

PRODUCT DATA SHEET

DESCRIPTION

Toray TC263 Blue is a toughened film adhesive for honeycomb core and laminate bonding. It features a 21-day out life and offers structural performance in a high peel strength adhesive. It may be used in low pressure vacuum only out-of-autoclave processes or in autoclave processes at 1 bar (15 psi).

FEATURES

- ▶ High peel strength
- ▶ May be cured in autoclave or under vacuum only pressure
- ▶ Good composite-to-composite bonding
- ▶ Good honeycomb-to-composite bonding

PRODUCT TYPE

Epoxy Film Adhesive

SERVICE TEMPERATURE

93°C (200°F)

CURE SCHEDULE

2 hours at 121°C (250°F)

SHELF LIFE

Out Life: Up to 21 days at ambient

Frozen Storage Life: 12 months at -18°C (< 0°F)

Out life is the time during which material retains enough tack, drape, and handling for component lay-up.

*Ambient is 18–22°C (65–72°F)

TYPICAL NEAT RESIN PROPERTIES

Dielectric Constant	2.97 at 10 GHz
Loss Tangent	0.017 at 10 GHz
Outgassing (TML)	0.34%
Outgassing (CVMC)	0.03%
Outgassing (WVR)	0.17%

PHYSICAL PROPERTIES

T _g by DMA (E' Onset) after 121°C (250°F) 2 hours cure	110–115°C (230–239°F)
Tack Level	Low to medium
Supported Film Weights	170 and 293gsm (0.035 and 0.06 psf)

Also available unsupported at 70gsm (0.015 psf) nominal



Contact us for more information:

North America/Asia/Pacific

e explore@toraytac-usa.com

t +1 408 465 8500

Europe/Middle East/Africa

e explore@toraytac-europe.com

t +44 (0)1773 530899

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TORAY TC263 COMMON FILM WEIGHTS/CONFIGURATIONS

Product Name	Carrier	Weight gsm/psf	Roll Quantity	Film Width
TC263U Blue, 0.015 psf, 0.91 m (36")	Unsupported	70gsm/0.015 psf	46.5 m ² (500 ft ²)	0.91 m (36")
TC263 Blue, 0.035 psf, NWFG,10gsm, 0.91 m (36")	Non-Woven Fg	171gsm/0.035 psf	46.5 m ² (500 ft ²)	0.91 m (36")
TC263 Blue, 0.060 psf, NWFG,10gsm, 0.91 m (36")	Non-Woven Fg	293gsm/0.060 psf	46.5 m ² (500 ft ²)	0.91 m (36")

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MECHANICAL PROPERTIES ON SUPPORTED ADHESIVE

Property	Condition	Method	Film Areal Wt.	Cure A		Cure B	
Tensile Lap Shear Strength	RTD	ASTM D1002	170gsm/0.035 psf	19.6 MPa	2842 psi	33.8 MPa	4899 psi
Tensile Lap Shear Strength	ETD	ASTM D1002	170gsm/0.035 psf	-	-	23.9 MPa	3470 psi
T-Peel Strength	RTD	ASTM D1876	170gsm/0.035 psf	55-67 N/25 mm	12-25 lb f/in	-	-
Tensile Lap Shear Strength	RTD	ASTM D1002	293gsm/0.06 psf	-	-	41.4 MPa	6000 psi
T-Peel Strength	RTD	ASTM D1876	170gsm/0.035 psf	-	-	103.0 N/25 mm	23 lb f/in

EDT = 90°C (180°F), Cure A - 2 hours at 121°C (250°F) under vacuum pressure, Cure B - 2 hours at 121°C (250°F) under 1 bar (15 psi) autoclave pressure

