

Araldite® 5871 A/B Epoxy Adhesive

Product Description

Araldite® 5871 A/B Epoxy Adhesive is a multi-purpose, viscous material that is suitable for bonding a variety of materials including metal, ceramic, and wood. This electrically insulating adhesive is easy to apply either manually by spatula and stiff brush or mechanically with meter/mix and coating equipment. Araldite® 5871 A/B Epoxy Adhesive cures at temperatures from 20°C (68°F) to 180°C (356°F) with no release of volatile constituents. This product is an UL recognized 180°C class for electrical insulation systems.

Applications

Araldite® 5871 A/B Epoxy Adhesive is suitable for bonding a variety of materials including:

- Metals
- Ceramics
- Wood
- Vulcanized rubber
- Foams
- Plastics

Features

- Long open time
- High shear and peel strengths
- Easy to apply
- Good resistance to static and dynamic loads
- Electrically insulating

Typical Properties*

Property ¹	Araldite [®] 5871 A	Araldite [®] 5871 B	Mixed System	Test Method
Appearance	Off white viscous liquid	Amber liquid	--	Visual
Density at 25°C, g/cm ³	1.17	0.92	--	ASTM D-792
Viscosity at 25°C, cPs	50,000	35,000	45,000	ASTM D-2393
Pot Life, 100 g mass, at 25°C, min	--	--	120	ASTM D-2471

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

¹Tested at 77°F (25°C).

Processing

The resin/hardener mix is applied with a spatula to the pre-treated and dry joint surfaces. A layer of adhesive 0.002 to 0.004-inches (0.05 to 0.10-mm) thick will normally impart the greatest lap shear strength to a joint. The joint components should be assembled and clamped as soon as the adhesive has been applied. Even contact throughout suffices to ensure proper cure.

Mix Ratio

Product	Parts by weight	Parts by volume
Araldite [®] 5871 A	100	100
Araldite [®] 5871 B	50	50

Recommended Cure Cycles

Temperature	Handling Strength	Minimum Cure Time
68°F (20°C)	12 h	15 h
77°F (25°C)	7 h	12 h
104°F (40°C)	2 h	3 h
158°F (70°C)	30 min	50 min
212°F (100°C)	6 min	10 min
302°F (150°C)	4 min	5 min

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.

The values given below were all determined by testing standard specimens made up by lap-jointing 4-inch x 1-inch x 0.06-inch (10-cm x 2.5-cm x 1.5-mm) strips of aluminum, unless otherwise specified. The joint area was 0.5 x 1 inch (12.5 mm x 2.5 cm) in each case.

Property	Value	Test Method
Lap shear strength, ¹ psi (MPa)		
Cure:		
77°F (25°C)		
8 hours	710 (4.9)	
15 hours	1990 (13.7)	
24 hours	2130 (14.7)	
72 hours	2280 (15.7)	
5 days	2560 (17.6)	
158°F (70°C)		
1 hour	3130 (21.5)	ASTM D-1002
2 hours	3410 (23.5)	
3 hours	3200 (22)	
212°F (100°C)		
10 minutes	3700 (25.5)	
20 minutes	3980 (27.4)	
30 minutes	4120 (28.4)	
302°F (150°C)		
5 minutes	4270 (29.4)	
10 minutes	4410 (30.4)	
20 minutes	4410 (30.4)	
Lap shear strength, ² psi (MPa)		
Cure:		
5 days at 77°F (25°C), tested at		
-76°F (-60°C)	2840 (19.5)	ASTM D-1002
-4°F (-20°C)	2840 (19.5)	
68°F (20°C)	2560 (17.6)	
104°F (40°C)	1420 (9.8)	
140°F (60°C)	570 (3.9)	
20 min at 212°F (100°C), tested at		
-76°F (-60°C)	3560 (24.5)	
-4°F (-20°C)	3410 (23.5)	
68°F (20°C)	3980 (27.4)	
104°F (40°C)	1990 (13.7)	
140°F (60°C)	1000 (6.9)	

