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## Product Data

# ARALDITE<sup>®</sup> 2014 A/B

## HEAT/CHEMICAL-RESISTANT EPOXY ADHESIVE

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**DESCRIPTION:** Araldite 2014 A/B epoxy adhesive is a two-component, thixotropic, room-temperature curing paste. It features high strength and toughness as well as good environmental stability and chemical resistance.

Araldite 2014 A/B epoxy adhesive is well suited for bonding electronic components, GRP structures, and other parts that may be exposed to elevated temperatures and/or aggressive environments.

**APPLICATIONS:**

- Metals
- Ceramics
- GRP
- Electronic components

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**ADVANTAGES:**

- Heat resistant to 248°F (120°C)
- Withstands exposure to water and a wide variety of chemicals
- Gap-filling, non-sagging up to 0.2 inch (5 mm) thickness
- Bonds well to a wide variety of substrates

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<b>TYPICAL PROPERTIES:</b>		<b>Test Values<sup>(1)</sup></b>		
	<b><u>Property</u></b>	<b><u>Test Method</u></b>	<b><u>Resin</u></b>	<b><u>Hardener</u></b>
	Color/appearance	Visual	Beige paste	Gray Thixotropic paste
	Specific Gravity	ASTM D-792	1.60	1.60
	Viscosity, cP @ 77°F (25°C)	ASTM D-2393	70,000	130,000

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<b>TYPICAL MIXED PROPERTIES:</b>	<b><u>Property</u></b>	<b><u>Test Method</u></b>	<b><u>Test Values<sup>(1)</sup></u></b>
	Reaction Ratio (by weight)		100R/50H
	Reaction Ratio (by volume)		100R/50H
	Pot Life, minutes @ 77°F (25°C), 4 fl. oz. mass	ASTM D-2471	40
	Mixed viscosity, cP @ 77°F (25°C)	ASTM D-2393	90,000

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<b>RECOMMENDED CURE SCHEDULES:</b>	<b><u>Temperature</u></b>	<b><u>Handling Strength</u></b>	<b><u>Minimum Cure Time</u></b>
	50°F (10°C)	16 hours	24 hours
	59°F (15°C)	9 hours	11.5 hours
	77°F (25°C)	3.5 hours	6 hours
	104°F (40°C)	75 minutes	105 minutes
	140°F (60°C)	26 minutes	30 minutes
	212°F (100°C)	6 minutes	6 minutes

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**TYPICAL CURED PROPERTIES:**      **Application of Adhesive**  
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.

**Standard Test Specimens**

Unless otherwise stated, the figures 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. The joint area was 0.5 x 1 inch (12.5 mm x 2.5 cm) in each case.

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**Property**  
**Lap Shear Strength, psi (MPa)**  
***Effects of cure time and temperature***

**Test Method**  
 DIN 53283

	<b><u>Test Values</u></b> <sup>(1)</sup>
<b><u>Cure Cycle</u></b> 7 days @ 77°F (25°C)	2400 (16.5)
24 hours @ 77°F (25°C) + 30 min @ 176°F (80°C)	2600 (17.9)

**Property**  
 Lap Shear Strength, psi (MPa)  
***Effect of Test Temperature***

**Test Method**  
 DIN 53283

(Load applied 10 minutes after specimens reach test temperature.)

	<b><u>Test Temp.</u></b>	
7 days @ 77°F (25°C)	-40°F (-40°C)	1900 (13.1)
	-4°F (-20°C)	2000 (13.8)
	68°F (20°C)	2400 (16.5)
	104°F (40°C)	2900 (20)
	140°F (60°C)	2500 (17.2)
	176°F (80°C)	2400 (16.5)
	212°F (100°C)	1900 (13.1)
	248° F (120°C)	1300 (8.9)
	284° F (140°C)	800 (5.5)
	24 hrs @ 77°F (25°C) + 30 min @ 176°F (80°C)	-40°F (-40°C)
-4°F (-20°C)		2500 (17.2)
68°F (20°C)		2600 (17.9)
104°F (40°C)		2500 (17.2)
140°F (60°C)		3000 (20.6)
176°F (80°C)		2600 (17.9)
212°F (100°C)		2100 (14.5)
248° F (120°C)		1400 (9.6)
284° F (140°C)		900 ((6.2)

**Lap Shear Strength, psi (MPa)**  
***Effect of Immersion***

Cure cycle 16 hours @ 104°F (40°C). Immersion for 90 days in media listed.)

