

## Advanced Materials

# Araldite<sup>®</sup> 2031

## Structural Adhesives

### Araldite<sup>®</sup> 2031

### Black epoxy paste adhesive system

#### Key properties

- Thixotropic – non slumping
- Toughened adhesive, resilient bond
- Suitable for metal and composite bonding, good adhesion onto polyamides
- High chemical resistance
- Low shrinkage

#### Description

Araldite<sup>®</sup> 2031 epoxy adhesive is a two-component, room temperature curing paste adhesive giving a resilient bond. It is thixotropic and non-sagging up to 10mm thickness. It is particularly suitable for GRP, polyamide and SMC bonding.

#### Product data

Property	Component A (resin)	Component B (hardener)	Mixed Adhesive
Colour (visual)	Black paste	Black paste	Black paste
Specific gravity	approx. 1.2	approx. 1.4	approx. 1.3
Viscosity at 25°C (Pas)	thixotropic	thixotropic	thixotropic
Pot Life (100 gm at 25°C)			approx. 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
Component A (resin)	100	100
Component B (hardener)	117	100

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

Resin and hardener are also 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	15	23	40	60	100
Cure time to reach	hours	7	4	2	-	-
LSS > 1N/mm <sup>2</sup>	minutes	-	-	-	20	3
Cure time to reach	hours	22	10	4	-	-
LSS > 10N/mm <sup>2</sup>	minutes	-	-	-	60	8

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.

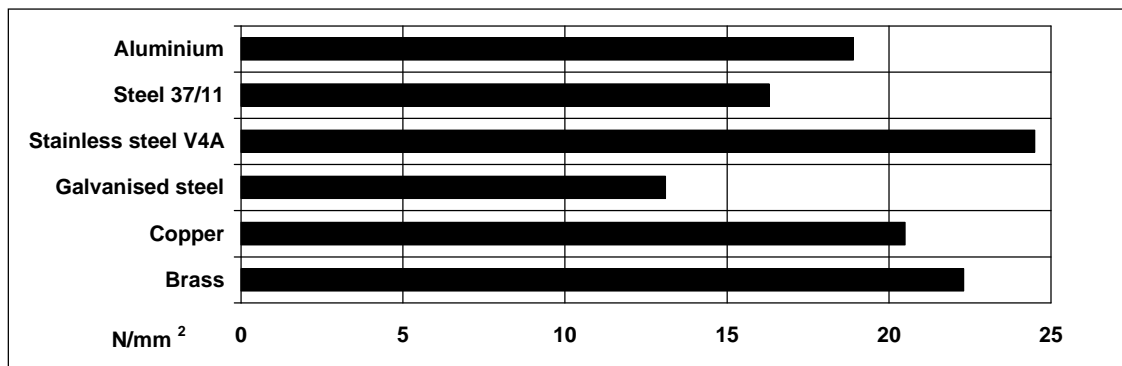
The figures were determined with typical production batches using standard testing methods. They are provided solely as technical information and do not constitute a product specification.

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)

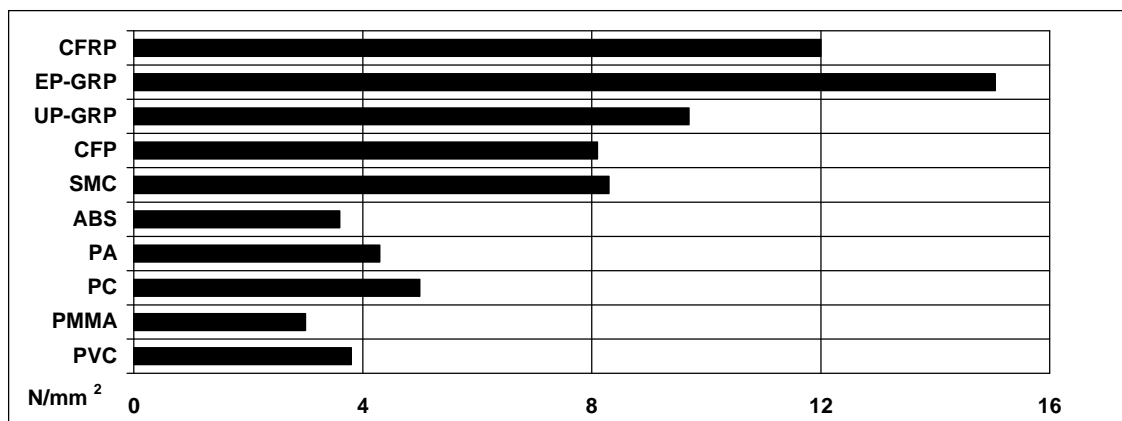
Cured for 16 hours at 40°C and tested at 23°C

