

**Advanced Materials****Araldite® 2028-1****Structural Adhesives****Araldite® 2028-1****Two component transparent polyurethane adhesive****Key properties**

- transparent
- fast curing
- UV stable
- Suitable for bonding a variety of metal and plastic substrates

**Description**

Araldite® 2028-1 is a cold curing polyurethane adhesive, consisting of a transparent resin component and a transparent hardener component. The adhesive's flashpoint is above 100 °C.

**Product data**

| Property                   | Component A (resin) | Component B (hardener) | Mixed Adhesive |
|----------------------------|---------------------|------------------------|----------------|
| Colour (visual)            | Transparent         | Translucent            | Transparent    |
| Specific gravity           | 1.12                | 1.12                   | 1.12           |
| Viscosity at 25 °C (Pas)   | about 4             | about 10               | -              |
| Pot life (in static mixer) |                     |                        | 6 to 8 mins    |
| Pot Life (100 g at 25°C)   |                     |                        | About 6 mins   |

**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 (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 |
|------------------------|-----------------|-----------------|
| Component A (resin)    | 100             | 100             |
| Component B (hardener) | 100             | 100             |

Araldite® 2028-1 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 0.05 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        | °C      | 10 | 15 | 23 | 40 | 60  | 100 |
|--------------------|---------|----|----|----|----|-----|-----|
| Cure time to reach | hours   | -  | -  | -  | -  | -   | -   |
| LSS > 1MPa         | minutes | 90 | 30 | 15 | 5  | < 2 | < 2 |
| Cure time to reach | hours   | 24 | 16 | 5  | 1  | -   | -   |
| LSS > 10MPa        | minutes | -  | -  | -  | -  | 30  | 15  |

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 114 x 25 x 1.6 mm strips of aluminium alloy. The joint area was 12.5 x 25 mm in each case.

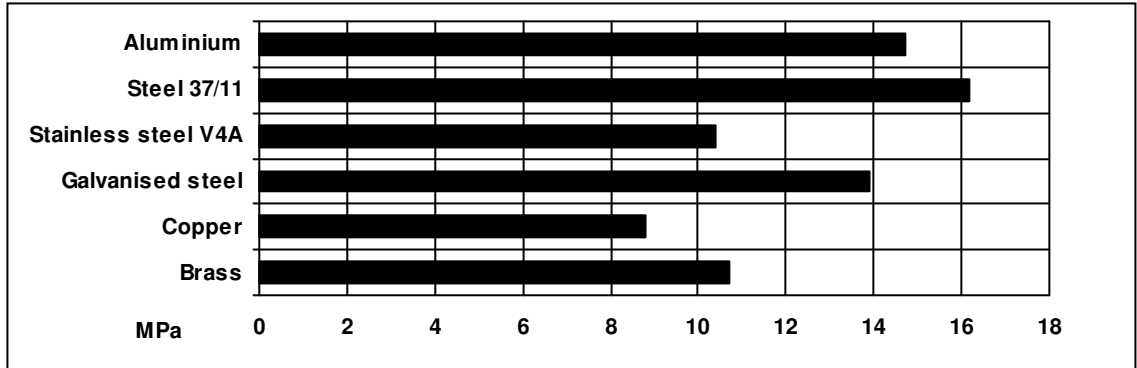
The figures were determined with typical production batches using standard testing methods. They are provided solely as technical information and do not constitute a product specification.

Note: The data in this edition is based on recent retesting of the product.

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

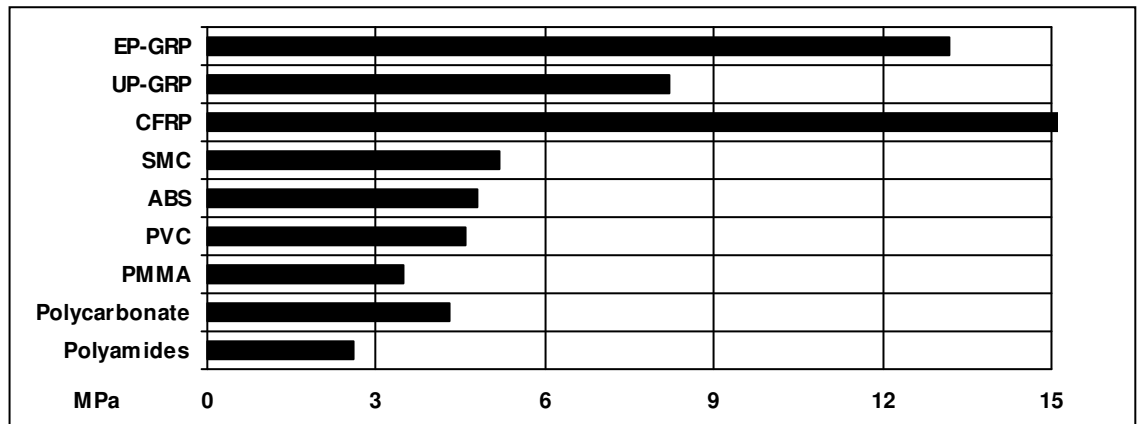
Cured for 16 hours at 40°C and tested at 23°C

