

## High Toughened & High Tg Resin System

# 3434-5E



3434-5E resin system is suitable for a composite material requiring high Tg and high toughness. This resin system has excellent CAI and fracture toughness performance. It is suitable for the realization of high performance composite structure. In particular, it is suitable for a composite material requiring high thermal properties.

### COMPOSITE PROPERTIES

#### Carbon UD Tape & Glass Fabric

PROPERTY	UNIT	Carbon UD_H3055		Glass Fabric_823		METHOD
		RTD	ETW	RTD	ETW	
0° Tensile Strength	MPa	2856	2900	436	407	ASTM D3039
90° Tensile Strength	MPa	69.9	54.5	390	366	
0° Tensile Modulus	GPa	145	148	24.8	23.4	
90° Tensile Modulus	GPa	8.5	7.2	23.6	22.0	
0° Compressive Strength	MPa	1605	1326	577	452	ASTM D6641
90° Compressive Strength	MPa	203	144	485	389	
0° Compressive Modulus	GPa	133	133	25.1	29.1	
90° Compressive Modulus	GPa	8.7	7.5	24.1	22.5	
In-Plane Shear Strength@5%	MPa	145.7	98.6	121	85	ASTM D3518
In-Plane Shear Modulus	GPa	4.2	3.5	3.8	2.9	
Short Beam shear Strength	MPa	88.6	-	70.1	-	ASTM D2344
Poisson's Ratio	-	0.33	0.31	0.15	0.12	ASTM D3039
Open Hole Tension Strength	MPa	490	519	182	156	ASTM D5766
Open Hole Compression Strength	MPa	309	264	253	193	ASTM D6484
Fracture Toughness( $G_{IC}$ )	In-lbf/in <sup>2</sup>	2.2	-	12.9	-	BMS 8-276
Fracture Toughness( $G_{IIC}$ )	In-lbf/in <sup>2</sup>	13.6	-	24.5	-	BMS 8-276
Compression After Impact	MPa	310	-	-	-	ASTM D7137

※ The prepreg for mechanical testing is the carbon UD prepreg (FAW:190 gsm, R/C:35±2 wt.%) and glass fabric prepreg(FAW:299 gsm, R/C:35±2 wt.%). 823 is a glass fabric with specifications equivalent to 7781.

※ The prepreg was cured according to the typical autoclave cure cycle shown in this TDS.

### THERMAL PROPERTIES

PROPERTY	VALUE
Tg by DSC, °C	185
Tan-delta by DMA, °C	187

※ Thermal testing was measured by DMA at 40-300°C, 5°C/min.

## PROCESSING CONDITION

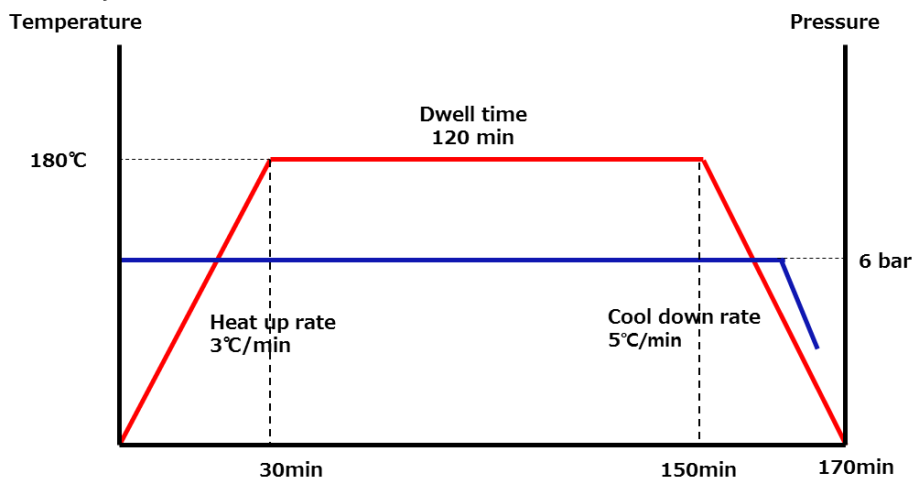
### CURE CYCLE

Dwell 180°C / 120min

Heat up rate 2-3°C/min

Pressure 6 bar

Typical autoclave cure cycle is shown as below.



## RHEOLOGY

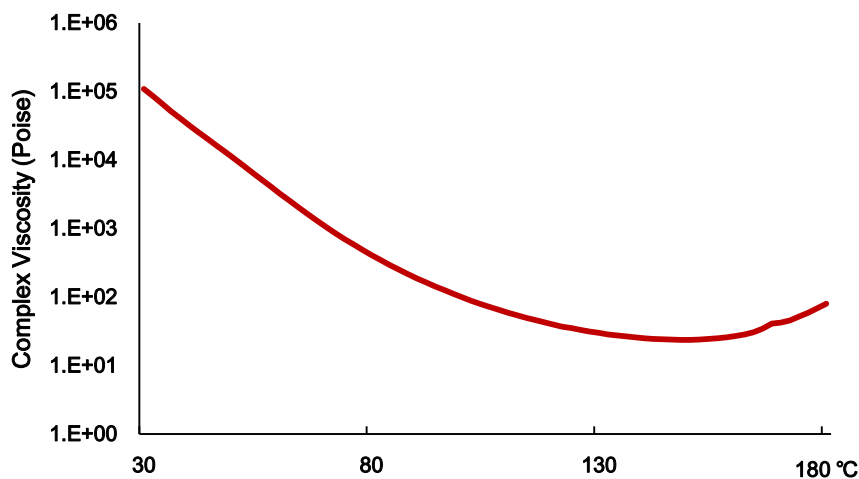
### HEATING RATE

3°C/min

### MINIMUM VISCOSITY

23 Poise

The viscosity of 3434-5E was measured according to the rate of temperature rise of 3°C/min.



## SHELF LIFE

STORAGE TEMPERATURE	SHELF LIFE
Room Temperature +21°C	20 Days
Cold Storage -5°C	1.5 month
Frozen -21°C	12 month

## HANDING & USE

Prepreg which is impregnated with 3434-5E resin system must be stored in a freezer. When material is removed from the freezer, it is essential that the roll be allowed to thaw and reach room temperature before the plastic bag is opened. For example, the thaw time for a 20 linear meter roll taken from -18°C(0°F) storage into a 21°C(70°F) room is typically between 4 and 6 hours. Condensation may form on the surface of the material if it is not fully thawed. Moisture within a curing laminate may be detrimental to final part quality and appearance. When materials are returned to the freezer, they must be resealed to prevent ingress of moisture.

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