

# COMPOSITE TECHNOLOGIES TECHNICAL DATA SHEET

## AX-2116

High Peel Strength /  
Toughened Epoxy Film Adhesive / 121°C ( 250°F) or 177°C (350°F) Cure

### Product

AX-2116 is a family of thermosetting modified epoxy structural adhesives in film form which are available in a variety of weights with or without a supporting carrier. AX-2116 films are designed for metal and composite bonding of solid and honeycomb sandwich constructions.

### Typical Applications

- » High bond strength from -19°C (-67°F) to 121°C (250°F)
- » Metal to metal bonding
- » Composite bonding
- » Honeycomb sandwich construction
- » High peel and high lap shear strength
- » Excellent resistance to high moisture environments
- » Vacuum cure capability
- » X-ray opaque for use of x-ray NDI methods
- » Greater than 3 week out-time
- » Excellent tack and handling
- » Unsupported versions available for reticulation
- » Wide variety of weights and supports
- » Blue color for easy identification

### Adhesive Weights and Supports

Product	Supported or Unsupported	Available Weights	Standard Width	Standard Roll Length
AX-2116U	Unsupported	0.030 psf (145 gsm)	50" (127 cm) or 60" (152 cm)	80 LY (73 m)
AX-2116	Polyester spunbound carrier	0.030 psf (145 gsm)		80 LY (73 m)
		0.060 psf (290 gsm)		80 LY (73 m)
AX-2116N	Nylon knit carrier	0.060 psf (290 gsm)		80 LY (73 m)
		0.080 psf (390 gsm)		60 LY (55 m)

***Our products are flexible by design:  
Additional weights, roll sizes, and reinforcements are available.***

## Recommended Cure Cycles

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Optimum properties are achieved with the following cycles:

Apply 2.1-3.4 bar (30-50 psi) and cure:

» 120 minutes at 121°C (250°F)

Or

» 60 minutes at 177°C (350°F)

## Cure Considerations

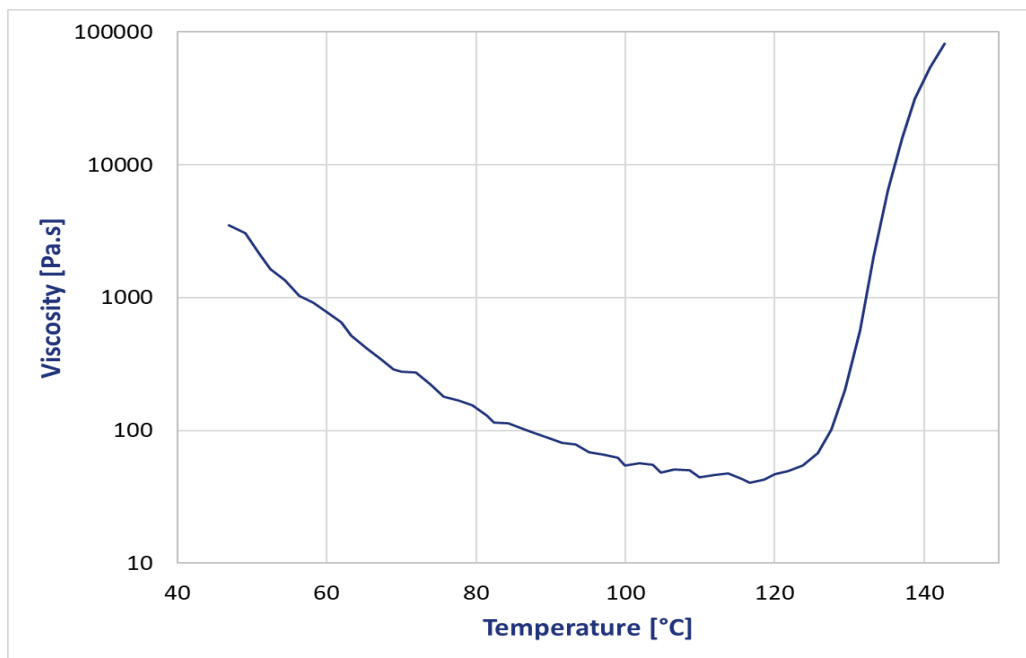
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» This film adhesive is vacuum-bag, platen press, and autoclave compatible.

» For a 121°C (250°F) cure the service temperature envelope is -55°C (-67°F) to 121°C (250°F).

