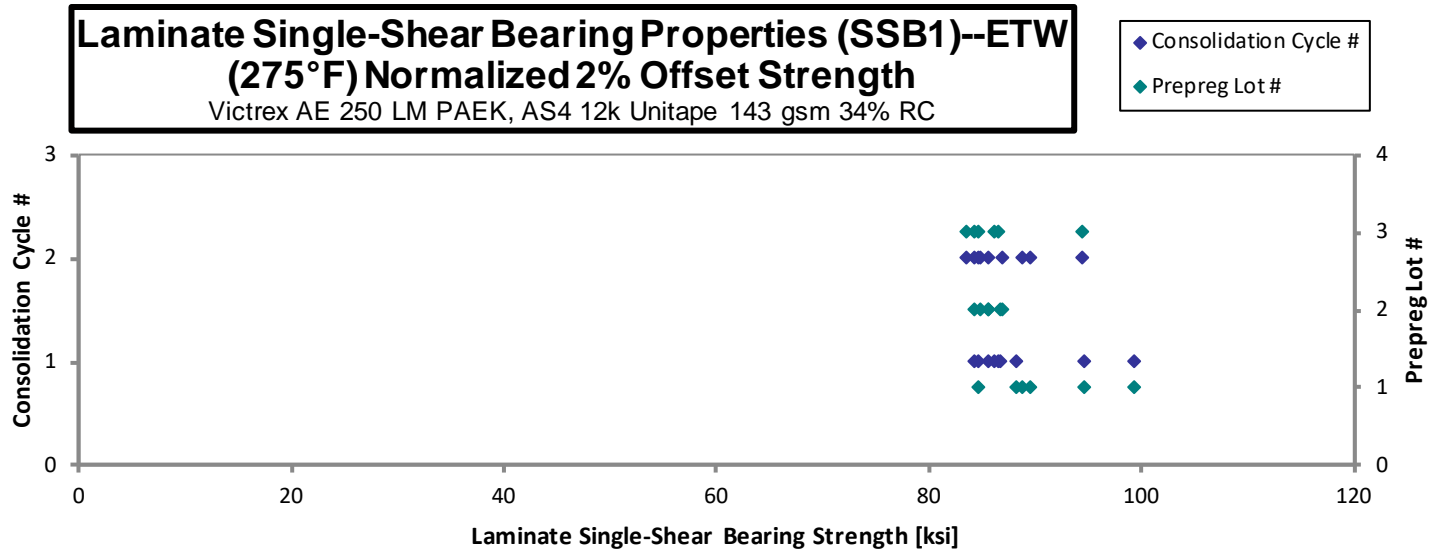
normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrax Batch #	Victrax Consolidation Cycle	Material Lot #	Consolidation Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
SSB1-A-C1-ETW-1	A	C1	1	1	86.34	93.53	0.0882	16	B1I
SSB1-A-C1-ETW-2	A	C1	1	1	97.88	101.1	0.0876	16	B1I
SSB1-A-C1-ETW-3	A	C1	1	1	89.56	99.18	0.0913	16	B1I
SSB1-A-C2-ETW-1	A	C2	1	2	84.73	94.26	0.0863	16	B1I
SSB1-A-C2-ETW-2	A	C2	1	2	88.51	94.77	0.0867	16	B1I
SSB1-A-C2-ETW-3	A	C2	1	2	87.31	93.75	0.0886	16	B1I
SSB1-B-C1-ETW-1	B	C1	2	1	89.14	93.52	0.0831	16	B1I
SSB1-B-C1-ETW-2	B	C1	2	1	87.81	92.96	0.0830	16	B1I
SSB1-B-C1-ETW-3	B	C1	2	1	89.18	95.46	0.0840	16	B1I
SSB1-B-C2-ETW-1	B	C2	2	2	89.16	99.15	0.0829	16	B1I
SSB1-B-C2-ETW-2	B	C2	2	2	88.29	100.2	0.0831	16	B1I
SSB1-B-C2-ETW-3	B	C2	2	2	90.25	97.58	0.0832	16	B1I
SSB1-C-C1-ETW-1	C	C1	3	1	85.12	89.15	0.0860	16	B1I
SSB1-C-C1-ETW-2	C	C1	3	1	86.59	91.81	0.0859	16	B1I
SSB1-C-C1-ETW-3	C	C1	3	1	87.39	91.45	0.0855	16	B1I
SSB1-C-C2-ETW-1	C	C2	3	2	84.54	94.96	0.0855	16	B1I
SSB1-C-C2-ETW-2	C	C2	3	2	85.34	91.66	0.0854	16	B1I
SSB1-C-C2-ETW-3	C	C2	3	2	95.26	103.8	0.0856	16	B1I

Avg. t _{ply} [in]	2% Offset Strength _{norm} [ksi]	Ultimate Strength _{norm} [ksi]
0.0055	88.15	95.49
0.0055	99.26	102.6
0.0057	94.60	104.8
0.0054	84.67	94.19
0.0054	88.77	95.04
0.0055	89.53	96.14
0.0052	85.68	89.89
0.0052	84.32	89.27
0.0052	86.65	92.75
0.0052	85.51	95.10
0.0052	84.88	96.34
0.0052	86.86	93.90
0.0054	84.71	88.72
0.0054	86.09	91.28
0.0053	86.49	90.52
0.0053	83.61	93.91
0.0053	84.37	90.62
0.0053	94.34	102.8

Average 88.47 95.46
Standard Dev. 3.446 3.904
Coeff. of Var. [%] 3.895 4.089
Min. 84.54 89.15
Max. 97.88 103.8
Number of Spec. 18 18

Average_{norm} 0.0054 87.69 94.63
Standard Dev._{norm} 4.270 4.691
Coeff. of Var. [%]_{norm} 4.870 4.957
Min. 0.0052 83.61 88.72
Max. 0.0057 99.26 104.8
Number of Spec. 18 18 18



4.31 “10/80/10” Single-Shear Bearing 2 Properties (SSB2)

Laminate Single-Shear Bearing Properties (SSB2)--RTA (70°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

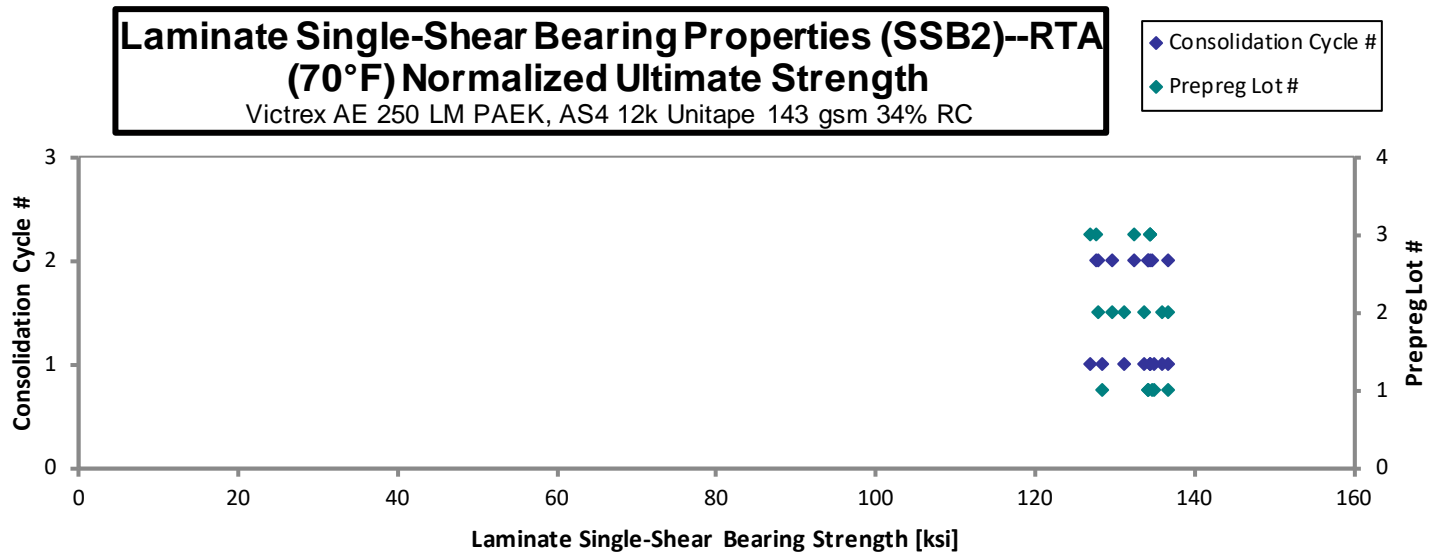
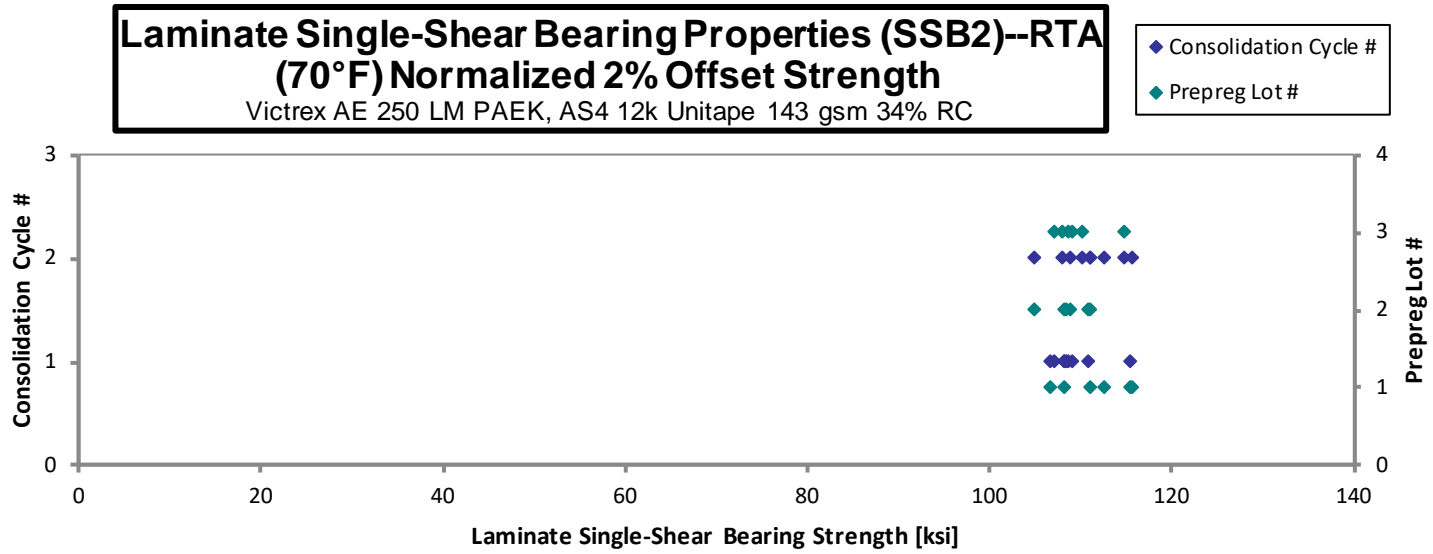
normalizing
 t_{ply} [in]
0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
SSB2-A-C1-RTA-1	A	C1	1	1	114.7	135.9	0.1087	20	B1I
SSB2-A-C1-RTA-2	A	C1	1	1	106.3	134.5	0.1083	20	B1I
SSB2-A-C1-RTA-3	A	C1	1	1	108.3	128.5	0.1079	20	B1I
SSB2-A-C2-RTA-1	A	C2	1	2	113.7	135.5	0.1069	20	B1I
SSB2-A-C2-RTA-2	A	C2	1	2	111.8	135.2	0.1071	20	B1I
SSB2-A-C2-RTA-3	A	C2	1	2	116.6	135.8	0.1071	20	B1I
SSB2-B-C1-RTA-1	B	C1	2	1	112.1	135.1	0.1069	20	B1I
SSB2-B-C1-RTA-2	B	C1	2	1	109.9	137.9	0.1065	20	B1I
SSB2-B-C1-RTA-3	B	C1	2	1	109.0	132.0	0.1073	20	B1I
SSB2-B-C2-RTA-1	B	C2	2	2	106.6	131.7	0.1064	20	B1I
SSB2-B-C2-RTA-2	B	C2	2	2	110.7	130.0	0.1062	20	B1I
SSB2-B-C2-RTA-3	B	C2	2	2	113.1	139.3	0.1061	20	B1I
SSB2-C-C1-RTA-1	C	C1	3	1	109.7	135.9	0.1069	20	B1I
SSB2-C-C1-RTA-2	C	C1	3	1	110.4	128.6	0.1067	20	B1I
SSB2-C-C1-RTA-3	C	C1	3	1	108.5	136.1	0.1066	20	B1I
SSB2-C-C2-RTA-1	C	C2	3	2	114.9	134.4	0.1080	20	B1I
SSB2-C-C2-RTA-2	C	C2	3	2	108.2	127.9	0.1077	20	B1I
SSB2-C-C2-RTA-3	C	C2	3	2	110.5	132.8	0.1076	20	B1I

Avg. t_{ply} [in]	2% Offset Strength _{norm} [ksi]	Ultimate Strength _{norm} [ksi]
0.0054	115.5	136.8
0.0054	106.6	134.9
0.0054	108.2	128.4
0.0053	112.5	134.1
0.0054	110.9	134.1
0.0054	115.6	134.7
0.0053	110.9	133.7
0.0053	108.4	136.0
0.0054	108.3	131.2
0.0053	104.9	129.7
0.0053	108.8	127.8
0.0053	111.0	136.8
0.0053	108.6	134.6
0.0053	109.0	127.0
0.0053	107.1	134.4
0.0054	114.9	134.4
0.0054	107.9	127.6
0.0054	110.1	132.3

Average 110.8 133.7
Standard Dev. 2.901 3.295
Coeff. of Var. [%] 2.617 2.464
Min. 106.3 127.9
Max. 116.6 139.3
Number of Spec. 18 18

Average_{norm} 0.0054 110.0 132.7
Standard Dev._{norm} 3.038 3.246
Coeff. of Var. [%]_{norm} 2.763 2.446
Min. 0.0053 104.9 127.0
Max. 0.0054 115.6 136.8
Number of Spec. 18 18 18



November 18, 2022

CAM-RP-2021-025 Rev N/C

**Laminate Single-Shear Bearing Properties (SSB2)--ETW (275°F) □
Strength □**

Victrax AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

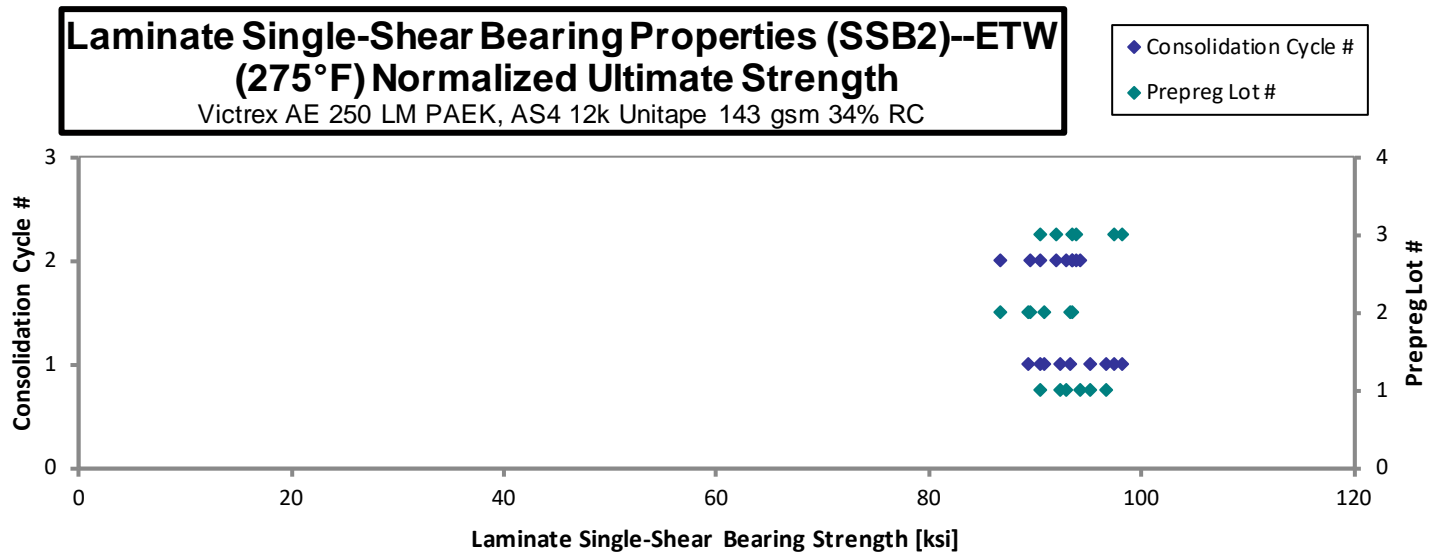
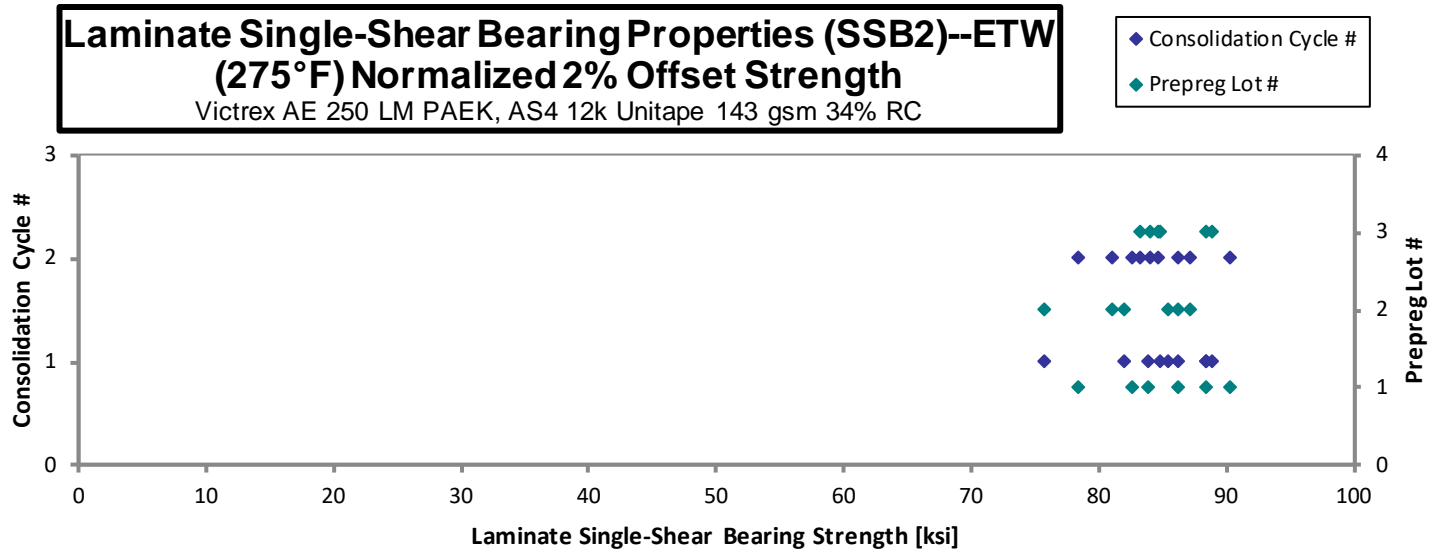
normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrax Batch #	Victrax Consolidation Cycle	Material Lot #	Consolidation Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
SSB2-A-C1-ETW-1	A	C1	1	1	89.30	97.59	0.1070	20	B11
SSB2-A-C1-ETW-2	A	C1	1	1	84.34	92.90	0.1073	20	B11
SSB2-A-C1-ETW-3	A	C1	1	1	87.34	96.47	0.1066	20	B11
SSB2-A-C2-ETW-1	A	C2	1	2	80.18	92.65	0.1056	20	B11
SSB2-A-C2-ETW-2	A	C2	1	2	93.07	95.78	0.1048	20	B11
SSB2-A-C2-ETW-3	A	C2	1	2	85.49	97.54	0.1044	20	B11
SSB2-B-C1-ETW-1	B	C1	2	1	84.70	92.29	0.1045	20	B11
SSB2-B-C1-ETW-2	B	C1	2	1	78.60	94.29	0.1040	20	B11
SSB2-B-C1-ETW-3	B	C1	2	1	88.50	96.67	0.1042	20	B11
SSB2-B-C2-ETW-1	B	C2	2	2	84.06	90.01	0.1042	20	B11
SSB2-B-C2-ETW-2	B	C2	2	2	89.11	96.55	0.1046	20	B11
SSB2-B-C2-ETW-3	B	C2	2	2	89.98	92.54	0.1046	20	B11
SSB2-C-C1-ETW-1	C	C1	3	1	89.87	98.48	0.1068	20	B11
SSB2-C-C1-ETW-2	C	C1	3	1	86.13	99.67	0.1063	20	B11
SSB2-C-C1-ETW-3	C	C1	3	1	89.84	91.95	0.1063	20	B11
SSB2-C-C2-ETW-1	C	C2	3	2	85.37	95.26	0.1064	20	B11
SSB2-C-C2-ETW-2	C	C2	3	2	84.97	95.38	0.1059	20	B11
SSB2-C-C2-ETW-3	C	C2	3	2	86.17	93.73	0.1061	20	B11

Avg. t _{ply} [in]	2% Offset Strength _{norm} [ksi]	Ultimate Strength _{norm} [ksi]
0.0053	88.46	96.67
0.0054	83.79	92.30
0.0053	86.18	95.19
0.0053	78.38	90.58
0.0052	90.28	92.91
0.0052	82.60	94.24
0.0052	81.97	89.32
0.0052	75.71	90.83
0.0052	85.40	93.28
0.0052	81.07	86.82
0.0052	86.29	93.49
0.0052	87.10	89.59
0.0053	88.86	97.37
0.0053	84.80	98.13
0.0053	88.40	90.47
0.0053	84.07	93.80
0.0053	83.27	93.49
0.0053	84.63	92.05

Average **86.50** **94.99**
 Standard Dev. **3.583** **2.598**
 Coeff. of Var. [%] **4.142** **2.736**
 Min. **78.60** **90.01**
 Max. **93.07** **99.67**
 Number of Spec. **18** **18**

Average_{norm} **0.0053** **84.52** **92.81**
 Standard Dev._{norm} **3.723** **2.946**
 Coeff. of Var. [%]_{norm} **4.405** **3.174**
 Min. **0.0052** **75.71** **86.82**
 Max. **0.0054** **90.28** **98.13**
 Number of Spec. **18** **18** **18**



4.32 “40/20/40” Single-Shear Bearing 3 Properties (SSB3)

Laminate Single-Shear Bearing Properties (SSB3)--RTA (70°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
 t_{ply} [in]
 0.0054

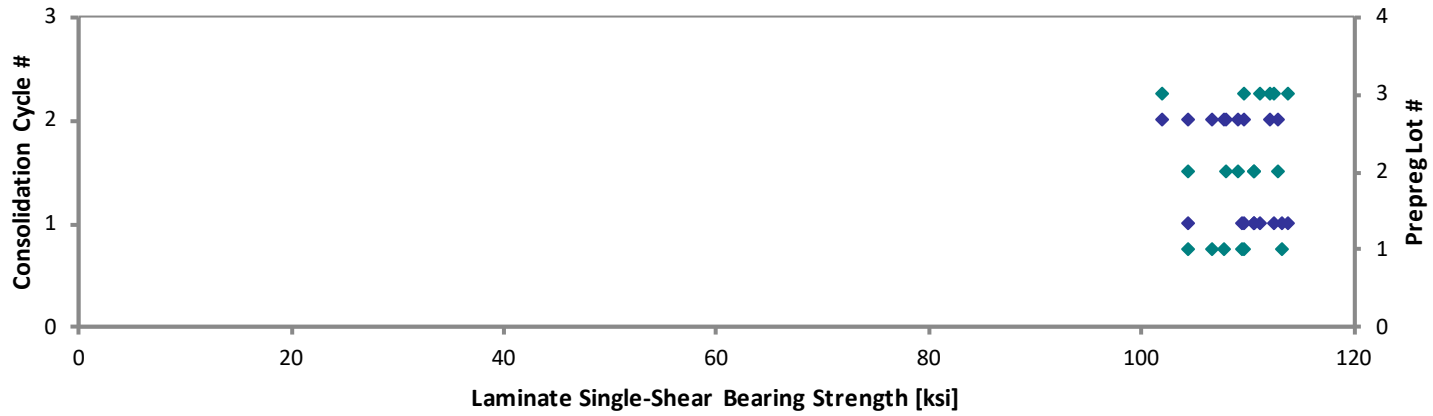
Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Initial Peak Strength [ksi]	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
SSB3-A-C1-RTA-1	A	C1	1	1	114.2	111.0	122.4	0.1064	20	B11
SSB3-A-C1-RTA-2	A	C1	1	1		111.6	128.7	0.1061	20	B11
SSB3-A-C1-RTA-3	A	C1	1	1	115.0	114.7	126.9	0.1065	20	B11
SSB3-A-C2-RTA-1	A	C2	1	2		107.8	124.6	0.1069	20	B11
SSB3-A-C2-RTA-2	A	C2	1	2		110.5	127.5	0.1053	20	B11
SSB3-A-C2-RTA-3	A	C2	1	2	109.6	107.1	126.3	0.1052	20	B11
SSB3-B-C1-RTA-1	B	C1	2	1	107.1	104.1	124.4	0.1084	20	B11
SSB3-B-C1-RTA-2	B	C1	2	1		112.1	134.2	0.1065	20	B11
SSB3-B-C1-RTA-3	B	C1	2	1	115.4	112.0	138.8	0.1065	20	B11
SSB3-B-C2-RTA-1	B	C2	2	2	112.7	111.2	131.5	0.1060	20	B11
SSB3-B-C2-RTA-2	B	C2	2	2		111.0	134.8	0.1050	20	B11
SSB3-B-C2-RTA-3	B	C2	2	2		115.4	128.5	0.1056	20	B11
SSB3-C-C1-RTA-1	C	C1	3	1		112.6	129.7	0.1065	20	B11
SSB3-C-C1-RTA-2	C	C1	3	1		114.9	127.4	0.1058	20	B11
SSB3-C-C1-RTA-3	C	C1	3	1		115.6	131.9	0.1062	20	B11
SSB3-C-C2-RTA-1	C	C2	3	2		112.8	130.7	0.1050	20	B11
SSB3-C-C2-RTA-2	C	C2	3	2	105.8	104.7	128.4	0.1050	20	B11
SSB3-C-C2-RTA-3	C	C2	3	2		115.6	133.4	0.1047	20	B11

Avg. t_{ply} [in]	2% Offset Strength _{norm} [ksi]	Ultimate Strength _{norm} [ksi]
0.0053	109.4	120.7
0.0053	109.6	126.5
0.0053	113.2	125.1
0.0053	106.7	123.3
0.0053	107.7	124.3
0.0053	104.4	123.1
0.0054	104.5	124.9
0.0053	110.5	132.3
0.0053	110.5	136.9
0.0053	109.1	129.1
0.0052	107.9	131.1
0.0053	112.9	125.7
0.0053	111.1	127.9
0.0053	112.6	124.8
0.0053	113.7	129.7
0.0053	109.6	127.0
0.0053	101.9	124.8
0.0052	112.0	129.3

