

Epoxy – AER 112P

Technical Data Sheet

AER 112P is a toughened low temperature cure epoxy resin formulated to achieve a moderate glass transition temperature (T_g) of 160°C (320°F), with a curing temperature of 130°C (266°F). AER 112P is highly versatile and can be processed efficiently using various cure methods such as, Vacuum bagging and Compression moulding.

Features:

- » Solvent free, hot melt epoxy prepregs
- » Good tack and drape characteristics
- » Long out life at room temperature
- » Can be processed using various techniques
- » Suitable for out-of-autoclave(OOA) system

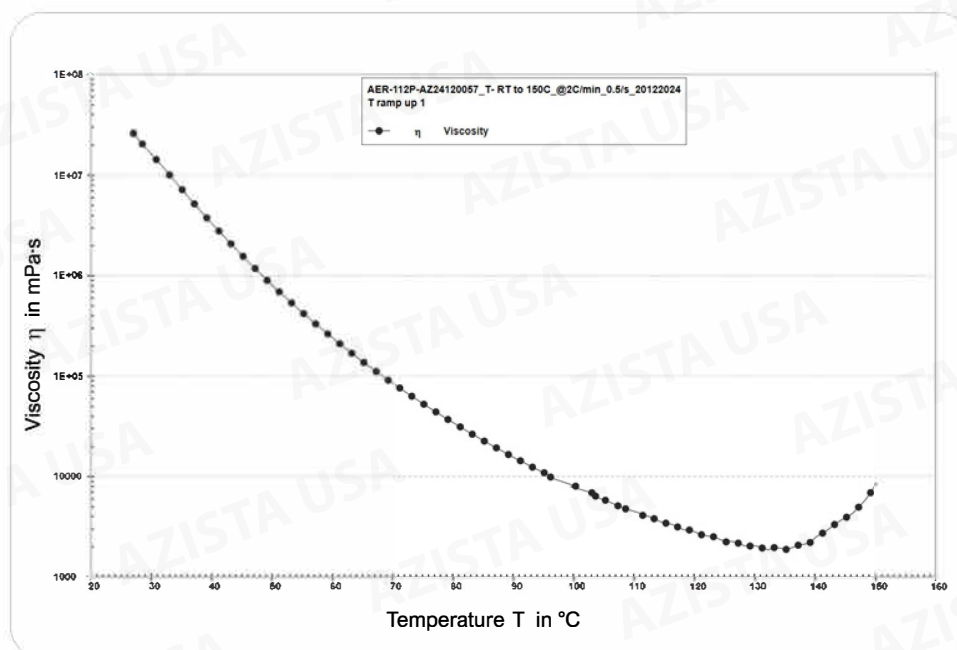
Applications:

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

Neat Resin Properties

Property		Value	Test Method
Glass Transition Temperature (T_g , °C)		160	DSC (Tan-Delta)
Cured Resin Density (g/cc)		1.23	ASTM D792
Outgassing	CVCM(%)	0.08	ASTM E595
	TLM(%)	0.46	

Rheology Curve



Prepreg Properties- T300, 3K, Plain Weave Carbon BD Prepreg

Properties	Units	Values
Fibre Areal weight	GSM	160
Prepreg Areal weight	GSM	266.67
Cured Ply Thickness	mm	0.165
Resin Content	%	40
Fabric Density	g/cc	1.78

Mechanical Properties

(T300, 3K, Plain Weave Carbon BD Prepreg)

Properties	Units	Values	Test Method
Tensile Strength Warp	MPa	650	ASTM D3039
Tensile Modulus Warp	GPa	65	ASTM D3039
Tensile Strength Weft	MPa	650	ASTM D3039
Tensile Modulus Weft	GPa	60	ASTM D3039
Compression Strength Warp	MPa	800	ASTM D3410
Compression Strength Weft	MPa	700	ASTM D3410
Short Beam Shear Strength	MPa	70	ASTM D2344
Flexural Strength Warp	MPa	850	ASTM D790
Flexural Modulus Warp	GPa	50	ASTM D790
Flexural Strength Weft	MPa	870	ASTM D790
Flexural Modulus Weft	GPa	50	ASTM D790
In-Plane shear strength	MPa	100	ASTM D3518