Pretreatment - Sand blasting



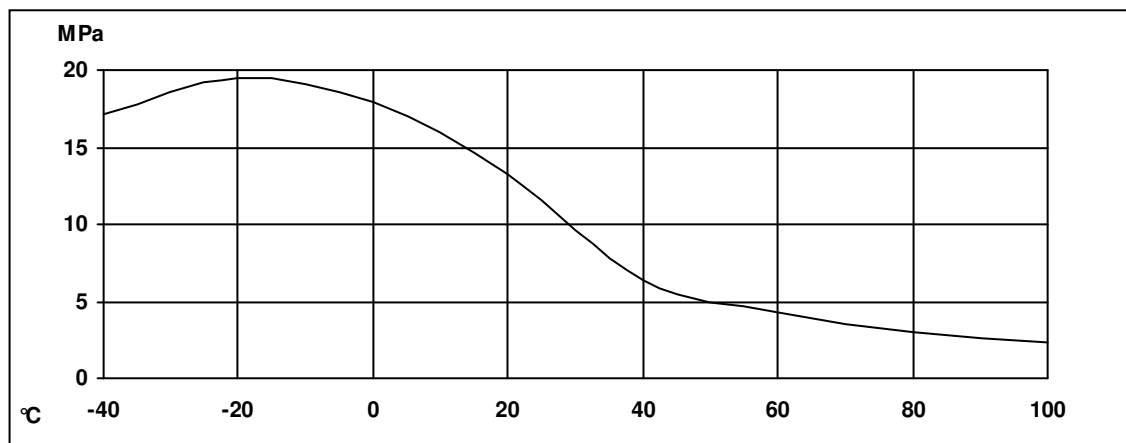
### Average lap shear strengths of typical plastic-to-plastic joints (ISO 4587)

Cured for 16 hour at 40°C and tested at 23°C. Pretreatment - Lightly abrade and alcohol degrease.