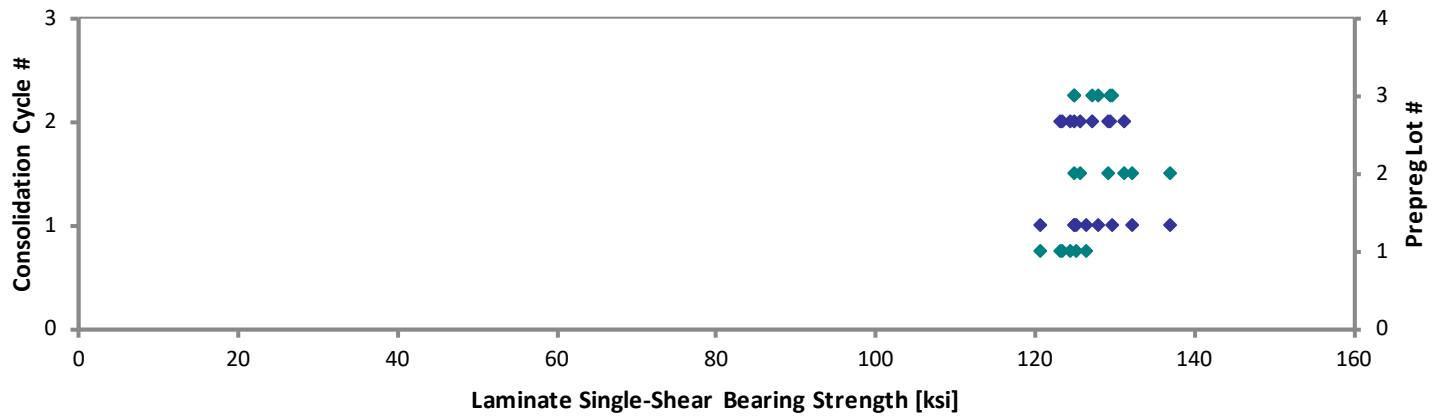
Average	111.4	111.4	129.5
Standard Dev.	3.916	3.504	4.133
Coeff. of Var. [%]	3.516	3.146	3.193
Min.	105.8	104.1	122.4
Max.	115.4	115.6	138.8
Number of Spec.	7	18	18

Average _{norm}	0.0053	109.3	127.0
Standard Dev _{norm}		3.308	3.878
Coeff. of Var. [%] _{norm}		3.027	3.053
Min.	0.0052	101.9	120.7
Max.	0.0054	113.7	136.9
Number of Spec.	18	18	18

**Laminate Single-Shear Bearing Properties (SSB3)--RTA
(70°F) Normalized 2% Offset Strength**
Vitrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC



**Laminate Single-Shear Bearing Properties (SSB3)--RTA
(70°F) Normalized Ultimate Strength**
Vitrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC



Laminate Single-Shear Bearing Properties (SSB3)--ETW (275°F) □
Strength □

Victrix AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

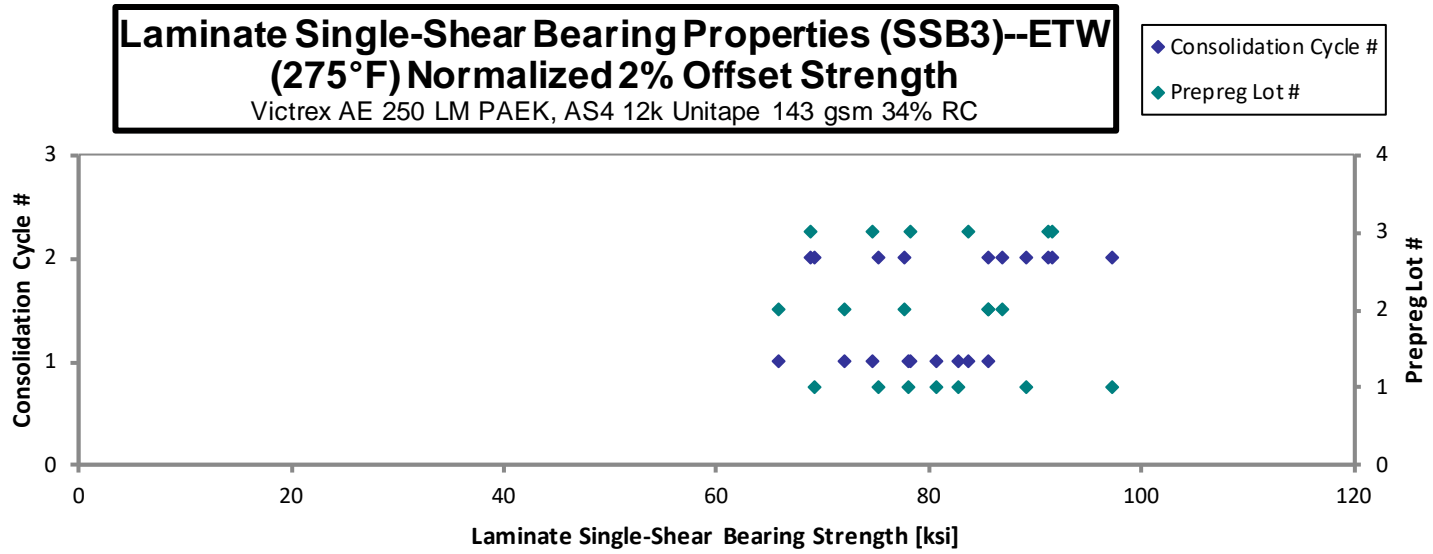
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrix Batch #	Victrix Consolidation Cycle	Material Lot #	Consolidation Cycle #	Initial Peak Strength [ksi]	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
SSB3-A-C1-ETW-1	A	C1	1	1		80.11	95.46	0.1054	20	B1I
SSB3-A-C1-ETW-2	A	C1	1	1		83.03	90.55	0.1076	20	B1I
SSB3-A-C1-ETW-3	A	C1	1	1	83.71	82.42	88.70	0.1057	20	B1I
SSB3-A-C2-ETW-1	A	C2	1	2	78.76	71.65	89.92	0.1043	20	B1I
SSB3-A-C2-ETW-2	A	C2	1	2	79.47	77.15	91.19	0.1055	20	B1I
SSB3-A-C2-ETW-3	A	C2	1	2		100.8	102.6	0.1041	20	B1I
SSB3-A-C2-ETW-4	A	C2	1	2		91.51	97.12	0.1052	20	B1I
SSB3-B-C1-ETW-1	B	C1	2	1	78.18	67.69	88.51	0.1051	20	B1I
SSB3-B-C1-ETW-2	B	C1	2	1		87.80	89.51	0.1054	20	B1I
SSB3-B-C1-ETW-3	B	C1	2	1	79.30	73.83	92.22	0.1054	20	B1I
SSB3-B-C2-ETW-1	B	C2	2	2		89.03	89.71	0.1055	20	B1I
SSB3-B-C2-ETW-2	B	C2	2	2		88.02	93.48	0.1051	20	B1I
SSB3-B-C2-ETW-3	B	C2	2	2	80.50	79.18	92.47	0.1061	20	B1I
SSB3-C-C1-ETW-1	C	C1	3	1		80.64	86.39	0.1048	20	B1I
SSB3-C-C1-ETW-2	C	C1	3	1		86.17	91.28	0.1050	20	B1I
SSB3-C-C1-ETW-3	C	C1	3	1	79.99	77.10	93.24	0.1045	20	B1I
SSB3-C-C2-ETW-1	C	C2	3	2	97.40	95.09	99.29	0.1035	20	B1I
SSB3-C-C2-ETW-2	C	C2	3	2	82.18	72.10	93.86	0.1032	20	B1I
SSB3-C-C2-ETW-3	C	C2	3	2		95.60	97.69	0.1035	20	B1I

Avg. t_{ply} [in]	2% Offset Strength _{norm} [ksi]	Ultimate Strength _{norm} [ksi]
0.0053	78.17	93.14
0.0054	82.71	90.20
0.0053	80.63	86.77
0.0052	69.19	86.84
0.0053	75.32	89.04
0.0052	97.18	98.96
0.0053	89.15	94.62
0.0053	65.87	86.14
0.0053	85.65	87.32
0.0053	72.03	89.97
0.0053	86.97	87.63
0.0053	85.67	90.99
0.0053	77.75	90.80
0.0052	78.24	83.82
0.0052	83.75	88.72
0.0052	74.61	90.23
0.0052	91.15	95.18
0.0052	68.92	89.72
0.0052	91.58	93.59

Average	82.16	83.10	92.80
Standard Dev.	5.966	8.983	4.121
Coeff. of Var. [%]	7.262	10.81	4.441
Min.	78.18	67.69	86.39
Max.	97.40	100.8	102.6
Number of Spec.	9	19	19

Average _{norm}	0.0052	80.77	90.19
Standard Dev. _{norm}		8.583	3.662
Coeff. of Var. [%] _{norm}		10.63	4.060
Min.	0.0052	65.87	83.82
Max.	0.0054	97.18	98.96
Number of Spec.	19	19	19



4.33 “25/50/25” Compression After Impact 1 Properties (CAI1)

Laminate Compression After Impact 1 Properties (CAI1)--RTA (70°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Measured Impact Energy [in-lbf]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
CAI1-A-C1-RTA-1	A	C1	1	1	44.94	260.3	0.1742	32	LDM
CAI1-A-C1-RTA-2	A	C1	1	1	42.51	259.2	0.1755	32	LDM
CAI1-A-C1-RTA-3	A	C1	1	1	34.58	257.8	0.1721	32	LDM
CAI1-A-C1-RTA-4	A	C1	1	1	42.83	256.7	0.1721	32	LDM
CAI1-A-C1-RTA-5	A	C1	1	1	42.54	257.0	0.1730	32	LDM
CAI1-A-C1-RTA-6	A	C1	1	1	43.59	258.8	0.1733	32	M(A,L)DM
CAI1-A-C1-RTA-7	A	C1	1	1	45.07	256.4	0.1722	32	LDM

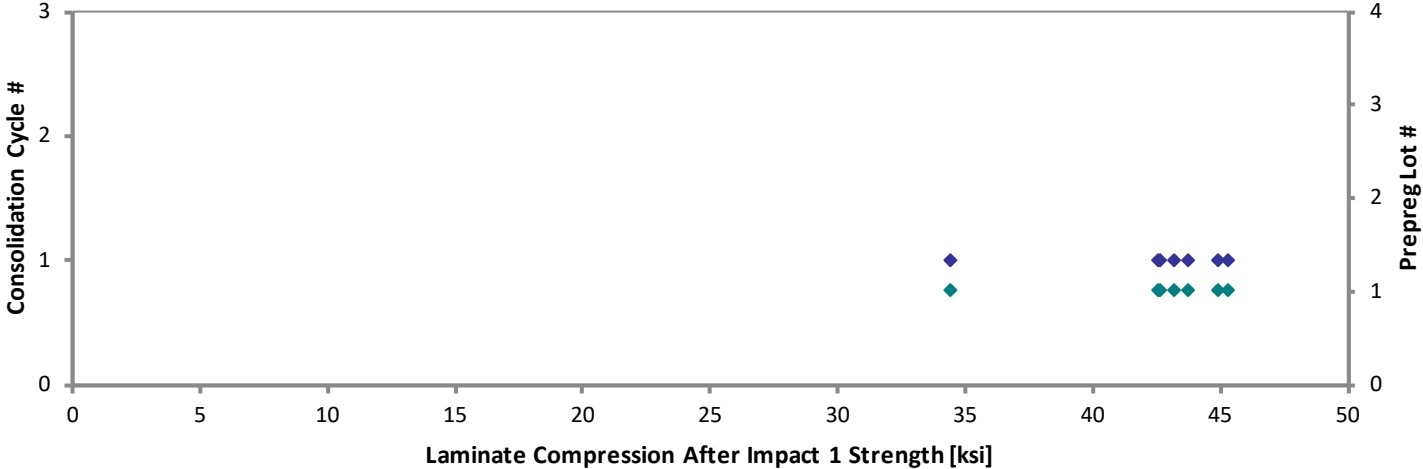
Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0054	45.31
0.0055	43.16
0.0054	34.44
0.0054	42.65
0.0054	42.58
0.0054	43.73
0.0054	44.92

Average 42.29
Standard Dev. 3.566
Coeff. of Var. [%] 8.430
Min. 34.58
Max. 45.07
Number of Spec. 7

Average_{norm} 0.0054
Standard Dev._{norm} 3.666
Coeff. of Var. [%]_{norm} 8.647
Min. 0.0054
Max. 0.0055
Number of Spec. 7

Laminate Compression After Impact 1 Properties (CAI1)
--RTA (70°F) Normalized Strength
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

- ◆ Consolidation Cycle #
- ◆ Prepreg Lot #



Laminate Compression After Impact 1 Properties (CAI1)--ETA (275°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

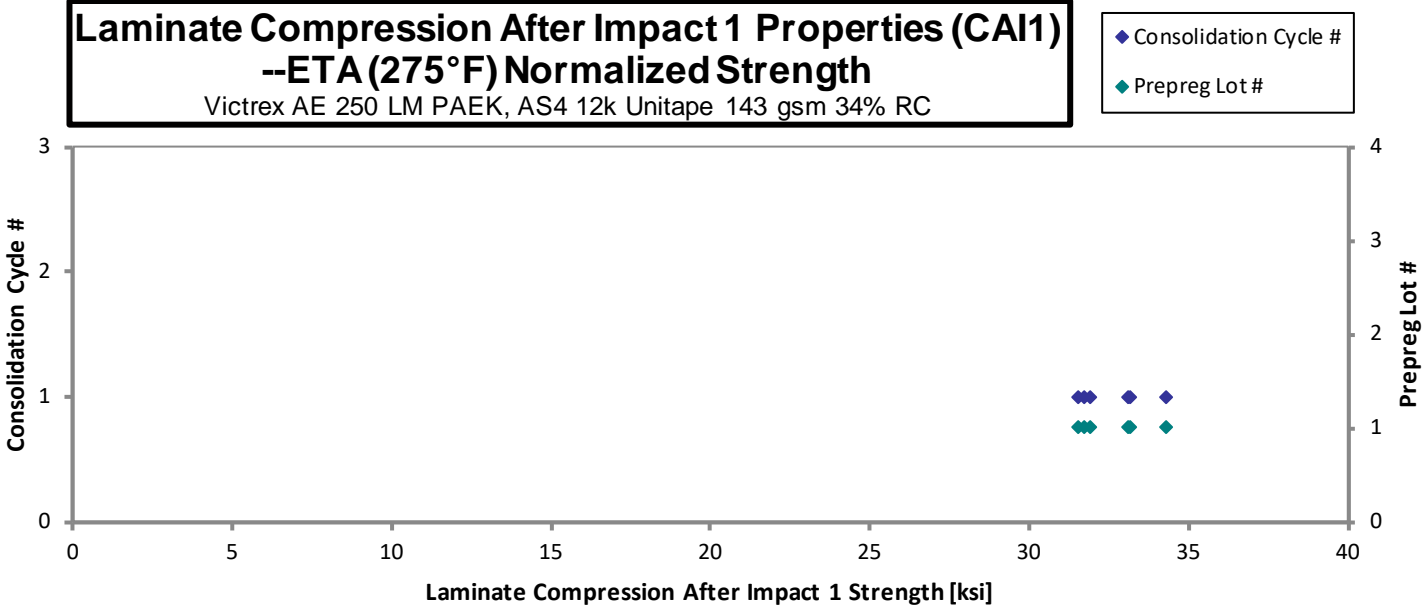
normalizing
 t_{ply} [in]
 0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Measured Impact Energy [in-lbf]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
CAI1-A-C1-ETA-1	A	C1	1	1	32.27	256.6	0.1710	32	LDM
CAI1-A-C1-ETA-2	A	C1	1	1	33.32	257.6	0.1717	32	LDM
CAI1-A-C1-ETA-3	A	C1	1	1	34.52	256.6	0.1716	32	LDM
CAI1-A-C1-ETA-4	A	C1	1	1	33.18	257.2	0.1726	32	LDM
CAI1-A-C1-ETA-5	A	C1	1	1	31.86	258.5	0.1711	32	LDM
CAI1-A-C1-ETA-6	A	C1	1	1	32.04	257.2	0.1712	32	LDM

Avg. t_{ply} [in]	Strength _{norm} [ksi]
0.0053	31.93
0.0054	33.11
0.0054	34.29
0.0054	33.14
0.0053	31.54
0.0053	31.73

Average 32.86
Standard Dev. 1.011
Coeff. of Var. [%] 3.077
Min. 31.86
Max. 34.52
Number of Spec. 6

Average_{norm} 0.0054 **32.63**
Standard Dev._{norm} **1.0695**
Coeff. of Var. [%]_{norm} **3.278**
Min. 0.0053 **31.54**
Max. 0.0054 **34.29**
Number of Spec. 6 **6**



**Laminate Compression After Impact 1 Properties (CAI1)--ETW (275°F) □
Strength □**
Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

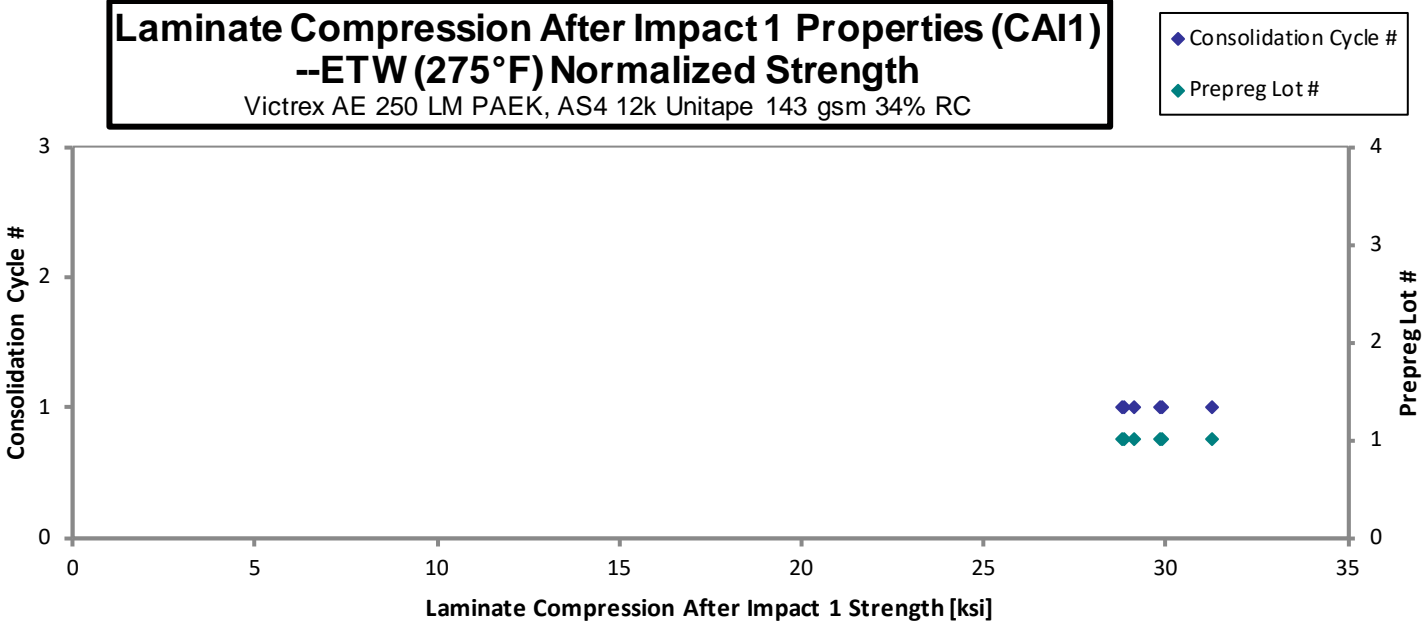
normalizing
t_{ply} [in]
0.0054

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Strength [ksi]	Measured Impact Energy [in-lbf]	Avg. Specimen Thickness [in]	# Plies in Laminate	Failure Mode
CAI1-A-C1-ETW-2	A	C1	1	1	29.94	256.7	0.1721	32	LDM
CAI1-A-C1-ETW-3	A	C1	1	1	28.95	259.5	0.1723	32	LDM
CAI1-A-C1-ETW-4	A	C1	1	1	29.18	259.6	0.1724	32	LDM
CAI1-A-C1-ETW-5	A	C1	1	1	30.03	258.0	0.1722	32	LDM
CAI1-A-C1-ETW-6	A	C1	1	1	31.20	261.4	0.1731	32	LDM
CAI1-A-C1-ETW-7	A	C1	1	1	28.78	259.3	0.1731	32	LDM

Avg. t _{ply} [in]	Strength _{norm} [ksi]
0.0054	29.82
0.0054	28.86
0.0054	29.11
0.0054	29.93
0.0054	31.25
0.0054	28.82

Average 29.68
Standard Dev. 0.9047
Coeff. of Var. [%] 3.048
Min. 28.78
Max. 31.20
Number of Spec. 6

Average_{norm} 0.0054 29.63
Standard Dev._{norm} 0.9236
Coeff. of Var. [%]_{norm} 3.117
Min. 0.0054 28.82
Max. 0.0054 31.25
Number of Spec. 6 6

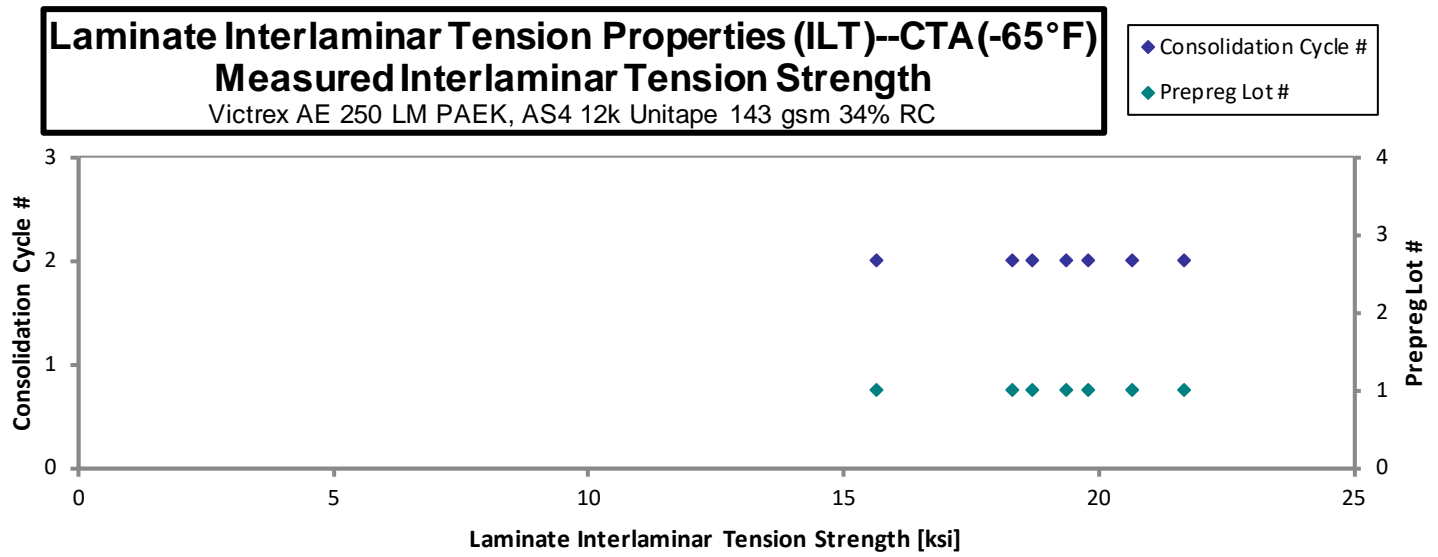
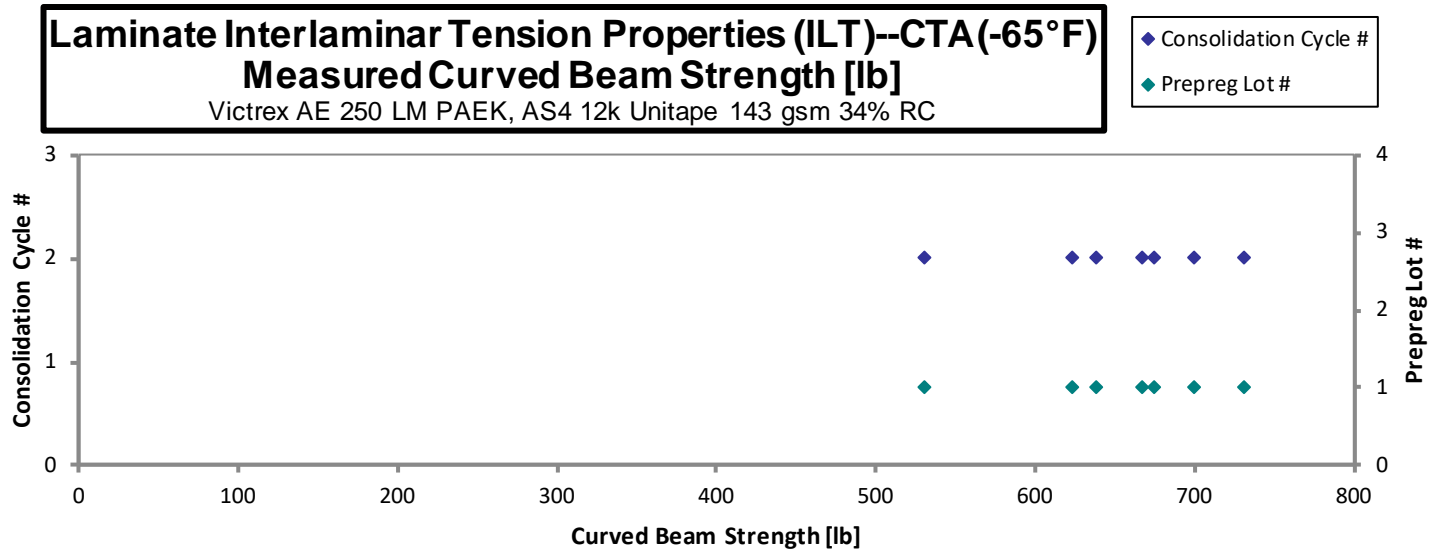


4.34 Interlaminar Tension Properties (ILT)

Laminate Interlaminar Tension Properties (ILT)--CTA (-65°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Curved Beam Strength [lb]	Interlaminar Tension Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode
ILT-A-C5-CTA-1	A	C5	1	2	667.4	19.35	0.1613	30	0.0054	INTERLAMINAR TENSILE FAILURE
ILT-A-C5-CTA-2	A	C5	1	2	638.3	18.70	0.1600	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C5-CTA-3	A	C5	1	2	731.0	21.68	0.1583	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C5-CTA-4	A	C5	1	2	674.5	19.80	0.1597	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C5-CTA-5	A	C5	1	2	623.5	18.30	0.1597	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C5-CTA-6	A	C5	1	2	531.0	15.65	0.1592	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C5-CTA-7	A	C5	1	2	700.2	20.67	0.1589	30	0.0053	INTERLAMINAR TENSILE FAILURE

