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Advanced Materials

Araldite® AW 4804 / Hardener HW 4804

Structural Adhesives

Araldite® AW 4804 / Hardener HW 4804
Aluminium filled epoxy system with outstanding heat resistance

Key properties

- **Excellent heat resistance up to 210 °C after post-cure**
- **Layers up to 100mm can be cast in a single operation**
- **Good environmental resistance**
- **Long pot life and very easy to pour**

Description

Araldite® AW 4804 / Hardener HW 4804 is an aluminium filled epoxy system providing outstanding temperature resistance and high hardness. The system provides a long open time and good chemical resistance.

Product data

Property	Araldite® AW 4804	Hardener HW 4804	Mix
Colour (visual)	Liquid grey paste	Liquid Amber	Grey paste
Specific gravity	approx. 1.85	approx. 1.0	approx. 1.65
Viscosity at 25°C (Pas)	300 - 1000 Pa.s	2 - 4 Pa.s	ca. 17 Pas
Pot Life (1000 gm at 25°C)	-	-	approx. 240 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
Araldite® AW 4804	100	100
Hardener HW 4804	15	28

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.
Huntsman stresses that proper adhesive joint design is 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.araldite.com.

Equipment maintenance

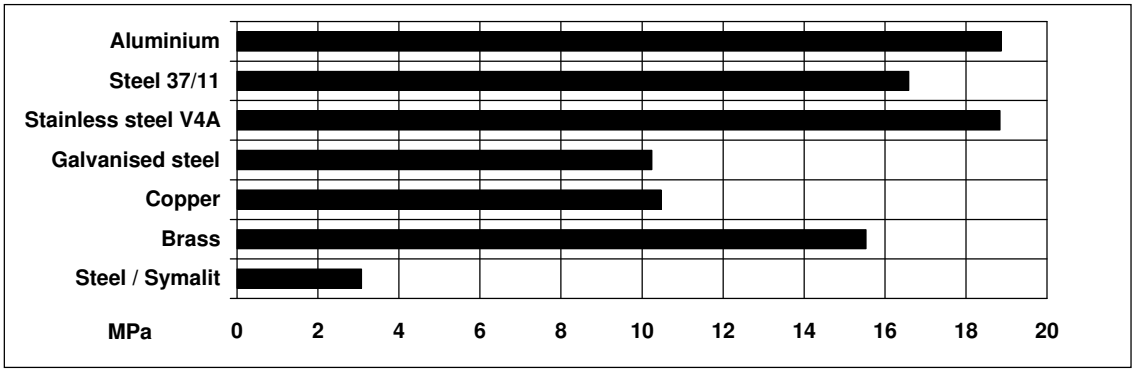
All tools should be cleaned with hot water and soap before adhesives residues have had time to cure. The removal of cured residues is a difficult and time-consuming operation.
If solvents such as acetone are used for cleaning, operatives should take the appropriate precautions and, in addition, avoid skin and eye contact.

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.

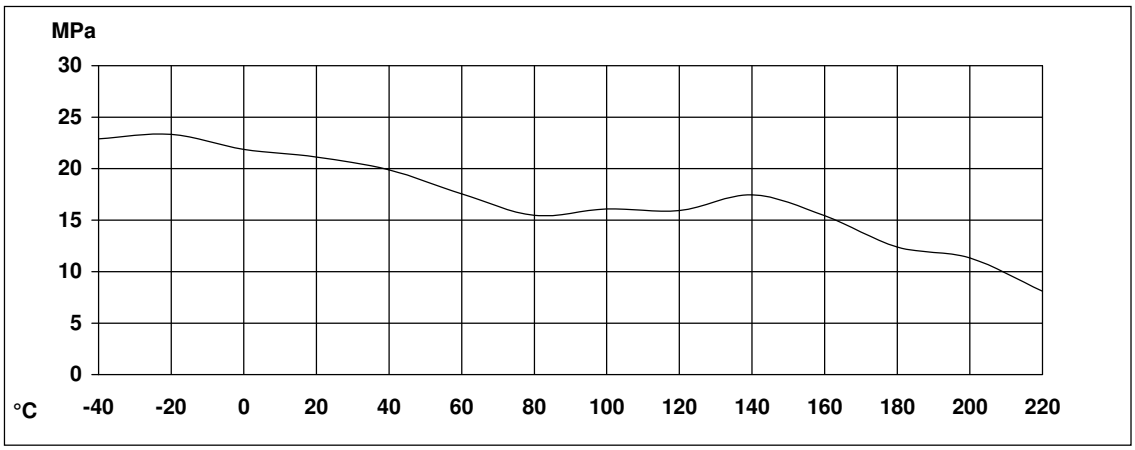
Average lap shear strengths of typical metal-to-metal joints (ISO 4587)

