

## Structural Adhesives

### Araldite® 2026 (XD 4700/XD 4710)

#### Two component PU adhesive system

##### Key properties

- Bonds well to most thermoplastics, metals and glass
- Flexible
- Transparent - water clear
- Room temperature curing

##### Description

Araldite 2026 is a two component, room temperature curing, clear transparent polyurethane adhesive for bonding of selected thermoplastics (e.g. polycarbonate), thermoset composites, and bonding of plastics to metals and glass.

##### Product data

Properties	2026/A	2026/B	2026 (mixed)
Colour (visual)	transparent	transparent	transparent
Specific gravity	ca 1.1	ca 1.1	ca 1.1
Viscosity (Pas)	10 - 20	7 - 11	ca. 10
Pot Life (100 gm at 25°C)	-	-	3 - 4 minutes

##### 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, metal 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 (petrol) or paint thinners should never be used.

The strongest and most durable metal joints are obtained by either mechanically abrading or chemically etching ("pickling") the degreased surfaces. Abrading should be followed by a second degreasing treatment.

Pretreatment of thermoplastics such as PVC, Polycarbonate, PET and PMMA should be made by degreasing with either Petroleum ether (of boiling point 40 – 60°C) or with iso-propanol. Use of strong solvents such as acetone is not recommended due to the risk of damage to the plastic surface. Light abrasion can improve adhesion on some plastics such as PVC and PMMA but may cause stress cracking of plastics such as Polycarbonate.

Mix ratio	Parts by weight	Parts by volume
Araldite 2026/A	100	100
Araldite 2026/B	100	100

Resin and hardener are 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. Working life in the mixing nozzles is ca. 5 minutes.

###### Application of adhesive

The resin/hardener mix is applied directly or with a spatula, to the pretreated and dry joint surfaces.

A layer of adhesive 0.05 to 0.10 mm thick will normally impart the greatest lap shear strength to the joint.

The joint components should be assembled and clamped as soon as the adhesive has been applied. An even contact pressure throughout the joint area will ensure optimum cure.

### Mechanical processing

Specialist firms have developed metering, mixing and spreading equipment that enables the bulk processing of adhesive. We will be pleased to advise customers on the choice of equipment for their particular needs.

### Equipment maintenance

All tools should be cleaned 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	°C	10	15	23	40	60	100
Cure time to reach	hours	4	2½	1	-	-	-
LSS > 1N/mm <sup>2</sup>	minutes	-	-	-	15	6	2
Cure time to reach	hours	60	15	8	4	-	-
LSS > 10N/mm <sup>2</sup>	minutes	-	-	-	-	30	12

LSS = Lap shear strength.

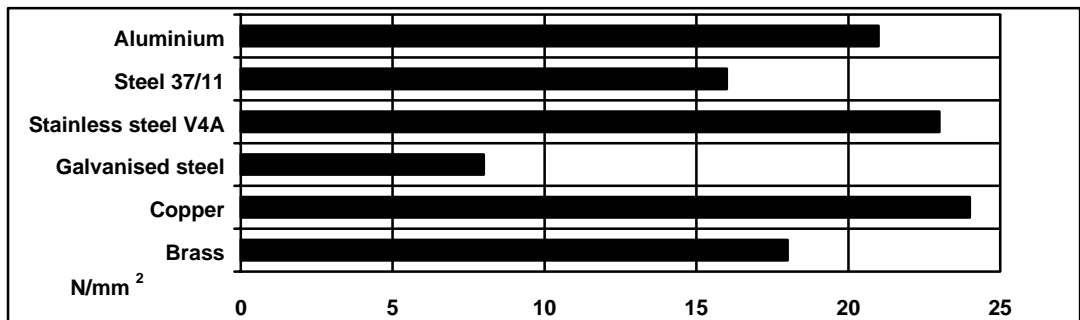
### Typical cured properties

Unless otherwise stated, the figures given below were all determined by testing standard specimens made by lap-jointing 170 x 25 x 1.5 mm strips of aluminium alloy. The joint area was 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 40°C and tested at 23°C

