

101



235-300°F (113-150°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 (150°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 (120°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 (150°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).

Please contact your account manager or MCCFC technical support to discuss specific applications.



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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 _g (DMA, E), °F (°C)	239 (115)

Outgassing data (per ASTM E-595 values are average and do not constitute a specification)

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%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)

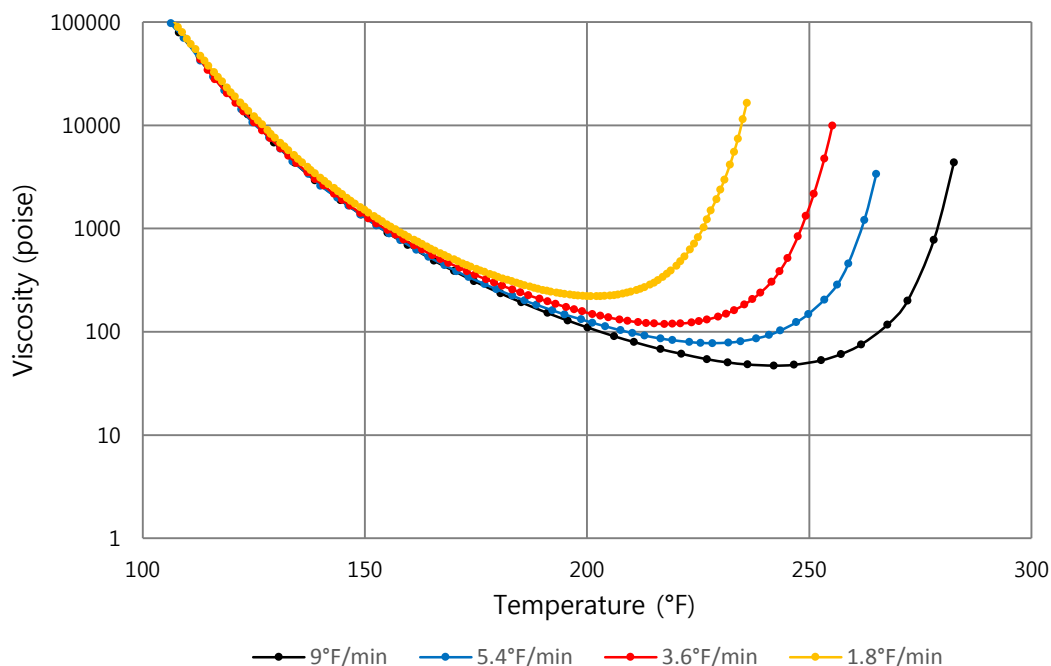
MMM-A-132B, Type I, Class 3. NB101HC @ 0.060 psf, preheated press 275°F, 1 hour, 25 psi

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 ⁶ cycles	RT	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

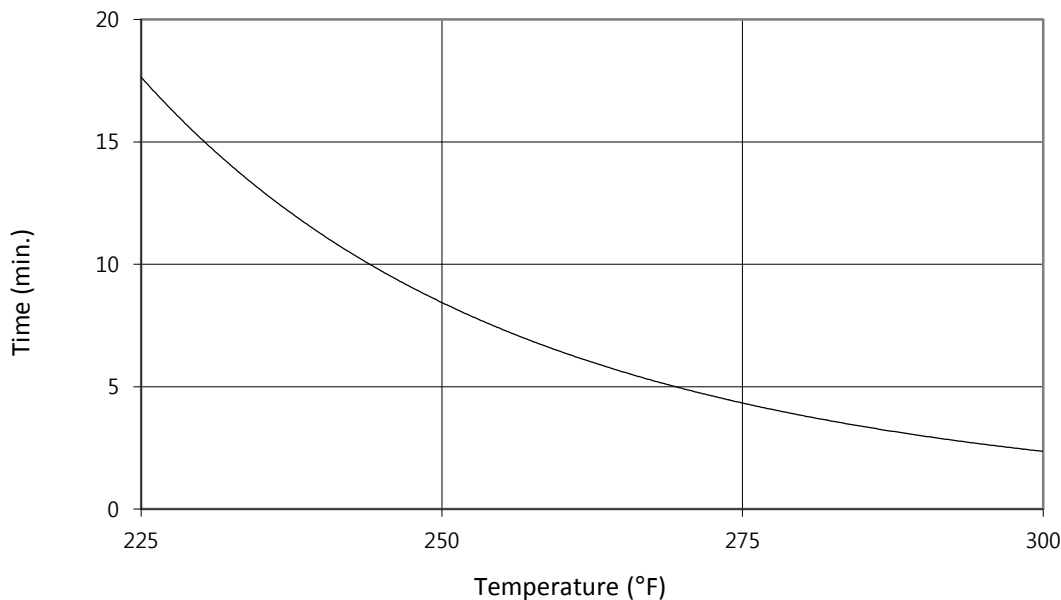


101 Viscosity vs. temperature

TA - AR2000 parallel plate rheometer



Gel time vs. temperature



The information contained herein has been obtained under controlled laboratory conditions and are typical or average values and do not constitute a specification, guarantee, or warranty. Results may vary under different processing conditions or in combination with other materials. The data is believed to be reliable but all suggestions or recommendations for use are made without guarantee. You should thoroughly and independently evaluate materials for your planned application and determine suitability under your own processing conditions before commercialization. Furthermore, no suggestions for use or material supplied shall be considered a recommendation or inducement to violate any law or infringe any patent.

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