COMPOSITE TECHNOLOGIES
TECHNICAL DATA SHEET

KY10

Dual cure toughened epoxy prepreg /
Aerospace applications / Out-of-autoclave cure

Product

KY10 is a high performance toughened epoxy resin prepreg system designed for out-of-autoclave (OOA) or autoclave manufacturing of primary structural parts with dual cure options. The resin system is designed for high-performance structure applications and can be cured at both 135°C (275°F) and 180°C (350°F) temperatures.

Typical Applications

» Dual cure options
» Very low void contana for vacuum bag only cure
» Good impact resistance and damage tolerance
» High toughness with excellent mechanical properties
» Great resistance to hot/wet conditions

Resin Variants

» KY10: Standard formula.
» KY10-L: Extended out life version.

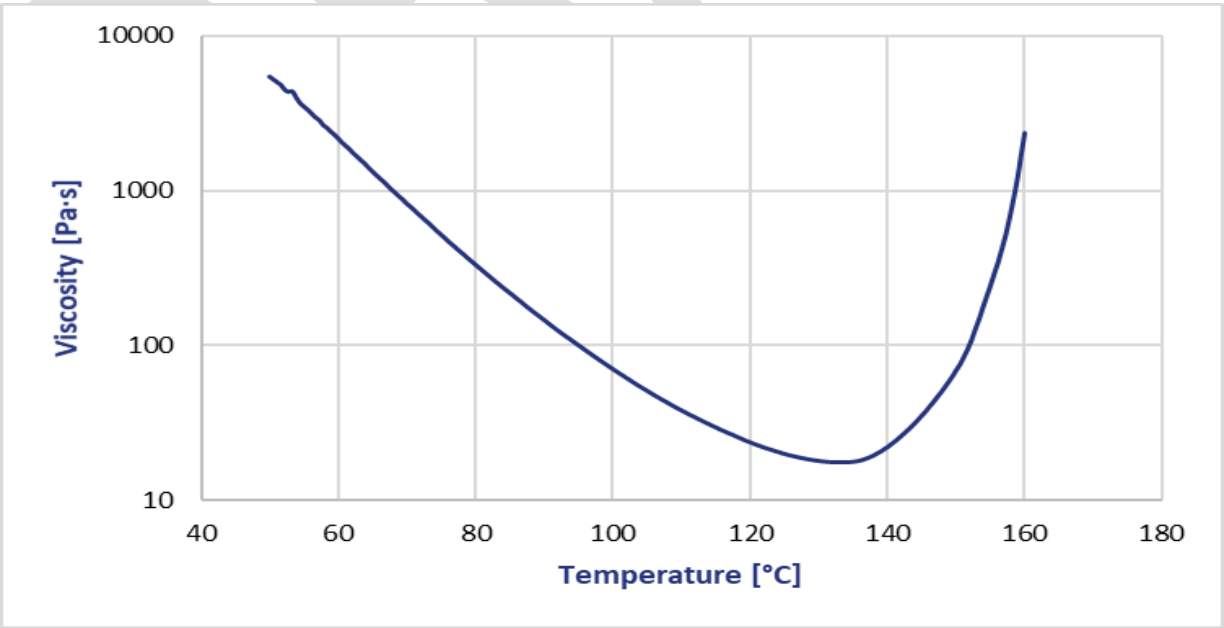

Figure 1 Rheology of KY10

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

