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Araldite® 5861 A/B Epoxy Adhesive

Product Description

Araldite® 5861 A/B Epoxy Adhesive is a rapid-cure two-component bonding system for multi-purpose. The system can be cured at room temperature and yield high strength and toughness. It is suitable for bonding a wide variety of metals, ceramics, glass, rubbers, rigid plastics, and most common electrical insulation materials.

Araldite® 5861 A/B Epoxy Adhesive is UL recognized 180°C class electrical insulation systems.

Applications

- Electrical insulation
- Ceramics
- Glass
- Plastics
- Vulcanized rubber
- Metal

Features

- High shear and peel strength
- Tough and resilient
- Rapid cure
- Bonds a wide variety of materials
- Good dielectric properties

Typical Properties*

Property	Araldite® 5861A	Araldite® 5861B	Mixed System	Test Method
Appearance	Opaque viscous liquid	Light yellow viscous liquid	--	Visual
Density at 25°C, g/cm^3	1.17	1.17	1.17	ASTM D-792
Viscosity at 25°C, cPs	35,000	30,000	33,000	ASTM D-2393
Pot Life, 100 g, at 25°C, min	--	--	4	ASTM D2471

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

Processing

Mix together thoroughly and use immediately after mixing. Material temperature should not be below 18°C (65°F) when mixing. Use with adequate ventilation. Thermosetting systems generate heat when curing. Heat is released vary significantly between systems. The amount of heat and the period of time in which heat is released vary significantly between systems. Additionally, ambient or compound temperature, amount of material mixed, and construction and shape of the mold or container can also be factors in the temperature profile of a mixed system. In some cases, the thermosetting reaction can be vigorous, generating heat sufficient to cause decomposition of the system with subsequent liberation of large volumes of acrid smoke. A good rule of thumb is never mixed more material than can be applied during the stated pot life or gel time.

The resin/hardener mix is applied with a spatula to the pretreated 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/volume
Araldite® 5861A	100
Araldite® 5861B	100

Recommended Cure Cycles

Temperature	Handling Strength, minute	Minimum Cure Times, minute
50°F (10°C)	35	120
59°F (15°C)	20	70
77°F (25°C)	20	60
104°F (40°C)	5	25
140°F (60°C)	2	10
212°F (100°C)	1	2

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 a different specimen is specified. The joint area was 0.5 x 1 inch (12.5 mm x 2.5 cm) in each.

Property	Value	Test Method
Lap shear strength,[1] psi (MPa) Cure: 7 days at 25°C (77°F) 24 hrs. at 25°C (77°F) + 30 min at 80°C (176°F)	 2600 (17.9) 5000 (34.5)	DIN 53283
Lap shear strength,[2] psi (MPa) Cure: 7 days at 25°C (77°F), tested at -40°C (-40°F) -20°C (-4°F) 0°C (32°F) 20°C (68°F) 40°C (104°F) 60°C (140°F) 80°C (176°F) 24 hrs. at 25°C (77°F) + 30 min. at 80°C (176°F), tested at -40°C (-40°F) -20°C (-4°F) 0°C (32°F) 20°C (68°F) 40°C (104°F) 60°C (140°F)	 1600 (11) 1500 (10.3) 1500 (10.3) 2400 (16.6) 2700 (18.6) 1100 (7.6) 500 (3.4) 3500 (24.1) 3600 (24.8) 3900 (26.9) 5000 (34.5) 4300 (29.6) 2000 (13.8)	DIN 53283

80°C (176°F)	800 (5.5)	
Lap shear strength,[3] psi (MPa) Standard - As prepared IMS Gasoline Ethyl Acetate (30 days) Acetic Acid 10% Xylene Lubricating Oil - HD3O Paraffin Water at 20°C (68°F) Water at 90°C (194°F)	 2700 (18.6) 2000 (13.8) 2400 (16.6) 2000 (13.8) 2200 (15.2) 2500 (17.2) 2400 (16.6) 2300 (15.9) 200 (1.4) 800 (5.5)	DIN 53283
Lap shear strength,[4] psi (MPa) 16 hrs. at 40°C, exposure for 0 days 30 days 60 days 90 days	 2700 (18.6) 3500 (24.1) 3000 (20.7) 2400 (16.6)	DIN 53283
Lap shear strength,[5] psi (MPa) Aging temperature, 70°C (158°F) exposed for 0 days 30 days 60 days 90 days	 2700 (18.6) 5000 (34.5) 4800 (33.1) 5000 (34.5)	DIN 53283
Lap shear strength on metal substrates,[6] Carbon Steel, 1.0 mm thick Stainless Steel, 1.0 mm Galvanized Steel,[7] 1.5 mm Copper, 1.5 mm Brass, 1.5 mm	 300 (2) 4000 (27.6) 1800 (12.4) 2800 (19.3) 3100 (21.4)	DIN 53283
Glass transition temperature, T_g, °C (°F)	48 - 53 (118 - 127)	ASTM E-381
Hardness, Shore D	78 - 83	
Coefficient of thermal expansion, ppm/°C	65 - 70	ASTM E-381
Thermal conductivity, W/m·K	0.22	ISO 8894/90

[1]Effects of cure time and temperature: tested at 25°C (77°F)
[2]Effects of test temperature: load applied 10 min after reaching temperature
[3]Effects of immersion: cure cycle 16 hrs. at 40°C (104°F). Immersion for 90 days in media listed.
[4]Effects of tropical exposure: (40°C/104°F/92% R.H.), tested at 25°C (77°F).
[5]Effects of heat aging: cured 16 hours at 104°F/40°C.
[6]Cured 16 hours at 104°F (40°C).
[7]Surface degreased only, not roughened.

Typical Electrical Properties

Property	Value	Test Method
Dielectric constant, 25°C (77°F) at 50 Hz at 1 kHz at 10 kHz	 4.4 4.4 4.3	IEC 60250
Dissipation factor, 25°C (77°F), % at 50 Hz at 1 kHz at 10 kHz	 0.8 0.7 1.0	ASTM D-150
Dielectric strength, V/mil	425	ASTM D-149
Volume resistivity, 25°C (77°F), Ω·cm	5.7×10^{14}	IEC 60093
Surface resistivity, 25°C (77°F), Ω	1.5×10^{15}	IEC 60093

Storage

Araldite® 5861 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.

KEEP OUT OF REACH OF CHILDREN

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