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

Properties	Units	Values
Fibre Areal weight	GSM	240
Prepreg Areal weight	GSM	400
Cured Ply Thickness	mm	0.308±0.008
Resin Content	%	41
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	815	ASTM D3039
Tensile Modulus Warp	GPa	61	ASTM D3039
Tensile Strength Weft	MPa	790	ASTM D3039
Tensile Modulus Weft	GPa	57	ASTM D3039
Compression Strength Warp	MPa	706	ASTM D3410
Compression Strength Weft	MPa	534	ASTM D3410
Short Beam Shear Strength	MPa	71	ASTM D2344
Flexural Strength Warp	MPa	920	ASTM D790
Flexural Modulus Warp	GPa	51	ASTM D790
In Plane shear Strength	MPa	92	ASTM D3518
In Plane shear Modulus	GPa	3.5	ASTM D3518

Prepreg Properties- T300, 1K, Twill Weave Carbon BD Prepreg

Properties	Units	Values
Fibre Areal weight	GSM	100
Prepreg Areal weight	GSM	172
Cured Ply Thickness	mm	0.098
Resin Content	%	42
Fabric Density	g/cc	1.78

Mechanical Properties (T300, 1K, Twill Weave Carbon BD Prepreg)

Properties	Units	Values	Test Method
Tensile Strength Warp	MPa	650	ASTM D3039
Tensile Modulus Warp	GPa	55	ASTM D3039
Compression Strength Warp	MPa	450	ASTM D3410
Compression Modulus Warp	GPa	55	ASTM D3410
Flexural Strength Warp	MPa	700	ASTM D790
Flexural Modulus Warp	GPa	50	ASTM D790
ILSS	MPa	60	ASTM D2344

Prepreg Properties- T700, 12K, UD Carbon Prepreg

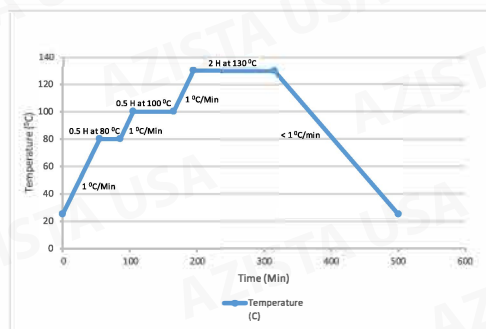
Properties	Units	Values
Fibre Areal weight	GSM	131
Prepreg Areal weight	GSM	195.5
Cured Ply Thickness	mm	0.13
Resin Content	%	33
Fabric Density	g/cc	1.78

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

Properties	Units	Values	Test Method
Tensile Strength Warp	MPa	2616	ASTM D3039
Tensile Modulus Warp	GPa	152	ASTM D3039
Compression Strength Warp	MPa	1352	ASTM D3410
Compression Strength Weft	MPa	180	ASTM D3410
Short Beam Shear Strength	MPa	88	ASTM D2344
Flexural Strength Warp	MPa	1369	ASTM D790
Flexural Modulus Warp	GPa	107	ASTM D3518
In Plane shear Strength	MPa	108	ASTM D3518

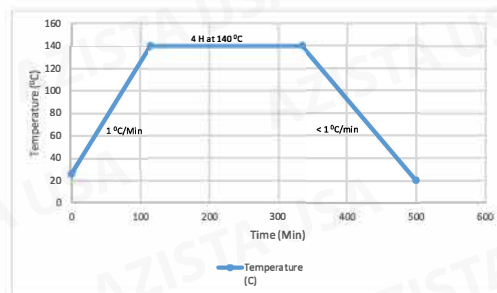
Cure Cycle(Air-circulating oven)

Temperature (°C)	Heating Rate (°C / min)	Dwell time (min)
RT – 80	1	–
80	–	30
80–100	1	–
100	–	60
100–130	1	–
130	–	120
Cooling	< 1	–



Post Cure Cycle(Air-circulating oven)

Temperature (°C)	Heating Rate (°C / min)	Dwell time (min)
RT – 140	1	–
140	–	240



- » Storage condition: Recommended to store at -18°C.
- » Out life: upto 60 days at 22°C
- » Shelf life: 12 months at -18°C

