Araldite® AW 1142 Resin / Hardener HY 1143

Product Description

Araldite® AW 1142 Resin / Hardener HY 1143 epoxy adhesive is a two-component system that cures quickly at room temperature. Designed specifically for bonding filter components made from a wide variety of substrates, Araldite® AW 1142 Resin / Hardener HW 1143 epoxy adhesive features good water resistance.

Features

- Rapid cure
- Bonds nylon
- Cures at room temperature
- Good water resistance
- Can be used in bonding filters made using metal components, plastic components, or filter media

Typical Properties*

Property	Araldite® AW 1142 Resin	Hardener HY 1143	Mixed System	Test Method
Appearance	Gray	Light Yellow	Light Gray	Visual
Density, g/cm^3	1.20 - 1.30	1.04	~ 1.25	ASTM D792
Viscosity at 25°C, cP	~28,000	~3,000	N/A	ASTM D2393

*Properties are based on Huntsman test methods. Copies are available upon request.

Processing

Pretreatment

The strength and durability of a bonded joint are dependent on proper treatment of the surfaces to be bonded. At the very least, joint surfaces should be cleaned with a good degreasing agent such as acetone, iso-propanol (for plastics) or other proprietary degreasing agents in order to remove all traces of oil, grease and dirt. Low grade alcohol, gasoline, or paint thinners should never be used. The strongest and most durable joints are obtained by either mechanically abrading or chemically etching ("pickling") the degreased surfaces. Abrading should be followed by a second degreasing treatment.

Mix Ratio

Product	Parts by weight	Parts by volume
Araldite® AW 1142 Resin	100	100
Hardener HY 1143	25	30

Application of adhesive

The resin/hardener mix may be applied manually or robotically to the pretreated and dry joint surfaces. Huntsman's technical support group can assist the user in the selection of an suitable application method as well as suggest a variety of reputable companies that manufacture and service adhesive dispensing equipment. A layer of adhesive 0.002 to 0.004 in (0.05 to 0.10 mm) thick will normally impart the greatest lap shear strength to the joint. Huntsman stresses that proper adhesive joint design is also critical for a durable bond. The joint components should be assembled and secured in a fixed position as soon as the adhesive has been applied.

Equipment maintenance

All tools should be cleaned with hot water and soap before adhesives residues have had time to cure. The removal of cured residues is a difficult and time-consuming operation. If solvents such as acetone are used for cleaning, one should proceed in a well-ventilated area and wear the appropriate protective clothing and equipment to prevent any risks of eye and skin contact.

Processing Data

Recommended cure cycle					
Temperature, °F	59	73	104	140	210
Minimum cure time, hours minutes	 70 -	 20 -	 1.5 -	 - 35	 - 6
Handling strength, hours	5.5	2.5	0.5	0.25	4 min

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.

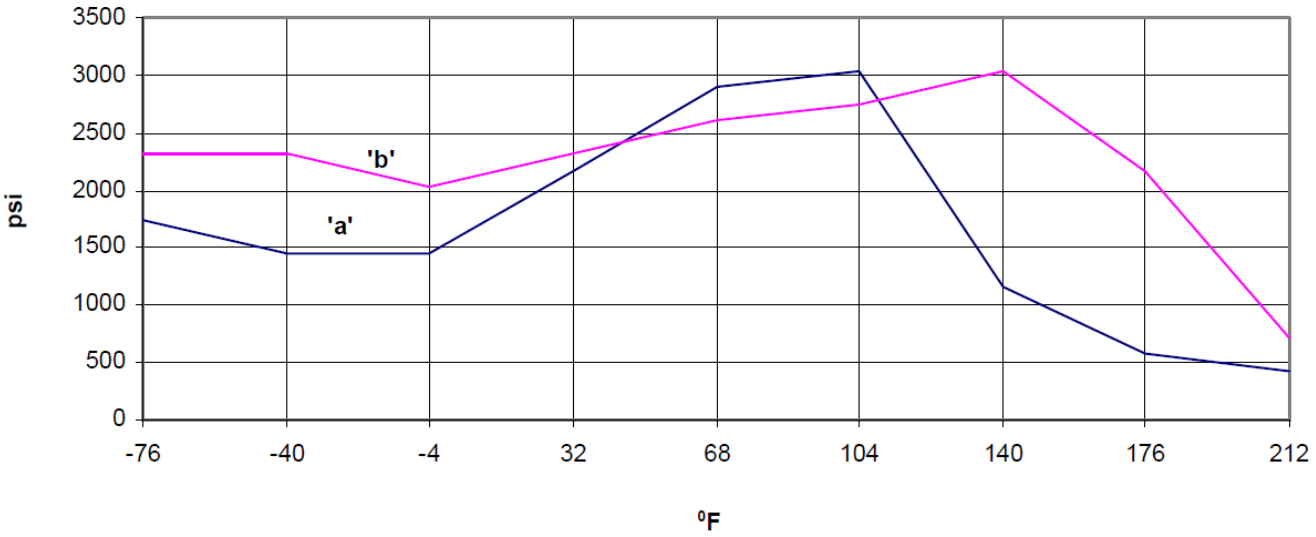
Unless a different specification is given, the figures below were all determined by testing standard specimens made by lap-jointing 4.5 x 1 x 0.063 in (114 x 25 x 1.6 mm) strips of aluminum alloy. The joint area was 0.5 x 1 in (12.5 x 25 mm) in each case. Samples were tested at 25°C and cured for 16 h at 104°F (40°C), unless a different cure is specified.