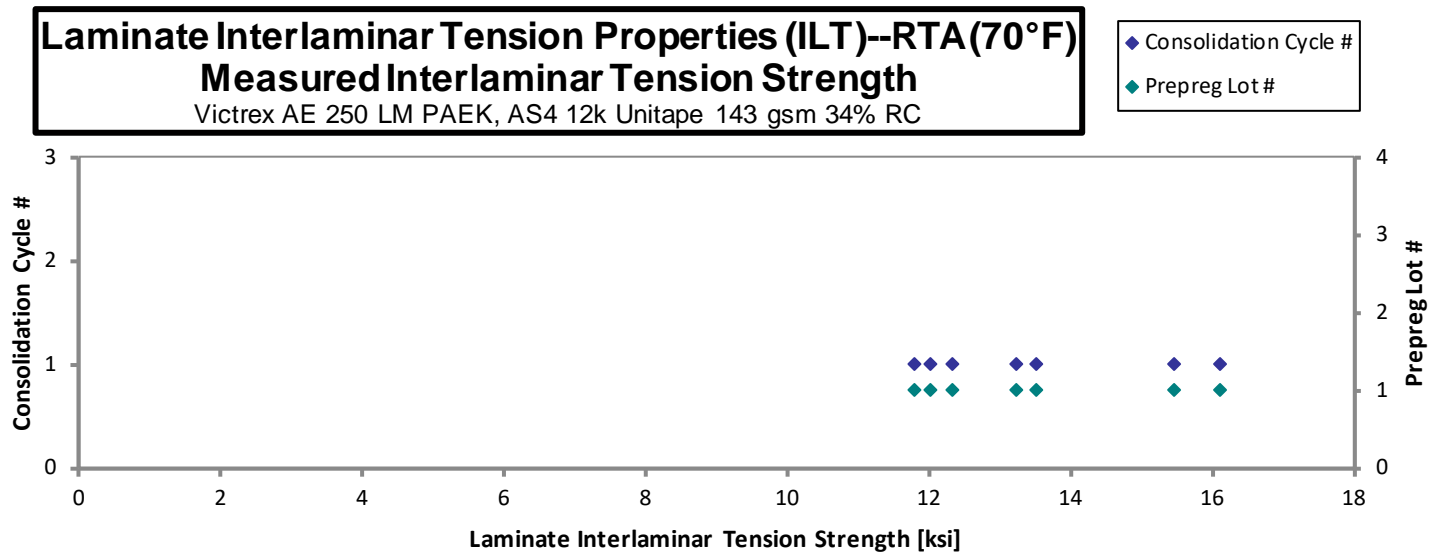
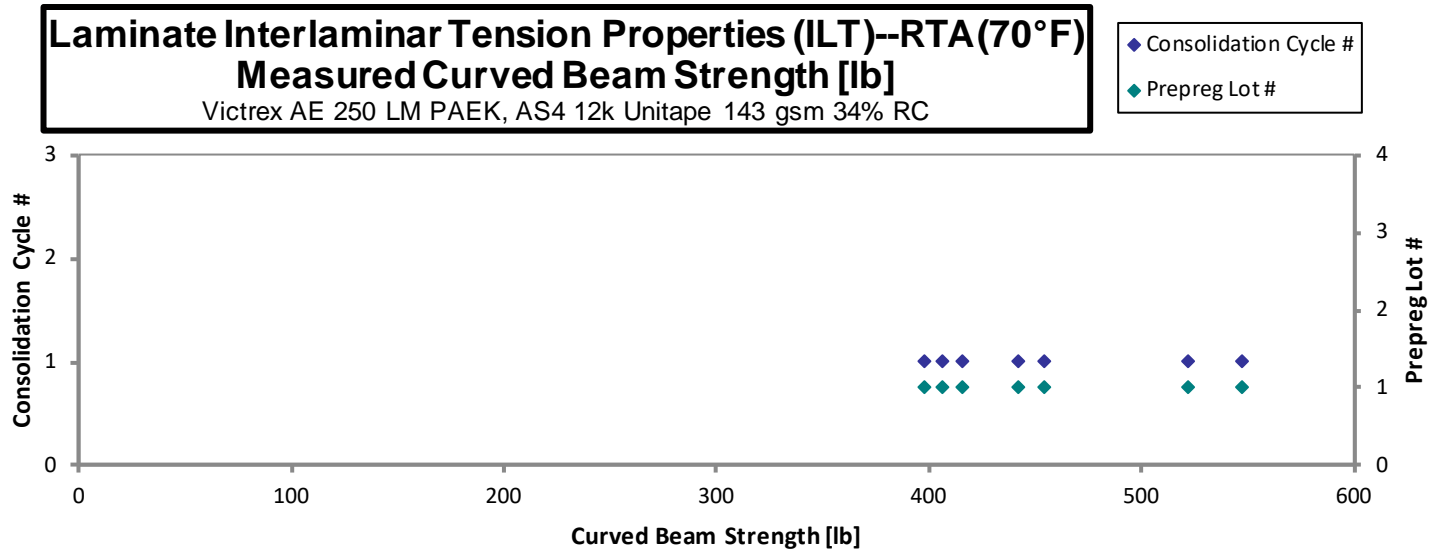
Average	652.3	19.16	0.0053
Standard Dev.	64.47	1.930	
Coeff. of Var. [%]	9.884	10.07	
Min.	531.0	15.65	0.0053
Max.	731.0	21.68	0.0054
Number of Spec.	7	7	7



Laminate Interlaminar Tension Properties (ILT)--RTA (70°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Curved Beam Strength [lb]	Interlaminar Tension Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
ILT-A-C4-RTA-1	A	C4	1	1	397.8	11.79	0.1584	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C4-RTA-2	A	C4	1	1	522.3	15.46	0.1586	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C4-RTA-3	A	C4	1	1	547.2	16.11	0.1593	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C4-RTA-4	A	C4	1	1	454.6	13.52	0.1580	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C4-RTA-5	A	C4	1	1	441.7	13.23	0.1570	30	0.0052	INTERLAMINAR TENSILE FAILURE
ILT-A-C4-RTA-6	A	C4	1	1	415.7	12.33	0.1583	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C4-RTA-7	A	C4	1	1	406.3	12.03	0.1585	30	0.0053	INTERLAMINAR TENSILE FAILURE

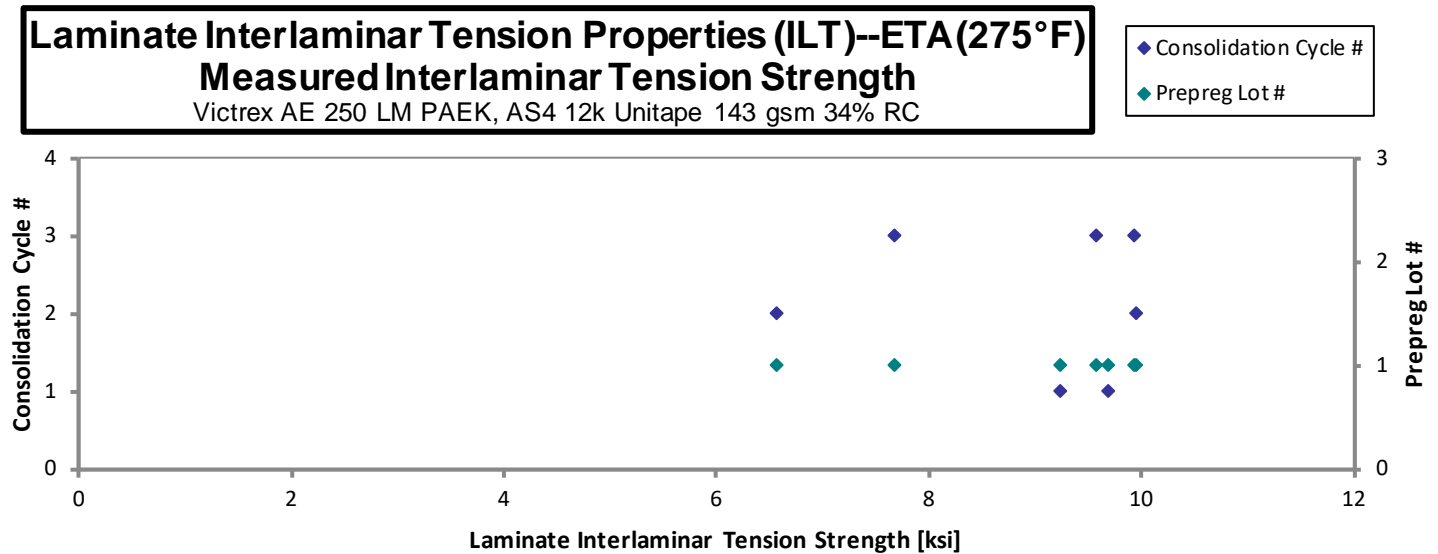
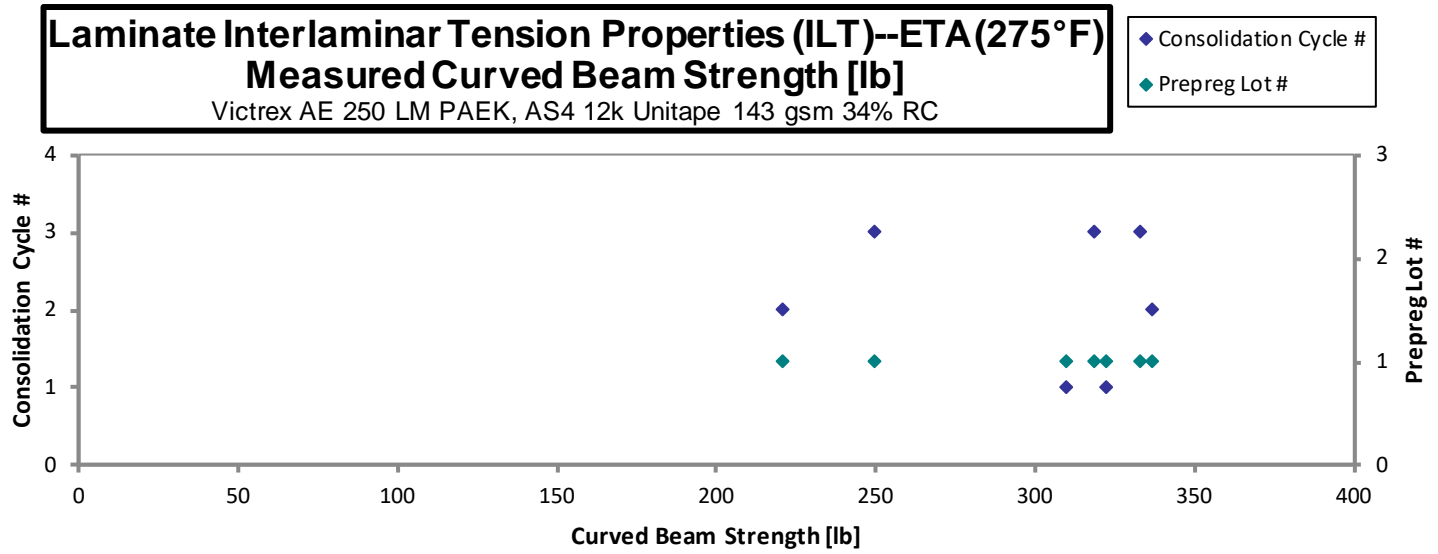
Average	455.1	13.50	0.0053
Standard Dev.	58.31	1.692	
Coeff. of Var. [%]	12.81	12.54	
Min.	397.8	11.79	0.0052
Max.	547.2	16.11	0.0053
Number of Spec.	7	7	7



Laminate Interlaminar Tension Properties (ILT)--ETA (275°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Curved Beam Strength [lb]	Interlaminar Tension Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
ILT-A-C4-ETA-1	A	C4	1	1	322.6	9.685	0.1567	30	0.0052	INTERLAMINAR TENSILE FAILURE
ILT-A-C4-ETA-2	A	C4	1	1	310.0	9.244	0.1576	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C5-ETA-3	A	C5	1	2	220.6	6.566	0.1578	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C5-ETA-4	A	C5	1	2	336.7	9.943	0.1589	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C6-ETA-5	A	C6	1	3	318.3	9.574	0.1565	30	0.0052	INTERLAMINAR TENSILE FAILURE
ILT-A-C6-ETA-6	A	C6	1	3	333.2	9.923	0.1578	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C6-ETA-7	A	C6	1	3	249.9	7.674	0.1538	30	0.0051	INTERLAMINAR TENSILE FAILURE

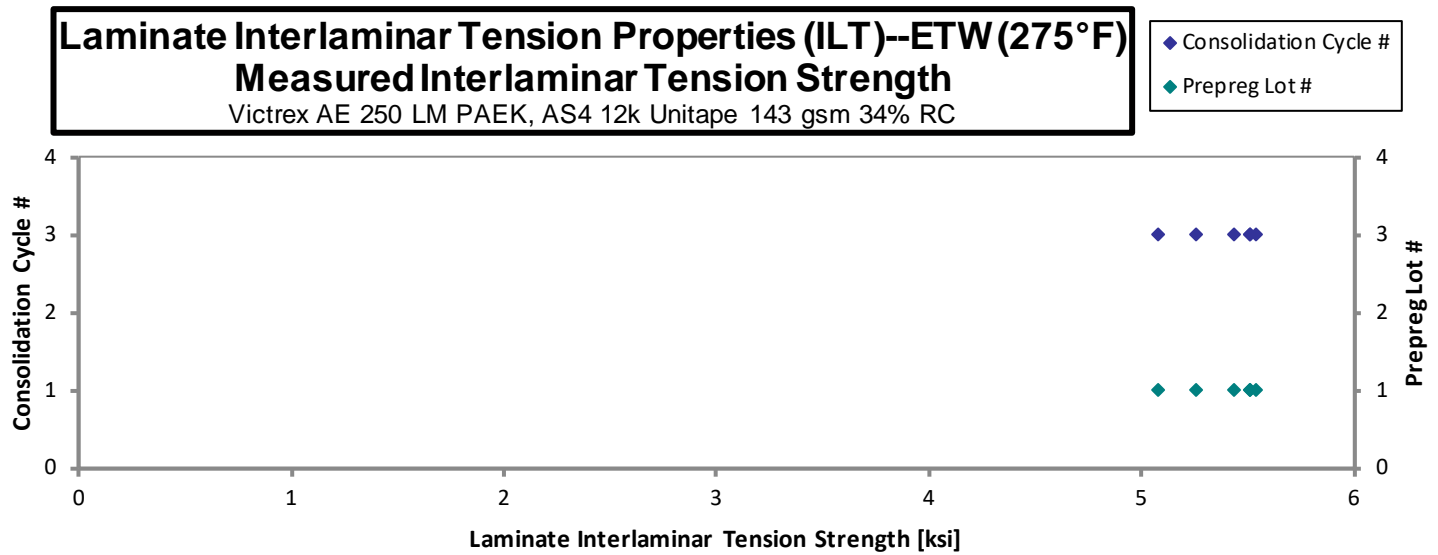
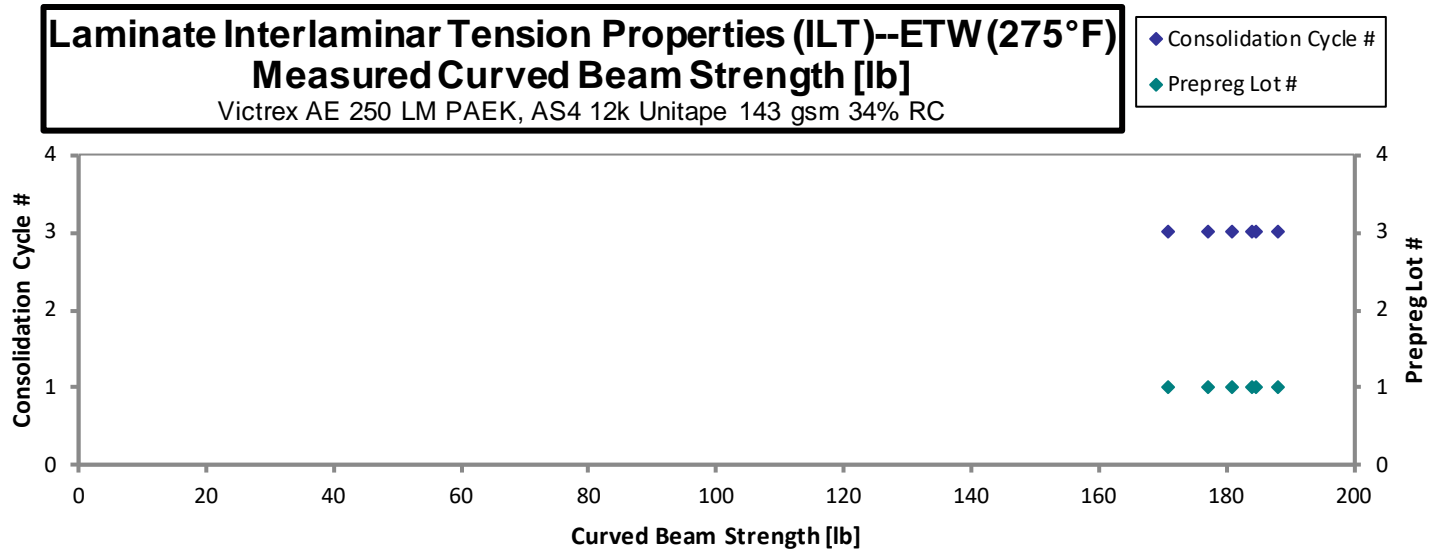
Average	298.8	8.944	0.0052
Standard Dev.	45.10	1.307	
Coeff. of Var. [%]	15.10	14.62	
Min.	220.6	6.566	0.0051
Max.	336.7	9.943	0.0053
Number of Spec.	7	7	7



Laminate Interlaminar Tension Properties (ILT)--ETW (275°F) □
Strength □
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Material Lot #	Consolidation Cycle #	Curved Beam Strength [lb]	Interlaminar Tension Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode
ILT-A-C6-ETW-1	A	C6	1	3	170.8	5.076	0.1580	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C6-ETW-2	A	C6	1	3	188.2	5.538	0.1594	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C6-ETW-3	A	C6	1	3	177.0	5.253	0.1583	30	0.0053	INTERLAMINAR TENSILE FAILURE
ILT-A-C6-ETW-4	A	C6	1	3	180.8	5.434	0.1566	30	0.0052	INTERLAMINAR TENSILE FAILURE
ILT-A-C6-ETW-5	A	C6	1	3	184.0	5.510	0.1570	30	0.0052	INTERLAMINAR TENSILE FAILURE
ILT-A-C6-ETW-6	A	C6	1	3	184.6	5.514	0.1574	30	0.0052	INTERLAMINAR TENSILE FAILURE

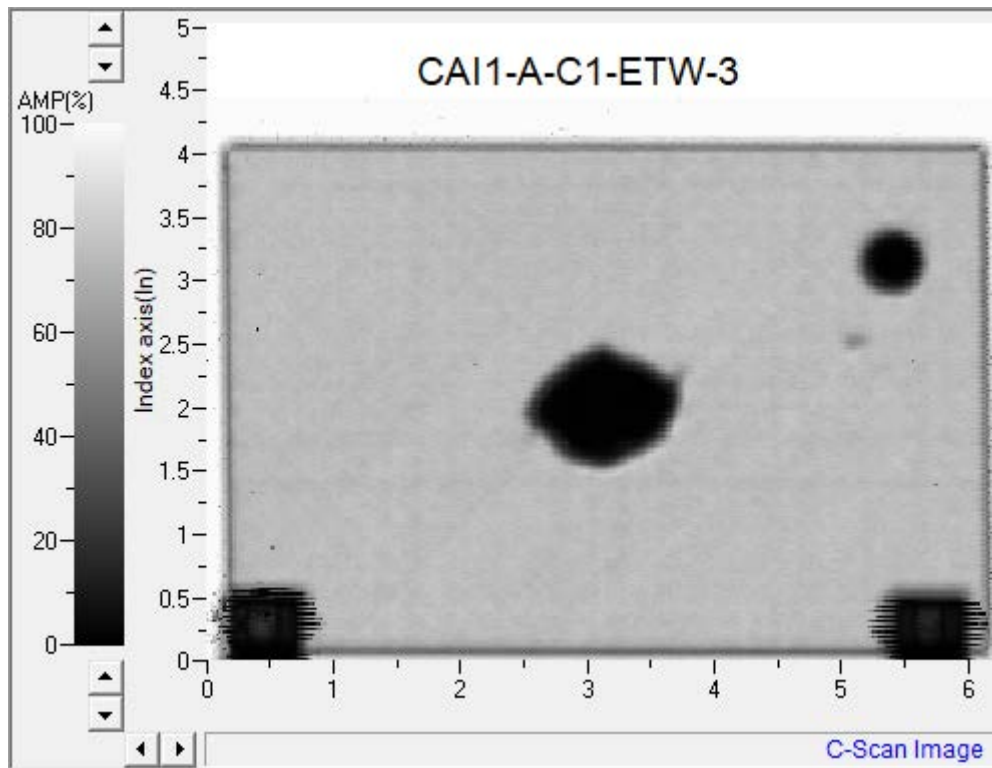
Average	180.9	5.387	0.0053
Standard Dev.	6.226	0.1847	
Coeff. of Var. [%]	3.441	3.428	
Min.	170.8	5.076	0.0052
Max.	188.2	5.538	0.0053
Number of Spec.	6	6	6



5. Additional Compression After Impact Data

Impactor Diameter: 0.625"

Representative of Damage Area:

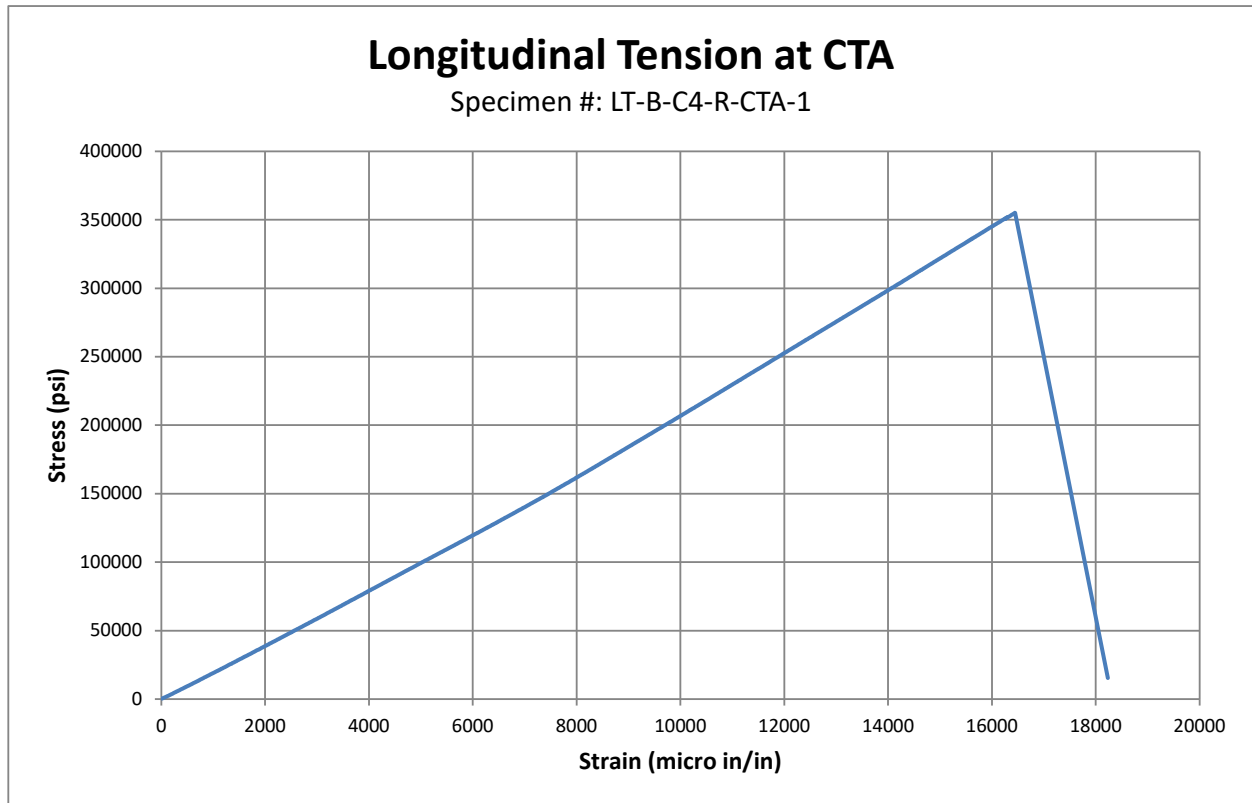


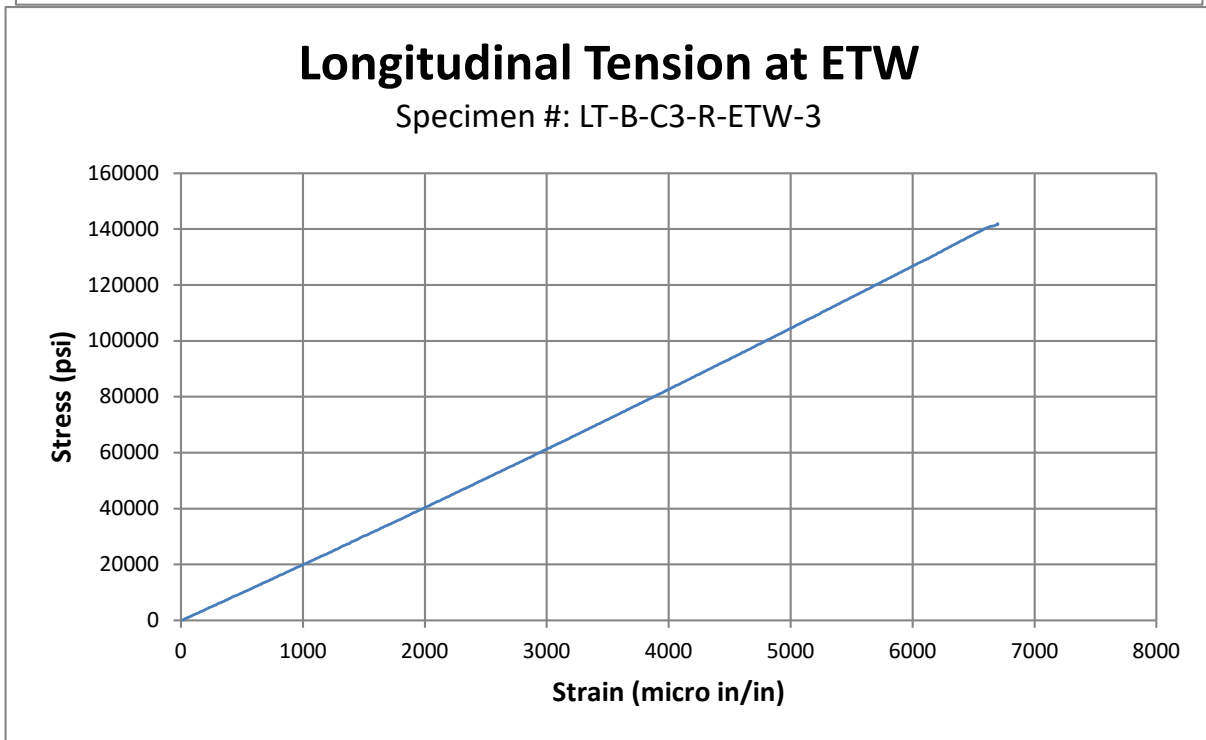
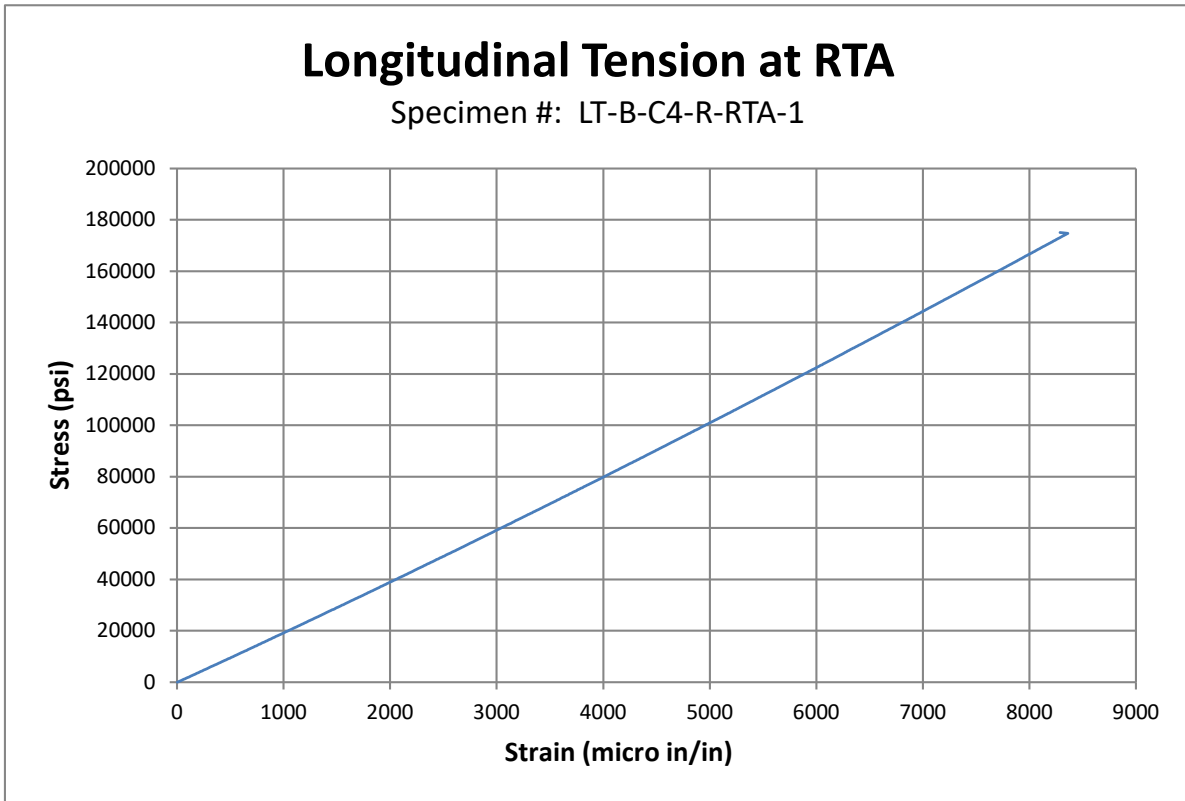
Damage Area and Dent Depth Summary:

