

Advanced Materials**Araldite® 2030****Structural Adhesives****TECHNICAL DATA SHEET****Araldite® 2030****Two component epoxy paste adhesive****Key properties**

- Multi purpose
- Medium open time
- Low shrinkage

Description

Araldite 2030 is a two component, room temperature curing, paste adhesive of high strength and toughness.

Product data

	2030 A	2030 B	2030(mixed)
Colour – visual	Neutral	Yellow to orange	pale yellow to yellow
Specific gravity	ca. 1.20	ca. 1	ca. 1.1
Viscosity at 25 °C (Pa.s)	10-20	20-40	20-40
Gel time at 25 °C (A8)*	-	-	45 - 75 minutes*
Lap shear strength (A501)*	-	-	> 18 MPa*

* Specified data are on a regular basis analysed. Data which is described in this document as 'typical' is not analysed on a regular basis and is given for information purposes only. Data values are not guaranteed or warranted unless if specifically mentioned.

Processing**Pretreatment**

The strength and durability of a bonded joint are dependant 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 2030 A	100	100
Araldite 2030 B	80	100

Araldite 2030 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.

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°C	15°C	23°C	40°C	60°C	100°C
Cure time to reach	hours	12	8	3.5	1		
LSS > 1MPa	minutes					15	3
Cure time to reach	hours	24	16	5.5	2		
LSS > 10MPa	minutes					30	5

LSS = Lap shear strength.

Typical cured properties

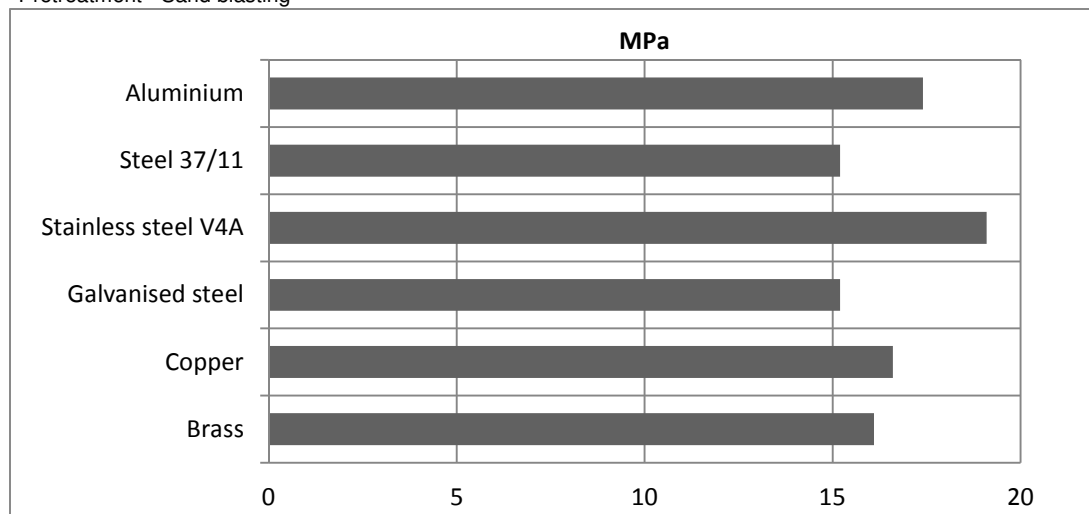
Unless otherwise stated, the figures given below were all determined by testing standard specimens made by lap-jointing 114 x 25 x 1.6 mm strips of aluminium alloy. The joint area was 12.5 x 25 mm in each case.

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.

