CYCOM® 7701

CYCOM® 7701 resin is a 250°F (121°C) curing epoxy resin designed for use in structural laminates and honeycomb core sandwich panels for aircraft exteriors. In prepreg form it has excellent tack and drape. This resin was formulated for autoclave fabrication. However, it can also be press molded and vacuum bag cured.

Features and Benefits

- 250°F (121°C) cure.
- 200°F (93°C) dry service temperature
- Excellent tack and drape
- Self-extinguishing and solvent resistant
- Self-adhesive to honeycomb core
- Autoclave, press-mold, or vacuum bag processing

CHARACTERISTICS

Table 1 | Physical Properties

Properties	Style 7781 or 1581	Style 120 or 220	Test method
Resin Content, %	36-40	42-48	ASTM D 3529
Resin Flow, %	8-20	8-20	ASTM D 3531
Volatiles, %	1.5 Max	1.5 Max	ASTM D 3530
Dry Tg, °F (°C)	~260 (127)	--	ASTM D 7028
Wet Tg, °F (°C)	~190 (88)	--	ASTM D 7028
Dielectric Constant, dry	~4.80	~4.62	ASTM D 2520
Loss Tangent, dry	~0.014	~0.015	ASTM D 2520
Shelf Life	9 months at or below 0°F (-18°C) from date of shipment		
Shop Life	10 days at 75°F (24°C)		

Table 2 | Product Availability

Properties	Description
Carrier	Various E-glass and Aramid fabric styles
Roll width	38, 50, 60 in (97, 127, 152 cm) wide rolls
Roll length	60 yds (55 m)

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PROPERTIES

Table 3 I Typical Mechanical Properties of CYCOM® 7701 Laminate

Property	Test condition	Style 7781	Style 220	Test method
0° Tensile Strength ksi (MPa)	-67°F (-55°C) 75°F (24°C) 160°F (71°C)/ wet 200°F (93°C)	105 (726) 81 (559) 49 (339) 58 (402)	81 (560) 65 (450) 43 (299) 51 (352)	ASTM D 638
0° Tensile Modulus Msi (GPa)	-67°F (-55°C) 75°F (24°C) 160°F (71°C)/ wet 200°F (93°C)	4.0 (27.7) 3.7 (25.8) 3.3 (22.7) 3.3 (22.6)	3.6 (25.0) 3.2 (21.8) 2.8 (19.1) 2.8 (19.3)	ASTM D 638
90° Tensile Strength ksi (MPa)	75°F (24°C)	61 (418)	58 (400)	ASTM D 638
90° Tensile Modulus Msi (GPa)	75°F (24°C)	3.4 (23.5)	3.0 (20.7)	ASTM D 638
0° Compression Strength ksi (MPa)	-67°F (-55°C) 75°F (24°C) 160°F (71°C)/ wet 200°F (93°C)	103 (712) 80 (552) 37 (257) 47 (323)	86 (594) 75 (520) 35 (241) 46 (317)	ASTM D 695
0° Compression Modulus Msi (GPa)	-67°F (-55°C) 75°F (24°C) 160°F (71°C)/ wet 200°F (93°C)	4.1 (28.5) 4.1 (28.4) 3.4 (23.7) 3.7 (25.2)	3.5 (24.3) 3.5 (24.0) 3.0 (20.8) 3.0 (20.9)	ASTM D 695
90° Compression Strength ksi (MPa)	75°F (24°C)	67 (460)	68 (468)	ASTM D 695
90° Compression Modulus Msi (GPa)	75°F (24°C)	3.8 (26.3)	3.3 (22.8)	ASTM D 695
In-PlaneShear Strength ksi (MPa)	-67°F (-55°C) 75°F (24°C) 160°F (71°C)/ wet 200°F (93°C)	21 (144) 16 (108) 7.8 (54) 10 (70)	- 16 (110) 8.6 (59) 11 (75)	ASTM D 3518
In-Plane Shear Modulus Msi (GPa)	-67°F (-55°C) 75°F (24°C) 160°F (71°C)/ wet 200°F (93°C)	0.73 (5.0) 0.48 (3.3) 0.16 (1.1) 0.17 (1.2)	- 0.43 (3.0) 0.19 (1.3) 0.22 (1.5)	ASTM D 3518
Interlaminar Shear Strength ksi (MPa)	75°F (24°C) 160°F (71°C)/ wet 200°F (93°C)	9.6 (66) 2.8 (20) 5.1 (35)	9.7 (67) - -	ASTM D 2344

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PROCESSING

Recommended Cure Cycle

Cure Cycle	Apply full vacuum, 24 in Hg (0.081 MPa) minimum. Apply 45 psi (0.31 MPa) pressure, vent vacuum at 15 psi (0.10 MPa). Heat from 75°F (24°C) to 250°F (121°C) at 2-5°F (1-3°C)/minute. Hold at 250°F (121°C) for 90 minutes. Cool under pressure below 140°F (60°C) at 2-5°F (1-3°C)/minute.