Specimen ID	Damage Area (in ²)	Dent Depth (in)
CAI1-A-C1-RTA-1	0.7792	0.0240
CAI1-A-C1-RTA-2	0.7800	0.0235
CAI1-A-C1-RTA-3	0.6460	0.0250
CAI1-A-C1-RTA-4	0.6608	0.0260
CAI1-A-C1-RTA-5	0.9100	0.0260
CAI1-A-C1-RTA-6	0.6992	0.0250
CAI1-A-C1-RTA-7	0.7308	0.0240
CAI1-A-C1-ETA-1	0.5992	0.0260
CAI1-A-C1-ETA-2	0.7752	0.0255
CAI1-A-C1-ETA-3	0.6580	0.0255
CAI1-A-C1-ETA-4	0.7660	0.0260
CAI1-A-C1-ETA-5	0.7764	0.0230
CAI1-A-C1-ETA-6	0.7032	0.0260
CAI1-A-C1-ETW-1	0.7008	0.0295
CAI1-A-C1-ETW-2	0.7320	0.0285
CAI1-A-C1-ETW-3	0.7900	0.0275
CAI1-A-C1-ETW-4	0.7944	0.0265
CAI1-A-C1-ETW-5	0.7732	0.0275
CAI1-A-C1-ETW-6	0.7220	0.0280
CAI1-A-C1-ETW-7	0.9220	0.0255

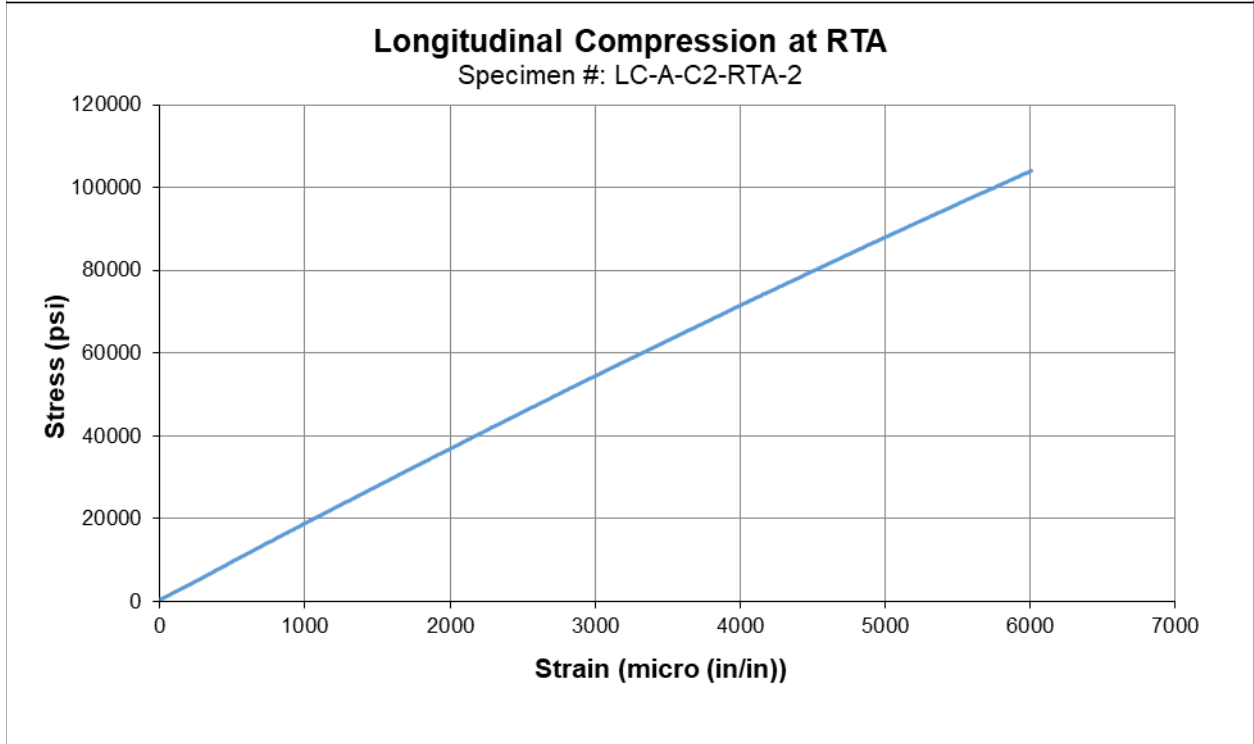
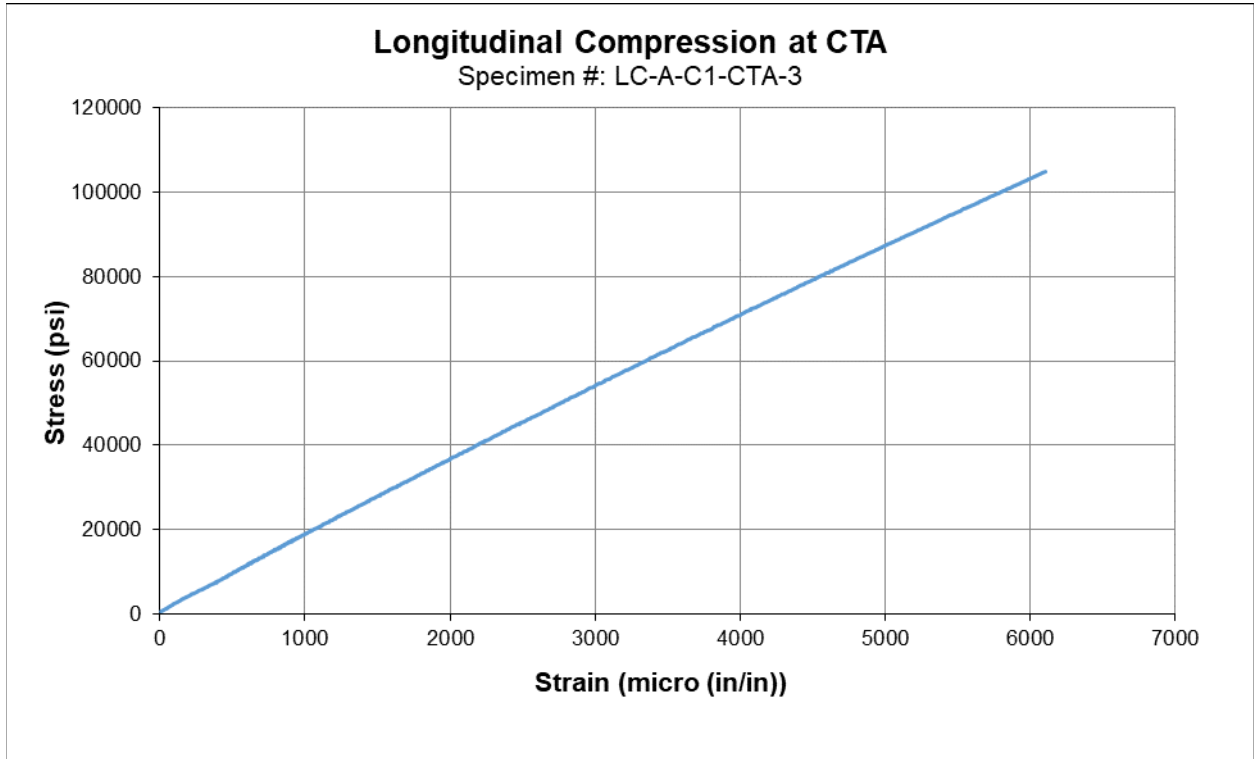
6. Full Stress vs. Strain Curve

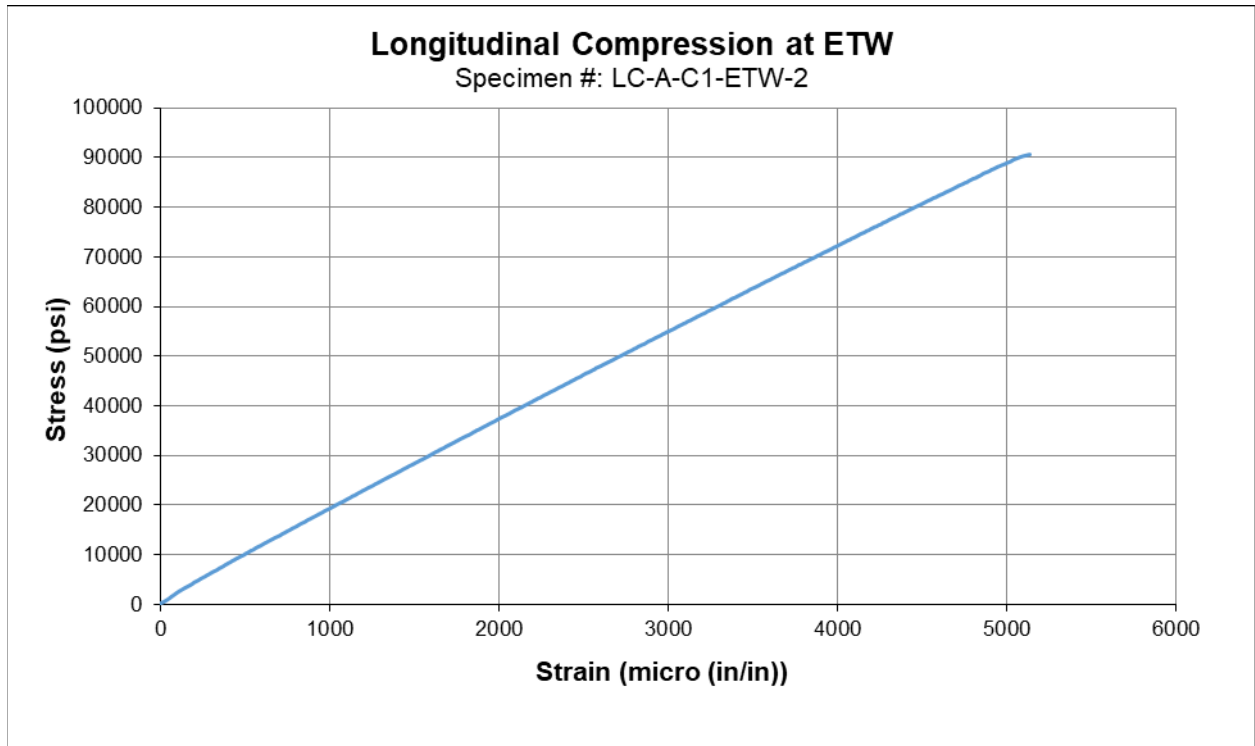
6.1 Longitudinal Tension Properties (LT)



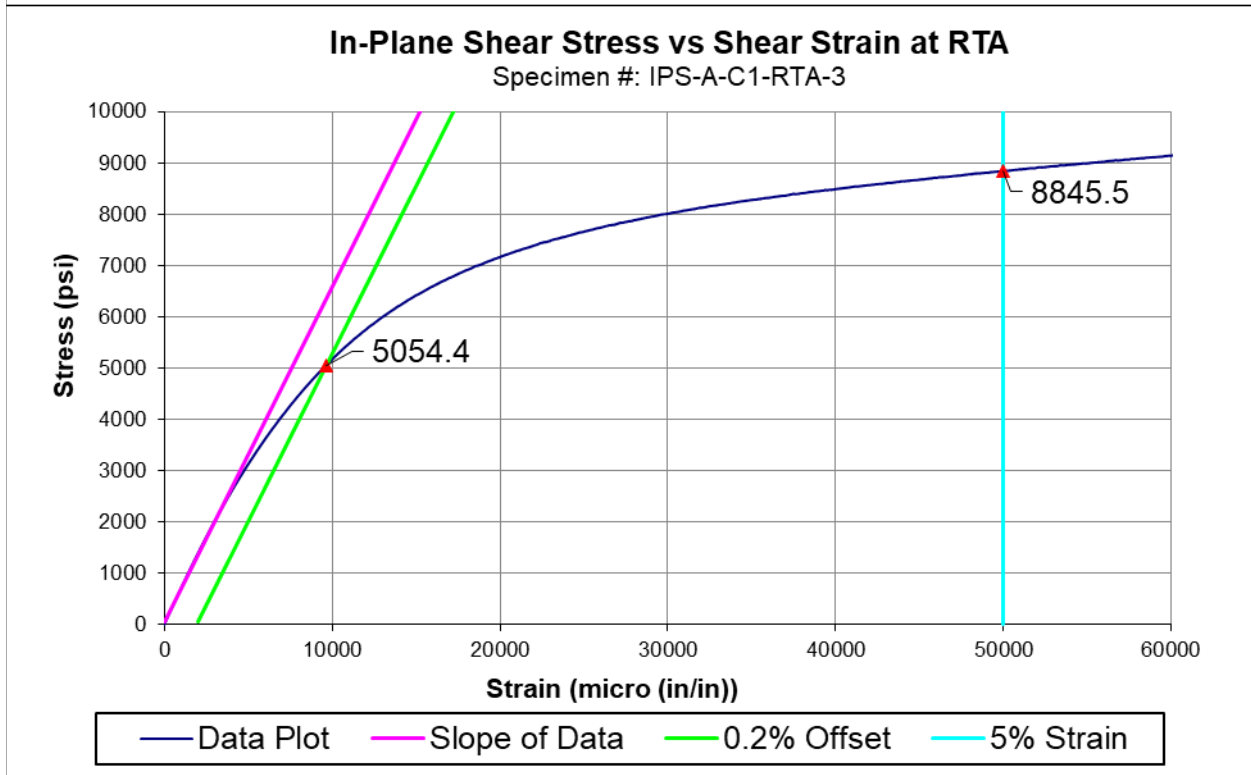
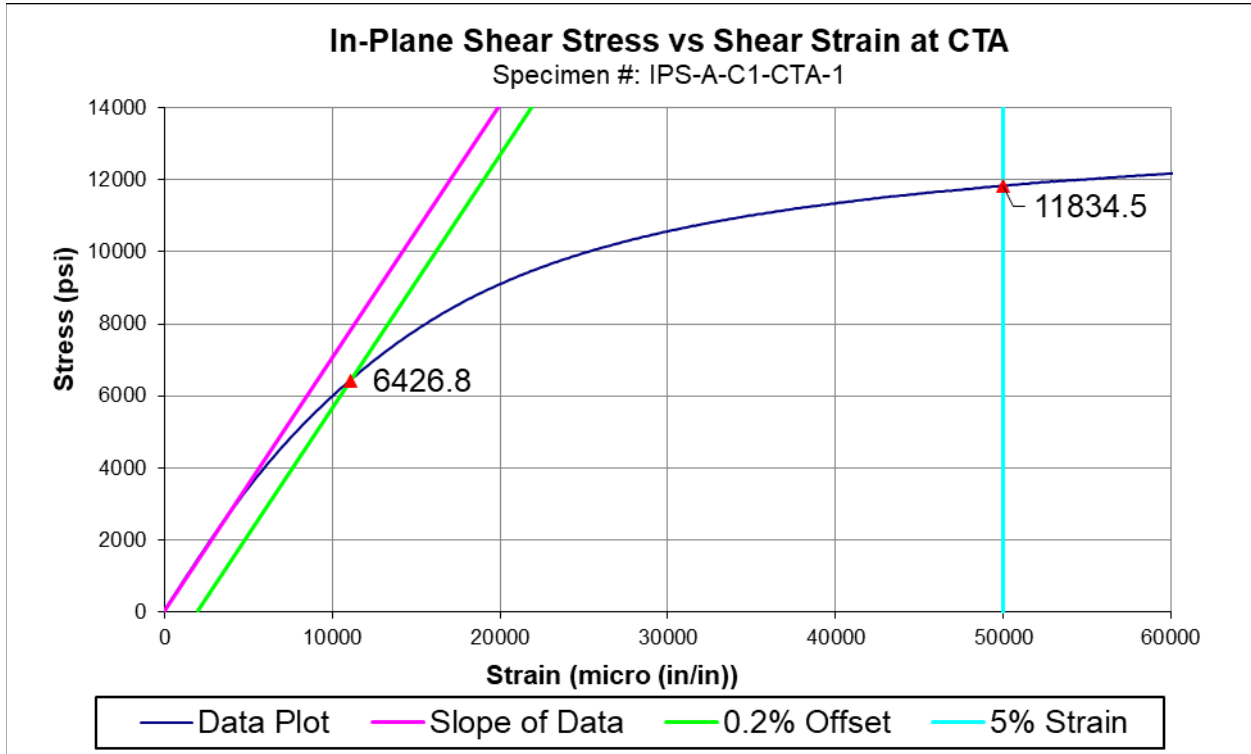


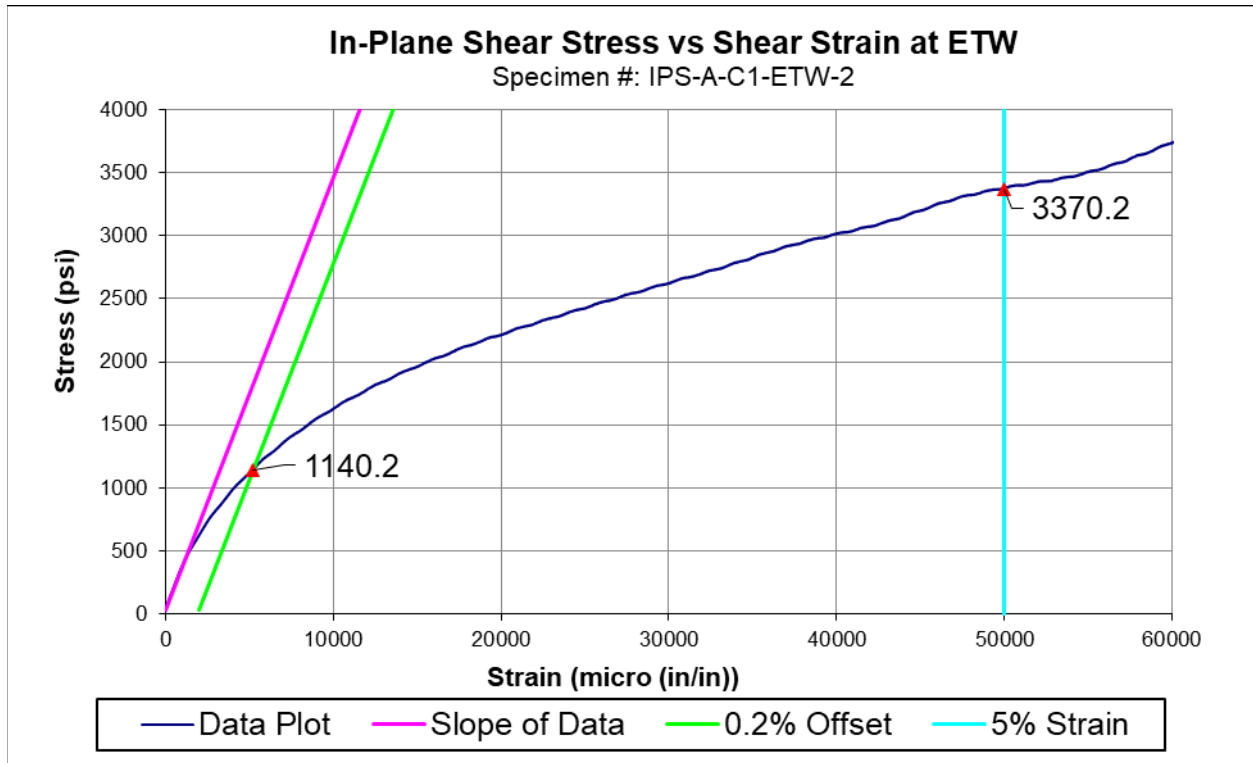
6.2 Longitudinal Compression Properties (LC)



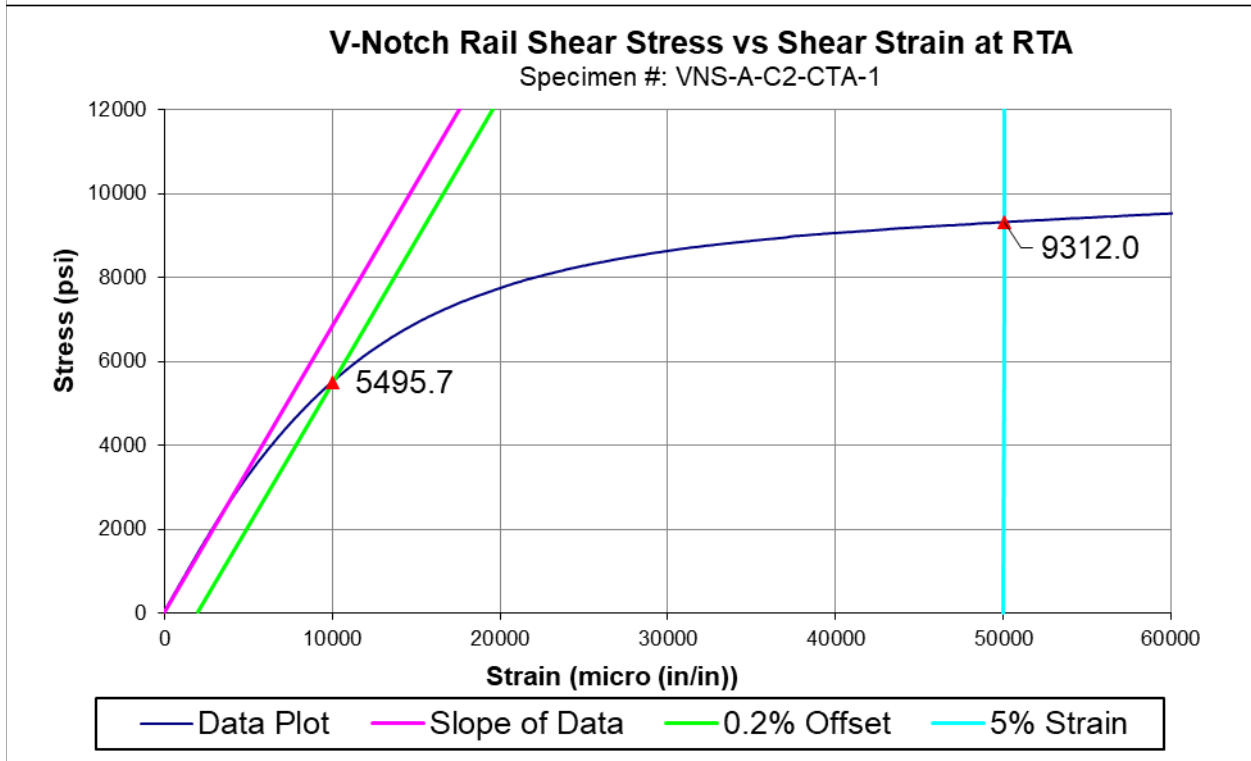
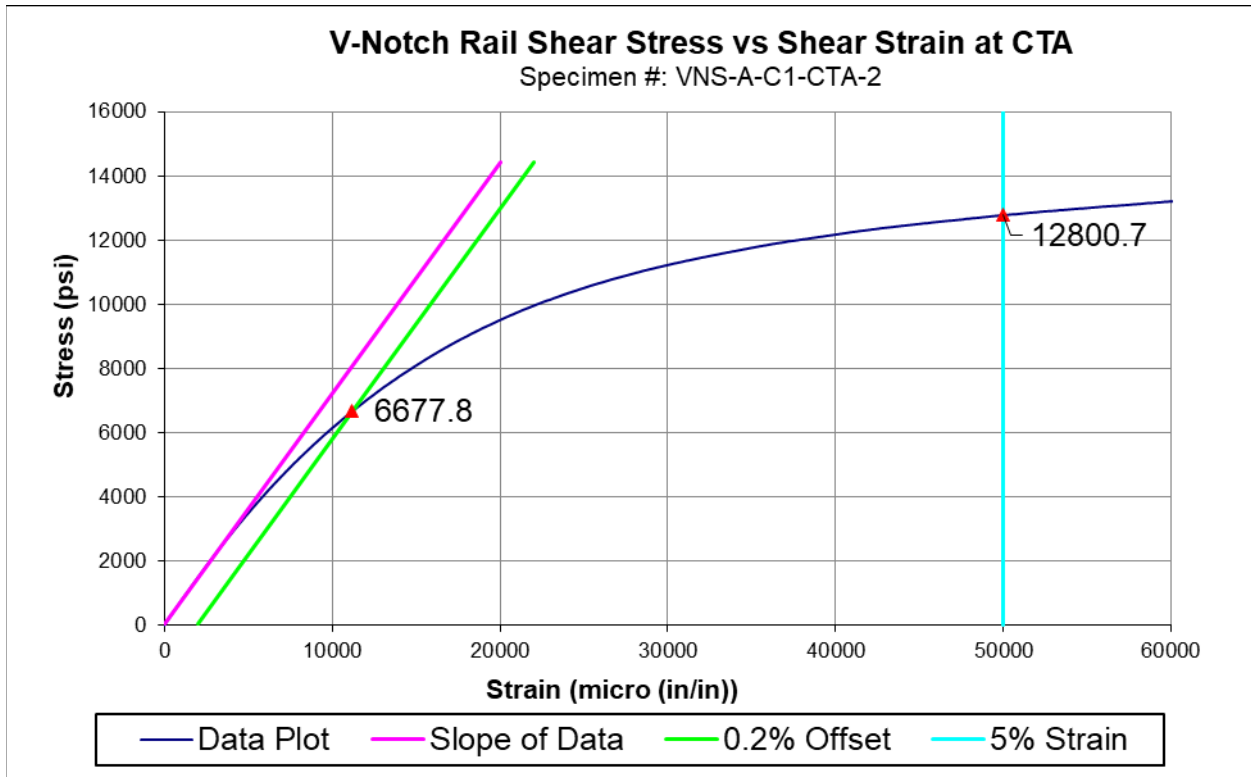