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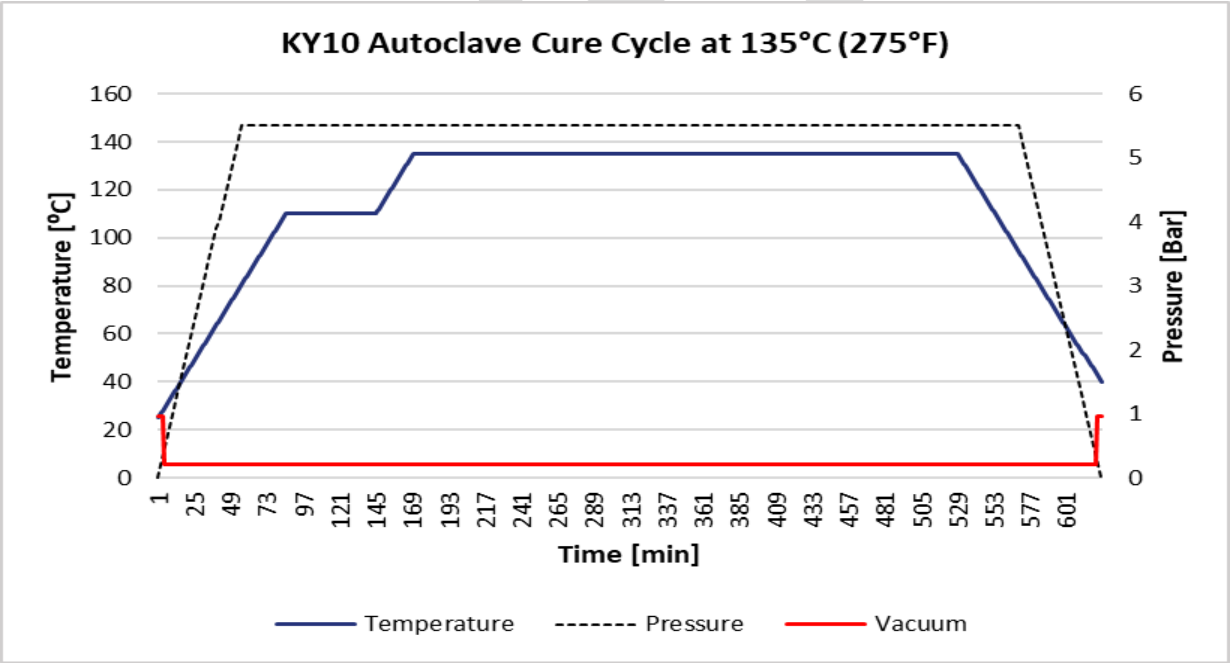
Recommended Cure Cycles

Optimum properties are achieved under vacuum and 3.5 bar or higher external pressure, and cured according to one of the following:

Cure Temperature °C (°F)	Cure Method	Time
135 (275)	Autoclave / Oven	360 minutes
180 (350)	Autoclave / Oven	120 minutes

Recommended Autoclave Curing Cycle at 135ºC (275ºF) of KY10

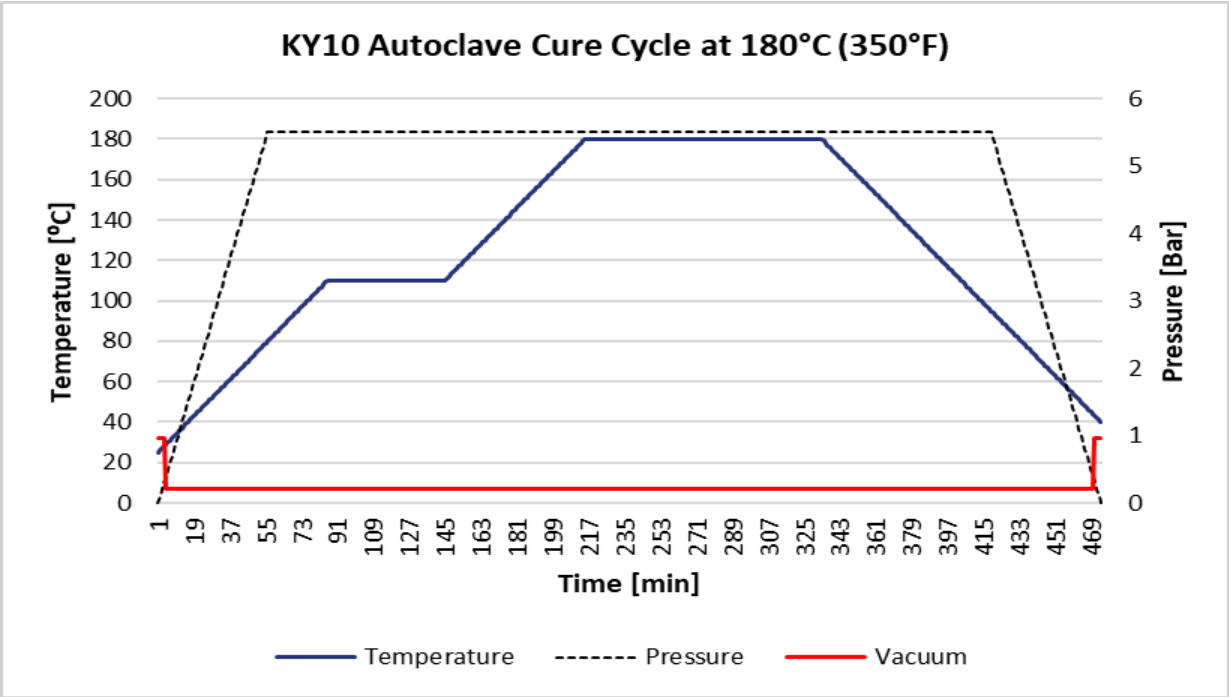
1) Apply full vacuum (-1 bar).
2) Apply 7 bar positive gauge autoclave pressure with a speed of 0.3 bar/min.
3) Heat-up at 1°C/minute to 110°C (230ºF).
4) Hold at 110°C (230ºF) for 60 minutes.
5) After the initial dwell, heat up at 1°C/minute to 135°C (275ºF).
6) Hold at 135°C (275ºF) for 360 minutes.
7) Cool at 3°C/min to 40°C (104ºF).
8) Vent autoclave pressure with 1 bar/min when the component reaches 50°C (122ºF) or below.



