HUNTSMAN

Enriching lives through innovation

Advanced Materials

Araldite® AW 136 H / Hardener HY 991

Structural Adhesives

Araldite® AW 136 H / Hardener HY 991
Two component epoxy adhesive

Key properties

- **Good performance up to 90°C**
- **Suitable for bonding metals and some plastics**
- **Viscous liquid adhesive**

Description

Araldite® AW 136 H / Hardener HY 991 is a multipurpose, two component, room temperature curing, viscous liquid adhesive of high strength and toughness.

It is suitable for bonding a wide variety of metals, ceramics and many other substrates in common use.

Typical product data

	Araldite® AW 136 H	Hardener HY 991	Mixed adhesive
*Colour - visual (A112)**	*Grey*	*Clear brown*	*Grey*
Specific gravity	1.2 - 1.3	0.9 - 1.0	ca. 1.2
*Viscosity at 25°C (A191) (Pas)**	*10 - 25*	*15 - 35*	*20 - 30*
Pot Life (100 gm at 25°C)	-	-	55 - 70

** 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 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 136 H	100	100
Hardener HY 991	35	45

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

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.

Typical times to minimum shear strength

Temperature	°C	10	23	40	60	100
Cure time to reach	hours	24	8	3	-	-
LSS > 1N/mm^2	minutes	-	-	-	30	10
LSS at 23°C	N/mm^2	13-15	9-11	11-13	14-16	19-21

LSS = Lap shear strength.

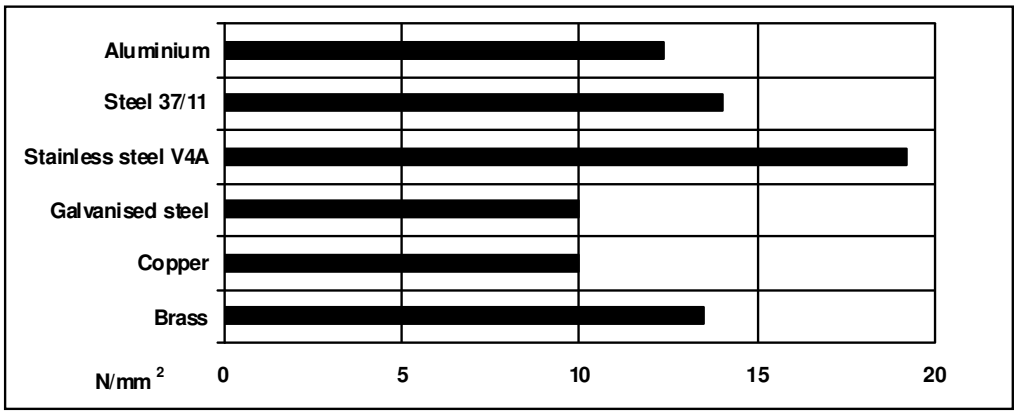
Typical cured properties

Unless otherwise stated, the figures given below were all determined by testing standard specimens made by lap-jointing 170 x 25 x 1.5 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.

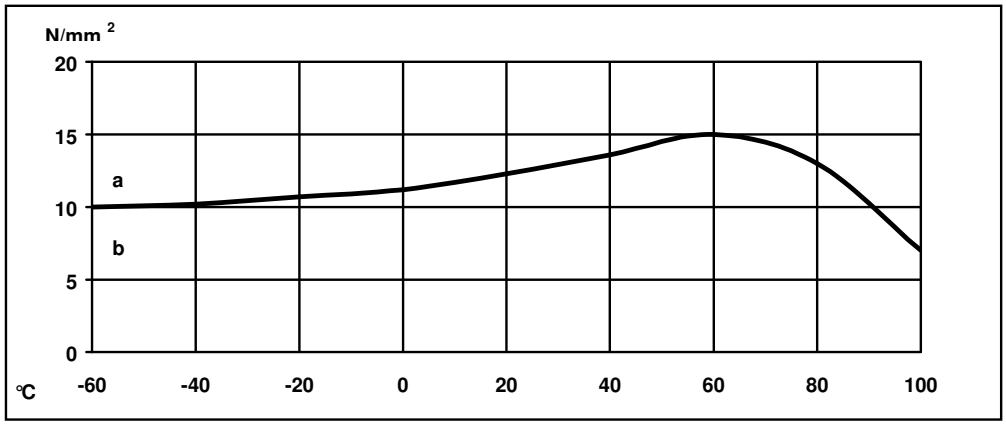
Average lap shear strengths of typical metal-to-metal joints (ISO 4587) (typical average values)