TORAY TC263, 0.060 psf 106 Fg ADHESIVE CURE: 2 HOURS AT 121°C (250°F) UNDER 30 psi AUTOCLAVE PRESSURE

Property	Condition	Method	Results	
Flatwise Tensile	CTD ⁴	ASTM C 297 25 mm x 25 mm (1"x1")	73 MPa	10607 psi
Flatwise Tensile	RTD	ASTM C 297 25 mm x 25 mm (1"x1")	61 MPa	8822 psi
Flatwise Tensile	ETD ⁴	ASTM C 297 25 mm x 25 mm (1"x1")	46 MPa	6672 psi
Honeycomb ¹ Flatwise Tensile	CTD	ASTM C 297 50 mm x 50 mm (2"x2")	7 MPa	1037 psi
Honeycomb ¹ Flatwise Tensile	RTD	ASTM C 297 50 mm x 50 mm (2"x2")	5 MPa	740 psi
Honeycomb ¹ Flatwise Tensile	ETD ⁴	ASTM C 297 50 mm x 50 mm (2"x2")	5 MPa	654 psi

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TORAY TC263, 0.060 psf 106 Fg ADHESIVE CURE: 2 HOURS AT 121°C (250°F) UNDER 30 psi AUTOCLAVE PRESSURE.

Continued from page 2

Property	Condition	Method	Results	
Lap Shear Al-Al	CTD	ASTM D 1002	36 MPa	5171 psi
Lap Shear Al-Al	RTD	ASTM D 1002	37 MPa	5363 psi
Lap Shear Al-Al	ETD ⁴	ASTM D 1002	23 MPa	3387 psi
Lap Shear Al-Al	ETW ⁴	ASTM D 1002	26 MPa	3747 psi
Thick-Adherend Lap Shear Strength ²	CTD	ASTM D 5656	76 MPa	11018 psi
Thick-Adherend Lap Shear Strength	RTD	ASTM D 5656	46 MPa	6642 psi
Thick-Adherend Lap Shear Strength	ETD	ASTM D 5656	34 MPa	4886 psi
Thick-Adherend Lap Shear Strength	ETW ⁴	ASTM D 5656	21 MPa	2992 psi
Thick-Adherend Lap Shear Modulus	CTD	ASTM D 5656	0.6 GPa	0.088 Msi
Thick-Adherend Lap Shear Modulus	RTD	ASTM D 5656	0.4 GPa	0.061 Msi
Thick-Adherend Lap Shear Modulus	ETD ⁴	ASTM D 5656	0.2 GPa	0.034 Msi
Thick-Adherend Lap Shear Modulus	ETW	ASTM D 5656	0.1 GPa	0.014 Msi
T-peel	CTD	ASTM D 1876	81 N/25 mm	18 lb/in
T-peel	RTD	ASTM D 1876	95 N/25 mm	21 lb/in
T-peel	ETD	ASTM D 1876	80 N/25 mm	18 lb/in
Floating Roller Peel	CTD	ASTM D 3176	100 N/25 mm	23 lb/in
Floating Roller Peel	RTD	ASTM D 3176	221 N/25 mm	50 lb/in
Floating Roller Peel	ETD ⁴	ASTM D 3176	234 N/25 mm	53 lb/in
G _{1c} DCB ³	RTD	D6-83079-131	385 J/m ²	2.20 in-lb/in ²
G _{2c} ENF (Pre-crack) ³	RTD	D6-83079-132	1711 J/m ²	9.78 in-lb/in ²
Lap Shear GrEp-GrEp ³	CTD	ASTM D 1002	17 MPa	2398 psi
Lap Shear GrEp-GrEp ³	RTD	ASTM D 1002	19 MPa	2721 psi
Lap Shear GrEp-GrEp ³	ETD ⁴	ASTM D 1002	11 MPa	1600 psi
Lap Shear GrEp-GrEp ³	ETW ⁴	ASTM D 1002	4 MPa	535 psi

Notes: All aluminum surfaces have been FPL etched and BR127 primed

¹Plascore Aluminum core XR1-7.9-0.250-N-5052 0.5"t

²Bonded and tested at National Institute for Aviation Research (NIAR) Wichita, KS

³Bonded to grit a blasted standard-modulus graphite fabric with 121–135°C (250–275°F) final cure epoxy (HX42)

⁴CTD is 18°C (65°F), ETD is tested at 82°C (180°F), ETW is tested at 82°C (180°F) after 14 days 85% RH and 71°C (160°F) humidity exposure

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TORAY_TC263_PDS_v3.0_2019-07-15 Page 3/3

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