



# Gordon Composites™ GC-70-UCL

## Advanced Composites

### Key Characteristics

#### Product Description

A light weight laminate composed of continuous unidirectional carbon fiber in an epoxy matrix, providing high strength and stiffness. GC-70-UCL is manufactured with a proprietary pulforming process in which all carbon fibers are pretensioned and aligned during impregnation and curing. This process assures the efficient utilization of the superior mechanical properties of the carbon fibers.

#### General

Material Status	• Commercial: Active		
Regional Availability	• North America		
Filler / Reinforcement	• Carbon Fiber, 70% Filler by Weight		
Uses	• Aerospace Applications	• Metal Replacement	• Structural Parts
	• Industrial Applications	• Prosthetics	
	• Marine Applications	• Springs	
Appearance	• Black		
Forms	• Customizable Forms <sup>1</sup>	• Sheet <sup>2</sup>	• Unidirectional
Processing Method	• Machining		

### Technical Properties<sup>3</sup>

Physical	Typical Value (English)	Typical Value (SI)	Test Method
Density	1.55 g/cm <sup>3</sup>	1.55 g/cm <sup>3</sup>	ASTM D1505
Mechanical	Typical Value (English)	Typical Value (SI)	Test Method
Tensile Modulus			ASTM D3039
-- <sup>4</sup>	2.20E+7 psi	152000 MPa	
-- <sup>5</sup>	1.40E+6 psi	9650 MPa	
Tensile Strength			ASTM D3039
-- <sup>4</sup>	430000 psi	2960 MPa	
-- <sup>5</sup>	7000 psi	48.3 MPa	
Tensile Strain <sup>4</sup> (Break)	1.9 %	1.9 %	ASTM D3039
Flexural Modulus	1.99E+7 psi	137000 MPa	ASTM D790
Flexural Strength <sup>6</sup>	303000 psi	2090 MPa	ASTM D790
Compressive Modulus			ASTM D6641
-- <sup>5</sup>	1.60E+6 psi	11000 MPa	
-- <sup>4</sup>	1.95E+7 psi	134000 MPa	
Compressive Strength			ASTM D6641
-- <sup>4</sup>	160000 psi	1100 MPa	
-- <sup>5</sup>	24000 psi	165 MPa	
Poisson's Ratio <sup>7</sup>	0.31	0.31	ASTM D3039
Thermal	Typical Value (English)	Typical Value (SI)	Test Method
Glass Transition Temperature	240 °F	116 °C	ASTM D3418

Copyright © 2017 PolyOne Corporation. PolyOne makes no representations, guarantees, or warranties of any kind with respect to the Information contained in this document about its accuracy, suitability for particular applications, or the results obtained or obtainable using the information. Some of the Information arises from laboratory work with small-scale equipment which may not provide a reliable indication of performance or properties obtained or obtainable on larger-scale equipment. Values reported as "typical" or stated without a range do not state minimum or maximum properties; consult your sales representative for property ranges and min/max specifications. Processing conditions can cause material properties to shift from the values stated in the Information. PolyOne makes no warranties or guarantees respecting suitability of either PolyOne's products or the Information for your process or end-use application. You have the responsibility to conduct full-scale end-product performance testing to determine suitability in your application, and you assume all risk and liability arising from your use of the Information and/or use or handling of any product. POLYONE MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, either with respect to the Information or products reflected by the Information. This data sheet shall NOT operate as permission, recommendation, or inducement to practice any patented invention without permission of the patent owner.

**Notes**

<sup>1</sup> Available in roll form with lengths up to 250 ft.

<sup>2</sup> Width: 1.50" to 8.75"  
Thickness: .020" to .045"  
Length: 6" to 120"

<sup>3</sup> Typical values are not to be construed as specifications.

<sup>4</sup> 0 degree orientation

<sup>5</sup> 90 degree orientation

<sup>6</sup> Strength Values developed from ASTM D790 are dependent on thickness. As thickness increased flex strength decreased. The test data above is based on a test thickness of .060"

<sup>7</sup> nu12 (0/90)

**CONTACT INFORMATION****Americas**

United States - Avon Lake  
+1 440 930 1000

United States - McHenry  
+1 815 385 8500

**Asia**

China - Guangzhou  
+86 20 8732 7260

China - Shenzhen  
+86 755 2969 2888

China - Suzhou  
+86 512 6823 24 38

China - Suzhou  
+86 512 6265 2600

Hong Kong -  
+852 2690 5332

Taiwan - Yonghe City,  
+886 9396 99740, +886 2929 1849

**Europe**

Germany - Gaggenau  
+49 7225 6802 0

Spain - Barbastro (Huesca)  
+34 974 310 314



*Beyond Polymers.*

*Better Business Solutions.™*

www.polyone.com

**PolyOne Americas**

33587 Walker Road  
Avon Lake, Ohio 44012  
United States  
+1 440 930 1000  
+1 866 POLYONE

**PolyOne Asia**

No. 88 Guoshoujing Road  
Z.J Hi-tech Park, Pudong  
Shanghai, 201203, China  
+86 21 5080 1188

**PolyOne Europe**

6 Giällewee  
+352 269 050 35

Copyright ©, 2017 PolyOne Corporation. PolyOne makes no representations, guarantees, or warranties of any kind with respect to the Information contained in this document about its accuracy, suitability for particular applications, or the results obtained or obtainable using the information. Some of the Information arises from laboratory work with small-scale equipment which may not provide a reliable indication of performance or properties obtained or obtainable on larger-scale equipment. Values reported as "typical" or stated without a range do not state minimum or maximum properties; consult your sales representative for property ranges and min/max specifications. Processing conditions can cause material properties to shift from the values stated in the Information. PolyOne makes no warranties or guarantees respecting suitability of either PolyOne's products or the Information for your process or end-use application. You have the responsibility to conduct full-scale end-product performance testing to determine suitability in your application, and you assume all risk and liability arising from your use of the Information and/or use or handling of any product. POLYONE MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, either with respect to the Information or products reflected by the Information. This data sheet shall NOT operate as permission, recommendation, or inducement to practice any patented invention without permission of the patent owner.