Epibond® 215 A/B High Strength Adhesive

Product Description

Epibond® 215 A/B Adhesive is an extrudable, two-component, room temperature-curing epoxy structural adhesive designed for service temperatures up to 300°F (149°C). This adhesive is suitable for bonding a wide variety of materials such as metals, composites and many other dissimilar substrates. The combination of high peel strength and high shear makes this adhesive well suited for aerospace and other demanding applications.

Features

- Room Temperature cure
- Fast Handling Strength
- Outstanding Peel and High Shear Strength
- Service Temperature from -90°F (-68°C) to 300°F (149°C)
- Good retention of strength after environmental aging or chemical immersion
- Gap-filling thixotropic paste
- 2:1 mix ratio by weight and volume
- Low Outgassing
- No SVHC as defined under REACH (*Does not intentionally contain any Substances of Very High Concern (SVHC) as published by the European Chemicals Agency (ECHA) pursuant to Article 59 REACH as of October 11, 2016*

Processing

Under normal temperature conditions and when used with the recommended mix ratio this adhesive will typically provide a working time of approximately 60 - 70 minutes (20 g). 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 200ml dual barrel cartridge. For the 200 mL size, use TAH 10-mm dia. x 24-element spiral mixing nozzle or equivalent.

Application

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. This adhesive, however, has been designed to be effective in layers 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.

Typical Properties*

Property	Epibond® 215 A	Epibond® 215 B	Mixed System
Appearance	Off-white	Amber	Off-white
Density g/cm^3 [ASTM D792]	1.1	1.1	1.1
Viscosity, cP [ASTM D2196]	Paste	Paste	Non-sag Paste

*Typical properties are based on Huntsman's test methods. Copies are available upon request.

Mixing

Product	Parts by weight	Parts by volume
Epibond® 215 A Resin	100	2
Epibond® 215 B Hardener	45	1

Processing Data

Parameter	Value
Pot Life, in nozzle	30 min
Gel Time, 20 g, at 77°F (25°C)	100 min
Typical Cure Cycles	1 hour at 150°F, or 4 - 5 days at 77°F

Handling Strength

Measured by lap shear strength with PPA and primed Aluminum at RT, in psi (MPa)

Cure time, hours	Cure Temperature	
	77°F (25°C)	150°F (66°C)
1	NA	5,100 (35.1)
3	570 (3.9)	NA
4	2,390 (16.5)	NA
5	3,150 (21.7)	NA
24	4,600 (31.7)	NA

*NA = not tested

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.

Tests were done on prepared samples, such as phosphoric acid anodized and primed aluminum with appropriate surface treatment. Surfaces of steels and plastics were prepared by abrading with 210 grit sand paper / IPA wiping / Lint free towel drying / Nitrogen blowing. Unless otherwise noted, samples were cured 5 days at 77°F, and tested at 77°F (25°C).

Property		Value
Lap shear strength, psi (MPa)		
Anodized & Primed Aluminum [ASTM D1002]		
Cured 24 hours at 77°F (25°C)		
-67°F (-55°C)		5,400 (37.2)
73°F (23°C)		4,600 (31.7)
180°F (82°C)		3,500 (24.1)
250°F (121°C)		1,250 (8.6)
Cured 5 days at 77°F (25°C)		
-90°F (-68°C)		5,500 (37.9)
73°F (23°C)		5,200 (35.8)
250°F (121°C)		2,000 (13.8)
300°F (149°C)		1,100 (7.6)
Cured 77°F/3hr + 250°F/1hr		
73°F (23°C)		5,400 (37.2)
Composites & Plastics [ASTM D5868]		
CFRP-CFRP		3,000 (20.7)
ABS-ABS		660 (4.5)
PVC-PVC		490 (3.4)
PC-PC		540 (3.7)
PEI-PEI		970 (6.7)
Nylon-Nylon		650 (4.5)
After Environmental and Chemical Exposure, 30 days [ASTM D1002]		
120ºF (49ºC), 95% RH		4,600 (31.7)
Jet Fluid at 73°F (23°C)		5,100 (35.1)
50/ 50 Antifreeze at 180ºF (82ºC)		4,390 (30.2)
MEK at 73°F (23°C)		5,280 (36.4)
Skydrol at 150ºF (66ºC)		5,345 (36.8)
Roller peel strength, pli (N/mm) [ASTM D3167] Anodized & Primed Aluminum		85 (14.9)
T- peel strength, pli (N/mm) [ASTM D1876] Anodized & Primed Aluminum		71 (12.4)
Compressive strength, psi (MPa) [ASTM D695]		7,400 (75.8)
Compressive modulus, ksi (MPa) [ASTM D695]		360 (2,475)
Hardness, Shore D [ASTM D2250]		80
Tg, DMA, °C (°F) [ASTM E1640]	Storage Modulus Onset, °C Loss Modulus Peak, °C	64 71
CTE, mm/mm/°C [ASTM E831]	Below Tg Above Tg	1.019×10^{-4} 1.872×10^{-4}
Outgassing [ASTM E595]	TML, % CVCM, % WVR, %	0.91 < 0.01 0.41

Storage

Epibond® 215 A/B Epoxy Adhesives should be stored in a dry place in the original sealed container at temperatures between **2°C and 40°C (36°F and 104°F)**. Tightly reseal containers after each use. Under these storage conditions, the products have a shelf-life of **365 days from date of manufacture**. The components should not be exposed to direct sunlight.

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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