CYCOM® 985 and CYCOM® 985LV

CYCOM® 985 and CYCOM® 985LV are 177°C (350°F) curing epoxy resin systems designed for use in applications requiring a balance of performance and processing characteristics. Low viscosity CYCOM® 985LV prepregs are recommended for applications where low void content of parts is essential. Both systems have excellent structural performance and good impact resistance.

CYCOM® 985 and 985LV prepregs can be used to produce thick section parts or can be co-cured with structural adhesives to produce outstanding thin-skinned sandwich structures.

Optimum properties are achieved by curing under autoclave pressure between 45 and 100 psi (as appropriate to panel configuration) at 179°C (355°F) for two hours.

CYCOM® 985 & 985LV prepregs have good tack and drape and a minimum out-time of 10 days at 23°C.

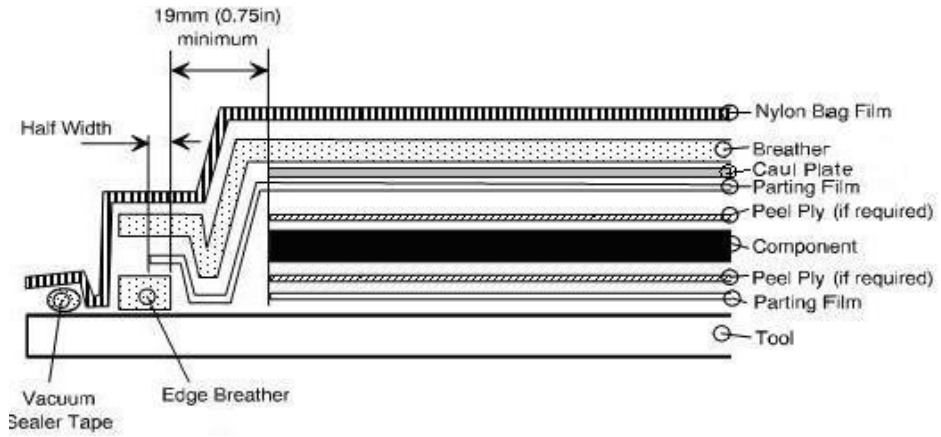
Features and Benefits

- Shelf Life of 12 months at -18°C (0°F), minimum 10 days at 23°C (73°F)
- Controlled matrix flow and easy processing
- Good impact resistance
- Excellent hot/wet strength retention
- Autoclave processing
- 171°C (340°F) Dry and 130°C (266°F) Wet Glass Transition temperature
- Straight-up cure cycle at 177°C (350°F) and optional step cure cycle for flow control
- Good Tack and Drape
- Outstanding thin-skinned sandwich structures
- Available in several fibre and fabric forms

APPLICATIONS

Aircraft and helicopters primary and secondary structures (engine nacelles, fuselage, tail booms, etc)

RECOMMENDED BAGGING

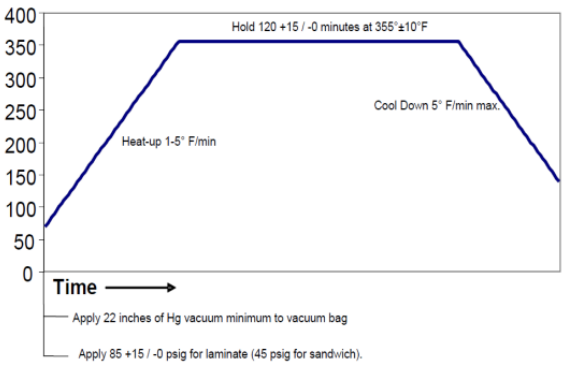


CURE CYCLE

Standard Cure Cycle for CYCOM985(LV)

Parameter	Units
Vacuum	0.745 Bar minimum; released after pressure reaches 20 psi (1.4 Bar)
Pressure[1]	6 - 7 bar
Ramp rate	(0.5 - 3)°C/minute
Cure temperature	179 ± 5°C
Hold Time	(120+15/-0) min
Cooling Rate	3°C/min max
Cooling	to below 60°C under pressure

[1]3 Bar for sandwich laminates

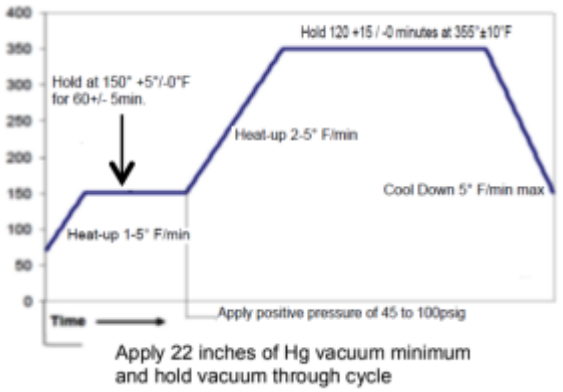


Step Cure Cycle for CYCOM985(LV) for Flow Control

Parameter	Units
Vacuum	0.745 Bar minimum; released after pressure reaches 20 psi (1.4 Bar)
Pressure[1 2]	6 - 7 bar
Ramp rate 1	(0.5 - 3)°C/minute
Dwell temperature 1	(65+3/-0)°C
Dwell time 1	(60±5) min
Ramp rate 2	(1 - 3)°C/minute
Dwell temperature 2	179 ± 5°C
Dwell time 2	(120+15/-0) min
Cooling Rate	3°C/min max
Cooling	to below 60°C under pressure

