

ARALDITE® 2015-1 Structural Adhesive

Product Description

ARALDITE® 2015-1 Structural Adhesive is a two component, room temperature curing paste material that offers a resilient bond. It is thixotropic and non-sagging up to 10mm thickness. It is particularly suitable for SMC and GRP bonding.

Key Features

- Toughened Paste
- Ideal for bonding GRP, SMC and dissimilar substrates
- Gap filling, non-sagging up to 10mm thickness
- Good resistance to weathering

Typical Properties

Property	ARALDITE® 2015-1 A Resin	ARALDITE® 2015-1 B Hardener	ARALDITE® 2015-1 A/B Mixed	Test Method
Color	Gray soft paste	Beige soft paste	Gray paste	Visual
Specific Gravity	1.4	1.4	1.4	ASTM D1475
Viscosity at 77°F, cP	Thixotropic	Thixotropic	Thixotropic	ASTM D2196
Pot Life (100g at 25°C), min	--	--	45-55	--
Mix Ratio by volume	100	100	--	--
Mix Ratio by weight	100	100	--	--

Typical Cured Properties

Unless otherwise stated, the figures given below were all determined by testing standard specimens made by lap-bonding 5" x 1"x 0.003" strips of primed aluminum panel. The joint area was 1" x 0.5" 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 production specification.

Average handling shear strengths of typical primed aluminum to primed aluminum bonds.

Panels degreased with IPA. Cured and tested at 25°C (77°F) per ASTM D1002.

Time	Lap Shear Strength (psi)
4 hours	>150
6.5 hours	>1500

Average lap shear strengths of typical metal to metal joints.

Panels degreased with IPA. Cured 24 hours at 25°C (77°F) and tested at 25°C (77°F) per ASTM D1002.

Substrate	Lap Shear Strength (psi)
Treated steel	2390
Stainless steel	2720
Primed aluminum	2640

Average lap shear strengths of typical plastic to plastic joints.

Panels lightly abraded and degreased with IPA. Cured 7 days at 25°C (77°F) and tested at 25°C (77°F) per ASTM D3163.

Substrate	Lap Shear Strength (psi)
ABS	240
PVC	370
PC	520
PMMA	250

Average lap shear strength versus tropical weathering (40°C/92% RH).

Primed aluminum panels degreased with IPA. Cured 24 hours at 25°C (77°F) and tested at 25°C (77°F) per ASTM D1002.

Time	Lap Shear Strength (psi)
Initial LSS	2640
After 30 days	3080
After 60 days	3060
After 90 days	3280

Average lap shear strength versus immersion in various media.

Primed aluminum panels degreased with IPA. Cured 24 hours at 25°C (77°F) and tested at 25°C (77°F) per ASTM D1002.

Time	25°C	Gasoline	10% Acetic Acid	Xylene	25°C Water	70°C Water
Initial cure (25°C, 24 hr)	2640	2640	2640	2640	2640	2640
After 30 days, psi	2810	960	1880	2070	2680	1750
After 60 days, psi	2910	860	1610	2040	2840	1800
After 90 days, psi	3095	974	837	2090	2850	1670

Average lap shear strength versus heat aging (70°C).

Primed aluminum panels degreased with IPA. Cured 24 hours at 25°C (77°F) before aging and tested at 25°C (77°F) per ASTM D1002.

Time	Lap Shear Strength (psi)
Initial LSS	2640
After 30 days	2980
After 60 days	3370
After 90 days	3360

Glass transition temperature (typical average values)

Cure: 80°C for 1 hour : 77°C by DMA

DMA Shear Modulus G' (ISO 6721) (typical average values)

Cure: 1 hour at 80°C

-50°C: 1.8 GPa
 0°C: 1 GPa
 20°C: 900 MPa
 50°C: 540 MPa
 75°C: 61 MPa
 100°C: 12 MPa

Flexural Properties (ISO 178) (typical average values)

Cure 16 hours at 40°C, tested at 23°C
 Flexural Strength: 43 MPa
 Flexural Modulus: 1800 MPa

Tensile Properties (ISO 527) (typical average values)

Cure 16 hours at 40°C, tested at 23°C

Tensile Strength: 31 MPa

Tensile Modulus: 1600 MPa

Elongation at break: 4.2%

Processing

Pretreatment

The strength and durability of the adhesive bond are dependent on proper treatment of the surfaces to be bonded. At the very least, the surfaces should be cleaned with an effective degreasing agent such as acetone or other proprietary degreasing agents in order to remove all traces of oil, grease, dirt and other surface contaminants.

Low Grade alcohol, gasoline (petrol) or paint thinners must never be used.

The strongest and most durable bonded assemblies are obtained by either mechanically abrading or chemically etching (“pickling”) the degreased surfaces. Mechanical abrading should be followed by a second degreasing treatment.

Application of adhesive

The resin/hardener mix is applied manually or robotically to the pre-treated 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-inches (0.05 to 0.10-mm) thick will normally impart the greatest lap shear strength to a joint. It should also be noted that bonded assembly design also critical in providing a durable bond. The components to be bonded together should be assembled and maintained in a fixed position as soon as the adhesive has been applied. For more detailed explanations regarding surface preparations and pretreatment, assembly design, and the twin cartridge dispensing system, visit www.aralditeadhesives.com

Equipment maintenance

All tools should be cleaned with hot soapy water before the adhesive has cured. If solvents such as acetone are used for cleaning, operators should take all the necessary precautions in order to prevent eyes or skin contact.

Storage

ARALDITE® 2015-1 Adhesive should be stored in a dry place, in the original sealed containers, at temperatures between 2°C and 40°C (36°F and 104°F). Under these storage conditions, the product has a shelf life of **3 years** (from date of manufacture). The product should not be exposed to direct sunlight. If stored below 60°F, the adhesive should be brought to 60°F - 77°F and conditioned at this temperature for some time prior to use. The expiry date is indicated on the label.

Precautionary Statement

Our products are generally quite harmless to handle provided that certain precautions normally taken when handling chemicals are observed. The uncured materials must not, for instance, be allowed to come in contact with foodstuffs or food utensils, and measures should be taken to prevent the uncured materials from coming in contact with the skin, since people with particularly sensitive skin may be affected. The wearing of impervious rubber or plastic gloves will normally be necessary; likewise the use of eye protection. The skin should be thoroughly cleansed at the end of each working period by washing with soap and warm water. The use of solvents is to be avoided. Disposable paper- not cloth towels- should be used to dry the skin. Adequate ventilation of the working area is recommended. These precautions are described in greater detail in the Safety Data sheets for the individual products and should be referred to for fuller information.

First Aid!

Refer to SDS as mentioned above.

KEEP OUT OF REACH OF CHILDREN

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