Pretreatment - Sand blasting



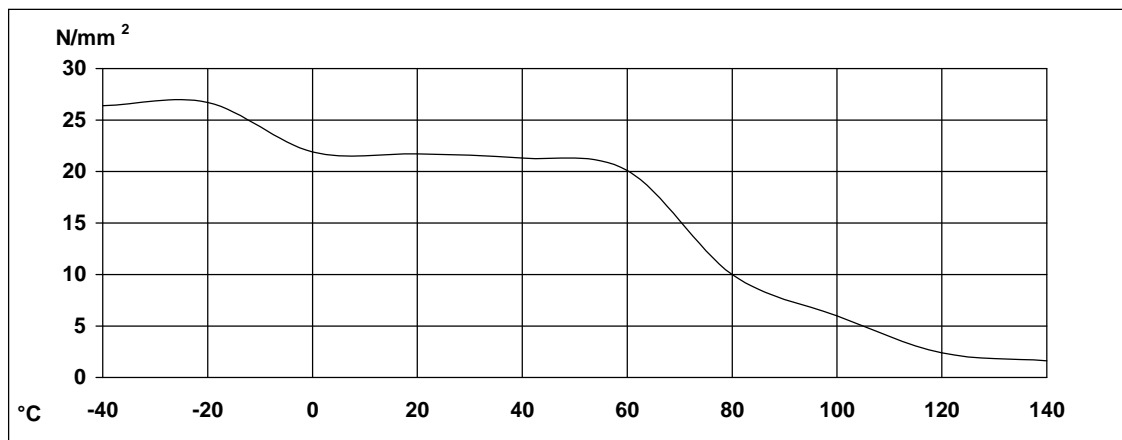
## Average lap shear strengths of typical plastic-to-plastic joints (ISO 4587)

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)

