

# 101



## 235-300°F (113-149°C) Cure Epoxy Film Adhesive

### Typical applications

Aerospace  
Sporting Goods  
Marine  
Wind Energy  
Industrial Manufacturing

### Out life

7 days at 70°F (21°C)

### Shelf life

3 months at 40°F (4°C)  
6 months at 0°F (-18°C)

### Description

101 is a 235°F (113°C) to 300°F (149°C) cure, general purpose epoxy film adhesive designed for bonding applications requiring high strengths from -67°F (-55°C) to 200°F (93°C).

### Benefits/features

- High toughness
- High strength sandwich panel bonds
- Cost effective
- Co-curable with most 250°F (121°C) curing prepregs
- Meets NASA outgassing requirements
- Meets MIL-A-25463 Type I, Class 1, Group 3
- Meets MMM-A-132B Type I, Class 3, Group 3

### Application

101 is suited for structural and secondary bonding applications in aerospace, sporting goods, marine, wind energy, and industrial manufacturing. High shear and peel strengths make it ideal for bonding a large number of substrates including, but not limited to, aramid & aluminum honeycombs, metals, cured & uncured epoxy composites, balsa, and foams.

101 is supplied in standard film weights from 0.030 to 0.090 psf (150-450 gsm), either unsupported or on a variety of commercially available reinforcements, including:

- Non-woven polyester carrier (HC)
- Nylon mesh (N), and tricot (TR)
- Unsupported (U)
- Metal meshes for electrical management

### Recommended processing conditions

101 can be cured at temperatures from 235°F (113°C) to 300°F (149°C), depending on part size and complexity. Low, medium, and high pressure molding techniques may be used for curing. Recommended cure cycle is 25psi (172kPa), 3°F (1.7°C)/min, ramp to 275°F (135°C), hold for 60 minutes, cool to <140°F (60°C).



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Technical Data Sheet



## Neat Resin (values are average and do not constitute a specification)

Property	Measured Value
Gel Time @ 275°F (135°C), minutes	3 – 5
Specific Gravity	1.20
T <sub>g</sub> (DMA, E'), °C (°F)	115 (239)

### NASA Outgassing, per ASTM E595

Property	Unsupported	Nylon Carrier	Polyester Carrier
Average value TML (Total Mass Loss)	0.80%	0.93%	0.87%
Average value WVR (Water Vapor Regain)	0.56%	0.69%	0.50%
Percent CVCM (Collected Volatile Condensable Materials)	0.08%	0.10%	0.06%

## Mechanical Data (values are average and do not constitute a specification)

MIL-A-25463 Type I, Class 1. NB101HC @ 0.060 psf, preheated press 275°F, 1 hour, 25 psi

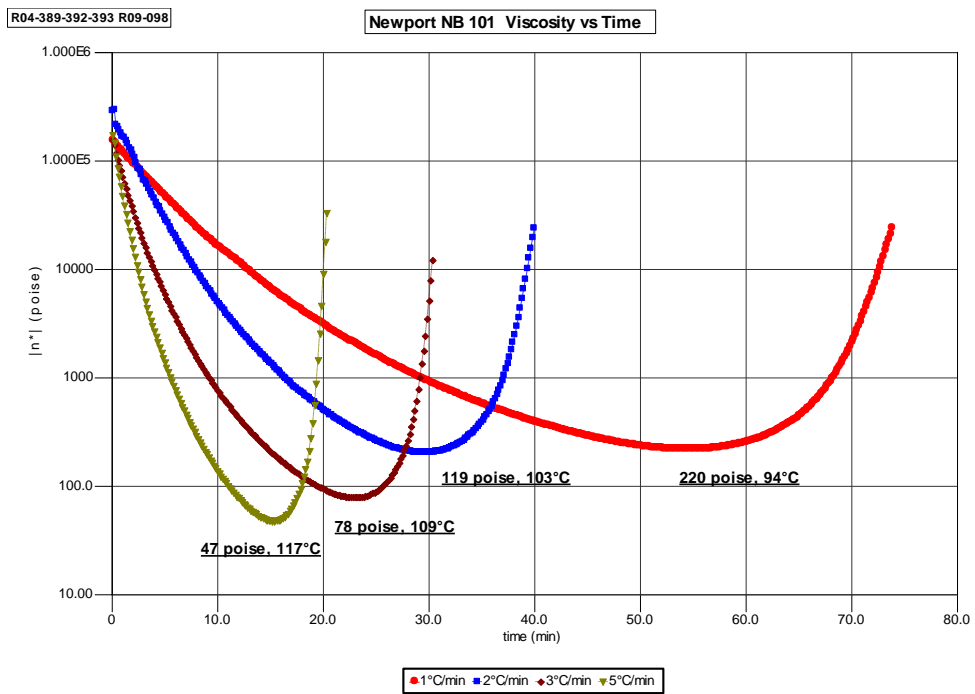
Property	Test Method	Conditioning	Test Conditions	Requirements	Results
CD peel strength, in-lbs/in (Nm/m)	ASTM D1781	n/a	RT	12.5 (55.6)	17.6 (78.3)
		n/a	-67°F (-55°C)	10 (44.5)	12.8 (56.9)
		n/a	180°F (82°C)	10 (44.5)	22.3 (99.2)
Flatwise tensile strength, psi (MPa)	ASTM C297	n/a	RT	750 (5.17)	1270 (8.75)
		n/a	-67°F (-55°C)	800 (5.52)	1110 (7.65)
		n/a	180°F (82°C)	400 (2.76)	864 (5.95)
Flexural strength, lbs (kN)	ASTM C393	n/a	RT	2100 (9.34)	2670 (11.9)
		n/a	-67°F (-55°C)	2100 (9.34)	2590 (11.5)
		n/a	180°F (82°C)	1275 (5.67)	2310 (10.3)
		180°F, 192hrs	180°F (82°C)	1500 (6.67)	2260 (10.1)
		95-100%RH, 30 days	RT	1800 (8.01)	2240 (9.98)
Creep deflection, in. (mm)	n/a	JP-4, 30 days	RT	1800 (8.01)	2490 (11.1)
		100lbs, 192hrs	RT	0.05 (1.27) max	0.01 (0.25)
		800lbs, 192hrs	180°F (82°C)	0.05 (1.27) max	0.028 (0.71)