## Viscosity Curve

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**Physical and Mechanical Properties** (Examples only. For the wider adhesive film range, please contact Kordsa)

<b>Metal to Metal Single Lap Shear, psi (MPa)</b>				
	<b>AX-2116U 145 gsm (0.030 psf)</b>	<b>AX-2116 300 gsm (0.060 psf)</b>	<b>AX-2116N 300 gsm (0.060 psf)</b>	<b>AX-2116N 300 gsm (0.080 psf)</b>
<b>-55°C (-67°F)</b>	6000 (41)	6200 (43)	6200 (43)	-
<b>RT</b>	5968 (41)	5948 (41)	6107 (42)	5397 (37)
<b>82°C (180°F)</b>	-	4595 (32)	4000 (28)	-
<b>107°C (225°F)</b>	-	3720 (26)	3700 (26)	-
<b>121°C (250°F)</b>	3935 (27)	3502 (24)	3300 (23)	-
<b>132°C (270°F)</b>	-	-	-	1287 (9)

- » Cure Cycle: 121°C (250°F), 2 hours, 2.8 bar (40 psi) autoclave pressure, 1.1°C/minute (2°F/minute) heat up rate
- » Specimens: 1" wide
- » Metal: 2024 T-3 Bare 0.063" thick –FPL etched and primed
- » Test Method: ASTM D1002

<b>Metal to Metal Floating Roller (Bell) Peel, lb/in. (N/mm)</b>			
	<b>AX-2116U 145 gsm (0.030 psf)</b>	<b>AX-2116 300 gsm (0.060 psf)</b>	<b>AX-2116N 300 gsm (0.060 psf)</b>
<b>-55°C (-67°F)</b>	-	35 (6)	35 (6)
<b>RT</b>	56 (10)	42 (7)	57 (10)
<b>82°C (180°F)</b>	-	49 (9)	-
<b>107°C (225°F)</b>	-	37 (7)	-
<b>121°C (250°F)</b>	46 (8)	-	46 (8)

- » Cure Cycle: 121°C (250°F), 2 hours, 2.8 bar (40 psi) autoclave pressure, 1.1°C/minute (2°F/minute) heat up rate
- » Specimens: 1" wide
- » Metal: 2024 T-3 Bare 0.025" thick to 0.063" thick aluminum -FPL etched and primed
- » Test Method: ASTM D3167, Peel Rate: 6"/minute

<b>Metal to Metal T Peel, lb/in. (N/mm)</b>			
	<b>AX-2116U 145 gsm (0.030 psf)</b>	<b>AX-2116 300 gsm (0.060 psf)</b>	<b>AX-2116N 300 gsm (0.060 psf)</b>
<b>-55°C (-67°F)</b>	-	15 (3)	12 (2)
<b>RT</b>	21 (4)	35 (6)	37 (7)
<b>82°C (180°F)</b>	21 (4)	30 (5)	35 (6)
<b>107°C (225°F)</b>	20 (4)	-	-

- » Cure Cycle: 121°C (250°F), 2 hours, 2.8 bar (40 psi) autoclave pressure, 1.1°C/minute (2°F/minute) heat up rate
- » Specimens: 1" wide
- » Metal: 2024 T-3 Al Clad 0.020" thick aluminum -FPL etched and primed
- » Test Method: ASTM D1876, Peel Rate: 20"/minute

**Metal to Honeycomb Flatwise Tensile, psi (MPa)**

	<b>AX-2116</b> <b>145 gsm (0.030 psf)</b>	<b>AX-2116N</b> <b>300 gsm (0.060 psf)</b>
<b>RT</b>	1200 (8)	1200 (8)

- » Cure Cycle: 121°C (250°F), 2 hours, 2.8 bar (40 psi) autoclave pressure, 1.1°C/minute (2°F/minute) heat up rate
- » Metal Skins: 2024 T-3 0.020" thick aluminum –FPL etched and primed
- » Core: ¼" cell –½" thick –4 mil foil –5052 alloy
- » Test Method: ASTM C297

**Metal to Honeycomb Climbing Drum Peel Strength, in. -lb/in. (N/mm)**

	<b>AX-2116</b> <b>145 gsm (0.030 psf)</b>	<b>AX-2116N</b> <b>300 gsm (0.060 psf)</b>
<b>RT</b>	17 (3)	20 (4)

- » Cure Cycle: 121°C (250°F), 2 hours, 2.8 bar (40 psi) autoclave pressure, 1.1°C/minute (2°F/minute) heat up rate
- » Metal Skins: 2024 T-3 0.020" thick aluminum –FPL etched and primed
- » Core: ¼" cell – 8.0 pcf –5052 alloy
- » Test Method: ASTM D1781

### Storage Requirements

Shelf life is from date of manufacturing according to storage temperature below. Working life is the cumulation of time outside of storage temperature.

Storage Condition	AX-2116
Shelf Life at -18°C (0°F)	6 months
Working Life at 24°C (75°F)	21 days

### Handling & Safety Instructions

- » Store adhesive suspended horizontally to avoid flat spots and thinning under the weight of the roll.
- » Allow product sufficient time (4-6 hours) to reach ambient temperatures after removal from cold storage to prevent condensation on the adhesive surface.
- » Use the appropriate safety equipment for this product.
- » Refer to the AX-2116 Material Safety Data Sheet for specific safety instructions.

### Technical Assistance

In a bind? Call us anytime. We provide fast and knowledgeable technical support:

#### Kordsa Composite Europe, İstanbul

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