

**Advanced Materials****Araldite® 420 A/B****Structural Adhesives****ARALDITE® 420 A/B****Two component epoxy adhesive system****Key properties**

- Very high lap shear and peel strength
- Bonds a wide variety of materials (metal, composite and thermoplastics)
- Good moisture resistance
- Extremely tough and resilient adhesive

**Description**

ARALDITE® 420 A/B is a two-component room temperature curing, epoxy adhesive paste of high strength and toughness. Performances can be enhanced by post-curing at elevated temperature. It is suitable for bonding a wide variety of metals, ceramics and many other substrates in common use.

**Product data**

| Property                  | Araldite 420 A | Araldite 420 B | Mixed Adhesive |
|---------------------------|----------------|----------------|----------------|
| Colour (visual)           | Yellow         | Blue           | Dark green     |
| Specific gravity          | 1.2            | 1.0            | approx. 1.1    |
| Viscosity at 25°C (Pa.s)  | 100-300        | 0.6-1.4        | 35-45          |
| Pot Life (100 gm at 25°C) |                |                | 60 min         |

**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 |
|----------------|-----------------|-----------------|
| Araldite 420 A | 100             | 100             |
| Araldite 420 B | 40              | 50              |

The resin and hardener should be blended until they form a homogeneous mix.

Araldite® 420 A/B 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 is applied 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 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      | 23  | 40  | 60 | 100 |
| Cure time to reach        | hours   | 7.5 |     |    |     |
| LSS > 1N/mm <sup>2</sup>  | minutes |     | 100 | 35 | < 5 |
| Cure time to reach        | hours   | 11  | 2   | 1  |     |
| LSS > 10N/mm <sup>2</sup> | minutes |     |     |    | 20  |

LSS = Lap shear strength.

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**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.

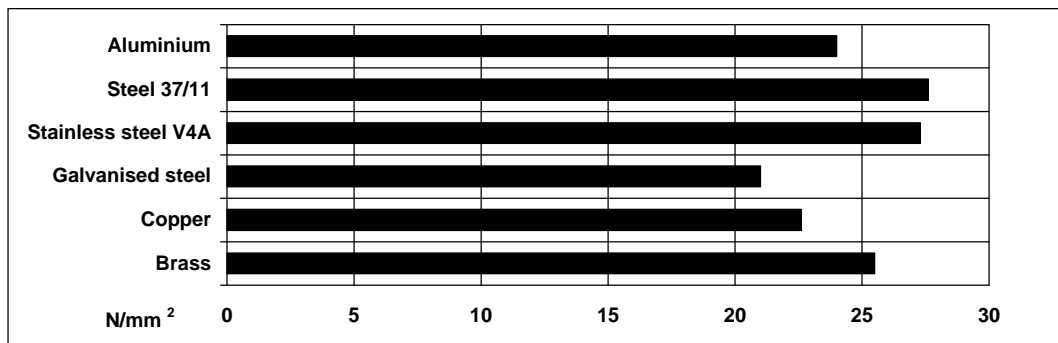
The figures were determined with typical production batches using standard testing methods. They are provided solely as technical information and do not constitute a product specification.

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)

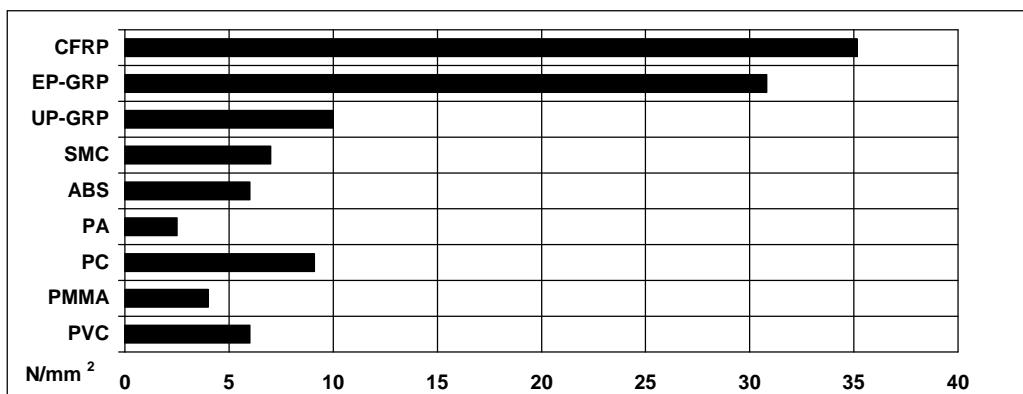
Cured for 16 hours at 40°C and tested at 23°C

