

ARALDITE[®] 2035 High Temperature Adhesive

Product Description

ARALDITE[®] 2035 A/B adhesive is an extrudable, two-component, room temperature curing epoxy adhesive designed for service temperatures up to 400°F (204°C). This product is suitable for bonding a wide variety of materials such as metals, composites, and many other dissimilar substrates. The combination of high shear strength and compression makes this adhesive well suited for transportation, oil and gas, general industrial and applications requiring high temperature performance. ARALDITE[®] 2035 A/B adhesive offers a rapid build-up of strength with an easy to process mix ratio.

Features

- Ideal for bonding metals and composites
- Room temperature cure
- High lap shear and compressive strength
- Maximum service temperature up to 400°F (204°C)
- Resistant to environmental degradation / aging
- Contains 0.005" spacer beads
- Low outgassing
- Convenient 2:1 volumetric mix ratio for cartridges or meter mix dispensing

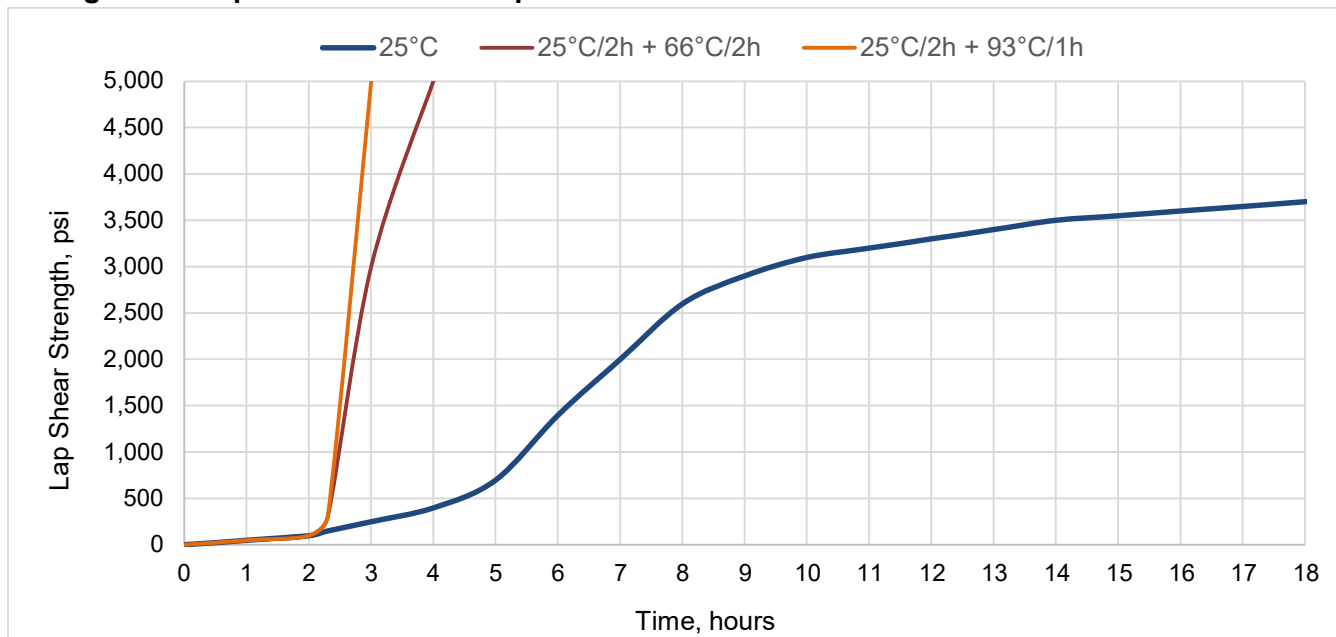
Processing Guidelines

- Substrates should be properly surface treated and be free from any contaminants.
- Mix both components thoroughly for several minutes until a homogeneous mixture is obtained.
- Mixing with a centrifugal mixer such as a FlackTek, Hauschild, or Thinky mixer can improve results. Total mixing time at 2000 rpm should be kept below 1 minute to avoid excessive heating.
- Dispensing from a 2:1 dual barrel cartridge through a static mixer is the preferred method.
- The mixed adhesive should be applied to both dry joint surfaces with a spatula.
- A layer of adhesive 0.004 to 0.012 inches (0.1 to 0.3 mm) thick will normally provide the maximum lap shear strength. However, this adhesive has been specifically designed to be effective in layers of up to 0.12 in. (3 mm).
- The components to be bonded should be assembled and clamped as soon as the adhesive has been applied. Even contact pressure throughout the joint area during cure will ensure optimum performance.

