Cytec Cycom 5250-5 T650 3K70PW fabric 36% RC
Qualification Material Property Data Report

FAA Special Project Number SP4613WI-Q

NCAMP Test Report Number: CAM-RP-2010-082 Rev B

July 27, 2012

Testing Facility:

National Institute for Aviation Research
Wichita State University
1845 N. Fairmount
Wichita, KS. 67260-0093

Test Panel Fabrication Facility:

Northrop Grumman Corporation
700 N. Douglas St,
Building 902,
El Segundo, CA 90245

Prepared by: Michelle Man
Michelle Man

Reviewed by: Yeow Ng John S. Tomblin
Yeow Ng **John Tomblin**

Approved By: E H. Hooper
Ed Hooper

Submitted To: Wichita FAA ACO Office

REVISIONS:

Rev	By	Date	Pages Revised or Added
N/C	Kristin Marlett	6/9/2011	Document Initial Release
A	Kristin Marlett	9/1/2011	IPS values updated
B	Michelle Man	7/27/2012	Typographical/Editorial Corrections, Data corrections for IPS (Section 2.3.5, 3.5, 4.5)

TABLE OF CONTENTS

1. Introduction 7
1.1 Scope 7
1.2 Symbols Used 8
1.3 NIAR– Cytec 5250-5 Specimen Naming Format 10
1.4 References 11
1.5 Methodology 12
1.5.1 Process Definition 12
1.5.2 Specimen & Testing Details 13
1.5.2.1 Tabbing 13
1.5.2.2 Specimen Dimensions & Test Configuration 13
1.5.3 Test Matrix 14
1.5.4 Cured Laminate Physical Testing 16
1.5.5 Environmental Conditioning 17
1.5.6 Non-ambient Testing 18
1.5.7 Fluid Sensitivity Screening 18
1.5.8 Normalization Procedures 19
1.5.9 Conformity 19
1.5.10 Material Pedigree Information 19
2. Test Results 20
2.1 Lamina Level Test Summary 20
2.2 Laminate Level Test Summary 21
2.3 Individual Test Summaries 23
2.3.1 Warp Tension Properties (WT) 23
2.3.2 Fill Tension Properties (FT) 24
2.3.3 Warp Compression Properties (WC) 25
2.3.4 Fill Compression Properties (FC) 26
2.3.5 In-Plane Shear Properties (IPS) 27
2.3.6 “25/50/25” Unnotched Tension 1 Properties (UNT1) 28
2.3.7 “10/80/10” Unnotched Tension 2 Properties (UNT2) 29
2.3.8 “40/20/40” Unnotched Tension 3 Properties (UNT3) 30
2.3.9 “25/50/25” Unnotched Compression 1 Properties (UNC1) 31
2.3.10 “10/80/10” Unnotched Compression 2 Properties (UNC2) 32
2.3.11 “40/20/40” Unnotched Compression 3 Properties (UNC3) 33
2.3.12 Lamina Short-Beam Strength Properties (SBS) 34
2.3.13 Laminate Short-Beam Strength Properties (SBS1) 35
2.3.14 “25/50/25” Open-Hole Tension 1 Properties (OHT1) 36
2.3.15 “10/80/10” Open-Hole Tension 2 Properties (OHT2) 37
2.3.16 “40/20/40” Open-Hole Tension 3 Properties (OHT3) 38
2.3.17 “25/50/25” Filled-Hole Tension 1 Properties (FHT1) 39
2.3.18 “10/80/10” Filled-Hole Tension 2 Properties (FHT2) 40
2.3.19 “40/20/40” Filled-Hole Tension 3 Properties (FHT3) 41
2.3.20 “25/50/25” Open-Hole Compression 1 Properties (OHC1) 42
2.3.21 “10/80/10” Open-Hole Compression 2 Properties (OHC2) 43
2.3.22 “40/20/40” Open-Hole Compression 3 Properties (OHC3) 44

2.3.23 “25/50/25” Filled-Hole Compression 1 Properties (FHC1) 45
2.3.24 “10/80/10” Filled-Hole Compression 2 Properties (FHC2) 46
2.3.25 “40/20/40” Filled-Hole Compression 3 Properties (FHC3) 47
2.3.26 “25/50/25” Single-Shear Bearing 1 Properties (SSB1) 48
2.3.27 “10/80/10” Single-Shear Bearing 2 Properties (SSB2) 49
2.3.28 “40/20/40” Single-Shear Bearing 3 Properties (SSB3) 50
2.3.29 Compression After Impact 1 Properties (CAI1) 51
2.3.30 Interlaminar Tension Properties (ILT) 52
3. Individual Test Charts 53
3.1 Warp Tension Properties (WT) 54
3.2 Fill Tension Properties (FT) 55
3.3 Warp Compression Properties (WC) 56
3.4 Fill Compression Properties (FC) 57
3.5 In-Plane Shear Properties (IPS) 58
3.6 “25/50/25” Unnotched Tension 1 Properties (UNT1) 59
3.7 “10/80/10” Unnotched Tension 2 Properties (UNT2) 60
3.8 “40/20/40” Unnotched Tension 3 Properties (UNT3) 61
3.9 “25/50/25” Unnotched Compression 1 Properties (UNC1) 62
3.10 “10/80/10” Unnotched Compression 2 Properties (UNC2) 63
3.11 “40/20/40” Unnotched Compression 3 Properties (UNC3) 64
3.12 Lamina Short-Beam Strength Properties (SBS) 65
3.13 Laminate Short-Beam Strength Properties (SBS1) 65
3.14 “25/50/25” Open-Hole Tension 1 Properties (OHT1) 66
3.15 “10/80/10” Open-Hole Tension 2 Properties (OHT2) 66
3.16 “40/20/40” Open-Hole Tension 3 Properties (OHT3) 67
3.17 “25/50/25” Filled-Hole Tension 1 Properties (FHT1) 67
3.18 “10/80/10” Filled-Hole Tension 2 Properties (FHT2) 68
3.19 “40/20/40” Filled-Hole Tension 3 Properties (FHT3) 68
3.20 “25/50/25” Open-Hole Compression 1 Properties (OHC1) 69
3.21 “10/80/10” Open-Hole Compression 2 Properties (OHC2) 69
3.22 “40/20/40” Open-Hole Compression 3 Properties (OHC3) 70
3.23 “25/50/25” Filled-Hole Compression 1 Properties (FHC1) 70
3.24 “10/80/10” Filled-Hole Compression 2 Properties (FHC2) 71
3.25 “40/20/40” Filled-Hole Compression 3 Properties (FHC3) 71
3.26 “25/50/25” Single-Shear Bearing 1 Properties (SSB1) 72
3.27 “10/80/10” Single-Shear Bearing 2 Properties (SSB2) 72
3.28 “40/20/40” Single-Shear Bearing 3 Properties (SSB3) 73
3.29 Compression After Impact 1 Properties (CAI1) 73
3.30 Interlaminar Tension Properties (ILT) 74
4. Raw Data 75
4.1 Warp Tension Properties (WT) 75
4.2 Fill Tension Properties (FT) 81
4.3 Warp Compression Properties (WC) 87
4.4 Fill Compression Properties (FC) 95
4.5 In-Plane Shear Properties (IPS) 103
4.6 “25/50/25” Unnotched Tension 1 Properties (UNT1) 111

4.7 “10/80/10” Unnotched Tension 2 Properties (UNT2) 117
4.8 “40/20/40” Unnotched Tension 3 Properties (UNT3) 123
4.9 “25/50/25” Unnotched Compression 1 Properties (UNC1) 129
4.10 “10/80/10” Unnotched Compression 2 Properties (UNC2) 133
4.11 “40/20/40” Unnotched Compression 3 Properties (UNC3) 137
4.12 Lamina Short-Beam Strength Properties (SBS) 141
4.13 Laminate Short-Beam Strength Properties (SBS1) 149
4.14 “25/50/25” Open-Hole Tension 1 Properties (OHT1) 153
4.15 “10/80/10” Open-Hole Tension 2 Properties (OHT2) 159
4.16 “40/20/40” Open-Hole Tension 3 Properties (OHT3) 165
4.17 “25/50/25” Filled-Hole Tension 1 Properties (FHT1) 171
4.18 “10/80/10” Filled-Hole Tension 2 Properties (FHT2) 177
4.19 “40/20/40” Filled-Hole Tension 3 Properties (FHT3) 183
4.20 “25/50/25” Open-Hole Compression 1 Properties (OHC1) 189
4.21 “10/80/10” Open-Hole Compression 2 Properties (OHC2) 193
4.22 “40/20/40” Open-Hole Compression 3 Properties (OHC3) 197
4.23 “25/50/25” Filled-Hole Compression 1 Properties (FHC1) 201
4.24 “10/80/10” Filled-Hole Compression 2 Properties (FHC2) 205
4.25 “40/20/40” Filled-Hole Compression 3 Properties (FHC3) 208
4.26 “25/50/25” Single-Shear Bearing 1 Properties (SSB1) 212
4.27 “10/80/10” Single-Shear Bearing 2 Properties (SSB2) 216
4.28 “40/20/40” Single-Shear Bearing 3 Properties (SSB3) 220
4.29 Compression After Impact 1 Properties (CAI1) 224
4.30 Interlaminar Tension Properties (ILT) 225
5. Shear Stress vs. Shear Strain, RTD 231
6. Fluid Sensitivity Comparison 232
7. Moisture Conditioning Charts 233
7.1 In-Plane Shear - Thinnest Panel 233
7.2 Short-Beam Strength - Thickest Panel 233
8. DMA Results 234
8.1 DMA Dry Batch A 236
8.2 DMA Wet Batch A 237
9. Physical Test Results 237
10. Deviations 237

List of Tables

Table 1-1: Lamina Level Test Matrix 14
Table 1-2: Laminate Level Test Matrix 15
Table 1-3: Physical Testing Matrix 16
Table 2-1: Lamina Summary Data 20
Table 2-2: Laminate Summary Data 21

List of Figures

Figure 1-1: Naming Format 10
Figure 1-2: Specimen Selection Methodology 12
Figure 1-3: Specimen Traceability Line 12
Figure 1-4: Modified ASTM D5961 (Single Shear Bearing) Specimen and Loading Arrangement 13

1. Introduction

1.1 Scope

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

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

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

This report contains material property data only. Statistical analysis of the data including the calculations of b-basis values is given in a separate report, Cytec 5250-5 T650 3K70PW fabric 36% RC Qualification Statistical Analysis Report NCP-RP-2010-071 N/C. The qualification material was procured to NCAMP Material Specification NMS 226/3 Rev Initial Release dated July 17, 2007. The qualification test panels were cured in accordance with NCAMP Process Specification NPS 81226 Revision C dated July 23, 2008 Baseline “C” Cure Cycle. The NCAMP Test Plan NTP 2263Q1 was used for this qualification program.

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

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

Aircraft companies should not use the data published in this report without specifying NCAMP Material Specification NMS 226/3. NMS 226/3 may have additional requirements that are listed in its prepreg process control document (PCD), fiber specification, fiber PCD, and other raw material specifications and PCDs which impose essential quality controls on the raw materials and raw material manufacturing equipment and processes. *Aircraft companies and certifying agencies should assume that the material property data published in this report is not applicable when the material is not procured to NMS 226/3.* NMS 226/3 is a free, publicly available, non-proprietary aerospace industry material specification.

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

1.2 Symbols Used

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

Superscripts

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

Subscripts

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

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

12 - in-plane

Acronyms and Definitions

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

1.3 NIAR– Cytec 5250-5 Specimen Naming Format

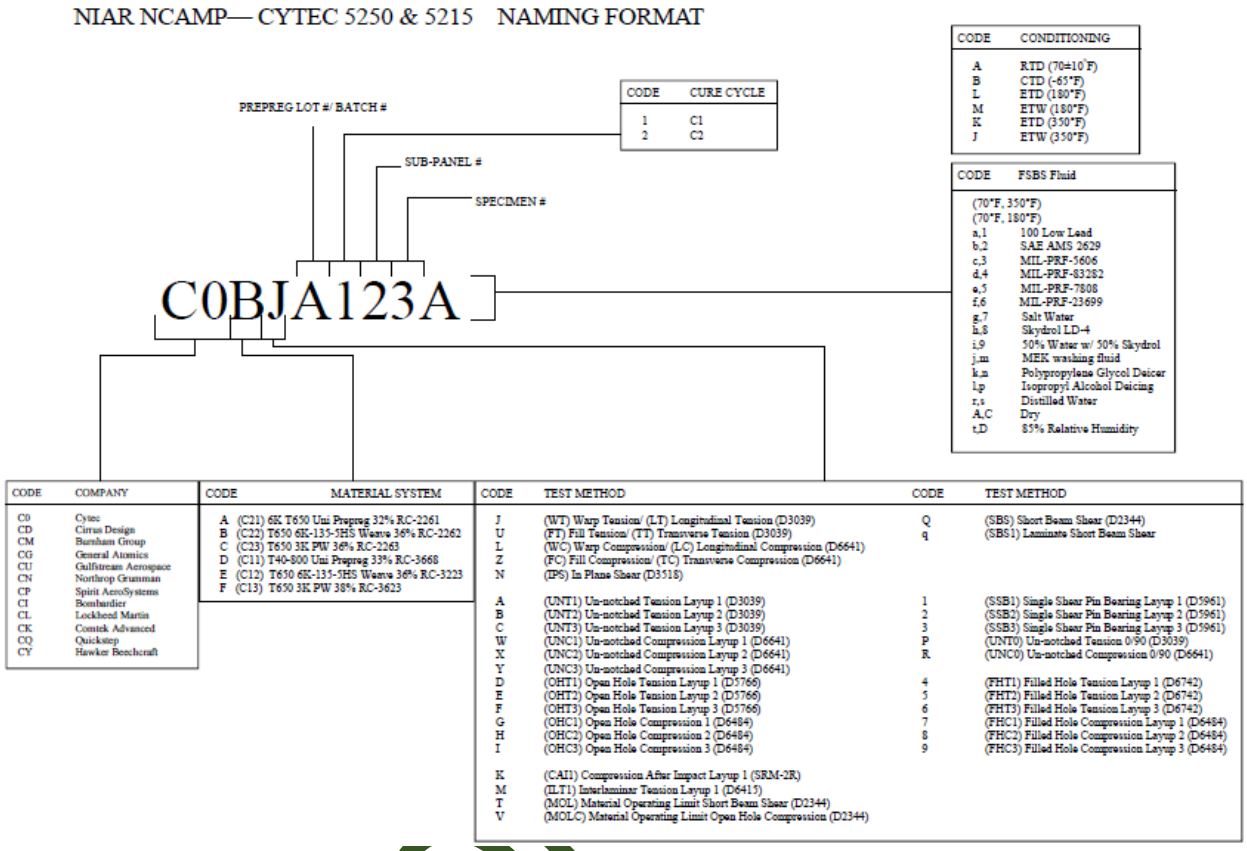


Figure 1-1: Naming Format

1.4 References

ASTM Standards

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

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

1.5 Methodology

1.5.1 Process Definition

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

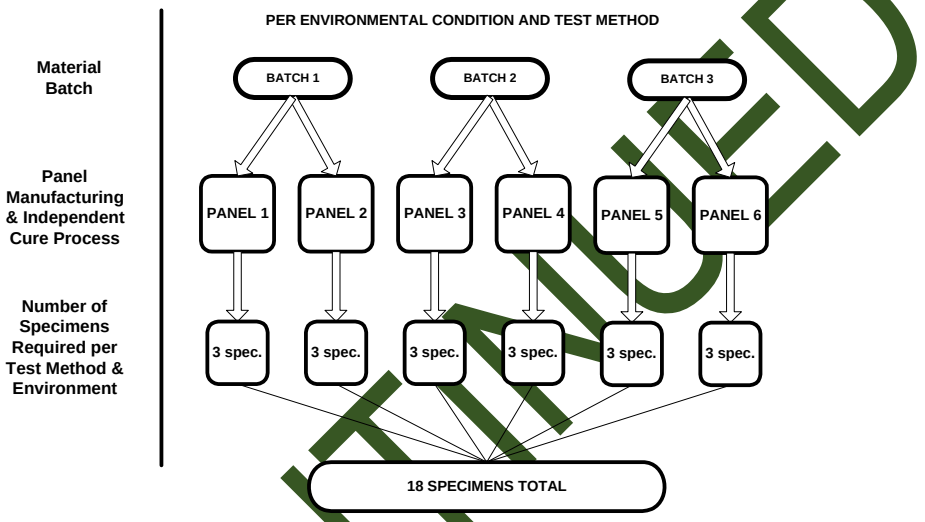


Figure 1-2: Specimen Selection Methodology

All panels were fabricated in accordance with NCAMP Process Specification 81226 “C” Cure Cycle.

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

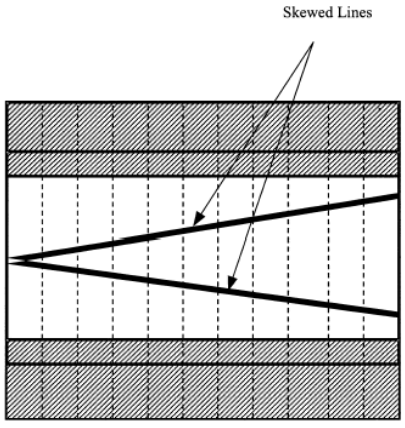


Figure 1-3: Specimen Traceability Line

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

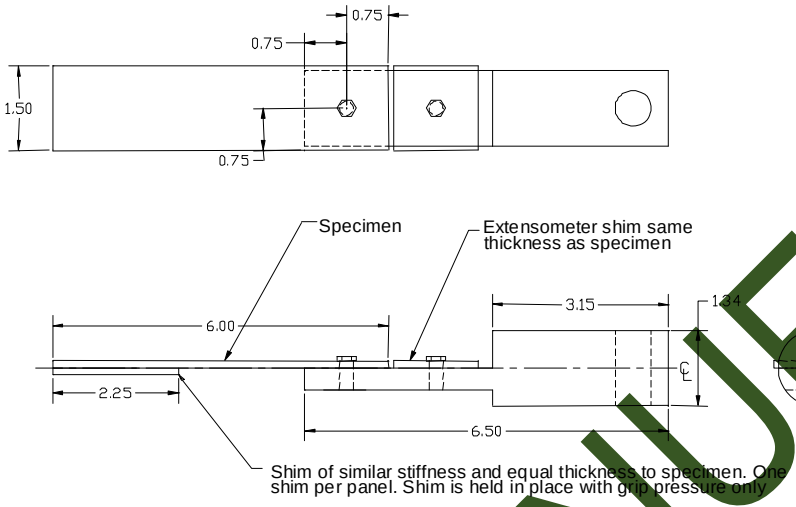


Figure 1-4: Modified ASTM D5961 (Single Shear Bearing) Specimen and Loading Arrangement

1.5.2 Specimen & Testing Details

1.5.2.1 Tabbing

No tabs were used for this program.

1.5.2.2 Specimen Dimensions & Test Configuration

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

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

1.5.3 Test Matrix

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

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

Table 1-1: Lamina Level Test Matrix

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

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

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

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

Table 1-2: Laminate Level Test Matrix

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

1.5.4 Cured Laminate Physical Testing

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

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

Table 1-3: Physical Testing Matrix

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

1.5.5 Environmental Conditioning

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

CTD = -65±5°F, dry

RTD = 70±10°F, room temperature dry

ETD = 350±5°F, dry

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

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

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

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

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

Where:

W_i = weight at current time

W_{i-1} = weight at previous time

W_b = baseline weight prior to conditioning

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

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

1.5.6 Non-ambient Testing

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

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

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

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

1.5.7 Fluid Sensitivity Screening

Fluid sensitivity screening was not performed on this material. It was performed on Cytec 5250-5 T650 unidirectional material system and Cytec 5250-5 T650 6K-5HS fabric.

1.5.8 Normalization Procedures

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

The average cured ply thickness of 0.0078 inch has been used as the nominal cured ply thickness (CPT) for normalization purpose. The following normalization formula was used:

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

For Cytec 5250-5 Plain Weave, the predicted cured ply thickness was 0.00795 inch. However, the as-measured cured ply thickness of the qualification panels was 0.0078 inch and Spirit is 0.0072 and Burnham is 0.0078 inch. The grand average of all qualification and equivalency panel thickness is 0.00759 inch. We suggested using 0.0078 inch as the nominal CPT and all participants agreed it was acceptable.

1.5.9 Conformity

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

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

1.5.10 Material Pedigree Information

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

2. Test Results

2.1 Lamina Level Test Summary

Prepreg Material:	Cytec Cycom® 5250-5 T650 3K70PW Fabric			**Cytec Cycom® 5250-5 T650 3K70PW Fabric Lamina Properties Summary**	
Material Specification:	NMS 226/3				
Fabric:	T650 3K70 PW	**Resin:**	Cycom 5250-5		
Tg(dry): (1)	470.47° F and 525.40° F	**Tg(wet):** (2)	376.90° F	**Tg METHOD**	DMA (SRM 18R-94)
PROCESSING:	NCAMP Process Specification 81226 "C" Cure Cycle				
	Batch 1, 2, 3, 4				
Date of fiber manufacture	6/29/2006, 6/14/2006, 3/23/2006, 1/1/2007	**Date of testing**	7/1/2009 to 8/18/2010		
Date of resin manufacture	6/28/2007, 8/8/2007, 11/13/2007 (batch 3&4)	**Date of data submittal**	10/1/2010		
Date of prepreg manufacture	6/28/2007, 8/8/2007, 11/13/2007 (batch 3&4)				
Date of composite manufacture	August 2008				

LAMINA MECHANICAL PROPERTY SUMMARY
Data reported as: Normalized & Measured
(Normalized by CPT= .0078 inch)

	CTD Mean		RTD Mean		ETD Mean		ETW Mean	
	Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
F_1^{tu} (ksi)	119.21	119.47	126.13	127.46			125.85	127.49
E_1^t (Msi)	9.61	9.63	9.95	10.07			9.03	9.14
ν_{12}^t		0.066		0.040				0.041
F_2^{tu} (ksi)	107.28	107.50	114.78	115.19			105.40	105.99
E_2^t (Msi)	9.19	9.21	9.35	9.38			8.98	9.03
F_1^{cu} (ksi)	124.41	125.70	113.29	116.38	90.10	91.71	47.69	48.13
E_1^c (Msi)	8.83	8.93	8.67	8.91	8.69	8.85	8.27	8.44
F_2^{cu} (ksi)	107.26	108.24	103.90	105.28	76.52	77.51	46.84	47.26
E_2^c (Msi)	8.45	8.54	8.52	8.64	8.34	8.43	7.96	8.05
$F_{12}^{s\ max}$ (ksi)		16.09						
$F_{12}^{s5\%strain}$ (ksi)								4.82
$F_{12}^{s0.2\%}$ (ksi)		11.04		8.56				2.19
G_{12}^s (Msi)		0.84		0.73				0.21
SBS (ksi)		11.97		11.65		6.94		4.09

Table 2-1: Lamina Summary Data

2.2 Laminate Level Test Summary

Prepreg Material:	Cytec Cycom® 5250-5 T650 3K70PW Fabric			**Cytec Cycom® 5250-5 T650 3K70PW Fabric Laminate Properties Summary**
Material Specification:	NMS 226/3			
Fabric:	T650 3K70 PW	**Resin:**	Cycom 5250-5	
Tg(dry): (1)	470.47° F and 525.40° F	**Tg(wet): (2)**	376.90° F	**Tg METHOD** DMA (SRM 18-94)
PROCESSING:	NCAMP Process Speciification 81226 "C" Cure Cycle			

	Batch 1, 2, 3, 4 per PMC Data Collection		
Date of fiber manufacture	6/29/2006, 6/14/2006, 3/23/2006, 1/1/2007	**Date of testing**	7/1/2009 to 8/18/2010
Date of resin manufacture	6/28/2007, 8/8/2007, 11/13/2007 (batch 3&4)	**Date of data submittal**	10/1/2010
Date of prepreg manufacture	6/28/2007, 8/8/2007, 11/13/2007 (batch 3&4)		
Date of composite manufacture	August 2008		

LAMINATE MECHANICAL PROPERTY SUMMARY
Data reported as: Normalized & Measured
(Normalized by CPT= .0078 inch)

	Layup:	**25/50/25**		**10/80/10**		**40/20/40**	
	Test Condition	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
OHT Strength (ksi)	**CTD**	44.85	44.92	43.26	43.00	51.48	51.16
	RTD	46.71	47.03	42.89	43.12	54.82	55.33
	ETW	50.77	50.86	30.54	30.37	62.42	62.21
OHC Strength (ksi)	**RTD**	46.29	45.96	40.33	40.62	48.00	48.68
	ETW	26.19	26.24	21.68	21.79	28.65	29.00
UNT Strength (ksi)	**CTD**	84.85	84.60	57.57	57.04	102.00	101.29
	RTD	89.68	89.79	57.97	57.36	107.96	108.90
	ETW	83.03	82.63	40.94	40.48	104.64	104.03
Modulus (msi)	**CTD**	6.92	6.90	4.74	4.74	8.65	8.59
	RTD	6.77	6.78	4.45	4.40	8.44	8.52
	ETW	6.17	6.14	3.38	3.34	8.28	8.23
UNC Strength (ksi)	**RTD**	87.69	88.63	61.64	61.92	82.02	83.99
	ETW	39.41	39.30	26.80	26.65	42.49	43.01
Modulus (msi)	**RTD**	6.42	6.49	4.39	4.41	7.85	8.05
	ETW	5.72	5.72	3.21	3.20	7.12	7.20
FHT Strength (ksi)	**CTD**	48.78	48.90	47.31	47.40	54.78	55.11
	RTD	49.73	50.24	47.22	47.58	57.23	57.90
	ETW	51.86	51.73	32.46	32.28	58.04	57.87
FHC Strength (ksi)	**RTD**	77.21	79.31	59.55	59.79	79.62	80.08
	ETW	33.87	34.21	26.88	26.83	41.35	41.50
LSBS Strength (ksi)	**RTD**	---	11.44	---	---	---	---
	ETW	---	4.04	---	---	---	---
SSB Ultimate Strength	**RTD**	130.00	132.92	132.69	134.44	122.36	123.79
	ETW	90.01	91.09	89.96	91.63	80.19	81.35
2% offset Strength (ksi)	**RTD**	114.09	116.73	113.28	114.75	107.16	108.42
	ETW	73.16	74.05	67.30	68.57	57.76	58.59
ILT Strength (ksi)	**CTD**	---	8.89	---	---	---	---
	RTD	---	8.45	---	---	---	---
	ETW	---	2.59	---	---	---	---
CAI Strength (ksi)	**RTD**	32.17	31.37	---	---	---	---

Table 2-2: Laminate Summary Data

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

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

2.3 Individual Test Summaries

2.3.1 Warp Tension Properties (WT)

Material: Cytec 5250-5 PW

Tension, 1-axis
Gr/ Ep
Cytec 5250-5 PW
[0]15

Resin content: 36.54 % w t **Comp. density:** 1.54 [g/cc]
Fiber volume: 55.22 % vol
Ply count: 15

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

Normalized by: 0.0078 in. CPT

		CTD		RTD		ETW	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160 F,85%	
Source code		CNCJX X1XB		CNCJX X1XA		CNCJX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
F_1^{tu} (ksi)	**Mean**	119.21	119.47	126.13	127.46	125.85	127.49
	Minimum	110.53	112.85	115.17	116.07	118.60	118.91
	Maximum	128.02	124.82	133.71	136.33	132.41	135.20
	C.V.(%)	3.83	2.93	3.81	3.79	3.16	3.59
	No. Specimens	19		19		19	
	No. Prepreg Lots	3		3		3	
E_1^t (Msi)	**Mean**	9.61	9.63	9.95	10.07	9.03	9.14
	Minimum	9.09	9.16	9.52	9.53	8.43	8.44
	Maximum	9.88	10.04	10.95	11.03	9.41	9.61
	C.V.(%)	2.50	2.52	4.08	4.37	2.55	2.87
	No. Specimens	20		19		21	
	No. Prepreg Lots	3		3		3	
ν_{12}^t	**Mean**	0.066		0.040		0.041	
	No. Specimens	15		18		20	
	No. Prepreg Lots	3		3		3	

2.3.2 Fill Tension Properties (FT)

Material:	Cytec 5250-5 PW		**Tension, 2-axis** **Gr/ Ep** **Cytec 5250-5 PW** **[90]15**
Resin content:	36.30 % wt	**Comp. density:** 1.54 [g/cc]	
Fiber volume:	55.38 % vol		
Ply count:	15		
Test method:	ASTM D3039-00	**Modulus calculation:** 1000 to 3000 microstrain	
Normalized by:	0.0078	in. CPT	

		CTD		RTD		ETW	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160 F,85%	
Source code		CNCUX X1XB		CNCUX X1XA		CNCUX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
F_2^{tu} (ksi)	**Mean**	107.28	107.50	114.78	115.19	105.40	105.99
	Minimum	96.92	98.46	109.20	108.48	96.82	97.68
	Maximum	113.13	112.90	121.18	121.21	112.76	113.00
	C.V.(%)	4.21	4.00	3.32	3.11	3.62	3.34
	No. Specimens	19		21		22	
	No. Prepreg Lots	3		3		3	
E_2^t (Msi)	**Mean**	9.19	9.21	9.35	9.38	8.98	9.03
	Minimum	8.67	8.75	8.81	8.96	7.65	7.72
	Maximum	9.42	9.47	9.78	9.95	9.71	9.78
	C.V.(%)	2.24	2.12	2.97	3.00	5.53	5.48
	No. Specimens	19		21		22	
	No. Prepreg Lots	3		3		3	

2.3.3 Warp Compression Properties (WC)

Material:	Cytec 5250-5 PW							**Compression, 1-axis** **Gr/ Ep** **Cytec 5250-5 PW** **[0]15**	
Resin content:	36.22 % wt	**Comp. density:** 1.54 [g/cc]							
Fiber volume:	55.44 % vol								
Ply count:	15								
Test method:	ASTM D6641-01e1	**Modulus calculation:** 1000 to 3000 microstrain							
Normalized by:	0.0078	in. CPT							
		CTD		**RTD**		**ETD**		**ETW**	
Test Temperature [°F]		-65		70		350		350	
Moisture Conditioning		dry		dry		dry		equilibrium	
Equilibrium at T, RH								160 F,85%	
Source code		CNCLX X1XB		CNCLX X1XA		CNCLX X1XK		CNCLX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean	124.41	125.70	113.29	116.38	90.10	91.71	47.69	48.13
	Minimum	105.73	108.19	104.31	107.78	84.01	83.98	32.72	32.18
	Maximum	135.75	140.59	121.77	125.46	96.57	100.15	59.71	61.75
F_1^{cu} **(ksi)**	**C.V.(%)**	5.80	6.54	4.47	4.17	4.19	4.74	16.29	17.45
	No. Specimens	22		24		21		23	
	No. Prepreg Lots	3		3		3		3	
	Mean	8.83	8.93	8.67	8.91	8.59	8.85	8.27	8.44
	Minimum	8.49	8.54	8.34	8.51	8.45	8.33	7.76	7.68
	Maximum	9.23	9.52	8.88	9.30	9.26	9.18	8.73	9.14
E_1^c **(Msi)**	**C.V.(%)**	2.26	2.47	1.75	2.49	1.91	2.53	3.07	4.65
	No. Specimens	22		24		21		21	
	No. Prepreg Lots	3		3		3		3	

2.3.4 Fill Compression Properties (FC)

Material:	Cytec 5250-5 PW							**Compression, 2-axis** Gr/Ep Cytec 5250-5 PW [90]15	
Resin content:	36.89 % wt		**Comp. density:** 1.53 [g/cc]						
Fiber volume:	54.63 % vol								
Ply count:	15								
Test method:	ASTM D6641-01e1		**Modulus calculation:** 1000 to 3000 mircostrain						
Normalized by:	0.0078	in. CPT							
			CTD		**RTD**		**ETD**		**ETW**	
Test Temperature [°F]			-65		70		350		350	
Moisture Conditioning			dry		dry		dry		equilibrium 160 F,85%	
Equilibrium at T, RH										
Source code			CNCZX X1XB		CNCZX X1XA		CNCZX X1XK		CNCZX X1XJ	
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean		107.26	108.24	103.90	105.28	76.52	77.51	46.84	47.26
	Minimum		86.42	86.84	90.64	92.46	56.47	55.72	42.28	41.89
	Maximum		122.12	120.79	118.14	117.49	90.27	93.66	57.82	59.17
F_2^{cu} (ksi)	**C.V.(%)**		8.40	8.47	6.70	5.95	11.76	12.67	7.61	8.23
	No. Specimens		20		21		20		22	
	No. Prepreg Lots		3		3		3		3	
	Mean		8.45	8.54	8.52	8.64	8.34	8.43	7.96	8.05
	Minimum		6.32	6.35	8.11	8.20	7.03	6.94	6.99	7.00
	Maximum		9.63	9.64	8.84	9.17	9.15	9.37	9.27	9.31
E_2^c (Msi)	**C.V.(%)**		6.83	6.98	2.28	3.16	6.36	7.42	6.19	6.35
	No. Specimens		21		21		22		21	
	No. Prepreg Lots		3		3		3		3	

2.3.5 In-Plane Shear Properties (IPS)

Material:	Cytec 5250-5 PW		**In-Plane Shear** **Gr/ Ep** **Cytec 5250-5 PW** **[45/-45]2S**
Resin content:	36.24 % wt	**Comp. density:** 1.54 [g/cc]	
Fiber volume:	55.46 % vol		
Ply count:	8		
Test method:	ASTM D3518-94	**Modulus calculation:** 2000 to 6000 microstrain	
Normalized by:	N/A		

		CTD		RTD		ETW	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160°F,85%	
Source code		CNCNX X1XB		CNCNX X1XA		CNCNX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
$F_{12}^{s\ max}$ (ksi)	**Mean**		16.09				
	Minimum		15.38				
	Maximum		16.92				
	C.V.(%)		3.12				
	No. Specimens	19					
	No. Prepreg Lots	3					
$F_{12}^{s5\%\ strain}$ (ksi)	**Mean**						4.82
	Minimum						3.99
	Maximum						5.76
	C.V.(%)						10.78
	No. Specimens					14	
	No. Prepreg Lots					3	
$F_{12}^{s0.2\%}$ (ksi)	**Mean**		11.04		8.56		2.19
	Minimum		10.84		8.09		1.83
	Maximum		11.31		8.81		2.63
	C.V.(%)		1.28		1.99		10.29
	No. Specimens	19		19		21	
	No. Prepreg Lots	3		3		3	
G_{12}^{s} (Msi)	**Mean**		0.84		0.73		0.21
	Minimum		0.81		0.69		0.17
	Maximum		0.86		0.75		0.26
	C.V.(%)		1.54		1.85		11.18
	No. Specimens	19		19		21	
	No. Prepreg Lots	3		3		3	

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

Material:	Cytec 5250-5 PW					**Unnotched Tension 1**	
Resin content:	36.99 % w t	**Comp. density:**	1.54 [g/cc]			**Gr/Ep**	
Fiber volume:	54.79 % vol					**Cytec 5250-5 PW**	
Ply count:	16					**[45/0/-45/90]2S**	
Test method:	ASTM D3039-00	**Modulus calculation:**	1000 to 3000 microstrain				
Normalized by:	0.0078	in. CPT					

		CTD		RTD		ETW	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160 F,85%	
Source code		CNCAX X1XB		CNCAX X1XA		CNCAX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean	84.85	84.60	89.68	89.79	83.03	82.63
	Minimum	81.60	81.16	83.66	84.22	76.14	77.05
	Maximum	90.52	90.42	95.78	95.85	88.13	86.26
UNT1 Strength (ksi)	**C.V.(%)**	2.40	2.47	3.15	3.36	3.64	3.19
	No. Specimens	24		19		21	
	No. Prepreg Lots	3		3		3	
	Mean	6.92	6.90	6.77	6.78	6.17	6.14
	Minimum	6.74	6.69	6.47	6.46	5.87	5.89
	Maximum	7.13	7.17	7.13	7.22	6.38	6.37
UNT1 Modulus (Msi)	**C.V.(%)**	1.39	1.87	2.13	2.21	2.10	1.93
	No. Specimens	24		19		21	
	No. Prepreg Lots	3		3		3	

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

Material:	Cytec 5250-5 PW					**Unnotched Tension 2**		
						Gr/Ep		
Resin content:	36.78 % wt		**Comp. density:** 1.54 [g/cc]			**Cytec 5250-5 PW**		
Fiber volume:	54.93 % vol					**[45/-45/0/45/-45/45/-45/90/45/-45]S**		
Ply count:	20							
Test method:	ASTM D3039-00		**Modulus calculation:** 1000 to 3000 microstrain					
Normalized by:	0.0078	in. CPT						
			CTD		**RTD**		**ETW**	
Test Temperature [°F]			-65		70		350	
Moisture Conditioning			dry		dry		equilibrium	
Equilibrium at T, RH							160 F,85%	
Source code			CNCBX X1XB		CNCBX X1XA		CNCBX X1XJ	
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean		57.57	57.04	57.97	57.36	40.94	40.48
	Minimum		53.83	52.50	55.56	54.22	33.20	33.31
	Maximum		60.97	61.43	59.32	59.29	44.78	44.34
UNT2	**C.V.(%)**		2.54	3.66	1.89	2.59	7.88	7.99
Strength (ksi)								
	No. Specimens		30		19		22	
	No. Prepreg Lots		3		3		3	
	Mean		4.74	4.74	4.45	4.40	3.38	3.34
	Minimum		4.55	4.53	4.15	4.05	3.02	3.01
	Maximum		4.90	4.87	4.70	4.68	3.68	3.67
UNT2	**C.V.(%)**		2.02	2.18	3.53	3.93	4.82	4.76
Modulus (Msi)								
	No. Specimens		19		19		22	
	No. Prepreg Lots		3		3		3	

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

Material:	Cytec 5250-5 PW					**Unnotched Tension 3** Gr/Ep Cytec 5250-5 PW [0/90/0/45/90/0/90/-45/90/0/90/45/0/90/0]	
Resin content:	36.58 % w t		**Comp. density:** 1.54 [g/cc]				
Fiber volume:	36.51 % vol						
Ply count:	15						
Test method:	ASTM D3039-00		**Modulus calculation:** 1000 to 3000 microstrain				
Normalized by:	0.0078	in. CPT					
			CTD		**RTD**		**ETW**
Test Temperature [°F]			-65		70		350
Moisture Conditioning			dry		dry		equilibrium
Equilibrium at T, RH							160 F 85%
Source code			CNCCX X1XB		CNCCX X1XA		CNCCX X1XJ
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean		102.00	101.29	107.96	108.90	104.64	104.03
	Minimum		90.45	89.82	96.73	97.46	100.83	100.26
	Maximum		105.57	106.36	114.59	116.55	108.92	109.25
UNT3 Strength (ksi)	**C.V.(%)**		3.28	4.13	4.13	4.46	2.14	2.49
	No. Specimens		19		18		21	
	No. Prepreg Lots		3		3		3	
	Mean		8.65	8.59	8.44	8.52	8.28	8.23
	Minimum		8.48	7.67	8.16	8.21	7.95	7.82
	Maximum		8.79	8.98	8.79	8.95	8.57	8.63
UNT3 Modulus (Msi)	**C.V.(%)**		0.93	3.23	1.92	2.45	1.99	2.70
	No. Specimens		19		18		21	
	No. Prepreg Lots		3		3		3	

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

Material:	Cytec 5250-5 PW					**Unnotched Compression 1** Gr/Ep Cytec 5250-5 PW [45/0/-45/90]2S	
Resin content:	37.03 % w t	**Comp. density:** 1.53 [g/cc]					
Fiber volume:	54.52 % vol						
Ply count:	16						
Test method:	ASTM D6641-01e1	**Modulus calculation:** 1000 to 3000 microstrain					
Normalized by:	0.0078	in. CPT					
		RTD		**ETW**			
Test Temperature [°F]		70		350			
Moisture Conditioning		dry		equilibrium			
Equilibrium at T, RH				160 F,85%			
Source code		CNCWXX1XA		CNCWXX1XJ			
		Normalized	**Measured**	**Normalized**	**Measured**		
UNC1 Strength (ksi)	**Mean**	87.69	88.63	39.41	39.30		
	Minimum	75.16	6.18	33.03	33.15		
	Maximum	96.79	6.79	46.01	45.96		
	C.V.(%)	6.21	2.74	10.44	10.39		
	No. Specimens	19		21			
	No. Prepreg Lots	3		3			
UNC1 Modulus (Msi)	**Mean**	6.42	6.49	5.72	5.72		
	Minimum	6.22	6.18	5.30	5.25		
	Maximum	6.73	6.79	6.03	6.08		
	C.V.(%)	2.28	2.74	3.03	3.29		
	No. Specimens	20		20			
	No. Prepreg Lots	3		3			

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

Material:	Cytec 5250-5 PW					**Unnotched Compression 2**	
						Gr/ Ep	
Resin content:	37.38 % wt		**Comp. density:** 1.53 [g/cc]			**Cytec 5250-5 PW**	
Fiber volume:	54.16 % vol					**[45/-45/0/45/-45/45/-45/90/45/-45]S**	
Ply count:	20						
Test method:	ASTM D6641-01e1		**Modulus calculation:** 1000 to 3000 microstrain				
Normalized by:	0.0078	in. CPT					
			RTD		**ETW**		
Test Temperature [°F]			70 F		350 F		
Moisture Conditioning					equilibrium		
Equilibrium at T, RH					160 F,85%		
Source code			CNCXX X1XA		CNCXX X1XJ		
			Normalized	**Measured**	**Normalized**	**Measured**	
	Mean		61.64	61.92	26.80	26.65	
	Minimum		57.96	56.87	24.51	24.40	
	Maximum		63.94	64.37	29.62	29.48	
UNC2	**C.V.(%)**		2.59	3.28	5.84	6.02	
Strength (ksi)							
	No. Specimens		19		21		
	No. Prepreg Lots		3		3		
	Mean		4.39	4.41	3.21	3.20	
	Minimum		4.13	4.22	3.06	3.00	
	Maximum		4.54	4.59	3.39	3.42	
UNC2	**C.V.(%)**		2.51	2.36	3.05	3.49	
Modulus (Msi)							
	No. Specimens		19		21		
	No. Prepreg Lots		3		3		

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

Material:	Cytec 5250-5 PW					**Unnotched Compression 3** Gr/Ep Cytec 5250-5 PW [0/90/45/0/90/0/90/-45/0/90]S	
Resin content:	36.12 % w t		**Comp. density:** 1.54 [g/cc]				
Fiber volume:	55.40 % vol						
Ply count:	20						
Test method:	ASTM D6641-01e1		**Modulus calculation:** 1000 to 3000 microstrain				
Normalized by:	0.0078	in. CPT					
			RTD		**ETW**		
Test Temperature [°F]			70		350		
Moisture Conditioning			dry		equilibrium		
Equilibrium at T, RH					160 F,85%		
Source code			CNCYX X1XA		CNCYX X1XJ		
			Normalized	**Measured**	**Normalized**	**Measured**	
UNC3 Strength (ksi)	**Mean**		82.02	83.99	42.49	43.01	
	Minimum		71.24	72.73	37.68	37.51	
	Maximum		98.89	103.08	46.98	48.81	
	C.V.(%)		8.20	8.01	5.58	6.71	
	No. Specimens		20		20		
	No. Prepreg Lots		3		3		
UNC3 Modulus (Msi)	**Mean**		7.85	8.05	7.12	7.20	
	Minimum		7.62	7.68	6.49	6.45	
	Maximum		8.03	8.41	7.36	7.46	
	C.V.(%)		1.46	2.36	2.87	3.49	
	No. Specimens		20		20		
	No. Prepreg Lots		3		3		

2.3.12 Lamina Short-Beam Strength Properties (SBS)

Material: Cytec 5250-5 PW

Resin content: 36.68 % w t **Comp. density:** 1.54 [g/cc]
Fiber volume: 55.00 % vol
Ply count: 32

Test method: ASTM D2344-00

Normalized by: NA

Short Beam Strength
Gr/ Ep
Cytec 5250-5 PW
[0]32

		CTD		RTD		ETD		ETW	
Test Temperature [°F]		-65		70		350		350	
Moisture Conditioning		dry		dry		dry		equilibrium	
Equilibrium at T, RH								160 F,85%	
Source code		CNCQX X1XB		CNCQX X1XA		CNCQX X1XK		CNCQX X1X1	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
SBS Strength (ksi)	**Mean**		11.97		11.65		6.94		4.09
	Minimum		10.42		10.40		6.65		3.75
	Maximum		13.34		12.65		7.25		4.41
	C.V.(%)		8.08		5.71		2.68		5.08
	No. Specimens	19		22		21		21	
	No. Prepreg Lots	3		3		3		3	

2.3.13 Laminate Short-Beam Strength Properties (SBS1)

Material:	Cytec 5250-5 PW					**Laminate Short Beam Strength**	
Resin content:	see OHC1	**Comp. density:**	from OHC1			**Gr/ Ep**	
Fiber volume:	see OHC1					**Cytec 5250-5 PW**	
Ply count:	20					**[45/0/-45/90/45/0/-45/90/-45/90]S**	
Test method:	ASTM D2344-00						
Normalized by:	NA						
		RTD		**ETW**			
Test Temperature [°F]		70		350			
Moisture Conditioning		dry		equilibrium			
Equilibrium at T, RH				160F, 85%			
Source code		CNCqX XGXA		CNCqX XGXJ			
		Normalized	**Measured**	**Normalized**	**Measured**		
	Mean		11.44		4.04		
	Minimum		10.55		3.65		
	Maximum		12.21		4.36		
LSBS (ksi)	**C.V.(%)**		4.22		5.04		
	No. Specimens	21		21			
	No. Prepreg Lots	3		3			

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

Material:	Cytec 5250-5 PW					**Open Hole Tension 1**		
						Gr/Ep		
Resin content:	36.31 % wt	**Comp. density:** 1.54 [g/cc]				**Cytec 5250-5 PW**		
Fiber volume:	55.35 % vol					**[45/0/-45/90]2S**		
Ply count:	16							
Test method:	ASTM D5766-02a							
Normalized by:	0.0078	in. CPT						
			CTD		**RTD**		**ETW**	
Test Temperature [°F]			-65		70		350	
Moisture Conditioning			dry		dry		equilibrium	
Equilibrium at T, RH							160 F,85%	
Source code			CNCDX X1XB		CNCDX X1XA		CNCDX X1XJ	
			Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean		44.85	44.92	46.71	47.03	50.77	50.86
	Minimum		42.87	42.61	44.06	44.55	47.77	47.87
	Maximum		48.57	48.77	50.81	51.15	54.08	52.53
OHT1 Strength (ksi)	**C.V.(%)**		3.37	3.32	4.03	3.80	3.10	2.48
	No. Specimens		19		21		21	
	No. Prepreg Lots		3		3		3	

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

Material:	Cytec 5250-5 PW		**Open Hole Tension 2** **Gr/Ep** **Cytec 5250-5 PW** **[45/-45/0/45/-45/45/-45/90/45/-45]S**
Resin content:	35.92 % wt	**Comp. density:** 1.54 [g/cc]	
Fiber volume:	55.77 % vol		
Ply count:	20		
Test method:	ASTM D5766-02a		
Normalized by:	0.0078	in. CPT	

		CTD		RTD		ETW	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160 F,85%	
Source code		CNCEX X1XB		CNCEX X1XA		CNCEX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
OHT2 Strength (ksi)	**Mean**	43.26	43.00	42.80	43.12	30.54	30.37
	Minimum	41.43	39.99	40.91	41.06	28.38	27.74
	Maximum	44.31	44.61	44.01	44.89	32.12	32.42
	C.V.(%)	1.71	3.03	1.78	2.23	3.64	4.21
	No. Specimens	19		19		21	
	No. Prepreg Lots	3		3		3	

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

Material:	Cytec 5250-5 PW					**Open Hole Tension 3** Gr/Ep Cytec 5250-5 PW [0/90/0/45/90/0/90/-45/90/0/90/45/0/90/0]		
Resin content:	35.61 % wt	**Comp. density:** 1.54 [g/cc]						
Fiber volume:	56.00 % vol							
Ply count:	15							
Test method:	ASTM D5766-02a							
Normalized by:	0.0078	in. CPT						
		CTD		**RTD**		**ETW**		
Test Temperature [°F]		-65		70		350		
Moisture Conditioning		dry		dry		equilibrium		
Equilibrium at T, RH						160°F,85%		
Source code		CNCFX X1XB		CNCFX X1XA		CNCFX X1XJ		
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**	
	Mean	51.48	51.16	54.82	55.33	62.42	62.21	
	Minimum	47.59	47.57	51.26	52.40	57.12	57.28	
	Maximum	55.52	55.82	60.33	61.44	68.22	66.76	
OHT3	**C.V.(%)**	4.25	4.40	4.38	4.47	4.41	3.81	
Strength (ksi)								
	No. Specimens	19		19		21		
	No. Prepreg Lots	3		3		3		

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

Material:	Cytec 5250-5 PW					**Filled Hole Tension 1**	
Resin content:	35.69 % wt	**Comp. density:** 1.54 [g/cc]				**Gr/ Ep**	
Fiber volume:	56.02 % vol					**Cytec5250-5 PW**	
Ply count:	16					**[45/0/-45/90]2S**	
Test method:	ASTM D6742-02						
Normalized by:	0.0078	in. CPT					
		CTD		**RTD**		**ETW**	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160°F/85%	
Source code		CNC4X X1XB		CNC4X X1XA		CNC4X X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean	48.78	48.90	49.73	50.24	51.86	51.73
	Minimum	45.87	45.38	46.66	47.00	49.43	49.54
	Maximum	52.99	53.78	52.65	53.39	54.89	53.54
FHT1 Strength (ksi)	**C.V.(%)**	3.74	4.47	3.28	3.85	2.55	2.03
	No. Specimens	21		21		19	
	No. Prepreg Lots	3		3		3	

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

Material:	Cytec 5250-5 PW					**Filled Hole Tension 2**	
						Gr/ Ep	
Resin content:	36.20 % wt		**Comp. density:** 1.54 [g/cc]			**Cytec 5250-5 PW**	
Fiber volume:	55.45 % vol					**[45/-45/0/45/-45/45/-45/90/45/-45]S**	
Ply count:	20						
Test method:	ASTM D6742-02						
Normalized by:	0.0078	in. CPT					
		CTD		**RTD**		**ETW**	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160°F/85%	
Source code		CNC5X X1XB		CNC5X X1XA		CNC5X X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean	47.31	47.40	47.22	47.58	32.46	32.28
	Minimum	45.43	44.86	46.07	45.75	31.15	31.08
	Maximum	50.29	51.21	48.43	49.75	34.04	34.20
FHT2	**C.V.(%)**	2.21	3.36	1.46	2.56	2.46	3.25
Strength (ksi)							
	No. Specimens	21		21		19	
	No. Prepreg Lots	3		3		3	

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

Material: Cytec 5250-5 PW

Resin content: 36.23 % wt **Comp. density:** 1.54 [g/cc]
Fiber volume: 55.41 % vol
Ply count: 15

Test method: ASTM D6742-02

Normalized by: 0.0078 in. CPT

Filled Hole Tension 3
Gr/ Ep
Cytec 5250-5 PW
[0/90/0/45/90/0/90/-45/90/0/90/45/0/90/0]

		CTD		RTD		ETW	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160 F,85%	
Source code		CNC6X X1XB		CNC6X X1XA		CNC6X X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
FHT3 Strength (ksi)	**Mean**	54.78	55.11	57.23	57.90	58.04	57.87
	Minimum	49.90	48.19	52.47	53.33	54.07	54.69
	Maximum	58.47	60.14	61.36	64.48	62.01	61.97
	C.V.(%)	4.48	5.50	4.41	5.06	3.82	3.73
	No. Specimens	21		21		19	
	No. Prepreg Lots	3		3		3	

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

Material:	Cytec 5250-5 PW			**Open Hole Compression 1**			
				Gr/Ep			
Resin content:	36.44 % w t	**Comp. density:**	1.54 [g/cc]	**Cytec 5250-5 PW**			
Fiber volume:	55.25 % vol			**[45/0/-45/90/45/0/-45/90/-45/90]S**			
Ply count:	20						
Test method:	ASTM D6484-04						
Normalized by:	0.0078	in. CPT					
			RTD		**ETW**		
Test Temperature [°F]			70		350		
Moisture Conditioning			dry		equilibrium		
Equilibrium at T, RH					160 F,85%		
Source code			CNCGX X1XA		CNCGX X1XJ		
			Normalized	**Measured**	**Normalized**	**Measured**	
	Mean		46.29	45.96	26.19	26.24	
	Minimum		43.76	44.31	21.71	20.89	
	Maximum		48.21	48.71	29.42	30.35	
OHC1	**C.V.(%)**		2.43	2.36	6.90	8.83	
Strength (ksi)							
	No. Specimens			21		32	
	No. Prepreg Lots			3		3	

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

Material:	Cytec 5250-5 PW			**Open Hole Compression 2**			
Resin content:	36.38 % wt	**Comp. density:**	1.54 [g/cc]	**Gr/Ep**			
Fiber volume:	55.34 % vot			**Cytec 5250-5 PW**			
Ply count:	20			**[45/-45/0/45/-45/45/-45/90/45/-45]S**			
Test method:	ASTM D6484-04						
Normalized by:	0.0078	in. CPT					
		RTD		**ETW**			
Test Temperature [°F]		70		350			
Moisture Conditioning		dry		equilibrium			
Equilibrium at T, RH				160 F,85%			
Source code		CNCHX X1XA		CNCHX X1XJ			
		Normalized	**Measured**	**Normalized**	**Measured**		
OHC2 Strength (ksi)	**Mean**	40.33	40.62	21.68	21.79		
	Minimum	38.49	38.94	17.74	17.12		
	Maximum	42.53	42.00	24.08	24.72		
	C.V.(%)	2.99	2.23	6.10	7.39		
	No. Specimens	19		29			
	No. Prepreg Lots	3		3			

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

Material:	Cytec 5250-5 PW					**Open Hole Compression 3**		
						Gr/Ep		
Resin content:	35.74 % wt	**Comp. density:**	1.54 [g/cc]			**Cytec 5250-5 PW**		
Fiber volume:	56.12 % vol					**[0/90/45/90/0/0/90/-45/90/0]S**		
Ply count:	20							
Test method:	ASTM D6484-04							
Normalized by:	0.0078	in. CPT						
			RTD		**ETW**			
Test Temperature [°F]			70		350			
Moisture Conditioning			dry		equilibrium			
Equilibrium at T, RH					160 F,85%			
Source code			CNCIX X1XA		CNCIX X1XJ			
			Normalized	**Measured**	**Normalized**	**Measured**		
OHC3 Strength (ksi)	**Mean**		48.00	48.68	28.65	29.00		
	Minimum		45.80	46.95	24.34	24.55		
	Maximum		51.95	50.86	33.82	33.94		
	C.V.(%)		3.34	2.25	7.71	8.43		
	No. Specimens		19		23			
	No. Prepreg Lots		3		3			

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

Material:	Cytec 5250-5 PW			**Filled Hole Compression 1**			
				Gr/ Ep			
Resin content:	36.31 % w t	**Comp. density:**	1.54 [g/cc]	**Cytec 5250-5 PW**			
Fiber volume:	55.52 % vol			**[45/0/-45/90/45/0/-45/90/-45/90]S**			
Ply count:	20						
Test method:	ASTM D6742-02						
Normalized by:	0.0078	in. CPT					
			RTD		**ETW**		
Test Temperature [°F]			70		350		
Moisture Conditioning			dry		equilibrium		
Equilibrium at T, RH					160 F,85%		
Source code			CNC7X X1XA		CNC7X X1XJ		
			Normalized	**Measured**	**Normalized**	**Measured**	
	Mean		77.21	79.31	33.87	34.21	
	Minimum		67.85	70.19	29.55	30.33	
	Maximum		84.19	87.42	42.44	42.66	
FHC1	**C.V.(%)**		6.23	6.22	10.20	10.08	
Strength (ksi)							
	No. Specimens		13		20		
	No. Prepreg Lots		2		3		

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

Material:	Cytec 5250-5 PW			**Filled Hole Compression 2**			
Resin content:	36.55 % w t	**Comp. density:**	1.54 [g/cc]	**Gr/ Ep**			
Fiber volume:	55.28 % vol			**Cytec 5250-5 PW**			
Ply count:	20			**[45/-45/0/45/-45/45/-45/90/45/-45]S**			
Test method:	ASTM D6742-02						
Normalized by:	0.0078	in. CPT					
		RTD		**ETW**			
Test Temperature [°F]		70		350			
Moisture Conditioning		dry		equilibrium			
Equilibrium at T, RH				160 F,85%			
Source code		CNC8X X1XA		CNC8X X1XJ			
		Normalized	**Measured**	**Normalized**	**Measured**		
	Mean	59.55	59.79	26.88	26.83		
	Minimum	57.04	56.80	23.19	22.56		
	Maximum	60.87	62.00	29.42	29.86		
FHC2	**C.V.(%)**	1.87	2.39	7.73	8.56		
Strength (ksi)							
	No. Specimens	18		10			
	No. Prepreg Lots	3		3			

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

Material:	Cytec 5250-5 PW			**Filled Hole Compression 3**			
Resin content:	35.75 % w t	**Comp. density:**	1.54 [g/cc]	**Gr/ Ep**			
Fiber volume:	56.06 % vol			**Cytec 5250-5 PW**			
Ply count:	20			**[0/90/45/90/0/0/90/-45/90/0]S**			
Test method:	ASTM D6742-02						
Normalized by:	0.0078	in. CPT					
		RTD		**ETW**			
Test Temperature [°F]		70		350			
Moisture Conditioning		dry		equilibrium			
Equilibrium at T, RH				160 F,85%			
Source code		CNC9X X1XA		CNC9X X1XJ			
		Normalized	**Measured**	**Normalized**	**Measured**		
	Mean	79.62	80.08	41.35	41.50		
	Minimum	74.54	74.04	36.97	38.62		
	Maximum	83.48	84.67	46.47	45.96		
FHC3	**C.V.(%)**	3.01	3.72	5.63	5.02		
Strength (ksi)							
	No. Specimens	15		11			
	No. Prepreg Lots	3		3			

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

Material:	Cytec 5250-5 PW					**Single Shear Bearing 1** Gr/Ep Cytec 5250-5 PW [45/0/-45/90]S	
Resin content:	35.63 %w t [1]	**Comp. density:**	1.54 [g/cc] [1]				
Fiber volume:	55.74 % vol [1]						
Ply count:	8						
Test method:	ASTM D5961-05e1						
Normalized by:	0.0078	in CPT					
			RTD		**ETW**		
Test Temperature [°F]			70		350		
Moisture Conditioning			dry		equilibrium		
Equilibrium at T, RH					160 F,85%		
Source code			CNC1X X1XA		CNC1X X1XJ		
			Normalized	**Measured**	**Normalized**	**Measured**	
	Mean		130.00	132.92	90.01	91.09	
	Minimum		120.81	123.52	83.63	84.55	
	Maximum		144.74	150.74	102.60	104.78	
SSB1 Ultimate Strength (ksi)	**C.V.(%)**		3.61	4.22	4.88	5.37	
	No. Specimens		20		22		
	No. Prepreg Lots		3		3		
	Mean		114.09	116.73	73.16	74.05	
	Minimum		101.30	104.23	63.01	63.31	
	Maximum		123.87	126.64	86.87	88.69	
SSB1 2% offset Strength (ksi)	**C.V.(%)**		5.78	5.61	8.94	9.62	
	No. Specimens		19		22		
	No. Prepreg Lots		3		3		

Note 1: Data from SSB1-A-C1 is not included due to insufficient material for testing.

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

Material:	Cytec 5250-5 PW					**Single Shear Bearing 2** Gr/Ep Cytec 5250-5 PW [45/-45/90/45/-45]S	
Resin content:	35.50 % wt	**Comp. density:** 1.54 [g/cc]					
Fiber volume:	56.01 % vol						
Ply count:	10						
Test method:	ASTM D5961-05e1						
Normalized by:	0.0078						
		RTD		**ETW**			
Test Temperature [°F]		70		350			
Moisture Conditioning		dry		equilibrium			
Equilibrium at T, RH				160 F,85%			
Source code		CNC2X X1XA		CNC2X X1XJ			
		Normalized	**Measured**	**Normalized**	**Measured**		
	Mean	132.69	134.44	89.96	91.63		
	Minimum	127.27	125.37	80.05	80.62		
	Maximum	139.93	145.33	99.31	100.96		
SSB2	**C.V.(%)**	2.27	3.34	6.98	7.07		
Ultimate Strength							
(ksi)	**No. Specimens**	19		23			
	No. Prepreg Lots	3		3			
	Mean	113.28	114.75	67.30	68.57		
	Minimum	107.04	108.64	52.45	53.77		
	Maximum	120.79	122.82	80.43	83.63		
SSB2	**C.V.(%)**	3.01	3.23	11.53	11.86		
2% offset Strength							
(ksi)	**No. Specimens**	19		23			
	No. Prepreg Lots	3		3			

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

Material:	Cytec 5250-5 PW					**Single Shear Bearing 3** **Gr/Ep** **Cytec 5250-5 PW** **[0/90/45/0/90]S**
Resin content:	35.55 % wt	**Comp. density:** 1.54 [g/cc]				
Fiber volume:	55.98 % vol					
Ply count:	10					
Test method:	ASTM D5961-05e1					
Normalized by:	0.0078					
		RTD		**ETW**		
Test Temperature [°F]		70		350		
Moisture Conditioning		dry		equilibrium		
Equilibrium at T, RH						
Source code		CNC3X X1XA		CNC3X X1XJ		
		Normalized	**Measured**	**Normalized**	**Measured**	
	Mean	122.36	123.79	80.19	81.35	
	Minimum	114.16	113.82	74.26	76.30	
	Maximum	137.01	139.81	85.50	87.66	
SSB3 Ultimate Strength (ksi)	**C.V.(%)**	4.82	5.29	4.64	4.24	
	No. Specimens	20		21		
	No. Prepreg Lots	3		3		
	Mean	107.16	108.42	57.76	58.59	
	Minimum	94.44	96.54	48.90	50.71	
	Maximum	115.41	117.92	64.83	66.47	
SSB3 2% offset Strength (ksi)	**C.V.(%)**	5.26	5.73	7.14	6.82	
	No. Specimens	20		21		
	No. Prepreg Lots	3		3		

2.3.29 Compression After Impact 1 Properties (CAI1)

Material:	Cytec 5250-5 PW					**Compression After Impact**	
						Gr/Ep	
Resin content:	38.73 % wt		**Comp. density:**	1.54 [g/cc]		**Cytec 5250-5 PW**	
Fiber volume:	52.95 % vol					**[45/0/-45/90]3S**	
Ply count:	24						
Test method:	ASTM D7136/D7137-05e1						
Normalized by:	0.0078	in. CPT					
			RTD				
Test Temperature [°F]			70				
Moisture Conditioning			dry				
Equilibrium at T, RH							
Source code			CNCKX X1XA				
		Normalized	**Measured**				
	Mean	32.17	31.37				
	Minimum	30.82	30.05				
	Maximum	33.02	32.24				
CAI	**C.V.(%)**	2.31	2.57				
Strength (ksi)							
	No. Specimens	7					
	No. Prepreg Lots	1					

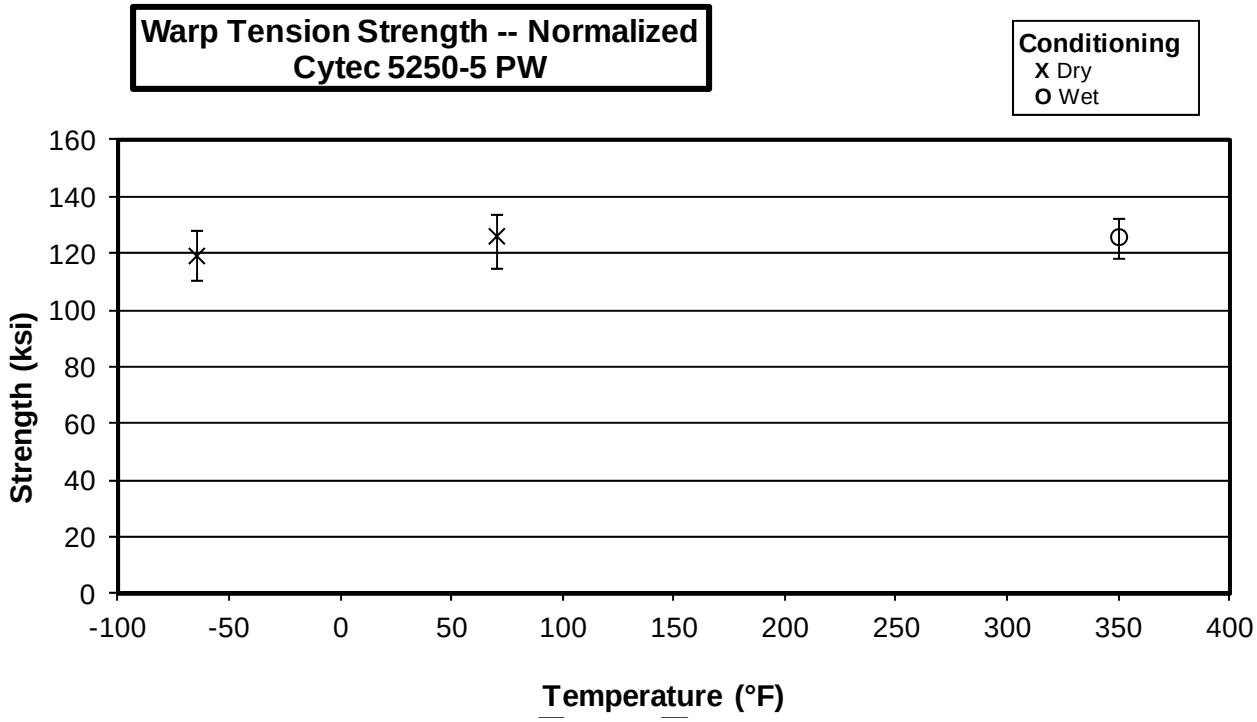
2.3.30 Interlaminar Tension Properties (ILT)

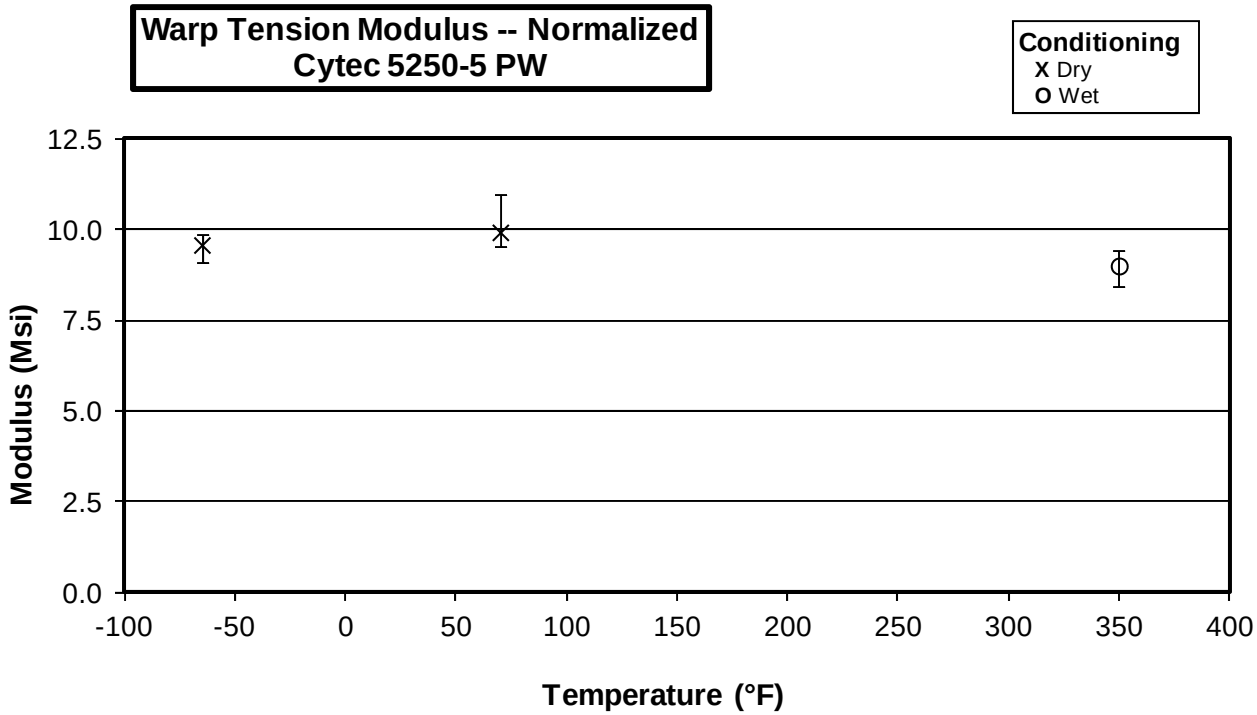
Material:	Cytec 5250-5 PW					**Interlaminar Tension**	
						Gr/ Ep	
Resin content:	35.15 % w t	**Comp. density:**	1.54 [g/cc]			**Cytec 5250-5 PW**	
Fiber volume:	56.70 % vol					**[0]21**	
Ply count:	21						
Test method:	ASTM D6415-06ae1						
Normalized by:	NA						
		CTD		**RTD**		**ETW**	
Test Temperature [°F]		-65		70		350	
Moisture Conditioning		dry		dry		equilibrium	
Equilibrium at T, RH						160 F,85%	
Source code		CNCMX X1XB		CNCMX X1XA		CNCMX X1XJ	
		Normalized	**Measured**	**Normalized**	**Measured**	**Normalized**	**Measured**
	Mean		8.89		8.45		2.59
	Minimum		6.04		5.06		2.40
	Maximum		10.85		10.57		2.79
ILT	**C.V.(%)**		21.24		21.06		5.64
Strength (ksi)							
	No. Specimens	7		7		6	
	No. Prepreg Lots	1		1		1	

3. Individual Test Charts

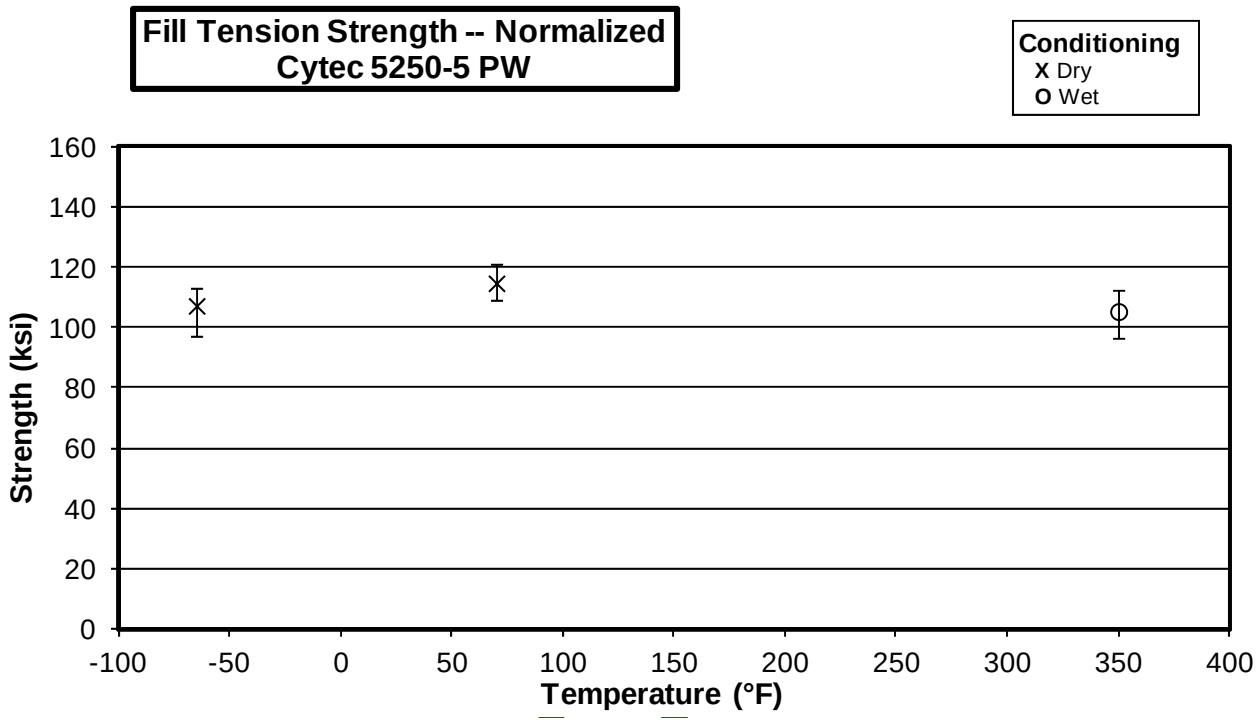
These charts combine all three batches of data and plot the minimum and maximum modulus and strength range based on the test temperature.

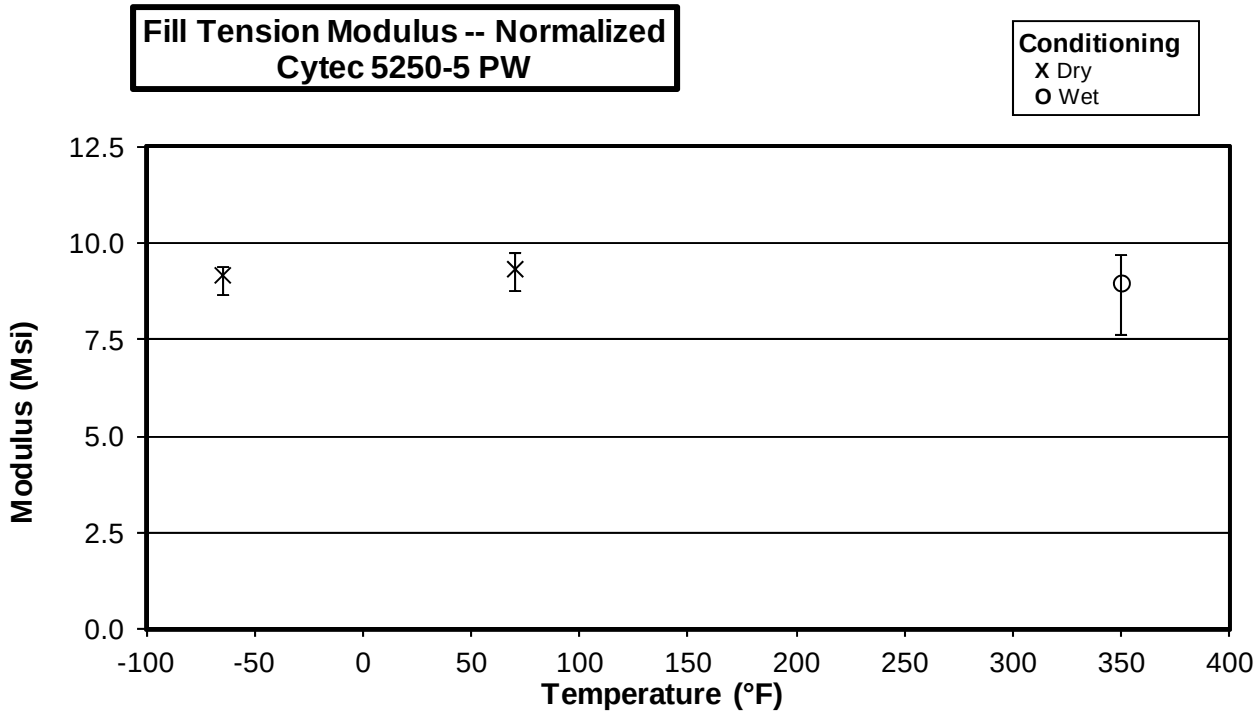
3.1 Warp Tension Properties (WT)



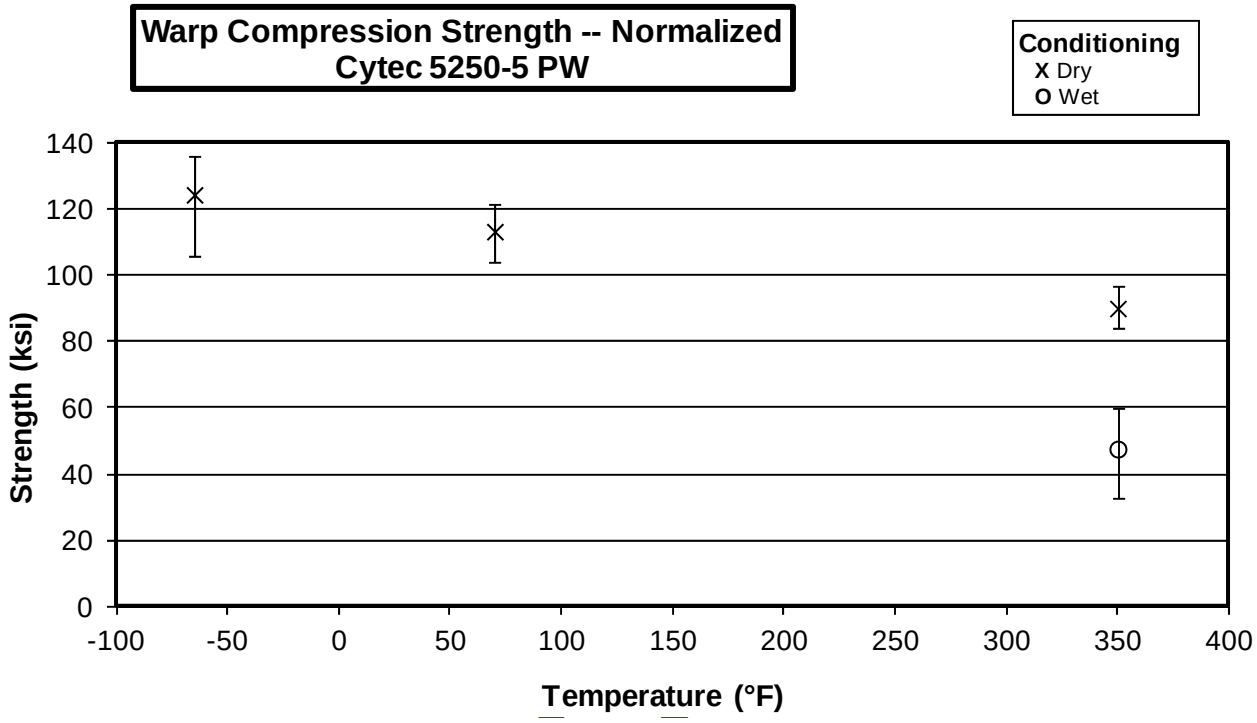


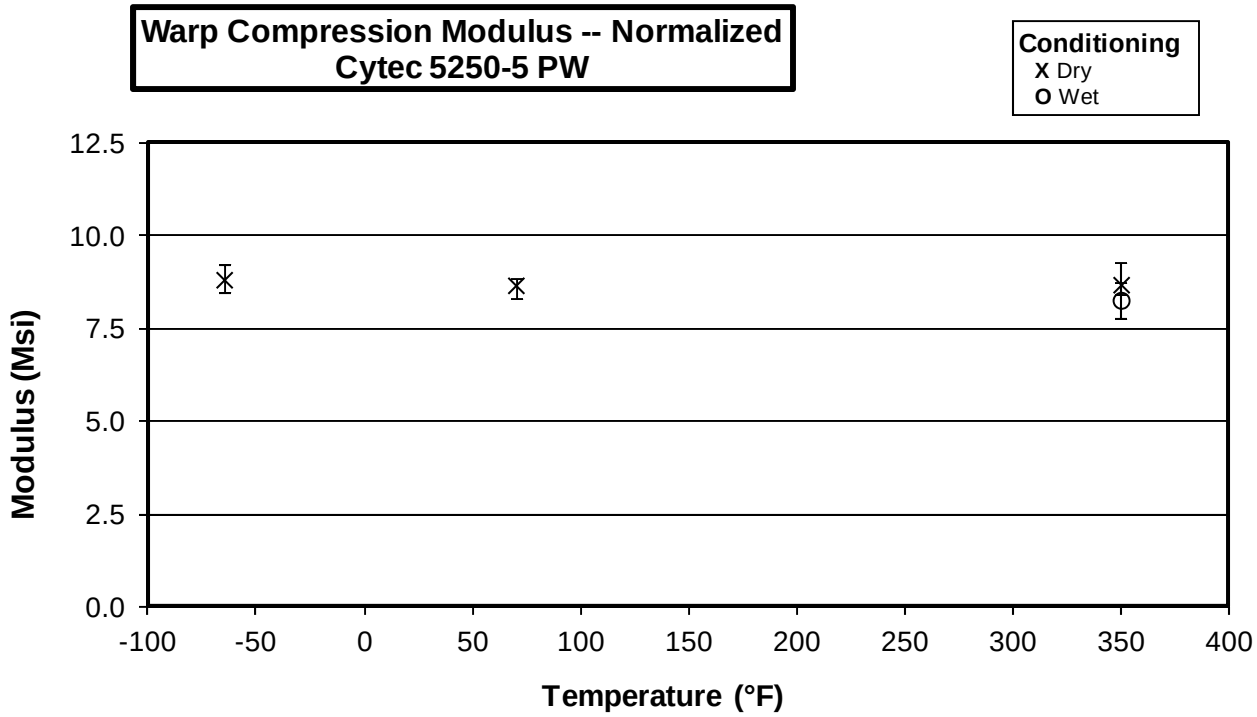
3.2 Fill Tension Properties (FT)



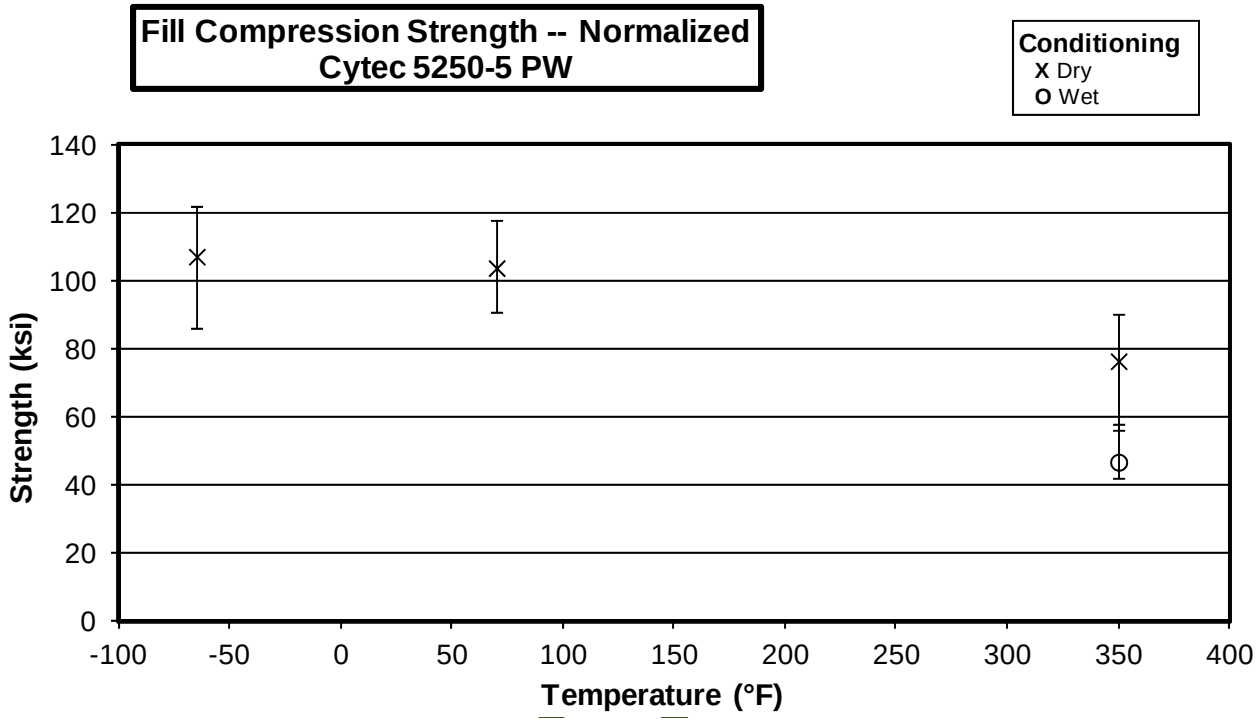


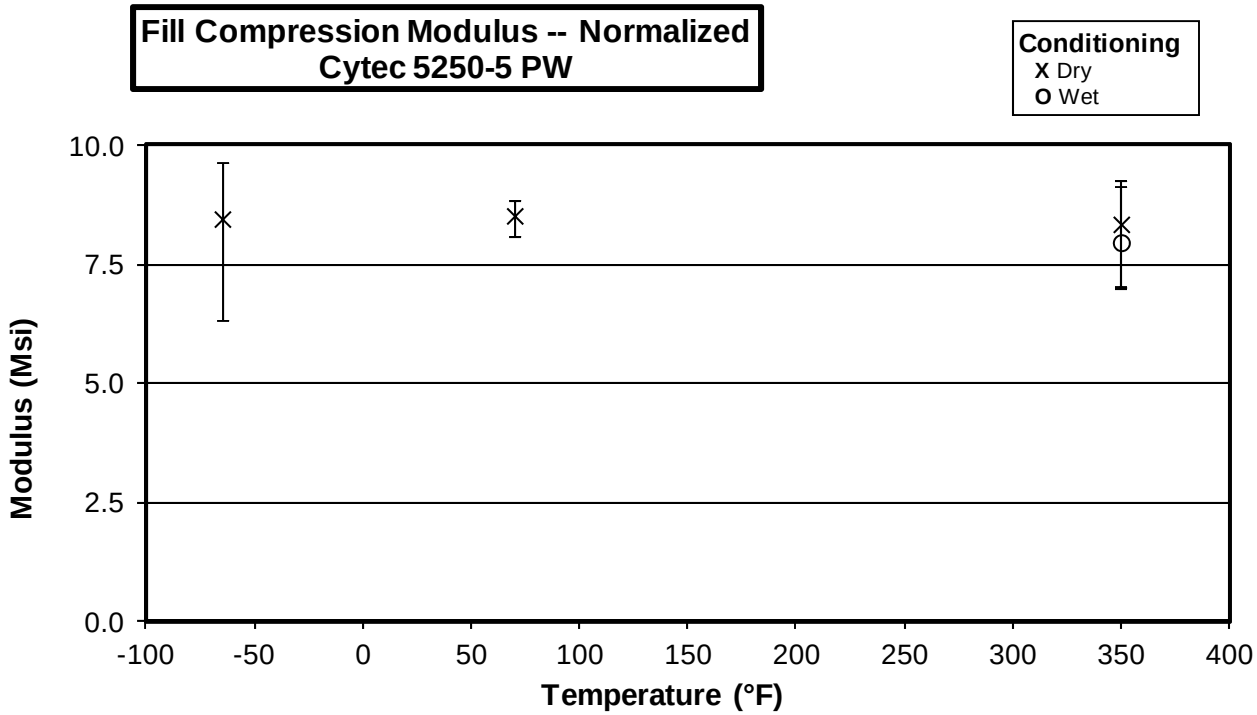
3.3 Warp Compression Properties (WC)



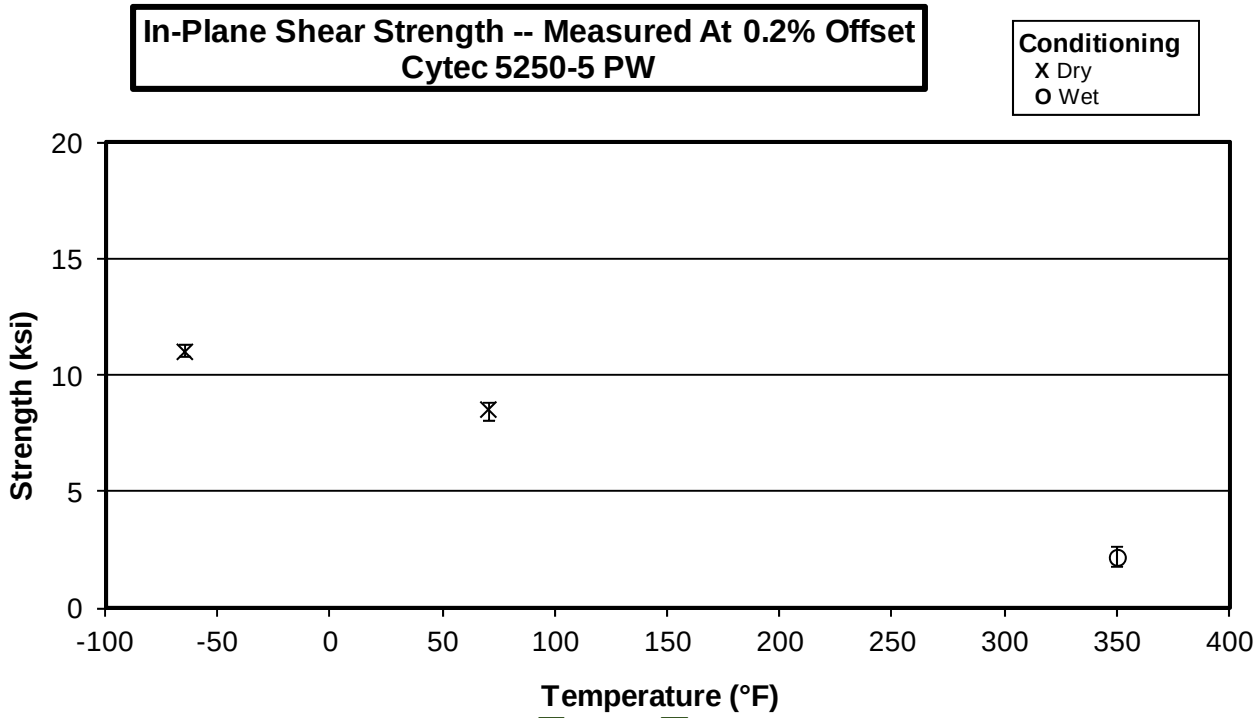


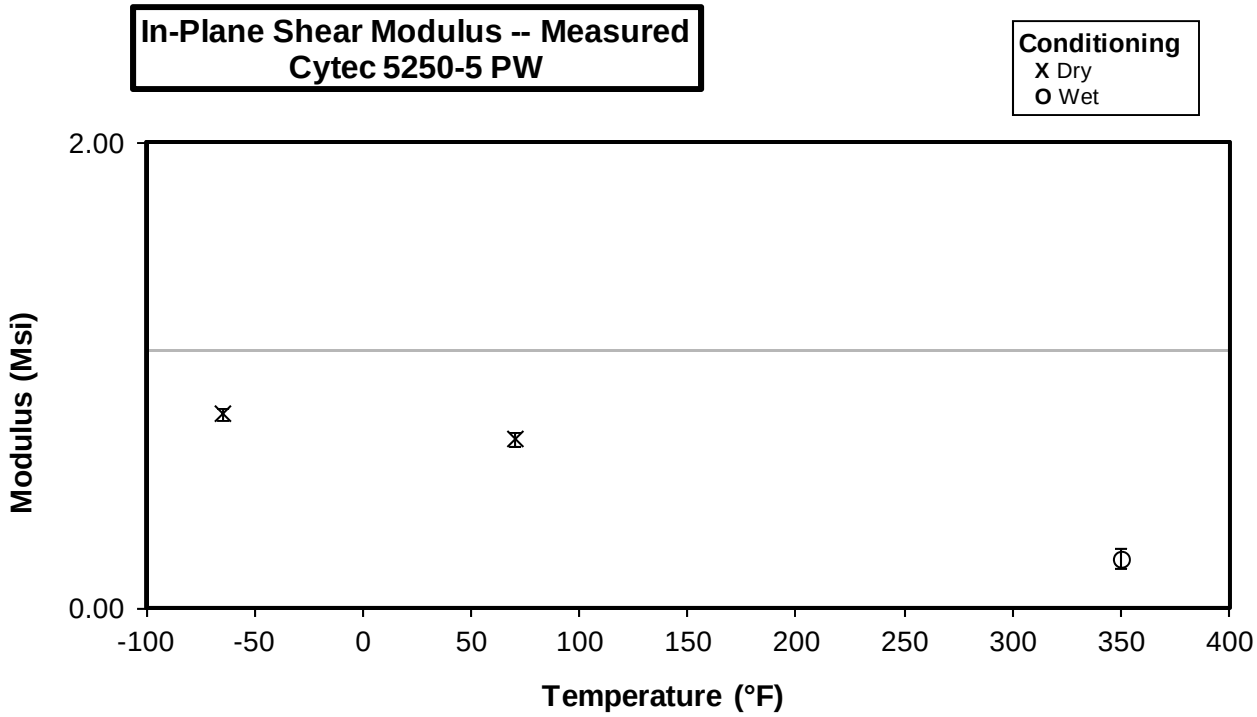
3.4 Fill Compression Properties (FC)