Cured for 16 hours at 40°C , tested at 23°C, pretreatment - Sand blasting



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

Cure: 16 hours at 40°C



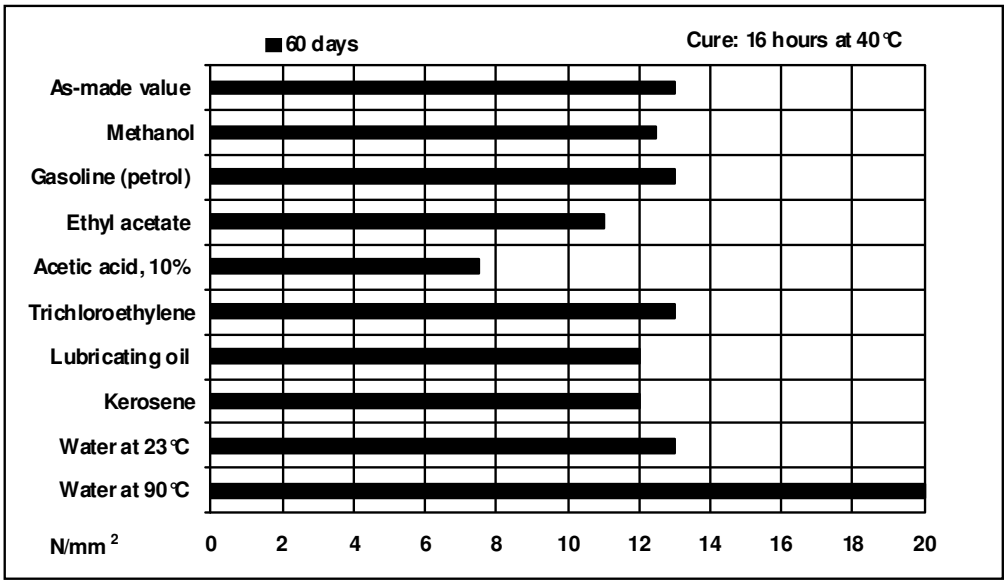
Roller peel test (ISO 4578) (typical average values) 3-5 N/mm

On aluminium sandblasted, cured: 16 hours at 40°C

Mechanical properties (ISO 527) (typical values)

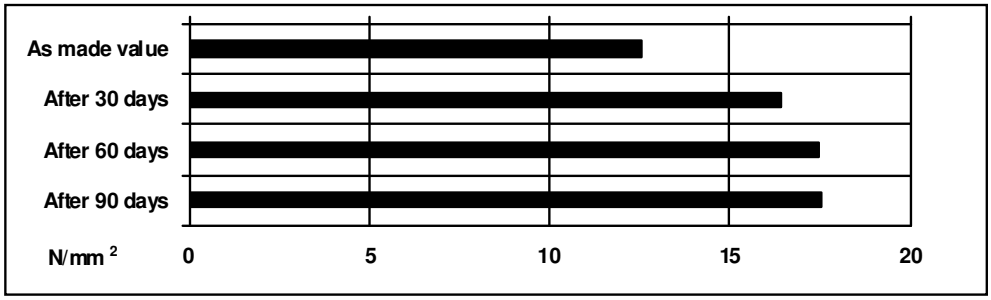
Tensile strength	Elongation at break	Tensile modulus
42 MPa	1.6%	3.1 GPa

Lap shear strength versus immersion in various media (ISO 4587) (typical average values)



Lap shear strength versus tropical weathering (ISO 4587) (typical average values)

(40℃/ 92% RH), on aluminium, cured for 16 hours at 40°C and tested at 23°C. Pretreatment - Sand blasting



Shear modulus (DIN 53445) (typical average values) Cure: 16 hours/40°C

0°C	-	1.2 GPa
50°C	-	1.0 GPa
75°C	-	0.3 GPa
100°C	-	0.1 GPa
125°C	-	10 MPa

Storage

Araldite® AW 136 H and Hardener HY 991 must be stored at room temperature 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.

ISO 9001
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Huntsman Advanced Materials
(Switzerland) GmbH
Klybeckstrasse 200
4057 Basel
Switzerland

Tel: +41 (0)61 299 11 11
Fax: +41 (0)61 299 11 12

www.huntsman.com/advanced_materials
Email: advanced_materials@huntsman.com