

Araldite® EP 200 A/B Flexible Epoxy Structural Adhesive

Product Description

Epibond® 200 A/B Adhesive is an extrudable, two-component, room temperature curing epoxy structural adhesive designed for service temperatures up to 200°F (93°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 strength and flexibility makes this adhesive well suited for aerospace and other demanding applications

Features

- Room Temperature cure
- High Peel and Shear Strength
- Service Temperature from -67°F (-55°C) to 200°F (93°C)
- Good retention of strength after environmental aging
- Gap-filling thixotropic paste
- 1:1 mix ratio by weight and volume
- No SVHC as defined under REACH*



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*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 October 15, 2014

Typical Properties*

| Property | Test Method | Araldite® EP 200 A Resin | Araldite® EP 200 B Hardener | Mixed System |
|----------------------------|-------------|--------------------------|-----------------------------|--------------|
| Appearance | Visual | Gray | Amber | Gray |
| Density, g/cm ³ | ASTM D792 | 1.3 | 1.3 | 1.3 |
| Viscosity at 25°C, cP | ASTM D2196 | Paste | Paste | Thixotropic |

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

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.

Mixing

| Product | Parts by weight | Parts by volume |
|-----------------------------|-----------------|-----------------|
| Araldite® EP 200 A Resin | 50 | 1 |
| Araldite® EP 200 B Hardener | 50 | 1 |

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 1:1 200 mL or 50 mL dual barrel cartridge. For the 200 mL cartridge, use TAH 10 mm dia., 24 element spiral mixing nozzle or equivalent. For the 50 mL cartridge, use Mixpac™ B-system 6 mm dia., 20 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.

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) |
| 2 | NA* | 3,500 (24.1) |
| 6 | 530 (3.6) | NA |
| 7 | 775 (5.3) | NA |
| 8 | 1,500 (10.3) | NA |
| 3 days | 2,940 (20.3) | NA |
| 7 days | 3,200 (22) | NA |

*NA = not tested

Processing Data

| Parameter | Value |
|---------------------------------|--|
| Gel time, 100 g, at 77°F (25°C) | 100 – 105 minutes |
| Typical Cure Cycle | 2 hours at 150°F or 3 - 5 days at 77°F |

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 7 days at 77°F.

| Property | Test Method | Value |
|--|--------------------------------------|---|
| Tensile lap shear strength, psi (MPa) Anodized & Primed Aluminum Cured 7 days at 77°F (25°C) -67°F (-55°C), 5-mil (0.125 mm) bond line 73°F (23°C), 5-mil (0.125 mm) bond line 160°F (71°C), 5-mil (0.125 mm) bond line 200°F (93°C), 5-mil (0.125 mm) bond line 300°F (149°C), 5-mil (0.125 mm) bond line 77°F (25°C), after 14 days at 160°F / 95% RH Cured 15 minutes at 300°F (149°C) 350°F (177°C), 5-mil (0.125 mm) bond line 400°F (204°C), 5-mil (0.125 mm) bond line Stainless Steel 316 77°F (25°C), 5-mil (0.125 mm) bond line Treated Steel RC14 77°F (25°C), 5-mil (0.125 mm) bond line Modified Polycarbonate (Kydex® FST) 77°F (25°C), 5-mil (0.125 mm) bond line Modified PVC (Kydex® 6565) 77°F (25°C), 5-mil (0.125 mm) bond line | ASTM D1002 | 3,160 (21.8) 3,200 (22.0) 1,020 (7.0) 1,020 (7.0) 760 (5.2) 2,770 (19.1) 580 (4.0) 550 (3.8) 3,280 (22.6) 2,080 (14.3) 1,100 (7.6) 475 (3.3) |
| Roller peel strength, pli (N/mm) Anodized & Primed Aluminum 77°F (25°C), 15 mil (3.125 mm) bond line | ASTM D3167 | 27 (4.73) |
| Flammability, Fiberglass style 116 Burn rate of 15-sec ignition horizontal test, in/min Flame extinguish time, sec Burn length, inch | CFR 25.853, Appendix F, Part 1 | 0 155 6.1 |
| Tensile strength at 77°F (25°C), psi (MPa) | ASTM D638 | 7,500 (51.7) |
| Elastic Modulus, ksi (MPa) | ASTM D638 | 316 (2,178.7) |
| Elongation at break, % | ASTM D638 | 4.4 |
| Hardness, Shore D | ASTM D2250 | 75 |

Lap Shear Strength After Thermal Aging

| Aging Time at 302°F (150°C), days | Lap Shear Strength, psi | | | |
|--------------------------------------|-------------------------|----------------|-----------------|------------------|
| | at -55°F (-67°C) | at 77°F (25°C) | at 200°F (93°C) | at 400°F (204°C) |
| 0 | 3,070 | 4,210 | N/A | 565 |
| 12 | 3,140 | 3,860 | 1,255 | 655 |
| 40 | 3,075 | 3,815 | 1,165 | 734 |
| 50 | 2,937 | 3,695 | 1,198 | 702 |

Storage

Araldite® EP 200 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 **1 year** (from date of shipment). 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.

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