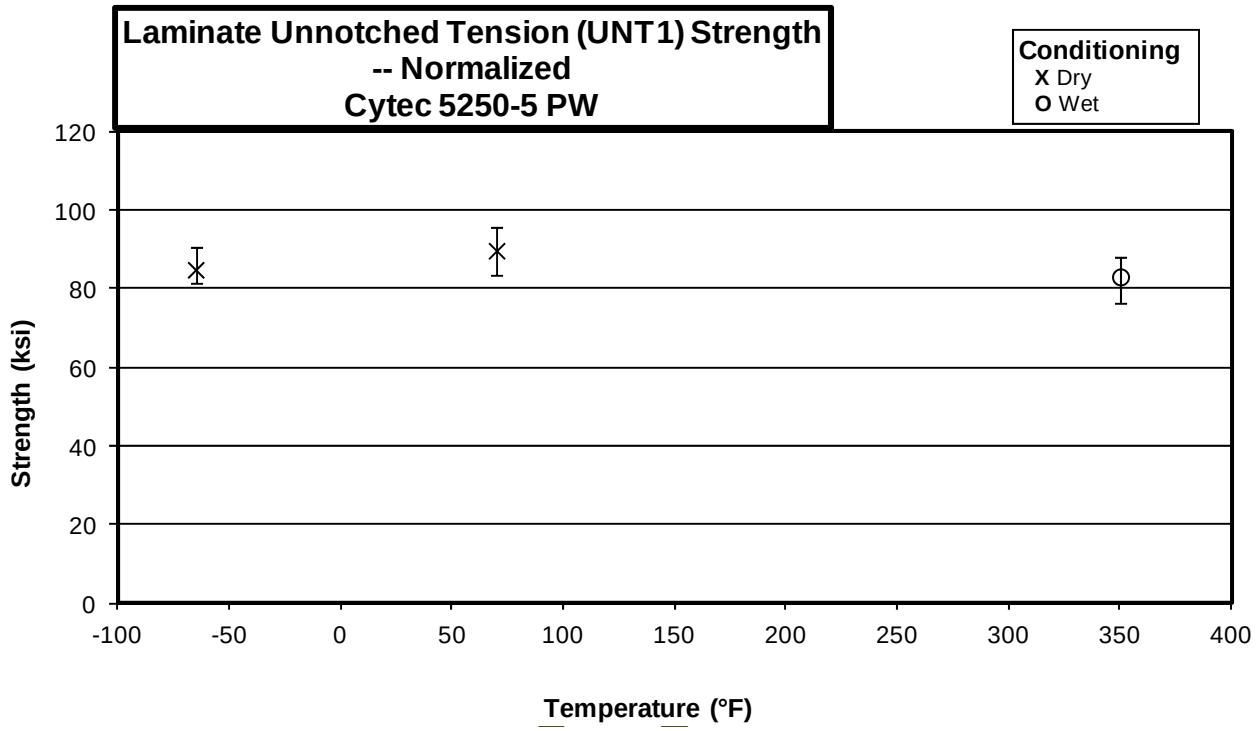


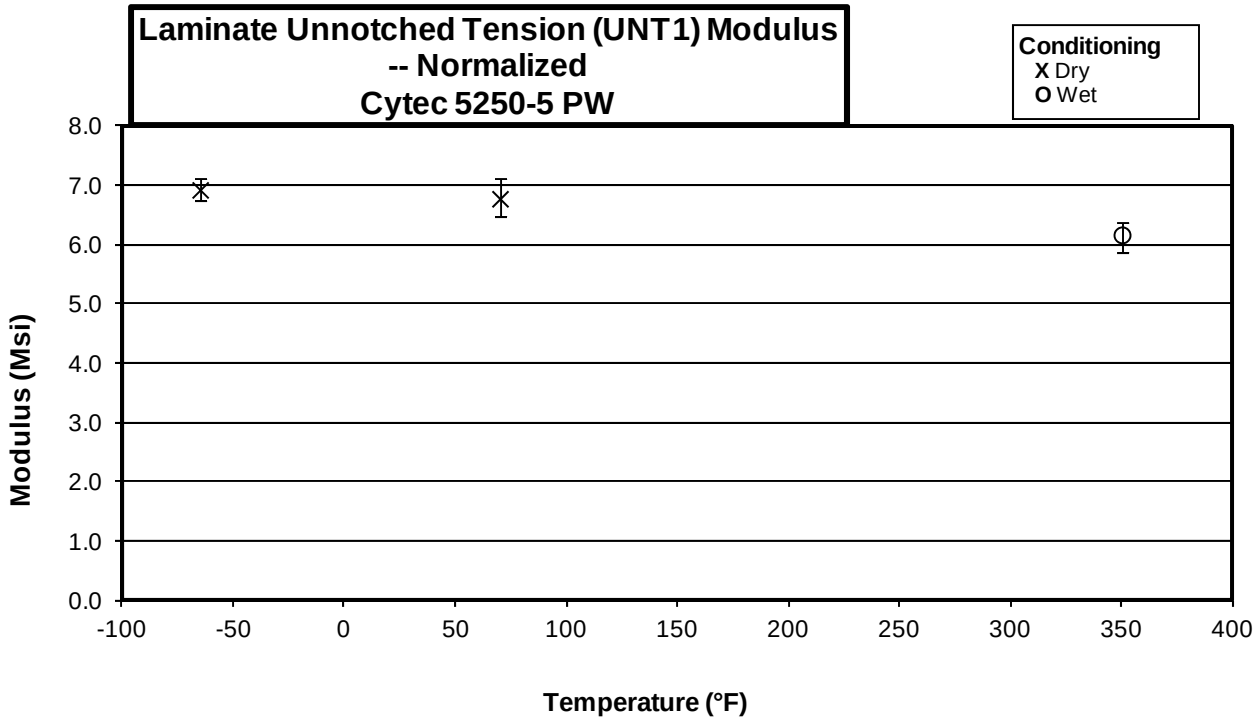
3.5 In-Plane Shear Properties (IPS)



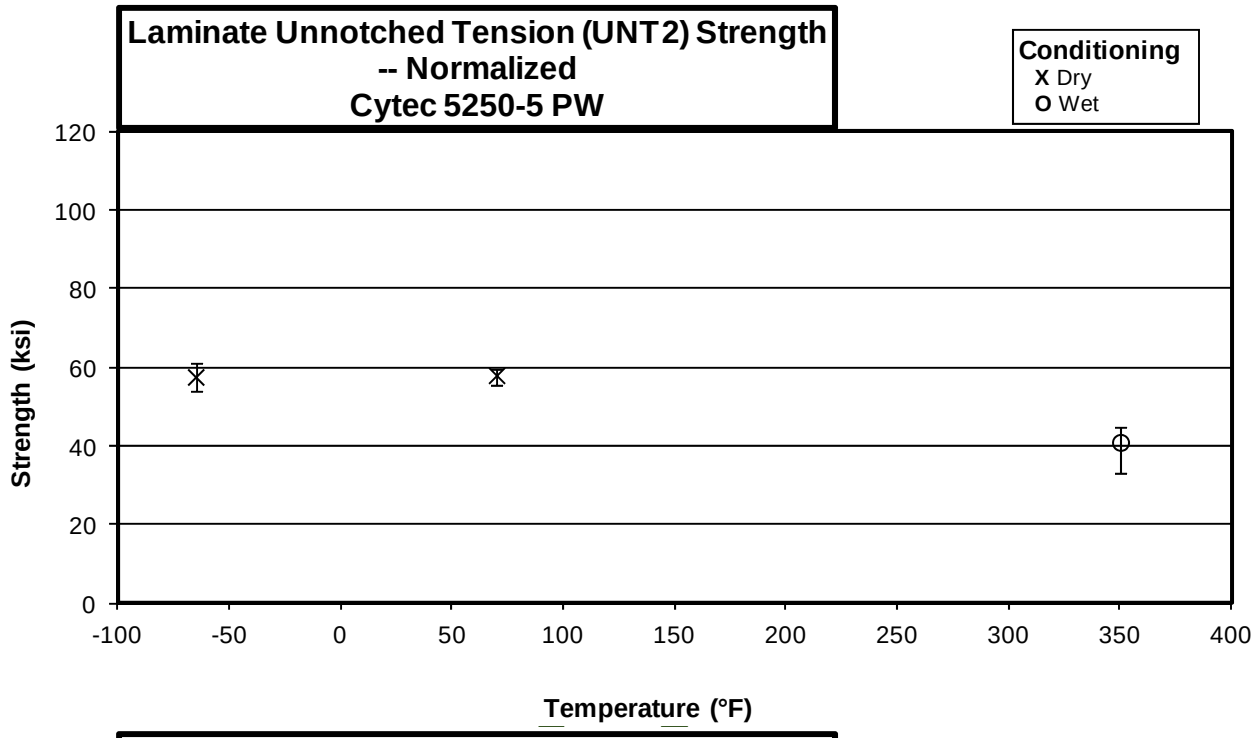


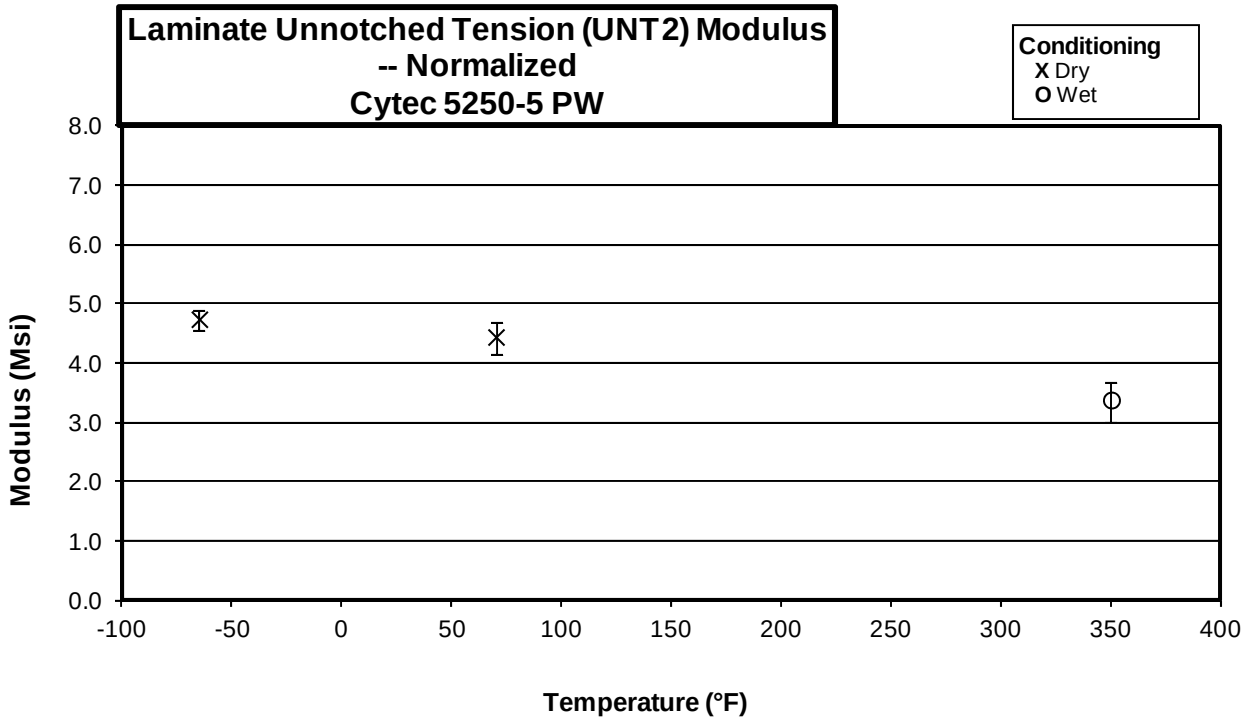
3.6 "25/50/25" Unnotched Tension 1 Properties (UNT1)



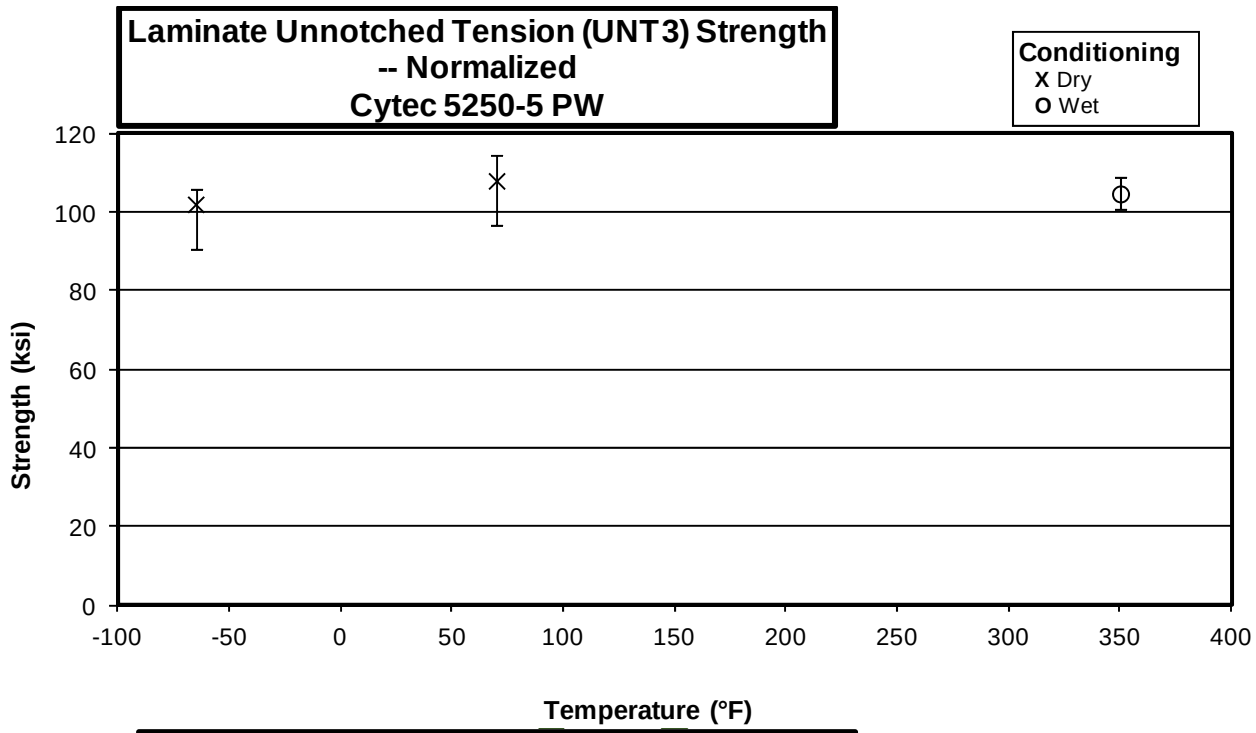


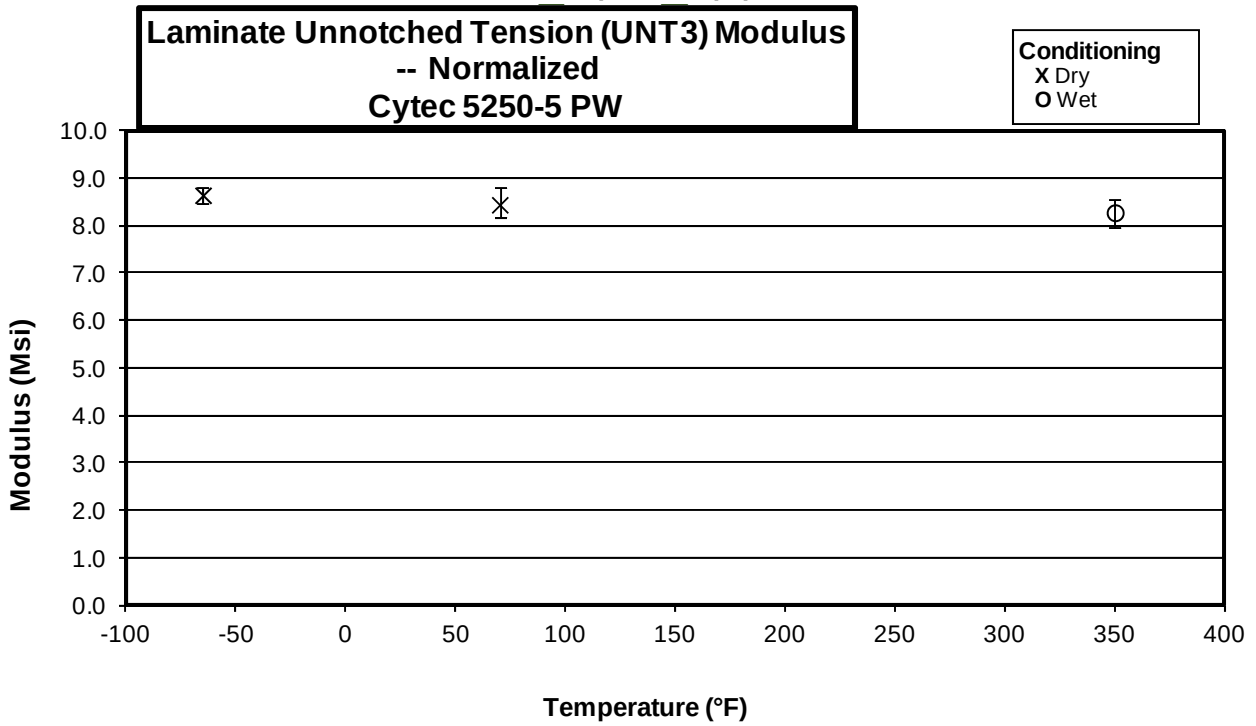
3.7 "10/80/10" Unnotched Tension 2 Properties (UNT2)



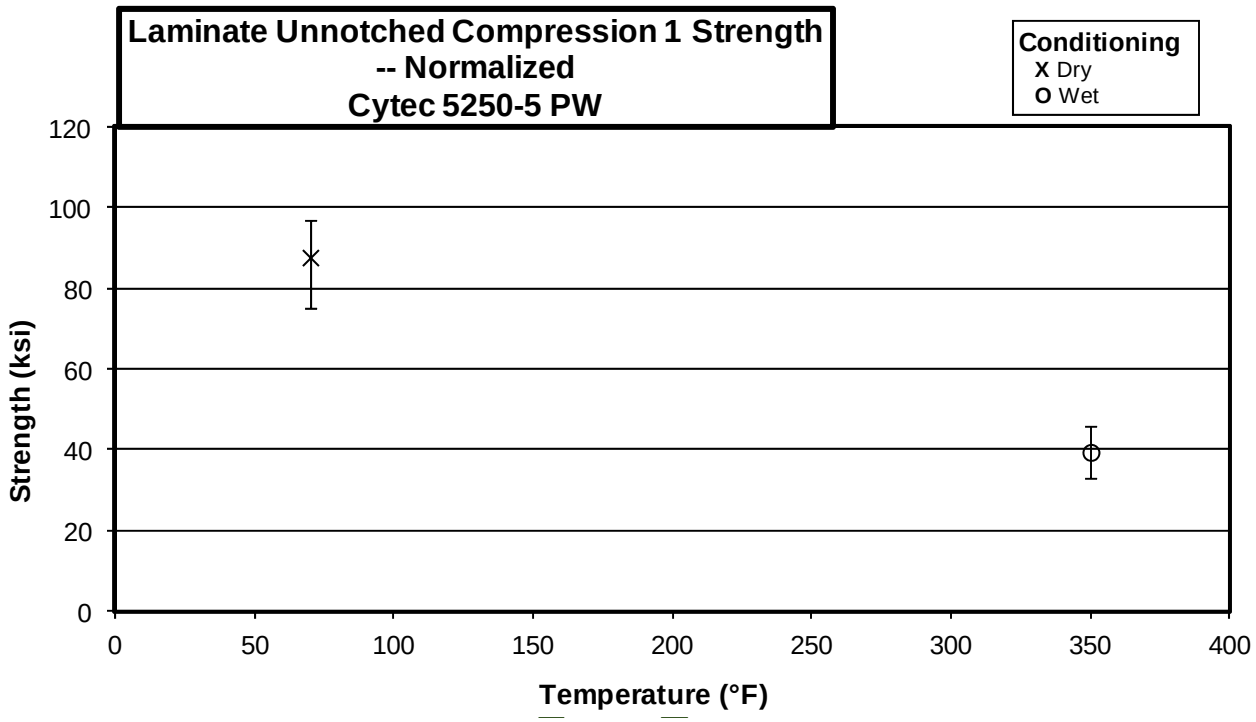


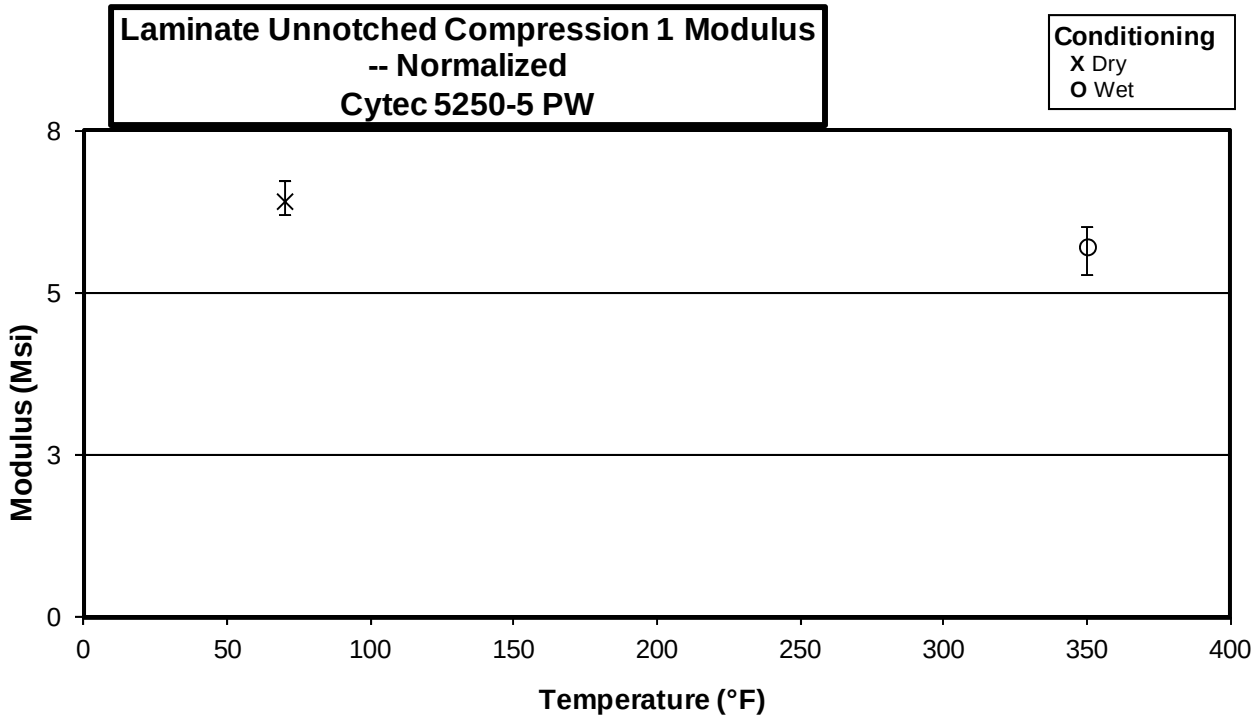
3.8 "40/20/40" Unnotched Tension 3 Properties (UNT3)



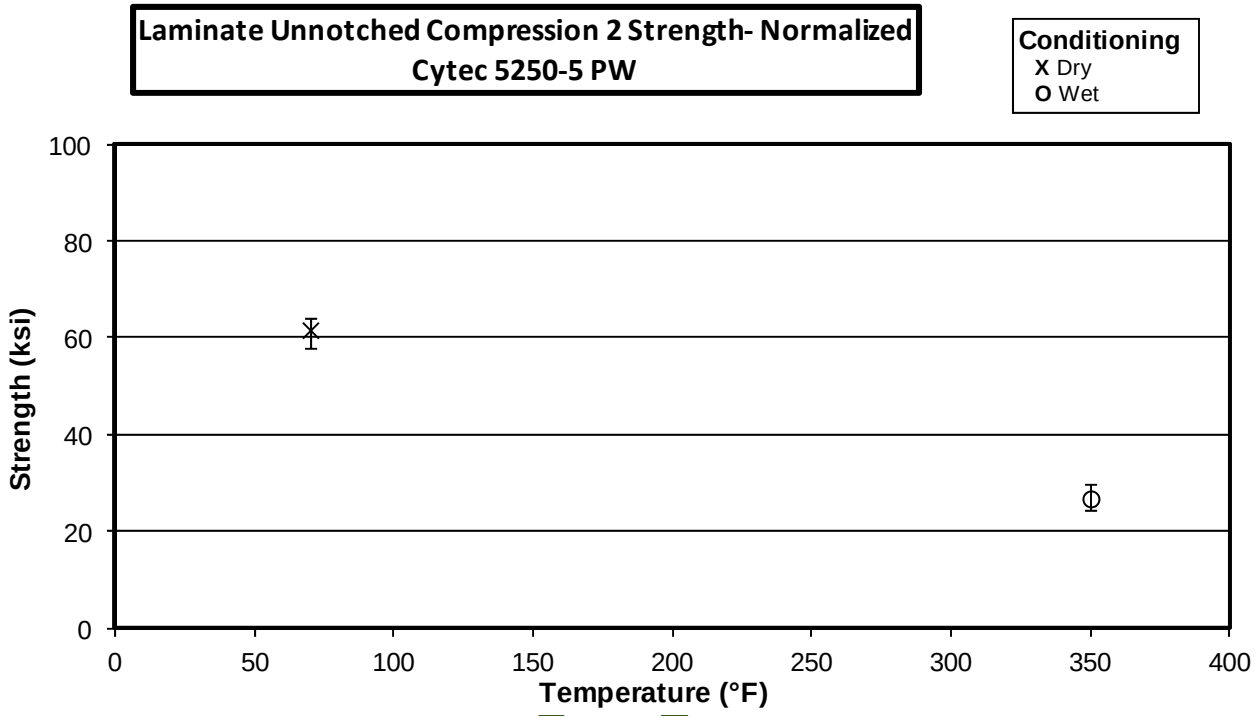


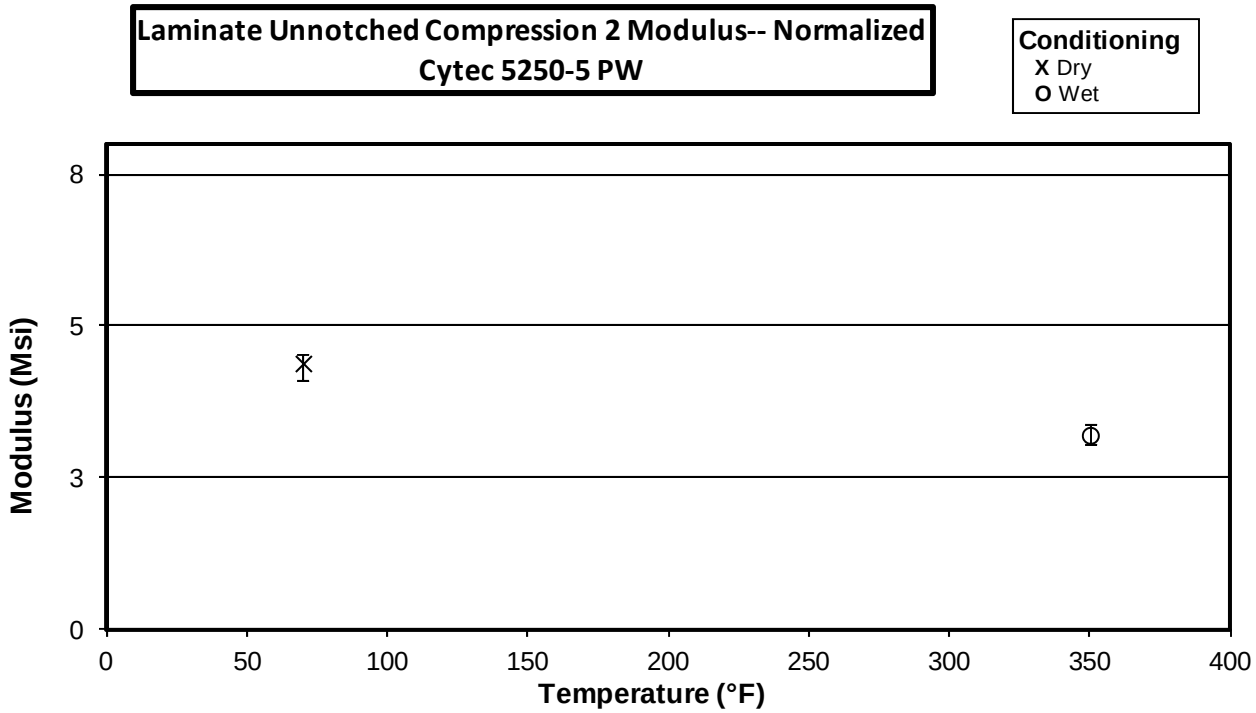
3.9 "25/50/25" Unnotched Compression 1 Properties (UNC1)



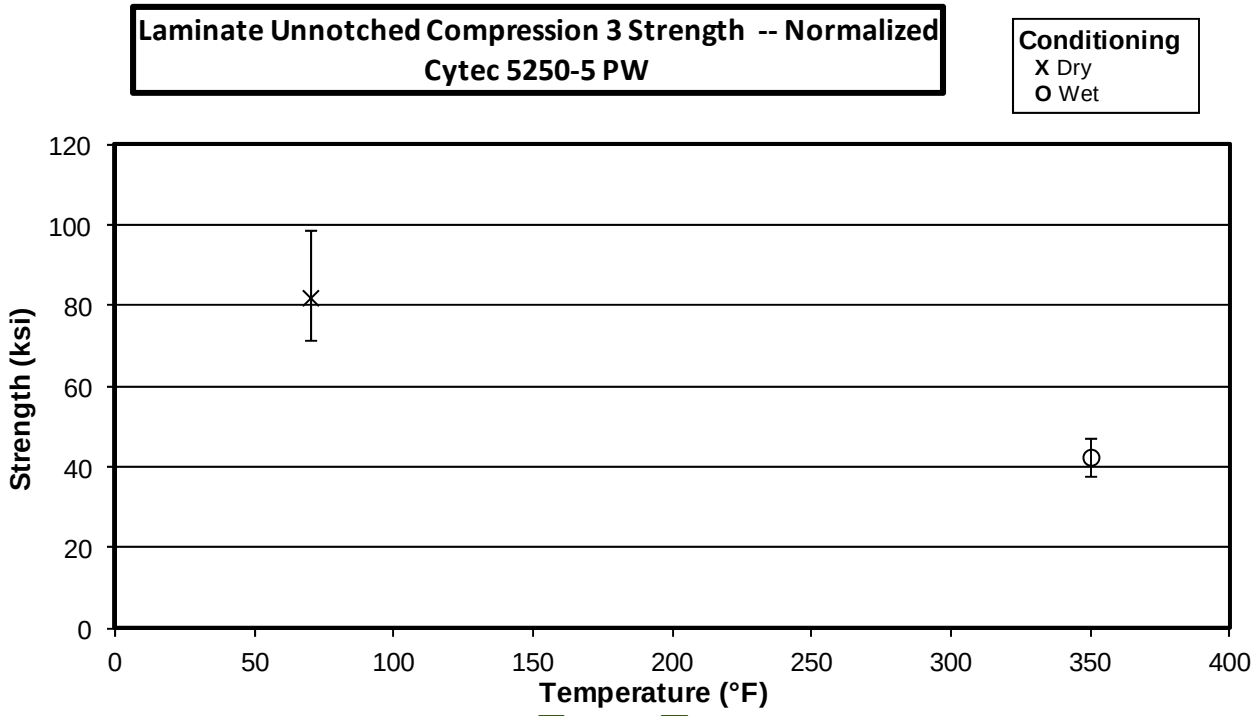


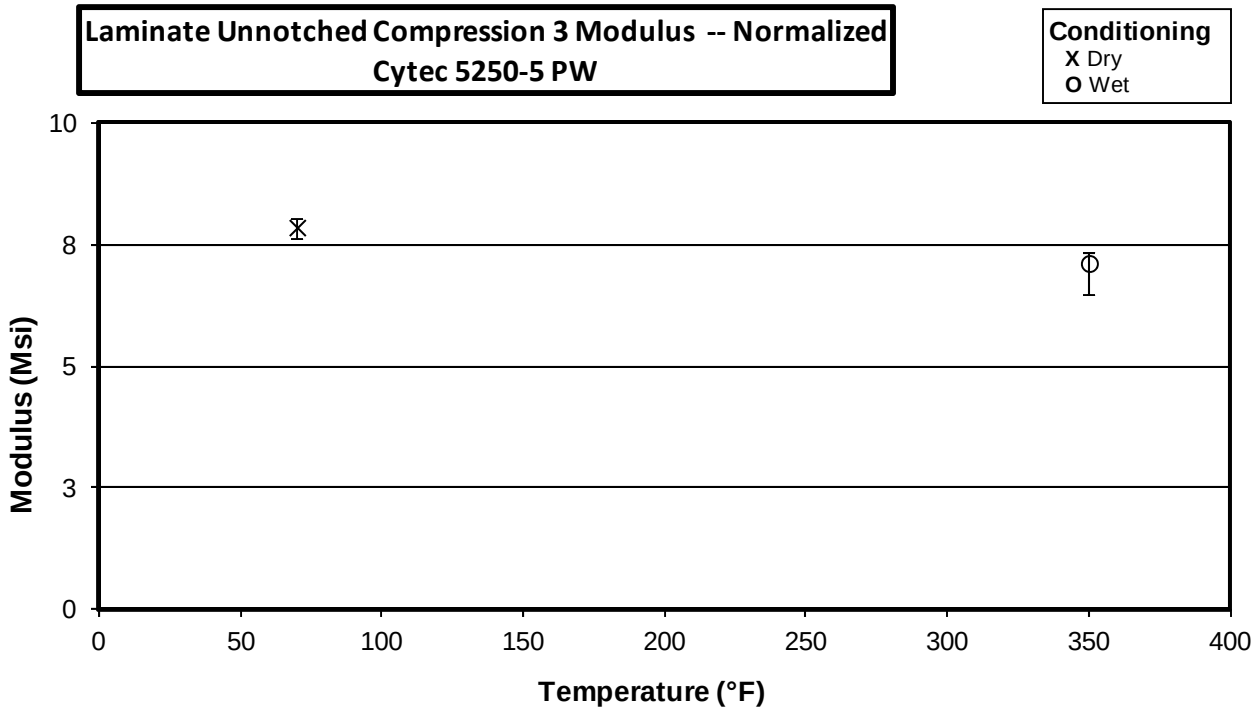
3.10 "10/80/10" Unnotched Compression 2 Properties (UNC2)



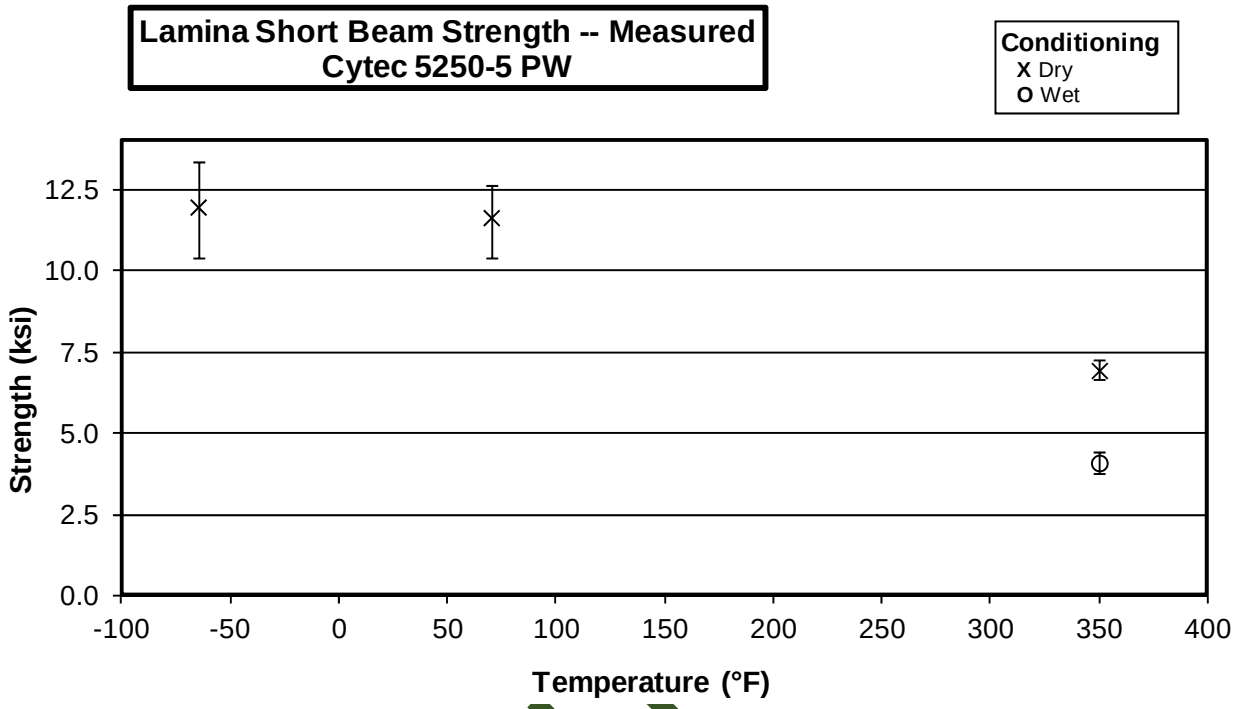


3.11 "40/20/40" Unnotched Compression 3 Properties (UNC3)

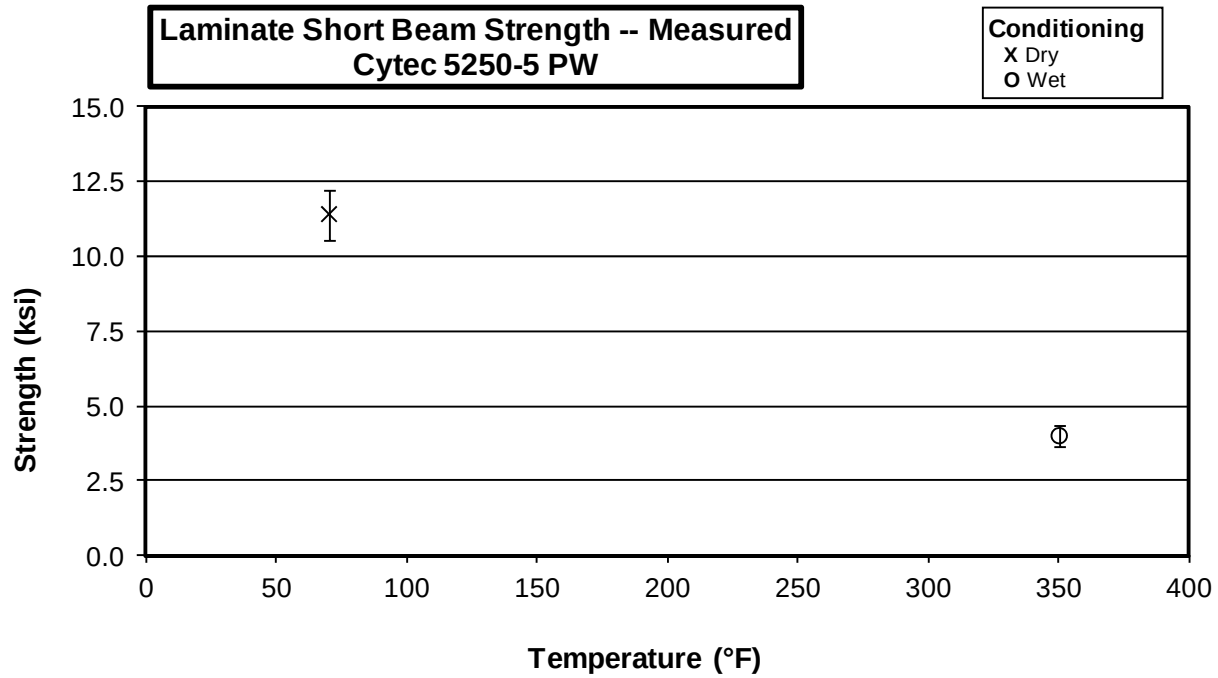




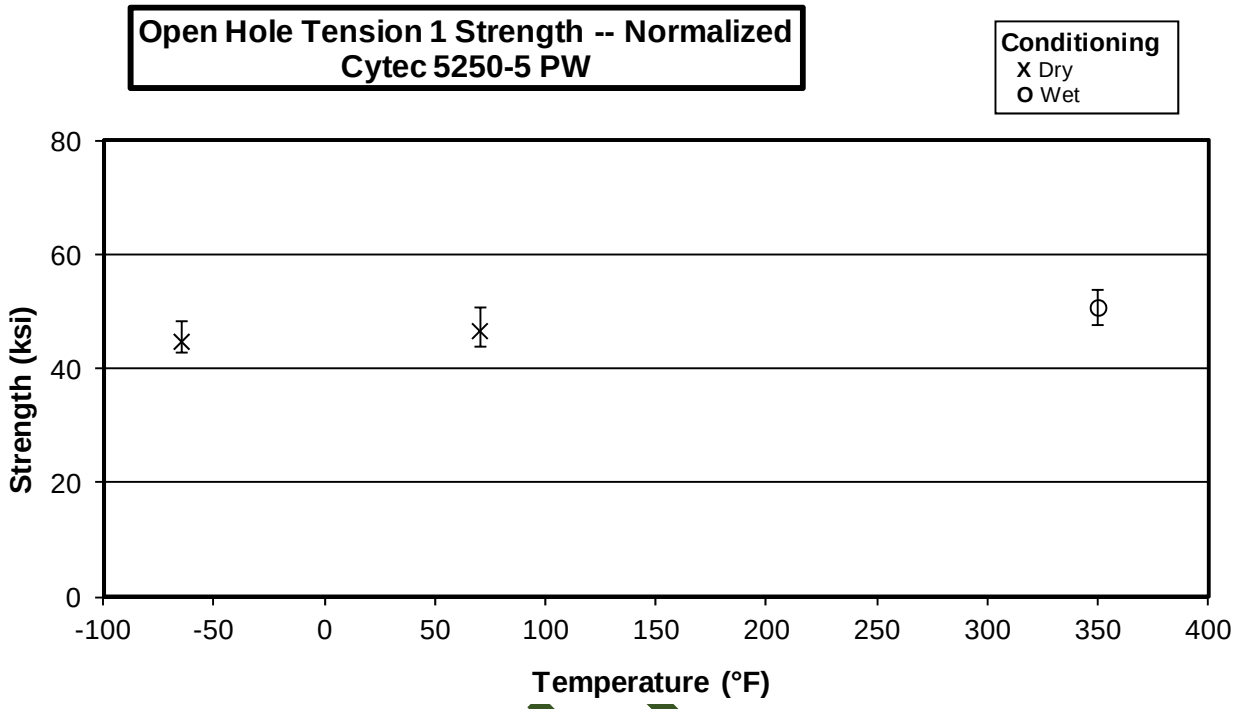
3.12 Lamina Short-Beam Strength Properties (SBS)



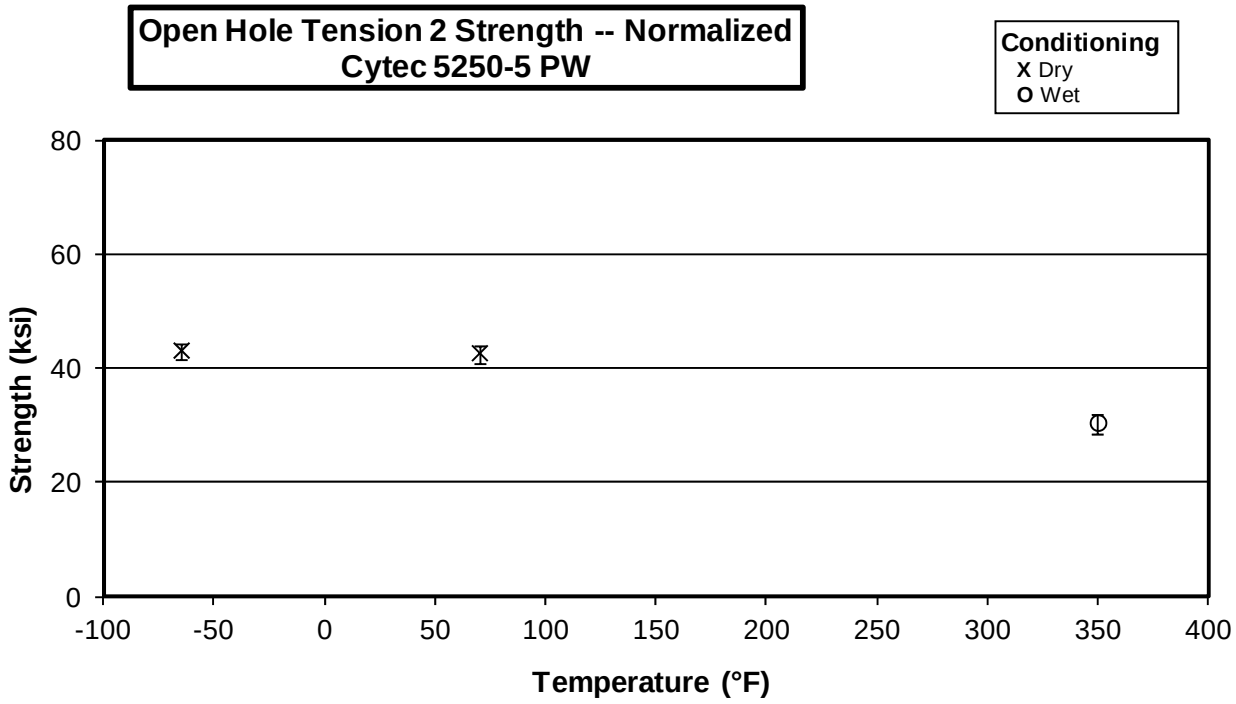
3.13 Laminate Short-Beam Strength Properties (SBS1)



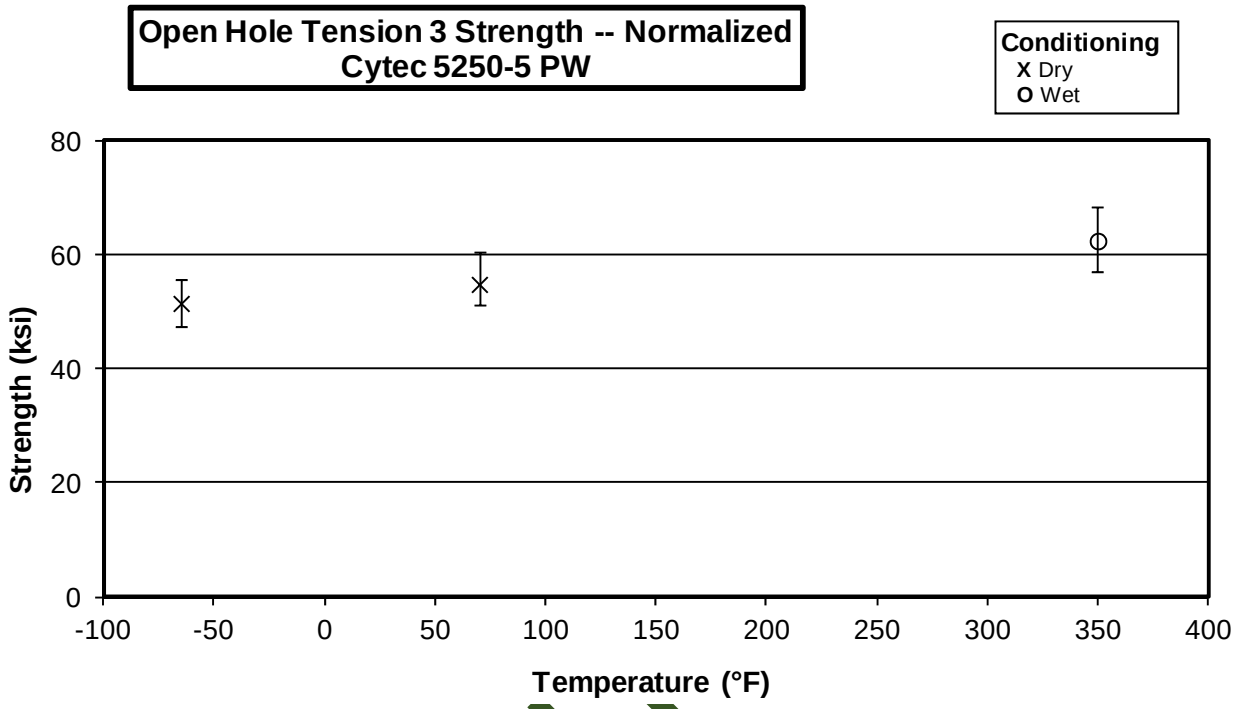
3.14 "25/50/25" Open-Hole Tension 1 Properties (OHT1)



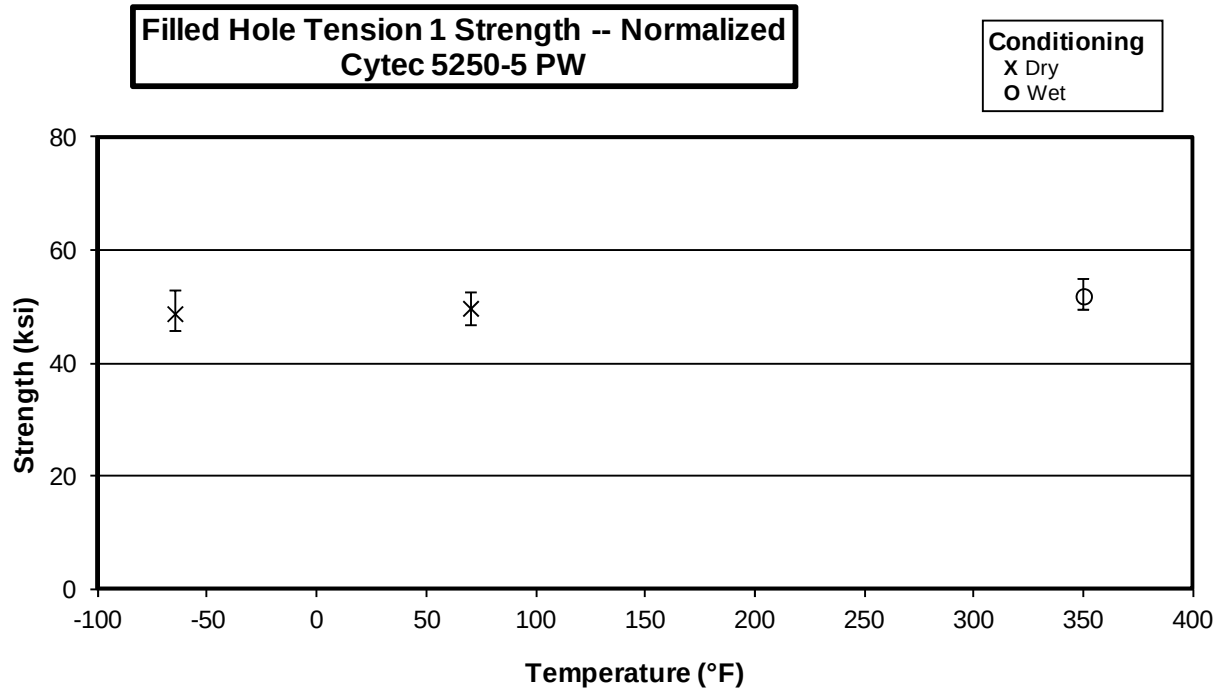
3.15 "10/80/10" Open-Hole Tension 2 Properties (OHT2)



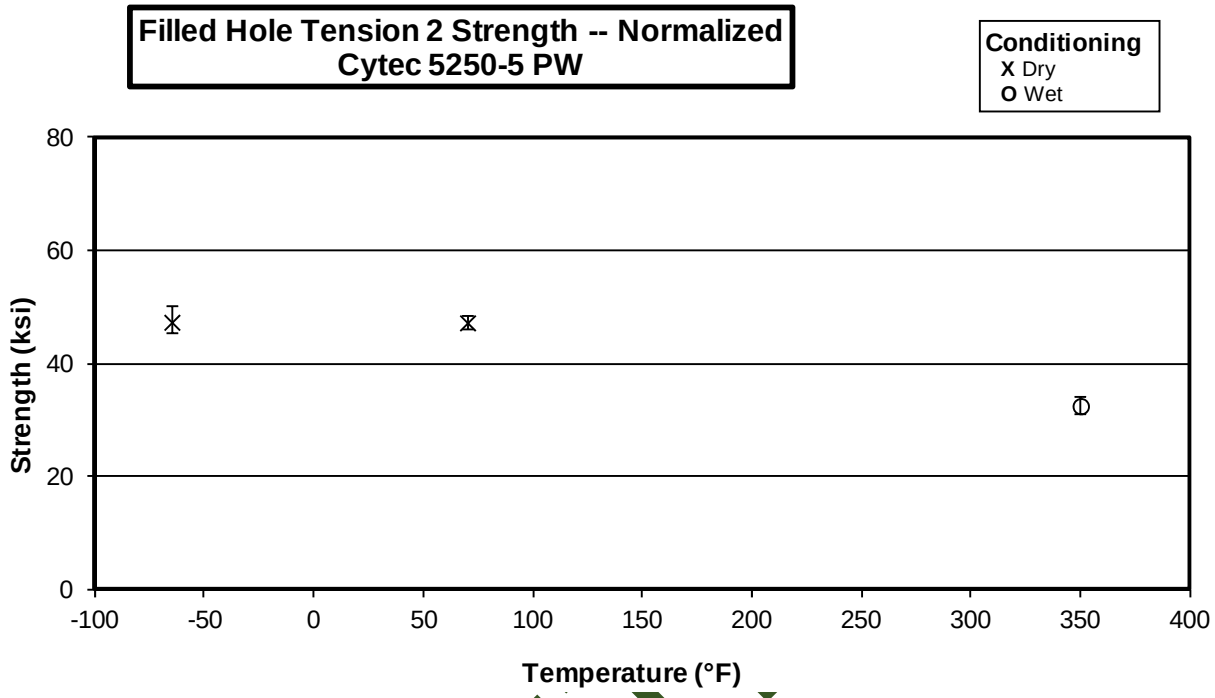
3.16 "40/20/40" Open-Hole Tension 3 Properties (OHT3)



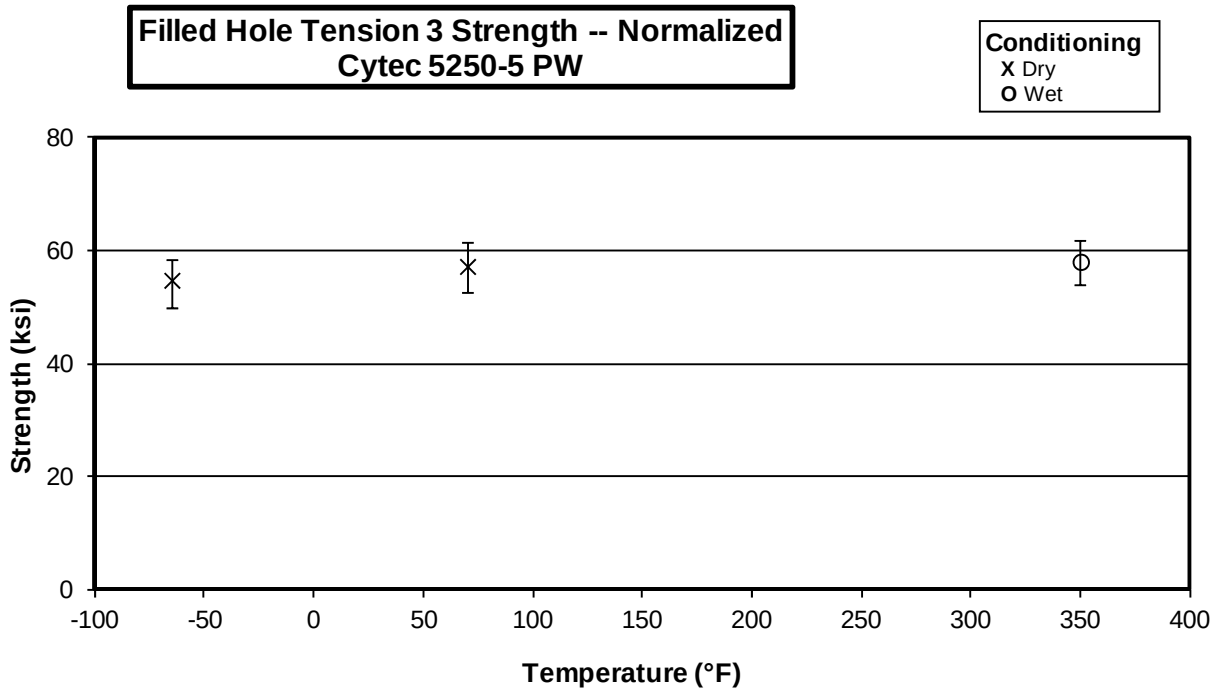
3.17 "25/50/25" Filled-Hole Tension 1 Properties (FHT1)



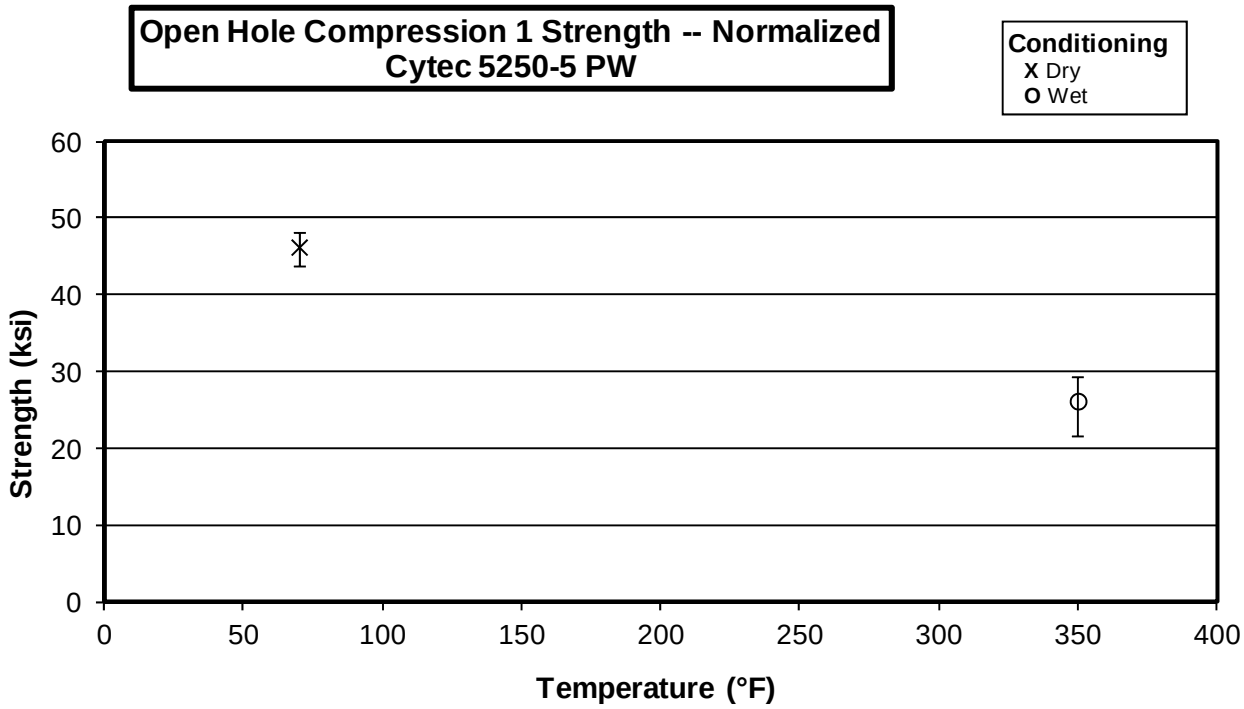
3.18 "10/80/10" Filled-Hole Tension 2 Properties (FHT2)



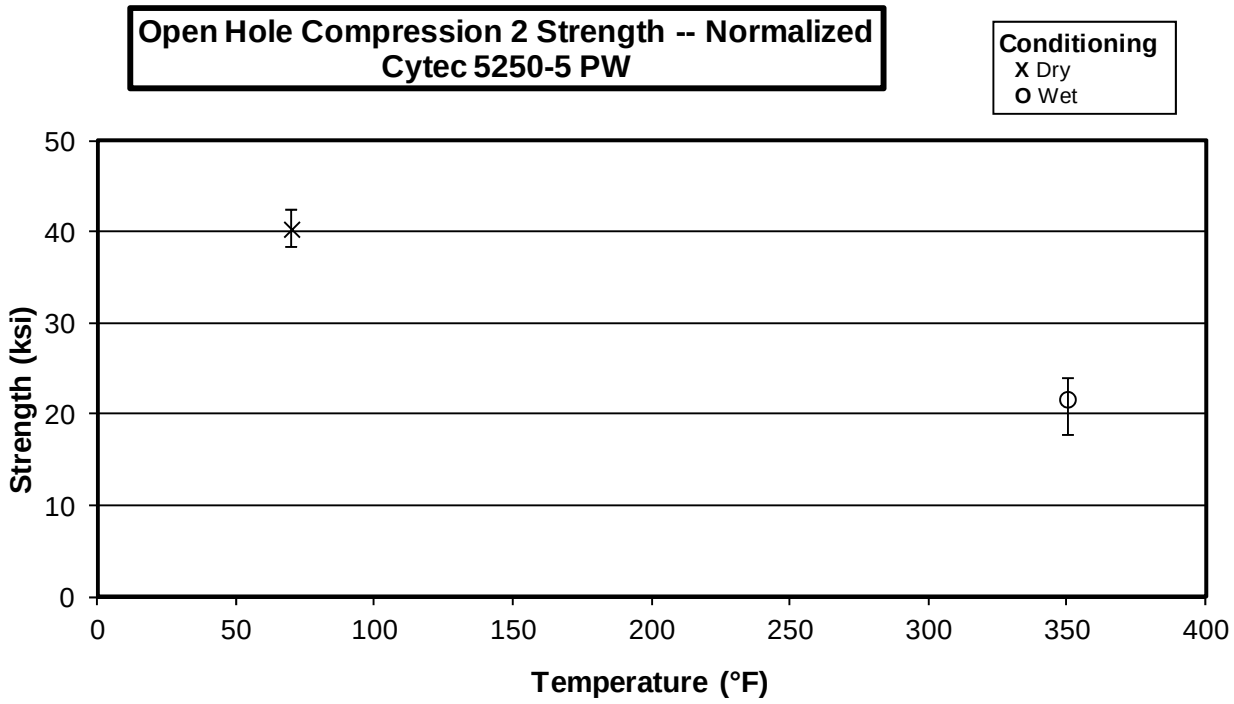
3.19 "40/20/40" Filled-Hole Tension 3 Properties (FHT3)



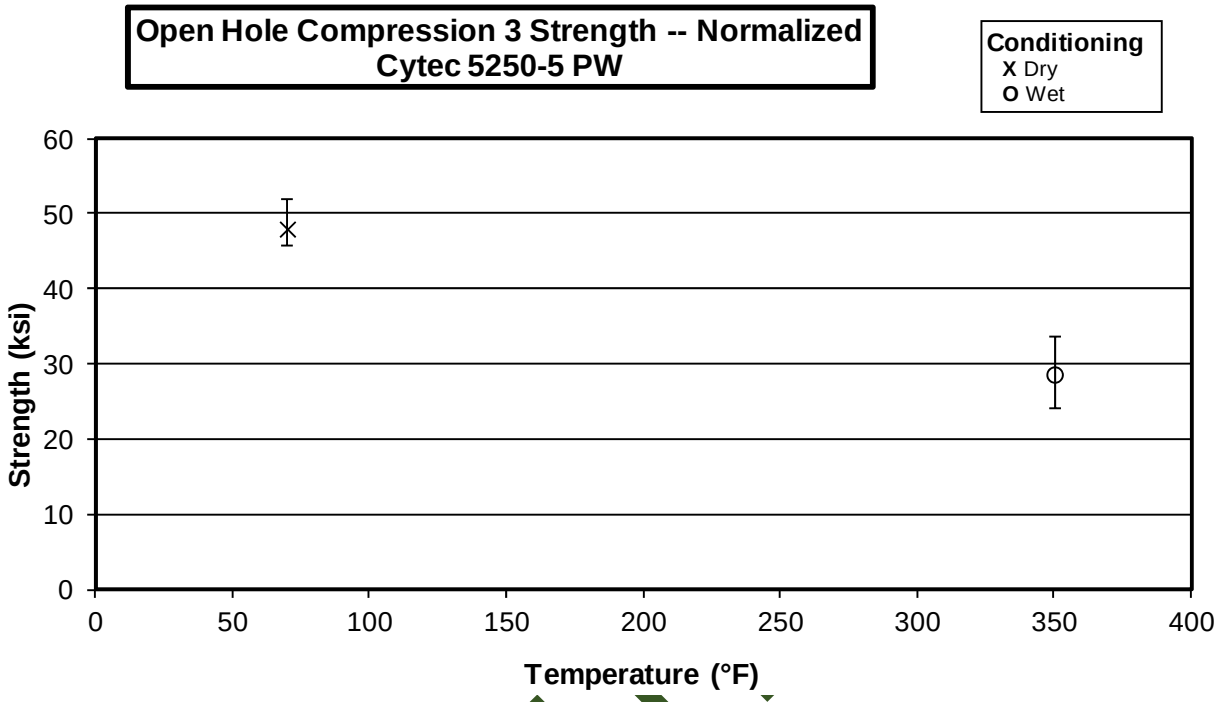
3.20 "25/50/25" Open-Hole Compression 1 Properties (OHC1)



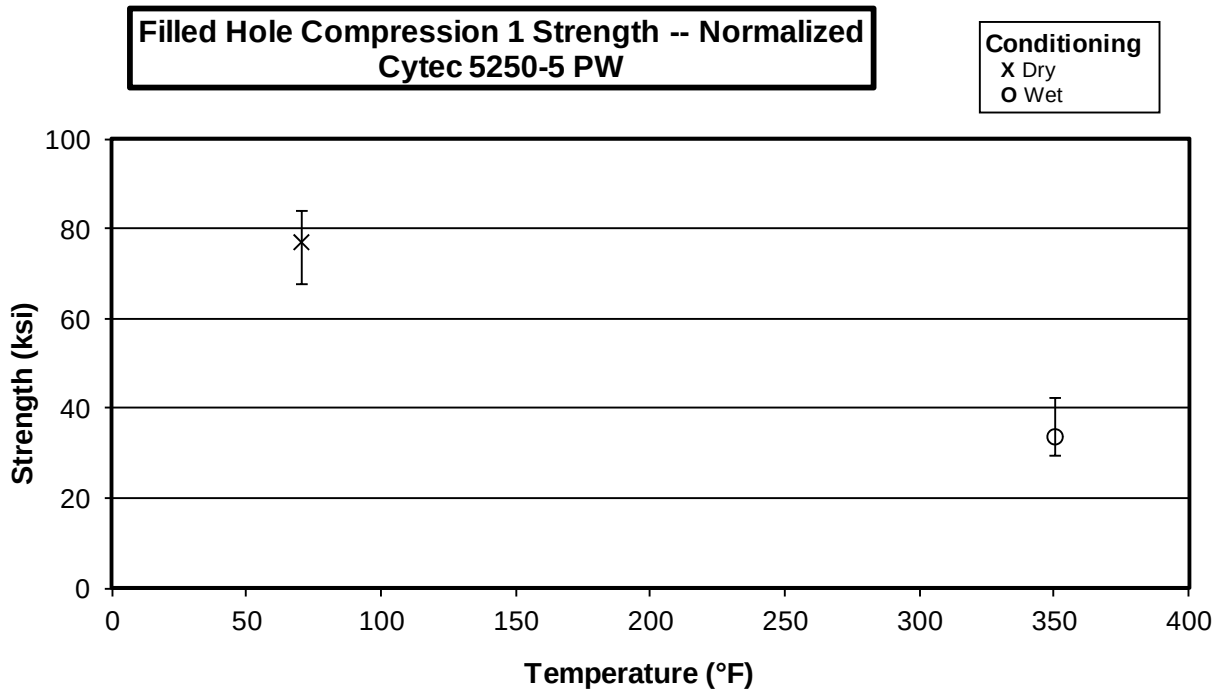
3.21 "10/80/10" Open-Hole Compression 2 Properties (OHC2)



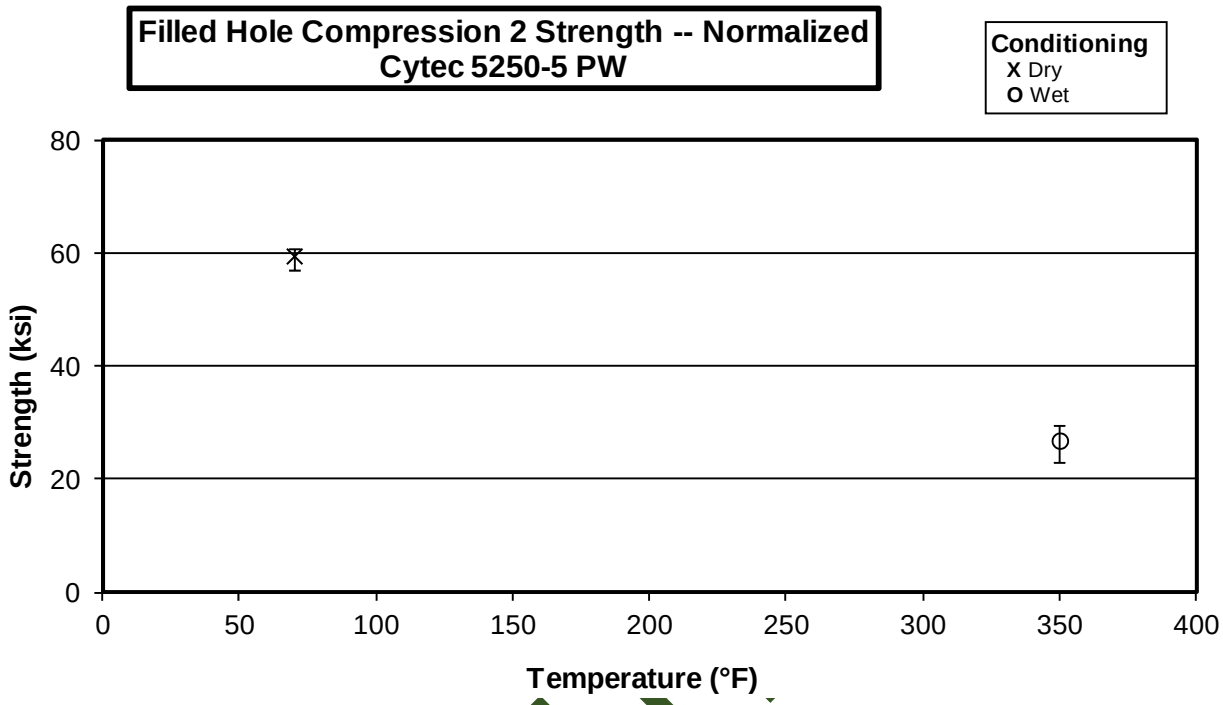
3.22 "40/20/40" Open-Hole Compression 3 Properties (OHC3)



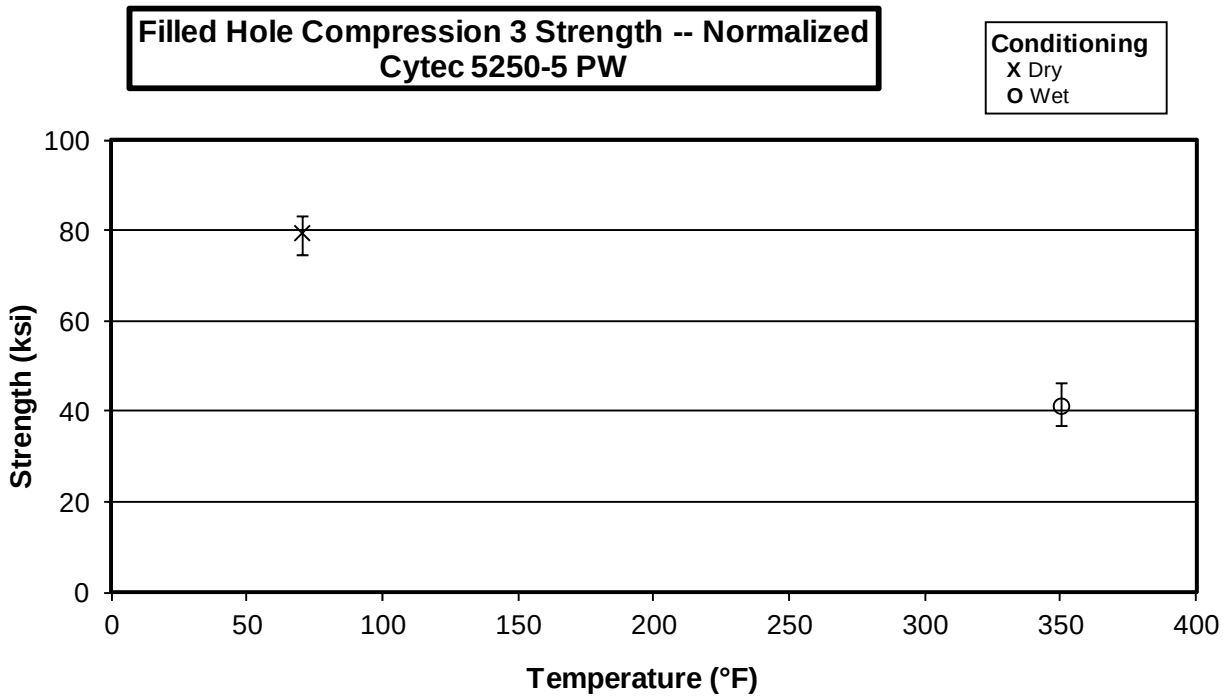
3.23 "25/50/25" Filled-Hole Compression 1 Properties (FHC1)



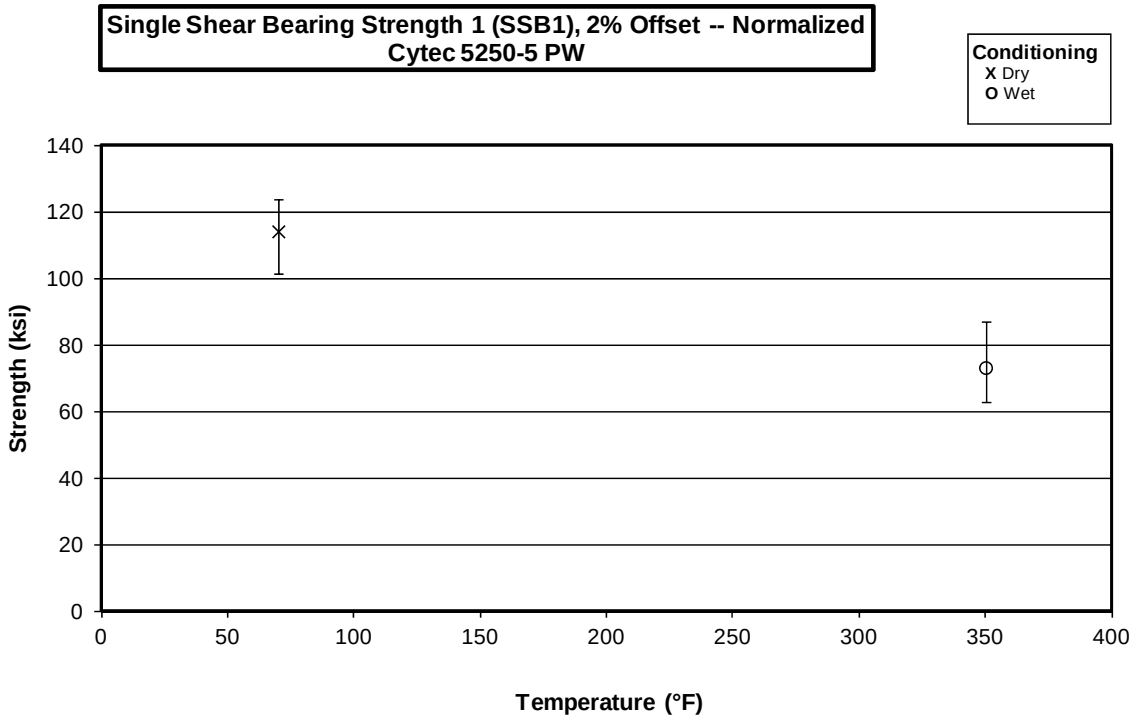
3.24 "10/80/10" Filled-Hole Compression 2 Properties (FHC2)



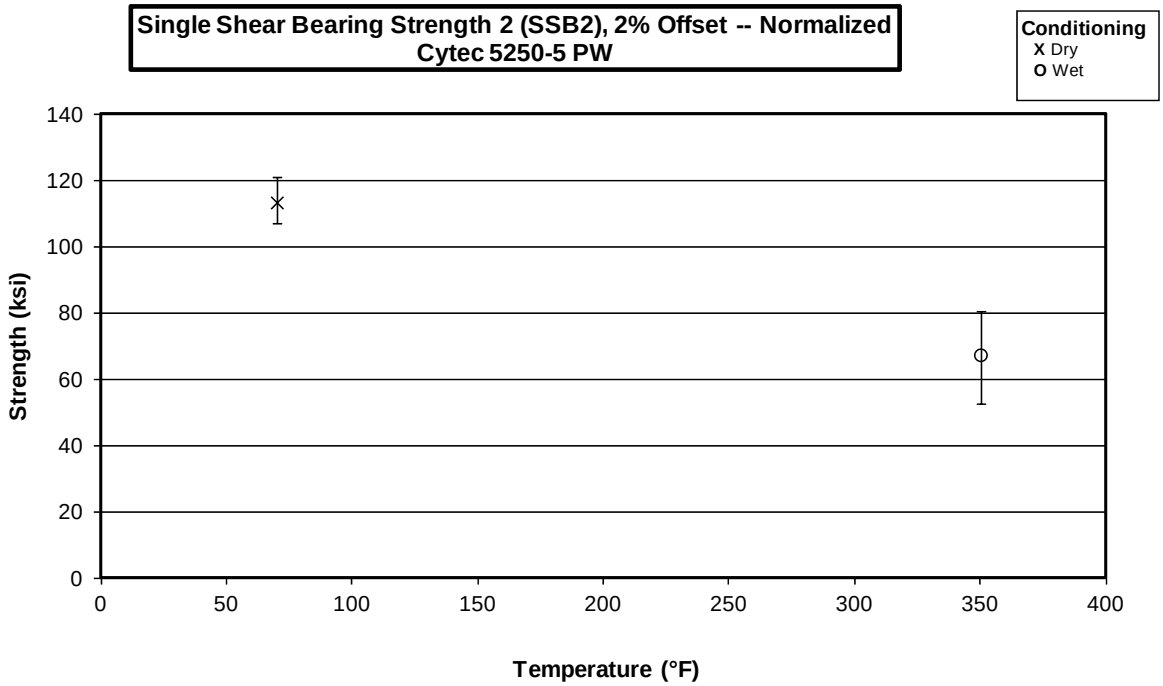
3.25 "40/20/40" Filled-Hole Compression 3 Properties (FHC3)



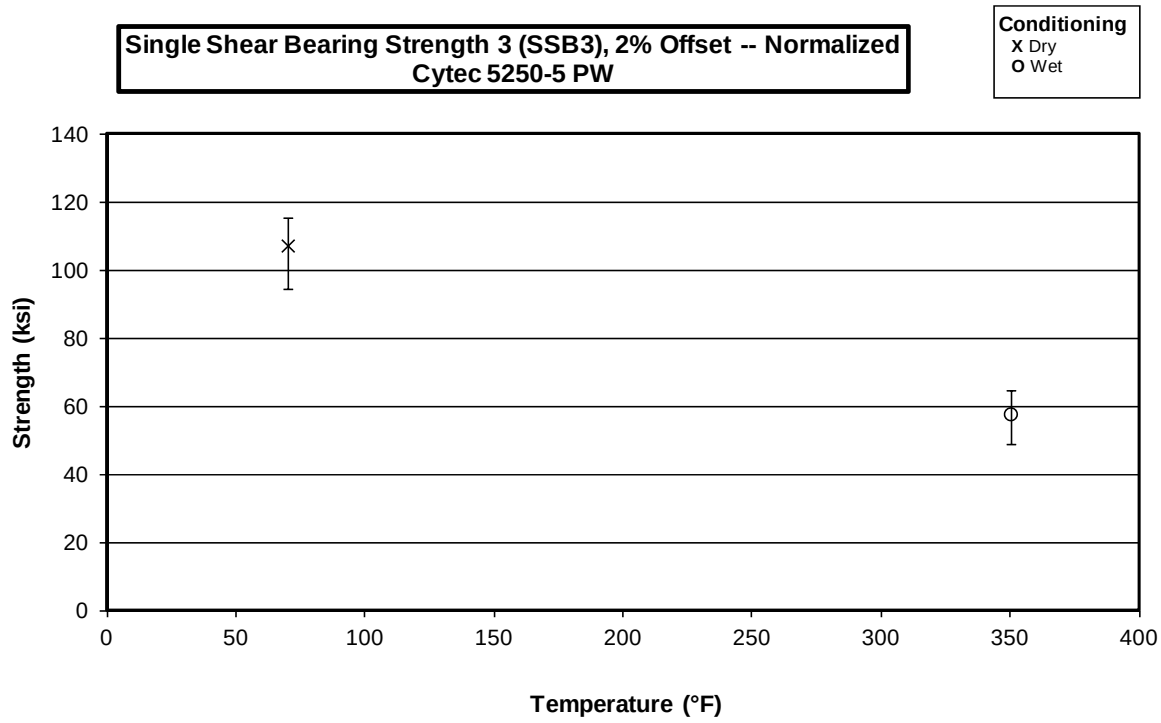
3.26 "25/50/25" Single-Shear Bearing 1 Properties (SSB1)



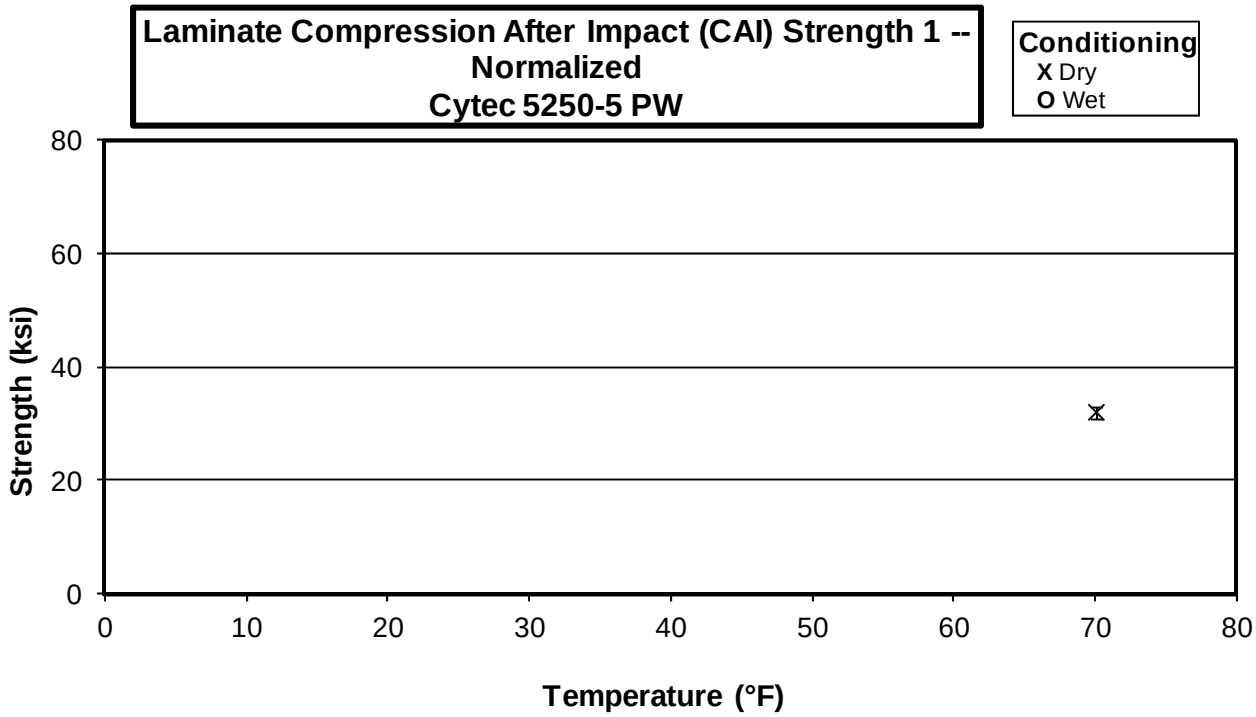
3.27 "10/80/10" Single-Shear Bearing 2 Properties (SSB2)



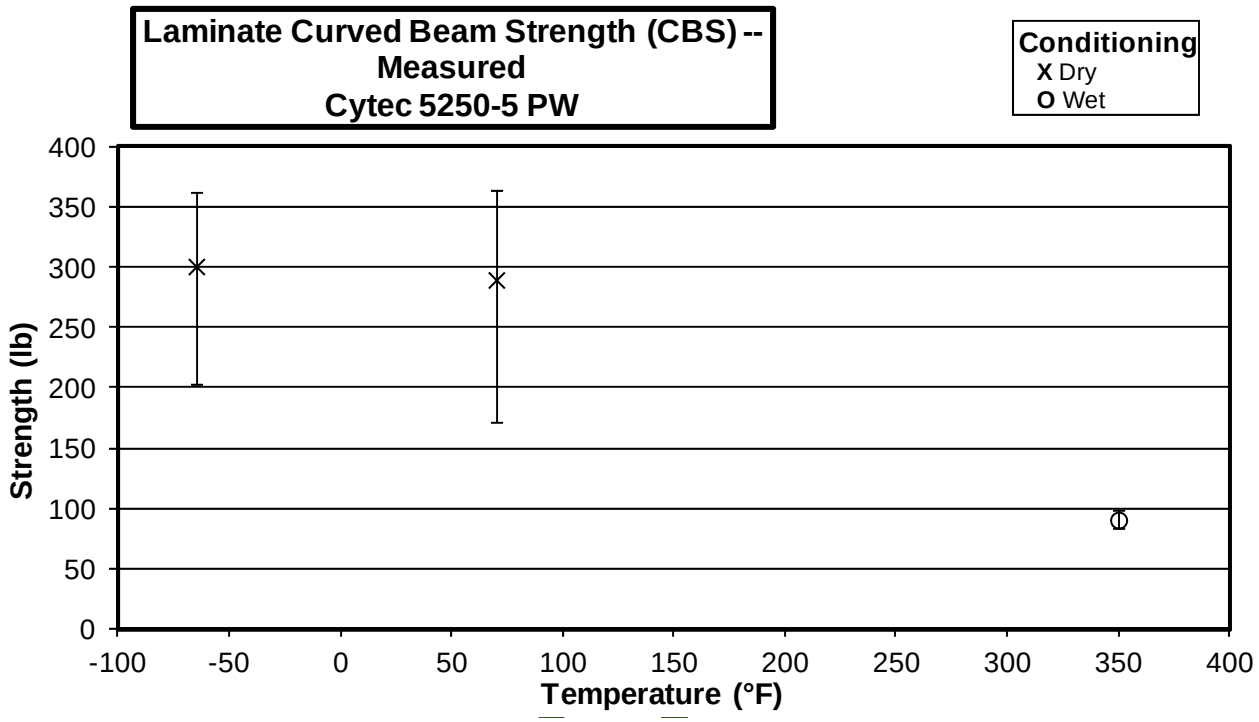
3.28 "40/20/40" Single-Shear Bearing 3 Properties (SSB3)

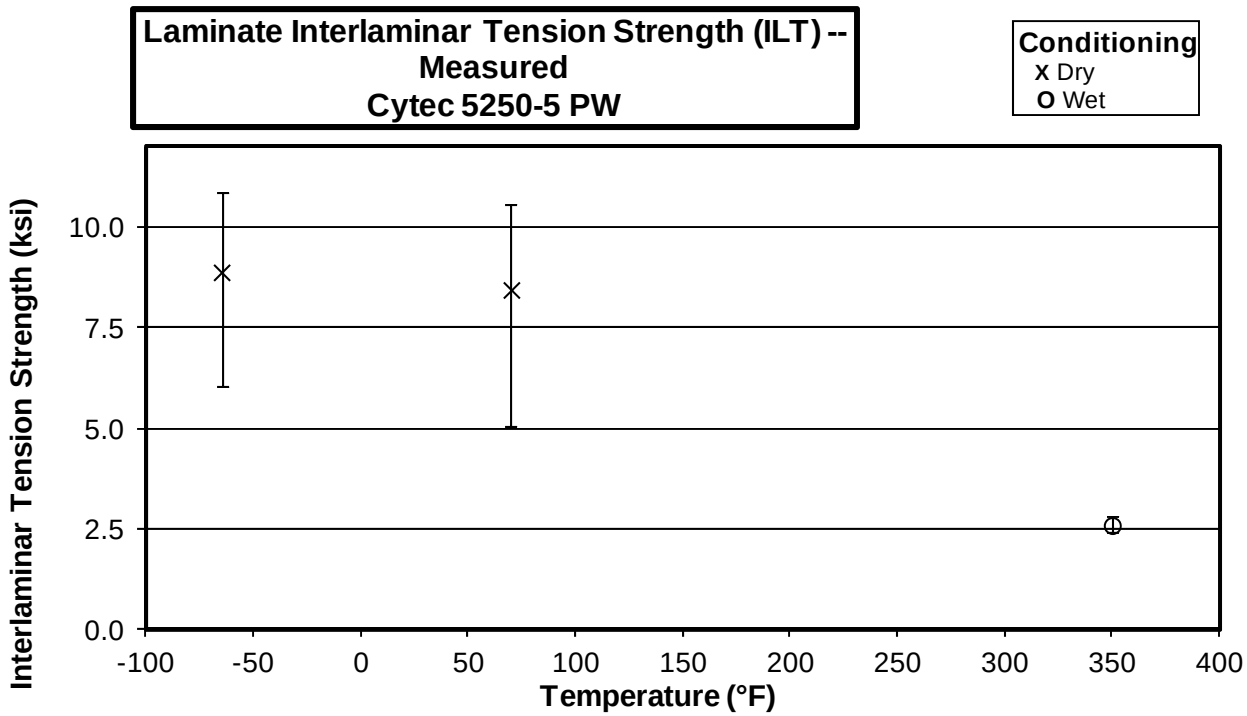


3.29 Compression After Impact 1 Properties (CAI1)



3.30 Interlaminar Tension Properties (ILT)





4. Raw Data

4.1 Warp Tension Properties (WT)

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

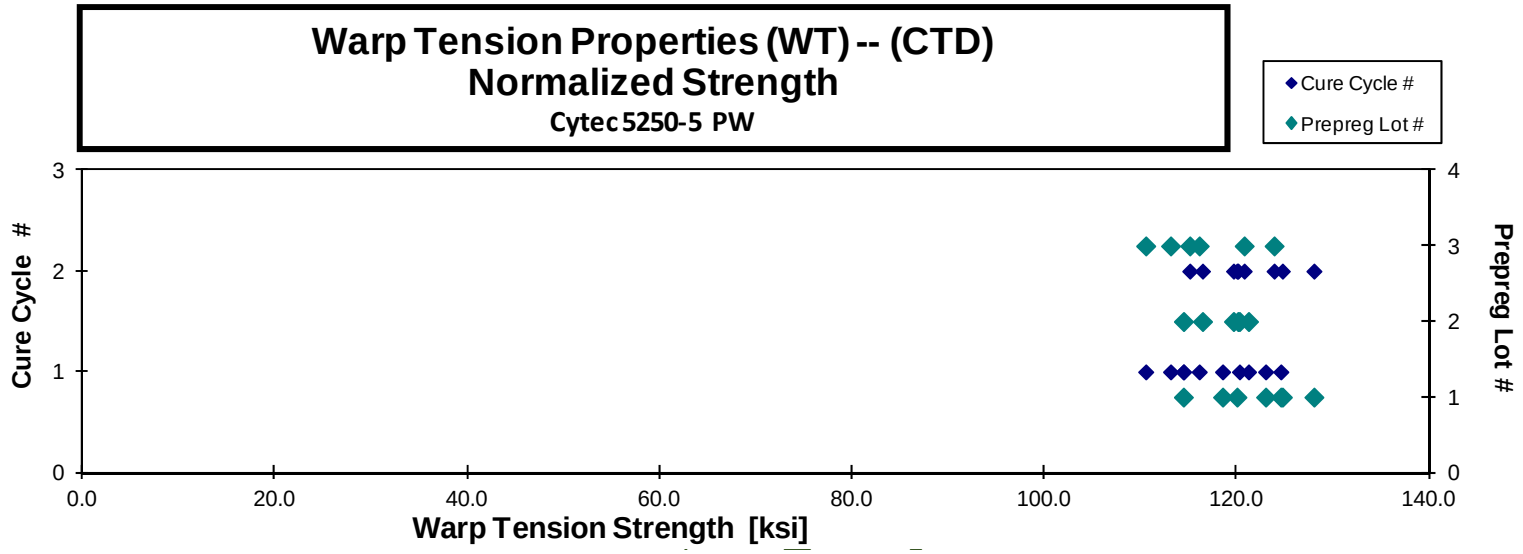
normalizing t_{ply} [in]: 0.0078

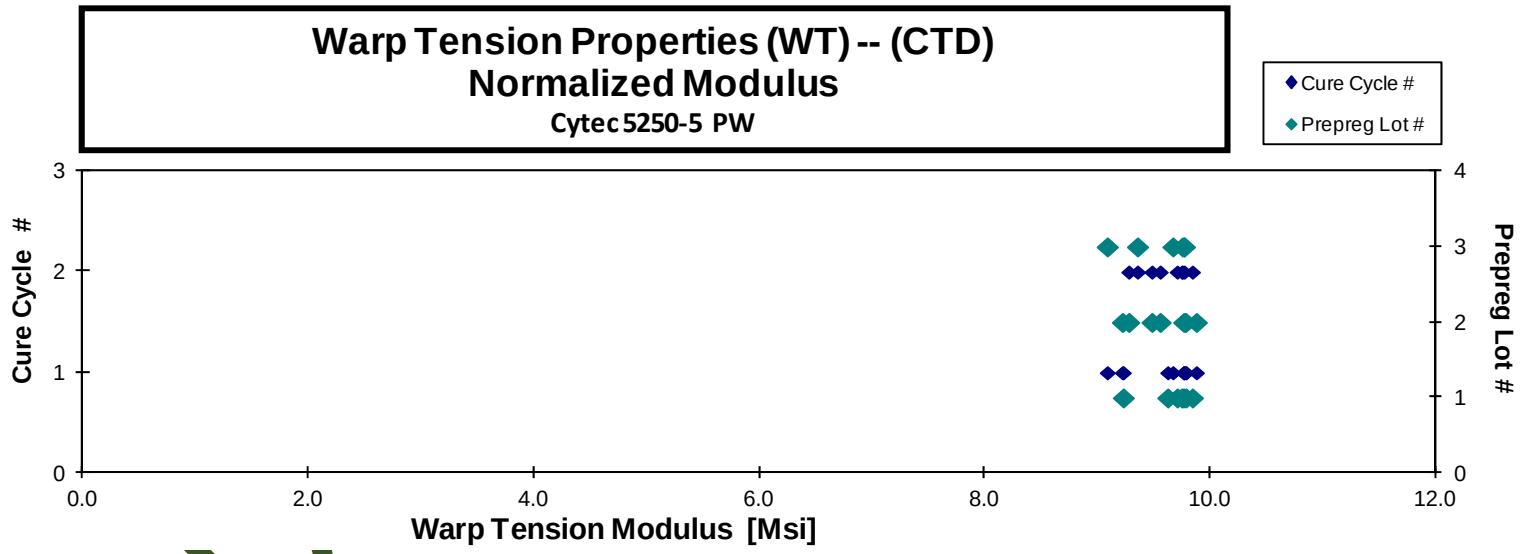
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCJA115B	A	C1	1	1	122.021	9.161	0.056	0.118	15	LGM	0.0079	122.994	9.234
CNCJA116B	A	C1	1	1	117.551	9.549	0.058	0.118	15	LGM	0.0079	118.523	9.628
CNCJA117B	A	C1	1	1	113.434	9.703		0.118	15	LWB	0.0079	114.452	9.790
CNCJA118B	A	C1	1	1	123.623	9.694	0.069	0.118	15	LGM	0.0079	124.574	9.768
CNCJA214B	A	C2	1	2	122.113	9.639		0.120	15	LGM	0.0080	124.740	9.847
CNCJA215B	A	C2	1	2	124.817	9.509		0.120	15	LWB	0.0080	128.018	9.752
CNCJA216B	A	C2	1	2	116.999	9.468		0.120	15	LWB	0.0080	120.016	9.712
CNCJB114B	B	C1	2	1	120.431	9.238	0.065	0.117	15	LWB/LAT	0.0078	120.277	9.226
CNCJB115B	B	C1	2	1	*	9.834	0.062	0.118	15	LIB	0.0078		9.882
CNCJB116B	B	C1	2	1	120.672	9.726	0.075	0.118	15	LGM	0.0078	121.222	9.770
CNCJB117B	B	C1	2	1	117.401	10.039		0.114	15	LWB	0.0076	114.458	9.787
CNCJB214B	B	C2	2	2	121.614	9.606	0.068	0.116	15	LAB	0.0077	120.124	9.488
CNCJB215B	B	C2	2	2	117.794	9.391	0.062	0.116	15	LAB	0.0077	116.435	9.283
CNCJB216B	B	C2	2	2	120.722	9.646	0.065	0.116	15	LGM	0.0077	119.656	9.561
CNCJC114B	C	C1	3	1	112.846	9.877	0.075	0.115	15	LGM	0.0076	110.531	9.674
CNCJC115B	C	C1	3	1	119.062	9.324	0.062	0.114	15	LAT	0.0076	116.094	9.092
CNCJC116B	C	C1	3	1	115.720	9.998	0.065	0.114	15	LGM	0.0076	113.115	9.773
CNCJC214B	C	C2	3	2	122.148	9.466	0.068	0.116	15	LGM	0.0077	120.773	9.360
CNCJC215B	C	C2	3	2	116.489	9.892	0.079	0.116	15	LGM	0.0077	115.112	9.775
CNCJC216B	C	C2	3	2	124.430	9.802	0.067	0.116	15	LAT	0.0078	123.880	9.759

