Fast Cure Resin System

FC703T

FC703T is a 150°C 3 minute curable epoxy resin system. It is toughened resin designed for structural application and flow controlled for good surface quality of cured parts. FC703T is particularly suitable for use in automotive exterior and electronics housing composite part manufacturing with high production rate.

COMPOSITE PROPERTIES

UD Tape

PROPERTY	T-700S (TORAY)	METHOD
0° Tensile Strength	2880 MPa	ASTM D 3039
0° Tensile Modulus	134 GPa	
90° Tensile Strength	47 MPa	
90° Tensile Modulus	9.5 GPa	
0° Compressive Strength	1580 MPa	ASTM D 3410
0° Compressive Modulus	123 GPa	
90° Compressive Strength	191 MPa	
90° Compressive Modulus	9.7 GPa	
Flexural Strength	2030 MPa	ASTM D 790
Flexural Modulus	125 GPa	
In-Plan Shear strength(G12)	79 MPa	ASTM D 3518
In-plane shear 5% strength(G12)	61 MPa	
In-plane shear modulus(G12)	4.6 GPa	

※ The prepreg for mechanical testing is the carbon UD prepreg (FAW:300 gsm, R/C:30±2 wt.%, Fiber Volume:60%).

3K Plain Weave

PROPERTY	T300 3K Twill (TORAY)	METHOD
0° Tensile Strength	530 MPa	ASTM D 3039
0° Tensile Modulus	60 GPa	
0° Compressive Strength	670 MPa	ASTM D 3410
0° Compressive Modulus	54 GPa	
0° Flexural Strength	700 MPa	ASTM D 790
0° Flexural Modulus	52 GPa	
In-Plan Shear strength(G12)	97 MPa	ASTM D 3518
In-plane shear 5% strength(G12)	91 MPa	
In-plane shear modulus(G12)	4.1 GPa	

※ The prepreg for mechanical testing is the carbon fabric (FAW:208 gsm, R/C:42±2 wt.%, Fiber Volume:48%).

Tel 82-55-350-8888, Fax 82-55-350-0088, Web www.hcarbon.com

THERMAL PROPERTIES

PROPERTY	VALUE
Tg by DSC, ℃	163
Storage Modulus by DMA, ℃	161
Tan-delta by DMA, ℃	194

※ Tg defined by DSC after curing as below typical curing cycle.
※ Thermal testing was measured by DMA at 40-250℃, 5℃/min.

PROCESSING CONDITION

TEMPERATURE	*95% CONVERSION
100℃	34 min
110℃	14 min
120℃	8 min
130℃	6 min
140℃	5 min
150℃	3 min
160℃	1.5 min

* 95% Conversion is the value of the ideal heat transfer state as measured by DSC.

CURING CYCLE

PRESS MOLDING	
Thickness of the parts	1 - 2mm
Cure process	Hot-in, Hot-out Press
Cure Pressure	10 - 20bar
Mold temperature	150℃
Cure time	3min

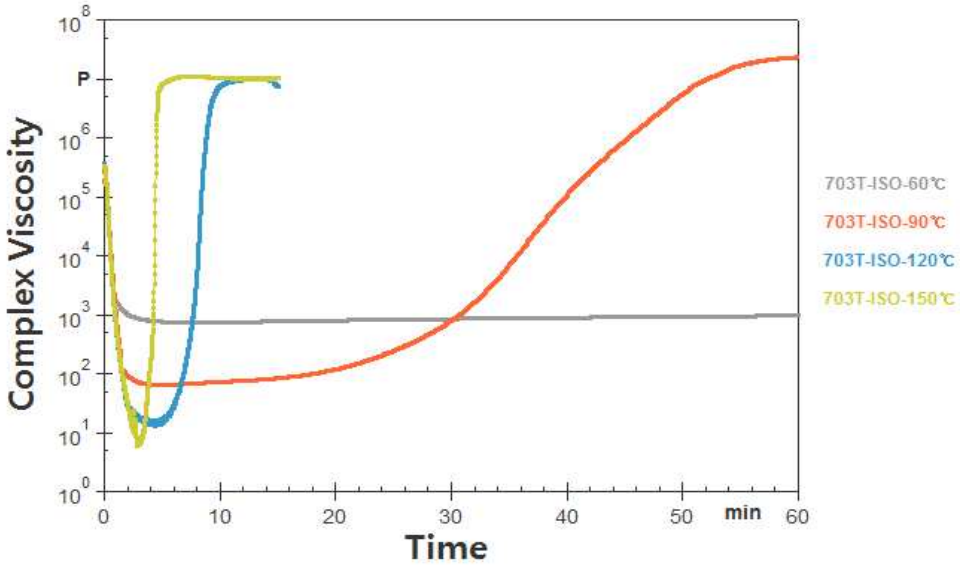
※ It may be necessary to optimize the pressure and time according to thickness of the parts.

HANKUK CARBON

RHEOLOGY

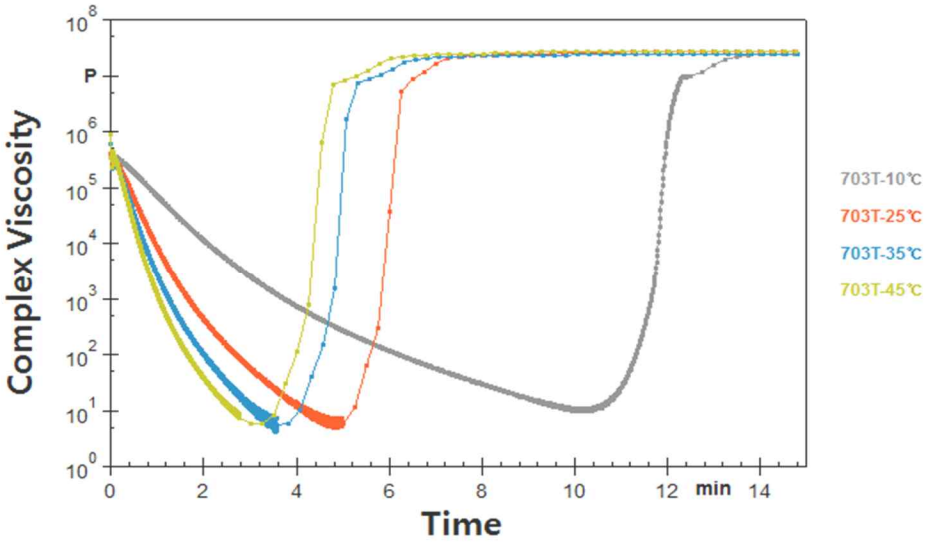
COMPLEX VISCOSITY @ ISOTHERMAL

ISOTHERMAL	MINIMUM VISCOSITY
60℃	780 Poise
90℃	65 Poise
120℃	13 Poise
150℃	7 Poise



COMPLEX VISCOSITY @ DYNAMIC HEATING

HEATING RATE	MINIMUM VISCOSITY	TIME
10℃/min	10 Poise	470 sec
25℃/min	9 Poise	238 sec
35℃/min	5 Poise	170 sec
45℃/min	3 Poise	140 sec



HANKUK CARBON

SHELF LIFE

STORAGE TEMPERATURE	SHELF LIFE
Room Temperature +25℃	1 month
Frozen -18℃	12 month

HANDING & USE

Prepreg which is impregnated with FC703T 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℃(0℉)storage into a 21℃(70℉) 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.