

**Advanced Materials****Araldite® 2012 Structural Adhesive****Structural Adhesives****Araldite® 2012  
Two component epoxy paste adhesive****Key properties**

- **Fast curing**
- **General purpose**
- **Low shrinkage**
- **Bonds a wide variety of materials**
- **Tough and resilient**

**Description**

Araldite 2012 structural adhesive is a rapid cure, multipurpose, two component, room temperature curing, high viscosity liquid adhesive of high strength and toughness.

It is suitable for bonding a wide variety of metals, ceramics, glass, rubbers, rigid plastics, and most other materials in common use. It is also a versatile adhesive for the craftsman as well as most industrial applications.

**Product data**

Property	2012/A	2012/B	2012 (mixed)
Color (visual)	opaque	pale yellow	pale yellow
Specific gravity	1.16-1.18	1.15-1.18	ca 1.18
Viscosity at 77°F (cP)	25,000-45,000	20,000-40,000	typically 25,000-35,000
Pot Life (100 gm at 77°F)	-	-	5 - 8 minutes
Shelf life (36°F-104°F)	3 years	3 years	-

**Processing****Pretreatment**

The strength and durability of a bonded joint are dependant on proper pretreatment of the surfaces to be bonded.

At the very least, joint surfaces should be cleaned with a good degreasing agent such as acetone or other proprietary degreasing agents in order to remove all traces of oil, grease and dirt.

Low grade alcohol, gasoline (petrol) 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	Parts by weight	Parts by volume
Araldite 2012/A adhesive	100	100
Araldite 2012/B adhesive	100	100

Araldite 2012 structural adhesive is available in cartridges incorporating mixers and can be applied as ready to use adhesive with the aid of the tool recommended by Huntsman Advanced Materials.

**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 a 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.

For more detailed explanations regarding surface preparation and pretreatment, adhesive joint design, and the dual syringe dispensing system, visit [www.araldite2000plus.com](http://www.araldite2000plus.com).

**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, operatives should take the appropriate precautions and, in addition, avoid skin and eye contact.

**Times to minimum shear strength**

Temperature	°F	50	59	73	104	140	212
Cure time to reach	hours	-	-	-	-	-	-
LSS > 145 psi (1MPa)	minutes	35	20	20	5	2	<1
Cure time to reach	hours	2	-	-	-	-	-
LSS > 1450 psi (10MPa)	minutes	-	70	60	25	10	2

LSS = Lap shear strength.

**Typical cured properties**

Unless otherwise stated, the figures given 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. The figures were determined with typical production batches using standard testing methods. They are provided solely as technical information and do not constitute a product specification.

**Average lap shear strengths of typical metal-to-metal joints (ISO 4587)**

Cured for 16 hours at 104°F(40°C) and tested at 73°F (23°C); Pretreatment - Sand blasting

Substrate	psi
Aluminum	2611
Steel 37/11	3046
Stainless steel V4A	3916
Galvanized steel	1595
Copper	2756
Brass	3046

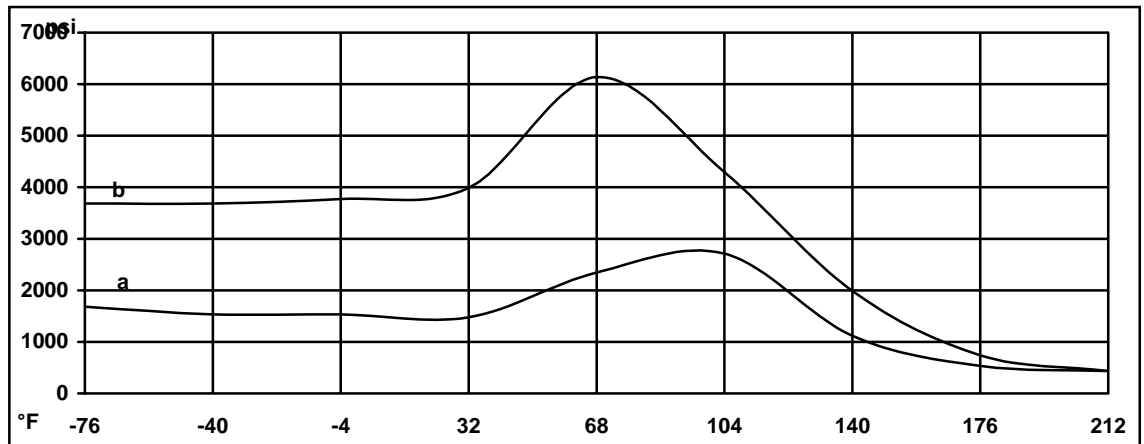
**Average lap shear strengths of typical plastic-to-plastic joints (ISO 4587)**

Cured for 16 hours at 104°F (40°C) and tested at 73°F (23°C). Pretreatment - Lightly abrade and alcohol degrease.

Substrate	psi
GRP	1334
CFRP	2089
SMC	740
ABS	595
PVC	508
PMMA	464
Polycarbonate	551
Polyamides	319

**Lap shear strength versus temperature (ISO 4587) (typical average values)**

Cure: (a) = 7 days / 73°F (23°C); (b) = 24 hours / 73°F (23°C) + 30 minutes / 176°F (80°C)



**Roller peel test (ISO 4578)**

Cure: 48 hours / 68°F (20°C)

Cure: 16 hours / 104°F (40°C)

Cure: 2 hours / 176°F (80°C)

20 pli (3.5 N/mm)

31 pli (5.5 N/mm)

31 pli (5.5 N/mm)

**Flexural Properties (ISO 178) Cure 16 hours/ 104°F (40°C); tested at 73°F (23°C)**

Flexural Strength

6,672 psi (46.0 Mpa)

Flexural Modulus

239,950 psi (1654.4Mpa)

**Lap shear strength versus immersion in various media (typical average values) Cure: 16 hour/ 104°F (40°C)**

	30 days	60 days	90 days
	<b>psi</b>		
As-made value			2769
IMS	2067	2080	2067
Gasoline	2386	2386	2386
Ethyl acetate	2003	2003	2016
Acetic acid, 10%	2207	2245	2234
Xylene	2157	1659	2514
Lubricating oil	2176	2309	2425
Paraffin	2321	2106	2335
Water at 73°F	2824	1054	102
Water at 140°F	1829	1701	1574
Water at 194°F	580	519	790

**Lap shear strength versus tropical weathering**

(40/92, DIN 50015; typical average values)

Cure: 16 hours / 104°F (40°C); Tested at 73 °F (23°C)

	psi
As-made value	2577
After 30 days	3495
After 60 days	2994
After 90 days	2440

**Lap shear strength versus heat ageing**

Cure: 16 hours / 104°F (40°C)

	psi
As-made value	2611
30 days / 158°F	5076
60 days / 158°F	4786
90 days / 158°F	5076

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**Storage**

Araldite 2012/A and Araldite 2012/B structural adhesives may be stored for up to three years at room temperature provided the components are stored in sealed containers. The expiry date is indicated on the label.

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**Handling precautions**

**Caution**

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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