***Tensile strength not reported due to bad failure mode**
**** Poisson's Ratio not reported due to non linear data**

	Strength [ksi]	Modulus [Msi]	Poisson's Ratio
Average	119.468	9.628	0.066
Standard Dev.	3.496	0.243	0.006
Coeff. of Var. [%]	2.926	2.525	9.655
Min.	112.846	9.161	0.056
Max.	124.817	10.039	0.079
Number of Spec.	19	20	15

		$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.0078	119.210	9.608
$Standard\ Dev._{norm}$		4.563	0.241
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.828	2.505
Min.	0.0076	110.531	9.092
Max.	0.0080	128.018	9.882
Number of Spec.		19	20


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


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

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

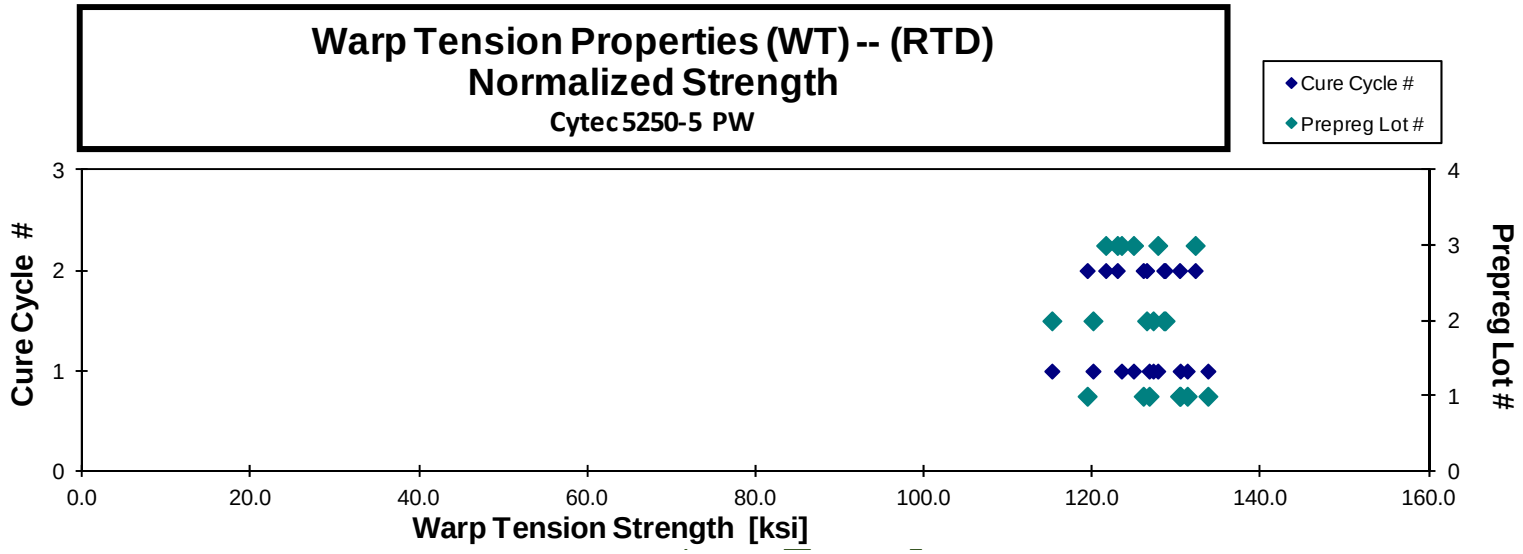
normalizing t_{ply} [in]: 0.0078

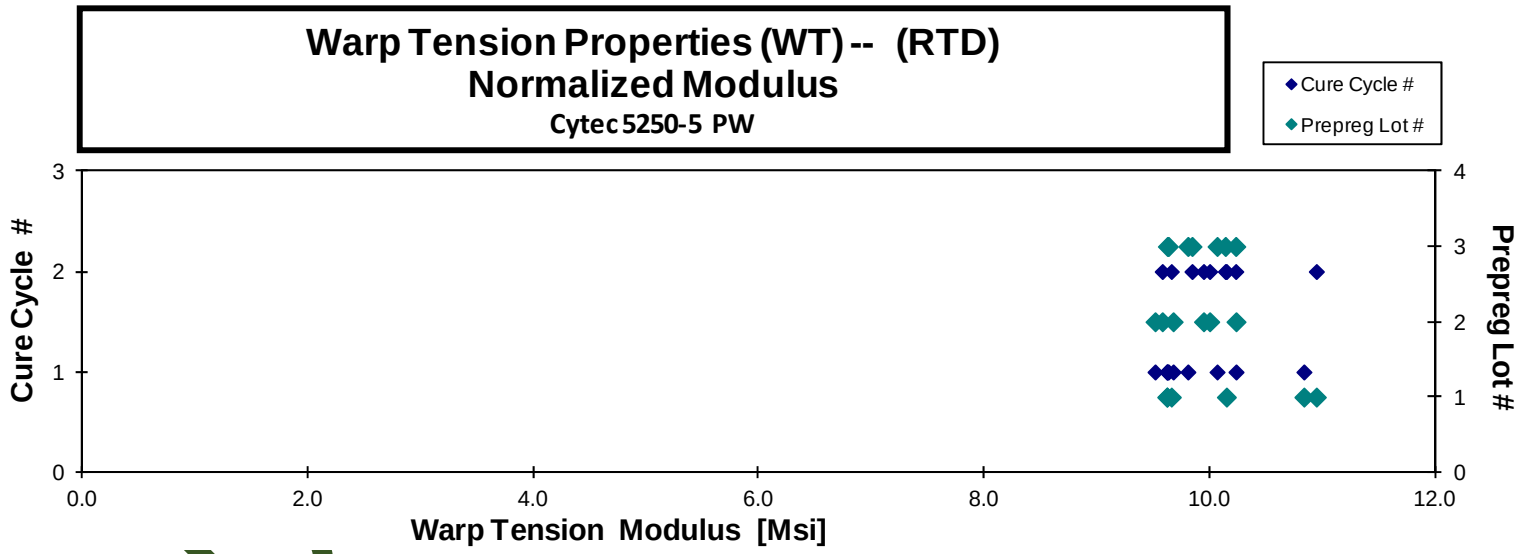
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCJA111A	A	C1	1	1	131.391	10.917	0.045	0.116	15	LAT	0.0077	130.418	10.836
CNCJA112A	A	C1	1	1	127.179	**	**	0.117	15	LGM	0.0078	126.726	
CNCJA113A	A	C1	1	1	133.066	9.575	0.039	0.118	15	LWT	0.0078	133.711	9.621
CNCJA114A	A	C1	1	1	130.042	9.533	0.041	0.118	15	LAT	0.0079	131.247	9.621
CNCJA211A	A	C2	1	2	127.003	11.031	0.040	0.116	15	LGM	0.0077	126.026	10.946
CNCJA212A	A	C2	1	2	118.452	9.586	0.038	0.118	15	LWT	0.0079	119.364	9.660
CNCJA213A	A	C2	1	2	128.317	9.990	0.044	0.119	15	LAB	0.0079	130.346	10.148
CNCJB111A	B	C1	2	1	121.284	9.612	0.037	0.116	15	LGM	0.0077	120.058	9.515
CNCJB112A	B	C1	2	1	128.518	10.340	**	0.116	15	LAB	0.0077	127.200	10.234
CNCJB113A	B	C1	2	1	116.065	9.751	0.034	0.116	15	LWT	0.0077	115.172	9.676
CNCJB211A	B	C2	2	2	129.970	10.061	0.035	0.116	15	LAB	0.0077	128.470	9.945
CNCJB212A	B	C2	2	2	130.767	9.739	0.036	0.115	15	LAT	0.0077	128.625	9.579
CNCJB213A	B	C2	2	2	128.256	10.145	0.038	0.115	15	LGM	0.0077	126.429	10.000
CNCJC111A	C	C1	3	1	126.934	10.232	0.045	0.115	15	LGM	0.0077	124.872	10.066
CNCJC112A	C	C1	3	1	130.502	10.018	0.034	0.115	15	LAB	0.0076	127.751	9.807
CNCJC113A	C	C1	3	1	*	9.842	0.040	0.115	15	LIT	0.0076		9.633
CNCJC117A	C	C1	3	1	125.353	9.774	0.042	0.115	15	LAB	0.0077	123.443	9.625
CNCJC211A	C	C2	3	2	126.672	10.565	0.041	0.112	15	LWT	0.0075	121.566	10.139
CNCJC212A	C	C2	3	2	136.333	10.151	0.046	0.113	15	LGM	0.0076	132.196	9.843
CNCJC213A	C	C2	3	2	125.590	10.452	0.042	0.115	15	LAT	0.0076	122.942	10.231

***Tensile strength not reported due to bad failure mode**
****Tensile Modulus and Poisson's Ratio was removed due to non-linearity**

Average	**127.458**	**10.069**	**0.040**
Standard Dev.	**4.828**	**0.440**	**0.004**
Coeff. of Var. [%]	**3.788**	**4.368**	**9.244**
Min.	**116.065**	**9.533**	**0.034**
Max.	**136.333**	**11.031**	**0.046**
Number of Spec.	**19**	**19**	**18**

$Average_{norm}$	**0.0077**	**126.135**	**9.954**
$Standard\ Dev._{norm}$		**4.802**	**0.406**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.807**	**4.080**
Min.	**0.0075**	**115.172**	**9.515**
Max.	**0.0079**	**133.711**	**10.946**
Number of Spec.		**19**	**19**


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


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

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

normalizing t_{ply} [in]: 0.0078

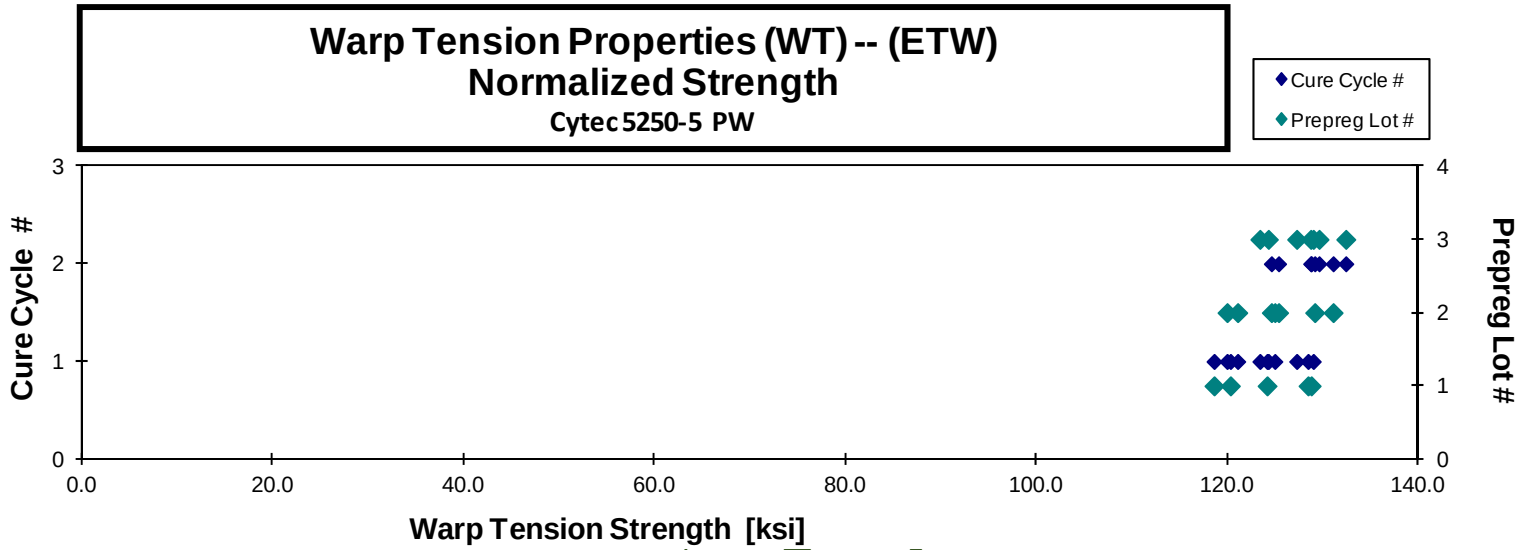
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Poisson's Ratio	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCJA119A	A	C1	1	1	121.423	9.138	0.041	0.116	15	LGM	0.0077	120.316	9.055
CNCJA11AJ	A	C1	1	1	**	8.896	0.029	0.116	15	LIT	0.0077		8.830
CNCJA11BJ	A	C1	1	1	**	8.442	0.048	0.117	15	Slipped	0.0078		8.428
CNCJA11CJ	A	C1	1	1	118.906	9.221	0.040	0.117	15	LGM	0.0078	118.601	9.197
CNCJA11EJ*	A	C1	1	1	124.302			0.117	15	LGM	0.0078	124.161	
CNCJA11FJ*	A	C1	1	1	128.801			0.117	15	LGM / LWT	0.0078	128.453	
CNCJA217J	A	C2	1	2	**	9.236	0.042	0.116	15	LIT / LGM	0.0077		9.136
CNCJA218J	A	C2	1	2	128.215	8.997	0.019	0.118	15	LGM	0.0078	128.781	9.037
CNCJA219J	A	C2	1	2	**	8.830	0.035	0.119	15	Slipped	0.0079		8.973
CNCJB118J	B	C1	2	1	**	9.090	0.032	0.114	15	LGM / LIT	0.0076		8.862
CNCJB119J	B	C1	2	1	127.680	9.131	0.052	0.115	15	LAT / LGM	0.0076	124.970	8.938
CNCJB11AJ	B	C1	2	1	121.877	9.254	0.042	0.116	15	LWT / LWB	0.0077	121.079	9.194
CNCJB11BJ	B	C1	2	1	120.722	8.839	0.038	0.116	15	LGM	0.0078	119.965	8.783
CNCJB217J	B	C2	2	2	132.780	9.252	0.022	0.116	15	LGM / LWB	0.0077	131.078	9.134
CNCJB218J	B	C2	2	2	127.194	9.117	0.020	0.115	15	LWB / LWT	0.0077	125.364	8.986
CNCJB219J	B	C2	2	2	126.558	9.301		0.115	15	LGM	0.0077	124.611	9.157
CNCJB21CJ*	B	C2	2	2	129.887			0.116	15	LGM	0.0078	129.147	
CNCJC118J	C	C1	3	1	126.034	9.269	0.050	0.115	15	LGM	0.0077	124.292	9.141
CNCJC119J	C	C1	3	1	129.494	9.515	0.041	0.115	15	LGM	0.0077	127.262	9.351
CNCJC11AJ	C	C1	3	1	126.099	9.081	0.037	0.115	15	LGM	0.0076	123.405	8.887
CNCJC11BJ	C	C1	3	1	131.409	9.472	0.058	0.115	15	LGM	0.0077	128.995	9.298
CNCJC217J	C	C2	3	2	133.695	8.986	0.055	0.113	15	LGM	0.0076	129.600	8.711
CNCJC218J	C	C2	3	2	132.061	9.335	0.047	0.114	15	LGM	0.0076	128.731	9.100
CNCJC219J	C	C2	3	2	135.200	9.609	0.065	0.115	15	LWT / LGM	0.0076	132.408	9.411

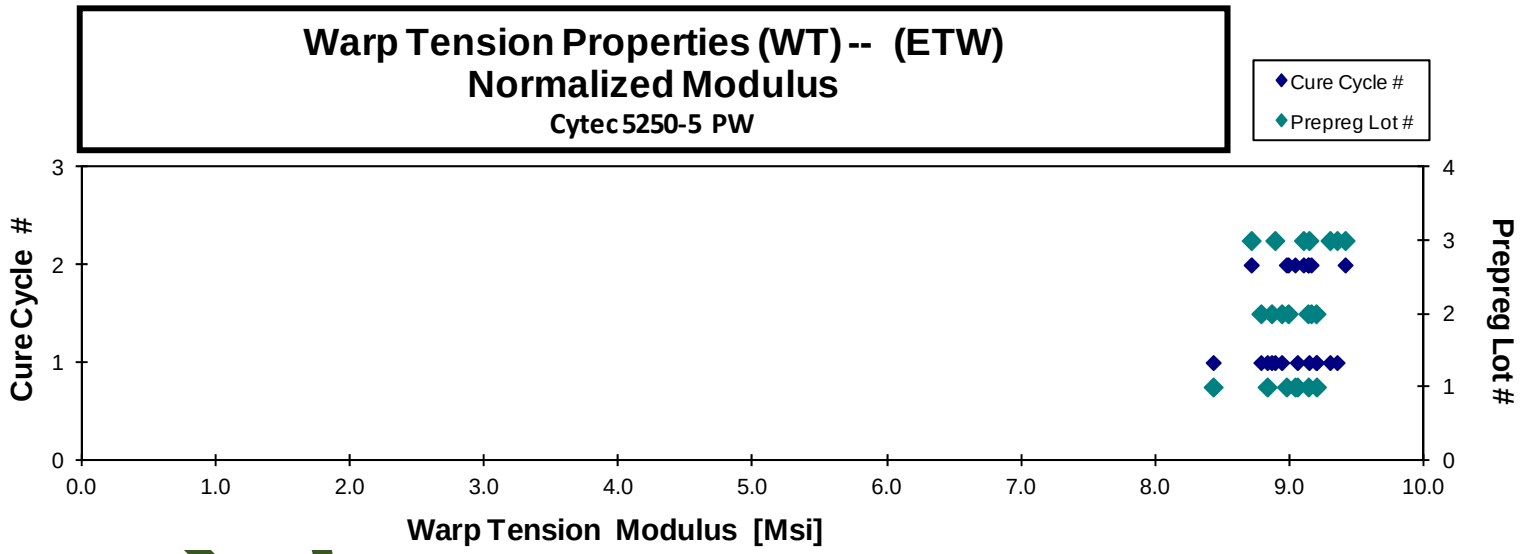
*** Retested for strength only**

****Tensile strength not reported due to bad failure mode or slippage of coupon during testing.**

Average	**127.491**	**9.143**	**0.041**
Standard Dev.	**4.578**	**0.262**	**0.012**
Coeff. of Var. [%]	**3.591**	**2.870**	**30.383**
Min.	**118.906**	**8.442**	**0.019**
Max.	**135.200**	**9.609**	**0.065**
Number of Spec.	**19**	**21**	**20**

$Average_{norm}$	**0.0077**	**125.854**	**9.029**
$Standard\ Dev._{norm}$		**3.980**	**0.230**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**3.163**	**2.548**
Min.	**0.0076**	**118.601**	**8.428**
Max.	**0.0079**	**132.408**	**9.411**
Number of Spec.		**19**	**21**


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


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

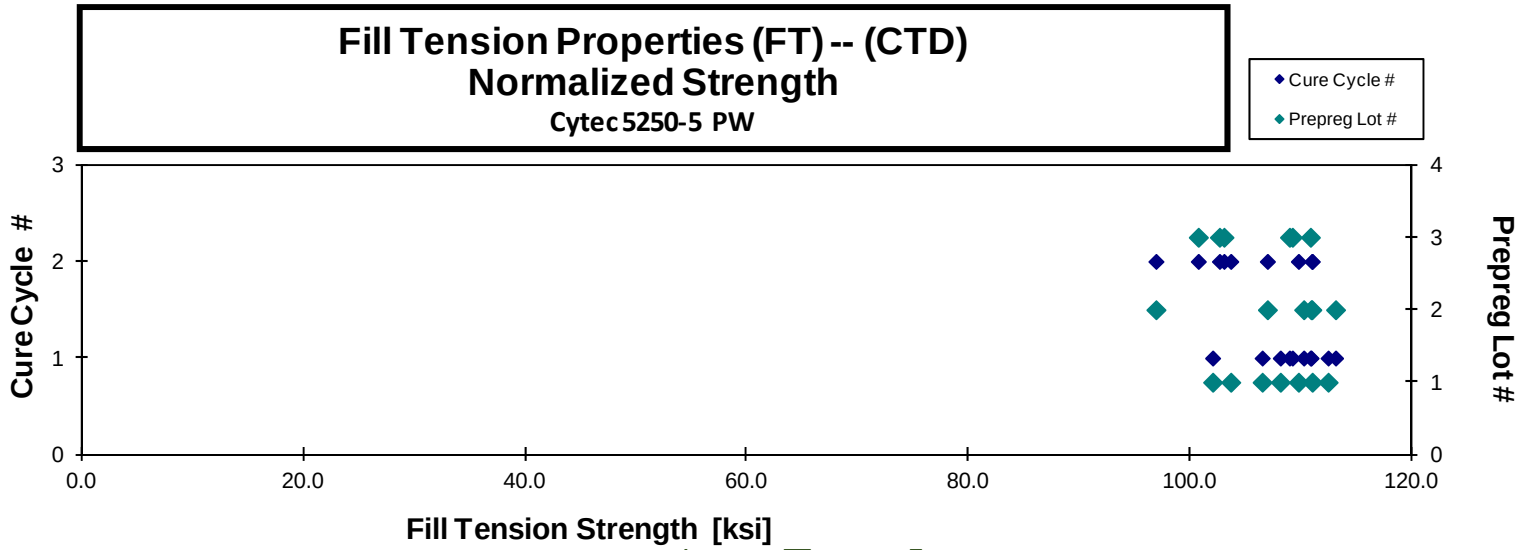
4.2 Fill Tension Properties (FT)

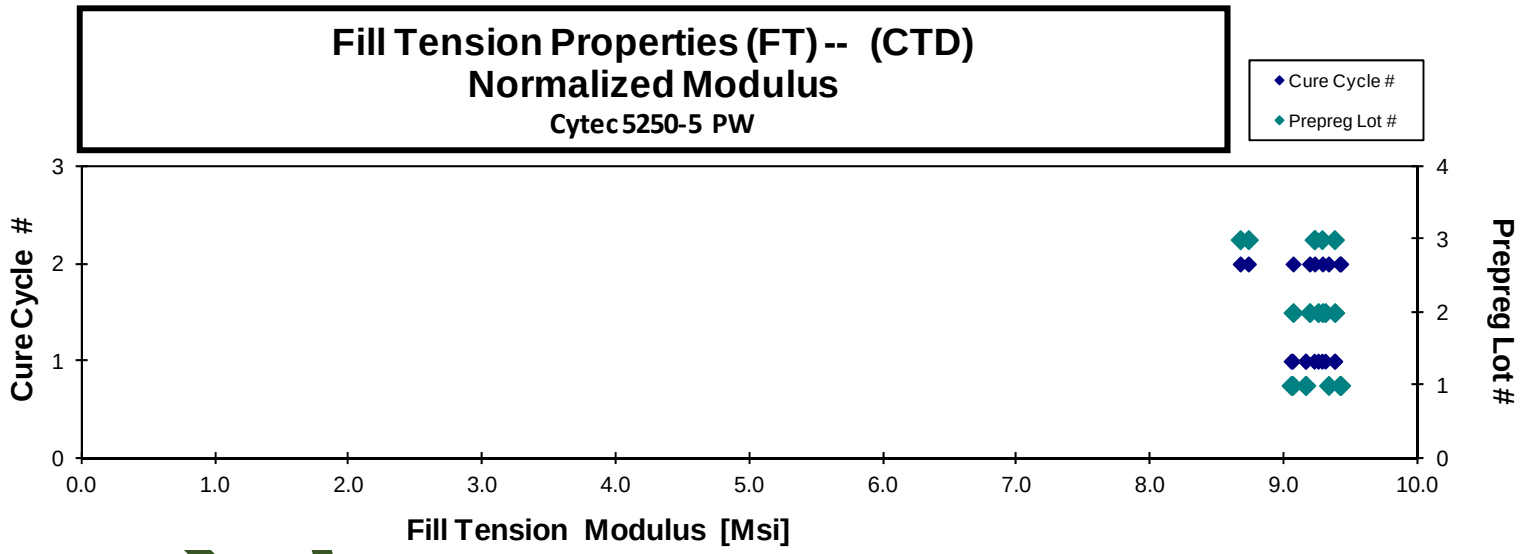
Fill Tension Properties (FT) -- (CTD)
Strength & Modulus
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCUA116B	A	C1	1	1	111.896	9.116	0.118	15	LGM	0.0078	112.454	9.162
CNCUA117B	A	C1	1	1	101.211	8.980	0.118	15	LGM	0.0079	102.033	9.052
CNCUA118B	A	C1	1	1	106.505	9.160	0.117	15	LGM	0.0078	106.505	9.160
CNCUA119B	A	C1	1	1	108.021	9.053	0.117	15	LGM	0.0078	108.144	9.063
CNCUA214B	A	C2	1	2	107.255	9.119	0.120	15	LGM	0.0080	109.776	9.333
CNCUA215B	A	C2	1	2	101.943	9.267	0.119	15	LWT	0.0079	103.671	9.424
CNCUA216B	A	C2	1	2	110.082	9.336	0.118	15	LGM	0.0079	111.023	9.416
CNCUB115B	B	C1	2	1	112.902	9.289	0.117	15	LGM	0.0078	113.128	9.308
CNCUB116B	B	C1	2	1	110.062	9.239	0.117	15	LGM	0.0078	110.250	9.254
CNCUB117B	B	C1	2	1	110.983	9.385	0.117	15	LGM	0.0078	110.919	9.380
CNCUB215B	B	C2	2	2	112.070	9.156	0.116	15	LWT	0.0077	110.984	9.067
CNCUB216B	B	C2	2	2	108.350	9.309	0.116	15	LWB	0.0077	106.976	9.191
CNCUB217B	B	C2	2	2	98.462	9.435	0.115	15	LGM	0.0077	96.919	9.288
CNCUC115B	C	C1	3	1	110.392	9.382	0.116	15	LGM	0.0077	109.229	9.283
CNCUC116B	C	C1	3	1	110.053	9.470	0.116	15	LGM	0.0077	108.971	9.377
CNCUC117B	C	C1	3	1	111.828	9.305	0.116	15	LGM	0.0077	110.856	9.225
CNCUC215B	C	C2	3	2	103.611	8.753	0.116	15	LWT	0.0077	102.651	8.672
CNCUC216B	C	C2	3	2	102.317	9.373	0.115	15	LWB	0.0077	100.743	9.229
CNCUC217B	C	C2	3	2	104.484	8.854	0.115	15	LGM	0.0077	103.055	8.733

Average	107.496	9.209	$Average_{norm}$	0.0078	107.278	9.190
Standard Dev.	4.305	0.195	$Standard\ Dev._{norm}$		4.520	0.206
Coeff. of Var. [%]	4.005	2.121	$Coeff.\ of\ Var.\ [\%]_{norm}$		4.214	2.244
Min.	98.462	8.753	Min.	0.0077	96.9187	8.6718
Max.	112.902	9.470	Max.	0.0080	113.1277	9.4236
Number of Spec.	19	19	Number of Spec.		19	19


Fill Tension Properties (FT) -- (CTD)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Fill Tension Strength [ksi]


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

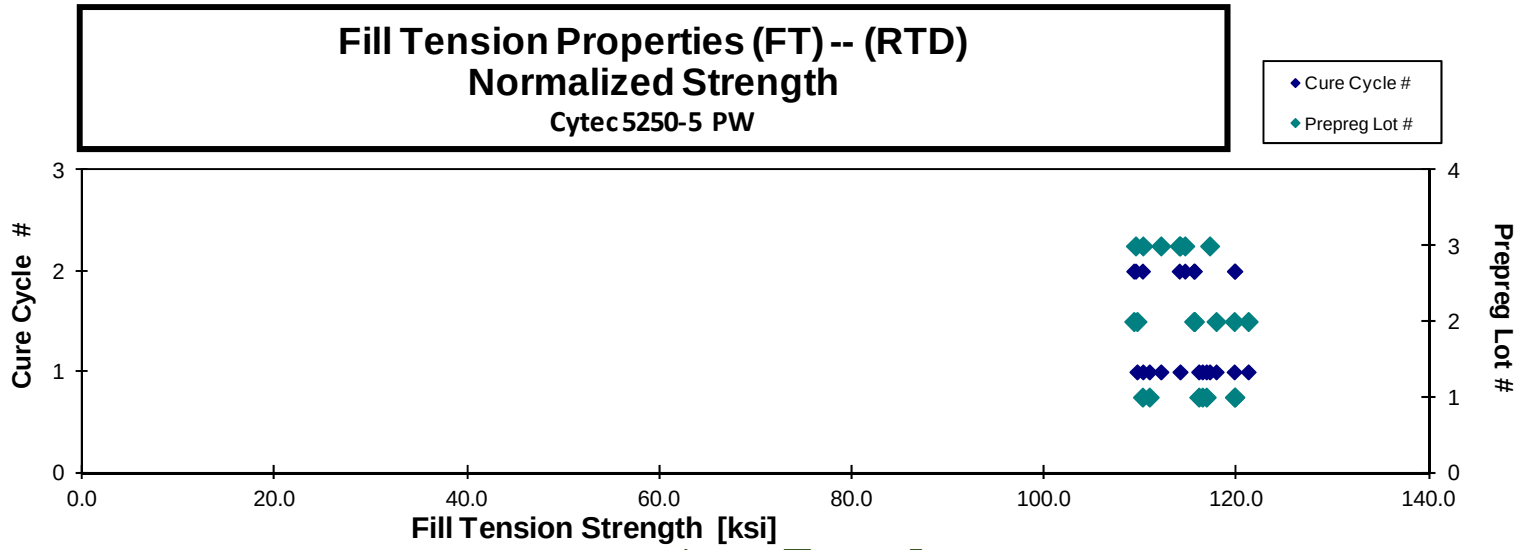
Fill Tension Properties (FT) -- (RTD)
Strength & Modulus
Cytec 5250-5 PW

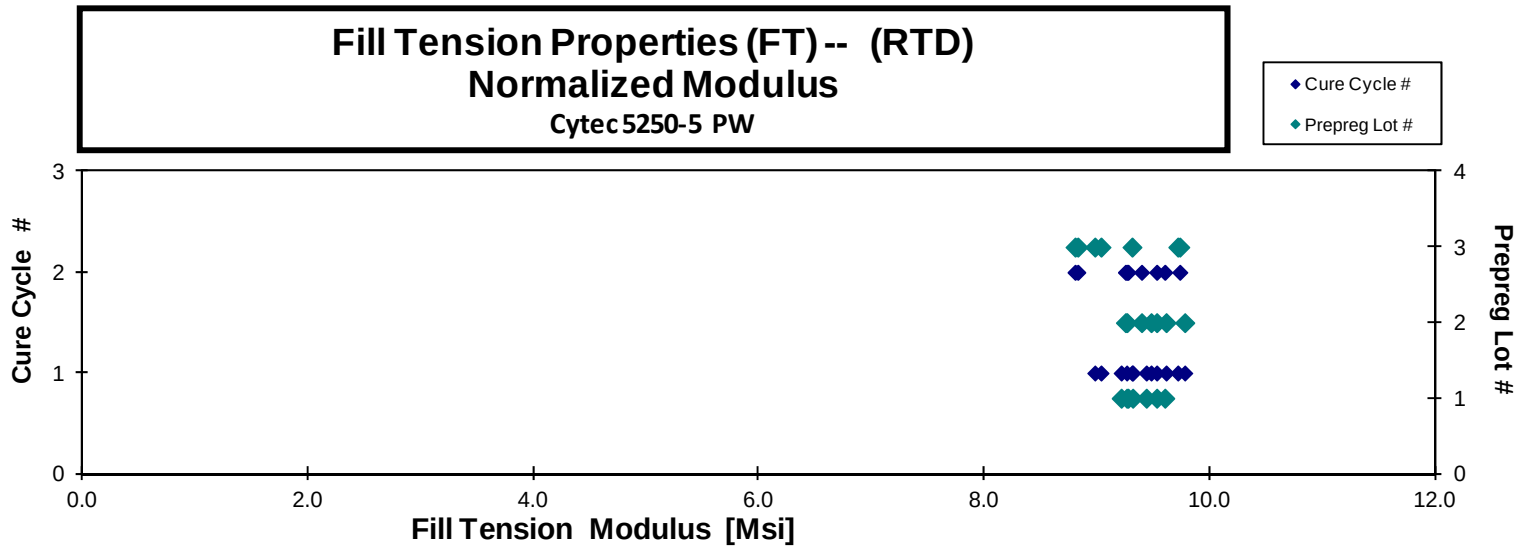
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCUA111A	A	C1	1	1	115.616	9.403	0.117	15	LGM	0.0078	116.044	9.437
CNCUA112A	A	C1	1	1	115.994	9.231	0.117	15	LGM	0.0078	116.407	9.264
CNCUA113A	A	C1	1	1	116.406	9.284	0.117	15	LGM	0.0078	116.821	9.317
CNCUA114A	A	C1	1	1	110.473	9.180	0.117	15	LGM	0.0078	110.898	9.215
CNCUA211A	A	C2	1	2	118.343	9.163	0.118	15	LGM	0.0079	119.793	9.276
CNCUA212A	A	C2	1	2	115.870	9.221	0.121	15	LWB	0.0081	119.749	9.530
CNCUA213A	A	C2	1	2	108.476	9.452	0.119	15	LWT	0.0079	110.191	9.602
CNCUB111A	B	C1	2	1	120.155	9.648	0.117	15	LGM	0.0078	119.727	9.613
CNCUB112A	B	C1	2	1	121.214	9.482	0.117	15	LWB	0.0078	121.180	9.480
CNCUB113A	B	C1	2	1	110.348	9.843	0.116	15	LAT	0.0077	109.625	9.779
CNCUB114A	B	C1	2	1	118.898	9.614	0.116	15	LWB	0.0077	117.848	9.529
CNCUB211A	B	C2	2	2	110.625	9.511	0.116	15	LGM	0.0077	109.286	9.396
CNCUB212A	B	C2	2	2	117.157	9.397	0.115	15	LGM/LWT	0.0077	115.522	9.266
CNCUB213A	B	C2	2	2	116.636	9.336	0.116	15	LGM	0.0077	115.589	9.253
CNCUC111A	C	C1	3	1	118.839	9.855	0.115	15	LGM	0.0077	117.180	9.717
CNCUC112A	C	C1	3	1	113.212	9.403	0.116	15	LAB	0.0077	112.099	9.311
CNCUC113A	C	C1	3	1	114.900	9.099	0.116	15	LGM	0.0077	114.098	9.036
CNCUC114A	C	C1	3	1	111.180	9.058	0.116	15	LWT	0.0077	110.230	8.981
CNCUC211A	C	C2	3	2	116.549	9.952	0.114	15	LGM	0.0076	114.009	9.735
CNCUC212A	C	C2	3	2	116.668	8.990	0.115	15	LGM	0.0077	114.591	8.830
CNCUC213A	C	C2	3	2	111.355	8.957	0.115	15	LGM	0.0077	109.468	8.805

Average	**115.187**	**9.385**	
Standard Dev.	**3.585**	**0.282**	
Coeff. of Var. [%]	**3.113**	**3.000**	
Min.	**108.476**	**8.957**	
Max.	**121.214**	**9.952**	
Number of Spec.	**21**	**21**	

$Average_{norm}$	**0.0078**	**114.779**	**9.351**
Standard $Dev._{norm}$		**3.809**	**0.278**
Coeff. of Var. $[\%]_{norm}$		**3.318**	**2.970**
Min.	**0.0076**	**109.286**	**8.805**
Max.	**0.0081**	**121.180**	**9.779**
Number of Spec.		**21**	**21**


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


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

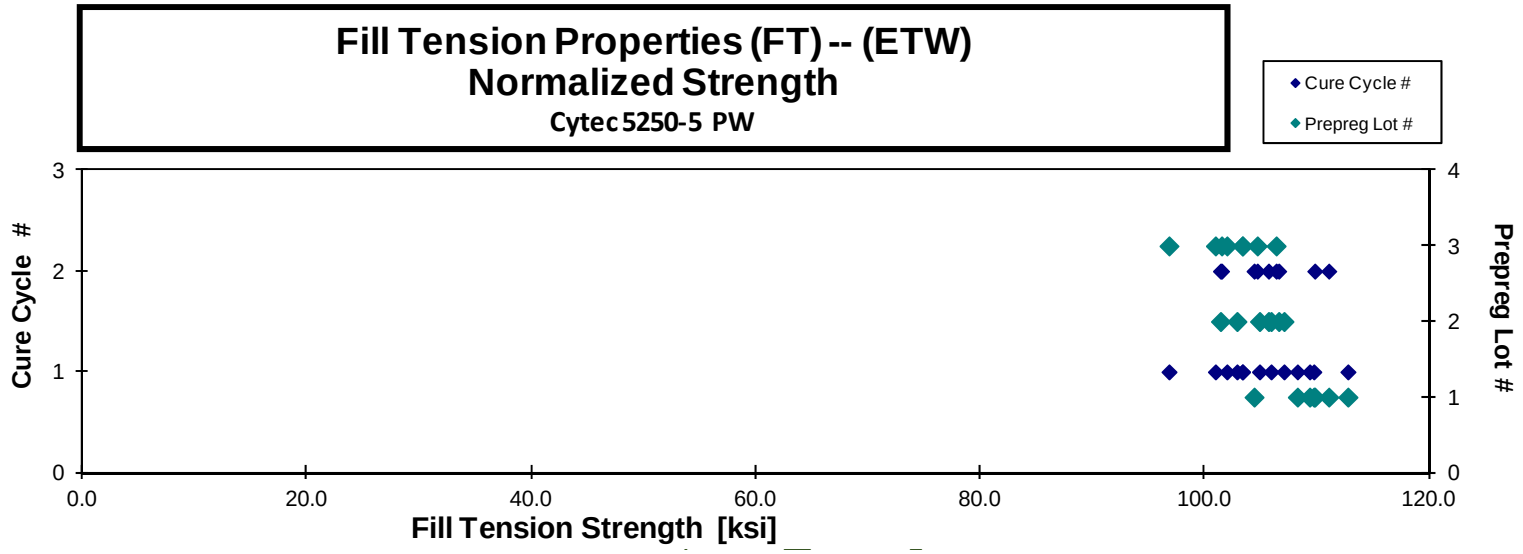
Fill Tension Properties (FT) -- (ETW)
Strength & Modulus
Cytec 5250-5 PW

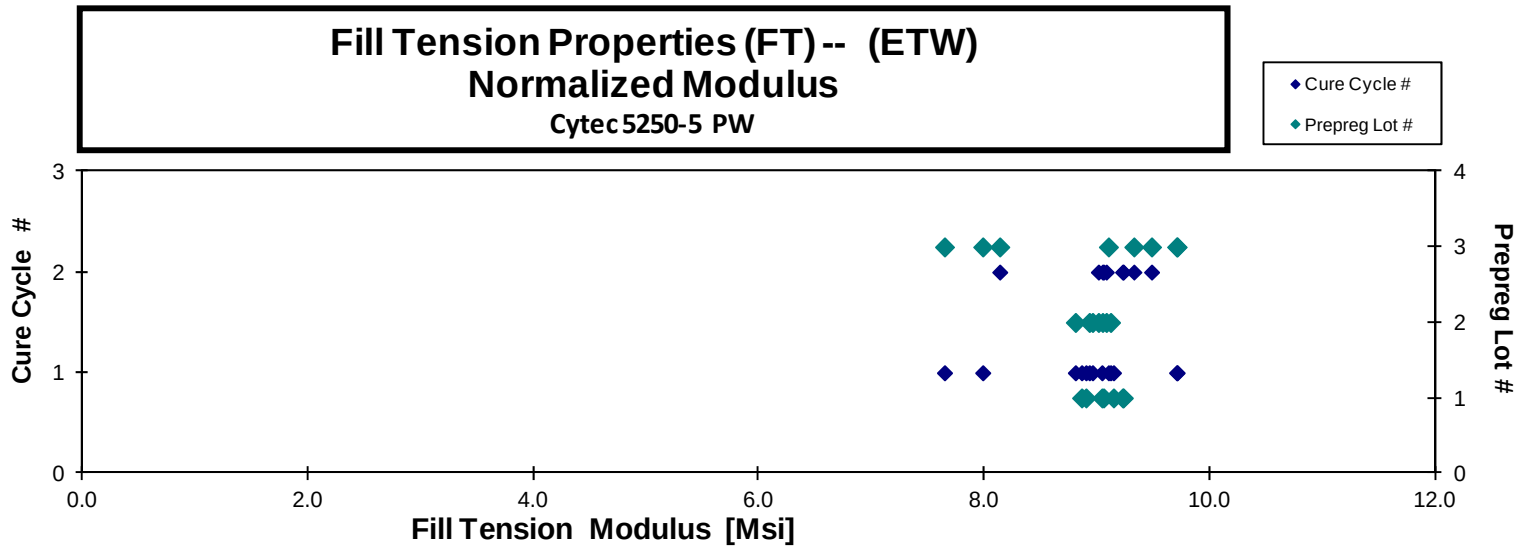
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCUA11BJ	A	C1	1	1	108.426	8.916	0.117	15	LGM	0.008	108.257	8.902
CNCUA11CJ	A	C1	1	1	113.001	9.063	0.117	15	LGM	0.008	112.760	9.044
CNCUA11DJ	A	C1	1	1	109.676	8.860	0.117	15	LWT/LGM	0.008	109.723	8.864
CNCUA11EJ	A	C1	1	1	109.615	9.169	0.117	15	LGM	0.008	109.350	9.146
CNCUA217J	A	C2	1	2	110.095	8.981	0.118	15	LGM	0.008	111.051	9.059
CNCUA218J	A	C2	1	2	102.856	9.098	0.119	15	LWB	0.008	104.395	9.234
CNCUA219J	A	C2	1	2	109.168	9.174	0.118	15	LGM	0.008	109.806	9.228
CNCUB118J	B	C1	2	1	106.810	9.036	0.116	15	LGM	0.008	105.912	8.960
CNCUB119J	B	C1	2	1	105.391	8.976	0.116	15	LGM	0.008	104.881	8.932
CNCUB11AJ	B	C1	2	1	107.505	9.158	0.117	15	LGM	0.008	107.061	9.120
CNCUB11BJ	B	C1	2	1	103.696	8.879	0.116	15	LGM	0.008	102.869	8.808
CNCUB218J	B	C2	2	2	107.277	9.148	0.115	15	LGM	0.008	105.688	9.013
CNCUB219J	B	C2	2	2	108.414	9.238	0.115	15	LGM	0.008	106.592	9.083
CNCUB21AJ	B	C2	2	2	102.823	9.176	0.115	15	LGM	0.008	101.402	9.049
CNCUC118J	C	C1	3	1	104.098	9.781	0.116	15	LGM	0.008	103.357	9.711
CNCUC119J	C	C1	3	1	97.679	7.716	0.116	15	LGM	0.008	96.817	7.648
CNCUC11AJ	C	C1	3	1	102.797	9.175	0.116	15	LGM/LWB	0.008	101.977	9.102
CNCUC11BJ	C	C1	3	1	101.663	8.043	0.116	15	LWB	0.008	100.954	7.987
CNCUC11CJ	C	C1	3	1	103.964	9.764	0.116	15	LWT/LWB	0.008	103.357	9.707
CNCUC218J	C	C2	3	2	107.914	8.256	0.115	15	LWT/LWB	0.008	106.362	8.138
CNCUC219J	C	C2	3	2	103.072	9.472	0.115	15	LGM	0.008	101.501	9.327
CNCUC21AJ	C	C2	3	2	105.825	9.588	0.116	15	LGM	0.008	104.679	9.485

Average	105.989	9.030
Standard Dev.	3.537	0.495
Coeff. of Var. [%]	3.337	5.479
Min.	97.679	7.716
Max.	113.001	9.781
Number of Spec.	22	22

$Average_{norm}$	0.0077	105.398	8.979
$Standard\ Dev._{norm}$		3.819	0.496
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.624	5.529
Min.	0.0077	96.817	7.648
Max.	0.0078	112.760	9.711
Number of Spec.		22	22


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


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

4.3 Warp Compression Properties (WC)

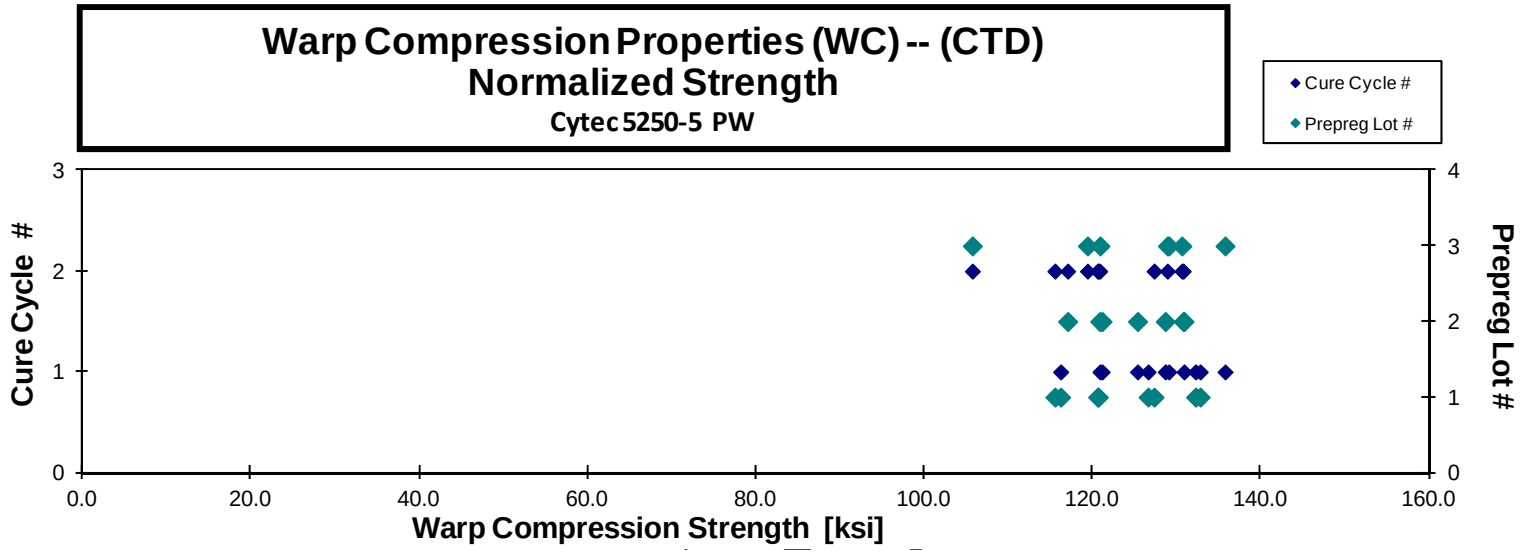
Warp Compression Properties (WC) -- (CTD)
Strength & Modulus
Cytec 5250-5 PW

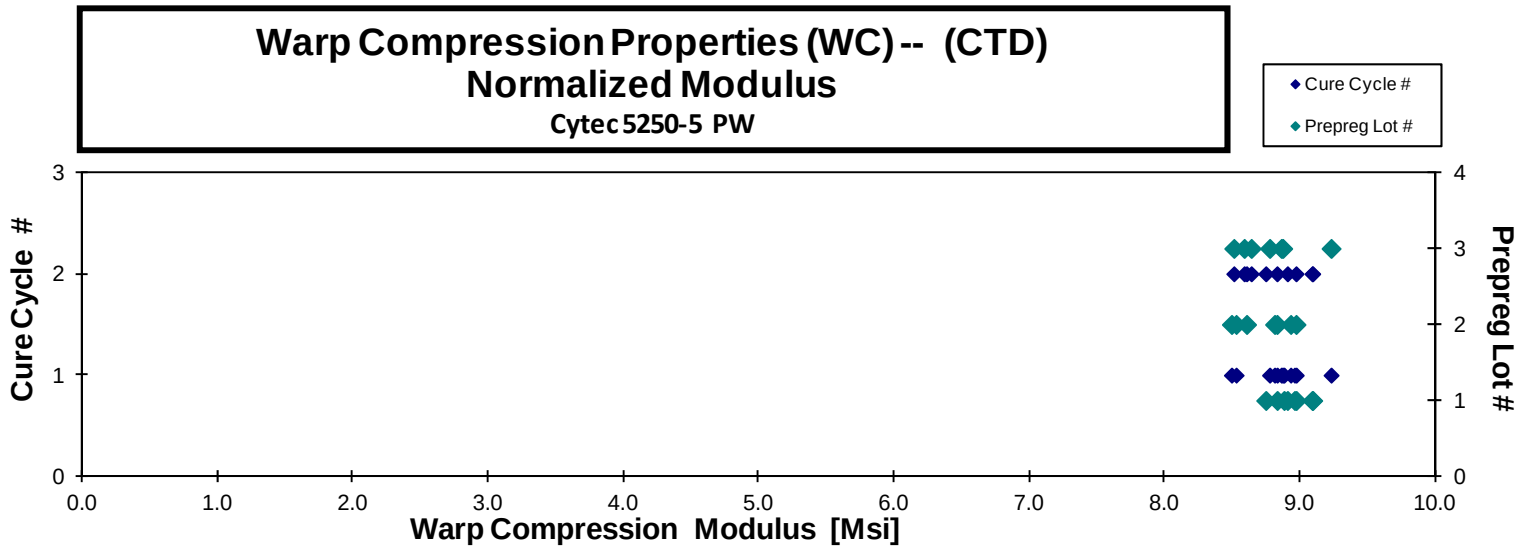
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCLA116B	A	C1	1	1	115.557	8.782	0.118	15	BGM	0.0078	116.216	8.832
CNCLA117B	A	C1	1	1	130.237	8.825	0.119	15	BGM	0.0079	132.241	8.960
CNCLA118B	A	C1	1	1	125.978	8.839	0.118	15	BGM	0.0078	126.606	8.883
CNCLA119B	A	C1	1	1	131.723	8.901	0.118	15	BGM	0.0079	132.792	8.973
CNCLA215B	A	C2	1	2	117.739	8.540	0.120	15	BGM	0.0080	120.607	8.748
CNCLA216B	A	C2	1	2	123.465	8.816	0.121	15	BGM/HIT	0.0080	127.317	9.091
CNCLA217B	A	C2	1	2	117.139	8.646	0.121	15	BAB	0.0080	120.694	8.908
CNCLA218B	A	C2	1	2	112.404	8.849	0.120	15	BAB	0.0080	115.526	9.095
CNCLB115B	B	C1	2	1	128.892	9.185	0.114	15	BGM	0.0076	125.349	8.932
CNCLB116B	B	C1	2	1	124.600	8.737	0.114	15	BGM	0.0076	121.139	8.495
CNCLB117B	B	C1	2	1	131.940	8.747	0.114	15	BGM	0.0076	128.650	8.529
CNCLB118B	B	C1	2	1	134.458	9.055	0.114	15	BGM	0.0076	130.876	8.813
CNCLB215B	B	C2	2	2	*	8.816	0.114	15	BGM / END CRUSH	0.0076		8.606
CNCLB216B	B	C2	2	2	119.115	9.130	0.115	15	BGM	0.0077	117.045	8.972
CNCLB217B	B	C2	2	2	122.201	8.929	0.116	15	HGM	0.0077	120.860	8.831
CNCLB218B	B	C2	2	2	131.583	**	0.116	15	BGM	0.0078	130.777	
CNCLC115B	C	C1	3	1	*	9.114	0.113	15	BGM / END CRUSHED	0.0075		8.777
CNCLC116B	C	C1	3	1	140.594	9.190	0.113	15	BAT / HIT	0.0075	135.747	8.873
CNCLC117B	C	C1	3	1	125.001	9.164	0.113	15	BGM	0.0075	120.888	8.863
CNCLC118B	C	C1	3	1	133.141	9.523	0.113	15	BGM	0.0076	129.063	9.231
CNCLC215B	C	C2	3	2	133.756	8.833	0.113	15	BGM	0.0075	128.897	8.512
CNCLC216B	C	C2	3	2	123.571	8.889	0.113	15	BGM	0.0075	119.399	8.589
CNCLC217B	C	C2	3	2	134.092	8.870	0.114	15	BGM	0.0076	130.616	8.640
CNCLC218B	C	C2	3	2	108.195	**	0.114	15	BGM	0.0076	105.729	

***Compressive strength not reported due to bad failure mode**
****Modulus data unavailable because coupons were tested for strength only**

Average	**125.699**	**8.926**	**$Average_{norm}$**	**0.0077**	**124.411**	**8.825**
Standard Dev.	**8.222**	**0.220**	**$Standard\ Dev._{norm}$**		**7.215**	**0.200**
Coeff. of Var. [%]	**6.541**	**2.470**	**$Coeff.\ of\ Var.\ [\%]_{norm}$**		**5.800**	**2.261**
Min.	**108.195**	**8.540**	**Min.**	**0.0075**	**105.729**	**8.495**
Max.	**140.594**	**9.523**	**Max.**	**0.0080**	**135.747**	**9.231**
Number of Spec.	**22**	**22**	**Number of Spec.**		**22**	**22**


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


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

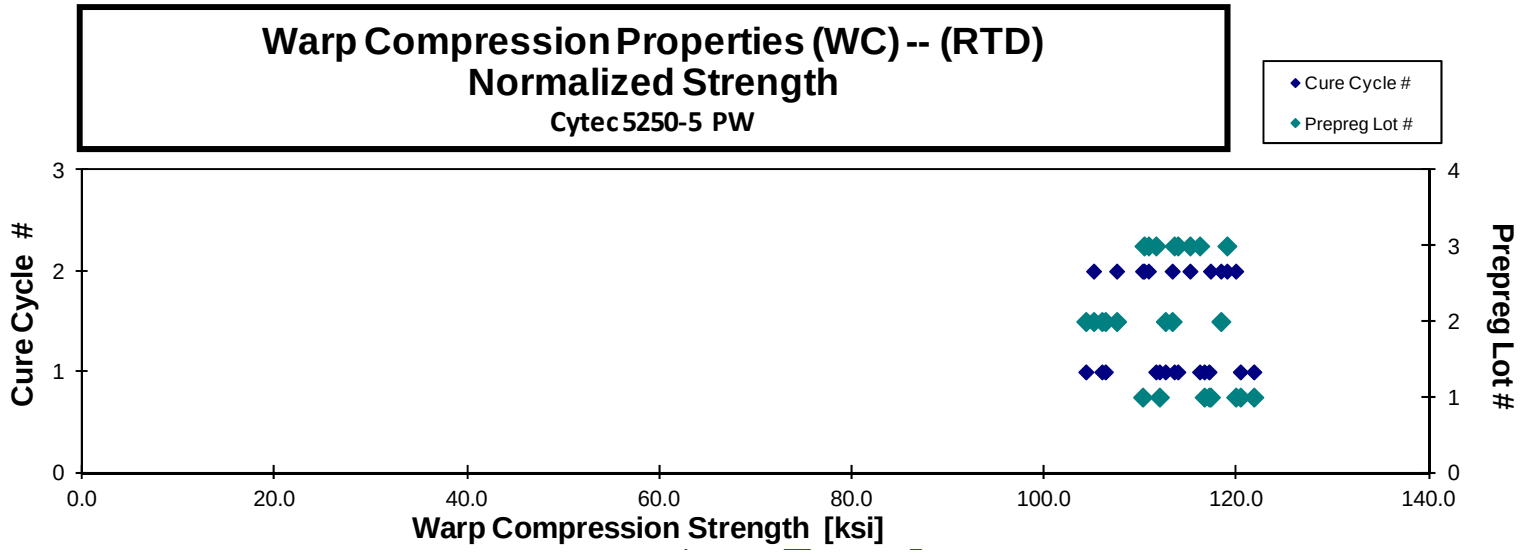
Warp Compression Properties (WC) -- (RTD)
Strength & Modulus
Cytec 5250-5 PW

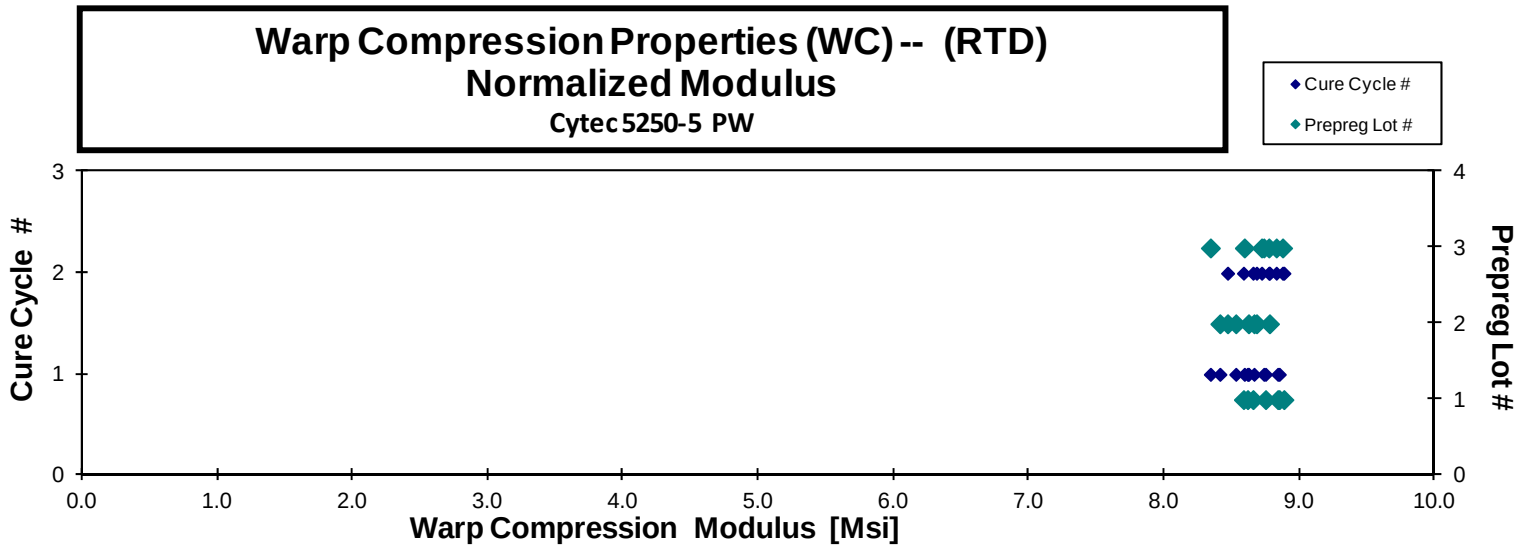
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCLA111A	A	C1	1	1	123.260	8.945	0.116	15	BGM	0.0077	121.767	8.836
CNCLA112A	A	C1	1	1	112.791	8.914	0.116	15	BGM	0.0077	111.955	8.848
CNCLA113A	A	C1	1	1	117.816	8.799	0.116	15	BGM	0.0078	117.111	8.746
CNCLA114A	A	C1	1	1	116.273	8.589	0.117	15	BGM/HIB	0.0078	116.604	8.614
CNCLA115A	A	C1	1	1	120.074	*	0.117	15	BGM	0.0078	120.365	
CNCLA211A	A	C2	1	2	119.500	8.853	0.117	15	HAT / BGM	0.0078	119.892	8.882
CNCLA212A	A	C2	1	2	116.531	8.530	0.118	15	HAT / BGM	0.0078	117.261	8.583
CNCLA213A	A	C2	1	2	108.386	8.510	0.119	15	BGM	0.0079	110.207	8.653
CNCLB111A	B	C1	2	1	111.227	8.919	0.112	15	BGM	0.0075	106.332	8.526
CNCLB112A	B	C1	2	1	110.326	8.975	0.112	15	BGM	0.0075	105.972	8.621
CNCLB113A	B	C1	2	1	116.486	8.962	0.113	15	BGM	0.0075	112.570	8.661
CNCLB114A	B	C1	2	1	107.777	8.689	0.113	15	BGM	0.0075	104.307	8.409
CNCLB211A	B	C2	2	2	125.455	9.303	0.110	15	BGM / HIB	0.0074	118.342	8.776
CNCLB212A	B	C2	2	2	109.998	8.860	0.112	15	BGM	0.0075	105.110	8.466
CNCLB213A	B	C2	2	2	117.990	9.041	0.112	15	BGM	0.0075	113.284	8.680
CNCLB214A	B	C2	2	2	110.836	*	0.113	15	BGM	0.0076	107.505	
CNCLC111A	C	C1	3	1	117.207	*	0.111	15	BGM	0.0074	111.581	
CNCLC112A	C	C1	3	1	118.088	8.909	0.113	15	BAB	0.0075	113.866	8.590
CNCLC113A	C	C1	3	1	121.104	8.695	0.112	15	BGM	0.0075	116.136	8.338
CNCLC114A	C	C1	3	1	117.890	9.072	0.113	15	BAT / HIT	0.0075	113.490	8.733
CNCLC211A	C	C2	3	2	123.618	9.219	0.113	15	BGM	0.0075	118.969	8.872
CNCLC212A	C	C2	3	2	115.348	9.074	0.112	15	BGM	0.0075	110.813	8.717
CNCLC213A	C	C2	3	2	120.194	9.157	0.112	15	BAB	0.0075	115.126	8.771
CNCLC214A	C	C2	3	2	114.937	9.192	0.112	15	BGM	0.0075	110.352	8.826

***Modulus data unavailable because coupons were tested for strength only**

Average	**116.380**	**8.915**	**$Average_{norm}$**	**0.0076**	**113.288**	**8.674**
Standard Dev.	**4.852**	**0.222**	**Standard $Dev._{norm}$**		**5.061**	**0.152**
Coeff. of Var. [%]	**4.169**	**2.494**	**Coeff. of Var. $[\%]_{norm}$**		**4.467**	**1.754**
Min.	**107.777**	**8.510**	**Min.**	**0.0074**	**104.307**	**8.338**
Max.	**125.455**	**9.303**	**Max.**	**0.0079**	**121.767**	**8.882**
Number of Spec.	**24**	**21**	**Number of Spec.**		**24**	**21**


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

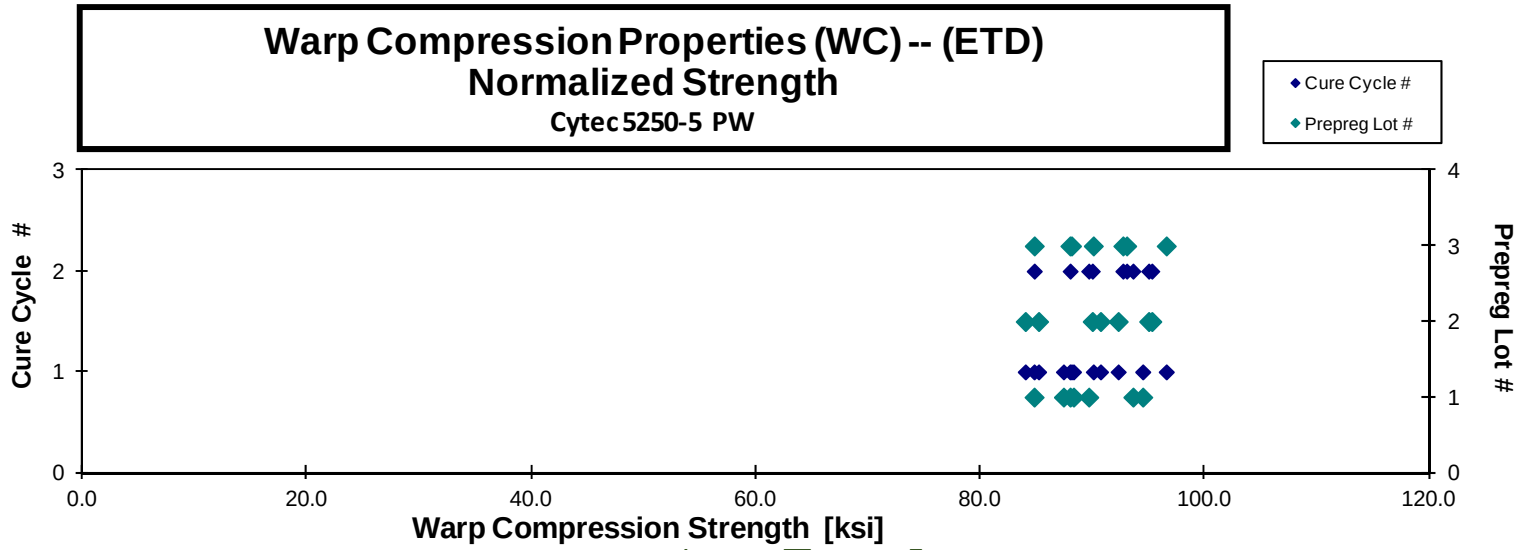

Warp Compression Properties (WC) -- (RTD)
Normalized Modulus
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Warp Compression Modulus [Msi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0

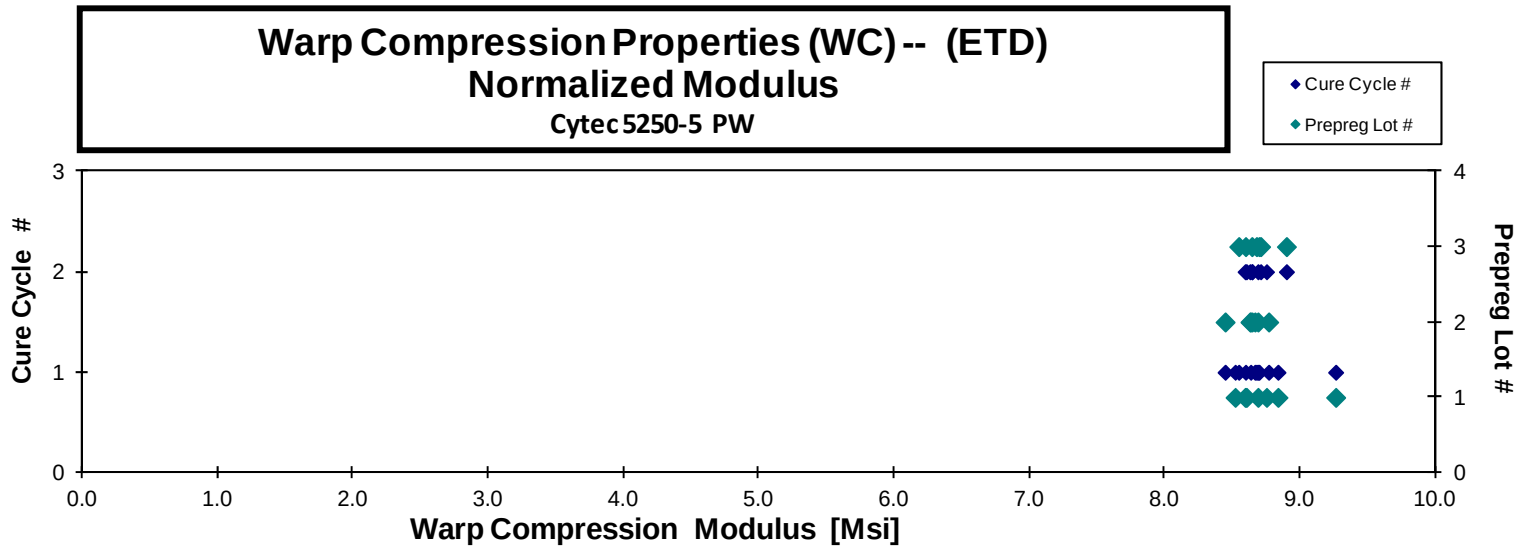
Warp Compression Properties (WC) -- (ETD)
Strength & Modulus
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCLA11AK	A	C1	1	1	93.450	8.742	0.118	15	BGM	0.0079	94.475	8.838
CNCLA11BK	A	C1	1	1	83.982	9.176	0.118	15	HAT/BGM	0.0079	84.796	9.265
CNCLA11CK	A	C1	1	1	91.191	8.800	0.113	15	BGM	0.0076	88.307	8.522
CNCLA11DK	A	C1	1	1	89.566	8.905	0.114	15	BGM/HIT	0.0076	87.410	8.690
CNCLA219K	A	C2	1	2	85.261	8.327	0.121	15	BGM	0.0081	88.006	8.595
CNCLA21AK	A	C2	1	2	87.156	8.364	0.120	15	BGM	0.0080	89.664	8.605
CNCLA21BK	A	C2	1	2	93.229	8.719	0.117	15	BGM	0.0078	93.601	8.753
CNCLB119K	B	C1	2	1	94.481	8.648	0.114	15	BGM	0.0076	92.287	8.447
CNCLB11AK	B	C1	2	1	87.032	8.854	0.115	15	BAT	0.0076	85.197	8.668
CNCLB11BK	B	C1	2	1	87.112	8.955	0.113	15	BGM	0.0075	84.009	8.636
CNCLB11CK	B	C1	2	1	93.275	9.017	0.114	15	BAB	0.0076	90.711	8.770
CNCLB219K	B	C2	2	2	95.305	8.674	0.117	15	BGM	0.0078	95.007	8.647
CNCLB21AK	B	C2	2	2	90.211	8.712	0.117	15	BGM	0.0078	89.979	8.690
CNCLB21BK	B	C2	2	2	100.149	9.072	0.111	15	BAB	0.0074	95.284	8.631
CNCLC119K	C	C1	3	1	93.186	8.998	0.113	15	BGM	0.0075	90.074	8.698
CNCLC11AK	C	C1	3	1	90.597	8.802	0.114	15	BGM	0.0076	87.990	8.549
CNCLC11BK	C	C1	3	1	91.461	9.008	0.113	15	BGM/HAT	0.0075	88.126	8.679
CNCLC11CK	C	C1	3	1	99.579	8.866	0.113	15	BGM	0.0076	96.572	8.599
CNCLC219K	C	C2	3	2	94.853	9.074	0.115	15	BGM	0.0077	93.042	8.901
CNCLC21AK	C	C2	3	2	96.213	8.973	0.113	15	HAT/BGM	0.0075	92.705	8.646
CNCLC21BK	C	C2	3	2	88.571	9.096	0.112	15	BGM	0.0075	84.811	8.710

Average	91.707	8.847	$Average_{norm}$	0.0077	90.098	8.692
Standard Dev.	4.343	0.224	$Standard\ Dev._{norm}$		3.778	0.166
Coeff. of Var. [%]	4.735	2.532	$Coeff.\ of\ Var.\ [\%]_{norm}$		4.193	1.908
Min.	83.982	8.327	Min.	0.0074	84.009	8.447
Max.	100.149	9.176	Max.	0.0081	96.572	9.265
Number of Spec.	21	21	Number of Spec.		21	21


Warp Compression Properties (WC) -- (ETD)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Warp Compression Strength [ksi]
0.0
20.0
40.0
60.0
80.0
100.0
120.0

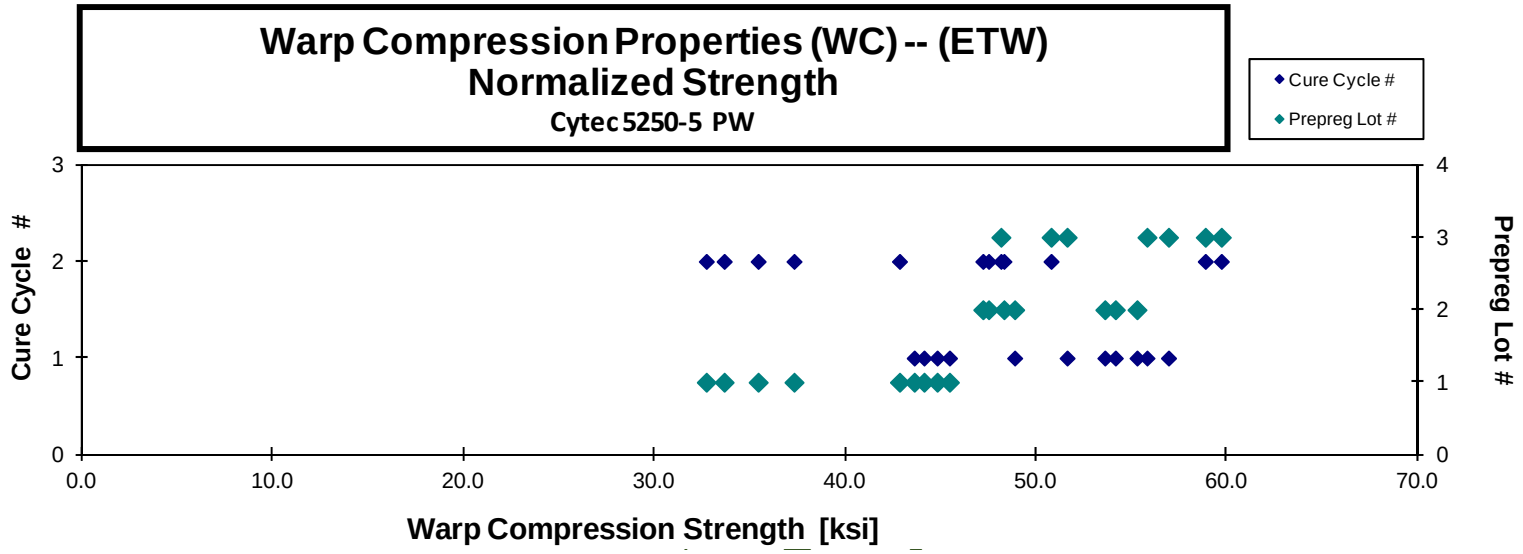

Warp Compression Properties (WC) -- (ETD)
Normalized Modulus
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Warp Compression Modulus [Msi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0

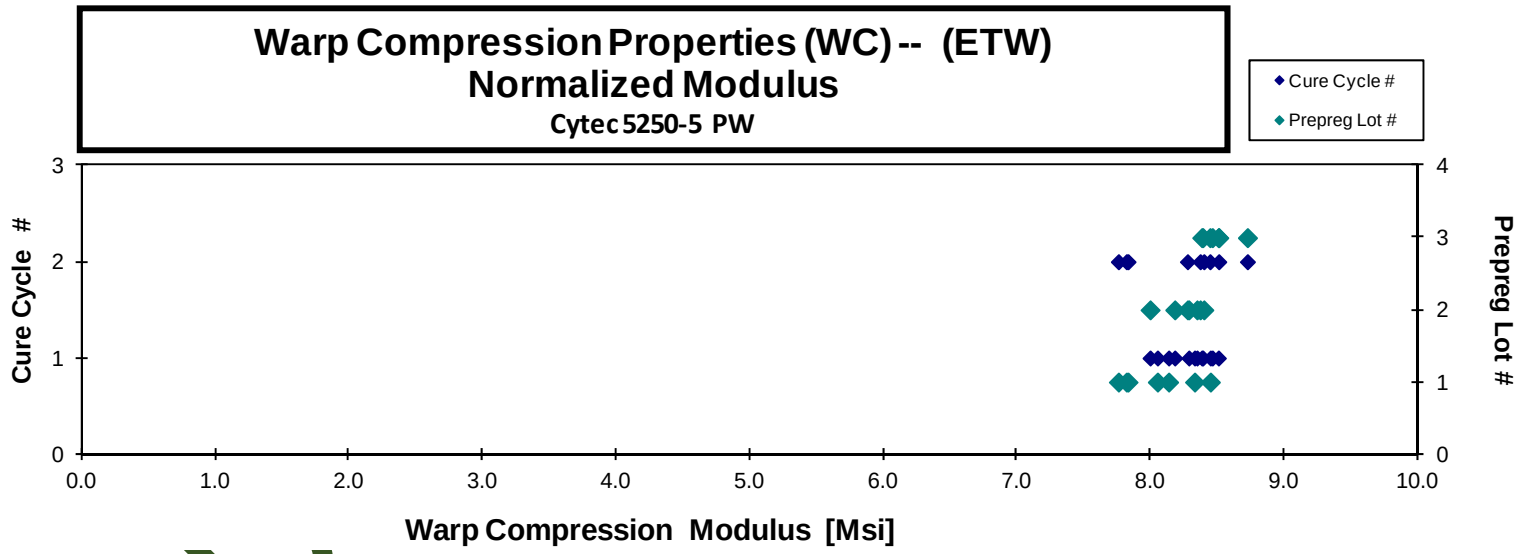
Warp Compression Properties (WC) -- (ETW)
Strength & Modulus
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
CNCLA11FJ	A	C1	1	1		8.180	0.115	15	BGM	0.0077		8.052
CNCLA11GJ	A	C1	1	1		8.416	0.116	15	HAB	0.0077		8.330
CNCLA11HJ	A	C1	1	1		8.163	0.117	15	BAT	0.0078		8.136
CNCLA11IJ	A	C1	1	1		8.471	0.117	15	BGM	0.0078		8.448
CNCLA11JJ	A	C1	1	1	44.169		0.117	15	HGM	0.0078	44.131	
CNCLA11KJ	A	C1	1	1	44.812		0.117	15	BGM	0.0078	44.818	
CNCLA11LJ	A	C1	1	1	45.451		0.117	15	BAB/HAB	0.0078	45.464	
CNCLA11MJ	A	C1	1	1	43.514		0.117	15	BAB/HAB	0.0078	43.619	
CNCLA21DJ	A	C2	1	2		7.747	0.118	15	HAB	0.0079		7.832
CNCLA21EJ	A	C2	1	2		7.681	0.118	15	HAT	0.0079		7.760
CNCLA21FJ	A	C2	1	2		7.720	0.119	15	HGM	0.0079		7.820
CNCLA21GJ	A	C2	1	2	36.734		0.119	15	HAT	0.0079	37.321	
CNCLA21HJ	A	C2	1	2	33.140		0.119	15	HAT	0.0079	33.659	
CNCLA21IJ	A	C2	1	2	32.183		0.119	15	HAT	0.0079	32.724	
CNCLA21JJ	A	C2	1	2	34.816		0.119	15	HAT	0.0079	35.441	
CNCLA21KJ	A	C2	1	2	41.915		0.120	15	BGM	0.0080	42.846	
CNCLB11DJ	B	C1	2	1		8.192	0.114	15	BGM	0.0076		7.997
CNCLB11EJ	B	C1	2	1		8.345	0.115	15	HGM	0.0076		8.182
CNCLB11FJ	B	C1	2	1		8.465	0.115	15	BGM	0.0077		8.348
CNCLB11GJ	B	C1	2	1		8.367	0.116	15	HGM	0.0077		8.287
CNCLB11HJ	B	C1	2	1	53.731		0.117	15	HAT	0.0078	53.608	
CNCLB11IJ	B	C1	2	1	55.277		0.117	15	HAB / HGM	0.0078	55.293	
CNCLB11JJ	B	C1	2	1	54.242		0.117	15	BAT	0.0078	54.157	
CNCLB11KJ	B	C1	2	1	48.660		0.118	15	HGM	0.0078	48.882	
CNCLB21DJ	B	C2	2	2		8.840	0.111	15	BGM	0.0074		8.399
CNCLB21EJ	B	C2	2	2		8.718	0.112	15	BAT	0.0075		8.371
CNCLB21FJ	B	C2	2	2		8.623	0.112	15	BAB	0.0075		8.277
CNCLB21GJ	B	C2	2	2	50.024		0.113	15	BAT	0.0075	48.321	
CNCLB21HJ	B	C2	2	2	48.549		0.114	15	BGM	0.0076	47.215	
CNCLB21IJ	B	C2	2	2	48.511		0.115	15	HGM	0.0076	47.516	
CNCLC11DJ	C	C1	3	1		8.611	0.114	15	BGM	0.0076		8.392
CNCLC11EJ	C	C1	3	1		8.542	0.115	15	HAT / HGM	0.0077		8.384
CNCLC11FJ	C	C1	3	1		8.626	0.115	15	BGM	0.0077		8.462
CNCLC11GJ	C	C1	3	1		8.644	0.115	15	BGM/HGM	0.0077		8.508
CNCLC11IJ	C	C1	3	1	52.076		0.116	15	HGM	0.0077	51.631	
CNCLC11JJ	C	C1	3	1	56.378		0.116	15	HGM	0.0077	55.816	
CNCLC11KJ	C	C1	3	1	57.335		0.116	15	BGM/HGM	0.0077	56.943	
CNCLC21DJ	C	C2	3	2		8.866	0.111	15	BGM	0.0074		8.445
CNCLC21EJ	C	C2	3	2		8.924	0.112	15	BGM	0.0074		8.511
CNCLC21FJ	C	C2	3	2		9.136	0.112	15	BGM	0.0075		8.726
CNCLC21GJ	C	C2	3	2	50.273		0.112	15	BGM	0.0075	48.160	
CNCLC21HJ	C	C2	3	2	61.263		0.112	15	HGM	0.0075	58.871	
CNCLC21IJ	C	C2	3	2	61.754		0.113	15	BGM	0.0075	59.713	
CNCLC21JJ	C	C2	3	2	52.288		0.114	15	HAB	0.0076	50.791	

Average	**48.134**	**8.442**		**Average$_{norm}$**	**0.0077**	**47.693**	**8.270**
Standard Dev.	**8.400**	**0.393**		**Standard Dev.$_{norm}$**		**7.768**	**0.254**
Coeff. of Var. [%]	**17.451**	**4.651**		**Coeff. of Var. [%]$_{norm}$**		**16.288**	**3.071**
Min.	**32.183**	**7.681**		**Min.**	**0.0074**	**32.724**	**7.760**
Max.	**61.754**	**9.136**		**Max.**	**0.0080**	**59.713**	**8.726**
Number of Spec.	**23**	**21**		**Number of Spec.**		**23**	**21**


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


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

4.4 Fill Compression Properties (FC)

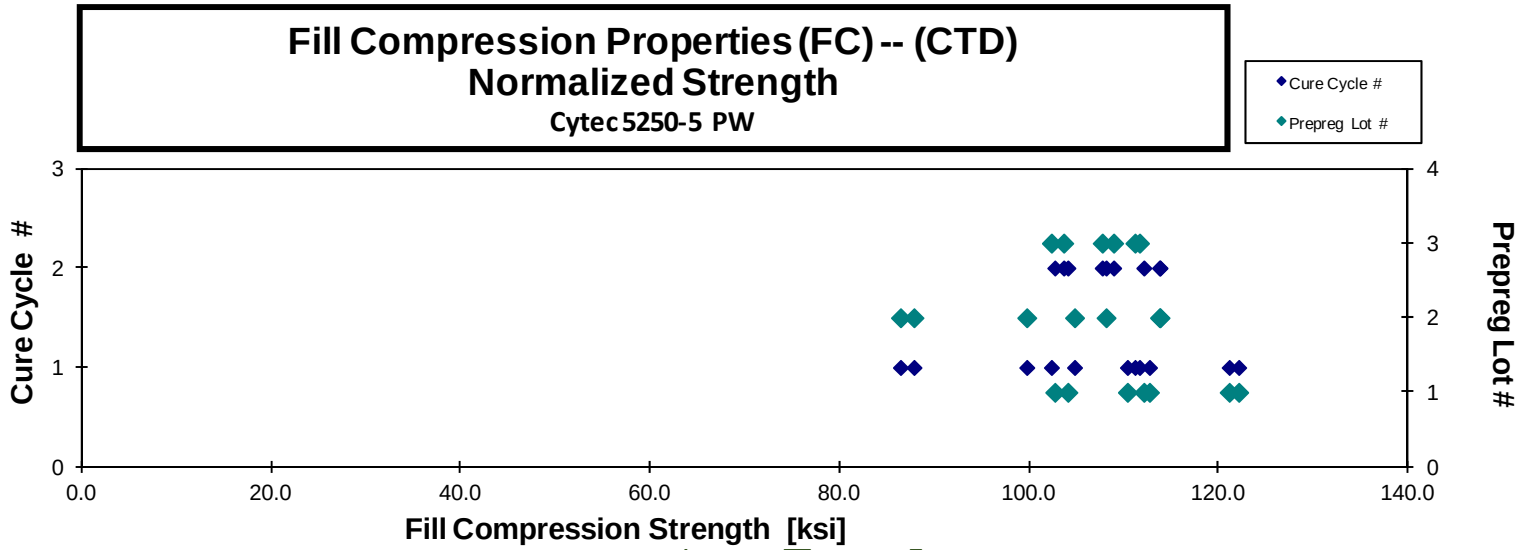
Fill Compression Properties (FC) -- (CTD)
Strength & Modulus
Cytec 5250-5 PW

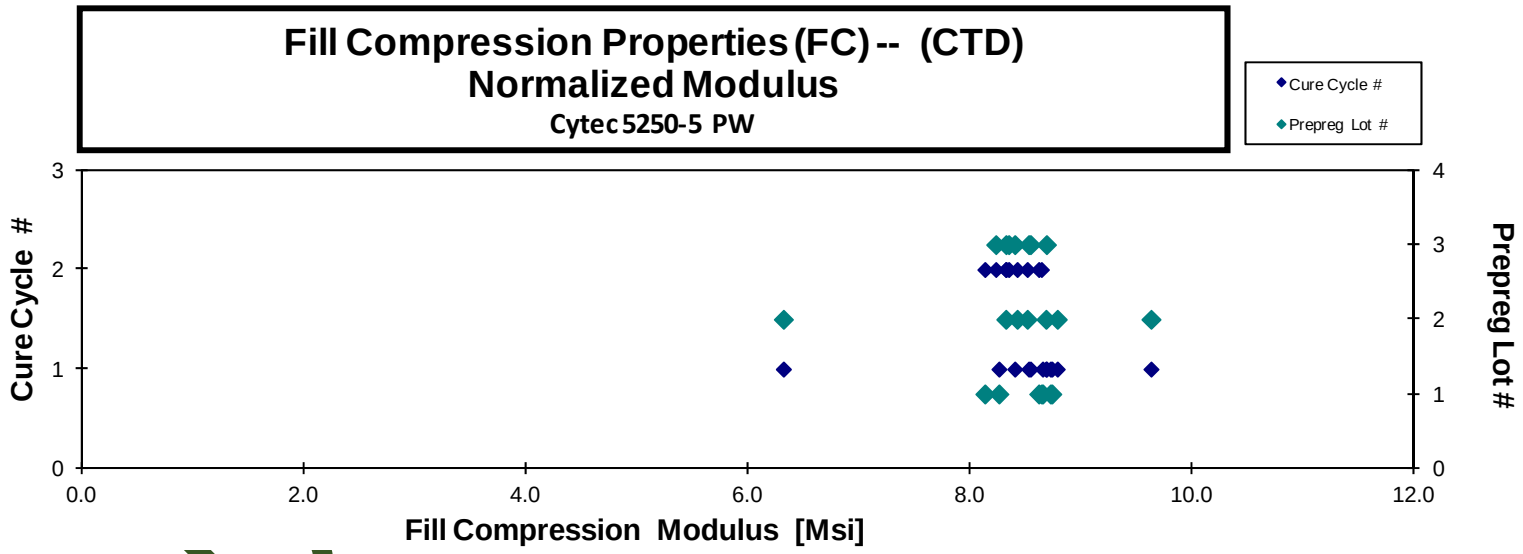
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCZA116B	A	C1	1	1	111.445	8.558	0.118	15	BGM	0.0079	112.699	8.654
CNCZA117B	A	C1	1	1	120.790	8.642	0.118	15	BGM	0.0079	122.115	8.737
CNCZA118B	A	C1	1	1	109.269	8.637	0.118	15	BGM	0.0079	110.375	8.725
CNCZA119B	A	C1	1	1	120.007	8.186	0.118	15	BGM	0.0079	121.119	8.261
CNCZA215B	A	C2	1	2	111.345	8.585	0.118	15	BGM	0.0079	112.107	8.644
CNCZA216B	A	C2	1	2	103.177	8.063	0.118	15	BGM	0.0079	104.088	8.135
CNCZA217B	A	C2	1	2	101.310	8.502	0.119	15	BGM	0.0079	102.710	8.620
CNCZB115B	B	C1	2	1	88.171	8.716	0.117	15	BGM	0.0078	87.844	8.684
CNCZB116B	B	C1	2	1	86.843	6.350	0.116	15	BGM	0.0078	86.422	6.320
CNCZB117B	B	C1	2	1	104.853	9.636	0.117	15	BGM	0.0078	104.793	9.631
CNCZB118B	B	C1	2	1	100.223	8.828	0.116	15	BGM	0.0078	99.752	8.786
CNCZB215B	B	C2	2	2	110.110	8.580	0.115	15	BGM	0.0077	108.118	8.425
CNCZB216B	B	C2	2	2	116.166	8.495	0.115	15	BGM	0.0076	113.816	8.323
CNCZB217B	B	C2	2	2	116.048	8.687	0.115	15	BGM	0.0076	113.767	8.516
CNCZC115B	C	C1	3	1	106.856	8.922	0.112	15	BGM	0.0075	102.351	8.545
CNCZC116B	C	C1	3	1	*	9.054	0.112	15	END CRUSH	0.0075		8.689
CNCZC117B	C	C1	3	1	115.891	8.892	0.112	15	BGM	0.0075	111.170	8.529
CNCZC118B	C	C1	3	1	116.113	8.740	0.113	15	BGM	0.0075	111.647	8.404
CNCZC215B	C	C2	3	2	105.328	8.366	0.115	15	BGM	0.0077	103.648	8.233
CNCZC216B	C	C2	3	2	110.896	8.500	0.115	15	BGM	0.0077	108.922	8.349
CNCZC217B	C	C2	3	2	110.021	8.502	0.115	15	BGM	0.0076	107.717	8.324

*Strength not reported due to bad failure mode

	Strength [ksi]	Modulus [Msi]			$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average	108.243	8.545	$Average_{norm}$	0.0077	107.259	8.454
Standard Dev.	9.163	0.597	$Standard\ Dev._{norm}$		9.005	0.577
Coeff. of Var. [%]	8.466	6.981	$Coeff.\ of\ Var.\ [\%]_{norm}$		8.395	6.831
Min.	86.843	6.350	Min.	0.0075	86.422	6.320
Max.	120.790	9.636	Max.	0.0079	122.115	9.631
Number of Spec.	20	21	Number of Spec.		20	21


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

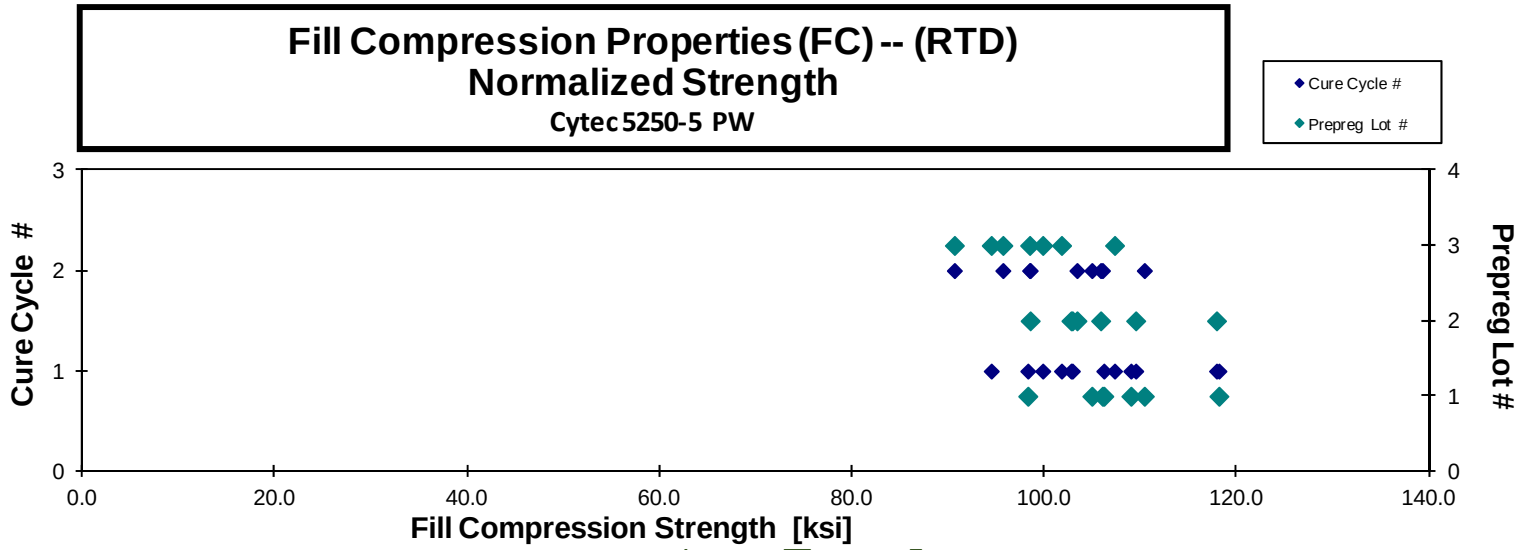

Fill Compression Properties (FC) -- (CTD)
Normalized Modulus
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Fill Compression Modulus [Msi]