Cured for 16h/60 °C + 2h/100 °C + 2h 120 °C + 2h 140 °C + 2h 160 °C + 16h 180 °C
Pretreatment - Sand blasting



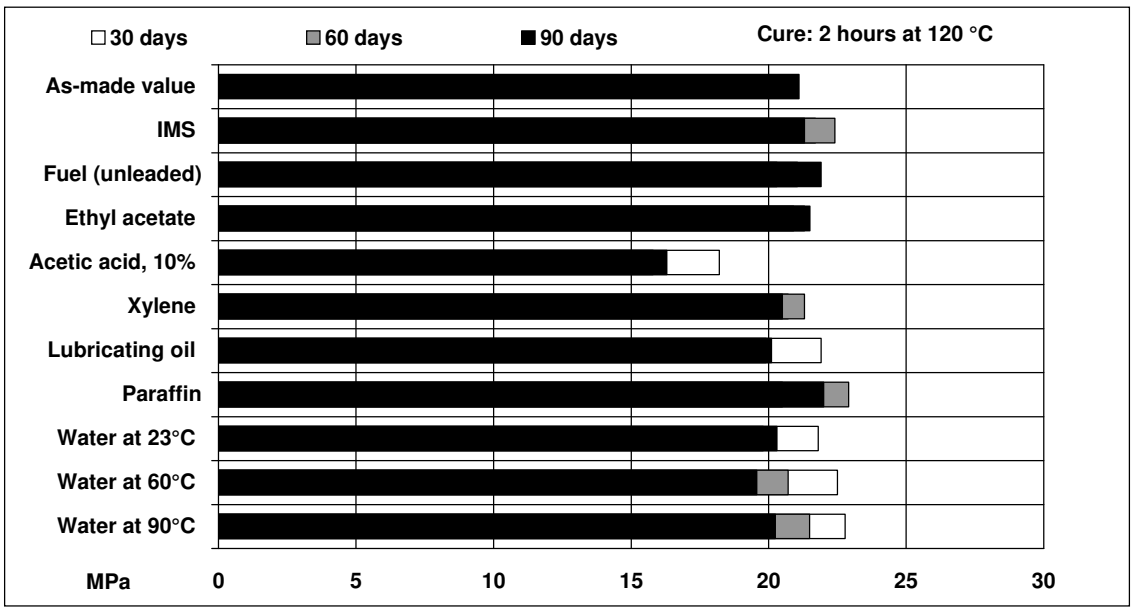
Lap shear strength versus temperature (ISO 4587) (typical average values)

Cured for 2h/120 °C



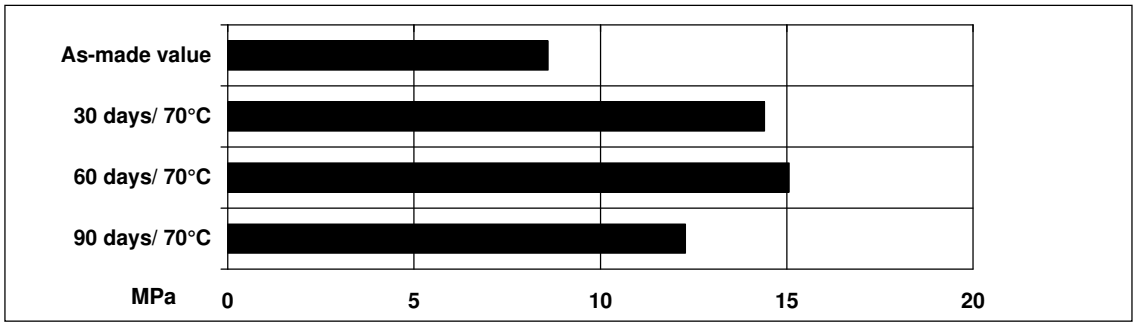
Lap shear strength versus immersion in various media (typical average values)

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



Tensile strength at 23°C (ISO 527)	53 MPa
Tensile modulus	6200 MPa
Elongation at break	1.4 %
Shore D Hardness (ISO 868)	90
Coefficient of thermal expansion (ISO 11359)	$50 \times 10^{-6} K^{-1}$

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Storage

Araldite® AW 4804 and Hardener HW 4804 may be stored for up to 3 years and 2 years respectively at 6 °C – 28 °C provided storage is in original 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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