[1] Pressure applied at the beginning of Ramp 2

[2] 3 Bar for sandwich laminates



TECHNICAL DATA SHEET

CYCOM® 985 and CYCOM® 985LV

PREPREG

PHYSICAL PROPERTIES

Property		Test Method
CYCOM 985 Cured resin density:	1.26g/cm^3	ASTM D792 Method A
CYCOM 985LV Cured resin density:	1.27g/cm^3	ISO 1183
T_g dry:	171°C	ASTM D7028
T_g wet:	130°C	

MECHANICAL PROPERTIES

Property	Condition	Test Method	985-40%-3KHS-P-193-1520-W[3]	985- 37%- 3KHS-8H- 364- 1650[4]	985LV-40%-3KHS-P-193-1520-W[5]	985LV-37%-6KHTA-5H-364-1650[6]
0° TS, MPa (ksi)	RT/Dry	ASTM D3039 Internal	654 (94.8)	896 (130)	708 (102.7)	825 (120)
	90°C/Wet[1]		703 (102)	–	537 (77.9)	792 (115)[2]
0° TM, GPa (Msi)	RT/Dry		60.2 (8.73)	65.4 (9.49)	60.9 (8.83)	65.1 (9.4)
	90°C/Wet[1]		61.2 (8.87)	–	60.8 (8.82)	67.3 (9.8)[2]
90° TS, MPa (ksi)	RT/Dry	ASTM D3039 Internal	643 (93.2)	855 (124)	663 (96.2)	786 (114)
	90°C/Wet[1]		594 (86.1)	–	501 (72.6)	770 (112)[2]
90° TM, GPa (Msi)	RT/Dry		59.6 (8.64)	63.9 (9.27)	60.2 (8.73)	63.5 (9.2)
	90°C/Wet[1]		59.6 (8.65)	–	59.9 (8.68)	65.0 (9.4)[2]
0° CS, MPa (ksi)	RT/Dry	ASTM D6641 ASTM D695	752 (109)	772 (112)	617 (89.5)	853 (124)
	90°C/Wet[1]		550 (79.7)	–	593 (86)	570 (82.7)
0° CM, GPa (Msi)	RT/Dry		56.8 (8.24)	57.9 (8.4)	58.3 (8.45)	63.7 (9.2)
	90°C/Wet[1]		57.1 (8.28)	–	57.2 (8.29)	68.6 (10.0)[2]
IPSS, MPa (ksi)	RT/Dry	ASTM D3518 CRAG 101	128 (18.5)	87.8 (12.7)	120 (17.4)	97.7 (14.2)
	90°C/Wet[1]		98.6 (14.3)	–	98.5 (14.29)	86.2 (12.5)[2]
IPSM, GPa (Msi)	RT/Dry		4.06 (0.589)	(4.61) 0.669	3.85 (0.559)	4.3 (0.62)
	90°C/Wet[1]		3.31 (0.480)	–	3.28 (0.475)	3.8 (0.55)[2]
ILSS, MPa (ksi)	RT/Dry	ASTM D2344	93.8 (13.6)	69.6 (10.1)	81.4 (11.8)	81.7 (11.8)
	90°C/Wet[1]		57.9 (8.4)	–	57.8 (8.38)	50.6 (7.3)[2]
CAI@30J, MPa (ksi)	RT/Dry	ASTM D7136 D7137 SRM-2	203 (29.4)	–	195 (28.3)	189 (27.4)
	90°C/Wet[1]		178 (25.8)	–	168 (24.4)	145 (21.1)[2]

[1] Wet conditioning at 70°C/85% R.H.

[2] Test performed at 82°C

[3] Fibre dominating properties normalised to CPT 0.211 mm

[4] Fibre dominating properties normalised to CPT 0.380 mm

[5] Fibre dominating properties normalised to CPT 0.211 mm

[6] Fibre dominating properties normalised to CPT 0.380 mm

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PREPREG

PRODUCT FORMS

Available in a wide variety of product forms and widths. Please contact Syensqo Customer Service representative.

STORAGE

Storage Life is 365 days minimum from date of manufacture stored at -18°C or below, in a sealed container; Handling Life is 10 days minimum if stored at 23°C and 65% R.H. Duration of Mechanical Life is up to 30 days if stored in the controlled environment (23°C, 65% R.H.)

EXOTHERM

CYCOM® 985(LV) prepregs are reactive formulations which can undergo severe exothermic heat up during the initial curing process if incorrect curing procedures are followed.

Great care must be taken to ensure that safe heating rates, dwell temperatures and lay-up/bagging procedures are adhered to, especially when moulding solid laminates in excess of 10mm (0.40in) thickness. The risk of exotherm increases with layup thickness and increasing cure temperature. It is strongly recommended that trials, representative of all the relevant circumstances, are carried out by the user to allow a safe cure cycle to be specified. It is also important to recognise that the model or tool material and its thermal mass, combined with the insulating effect of breather/bagging materials can affect the risk of exotherm in particular cases.

Please contact our technical support staff for further information on exotherm behaviour of this prepreg.

HEALTH & SAFETY

Please refer to the product SDS for safe handling, personal protective equipment recommendations and disposal considerations.