

POLYMAT™ - HIGH TG

PolyMat™ - High Tg is a UV initiated thermoset dual cure acrylic resin developed for the rigors of high speed CF3D® continuous fiber printing.

The composition of PolyMat™ - High Tg delivers strong performance both during printing and in the field, enabling it for use in a wide range of demanding applications.

Compatible with a range of industry leading carbon and glass fibers, a high glass transition temperature, and convenient room temperature storage, PolyMat™ - High Tg takes performance to the next level.

The CF3D® process uses UV light to initiate the photopolymer, delivering the required green strength to build parts in a range of geometries utilizing steered continuous fiber. Maximum physical properties are realized upon thermal post-treatment.

FEATURES AND BENEFITS

- High Glass Transition Temp: > 220°C
- Shelf Life: 12 months at Room Temp
- Low Void Composites: < 2%
- Fiber Volume Fraction: (FVF) > 50%

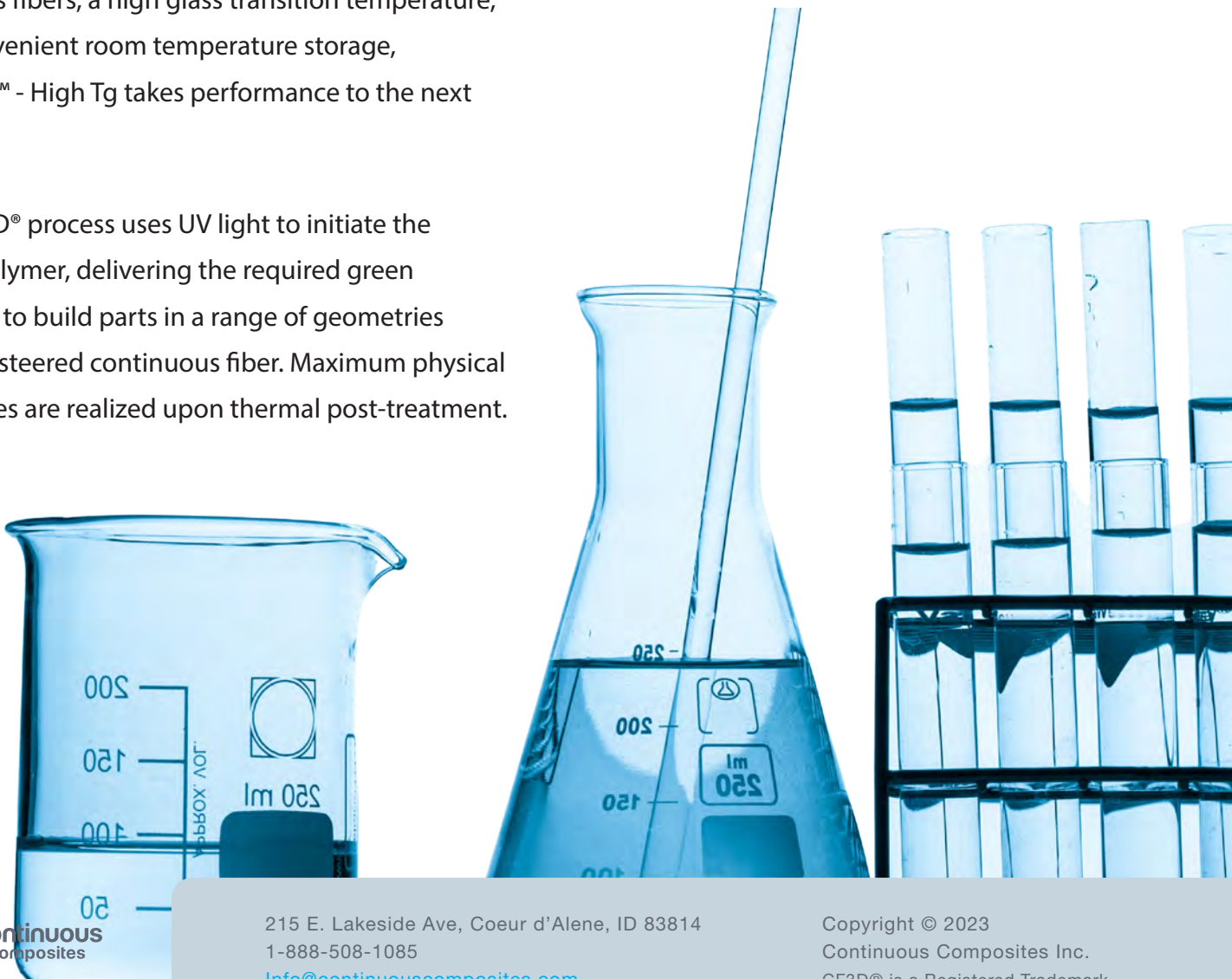


TABLE 01

NEAT RESIN HANDLING PROPERTIES

SHELF LIFE*	12 MONTHS **
CARTRIDGE SIZE	0.55 LITERS
CARTRIDGE OFFERING	15 QTY (PART #400-20) 85 QTY (PART #400-10)
CARTRIDGE COMPATABILITY	SINGLE LANE END EFFECTOR (PART #100-5996)

*when at room temperature