Recommended Autoclave Curing Cycle at 180ºC (350ºF) of KY10

1) Apply full vacuum (-1 bar).
2) Apply 7 bar positive gauge autoclave pressure with a speed of 0.1 bar/min.
3) Heat-up at 1°C/minute to 110°C (230ºF).
4) Hold at 110°C (230ºF) for 60 minutes.
5) After the initial dwell, heat up at 1°C/minute to 180°C (350ºF).
6) Hold at 180°C (350ºF) for 120 minutes.

7) Cool at 3°C/min to 40°C (104ºF).
8) Vent autoclave pressure with 1 bar/min when the component reaches 50°C (122ºF) or below.



Recommended Oven Curing Cycle at 135ºC (275ºF) of KY10

1) Place thermocouple between the layers to track the temperature change,
2) Apply minimum 960 mbar vacuum at the beginning of the cycle.
3) Heat 1°C/min to the initial dwell temperature 110°C (230°F)
4) Keep the laminate at 110°C (230°F) temperature for 60 minutes
5) Ramp up the oven temperature with 1°C/min to 135°C (275°F)
6) Keep the laminate at 135°C (275°F) temperature for 360 minutes
7) Upon completion of cure, cool the part with 1°C/min to 40°C,
8) Before de-molding the laminate, the temperature should reach minimum 40°C.