MMM-A-132B, Type I, Class 3. NB101HC @ 0.060 psf, preheated press 275°F, 1 hour, 25 psi

Property	Conditioning	Test Conditions	Requirement	Results*
T-Peel strength, lbs/in (N/mm)	n/a	RT	n/a	16 (2.8)
Blister detection, psi (MPa)	n/a	RT	n/a	5620 (38.7)
	n/a	RT	3000 (20.7)	6220 (42.9)
	n/a	-67°F (-55°C)	3000 (20.7)	3860 (26.6)
	n/a	180°F (82°C)	2000 (13.8)	4430 (30.5)
Tensile shear strength, psi (MPa)	Hydraulic Oil, 7 days	RT	2750 (19.0)	5260 (36.2)
	JP-4, 7 days	RT	2750 (19.0)	5830 (40.2)
	120°F 100%RH, 30 days	RT	2750 (19.0)	4020 (27.7)
Fatigue strength	750 psi @ 10 <sup>6</sup> cycles	RT	Pass	Pass
Creep rupture, in (mm)	1600psi, 192 hours	RT	0.015 (0.38)	0
	800psi, 192 hours	180°F (82°C)	0.015 (0.38)	0

## Viscosity Profile

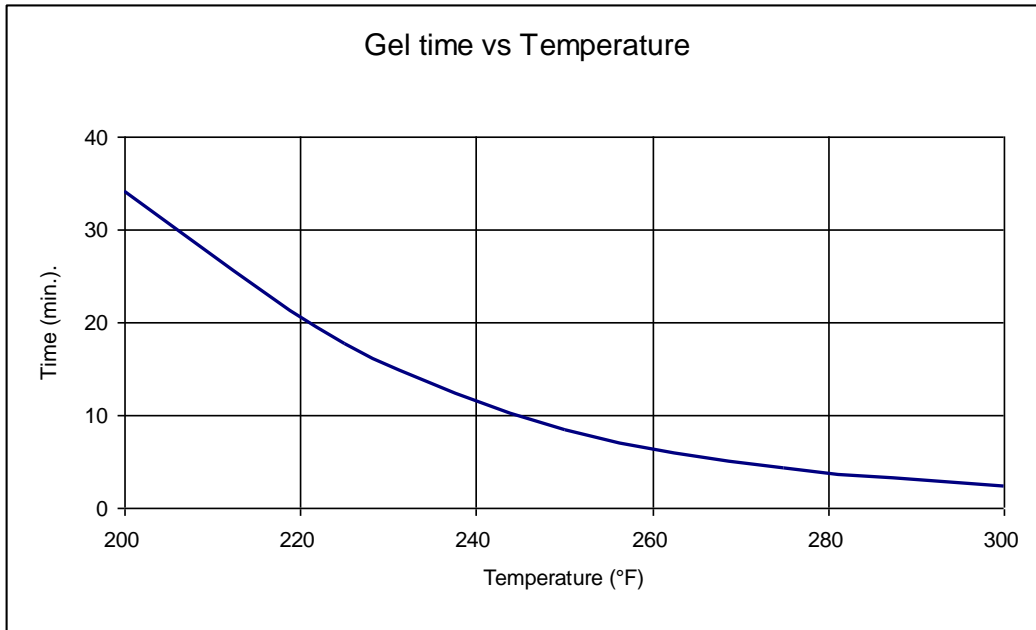
TA - AR2000 parallel plate rheometer



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## Gel Curve



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