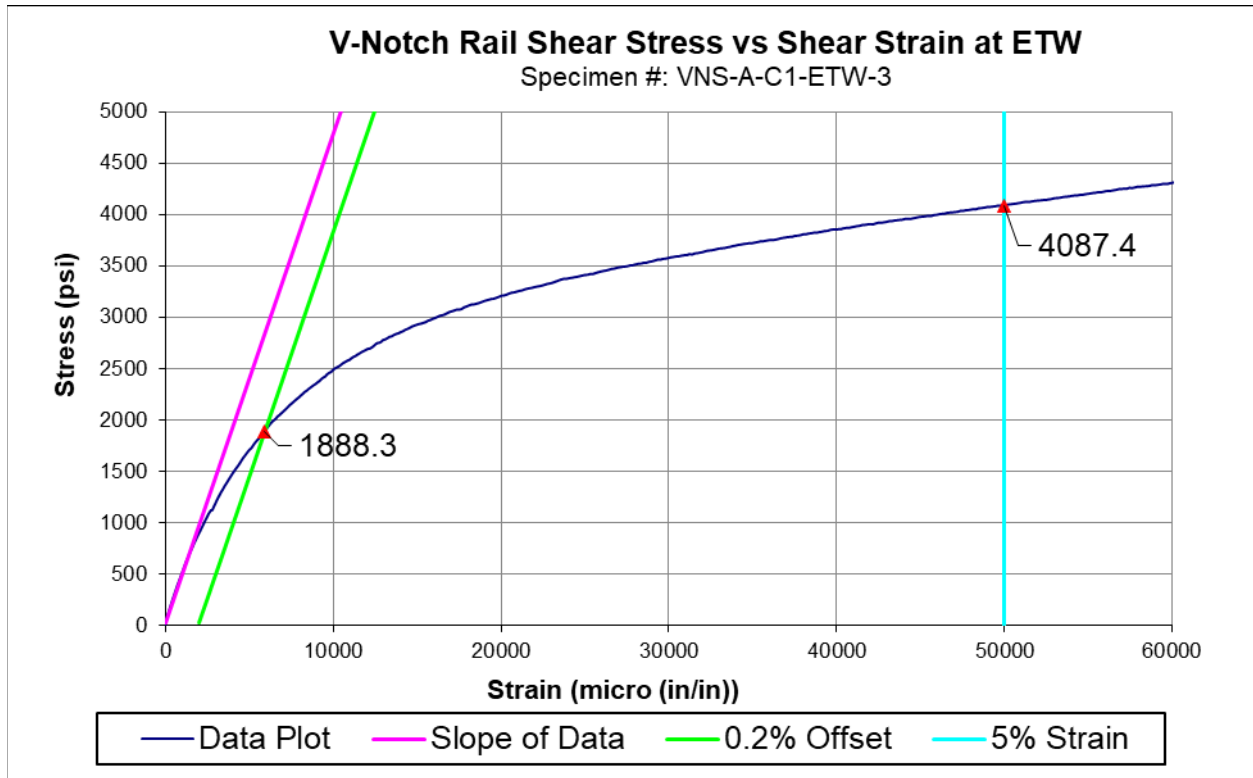
6.3 In-Plane Shear Properties (IPS)



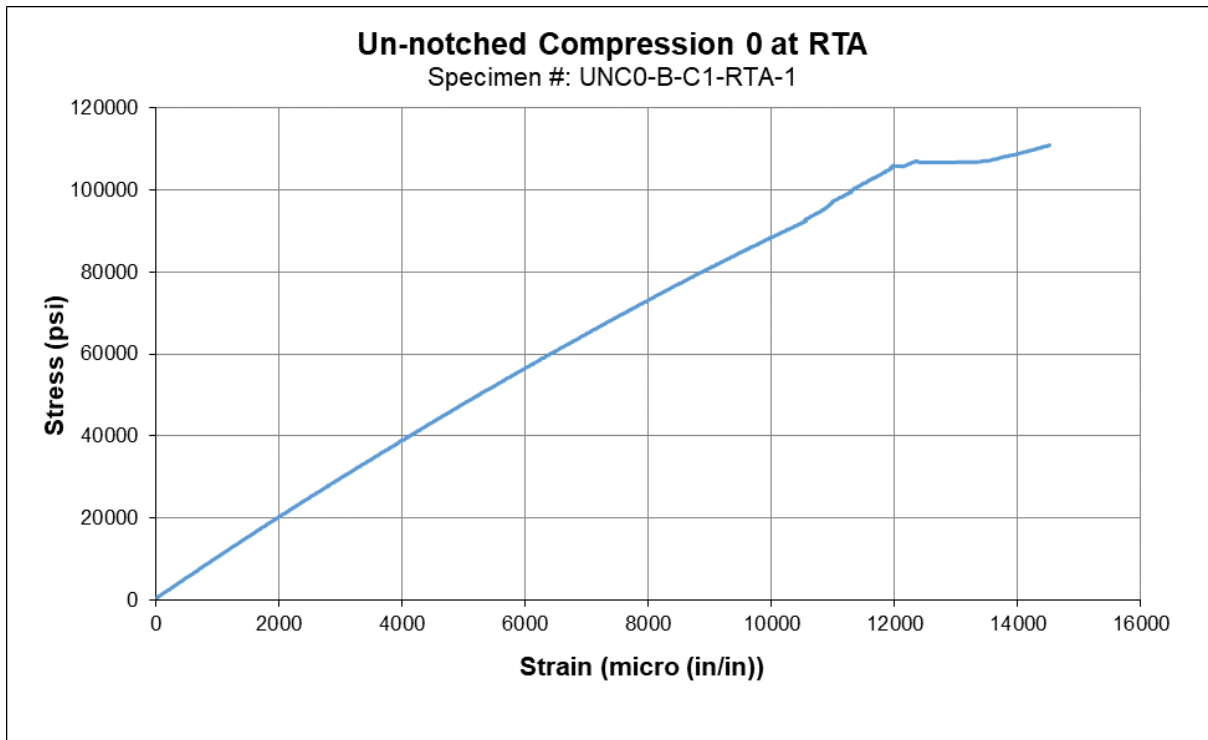
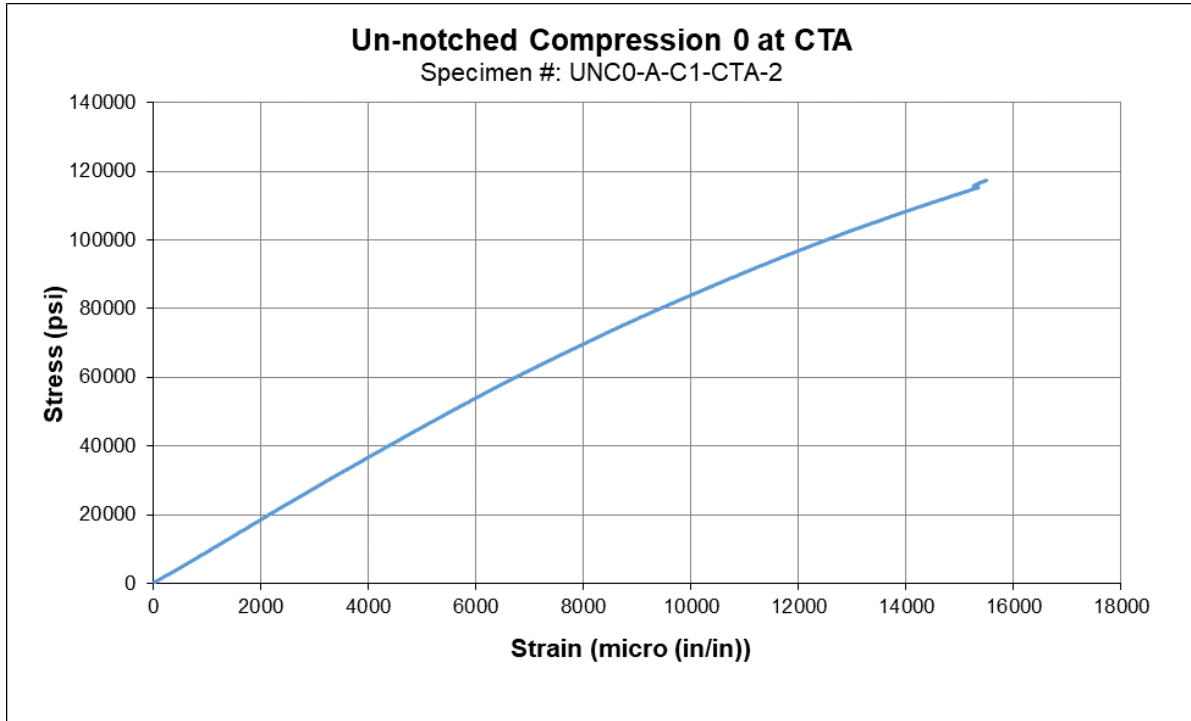


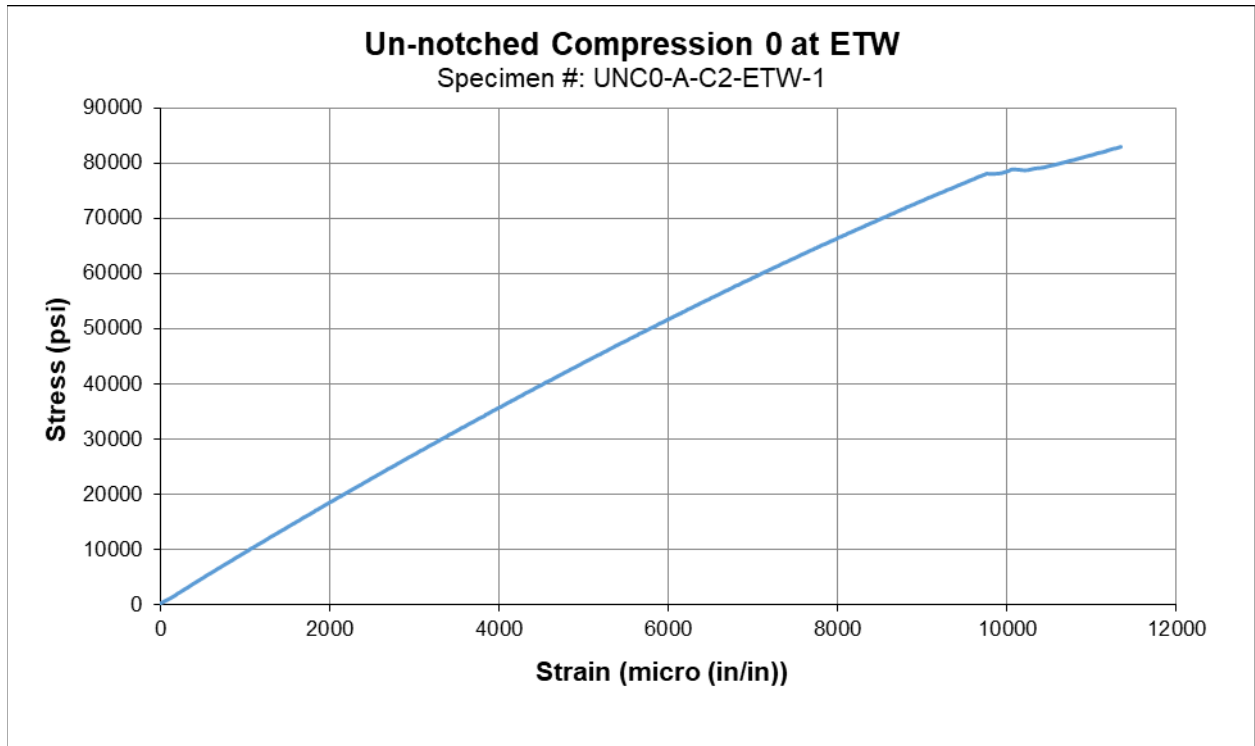
6.4 V-Notch Shear (VNS)



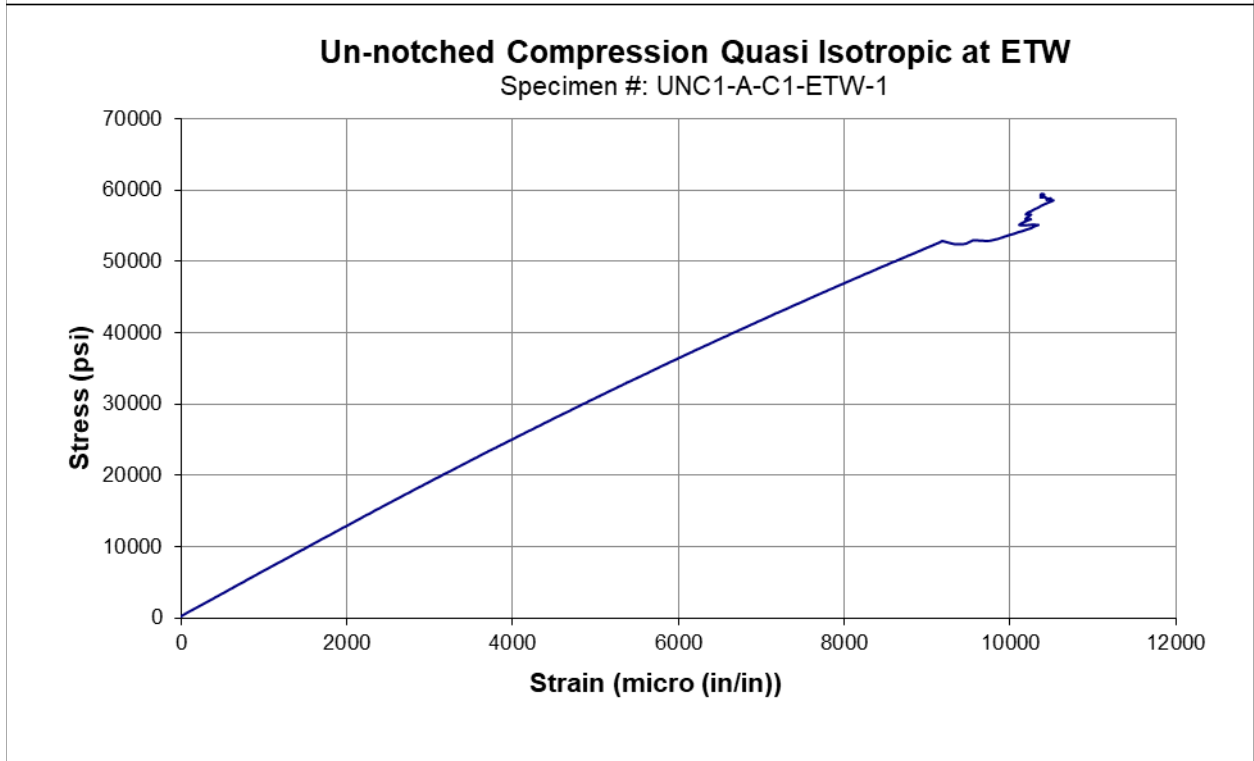
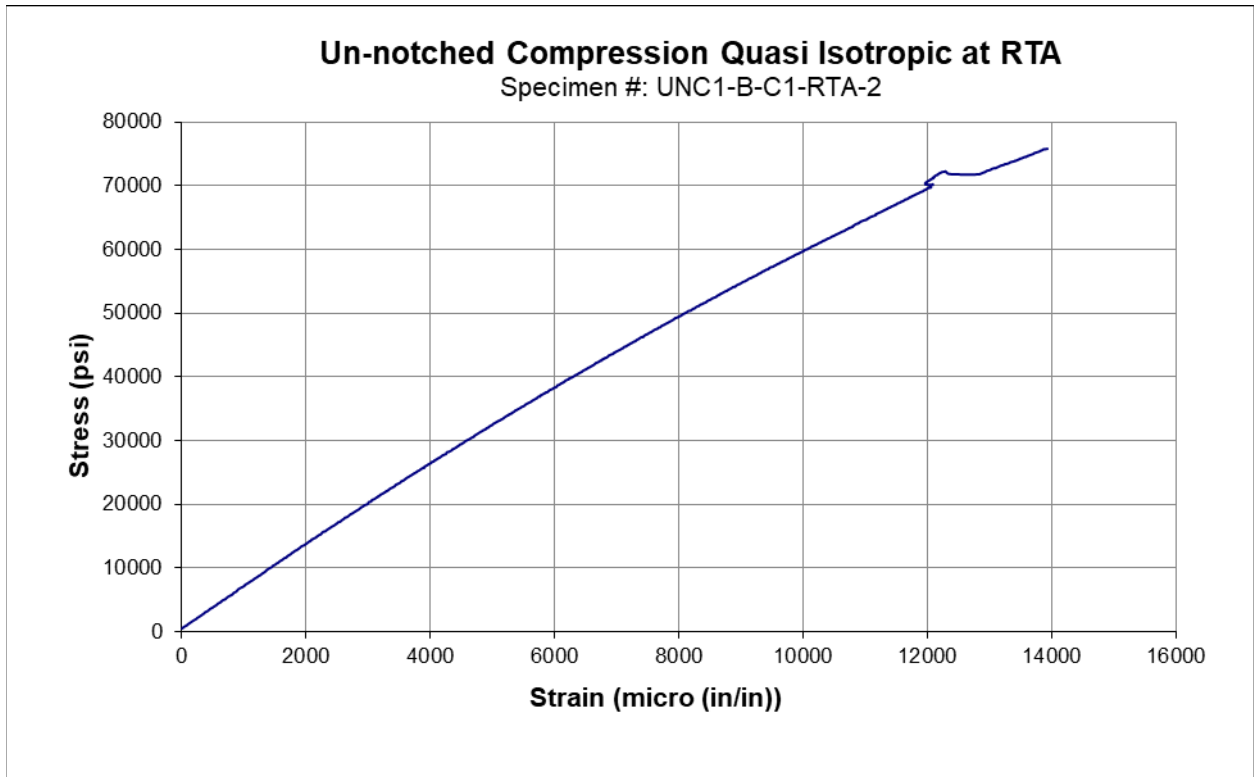


6.5 Unnotched Compression Properties (UNC0)

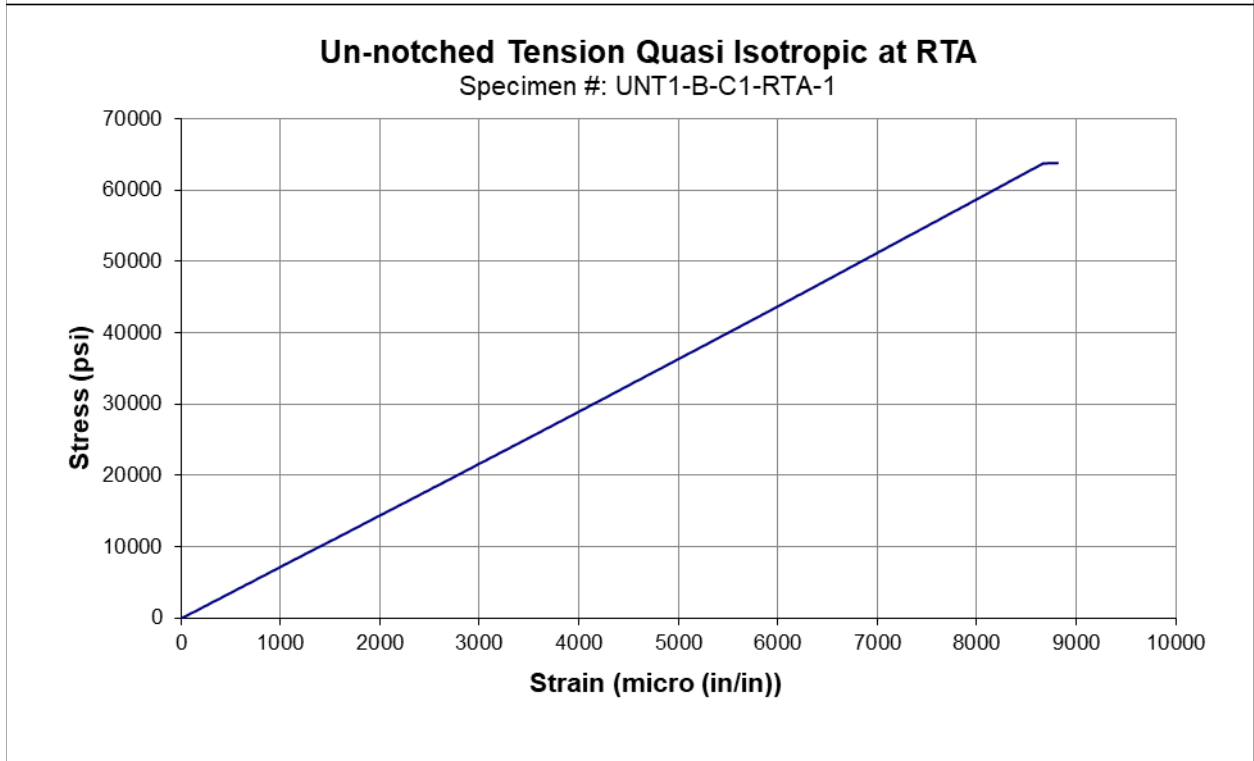
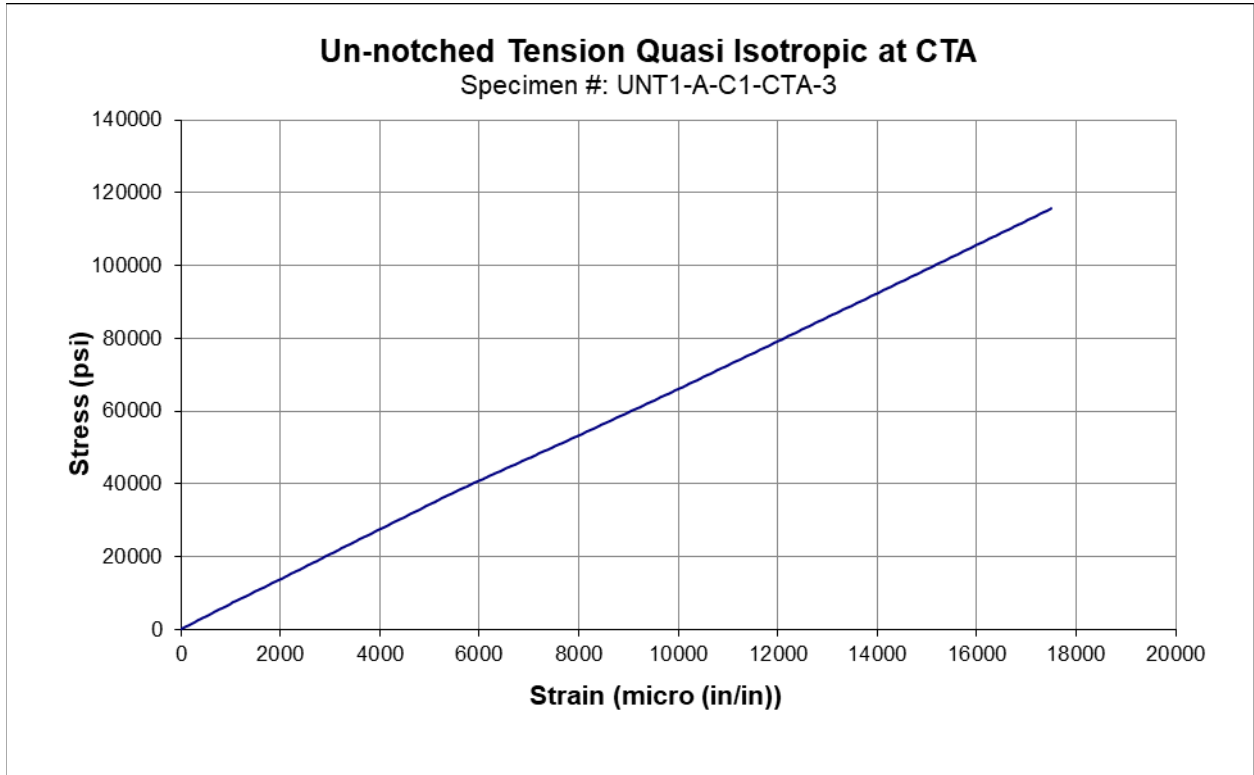


