

**Advanced Materials****XD 4428 Resin / XD 4455 Hardener Adhesive**

90-SECOND, MULTI-PURPOSE EPOXY ADHESIVE

**DESCRIPTION :**

Araldite® XD 4428 resin / XD 4455 hardener epoxy adhesive is a multi-purpose, two-component system that cures very quickly at room temperature. It features a 90-second gel time. Araldite® XD 4428 resin / XD 4455 hardener epoxy adhesive is designed for rapid bonding of metals, ceramics, glass, rubbers and rigid plastics. It is a versatile adhesive that can be used by craftsmen and for industrial applications.

**APPLICATIONS :**

- Metals
- Ceramics
- Glass
- Vulcanized Rubber
- Wood
- Plastics

**ADVANTAGES :**

- Very rapid curing at room temperature
- Transparent bondline
- Bonds a wide variety of materials
- Produces flexible joints

**TYPICAL PROPERTIES :**

Property	Test Method	Test Values <sup>(1)</sup>	
		Resin	Hardener
Color/appearance	Visual	Transparent liquid	Pale Yellow liquid
Specific Gravity	ASTM D-792	1.16	1.14
Viscosity (cP) @ 77 °F (25 °C)	ASTM D-2393	25,000	15,000

**TYPICAL MIXED PROPERTIES :**

<b>Property</b>	<b>Test Method</b>	<b>Test Values<sup>(1)</sup></b>
Resin/Hardener Ratio (by weight)	ASTM D-2471	100/100
Resin/Hardener Ratio (by volume)		100/100
Pot Life, minutes @ 77 °F (25 °C)		90
2. gram mass		
Mixed Viscosity (cP) @ 77 °F (25 °C)	ASTM D-2393	Thixotropic paste

**CURE SCHEDULES :**

<b>Temperature</b>	<b>Cure Time</b>	<b>Strength Development, psi (Mpa)</b>
77 °F (25 °C)	5 minutes	150 (1)
	10 minutes	750 (5.2)
	2 minutes	1500 (10.3)

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

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.

<b>Property</b>	<b>Test Method</b>	<b>Test Values<sup>(1)</sup></b>
<b>Lap Shear Strength, psi (Mpa)</b>	ISO 4578	
<b>Effects of Test temperature</b>		
<b>Cure Cycle</b>	<b>Test Temperature</b>	
16 hours @ 104 °F (40 °C)	-40 °F (-40 °C)	2100 (14.5)
	68 °F (20 °C)	3100 (21.3)
	104 °F (40 °C)	2100 (14.5)
	140 °F (60 °C)	700 (4.8)
	176 °F (80 °C)	500 (3.4)

<sup>1</sup> Tested @ 77 °F (25 °C), unless otherwise noted.

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

(Cure cycle 16 hours @ 104 °F (40 °C). Immersion for 30 days in media listed.)

**Media**

Standard – As prepared  
Gasoline  
Acetic Acid (10%)  
Bleach (5%)  
Paraffin  
Water @ 68 °F (20 °C)  
Water @ 194 °F (60 °C)

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

3100 (21.3)  
3000 (20.6)  
2400 (16.5)  
3000 (20.6)  
3000 (20.6)  
2600 (17.5)  
300 (2)

**Property****Lap Shear Strength, psi (Mpa)****Tested on Various Substrates**

(Cure cycle 16 hours @ 104 °F (40 °C). Immersion for 30 days in media listed.)

**Material**

Aluminum  
Stainless Steel  
Galvanized Steel  
Copper  
Brass  
SMC  
ABS  
PVC  
Polycarbonate  
Polypropylene

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

3100 (21.3)  
3700 (25.5)  
1800 (12.4)  
3000 (20.6)  
3600 (24.8)  
1300 (8.9)  
700 (2.7)  
400 (2.7)  
400 (2.7)  
300 (2)

<sup>1</sup> Tested @ 77 °F (25 °C, unless otherwise noted.**Electrical Properties**

Thermal Conductivity, W/mK	0.22
Surface Resistivity, ohms	2.4 E+14
Dielectric Strength, volt/mil	600
Volume Resistivity, ohms-cm	2.9 E+15
Dielectric Constant, at 50 Hz/1 KHz/10 KHz	4.3/4.2/4.2
Loss Tangent, % at 50 Hz/1 KHz/10 KHz	1.1/1.8/1.8

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**CAUTION :**

Huntsman Advanced Material Americas Inc. maintains up-to-date Material Safety Data Sheet (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 888-564-9318 or emailing your request to [advanced\\_materials@huntsman.com](mailto:advanced_materials@huntsman.com)

To protect against any potential health risks presented by our products, the use of proper personal protective equipment (PPE) is recommended. Eye and skin protection is normally advised. Respiratory protection may be needed if mechanical ventilation is not available or is insufficient to remove vapors.

For detailed PPE recommendations and exposure control options consult the product MSDS or a Huntsman EHS representative.

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**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  
FOR PROFESSIONAL AND INDUSTRIAL USE ONLY**

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