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

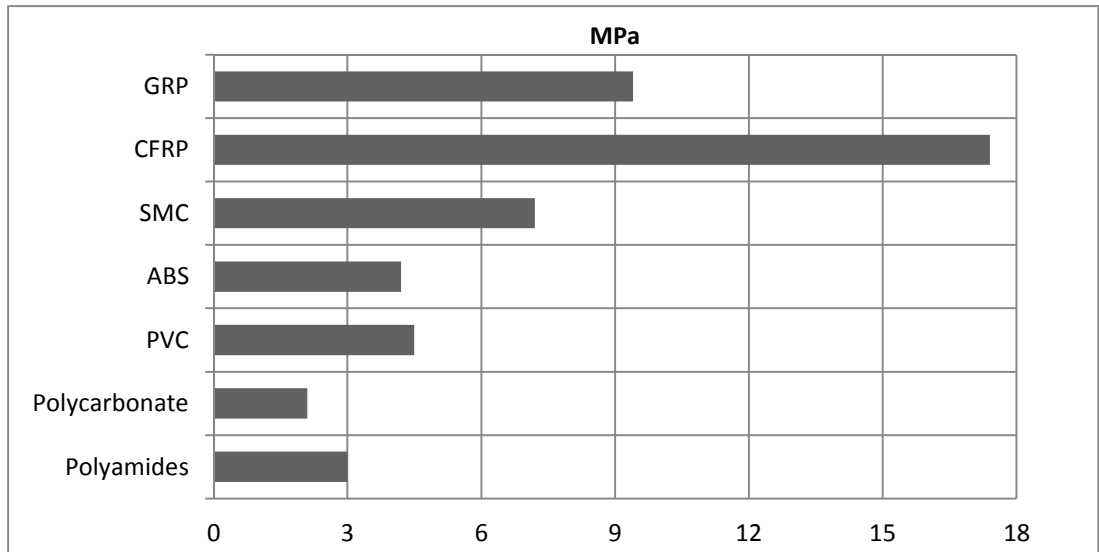
Cured for 16 hours at 40°C and tested at 23°C

Pretreatment - Sand blasting



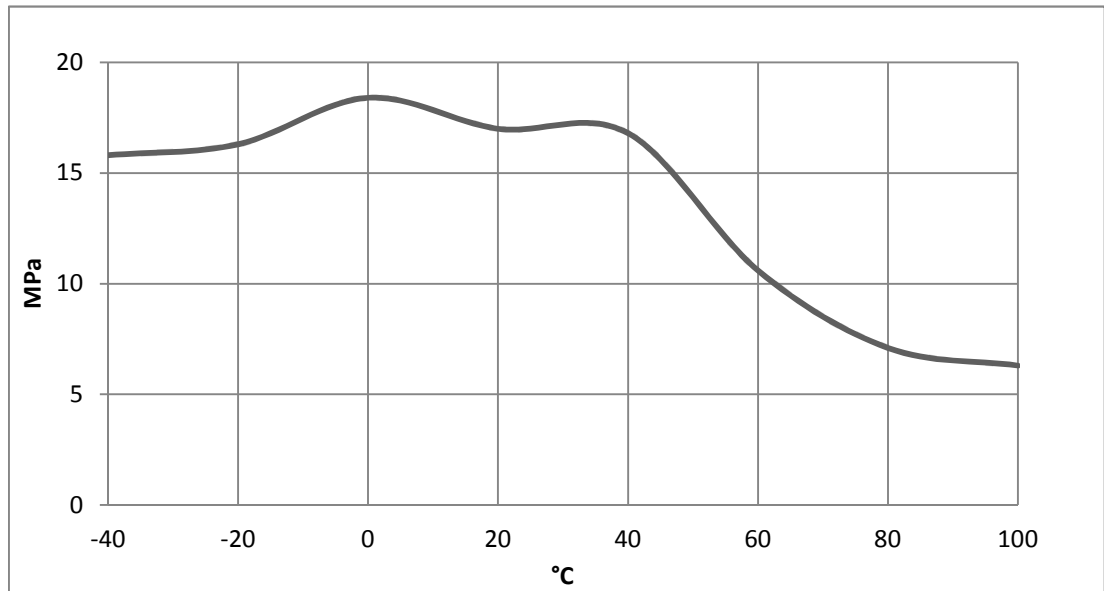
Average lap shear strengths of typical plastic-to-plastic joints (ISO 4587)