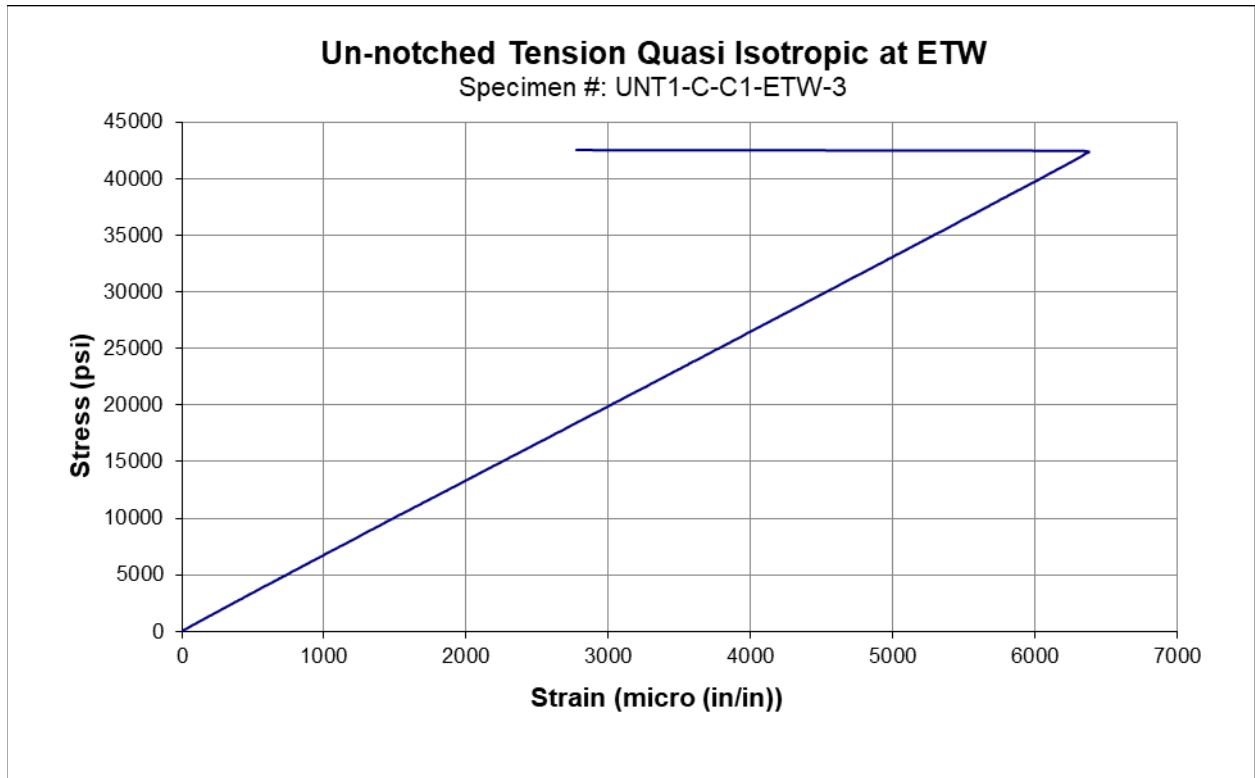


6.6 “25/50/25” Unnotched Compression 1 Properties (UNC1)



6.7 “25/50/25” Unnotched Tension 1 Properties (UNT1)





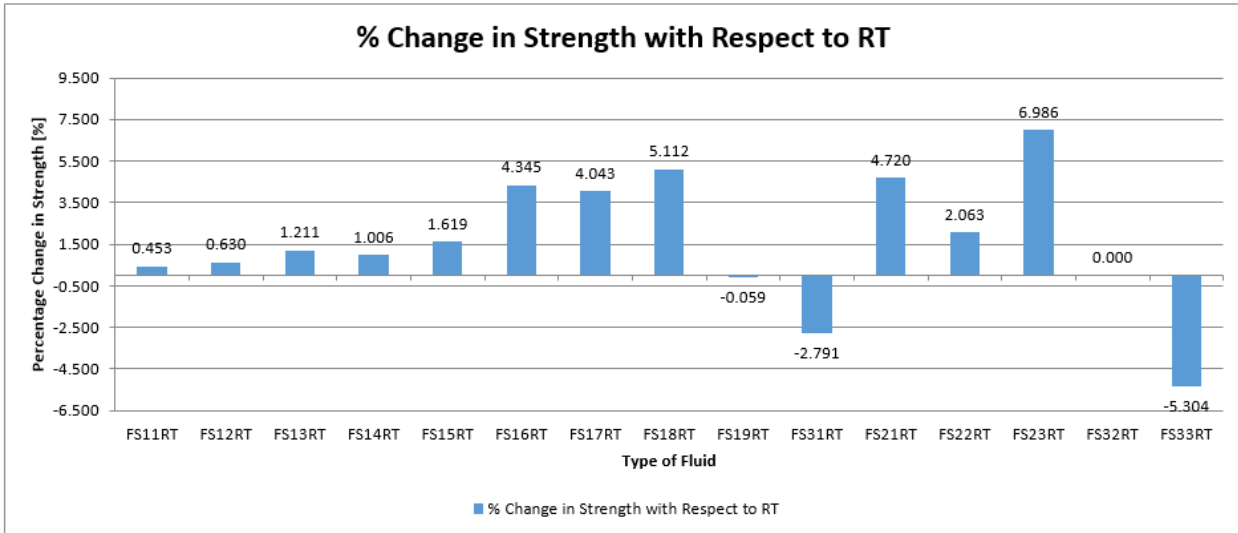
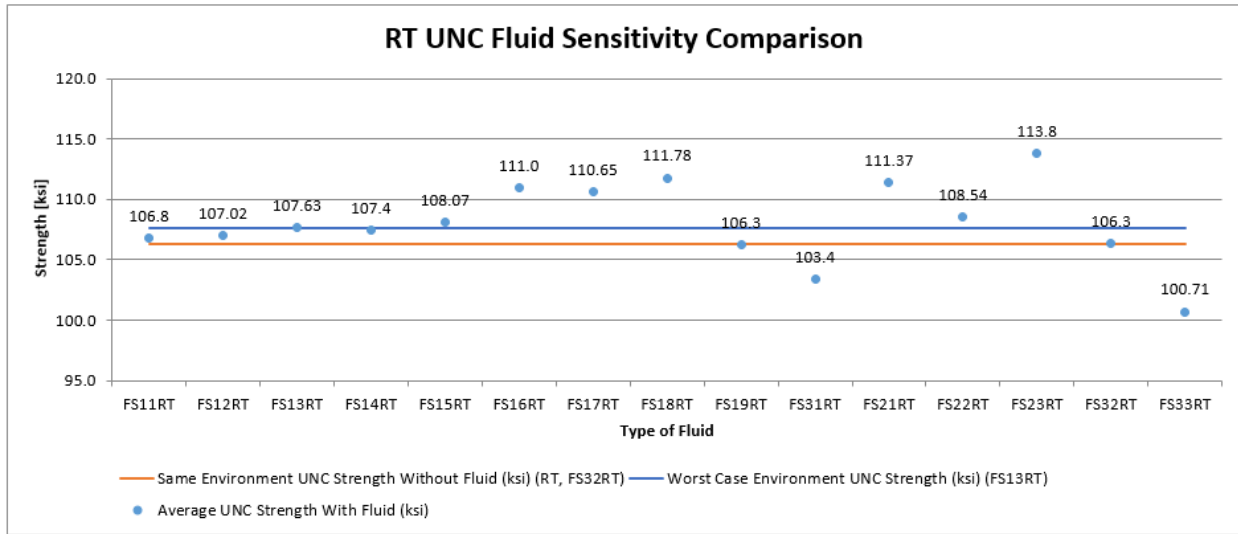
7. Fluid Sensitivity Comparison

7.1 Room Temperature Test Data

Code	Type of Fluid	Exposure
FS11RT	100 Low Lead Fuel	90 days min @ 70°F ± 10F
FS12RT	Jet A Fuel	
FS13RT	MIL-PRF-5606 Hydraulic Oil	
FS14RT	MIL-PRF-83282 Hydraulic Oil	
FS15RT	MIL-PRF-7808 Engine Oil	
FS16RT	MIL-PRF-23699 Engine Oil	
FS17RT	Salt Water	
FS18RT	Skydrol LD-4	
FS19RT	50% Water w/ 50% Skydrol	
FS31RT	Distilled Water	
FS21RT	MEK washing fluid	90 mins @ 70°F ± 10F
FS22RT	Polypropylene Glycol Deicer	
FS23RT	Isopropyl Alcohol Deicing	48±4 hrs @ 70°F ± 10F
FS31ET	Distilled Water	Per Test Plan
FS32RT	Dry	
FS33RT	85% Relative Humidity	

Fluid Sensitivity Screening
Un-Notched Compression 90/0 Properties--RT (70°F) Strength
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

Fluid Code	Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Prepreg Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t_{ply} [in]	Failure Mode	Average
FS11RT	FSS-A-C1-1-FS11RT-1	A	C1	1	C	103.7	0.0867	16	0.0054	HAT, HAB	106.8
	FSS-A-C1-1-FS11RT-2	A	C1	1	C	107.0	0.0864	16	0.0054	M(B,H)AB, HIB	
	FSS-A-C1-1-FS11RT-3	A	C1	1	C	111.0	0.0857	16	0.0054	M(B,H)AT, HAB, HIT, HIB	
	FSS-A-C1-1-FS11RT-4	A	C1	1	C	100.3	0.0862	16	0.0054	BAB	
	FSS-A-C1-1-FS11RT-5	A	C1	1	C	112.1	0.0865	16	0.0054	M(B,H)AT, HIT	
FS12RT	FSS-A-C1-1-FS12RT-1	A	C1	1	C	106.6	0.0879	16	0.0055	HAT, HIT	107.0
	FSS-A-C1-1-FS12RT-2	A	C1	1	C	104.1	0.0877	16	0.0055	M(B,H)AT, HIT	
	FSS-A-C1-1-FS12RT-3	A	C1	1	C	104.6	0.0874	16	0.0055	HAT, HIT	
	FSS-A-C1-1-FS12RT-4	A	C1	1	C	110.5	0.0864	16	0.0054	M(B,H)AB, HIB	
	FSS-A-C1-1-FS12RT-5	A	C1	1	C	109.2	0.0869	16	0.0054	M(B,H)AT	
FS13RT	FSS-A-C1-1-FS13RT-3	A	C1	1	C	126.0	0.0874	16	0.0055	HAT, HIT, CIB	107.6
	FSS-A-C1-1-FS13RT-4	A	C1	1	C	91.17	0.0877	16	0.0055	BAB	
	FSS-A-C1-1-FS13RT-5	A	C1	1	C	105.2	0.0875	16	0.0055	HAB, HIB	
	FSS-A-C1-1-FS13RT-6	A	C1	1	C	107.7	0.0881	16	0.0055	M(B,H)AB	
	FSS-A-C1-1-FS13RT-7	A	C1	1	C	104.2	0.0883	16	0.0055	BAB	
FS14RT	FSS-A-C1-1-FS14RT-1	A	C1	1	C	111.5	0.0854	16	0.0053	M(B,H)AB	107.4
	FSS-A-C1-1-FS14RT-2	A	C1	1	C	114.0	0.0864	16	0.0054	BAB	
	FSS-A-C1-1-FS14RT-3	A	C1	1	C	106.1	0.0874	16	0.0055	BAB	
	FSS-A-C1-1-FS14RT-4	A	C1	1	C	113.3	0.0876	16	0.0055	HAB, HIB	
	FSS-A-C1-1-FS14RT-5	A	C1	1	C	103.8	0.0884	16	0.0055	BAB	
FS15RT	FSS-A-C1-1-FS15RT-1	A	C1	1	C	99.83	0.0883	16	0.0055	M(B,H)AB	108.1
	FSS-A-C1-1-FS15RT-2	A	C1	1	C	98.52	0.0869	16	0.0054	HAB, HIB	
	FSS-A-C1-1-FS15RT-3	A	C1	1	C	117.6	0.0863	16	0.0054	HAB, HIB	
	FSS-A-C1-1-FS15RT-4	A	C1	1	C	104.6	0.0864	16	0.0054	M(B,H)AB, HIB	
	FSS-A-C1-1-FS15RT-5	A	C1	1	C	110.6	0.0857	16	0.0054	HAB, HIB	
FS16RT	FSS-A-C1-1-FS16RT-1	A	C1	1	C	109.0	0.0852	16	0.0053	HAB, HIB	111.0
	FSS-A-C1-1-FS16RT-2	A	C1	1	C	118.1	0.0844	16	0.0053	BAB	
	FSS-A-C1-1-FS16RT-3	A	C1	1	C	107.2	0.0844	16	0.0053	BAB	
	FSS-A-C1-1-FS16RT-4	A	C1	1	C	109.3	0.0849	16	0.0053	BAB	
	FSS-A-C1-1-FS16RT-5	A	C1	1	C	107.4	0.0845	16	0.0053	BAB	
FS17RT	FSS-A-C1-1-FS17RT-1	A	C1	1	C	112.8	0.0849	16	0.0053	BAT	110.6
	FSS-A-C1-1-FS17RT-2	A	C1	1	C	110.0	0.0883	16	0.0055	HAB	
	FSS-A-C1-1-FS17RT-3	A	C1	1	C	109.5	0.0893	16	0.0056	BAB	
	FSS-A-C1-1-FS17RT-4	A	C1	1	C	113.6	0.0885	16	0.0055	BAB	
	FSS-A-C1-1-FS17RT-5	A	C1	1	C	116.2	0.0877	16	0.0055	HAB	
FS18RT	FSS-A-C1-1-FS17RT-6	A	C1	1	C	104.0	0.0868	16	0.0054	BAB, HIB	111.8
	FSS-A-C1-1-FS18RT-1	A	C1	1	C	114.9	0.0856	16	0.0053	BAT	
	FSS-A-C1-1-FS18RT-2	A	C1	1	C	113.2	0.0847	16	0.0053	M(A,B)AB, HIB	
	FSS-A-C1-1-FS18RT-3	A	C1	1	C	109.4	0.0845	16	0.0053	M(A,B)AB, HIB	
	FSS-A-C1-1-FS18RT-4	A	C1	1	C	112.0	0.0846	16	0.0053	M(A,B)AB, HIB	
FS19RT	FSS-A-C1-1-FS18RT-5	A	C1	1	C	109.5	0.0845	16	0.0053	BAB	106.3
	FSS-A-C1-1-FS19RT-1	A	C1	1	C	106.4	0.0838	16	0.0052	HAB, HIB	
	FSS-A-C1-1-FS19RT-2	A	C1	1	C	104.3	0.0838	16	0.0052	HAT, HIT	
	FSS-A-C1-1-FS19RT-3	A	C1	1	C	103.9	0.0840	16	0.0052	BAB	
	FSS-A-C1-1-FS19RT-4	A	C1	1	C	107.8	0.0835	16	0.0052	M(B,H)AT, HIT	
FS21RT	FSS-A-C1-1-FS19RT-5	A	C1	1	C	108.9	0.0841	16	0.0053	M(B,H)AB, HIB	111.4
	FSS-A-C1-1-FS21RT-1	A	C1	1	C	108.7	0.0864	16	0.0054	M(B,H)AT	
	FSS-A-C1-1-FS21RT-2	A	C1	1	C	111.2	0.0871	16	0.0054	M(B,H)AT	
	FSS-A-C1-1-FS21RT-3	A	C1	1	C	114.9	0.0873	16	0.0055	BGM	
	FSS-A-C1-1-FS21RT-4	A	C1	1	C	116.3	0.0875	16	0.0055	HAT	
FS22RT	FSS-A-C1-1-FS21RT-6	A	C1	1	C	105.7	0.0877	16	0.0055	HAT	108.5
	FSS-A-C1-1-FS22RT-1	A	C1	1	C	111.1	0.0864	16	0.0054	BAT	
	FSS-A-C1-1-FS22RT-2	A	C1	1	C	110.1	0.0863	16	0.0054	HAT, HIT	
	FSS-A-C1-1-FS22RT-3	A	C1	1	C	108.5	0.0865	16	0.0054	BAT	
	FSS-A-C1-1-FS22RT-4	A	C1	1	C	107.1	0.0865	16	0.0054	BAT	
FS23RT	FSS-A-C1-1-FS22RT-5	A	C1	1	C	105.8	0.0861	16	0.0054	BAT	113.8
	FSS-A-C1-1-FS23RT-1	A	C1	1	C	111.9	0.0851	16	0.0053	BAB	
	FSS-A-C1-1-FS23RT-2	A	C1	1	C	115.6	0.0850	16	0.0053	M(B,H)AB	
	FSS-A-C1-1-FS23RT-3	A	C1	1	C	110.4	0.0855	16	0.0053	BAB	
	FSS-A-C1-1-FS23RT-4	A	C1	1	C	113.8	0.0854	16	0.0053	BAB, HIB	
FS31RT	FSS-A-C1-1-FS23RT-5	A	C1	1	C	117.2	0.0852	16	0.0053	M(B,H)AB	103.4
	FSS-A-C1-1-FS31RT-1	A	C1	1	C	106.0	0.0872	16	0.0055	BAT	
	FSS-A-C1-1-FS31RT-2	A	C1	1	C	107.2	0.0871	16	0.0054	BAT	
	FSS-A-C1-1-FS31RT-3	A	C1	1	C	105.3	0.0879	16	0.0055	HAT, HIT	
	FSS-A-C1-1-FS31RT-4	A	C1	1	C	102.2	0.0883	16	0.0055	M(B,H)AT, HIT	
FS32RT	FSS-A-C1-1-FS31RT-5	A	C1	1	C	96.12	0.0888	16	0.0055	M(B,H)AT, HIT	106.3
	FSS-A-C1-1-FS32RT-1	A	C1	1	C	110.2	0.0878	16	0.0055	BAB, HIB	
	FSS-A-C1-1-FS32RT-2	A	C1	1	C	106.6	0.0881	16	0.0055	BAB, HAB, HIB	
	FSS-A-C1-1-FS32RT-3	A	C1	1	C	109.5	0.0884	16	0.0055	BAB	
	FSS-A-C1-1-FS32RT-4	A	C1	1	C	112.1	0.0889	16	0.0056	BAB	
FS33RT	FSS-A-C1-1-FS32RT-5	A	C1	1	C	103.8	0.0891	16	0.0056	M(B,H)AT	100.7
	FSS-A-C1-1-FS32RT-6	A	C1	1	C	101.3	0.0891	16	0.0056	HAB	
	FSS-A-C1-1-FS32RT-7	A	C1	1	C	100.9	0.0892	16	0.0056	BAT, HAB	
	FSS-A-C1-1-FS33RT-1	A	C1	1	C	106.1	0.0877	16	0.0055	BAB	
	FSS-A-C1-1-FS33RT-2	A	C1	1	C	103.2	0.0875	16	0.0055	BAB	
FS33RT	FSS-A-C1-1-FS33RT-3	A	C1	1	C	98.33	0.0875	16	0.0055	BAB	100.7
	FSS-A-C1-1-FS33RT-4	A	C1	1	C	97.95	0.0879	16	0.0055	BAB	
	FSS-A-C1-1-FS33RT-5	A	C1	1	C	97.99	0.0882	16	0.0055	BGM	

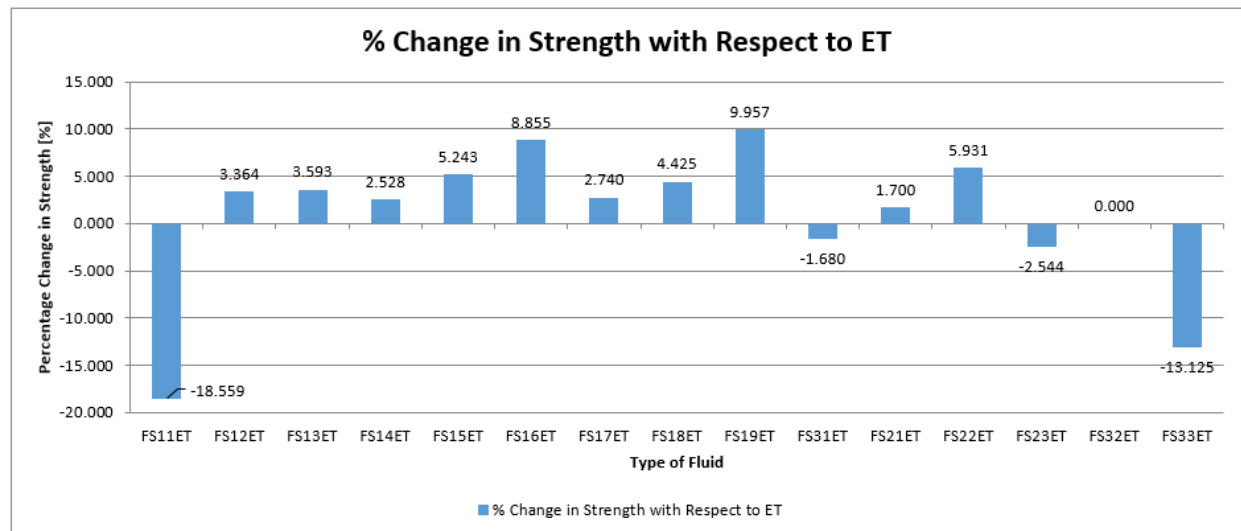
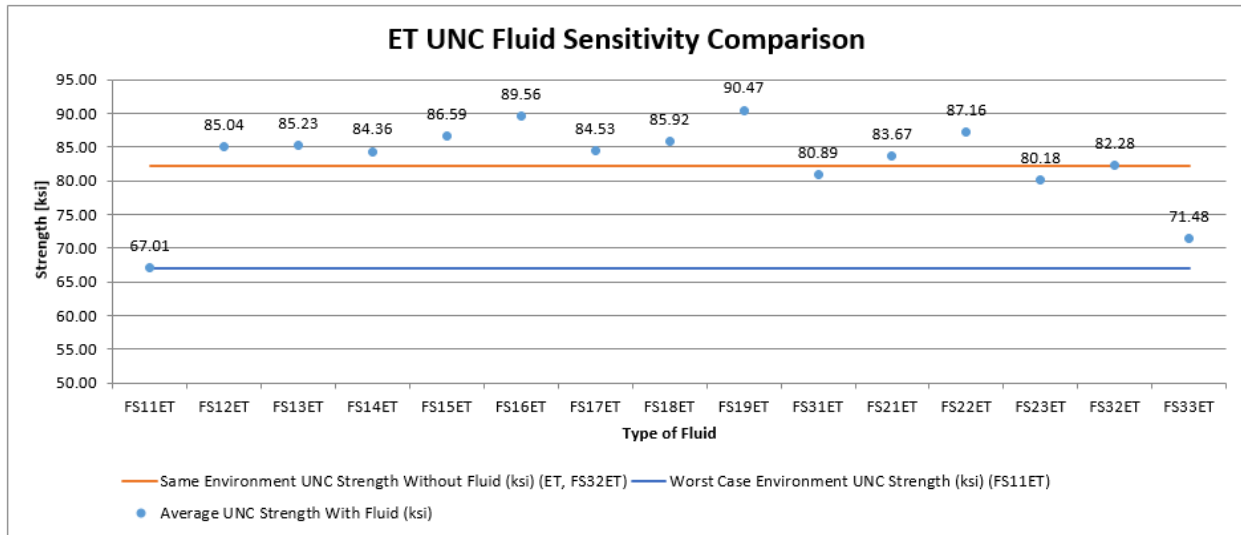


7.2 Elevated Temperature Test Data

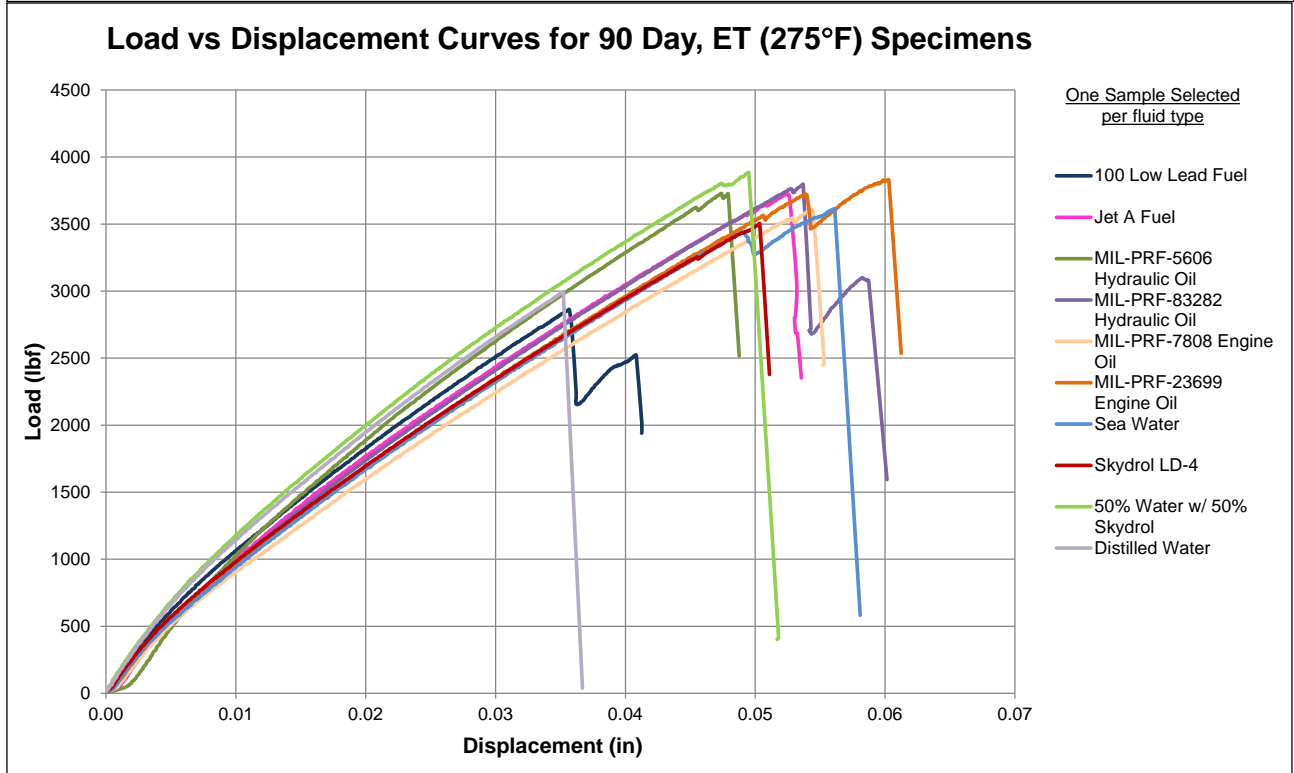
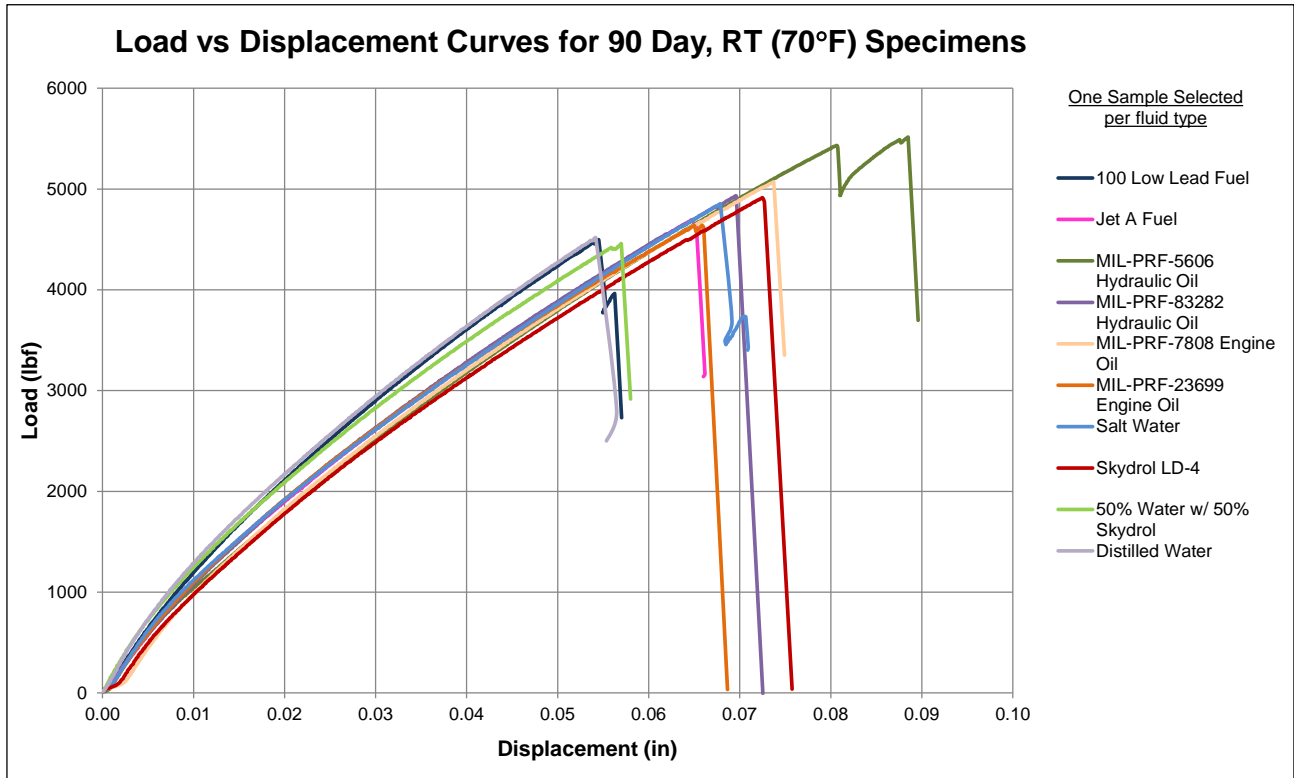
Code	Type of Fluid	Exposure
FS11ET	100 Low lead Fuel	90 days min @ 70°F ± 10F
FS12ET	Jet A Fuel	
FS13ET	MIL-PRF-5606 Hydraulic Oil	
FS14ET	MIL-PRF-83282 Hydraulic Oil	
FS15ET	MIL-PRF-7808 Engine Oil	
FS16ET	MIL-PRF-23699 Engine Oil	
FS17ET	Salt Water	
FS18ET	Skydrol LD-4	
FS19ET	50% Water w/ 50% Skydrol	
FS31ET	Distilled Water	
FS21ET	MEK washing fluid	90 mins @ 70°F ± 10F
FS22ET	Polypropylene Glycol Deicer	
FS23ET	Isopropyl Alcohol Deicing	48±4 hrs @ 70°F ± 10F
FS31ET	Distilled Water	Per Test Plan
FS32ET	Dry	
FS33ET	85% Relative Humidity	

