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Advanced Materials

Araldite® 2055

Structural Adhesives

TECHNICAL DATA SHEET

Araldite® 2055
Two component gap filling polyurethane adhesive

Key properties

- **Gap filling**
- **Long open time**
- **Resists weathering and humidity**
- **Low shrinkage**
- **Suitable for bonding a variety of metal and plastic substrates**

Description

Araldite® 2055 is a cold curing polyurethane adhesive, consisting of a white resin component and a beige-coloured hardener component. The adhesive's flashpoint is above 100 °C.

Product data

Property	Component A (resin)	Component B (hardener)	Mixed Adhesive
Colour (visual)	white	beige	beige paste
Specific gravity	1.2	1.6	1.4
Viscosity at 25°C (Pas)	thixotropic	ca. 18 Pas	thixotropic
Pot Life (100 gm at 25°C)	-	-	45 - 60 minutes

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)	80	100
Component B (hardener)	100	100

Araldite® 2055 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 an 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.

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	15	8	6	-	-	-
LSS > 1MPa	minutes	-	-	-	90	25	5
Cure time to reach	hours	55	40	35	6	-	-
LSS > 10MPa	minutes	-	-	-	-	90	20

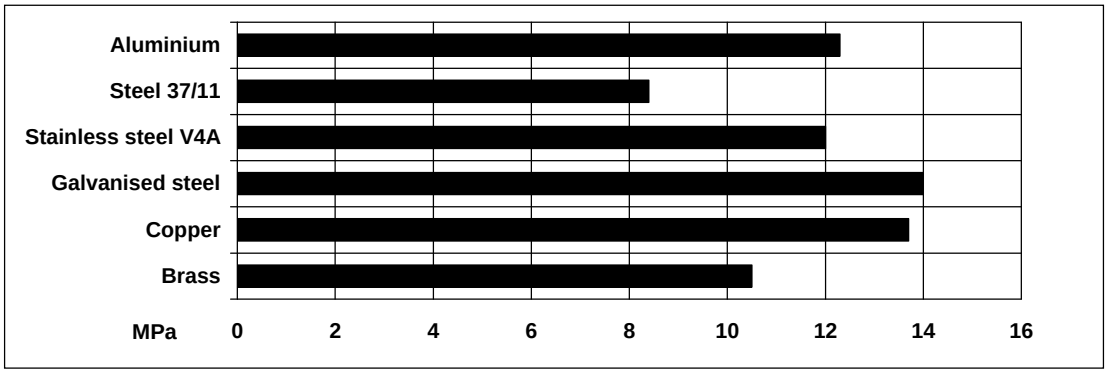
LSS = Lap shear strength.

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)

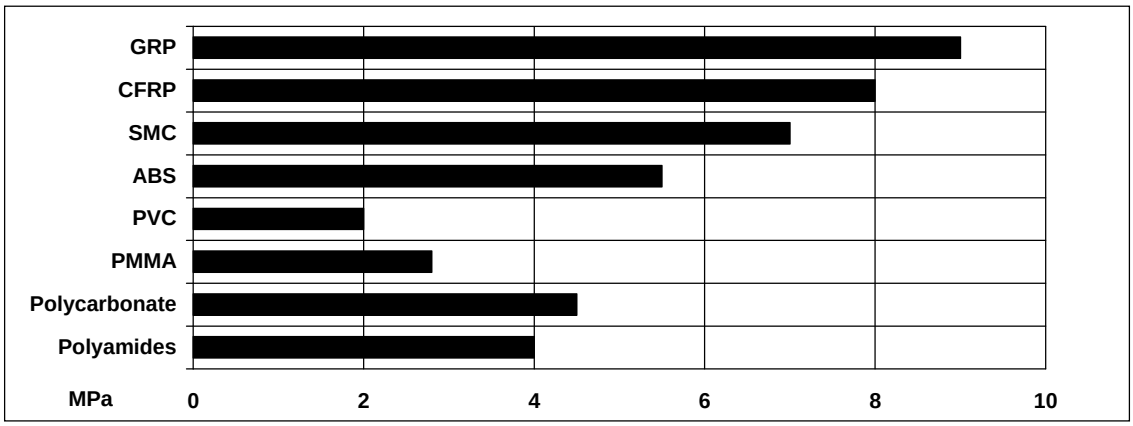
Cured for 16 hours at 40 °C and tested at 23°C