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

Cure: 16 hours at 40°C



**Roller peel test (ISO 4578)**

Cured: 16 hours at 40°C

6.6 N/mm

**Glass transition temperature**

Cure: 16 hours at 40°C

13°C by DMA

**Lap shear strength on other substrates**

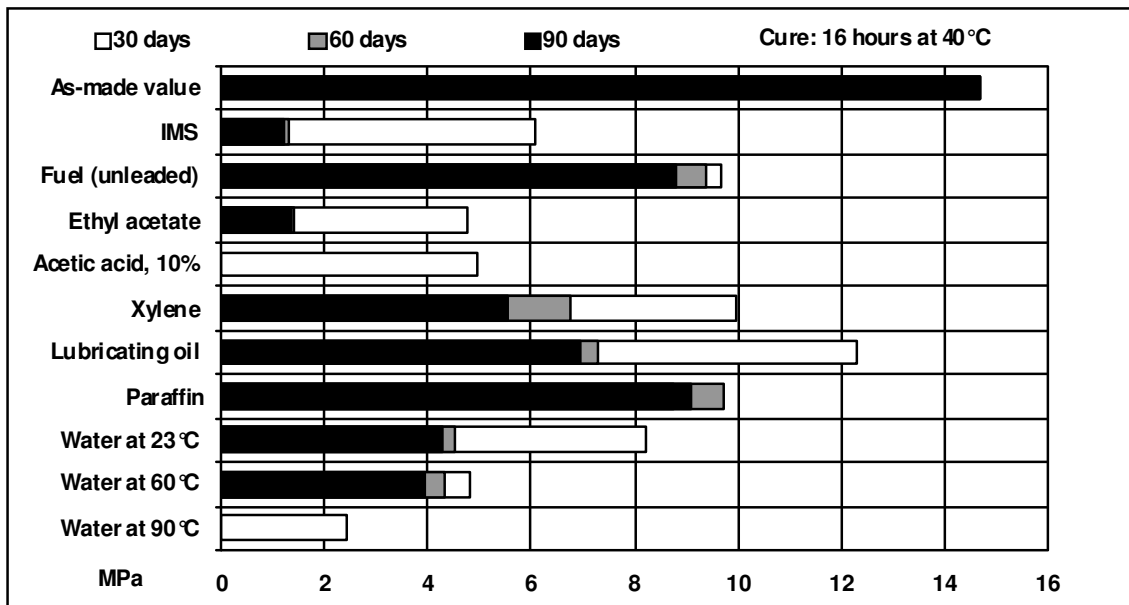
Cure: 16 hours at 40°C

Wood : 7 MPa

Glass : 7 MPa

**Lap shear strength versus immersion in various media (typical average values)**

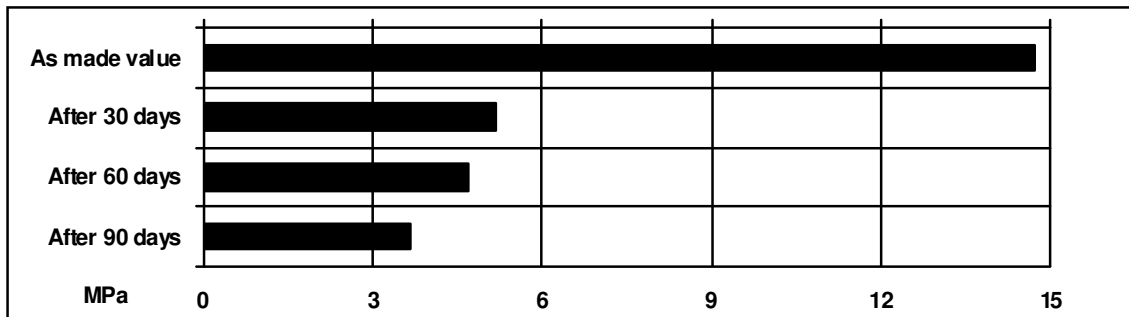
Unless otherwise stated, L.S.S. was determined after immersion for 30,60 and 90 days at 23°C



### Lap shear strength versus tropical weathering

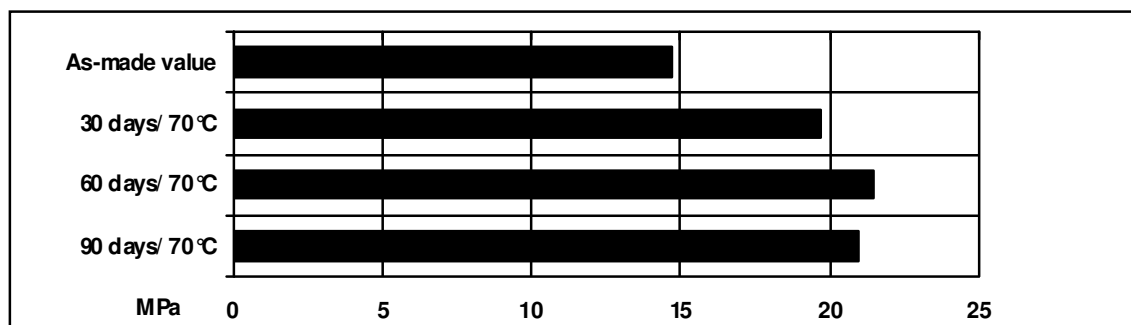
(40/92, DIN 50017; typical average values)

Cure: 16 hours at 40°C      Test: at 23°C



### Lap shear strength versus heat ageing

Cure: 16 hours at 40°C



### Thermal cycling

100 cycles of 6 hours duration from -30°C to 70°C:

12.8 MPa

### Tensile strength at 23°C (ISO 527)

11 MPa

Tensile modulus

16 MPa

Elongation at break

60 %

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**Storage**

Araldite® 2028-1 may be stored for up to 15 months at 15 – 25 °C, provided the components are stored in sealed containers. The expiry date is indicated on the label.

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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**

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