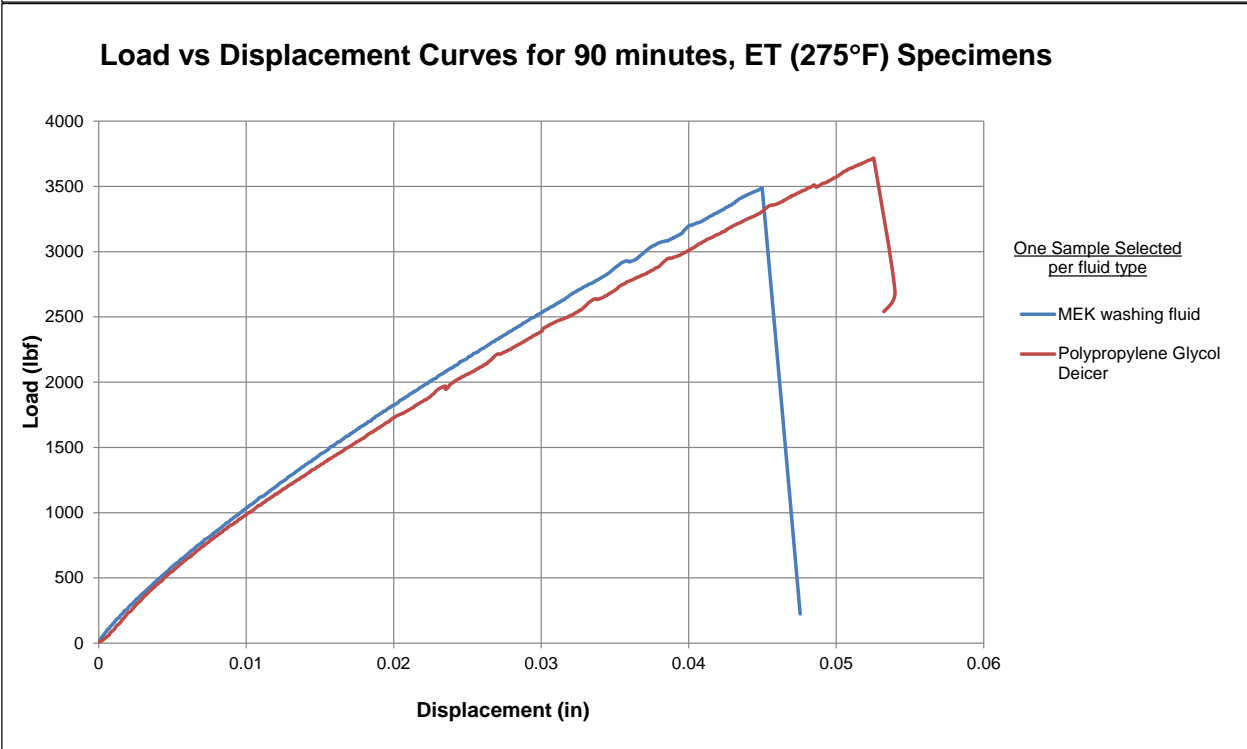
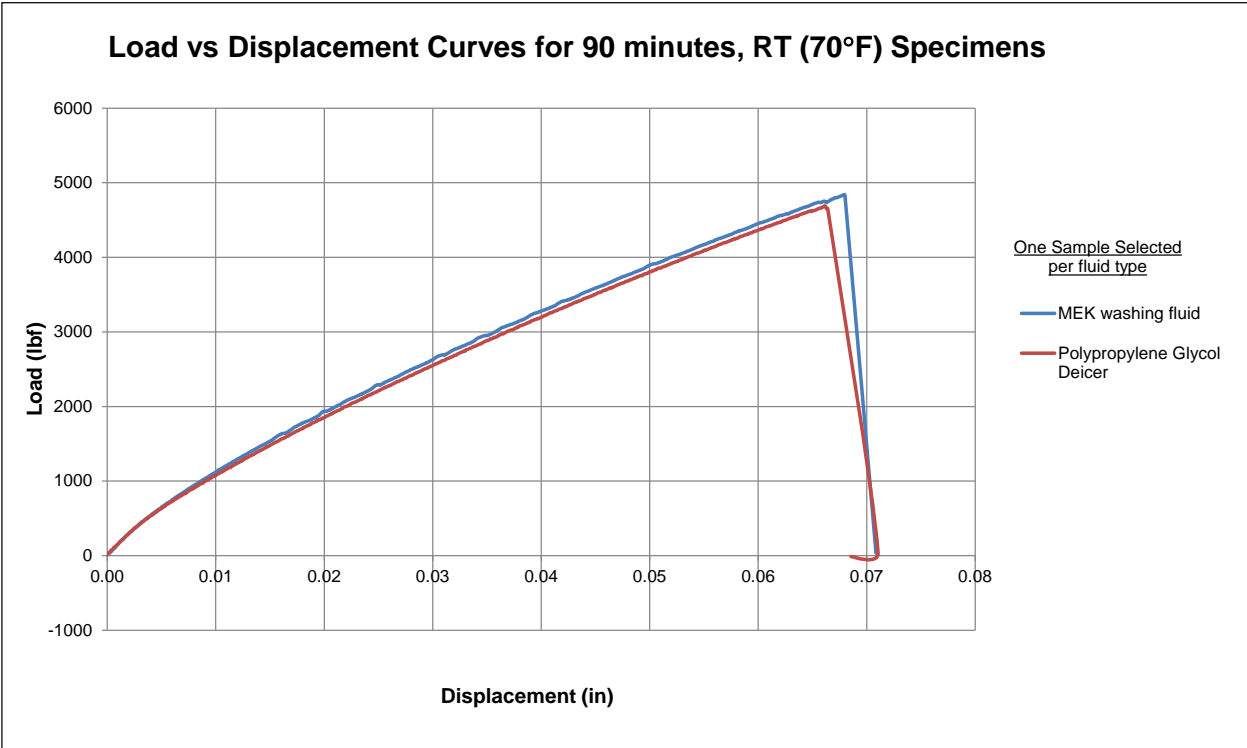
Fluid Sensitivity Screening
Un-Notched Compression 90/0 Properties--ET (275°F) Strength
 Victrex AE 250 LM PAEK, AS4 12k Unitape 143 gsm 34% RC

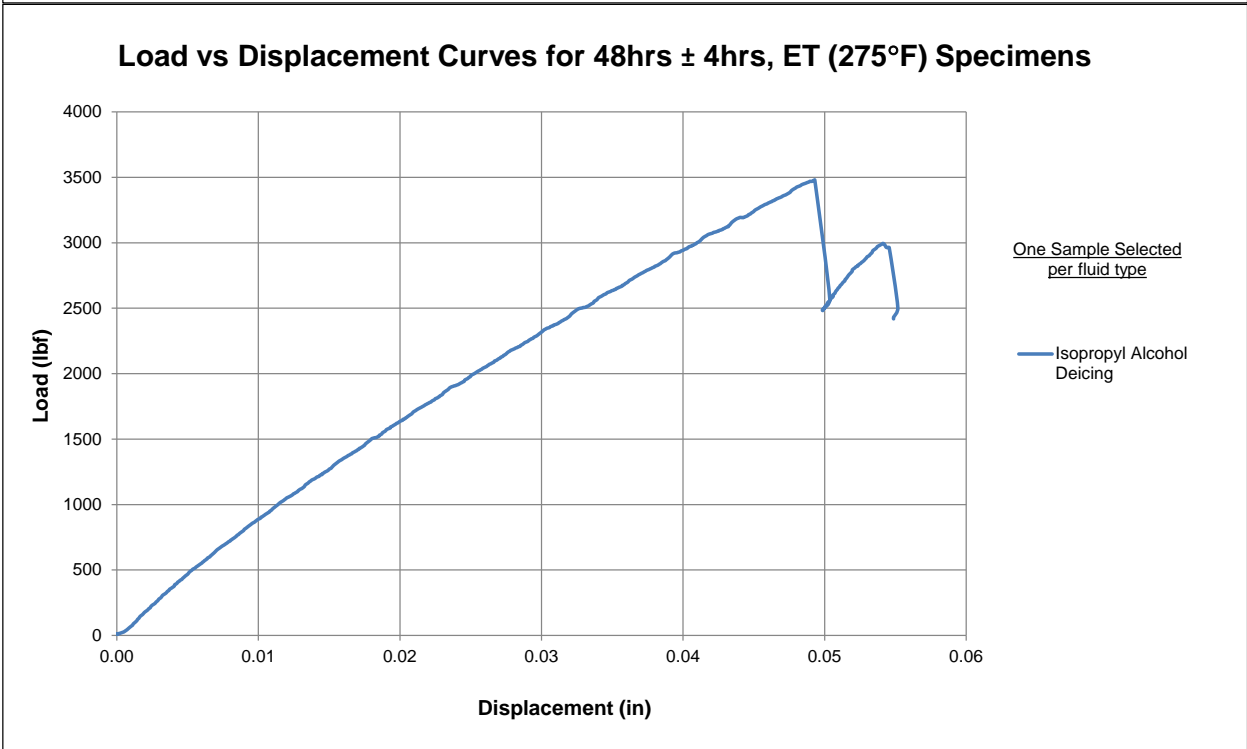
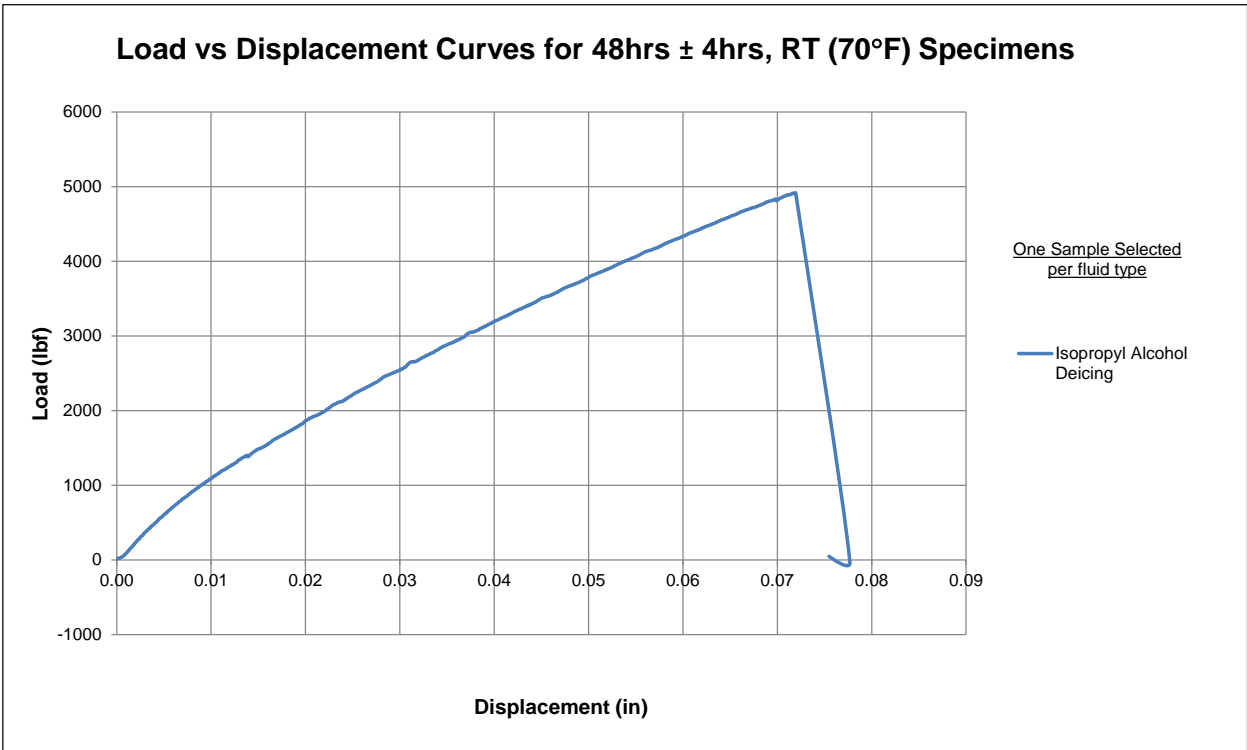
Fluid Code	Specimen Number	Victrex Batch #	Victrex Consolidation Cycle	Prepreg Lot #	Consolidation Cycle #	Strength [ksi]	Avg. Specimen Thickness [in]	# Plies in Laminate	Avg. t _{ply} [in]	Failure Mode	Average
FS11ET	FSS-A-C1-1-FS11ET-1	A	C1	1	C	65.47	0.0874	16	0.0055	HAT, HIT	67.01
	FSS-A-C1-1-FS11ET-2	A	C1	1	C	70.54	0.0882	16	0.0055	BAB	
	FSS-A-C1-1-FS11ET-3	A	C1	1	C	68.24	0.0886	16	0.0055	HAT, HIT	
	FSS-A-C1-1-FS11ET-4	A	C1	1	C	66.90	0.0885	16	0.0055	HAB	
	FSS-A-C1-1-FS11ET-5	A	C1	1	C	63.90	0.0886	16	0.0055	BGM	
FS12ET	FSS-A-C1-1-FS12ET-1	A	C1	1	C	86.59	0.0860	16	0.0054	HAB, HIB	85.04
	FSS-A-C1-1-FS12ET-2	A	C1	1	C	81.52	0.0863	16	0.0054	BAB	
	FSS-A-C1-1-FS12ET-3	A	C1	1	C	88.06	0.0869	16	0.0054	HAB, HIB	
	FSS-A-C1-1-FS12ET-4	A	C1	1	C	86.97	0.0871	16	0.0054	BGM	
	FSS-A-C1-1-FS12ET-5	A	C1	1	C	82.08	0.0869	16	0.0054	BAB	
FS13ET	FSS-A-C1-1-FS13ET-1	A	C1	1	C	76.01	0.0884	16	0.0055	BAB, HIB	85.23
	FSS-A-C1-1-FS13ET-2	A	C1	1	C	89.44	0.0875	16	0.0055	BGM	
	FSS-A-C1-1-FS13ET-3	A	C1	1	C	84.26	0.0883	16	0.0055	HAT, HIT	
	FSS-A-C1-1-FS13ET-4	A	C1	1	C	90.22	0.0868	16	0.0054	HAT, HIT	
	FSS-A-C1-1-FS13ET-5	A	C1	1	C	86.23	0.0859	16	0.0054	M(B,H)AB	
FS14ET	FSS-A-C1-1-FS14ET-1	A	C1	1	C	82.95	0.0877	16	0.0055	M(B,H)AT, HIT	84.36
	FSS-A-C1-1-FS14ET-2	A	C1	1	C	86.99	0.0874	16	0.0055	HAT, HIT	
	FSS-A-C1-1-FS14ET-3	A	C1	1	C	81.45	0.0870	16	0.0054	HAT, HIT	
	FSS-A-C1-1-FS14ET-4	A	C1	1	C	81.19	0.0867	16	0.0054	M(B,H)AT, HIT	
	FSS-A-C1-1-FS14ET-5	A	C1	1	C	89.20	0.0866	16	0.0054	BAB	
FS15ET	FSS-A-C1-1-FS15ET-1	A	C1	1	C	87.56	0.0852	16	0.0053	HAT, HIT	86.59
	FSS-A-C1-1-FS15ET-2	A	C1	1	C	79.00	0.0847	16	0.0053	M(B,H)AT, HIT	
	FSS-A-C1-1-FS15ET-3	A	C1	1	C	89.10	0.0843	16	0.0053	HAB, HIB	
	FSS-A-C1-1-FS15ET-4	A	C1	1	C	85.80	0.0843	16	0.0053	HAT, HIT	
	FSS-A-C1-1-FS15ET-5	A	C1	1	C	91.49	0.0843	16	0.0053	HAB, HIB	
FS16ET	FSS-A-C1-1-FS16ET-1	A	C1	1	C	89.71	0.0854	16	0.0053	HAB, HIB	89.56
	FSS-A-C1-1-FS16ET-2	A	C1	1	C	89.87	0.0860	16	0.0054	HAB, HIB	
	FSS-A-C1-1-FS16ET-3	A	C1	1	C	85.92	0.0857	16	0.0054	HAB, HIB	
	FSS-A-C1-1-FS16ET-4	A	C1	1	C	93.67	0.0865	16	0.0054	HAB, HIB	
	FSS-A-C1-1-FS16ET-5	A	C1	1	C	88.63	0.0876	16	0.0055	HAT, HIT	
FS17ET	FSS-A-C1-1-FS17ET-1	A	C1	1	C	81.94	0.0866	16	0.0054	HAT, HIT	84.53
	FSS-A-C1-1-FS17ET-2	A	C1	1	C	85.27	0.0862	16	0.0054	HAB, HIB	
	FSS-A-C1-1-FS17ET-3	A	C1	1	C	83.25	0.0863	16	0.0054	HAT, HIT	
	FSS-A-C1-1-FS17ET-4	A	C1	1	C	88.02	0.0859	16	0.0054	HAB	
	FSS-A-C1-1-FS17ET-5	A	C1	1	C	84.17	0.0858	16	0.0054	BAB	
FS18ET	FSS-A-C1-1-FS18ET-1	A	C1	1	C	79.58	0.0838	16	0.0052	BGM	85.92
	FSS-A-C1-1-FS18ET-2	A	C1	1	C	88.29	0.0840	16	0.0052	HAB, HIB	
	FSS-A-C1-1-FS18ET-3	A	C1	1	C	83.31	0.0842	16	0.0053	HAB, HIB	
	FSS-A-C1-1-FS18ET-4	A	C1	1	C	90.12	0.0838	16	0.0052	HAT, HIT	
	FSS-A-C1-1-FS18ET-5	A	C1	1	C	88.28	0.0839	16	0.0052	HAB, HIB	
FS19ET	FSS-A-C1-1-FS19ET-1	A	C1	1	C	94.10	0.0844	16	0.0053	HAT, HIT	90.47
	FSS-A-C1-1-FS19ET-2	A	C1	1	C	91.59	0.0848	16	0.0053	BAB	
	FSS-A-C1-1-FS19ET-3	A	C1	1	C	89.80	0.0851	16	0.0053	M(B,H)AB	
	FSS-A-C1-1-FS19ET-4	A	C1	1	C	87.64	0.0854	16	0.0053	HAT, HIT	
	FSS-A-C1-1-FS19ET-5	A	C1	1	C	89.22	0.0858	16	0.0054	BAB, HIB	
FS21ET	FSS-A-C1-1-FS21ET-1	A	C1	1	C	79.66	0.0875	16	0.0055	BAT	83.67
	FSS-A-C1-1-FS21ET-2	A	C1	1	C	77.30	0.0877	16	0.0055	BAT	
	FSS-A-C1-1-FS21ET-3	A	C1	1	C	88.09	0.0874	16	0.0055	BAB	
	FSS-A-C1-1-FS21ET-4	A	C1	1	C	85.53	0.0872	16	0.0055	HAT	
	FSS-A-C1-1-FS21ET-5	A	C1	1	C	87.79	0.0869	16	0.0054	HAT, HIT	
FS22ET	FSS-A-C1-1-FS22ET-1	A	C1	1	C	87.51	0.0849	16	0.0053	HAT, HIT	87.16
	FSS-A-C1-1-FS22ET-2	A	C1	1	C	89.16	0.0855	16	0.0053	HAB, HIB, CIB	
	FSS-A-C1-1-FS22ET-3	A	C1	1	C	85.88	0.0851	16	0.0053	HAT, HIT	
	FSS-A-C1-1-FS22ET-4	A	C1	1	C	89.89	0.0850	16	0.0053	HAT, HIT	
	FSS-A-C1-1-FS22ET-5	A	C1	1	C	83.35	0.0846	16	0.0053	HAT, HIT	
FS23ET	FSS-A-C1-1-FS23ET-1	A	C1	1	C	81.67	0.0853	16	0.0053	HAB, CIB	80.18
	FSS-A-C1-1-FS23ET-2	A	C1	1	C	79.83	0.0861	16	0.0054	HAB, HIB	
	FSS-A-C1-1-FS23ET-3	A	C1	1	C	85.28	0.0861	16	0.0054	HAT, HIT, CIB/T	
	FSS-A-C1-1-FS23ET-4	A	C1	1	C	75.69	0.0864	16	0.0054	HAT, HIT	
	FSS-A-C1-1-FS23ET-5	A	C1	1	C	80.88	0.0866	16	0.0054	HAT, HIT	
	FSS-A-C1-1-FS23ET-6	A	C1	1	C	80.09	0.0868	16	0.0054	HAT, HIT	
	FSS-A-C1-1-FS23ET-7	A	C1	1	C	77.85	0.0872	16	0.0055	M(B,H)AT, HIT	
FS31ET	FSS-A-C1-1-FS31ET-1	A	C1	1	C	69.18	0.0867	16	0.0054	BGM	80.89
	FSS-A-C1-1-FS31ET-2	A	C1	1	C	66.39	0.0861	16	0.0054	BGM	
	FSS-A-C1-1-FS31ET-3	A	C1	1	C	85.51	0.0865	16	0.0054	HAB, HIB	
	FSS-A-C1-1-FS31ET-4	A	C1	1	C	86.60	0.0868	16	0.0054	HAB, HIB	
	FSS-A-C1-1-FS31ET-5	A	C1	1	C	86.93	0.0863	16	0.0054	HAB, HIB, HIT	
	FSS-A-C1-1-FS31ET-6	A	C1	1	C	87.57	0.0861	16	0.0054	BAT	
	FSS-A-C1-1-FS31ET-7	A	C1	1	C	84.08	0.0871	16	0.0054	HAB, HIB, HIT	
FS32ET	FSS-A-C1-1-FS32ET-1	A	C1	1	C	86.51	0.0887	16	0.0055	BAT	82.28
	FSS-A-C1-1-FS32ET-2	A	C1	1	C	76.16	0.0887	16	0.0055	HAB, HIB, CIT	
	FSS-A-C1-1-FS32ET-3	A	C1	1	C	80.97	0.0882	16	0.0055	HAT, HIT, HIB	
	FSS-A-C1-1-FS32ET-5	A	C1	1	C	80.70	0.0888	16	0.0056	BGM	
	FSS-A-C1-1-FS32ET-6	A	C1	1	C	87.68	0.0885	16	0.0055	HAT, HIT	
	FSS-A-C1-1-FS32ET-7	A	C1	1	C	81.64	0.0882	16	0.0055	HAT, HIT	
	FS33ET	FSS-A-C1-1-FS33ET-1	A	C1	1	C	73.33	0.0891	16	0.0056	
FSS-A-C1-1-FS33ET-2		A	C1	1	C	73.56	0.0890	16	0.0056	BAB	
FSS-A-C1-1-FS33ET-3		A	C1	1	C	70.96	0.0889	16	0.0056	BAB	
FSS-A-C1-1-FS33ET-4		C	C-	1	C	68.44	0.0887	16	0.0055	BAT	
FSS-A-C1-1-FS33ET-5		C	C-	1	C	71.09	0.0888	16	0.0056	BAT	