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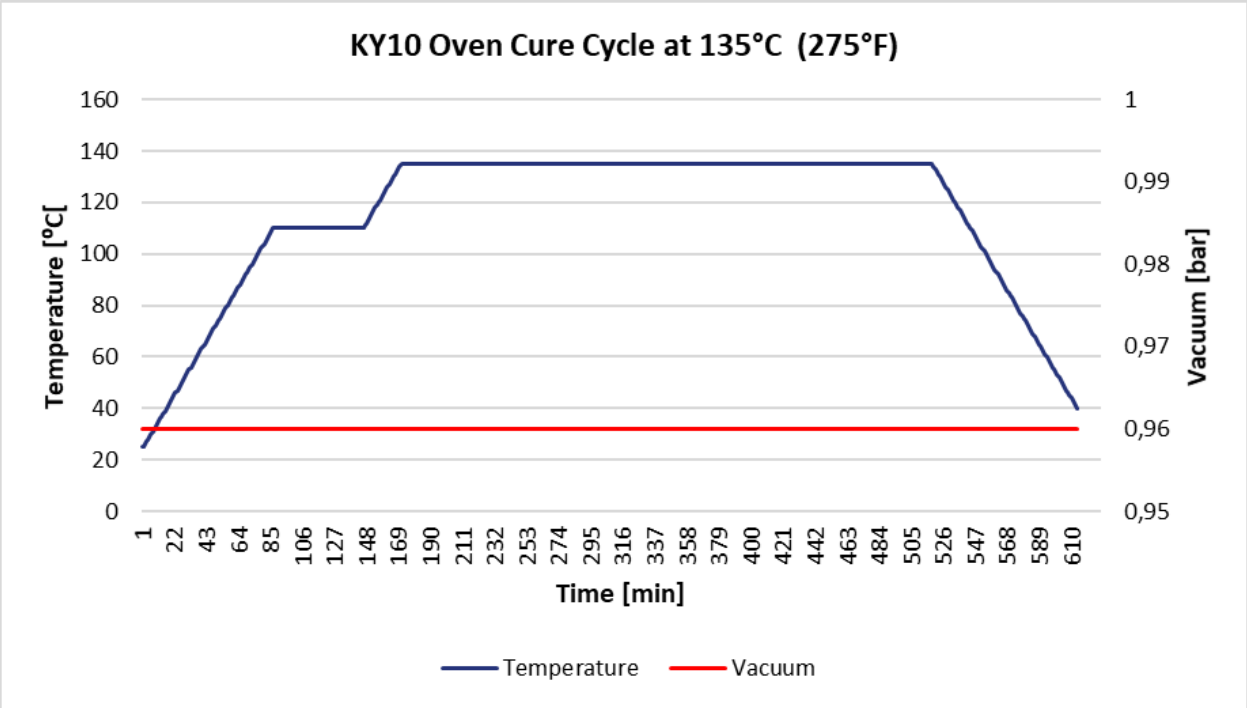
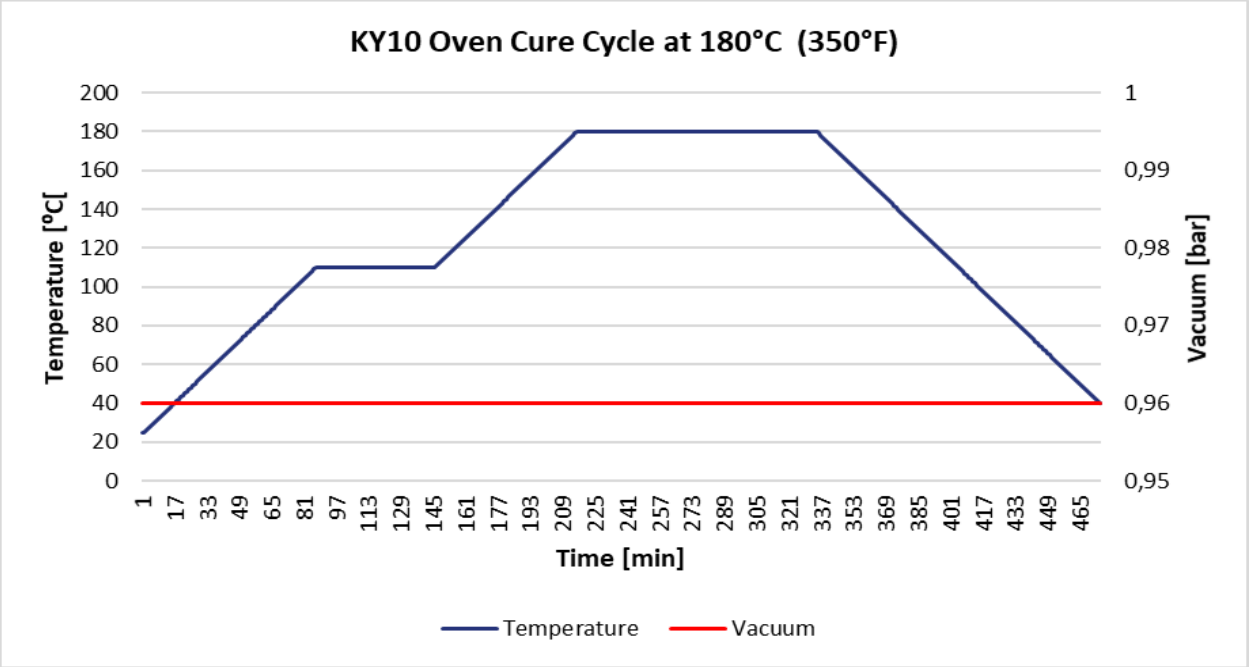


Recommended Oven Curing Cycle at 180ºC (350ºF) of KY10

1) Place thermocouple between the layers to track the temperature change,
2) Apply minimum 960 mbar vacuum at the beginning of the cycle.
3) Heat 1°C/min to the initial dwell temperature 110°C (230°F)
4) Keep the laminate at 110°C (230°F) temperature for 60 minutes
5) Ramp up the oven temperature with 1°C/min to 180°C (350°F)
6) Keep the laminate at 180°C (350°F) temperature for 120 minutes
7) Upon completion of cure, cool the part with 1°C/min to 40°C,
8) Before de-molding the laminate, the temperature should reach minimum 40°C.



Physical and Mechanical Properties *(Examples only. For the wider prepreg range, please contact Kordsa)*

Typical KY10 Mechanical Properties

UD Laminate data obtained with KY10 IMS65 24K 145gsm 33%, Autoclave Curing Cycle.