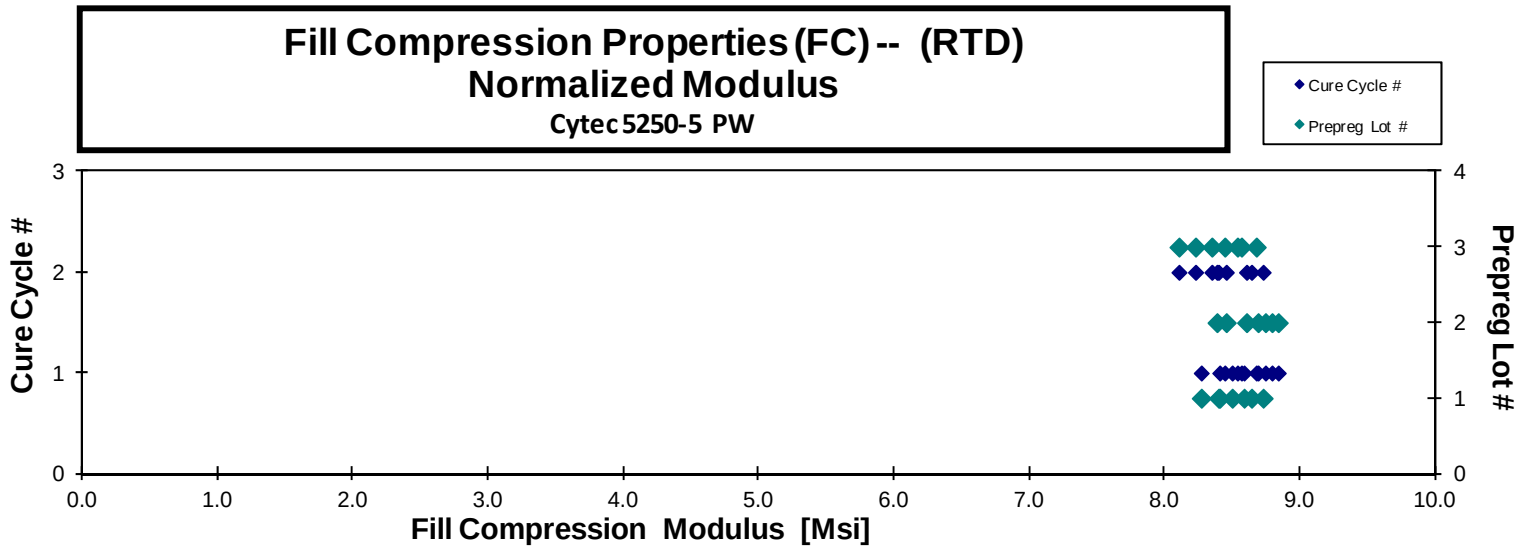
Fill Compression Properties (FC) -- (RTD)
Strength & Modulus
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCZA111A	A	C1	1	1	107.670	8.484	0.118	15	BGM	0.0079	108.989	8.588
CNCZA112A	A	C1	1	1	116.648	8.392	0.119	15	BGM	0.0079	118.143	8.500
CNCZA113A	A	C1	1	1	105.010	8.315	0.118	15	BGM	0.0079	106.177	8.408
CNCZA114A	A	C1	1	1	97.482	8.204	0.118	15	BGM	0.0079	98.273	8.271
CNCZA211A	A	C2	1	2	104.678	8.708	0.117	15	BGM	0.0078	104.931	8.729
CNCZA212A	A	C2	1	2	110.453	8.404	0.117	15	BGM	0.0078	110.390	8.399
CNCZA213A	A	C2	1	2	106.000	8.641	0.117	15	BGM	0.0078	106.030	8.643
CNCZB111A	B	C1	2	1	108.855	8.695	0.118	15	BGM	0.0078	109.490	8.745
CNCZB112A	B	C1	2	1	117.492	8.810	0.117	15	BGM	0.0078	117.894	8.840
CNCZB113A	B	C1	2	1	102.896	8.806	0.117	15	BGM	0.0078	102.764	8.794
CNCZB114A	B	C1	2	1	103.095	8.708	0.117	15	BGM	0.0078	102.904	8.691
CNCZB211A	B	C2	2	2	108.331	8.585	0.114	15	BGM	0.0076	105.846	8.388
CNCZB212A	B	C2	2	2	105.592	8.637	0.115	15	BGM	0.0076	103.381	8.456
CNCZB213A	B	C2	2	2	100.046	8.739	0.115	15	BGM	0.0077	98.521	8.606
CNCZC111A	C	C1	3	1	101.099	9.169	0.109	15	BGM	0.0073	94.475	8.568
CNCZC112A	C	C1	3	1	114.050	9.076	0.110	15	BGM	0.0073	107.291	8.539
CNCZC113A	C	C1	3	1	106.910	9.116	0.111	15	BGM	0.0074	101.778	8.678
CNCZC114A	C	C1	3	1	104.607	8.850	0.112	15	BGM	0.0074	99.824	8.445
CNCZC211A	C	C2	3	2	92.458	8.394	0.115	15	BGM	0.0076	90.640	8.229
CNCZC212A	C	C2	3	2	100.280	8.256	0.115	15	BGM	0.0077	98.466	8.106
CNCZC213A	C	C2	3	2	97.243	8.487	0.115	15	BGM	0.0077	95.678	8.350

Average	**105.281**	**8.642**	**Average$_{norm}$**	**0.0077**	**103.899**	**8.523**
Standard Dev.	**6.261**	**0.273**	**Standard Dev.$_{norm}$**		**6.965**	**0.195**
Coeff. of Var. [%]	**5.947**	**3.159**	**Coeff. of Var. [%]$_{norm}$**		**6.703**	**2.284**
Min.	**92.458**	**8.204**	**Min.**	**0.0073**	**90.640**	**8.106**
Max.	**117.492**	**9.169**	**Max.**	**0.0079**	**118.143**	**8.840**
Number of Spec.	**21**	**21**	**Number of Spec.**		**21**	**21**


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


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

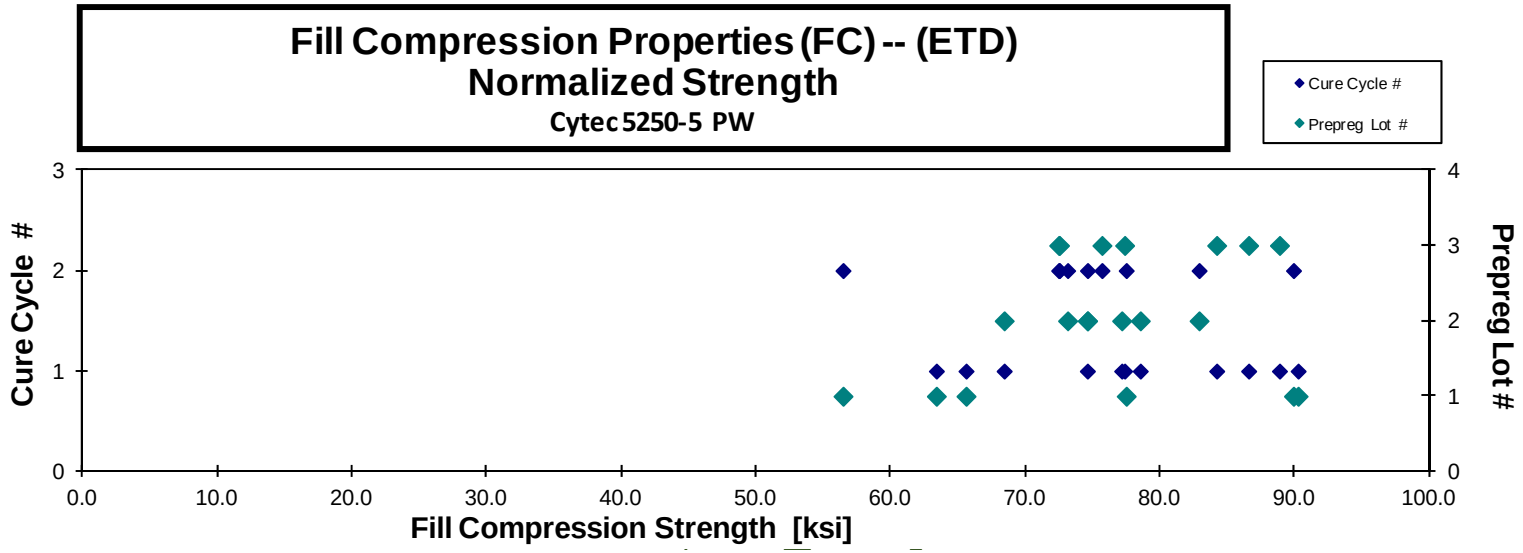
Fill Compression Properties (FC) -- (ETD)
Strength & Modulus
Cytec 5250-5 PW

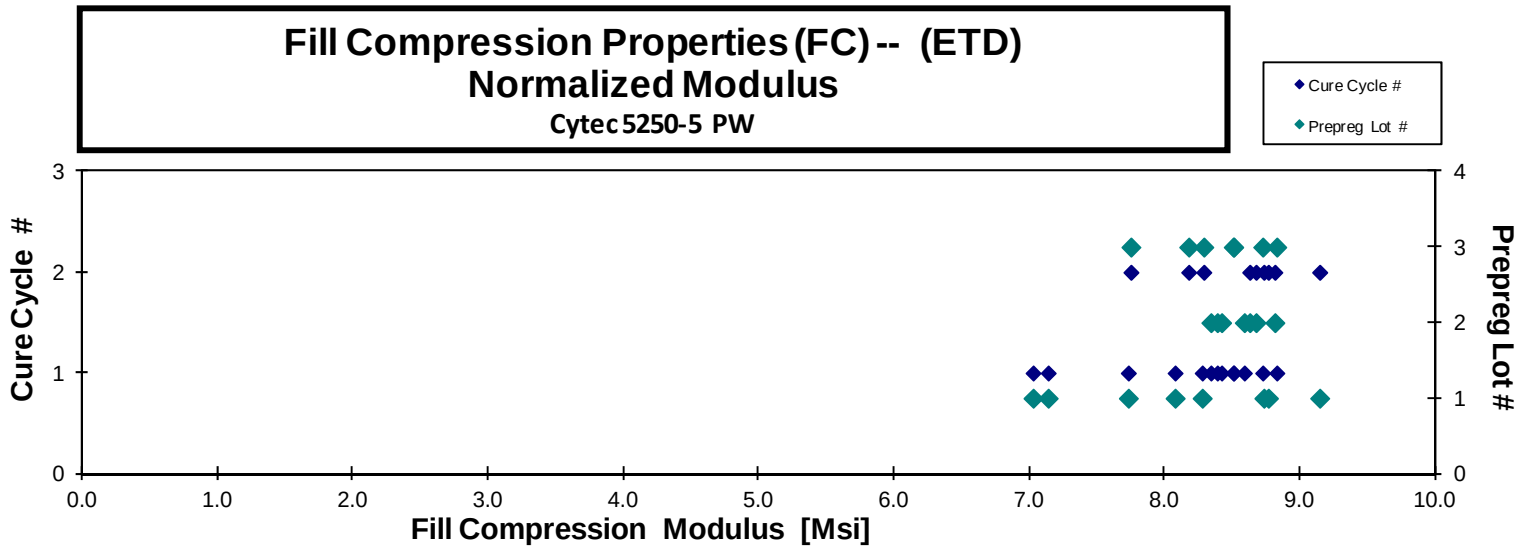
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCZA11AK	A	C1	1	1	64.805	6.942	0.118	15	BGM	0.0079	65.608	7.028
CNCZA11BK	A	C1	1	1	*	7.063	0.118	15	BGM/HIB	0.0079		7.140
CNCZA11CK	A	C1	1	1	62.728	7.649	0.118	15	HGM	0.0079	63.407	7.732
CNCZA11DK	A	C1	1	1	*	7.991	0.118	15	BGM/HIT	0.0079		8.078
CNCZA11EK	A	C1	1	1	89.178	8.178	0.118	15	BGM	0.0079	90.270	8.278
CNCZA219K	A	C2	1	2	76.630	8.636	0.118	15	BAT	0.0079	77.504	8.734
CNCZA21AK	A	C2	1	2	55.720	9.025	0.119	15	HGM	0.0079	56.474	9.147
CNCZA21BK	A	C2	1	2	88.799	8.658	0.118	15	BGM	0.0079	89.925	8.768
CNCZB119K	B	C1	2	1	78.920	8.429	0.116	15	BGM	0.0078	78.549	8.389
CNCZB11AK	B	C1	2	1	68.726	8.377	0.117	15	BGM	0.0078	68.442	8.342
CNCZB11BK	B	C1	2	1	75.263	8.494	0.116	15	BGM	0.0077	74.620	8.421
CNCZB11CK	B	C1	2	1	78.114	8.695	0.116	15	BGM	0.0077	77.168	8.589
CNCZB219K	B	C2	2	2	76.050	8.841	0.115	15	BGM	0.0077	74.631	8.676
CNCZB21AK	B	C2	2	2	74.825	8.827	0.114	15	BGM	0.0076	73.151	8.630
CNCZB21BK	B	C2	2	2	82.867	8.810	0.117	15	BGM	0.0078	82.914	8.815
CNCZC119K	C	C1	3	1	89.991	8.845	0.113	15	BGM	0.0075	86.594	8.511
CNCZC11AK	C	C1	3	1	80.481	8.848	0.113	15	BGM	0.0075	77.385	8.508
CNCZC11BK	C	C1	3	1	89.337	9.366	0.110	15	BGM	0.0074	84.221	8.830
CNCZC11CK	C	C1	3	1	93.660	9.195	0.111	15	BGM	0.0074	88.883	8.726
CNCZC219K	C	C2	3	2	73.925	8.340	0.115	15	BGM	0.0076	72.493	8.179
CNCZC21AK	C	C2	3	2	74.443	8.507	0.114	15	BGM	0.0076	72.545	8.290
CNCZC21BK	C	C2	3	2	75.743	7.756	0.117	15	BGM	0.0078	75.700	7.751

***Strength values not reported due to bad failure mode**

Average	**77.510**	**8.430**	**Average$_{norm}$**	**0.0077**	**76.524**	**8.344**
Standard Dev.	**9.820**	**0.626**	**Standard Dev.$_{norm}$**		**9.000**	**0.530**
Coeff. of Var. [%]	**12.670**	**7.421**	**Coeff. of Var. [%]$_{norm}$**		**11.761**	**6.357**
Min.	**55.720**	**6.942**	**Min.**	**0.0074**	**56.474**	**7.028**
Max.	**93.660**	**9.366**	**Max.**	**0.0079**	**90.270**	**9.147**
Number of Spec.	**20**	**22**	**Number of Spec.**		**20**	**22**


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


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

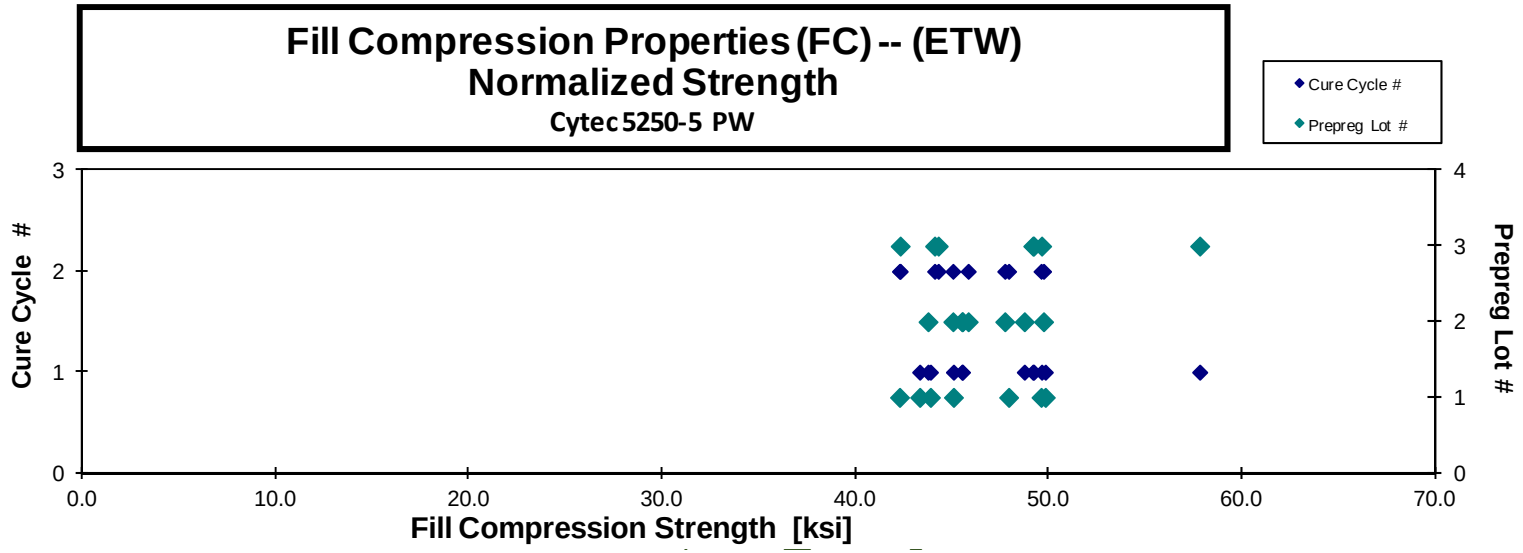
Fill Compression Properties (FC) -- (ETW)
Strength & Modulus
Cytec 5250-5 PW

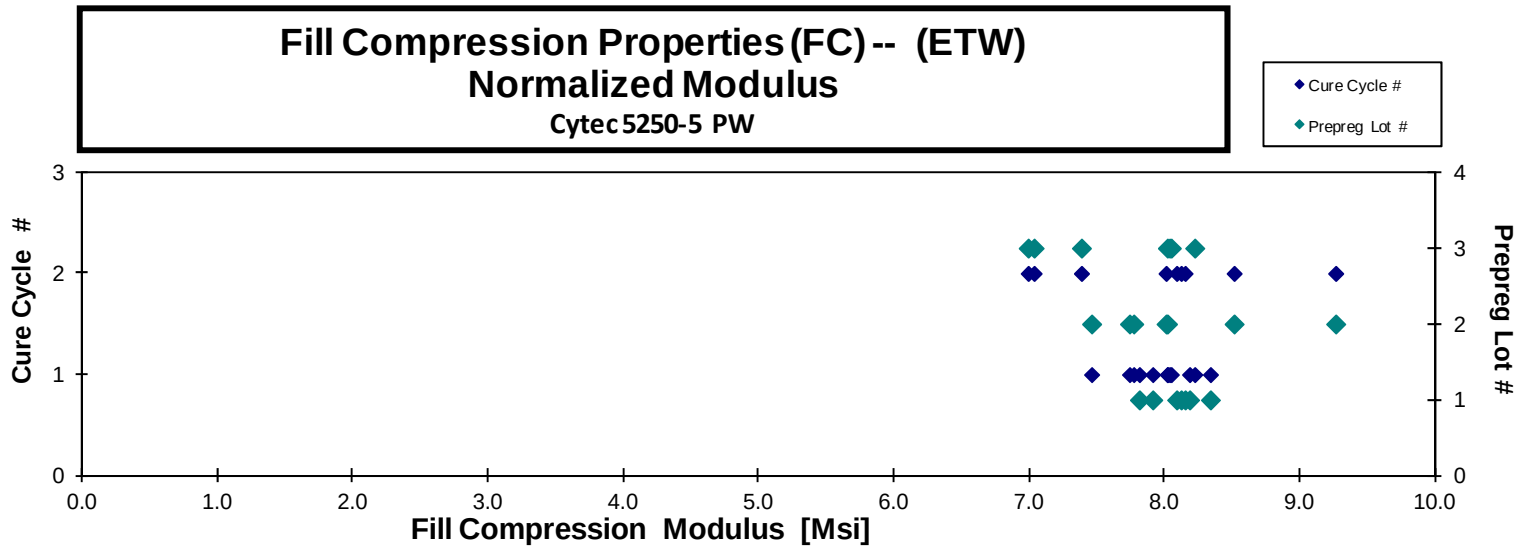
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]	Modulus$_{norm}$ [Msi]
CNCZA11FJ	A	C1	1	1		7.754	0.118	15	HGM	0.0079		7.814
CNCZA11GJ	A	C1	1	1		7.856	0.118	15	HGM	0.0079		7.912
CNCZA11HJ	A	C1	1	1		8.215	0.117	15	HGM	0.0078		8.185
CNCZA11IJ	A	C1	1	1		8.413	0.116	15	BGM	0.0077		8.339
CNCZA11KJ	A	C1	1	1	45.113		0.117	15	HGM	0.0078	45.074	
CNCZA11LJ	A	C1	1	1	49.751		0.117	15	HGM	0.0078	49.829	
CNCZA11MJ	A	C1	1	1	44.140		0.116	15	BGM	0.0078	43.882	
CNCZA11NJ	A	C1	1	1	43.523		0.116	15	HGM	0.0078	43.324	
CNCZA21DJ	A	C2	1	2		8.115	0.118	15	HGM	0.0078		8.152
CNCZA21EJ	A	C2	1	2		8.030	0.118	15	HGM	0.0079		8.089
CNCZA21FJ	A	C2	1	2		8.074	0.118	15	HGM	0.0078		8.122
CNCZA21GJ	A	C2	1	2	41.890		0.118	15	BGM	0.0079	42.283	
CNCZA21HJ	A	C2	1	2	49.055		0.118	15	HGM	0.0079	49.607	
CNCZA21IJ	A	C2	1	2	47.455		0.116	15	HGM	0.0079	47.928	
CNCZB11DJ	B	C1	2	1		8.156	0.115	15	HGM	0.0077		8.021
CNCZB11EJ	B	C1	2	1		7.970	0.114	15	HGM	0.0076		7.772
CNCZB11FJ	B	C1	2	1		7.993	0.113	15	HGM	0.0076		7.741
CNCZB11GJ	B	C1	2	1		7.728	0.113	15	BGM	0.0075		7.460
CNCZB11HJ	B	C1	2	1	47.454		0.112	15	BGM	0.0075	45.541	
CNCZB11IJ	B	C1	2	1	51.002		0.112	15	BGM	0.0075	48.742	
CNCZB11JJ	B	C1	2	1	44.048		0.116	15	HGM	0.0077	43.759	
CNCZB11KJ	B	C1	2	1	45.862		0.116	15	HGM	0.0077	45.509	
CNCZB21DJ	B	C2	2	2		8.518	0.117	15	BGM	0.0078		8.514
CNCZB21EJ	B	C2	2	2		9.309	0.116	15	HGM/CIT	0.0078		9.265
CNCZB21FJ	B	C2	2	2		8.022	0.117	15	HGM	0.0078		8.011
CNCZB21GJ	B	C2	2	2	47.927		0.117	15	HGM	0.0078	47.729	
CNCZB21HJ	B	C2	2	2	45.147		0.117	15	HGM	0.0078	45.044	
CNCZB21IJ	B	C2	2	2	46.051		0.116	15	HGM	0.0078	45.835	
CNCZB21KJ	B	C2	2	2	49.785		0.117	15	HGM	0.0078	49.735	
CNCZC11DJ	C	C1	3	1		8.501	0.112	15	BGM	0.0075		8.223
CNCZC11EJ	C	C1	3	1		8.319	0.113	15	BGM	0.0075		8.021
CNCZC11FJ	C	C1	3	1		8.295	0.114	15	BAB	0.0076		8.050
CNCZC11GJ	C	C1	3	1		8.262	0.114	15	BAT/HGM	0.0076		8.037
CNCZC11HJ	C	C1	3	1	59.174		0.114	15	BGM	0.0076	57.816	
CNCZC11IJ	C	C1	3	1	50.921		0.114	15	BGM	0.0076	49.637	
CNCZC11JJ	C	C1	3	1	50.210		0.115	15	BAT	0.0076	49.223	
CNCZC11KJ	C	C1	3	1	50.116		0.115	15	BGM	0.0077	49.181	
CNCZC21DJ	C	C2	3	2		7.401	0.117	15	HGM	0.0078		7.385
CNCZC21EJ	C	C2	3	2		7.043	0.117	15	HGM	0.0078		7.035
CNCZC21FJ	C	C2	3	2		7.003	0.117	15	HGM	0.0078		6.992
CNCZC21GJ	C	C2	3	2	42.438		0.117	15	HGM	0.0078	42.318	
CNCZC21HJ	C	C2	3	2	44.373		0.117	15	HGM	0.0078	44.285	
CNCZC21IJ	C	C2	3	2	44.377		0.116	15	BGM	0.0078	44.099	

	Strength	Modulus
Average	47.264	8.051
Standard Dev.	3.890	0.511
Coeff. of Var. [%]	8.230	6.352
Min.	41.890	7.003
Max.	59.174	9.309
Number of Spec.	22	21

	Avg. t_{ply}	Strength$_{norm}$	Modulus$_{norm}$
Average$_{norm}$	0.0077	46.836	7.959
Standard Dev.$_{norm}$		3.564	0.493
Coeff. of Var. [%]$_{norm}$		7.609	6.191
Min.	0.0075	42.283	6.992
Max.	0.0079	57.816	9.265
Number of Spec.		22	21


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

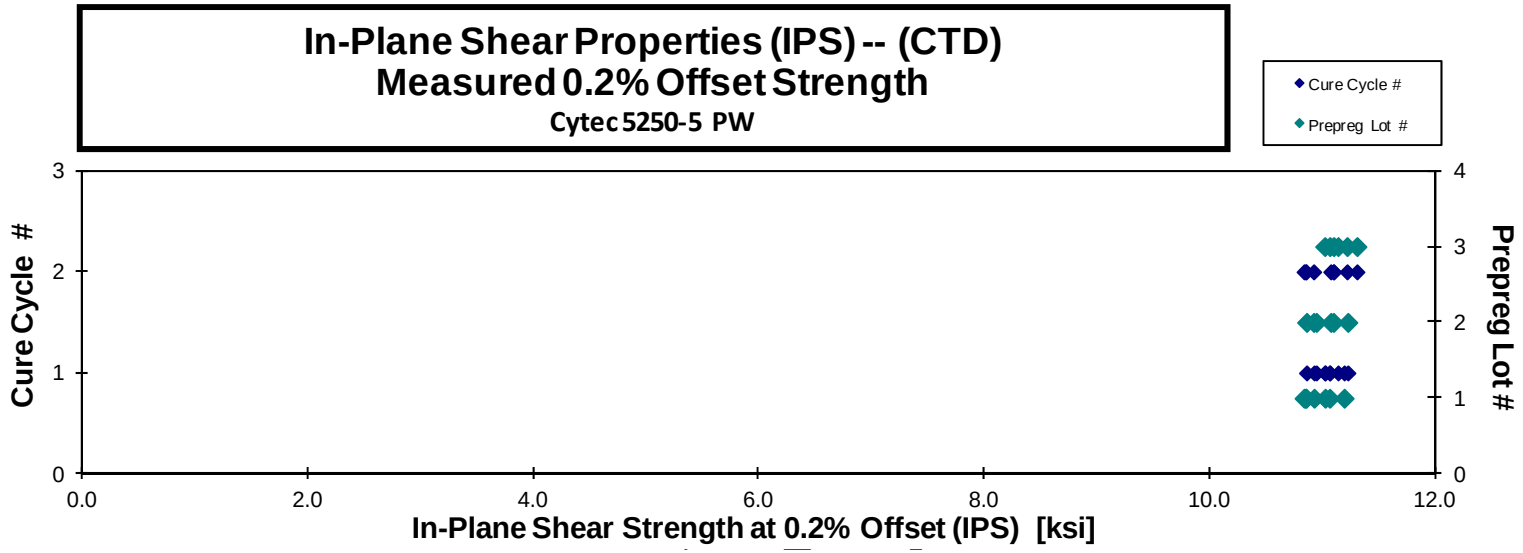

Fill Compression Properties (FC) -- (ETW)
Normalized Modulus
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Fill Compression Modulus [Msi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0

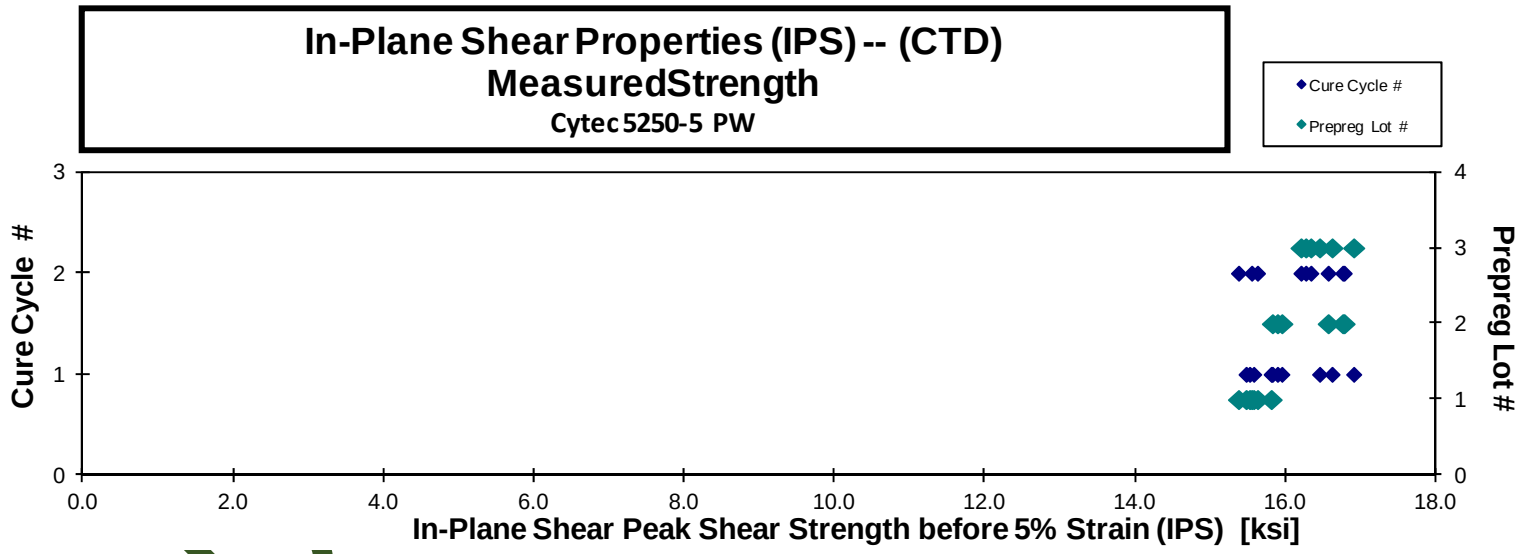
4.5 In-Plane Shear Properties (IPS)

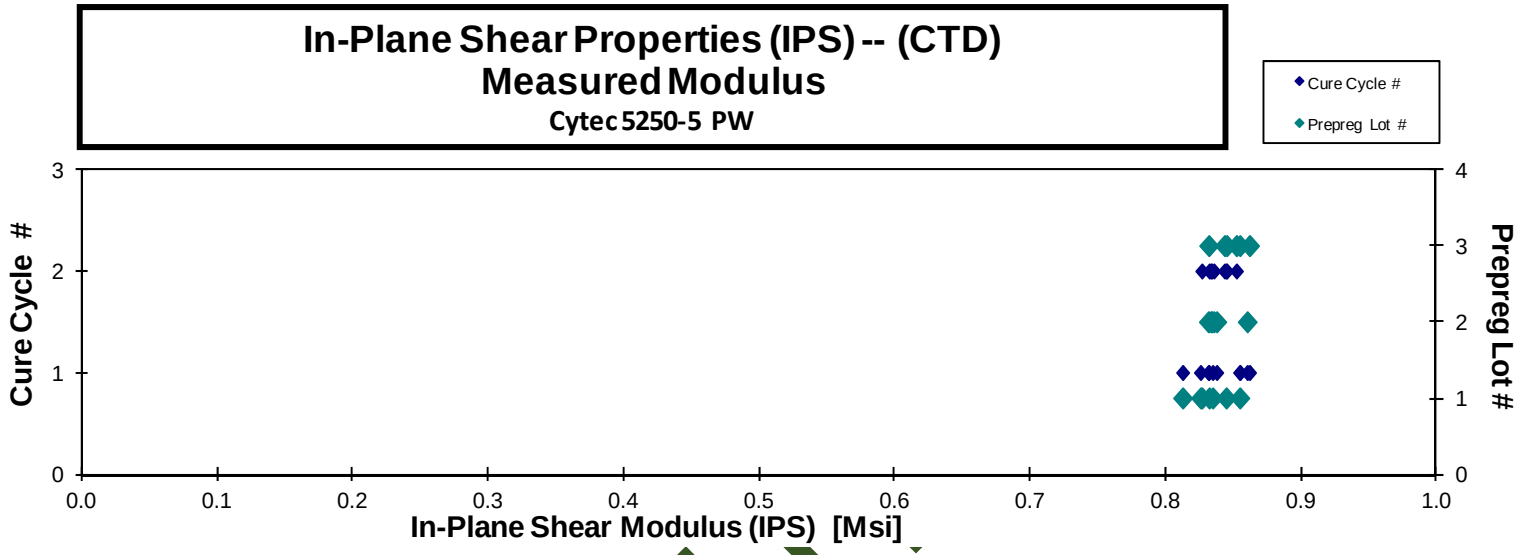
In-Plane Shear Properties (IPS) -- (CTD)
Strength & Modulus
Cytec 5250-5 PW

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Peak Shear Strength Before 5% Strain [ksi]	0.2% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]
CNCNA115B	A	C1	1	1	15.586	10.927	0.812	0.062	8	0.0078
CNCNA116B	A	C1	1	1	15.531	11.064	0.825	0.062	8	0.0078
CNCNA117B	A	C1	1	1	15.485	11.024	0.854	0.063	8	0.0078
CNCNA118B	A	C1	1	1	15.819	11.193	0.834	0.063	8	0.0078
CNCNA214B	A	C2	1	2	15.384	10.855	0.826	0.062	8	0.0078
CNCNA215B	A	C2	1	2	15.637	10.850	0.844	0.062	8	0.0077
CNCNA216B	A	C2	1	2	15.559	10.837	0.831	0.062	8	0.0078
CNCNB114B	B	C1	2	1	15.902	10.947	0.831	0.062	8	0.0077
CNCNB115B	B	C1	2	1	15.835	11.226	0.859	0.062	8	0.0078
CNCNB116B	B	C1	2	1	15.961	10.860	0.837	0.062	8	0.0078
CNCNB214B	B	C2	2	2	16.790	11.074	0.833	0.061	8	0.0077
CNCNB215B	B	C2	2	2	16.577	10.922	0.835	0.062	8	0.0078
CNCNB216B	B	C2	2	2	16.771	11.099	0.833	0.062	8	0.0077
CNCNC114B	C	C1	3	1	16.463	11.139	0.854	0.061	8	0.0076
CNCNC115B	C	C1	3	1	16.629	11.021	0.831	0.062	8	0.0077
CNCNC116B	C	C1	3	1	16.917	11.065	0.861	0.062	8	0.0078
CNCNC214B	C	C2	3	2	16.215	11.219	0.843	0.061	8	0.0076
CNCNC215B	C	C2	3	2	16.346	11.306	0.852	0.061	8	0.0076
CNCNC216B	C	C2	3	2	16.279	11.100	0.844	0.061	8	0.0076

Average	**16.089**	**11.038**	**0.839**	**Average**	**0.0077**
Standard Dev.	**0.502**	**0.141**	**0.013**	**Standard Dev.**	
Coeff. of Var. [%]	**3.118**	**1.281**	**1.538**	**Coeff. of Var. [%]**	
Min.	**15.384**	**10.837**	**0.812**	**Min.**	**0.0076**
Max.	**16.917**	**11.306**	**0.861**	**Max.**	**0.0078**
Number of Spec.	**19**	**19**	**19**	**Number of Spec.**	**19**


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

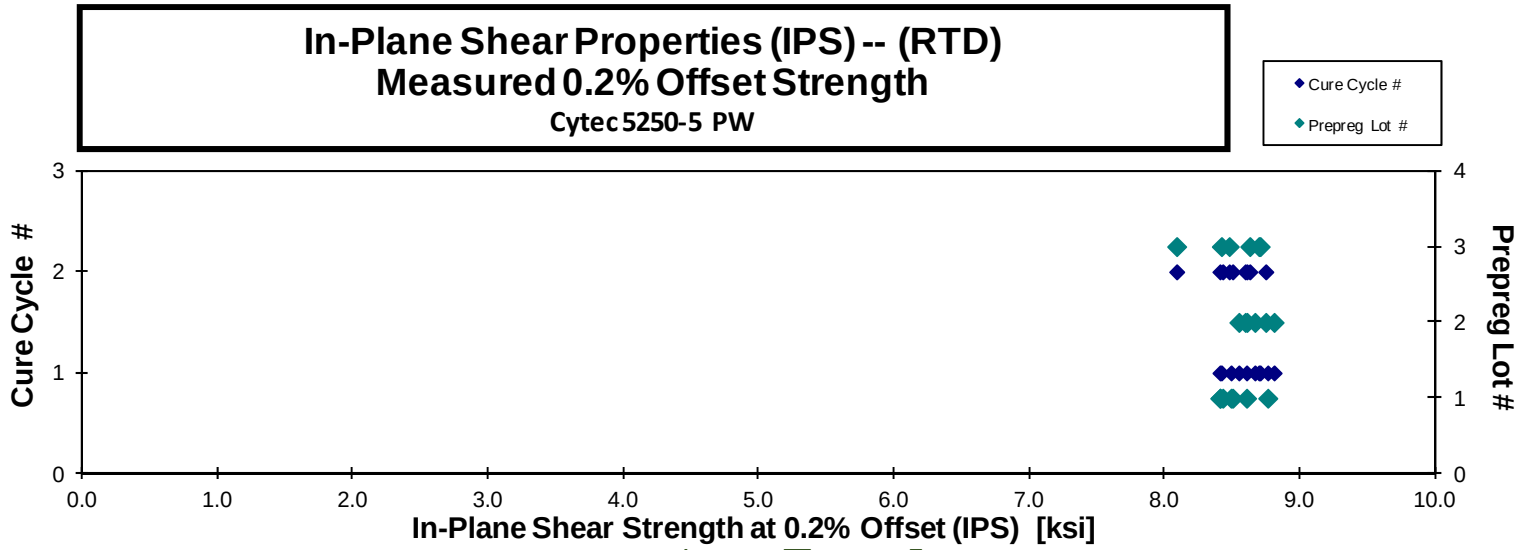

In-Plane Shear Properties (IPS) -- (CTD)
MeasuredStrength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
In-Plane Shear Peak Shear Strength before 5% Strain (IPS) [ksi]

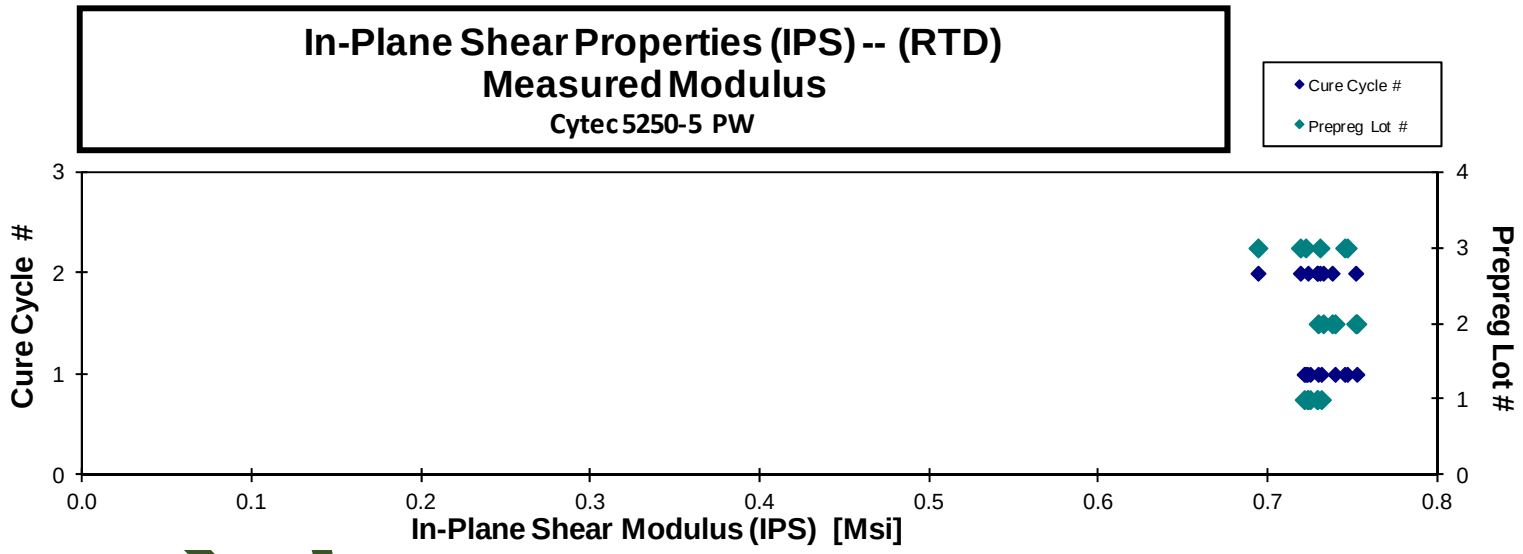

In-Plane Shear Properties (IPS) -- (CTD)
Measured Modulus
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
In-Plane Shear Modulus (IPS) [Msi]

In-Plane Shear Properties (IPS) -- (RTD)
Strength & Modulus
Cytec 5250-5 PW

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	0.2% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]
CNCNA111A	A	C1	1	1	8.607	0.731	0.062	8	0.0077
CNCNA112A	A	C1	1	1	8.492	0.725	0.062	8	0.0078
CNCNA113A	A	C1	1	1	8.410	0.721	0.062	8	0.0078
CNCNA114A	A	C1	1	1	8.763	0.723	0.063	8	0.0078
CNCNA211A	A	C2	1	2	8.503	0.729	0.061	8	0.0076
CNCNA212A	A	C2	1	2	8.409	0.723	0.061	8	0.0077
CNCNA213A	A	C2	1	2	8.430	0.729	0.062	8	0.0077
CNCNB111A	B	C1	2	1	8.810	0.752	0.060	8	0.0075
CNCNB112A	B	C1	2	1	8.668	0.739	0.061	8	0.0076
CNCNB113A	B	C1	2	1	8.549	0.729	0.061	8	0.0077
CNCNB211A	B	C2	2	2	8.748	0.752	0.059	8	0.0074
CNCNB212A	B	C2	2	2	8.609	0.738	0.060	8	0.0075
CNCNB213A	B	C2	2	2	8.596	0.732	0.061	8	0.0076
CNCNC111A	C	C1	3	1	8.420	0.722	0.062	8	0.0078
CNCNC112A	C	C1	3	1	8.707	0.747	0.060	8	0.0075
CNCNC113A	C	C1	3	1	8.698	0.745	0.061	8	0.0076
CNCNC211A	C	C2	3	2	8.089	0.694	0.063	8	0.0079
CNCNC212A	C	C2	3	2	8.630	0.731	0.060	8	0.0076
CNCNC213A	C	C2	3	2	8.478	0.719	0.061	8	0.0076

Average	**8.559**	**0.731**	**Average**	**0.0076**
Standard Dev.	**0.170**	**0.014**	**Standard Dev.**	
Coeff. of Var. [%]	**1.986**	**1.854**	**Coeff. of Var. [%]**	
Min.	**8.089**	**0.694**	**Min.**	**0.0074**
Max.	**8.810**	**0.752**	**Max.**	**0.0079**
Number of Spec.	**19**	**19**	**Number of Spec.**	**19**


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


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

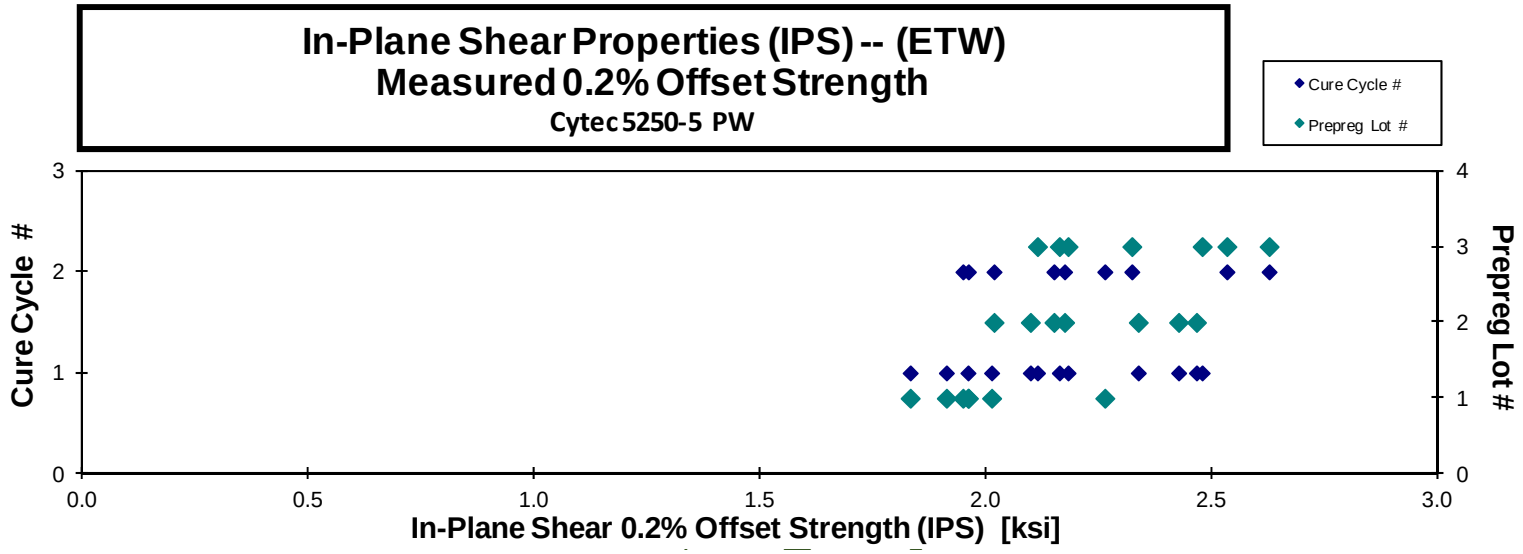
In-Plane Shear Properties (IPS) -- (ETW) Strength & Modulus

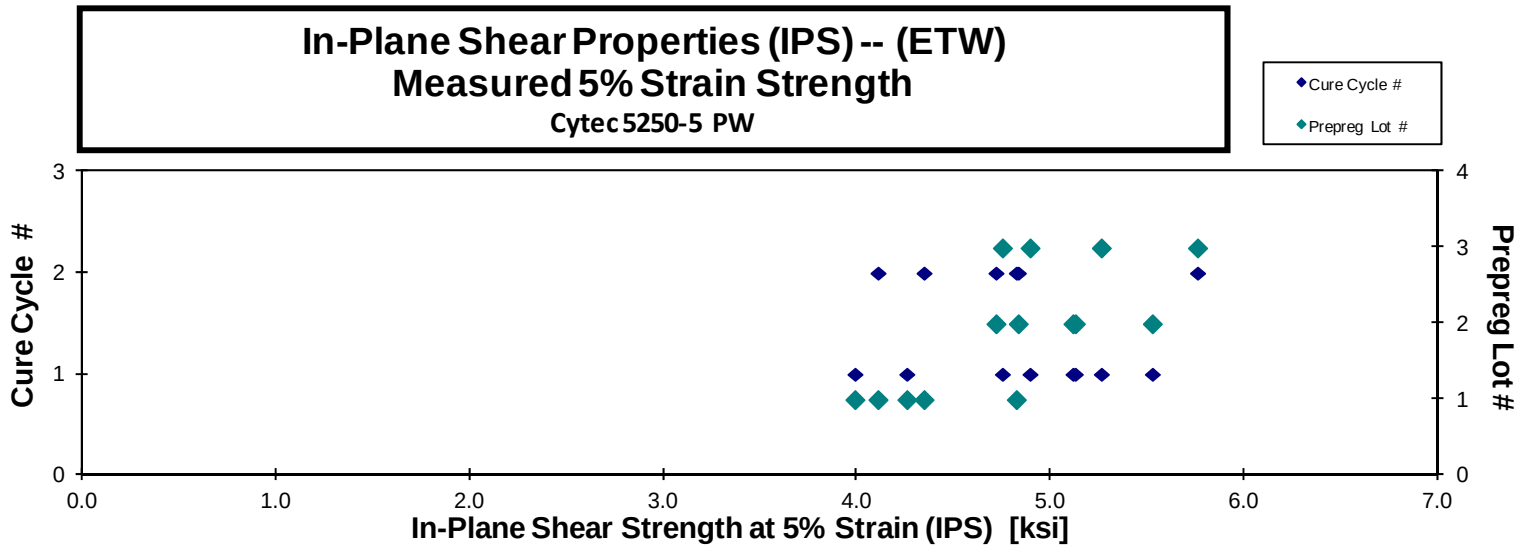
Cytec 5250-5 PW

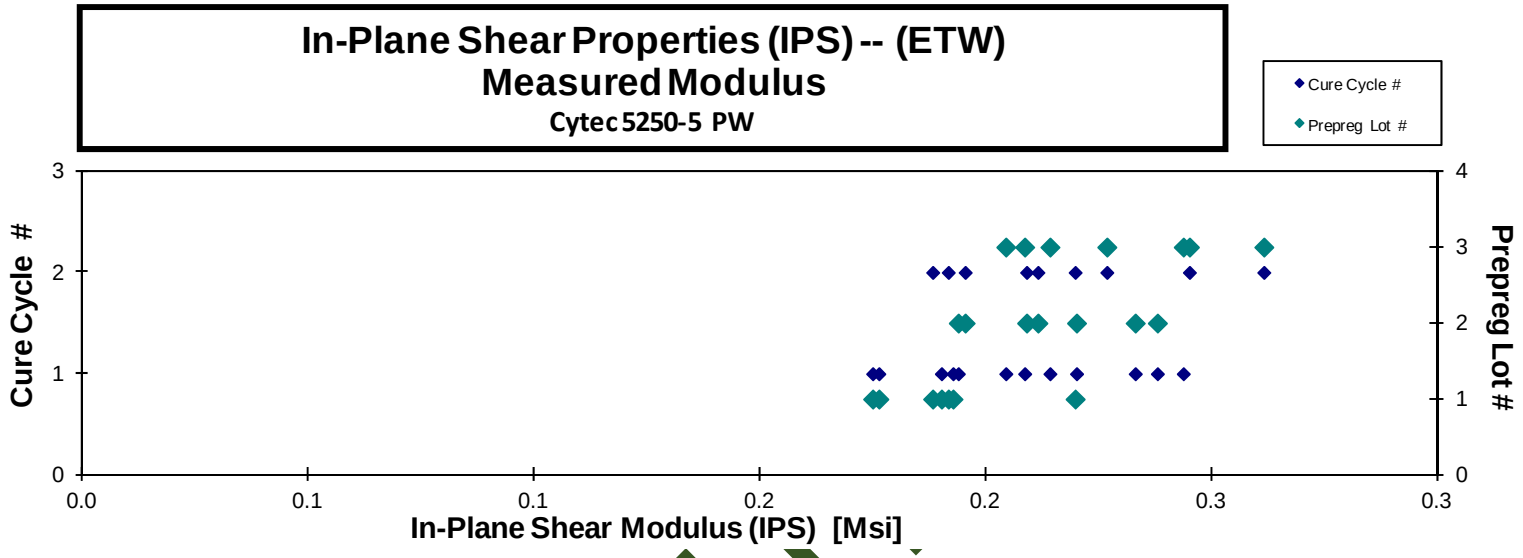
Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength at 5% Strain [ksi]	0.2% Offset Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]
CNCNA119J	A	C1	1	1	3.990	1.832	0.175	0.062	8	0.0078
CNCNA11AJ*	A	C1	1	1		1.960	0.190	0.062	8	0.0078
CNCNA11BJ	A	C1	1	1	4.258	1.912	0.176	0.062	8	0.0078
CNCNA11CJ*	A	C1	1	1		2.013	0.193	0.062	8	0.0078
CNCNA217J	A	C2	1	2	4.824	2.263	0.220	0.061	8	0.0076
CNCNA218J	A	C2	1	2	4.347	1.949	0.188	0.061	8	0.0076
CNCNA219J	A	C2	1	2	4.109	1.961	0.192	0.061	8	0.0077
CNCNB117J	B	C1	2	1	5.128	2.337	0.220	0.060	8	0.0076
CNCNB118J	B	C1	2	1	5.526	2.427	0.233	0.061	8	0.0076
CNCNB119J	B	C1	2	1	5.116	2.466	0.238	0.061	8	0.0077
CNCNB11AJ*	B	C1	2	1		2.098	0.194	0.062	8	0.0077
CNCNB217J	B	C2	2	2	4.834	2.151	0.212	0.062	8	0.0077
CNCNB218J*	B	C2	2	2		2.174	0.209	0.061	8	0.0076
CNCNB219J	B	C2	2	2	4.719	2.018	0.195	0.061	8	0.0076
CNCNC117J	C	C1	3	1	4.752	2.163	0.214	0.061	8	0.0077
CNCNC118J	C	C1	3	1	5.263	2.479	0.244	0.061	8	0.0076
CNCNC119J*	C	C1	3	1		2.114	0.204	0.061	8	0.0077
CNCNC11AJ	C	C1	3	1	4.895	2.182	0.209	0.062	8	0.0077
CNCNC217J*	C	C2	3	2		2.323	0.227	0.061	8	0.0076
CNCNC218J	C	C2	3	2	5.760	2.627	0.262	0.061	8	0.0076
CNCNC219J*	C	C2	3	2		2.533	0.245	0.061	8	0.0076

***5% Strain not reported because test was stopped after gage failure**

Average	**4.823**	**2.190**	**0.211**	**Average**	**0.0077**
Standard Dev.	**0.520**	**0.225**	**0.024**	**Standard Dev.**	
Coeff. of Var. [%]	**10.782**	**10.289**	**11.179**	**Coeff. of Var. [%]**	
Min.	**3.990**	**1.832**	**0.175**	**Min.**	**0.0076**
Max.	**5.760**	**2.627**	**0.262**	**Max.**	**0.0078**
Number of Spec.	**14**	**21**	**21**	**Number of Spec.**	**21**


In-Plane Shear Properties (IPS) -- (ETW)
Measured 0.2% Offset Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
0.5
1.0
1.5
2.0
2.5
3.0
In-Plane Shear 0.2% Offset Strength (IPS) [ksi]


In-Plane Shear Properties (IPS) -- (ETW)
Measured 5% Strain Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
In-Plane Shear Strength at 5% Strain (IPS) [ksi]


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

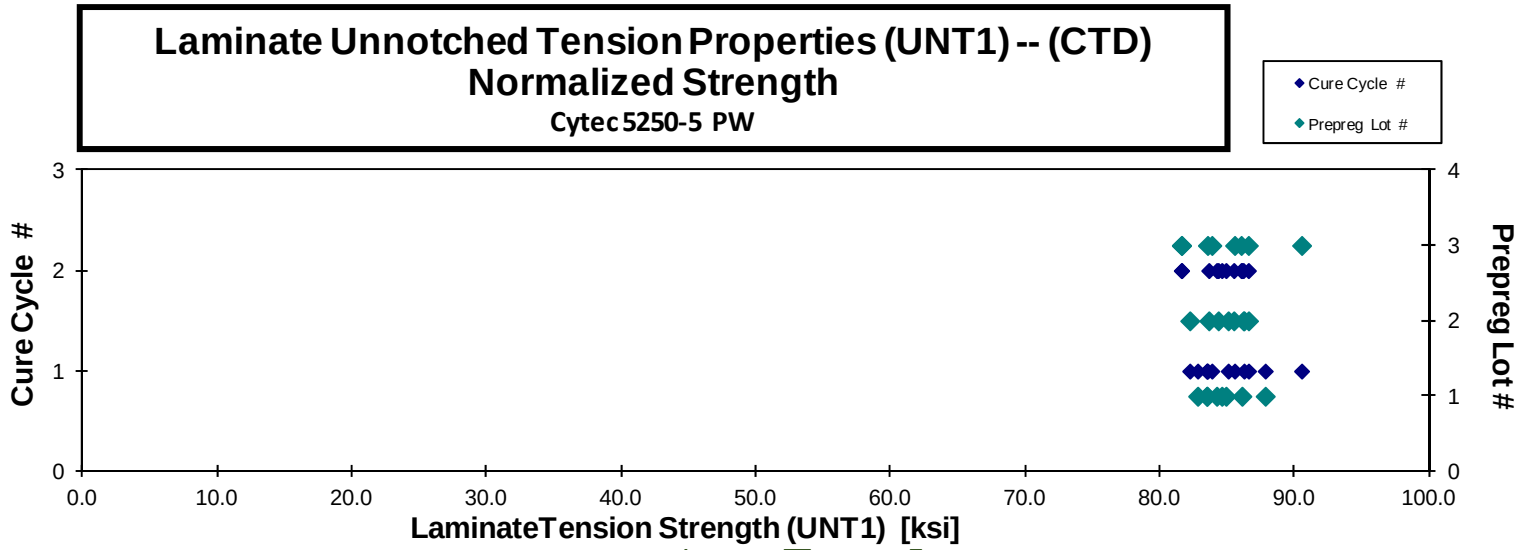
4.6 "25/50/25" Unnotched Tension 1 Properties (UNT1)

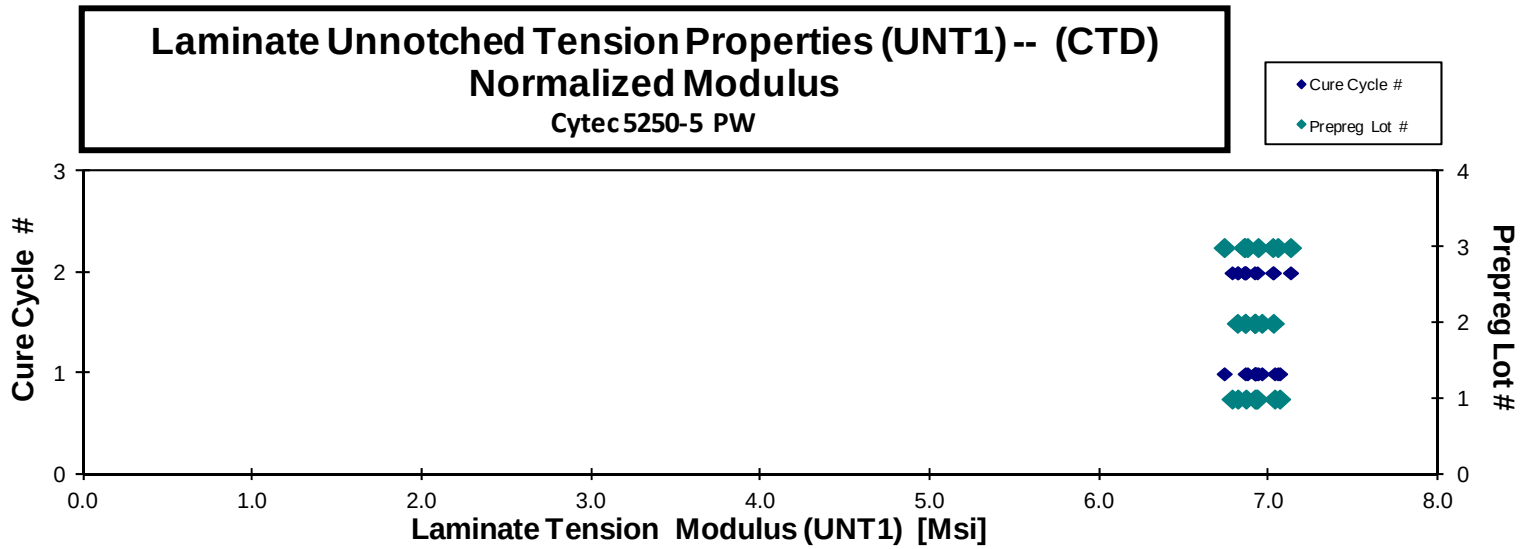
Laminate Unnotched Tension Properties (UNT1) -- (CTD)
Strength & Modulus
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCAA116B	A	C1	1	1	83.014	6.883	0.126	16	LGM	0.0078	83.480	6.921
CNCAA117B	A	C1	1	1	83.365	6.975	0.124	16	LGM	0.0077	82.808	6.929
CNCAA118B	A	C1	1	1	83.455	7.034	0.125	16	LGM	0.0078	83.500	7.038
CNCAA119B	A	C1	1	1	86.965	6.998	0.126	16	LWT	0.0079	87.824	7.068
CNCAA216B	A	C2	1	2	85.250	6.753	0.126	16	LGM	0.0079	86.093	6.820
CNCAA217B	A	C2	1	2	82.652	6.805	0.127	16	LGM	0.0079	84.219	6.935
CNCAA218B	A	C2	1	2	83.414	6.692	0.127	16	LGM	0.0079	84.594	6.786
CNCAA219B	A	C2	1	2	85.387	6.907	0.124	16	LGM	0.0078	84.908	6.868
CNCAB116B	B	C1	2	1	84.602	6.733	0.127	16	LWB	0.0080	86.251	6.864
CNCAB117B	B	C1	2	1	84.301	6.858	0.126	16	LGM	0.0079	85.078	6.921
CNCAB118B	B	C1	2	1	81.470	6.858	0.126	16	LGM	0.0079	82.221	6.921
CNCAB119B	B	C1	2	1	86.978	6.993	0.124	16	LGM	0.0078	86.584	6.962
CNCAB216B	B	C2	2	2	84.235	6.911	0.125	16	LGM	0.0078	84.337	6.919
CNCAB217B	B	C2	2	2	85.982	6.857	0.124	16	LGM	0.0078	85.488	6.818
CNCAB218B	B	C2	2	2	86.602	6.896	0.124	16	LGM	0.0078	86.197	6.864
CNCAB219B	B	C2	2	2	84.297	7.086	0.124	16	LWB	0.0077	83.633	7.030
CNCAC116B	C	C1	3	1	84.907	6.825	0.126	16	LGM	0.0079	85.553	6.877
CNCAC117B	C	C1	3	1	83.403	6.902	0.125	16	LGM	0.0078	83.859	6.940
CNCAC118B	C	C1	3	1	90.416	6.732	0.125	16	LGM	0.0078	90.524	6.740
CNCAC119B	C	C1	3	1	84.840	7.166	0.123	16	LGM	0.0077	83.537	7.056
CNCAC216B	C	C2	3	2	85.705	6.792	0.126	16	LGM	0.0079	86.575	6.861
CNCAC217B	C	C2	3	2	81.156	6.988	0.125	16	LGM	0.0078	81.600	7.027
CNCAC218B	C	C2	3	2	81.514	6.849	0.125	16	LGM	0.0078	81.612	6.857
CNCAC219B	C	C2	3	2	86.479	7.168	0.124	16	LGM	0.0078	86.040	7.131

Average	**84.599**	**6.903**	**Average$_{norm}$**	**0.0078**	**84.855**	**6.923**
Standard Dev.	**2.089**	**0.129**	**Standard Dev.$_{norm}$**		**2.037**	**0.096**
Coeff. of Var. [%]	**2.470**	**1.868**	**Coeff. of Var. [%]$_{norm}$**		**2.401**	**1.391**
Min.	**81.156**	**6.692**	**Min.**	**0.0077**	**81.600**	**6.740**
Max.	**90.416**	**7.168**	**Max.**	**0.0080**	**90.524**	**7.131**
Number of Spec.	**24**	**24**	**Number of Spec.**		**24**	**24**


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


Laminate Unnotched Tension Properties (UNT1) -- (CTD)
Normalized Modulus
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Tension Modulus (UNT1) [Msi]
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0

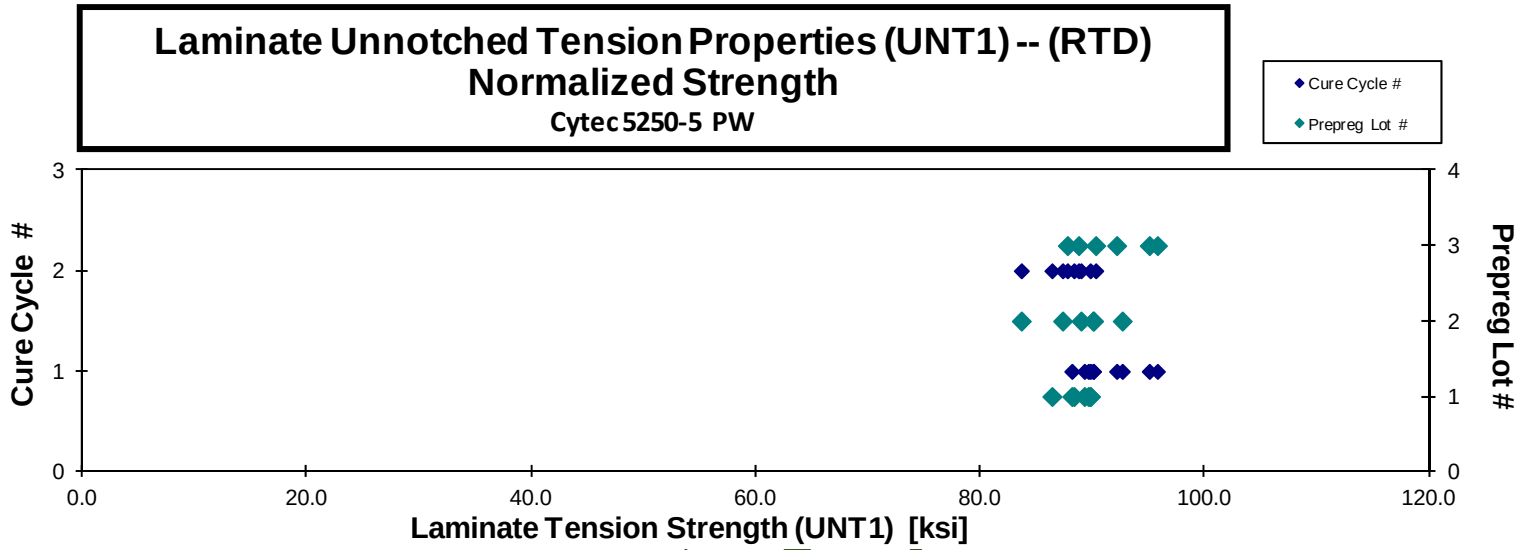
Laminate Unnotched Tension Properties (UNT1) -- (RTD)
Strength & Modulus
Cytec 5250-5 PW

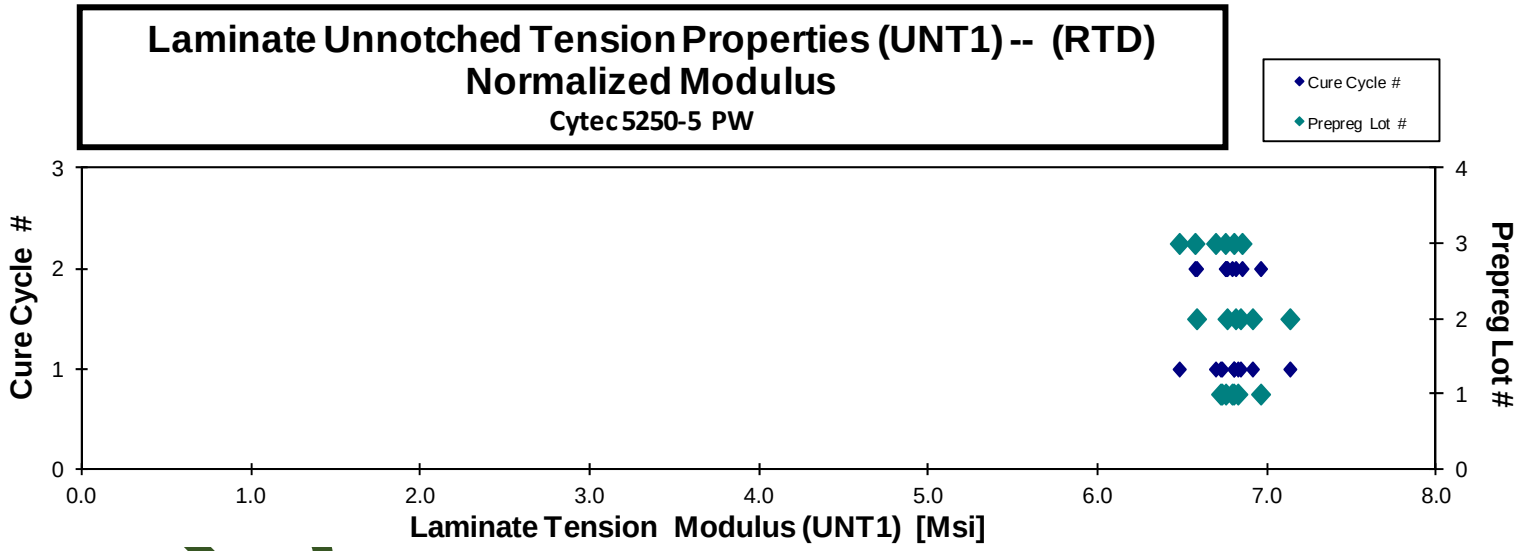
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCAA111A	A	C1	1	1	87.797	6.768	0.125	16	LGM	0.0078	88.161	6.796
CNCAA112A	A	C1	1	1	89.193	6.712	0.125	16	LGM	0.0078	89.276	6.718
CNCAA113A	A	C1	1	1	89.336	6.798	0.125	16	LGM	0.0078	89.623	6.820
CNCAA114A	A	C1	1	1	89.091	6.672	0.126	16	LGM	0.0079	89.805	6.726
CNCAA211A	A	C2	1	2	85.236	6.696	0.126	16	LGM	0.0079	86.386	6.786
CNCAA212A	A	C2	1	2	87.285	6.871	0.126	16	LGM	0.0079	88.346	6.955
CNCAA213A	A	C2	1	2	89.131	6.698	0.126	16	LGM	0.0079	89.798	6.749
CNCAB111A	B	C1	2	1	93.815	7.217	0.123	16	LWT	0.0077	92.650	7.127
CNCAB112A	B	C1	2	1	90.468	6.868	0.124	16	LGM	0.0078	90.045	6.836
CNCAB113A	B	C1	2	1	89.695	6.876	0.125	16	LWT	0.0078	90.091	6.907
CNCAB211A	B	C2	2	2	84.219	6.853	0.124	16	LGM	0.0077	83.657	6.807
CNCAB212A	B	C2	2	2	90.134	6.662	0.123	16	LGM	0.0077	88.978	6.577
CNCAB213A	B	C2	2	2	88.280	6.830	0.123	16	LWT	0.0077	87.337	6.757
CNCAC111A	C	C1	3	1	95.851	6.745	0.124	16	LGM	0.0077	95.057	6.689
CNCAC112A	C	C1	3	1	92.425	6.817	0.124	16	LGM	0.0078	92.153	6.797
CNCAC113A	C	C1	3	1	95.601	6.462	0.125	16	LWB	0.0078	95.780	6.475
CNCAC211A	C	C2	3	2	88.765	6.643	0.123	16	LGM	0.0077	87.758	6.567
CNCAC212A	C	C2	3	2	90.981	6.898	0.124	16	LGM	0.0077	90.289	6.845
CNCAC213A	C	C2	3	2	88.797	6.749	0.125	16	LGM	0.0078	88.761	6.746

Average	89.795	6.781	
Standard Dev.	3.014	0.150	
Coeff. of Var. [%]	3.356	2.214	
Min.	84.219	6.462	
Max.	95.851	7.217	
Number of Spec.	19	19	

$Average_{norm}$	0.0078	89.682	6.773
Standard $Dev._{norm}$		2.825	0.144
Coeff. of Var. $[\%]_{norm}$		3.150	2.129
Min.	0.0077	83.657	6.475
Max.	0.0079	95.780	7.127
Number of Spec.		19	19


Laminate Unnotched Tension Properties (UNT1) -- (RTD)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Tension Strength (UNT1) [ksi]

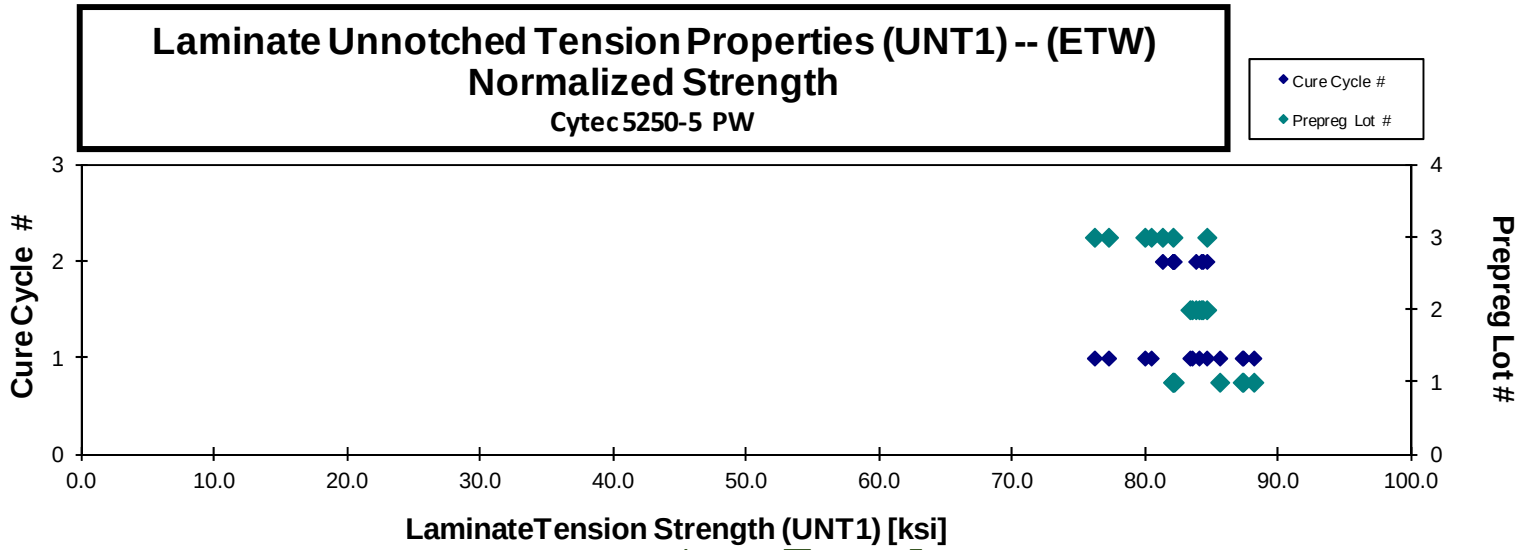

Laminate Unnotched Tension Properties (UNT1) -- (RTD)
Normalized Modulus
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
Laminate Tension Modulus (UNT1) [Msi]

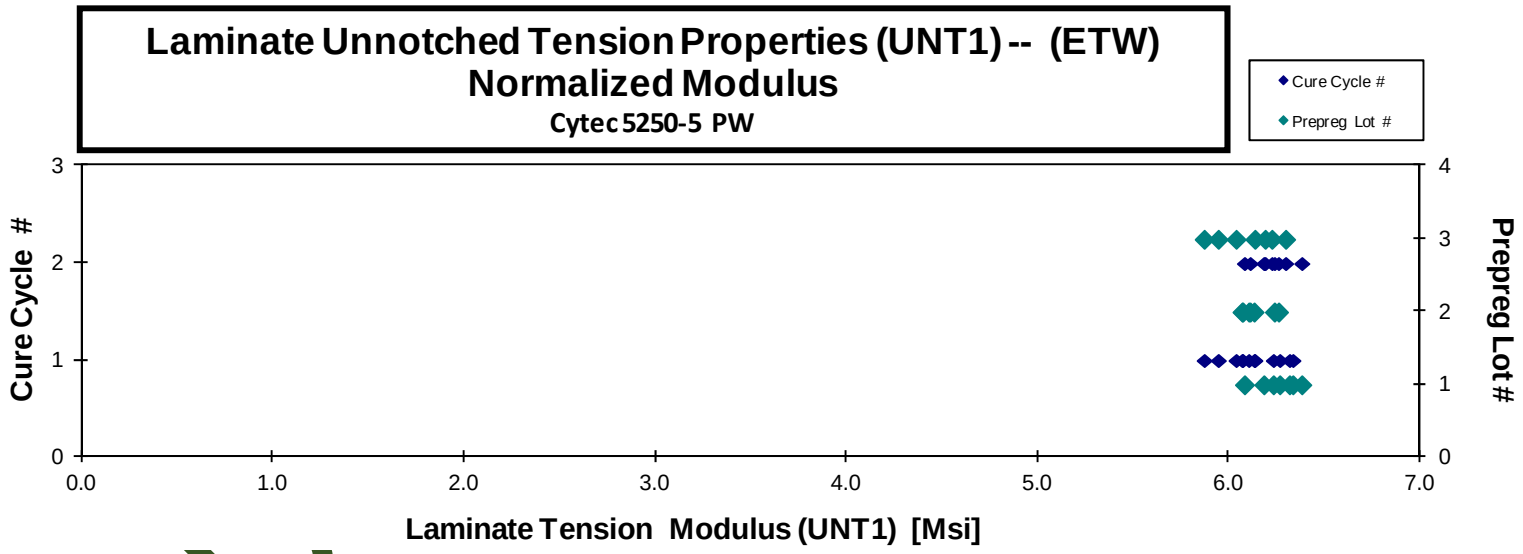
Laminate Unnotched Tension Properties (UNT1) -- (ETW)
Strength & Modulus
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCAA11BJ	A	C1	1	1	84.258	6.137	0.127	16	LGM	0.0079	85.564	6.232
CNCAA11CJ	A	C1	1	1	85.643	6.150	0.127	16	LGM	0.0079	87.256	6.265
CNCAA11DJ	A	C1	1	1	86.260	6.183	0.128	16	LGM	0.0080	88.126	6.316
CNCAA11EJ	A	C1	1	1	85.822	6.225	0.127	16	LGM	0.0079	87.324	6.334
CNCAA21BJ	A	C2	1	2	82.303	6.093	0.125	16	LGM	0.0078	82.138	6.081
CNCAA21CJ	A	C2	1	2	79.897	6.215	0.128	16	AGM	0.0080	82.031	6.381
CNCAA21DJ	A	C2	1	2	81.413	6.136	0.126	16	AGM/LGM	0.0079	82.033	6.182
CNCAB11BJ	B	C1	2	1	83.834	6.091	0.125	16	LGM	0.0078	84.002	6.104
CNCAB11CJ	B	C1	2	1	83.061	5.959	0.127	16	LGM	0.0079	84.581	6.068
CNCAB11DJ	B	C1	2	1	82.232	5.992	0.126	16	LGM	0.0079	83.320	6.072
CNCAB11EJ	B	C1	2	1	83.165	6.109	0.125	16	LGM	0.0078	83.476	6.131
CNCAB21BJ	B	C2	2	2	85.510	6.368	0.122	16	LGM	0.0076	83.762	6.238
CNCAB21CJ	B	C2	2	2	85.041	6.173	0.124	16	LGM	0.0077	84.178	6.111
CNCAB21DJ	B	C2	2	2	84.738	6.293	0.124	16	LGM	0.0078	84.285	6.259
CNCAC11BJ	C	C1	3	1	77.046	6.208	0.123	16	AGM	0.0077	76.141	6.135
CNCAC11CJ	C	C1	3	1	77.509	5.894	0.124	16	AGM	0.0078	77.198	5.870
CNCAC11DJ	C	C1	3	1	80.470	5.949	0.125	16	MGM	0.0078	80.405	5.944
CNCAC11EJ	C	C1	3	1	80.145	6.053	0.124	16	AGM	0.0078	79.931	6.037
CNCAC21BJ	C	C2	3	2	81.174	6.219	0.125	16	LGM	0.0078	81.250	6.224
CNCAC21CJ	C	C2	3	2	84.267	6.165	0.125	16	LGM	0.0078	84.593	6.189
CNCAC21DJ	C	C2	3	2	81.480	6.253	0.126	16	LGM	0.0079	82.046	6.296

Average	**82.632**	**6.136**	**Average$_{norm}$**	**0.0078**	**83.030**	**6.165**
Standard Dev.	**2.638**	**0.118**	**Standard Dev.$_{norm}$**		**3.026**	**0.129**
Coeff. of Var. [%]	**3.192**	**1.928**	**Coeff. of Var. [%]$_{norm}$**		**3.644**	**2.097**
Min.	**77.046**	**5.894**	**Min.**	**0.0076**	**76.141**	**5.870**
Max.	**86.260**	**6.368**	**Max.**	**0.0080**	**88.126**	**6.381**
Number of Spec.	**21**	**21**	**Number of Spec.**		**21**	**21**


Laminate Unnotched Tension Properties (UNT1) -- (ETW)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
100.0
LaminateTension Strength (UNT1) [ksi]


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

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

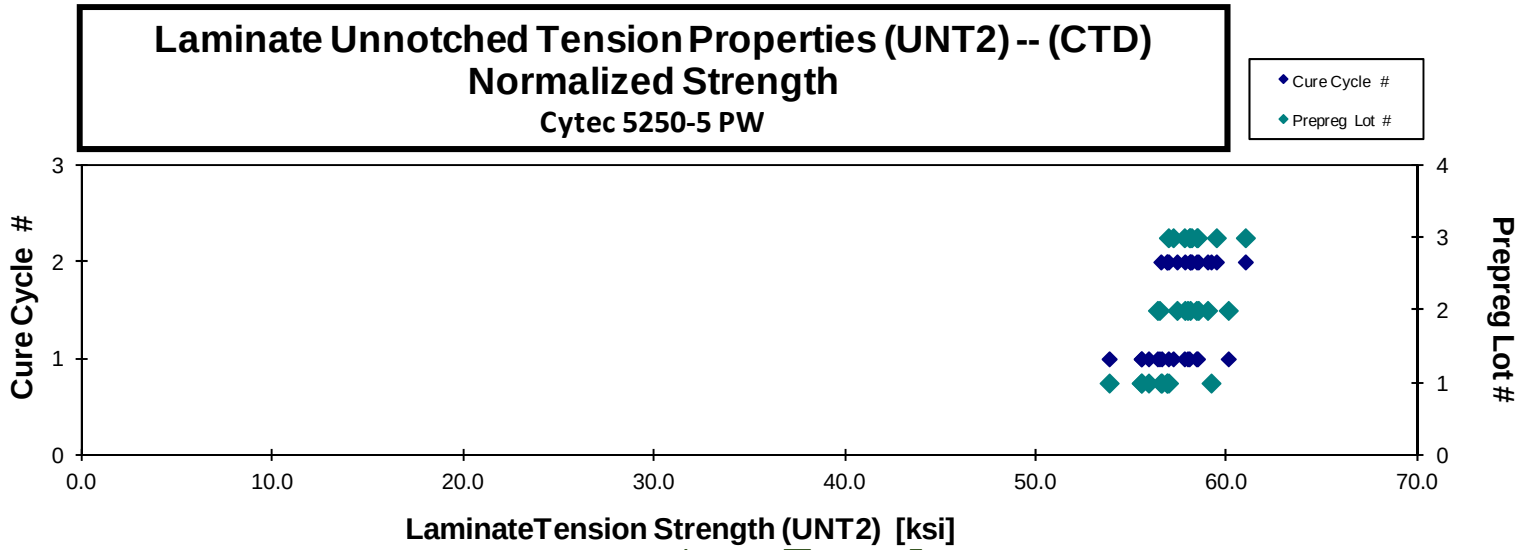
Laminate Unnotched Tension Properties (UNT2) -- (CTD)
Strength & Modulus
Cytec 5250-5 PW

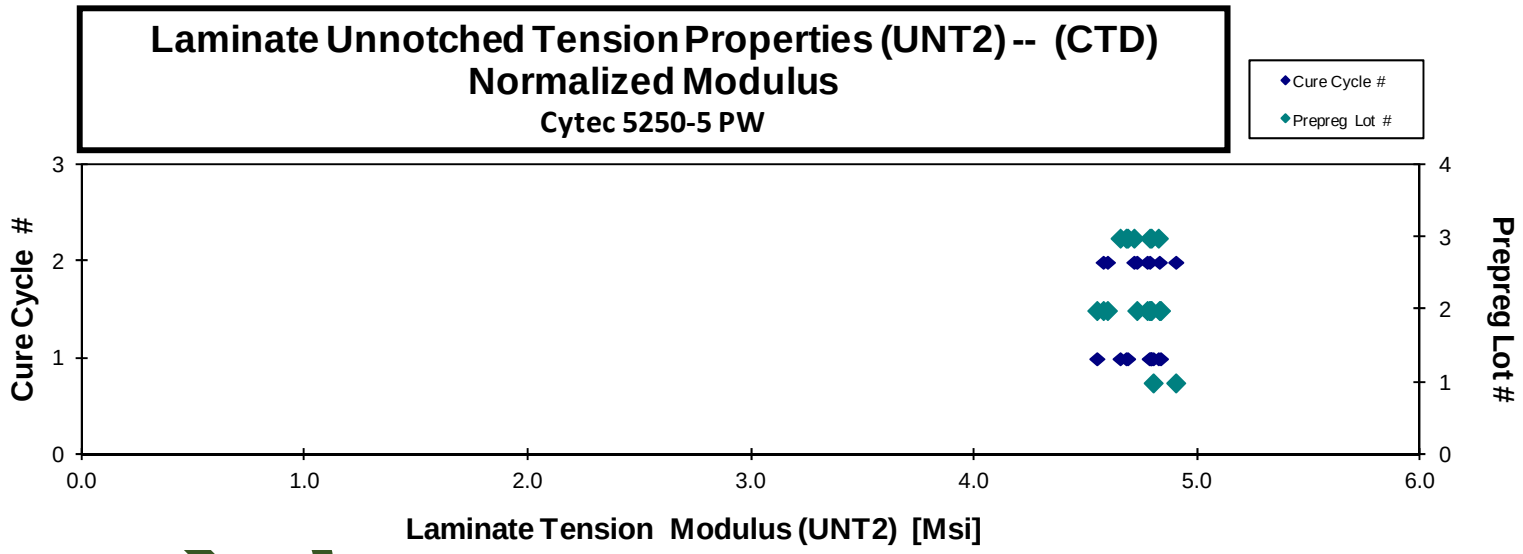
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCBA116B	A	C1	1	1	55.137	*	0.160	20	AGM	0.0080	56.586	
CNCBA117B	A	C1	1	1	52.503	*	0.160	20	AWT	0.0080	53.833	
CNCBA118B	A	C1	1	1	54.212	*	0.160	20	AWB	0.0080	55.526	
CNCBA119B	A	C1	1	1	54.500	*	0.159	20	AGM	0.0079	55.507	
CNCBA11AB	A	C1	1	1	55.005	4.726	0.159	20	AGM	0.0079	55.898	4.803
CNCBA216B	A	C2	1	2	54.553	*	0.163	20	AGM	0.0081	56.861	
CNCBA217B	A	C2	1	2	54.251	*	0.164	20	AGM	0.0082	56.859	
CNCBA218B	A	C2	1	2	54.635	*	0.163	20	AGM	0.0081	56.946	
CNCBA219B	A	C2	1	2	55.588	*	0.159	20	AGM	0.0079	56.544	
CNCBA21AB	A	C2	1	2	57.228	4.743	0.161	20	AWB	0.0081	59.173	4.904
CNCBB116B	B	C1	2	1	56.076	4.811	0.157	20	AWT	0.0078	56.363	4.836
CNCBB117B	B	C1	2	1	56.176	4.527	0.157	20	AGM	0.0078	56.470	4.550
CNCBB118B	B	C1	2	1	57.667	4.768	0.157	20	AGM	0.0078	57.938	4.790
CNCBB119B	B	C1	2	1	60.782	4.842	0.154	20	LWB	0.0077	60.075	4.785
CNCBB11AB	B	C1	2	1	59.375	4.874	0.153	20	AGM	0.0077	58.404	4.794
CNCBB216B	B	C2	2	2	57.672	4.587	0.156	20	AGM	0.0078	57.802	4.598
CNCBB217B	B	C2	2	2	58.178	4.587	0.156	20	AWT	0.0078	58.073	4.579
CNCBB218B	B	C2	2	2	57.520	4.740	0.156	20	AGM	0.0078	57.391	4.730
CNCBB219B	B	C2	2	2	59.016	4.818	0.155	20	AWT	0.0077	58.506	4.776
CNCBB21AB	B	C2	2	2	59.398	4.864	0.155	20	AGM	0.0077	58.991	4.830
CNCBC116B	C	C1	3	1	56.584	4.605	0.158	20	AGM	0.0079	57.189	4.655
CNCBC117B	C	C1	3	1	57.887	4.670	0.156	20	AGM	0.0078	58.029	4.681
CNCBC118B	C	C1	3	1	57.684	4.786	0.156	20	AGM	0.0078	57.777	4.794
CNCBC119B	C	C1	3	1	58.525	4.831	0.156	20	AGM	0.0078	58.463	4.826
CNCBC11AB	C	C1	3	1	56.955	4.690	0.156	20	AGM	0.0078	56.936	4.688
CNCBC216B	C	C2	3	2	58.810	*	0.158	20	AWT	0.0079	59.451	
CNCBC217B	C	C2	3	2	57.499	*	0.158	20	AGM	0.0079	58.070	
CNCBC218B	C	C2	3	2	58.262	*	0.156	20	AWB	0.0078	58.418	
CNCBC219B	C	C2	3	2	61.430	4.823	0.155	20	AWT	0.0077	60.971	4.787
CNCBC21AB	C	C2	3	2	58.038	4.708	0.156	20	AGM	0.0078	58.150	4.717

***MODULII RESULTS WERE REMOVED DUE TO AN EXTENSOMETER MALFUNCTION**

Average	**57.038**	**4.737**	**Average$_{norm}$**	**0.0079**	**57.573**	**4.743**
Standard Dev.	**2.087**	**0.103**	**Standard Dev.$_{norm}$**		**1.464**	**0.096**
Coeff. of Var. [%]	**3.658**	**2.178**	**Coeff. of Var. [%]$_{norm}$**		**2.544**	**2.022**
Min.	**52.503**	**4.527**	**Min.**	**0.0077**	**53.833**	**4.550**
Max.	**61.430**	**4.874**	**Max.**	**0.0082**	**60.971**	**4.904**
Number of Spec.	**30**	**19**	**Number of Spec.**		**30**	**19**


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


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

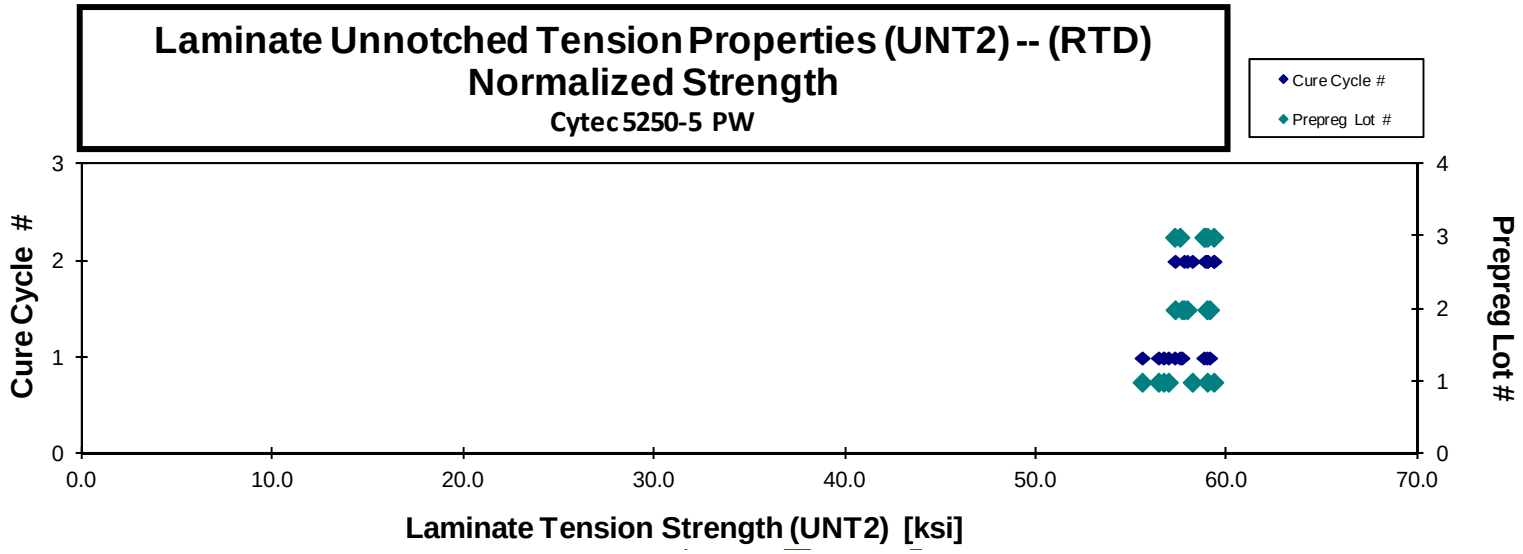
Laminate Unnotched Tension Properties (UNT2) -- (RTD)
Strength & Modulus
Cytec 5250-5 PW