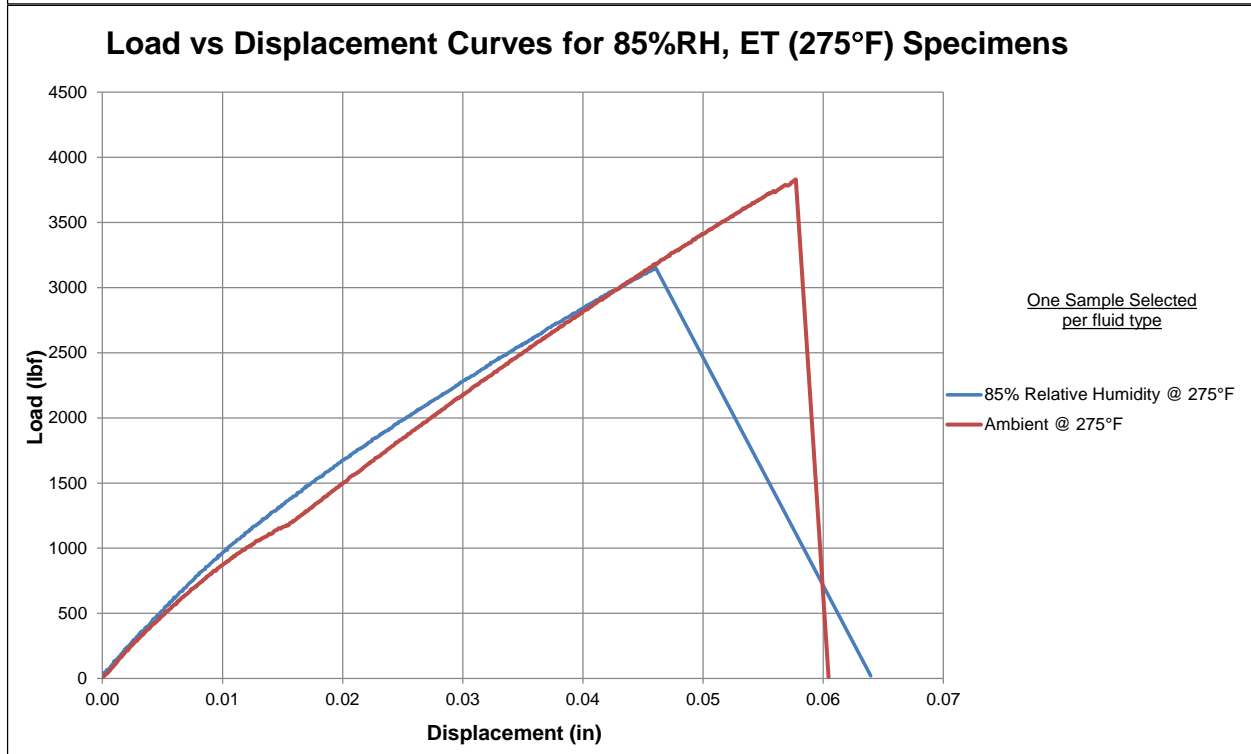
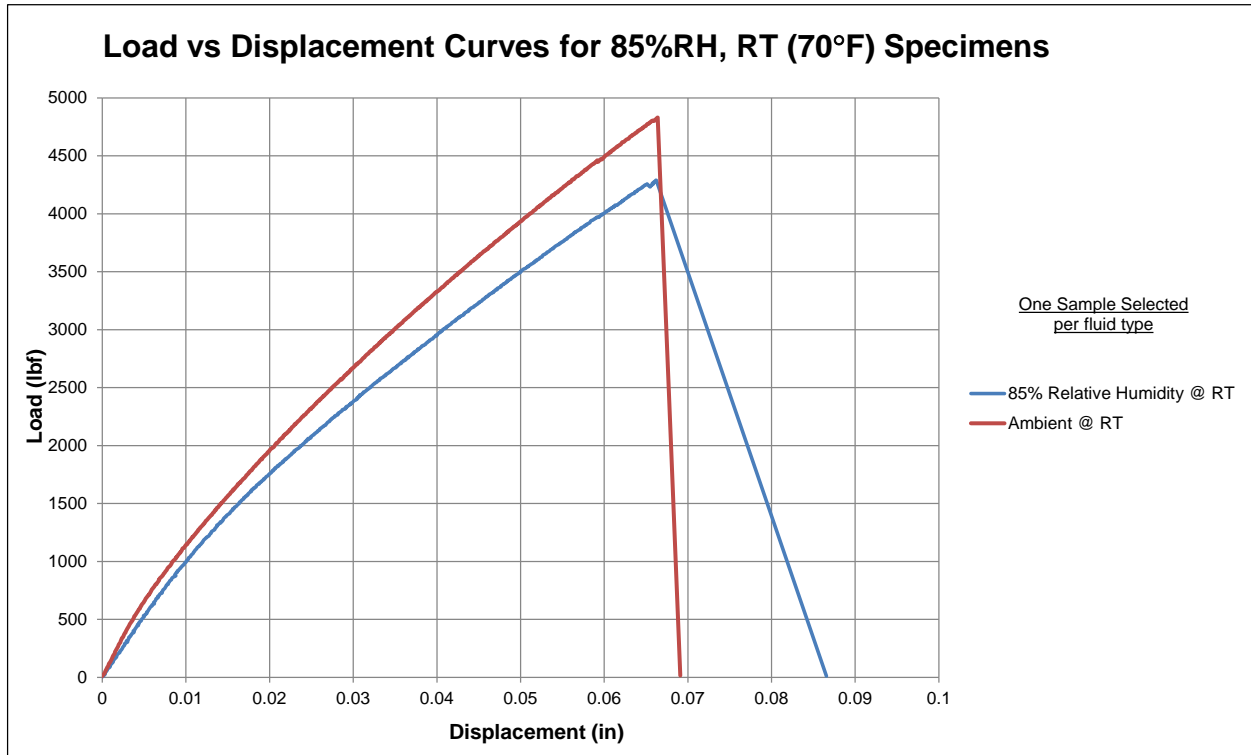


7.3 Load Displacement Curves



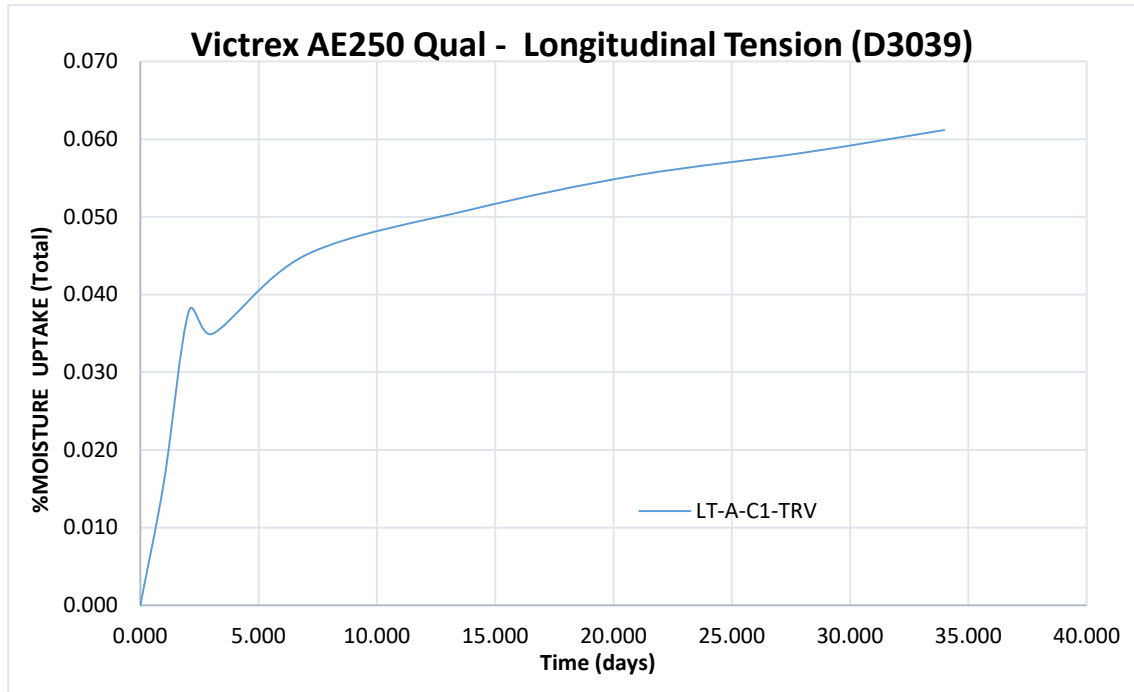




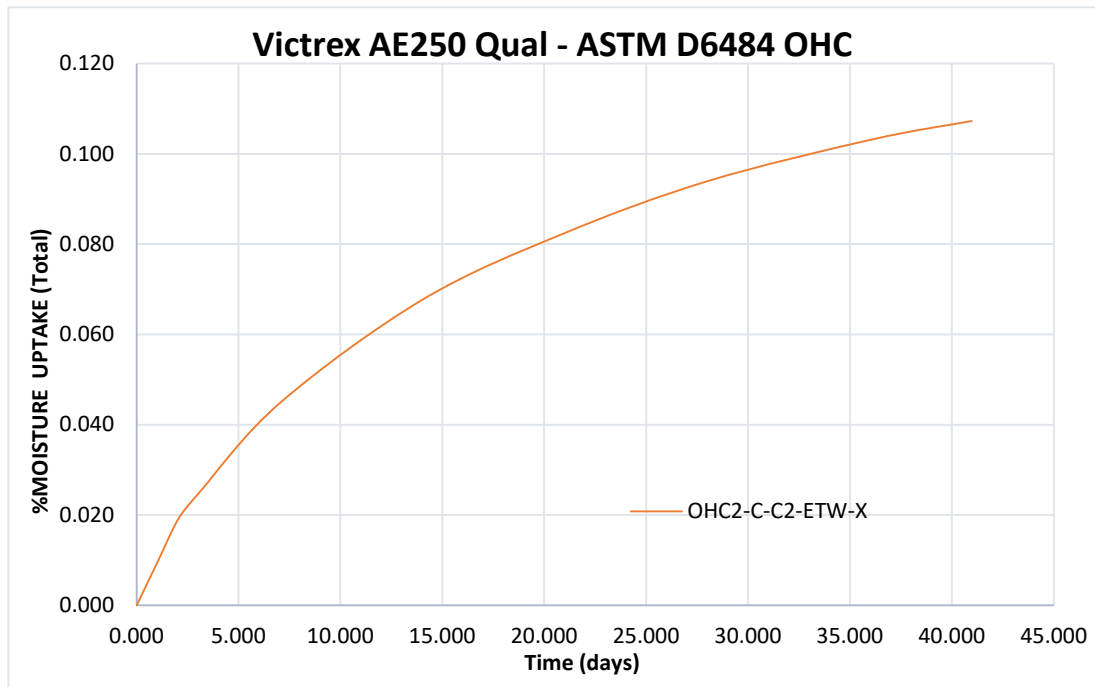


8. Moisture Conditioning Charts

8.1 Longitudinal Tension - Thinner Panel



8.2 "10/80/10" Open Hole Compression - Thicker Panel



9. Thermal Results

9.1 Ambient DMA Data

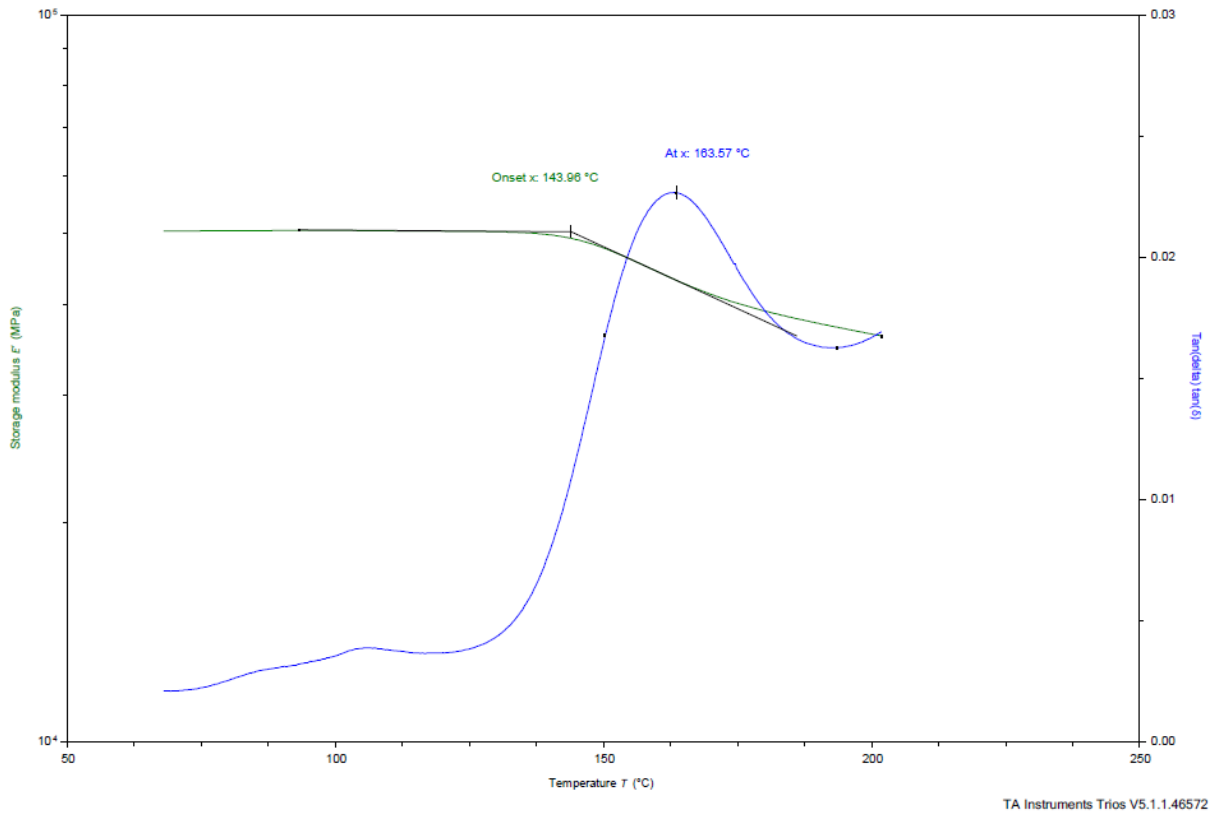
DMA Results Summary				
Victrex AE250 Qualification DMA Ambient				
Sample #	Onset Storage Modulus		Peak of Tangent Delta	
	Grand Average		Grand Average	
	T _g [°C]	T _g [°F]	T _g [°C]	T _g [°F]
SSB1/UNT1-A-C1-DMA-D-X	143.3	290.0	163.2	325.8
SSB1/UNT1-A-C2-DMA-D-X	144.4	291.9	164.2	327.6
SSB1/UNT1-B-C1-DMA-D-X	144.0	291.3	162.9	325.2
SSB1/UNT1-B-C2-DMA-D-X	141.8	287.2	163.0	325.5
SSB1/UNT1-C-C1-DMA-D-X	140.8	285.4	162.0	323.5
SSB1/UNT1-C-C2-DMA-D-X	143.1	289.6	163.7	326.7
UNC0-A-C1-DMA-D-X	146.1	295.0	167.9	334.3
UNC0-A-C2-DMA-D-X	146.0	294.7	168.2	334.8
UNC0-B-C1-DMA-D-X	143.5	290.3	167.1	332.7
UNC0-B-C2-DMA-D-X	143.5	290.3	167.0	332.6
UNC0-C-C1-DMA-D-X	142.8	289.1	165.7	330.2
UNC0-C-C2-DMA-D-X	143.5	290.4	165.3	329.5
Average	143.6	290.4	165.0	329.0
Standard Deviation	1.494	2.690	2.146	3.864

Sample: SSB1/UNT1-B-C1-DMA-D-2
Size: 50.0000 x 12.7300 x 2.1100 mm
Procedure name: Oscillation Temperature Ramp

DMA850

File: SSB1UNT1-B-C1-DMA-D-2
Operator: Ping
Run Date: 5/17/2021 10:42:53 AM
Instrument: DMA 850-0399

SSB1/UNT1-B-C1-DMA-D-2



9.2 Wet DMA Data

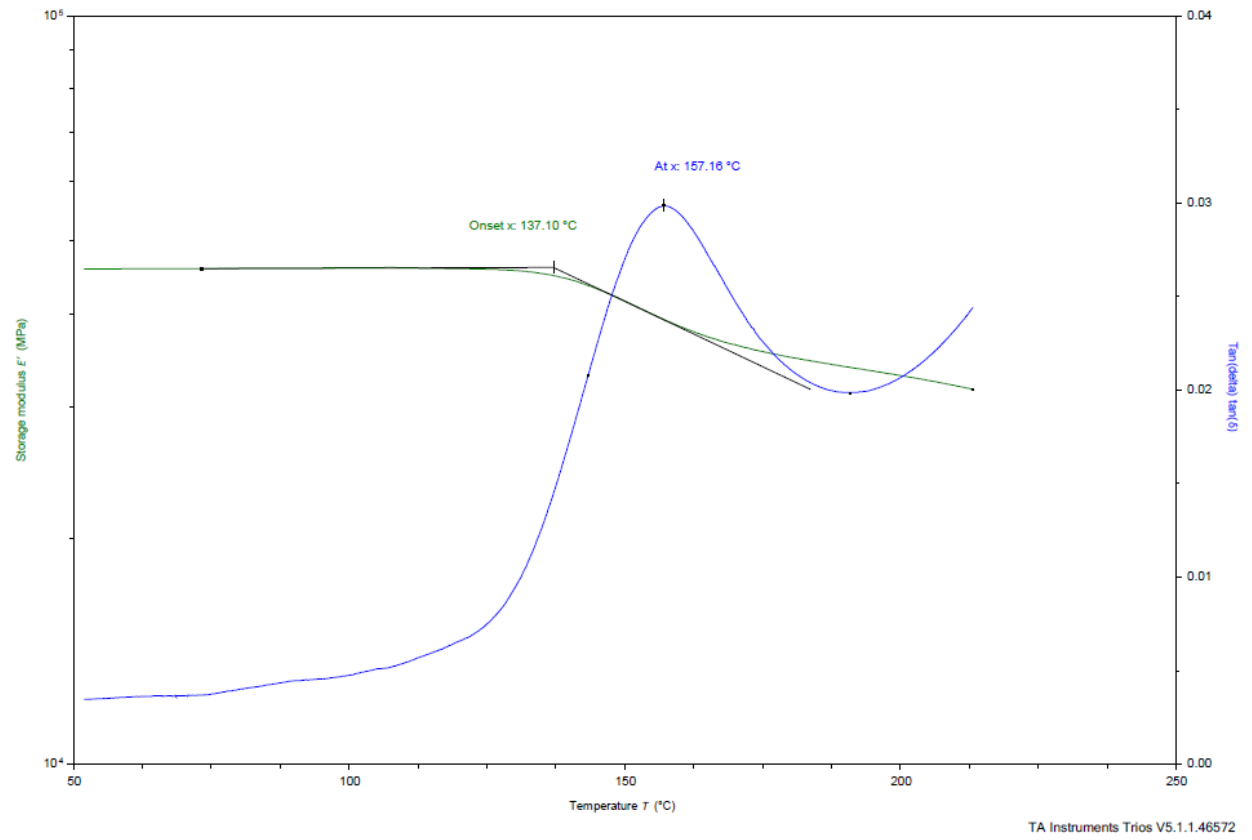
DMA Results Summary				
Victrex AE250 Qualification DMA Wet				
Sample #	Onset Storage Modulus		Peak of Tangent Delta	
	Grand Average		Grand Average	
	T _g [°C]	T _g [°F]	T _g [°C]	T _g [°F]
SSB1/UNT1-A-C1-DMA-W-X	137.58	279.64	157.27	315.08
SSB1/UNT1-A-C2-DMA-W-X	136.68	278.02	155.83	312.49
SSB1/UNT1-B-C1-DMA-W-X	135.97	276.74	157.85	316.13
SSB1/UNT1-B-C2-DMA-W-X	136.14	277.05	158.87	317.97
SSB1/UNT1-C-C1-DMA-W-X	134.41	273.93	156.85	314.32
SSB1/UNT1-C-C2-DMA-W-X	134.53	274.15	156.63	313.93
UNC0-A-C1-DMA-W-X	137.37	279.26	159.39	318.89
UNC0-A-C2-DMA-W-X	137.46	279.42	160.40	320.72
UNC0-B-C1-DMA-W-X	134.09	273.35	157.03	314.65
UNC0-B-C2-DMA-W-X	135.56	276.01	156.80	314.24
UNC0-C-C1-DMA-W-X	135.42	275.75	156.19	313.13
UNC0-C-C2-DMA-W-X	136.16	277.08	156.55	313.78
Average	135.9	276.7	157.5	315.4
Standard Deviation	1.200	2.161	1.393	2.508

Sample: SSB1UNT1-A-C1-DMA-W-1
Size: 50.00000 x 12.76000 x 2.24000 mm
Procedure name: Oscillation Temperature Ramp

DMA850

File: SSB1UNT1-A-C1-DMA-W-1
Operator: Ping
Run Date: 8/10/2021 3:56:54 PM
Instrument: DMA 850-0398

SSB1UNT1-A-C1-DMA-W-1



9.3 Prepreg DSC Data

DSC Results for Prepreg Victrex AE250 Qualification DSC												
Sample #	Glass Transition Temperature		Cold Crystallization Peak Temperature		Enthalpy of Cold Crystallization	Melting Peak Temperature		Enthalpy of Melting	Crystallization Peak Temperature		Enthalpy of Crystallization	Degree of Crystallinity %
	T _g [°C]	T _g [°F]	T _{cc} [°C]	T _{cc} [°F]	ΔH _{cc} [J/g]	T _m [°C]	T _m [°F]	ΔH _m [J/g]	T _c [°C]	T _c [°F]	ΔH _c [J/g]	
Batch#B000012-DSC-1	148.3	298.9	182.9	361.3	8.83	308.3	587.0	11.74	264.5	508.0	10.34	6.572
Batch#B000012-DSC-2	148.6	299.4	182.5	360.5	8.61	308.1	586.5	11.75	264.4	508.0	10.91	7.097
Batch#B000012-DSC-3	148.2	298.7	182.8	361.1	8.64	308.2	586.8	12.23	265.1	509.2	10.46	8.105
Batch#V042520-DSC-1	149.3	300.7	185.2	365.3	6.97	305.7	582.3	10.83	259.1	498.4	9.138	8.746
Batch#V042520-DSC-2	149.3	300.8	186.0	366.8	7.51	305.9	582.6	11.52	259.4	499.0	9.276	9.076
Batch#V042520-DSC-3	149.7	301.5	185.0	365.0	6.80	306.1	582.9	11.11	258.8	497.8	9.410	9.746
Batch#V049602-DSC-1	148.9	300.1	185.7	366.2	7.94	307.7	585.9	11.24	261.8	503.2	9.633	7.463
Batch#V049602-DSC-2	148.3	298.9	184.2	363.5	7.56	308.2	586.8	11.60	262.1	503.8	9.920	9.131
Batch#V049602-DSC-3	148.5	299.3	184.2	363.5	7.95	308.1	586.5	11.31	262.5	504.4	10.29	7.615
Average	148.8	299.8	184.3	363.7	7.869	307.4	585.3	11.48	262.0	503.5	9.931	8.172
Standard Deviation	0.552	0.994	1.289	2.321	0.730	1.117	2.011	0.412	2.431	4.375	0.607	1.065

9.4 Consolidated Laminate DSC Data

DSC Results for Consolidated Laminates									
Vitrex AE250 Qualification DSC									
Sample #	Glass Transition Temperature		Melting Peak Temperature		Enthalpy of Melting ΔH_m [J/g]	Crystallization Peak Temperature		Enthalpy of Crystallization ΔH_c [J/g]	Degree of Crystallinity %
	T_g [°C]	T_g [°F]	T_m [°C]	T_m [°F]		T_c [°C]	T_c [°F]		
SSB1/UNT1-A-C1-DSC-1	146.2	295.2	305.9	582.6	11.04	261.6	502.9	9.905	24.97
SSB1/UNT1-A-C1-DSC-2	147.2	296.9	306.3	583.3	10.81	262.1	503.8	10.65	24.45
SSB1/UNT1-A-C2-DSC-1	147.1	296.7	305.7	582.3	10.10	260.3	500.5	10.10	22.85
SSB1/UNT1-A-C2-DSC-2	146.7	296.0	305.6	582.0	11.86	261.8	503.3	10.76	26.83
SSB1/UNT1-B-C1-DSC-1	145.9	294.7	307.1	584.8	10.76	257.7	495.9	9.757	24.34
SSB1/UNT1-B-C1-DSC-2	146.4	295.5	307.3	585.1	10.97	259.6	499.3	8.991	24.83
SSB1/UNT1-B-C2-DSC-1	145.4	293.6	307.1	584.7	10.32	258.0	496.3	9.952	23.35
SSB1/UNT1-B-C2-DSC-2	145.6	294.0	307.1	584.8	11.40	258.3	496.9	9.683	25.80
SSB1/UNT1-C-C1-DSC-1	147.9	298.2	308.9	588.1	11.78	265.8	510.4	10.77	26.65
SSB1/UNT1-C-C1-DSC-2	145.1	293.3	309.2	588.6	10.90	264.8	508.6	10.82	24.67
SSB1/UNT1-C-C2-DSC-1	144.2	291.6	308.9	588.1	11.26	265.3	509.5	10.72	25.48
SSB1/UNT1-C-C2-DSC-2	143.6	290.5	308.9	588.1	11.17	265.4	509.8	10.73	25.27
UNC0-A-C1-DSC-1	145.4	293.7	306.2	583.1	10.99	263.5	506.3	9.844	24.85
UNC0-A-C1-DSC-2	146.8	296.2	306.2	583.1	11.47	263.9	506.9	9.147	25.94
UNC0-A-C2-DSC-1	146.0	294.8	306.2	583.1	10.97	263.5	506.3	9.897	24.81
UNC0-A-C2-DSC-2	144.3	291.7	305.9	582.6	11.36	263.6	506.5	9.681	25.70
UNC0-B-C1-DSC-1	145.8	294.4	308.0	586.5	11.12	261.5	502.6	9.667	25.16
UNC0-B-C1-DSC-2	143.4	290.1	307.9	586.3	10.58	260.9	501.7	9.643	23.94
UNC0-B-C2-DSC-1	146.0	294.8	307.7	585.8	11.59	261.0	501.8	10.05	26.23
UNC0-B-C2-DSC-2	144.3	291.8	307.6	585.6	11.15	260.6	501.2	9.824	25.22
UNC0-C-C1-DSC-1	143.5	290.3	308.9	588.0	10.04	264.6	508.3	10.19	22.71
UNC0-C-C1-DSC-2	144.3	291.7	308.9	588.0	11.61	264.8	508.7	9.789	26.26
UNC0-C-C2-DSC-1	144.8	292.6	308.6	587.4	11.51	265.6	510.1	10.03	26.03
UNC0-C-C2-DSC-2	145.2	293.4	308.9	588.0	12.57	265.5	509.9	10.64	28.45
NTP1250Q1-V-A1-TA-LT-A-C3-R-DSC	146.8	296.3	305.7	582.2	9.57	262.2	503.9	8.97	21.64
NTP1250Q1-V-A1-TA-LT-B-C3-R-DSC	147.4	297.3	307.7	585.8	9.93	261.7	503.1	9.44	22.47
NTP1250Q1-V-A1-TA-LT-C-C3-R-DSC	146.3	295.4	309.0	588.2	10.59	266.7	512.0	10.22	23.97
Average	145.6	294.1	307.5	585.4	11.02	262.6	504.7	9.99	24.92
Standard Deviation	1.252	2.253	1.263	2.273	0.659	2.549	4.588	0.539	1.490

10. Deviations

- a. Upon completion of testing, data was reviewed by NCAMP and TxV Aerospace Composites, LLC. LT properties at all conditions did not perform as expected. Upon investigating the data, there were concerns that the fiber alignment may not have been well maintained during machining. This would have resulted in lower material properties and high data scatter, which was observed in the original test results. Statistical analysis of the test data did not yield sensible Basis Values.

A retest was done for the LT test properties and care was taken to ensure that the fibers are well aligned during machining. All test parameters were maintained in accordance with the qualification test plan. The retest yielded more consistent and representative data. Only the retested data is shown in this report.

- b. A second ETW test temperature at 250°F was added for UNC1 and OHC1 and labeled as ETW2.
- c. ASTM D3518 IPS strain range: 1000-3000 microstrain at RTA and CTA and 200-1000 microstrain at ETA and ETW was used in lieu of 2000-6000 microstrain because the selected strain range provided a more linear region than strain data at 2000-6000 microstrain.