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



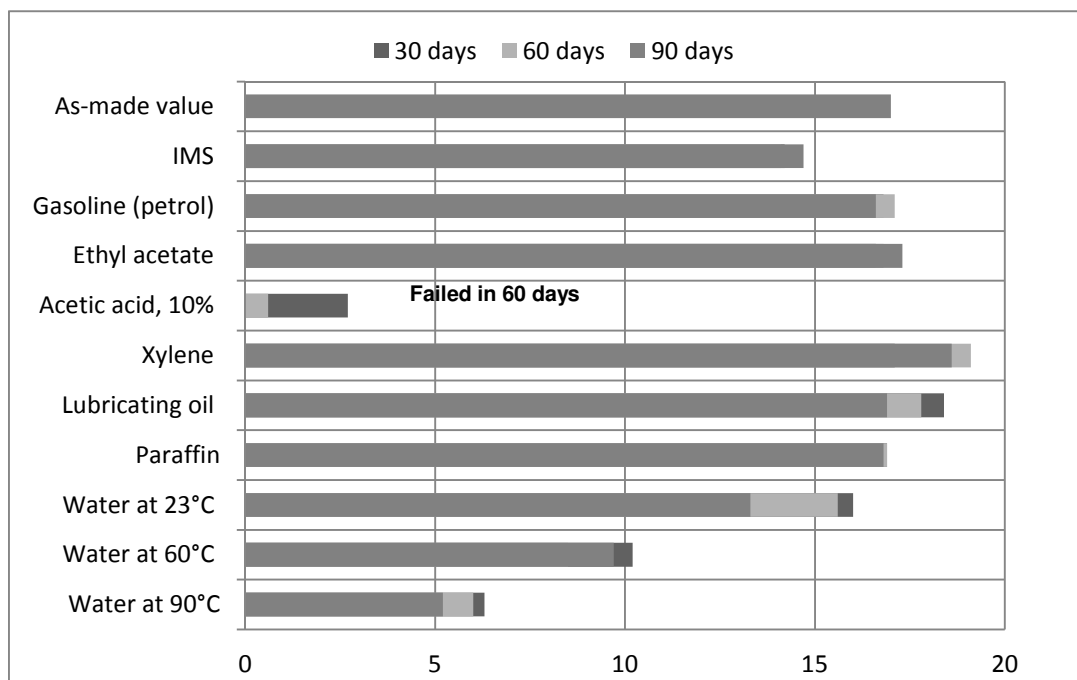
Lap shear strength versus temperature (ISO 4587) (typical average values)

Cured for 16 hours at 40°C



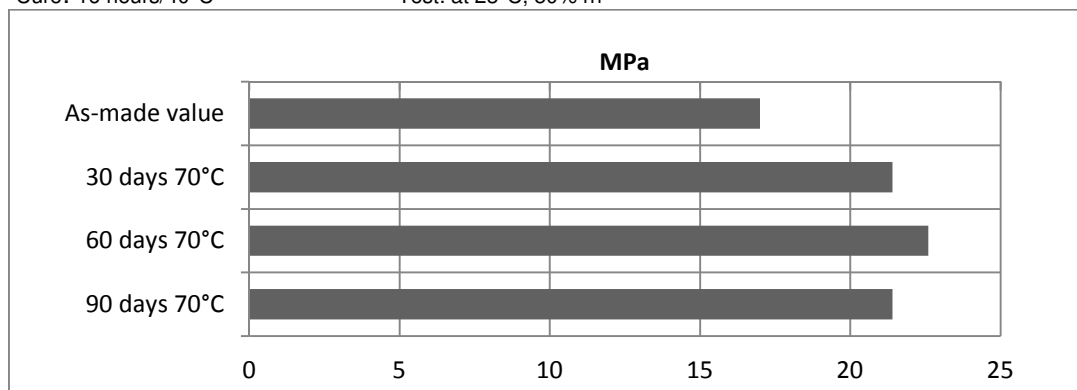
Glass transition temperature (DMA) Cure: 16 hours at 40°C	65°C
Tensile modulus Cure: 16 hours at 40°C (ISO 527 T2/93)	2450 MPa
Tensile Strength Cure: 16 hours at 40°C (ISO 527 T2/93)	47 Mpa
Elongation at break Cure: 16 hours at 40°C (ISO 527 T2/93)	3.20 %
Shear modulus (ISO 6721/96) Cure: 16 hours/40°C	
	-40°C - 1.2 GPa
	0°C - 1.1 GPa
	23°C - 0.95 GPa
	50°C - 0.6 GPa
	100°C - 6 MPa

