AXIOM MATERIALS

AX-5605

Modified Polymer Silica Carbon Prepreg

PRODUCT DATA SHEET

Summary

AX-5605 is a modified polymer-silica, pre-ceramic polymer carbon prepreg designed for high temperature laminating applications of up to 900°F (482°C). The polymer-silica matrix formulation is ideal for multi-ply laminates requiring excellent strength and high thermal resistance. Parts built with AX-5605 exhibit a combination of high thermal stability and structural integrity. Solution coated processing offers thorough impregnation for optimum fiber wet-out and excellent mechanical properties. The service temperature envelope for AX-5605 is -67°F (-55°C) to 900°F (482°C).

Typical Applications/Features

- High temperature composite laminates
- Disc brakes for motorsports
- High temperature engine parts or components
- High temperature tubing
- APU plenums
- Applications requiring 900°F burn-through performance or excellent flammability performance

Table 1. Typical Reinforcement Options

Property	UOM	Style 284	Style 584
Type	-	3K	3K
Weave	-	2x2 Twill	8HS
Fabric Areal Weight	PSF (GSM)	0.042 (205)	0.076 (373)
Width	in. (cm)	50 (127)	50 (127)
Roll Length	LY (m)	50 (46)	33 (30)

Our products are *flexible* by design:
Additional weights, roll sizes, and reinforcements are available.

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Recommended Cure Cycle

Compression molding or autoclave pressures are recommended, but vacuum bag designs may perform adequately depending on application.

Bleeder cloths and edge bleeders should be placed on & around the assembly as needed.

- Apply full pressure: 100 PSI (690 kPa) nominal,
- Ramp at 3-10°F/minute,

<u>OPTION A - FLEXIBLE after initial cure:</u>
Hold at 375°F (191°C) for 360 minutes,

- OR -

<u>OPTION B - STIFF after initial cure:</u>
Hold at 350°F (177°C) for 60 minutes, then ramp up temperature to 450°F (232°C) and hold for 180 minutes,

- Cool slowly under full pressure and remove at 180°F (82°C) or below,
- Follow Postcure Cycle.

Postcure Cycle

Postcuring laminates up to and beyond desired use temperature is recommended to achieve maximum heat resistance and mechanical properties. For maximum service temperature, a free standing laminate post cure is recommended.

Use a ramp rate of 2-5°F/minute in between dwells. It is suggested that parts are postcured to a minimum of 600°F (316°C), with optional subsequent postcures depending on use temperature:

- Ramp 2-5°F/minute from room temperature to 600°F (316°C),
- Dwell 6 hours at 600°F (316°C),
- For higher temperature requirements ramp from 600°F (316°C) to desired service temperature and hold for minimum of 2 hours at maximum service temperature,
- Cool slowly to 180°F (82°C) or below.

Table 2. Typical Physical Properties (Style 284 Prepreg)

Property	Test Method	Test Temp.	Avg Value
Standard Resin Content	Weight difference	RT	45% Wet
Cured Resin Density	Volumetric	RT	1.25 g/cc
Laminate Density	Volumetric	RT	2.0 g/cc
Cured Ply Thickness	Micrometer	RT	0.009-0.010 inches

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Figure 1. Laminate Thickness Recovery from 15% Compression as a Function of Cure Temperature