Pretreatment - Sand blasting



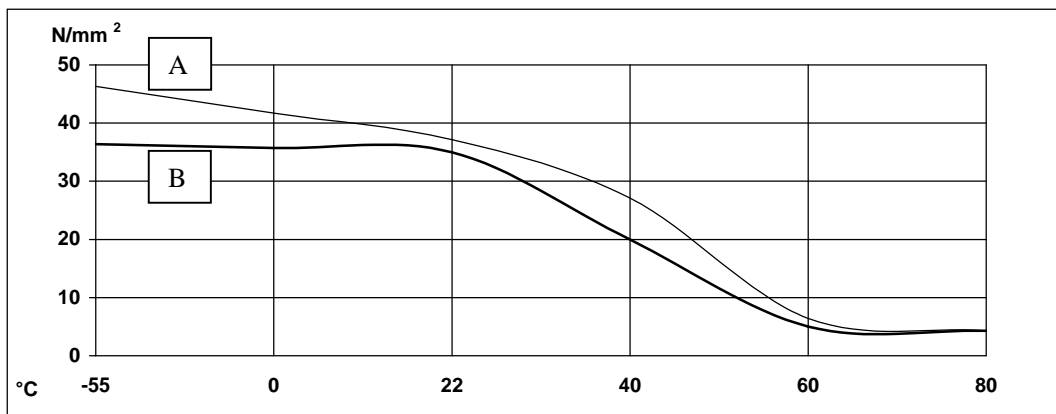
### Average lap shear strengths of typical plastic-to-plastic joints (ISO 4587)

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)

A: Cure: 4 hours at 50°C B: cure: 7 days at RT



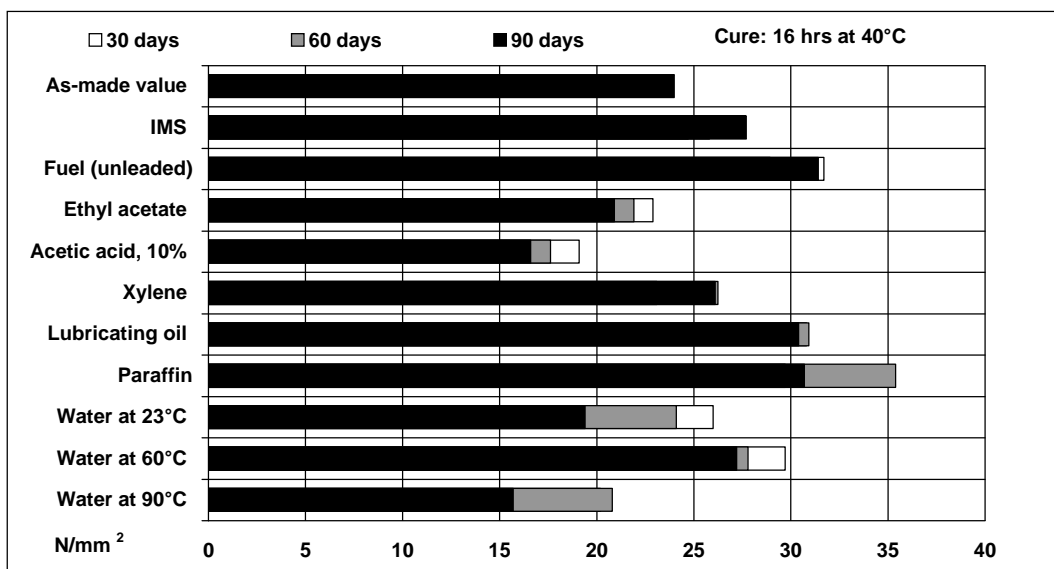
**Glass transition temperature**

Cure: 16 hours at 40°C

56°C by DMA

**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



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

29 MPa

E-modulus

1495 MPa

Elongation at break

4.6 %

**Shore Hardness (D scale) (ISO 868/03)**

Cure 16 hours/ 40°C , tested at 23°C,

75 D

50%RH

**Shear modulus G'(ISO 6721)**

Cure: 16 hours/ 40°C

-20°C - 1.00 GPa

0°C - 880 MPa

23°C - 730 MPa

60°C - 74 MPa

90°C - 5.5 MPa

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**Storage**

ARALDITE® 420A and Araldite® 420 B may be stored for up to 3 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**

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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