Lap shear strength versus immersion in various media at 23°C Cured for 16 hours at 40°C



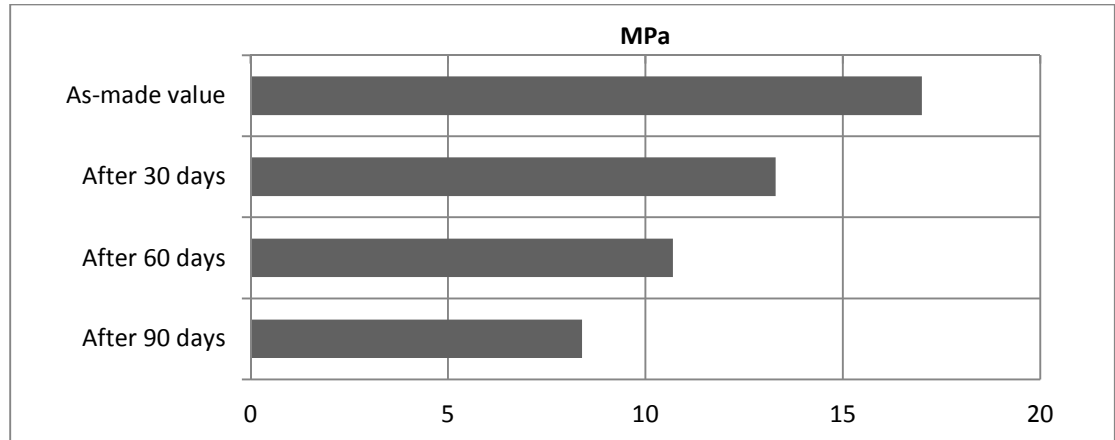
Lap shear strength versus heat ageing

Cure: 16 hours/40°C Test: at 23°C, 50% rh



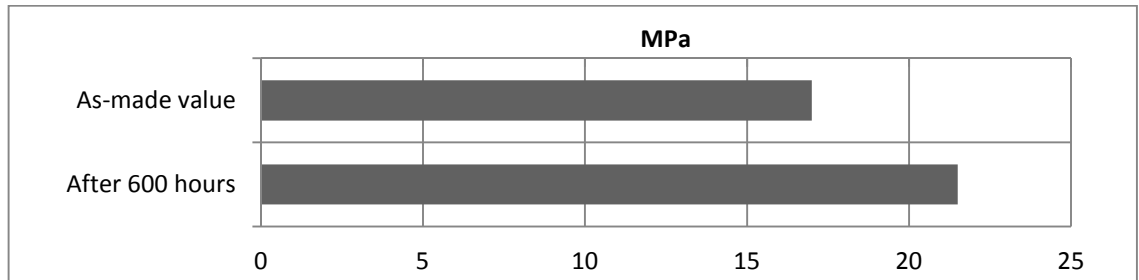
Lap shear strength versus tropical weathering (40/92, DIN 50015; typical average values)

Cure:16 hours/40°C: Test at 23°C.



Lap shear strength versus thermal cycling (-30°C / 70°C)

Cure:16 hours/40°C: Test at 23°C.



Fatigue test on simple lap joint (ISO 9664/93) (10^7 cycles)

Aluminium sandblasted and degreased. Cure:16 hours/40°C: Test at 23°C. Frequency 40 Hz. Amplitude +/- 20%

Fluctuating load as % of static shear strength

No. of load cycles to joint failure

35

10^7 (test completed)

40

$> 5 \cdot 10^6$

45

$5 \cdot 10^4 - 5 \cdot 10^5$

Storage

Araldite 2030 must be stored at room temperature and the components must be 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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