Property	Standard	Condition	Cured at 135°C (275°F)		Cured at 180°C (350°F)	
0° Tensile Strength	ASTM D3039	25 °C (75°F)	2955.4 MPa	428.6 ksi	3128.10 MPa	453.7 ksi
0° Tensile Modulus	ASTM D3039	25 °C (75°F)	151.5 GPa	22 msi	160.8 GPa	23.3 msi
0°/90° Tensile Strength	ASTM D3039	25 °C (75°F)	1553.3 MPa	225.3 ksi	1350.4 MPa	195.9 ksi
0°/90° Tensile Modulus	ASTM D3039	25 °C (75°F)	79 GPa	11.5 msi	70 GPa	10.15 msi
0° Compression Strength	ASTM D6641	25 °C (75°F)	1617,36 MPa	234,58 ksi	1589,05 MPa	230,47 ksi
0° Compression Modulus	ASTM D6641	25 °C (75°F)	313,00 GPa	45,40 msi	295,34 GPa	42,84 msi
0/90° Compression Strength	ASTM D6641	25 °C (75°F)	731,99 MPa	106,17 ksi	927,24 MPa	134,48 ksi
0/90° Compression Modulus	ASTM D6641	25 °C (75°F)	161,37 GPa	23,41 msi	166,56 GPa	24,16 msi
±45° Tensile In-Plane Shear	ASTM D3518	25 °C (75°F)	97.5 MPa	14.14 ksi	84.4 MPa	12.24 ksi
0° Short Beam	ASTM D2344	25 °C (75°F)	113.8 MPa	16.51 ksi	109.5 MPa	15.9 ksi
Open Hole Tension "Quasi" 25/50/25	ASTM D5766	25 °C (75°F)	516.7 MPa	74.94 ksi	602.5 MPa	87.4 ksi
Open Hole Compression "Quasi" 25/50/25	ASTM D6484	25 °C (75°F)	344.7 MPa	50.0 ksi	358.3 MPa	52 ksi
DMA Onset Tg Dry (35mm dual cantilever)	ASTM D7028	25 °C (75°F)	161°C	321.8°F	183.3°C	362°F

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UD Laminate data obtained with KY10 IMS65 24K 145gsm 33%, OOA Curing Cycle.

Property	Standard	Condition	Cured at 135°C (275°F)		Cured at 180°C (350°F)	
0° Tensile Strength	ASTM D3039	25 °C (75°F)	3.183,24 MPa	461,69 ksi	On Progress	
0° Tensile Modulus	ASTM D3039	25 °C (75°F)	159,09 GPa	23,07 msi		
0°/90° Tensile Strength	ASTM D3039	25 °C (75°F)	1.630,10 MPa	236,43 ksi		
0°/90° Tensile Modulus	ASTM D3039	25 °C (75°F)	80,09 GPa	11,62 msi		
0° Compression Strength	ASTM D6641	25 °C (75°F)	1.454,61 MPa	210,97 ksi		
0° Compression Modulus	ASTM D6641	25 °C (75°F)	140,27 GPa	20,34 msi		
0/90° Compression Strength	ASTM D6641	25 °C (75°F)	898,37 MPa	130,30 ksi		
0/90° Compression Modulus	ASTM D6641	25 °C (75°F)	76,16 GPa	11,05 msi		
±45° Tensile In-Plane Shear	ASTM D3518	25 °C (75°F)	99,09 MPa	14,37 ksi		
0° Short Beam	ASTM D2344	25 °C (75°F)	120,15 MPa	17,43 ksi		
Open Hole Tension "Quasi" 25/50/25	ASTM D5766	25 °C (75°F)	564,39 MPa	81,86 ksi		
Open Hole Compression "Quasi" 25/50/25	ASTM D6484	25 °C (75°F)	359,92 MPa	51,77 ksi		
DMA Onset Tg Dry (35mm dual cantilever)	ASTM D7028	25 °C (75°F)	150,56°C	303,01°F	185,21°C	365,38°F

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Storage Requirements

Shelf life is from date of manufacturing according to storage temperature below. Working life is the cumulation of time outside of storage temperature.

Storage Condition	Time
Shelf Life at -18ºC (0ºF)	12 months
Shelf Life at 4ºC (40ºF)	6 months
Working Life at 24ºC (75ºF)	25 days

Handling & Safety Instructions

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

» Allow product sufficient time (at least 24 hours) to reach ambient temperatures after removal from cold storage to prevent condensation on the adhesive surface.

» Use the appropriate safety equipment for this product.

» Refer to the KY10 Material Safety Data Sheet for specific safety instructions.

Technical Assistance

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

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