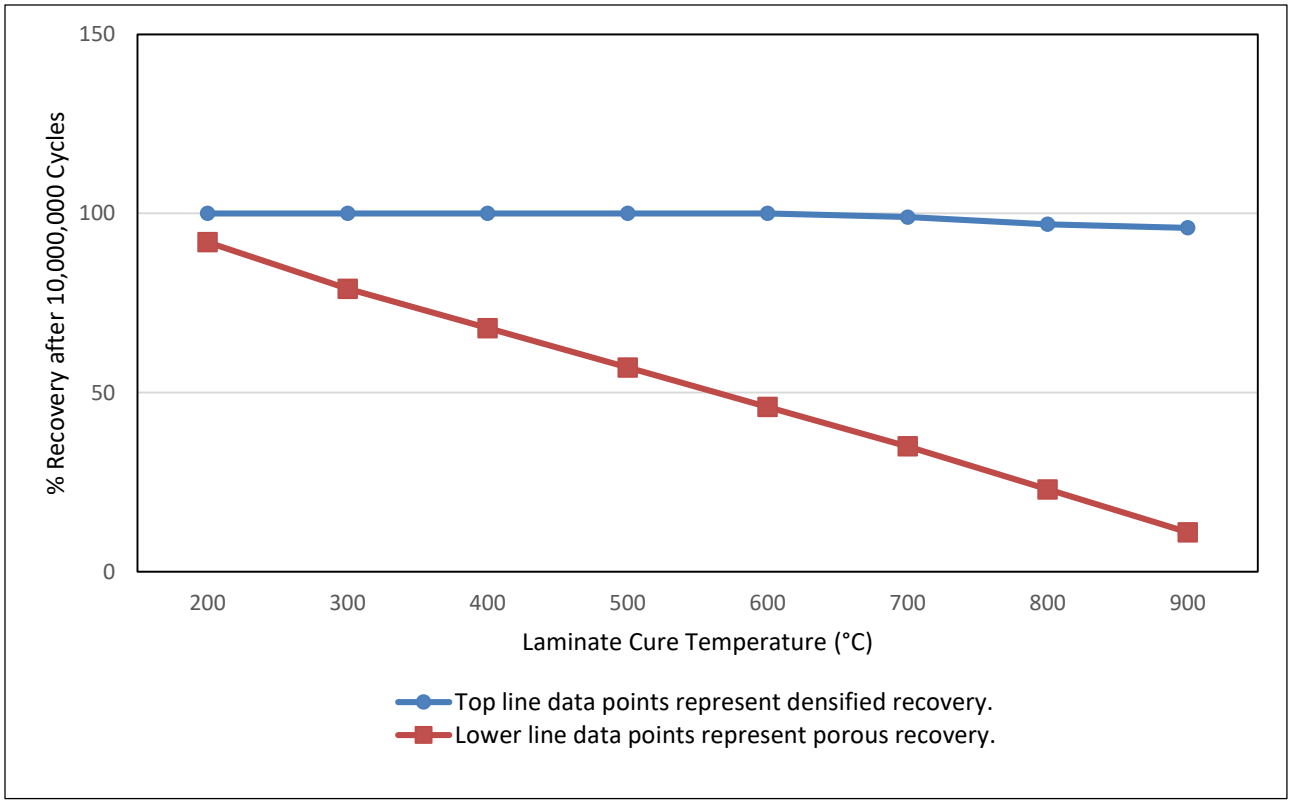

Table 3. Tensile Strength and Modulus Properties per ASTM D638 After Densification (Style 584)

Cure Temperature, °F (°C)	Tensile Strength, ksi (MPa)	Tensile Modulus, msi (GPa)
450 (232)	57.3 (395)	7.7 (53)
575 (302)	56.1 (387)	7.6 (52)
650 (343)	57.5 (396)	7.3 (50)
700 (371)	58.6 (404)	7.5 (52)

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Storage Requirements

Shelf life is 12 months from date of shipment when stored at 40°F or below.

Working life is 7 days at ambient temperatures (75°F) when properly covered and sealed.

Once polyfilm is removed, parts should be laid up and bagged or molded within 48 hours.

Access Product Data ONLINE
www.AxiomMaterials.com

Handling & Safety Instructions

» Store prepreg suspended horizontally to avoid flat spots and thinning under the weight of the roll.

» Allow product sufficient time (minimum 6 hours) to reach ambient temperatures after removal from cold storage to prevent condensation on the prepreg surface.

» Use the appropriate safety equipment for this product.

» Refer to the AX-5605 Safety Data Sheet for specific safety instructions.

Technical Assistance

In a bind? Call us anytime. We provide fast and knowledgeable technical support:

PHONE	(949) 623-4400
EMAIL	Support@AxiomMaterials.com
WEBSITE	www.AxiomMaterials.com
FAX	(949) 261-6009

Cautionary Notice

All data is provided for informational purposes only and does not guarantee or warranty a specification for which Axiom Materials assumes legal responsibility. Users should perform verification and testing to determine suitability for their specific process and curing conditions. Refer to the Safety Data Sheet (SDS) and label for safe use and handling instructions. This product is for industrial/commercial use and must be applied by trained personnel only.

CUSTOMER SUPPORT

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Revised 8/16/18