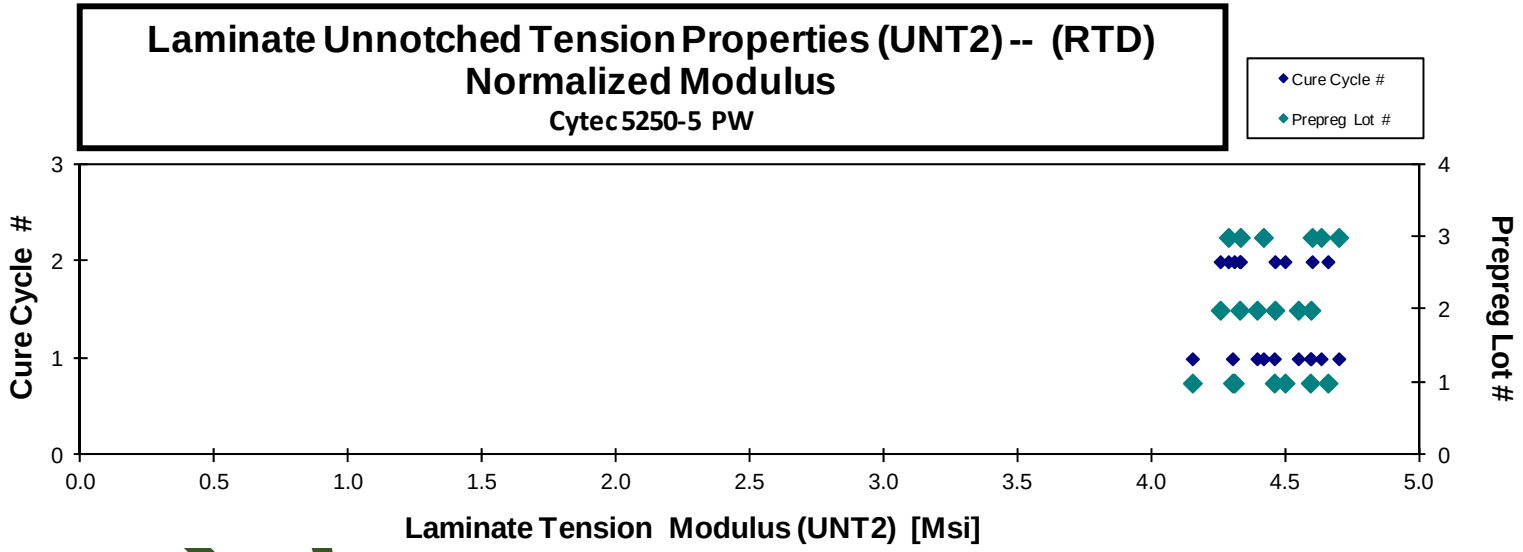
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCBA111A	A	C1	1	1	55.209	4.470	0.160	20	AGM	0.0080	56.684	4.589
CNCBA112A	A	C1	1	1	54.222	4.049	0.160	20	AGM	0.0080	55.560	4.149
CNCBA113A	A	C1	1	1	55.511	4.191	0.160	20	AWB	0.0080	56.934	4.299
CNCBA114A	A	C1	1	1	54.994	4.343	0.160	20	AGM	0.0080	56.416	4.455
CNCBA211A	A	C2	1	2	56.871	4.393	0.160	20	AWB	0.0080	58.189	4.495
CNCBA212A	A	C2	1	2	57.281	4.495	0.162	20	AGM	0.0081	59.318	4.655
CNCBA213A	A	C2	1	2	56.675	4.138	0.162	20	AGM	0.0081	58.970	4.305
CNCBB111A	B	C1	2	1	59.225	4.565	0.155	20	AGM	0.0078	58.953	4.544
CNCBB112A	B	C1	2	1	59.173	4.396	0.156	20	AGM	0.0078	59.097	4.390
CNCBB113A	B	C1	2	1	57.751	4.600	0.156	20	AWT	0.0078	57.646	4.592
CNCBB211A	B	C2	2	2	57.385	4.465	0.156	20	AWT	0.0078	57.287	4.457
CNCBB212A	B	C2	2	2	58.288	4.353	0.155	20	AGM	0.0078	57.920	4.326
CNCBB213A	B	C2	2	2	57.968	4.268	0.155	20	AWT	0.0078	57.758	4.253
CNCBC111A	C	C1	3	1	57.437	4.643	0.156	20	AGM	0.0078	57.265	4.630
CNCBC112A	C	C1	3	1	57.225	4.290	0.157	20	AGM	0.0078	57.537	4.414
CNCBC113A	C	C1	3	1	58.578	4.678	0.157	20	AGM	0.0078	58.798	4.696
CNCBC211A	C	C2	3	2	59.288	4.327	0.156	20	AGM	0.0078	59.307	4.328
CNCBC212A	C	C2	3	2	58.443	4.563	0.157	20	AGM	0.0079	58.867	4.596
CNCBC213A	C	C2	3	2	58.390	4.240	0.158	20	AWT	0.0079	58.982	4.283

Average	57.364	4.398	
Standard Dev.	1.487	0.173	
Coeff. of Var. [%]	2.593	3.931	
Min.	54.222	4.049	
Max.	59.288	4.678	
Number of Spec.	19	19	

$Average_{norm}$	0.0079	57.973	4.445
$Standard\ Dev._{norm}$		1.097	0.157
$Coeff.\ of\ Var.\ [\%]_{norm}$		1.892	3.527
Min.	0.0078	55.560	4.149
Max.	0.0081	59.318	4.696
Number of Spec.		19	19


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


Laminate Unnotched Tension Properties (UNT2) -- (RTD)
Normalized Modulus
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Laminate Tension Modulus (UNT2) [Msi]

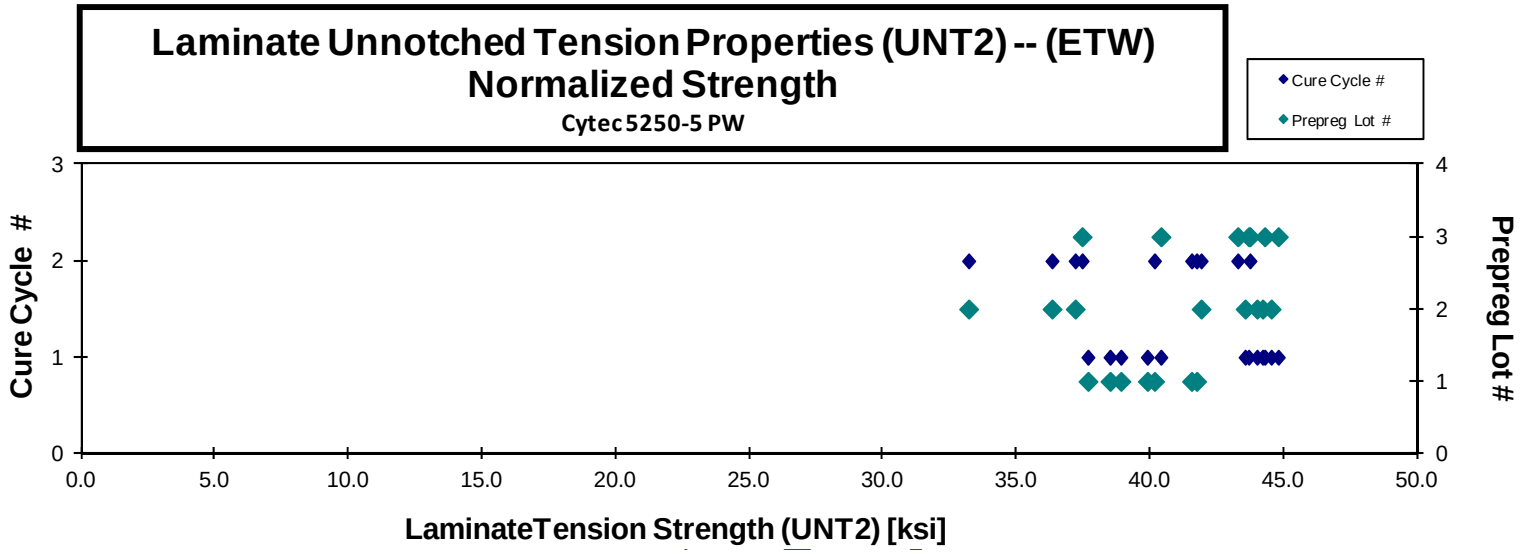
Laminate Unnotched Tension Properties (UNT2) -- (ETW)
Strength & Modulus
Cytec 5250-5 PW

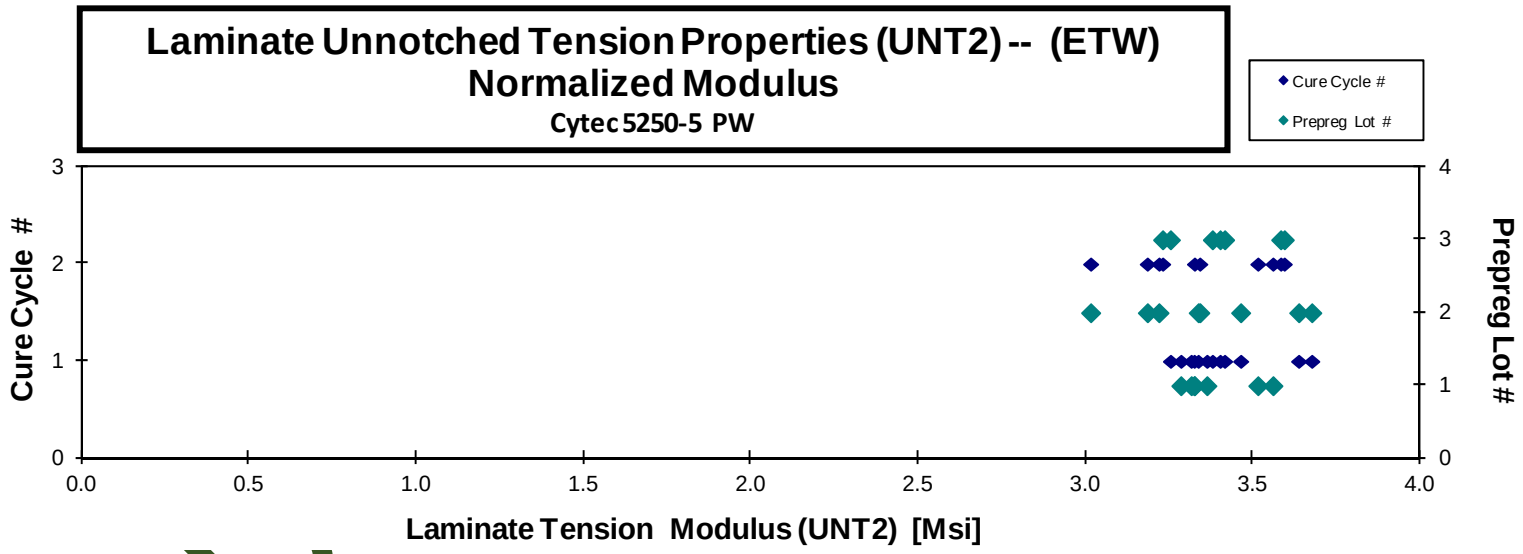
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCBA11BJ	A	C1	1	1	37.871	3.271	0.159	20	AGM	0.0079	38.486	3.324
CNCBA11CJ	A	C1	1	1	36.868	3.292	0.159	20	AGM	0.0080	37.660	3.362
CNCBA11DJ	A	C1	1	1	39.006	3.213	0.160	20	AGM	0.0080	39.882	3.285
CNCBA11EJ	A	C1	1	1	38.158	3.253	0.159	20	AGM	0.0080	38.892	3.315
CNCBA21BJ	A	C2	1	2	40.201	3.386	0.162	20	AGM	0.0081	41.726	3.515
CNCBA21CJ	A	C2	1	2	38.787	3.439	0.161	20	AGM	0.0081	40.150	3.560
CNCBA21DJ	A	C2	1	2	39.893	3.194	0.162	20	AGM	0.0081	41.538	3.325
CNCBB11BJ	B	C1	2	1	44.142	3.672	0.156	20	AGM	0.0078	44.194	3.676
CNCBB11CJ	B	C1	2	1	43.413	3.453	0.156	20	AGM	0.0078	43.543	3.463
CNCBB11DJ	B	C1	2	1	43.860	3.626	0.156	20	AGM	0.0078	43.987	3.637
CNCBB11EJ	B	C1	2	1	44.262	3.317	0.157	20	AGM	0.0078	44.518	3.337
CNCBB21BJ	B	C2	2	2	33.313	3.196	0.155	20	AGM	0.0078	33.195	3.184
CNCBB21CJ	B	C2	2	2	37.331	3.232	0.155	20	AGM	0.0078	37.184	3.219
CNCBB21DJ	B	C2	2	2	36.299	3.014	0.156	20	AGM	0.0078	36.315	3.015
CNCBB21EJ	B	C2	2	2	41.814	3.335	0.156	20	AGM	0.0078	41.894	3.341
CNCBC11CJ	C	C1	3	1	44.341	3.368	0.158	20	AGM	0.0079	44.782	3.402
CNCBC11DJ	C	C1	3	1	43.236	3.345	0.158	20	AGM	0.0079	43.675	3.379
CNCBC11EJ	C	C1	3	1	40.205	3.239	0.157	20	AGM	0.0078	40.390	3.254
CNCBC11FJ	C	C1	3	1	44.251	3.414	0.156	20	AGM	0.0078	44.275	3.415
CNCBC21BJ	C	C2	3	2	37.215	3.211	0.157	20	AGM	0.0078	37.442	3.230
CNCBC21CJ	C	C2	3	2	43.319	3.550	0.157	20	AGM	0.0079	43.721	3.583
CNCBC21DJ	C	C2	3	2	42.790	3.554	0.158	20	AGM	0.0079	43.266	3.594

	Strength [ksi]	Modulus [Msi]
Average	40.481	3.344
Standard Dev.	3.236	0.159
Coeff. of Var. [%]	7.993	4.756
Min.	33.313	3.014
Max.	44.341	3.672
Number of Spec.	22	22

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.0079	40.942	3.383
$Standard\ Dev._{norm}$		3.226	0.163
$Coeff.\ of\ Var.\ [\%]_{norm}$		7.880	4.820
Min.	0.0078	33.195	3.015
Max.	0.0081	44.782	3.676
Number of Spec.		22	22


Laminate Unnotched Tension Properties (UNT2) -- (ETW)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
LaminateTension Strength (UNT2) [ksi]


Laminate Unnotched Tension Properties (UNT2) -- (ETW)
Normalized Modulus
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Laminate Tension Modulus (UNT2) [Msi]

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

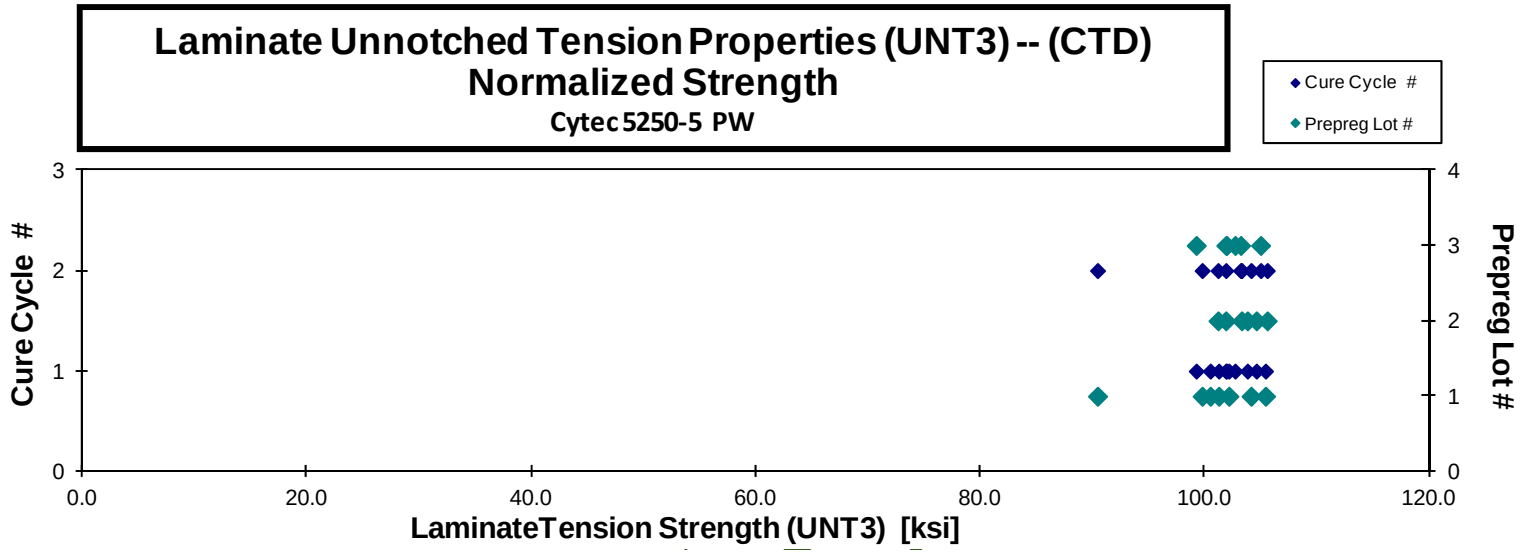
Laminate Unnotched Tension Properties (UNT3) -- (CTD)
Strength & Modulus
Cytec 5250-5 PW

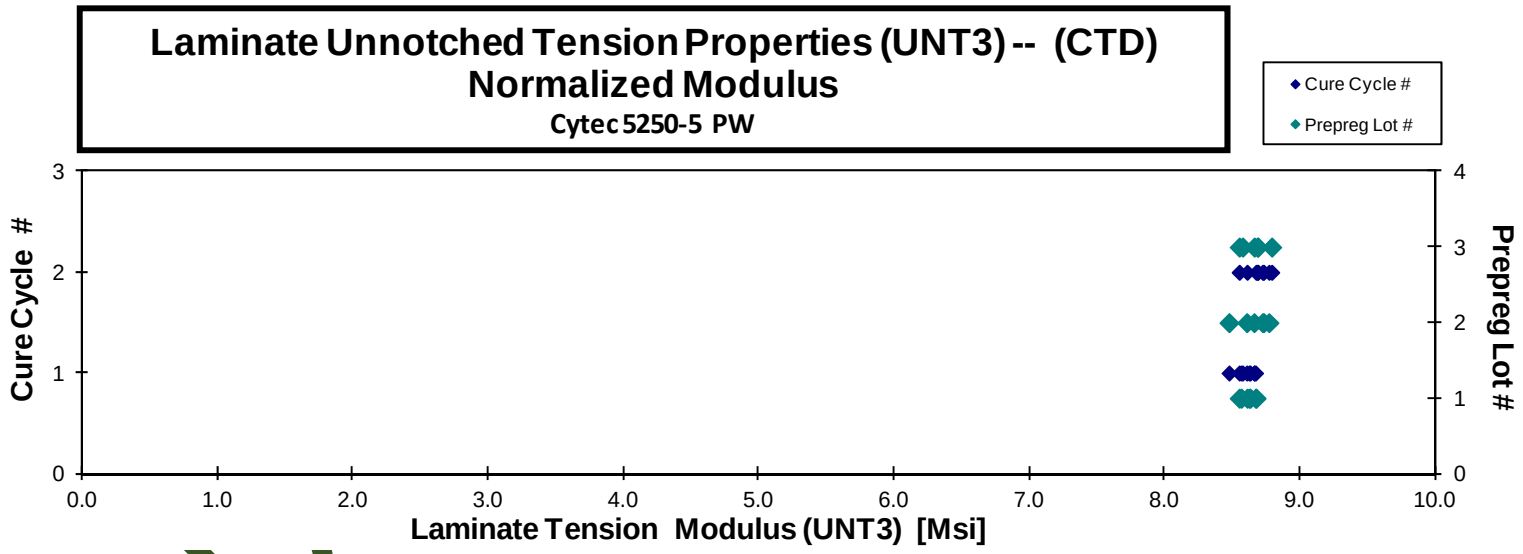
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCCA116B	A	C1	1	1	100.534	8.431	0.119	15	LWB	0.0079	102.152	8.567
CNCCA117B	A	C1	1	1	99.445	8.472	0.119	15	LWT	0.0079	101.244	8.625
CNCCA118B	A	C1	1	1	98.720	8.480	0.119	15	LGM	0.0079	100.492	8.632
CNCCA119B	A	C1	1	1	103.485	8.513	0.119	15	LWB	0.0079	105.416	8.672
CNCCA216B	A	C2	1	2	89.820	8.551	0.118	15	LGM	0.0079	90.447	8.610
CNCCA217B	A	C2	1	2	103.347	8.488	0.118	15	LGM	0.0079	104.127	8.552
CNCCA218B	A	C2	1	2	99.245	8.631	0.118	15	LGM	0.0078	99.768	8.676
CNCCB116B	B	C1	2	1	103.437	8.446	0.117	15	LGM	0.0078	103.805	8.476
CNCCB117B	B	C1	2	1	104.806	8.678	0.117	15	LGM	0.0078	104.597	8.661
CNCCB118B	B	C1	2	1	102.374	8.649	0.116	15	LGM	0.0078	101.878	8.607
CNCCB216B	B	C2	2	2	106.357	8.797	0.116	15	LGM	0.0077	105.569	8.732
CNCCB217B	B	C2	2	2	105.738	8.980	0.114	15	LWT / LWB	0.0076	103.283	8.771
CNCCB218B	B	C2	2	2	103.604	8.933	0.114	15	LGM	0.0076	101.184	8.724
CNCCC116B	C	C1	3	1	101.872	8.546	0.117	15	LWB	0.0078	101.944	8.552
CNCCC117B	C	C1	3	1	99.442	8.594	0.117	15	LGM	0.0078	99.244	8.577
CNCCC118B	C	C1	3	1	103.746	8.751	0.116	15	LGM	0.0077	102.697	8.663
CNCCC216B	C	C2	3	2	102.923	8.665	0.117	15	LGM	0.0078	103.201	8.689
CNCCC217B	C	C2	3	2	102.938	8.883	0.116	15	LGM	0.0077	101.882	8.792
CNCCC218B	C	C2	3	2	92.640	7.666	0.133	15	LGM	0.0088	104.979	8.687

	Strength [ksi]	Modulus [Msi]
Average	**101.288**	**8.587**
Standard Dev.	**4.179**	**0.278**
Coeff. of Var. [%]	**4.126**	**3.235**
Min.	**89.820**	**7.666**
Max.	**106.357**	**8.980**
Number of Spec.	**19**	**19**

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	**0.0079**	**101.995**	**8.646**
Standard $Dev._{norm}$		**3.342**	**0.081**
Coeff. of Var. [%]$_{norm}$		**3.276**	**0.933**
Min.	**0.0076**	**90.447**	**8.476**
Max.	**0.0088**	**105.569**	**8.792**
Number of Spec.		**19**	**19**


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


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

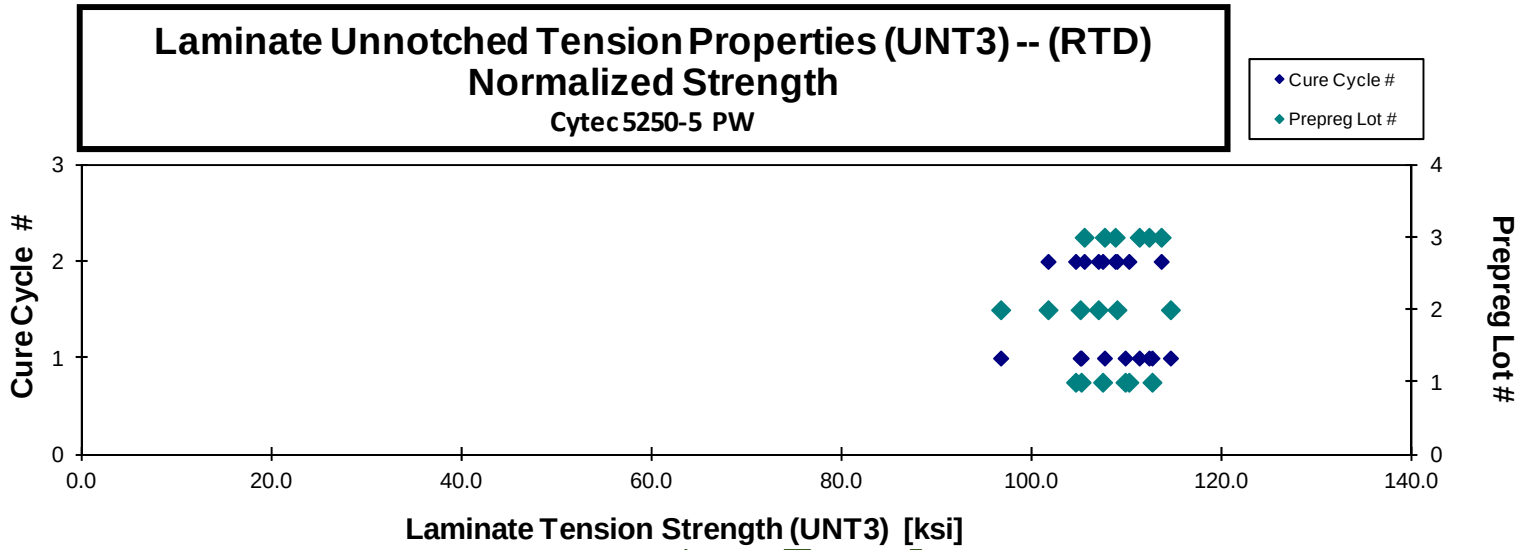
Laminate Unnotched Tension Properties (UNT3) -- (RTD)
Strength & Modulus
Cytec 5250-5 PW

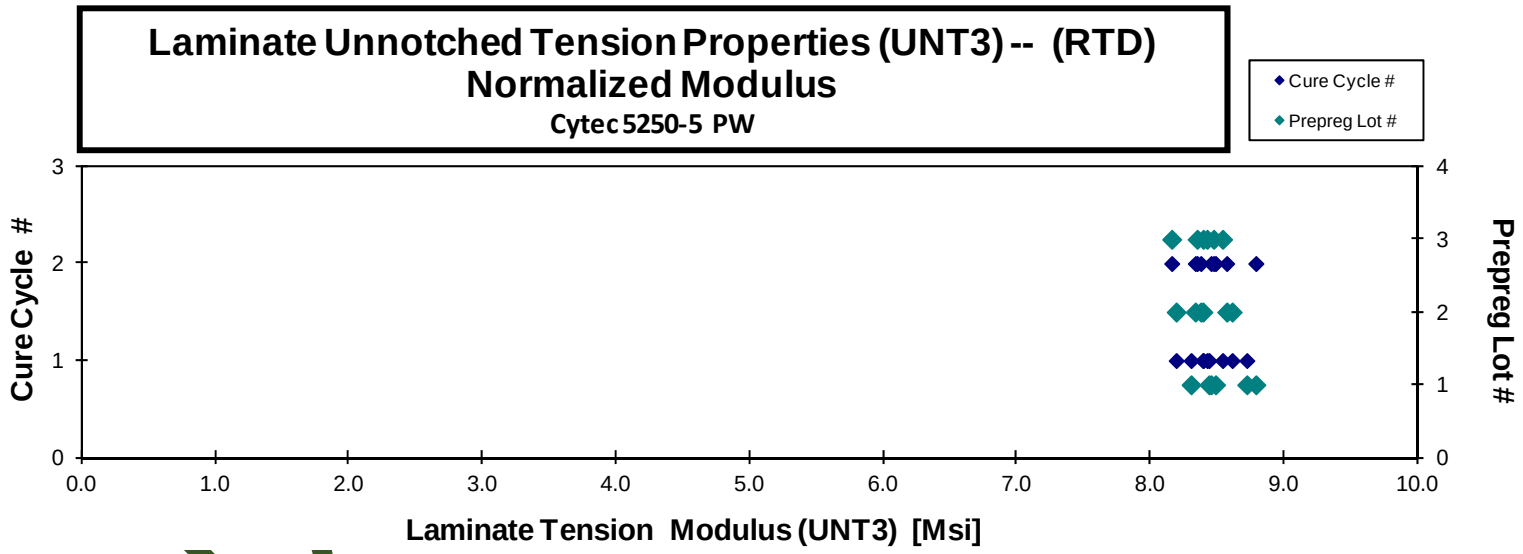
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCCA111A	A	C1	1	1	108.556	8.208	0.118	15	LWT/LAB	0.0079	109.824	8.304
CNCCA112A	A	C1	1	1	110.809	8.578	0.119	15	LWT/LWB	0.0079	112.656	8.721
CNCCA113A	A	C1	1	1	103.461	8.299	0.119	15	LWT/LWB	0.0079	105.200	8.438
CNCCA211A	A	C2	1	2	110.312	8.796	0.117	15	LWT/LWB	0.0078	110.218	8.789
CNCCA212A	A	C2	1	2	103.524	8.366	0.118	15	LWT/LWB	0.0079	104.615	8.454
CNCCA213A	A	C2	1	2	106.068	8.377	0.119	15	LGM	0.0079	107.458	8.487
CNCCB111A	B	C1	2	1	116.554	8.759	0.115	15	LWT/LWB	0.0077	114.594	8.612
CNCCB112A	B	C1	2	1	106.092	8.472	0.116	15	LWT/LWB	0.0077	105.094	8.392
CNCCB113A	B	C1	2	1	97.463	8.255	0.116	15	LAT	0.0077	96.727	8.193
CNCCB211A	B	C2	2	2	111.761	8.952	0.112	15	LGM	0.0075	107.001	8.570
CNCCB212A	B	C2	2	2	112.322	8.592	0.114	15	LWT	0.0076	108.962	8.335
CNCCB213A	B	C2	2	2	103.966	8.562	0.114	15	LWT	0.0076	101.714	8.376
CNCCC111A	C	C1	3	1	110.452	8.762	0.114	15	LWT	0.0076	107.651	8.540
CNCCC112A	C	C1	3	1	114.574	8.591	0.115	15	LWT	0.0076	112.338	8.424
CNCCC113A	C	C1	3	1	113.182	8.536	0.115	15	LWB	0.0077	111.312	8.395
CNCCC211A	C	C2	3	2	106.486	8.234	0.116	15	LWB	0.0077	105.515	8.159
CNCCC212A	C	C2	3	2	110.524	8.493	0.115	15	LWT/LWB	0.0077	108.776	8.349
CNCCC213A	C	C2	3	2	114.048	8.504	0.117	15	LWB	0.0078	113.625	8.473

Average	108.897	8.518
Standard Dev.	4.861	0.209
Coeff. of Var. [%]	4.464	2.450
Min.	97.463	8.208
Max.	116.554	8.952
Number of Spec.	18	18

$Average_{norm}$	0.0077	107.960	8.445
$Standard\ Dev._{norm}$		4.461	0.162
$Coeff.\ of\ Var.\ [\%]_{norm}$		4.132	1.920
Min.	0.0075	96.727	8.159
Max.	0.0079	114.594	8.789
Number of Spec.		18	18


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

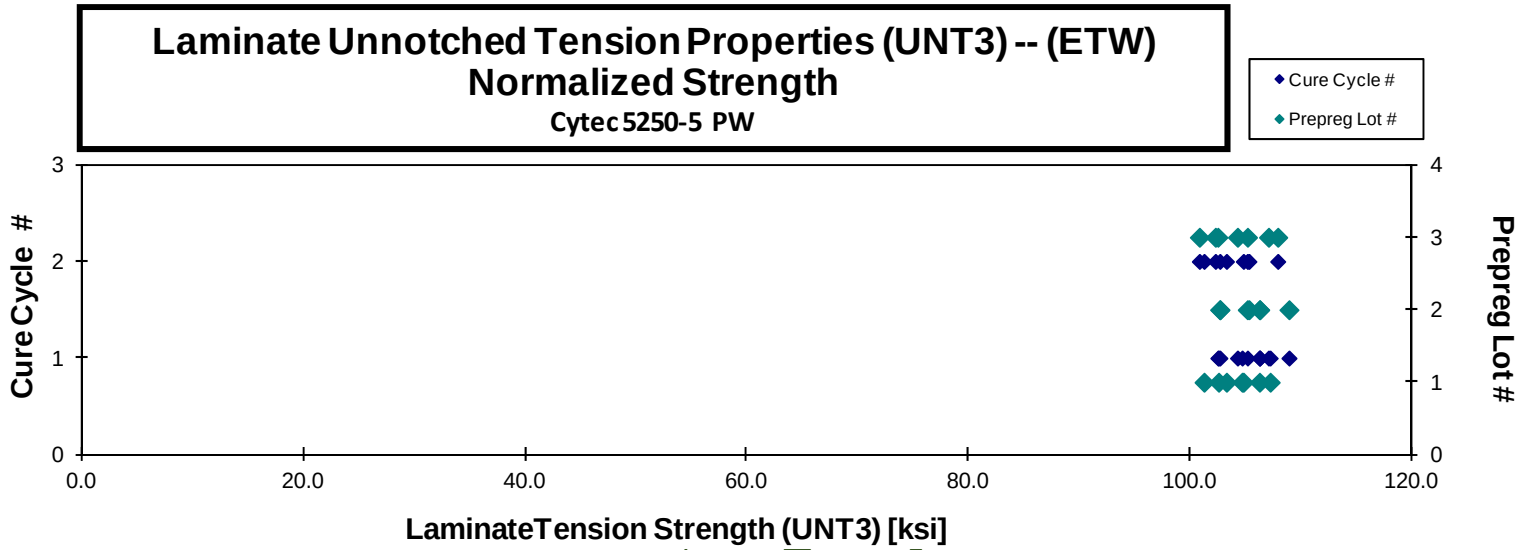

Laminate Unnotched Tension Properties (UNT3) -- (RTD)
Normalized Modulus
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
Laminate Tension Modulus (UNT3) [Msi]

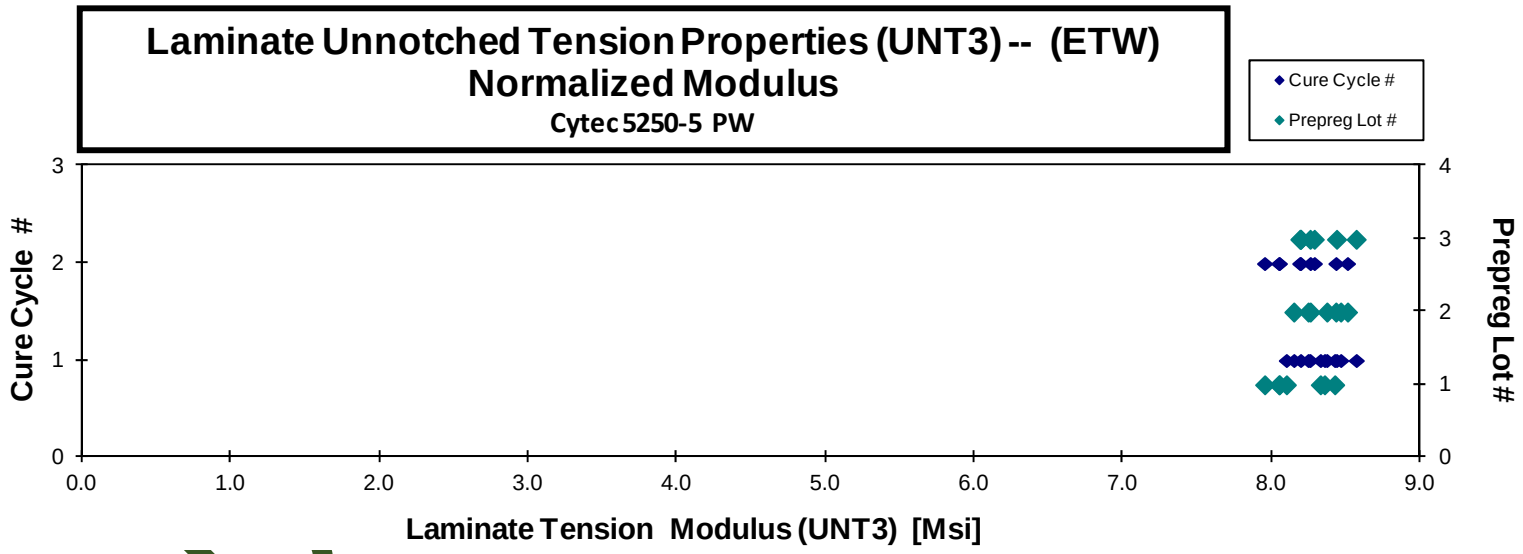
Laminate Unnotched Tension Properties (UNT3) -- (ETW)
Strength & Modulus
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCCA11BJ	A	C1	1	1	104.896	8.147	0.120	15	LGM	0.0080	107.227	8.329
CNCCA11CJ	A	C1	1	1	104.474	8.216	0.119	15	LGM	0.0079	106.260	8.357
CNCCA11DJ	A	C1	1	1	102.764	7.950	0.119	15	LGM	0.0079	104.696	8.100
CNCCA11EJ	A	C1	1	1	100.693	8.271	0.119	15	LGM	0.0079	102.572	8.425
CNCCA21BJ	A	C2	1	2	100.263	7.973	0.118	15	LGM	0.0079	101.262	8.053
CNCCA21CJ	A	C2	1	2	101.490	7.816	0.119	15	LGM	0.0079	103.283	7.954
CNCCA21DJ	A	C2	1	2	102.804	7.895	0.119	15	LGM	0.0080	104.810	8.049
CNCCB11BJ	B	C1	2	1	109.251	8.175	0.117	15	LGM	0.0078	108.925	8.150
CNCCB11CJ	B	C1	2	1	102.164	8.329	0.118	15	LGM	0.0078	102.688	8.372
CNCCB11DJ	B	C1	2	1	105.610	8.411	0.118	15	LGM	0.0079	106.287	8.465
CNCCB11EJ	B	C1	2	1	105.339	8.174	0.118	15	LGM	0.0079	106.269	8.247
CNCCB21BJ	B	C2	2	2	106.670	8.554	0.115	15	LGM	0.0077	105.165	8.433
CNCCB21CJ	B	C2	2	2	103.584	8.333	0.116	15	LGM	0.0077	102.684	8.261
CNCCB21DJ	B	C2	2	2	105.763	8.548	0.117	15	LGM	0.0078	105.311	8.511
CNCCC11BJ	C	C1	3	1	105.011	8.630	0.116	15	LGM	0.0077	104.278	8.570
CNCCC11CJ	C	C1	3	1	103.109	8.308	0.116	15	LGM	0.0078	102.507	8.259
CNCCC11DJ	C	C1	3	1	107.646	8.239	0.116	15	LGM	0.0078	107.079	8.196
CNCCC11EJ	C	C1	3	1	105.872	8.493	0.116	15	LGM	0.0077	105.178	8.438
CNCCC21BJ	C	C2	3	2	106.662	8.192	0.118	15	LGM	0.0079	107.908	8.288
CNCCC21CJ	C	C2	3	2	100.263	8.149	0.118	15	LGM	0.0078	100.835	8.195
CNCCC21DJ	C	C2	3	2	100.294	8.031	0.119	15	LGM	0.0080	102.279	8.190

Average	104.030	8.230	$Average_{norm}$	0.0078	104.643	8.278
Standard Dev.	2.591	0.222	$Standard\ Dev._{norm}$		2.243	0.165
Coeff. of Var. [%]	2.491	2.696	$Coeff.\ of\ Var.\ [\%]_{norm}$		2.143	1.990
Min.	100.263	7.816	Min.	0.0077	100.835	7.954
Max.	109.251	8.630	Max.	0.0080	108.925	8.570
Number of Spec.	21	21	Number of Spec.		21	21


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


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

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

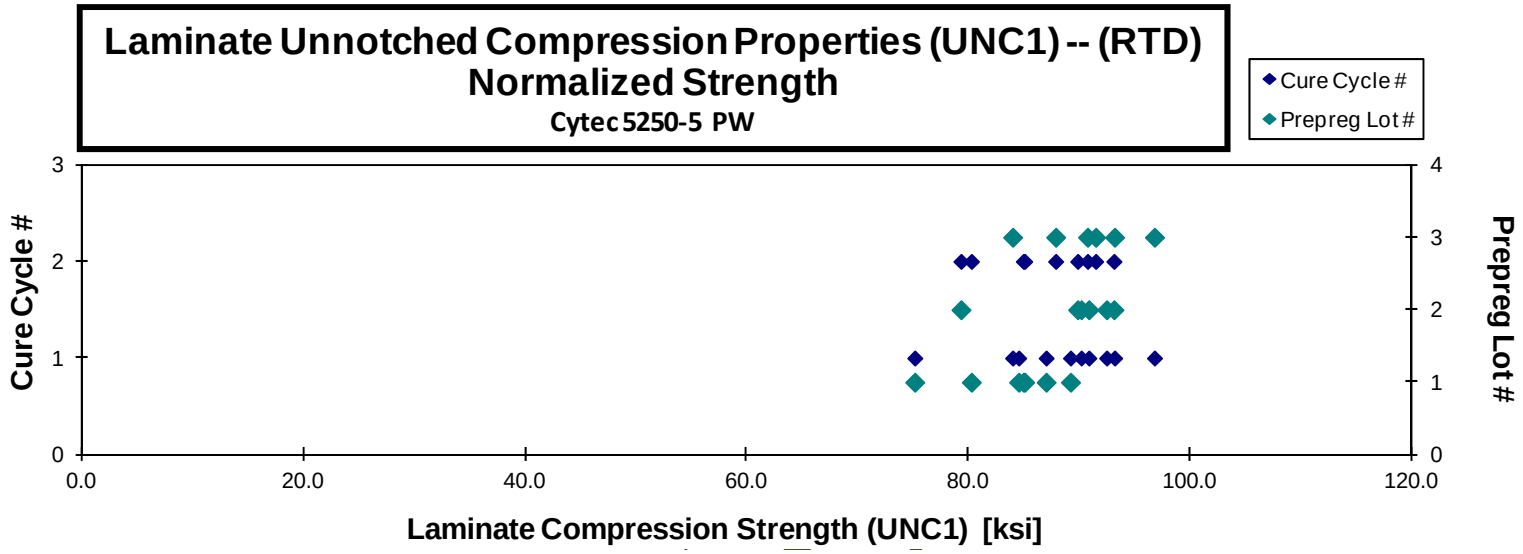
Laminate Unnotched Compression Properties (UNC1) -- (RTD)
Strength & Modulus
Cytec 5250-5 PW

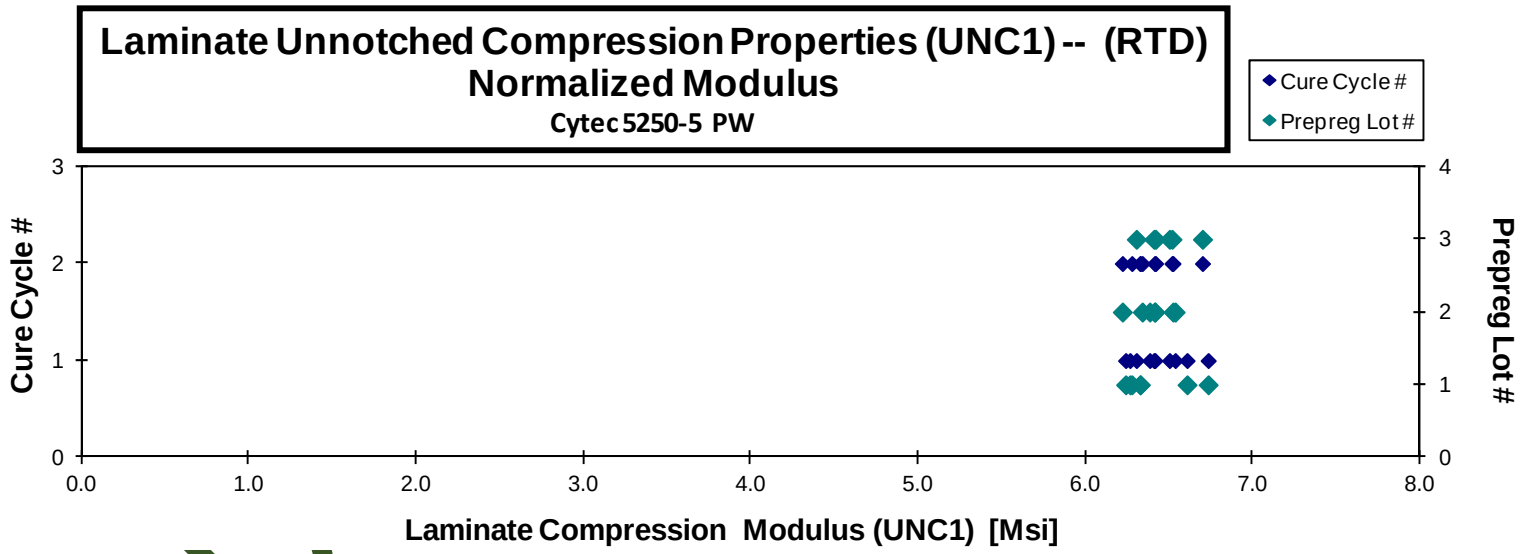
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCWA111A	A	C1	1	1	75.432	6.630	0.124	16	BAT	0.0078	75.160	6.606
CNCWA112A	A	C1	1	1	89.508	6.755	0.124	16	BGM	0.0078	89.210	6.732
CNCWA113A	A	C1	1	1	84.546	6.240	0.125	16	BGM	0.0078	84.535	6.239
CNCWA114A	A	C1	1	1	86.780	6.248	0.125	16	BGM	0.0078	87.012	6.265
CNCWA211A	A	C2	1	2	78.977	6.176	0.127	16	BGM	0.0079	80.264	6.276
CNCWA212A	A	C2	1	2	83.883	6.246	0.126	16	BGM	0.0079	84.958	6.326
CNCWA213A	A	C2	1	2	84.567	6.288	0.126	16	BGM	0.0078	85.075	6.326
CNCWB111A	B	C1	2	1	91.922	6.538	0.122	16	BGM	0.0077	90.178	6.414
CNCWB112A	B	C1	2	1	94.117	6.497	0.123	16	BGM	0.0077	92.470	6.383
CNCWB113A	B	C1	2	1	92.199	6.631	0.123	16	BGM	0.0077	90.869	6.535
CNCWB211A	B	C2	2	2	92.285	6.388	0.122	16	BGM	0.0076	89.858	6.220
CNCWB212A	B	C2	2	2	*	6.504	0.122	16	HIT	0.0076		6.339
CNCWB213A	B	C2	2	2	94.657	6.629	0.123	16	BGM	0.0077	93.128	6.522
CNCWB214A	B	C2	2	2	80.457	6.504	0.123	16	BGM	0.0077	79.328	6.412
CNCWC111A	C	C1	3	1	99.431	6.475	0.121	16	BGM	0.0076	96.788	6.303
CNCWC112A	C	C1	3	1	95.511	6.663	0.122	16	BGM	0.0076	93.190	6.502
CNCWC113A	C	C1	3	1	85.470	6.521	0.123	16	BGM	0.0077	83.986	6.408
CNCWC211A	C	C2	3	2	92.381	6.633	0.123	16	BGM	0.0077	90.753	6.516
CNCWC212A	C	C2	3	2	89.122	6.509	0.123	16	BGM	0.0077	87.872	6.418
CNCWC213A	C	C2	3	2	92.668	6.786	0.123	16	BGM	0.0077	91.480	6.699

*Compressive strength not reported due to bad failure mode

Average	88.627	6.493	$Average_{norm}$	0.0077	87.690	6.422
Standard Dev.	6.245	0.178	$Standard\ Dev._{norm}$		5.442	0.146
Coeff. of Var. [%]	7.047	2.741	$Coeff.\ of\ Var.\ [\%]_{norm}$		6.206	2.278
Min.	75.432	6.176	Min.	0.0076	75.160	6.220
Max.	99.431	6.786	Max.	0.0079	96.788	6.732
Number of Spec.	19	20	Number of Spec.		19	20


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


Laminate Unnotched Compression Properties (UNC1) -- (RTD)
Normalized Modulus
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
Laminate Compression Modulus (UNC1) [Msi]

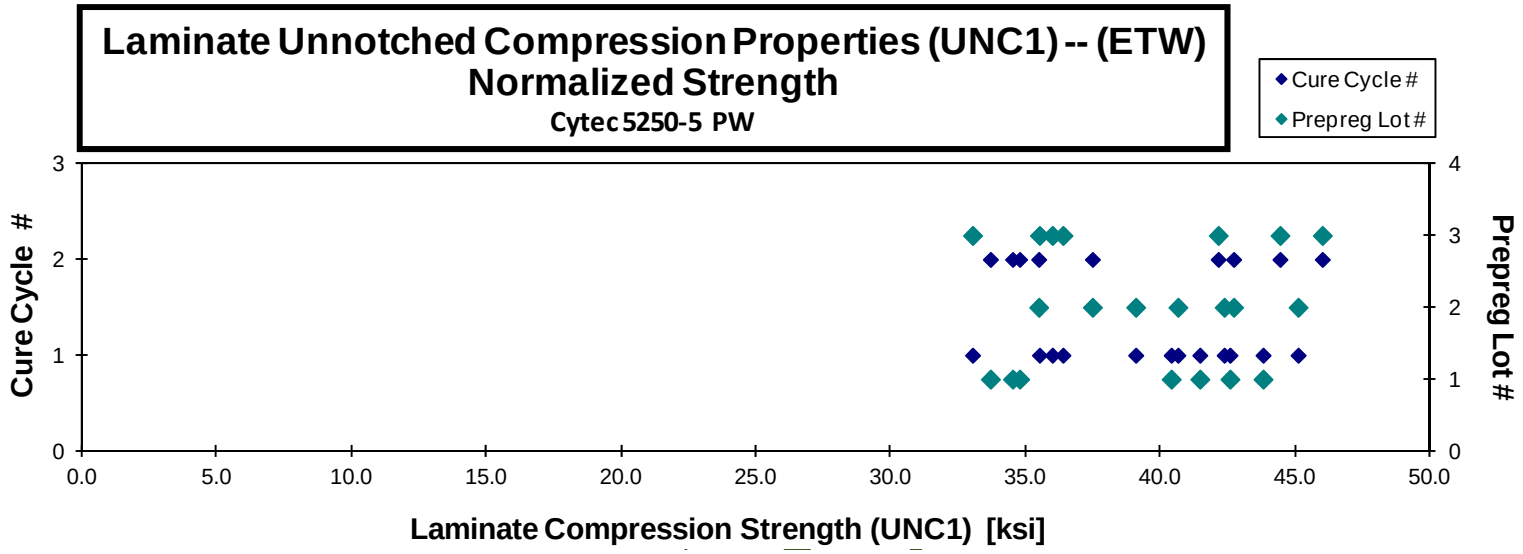
Laminate Unnotched Compression Properties (UNC1) -- (ETW)
Strength & Modulus
Cytec 5250-5 PW

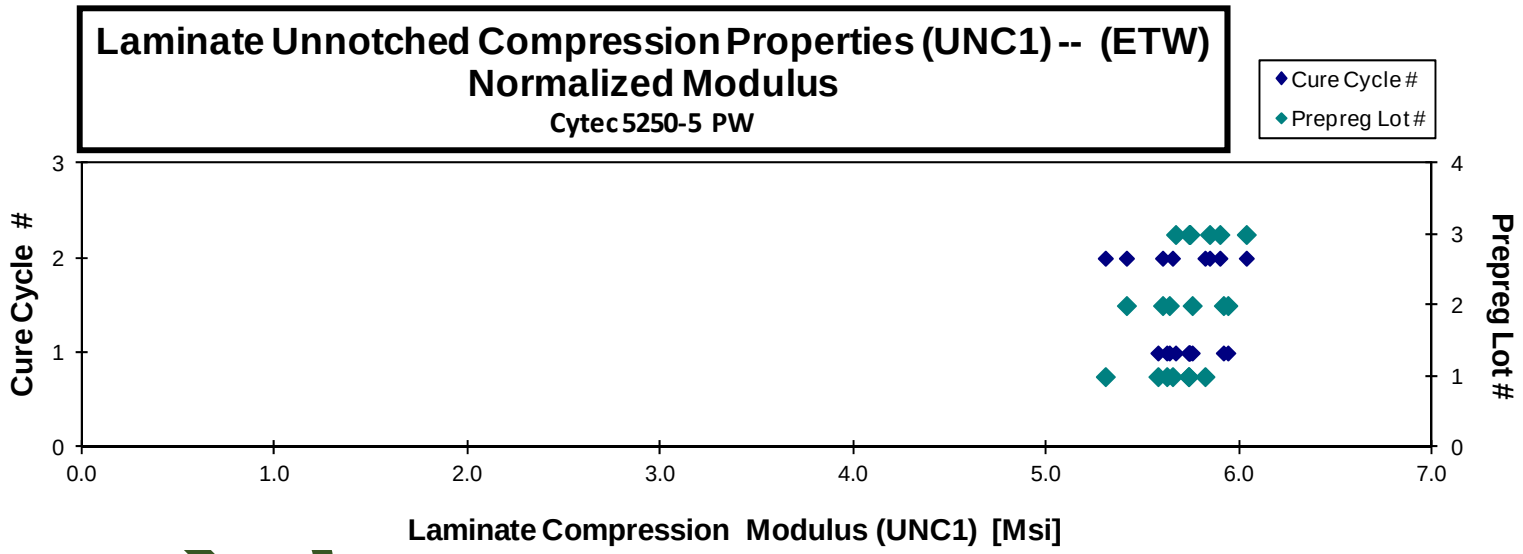
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCWA115J	A	C1	1	1		5.587	0.126	16	HGM/ BGM	0.0078		5.622
CNCWA116J	A	C1	1	1		5.541	0.126	16	BGM	0.0078		5.576
CNCWA117J	A	C1	1	1		5.697	0.126	16	BGM	0.0079		5.736
CNCWA118J	A	C1	1	1		5.706	0.125	16	HGM/ BGM	0.0078		5.734
CNCWA119J	A	C1	1	1	42.124		0.126	16	BGM	0.0079	42.579	
CNCWA11AJ	A	C1	1	1	41.121		0.126	16	BGM	0.0079	41.461	
CNCWA11BJ	A	C1	1	1	40.030		0.126	16	BGM	0.0079	40.399	
CNCWA11CJ	A	C1	1	1	43.504		0.126	16	HGM	0.0079	43.806	
CNCWA215J	A	C2	1	2		5.767	0.126	16	BGM	0.0079		5.820
CNCWA216J	A	C2	1	2		5.253	0.126	16	BGM	0.0079		5.304
CNCWA217J	A	C2	1	2		5.573	0.127	16	BGM	0.0079		5.652
CNCWA218J	A	C2	1	2	33.152		0.127	16	HGM	0.0079	33.692	
CNCWA219J	A	C2	1	2	34.182		0.127	16	HGM	0.0079	34.775	
CNCWA21AJ	A	C2	1	2	34.055		0.126	16	BGM	0.0079	34.514	
CNCWB115J	B	C1	2	1		5.785	0.124	16	BGM	0.0078		5.754
CNCWB116J	B	C1	2	1		5.911	0.125	16	BGM	0.0078		5.916
CNCWB117J	B	C1	2	1		5.628	0.125	16	BGM	0.0078		5.636
CNCWB118J	B	C1	2	1		5.927	0.125	16	BGM / HGM	0.0078		5.939
CNCWB119J	B	C1	2	1	44.760		0.126	16	BGM	0.0079	45.106	
CNCWB11AJ	B	C1	2	1	42.196		0.125	16	HGM	0.0078	42.365	
CNCWB11BJ	B	C1	2	1	40.664		0.125	16	BGM / HGM	0.0078	40.648	
CNCWB11CJ	B	C1	2	1	39.113		0.125	16	BGM	0.0078	39.082	
CNCWB216J	B	C2	2	2		5.655	0.124	16	BGM	0.0077		5.600
CNCWB217J	B	C2	2	2		5.438	0.124	16	BGM	0.0078		5.413
CNCWB218J	B	C2	2	2	42.870		0.124	16	BGM	0.0078	42.716	
CNCWB219J	B	C2	2	2	37.637		0.124	16	BGM	0.0078	37.476	
CNCWB21AJ	B	C2	2	2	35.621		0.124	16	BGM	0.0078	35.483	
CNCWC115J	C	C1	3	1		5.793	0.124	16	BGM	0.0077		5.738
CNCWC116J	C	C1	3	1		5.741	0.123	16	BGM / HGM	0.0077		5.668
CNCWC117J	C	C1	3	1		5.790	0.124	16	BGM	0.0077		5.739
CNCWC118J	C	C1	3	1		5.803	0.123	16	BGM	0.0077		5.742
CNCWC119J	C	C1	3	1	36.224		0.124	16	HGM	0.0077	35.987	
CNCWC11AJ	C	C1	3	1	36.628		0.124	16	BGM	0.0077	36.383	
CNCWC11BJ	C	C1	3	1	35.736		0.124	16	HGM	0.0078	35.512	
CNCWC11CJ	C	C1	3	1	33.296		0.124	16	BGM	0.0077	33.029	
CNCWC215J	C	C2	3	2		6.078	0.124	16	BGM	0.0077		6.035
CNCWC216J	C	C2	3	2		5.923	0.124	16	BGM	0.0078		5.898
CNCWC217J	C	C2	3	2		5.854	0.125	16	BGM	0.0078		5.844
CNCWC218J	C	C2	3	2	44.429		0.125	16	BGM / HGM	0.0078	44.435	
CNCWC219J	C	C2	3	2	45.963		0.125	16	BGM	0.0078	46.006	
CNCWC21AJ	C	C2	3	2	41.970		0.125	16	BGM/ HGM	0.0078	42.144	

Average	**39.299**	**5.722**	
Standard Dev.	**4.082**	**0.188**	
Coeff. of Var. [%]	**10.388**	**3.287**	
Min.	**33.152**	**5.253**	
Max.	**45.963**	**6.078**	
Number of Spec.	**21**	**20**	

$Average_{norm}$	**0.0078**	**39.410**	**5.718**
Standard $Dev._{norm}$		**4.115**	**0.173**
Coeff. of Var. $[\%]_{norm}$		**10.441**	**3.033**
Min.	**0.0077**	**33.029**	**5.304**
Max.	**0.0079**	**46.006**	**6.035**
Number of Spec.		**21**	**20**


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


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

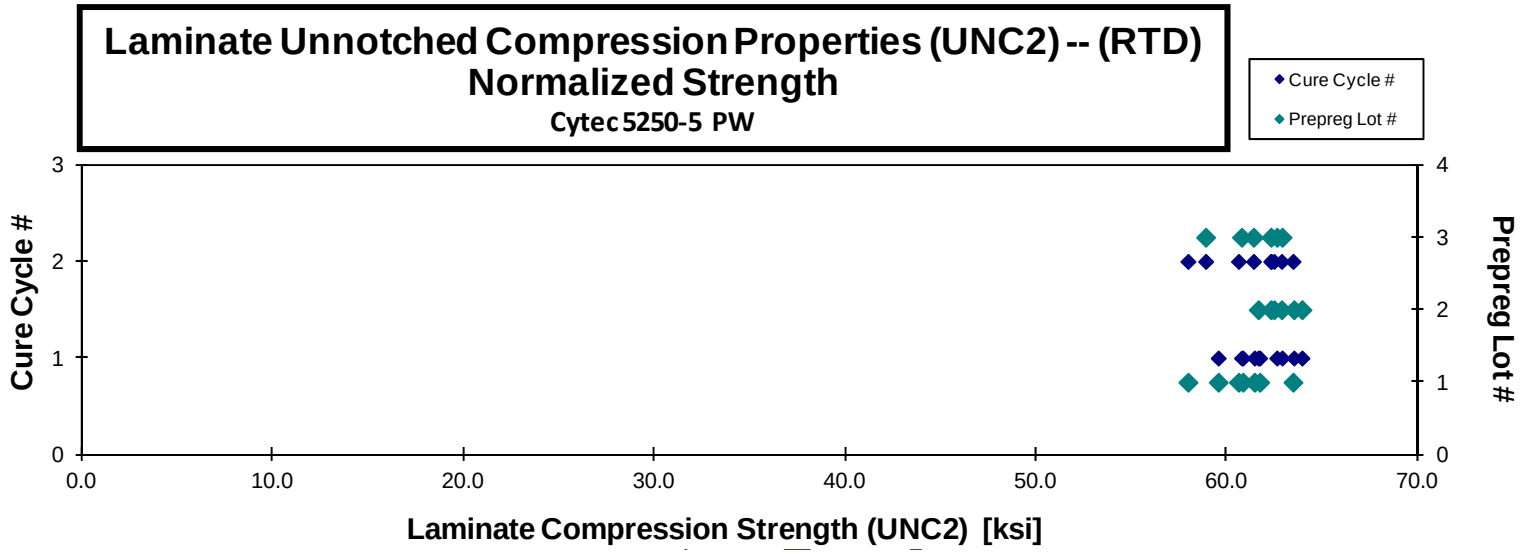
4.10 "10/80/10" Unnotched Compression 2 Properties (UNC2)

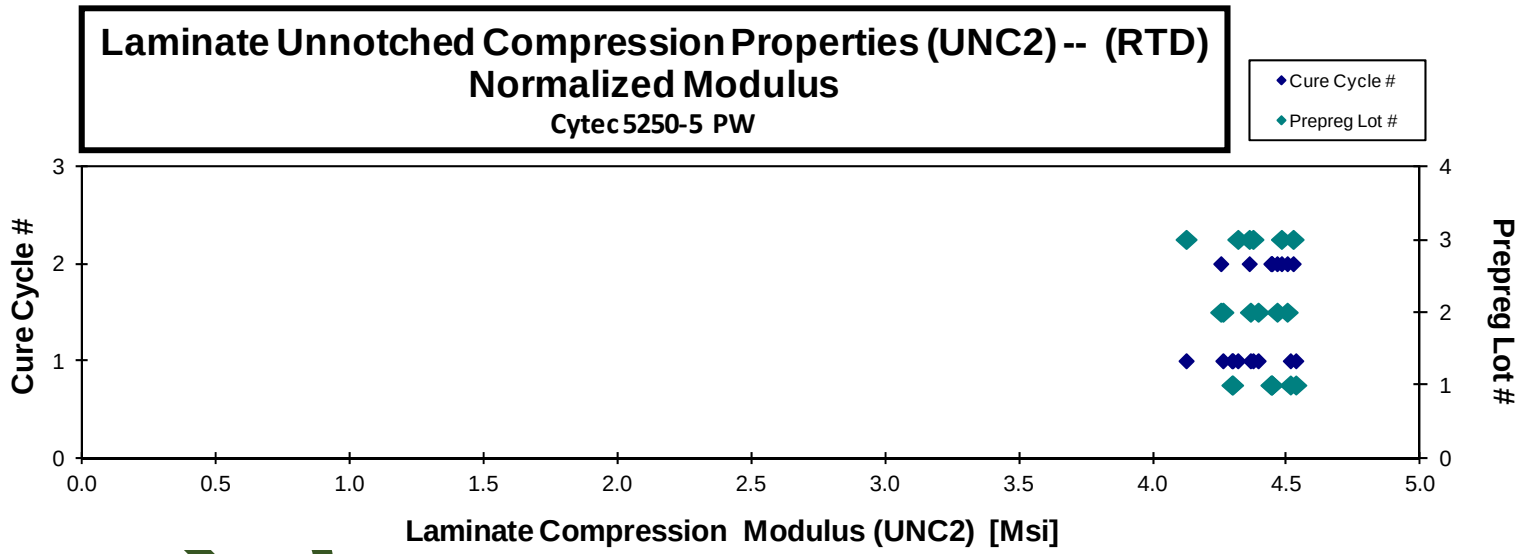
Laminate Unnotched Compression Properties (UNC2) -- (RTD)
Strength & Modulus
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCXA111A	A	C1	1	1	60.528	4.512	0.157	20	BGM	0.0078	60.838	4.535
CNCXA112A	A	C1	1	1	61.615	4.507	0.156	20	BGM	0.0078	61.720	4.515
CNCXA113A	A	C1	1	1	59.200	4.274	0.157	20	BGM	0.0078	59.548	4.299
CNCXA114A	A	C1	1	1	61.316	4.287	0.156	20	BGM	0.0078	61.447	4.297
CNCXA211A	A	C2	1	2	60.405	4.430	0.157	20	BGM	0.0078	60.612	4.445
CNCXA212A	A	C2	1	2	62.724	4.390	0.158	20	BGM	0.0079	63.467	4.442
CNCXA213A	A	C2	1	2	56.875	4.362	0.159	20	BGM	0.0079	57.963	4.445
CNCXB111A	B	C1	2	1	63.834	4.388	0.155	20	BGM	0.0078	63.513	4.366
CNCXB112A	B	C1	2	1	62.143	4.297	0.155	20	BGM	0.0077	61.645	4.263
CNCXB113A	B	C1	2	1	64.308	4.420	0.155	20	BGM	0.0078	63.937	4.394
CNCXB211A	B	C2	2	2	64.232	4.562	0.153	20	BGM	0.0076	62.866	4.465
CNCXB212A	B	C2	2	2	63.457	4.586	0.153	20	BGM	0.0077	62.312	4.503
CNCXB213A	B	C2	2	2	63.415	4.319	0.154	20	BGM	0.0077	62.473	4.255
CNCXC111A	C	C1	3	1	64.366	4.222	0.152	20	BGM	0.0076	62.895	4.125
CNCXC112A	C	C1	3	1	61.474	4.426	0.154	20	BGM	0.0077	60.771	4.375
CNCXC113A	C	C1	3	1	63.344	4.369	0.154	20	BGM	0.0077	62.620	4.319
CNCXC211A	C	C2	3	2	61.681	4.381	0.155	20	BGM	0.0078	61.397	4.361
CNCXC212A	C	C2	3	2	62.465	4.493	0.156	20	BGM	0.0078	62.311	4.482
CNCXC213A	C	C2	3	2	59.105	4.542	0.155	20	BGM	0.0078	58.890	4.525

Average	61.920	4.409	$Average_{norm}$	0.0078	61.643	4.390
Standard Dev.	2.028	0.104	$Standard\ Dev._{norm}$		1.595	0.110
Coeff. of Var. [%]	3.275	2.357	$Coeff.\ of\ Var.\ [\%]_{norm}$		2.587	2.511
Min.	56.875	4.222	Min.	0.0076	57.963	4.125
Max.	64.366	4.586	Max.	0.0079	63.937	4.535
Number of Spec.	19	19	Number of Spec.		19	19


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


Laminate Unnotched Compression Properties (UNC2) -- (RTD)
Normalized Modulus
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Laminate Compression Modulus (UNC2) [Msi]

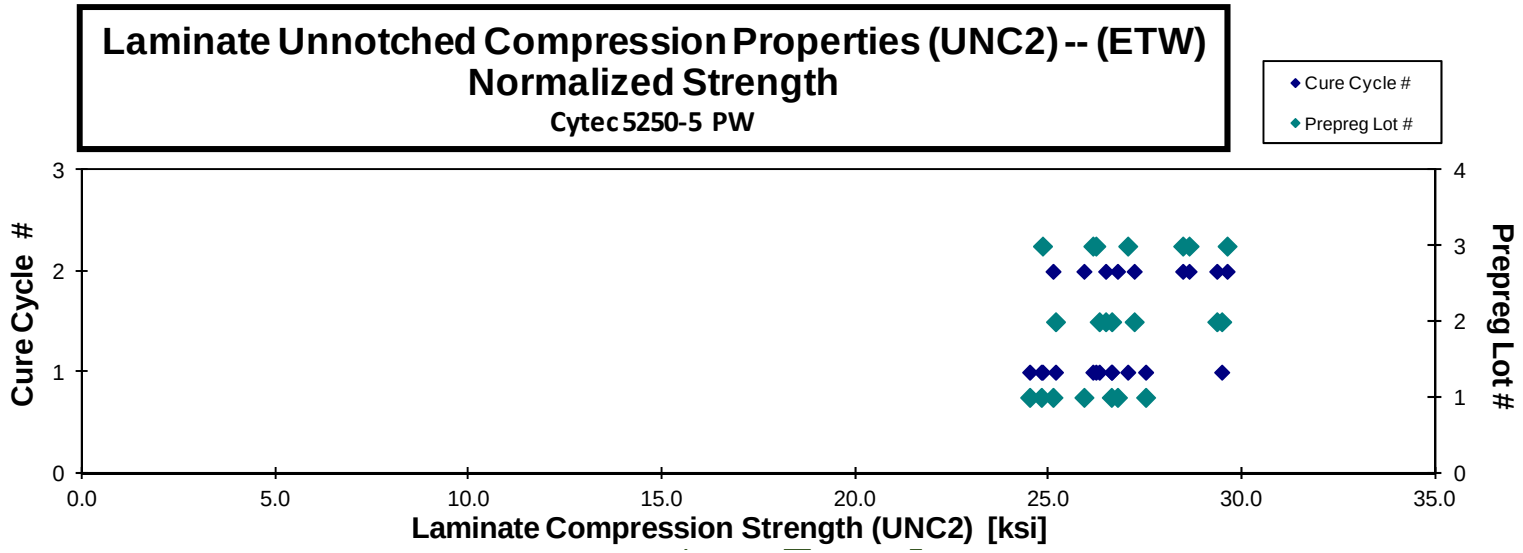
Laminate Unnotched Compression Properties (UNC2) -- (ETW)
Strength & Modulus
Cytec 5250-5 PW

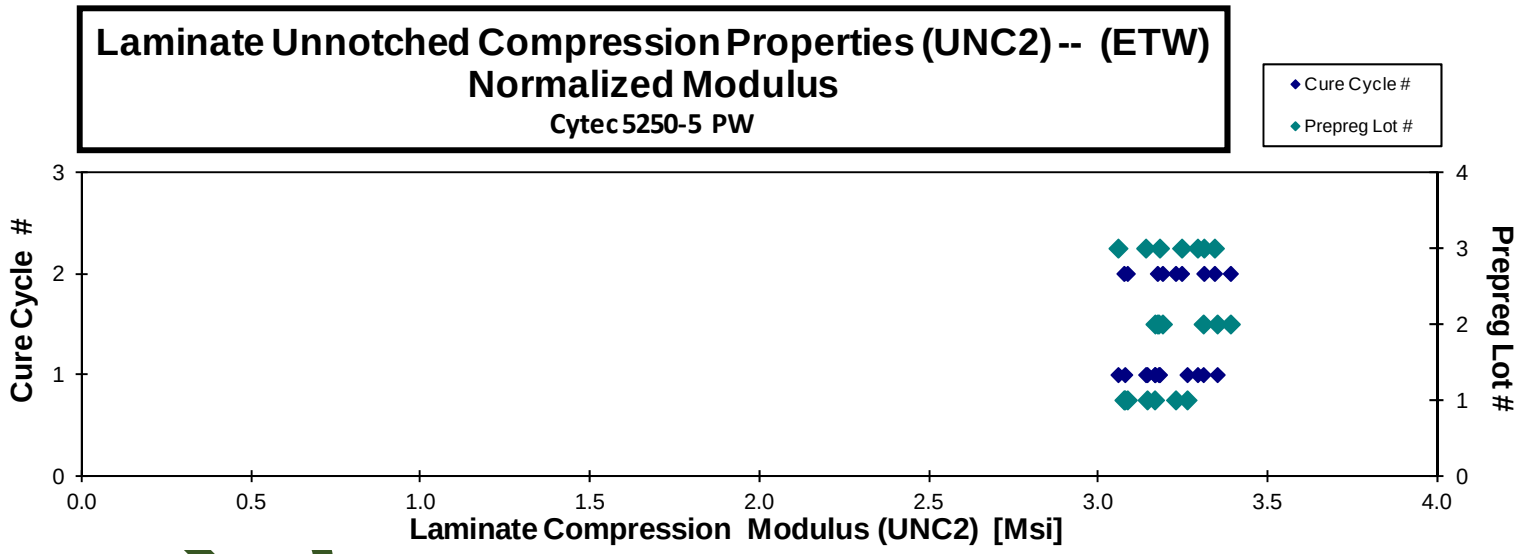
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCXA115J	A	C1	1	1		3.137	0.156	20	BGM / HGM	0.0078		3.142
CNCXA116J	A	C1	1	1		3.232	0.157	20	BGM	0.0079		3.260
CNCXA117J	A	C1	1	1		3.154	0.157	20	BGM / HGM	0.0078		3.165
CNCXA118J	A	C1	1	1		3.071	0.156	20	HGM	0.0078		3.077
CNCXA119J	A	C1	1	1	27.439		0.156	20	BGM	0.0078	27.509	
CNCXA11AJ	A	C1	1	1	24.705		0.157	20	BGM	0.0078	24.811	
CNCXA11BJ	A	C1	1	1	26.516		0.157	20	BGM	0.0078	26.621	
CNCXA11CJ	A	C1	1	1	24.423		0.157	20	BGM	0.0078	24.509	
CNCXA215J	A	C2	1	2		2.997	0.160	20	BGM	0.0080		3.074
CNCXA216J	A	C2	1	2		3.004	0.160	20	HGM	0.0080		3.084
CNCXA217J	A	C2	1	2		3.134	0.161	20	HGM	0.0080		3.226
CNCXA218J	A	C2	1	2	26.041		0.160	20	BGM	0.0080	26.781	
CNCXA219J	A	C2	1	2	24.399		0.161	20	BGM / HGM	0.0080	25.113	
CNCXA21AJ	A	C2	1	2	25.179		0.161	20	HGM	0.0080	25.913	
CNCXB115J	B	C1	2	1		3.324	0.155	20	BGM	0.0078		3.308
CNCXB116J	B	C1	2	1		3.182	0.155	20	BGM	0.0078		3.166
CNCXB117J	B	C1	2	1		3.190	0.155	20	BGM	0.0078		3.176
CNCXB118J	B	C1	2	1		3.357	0.156	20	HGM / BGM	0.0078		3.349
CNCXB119J	B	C1	2	1	29.443		0.156	20	BGM	0.0078	29.478	
CNCXB11AJ	B	C1	2	1	26.648		0.156	20	BGM	0.0078	26.630	
CNCXB11BJ	B	C1	2	1	26.288		0.156	20	BGM	0.0078	26.308	
CNCXB11CJ	B	C1	2	1	25.266		0.155	20	BGM	0.0078	25.177	
CNCXB215J	B	C2	2	2		3.421	0.155	20	BGM	0.0077		3.388
CNCXB216J	B	C2	2	2		3.194	0.155	20	BGM / HGM	0.0077		3.173
CNCXB217J	B	C2	2	2		3.196	0.156	20	BGM	0.0078		3.188
CNCXB218J	B	C2	2	2	29.483		0.155	20	HGM	0.0078	29.351	
CNCXB219J	B	C2	2	2	27.318		0.155	20	BGM / HGM	0.0078	27.213	
CNCXB21AJ	B	C2	2	2	26.560		0.156	20	HGM	0.0078	26.475	
CNCXC115J	C	C1	3	1		3.201	0.155	20	BGM	0.0077		3.179
CNCXC116J	C	C1	3	1		3.155	0.155	20	BGM	0.0078		3.138
CNCXC117J	C	C1	3	1		3.077	0.155	20	BGM	0.0077		3.056
CNCXC118J	C	C1	3	1		3.293	0.156	20	BGM	0.0078		3.291
CNCXC119J	C	C1	3	1	24.872		0.156	20	BGM/HGM	0.0078	24.841	
CNCXC11AJ	C	C1	3	1	27.053		0.156	20	BGM	0.0078	27.047	
CNCXC11BJ	C	C1	3	1	26.094		0.156	20	BGM	0.0078	26.145	
CNCXC11CJ	C	C1	3	1	26.170		0.156	20	BGM	0.0078	26.220	
CNCXC215J	C	C2	3	2		3.332	0.156	20	BGM	0.0078		3.341
CNCXC216J	C	C2	3	2		3.232	0.157	20	BGM	0.0078		3.244
CNCXC217J	C	C2	3	2		3.285	0.157	20	BGM	0.0079		3.310
CNCXC218J	C	C2	3	2	29.373		0.157	20	BGM	0.0079	29.618	
CNCXC219J	C	C2	3	2	28.168		0.158	20	BGM	0.0079	28.469	
CNCXC21AJ	C	C2	3	2	28.274		0.158	20	BGM	0.0079	28.633	

	Strength [ksi]	Modulus [Msi]
Average	26.653	3.198
Standard Dev.	1.605	0.112
Coeff. of Var. [%]	6.022	3.486
Min.	24.399	2.997
Max.	29.483	3.421
Number of Spec.	21	21

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
Average$_{norm}$	0.0078	26.803	3.206
Standard Dev.$_{norm}$		1.565	0.098
Coeff. of Var. [%]$_{norm}$		5.839	3.053
Min.	0.0077	24.509	3.056
Max.	0.0080	29.618	3.388
Number of Spec.		21	21


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


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

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

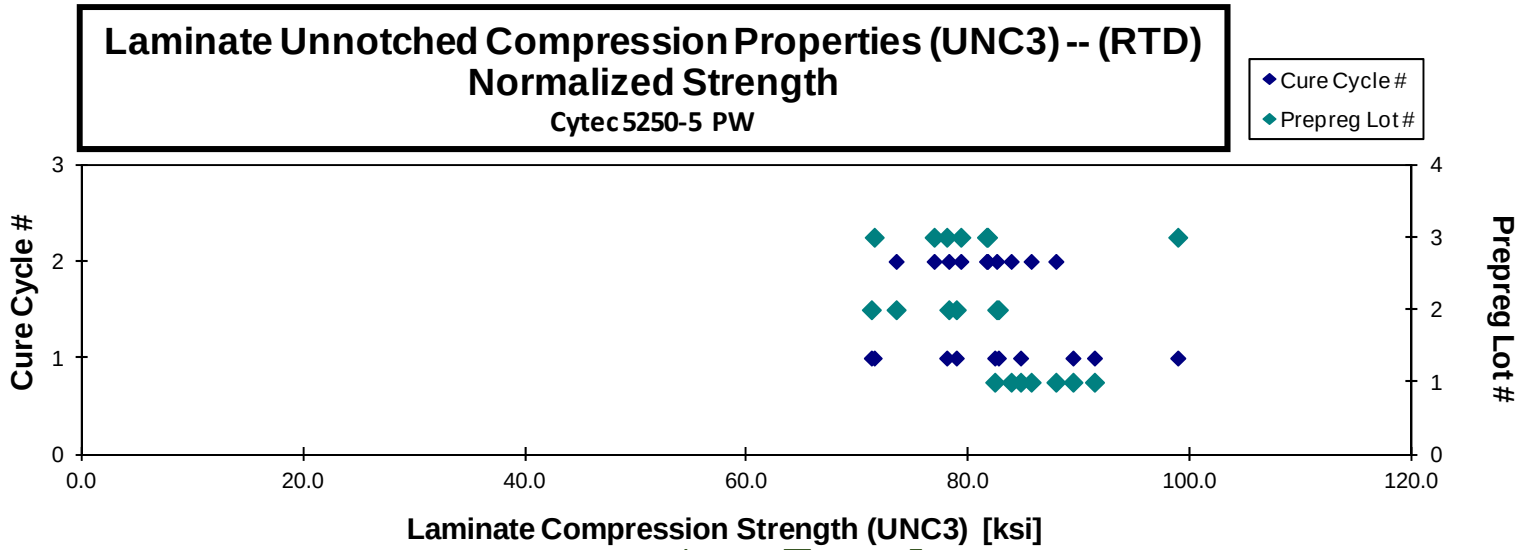
Laminate Unnotched Compression Properties (UNC3) -- (RTD)
Strength & Modulus
Cytec 5250-5 PW

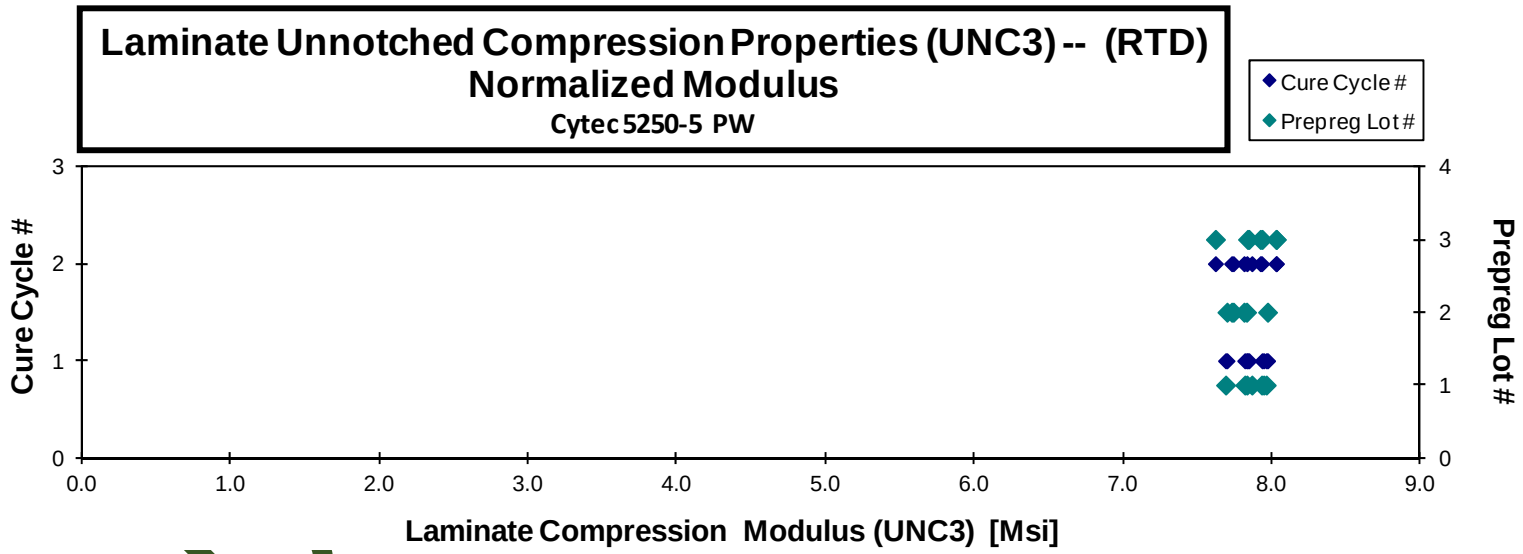
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle Batch #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCYA111A	A	C1	1	1	83.022	8.027	0.155	20	BGM	0.0077	82.374	7.964
CNCYA112A	A	C1	1	1	91.678	7.974	0.155	20	BGM	0.0078	91.374	7.947
CNCYA113A	A	C1	1	1	89.535	7.830	0.156	20	BGM	0.0078	89.429	7.820
CNCYA114A	A	C1	1	1	84.534	7.676	0.156	20	BGM	0.0078	84.705	7.691
CNCYA211A	A	C2	1	2	85.479	8.021	0.153	20	BGM	0.0077	83.853	7.868
CNCYA212A	A	C2	1	2	86.836	7.943	0.154	20	BGM	0.0077	85.658	7.835
CNCYA213A	A	C2	1	2	88.936	8.028	0.154	20	BGM	0.0077	87.891	7.934
CNCYB111A	B	C1	2	1	81.257	8.211	0.151	20	BGM	0.0076	78.904	7.974
CNCYB112A	B	C1	2	1	84.879	8.039	0.152	20	BGM	0.0076	82.702	7.833
CNCYB113A	B	C1	2	1	72.733	7.862	0.153	20	BGM	0.0076	71.241	7.701
CNCYB211A	B	C2	2	2	80.799	7.998	0.151	20	BGM	0.0076	78.226	7.744
CNCYB212A	B	C2	2	2	75.650	7.961	0.152	20	BGM	0.0076	73.476	7.732
CNCYB213A	B	C2	2	2	84.465	7.996	0.152	20	BGM	0.0076	82.552	7.815
CNCYC111A	C	C1	3	1	103.084	8.273	0.150	20	BGM	0.0075	98.888	7.936
CNCYC112A	C	C1	3	1	79.282	7.963	0.154	20	BGM	0.0077	78.045	7.839
CNCYC113A	C	C1	3	1	73.277	8.043	0.152	20	BGM	0.0076	71.500	7.848
CNCYC211A	C	C2	3	2	83.459	8.339	0.148	20	BGM	0.0074	79.313	7.925
CNCYC212A	C	C2	3	2	85.477	8.410	0.149	20	BGM	0.0074	81.632	8.032
CNCYC213A	C	C2	3	2	80.368	8.393	0.149	20	BGM	0.0075	76.908	8.032
CNCYC214A	C	C2	3	2	85.149	7.942	0.150	20	BGM	0.0075	81.728	7.623

Average	**83.995**	**8.046**	
Standard Dev.	**6.725**	**0.190**	
Coeff. of Var. [%]	**8.006**	**2.355**	
Min.	**72.733**	**7.676**	
Max.	**103.084**	**8.410**	
Number of Spec.	**20**	**20**	

$Average_{norm}$	**0.0076**	**82.020**	**7.855**
$Standard\ Dev._{norm}$		**6.726**	**0.115**
Coeff. of Var. [%]$_{norm}$		**8.200**	**1.463**
Min.	**0.0074**	**71.241**	**7.623**
Max.	**0.0078**	**98.888**	**8.032**
Number of Spec.		**20**	**20**


Laminate Unnotched Compression Properties (UNC3) -- (RTD)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Compression Strength (UNC3) [ksi]


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

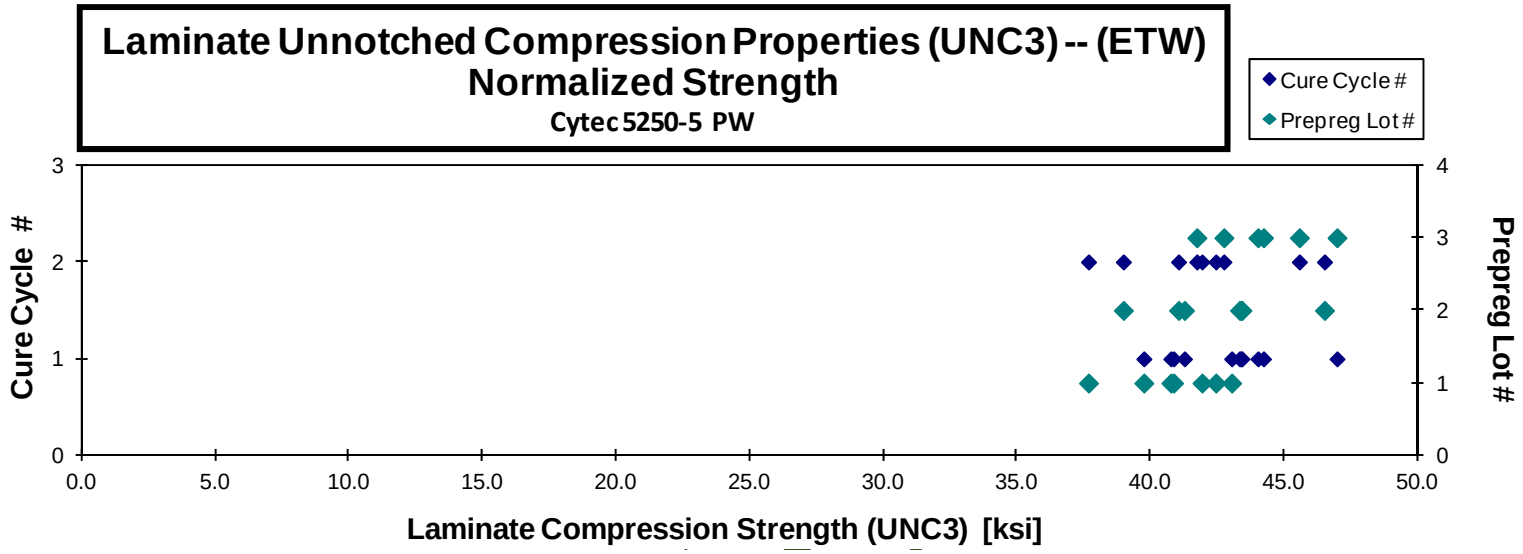
Laminate Unnotched Compression Properties (UNC3) -- (ETW)
Strength & Modulus
Cytec 5250-5 PW

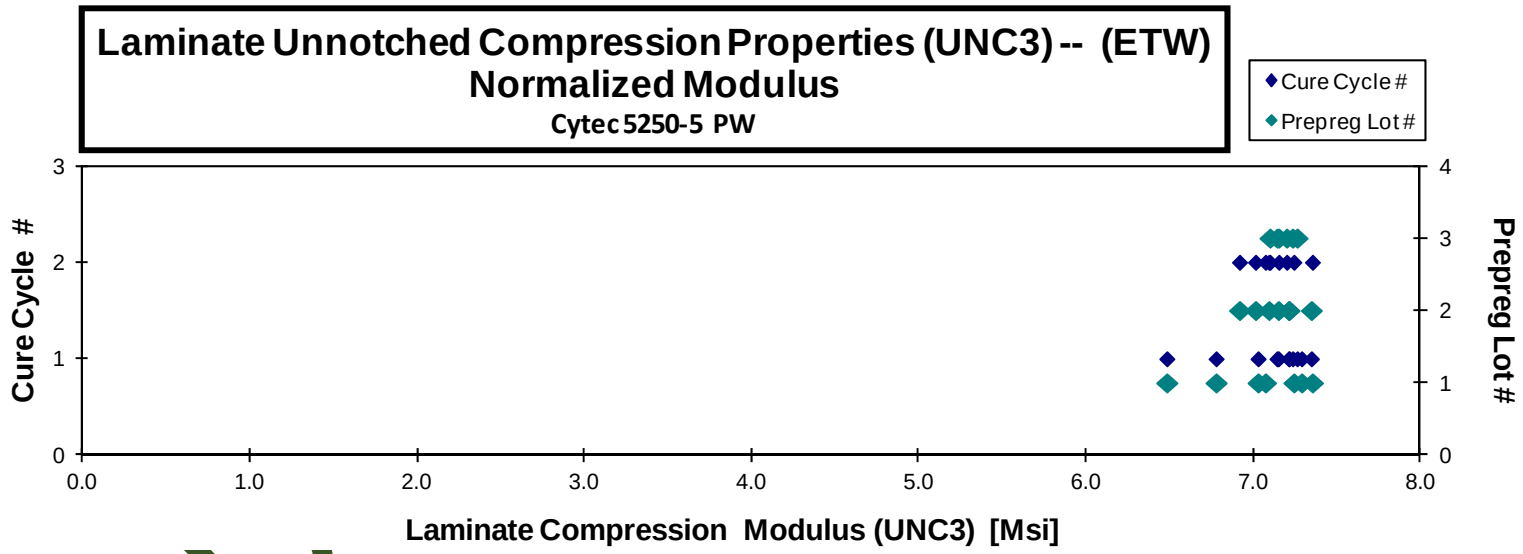
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Modulus [Msi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
CNCYA115J	A	C1	1	1		7.251	0.157	20	BGM/HGM	0.0078		7.291
CNCYA116J	A	C1	1	1		6.759	0.156	20	BGM/HGM	0.0078		6.780
CNCYA117J	A	C1	1	1		6.449	0.157	20	BGM	0.0078		6.486
CNCYA118J	A	C1	1	1		7.022	0.156	20	BGM	0.0078		7.031
CNCYA119J	A	C1	1	1	40.725		0.156	20	BGM	0.0078	40.765	
CNCYA11AJ	A	C1	1	1	39.662		0.156	20	BGM	0.0078	39.751	
CNCYA11BJ	A	C1	1	1	42.948		0.156	20	BGM	0.0078	43.040	
CNCYA11CJ	A	C1	1	1	40.841		0.156	20	HGM	0.0078	40.863	
CNCYA215J	A	C2	1	2		7.307	0.155	20	BGM/HGM	0.0077		7.245
CNCYA216J	A	C2	1	2		7.373	0.156	20	BGM/HGM	0.0078		7.356
CNCYA217J	A	C2	1	2		7.065	0.156	20	HGM	0.0078		7.075
CNCYA218J	A	C2	1	2	42.522		0.156	20	BGM	0.0078	42.445	
CNCYA219J	A	C2	1	2	41.781		0.157	20	BGM	0.0078	41.928	
CNCYA21AJ	A	C2	1	2	37.508		0.157	20	HGM	0.0078	37.680	
CNCYB115J	B	C1	2	1		7.246	0.154	20	BGM	0.0077		7.152
CNCYB116J	B	C1	2	1		7.295	0.154	20	BGM	0.0077		7.215
CNCYB117J	B	C1	2	1		7.404	0.155	20	BGM	0.0077		7.349
CNCYB118J	B	C1	2	1		7.278	0.155	20	BGM	0.0077		7.215
CNCYB119J	B	C1	2	1	43.634		0.155	20	HGM	0.0078	43.424	
CNCYB11AJ	B	C1	2	1	41.351		0.156	20	BGM	0.0078	41.272	
CNCYB11BJ	B	C1	2	1	43.597		0.155	20	BGM	0.0078	43.332	
CNCYB11CJ	B	C1	2	1	43.650		0.155	20	HGM	0.0078	43.380	
CNCYB215J	B	C2	2	2		7.128	0.154	20	HGM	0.0077		7.016
CNCYB216J	B	C2	2	2		7.192	0.154	20	BGM/ HGM	0.0077		7.096
CNCYB217J	B	C2	2	2		6.979	0.155	20	BGM	0.0077		6.920
CNCYB218J	B	C2	2	2	46.768		0.155	20	BGM	0.0078	46.513	
CNCYB219J	B	C2	2	2	41.195		0.155	20	BGM	0.0078	41.050	
CNCYB21AJ	B	C2	2	2	39.178		0.155	20	HGM	0.0078	38.985	
CNCYC114J	C	C1	3	1		7.264	0.153	20	BGM / HGM	0.0077		7.144
CNCYC115J	C	C1	3	1		7.443	0.152	20	BGM	0.0076		7.237
CNCYC116J	C	C1	3	1		7.421	0.153	20	BGM	0.0076		7.264
CNCYC117J	C	C1	3	1	48.811		0.150	20	BGM	0.0075	46.981	
CNCYC118J	C	C1	3	1	45.726		0.150	20	BGM / HGM	0.0075	44.021	
CNCYC119J	C	C1	3	1	45.805		0.151	20	BGM / HGM	0.0075	44.230	
CNCYC215J	C	C2	3	2		7.409	0.151	20	BGM	0.0075		7.155
CNCYC216J	C	C2	3	2		7.459	0.151	20	BGM	0.0075		7.202
CNCYC217J	C	C2	3	2		7.310	0.152	20	BGM	0.0076		7.102
CNCYC219J	C	C2	3	2	42.929		0.152	20	BGM	0.0076	41.736	
CNCYC21AJ	C	C2	3	2	47.317		0.150	20	BGM	0.0075	45.573	
CNCYC21BJ	C	C2	3	2	44.276		0.151	20	HGM	0.0075	42.748	

	Strength [ksi]	Modulus [Msi]
Average	43.011	7.203
Standard Dev.	2.885	0.251
Coeff. of Var. [%]	6.708	3.490
Min.	37.508	6.449
Max.	48.811	7.459
Number of Spec.	20	20

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]	$Modulus_{norm}$ [Msi]
$Average_{norm}$	0.0077	42.486	7.117
$Standard\ Dev._{norm}$		2.373	0.205
$Coeff.\ of\ Var.\ [\%]_{norm}$		5.585	2.875
Min.	0.0075	37.680	6.486
Max.	0.0078	46.981	7.356
Number of Spec.		20	20


Laminate Unnotched Compression Properties (UNC3) -- (ETW)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Laminate Compression Strength (UNC3) [ksi]