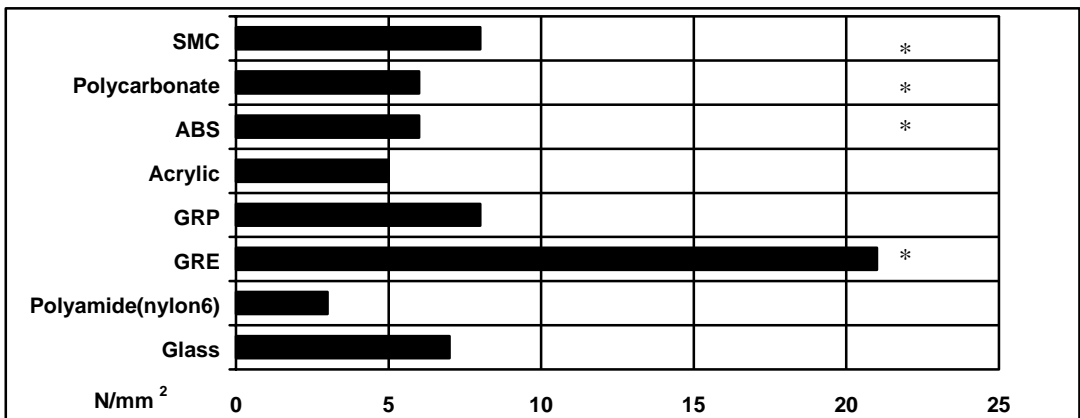
Pretreatment - Sand blasting



#### Average lap shear strengths of typical non-metallic joints (ISO 4587)

Cured for 16 hours at 40°C and tested at 23°C

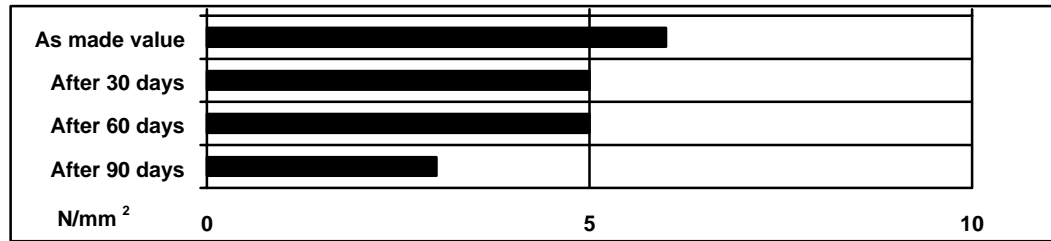
Pretreatment - Lightly abrade and alcohol degrease. (glass – degreased only)



\* denotes substrate failure.

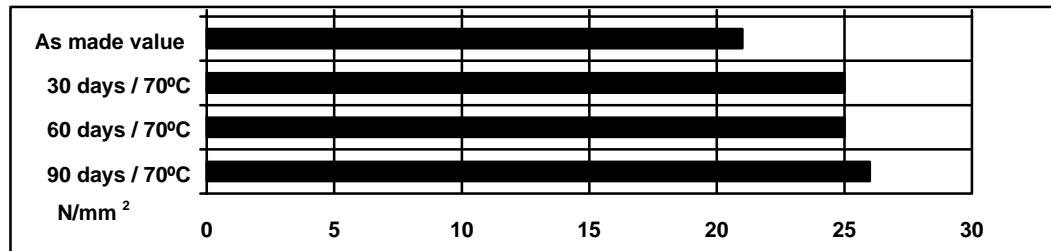


On Polycarbonate – Isopropanol degreased



**Lap shear strength versus heat ageing, Cure: 16 hours/40°C**

On Aluminium – degreased and sandblasted



**Thermal cycling**

100 cycles of 6 hour duration from -30°C to 70°C: 18 N/mm<sup>2</sup>

**Shear modulus (G') DIN 53345**

-50°C	1GPa
0°C	0.8GPa
20°C	0.6GPa
40°C	0.2GPa
60°C	10MPa

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**Storage**

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

Flexural Strength 5.5 MPa

Flexural Modulus 274.2 MPa

Araldite 2026/A and Araldite 2026/B may be stored at 2-40°C provided the components are stored in sealed containers. The expiry date is indicated on the label. Cartridges should not be stored for long periods after removal from the foil overpack.

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**Handling precautions**

**Caution**

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 into 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 Material Safety Data sheets for the individual products and should be referred to for fuller information.

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**Huntsman Advanced Materials**

All recommendations for the use of our products, whether given by us in writing, verbally, or to be implied from the results of tests carried out by us, are based on the current state of our knowledge. Notwithstanding any such recommendations the Buyer shall remain responsible for satisfying himself that the products as supplied by us are suitable for his intended process or purpose. Since we cannot control the application, use or processing of the products, we cannot accept responsibility therefor. The Buyer shall ensure that the intended use of the products will not infringe any third party's intellectual property rights. We warrant that our products are free from defects in accordance with and subject to our general conditions of supply.

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