LAY UP PROCEDURE

1. Edge bleed only. The bleeder material may overlap the layup a maximum of 0.5 inch (12.7 mm).
2. Apply non-bondable Tedlar, FEP, or TFE release film between layup and bag.
3. Vacuum bag each test panel. Draw full vacuum and test each assembly for leaks – when vacuum line is disconnected, vacuum shall not drop more than 5 in Hg (16.9 kPa) in 5 minutes.

The following figures show recommended lay-ups for CYCOM® 7701:

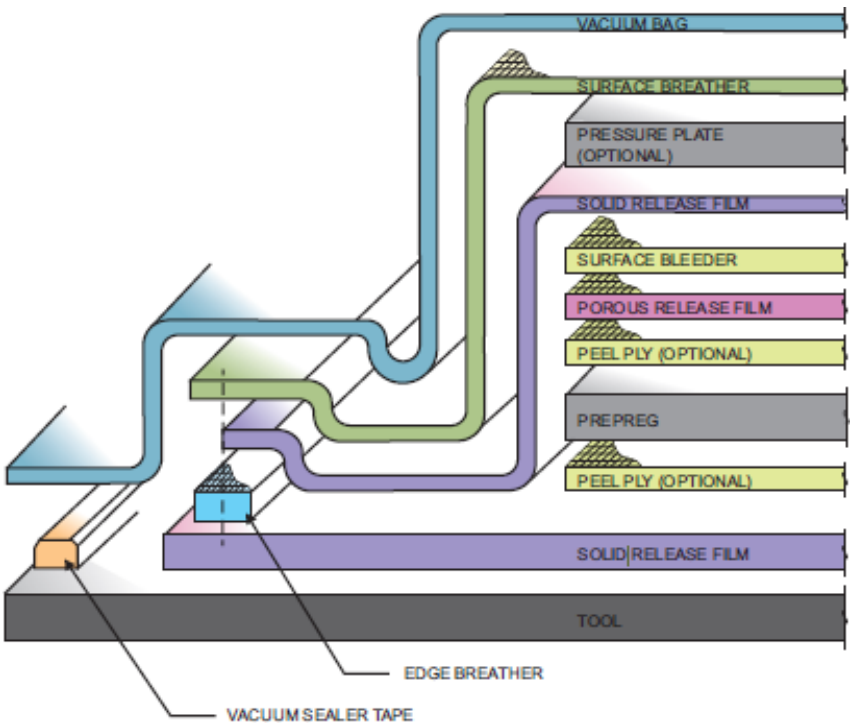

Figure 1 | Bleed Lay-up

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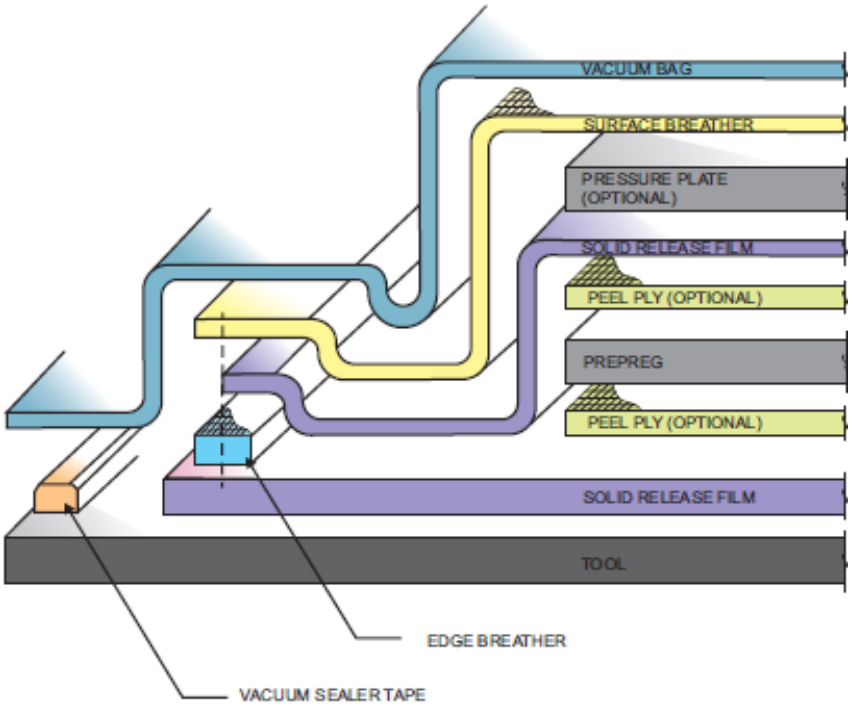

Figure 2 | No Bleed Lay-up

HEALTH & SAFETY

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

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