<b><u>Media</u></b>	<b><u>Test Values</u></b> <sup>(1)</sup>
Standard - As prepared	2700 (18.6)
IMS	2750 (18.9)
Gasoline	3200 (22)
Ethyl Acetate (30 days)	3300 (22.7)
Acetic Acid 10%	2300 (15.8)
Xylene	2650 (18.2)
Lubricating Oil - HD30	2300 (15.8)
Paraffin	2600 (17.9)
Water @ 68°F (20°C)	2750 (18.9)
@ 194°F (90°C)	2000 (13.8)

**Property**

**Lap Shear Strength, psi (MPa)**

***Effect of Tropical Exposure***

(104°F/40°C/92% R.H.)

**Cure Cycle**

16 hrs @ 104°F (40°C)

**Exposure Time**

0 days  
30 days  
60 days  
90 days

**Test Values<sup>(1)</sup>**

2700 (18.6)  
3050 (21)  
3100 (21.3)  
2900 (20)

**Lap Shear Strength, psi (MPa)**

***Effect of Heat Aging***

Cured 16 hours @ 104°F (40°C).

**Aging Temperature**

158°F (70°C)

**Test Method**

**DIN 53283**

**Exposure Time**

0 days  
30 days  
60 days  
90 days

2700 (18.6)  
2800 (19.3)  
2600 (17.9)  
3000 (20.6)

**Property**

**Lap Shear Strength, psi (MPa)**

***Tested on Metal Substrates***

Cured 16 hours @ 104°F (40°C)

**Metal**

Carbon Steel  
Stainless Steel  
Galvanized Steel<sup>2</sup>  
Copper  
Brass

**Substrate**

**Thickness (in./mm)**

0.039/1.0  
0.039/1.0  
0.06/1.5  
0.06/1.5  
0.06/1.5

2500 (17.2)  
3200 (22)  
1300 (8.9)  
2300 (15.8)  
2300 (15.8)

Tg per DMA, °F (°C)

Roller Peel Test, pli (N/mm)

ASTM D-4065

ISO 4578

230 (110)

17 (3)

<sup>2</sup>Surface degreased only, not roughened.

**Electrical Properties**

Dielectric Strength, volt/mil

450

Volume Resistivity, ohms-cm

6.1 E+15

Dielectric Constant, at 1KHz

1.0

Loss Tangent, % at 1KHz

3.9

**STORAGE/  
SHELF LIFE:**

Araldite epoxy adhesive components should be stored in their original, sealed containers at room temperature. When stored at temperatures from 59-77°F (15-25°C), the resin and hardener will remain in useable condition for 12 months from date of shipping from Huntsman.

## CAUTION:

Huntsman Advanced Materials Americas Inc. maintains up-to-date Material Safety Data Sheets (MSDS) 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. Copies of the latest MSDS may be requested by calling our customer service group at 800-367-8793 or emailing your request to [adhesives\\_group@huntsman.com](mailto:adhesives_group@huntsman.com).

## FIRST AID!

Eyes and skin: Flush eyes with water for 15 minutes. Contact a physician if irritation persists. Wash skin thoroughly with soap and water. Remove and wash contaminated clothing before reuse.

Inhalation: Remove subject to fresh air.

Swallowing: Dilute by giving water to drink and contact a physician promptly. Never give anything to drink to an unconscious person.

## KEEP OUT OF REACH OF CHILDREN

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