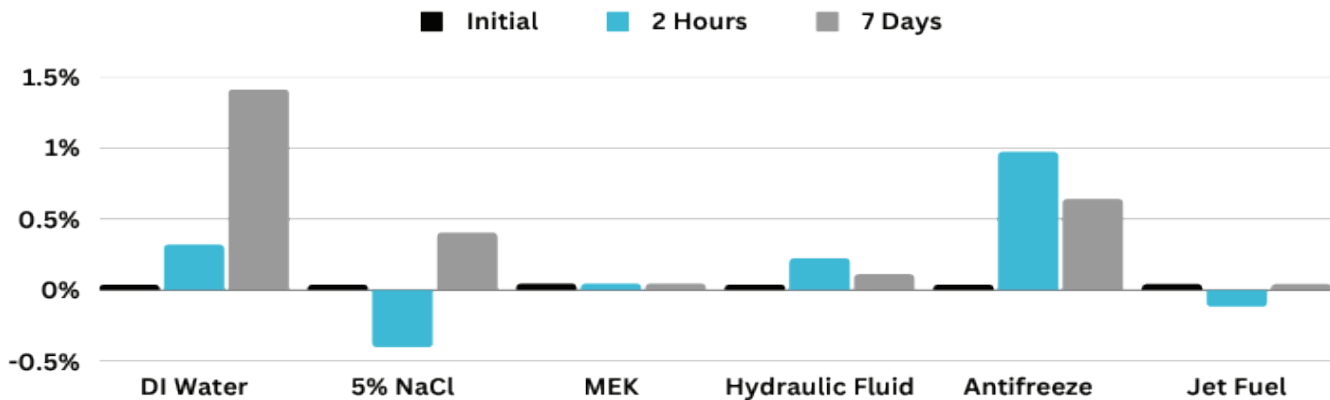
**from date of manufacture

TABLE 02

CURED NEAT RESIN PROPERTIES

PROPERTIES	METHOD	VALUE
SOLID DENSITY (g/cc)	ASTM D-792	1.24
GLASS TRANSITION (°C)	DMA	221
WORKING MAX TEMPERATURE (°C)	DMA	< 150

EXPOSURE TESTING



Composite properties normalized to 50% FVF CF3D® Certified Fibers with CF3D® PolyMat™ High Tg (UV snap cure + post bake)

Properties tested under room temperature dry conditions:

PROPERTIES	METHOD	TORAY T1100 - 12K 50C
0° TENSILE STRESS (GPA)	ASTM D-3039	2.03
0° TENSILE MODULUS (GPA)	ASTM D-3039	114.87
OPEN HOLE TENSILE (MPA)	ASTM D-5766	646
QI TENSION STRENGTH (MPA)	ASTM D-3039	646
COMPRESSIVE STRENGTH (MPA)	ASTM D-6641	549
COMPRESSIVE MODULUS (GPA)	ASTM D-6641	112.01
FLEXURAL STRENGTH (MPA)	ASTM D-790	978
FLEXURAL MODULUS (GPA)	ASTM D-790	83.61
SHORT BEAM SHEAR (MPA)	ASTM D-2344	62
IN-PLANE SHEAR STRENGTH (MPA)	ASTM D-3518	48.94
IN-PLANE SHEAR MODULUS (GPA)	ASTM D-3518	3.22
OPEN HOLE COMPRESSION (MPA)	ASTM D-6484	213
SINGLE SHEAR BEARING TEST (MPA)	ASTM D-5961	611
QI COMPRESSION STRESS (MPA)	ASTM D-6641	325
90° TENSILE STRESS (MPA)	ASTM D-3039	27
90° TENSILE MODULUS (GPA)	ASTM D-3039	6.44

POLYMAT™ HIGH TG POST BAKE CYCLE

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