Property	Test Method	Value
Lap shear strength of typical metal-metal joints, psi (MPa)	ISO 4587	
Aluminum		2,175 (15)
Steel		2,465 (17)
Stainless Steel		2,465 (17)
Galvanized Steel		1,885 (13)
Copper		1,015 (7)
Brass		1,450 (10)
GfK - UP		1,015 (7)
GfK - EP		1,450 (10)
SMC		1,015 (7)
Lap shear strength, effect of immersion for aluminum substrate, psi (MPa)	ISO 4587	
As Prepared		
90 days		2,176 (15)
Mineral Spirits		
90 days		2,756 (19)
Benzene		
60 days		2,611 (18)
90 days		2,321 (16)
Ethyl Acetate		
30 days		2,756 (19)
90 days		2,466 (17)
Acetic Acid, 10%		
30 days		2,321 (16)
90 days		2,176 (15)
Xylene		
90 days		2,466 (17)
Lubricating Oil		
30 days		2,321 (16)
90 days		2,176 (15)
Petroleum		
30 days		2,466 (17)
90 days		2,321 (16)
Water at 73°F/23°C		
30 days		2,466 (17)
90 days		2,466 (17)

Water at 140°F/60°C		
30 days		3,481 (24)
60 days		2,901 (20)
90 days		2,611 (18)
Water at 194°F/90°C		
30 days		3,191 (22)
60 days		2,466 (17)
90 days		2,031 (14)
Lap shear strength, effect of tropical exposure (104°F (40°C) / 92% RH), psi (MPa)	ISO 50015	
As Prepared		2,175 (15)
After 30 Days		2,755 (19)
After 60 Days		2,755 (19)
After 90 Days		1,453 (10)
Lap shear strength, effect of heat aging, psi (MPa)	--	
Aging at 158°F (70°C)		
0 days		3,625 (25)
30 days		2,900 (20)
60 days		3,050 (21)
90 days		3,200 (22)
Glass Transition Temperature (DSC), T_g, °F (°C)	Huntsman	
Cure: 16 hours at 104°F (40°C)		145 (63)
Cure: 1 hours at 176°F (80°C) + 24 hours at RT		144 (62)
Roller Peel, pli (N/mm)	ISO 4578	
Cure: 16 hours at 104°F (40°C)		17 (3)

Figure 1. Lap shear strength vs. temperature (Substrate: Aluminum), tested at 77°F (25°C)

Cure ‘a’: 7 days at 73°F (23°C); Cure ‘b’: 24 h at 73°F (23°C) + 30 min at 176°F (80°C)



Storage

Araldite® AW 1142 Resin and **Hardener HY 1143** should be stored in a dry place, in the original sealed containers, at temperatures between 5°C and 25°C (40°F and 77°F). Under these storage conditions, the products have a shelf life of **3 years** (from date of manufacture). The products should not be exposed to direct sunlight.

Care must be taken to avoid exposing both the Resin and the Hardener to moisture and air. The performance of the Hardener (hence adhesive) deteriorates if the hardener comes in contact with moisture and air over extended period of time. It is therefore, recommended to blanket the Hardener with dry nitrogen prior to tightly resealing the container after each use.

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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