

# MATERIAL PROPERTIES

## Pultex® Fiber Reinforced Polymer **SuperStructural** Profiles *Angles*

**SuperStructural** Angle sizes are: 102 x 6, 102 x 10, 152 x 10 and 152 x 13

### Metric Version

1500 Series - Thermoset Polyester – Olive Green  
1525 Series - Thermoset Polyester Class 1 FR – Slate Gray (Dark Gray)  
1625 Series - Thermoset Vinyl Ester Class 1 FR – Beige

Pultex® **SuperStructural** Profiles are identified with imprinted veil.

**The following data was derived from ASTM coupon and full section testing.** The results are average values based on random sampling and testing of production lots. Composite materials are not homogeneous; and therefore, the location of the coupon extraction can cause variances in the coupon test results. Creative Pultrusions publishes an average value of random samples from production lots.

Property (coupon values)	ASTM Test	Units	1500/1525 Series	1625 Series
<b>Mechanical</b>				
Tensile Strength (LW)	D638	MPa	213.1	244.7
Tensile Strength (CW)	D638	MPa	113.4	129.9
Tensile Modulus (LW)	D638	GPa	24.1	24.1
Tensile Modulus (CW)	D638	GPa	6.9	6.9
Compressive Strength (LW)	D695	MPa	266.7	306.9
Compressive Strength (CW)	D695	MPa	175.3	199.4
Compressive Modulus (LW)	D695	GPa	20.6	20.6
Compressive Modulus (CW)	D695	GPa	15.1	15.1
Flexural Strength (LW)	D790	MPa	299.1	344.9
Flexural Strength (CW)	D790	GPa	165.1	189.1
Flexural Modulus (LW)	D790	MPa	13.1	13.1
Flexural Modulus (CW)	D790	GPa	11.0	11.0
Modulus of Elasticity	Full Section <sup>2</sup>	GPa	19.2	19.2
Shear Modulus	Full Section <sup>2</sup>	GPa	3.4	3.4
Interlaminar Shear (LW) <sup>4</sup>	D2344	MPa	23.4	26.8
Shear Strength By Punch (PF)	D732	MPa	37.8	41.2
Notched Izod Impact (LW)	D256	J/m	1,814.9	2,081.8
Notched Izod Impact (CW)	D256	J/m	1,761.5	2,028.4
Maximum Bearing Strength (LW)	D953	MPa	226.9	261.2
Maximum Bearing Strength (CW)	D953	MPa	226.9	261.2
Poisson's Ratio (LW)	D3039	mm/mm	0.35	0.35
Poisson's Ratio (CW)	D3039	mm/mm	0.12	0.12
In-Plane Shear (LW)	Modified D2344 <sup>3</sup>	MPa	48.3	48.3
In-Plane Shear (LW) (through heel of angle)	Full Section*	MPa	23.4	26.9

\*Note: Based on Full Section Connection Test

Additional properties located on back



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### Metric Version (cont'd)

<b>Property (coupon values)</b>	<b>ASTM Test</b>	<b>Units</b>	<b>1500/1525 Series</b>	<b>1625 Series</b>
<b>Physical</b>				
Barcol Hardness <sup>1</sup>	D2583		45	45
Water Absorption	D570	% Max	0.6	0.6
Density	D792	Mg/m <sup>3</sup>	1.66-1.93	1.66-1.93
Specific Gravity	D792		1.66-1.93	1.66-1.93
Coefficient of Thermal Expansion (LW)	D696	10 <sup>-6</sup> K <sup>-1</sup>	8	8
Thermal Conductivity (PF)	C177	W/mK	0.58	0.58
<b>Electrical</b>				
Arc Resistance (LW)	D495	seconds	120	120
Dielectric Strength (LW)	D149	kV/mm	1.58	1.58
Dielectric Strength (PF)	D149	kV/mm	7.9	7.9
Dielectric Constant (PF)	D150	@60Hz	5.2	5.2

LW = lengthwise

CW = crosswise

PF = perpendicular to laminate face

<sup>1</sup> Pultex<sup>®</sup> uses a synthetic surface veil that reduces the Barcol Hardness, but does not reflect lack of cure.

<sup>2</sup> Full section testing based on a 3-point bend simply supported.

<sup>3</sup> Follow ASTM D2344, but rotate coupon 90° (cut section of coupon length faces up).

<sup>4</sup> Tested on a 3:1, span to depth ratio.

<b>Property</b>	<b>ASTM Test</b>	<b>Value</b>	<b>Value</b>
		<b>1525</b>	<b>1625</b>
Flammability Classification	UL94	(VO)	(VO)
Tunnel Test	ASTM E84	25 Max	25 Max
Flammability Extinguishing	ASTM D635	Self extinguishing	Self extinguishing
NBS Smoke Chamber	ASTM E662	650	650

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