

Epoxy – AER 103P

Technical Data Sheet

AER 103P is a toughened low temperature cure epoxy resin formulated to achieve a moderate glass transition temperature (T_g) of 159°C (318°F), with a curing temperature of 130°C (266°F). AER 103P is highly versatile and can be processed efficiently using various cure methods such as Autoclave, Vacuum bagging and Compression moulding.

Features:

- » Solvent free, hot melt epoxy towpregs
- » Good tack and drape characteristics
- » Long out life at room temperature
- » Can be processed using various techniques

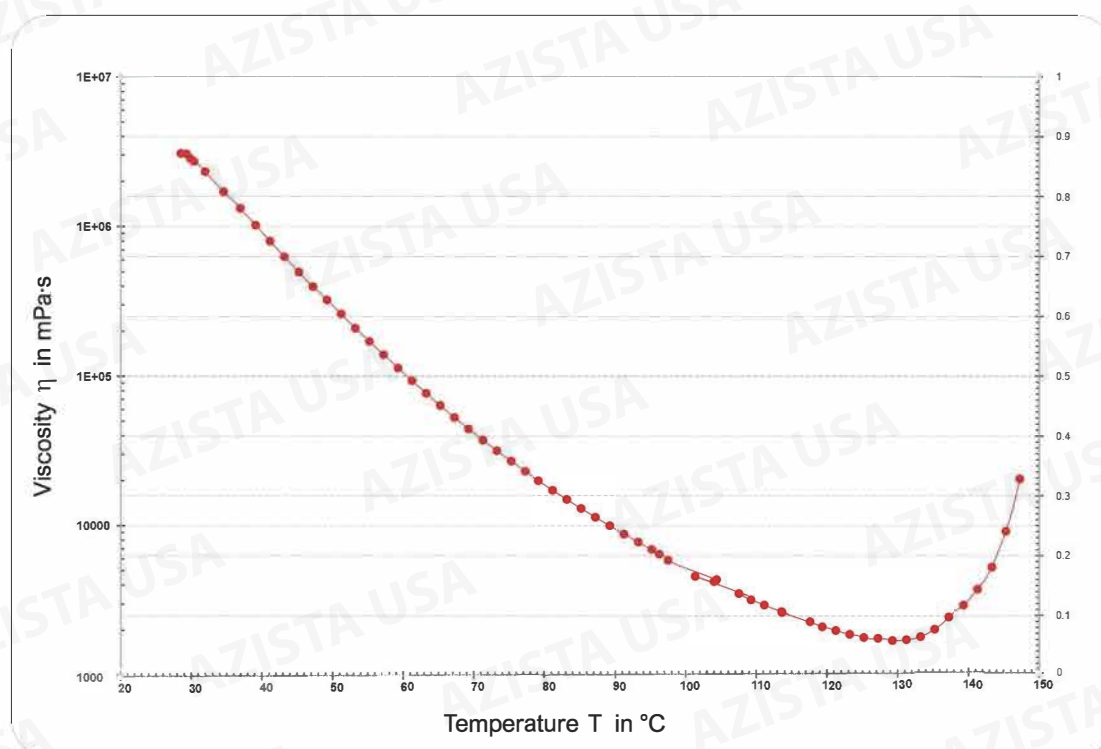
Applications:

- » Helicopter blades
- » Primary aircraft structures
- » Automobile structural applications

Neat Resin Properties

Property	Value	Test Method
Glass Transition Temperature (T_g , °C)	159	DSC (Tan-Delta)
Cured Resin Density (g/cc)	1.23	ASTM D792

Rheology Curve



Prepreg Properties- AS4C, 3K, 4H Satin Weave Carbon BD Prepreg

Properties	Units	Values
Fibre Areal weight	GSM	220
Prepreg Areal weight	GSM	366
Cured Ply Thickness	mm	0.248±0.006
Resin Content	%	40
Fabric Density	g/cc	1.78

Mechanical Properties (AS4C, 3K, 4H Satin Weave Carbon BD Prepreg)

Properties	Units	Values	Test Method
Tensile Strength Warp	MPa	748	ASTM D3039
Tensile Modulus Warp	GPa	64	ASTM D3039
Tensile Strength Weft	MPa	666	ASTM D3039
Tensile Modulus Weft	GPa	57	ASTM D3039
Compression Strength Warp	MPa	734	ASTM D3410
Compression Strength Weft	MPa	654	ASTM D3410
Short Beam Shear Strength	MPa	53	ASTM D2344
Flexural Strength Warp	MPa	920	ASTM D790
Flexural Modulus Warp	GPa	51	ASTM D790
Flexural Strength Weft	MPa	889	ASTM D790
Flexural Modulus Weft	GPa	46	ASTM D790
In-Plane shear strength	MPa	92	ASTM D3518

Prepreg Properties- AS4C, 3K, 5H Satin Weave Carbon BD Prepreg

Properties	Units	Values
Fibre Areal weight	GSM	285
Prepreg Areal weight	GSM	475
Cured Ply Thickness	mm	0.308±0.008
Resin Content	%	41
Fabric Density	g/cc	1.78