Processing Information

Parameter	Value		
Mix ratios	100:62 Per Weight		2:1 Per Volume
Mixing color indicator	Resin (A): Off-White	Hardener (B): Dark Gray	Mixed: Gray
Viscosity at 10/s shear rate	A: 650,000 cP	B: 165,000 cP	Mixed: 300,000 cP
Sag/Slump Test [ASTM D2202]	No Sag		
Static Mixer / Extrusion rate at 80psi	0.50in diameter, 24 element ... 38 g/min		
	0.44in width, 26 element ... 44 g/min		
Recommended Cure Schedules	5 days at 77°F (25°C)		
	77°F / 2-3 hours + 150°F (66°C) / 1-2 hours		
	77°F / 2 hours + 200°F (93°C) / 45-60 minutes		
	77°F / 3 hours + 250°F (121°C) / 30-45 minutes		
	77°F / 3 hours + 300°F (149°C) / 15-30 minutes		
Working time (within nozzle)	60 min within nozzle, 30 min for 100g mass		
Gel time at 77°F (25°C)	20g / 90 min; 50g / 75 min; 100g / 40 min		
Handling time at 77°F (25°C)	2,000psi in 7 hours; 4,000psi in 24 hours		

Strength Development at Room Temperature. Anodized & Primed Aluminum



Typical Physical Properties

Unless otherwise stated, the data were determined with typical production batches using standard test methods, and the specimens cured for 5 days at 77°F (25°C). These are typical values and should not be used to establish product specifications.