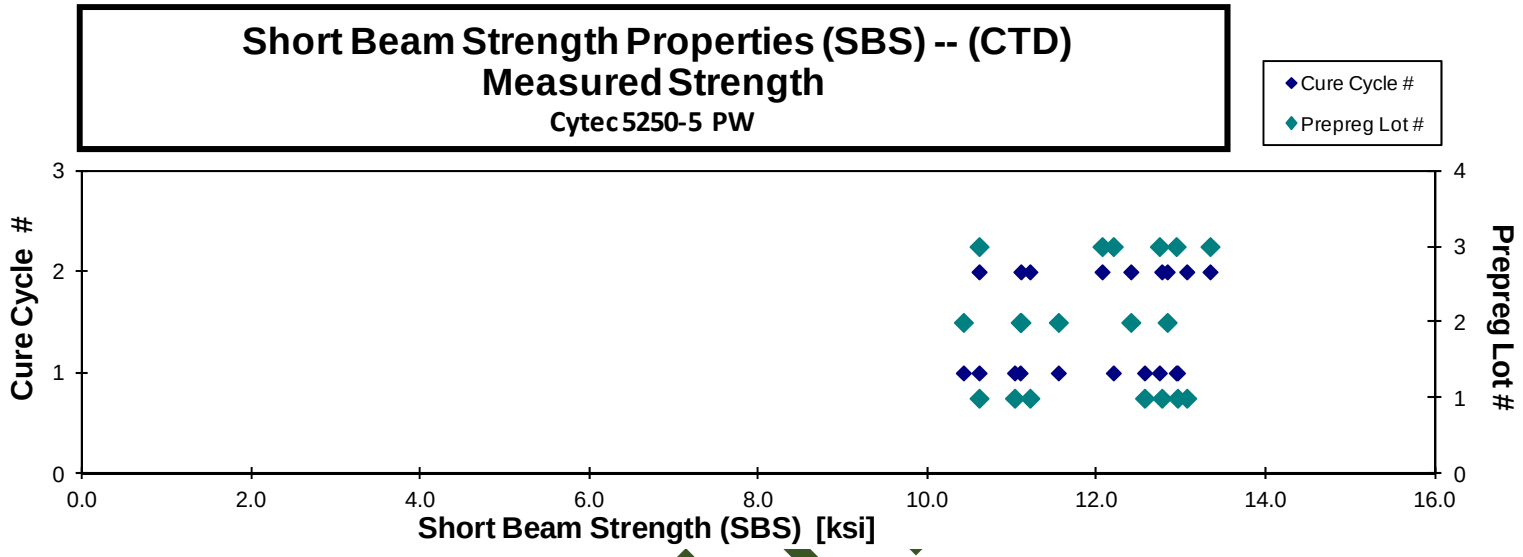

Laminate Unnotched Compression Properties (UNC3) -- (ETW)
Normalized Modulus
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
Laminate Compression Modulus (UNC3) [Msi]

4.12 Lamina Short-Beam Strength Properties (SBS)

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

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]	Failure Mode
CNCQA116B	A	C1	1	1	12.953	0.250	32	0.0078	INTERLAMINAR SHEAR
CNCQA117B	A	C1	1	1	12.563	0.252	32	0.0079	INTERLAMINAR SHEAR
CNCQA118B	A	C1	1	1	11.025	0.253	32	0.0079	INTERLAMINAR SHEAR
CNCQA119B	A	C1	1	1	10.605	0.255	32	0.0080	INTERLAMINAR SHEAR
CNCQA215B	A	C2	1	2	12.767	0.247	32	0.0077	INTERLAMINAR SHEAR
CNCQA216B	A	C2	1	2	11.207	0.247	32	0.0077	INTERLAMINAR SHEAR
CNCQA217B	A	C2	1	2	13.062	0.246	32	0.0077	INTERLAMINAR SHEAR
CNCQB115B	B	C1	2	1	10.420	0.247	32	0.0077	INTERLAMINAR SHEAR
CNCQB116B	B	C1	2	1	11.543	0.248	32	0.0078	INTERLAMINAR SHEAR
CNCQB117B	B	C1	2	1	11.091	0.250	32	0.0078	INTERLAMINAR SHEAR
CNCQB215B	B	C2	2	2	12.830	0.240	32	0.0075	INTERLAMINAR SHEAR
CNCQB216B	B	C2	2	2	11.100	0.242	32	0.0076	INTERLAMINAR SHEAR
CNCQB217B	B	C2	2	2	12.400	0.242	32	0.0076	INTERLAMINAR SHEAR
CNCQC115B	C	C1	3	1	12.738	0.240	32	0.0075	INTERLAMINAR SHEAR
CNCQC116B	C	C1	3	1	12.194	0.242	32	0.0075	INTERLAMINAR SHEAR
CNCQC117B	C	C1	3	1	12.937	0.243	32	0.0076	INTERLAMINAR SHEAR
CNCQC215B	C	C2	3	2	13.337	0.244	32	0.0076	INTERLAMINAR SHEAR
CNCQC216B	C	C2	3	2	12.060	0.244	32	0.0076	INTERLAMINAR SHEAR
CNCQC217B	C	C2	3	2	10.606	0.244	32	0.0076	INTERLAMINAR SHEAR

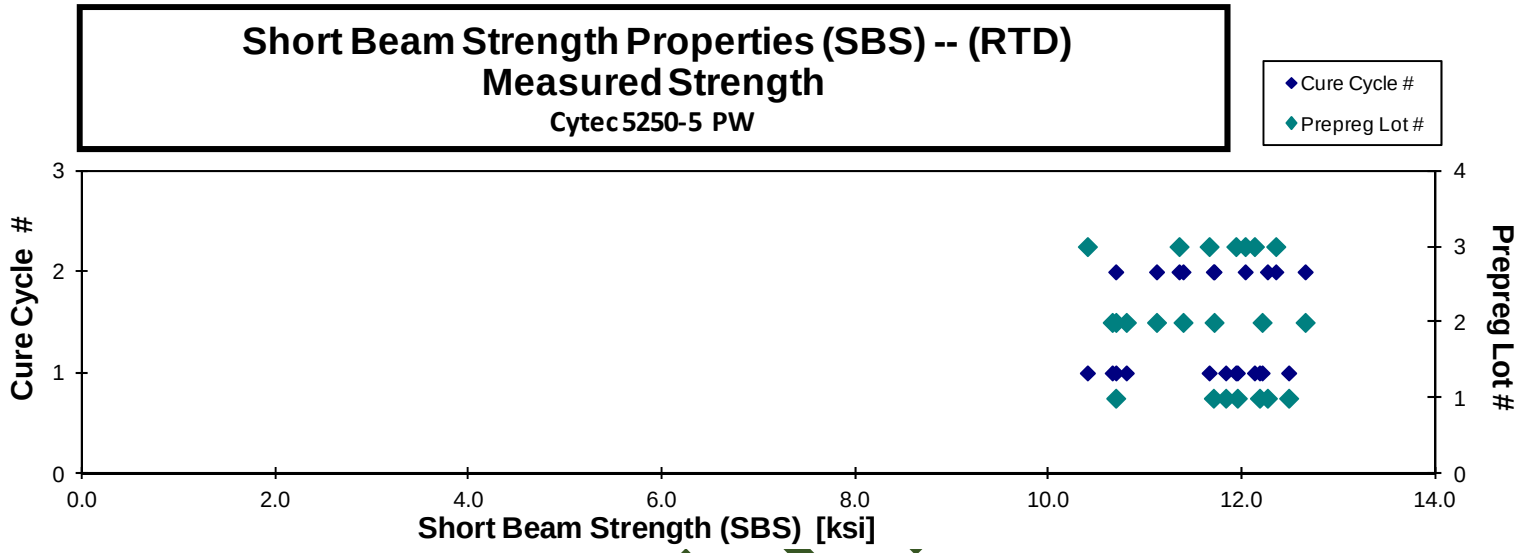
Average	**11.970**	**Average**	**0.0077**
Standard Dev.	**0.967**	**Standard Dev.**	
Coeff. of Var. [%]	**8.080**	**Coeff. of Var. [%]**	
Min.	**10.420**	**Min.**	**0.0075**
Max.	**13.337**	**Max.**	**0.0080**
Number of Spec.	**19**	**Number of Spec.**	**19**


Short Beam Strength Properties (SBS) -- (CTD)
Measured Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Short Beam Strength (SBS) [ksi]
0
1
2
3
4
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0

Short Beam Strength Properties (SBS) -- (RTD)
Strength
Cytec 5250-5 PW

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]	Failure Mode
CNCQA111A	A	C1	1	1	12.182	0.247	32	0.0077	INTERLAMINAR SHEAR
CNCQA112A	A	C1	1	1	11.833	0.248	32	0.0077	INTERLAMINAR SHEAR
CNCQA113A	A	C1	1	1	12.484	0.247	32	0.0077	INTERLAMINAR SHEAR
CNCQA114A	A	C1	1	1	11.953	0.249	32	0.0078	INTERLAMINAR SHEAR
CNCQA211A	A	C2	1	2	12.264	0.241	32	0.0075	INTERLAMINAR SHEAR
CNCQA212A	A	C2	1	2	11.705	0.243	32	0.0076	INTERLAMINAR SHEAR
CNCQA213A	A	C2	1	2	10.694	0.245	32	0.0077	INTERLAMINAR SHEAR
CNCQB111A	B	C1	2	1	10.658	0.245	32	0.0077	INTERLAMINAR SHEAR / COMPRESSION
CNCQB112A	B	C1	2	1	10.696	0.245	32	0.0077	INTERLAMINAR SHEAR
CNCQB113A	B	C1	2	1	10.804	0.246	32	0.0077	INTERLAMINAR SHEAR
CNCQB114A	B	C1	2	1	12.209	0.246	32	0.0077	INTERLAMINAR SHEAR
CNCQB211A	B	C2	2	2	12.655	0.238	32	0.0074	INTERLAMINAR SHEAR
CNCQB212A	B	C2	2	2	11.117	0.240	32	0.0075	INTERLAMINAR SHEAR
CNCQB213A	B	C2	2	2	11.712	0.240	32	0.0075	INTERLAMINAR SHEAR
CNCQB214A	B	C2	2	2	11.391	0.240	32	0.0075	INTERLAMINAR SHEAR
CNCQC111A	C	C1	3	1	12.130	0.240	32	0.0075	INTERLAMINAR SHEAR
CNCQC112A	C	C1	3	1	10.401	0.240	32	0.0075	INTERLAMINAR SHEAR
CNCQC113A	C	C1	3	1	11.661	0.241	32	0.0075	INTERLAMINAR SHEAR
CNCQC114A	C	C1	3	1	11.938	0.240	32	0.0075	INTERLAMINAR SHEAR
CNCQC211A	C	C2	3	2	12.351	0.243	32	0.0076	INTERLAMINAR SHEAR
CNCQC212A	C	C2	3	2	11.350	0.244	32	0.0076	INTERLAMINAR SHEAR
CNCQC213A	C	C2	3	2	12.034	0.244	32	0.0076	INTERLAMINAR SHEAR

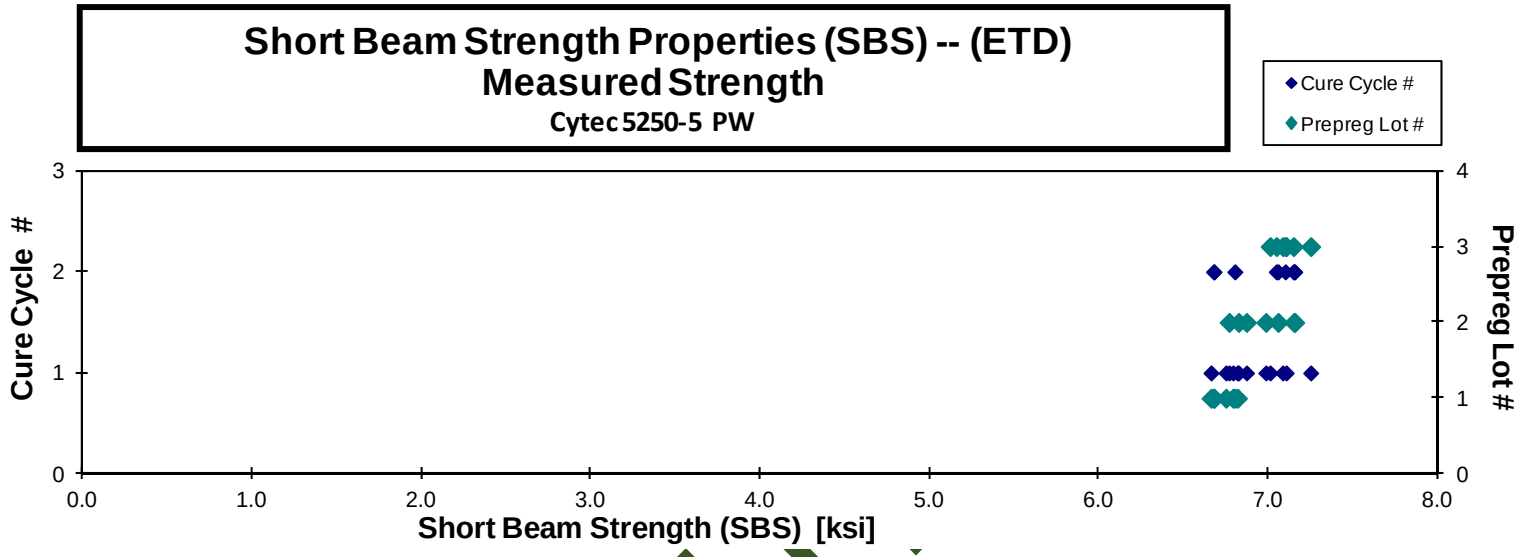
Average	**11.646**	**Average**	**0.0076**
Standard Dev.	**0.665**	**Standard Dev.**	
Coeff. of Var. [%]	**5.710**	**Coeff. of Var. [%]**	
Min.	**10.401**	**Min.**	**0.0074**
Max.	**12.655**	**Max.**	**0.0078**
Number of Spec.	**22**	**Number of Spec.**	**22**


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

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

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]	Failure Mode
CNCQA11BK	A	C1	1	1	6.662	0.255	32	0.0080	INTERLAMINAR SHEAR
CNCQA11CK	A	C1	1	1	6.750	0.255	32	0.0080	INTERLAMINAR SHEAR
CNCQA11DK	A	C1	1	1	6.818	0.256	32	0.0080	INTERLAMINAR SHEAR
CNCQA11EK	A	C1	1	1	6.792	0.255	32	0.0080	INTERLAMINAR SHEAR
CNCQA218K	A	C2	1	2	6.677	0.244	32	0.0076	INTERLAMINAR SHEAR
CNCQA219K	A	C2	1	2	6.680	0.243	32	0.0076	INTERLAMINAR SHEAR
CNCQA21AK	A	C2	1	2	6.803	0.244	32	0.0076	INTERLAMINAR SHEAR
CNCQB118K	B	C1	2	1	6.986	0.249	32	0.0078	INTERLAMINAR SHEAR
CNCQB119K	B	C1	2	1	6.872	0.250	32	0.0078	INTERLAMINAR SHEAR
CNCQB11AK	B	C1	2	1	6.824	0.249	32	0.0078	INTERLAMINAR SHEAR
CNCQB11BK	B	C1	2	1	6.769	0.250	32	0.0078	INTERLAMINAR SHEAR
CNCQB218K	B	C2	2	2	7.156	0.243	32	0.0076	INTERLAMINAR SHEAR
CNCQB219K	B	C2	2	2	7.151	0.243	32	0.0076	INTERLAMINAR SHEAR
CNCQB21AK	B	C2	2	2	7.058	0.243	32	0.0076	INTERLAMINAR SHEAR
CNCQC118K	C	C1	3	1	7.251	0.243	32	0.0076	INTERLAMINAR SHEAR
CNCQC119K	C	C1	3	1	7.011	0.245	32	0.0077	INTERLAMINAR SHEAR
CNCQC11AK	C	C1	3	1	7.086	0.245	32	0.0077	INTERLAMINAR SHEAR
CNCQC11BK	C	C1	3	1	7.106	0.245	32	0.0076	INTERLAMINAR SHEAR
CNCQC218K	C	C2	3	2	7.149	0.244	32	0.0076	INTERLAMINAR SHEAR
CNCQC219K	C	C2	3	2	7.047	0.244	32	0.0076	INTERLAMINAR SHEAR
CNCQC21AK	C	C2	3	2	7.100	0.244	32	0.0076	INTERLAMINAR SHEAR

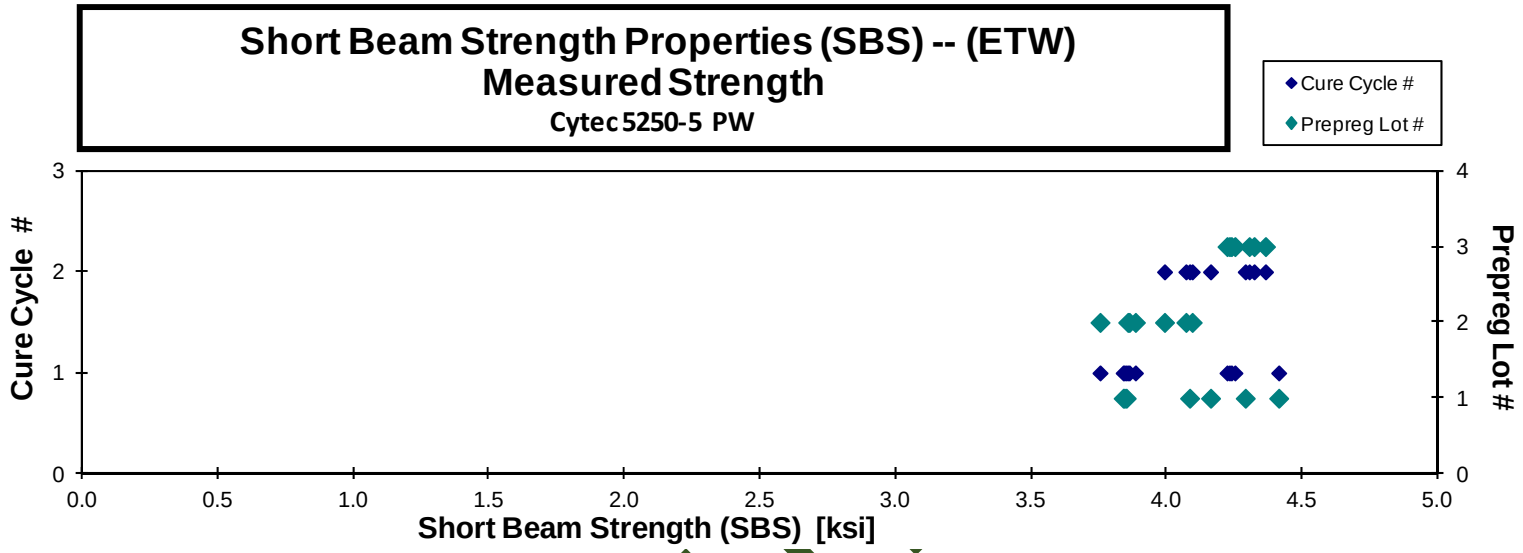
Average	**6.940**	**Average**	**0.0077**
Standard Dev.	**0.186**	**Standard Dev.**	
Coeff. of Var. [%]	**2.679**	**Coeff. of Var. [%]**	
Min.	**6.662**	**Min.**	**0.0076**
Max.	**7.251**	**Max.**	**0.0080**
Number of Spec.	**21**	**Number of Spec.**	**21**


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

Short Beam Strength Properties (SBS) -- (ETW)
Strength
Cytec 5250-5 PW

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. t/ply [in]	Failure Mode
CNCQA11GJ	A	C1	1	1	4.414	0.253	32	0.0079	COMPRESSION
CNCQA11HJ	A	C1	1	1	3.844	0.252	32	0.0079	INTERLAMINAR SHEAR / COMPRESSION
CNCQA11IJ	A	C1	1	1	3.840	0.252	32	0.0079	INTERLAMINAR SHEAR / COMPRESSION
CNCQA11JJ	A	C1	1	1	3.851	0.251	32	0.0078	INTERLAMINAR SHEAR / COMPRESSION
CNCQA21CJ	A	C2	1	2	4.290	0.248	32	0.0077	INTERLAMINAR SHEAR
CNCQA21DJ	A	C2	1	2	4.162	0.248	32	0.0078	INTERLAMINAR SHEAR
CNCQA21EJ	A	C2	1	2	4.085	0.248	32	0.0078	INTERLAMINAR SHEAR
CNCQB11CJ	B	C1	2	1	3.857	0.249	32	0.0078	INTERLAMINAR SHEAR
CNCQB11DJ	B	C1	2	1	3.885	0.248	32	0.0078	INTERLAMINAR SHEAR
CNCQB11EJ	B	C1	2	1	3.862	0.249	32	0.0078	INTERLAMINAR SHEAR
CNCQB11FJ	B	C1	2	1	3.754	0.248	32	0.0078	INTERLAMINAR SHEAR
CNCQB21CJ	B	C2	2	2	3.992	0.244	32	0.0076	INTERLAMINAR SHEAR/COMPRESSION
CNCQB21DJ	B	C2	2	2	4.071	0.244	32	0.0076	INTERLAMINAR SHEAR/COMPRESSION
CNCQB21EJ	B	C2	2	2	4.094	0.243	32	0.0076	INTERLAMINAR SHEAR
CNCQC11CJ	C	C1	3	1	4.223	0.244	32	0.0076	INTERLAMINAR SHEAR/COMPRESSION
CNCQC11DJ	C	C1	3	1	4.232	0.244	32	0.0076	INTERLAMINAR SHEAR/COMPRESSION
CNCQC11EJ	C	C1	3	1	4.239	0.243	32	0.0076	INTERLAMINAR SHEAR/COMPRESSION
CNCQC11FJ	C	C1	3	1	4.252	0.242	32	0.0076	INTERLAMINAR SHEAR/COMPRESSION
CNCQC21DJ	C	C2	3	2	4.365	0.244	32	0.0076	INTERLAMINAR SHEAR/COMPRESSION
CNCQC21EJ	C	C2	3	2	4.305	0.244	32	0.0076	INTERLAMINAR SHEAR/COMPRESSION
CNCQC21FJ	C	C2	3	2	4.323	0.244	32	0.0076	INTERLAMINAR SHEAR

Average	**4.092**	**Average**	**0.0077**
Standard Dev.	**0.208**	**Standard Dev.**	
Coeff. of Var. [%]	**5.076**	**Coeff. of Var. [%]**	
Min.	**3.754**	**Min.**	**0.0076**
Max.	**4.414**	**Max.**	**0.0079**
Number of Spec.	**21**	**Number of Spec.**	**21**

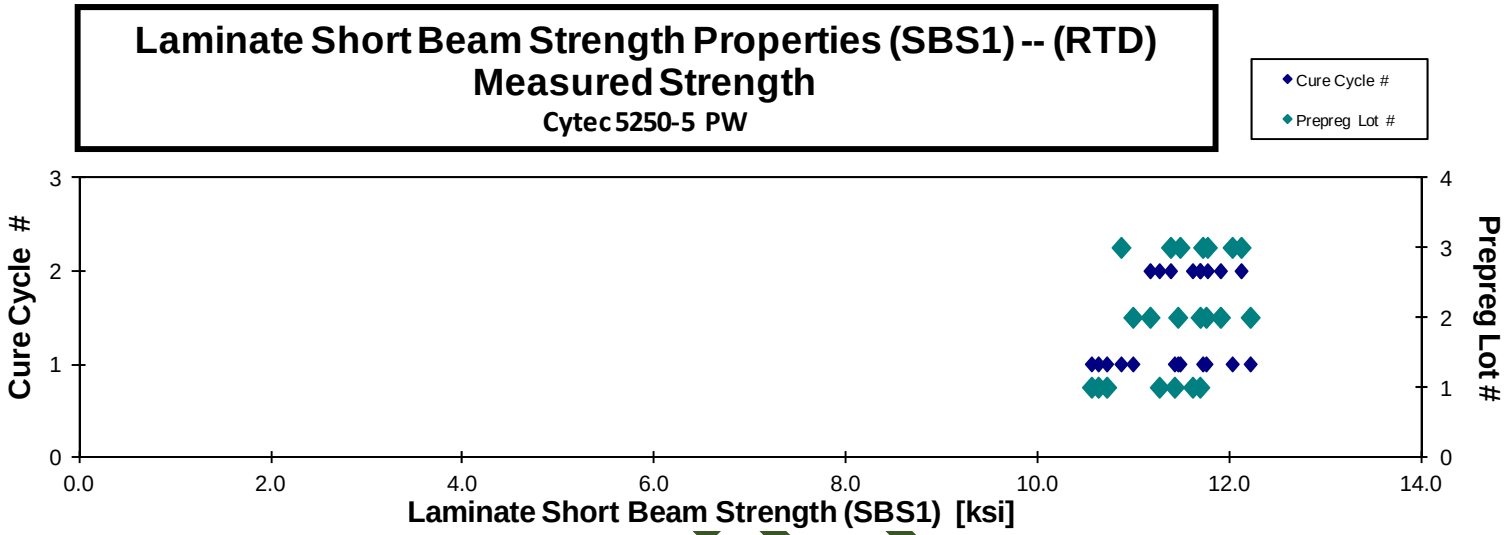

Short Beam Strength Properties (SBS) -- (ETW)
Measured Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Short Beam Strength (SBS) [ksi]

4.13 Laminate Short-Beam Strength Properties (SBS1)

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

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. ply [in]	Failure Mode
CNCqA1G1A	A	C1	1	1	10.708	0.158	20	0.0079	INTERLAMINAR SHEAR
CNCqA1G3A	A	C1	1	1	10.619	0.158	20	0.0079	INTERLAMINAR SHEAR
CNCqA1G5A	A	C1	1	1	10.549	0.158	20	0.0079	INTERLAMINAR SHEAR
CNCqA1G6A	A	C1	1	1	11.415	0.158	20	0.0079	INTERLAMINAR SHEAR
CNCqA2G1A	A	C2	1	2	11.680	0.161	20	0.0080	INTERLAMINAR SHEAR
CNCqA2G2A	A	C2	1	2	11.257	0.161	20	0.0080	INTERLAMINAR SHEAR
CNCqA2G3A	A	C2	1	2	11.603	0.161	20	0.0080	INTERLAMINAR SHEAR
CNCqB1G1A	B	C1	2	1	11.744	0.152	20	0.0076	INTERLAMINAR SHEAR
CNCqB1G2A	B	C1	2	1	11.449	0.153	20	0.0076	INTERLAMINAR SHEAR
CNCqB1G3A	B	C1	2	1	12.205	0.153	20	0.0077	INTERLAMINAR SHEAR
CNCqB1G5A	B	C1	2	1	10.981	0.153	20	0.0077	INTERLAMINAR SHEAR
CNCqB2G1A	B	C2	2	2	11.894	0.153	20	0.0076	INTERLAMINAR SHEAR
CNCqB2G4A	B	C2	2	2	11.683	0.153	20	0.0077	INTERLAMINAR SHEAR
CNCqB2G5A	B	C2	2	2	11.160	0.153	20	0.0077	INTERLAMINAR SHEAR
CNCqC1G2A	C	C1	3	1	11.472	0.155	20	0.0077	INTERLAMINAR SHEAR
CNCqC1G3A	C	C1	3	1	12.017	0.154	20	0.0077	INTERLAMINAR SHEAR
CNCqC1G4A	C	C1	3	1	11.710	0.155	20	0.0078	INTERLAMINAR SHEAR
CNCqC1G5A	C	C1	3	1	10.858	0.155	20	0.0078	INTERLAMINAR SHEAR
CNCqC2G2A	C	C2	3	2	11.374	0.151	20	0.0076	INTERLAMINAR SHEAR
CNCqC2G3A	C	C2	3	2	12.110	0.151	20	0.0076	INTERLAMINAR SHEAR
CNCqC2G5A	C	C2	3	2	11.759	0.151	20	0.0076	INTERLAMINAR SHEAR

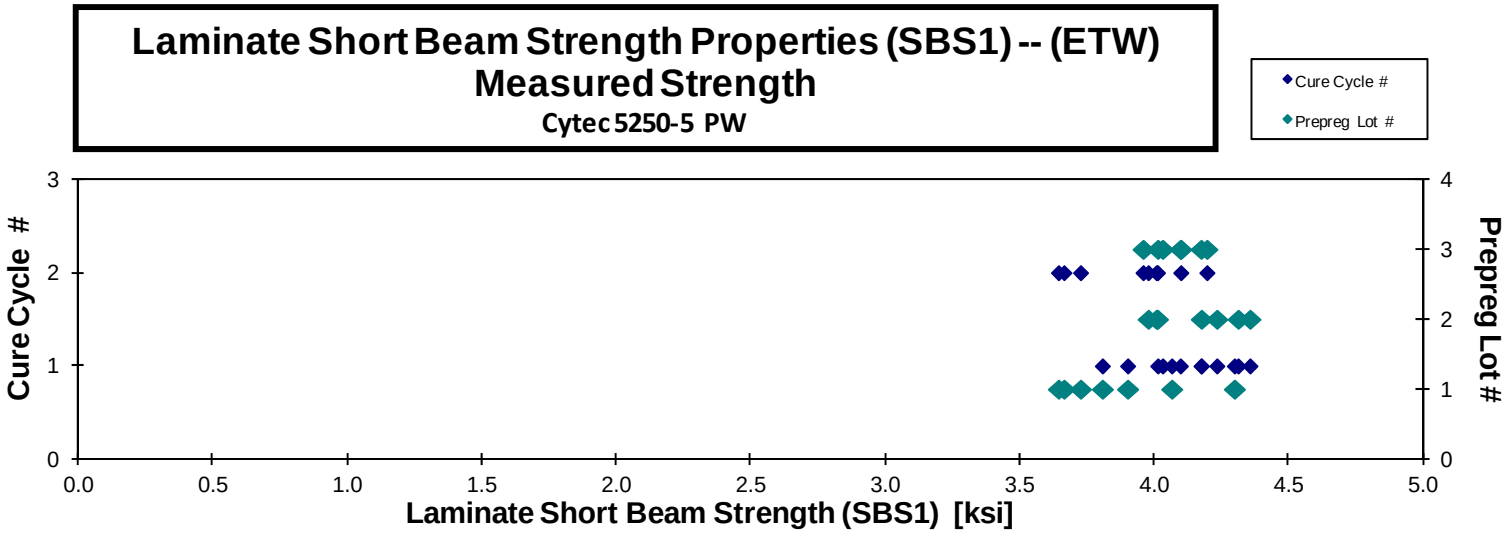
Average	**11.440**	**Average**	**0.0078**
Standard Dev.	**0.482**	**Standard Dev.**	
Coeff. of Var. [%]	**4.217**	**Coeff. of Var. [%]**	
Min.	**10.549**	**Min.**	**0.0076**
Max.	**12.205**	**Max.**	**0.0080**
Number of Spec.	**21**	**Number of Spec.**	**21**


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

Laminate Short Beam Strength Properties (SBS1) -- (ETW)
Strength
Cytec 5250-5 PW

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. tply [in]	Failure Mode
CNCqA1G7J	A	C1	1	1	4.300	0.157	20	0.0079	INTERLAMINAR SHEAR
CNCqA1G9J	A	C1	1	1	4.067	0.157	20	0.0078	INTERLAMINAR SHEAR
CNCqA1GAJ	A	C1	1	1	3.903	0.157	20	0.0078	INTERLAMINAR SHEAR
CNCqA1GBJ	A	C1	1	1	3.809	0.157	20	0.0078	INTERLAMINAR SHEAR
CNCqA2G7J	A	C2	1	2	3.727	0.160	20	0.0080	INTERLAMINAR SHEAR
CNCqA2G8J	A	C2	1	2	3.645	0.160	20	0.0080	INTERLAMINAR SHEAR
CNCqA2G9J	A	C2	1	2	3.666	0.160	20	0.0080	INTERLAMINAR SHEAR
CNCqB1G6J	B	C1	2	1	4.314	0.153	20	0.0077	INTERLAMINAR SHEAR
CNCqB1G7J	B	C1	2	1	4.358	0.153	20	0.0077	INTERLAMINAR SHEAR
CNCqB1G8J	B	C1	2	1	4.234	0.153	20	0.0076	INTERLAMINAR SHEAR
CNCqB1GAJ	B	C1	2	1	4.177	0.153	20	0.0076	INTERLAMINAR SHEAR
CNCqB2G7J	B	C2	2	2	4.014	0.152	20	0.0076	INTERLAMINAR SHEAR
CNCqB2G8J	B	C2	2	2	3.979	0.152	20	0.0076	INTERLAMINAR SHEAR
CNCqB2G9J	B	C2	2	2	4.009	0.152	20	0.0076	INTERLAMINAR SHEAR
CNCqC1G6J	C	C1	3	1	4.015	0.155	20	0.0077	INTERLAMINAR SHEAR
CNCqC1G7J	C	C1	3	1	4.176	0.155	20	0.0077	INTERLAMINAR SHEAR
CNCqC1G8J	C	C1	3	1	4.032	0.155	20	0.0077	INTERLAMINAR SHEAR
CNCqC1G9J	C	C1	3	1	4.099	0.155	20	0.0077	INTERLAMINAR SHEAR
CNCqC2G6J	C	C2	3	2	4.197	0.151	20	0.0076	INTERLAMINAR SHEAR
CNCqC2G7J	C	C2	3	2	4.100	0.151	20	0.0076	INTERLAMINAR SHEAR
CNCqC2G9J	C	C2	3	2	3.960	0.151	20	0.0076	INTERLAMINAR SHEAR

Average	**4.037**	**Average**	**0.0077**
Standard Dev.	**0.204**	**Standard Dev.**	
Coeff. of Var. [%]	**5.042**	**Coeff. of Var. [%]**	
Min.	**3.645**	**Min.**	**0.0076**
Max.	**4.358**	**Max.**	**0.0080**
Number of Spec.	**21**	**Number of Spec.**	**21**


Laminate Short Beam Strength Properties (SBS1) -- (ETW)
Measured Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
Laminate Short Beam Strength (SBS1) [ksi]
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
0
1
2
3
4

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

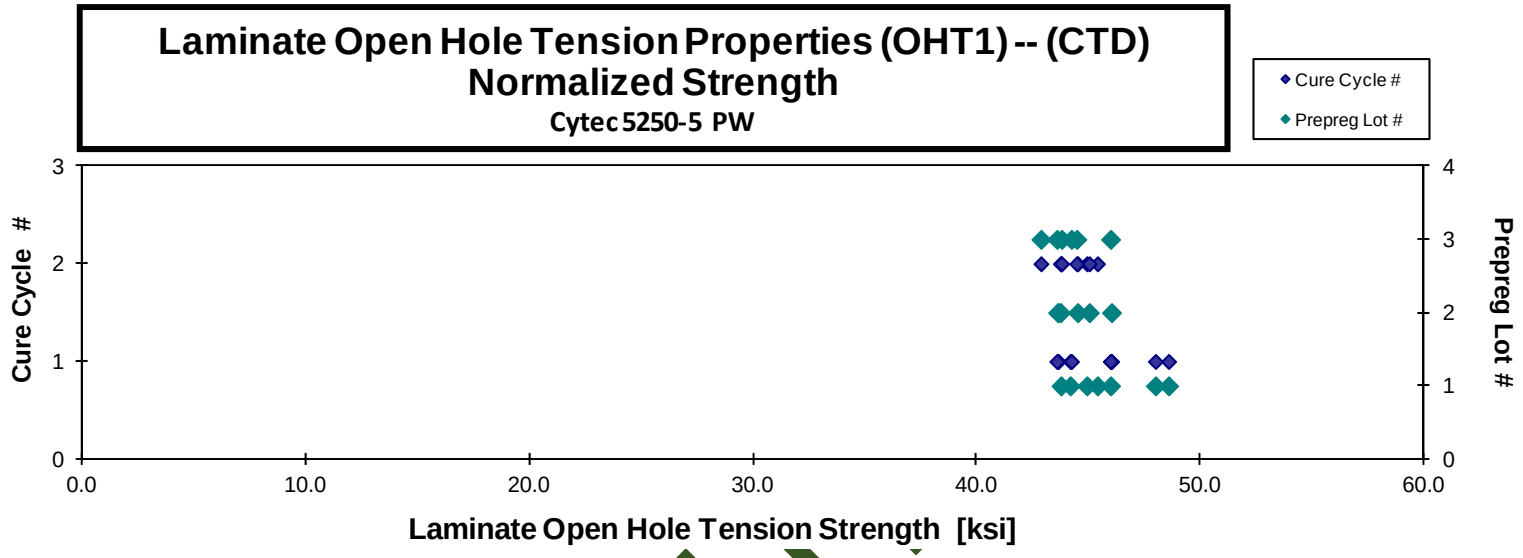
Laminate Open Hole Tension Properties (OHT1) -- (CTD)
Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCDA116B	A	C1	1	1	44.509	0.129	16	LGM	0.0081	45.977
CNCDA117B	A	C1	1	1	46.495	0.129	16	LGM	0.0081	47.985
CNCDA118B	A	C1	1	1	42.609	0.129	16	LGM	0.0081	44.179
CNCDA119B	A	C1	1	1	48.774	0.124	16	LGM	0.0078	48.572
CNCDA215B	A	C2	1	2	44.238	0.127	16	LGM	0.0079	44.917
CNCDA216B	A	C2	1	2	44.766	0.127	16	LGM	0.0079	45.393
CNCDA217B	A	C2	1	2	43.124	0.127	16	LGM	0.0079	43.763
CNCDB115B	B	C1	2	1	43.617	0.125	16	LGM	0.0078	43.617
CNCDB116B	B	C1	2	1	43.695	0.125	16	LGM	0.0078	43.636
CNCDB117B	B	C1	2	1	47.526	0.121	16	LGM	0.0076	46.022
CNCDB215B	B	C2	2	2	44.730	0.124	16	LGM	0.0078	44.503
CNCDB216B	B	C2	2	2	45.262	0.124	16	LGM	0.0078	45.026
CNCDB217B	B	C2	2	2	44.028	0.124	16	LGM	0.0077	43.740
CNCDC115B	C	C1	3	1	46.232	0.124	16	LGM	0.0078	45.978
CNCDC116B	C	C1	3	1	44.423	0.124	16	LGM	0.0078	44.227
CNCDC117B	C	C1	3	1	45.241	0.120	16	LGM	0.0075	43.579
CNCDC215B	C	C2	3	2	45.129	0.123	16	LGM	0.0077	44.466
CNCDC216B	C	C2	3	2	44.407	0.123	16	LGM	0.0077	43.790
CNCDC217B	C	C2	3	2	44.593	0.120	16	LGM	0.0075	42.866

Average	44.916	
Standard Dev.	1.490	
Coeff. of Var. [%]	3.318	
Min.	42.609	
Max.	48.774	
Number of Spec.	19	

$Average_{norm}$	0.0078	44.855
$Standard\ Dev._{norm}$		1.511
Coeff. of Var. [%]$_{norm}$		3.370
Min.	0.0075	42.866
Max.	0.0081	48.572
Number of Spec.		19


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

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

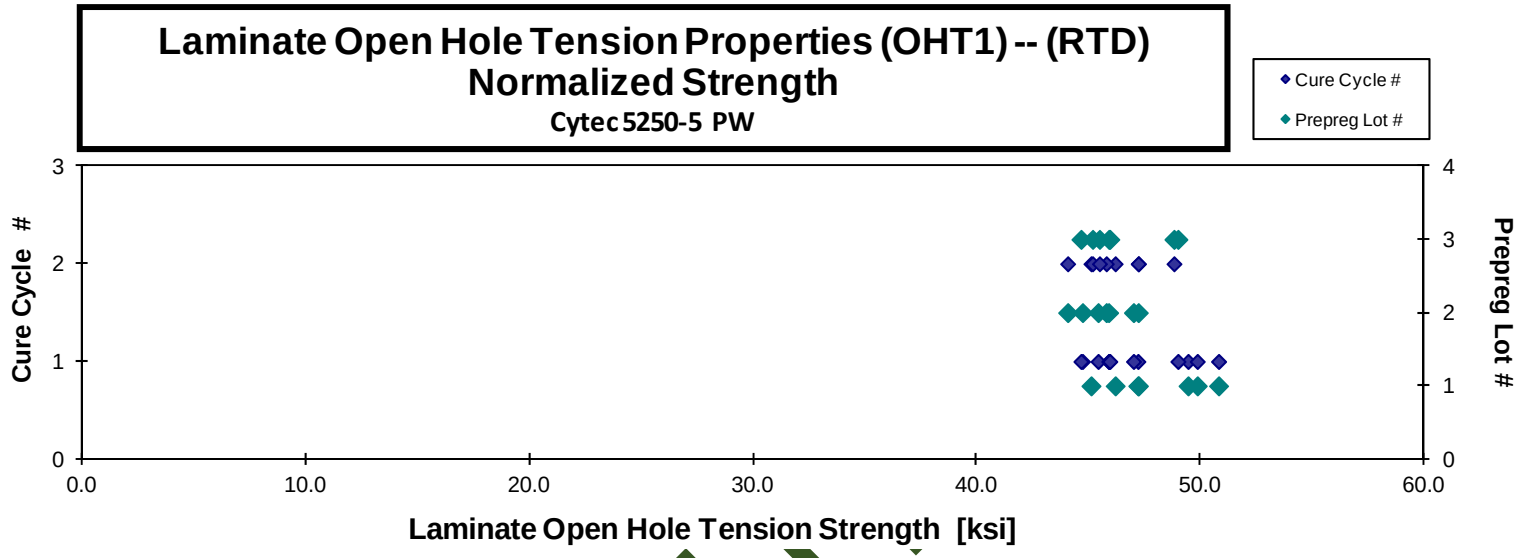
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCDA111A	A	C1	1	1	51.150	0.124	16	LGM	0.0077	50.808
CNCDA112A	A	C1	1	1	46.297	0.127	16	LGM	0.0080	47.200
CNCDA113A	A	C1	1	1	48.157	0.128	16	LGM	0.0080	49.443
CNCDA114A	A	C1	1	1	48.425	0.128	16	LGM	0.0080	49.854
CNCDA211A	A	C2	1	2	46.636	0.126	16	LGM	0.0079	47.222
CNCDA212A	A	C2	1	2	45.703	0.126	16	LGM	0.0079	46.185
CNCDA213A	A	C2	1	2	44.556	0.126	16	LGM	0.0079	45.104
CNCDB111A	B	C1	2	1	47.397	0.121	16	LGM	0.0076	45.890
CNCDB112A	B	C1	2	1	47.860	0.123	16	LGM	0.0077	47.003
CNCDB113A	B	C1	2	1	45.128	0.124	16	LGM	0.0077	44.724
CNCDB114A	B	C1	2	1	45.215	0.125	16	LGM	0.0078	45.421
CNCDB211A	B	C2	2	2	47.580	0.124	16	LGM	0.0077	47.217
CNCDB212A	B	C2	2	2	46.318	0.123	16	LGM	0.0077	45.786
CNCDB213A	B	C2	2	2	44.549	0.123	16	LGM	0.0077	44.061
CNCDC111A	C	C1	3	1	45.989	0.121	16	LGM	0.0076	44.656
CNCDC112A	C	C1	3	1	46.628	0.123	16	LGM	0.0077	45.900
CNCDC113A	C	C1	3	1	46.807	0.123	16	LGM	0.0077	45.945
CNCDC114A	C	C1	3	1	49.499	0.124	16	LGM	0.0077	48.990
CNCDC211A	C	C2	3	2	50.563	0.120	16	LGM	0.0075	48.814
CNCDC212A	C	C2	3	2	46.517	0.121	16	LGM	0.0076	45.175
CNCDC213A	C	C2	3	2	46.628	0.122	16	LGM	0.0076	45.482

Average	47.029	
Standard Dev.	1.785	
Coeff. of Var. [%]	3.797	
Min.	44.549	
Max.	51.150	
Number of Spec.	21	

$Average_{norm}$	0.00775	46.709
$Standard\ Dev._{norm}$		1.884
$Coeff.\ of\ Var.\ [\%]_{norm}$		4.032
Min.	0.0075	44.061
Max.	0.0080	50.808
Number of Spec.		21


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

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

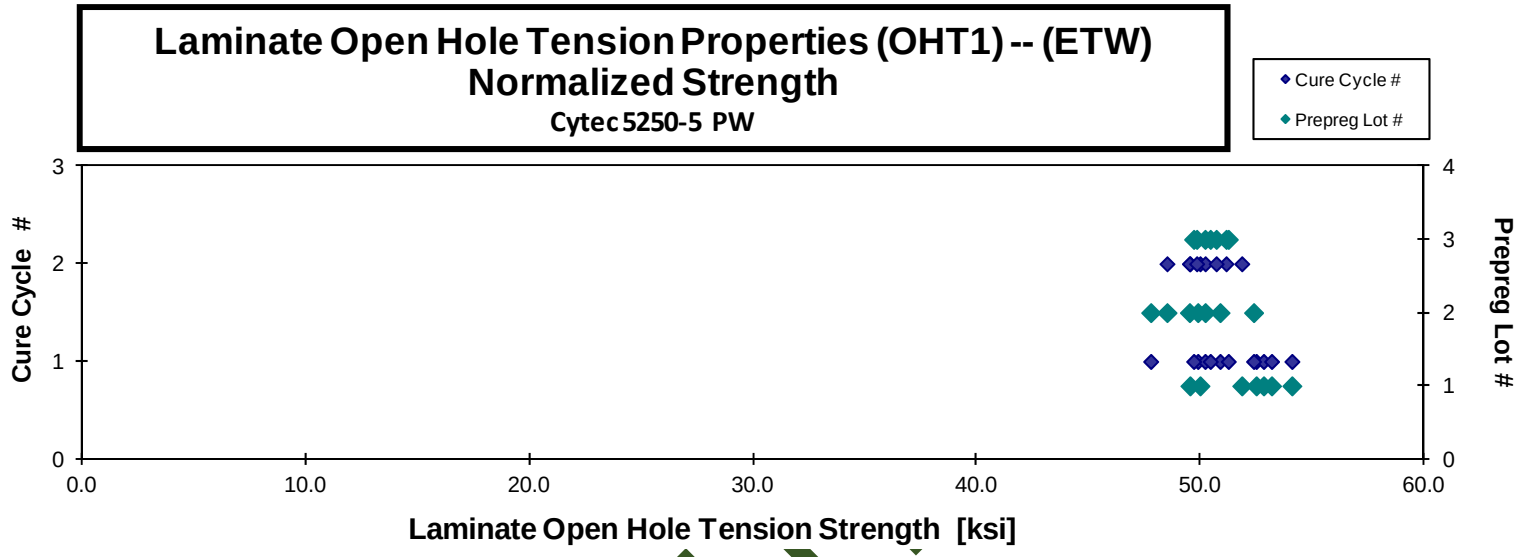
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCDA11BJ	A	C1	1	1	51.012	0.128	16	LGM/AGM	0.0080	52.491
CNCDA11CJ	A	C1	1	1	51.254	0.129	16	LGM/AGM	0.0080	52.814
CNCDA11DJ	A	C1	1	1	52.453	0.129	16	LGM/AGM	0.0080	54.085
CNCDA11EJ	A	C1	1	1	51.539	0.129	16	LGM/AGM	0.0080	53.177
CNCDA218J	A	C2	1	2	51.080	0.127	16	LGM	0.0079	51.844
CNCDA219J	A	C2	1	2	49.311	0.126	16	LGM	0.0079	49.976
CNCDA21AJ	A	C2	1	2	48.879	0.126	16	LGM	0.0079	49.525
CNCDB118J	B	C1	2	1	50.615	0.123	16	LGM/AGM	0.0077	49.878
CNCDB119J	B	C1	2	1	47.869	0.125	16	LGM/AGM	0.0078	47.773
CNCDB11AJ	B	C1	2	1	52.239	0.125	16	LGM	0.0078	52.372
CNCDB11BJ	B	C1	2	1	51.186	0.124	16	LGM	0.0078	50.872
CNCDB218J	B	C2	2	2	50.108	0.123	16	LGM	0.0077	49.506
CNCDB219J	B	C2	2	2	48.899	0.124	16	LGM/AGM	0.0077	48.501
CNCDB21AJ	B	C2	2	2	50.951	0.123	16	LGM	0.0077	50.209
CNCDC118J	C	C1	3	1	51.799	0.121	16	LGM/AGM	0.0076	50.201
CNCDC119J	C	C1	3	1	50.869	0.122	16	LGM/AGM	0.0076	49.694
CNCDC11AJ	C	C1	3	1	52.532	0.122	16	LGM	0.0076	51.241
CNCDC11CJ	C	C1	3	1	51.104	0.123	16	LGM	0.0077	50.435
CNCDC218J	C	C2	3	2	52.443	0.122	16	LGM/AGM	0.0076	51.141
CNCDC219J	C	C2	3	2	51.463	0.123	16	LGM	0.0077	50.700
CNCDC21AJ	C	C2	3	2	50.400	0.123	16	LGM/AGM	0.0077	49.828

Average		50.857
Standard Dev.		1.261
Coeff. of Var. [%]		2.479
Min.		47.869
Max.		52.532
Number of Spec.		21

$Average_{norm}$	0.00779	50.774
$Standard\ Dev._{norm}$		1.573
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.099
Min.	0.0076	47.773
Max.	0.0080	54.085
Number of Spec.		21


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

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

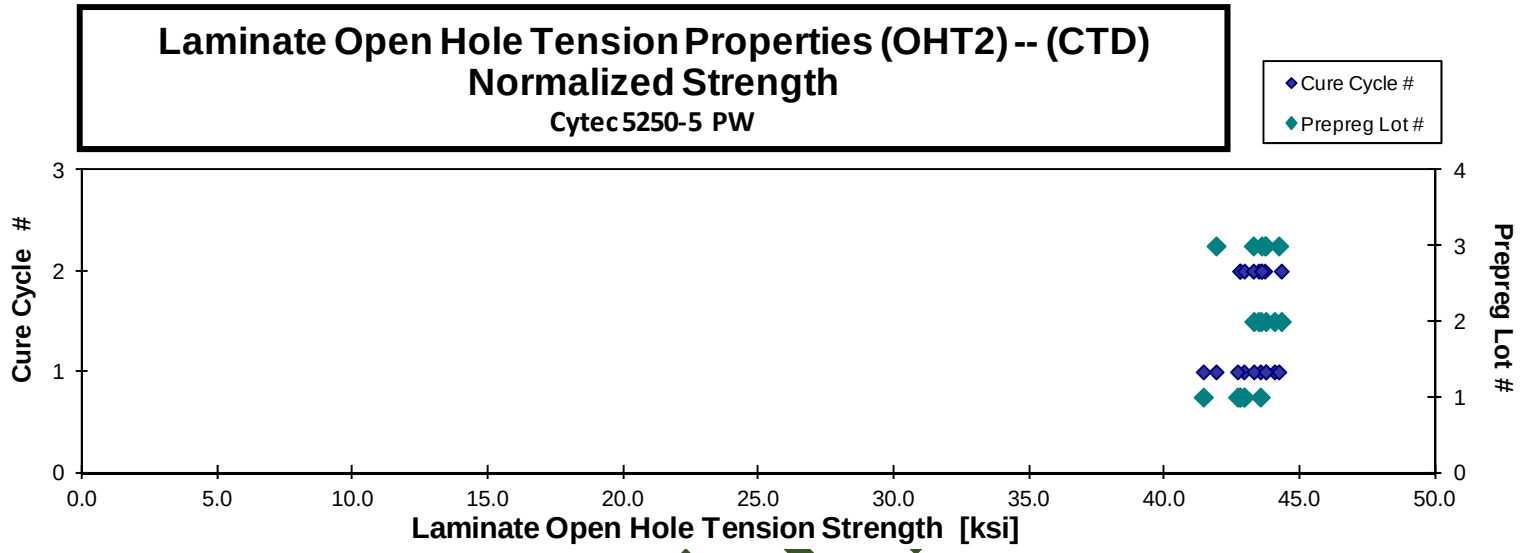
Laminate Open Hole Tension Properties (OHT2) -- (CTD) Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCEA116B	A	C1	1	1	41.309	0.162	20	AGM	0.0081	42.929
CNCEA117B	A	C1	1	1	41.199	0.162	20	AGM	0.0081	42.695
CNCEA118B	A	C1	1	1	39.995	0.162	20	AGM	0.0081	41.431
CNCEA119B	A	C1	1	1	43.228	0.157	20	AGM	0.0079	43.537
CNCEA216B	A	C2	1	2	41.883	0.159	20	AGM	0.0080	42.796
CNCEA217B	A	C2	1	2	41.794	0.160	20	AGM	0.0080	42.772
CNCEA218B	A	C2	1	2	42.011	0.159	20	AGM	0.0080	42.945
CNCEB116B	B	C1	2	1	43.364	0.156	20	AGM	0.0078	43.299
CNCEB117B	B	C1	2	1	44.084	0.156	20	AGM	0.0078	44.060
CNCEB118B	B	C1	2	1	43.681	0.156	20	AGM	0.0078	43.742
CNCEB216B	B	C2	2	2	43.812	0.155	20	AGM	0.0077	43.475
CNCEB217B	B	C2	2	2	43.784	0.155	20	AGM	0.0078	43.564
CNCEB218B	B	C2	2	2	44.480	0.155	20	AGM	0.0078	44.313
CNCEC116B	C	C1	3	1	44.607	0.155	20	AGM	0.0077	44.221
CNCEC117B	C	C1	3	1	44.173	0.154	20	AGM	0.0077	43.734
CNCEC118B	C	C1	3	1	42.228	0.155	20	AGM	0.0077	41.903
CNCEC216B	C	C2	3	2	43.988	0.155	20	AGM	0.0077	43.702
CNCEC217B	C	C2	3	2	43.595	0.155	20	AGM	0.0077	43.278
CNCEC218B	C	C2	3	2	43.776	0.155	20	AGM	0.0078	43.585

Average	43.000	
Standard Dev.	1.304	
Coeff. of Var. [%]	3.032	
Min.	39.995	
Max.	44.607	
Number of Spec.	19	

$Average_{norm}$	0.0079	43.262
$Standard\ Dev._{norm}$		0.739
Coeff. of Var. $[\%]_{norm}$		1.707
Min.	0.0077	41.431
Max.	0.0081	44.313
Number of Spec.	19	19


Laminate Open Hole Tension Properties (OHT2) -- (CTD)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Laminate Open Hole Tension Strength [ksi]

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

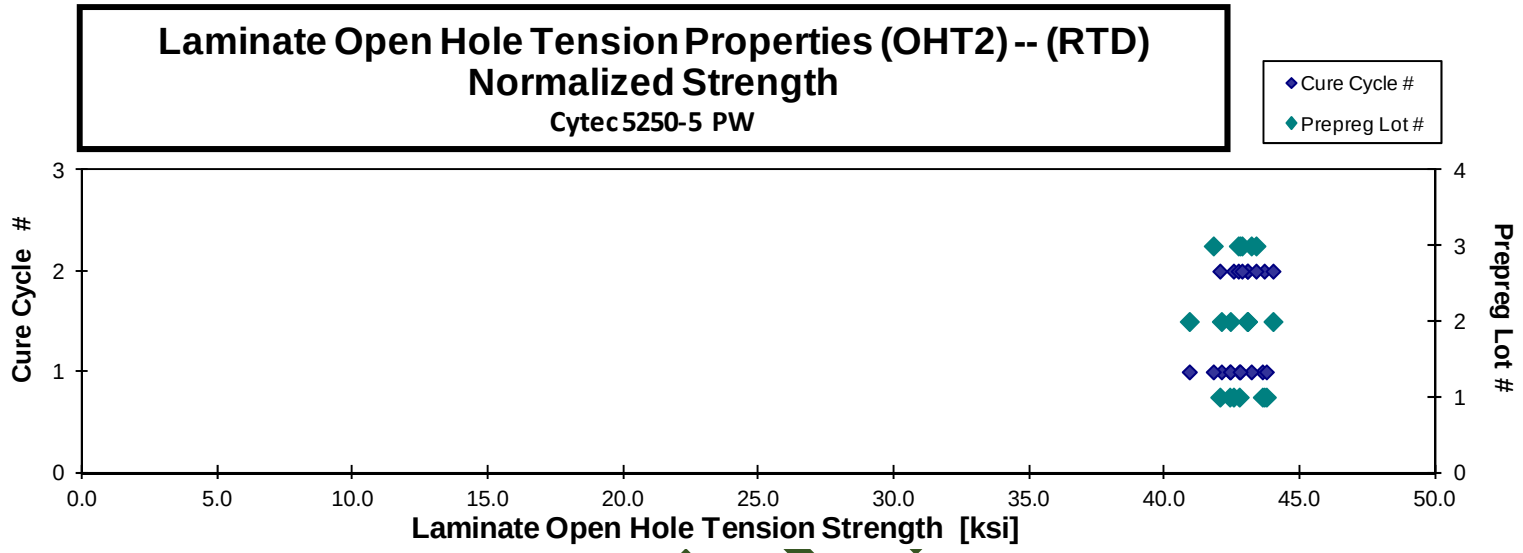
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCEA111A	A	C1	1	1	42.438	0.157	20	AGM	0.0079	42.760
CNCEA112A	A	C1	1	1	42.692	0.159	20	AGM	0.0080	43.614
CNCEA113A	A	C1	1	1	41.056	0.161	20	AGM	0.0081	42.407
CNCEA114A	A	C1	1	1	42.363	0.161	20	AGM	0.0081	43.762
CNCEA211A	A	C2	1	2	42.943	0.155	20	AGM	0.0077	42.544
CNCEA212A	A	C2	1	2	43.294	0.157	20	AGM	0.0079	43.683
CNCEA213A	A	C2	1	2	41.265	0.159	20	AGM	0.0079	42.041
CNCEB111A	B	C1	2	1	43.154	0.148	20	AGM	0.0074	40.913
CNCEB112A	B	C1	2	1	43.009	0.153	20	AGM	0.0076	42.099
CNCEB113A	B	C1	2	1	42.986	0.154	20	AGM	0.0077	42.431
CNCEB211A	B	C2	2	2	44.894	0.150	20	AGM	0.0075	43.057
CNCEB212A	B	C2	2	2	43.882	0.153	20	AGM	0.0077	43.067
CNCEB213A	B	C2	2	2	44.325	0.155	20	AGM	0.0077	44.008
CNCEC111A	C	C1	3	1	42.509	0.153	20	AGM	0.0077	41.801
CNCEC112A	C	C1	3	1	43.927	0.153	20	AGM	0.0077	43.205
CNCEC113A	C	C1	3	1	43.126	0.155	20	AGM	0.0077	42.790
CNCEC211A	C	C2	3	2	43.916	0.152	20	AGM	0.0076	42.724
CNCEC212A	C	C2	3	2	43.502	0.154	20	AGM	0.0077	42.861
CNCEC213A	C	C2	3	2	43.912	0.154	20	AGM	0.0077	43.377

Average	43.116	
Standard Dev.	0.961	
Coeff. of Var. [%]	2.229	
Min.	41.056	
Max.	44.894	
Number of Spec.	19	

$Average_{norm}$	0.0077	42.797
$Standard\ Dev._{norm}$		0.762
$Coeff.\ of\ Var.\ [\%]_{norm}$		1.781
Min.	0.0074	40.913
Max.	0.0081	44.008
Number of Spec.	19	19


Laminate Open Hole Tension Properties (OHT2) -- (RTD)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Laminate Open Hole Tension Strength [ksi]

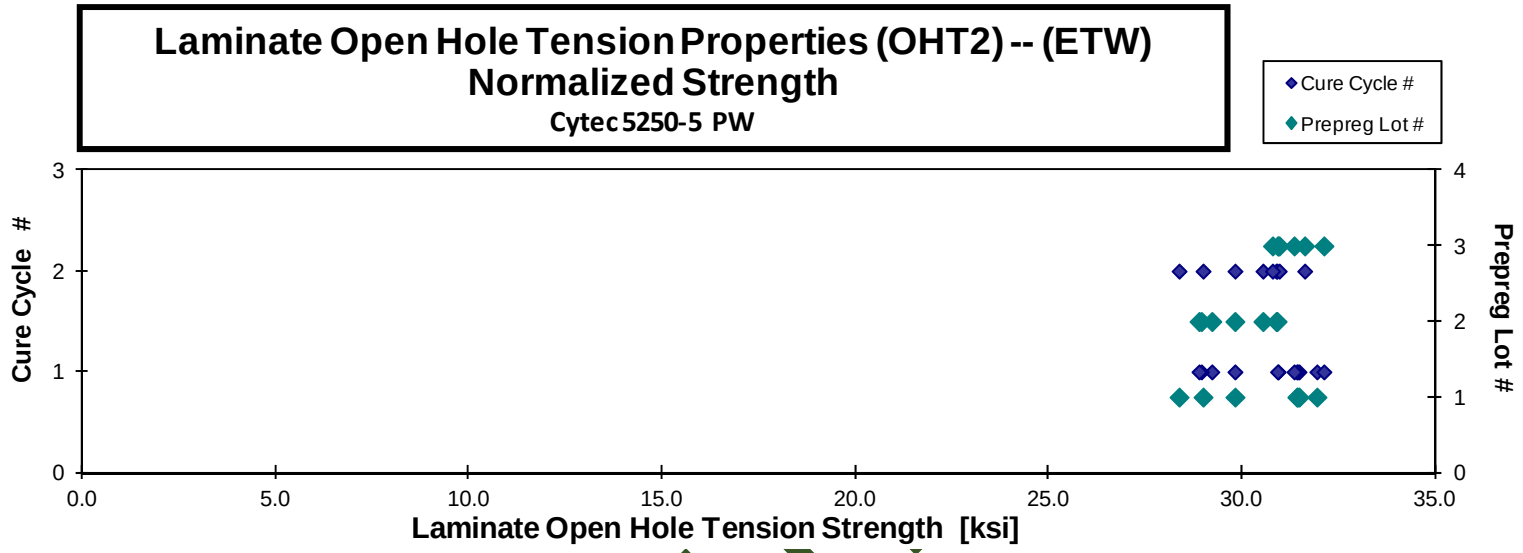
Laminate Open Hole Tension Properties (OHT2) -- (ETW)
Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCEA11BJ	A	C1	1	1	30.350	0.162	20	AGM	0.0081	31.478
CNCEA11CJ	A	C1	1	1	30.303	0.162	20	AGM	0.0081	31.439
CNCEA11DJ	A	C1	1	1	30.221	0.162	20	AGM	0.0081	31.422
CNCEA11EJ	A	C1	1	1	30.698	0.162	20	AGM	0.0081	31.941
CNCEA21BJ	A	C2	1	2	29.225	0.159	20	AGM	0.0080	29.821
CNCEA21CJ	A	C2	1	2	28.382	0.159	20	AGM	0.0080	28.995
CNCEA21DJ	A	C2	1	2	27.744	0.160	20	AGM	0.0080	28.375
CNCEB11BJ	B	C1	2	1	29.508	0.158	20	AGM	0.0079	29.820
CNCEB11CJ	B	C1	2	1	28.883	0.158	20	AGM	0.0079	29.222
CNCEB11DJ	B	C1	2	1	29.020	0.156	20	AGM	0.0078	28.952
CNCEB11EJ	B	C1	2	1	29.075	0.155	20	AGM	0.0078	28.892
CNCEB21BJ	B	C2	2	2	31.363	0.154	20	AGM	0.0077	30.910
CNCEB21CJ	B	C2	2	2	30.766	0.155	20	AGM	0.0077	30.546
CNCEB21DJ	B	C2	2	2	31.024	0.155	20	AGM	0.0078	30.889
CNCEC11BJ	C	C1	3	1	31.162	0.155	20	AGM	0.0077	30.938
CNCEC11CJ	C	C1	3	1	31.577	0.155	20	AGM	0.0077	31.351
CNCEC11DJ	C	C1	3	1	32.276	0.155	20	AGM	0.0078	32.123
CNCEC11EJ	C	C1	3	1	31.131	0.155	20	AGM	0.0077	30.925
CNCEC21BJ	C	C2	3	2	32.422	0.152	20	AGM	0.0076	31.626
CNCEC21CJ	C	C2	3	2	31.508	0.153	20	AGM	0.0077	30.966
CNCEC21DJ	C	C2	3	2	31.128	0.154	20	AGM	0.0077	30.792

	Strength [ksi]
Average	30.370
Standard Dev.	1.279
Coeff. of Var. [%]	4.210
Min.	27.744
Max.	32.422
Number of Spec.	21

	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
Average	0.00785	30.544
Standard Dev.		1.111
Coeff. of Var. [%]		3.636
Min.	0.0076	28.375
Max.	0.0081	32.123
Number of Spec.		21


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

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

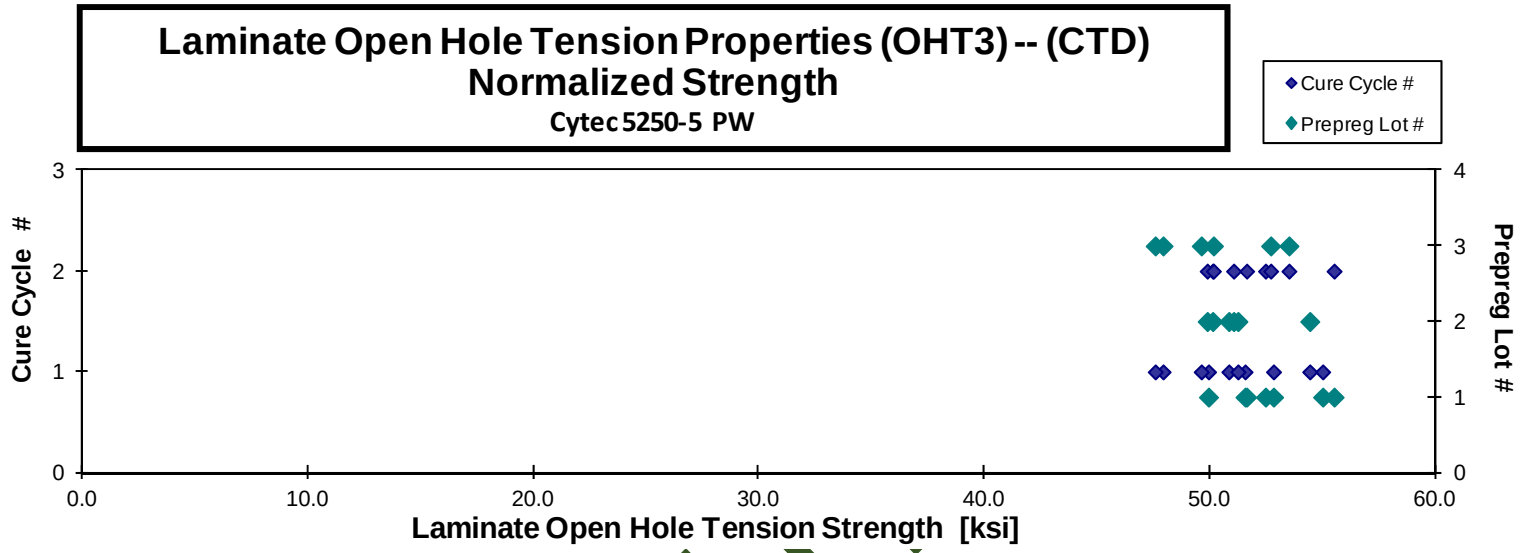
Laminate Open Hole Tension Properties (OHT3) -- (CTD)
Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]
0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCFA116B	A	C1	1	1	48.131	0.121	15	LGM	0.0081	49.948
CNCFA117B	A	C1	1	1	49.701	0.121	15	LGM	0.0081	51.570
CNCFA118B	A	C1	1	1	50.980	0.121	15	LGM	0.0081	52.832
CNCFA119B	A	C1	1	1	55.824	0.115	15	LGM	0.0077	55.013
CNCFA216B	A	C2	1	2	50.794	0.119	15	LGM	0.0079	51.640
CNCFA217B	A	C2	1	2	51.566	0.119	15	LGM	0.0079	52.477
CNCFA218B	A	C2	1	2	54.618	0.119	15	LGM	0.0079	55.520
CNCFB116B	B	C1	2	1	54.363	0.117	15	LGM	0.0078	54.441
CNCFB117B	B	C1	2	1	50.499	0.118	15	LGM	0.0079	50.852
CNCFB118B	B	C1	2	1	51.172	0.117	15	LGM	0.0078	51.253
CNCFB216B	B	C2	2	2	50.996	0.117	15	LGM	0.0078	51.062
CNCFB217B	B	C2	2	2	50.106	0.117	15	LGM	0.0078	50.135
CNCFB218B	B	C2	2	2	50.305	0.116	15	LGM	0.0077	49.889
CNCFC116B	C	C1	3	1	48.268	0.116	15	LGM	0.0077	47.931
CNCFC117B	C	C1	3	1	49.904	0.116	15	LGM	0.0078	49.627
CNCFC118B	C	C1	3	1	47.574	0.117	15	LGM	0.0078	47.587
CNCFC216B	C	C2	3	2	53.814	0.116	15	LGM	0.0078	53.515
CNCFC217B	C	C2	3	2	52.910	0.117	15	LGM	0.0078	52.706
CNCFC218B	C	C2	3	2	50.475	0.116	15	LGM	0.0078	50.166

Average	**51.158**	
Standard Dev.	**2.252**	
Coeff. of Var. [%]	**4.402**	
Min.	**47.574**	
Max.	**55.824**	
Number of Spec.	**19**	

$Average_{norm}$	**0.0079**	**51.482**
Standard $Dev._{norm}$		**2.189**
Coeff. of Var. $[\%]_{norm}$		**4.253**
Min.	**0.0077**	**47.587**
Max.	**0.0081**	**55.520**
Number of Spec.		**19**


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

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

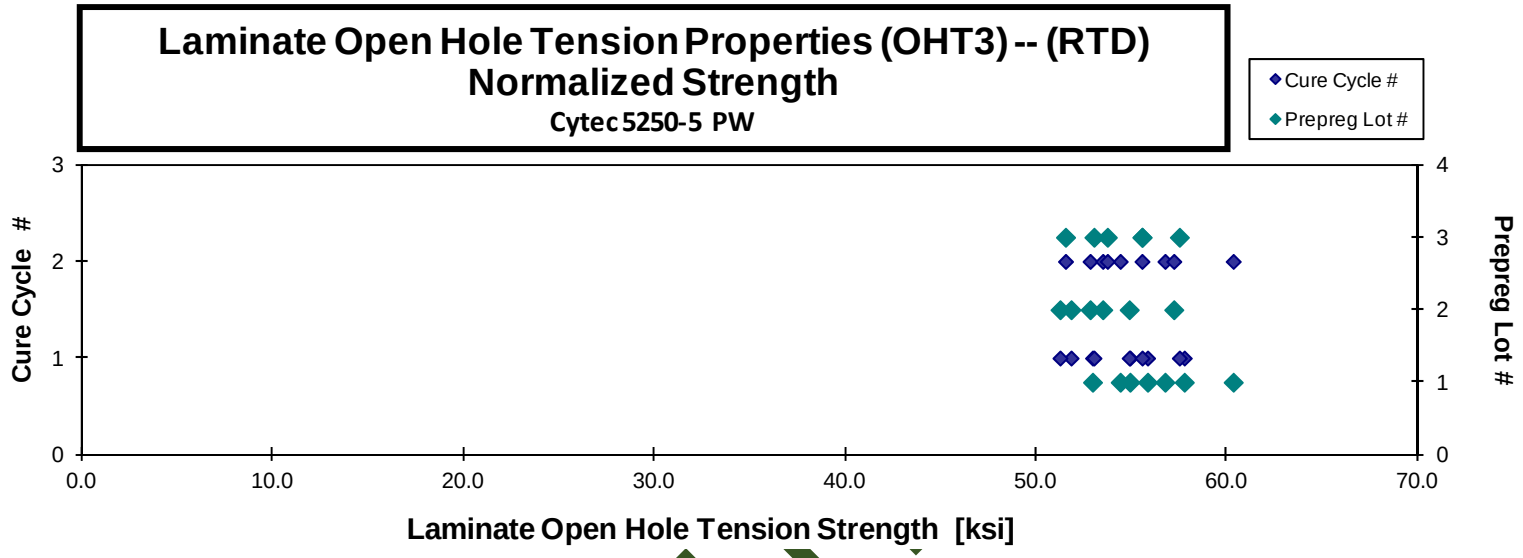
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCFA111A	A	C1	1	1	52.403	0.118	15	LGM	0.0079	52.962
CNCFA112A	A	C1	1	1	54.487	0.120	15	LGM	0.0080	55.845
CNCFA113A	A	C1	1	1	53.351	0.120	15	LGM	0.0080	54.924
CNCFA114A	A	C1	1	1	56.037	0.121	15	LGM	0.0080	57.769
CNCFA211A	A	C2	1	2	61.437	0.115	15	LGM	0.0077	60.335
CNCFA212A	A	C2	1	2	56.079	0.118	15	LGM	0.0079	56.758
CNCFA213A	A	C2	1	2	53.748	0.118	15	LGM	0.0079	54.414
CNCFB111A	B	C1	2	1	53.982	0.112	15	LGM	0.0075	51.837
CNCFB112A	B	C1	2	1	52.445	0.114	15	LGM	0.0076	51.257
CNCFB113A	B	C1	2	1	55.398	0.116	15	LGM	0.0077	54.885
CNCFB211A	B	C2	2	2	53.422	0.116	15	LGM	0.0077	52.836
CNCFB212A	B	C2	2	2	53.930	0.116	15	LGM	0.0077	53.500
CNCFB213A	B	C2	2	2	57.212	0.117	15	LGM	0.0078	57.220
CNCFC111A	C	C1	3	1	60.207	0.112	15	LGM	0.0075	57.514
CNCFC112A	C	C1	3	1	57.441	0.113	15	LGM	0.0075	55.559
CNCFC113A	C	C1	3	1	54.314	0.114	15	LGM	0.0076	53.037
CNCFC211A	C	C2	3	2	56.112	0.112	15	LGM	0.0075	53.738
CNCFC212A	C	C2	3	2	52.911	0.114	15	LGM	0.0076	51.547
CNCFC213A	C	C2	3	2	56.421	0.115	15	LGM	0.0077	55.553

Average	55.334	
Standard Dev.	2.475	
Coeff. of Var. [%]	4.473	
Min.	52.403	
Max.	61.437	
Number of Spec.	19	

$Average_{norm}$	0.00773	54.815
$Standard\ Dev._{norm}$		2.403
$Coeff.\ of\ Var.\ [\%]_{norm}$		4.385
Min.	0.0075	51.257
Max.	0.0080	60.335
Number of Spec.		19


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

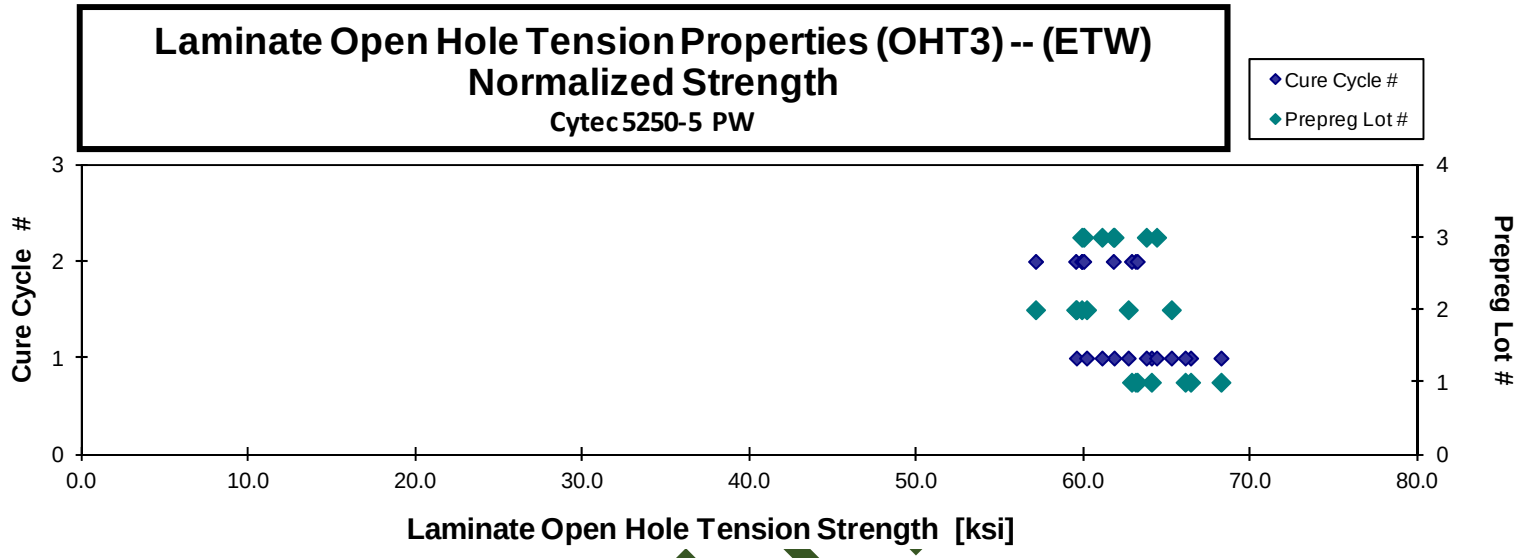
Laminate Open Hole Tension Properties (OHT3) -- (ETW)
Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCFA11BJ	A	C1	1	1	66.765	0.120	15	LGM	0.0080	68.220
CNCFA11CJ	A	C1	1	1	64.294	0.121	15	LGM	0.0081	66.400
CNCFA11DJ	A	C1	1	1	63.766	0.121	15	LGM	0.0081	66.073
CNCFA11EJ	A	C1	1	1	61.987	0.121	15	LGM	0.0081	64.054
CNCFA21BJ	A	C2	1	2	62.485	0.118	15	LGM	0.0079	63.099
CNCFA21CJ	A	C2	1	2	62.303	0.118	15	LGM	0.0079	62.862
CNCFA21DJ	A	C2	1	2	62.283	0.119	15	LGM	0.0079	63.206
CNCFB11BJ	B	C1	2	1	63.017	0.116	15	LGM	0.0078	62.667
CNCFB11CJ	B	C1	2	1	59.606	0.117	15	LGM	0.0078	59.564
CNCFB11DJ	B	C1	2	1	65.015	0.117	15	LGM	0.0078	65.247
CNCFB11EJ	B	C1	2	1	59.367	0.119	15	LGM	0.0079	60.171
CNCFB21BJ	B	C2	2	2	59.632	0.117	15	LGM	0.0078	59.879
CNCFB21CJ	B	C2	2	2	59.374	0.117	15	LGM	0.0078	59.518
CNCFB21DJ	B	C2	2	2	57.282	0.117	15	LGM	0.0078	57.118
CNCFC11BJ	C	C1	3	1	63.500	0.114	15	LGM	0.0076	61.818
CNCFC11CJ	C	C1	3	1	64.774	0.115	15	LGM	0.0077	63.750
CNCFC11DJ	C	C1	3	1	64.957	0.116	15	LGM	0.0077	64.365
CNCFC11EJ	C	C1	3	1	61.418	0.116	15	LGM	0.0078	61.094
CNCFC21BJ	C	C2	3	2	63.288	0.114	15	LGM	0.0076	61.774
CNCFC21CJ	C	C2	3	2	60.671	0.115	15	LGM	0.0077	59.884
CNCFC21DJ	C	C2	3	2	60.675	0.116	15	LGM	0.0077	60.001

Average	62.212	
Standard Dev.	2.370	
Coeff. of Var. [%]	3.809	
Min.	57.282	
Max.	66.765	
Number of Spec.	21	

$Average_{norm}$	0.00783	62.417
$Standard\ Dev._{norm}$		2.751
Coeff. of Var. $[\%]_{norm}$		4.408
Min.	0.0076	57.118
Max.	0.0081	68.220
Number of Spec.		21


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

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

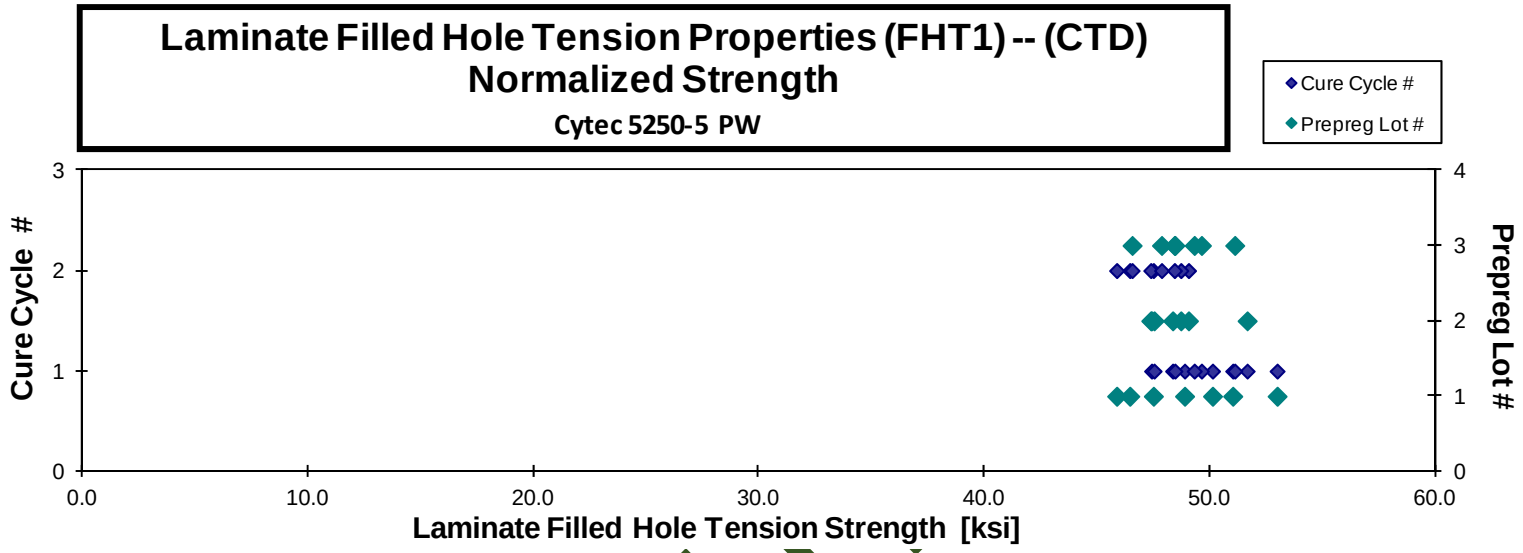
Laminate Filled Hole Tension Properties (FHT1) -- (CTD) Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC4A116B	A	C1	1	1	47.161	0.129	16	LGM	0.0081	48.887
CNC4A117B	A	C1	1	1	48.326	0.129	16	LGM	0.0081	50.126
CNC4A118B	A	C1	1	1	49.381	0.129	16	LGM	0.0081	51.023
CNC4A119B	A	C1	1	1	53.781	0.123	16	LGM	0.0077	52.991
CNC4A216B	A	C2	1	2	45.734	0.127	16	LGM	0.0079	46.455
CNC4A217B	A	C2	1	2	45.378	0.126	16	LGM	0.0079	45.875
CNC4A218B	A	C2	1	2	46.778	0.127	16	LGM	0.0079	47.503
CNC4B116B	B	C1	2	1	48.227	0.125	16	LGM	0.0078	48.356
CNC4B117B	B	C1	2	1	47.147	0.126	16	LGM	0.0078	47.424
CNC4B118B	B	C1	2	1	51.511	0.125	16	LGM	0.0078	51.662
CNC4B119B	B	C1	2	1	49.439	0.120	16	LGM	0.0075	47.537
CNC4B216B	B	C2	2	2	49.872	0.123	16	LGM	0.0077	49.060
CNC4B217B	B	C2	2	2	48.003	0.123	16	LGM	0.0077	47.388
CNC4B218B	B	C2	2	2	49.030	0.124	16	LGM	0.0078	48.722
CNC4C117B	C	C1	3	1	50.327	0.123	16	LGM	0.0077	49.634
CNC4C118B	C	C1	3	1	49.621	0.124	16	LGM	0.0078	49.316
CNC4C119B	C	C1	3	1	53.297	0.120	16	LGM	0.0075	51.112
CNC4C11AB	C	C1	3	1	50.103	0.121	16	LGM	0.0075	48.457
CNC4C216B	C	C2	3	2	46.671	0.125	16	LGM	0.0078	46.559
CNC4C217B	C	C2	3	2	48.909	0.124	16	LGM	0.0077	48.438
CNC4C218B	C	C2	3	2	48.297	0.124	16	LGM	0.0077	47.865

Average		48.904
Standard Dev.		2.184
Coeff. of Var. [%]		4.466
Min.		45.378
Max.		53.781
Number of Spec.		21

$Average_{norm}$	0.0078	48.781
$Standard\ Dev._{norm}$		1.822
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.735
Min.	0.0075	45.875
Max.	0.0081	52.991
Number of Spec.		21


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

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

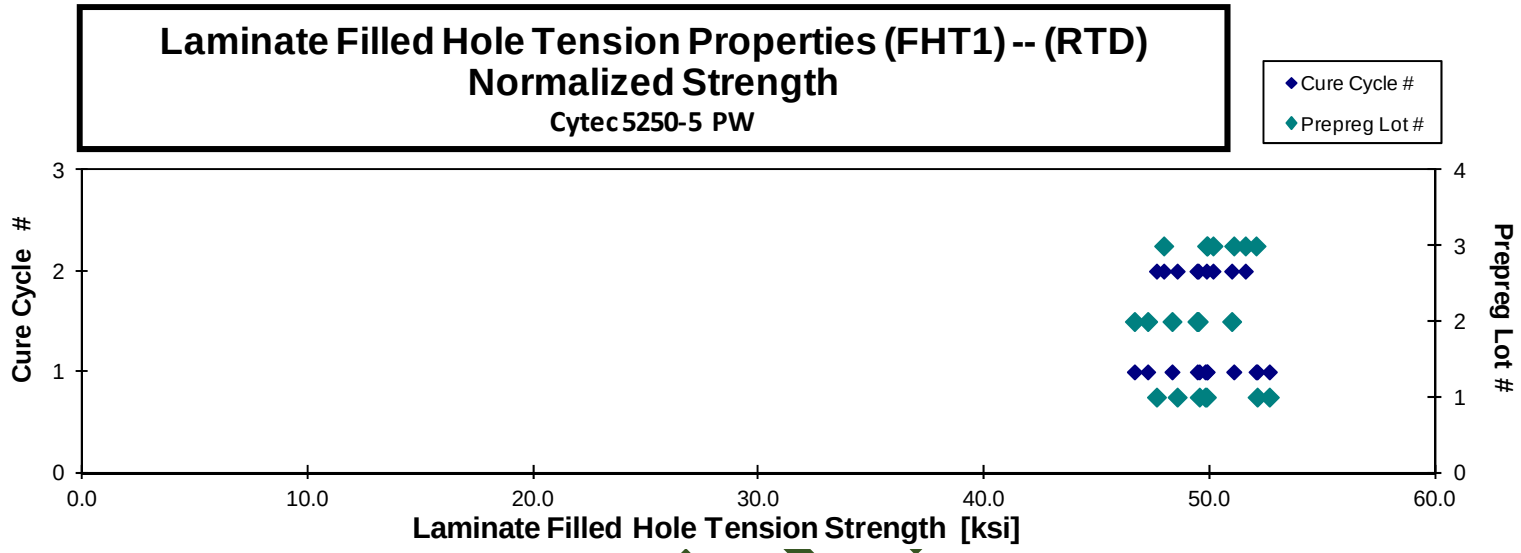
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC4A111A	A	C1	1	1	52.759	0.125	16	LGM	0.0078	52.646
CNC4A112A	A	C1	1	1	48.402	0.128	16	LGM	0.0080	49.540
CNC4A113A	A	C1	1	1	48.430	0.128	16	LGM	0.0080	49.801
CNC4A114A	A	C1	1	1	50.585	0.129	16	LGM	0.0080	52.105
CNC4A211A	A	C2	1	2	48.858	0.124	16	LGM	0.0078	48.558
CNC4A212A	A	C2	1	2	47.468	0.125	16	LGM	0.0078	47.639
CNC4A213A	A	C2	1	2	49.411	0.126	16	LGM	0.0079	49.853
CNC4B111A	B	C1	2	1	49.121	0.123	16	LGM	0.0077	48.328
CNC4B112A	B	C1	2	1	47.089	0.124	16	LGM	0.0077	46.662
CNC4B113A	B	C1	2	1	46.997	0.125	16	LGM	0.0078	47.249
CNC4B114A	B	C1	2	1	49.633	0.124	16	LGM	0.0078	49.454
CNC4B211A	B	C2	2	2	52.007	0.119	16	LGM	0.0074	49.437
CNC4B212A	B	C2	2	2	52.576	0.121	16	LGM	0.0076	50.975
CNC4B213A	B	C2	2	2	50.456	0.122	16	LGM	0.0077	49.493
CNC4C111A	C	C1	3	1	53.387	0.119	16	LGM	0.0075	51.070
CNC4C112A	C	C1	3	1	51.324	0.121	16	LGM	0.0076	49.864
CNC4C113A	C	C1	3	1	51.014	0.122	16	LGM	0.0076	49.889
CNC4C114A	C	C1	3	1	52.805	0.123	16	LGM	0.0077	52.057
CNC4C211A	C	C2	3	2	50.306	0.119	16	LGM	0.0074	47.961
CNC4C214A	C	C2	3	2	50.557	0.124	16	LGM	0.0077	50.146
CNC4C215A	C	C2	3	2	51.796	0.124	16	LGM	0.0078	51.582

Average	50.237	
Standard Dev.	1.935	
Coeff. of Var. [%]	3.851	
Min.	46.997	
Max.	53.387	
Number of Spec.	21	

$Average_{norm}$	0.0077	49.729
$Standard\ Dev._{norm}$		1.632
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.281
Min.	0.0074	46.662
Max.	0.0080	52.646
Number of Spec.		21


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

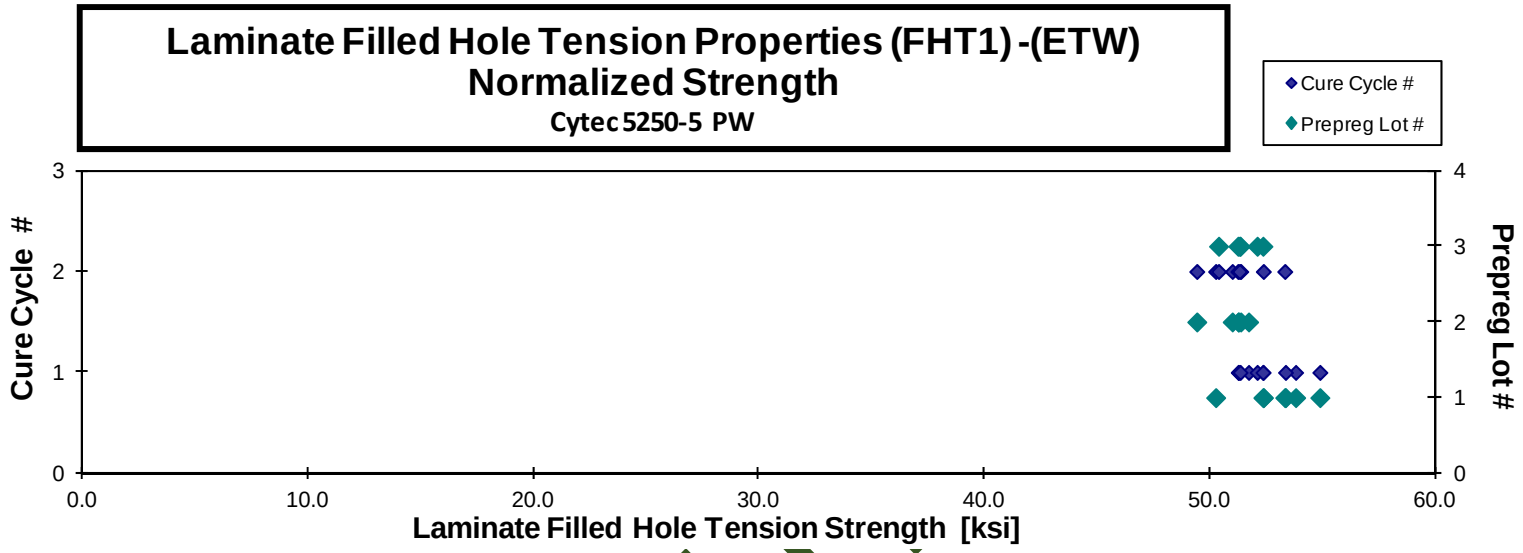
Laminate Filled Hole Tension Properties (FHT1) -- (ETW)
Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC4A11BJ	A	C1	1	1	52.481	0.128	16	MGM	0.0080	53.813
CNC4A11CJ	A	C1	1	1	51.434	0.129	16	AGM	0.0081	53.364
CNC4A11EJ	A	C1	1	1	50.772	0.129	16	AGM	0.0080	52.365
CNC4A11GJ	A	C1	1	1	53.081	0.129	16	AGM	0.0081	54.888
CNC4A21DJ	A	C2	1	2	52.886	0.126	16	AGM	0.0079	53.331
CNC4A21EJ	A	C2	1	2	51.841	0.126	16	AGM	0.0079	52.381
CNC4A21GJ	A	C2	1	2	49.538	0.127	16	AGM	0.0079	50.266
CNC4B11DJ	B	C1	2	1	51.042	0.125	16	MGM	0.0078	51.274
CNC4B11FJ	B	C1	2	1	51.795	0.125	16	MGM	0.0078	51.725
CNC4B11GJ	B	C1	2	1	51.608	0.124	16	MGM	0.0077	51.271
CNC4B21DJ	B	C2	2	2	51.525	0.124	16	MGM	0.0077	51.002
CNC4B21EJ	B	C2	2	2	51.765	0.124	16	MGM	0.0077	51.377
CNC4B21GJ	B	C2	2	2	49.827	0.124	16	MGM	0.0077	49.428
CNC4C11BJ	C	C1	3	1	53.535	0.121	16	MGM	0.0076	52.106
CNC4C11DJ	C	C1	3	1	52.293	0.123	16	MGM	0.0077	51.351
CNC4C11FJ	C	C1	3	1	53.079	0.123	16	LGM	0.0077	52.363
CNC4C21EJ	C	C2	3	2	50.849	0.124	16	MGM	0.0077	50.394
CNC4C21FJ	C	C2	3	2	51.876	0.123	16	MGM	0.0077	51.252
CNC4C21GJ	C	C2	3	2	51.683	0.124	16	MGM	0.0077	51.324

Average	**51.732**	
Standard Dev.	**1.051**	
Coeff. of Var. [%]	**2.032**	
Min.	**49.538**	
Max.	**53.535**	
Number of Spec.	**19**	

$Average_{norm}$	**0.0078**	**51.857**
$Standard\ Dev._{norm}$		**1.322**
$Coeff.\ of\ Var.\ [\%]_{norm}$		**2.549**
Min.	**0.0076**	**49.428**
Max.	**0.0081**	**54.888**
Number of Spec.		**19**


