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## Product Data

# ARALDITE<sup>®</sup> AW 136 Resin Hardener HY 5049 EPOXY LAMINATING ADHESIVE

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**DESCRIPTION:** Araldite AW 136 resin/Hardener HY 5049 epoxy adhesive is a two-part laminating system used for fabricating skis, snowboards and other composite parts. A heat cure is recommended for optimal results.

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**APPLICATIONS:**

- Ski and snowboard lamination
- Archery limb lamination
- Honeycomb core facings

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**ADVANTAGES:** Outstanding adhesion to many materials commonly used in the ski industry. Excellent strength under static and dynamic loading. Good environmental resistance to water, ice and tropical conditions.

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<b>TYPICAL PROPERTIES:</b>	<b><u>Araldite AW 136 Resin</u></b>	<b><u>Test Values</u></b>
	Color, ASTM D-695, Visual	Black
	Specific Gravity, g/cc, ASTM D-792	1.39
	Viscosity, cP @ 77°F (25°C), ASTM D-2393	50,000
	<b><u>Hardener HY 5049</u></b>	
	Color, Visual	Amber
	Specific Gravity, g/cc, ASTM D-792	0.93
	Viscosity, cP @ 77°F (25°C), ASTM D-2393	900
	<b><u>Mixed System</u></b>	
	Color, Visual	Black
Viscosity, cP @ 77°F (25°C), ASTM D-2393	7500	
Gel Time, minutes, ASTM D-2471, (100 gram mass) @ 77°F (25°C)	75	

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<b>CURE SCHEDULE:</b>	<b><u>Temperature</u></b>	<b><u>Minimum Cure Time</u></b>
	140°F (60°C)	60-120 minutes
	176°F (80°C)	30-60 minutes
	212°F (100°C)	15-20 minutes
	248°F (120°C)	10-15 minutes

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**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 surfaces to ensure proper cure.

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**STANDARD LAP TEST:** Unless otherwise stated, the figures given below were all determined by testing standard specimens made up by lap-joint 4-inch x 1-inch x 0.06-inch (10-cm x 2.5-cm x 1.5-mm) strips of degreased and 100-grit abraded aluminum. The joint area was 0.5 x 1 inch (12.5 mm x 2.5 cm) in each case. Samples were cured at 176°F (80°C) for 30 minutes, unless otherwise noted.

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**TYPICAL CURED PROPERTIES:**

Tested at 77°F (25°C) unless otherwise noted.  
Not for specification purposes.

Lap Shear Strength, psi (MPa)

**Test Values**

ISO 4578

*Effect of Test Temperature*

Cured at 212°F (100°C) for 15 minutes. Load applied 10 minutes after specimens reach test temperature.

**Test Temperature**

-40°F (-40°C)	2160 (14.9)
-4°F (-20°C)	2450 (16.9)
68°F (20°C)	2590 (17.8)
104°F (40°C)	2690 (18.5)
140°F (60°C)	2980 (20.5)
176°F (80°C)	1580 (10.9)
212°F (100°C)	500 (3.4)

Tropical Exposure

Exposed to 104°F (40°F) and 92% RH.

**Exposure**

Standard - As Prepared	2880 (19.8)
10 days	2520 (17.4)
30 days	2520 (17.4)
60 days	2660 (18.3)
90 days	2380 (16.4)

Water Immersion at 75°F (23°C)

**Exposure**

Standard - As prepared	2880 (19.8)
10 days	2740 (18.9)
30 days	2590 (17.8)
60 days	2450 (16.9)
90 days	2160 (14.9)

Various Substrates

Steel to steel	DIN 53295, tested at 73°F (22°C)	2450 (16.9)
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Standard Drum Peel, pli (N/mm)

<b>Material</b>	<b>Failure Mode</b>	
Aluminum/Aluminum	Cohesive	2.2 (0.38)
Ash/Aluminum	Wood	5.1 (0.89)
Ash/Fabric	Glass Fiber	6.3 (1.1)
ABS/Roving Laminate	Glass Fiber	4.5 (.78)
ABS/Aluminum	ABS	12 (2.1)
Aluminum/Roving Laminate	Glass Fiber	4 (0.7)
Polyurethane Core/Aluminum	Core	1.7 (0.29)
Polyurethane Core/Fabric	Glass Fiber	7.4 (1.3)
Aluminum/Fabric	Glass Fiber	10.8 (1.9)
Aluminum/Rubber Sheet/Aluminum	Rubber Sheet	50.7 (8.9)

**TYPICAL PHYSICAL PROPERTIES**

Tested at 77°F (25°C) and cured 7 days at 77°F (25°F) unless otherwise noted.

Not for specification purposes.

	<u>Test Values</u>
Hardness, Shore D, ASTM D-2240	82
Ultimate Tensile Strength, psi (MPa), ASTM D-638	5880 (40.5)
Tensile Modulus, psi (MPa), ASTM D-638	585,000 (4034)
Ultimate Flexural Strength, psi (MPa), ASTM D-790	10,000 (68.9)
Flexural Modulus, psi (MPa), ASTM D-790	500,000 (3,448)
Tg per DMA, °F (°C), ASTM D-4065, cured 15 minutes at 212°F (100°C)	158 (70)
Izod Impact, ft lb/in (J/m), ASTM D-256	0.244 (13)
Ultimate Compressive Strength, psi (MPa), ASTM D-695	18,800 (129.6)
Compressive Modulus, psi (MPa), ASTM D-695	298,000 (2,055)

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**NOTE ON TYPICAL PROPERTIES:** These physical properties are reported as typical test values obtained by our test laboratory. If assistance is needed in establishing product specifications, please consult with our Quality Control Department.

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## 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

## FOR PROFESSIONAL AND INDUSTRIAL USE ONLY

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