Advanced Materials

Technical Datasheet

<p>Lap shear strength,³ psi (MPa)</p> <p>Standard - As prepared</p> <p>Acetone (30 days)</p> <p>Acetylene</p> <p>Gasoline</p> <p>Ethyl Acetate (30 days)</p> <p>Acetic Acid 10%</p> <p>Methanol</p> <p>Lubricating Oil - HD30</p> <p>Kerosene</p> <p>Trichloroethylene</p> <p>Water at 20°C (68°F)</p> <p>Water at 90°C (194°F)</p>	<p>2560 (17.6)</p> <p>570 (3.9)</p> <p>430 (2.9)</p> <p>2410 (16.6)</p> <p>570 (3.9)</p> <p>Degraded</p> <p>Degraded</p> <p>2560 (17.6)</p> <p>Degraded</p> <p>Degraded</p> <p>1420 (9.8)</p> <p>430 (2.9)</p>	<p>ASTM D-1002</p>
<p>Lap shear strength,⁴ psi (MPa)</p> <p>Cure</p> <p>16 hrs. at 40°C, exposure for</p> <p>0 days</p> <p>10 days</p> <p>30 days</p> <p>60 days</p> <p>90 days</p> <p>20 min at 212°F(100°C), exposure for</p> <p>0 days</p> <p>10 days</p> <p>30 days</p> <p>60 days</p> <p>90 days</p>	<p>2560 (17.6)</p> <p>2560 (17.6)</p> <p>1710 (11.8)</p> <p>1560 (10.7)</p> <p>570 (3.9)</p> <p>3980 (27.4)</p> <p>2560 (17.6)</p> <p>1710 (11.8)</p> <p>1560 (10.7)</p> <p>1280 (8.8)</p>	<p>ASTM D-1002</p>
<p>Lap shear strength,⁵ psi (MPa)</p> <p>Aging temperature</p> <p>70°C (158°F) exposed for</p> <p>0 days</p> <p>1 years</p> <p>2 years</p> <p>3 years</p> <p>4 years</p> <p>5 year</p> <p>140°F (60°C) exposed for</p> <p>3 days</p> <p>10 days</p> <p>30 days</p> <p>176°F (80°C) exposed for</p> <p>3 days</p> <p>10 days</p> <p>30 days</p>	<p>2560 (17.6)</p> <p>2560 (17.6)</p> <p>2280 (15.7)</p> <p>1710 (11.8)</p> <p>1990 (13.7)</p> <p>1990 (13.7)</p> <p>2560 (17.6)</p> <p>2420 (16.6)</p> <p>2130 (14.7)</p> <p>2130 (14.7)</p> <p>2130 (14.7)</p> <p>2130 (14.7)</p>	<p>ASTM D-1002</p>

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Technical Datasheet

60 days	2130 (14.7)	
1 year	1280 (8.8)	
2 years	710 (4.9)	
3 years	710 (4.9)	
Lap shear strength on metal substrates, ⁶		
Carbon Steel, 1.0 mm thick	3840 (26.4)	ASTM D-1002
Stainless Steel, 1.0 mm	3270 (22.5)	
Galvanized Steel, ⁷ 1.5 mm	1990 (13.7)	
Copper, 1.5 mm	3270 (22.5)	
Brass, 1.5 mm	2990 (20.6)	
Fatigue Limit Load % Static Shear Strength, ⁸	Cycles to failure:	
50	10 ³ -10 ⁴	??????????
40	10 ⁴ -10 ⁵	
30	10 ⁵ -10 ⁶	
25	10 ⁵ -10 ⁶	
20	10 ⁶ -10 ⁷	
15	10 ⁷	
Ultimate tensile strength, psi (MPa)	4800 (33)	ASTM D-638
Elongation, %	9	ASTM D-638
Glass transition temperature, T _g , DMA °C (°F)	146 (63)	ASTM D-4065
Hardness, Shore D	80	ASTM D-2240
Coefficient of thermal expansion, ppm/°C	85	ASTM E-381
Roller peel test, pli (N/mm)	28 (4.9)	ISO 4578
Thermal Conductivity, W/m·K	0.22	ISO 8894/90

¹Effects of cure time and temperature: tested at 25°C (77°F)

²Effects of test temperature: load applied 10 min after reaching test temperature

³Effects of immersion: cure cycle 16 hrs. at 40°C (104°F). Immersion for 90 days in media listed.

⁴Effects of tropical exposure: (40°C/104°F/92% R.H.), tested at 25°C (77°F).

⁵Effects of heat aging: cured 16 hours at 104°F/40°C.

⁶Cured 16 hours at 104°F (40°C).

⁷Surface degreased only, not roughened.

⁸Tested using a load frequency of 90 Hz and a 1 inch (25 mm) joint overlap. Cured 20 min at 212°F (100°C).

Typical Electrical Properties

Property	Value	Test Method
Dielectric strength, V/mil	400	ASTM D-149
Dielectric constant, 50 Hz 1 kHz 10 kHz	3.4 3.2 3.2	ASTM D-150
Loss tangent, % 50 Hz 1 kHz 10 kHz	1.7 1.8 2.6	ASTM D-150
Volume resistivity, Ω ·cm	7.1×10^{14}	ASTM D-257
Surface Resistivity, Ω	1.2×10^{16}	IEC 60093

Storage

Araldite® 5871 A/B Epoxy Adhesive should be stored in a dry place, in the sealed original container, at temperatures between 2°C and 40°C (35.6°F and 104°F). Under these storage conditions, the shelf life is **3 years** (from date of manufacture). The product 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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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
281-829-7400