Pretreatment - Sand blasting

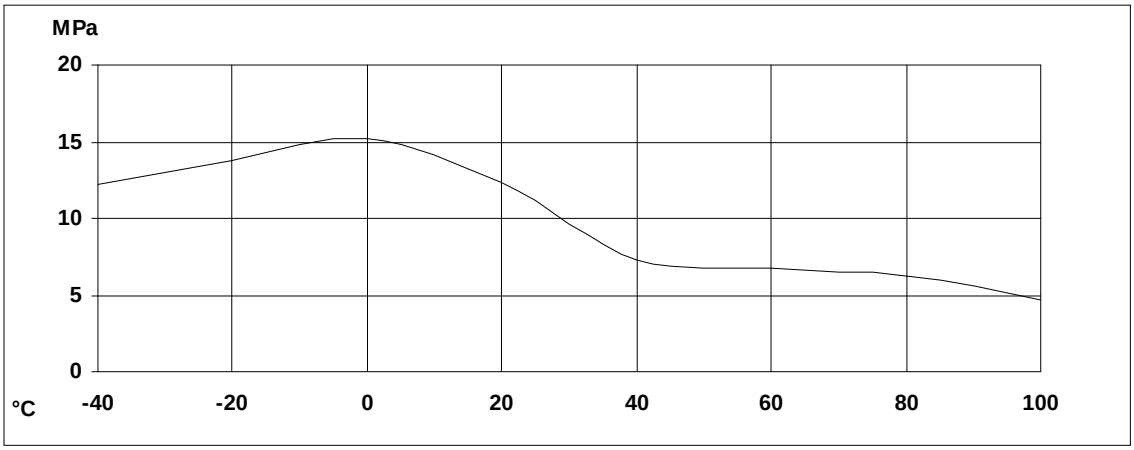
Average lap shear strengths of typical plastic-to-plastic joints (ISO 4587)