Cure: 16 hours at 40°C



## Roller peel test (ISO 4578)

Cured: 16 hours at 40°C

4 N/mm

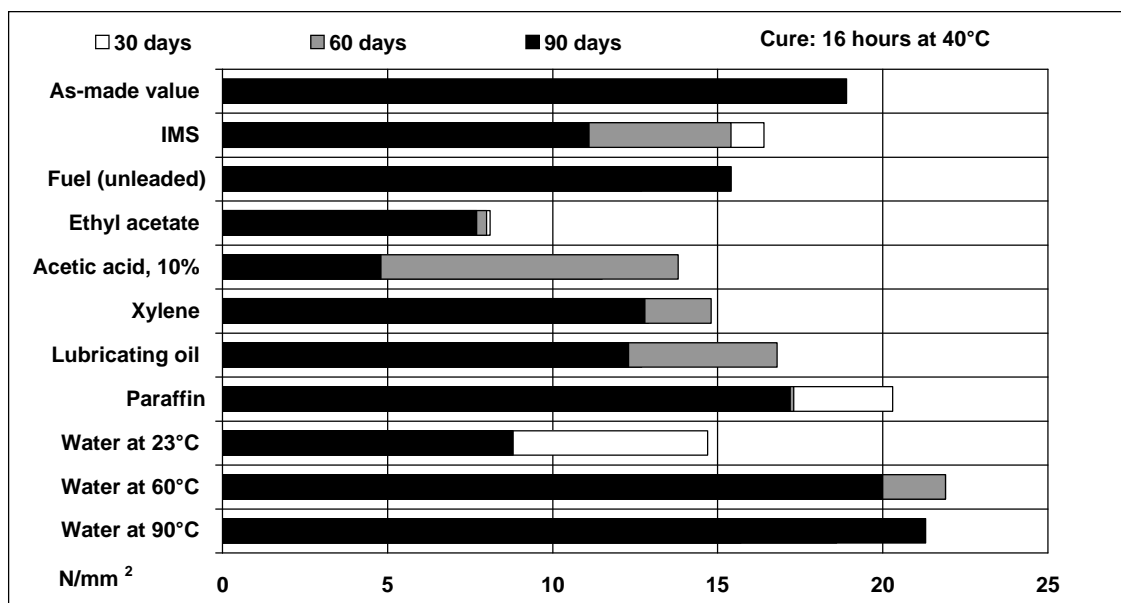
## Glass transition temperature

Cure: 16 hours at 40°C

65 °C by DMA

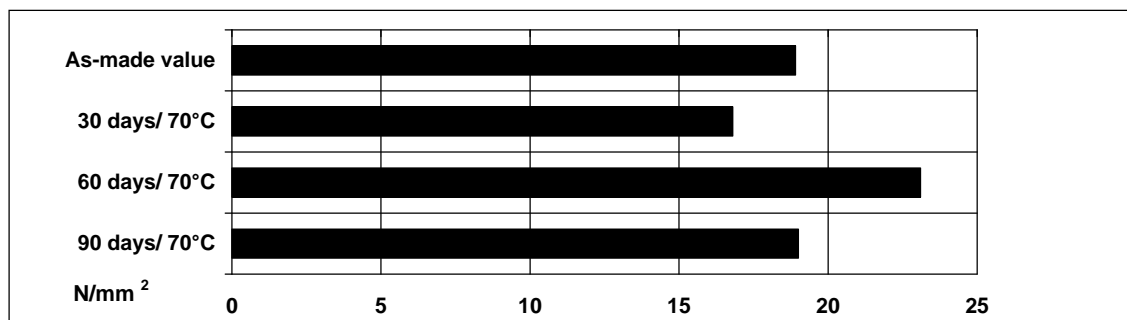
## Lap shear strength versus immersion in various media (typical average values)

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



## Lap shear strength versus heat ageing

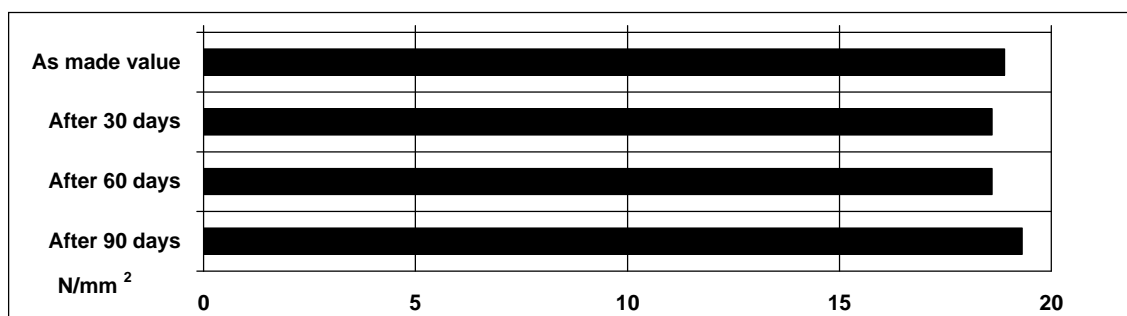
Cure: 16 hours at 40°C



## Lap shear strength versus tropical weathering

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

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



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

20 MPa

E-Modulus

1 GPa

Elongation at break

5 %

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**Storage**

Araldite® 2031 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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