Epibond® 300 A/B High Temperature Epoxy Adhesive

Product Description

Epibond® 300 A/B Adhesive is an extrudable, two-component, room temperature curing epoxy adhesive designed for service temperatures up to 400°F (204°C). This product is suitable for bonding a wide variety of materials such as metals, composites and many other dissimilar substrates. The combination of high shear strength and compression makes this adhesive well suited for aerospace and composites such as liquid shim. Epibond® 300 A/B offers a fast cure, rapid build-up of lap shear strength with an easy to process mix ratio of 2:1 pbv.

Features

- Room Temperature cure
- Maximum Service Temperature up to 400°F (204°C)
- High Lap Shear Strength and Compression at ambient and elevated temperature
- Excellent for Liquid Shim
- Good retention of strength after environmental aging
- Gap-filling thixotropic paste
- 2:1 mix ratio by volume
- No SVHC as defined under REACH*

*Does not intentionally contain any Substances of Very High Concern (SVHC) for authorization as published by the European Chemicals Agency (ECHA) pursuant to Article 59 REACH as of June 16, 2014

Typical Properties*

Property	Test Method	Epibond® 300 A Resin	Epibond® 300 B Hardener	Mixed Adhesive
Appearance	Visual	Off-white	Gray	Gray
Viscosity at 25°C	ASTM D2196	Paste	Paste	Thixotropic Paste
Density, g/cm^3	ASTM D891	1.2	1.5	1.3

*Properties are based on Huntsman test methods. Copies are available upon request

Processing

Substrates to be bonded should be properly surface treated and be free from any contaminants. Mix both components thoroughly for several minutes until a homogeneous mixture is obtained or dispense from a 2:1 200-mL dual barrel cartridge through a suitable static mixer. For the 200 mL size, use TAH 9.375-mm dia. x 18-element spiral mixing nozzle or equivalent.

Mix Ratio

Product	Parts by weight	Parts by volume
Epibond® 300 A Resin	100	2
Epibond® 300 B Hardener	67	1

The mixed adhesive should be spread with a spatula to the suitably pretreated dry joint surfaces. A layer of adhesive 0.004 to 0.012 inches (0.1 to 0.3 mm) thick will normally provide the maximum lap shear strength. However, this adhesive has been specifically designed to be effective in layers of up to 0.12 in. (3 mm). The components to be bonded should be assembled and clamped as soon as the adhesive has been applied. Even contact pressure throughout the joint area during cure will ensure optimum performance.

Processing Data

Parameter	Value
Working time, min	30 - 35
Gel time, 125 g at 77°F (25°C), min	45
Typical cure cycles	3 - 5 days at 77°F (25°C) or
	1 hr at ~150°F (66°C)

Typical Physical Properties

Unless otherwise stated, the data were determined with typical production batches using standard test methods. They are typical values only, and do not constitute a product specification. Unless specified otherwise, values were determined on an acid etched and primed aluminum substrate, with appropriate surface treatment as indicated for Carbon fiber reinforced epoxy polymer (CFRP). Samples were cured for 5 days at 77°F (25°C) and the bond thickness was 5-mil (0.125 mm).

Property	Test Method	Value
Tensile strength, psi (MPa)	ASTM D638	7,800 (53.7)
Tensile modulus, ksi (MPa)	ASTM D638	463 (3193)
Elongation at tensile break, %	ASTM D638	2.0
Compressive strength, psi (MPa) at 77°F (25°C) at 250°F (121°C) at 250°F (121°C) after 7 days at 160°F (71°C) and 85% RH	ASTM D695	 11,000 (75.8) 9,000 (62.0) 8,300 (57.2)
Hardness, Shore D	ASTM D2250	82
T-Peel Strength, pli (N/mm) Anodized & Primed Aluminum, 77°F (25°C), 15-mil (0.375 mm) bond thickness	ASTM D3167	15 (2.66)
Glass transition temperature, Tg, (E' onset), °C Cured 5 days at 77°F (25°C) Cured 1 hour at 150°F (66°C)	--	 70 95
Tensile lap shear strength, psi (MPa) Etched and Primed Aluminum Tested at -94°F (-70°C) at 77°F (25°C) at 250°F (121°C) at 350°F 177°C) at 400°F (204°C) at 250°F (121°C)[1] Anodized and Primed Aluminum (Fluid resistance) Tested at 77°F (25°C)* at 77°F (25°C)*[2] at 77°F (25°C)*[3] at 77°F (25°C)*[4] at 77°F (25°C)*[5] CFRP, Tested at 77°F (25°C)	ASTM D1002	 2,550 (17.6) 4,200 (28.9) 3,100 (21.3) 2,200 (15.1) 1100 (7.5) 2,500 (17.2) 4,670 (32.2) 4,450 (30.6) 4,530 (31.2) 4,460 (30.7) 4,560 (31.4) 4,560 (31.4)

*Cure for 7 days at 77°F (25°C)
[1]After 7 days at 160°F (71°C) and 85 % RH
[2]After 7 days at 77°F (25°C) in water
[3]After 7 days at 77°F (25°C) in IPA
[4]After 7 days at 77°F (25°C) in Hydraulic Fluid
[5]After 7 days at 77°F (25°C) in Jet A

Tensile Shear Strength vs. Cure Time*

Al-Al Lap Shear Strength at 73°F (23°C)

Cure Time, h	Tensile shear strength, psi (MPa)
4	690 (4.7)
5	1,800 (12.4)
6.5	3,500 (24.1)
15	4,200 (28.9)
24	4,200 (28.9)
120	4,200 (28.9)
168	4,200 (28.9)

*Measured at RT with etched and primed Aluminum at different cure times.

Storage

Epibond® 300 A Resin and **Epibond® 300 B Hardener** should be stored in a dry place in their original sealed containers at a temperature within 2°C and 40°C (36°F and 104°F). Tightly re-seal all containers after use to prevent contamination. Under these storage conditions, these products have a shelf life of **1 year** (from date of manufacture).

Precautionary Statement

Huntsman Advanced Materials Americas LLC maintains up-to-date Safety Data Sheets (SDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest MSDS to determine possible health hazards and appropriate precautions to implement prior to using this material.

First Aid!
Refer to SDS as mentioned above.

KEEP OUT OF REACH OF CHILDREN

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Main Offices:

Huntsman Corporation
10003 Woodloch Forest Dr
The Woodlands, TX 77380
888-564-9318

Huntsman Advanced Technology Center
8600 Gosling Rd.
The Woodlands, TX 77381
281-719-7400