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

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

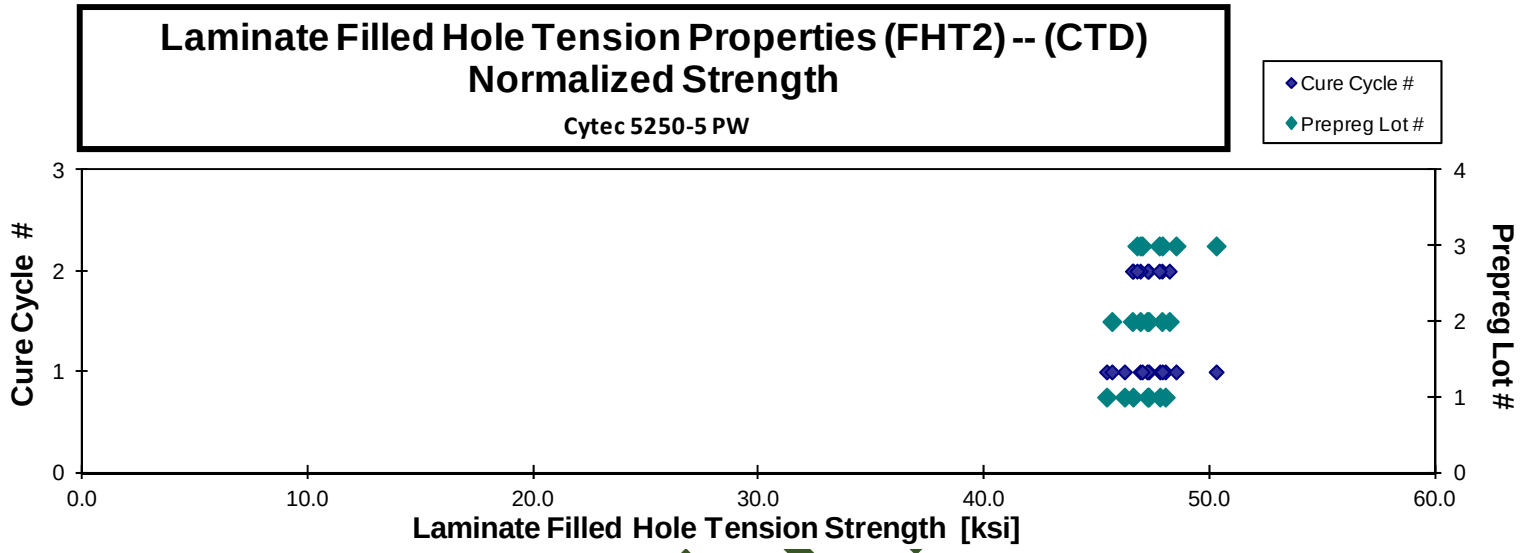
Laminate Filled Hole Tension Properties (FHT2) -- (CTD) Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC5A117B	A	C1	1	1	46.379	0.161	20	AGM	0.0080	47.791
CNC5A118B	A	C1	1	1	44.863	0.161	20	AGM	0.0080	46.219
CNC5A119B	A	C1	1	1	45.191	0.157	20	AGM	0.0078	45.428
CNC5A11AB	A	C1	1	1	47.154	0.159	20	AGM	0.0079	48.030
CNC5A216B	A	C2	1	2	45.821	0.161	20	AGM	0.0080	47.284
CNC5A217B	A	C2	1	2	45.237	0.161	20	AGM	0.0080	46.600
CNC5A218B	A	C2	1	2	46.251	0.159	20	AGM	0.0080	47.244
CNC5B116B	B	C1	2	1	47.006	0.156	20	AGM	0.0078	46.916
CNC5B117B	B	C1	2	1	47.820	0.154	20	AGM	0.0077	47.294
CNC5B118B	B	C1	2	1	47.704	0.154	20	AGM	0.0077	47.225
CNC5B119B	B	C1	2	1	47.590	0.150	20	AGM	0.0075	45.663
CNC5B216B	B	C2	2	2	48.096	0.155	20	AGM	0.0078	47.880
CNC5B217B	B	C2	2	2	46.627	0.156	20	AGM	0.0078	46.572
CNC5B218B	B	C2	2	2	48.290	0.156	20	AGM	0.0078	48.207
CNC5C116B	C	C1	3	1	47.149	0.156	20	AGM	0.0078	47.003
CNC5C118B	C	C1	3	1	48.072	0.155	20	AGM	0.0078	47.898
CNC5C119B	C	C1	3	1	50.170	0.151	20	AGM	0.0075	48.509
CNC5C11AB	C	C1	3	1	51.205	0.153	20	AGM	0.0077	50.286
CNC5C218B	C	C2	3	2	47.017	0.156	20	AGM	0.0078	46.917
CNC5C219B	C	C2	3	2	49.123	0.149	20	AGM	0.0074	46.772
CNC5C21AB	C	C2	3	2	48.697	0.153	20	AGM	0.0077	47.761

Average		47.403
Standard Dev.		1.592
Coeff. of Var. [%]		3.359
Min.		44.863
Max.		51.205
Number of Spec.		21

$Average_{norm}$	0.0078	47.309
$Standard\ Dev._{norm}$		1.047
$Coeff.\ of\ Var.\ [\%]_{norm}$		2.213
Min.	0.0074	45.428
Max.	0.0080	50.286
Number of Spec.		21


Laminate Filled Hole Tension Properties (FHT2) -- (CTD)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Filled Hole Tension Strength [ksi]

Laminate Filled Hole Tension Properties (FHT 2) -- (RTD) Strength

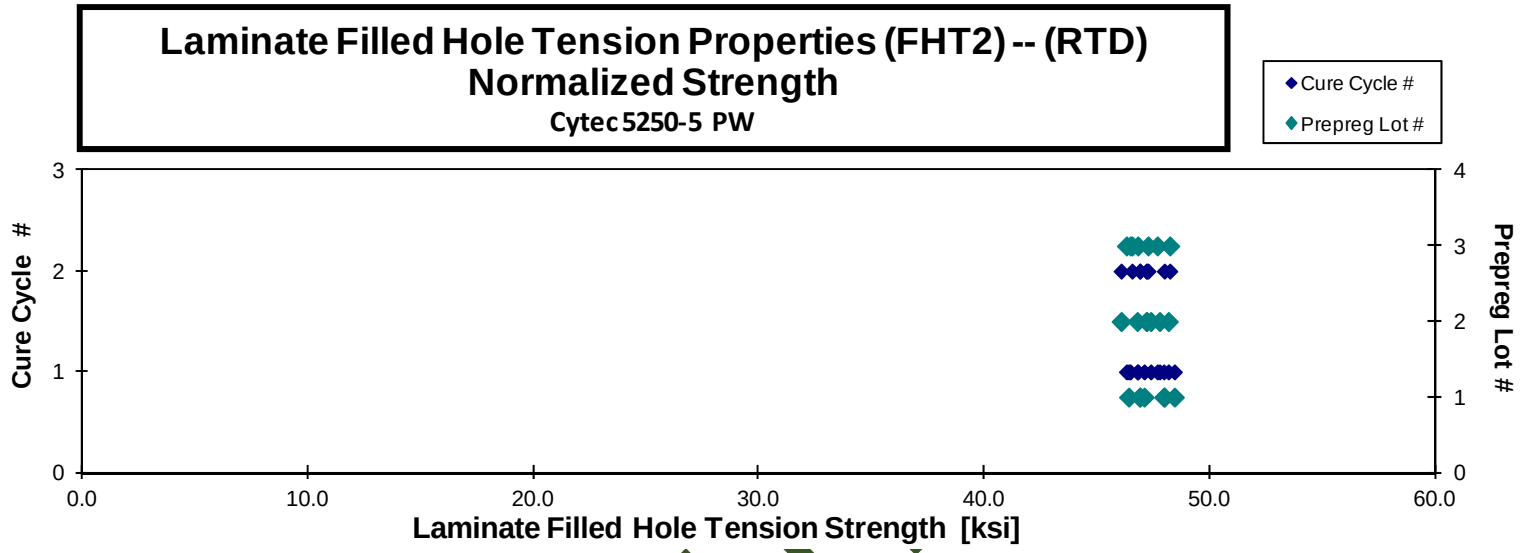
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC5A111A	A	C1	1	1	46.049	0.157	20	AGM	0.0079	46.403
CNC5A112A	A	C1	1	1	47.530	0.159	20	AGM	0.0079	48.434
CNC5A113A	A	C1	1	1	46.778	0.160	20	AGM	0.0080	47.962
CNC5A114A	A	C1	1	1	45.860	0.160	20	AGM	0.0080	47.094
CNC5A211A	A	C2	1	2	46.475	0.157	20	AGM	0.0079	46.906
CNC5A212A	A	C2	1	2	47.084	0.159	20	AGM	0.0080	47.990
CNC5A213A	A	C2	1	2	45.749	0.160	20	AGM	0.0080	46.897
CNC5B111A	B	C1	2	1	49.751	0.150	20	AGM	0.0075	47.779
CNC5B112A	B	C1	2	1	48.369	0.153	20	AGM	0.0076	47.387
CNC5B113A	B	C1	2	1	47.363	0.154	20	AGM	0.0077	46.786
CNC5B114A	B	C1	2	1	48.328	0.155	20	AGM	0.0078	48.168
CNC5B211A	B	C2	2	2	49.074	0.150	20	AGM	0.0075	47.197
CNC5B212A	B	C2	2	2	48.256	0.153	20	AGM	0.0076	47.194
CNC5B215A	B	C2	2	2	46.032	0.156	20	AGM	0.0078	46.071
CNC5C111A	C	C1	3	1	47.942	0.151	20	AGM	0.0075	46.308
CNC5C112A	C	C1	3	1	48.479	0.153	20	AGM	0.0077	47.676
CNC5C113A	C	C1	3	1	47.296	0.154	20	AGM	0.0077	46.811
CNC5C115A	C	C1	3	1	46.664	0.155	20	AGM	0.0078	46.480
CNC5C211A	C	C2	3	2	48.819	0.149	20	AGM	0.0074	46.555
CNC5C212A	C	C2	3	2	49.673	0.151	20	AGM	0.0076	48.230
CNC5C215A	C	C2	3	2	47.513	0.155	20	AGM	0.0078	47.264

Average	47.575	
Standard Dev.	1.216	
Coeff. of Var. [%]	2.556	
Min.	45.749	
Max.	49.751	
Number of Spec.	21	

$Average_{norm}$	0.0077	47.219
$Standard\ Dev._{norm}$		0.688
$Coeff.\ of\ Var.\ [\%]_{norm}$		1.457
Min.	0.0074	46.071
Max.	0.0080	48.434
Number of Spec.		21


Laminate Filled Hole Tension Properties (FHT2) -- (RTD)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Filled Hole Tension Strength [ksi]

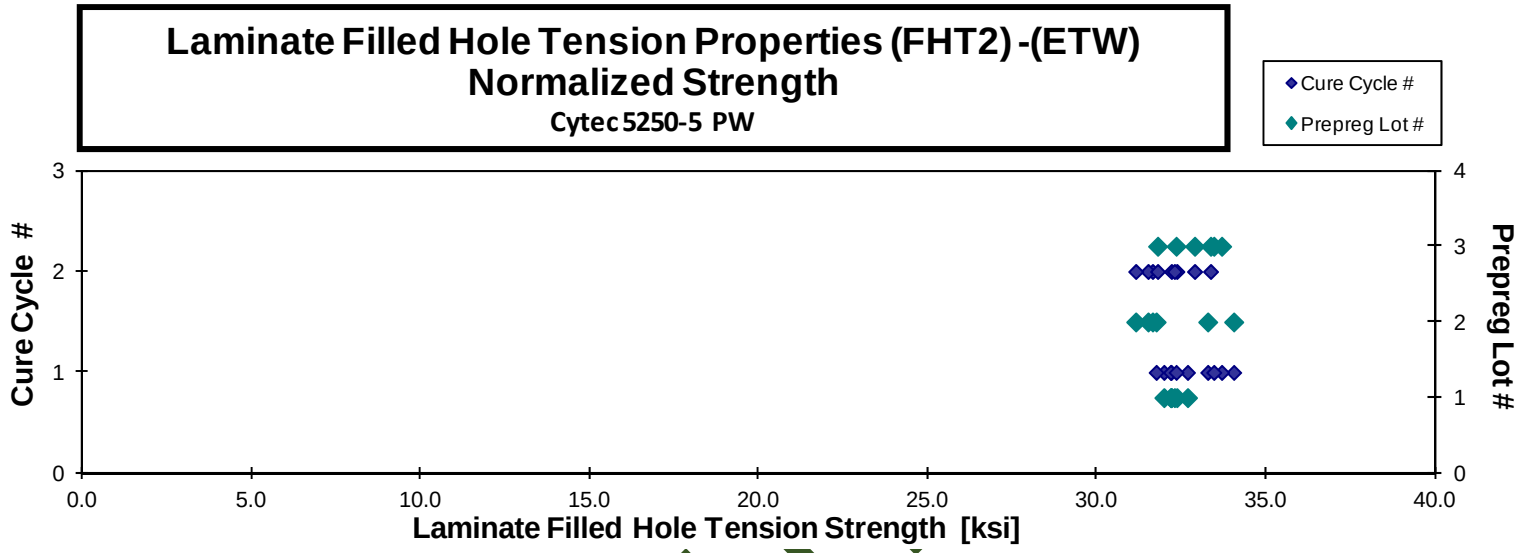
Laminate Filled Hole Tension Properties (FHT2) -- (ETW)
Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC5A11BJ	A	C1	1	1	31.917	0.160	20	AGM	0.0080	32.678
CNC5A11CJ	A	C1	1	1	31.328	0.160	20	AGM	0.0080	32.192
CNC5A11DJ	A	C1	1	1	31.168	0.160	20	AGM	0.0080	31.980
CNC5A11EJ	A	C1	1	1	31.299	0.160	20	AGM	0.0080	32.176
CNC5A21CJ	A	C2	1	2	31.308	0.160	20	AGM	0.0080	32.202
CNC5A21FJ	A	C2	1	2	31.605	0.160	20	AGM	0.0080	32.361
CNC5A21GJ	A	C2	1	2	31.397	0.160	20	AGM	0.0080	32.289
CNC5B11BJ	B	C1	2	1	34.205	0.155	20	AGM	0.0078	34.044
CNC5B11DJ	B	C1	2	1	33.279	0.156	20	AGM	0.0078	33.276
CNC5B11FJ	B	C1	2	1	31.879	0.155	20	AGM	0.0078	31.750
CNC5B21BJ	B	C2	2	2	31.823	0.155	20	AGM	0.0078	31.642
CNC5B21CJ	B	C2	2	2	31.642	0.155	20	AGM	0.0078	31.510
CNC5B21GJ	B	C2	2	2	31.078	0.156	20	AGM	0.0078	31.147
CNC5C11BJ	C	C1	3	1	34.035	0.154	20	AGM	0.0077	33.686
CNC5C11CJ	C	C1	3	1	33.667	0.155	20	AGM	0.0078	33.455
CNC5C11EJ	C	C1	3	1	32.525	0.155	20	AGM	0.0078	32.341
CNC5C21BJ	C	C2	3	2	32.402	0.153	20	AGM	0.0077	31.793
CNC5C21CJ	C	C2	3	2	33.175	0.155	20	AGM	0.0077	32.888
CNC5C21FJ	C	C2	3	2	33.534	0.155	20	AGM	0.0078	33.359

Average	32.277	
Standard Dev.	1.049	
Coeff. of Var. [%]	3.249	
Min.	31.078	
Max.	34.205	
Number of Spec.	19	

$Average_{norm}$	0.0078	32.461
$Standard\ Dev._{norm}$		0.798
$Coeff.\ of\ Var.\ [\%]_{norm}$		2.457
Min.	0.0077	31.147
Max.	0.0080	34.044
Number of Spec.		19


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

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

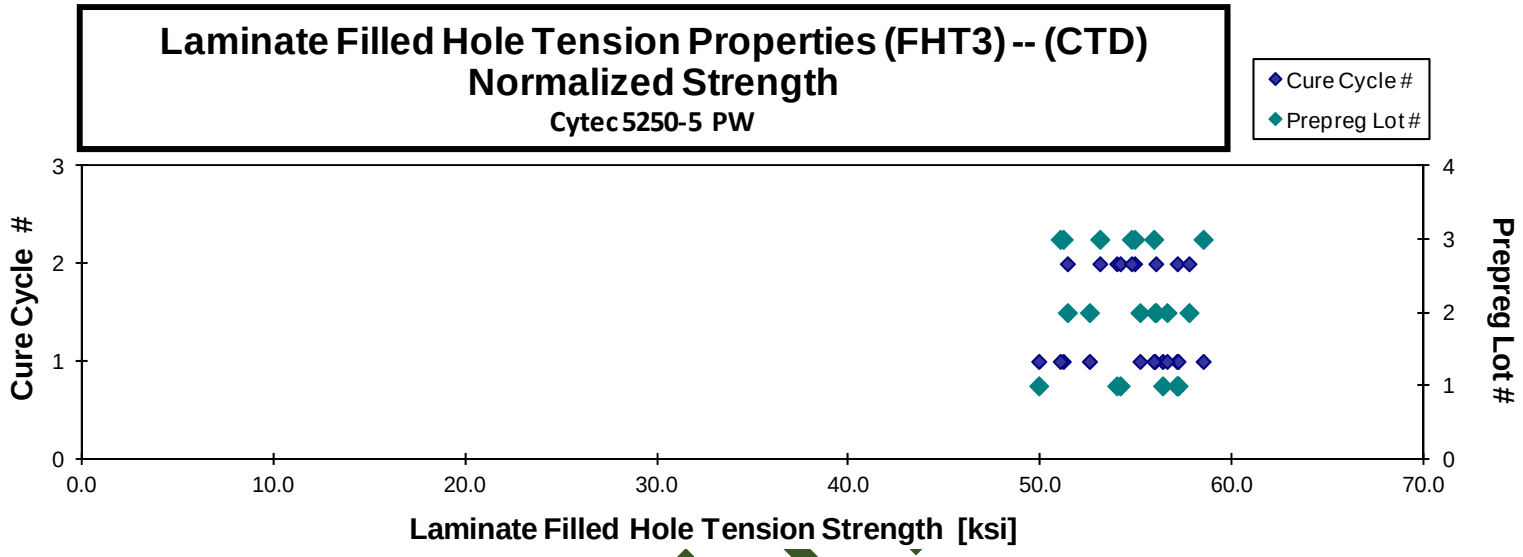
Laminate Filled Hole Tension Properties (FHT3) -- (CTD)
Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]
0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC6A116B	A	C1	1	1	55.148	0.121	15	LGM	0.0081	57.096
CNC6A117B	A	C1	1	1	55.348	0.121	15	LGM	0.0081	57.161
CNC6A118B	A	C1	1	1	48.194	0.121	15	LGM	0.0081	49.896
CNC6A119B	A	C1	1	1	56.211	0.117	15	LGM	0.0078	56.355
CNC6A216B	A	C2	1	2	56.240	0.119	15	LGM	0.0079	57.122
CNC6A217B	A	C2	1	2	53.035	0.119	15	LGM	0.0079	53.964
CNC6A218B	A	C2	1	2	53.249	0.119	15	LGM	0.0079	54.144
CNC6B116B	B	C1	2	1	52.631	0.117	15	LGM	0.0078	52.541
CNC6B117B	B	C1	2	1	55.443	0.116	15	LGM	0.0078	55.174
CNC6B119B	B	C1	2	1	59.270	0.110	15	LGM	0.0074	55.952
CNC6B11AB	B	C1	2	1	59.031	0.112	15	LGM	0.0075	56.584
CNC6B216B	B	C2	2	2	51.967	0.116	15	LGM	0.0077	51.389
CNC6B217B	B	C2	2	2	56.412	0.116	15	LGM	0.0077	56.002
CNC6B219B	B	C2	2	2	60.138	0.112	15	LGM	0.0075	57.731
CNC6C116B	C	C1	3	1	51.786	0.116	15	LGM	0.0077	51.174
CNC6C117B	C	C1	3	1	51.857	0.115	15	LGM	0.0077	51.015
CNC6C118B	C	C1	3	1	59.102	0.116	15	LGM	0.0077	58.471
CNC6C119B	C	C1	3	1	58.174	0.112	15	LGM	0.0075	55.895
CNC6C216B	C	C2	3	2	53.538	0.116	15	LGM	0.0077	53.080
CNC6C217B	C	C2	3	2	55.070	0.117	15	LGM	0.0078	54.898
CNC6C218B	C	C2	3	2	55.466	0.115	15	LGM	0.0077	54.731

Average	**55.110**	
Standard Dev.	**3.029**	
Coeff. of Var. [%]	**5.496**	
Min.	**48.194**	
Max.	**60.138**	
Number of Spec.	**21**	

$Average_{norm}$	**0.0078**	**54.780**
Standard $Dev._{norm}$		**2.453**
Coeff. of Var. $[\%]_{norm}$		**4.478**
Min.	**0.0074**	**49.896**
Max.	**0.0081**	**58.471**
Number of Spec.		**21**


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

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

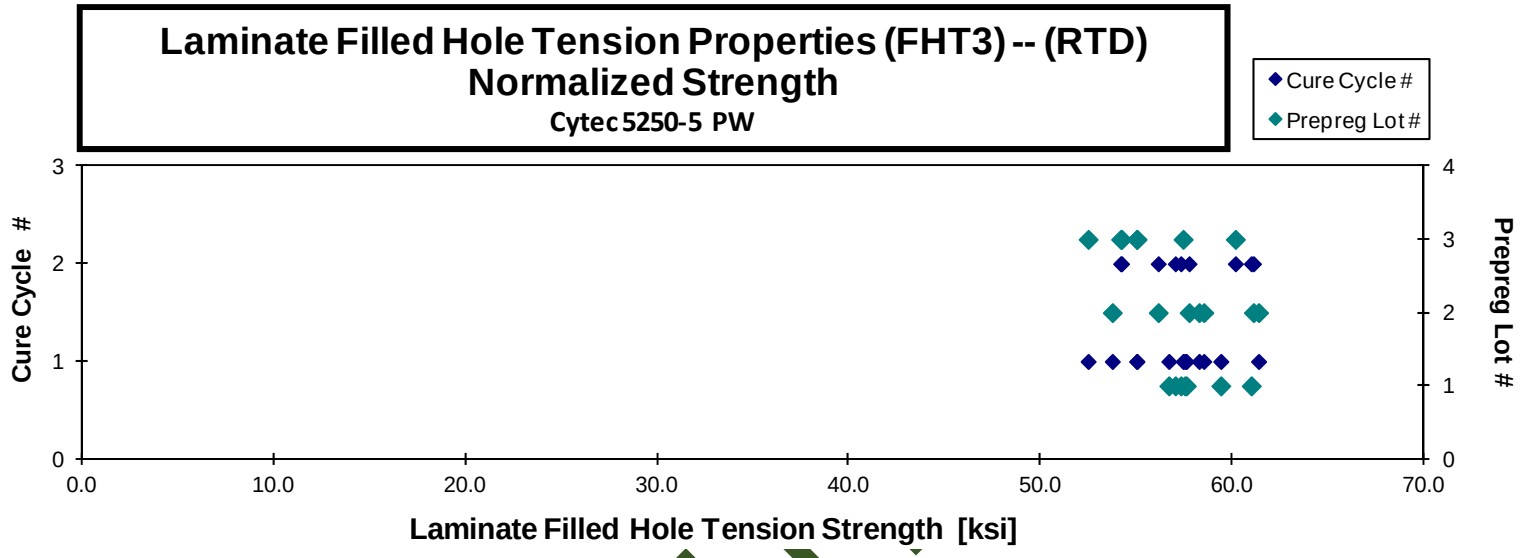
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC6A111A	A	C1	1	1	56.418	0.118	15	LGM	0.0078	56.683
CNC6A112A	A	C1	1	1	56.139	0.120	15	LGM	0.0080	57.594
CNC6A113A	A	C1	1	1	57.358	0.121	15	LGM	0.0081	59.392
CNC6A114A	A	C1	1	1	55.056	0.122	15	LGM	0.0081	57.511
CNC6A211A	A	C2	1	2	56.383	0.118	15	LGM	0.0079	57.018
CNC6A212A	A	C2	1	2	55.920	0.120	15	LGM	0.0080	57.306
CNC6A215A	A	C2	1	2	59.889	0.119	15	LGM	0.0079	60.981
CNC6B111A	B	C1	2	1	57.039	0.110	15	LGM	0.0073	53.732
CNC6B112A	B	C1	2	1	61.007	0.112	15	LGM	0.0075	58.504
CNC6B113A	B	C1	2	1	59.859	0.114	15	LGM	0.0076	58.255
CNC6B114A	B	C1	2	1	62.331	0.115	15	LGM	0.0077	61.363
CNC6B211A	B	C2	2	2	64.483	0.111	15	LGM	0.0074	61.093
CNC6B212A	B	C2	2	2	59.526	0.113	15	LGM	0.0076	57.737
CNC6B213A	B	C2	2	2	57.781	0.114	15	LGM	0.0076	56.127
CNC6C111A	C	C1	3	1	59.319	0.113	15	LGM	0.0076	57.426
CNC6C112A	C	C1	3	1	56.415	0.114	15	LGM	0.0076	55.008
CNC6C113A	C	C1	3	1	53.331	0.115	15	LGM	0.0077	52.473
CNC6C114A	C	C1	3	1	54.842	0.117	15	LGM	0.0078	55.014
CNC6C211A	C	C2	3	2	62.281	0.113	15	LGM	0.0075	60.152
CNC6C212A	C	C2	3	2	55.431	0.114	15	LGM	0.0076	54.168
CNC6C213A	C	C2	3	2	55.087	0.115	15	LGM	0.0077	54.216

Average	57.900	
Standard Dev.	2.927	
Coeff. of Var. [%]	5.055	
Min.	53.331	
Max.	64.483	
Number of Spec.	21	

$Average_{norm}$	0.0077	57.226
$Standard\ Dev._{norm}$		2.522
$Coeff.\ of\ Var.\ [\%]_{norm}$		4.407
Min.	0.0073	52.473
Max.	0.0081	61.363
Number of Spec.		21


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

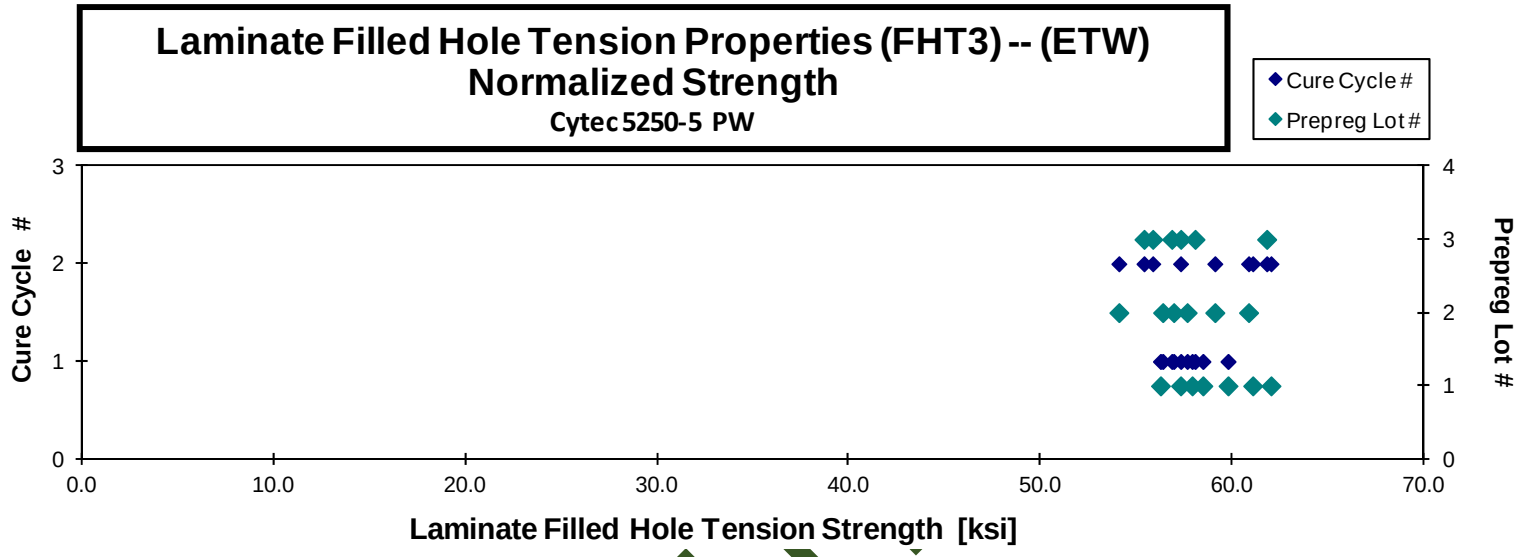
Laminate Filled Hole Tension Properties (FHT3) -- (ETW)
Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC6A11BJ	A	C1	1	1	54.694	0.120	15	LGM	0.0080	56.245
CNC6A11CJ	A	C1	1	1	56.759	0.121	15	LGM	0.0080	58.457
CNC6A11EJ	A	C1	1	1	55.811	0.121	15	LGM	0.0081	57.894
CNC6A11GJ	A	C1	1	1	57.626	0.121	15	LGM	0.0081	59.769
CNC6A21BJ	A	C2	1	2	59.357	0.120	15	LGM	0.0080	61.057
CNC6A21CJ	A	C2	1	2	60.787	0.119	15	LGM	0.0080	62.008
CNC6A21EJ	A	C2	1	2	55.729	0.120	15	LGM	0.0080	57.293
CNC6B11BJ	B	C1	2	1	58.468	0.114	15	LGM	0.0076	56.935
CNC6B11DJ	B	C1	2	1	58.638	0.115	15	LGM	0.0077	57.635
CNC6B11EJ	B	C1	2	1	57.208	0.115	15	LGM	0.0077	56.360
CNC6B21BJ	B	C2	2	2	61.666	0.115	15	LGM	0.0077	60.840
CNC6B21CJ	B	C2	2	2	54.729	0.116	15	LGM	0.0077	54.074
CNC6B21GJ	B	C2	2	2	59.581	0.116	15	LGM	0.0077	59.080
CNC6C11CJ	C	C1	3	1	58.843	0.115	15	LGM	0.0077	58.047
CNC6C11DJ	C	C1	3	1	57.962	0.116	15	LGM	0.0077	57.301
CNC6C11GJ	C	C1	3	1	57.523	0.116	15	LGM	0.0077	56.834
CNC6C21BJ	C	C2	3	2	56.428	0.116	15	LGM	0.0077	55.841
CNC6C21EJ	C	C2	3	2	61.969	0.117	15	LGM	0.0078	61.784
CNC6C21FJ	C	C2	3	2	55.757	0.116	15	LGM	0.0077	55.384

Average	57.870	
Standard Dev.	2.159	
Coeff. of Var. [%]	3.731	
Min.	54.694	
Max.	61.969	
Number of Spec.	19	

$Average_{norm}$	0.0078	58.044
$Standard\ Dev._{norm}$		2.218
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.822
Min.	0.0076	54.074
Max.	0.0081	62.008
Number of Spec.		19


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

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

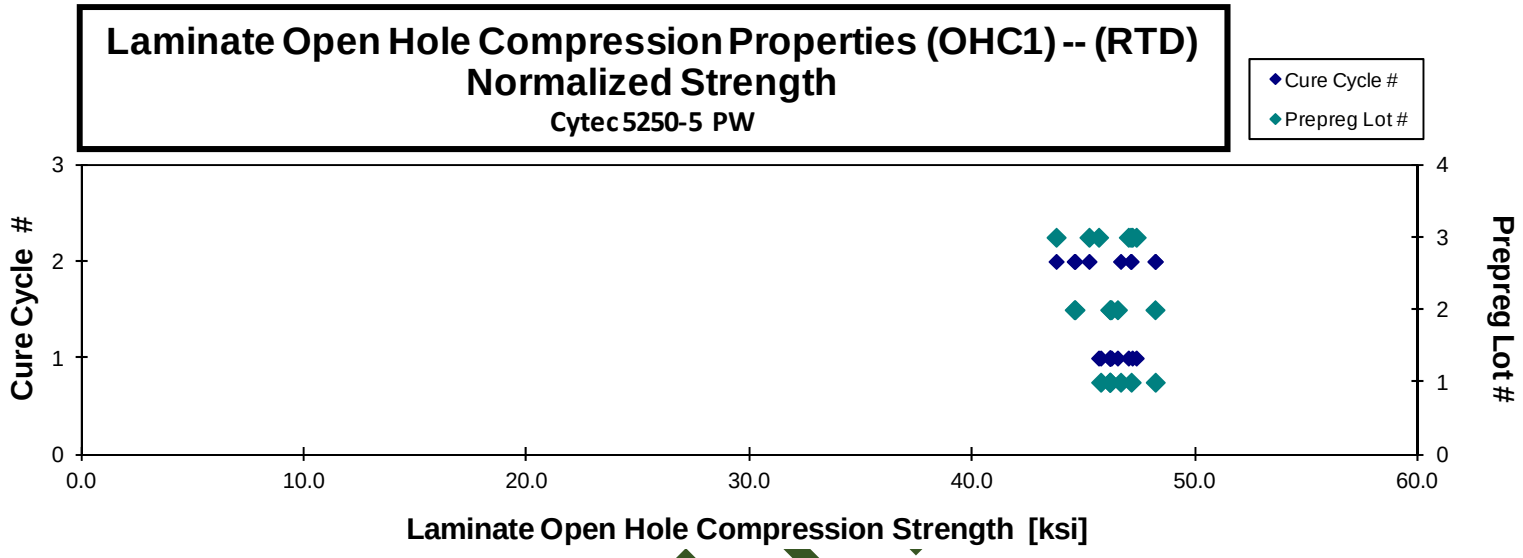
Laminate Open Hole Compression Properties (OHC1) -- (RTD) Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCGA111A	A	C1	1	1	45.504	0.158	20	LGM	0.0079	46.175
CNCGA112A	A	C1	1	1	45.568	0.158	20	LGM	0.0079	46.176
CNCGA113A	A	C1	1	1	45.463	0.158	20	LGM	0.0079	46.163
CNCGA114A	A	C1	1	1	45.334	0.157	20	LGM	0.0079	45.760
CNCGA211A	A	C2	1	2	46.380	0.162	20	MGM	0.0081	48.213
CNCGA212A	A	C2	1	2	45.185	0.163	20	MGM	0.0081	47.130
CNCGA213A	A	C2	1	2	44.993	0.162	20	LGM	0.0081	46.656
CNCGB111A	B	C1	2	1	46.031	0.158	20	LGM	0.0079	46.513
CNCGB112A	B	C1	2	1	45.814	0.157	20	LGM	0.0079	46.186
CNCGB113A	B	C1	2	1	45.607	0.158	20	LGM	0.0079	46.172
CNCGB114A	B	C1	2	1	45.753	0.158	20	MGM	0.0079	46.237
CNCGB211A	B	C2	2	2	48.706	0.154	20	MGM	0.0077	48.202
CNCGB212A	B	C2	2	2	44.800	0.155	20	LGM	0.0078	44.608
CNCGB213A	B	C2	2	2	44.844	0.155	20	LGM	0.0078	44.576
CNCGC111A	C	C1	3	1	47.172	0.156	20	LGM	0.0078	47.177
CNCGC112A	C	C1	3	1	47.317	0.156	20	LGM	0.0078	47.358
CNCGC113A	C	C1	3	1	46.919	0.156	20	LGM	0.0078	47.004
CNCGC114A	C	C1	3	1	45.641	0.156	20	MGM	0.0078	45.670
CNCGC211A	C	C2	3	2	46.034	0.153	20	MGM	0.0077	45.237
CNCGC212A	C	C2	3	2	47.799	0.154	20	MGM	0.0077	47.104
CNCGC213A	C	C2	3	2	44.314	0.154	20	MGM	0.0077	43.760

	Strength [ksi]
Average	45.961
Standard Dev.	1.083
Coeff. of Var. [%]	2.357
Min.	44.314
Max.	48.706
Number of Spec.	21

	t_{ply} [in]	$Strength_{norm}$ [ksi]
$Average_{norm}$	0.0079	46.289
$Standard\ Dev._{norm}$		1.126
$Coeff.\ of\ Var.\ [\%]_{norm}$		2.432
Min.	0.0077	43.760
Max.	0.0081	48.213
Number of Spec.		21

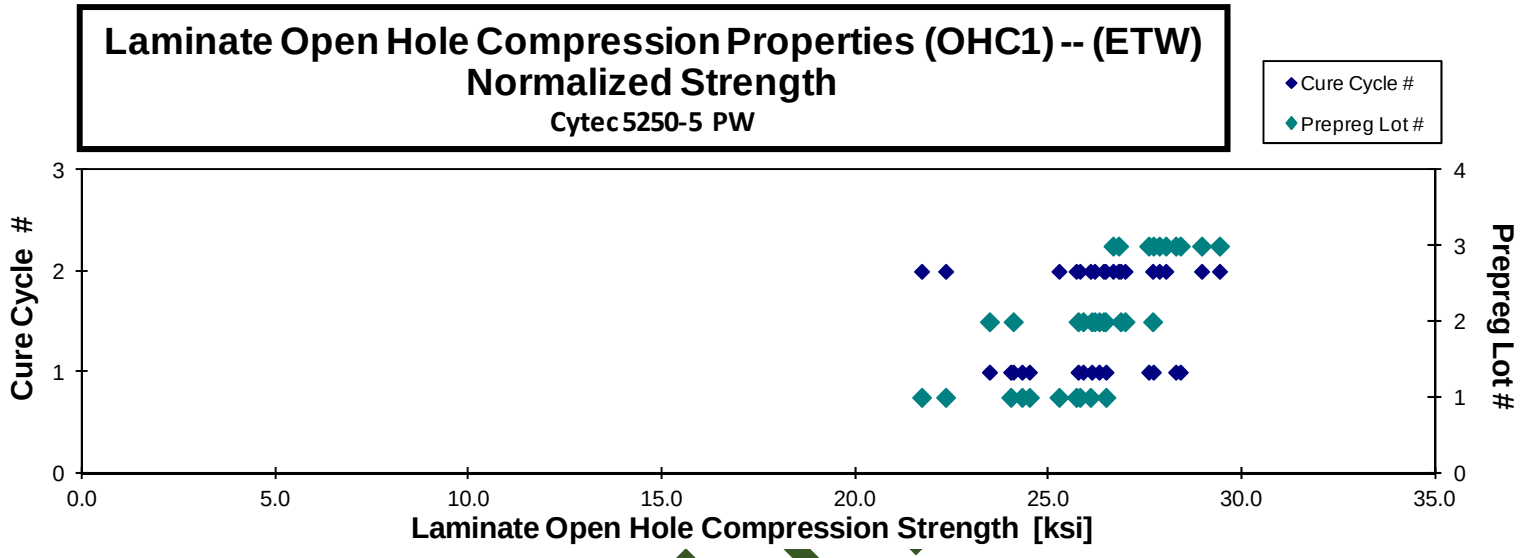

Laminate Open Hole Compression Properties (OHC1) -- (RTD)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Laminate Open Hole Compression Strength [ksi]

Laminate Open Hole Compression Properties (OHC1) -- (ETW)
Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCGA116J	A	C1	1	1	23.862	0.159	20	LGM	0.0079	24.308
CNCGA117J	A	C1	1	1	24.132	0.158	20	LGM	0.0079	24.501
CNCGA118J	A	C1	1	1	26.185	0.158	20	LGM	0.0079	26.482
CNCGA119J	A	C1	1	1	23.808	0.157	20	LGM	0.0079	24.019
CNCGA215J	A	C2	1	2	21.315	0.163	20	LGM	0.0082	22.335
CNCGA216J	A	C2	1	2	20.886	0.162	20	LGM	0.0081	21.712
CNCGA217J	A	C2	1	2	24.870	0.161	20	LGM	0.0081	25.712
CNCGA218J	A	C2	1	2	25.394	0.160	20	LGM	0.0080	26.081
CNCGA219J	A	C2	1	2	24.786	0.162	20	LGM	0.0081	25.806
CNCGA21AJ	A	C2	1	2	24.227	0.163	20	LGM	0.0081	25.267
CNCGB115J	B	C1	2	1	23.861	0.157	20	LGM	0.0079	24.083
CNCGB116J	B	C1	2	1	23.044	0.159	20	LGM	0.0079	23.468
CNCGB117J	B	C1	2	1	25.941	0.155	20	LGM	0.0077	25.761
CNCGB118J	B	C1	2	1	26.934	0.152	20	LGM	0.0076	26.304
CNCGB119J	B	C1	2	1	25.968	0.157	20	LGM	0.0078	26.115
CNCGB11AJ	B	C1	2	1	25.939	0.156	20	LGM	0.0078	25.889
CNCGB218J	B	C2	2	2	28.098	0.149	20	LGM	0.0075	26.862
CNCGB219J	B	C2	2	2	26.589	0.155	20	LGM	0.0078	26.467
CNCGB21AJ	B	C2	2	2	26.300	0.155	20	LGM	0.0078	26.188
CNCGB215J	B	C2	2	2	26.617	0.155	20	LGM	0.0077	26.418
CNCGB216J	B	C2	2	2	27.208	0.155	20	LGM	0.0077	26.976
CNCGB217J	B	C2	2	2	28.227	0.153	20	LGM	0.0077	27.690
CNCGC115J	C	C1	3	1	28.556	0.155	20	LGM	0.0078	28.406
CNCGC116J	C	C1	3	1	27.917	0.155	20	LGM	0.0077	27.709
CNCGC117J	C	C1	3	1	28.571	0.154	20	LGM	0.0077	28.287
CNCGC118J	C	C1	3	1	28.290	0.152	20	LGM	0.0076	27.589
CNCGC215J	C	C2	3	2	28.500	0.153	20	LGM	0.0077	28.031
CNCGC216J	C	C2	3	2	30.138	0.152	20	LGM	0.0076	29.420
CNCGC217J	C	C2	3	2	28.801	0.151	20	LGM	0.0075	27.860
CNCGC218J	C	C2	3	2	30.348	0.149	20	LGM	0.0074	28.957
CNCGC219J	C	C2	3	2	27.171	0.153	20	LGM	0.0077	26.666
CNCGC21AJ	C	C2	3	2	27.288	0.153	20	LGM	0.0077	26.810

	Strength		$Strength_{norm}$
Average	26.243	$Average_{norm}$	26.193
Standard Dev.	2.317	$Standard\ Dev._{norm}$	1.809
Coeff. of Var. [%]	8.829	$Coeff.\ of\ Var.\ [\%]_{norm}$	6.905
Min.	20.886	Min.	21.712
Max.	30.348	Max.	29.420
Number of Spec.	32	Number of Spec.	32


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

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

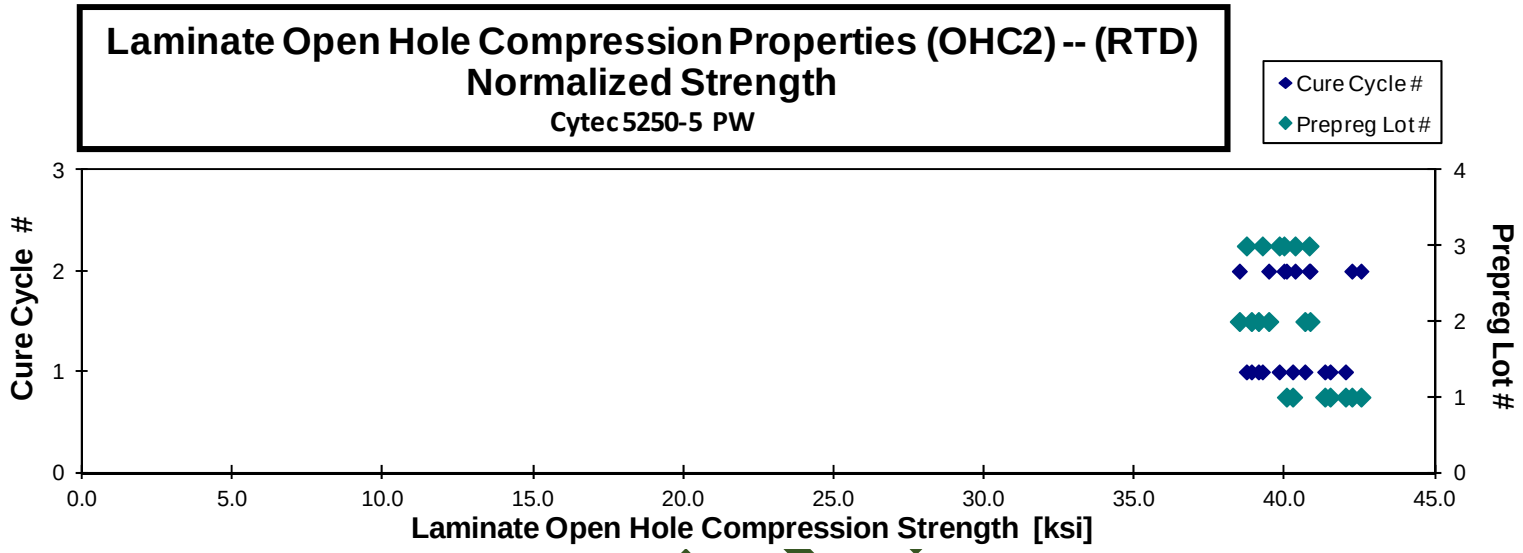
Laminate Open Hole Compression Properties (OHC2) -- (RTD) Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCHA111A	A	C1	1	1	41.098	0.153	20	LGM	0.0076	40.259
CNCHA112A	A	C1	1	1	41.027	0.160	20	MGM	0.0080	42.018
CNCHA113A	A	C1	1	1	40.451	0.160	20	LGM	0.0080	41.506
CNCHA114A	A	C1	1	1	40.182	0.160	20	LGM	0.0080	41.329
CNCHA211A	A	C2	1	2	41.806	0.158	20	AGM	0.0079	42.230
CNCHA212A	A	C2	1	2	38.937	0.160	20	AGM	0.0080	40.052
CNCHA213A	A	C2	1	2	41.310	0.161	20	AGM	0.0080	42.532
CNCHB111A	B	C1	2	1	39.663	0.154	20	AGM/LGM	0.0077	39.121
CNCHB112A	B	C1	2	1	41.187	0.154	20	AGM/LGM	0.0077	40.668
CNCHB113A	B	C1	2	1	39.147	0.155	20	AGM/LGM	0.0077	38.888
CNCHB211A	B	C2	2	2	39.862	0.151	20	AGM	0.0075	38.486
CNCHB212A	B	C2	2	2	41.521	0.153	20	AGM	0.0077	40.838
CNCHB213A	B	C2	2	2	39.706	0.155	20	AGM/LGM	0.0078	39.464
CNCHC111A	C	C1	3	1	40.485	0.149	20	AGM	0.0075	38.720
CNCHC112A	C	C1	3	1	40.730	0.152	20	AGM/LGM	0.0076	39.812
CNCHC113A	C	C1	3	1	39.965	0.153	20	LGM	0.0077	39.252
CNCHC211A	C	C2	3	2	41.802	0.151	20	AGM/LGM	0.0075	40.342
CNCHC212A	C	C2	3	2	42.001	0.152	20	AGM/LGM	0.0076	40.807
CNCHC213A	C	C2	3	2	40.808	0.153	20	AGM	0.0076	39.971

Average		40.615
Standard Dev.		0.905
Coeff. of Var. [%]		2.229
Min.		38.937
Max.		42.001
Number of Spec.		19

$Average_{norm}$	0.0077	40.331
$Standard\ Dev._{norm}$		1.207
$Coeff.\ of\ Var.\ [\%]_{norm}$		2.992
Min.	0.0075	38.486
Max.	0.0080	42.532
Number of Spec.		19



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

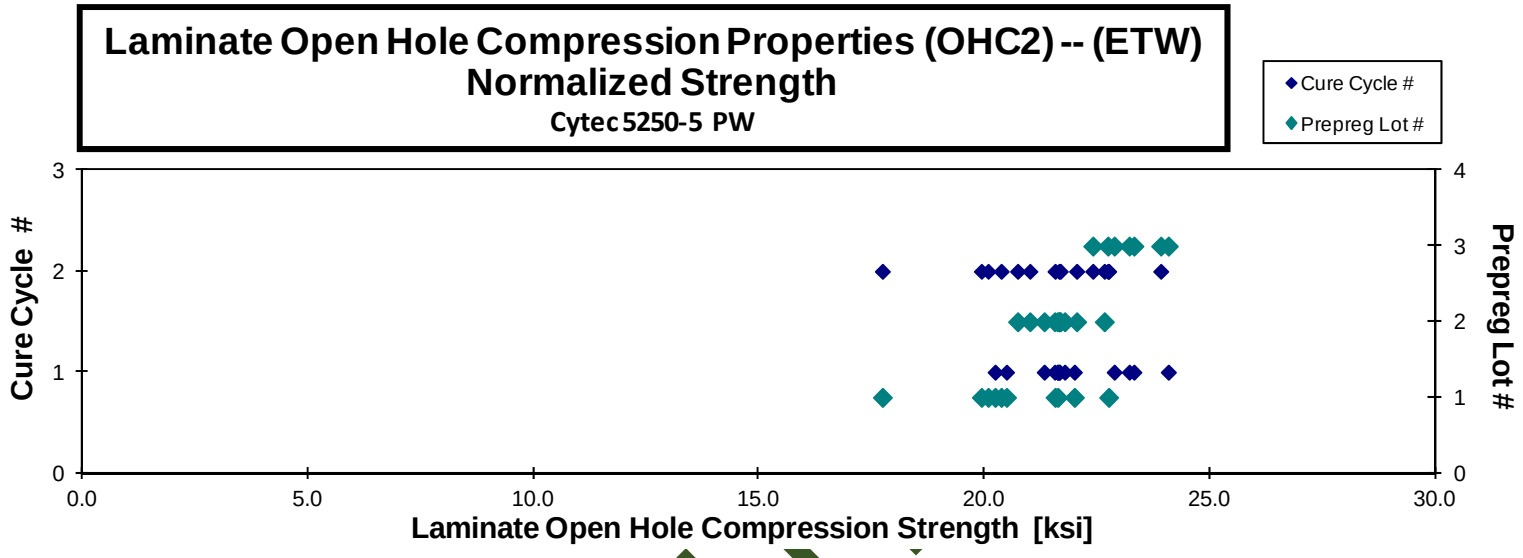
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCHA115J	A	C1	1	1	20.671	0.153	20	MGM	0.0076	20.241
CNCHA116J	A	C1	1	1	20.329	0.157	20	MGM	0.0079	20.494
CNCHA117J	A	C1	1	1	21.732	0.158	20	MGM	0.0079	21.999
CNCHA118J	A	C1	1	1	21.315	0.158	20	LGM	0.0079	21.632
CNCHA215J	A	C2	1	2	19.763	0.161	20	LGM	0.0080	20.375
CNCHA216J	A	C2	1	2	19.800	0.158	20	LGM	0.0079	20.085
CNCHA217J	A	C2	1	2	19.319	0.161	20	LGM	0.0080	19.936
CNCHA218J	A	C2	1	2	17.119	0.162	20	MGM	0.0081	17.741
CNCHA219J	A	C2	1	2	22.044	0.161	20	AGM	0.0081	22.760
CNCHA21AJ	A	C2	1	2	20.898	0.161	20	AGM	0.0081	21.570
CNCHB115J	B	C1	2	1	21.710	0.155	20	LGM	0.0077	21.562
CNCHB116J	B	C1	2	1	22.205	0.152	20	LGM / AGM	0.0076	21.622
CNCHB117J	B	C1	2	1	21.985	0.154	20	LGM	0.0077	21.670
CNCHB118J	B	C1	2	1	21.397	0.156	20	LGM / AGM	0.0078	21.330
CNCHB119J	B	C1	2	1	21.616	0.156	20	LGM	0.0078	21.657
CNCHB11AJ	B	C1	2	1	21.685	0.157	20	LGM	0.0078	21.784
CNCHB215J	B	C2	2	2	21.796	0.155	20	LGM	0.0078	21.687
CNCHB216J	B	C2	2	2	21.458	0.151	20	LGM	0.0075	20.740
CNCHB217J	B	C2	2	2	21.470	0.153	20	LGM	0.0076	21.012
CNCHB218J	B	C2	2	2	23.022	0.154	20	LGM	0.0077	22.663
CNCHB219J	B	C2	2	2	22.252	0.155	20	LGM	0.0077	22.050
CNCHB21AJ	B	C2	2	2	21.895	0.154	20	LGM	0.0077	21.659
CNCHC116J	C	C1	3	1	24.476	0.148	20	LGM/AGM	0.0074	23.215
CNCHC117J	C	C1	3	1	24.719	0.152	20	AGM	0.0076	24.083
CNCHC118J	C	C1	3	1	23.730	0.153	20	LGM	0.0077	23.319
CNCHC119J	C	C1	3	1	23.192	0.154	20	AGM	0.0077	22.882
CNCHC215J	C	C2	3	2	23.943	0.156	20	LGM/AGM	0.0078	23.914
CNCHC216J	C	C2	3	2	23.106	0.151	20	AGM	0.0076	22.407
CNCHC217J	C	C2	3	2	23.186	0.153	20	LGM/AGM	0.0077	22.741

Average	21.787	
Standard Dev.	1.611	
Coeff. of Var. [%]	7.395	
Min.	17.119	
Max.	24.719	
Number of Spec.	29	

$Average_{norm}$	0.0078	21.684
$Standard\ Dev._{norm}$		1.324
$Coeff.\ of\ Var.\ [\%]_{norm}$		6.104
Min.	0.0074	17.741
Max.	0.0081	24.083
Number of Spec.		29


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

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

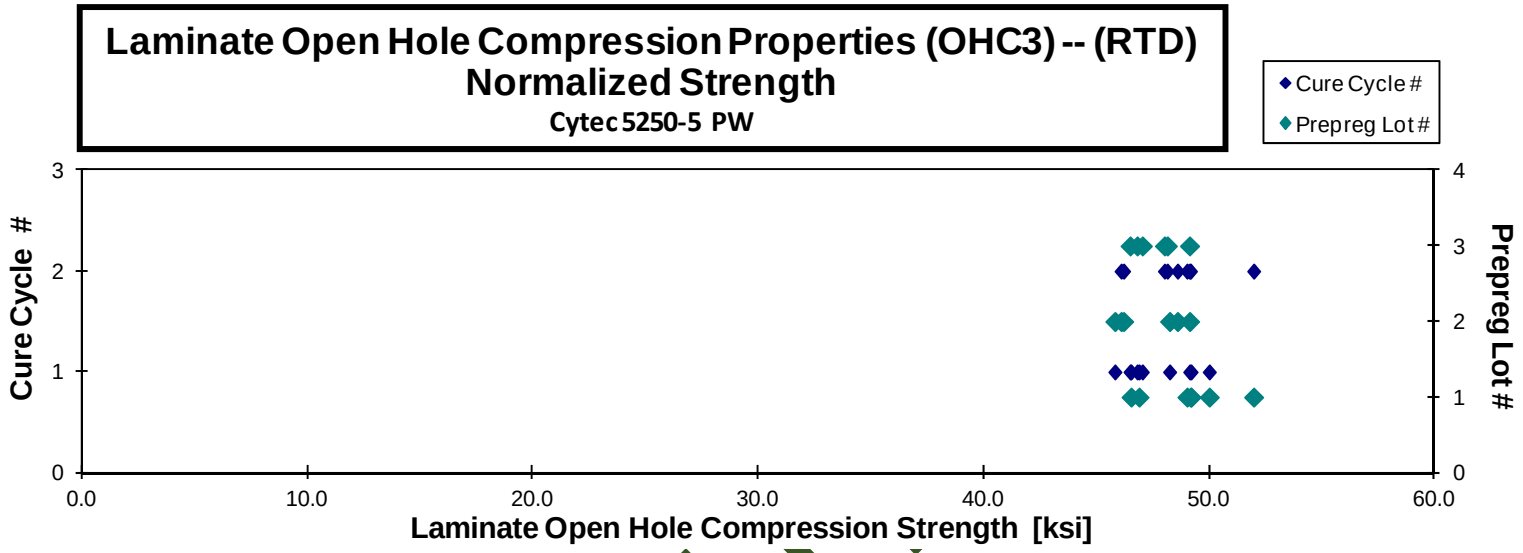
Laminate Open Hole Compression Properties (OHC3) -- (RTD) Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCIA111A	A	C1	1	1	47.689	0.152	20	LGM	0.0076	46.512
CNCIA112A	A	C1	1	1	47.096	0.155	20	LGM	0.0078	46.869
CNCIA113A	A	C1	1	1	48.938	0.157	20	LGM	0.0078	49.173
CNCIA114A	A	C1	1	1	49.580	0.157	20	LGM	0.0079	49.983
CNCIA211A	A	C2	1	2	49.494	0.155	20	LGM	0.0077	49.150
CNCIA212A	A	C2	1	2	47.899	0.160	20	LGM	0.0080	48.994
CNCIA213A	A	C2	1	2	50.297	0.161	20	LGM	0.0081	51.952
CNCIB111A	B	C1	2	1	47.239	0.151	20	LGM	0.0076	45.796
CNCIB112A	B	C1	2	1	49.051	0.153	20	LGM	0.0077	48.223
CNCIB113A	B	C1	2	1	49.536	0.155	20	LGM	0.0077	49.112
CNCIB211A	B	C2	2	2	47.924	0.150	20	LGM	0.0075	46.183
CNCIB212A	B	C2	2	2	46.954	0.153	20	LGM	0.0077	46.071
CNCIB213A	B	C2	2	2	49.300	0.154	20	LGM	0.0077	48.574
CNCIC111A	C	C1	3	1	48.478	0.151	20	LGM	0.0075	46.785
CNCIC112A	C	C1	3	1	47.849	0.152	20	LGM	0.0076	46.469
CNCIC113A	C	C1	3	1	48.140	0.152	20	LGM	0.0076	47.013
CNCIC211A	C	C2	3	2	50.856	0.151	20	LGM	0.0075	49.106
CNCIC212A	C	C2	3	2	49.286	0.152	20	LGM	0.0076	47.996
CNCIC213A	C	C2	3	2	49.322	0.152	20	LGM	0.0076	48.121

	Strength [ksi]
Average	48.680
Standard Dev.	1.097
Coeff. of Var. [%]	2.254
Min.	46.954
Max.	50.856
Number of Spec.	19

	t_{ply} [in]	$Strength_{norm}$ [ksi]
$Average_{norm}$	0.0077	48.004
$Standard\ Dev._{norm}$		1.603
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.340
Min.	0.0075	45.796
Max.	0.0081	51.952
Number of Spec.		19



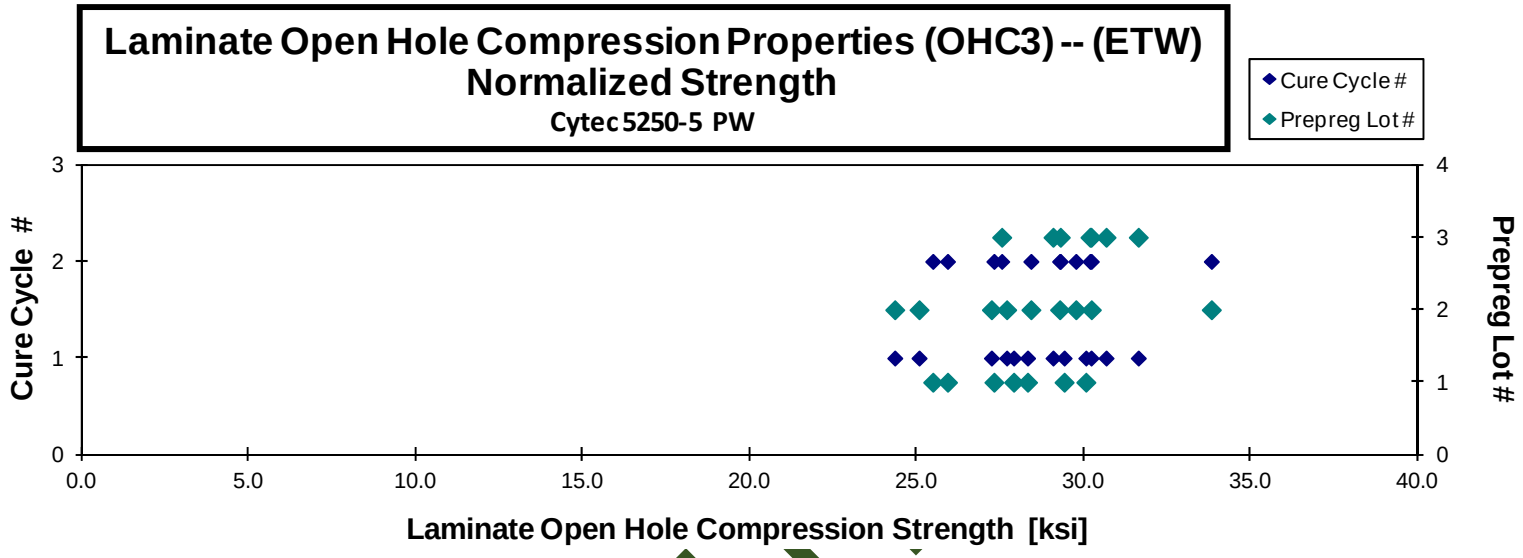
Laminate Open Hole Compression Properties (OHC3) -- (ETW)
Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Modes	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNCIA116J	A	C1	1	1	29.131	0.158	20	LGM	0.0079	29.414
CNCIA117J	A	C1	1	1	28.703	0.152	20	LGM	0.0076	27.903
CNCIA118J	A	C1	1	1	28.577	0.155	20	LGM	0.0077	28.318
CNCIA119J	A	C1	1	1	30.032	0.156	20	LGM	0.0078	30.064
CNCIA215J	A	C2	1	2	24.618	0.161	20	LGM	0.0081	25.480
CNCIA216J	A	C2	1	2	25.548	0.158	20	LGM	0.0079	25.922
CNCIA217J	A	C2	1	2	26.582	0.160	20	LGM	0.0080	27.312
CNCIB115J	B	C1	2	1	27.872	0.155	20	LGM	0.0078	27.693
CNCIB116J	B	C1	2	1	28.027	0.152	20	LGM	0.0076	27.237
CNCIB117J	B	C1	2	1	25.495	0.153	20	LGM	0.0077	25.070
CNCIB118J	B	C1	2	1	24.548	0.155	20	LGM	0.0077	24.343
CNCIB215J	B	C2	2	2	33.941	0.155	20	LGM	0.0078	33.821
CNCIB216J	B	C2	2	2	31.321	0.151	20	LGM	0.0075	30.227
CNCIB217J	B	C2	2	2	29.005	0.153	20	LGM	0.0076	28.419
CNCIB218J	B	C2	2	2	29.628	0.154	20	LGM	0.0077	29.279
CNCIB219J	B	C2	2	2	29.927	0.155	20	LGM	0.0078	29.764
CNCIC115J	C	C1	3	1	31.048	0.154	20	LGM	0.0077	30.670
CNCIC116J	C	C1	3	1	29.995	0.151	20	LGM	0.0076	29.082
CNCIC117J	C	C1	3	1	30.914	0.153	20	LGM	0.0076	30.221
CNCIC118J	C	C1	3	1	32.255	0.153	20	LGM	0.0077	31.635
CNCIC216J	C	C2	3	2	31.525	0.149	20	LGM	0.0075	30.188
CNCIC217J	C	C2	3	2	30.176	0.151	20	LGM	0.0076	29.299
CNCIC218J	C	C2	3	2	28.235	0.152	20	LGM	0.0076	27.544

Average	29.005	
Standard Dev.	2.445	
Coeff. of Var. [%]	8.429	
Min.	24.548	
Max.	33.941	
Number of Spec.	23	

$Average_{norm}$	0.0077	28.648
$Standard\ Dev._{norm}$		2.209
$Coeff.\ of\ Var.\ [\%]_{norm}$		7.712
Min.	0.0075	24.343
Max.	0.0081	33.821
Number of Spec.		23


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

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

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

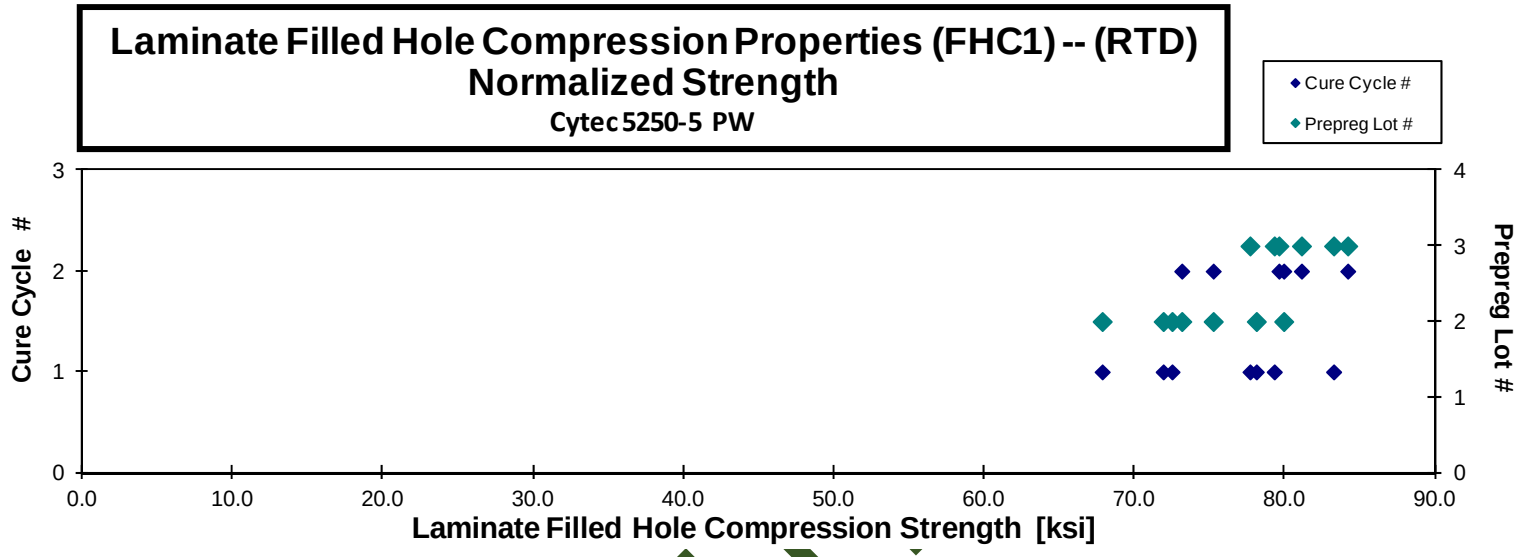
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC7B111A	B	C1	2	1	75.784	0.148	20	MGF	0.0074	71.906
CNC7B112A	B	C1	2	1	70.194	0.151	20	LGF	0.0075	67.847
CNC7B113A	B	C1	2	1	74.119	0.153	20	MGF	0.0076	72.496
CNC7B114A	B	C1	2	1	79.091	0.154	20	LGF	0.0077	78.102
CNC7B211A	B	C2	2	2	76.173	0.150	20	LGM / AGM	0.0075	73.145
CNC7B212A	B	C2	2	2	81.736	0.153	20	LGF / AGM	0.0076	79.928
CNC7B213A	B	C2	2	2	76.303	0.154	20	LGF	0.0077	75.236
CNC7C111A	C	C1	3	1	85.467	0.152	20	MGF	0.0076	83.248
CNC7C112A	C	C1	3	1	80.146	0.154	20	LGF	0.0077	79.298
CNC7C114A	C	C1	3	1	77.931	0.156	20	AGM	0.0078	77.681
CNC7C212A	C	C2	3	2	85.138	0.149	20	LGF	0.0074	81.108
CNC7C213A	C	C2	3	2	87.418	0.150	20	LGF / AGF	0.0075	84.187
CNC7C215A	C	C2	3	2	81.535	0.152	20	LGF	0.0076	79.609

* Bad failures obtained on Batch A, so data is excluded

	Strength [ksi]
Average	79.310
Standard Dev.	4.937
Coeff. of Var. [%]	6.225
Min.	70.194
Max.	87.418
Number of Spec.	13

	t_{ply} [in]	$Strength_{norm}$ [ksi]
Average	0.0076	77.215
Standard Dev.		4.807
Coeff. of Var. [%]		6.226
Min.	0.0074	67.847
Max.	0.0078	84.187
Number of Spec.		13


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

Laminate Filled Hole Compression Properties (FHC1) -- (ETW)
Strength
Cytec 5250-5 PW

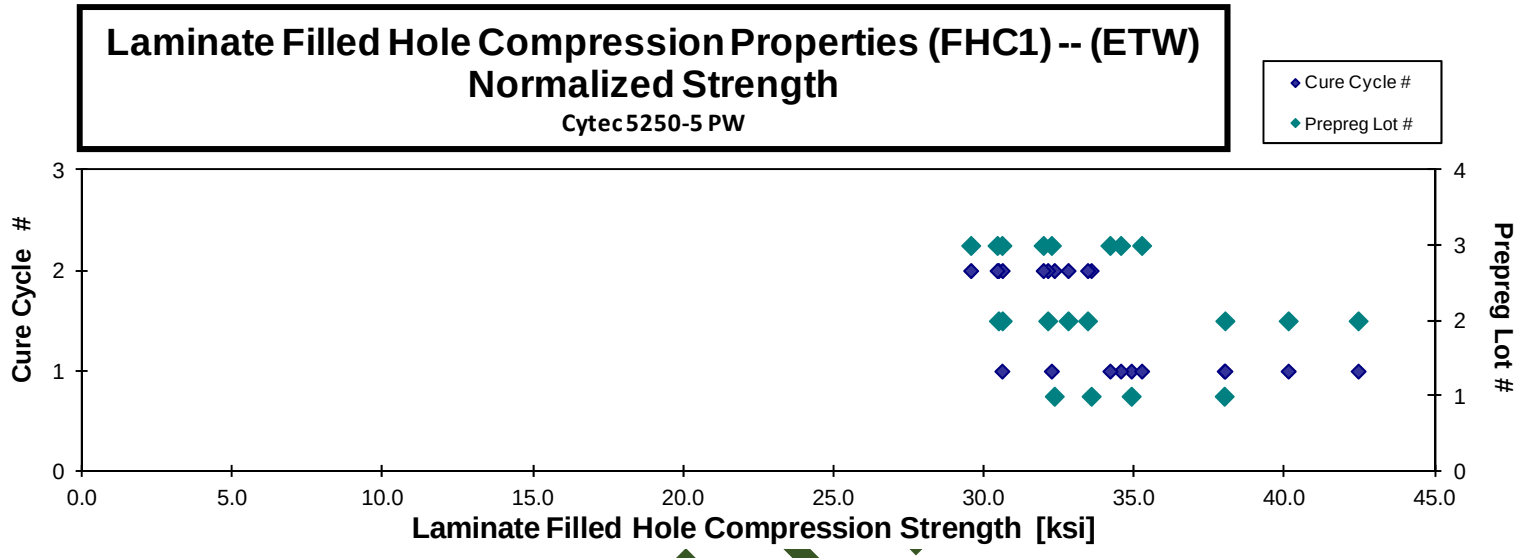
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC7A119J	A	C1	1	1	37.456	0.158	20	LGF	0.0079	37.984
CNC7A11AJ	A	C1	1	1	34.273	0.159	20	LGF	0.0079	34.888
CNC7A219J	A	C2	1	2	32.598	0.161	20	LGF	0.0080	33.556
CNC7A21AJ	A	C2	1	2	31.314	0.161	20	LGF	0.0081	32.331
CNC7B116J*	B	C1	2	1	39.792	0.149	20	LGF	0.0075	38.007
CNC7B119J*	B	C1	2	1	42.663	0.155	20	LGF	0.0078	42.439
CNC7B11AJ*	B	C1	2	1	40.444	0.155	20	LGF	0.0077	40.112
CNC7B216J	B	C2	2	2	31.576	0.151	20	LGF	0.0075	30.473
CNC7B217J	B	C2	2	2	34.031	0.153	20	LGF	0.0077	33.438
CNC7B218J	B	C2	2	2	32.583	0.154	20	LGF	0.0077	32.110
CNC7B219J	B	C2	2	2	30.875	0.155	20	LGF	0.0077	30.598
CNC7B21AJ	B	C2	2	2	33.130	0.154	20	LGF	0.0077	32.787
CNC7C116J	C	C1	3	1	35.458	0.152	20	LGF	0.0076	34.538
CNC7C117J	C	C1	3	1	32.586	0.154	20	LGF	0.0077	32.234
CNC7C118J	C	C1	3	1	30.709	0.155	20	LGF	0.0078	30.587
CNC7C119J	C	C1	3	1	34.310	0.155	20	LGF	0.0078	34.181
CNC7C11AJ	C	C1	3	1	35.370	0.155	20	LGF	0.0078	35.237
CNC7C216J	C	C2	3	2	33.239	0.150	20	LGF	0.0075	31.960
CNC7C217J	C	C2	3	2	31.501	0.151	20	LGF	0.0075	30.427
CNC7C218J	C	C2	3	2	30.334	0.152	20	LGF	0.0076	29.550

*** High CV Investigated, Cure Cycle 1 from Batch B seems to have higher strength**

		$Strength_{norm}$
Average	34.212	33.872
Standard Dev.	3.449	3.454
Coeff. of Var. [%]	10.081	10.197
Min.	30.334	29.550
Max.	42.663	42.439
Number of Spec.	20	20

	t_{ply}	$Strength_{norm}$
Average	0.0077	33.872
Standard Dev.		3.454
Coeff. of Var. [%]		10.197
Min.	0.0075	29.550
Max.	0.0081	42.439
Number of Spec.		20


Laminate Filled Hole Compression Properties (FHC1) -- (ETW)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
Laminate Filled Hole Compression Strength [ksi]

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

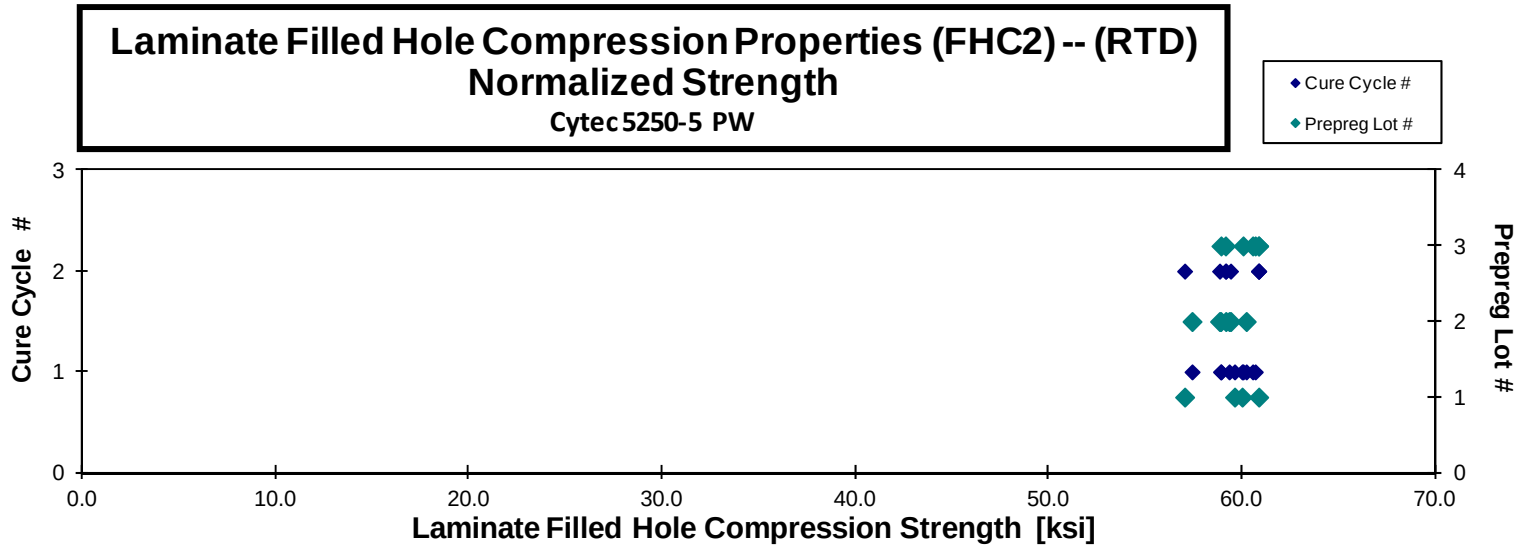
Laminate Filled Hole Compression Properties (FHC2) -- (RTD) Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC8A115A	A	C1	1	1	58.196	0.160	20	AGF	0.0080	59.620
CNC8A116A	A	C1	1	1	58.692	0.160	20	AGF	0.0080	60.009
CNC8A211A	A	C2	1	2	56.800	0.157	20	AGF	0.0078	57.037
CNC8A215A	A	C2	1	2	59.454	0.160	20	AGF	0.0080	60.870
CNC8B111A	B	C1	2	1	57.434	0.156	20	LGF	0.0078	57.422
CNC8B112A	B	C1	2	1	60.127	0.156	20	LGF / AGF	0.0078	60.223
CNC8B113A	B	C1	2	1	58.876	0.156	20	AGF	0.0078	58.902
CNC8B114A	B	C1	2	1	59.841	0.155	20	AGF	0.0077	59.342
CNC8B211A	B	C2	2	2	60.996	0.152	20	AGF	0.0076	59.412
CNC8B212A	B	C2	2	2	60.013	0.154	20	AGO	0.0077	59.167
CNC8B213A	B	C2	2	2	59.372	0.155	20	AGF	0.0077	58.846
CNC8C111A	C	C1	3	1	61.870	0.153	20	AGO	0.0076	60.561
CNC8C113A	C	C1	3	1	59.714	0.154	20	AGF	0.0077	58.917
CNC8C114A	C	C1	3	1	60.705	0.154	20	AGF	0.0077	60.063
CNC8C115A	C	C1	3	1	61.253	0.155	20	AGF	0.0077	60.690
CNC8C211A	C	C2	3	2	62.002	0.153	20	AGM	0.0077	60.862
CNC8C212A	C	C2	3	2	59.861	0.154	20	AGF	0.0077	59.151
CNC8C215A	C	C2	3	2	61.057	0.156	20	AGF	0.0078	60.868

	Strength [ksi]
Average	59.792
Standard Dev.	1.430
Coeff. of Var. [%]	2.392
Min.	56.800
Max.	62.002
Number of Spec.	18

	t_{ply} [in]	$Strength_{norm}$ [ksi]
Average	0.0078	59.553
Standard Dev.		1.111
Coeff. of Var. [%]		1.866
Min.	0.0076	57.037
Max.	0.0080	60.870
Number of Spec.		18


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

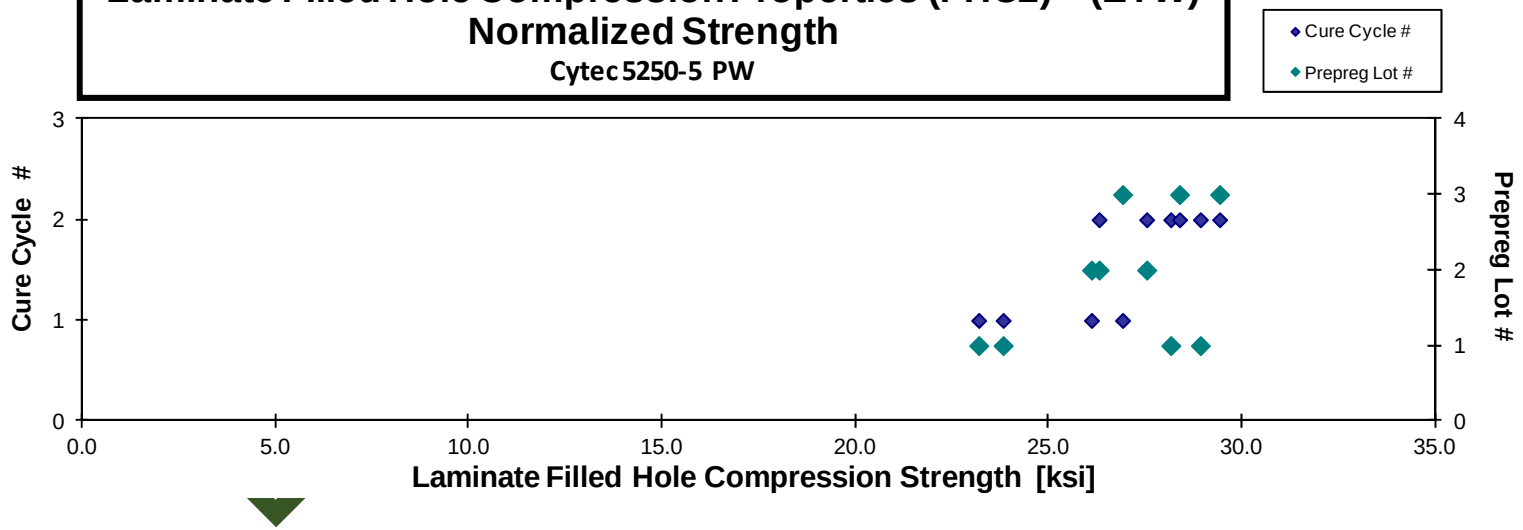
Laminate Filled Hole Compression Properties (FHC2) -- (ETW) Strength
Cytec 5250-5 PW

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC8A11AJ	A	C1	1	1	23.239	0.160	20	LGF	0.0080	23.822
CNC8A11BJ	A	C1	1	1	22.558	0.160	20	LGF	0.0080	23.190
CNC8A218J	A	C2	1	2	27.480	0.160	20	LGF	0.0080	28.161
CNC8A219J	A	C2	1	2	28.209	0.160	20	LGF	0.0080	28.926
CNC8B11AJ	B	C1	2	1	26.708	0.153	20	LGF	0.0076	26.109
CNC8B218J	B	C2	2	2	27.894	0.154	20	LGF	0.0077	27.537
CNC8B219J	B	C2	2	2	26.496	0.155	20	LGF	0.0077	26.306
CNC8C119J	C	C1	3	1	27.159	0.155	20	LGF	0.0077	26.913
CNC8C217J	C	C2	3	2	29.861	0.154	20	LGF	0.0077	29.424
CNC8C218J	C	C2	3	2	28.680	0.154	20	LGF	0.0077	28.386

	Strength [ksi]	t_{ply} [in]	$Strength_{norm}$ [ksi]
Average	26.828	$Average_{norm}$	0.0078	26.877
Standard Dev.	2.296	$Standard\ Dev._{norm}$		2.079
Coeff. of Var. [%]	8.559	$Coeff.\ of\ Var.\ [\%]_{norm}$		7.735
Min.	22.558	Min.	0.0076	23.190
Max.	29.861	Max.	0.0080	29.424
Number of Spec.	10	Number of Spec.		10

Laminate Filled Hole Compression Properties (FHC2) -- (ETW) Normalized Strength
Cytec 5250-5 PW



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

Laminate Filled Hole Compression Properties (FHC3) -- (RTD) Strength
Cytec 5250-5 PW

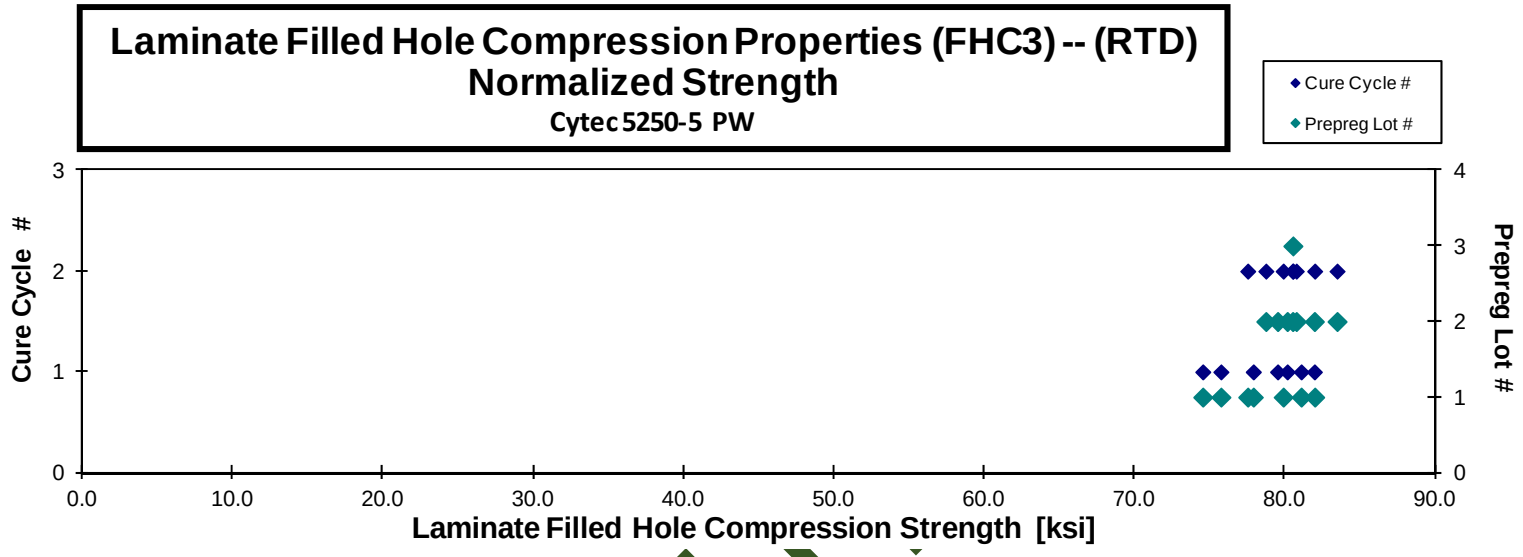
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC9A112A	A	C1	1	1	76.548	0.154	20	LGC	0.0077	75.747
CNC9A113A	A	C1	1	1	77.886	0.156	20	MGF	0.0078	77.902
CNC9A115A	A	C1	1	1	74.036	0.157	20	LGF	0.0079	74.542
CNC9A116A	A	C1	1	1	80.367	0.157	20	LGF	0.0079	81.089
CNC9A211A	A	C2	1	2	76.925	0.157	20	LGF	0.0079	77.534
CNC9A213A	A	C2	1	2	77.731	0.160	20	LGF	0.0080	79.890
CNC9A214A	A	C2	1	2	79.664	0.161	20	MGF	0.0080	81.987
CNC9B112A	B	C1	2	1	81.446	0.154	20	LGF	0.0077	80.159
CNC9B113A	B	C1	2	1	82.914	0.154	20	LGF	0.0077	81.966
CNC9B114A	B	C1	2	1	80.498	0.154	20	LGF	0.0077	79.518
CNC9B211A	B	C2	2	2	83.640	0.150	20	LGF	0.0075	80.521
CNC9B213A	B	C2	2	2	80.029	0.153	20	LGM	0.0077	78.738
CNC9B214A	B	C2	2	2	82.103	0.153	20	LGF	0.0077	80.761
CNC9B215A	B	C2	2	2	84.669	0.154	20	LGF	0.0077	83.475
CNC9C111A*	C	C1	3	1		0.151	20	BAD FAILURE	0.0075	
CNC9C112A*	C	C1	3	1		0.153	20	BAD FAILURE	0.0077	
CNC9C113A*	C	C1	3	1		0.154	20	BAD FAILURE	0.0077	
CNC9C114A*	C	C1	3	1		0.154	20	BAD FAILURE	0.0077	
CNC9C211A*	C	C2	3	2		0.151	20	BAD FAILURE	0.0075	
CNC9C212A	C	C2	3	2	82.702	0.152	20	LGF	0.0076	80.537
CNC9C215A*	C	C2	3	2		0.154	20	BAD FAILURE	0.0077	

*Compressive strength is not reported as unacceptable failure mode was observed

Average	80.077	
Standard Dev.	2.980	
Coeff. of Var. [%]	3.721	
Min.	74.036	
Max.	84.669	
Number of Spec.	15	

$Average_{norm}$	0.0077	79.624
$Standard\ Dev._{norm}$		2.395
$Coeff.\ of\ Var.\ [\%]_{norm}$		3.008
Min.	0.0075	74.542
Max.	0.0080	83.475
Number of Spec.		15

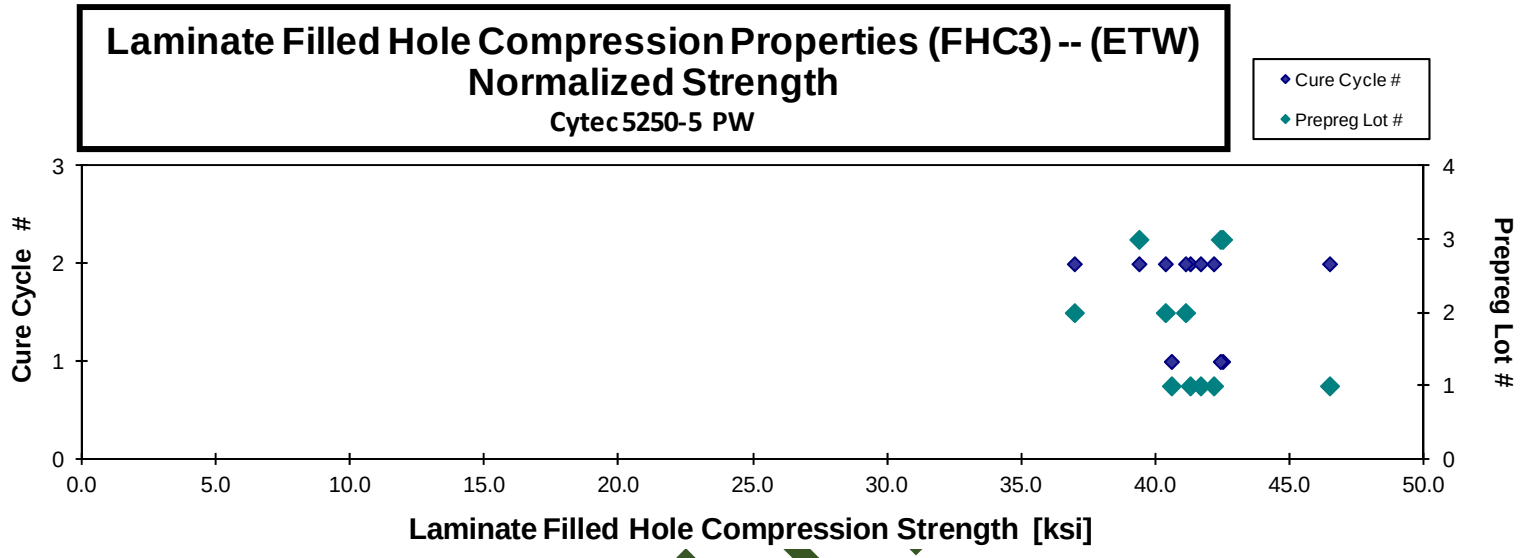

Laminate Filled Hole Compression Properties (FHC3) -- (RTD)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
90.0
Laminate Filled Hole Compression Strength [ksi]

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

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	$Strength_{norm}$ [ksi]
CNC9A11BJ	A	C1	1	1	39.995	0.158	20	LGF	0.0079	40.581
CNC9A11CJ	A	C1	1	2	45.957	0.158	20	LGF	0.0079	46.473
CNC9A217J	A	C2	1	2	40.106	0.161	20	LGF	0.0080	41.280
CNC9A218J	A	C2	1	2	40.790	0.161	20	LGF	0.0081	42.154
CNC9A219J	A	C2	1	2	40.208	0.162	20	LGF	0.0081	41.665
CNC9B216J	B	C2	2	2	38.616	0.149	20	LGF	0.0075	36.966
CNC9B217J	B	C2	2	2	42.320	0.152	20	LGF	0.0076	41.108
CNC9B218J	B	C2	2	2	41.288	0.152	20	LGF	0.0076	40.357
CNC9C118J	C	C1	3	1	43.550	0.152	20	LGF	0.0076	42.490
CNC9C119J	C	C1	3	1	43.189	0.153	20	LGF	0.0077	42.405
CNC9C217J	C	C2	3	2	40.471	0.152	20	LGF	0.0076	39.373

	Strength [ksi]		$Strength_{norm}$ [ksi]
Average	41.499	$Average_{norm}$	41.350
Standard Dev.	2.083	$Standard\ Dev._{norm}$	2.327
Coeff. of Var. [%]	5.020	$Coeff.\ of\ Var.\ [\%]_{norm}$	5.629
Min.	38.616	Min.	36.966
Max.	45.957	Max.	46.473
Number of Spec.	11	Number of Spec.	11


Laminate Filled Hole Compression Properties (FHC3) -- (ETW)
Normalized Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Laminate Filled Hole Compression Strength [ksi]

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

Laminate Single Shear Bearing Properties (SSB1) -- (RTD)
Strength
Cytec 5250-5 PW

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Comments
CNC1A111A	A	C1	1	1	104.227	132.755	0.061	8	B1I
CNC1A112A	A	C1	1	1	117.227	133.215	0.060	8	B1I
CNC1A113A	A	C1	1	1	111.437	130.621	0.061	8	B1I
CNC1A114A	A	C1	1	1		127.839	0.062	8	B1I
CNC1A115A	A	C1	1	1	117.409	127.670	0.063	8	B1I
CNC1A211A	A	C2	1	2	110.283	123.520	0.061	8	B1I
CNC1A212A	A	C2	1	2	110.290	134.867	0.061	8	B1I
CNC1A213A	A	C2	1	2	111.013	127.363	0.062	8	B1I
CNC1B111A	B	C1	2	1	123.895	134.154	0.061	8	B1I
CNC1B112A	B	C1	2	1	122.176	130.789	0.061	8	B1I
CNC1B113A	B	C1	2	1	126.644	137.723	0.061	8	B1I
CNC1B211A	B	C2	2	2	111.834	130.788	0.060	8	B1I
CNC1B212A	B	C2	2	2	110.076	136.158	0.061	8	B1I
CNC1B213A	B	C2	2	2	123.043	132.878	0.060	8	B1I
CNC1C111A	C	C1	3	1	112.449	134.003	0.062	8	B1I
CNC1C112A	C	C1	3	1	119.576	131.856	0.063	8	B1I
CNC1C113A	C	C1	3	1	124.302	128.046	0.062	8	B1I
CNC1C211A	C	C2	3	2	115.406	136.445	0.060	8	B1I
CNC1C212A	C	C2	3	2	120.565	150.739	0.060	8	B1I
CNC1C213A	C	C2	3	2	125.930	136.913	0.060	8	B1I