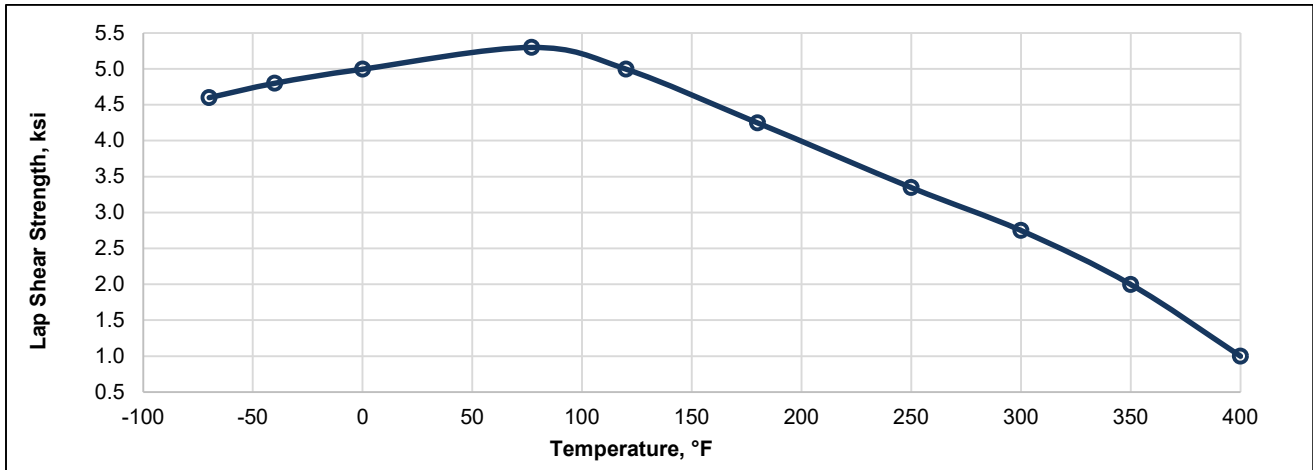
Physical Properties

Property	Condition	Test Temp	Value
Tensile lap shear strength, psi (MPa) [ASTM D1002]	Aluminum 2024*, Cured at 150°F (66°C) for 1-2 hr	-65°F (-55°C)	4,500 ^{PF}
		77°F (25°C)	5,500 ^{PF}
		180°F (82°C)	4,250 ^{PF}
		250°F (121°C)	3,350 ^{PF}
		300°F (149°C)	2,750 ^{PF}
		350°F (177°C)	2,000 ^{PF}
		400°F (204°C)	1,000 ^{PF}
	G10 Epoxy-Glass Composite**	77°F (25°C)	1,500 ^{LF}
Compressive, psi (MPa) [ASTM D695]	Ultimate Strength	-67°F (-55°C)	30,000
		77°F (25°C)	35,000
		250°F (121°C)	25,000
		350°F (177°C)	12,000
	2% Offset Yield	77°F (25°C)	14,000
Modulus	77°F (25°C)	650,000	
Hardness, Shore D [ASTM D2240]	--	77°F (25°C)	85
T-Peel, pli (N/mm) [ASTM D3167]	*32 mil substrates, 15 mil bond thickness	77°F (25°C)	12
Glass transition temperature, Tg, (DMA E' onset), °C	Cured 1 hour at 200°F (93°C)	--	125
CTE	Cured 1 hour at 200°F (93°C)	--	TBD

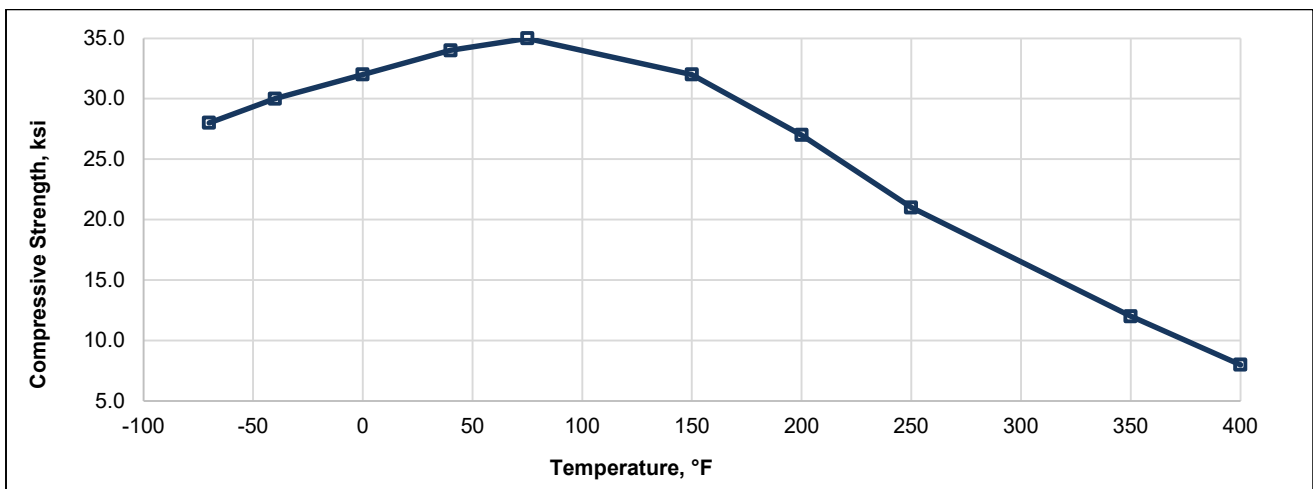
*Aluminum 2024 T3 Clad, Anodized and Primed; ** Blasted 200 grit garnet

SF: stock failure; PF: primer failure; LF: delamination failure; CF: cohesive failure; AF: adhesive failure

Lap Shear Strength versus Temperature



Compressive Strength versus Temperature



Storage

ARALDITE® 2035 A Resin and **ARALDITE® 2035 B Hardener** should be stored in a dry place in their original sealed containers. When stored at a temperature between **2°C and 25°C (36°F and 77°F)** the shelf life is **24 months** from date of manufacture. When stored at a temperature between **18°C and 40°C (64°F and 104°F)**, the shelf life of both components is **12 months** from date of manufacture. Tightly re-seal all containers immediately after use to prevent contamination.

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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