

## PRODUCT DATA SHEET

### DESCRIPTION

Toray MicroPly™ 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:** 21 days out life ≤ 21°C (70°F) and ≤ 60% RH

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

Out life is the maximum time allowed at 21°C (70°F) or below and 60% or less RH before cure, after a single frozen storage cycle in the original unopened packaging at -18°C (0°F) or below for a period not exceeding the frozen storage life noted above.

### 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 <sub>g</sub> 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](mailto:explore@toraytac-usa.com)

**t** +1 408 465 8500

**Europe/Middle East/Africa**

**e** [explore@toraytac-europe.com](mailto:explore@toraytac-europe.com)

**t** +44 (0)1773 530899

**MicroPly™**

TORAY\_MicroPly\_TC263\_PDS\_v4.0\_2020-03-06

Page 1/3

## PRODUCT DATA SHEET

### 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 <sup>2</sup> (500 ft <sup>2</sup> )	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 <sup>2</sup> (500 ft <sup>2</sup> )	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 <sup>2</sup> (500 ft <sup>2</sup> )	0.91 m (36")

### 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 <sup>2</sup> (500 ft <sup>2</sup> )	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 <sup>2</sup> (500 ft <sup>2</sup> )	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 <sup>2</sup> (500 ft <sup>2</sup> )	0.91 m (36")

### 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

### ADHESIVE CURE: 0.060 psf 106 F<sub>g</sub>, 2 HOURS AT 121°C (250°F) UNDER 30 psi AUTOCLAVE PRESSURE

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

## PRODUCT DATA SHEET

**ADHESIVE CURE: 0.060 psf 106 F<sub>g</sub>,  
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 <sup>4</sup>	ASTM D 1002	23 MPa	3387 psi
Lap Shear Al-Al	ETW <sup>4</sup>	ASTM D 1002	26 MPa	3747 psi
Thick-Adherend Lap Shear Strength <sup>2</sup>	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 <sup>4</sup>	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 <sup>4</sup>	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 3167	100 N/25 mm	23 lb/in
Floating Roller Peel	RTD	ASTM D 3167	221 N/25 mm	50 lb/in
Floating Roller Peel	ETD <sup>4</sup>	ASTM D 3167	234 N/25 mm	53 lb/in
G <sub>1c</sub> DCB <sup>3</sup>	RTD	D6-83079-131	385 J/m <sup>2</sup>	2.20 in-lb/in <sup>2</sup>
G <sub>2c</sub> ENF (Pre-crack) <sup>3</sup>	RTD	D6-83079-132	1711 J/m <sup>2</sup>	9.78 in-lb/in <sup>2</sup>
Lap Shear GrEp-GrEp <sup>3</sup>	CTD	ASTM D 1002	17 MPa	2398 psi
Lap Shear GrEp-GrEp <sup>3</sup>	RTD	ASTM D 1002	19 MPa	2721 psi
Lap Shear GrEp-GrEp <sup>3</sup>	ETD <sup>4</sup>	ASTM D 1002	11 MPa	1600 psi
Lap Shear GrEp-GrEp <sup>3</sup>	ETW <sup>4</sup>	ASTM D 1002	4 MPa	535 psi

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

<sup>1</sup>Plascore Aluminum core XR1-7.9-0.250-N-5052 0.5"t

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

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

<sup>4</sup>CTD 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

Revised 03/2020

TORAY\_MicroPly\_TC263\_PDS\_v4.0\_2020-03-06 Page 3/3

© 2020 Toray Advanced Composites. All data given is based on representative samples of the materials in question. Since the method and circumstances under which these materials are processed and tested are key to their performance, and Toray Advanced Composites has no assurance of how its customers will use the material, the corporation cannot guarantee these properties. Toray®, (Toray) AmberTool®, (Toray) Cetex®, (Toray) MicroPly™, and all other related characters, logos, and trade names are claims and/or registered trademarks of Toray Industries Inc. and/or its subsidiary companies in one or more countries. Use of trademarks, trade names, and other IP rights of Toray Industries Inc. without prior written approval by such is strictly prohibited.

**TORAY** Toray Advanced Composites

**MicroPly™**

18255 Sutter Blvd.  
Morgan Hill, CA 95037, USA  
t +1 408 465 8500

2450 Cordelia Road  
Fairfield, CA 94534, USA  
t +1 707 359 3400

Amber Drive, Langley Mill  
Nottingham, NG16 4BE, UK  
t +44 (0)1773 530899

[www.toraytac.com](http://www.toraytac.com)  
explore@toraytac-usa.com (North America/Asia/Pacific)  
explore@toraytac-europe.com (Europe/Middle East/Africa)