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

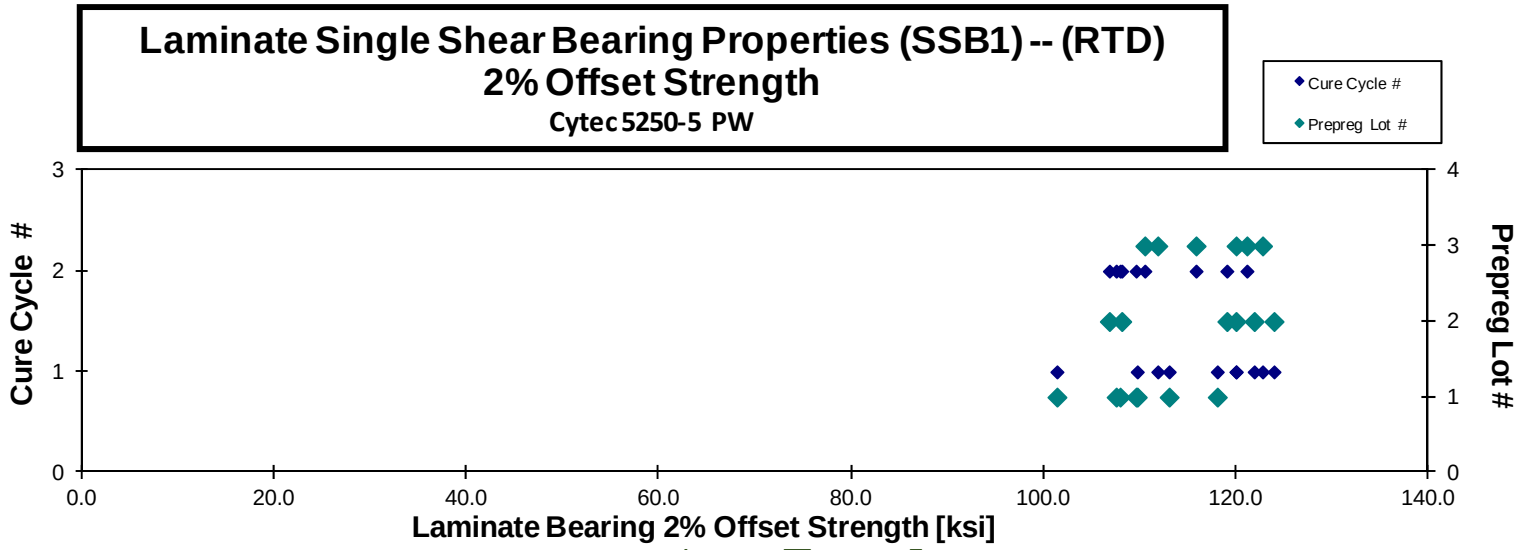
CNC1A114A- Clip gage bracket slipped during testing there fore 2% data was not reported

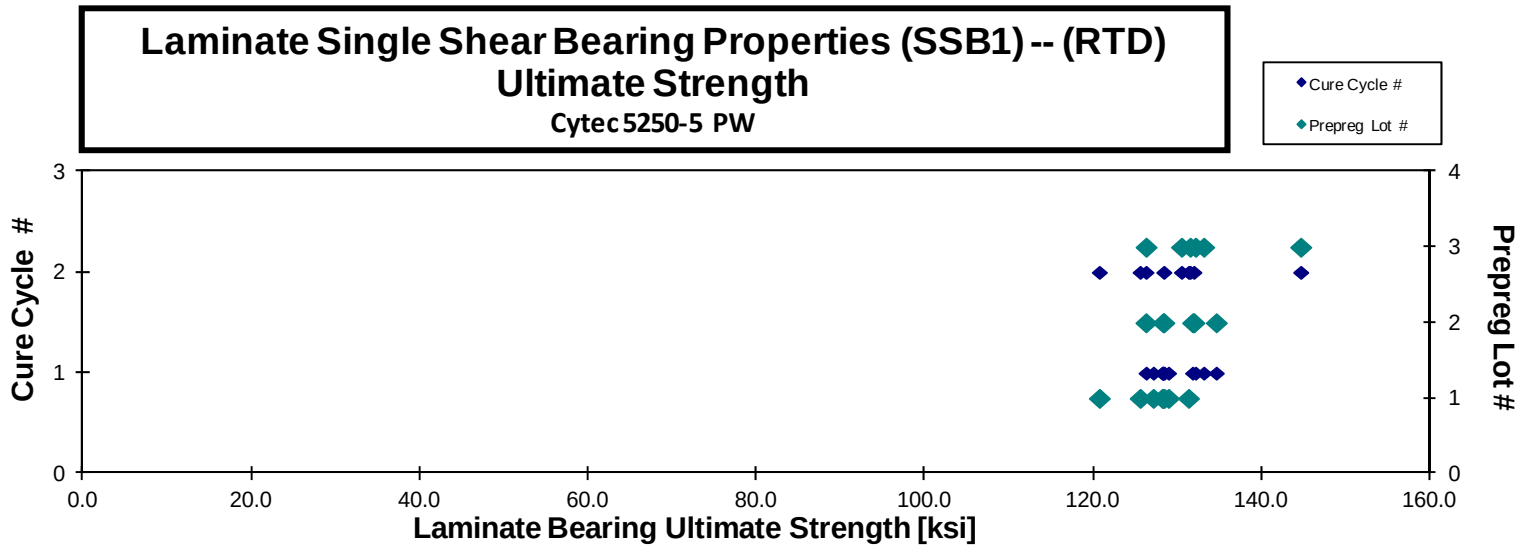
	2% Offset [ksi]	Ultimate Strength [ksi]
Average	116.725	132.917
Standard Dev.	6.553	5.610
Coeff. of Var. [%]	5.614	4.221
Min.	104.227	123.520
Max.	126.644	150.739
Number of Spec.	19	20

normalizing t_{ply} [in]: 0.0078

Specimen Number	Avg. t_{ply} [in]	2% Offset$_{norm}$ [ksi]	Ultimate Bearing$_{norm}$ [ksi]
CNC1A111A	0.0076	101.304	129.032
CNC1A112A	0.0075	112.968	128.376
CNC1A113A	0.0077	109.652	128.528
CNC1A114A	0.0078		127.225
CNC1A115A	0.0078	117.973	128.284
CNC1A211A	0.0076	107.868	120.814
CNC1A212A	0.0076	107.462	131.409
CNC1A213A	0.0077	109.531	125.662
CNC1B111A	0.0077	121.810	131.896
CNC1B112A	0.0077	119.924	128.378
CNC1B113A	0.0076	123.871	134.707
CNC1B211A	0.0075	108.041	126.351
CNC1B212A	0.0076	106.754	132.048
CNC1B213A	0.0075	118.968	128.477
CNC1C111A	0.0078	111.788	133.215
CNC1C112A	0.0078	119.928	132.244
CNC1C113A	0.0077	122.675	126.370
CNC1C211A	0.0075	110.444	130.578
CNC1C212A	0.0075	115.767	144.740
CNC1C213A	0.0075	121.053	131.610

	Avg. t_{ply}	2% Offset$_{norm}$	Ultimate Bearing$_{norm}$
Average	0.0076	114.094	129.997
Standard Dev.		6.600	4.693
Coeff. of Var. [%]		5.785	3.610
Min.	0.0075	101.304	120.814
Max.	0.0078	123.871	144.740
Number of Spec.	20	19	20


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


Laminate Single Shear Bearing Properties (SSB1) -- (RTD)
Ultimate Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
Laminate Bearing Ultimate Strength [ksi]

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

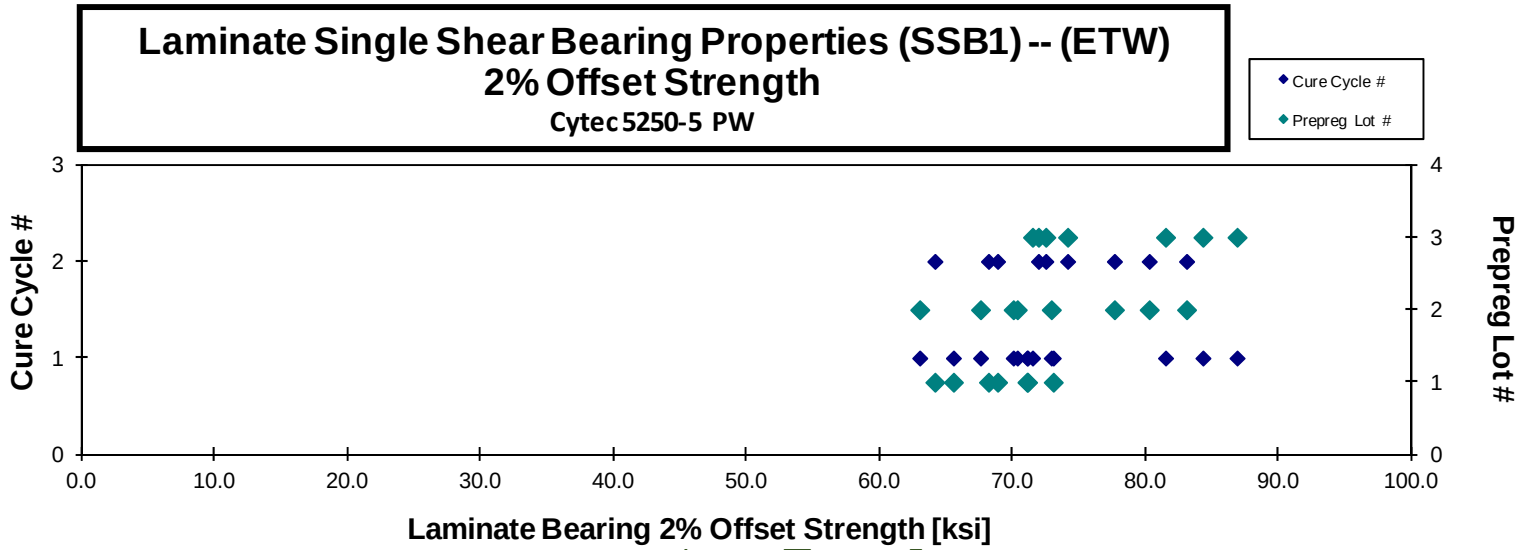
Cytec 5250-5 PW

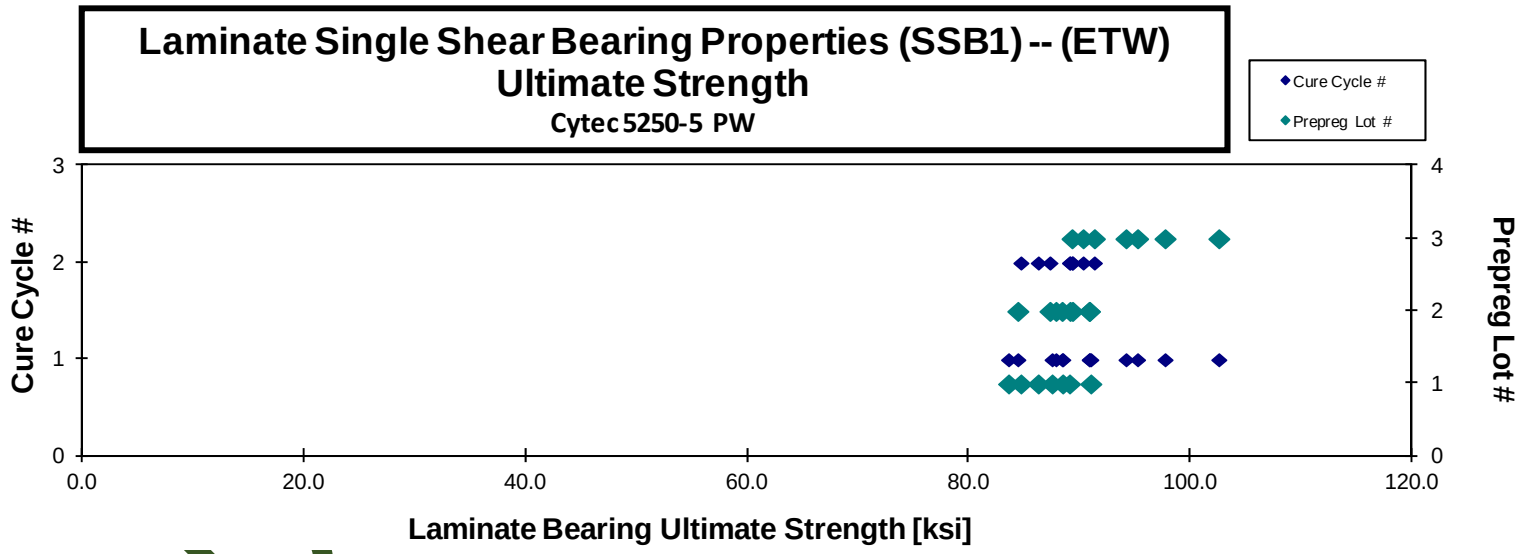
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	2% Offset$_{norm}$ [ksi]	Ultimate Bearing$_{norm}$ [ksi]
CNC1A116J	A	C1	1	1	71.940	84.598	0.062	8	B1I	0.0077	71.114	83.626
CNC1A117J	A	C1	1	1	72.070	89.758	0.062	8	B1I	0.0077	71.069	88.512
CNC1A118J	A	C1	1	1	67.466	93.722	0.061	8	B1I	0.0076	65.538	91.043
CNC1A119J	A	C1	1	1	74.660	89.490	0.061	8	B1I	0.0076	73.045	87.554
CNC1A216J	A	C2	1	2	68.139	86.256	0.062	8	B1I	0.0078	68.176	86.302
CNC1A217J	A	C2	1	2	68.436	88.578	0.063	8	B1I	0.0078	68.857	89.123
CNC1A218J	A	C2	1	2	64.010	84.550	0.063	8	B1I	0.0078	64.146	84.731
CNC1B116J	B	C1	2	1	63.311	84.867	0.062	8	B1I	0.0078	63.007	84.459
CNC1B117J	B	C1	2	1	70.242	91.190	0.062	8	B1I	0.0078	70.036	90.922
CNC1B118J	B	C1	2	1	73.053	88.087	0.062	8	B1I	0.0078	72.897	87.898
CNC1B119J	B	C1	2	1	67.325	90.557	0.063	8	B1I	0.0078	67.576	90.896
CNC1B11AJ	B	C1	2	1	70.377	88.502	0.062	8	B1I	0.0078	70.339	88.454
CNC1B216J	B	C2	2	2	82.103	89.360	0.061	8	B1I	0.0076	80.261	87.355
CNC1B217J	B	C2	2	2	84.536	90.746	0.061	8	B1I	0.0077	83.068	89.171
CNC1B218J	B	C2	2	2	79.384	91.393	0.061	8	B1I	0.0076	77.645	89.391
CNC1C116J	C	C1	3	1	86.094	104.780	0.061	8	B1I	0.0076	84.300	102.597
CNC1C117J	C	C1	3	1	72.064	96.034	0.062	8	B1I	0.0077	71.487	95.265
CNC1C118J	C	C1	3	1	83.358	96.378	0.061	8	B1I	0.0076	81.487	94.216
CNC1C119J	C	C1	3	1	88.690	99.793	0.061	8	B1I	0.0076	86.866	97.740
CNC1C216J	C	C2	3	2	75.374	92.906	0.061	8	B1I	0.0077	74.125	91.367
CNC1C217J	C	C2	3	2	73.387	91.475	0.062	8	BI1	0.0077	72.485	90.351
CNC1C218J	C	C2	3	2	73.185	90.902	0.061	8	B1I	0.0077	71.934	89.348
									Ultimate Bearing Strength / B1I: B:Bearing, 1:first hole, I: Inapplicable (not on bolt, nut or head side)			

Average	74.055	91.087	
Standard Dev.	7.122	4.893	
Coeff. of Var. [%]	9.617	5.372	
Min.	63.311	84.550	
Max.	88.690	104.780	
Number of Spec.	22.000	22	

Average	0.0077	73.157	90.015
Standard Dev.		6.543	4.396
Coeff. of Var. [%]		8.944	4.884
Min.	0.0076	63.007	83.626
Max.	0.0078	86.866	102.597
Number of Spec.	22	22	22


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


Laminate Single Shear Bearing Properties (SSB1) -- (ETW)
Ultimate Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Laminate Bearing Ultimate Strength [ksi]

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

Laminate Single Shear Bearing Properties (SSB2) -- (RTD)
Strength & Modulus
Cytec 5250-5 PW

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Comments
CNC2A111A	A	C1	1	1	112.746	139.922	0.075	10	B1I
CNC2A112A	A	C1	1	1	115.892	130.433	0.078	10	B1I
CNC2A113A	A	C1	1	1	113.540	131.535	0.078	10	B1I
CNC2A114A	A	C1	1	1	113.730	136.060	0.077	10	B1I
CNC2A211A	A	C2	1	2	112.526	132.027	0.078	10	B1I
CNC2A212A	A	C2	1	2	118.988	125.366	0.079	10	B1I
CNC2A213A	A	C2	1	2	108.638	132.947	0.077	10	B1I
CNC2B111A	B	C1	2	1	110.429	134.670	0.078	10	B1I
CNC2B112A	B	C1	2	1	111.627	130.917	0.079	10	B1I
CNC2B113A	B	C1	2	1	111.095	134.378	0.078	10	B1I
CNC2B211A	B	C2	2	2	121.732	139.523	0.075	10	B1I
CNC2B212A	B	C2	2	2	114.971	135.527	0.076	10	B1I
CNC2B213A	B	C2	2	2	113.522	133.623	0.077	10	B1I
CNC2C111A	C	C1	3	1	119.151	130.954	0.077	10	B1I
CNC2C112A	C	C1	3	1	115.754	130.517	0.077	10	B1I
CNC2C113A	C	C1	3	1	115.150	139.324	0.077	10	B1I
CNC2C211A	C	C2	3	2	122.817	145.331	0.075	10	B1I
CNC2C212A	C	C2	3	2	113.418	134.516	0.076	10	B1I
CNC2C213A	C	C2	3	2	114.562	136.747	0.076	10	B1I

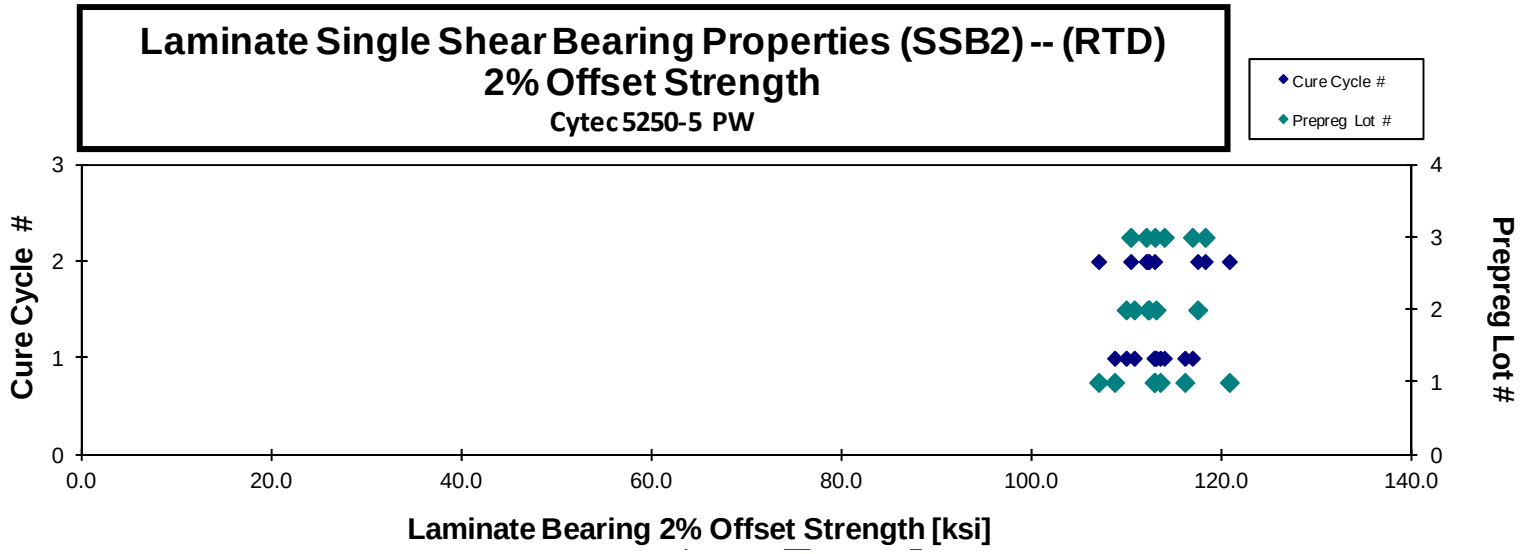
Ultimate Bearing Strength / B1I: B:Bearing, 1:first hole, I: Inapplicable (not on bolt, nut or head side)

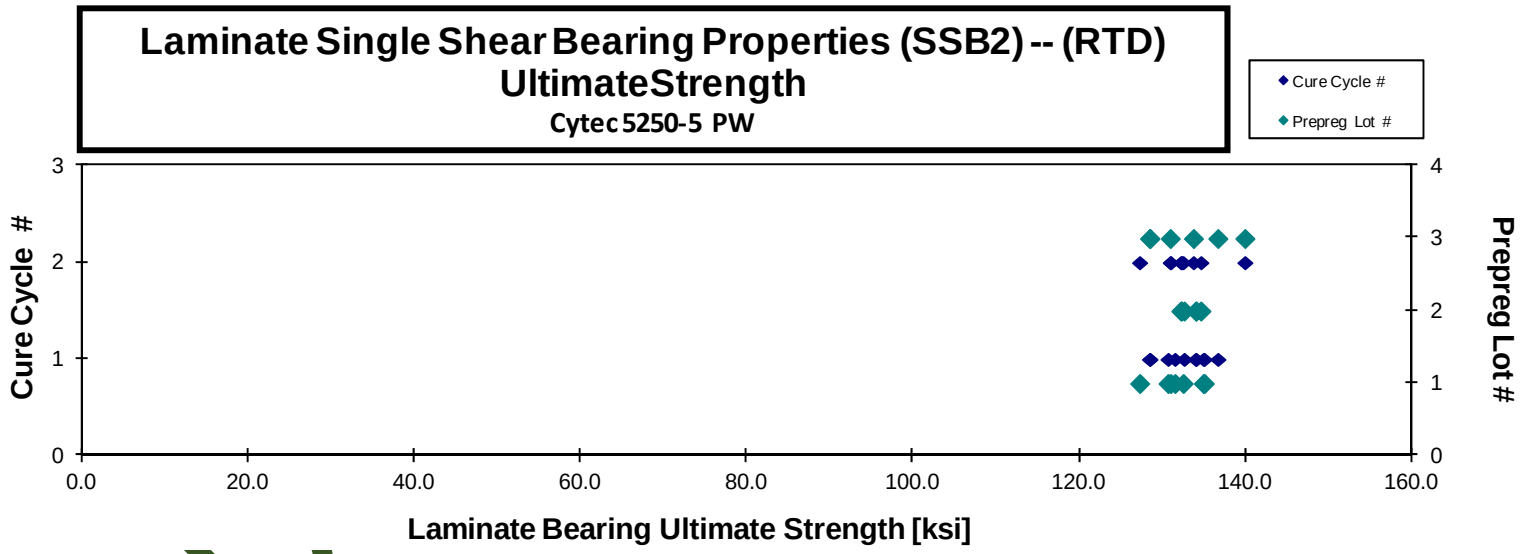
	2% Offset [ksi]	Ultimate Strength [ksi]
Average	114.752	134.438
Standard Dev.	3.709	4.491
Coeff. of Var. [%]	3.232	3.341
Min.	108.638	125.366
Max.	122.817	145.331
Number of Spec.	19	19

normalizing t_{ply} [in]: 0.0078

Avg. t_{ply} [in]	2% Offset$_{norm}$ [ksi]	Ultimate Bearing$_{norm}$ [ksi]
0.0075	108.722	134.929
0.0078	116.115	130.684
0.0078	113.516	131.507
0.0077	112.879	135.042
0.0078	112.934	132.507
0.0079	120.794	127.268
0.0077	107.036	130.987
0.0078	109.934	134.065
0.0079	113.082	132.623
0.0078	110.786	134.005
0.0075	117.466	134.633
0.0076	112.220	132.283
0.0077	112.333	132.224
0.0077	116.911	128.492
0.0077	113.948	128.481
0.0077	112.961	136.674
0.0075	118.251	139.927
0.0076	110.413	130.952
0.0076	112.041	133.737

	Avg. t_{ply} [in]	2% Offset$_{norm}$ [ksi]	Ultimate Bearing$_{norm}$ [ksi]
Average	0.0077	113.281	132.685
Standard Dev.		3.414	3.017
Coeff. of Var. [%]		3.014	2.273
Min.	0.0075	107.036	127.268
Max.	0.0079	120.794	139.927
Number of Spec.	19	19	19


Laminate Single Shear Bearing Properties (SSB2) -- (RTD)
2% Offset Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Laminate Bearing 2% Offset Strength [ksi]


Laminate Single Shear Bearing Properties (SSB2) -- (RTD)
UltimateStrength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
Laminate Bearing Ultimate Strength [ksi]

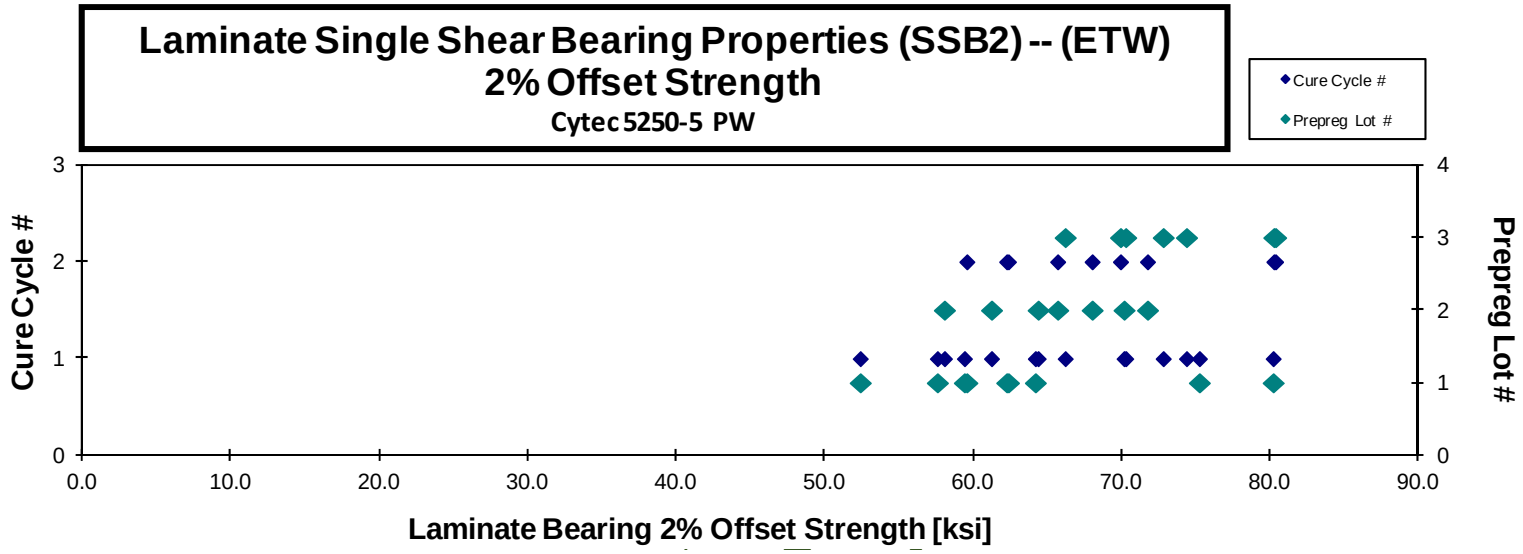
Laminate Single Shear Bearing Properties (SSB2) -- (ETW)
Strength & Modulus
Cytec 5250-5 PW

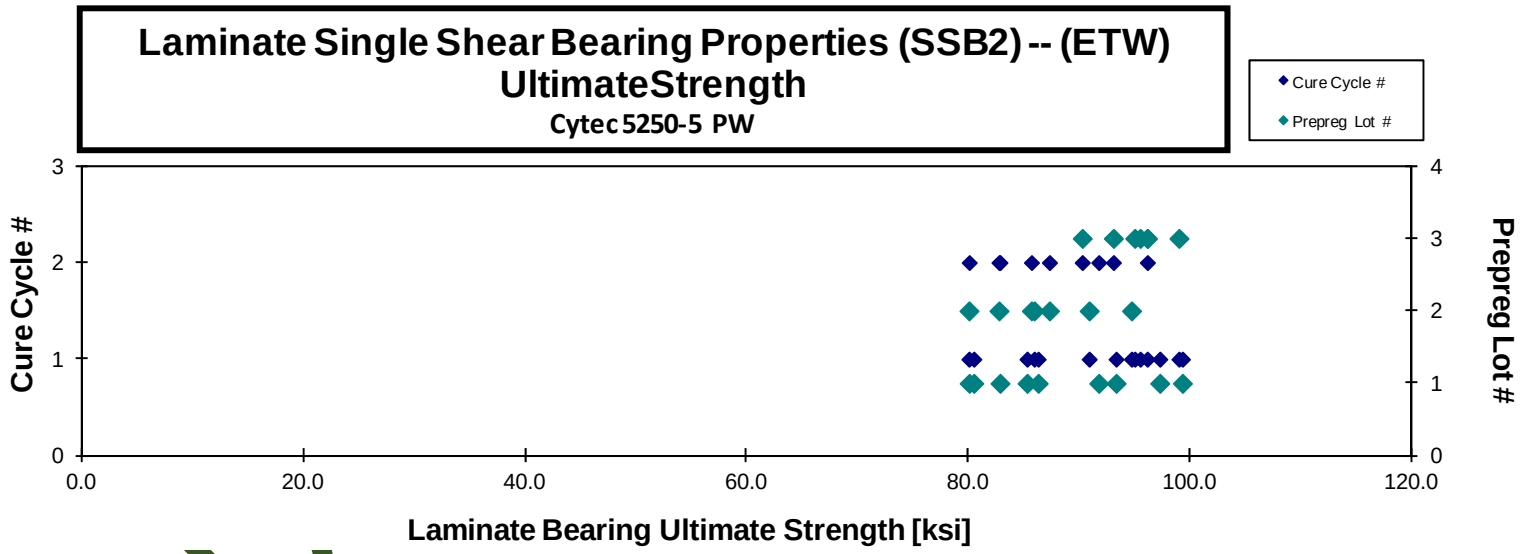
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	2% $Offset_{norm}$ [ksi]	Ultimate $Bearing_{norm}$ [ksi]
CNC2A116J	A	C1	1	1	79.924	98.886	0.078	10	B1I	0.0078	80.266	99.309
CNC2A117J	A	C1	1	1	77.528	100.157	0.076	10	B1I	0.0076	75.292	97.267
CNC2A118J	A	C1	1	1	65.547	87.017	0.076	10	B1I	0.0076	64.244	85.288
CNC2A119J	A	C1	1	1	53.767	82.509	0.076	10	B1I	0.0076	52.446	80.481
CNC2A11AJ	A	C1	1	1	59.263	95.950	0.076	10	B1I	0.0076	57.642	93.325
CNC2A11BJ	A	C1	1	1	61.542	89.309	0.075	10	B1I	0.0075	59.465	86.293
CNC2A216J	A	C2	1	2	60.546	81.304	0.077	10	B1I	0.0077	59.628	80.070
CNC2A217J	A	C2	1	2	61.112	89.993	0.080	10	B1I	0.0080	62.314	91.762
CNC2A218J	A	C2	1	2	61.573	81.713	0.079	10	B1I	0.0079	62.428	82.848
CNC2B116J	B	C1	2	1	58.530	80.618	0.077	10	B1I	0.0077	58.117	80.050
CNC2B117J	B	C1	2	1	69.669	93.977	0.079	10	B1I	0.0079	70.220	94.720
CNC2B118J	B	C1	2	1	65.510	87.375	0.077	10	B1I	0.0077	64.432	85.937
CNC2B119J	B	C1	2	1	63.137	93.638	0.076	10	B1I	0.0076	61.289	90.897
CNC2B216J	B	C2	2	2	70.261	90.125	0.076	10	B1I	0.0076	68.069	87.314
CNC2B217J	B	C2	2	2	67.819	85.365	0.076	10	B1I	0.0076	65.747	82.756
CNC2B218J	B	C2	2	2	74.111	88.446	0.076	10	B1I	0.0076	71.799	85.687
CNC2C116J	C	C1	3	1	67.569	100.960	0.076	10	B1I	0.0076	66.255	98.997
CNC2C117J	C	C1	3	1	71.214	96.696	0.077	10	B1I	0.0077	70.332	95.498
CNC2C118J	C	C1	3	1	73.997	96.496	0.077	10	B1I	0.0077	72.859	95.012
CNC2C119J	C	C1	3	1	75.003	96.879	0.077	10	B1I	0.0077	74.426	96.134
CNC2C216J	C	C2	3	2	72.698	93.777	0.075	10	B1I	0.0075	69.980	90.271
CNC2C217J	C	C2	3	2	83.192	96.418	0.075	10	B1I	0.0075	80.313	93.081
CNC2C218J	C	C2	3	2	83.627	99.969	0.075	10	B1I	0.0075	80.428	96.146

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

Average	**68.571**	**91.634**		**Average**	**0.0077**	**67.304**	**89.963**
Standard Dev.	**8.129**	**6.478**		**Standard Dev.**		**7.762**	**6.281**
Coeff. of Var. [%]	**11.855**	**7.069**		**Coeff. of Var. [%]**		**11.532**	**6.982**
Min.	**53.767**	**80.618**		**Min.**	**0.0075**	**52.446**	**80.050**
Max.	**83.627**	**100.960**		**Max.**	**0.0080**	**80.428**	**99.309**
Number of Spec.	**23.000**	**23**		**Number of Spec.**	**23**	**23**	**23**


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


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

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

Laminate Single Shear Bearing Properties (SSB3) -- (RTD)
Strength & Modulus
Cytec 5250-5 PW

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Comments
CNC3A111A	A	C1	1	1	116.578	121.599	0.077	10	B1I
CNC3A112A	A	C1	1	1	96.539	122.526	0.076	10	B1I
CNC3A113A	A	C1	1	1	112.714	127.521	0.077	10	B1I
CNC3A114A	A	C1	1	1	106.700	116.106	0.079	10	B1I
CNC3A211A	A	C2	1	2	104.797	122.886	0.078	10	B1I
CNC3A212A	A	C2	1	2	106.632	113.817	0.078	10	B1I
CNC3A213A	A	C2	1	2	101.364	127.532	0.078	10	B1I
CNC3B111A	B	C1	2	1	103.299	123.680	0.078	10	B1I
CNC3B112A	B	C1	2	1	108.673	125.621	0.078	10	B1I
CNC3B113A	B	C1	2	1	98.274	115.260	0.078	10	B1I
CNC3B211A	B	C2	2	2	102.398	130.369	0.078	10	B1I
CNC3B212A	B	C2	2	2	113.834	120.136	0.077	10	B1I
CNC3B213A	B	C2	2	2	114.149	116.995	0.077	10	B1I
CNC3C111A	C	C1	3	1	117.139	131.865	0.076	10	B1I
CNC3C112A	C	C1	3	1	105.654	139.815	0.076	10	B1I
CNC3C113A	C	C1	3	1	108.006	125.560	0.077	10	B1I
CNC3C114A	C	C1	3	1	108.304	129.057	0.076	10	B1I
CNC3C211A	C	C2	3	2	117.925	128.952	0.075	10	B1I
CNC3C212A	C	C2	3	2	112.045	117.751	0.076	10	B1I
CNC3C213A	C	C2	3	2	113.308	118.813	0.076	10	B1I

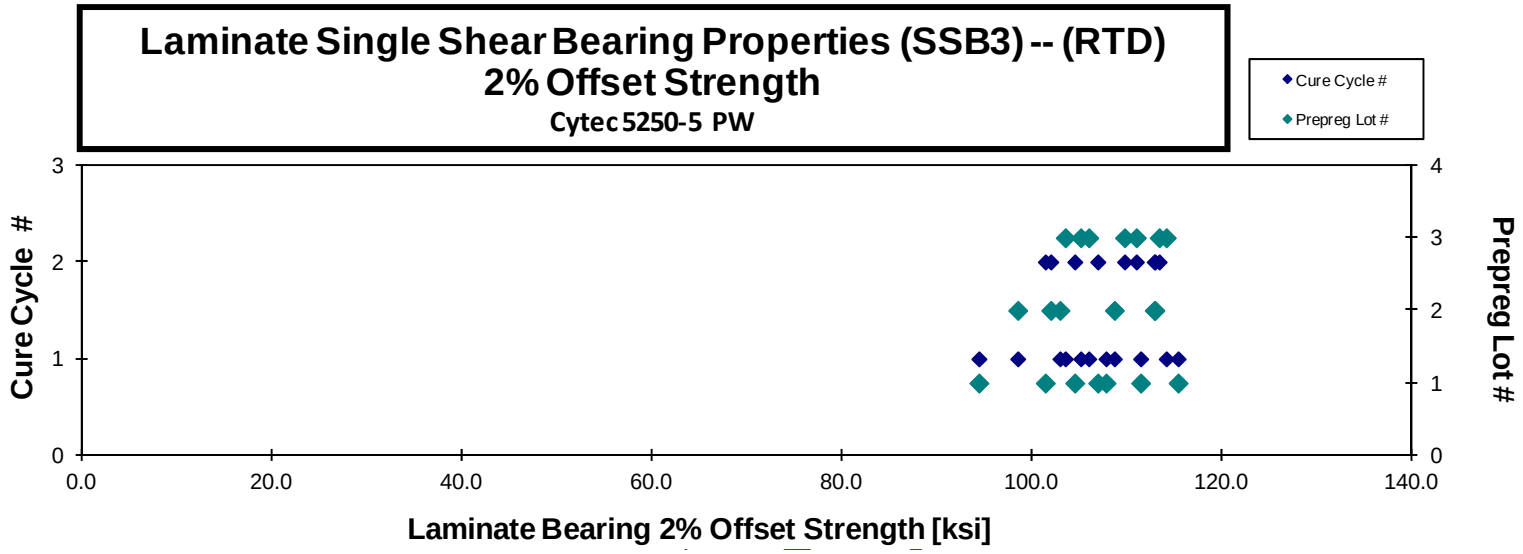
Ultimate Bearing Strength / B1I: B:Bearing, 1:first hole, I: Inapplicable (not on bolt, nut or head side)

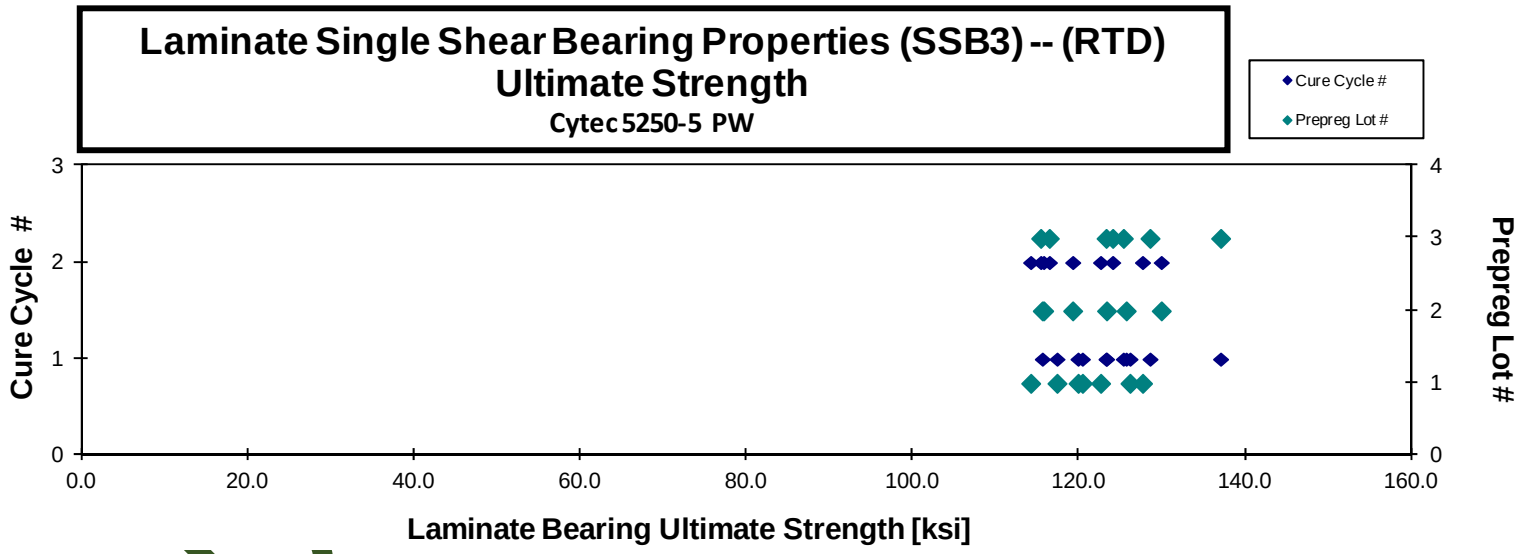
Average	108.417	123.793
Standard Dev.	6.215	6.543
Coeff. of Var. [%]	5.733	5.285
Min.	96.539	113.817
Max.	117.925	139.815
Number of Spec.	20	20

normalizing t_{ply} [in]: 0.0078

Avg. t_{ply} [in]	2% Offset$_{norm}$ [ksi]	Ultimate Bearing$_{norm}$ [ksi]
0.0077	115.407	120.378
0.0076	94.435	119.855
0.0077	111.462	126.104
0.0079	107.817	117.322
0.0078	104.529	122.571
0.0078	106.951	114.157
0.0078	101.429	127.613
0.0078	102.967	123.283
0.0078	108.697	125.648
0.0078	98.526	115.556
0.0078	102.004	129.868
0.0077	112.959	119.212
0.0077	112.905	115.720
0.0076	114.161	128.512
0.0076	103.532	137.007
0.0077	105.998	123.226
0.0076	105.156	125.306
0.0075	113.414	124.020
0.0076	109.771	115.360
0.0076	111.007	116.402

Average	0.0077	107.156	122.356
Standard Dev.		5.641	5.902
Coeff. of Var. [%]		5.265	4.824
Min.	0.0075	94.435	114.157
Max.	0.0079	115.407	137.007
Number of Spec.	20	20	20


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


Laminate Single Shear Bearing Properties (SSB3) -- (RTD)
Ultimate Strength
Cytec 5250-5 PW
Cure Cycle #
Prepreg Lot #
Cure Cycle #
Prepreg Lot #
0
1
2
3
4
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
Laminate Bearing Ultimate Strength [ksi]

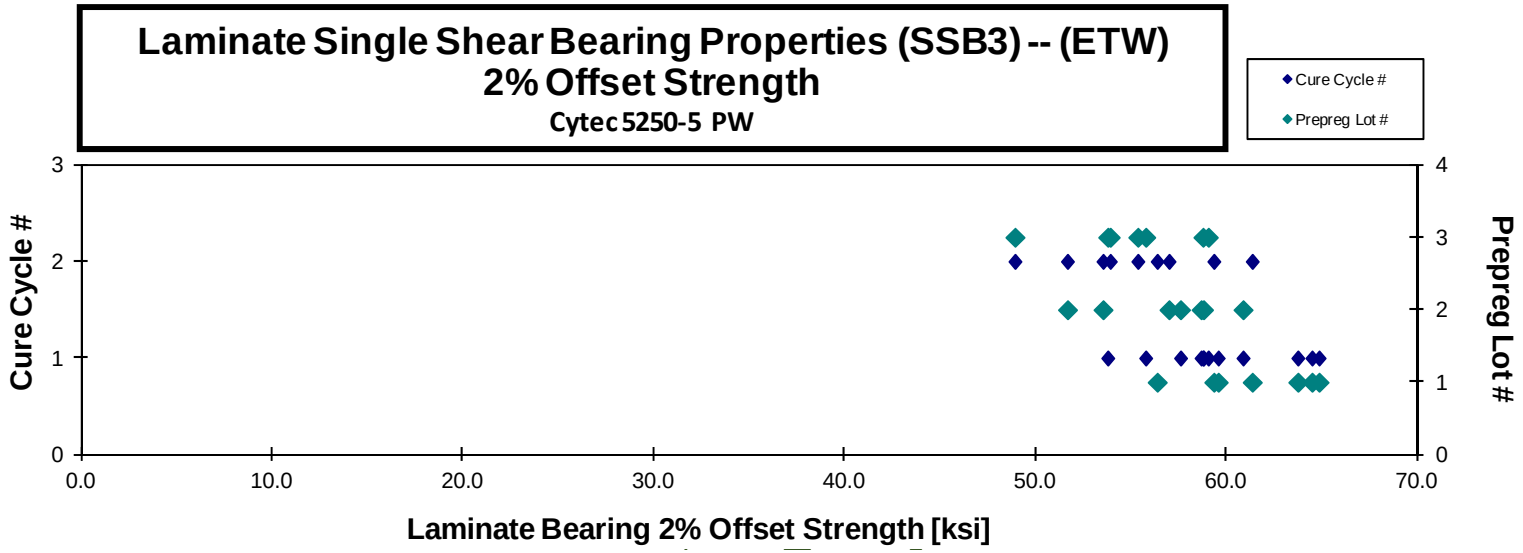
Laminate Single Shear Bearing Properties (SSB3) -- (ETW)
Strength & Modulus
Cytec 5250-5 PW

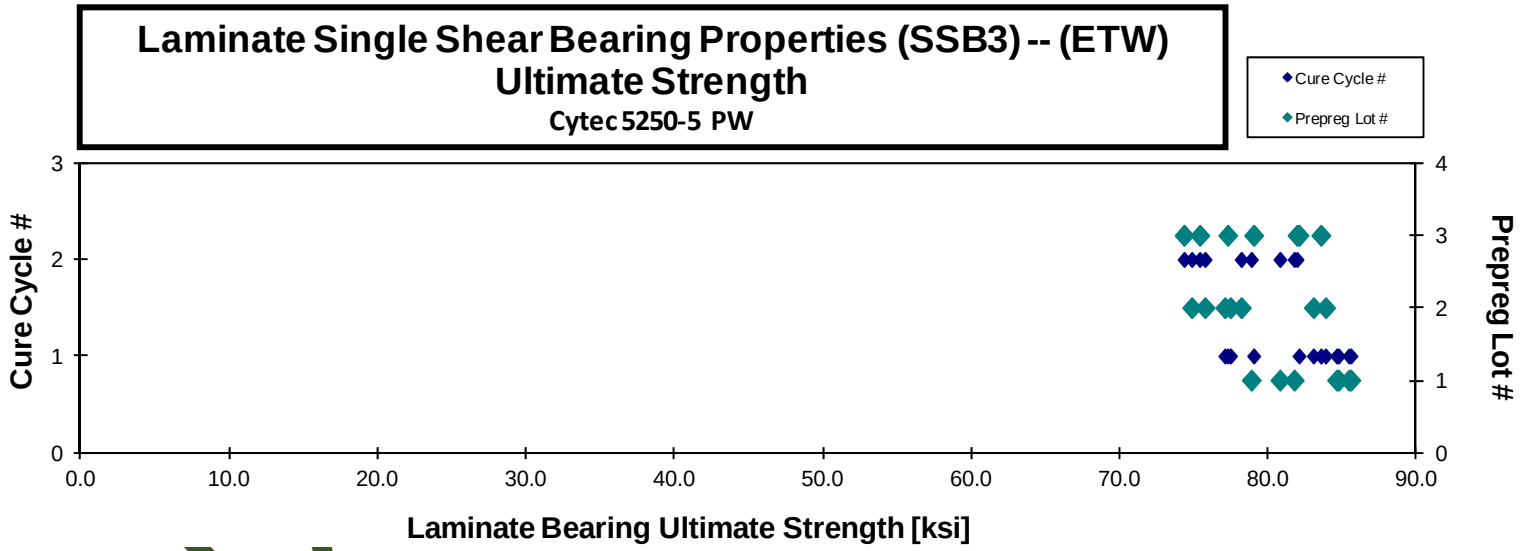
normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	2% Offset Strength [ksi]	Ultimate Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Comments	Avg. t_{ply} [in]	2% Offset$_{norm}$ [ksi]	Ultimate Bearing$_{norm}$ [ksi]
CNC3A116J	A	C1	1	1	65.047	85.436	0.077	10	B1I	0.0077	64.464	84.669
CNC3A118J	A	C1	1	1	66.467	87.656	0.076	10	B1I	0.0076	64.834	85.502
CNC3A119J	A	C1	1	1	59.946	85.934	0.077	10	B1I	0.0077	59.549	85.365
CNC3A11AJ	A	C1	1	1	64.189	85.159	0.077	10	B1I	0.0077	63.723	84.540
CNC3A218J	A	C2	1	2	56.401	81.751	0.078	10	B1I	0.0078	56.352	81.681
CNC3A219J	A	C2	1	2	62.454	82.194	0.077	10	B1I	0.0077	61.333	80.719
CNC3A21AJ	A	C2	1	2	59.987	79.675	0.077	10	B1I	0.0077	59.321	78.790
CNC3B116J	B	C1	2	1	59.144	84.318	0.078	10	B1I	0.0078	58.777	83.795
CNC3B117J	B	C1	2	1	61.309	83.601	0.077	10	B1I	0.0077	60.850	82.976
CNC3B118J	B	C1	2	1	58.247	78.291	0.077	10	B1I	0.0077	57.575	77.388
CNC3B119J	B	C1	2	1	59.597	78.249	0.077	10	B1I	0.0077	58.655	77.012
CNC3B216J	B	C2	2	2	54.597	76.296	0.076	10	B1I	0.0076	53.512	74.780
CNC3B217J	B	C2	2	2	57.674	79.076	0.077	10	B1I	0.0077	56.971	78.113
CNC3B218J	B	C2	2	2	52.515	76.940	0.077	10	B1I	0.0077	51.651	75.674
CNC3C116J	C	C1	3	1	56.062	79.393	0.078	10	B1I	0.0078	55.750	78.952
CNC3C117J	C	C1	3	1	58.713	83.425	0.078	10	B1I	0.0078	58.751	83.478
CNC3C118J	C	C1	3	1	54.028	82.412	0.078	10	B1I	0.0078	53.763	82.007
CNC3C119J	C	C1	3	1	59.743	78.136	0.077	10	B1I	0.0077	59.028	77.201
CNC3C216J	C	C2	3	2	57.641	77.352	0.075	10	B1I	0.0075	55.338	74.261
CNC3C217J	C	C2	3	2	50.709	78.103	0.075	10	B1I	0.0075	48.899	75.316
CNC3C218J	C	C2	3	2	55.971	85.033	0.075	10	B1I	0.0075	53.890	81.871

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

Average	**58.592**	**81.354**	**Average**	**0.0077**	**57.761**	**80.195**
Standard Dev.	**3.997**	**3.452**	**Standard Dev.**		**4.125**	**3.725**
Coeff. of Var. [%]	**6.822**	**4.243**	**Coeff. of Var. [%]**		**7.141**	**4.644**
Min.	**50.709**	**76.296**	**Min.**	**0.0075**	**48.899**	**74.261**
Max.	**66.467**	**87.656**	**Max.**	**0.0078**	**64.834**	**85.502**
Number of Spec.	**21**	**21**	**Number of Spec.**	**21**	**21**	**21**


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


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

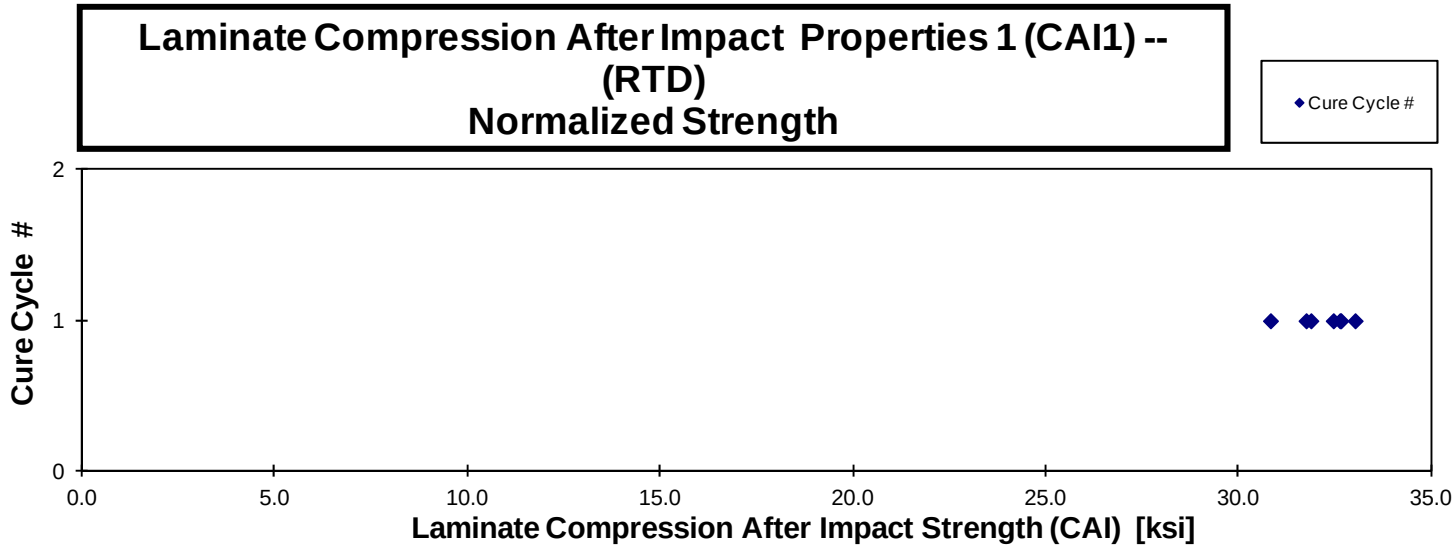
4.29 Compression After Impact 1 Properties (CAI1)

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

normalizing t_{ply} [in]: 0.0078

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Measured Impact Energy (in-lbf)	Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Failure Mode	Avg. t_{ply} [in]	Strength$_{norm}$ [ksi]
CNCKA111A	A	C1	1	1	285.71	31.821	0.191	24	LDM	0.0080	32.453
CNCKA112A	A	C1	1	1	288.56	31.691	0.193	24	LDM	0.0080	32.651
CNCKA113A	A	C1	1	1	286.55	31.237	0.191	24	LDM	0.0080	31.871
CNCKA114A	A	C1	1	1	285.73	32.006	0.191	24	LDM	0.0080	32.624
CNCKA115A	A	C1	1	1	293.71	30.556	0.195	24	LDM	0.0081	31.747
CNCKA116A	A	C1	1	1	288.06	30.048	0.192	24	LDM	0.0080	30.823
CNCKA117A	A	C1	1	1	287.98	32.236	0.192	24	LDM	0.0080	33.020

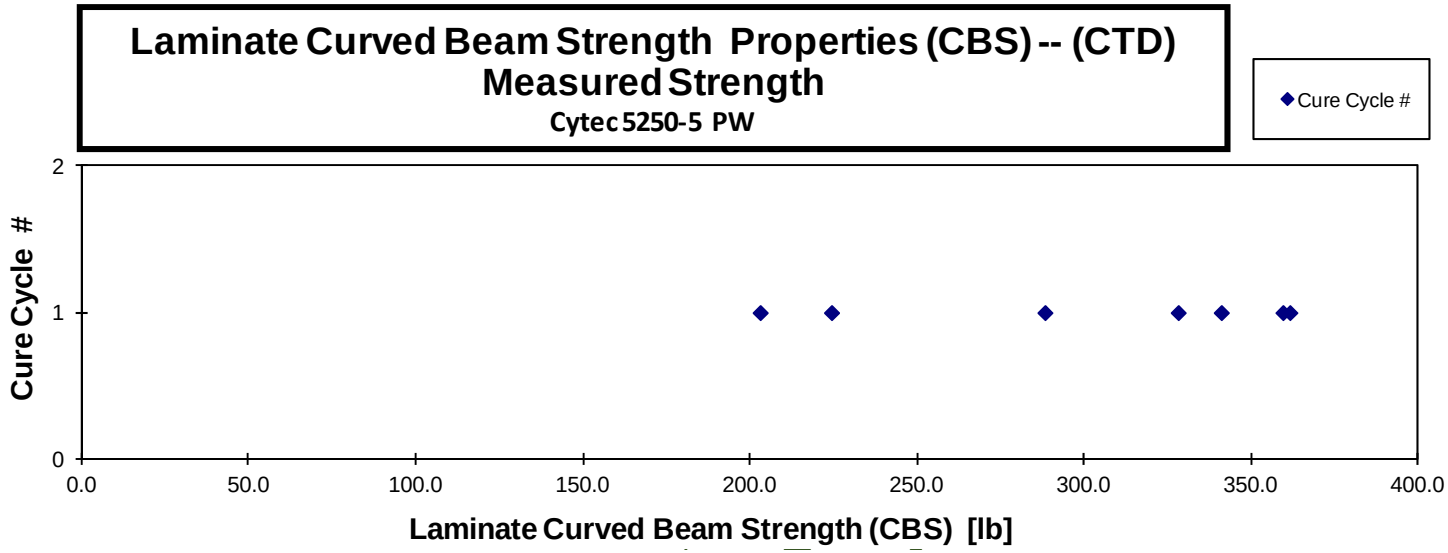
Average	31.371		Average$_{norm}$	32.170
Standard Dev.	0.805		Standard Dev.$_{norm}$	0.744
Coeff. of Var. [%]	2.567		Coeff. of Var. [%]$_{norm}$	2.313
Min.	30.048	0.0080	Min.	30.823
Max.	32.236	0.0081	Max.	33.020
Number of Spec.	7		Number of Spec.	7

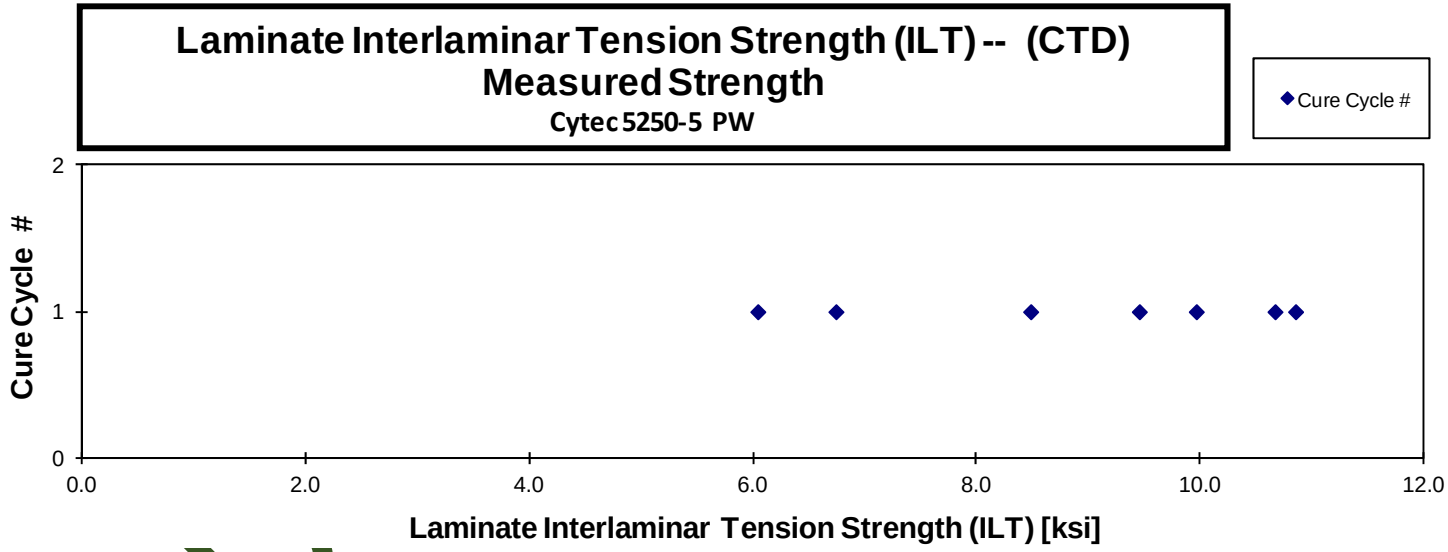


4.30 Interlaminar Tension Properties (ILT)

Interlaminar Tension Properties -- (CTD) Strength
Cytec 5250-5 PW

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Curved Beam Strength [lb]	Interlaminar Tension Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. t_{ply} [in]
CNCMA119B	A	C1	1	1	341.039	9.962	0.160	21	0.0076
CNCMA11AB	A	C1	1	1	328.139	9.453	0.162	21	0.0077
CNCMA11BB	A	C1	1	1	224.353	6.740	0.157	21	0.0075
CNCMA11CB	A	C1	1	1	359.491	10.666	0.158	21	0.0075
CNCMA11DB	A	C1	1	1	202.988	6.042	0.158	21	0.0075
CNCMA11EB	A	C1	1	1	361.560	10.850	0.157	21	0.0075
CNCMA11FB	A	C1	1	1	288.235	8.481	0.159	21	0.0076
Basis values are not calcuated on ILT/CBS due to variation in processing									
				Average	**300.829**	**8.885**			**0.0076**
				Standard Dev.	**64.643**	**1.887**			
				Coeff. of Var. [%]	**21.488**	**21.237**			
				Min.	**202.988**	**6.042**			**0.0075**
				Max.	**361.560**	**10.850**			**0.0077**
				Number of Spec.	**7**	**7**			**7**

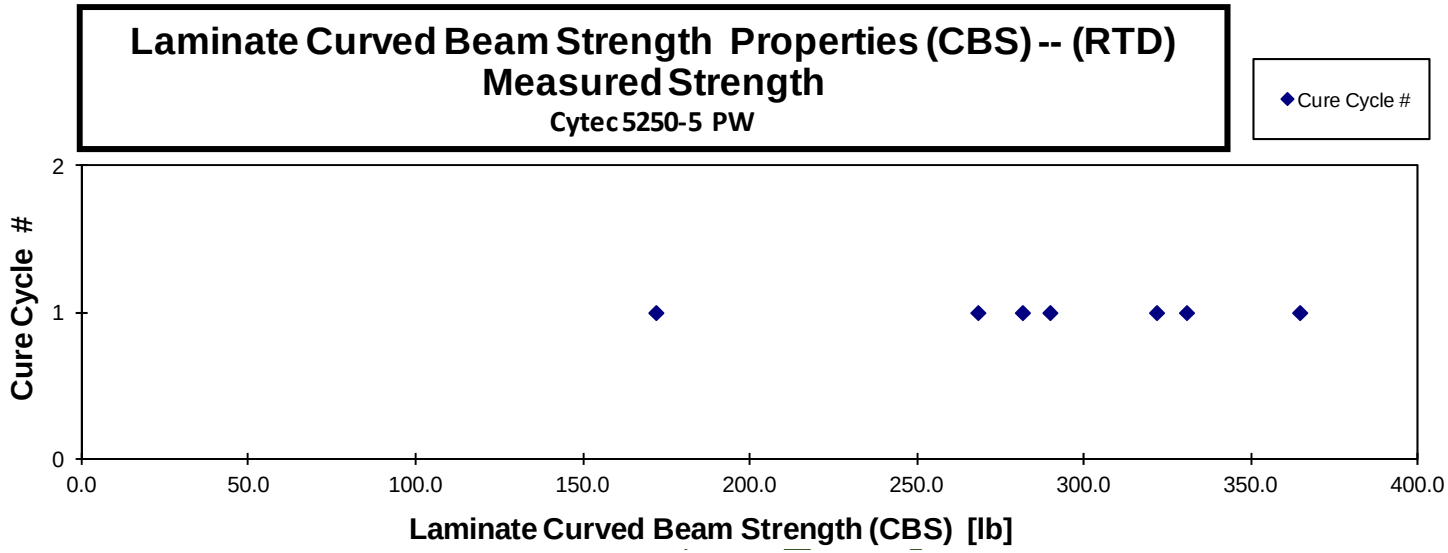

Laminate Curved Beam Strength Properties (CBS) -- (CTD)
Measured Strength
Cytec 5250-5 PW
Cure Cycle #
Cure Cycle #
0
1
2
0.0
50.0
100.0
150.0
200.0
250.0
300.0
350.0
400.0
Laminate Curved Beam Strength (CBS) [lb]

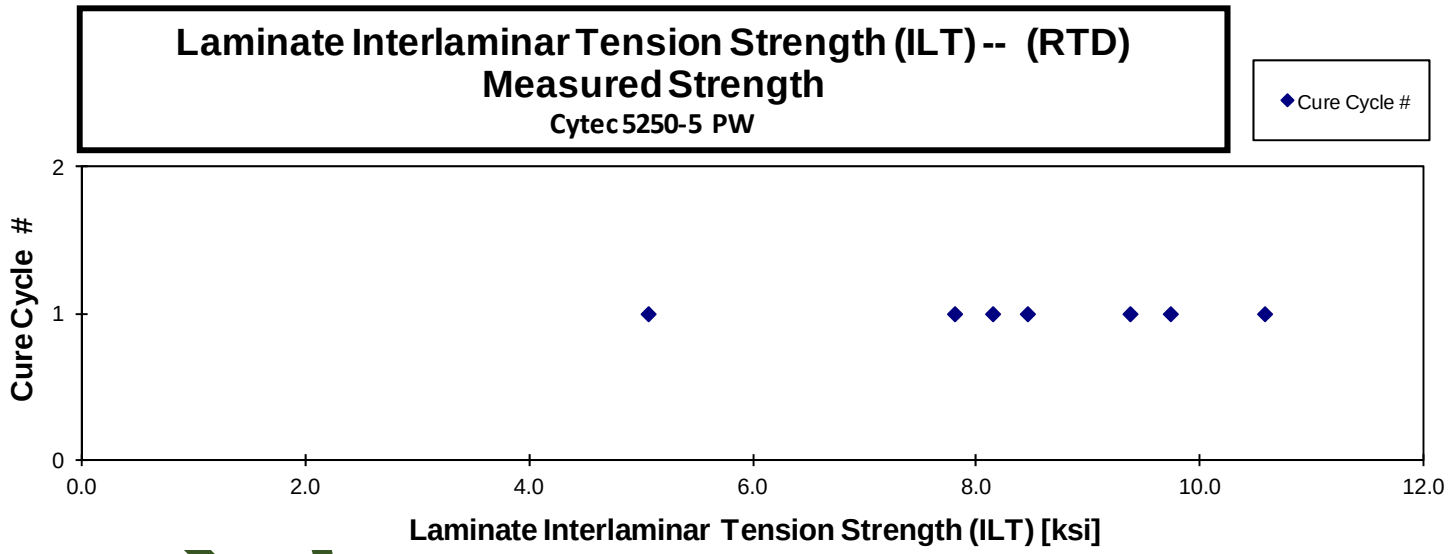

Laminate Interlaminar Tension Strength (ILT) -- (CTD)
Measured Strength
Cytec 5250-5 PW
Cure Cycle #
Cure Cycle #
0
1
2
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Laminate Interlaminar Tension Strength (ILT) [ksi]

Interlaminar Tension Properties (ILT) -- (RTD) Strength

Cytec 5250-5 PW

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Curved Beam Strength [lb]	Interlaminar Tension Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. t_{ply} [in]
CNCMA111A	A	C1	1	1	364.505	10.573	0.161	21	0.0077
CNCMA112A	A	C1	1	1	268.156	7.801	0.161	21	0.0077
CNCMA113A	A	C1	1	1	171.769	5.061	0.159	21	0.0076
CNCMA114A	A	C1	1	1	289.719	8.452	0.161	21	0.0076
CNCMA115A	A	C1	1	1	330.614	9.730	0.159	21	0.0076
CNCMA116A	A	C1	1	1	281.503	8.141	0.162	21	0.0077
CNCMA117A	A	C1	1	1	321.644	9.370	0.161	21	0.0077
Basis values are not calcuated on ILT/CBS due to variation in processing									
				Average	**289.702**	**8.447**			**0.0076**
				Standard Dev.	**61.548**	**1.779**			
				Coeff. of Var. [%]	**21.245**	**21.063**			
				Min.	**171.769**	**5.061**			**0.0076**
				Max.	**364.505**	**10.573**			**0.0077**
				Number of Spec.	**7**	**7**			**7**

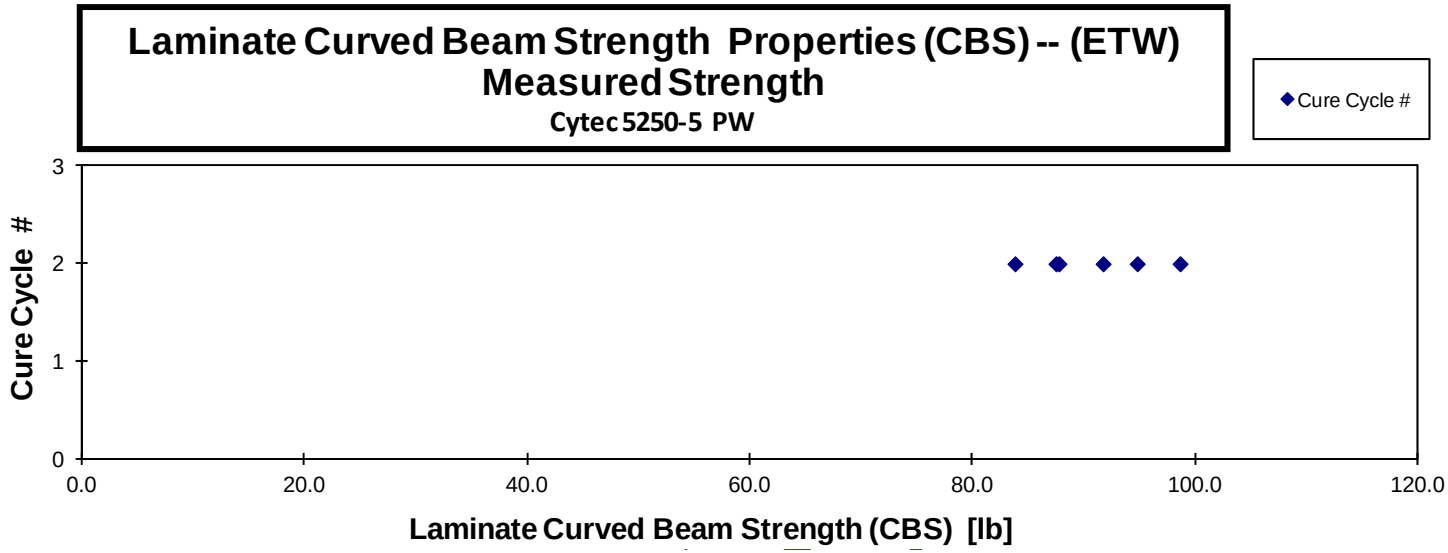

Laminate Curved Beam Strength Properties (CBS) -- (RTD)
Measured Strength
Cytec 5250-5 PW
Cure Cycle #
Cure Cycle #
2
1
0
0.0
50.0
100.0
150.0
200.0
250.0
300.0
350.0
400.0
Laminate Curved Beam Strength (CBS) [lb]

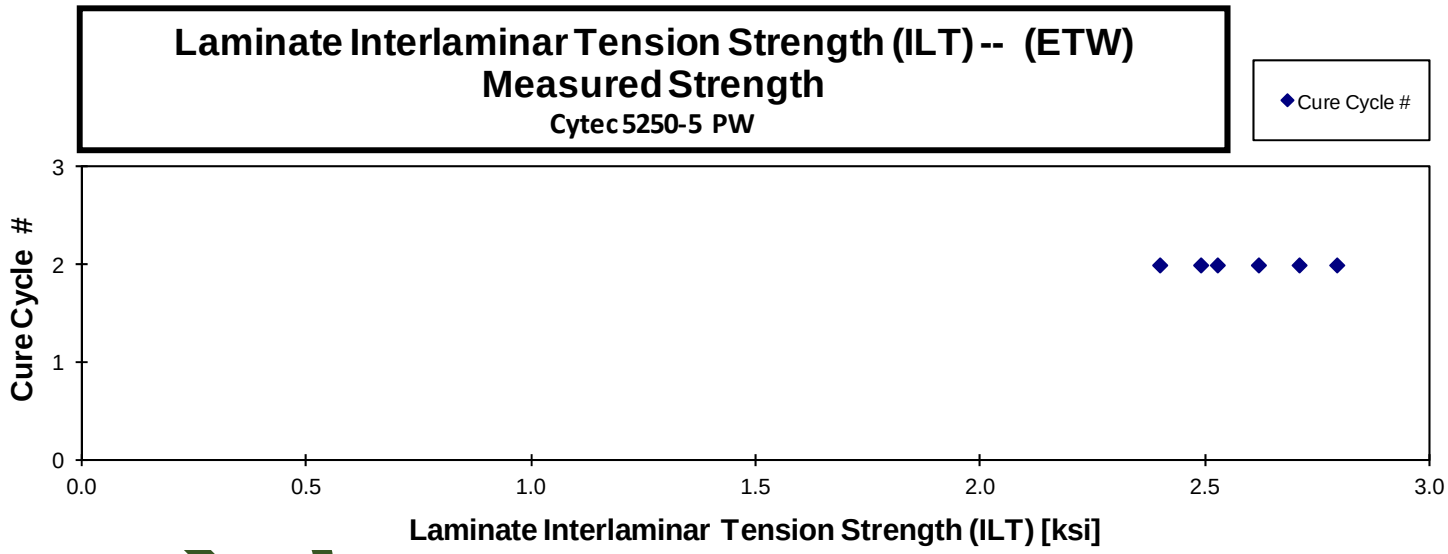

Laminate Interlaminar Tension Strength (ILT) -- (RTD)
Measured Strength
Cytec 5250-5 PW
Cure Cycle #
Cure Cycle #
2
1
0
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Laminate Interlaminar Tension Strength (ILT) [ksi]

Interlaminar Tension Properties (ILT) -- (ETW) Strength

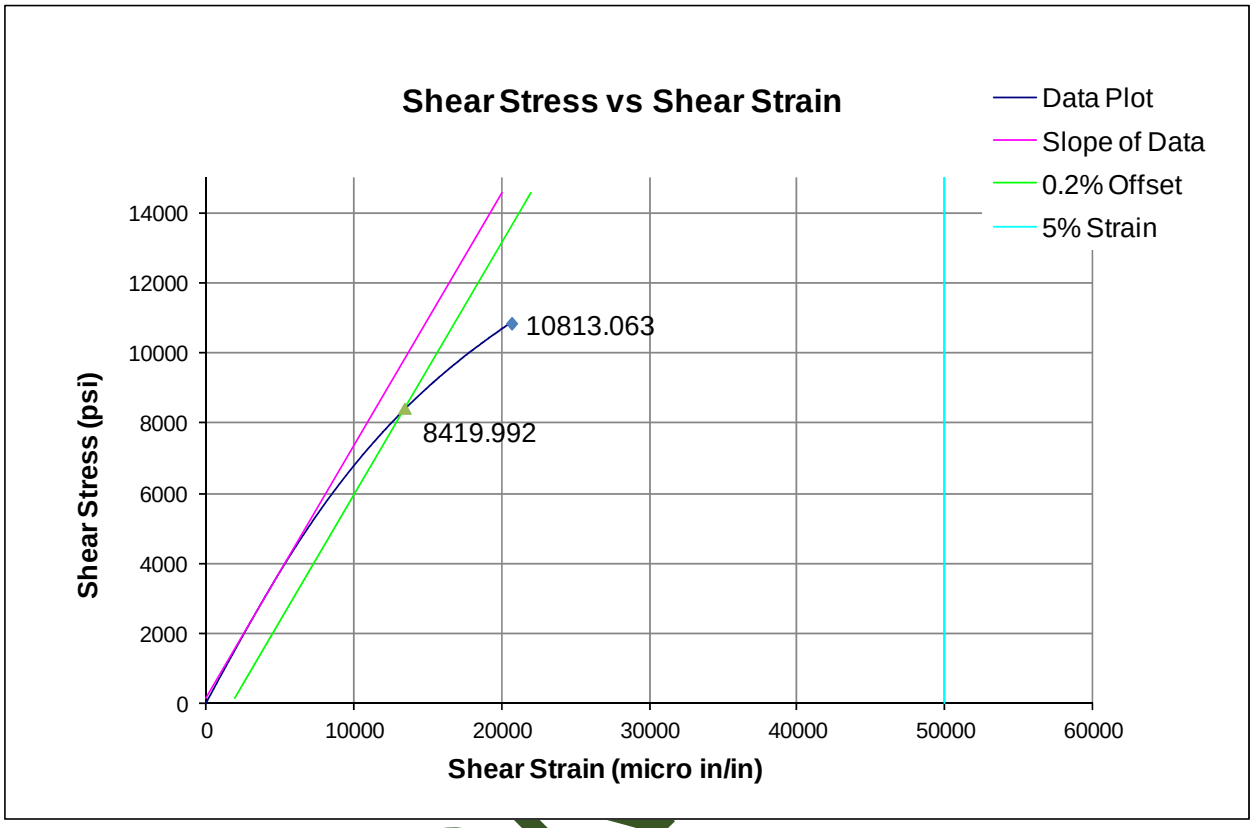
Cytec 5250-5 PW

Specimen Number	Cytec Batch #	Cytec Cure Cycle	Prepreg Lot #	Cure Cycle #	Curved Beam Strength [lb]	Interlaminar Tension Strength [ksi]	Avg. Specimen Thickn. [in]	# Plies in Laminate	Avg. t_{ply} [in]
CNCMA211J	A	C2	1	2	94.760	2.708	0.163	21	0.0078
CNCMA212J	A	C2	1	2	91.695	2.618	0.163	21	0.0078
CNCMA213J	A	C2	1	2	87.462	2.489	0.164	21	0.0078
CNCMA214J	A	C2	1	2	83.782	2.398	0.163	21	0.0078
CNCMA215J	A	C2	1	2	87.730	2.526	0.162	21	0.0077
CNCMA216J	A	C2	1	2	98.606	2.792	0.165	21	0.0078
Basis values are not calcuated on ILT/CBS due to variation in processing									
				Average	**90.673**	**2.589**			**0.0078**
				Standard Dev.	**5.425**	**0.146**			
				Coeff. of Var. [%]	**5.983**	**5.642**			
				Min.	**83.782**	**2.398**			**0.0077**
				Max.	**98.606**	**2.792**			**0.0078**
				Number of Spec.	**6**	**6**			**6**


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


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

5. Shear Stress vs. Shear Strain, RTD



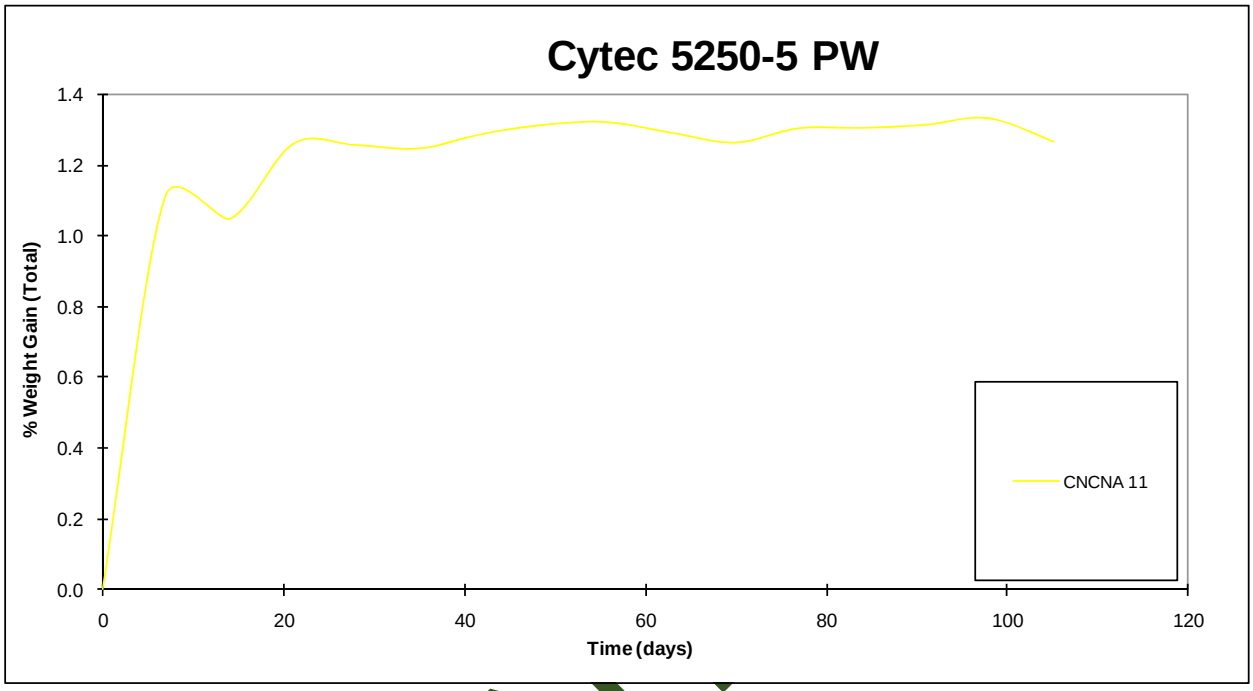
Data up to 5% strain is not available because strain measurement device used was an extensometer, which was removed prior to 5% strain.

6. Fluid Sensitivity Comparison

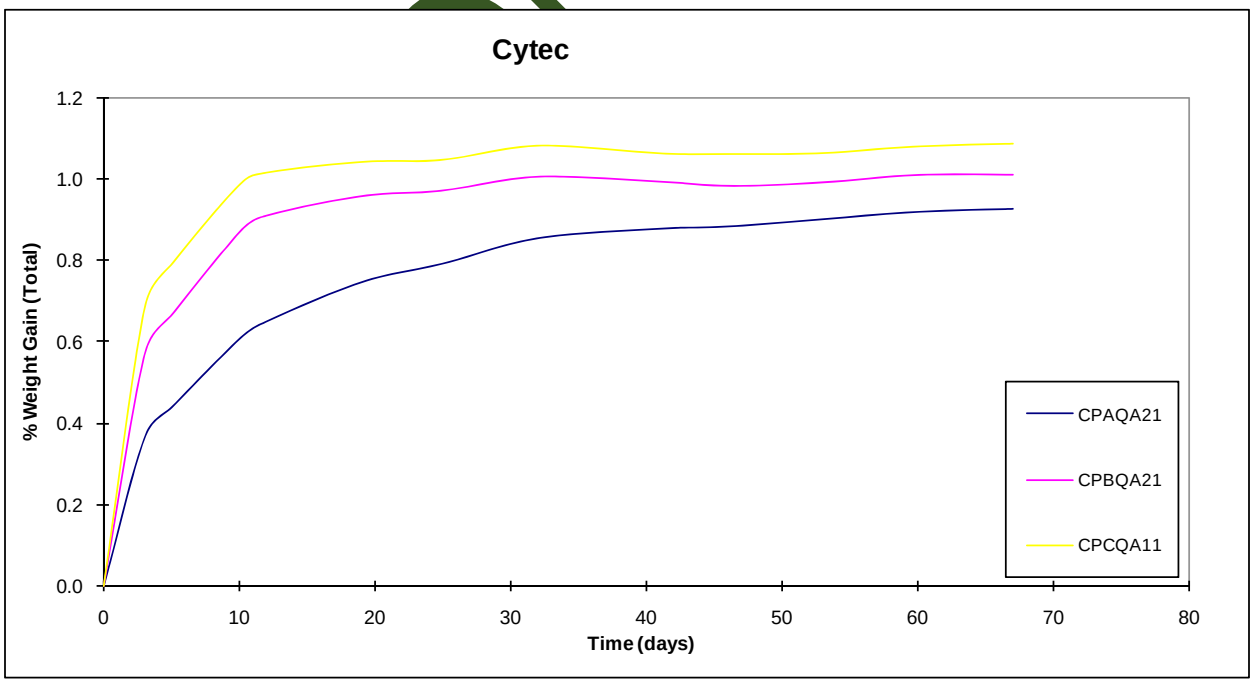
Fluid sensitivity screening was not performed on this material. It was performed on Cytec 5250-5 6K T650 unidirectional material system and Cytec 5250-5 T650 6K-5HS fabric.

7. Moisture Conditioning Charts

7.1 In-Plane Shear - Thinnest Panel



7.2 Short-Beam Strength - Thickest Panel



For “wet” mechanical test specimens, the drying procedures may not have completely

dried the specimens prior to moisture conditioning, so the total amount of moisture absorbed by the specimens may be higher than those recorded in the moisture gain charts.
The rest of the curves can be found on the CD that accompanies this report.

8. DMA Results

There are two sets of dry DMA data; one set was dried according to the test plan and the other set was “thoroughly dried” at 250F until equilibrium weight loss was achieved. Equilibrium weight loss is met when the difference between two consecutive readings taken seven days apart is less than 0.02%. The drying procedure in the test plan is less rigorous than the “thoroughly dried” procedures. The more rigorous procedure was not included in the test plan because the test plan authors/reviewers expected the test panels to be tested within couple of months from their date of panel fabrication. Due to unexpected delays in the program, the test panels were kept in laboratory environment for approximately 11 months and hence absorbed more moisture than anticipated (panel fabricated- 8/08; mechanical specimens tested – 7/09; DMA specimens tested – 12/10). DMA samples were tested 16 months after initial mechanical testing.

All the “dry” mechanical test specimens were dried in accordance with the drying procedures in the test plan. Since moisture is less detrimental to composite materials properties at room temperature than at elevated temperature, the “thoroughly dried” specimens are expected to have only slightly higher mechanical properties. For comparison purposes, some DMA specimens were dried using both drying methods; however, the sample set dried by means of weight loss monitoring was done with a substantially smaller sample size. Comparing Onset Storage Modulus data, samples dried according to test plan procedures yielded an average dry Tg of ~470F for Qualification samples. Samples that were dried out thoroughly by means of weight loss measurement yielded an average dry Tg of ~ 525F.

DMA Results Summary

Cytec 5250-5 PW CNCXX XX DRY

Sample #	Onset Storage Modulus Average		Peak of Tangent Delta Average	
	Tg [°C]	Tg [°F]	Tg [°C]	Tg [°F]
CNCJA 11	241.58	466.84	272.80	523.04
CNCJA 21	238.20	460.76	271.17	520.11
CNCJB 11	250.70	483.26	280.53	536.95
CNCJB 21	251.03	483.85	281.19	538.13
CNCUC 11	235.19	455.35	262.71	504.87
CNCJC 21	244.86	472.75	275.37	527.67
AVERAGE		**470.47**		

DMA Results Summary

Cytec C23 5250-5 PW CNCUX XX BONE DRY

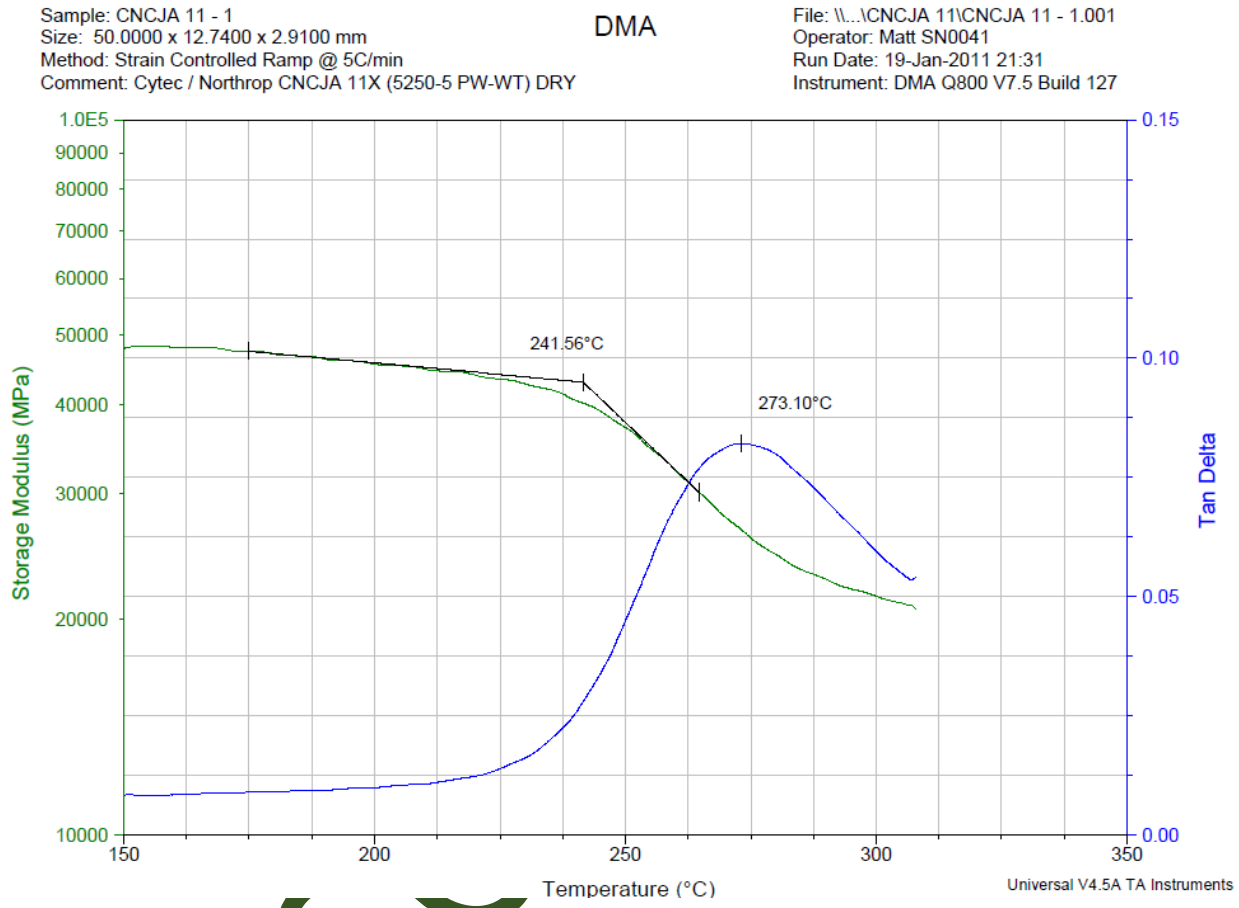
Sample #	Onset Storage Modulus Average		Peak of Tangent Delta Average	
	Tg [°C]	Tg [°F]	Tg [°C]	Tg [°F]
CNCXX 11	273.01	523.41	296.25	565.25
CNCUA 11	268.23	514.81	293.16	559.68
CNCUA 21	264.08	507.34	288.28	550.90
CNCUB 11	278.06	532.51	300.97	573.74
CNCUC 21	268.20	514.76	289.64	553.35
CNCZB 21	281.07	537.93	303.36	578.04
CNCZC 11	286.14	547.04	307.53	585.55
AVERAGE:		**525.40**		

DMA Results Summary

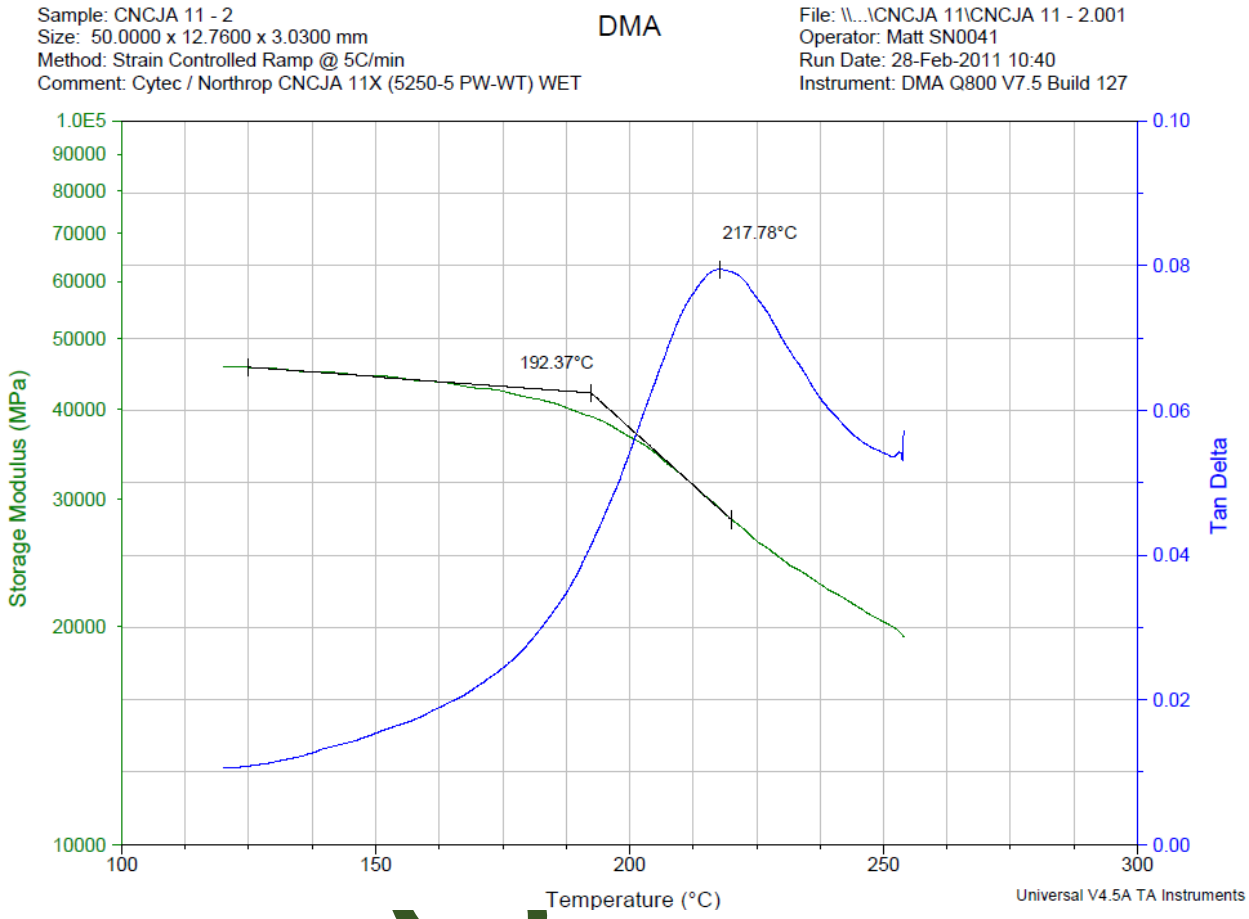
Cytec 5250-5 PW CNCXX XX WET

Sample #	Onset Storage Modulus Average		Peak of Tangent Delta Average	
	Tg [°C]	Tg [°F]	Tg [°C]	Tg [°F]
CNCJA 11	191.69	377.05	218.25	424.84
CNCJA 21	187.43	369.37	215.17	419.30
CNCJB 11	193.85	380.93	220.82	429.48
CNCJB 21	196.14	385.05	223.41	434.14
CNCUC 11	187.48	369.46	210.52	410.94
CNCJC 21	193.08	379.54	218.82	425.88
AVERAGE		**376.90**		

8.1 DMA Dry Batch A



8.2 DMA Wet Batch A



9. Physical Test Results

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

10. Deviations

1. SBS1 sampling were taken from OHC1 panel instead of CAI1 panel to fulfill batch requirements