

## CYCOM® 4102A

CYCOM® 4102A is a polyester structural resin that is flame resistant. CYCOM® 4102A is available on a variety of reinforcing fibers. When combined with fiberglass reinforcements, it is capable of meeting the requirements of FAR 25.853 and MIL-R-7575C Grade A, Class 0 and Class 2.

Typical applications for CYCOM® 4102A prepregs include use in manufacturing heating, defrosting, de-icing, ventilating ducts, and general purpose laminated parts.

### Features and Benefits

- Flame resistant polyester resin
- Meets MIL-R-7575 C requirements when combined with fiberglass

## CHARACTERISTICS

**Table 1 | Physical Properties**

Property	7781 "E" Glass	Test Method
Resin Content, %	40 ± 5	ASTM D 3529
Resin Flow <sup>1</sup> , %	5-20	ASTM D 3531
Volatiles, %	4 max	ASTM D 3530
Gel Time <sup>2</sup> , min	1.5 max	ASTM D 3532
Specific Gravity	1.70 – 2.0	
Barcol Hardness	60 – 65	ASTM D 2583
Shelf Life	12 months at or below 10°F (-12°C) from date of shipment 6 months at or below 40°F (4°C) from date of shipment	
Shop Life	14-21 days at or below 75°F (24°C)	

<sup>1</sup> At 275°F (135°F) & 15 psi (0.10 MPa)

<sup>2</sup> At 275°F (135°F)

**Table 2 | Product Availability**

Property	Description
Carriers	Various Glass
Roll Width	38 in - 60 in (97 cm & 152 cm) wide rolls
Roll Length	60 yds (55m)



## Flammability Properties

**Table 3 | Flammability Properties**

Test	Properties	7781 "E" Glass	Test Method
60 Second Vertical Burn	Self-Extinguish Time, seconds	2	FAR 25.853
	Burn Length, in (mm)	1.5 (38)	
	Drip Time, seconds	No drip	
30 Second 45° Burn	Self-Extinguish Time, seconds	0	FAR 25.853
	Average Afterglow Time, seconds	0	
	Flame Penetration	Less than complete	

## PROPERTIES

**Table 4 | Mechanical Properties of CYCOM® 4102A<sup>1,2</sup>**

Property	Test Condition	7781 "E" Glass	Test Method
Tensile Strength ksi (MPa)	75°F (24°C)	80 (552)	ASTM D638
Tensile Modulus Msi (GPa)	75°F (24°C)	3.8 (26)	ASTM D638
Compression Strength ksi (MPa)	75°F (24°C)	70 (483)	ASTM D695
	75°F (24°C) / wet <sup>3</sup>	50 (345)	
	300°F (149°C)	35 (241)	
Flexural Strength ksi (MPa)	75°F (24°C)	80 (552)	ASTM D695
	75°F (24°C) / wet <sup>3</sup>	65 (448)	
	250°F (121°C)	45 (310)	
Flexural Modulus Msi (GPa)	75°F (24°C)	3.6 (25)	ASTM D790
Short Beam Shear Strength ksi (MPa)	75°F (24°C)	3.5 (24)	ASTM D 2344

<sup>1</sup> Number of plies: 12

<sup>2</sup> Cured ply thickness, in (mm): 0.009 (0.230)

<sup>3</sup> Wet Conditioning: 2 hour water boil

Cure Cycle: Heat to 250°F (121°C) at 3.5°F/min (1.9°C/min), Hold at 250°F (121°C) for 120 min, vacuum 13 psi (0.09 MPa)



## PROCESSING

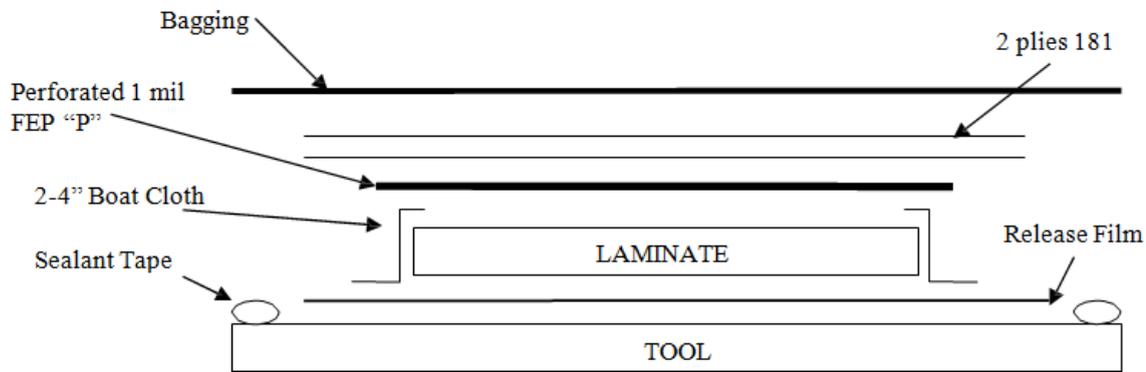
### Recommended Cure Cycle

Cure Cycle

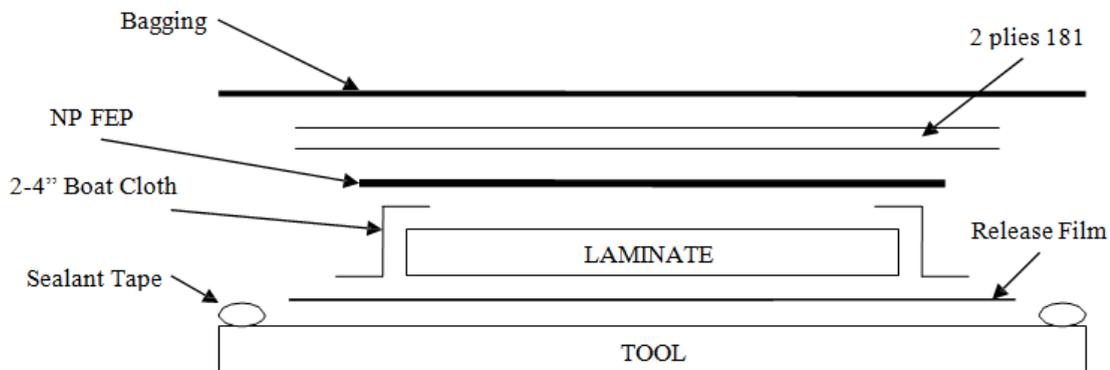
Apply full vacuum, 24 in Hg (0.081 MPa) minimum.  
 Note: Additional pressure is optional.  
 Heat from 75°F (24°C) to 250°F (121°C) at 2°F - 5°F (1°C - 3°C)/minute.  
 Hold at 250°F (121°C) for 120 minutes.  
 Cool under pressure below 140°F (60°C) at 2-5°F (1-3°C)/minute.

Times and temperatures are based on a lagging thermocouple.

### Lay-Up/Bagging



**Figure 1 | Bagging Diagram for CYCOM® 4102A: Compression Laminate**



**Figure 2 | Bagging Diagram for CYCOM® 4102A: Flammability Laminate**

### HEALTH & SAFETY

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