Mechanical Properties (AS4C, 3K, 5H Satin Weave Carbon BD Prepreg)

Properties	Units	Values	Test Method
Tensile Strength Warp	MPa	775	ASTM D3039
Tensile Modulus Warp	GPa	60	ASTM D3039
Tensile Strength Weft	MPa	683	ASTM D3039
Tensile Modulus Weft	GPa	56	ASTM D3039
Compression Strength Warp	MPa	706	ASTM D3410
Compression Strength Weft	MPa	730	ASTM D3410
Short Beam Shear Strength	MPa	54	ASTM D2344
Flexural Strength Warp	MPa	889	ASTM D790
Flexural Modulus Warp	GPa	47	ASTM D790
Flexural Strength Weft	MPa	884	ASTM D790
Flexural Modulus Weft	GPa	52	ASTM D790
In-Plane shear strength	MPa	103	ASTM D3518

Prepreg Properties- T700, 12K, Carbon UD Prepreg

Properties	Units	Values
Fibre Areal weight	GSM	131
Prepreg Areal weight	GSM	201
Cured Ply Thickness	mm	0.127±0.010
Resin Content	%	35
Fabric Density	g/cc	1.8

Mechanical Properties (T700, 12K, Carbon UD Prepreg)

Properties	Units	Values	Test Method
Tensile Strength Warp	MPa	2484	ASTM D3039
Tensile Modulus Warp	GPa	138	ASTM D3039
Tensile Strength Weft	MPa	30	ASTM D3039
Tensile Modulus Weft	GPa	7	ASTM D3039
Compression Strength Warp	MPa	957	ASTM D3410
Compression Strength Weft	MPa	180	ASTM D3410
Short Beam Shear Strength	MPa	90	ASTM D2344
Flexural Strength Warp	MPa	1336	ASTM D790
Flexural Modulus Warp	GPa	98	ASTM D790
Flexural Strength Weft	MPa	85	ASTM D790
Flexural Modulus Weft	GPa	9	ASTM D790

Prepreg Properties- H2550 6K 5H Satin Weave Carbon BD Prepreg

Properties	Units	Values
Fibre Areal weight	GSM	370
Prepreg Areal weight	GSM	640
Cured Ply Thickness	mm	0.415
Resin Content	%	40
Fabric Density	g/cc	1.78

Mechanical Properties (H2550 6K 5H Satin Weave Carbon BD Prepreg)

Properties	Units	Values	Test Method
Tensile Strength Warp	MPa	864	ASTM D3039
Tensile Modulus Warp	GPa	61.3	ASTM D3039
Tensile Strength Weft	MPa	667	ASTM D3039
Tensile Modulus Weft	GPa	52.5	ASTM D3039
Compression Strength Warp	MPa	634	ASTM D3410
Compression Strength Weft	MPa	677	ASTM D3410
Short Beam Shear Strength	MPa	77	ASTM D2344

Prepreg Properties– 7781, 8H Satin Weave Glass BD Prepreg

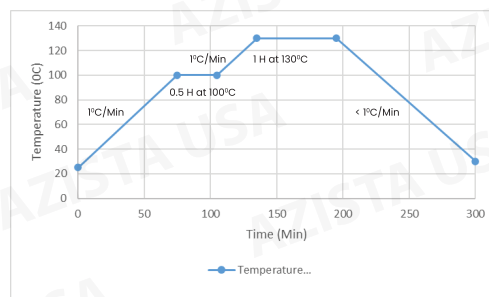
Properties	Units	Values
Fibre Areal weight	GSM	300
Prepreg Areal weight	GSM	476
Cured Ply Thickness	mm	0.249±0.005
Resin Content	%	37
Fabric Density	g/cc	2.54

Mechanical Properties (7781, 8H Satin Weave Glass BD Prepreg)

Properties	Units	Values	Test Method
Tensile Strength Warp	MPa	410	ASTM D3039
Tensile Modulus Warp	GPa	25	ASTM D3039
Tensile Strength Weft	MPa	458	ASTM D3039
Tensile Modulus Weft	GPa	25	ASTM D3039
Compression Strength Warp	MPa	526	ASTM D3410
Compression Strength Weft	MPa	438	ASTM D3410
Short Beam Shear Strength	MPa	48	ASTM D2344
Flexural Strength Warp	MPa	640	ASTM D790
Flexural Modulus Warp	GPa	24	ASTM D790
Flexural Strength Weft	MPa	573	ASTM D790
Flexural Modulus Weft	GPa	22	ASTM D790

Cure Cycle

Temperature (°C)	Heating Rate (°C / min)	Dwell time (hr)
RT – 100	1	–
100	–	30
100–130	1	–
130	–	60
Cooling	< 1	–



Curing to be done in Autoclave as per following pressure cycle. Vacuum min –720mm of Hg

Temperature (°C)	Pressure (Bar)
100	Vacuum (after 20 Min of Soaking)
100	5 (After 30 Min Soaking)

- » Storage condition: Recommended to store at –18°C.
- » Out life: up to 45 days at 22°C.
- » Shelf life: 12 months at –18°C.



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