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

1.2 N/mm

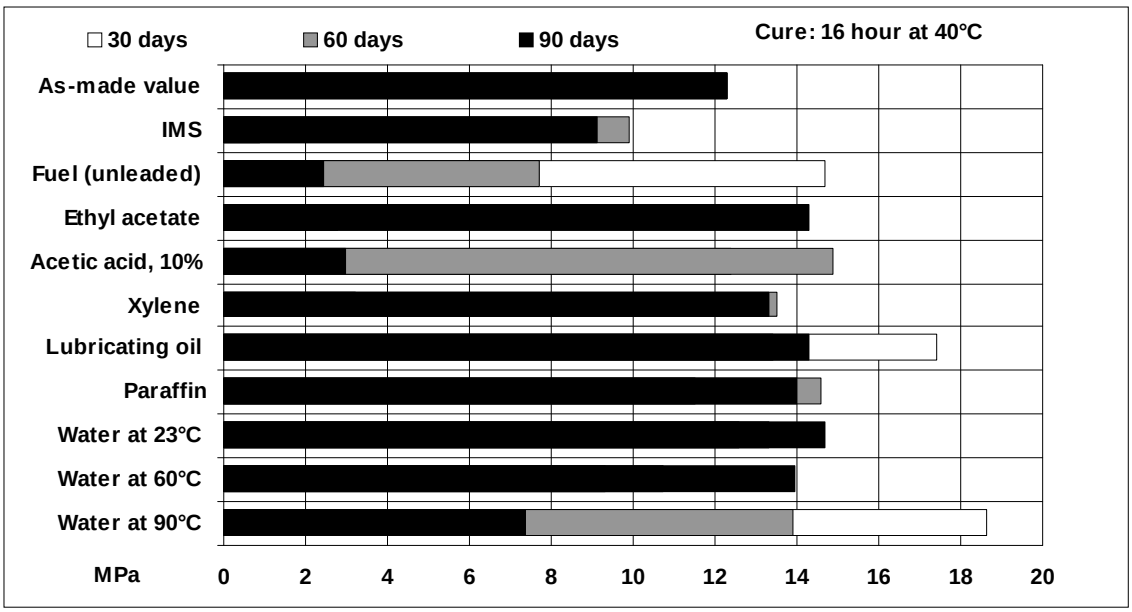
Glass transition temperature

Cure: 16 hours at 40°C

60°C by DMA

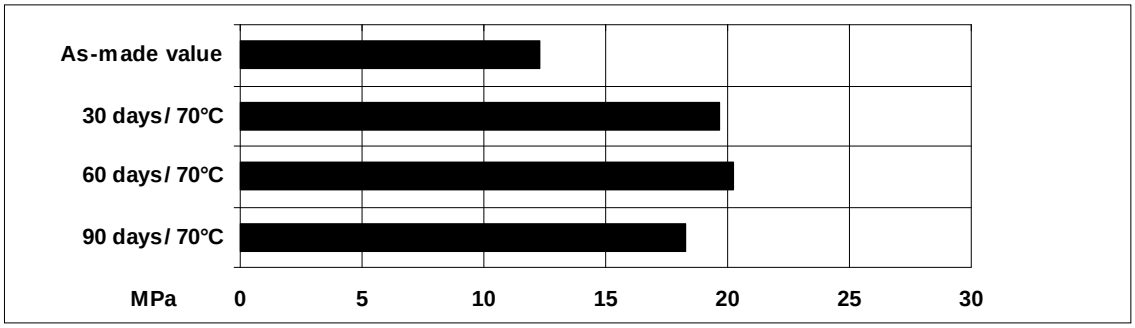
Lap shear strength versus immersion in various media (typical average values)

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



Lap shear strength versus heat ageing

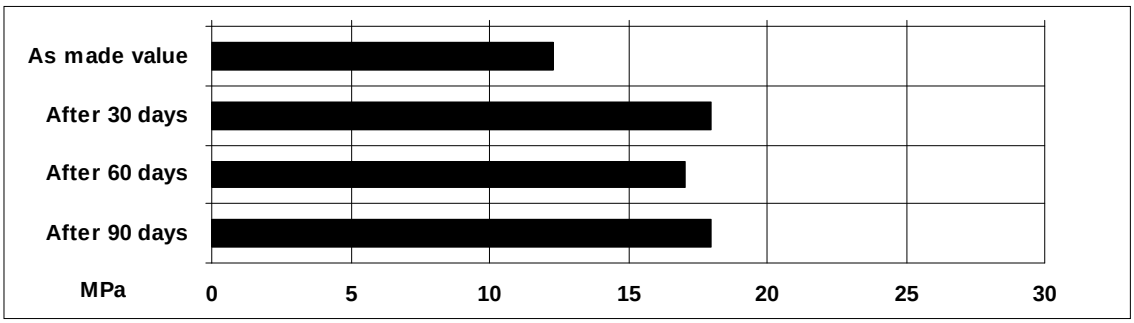
Cure: 16 hours at 40°C



Lap shear strength versus tropical weathering

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

Cure: 16 hours at 40°C Test: at 23°C



Thermal cycling

100 cycles of 6 hour duration from -30°C to 70°C:	4.40 MPa

Tensile strength at 23°C (ISO 527)	35 MPa
Tensile modulus	1830 MPa
Elongation at break	3 %

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Storage

Araldite® 2055 may be stored for up to 2 years at 2 – 8 °C or 6 months at 15 – 25 °C 2 – 8 °C, provided the components are stored in sealed containers. The expiry date is indicated on the label.

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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