HUNTSMAN

Structural Adhesives

Araldite®AW 146 with Hardener HV 957
Two component epoxy paste adhesive

Key properties

- **High shear and peel strength**
- **Tough and resilient**
- **Good resistance to dynamic loading**
- **Bonds a wide variety of materials**

Description

Araldite AW 146 with Hardener HV 957 is a multipurpose, two component, room temperature curing paste adhesive of high strength and toughness.
It is suitable for bonding a wide variety of metals, ceramics, glass, rubbers, rigid plastics and most other materials in common use.

Typical product data

	AW 146	HV 957	Mixed adhesive
Colour (visual)	Neutral	Pale yellow	Pale yellow
Specific gravity	ca. 1.15	ca. 0.95	ca. 1.05
Viscosity (Pas)	30-50	20-35	30-45
Pot Life (100 gm at 25°C)	-	-	100 minutes

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 146	100	100
Hardener HV 957	80	100

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.

Times to minimum shear strength

Temperature	°C	10	15	23	40	60	100
Cure time to reach	hours	24	12	7	2	-	-
LSS > 1N/mm^2	minutes	-	-	-	-	30	6
Cure time to reach	hours	36	18	10	3	-	-
LSS > 10N/mm^2	minutes	-	-	-	-	45	7

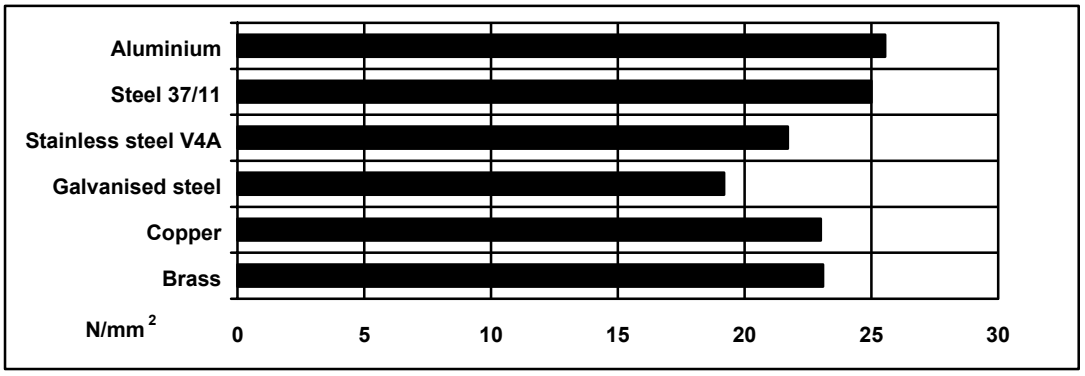
LSS = Lap shear strength.

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)

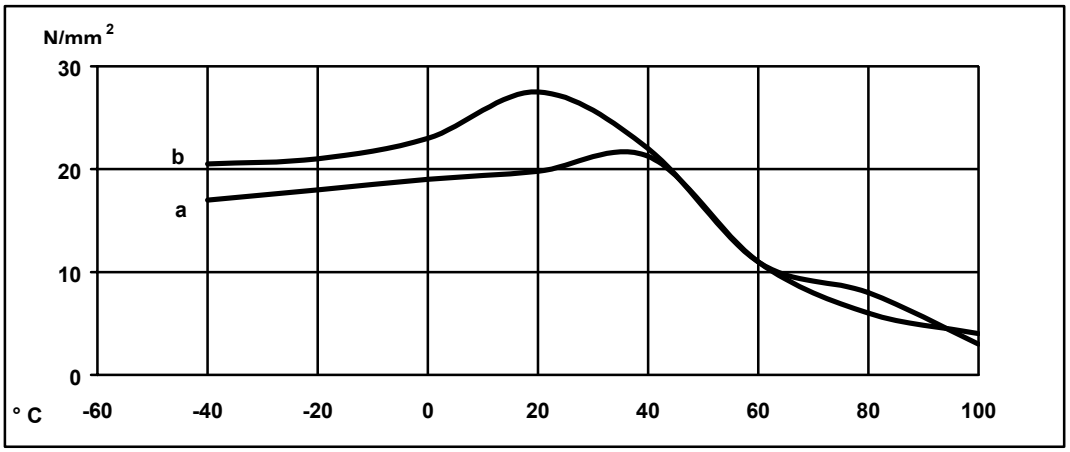
Cure: 16 hours at 40°C and tested at 23°C
Pretreatment - Sand blasting



Lap shear strength versus temperature (ISO 4587)

(typical average values)

Cure: (a) = 7 days /23°C; (b) = 24 hours/23°C + 30 minutes/80°C



Roller peel test (ISO 4578)

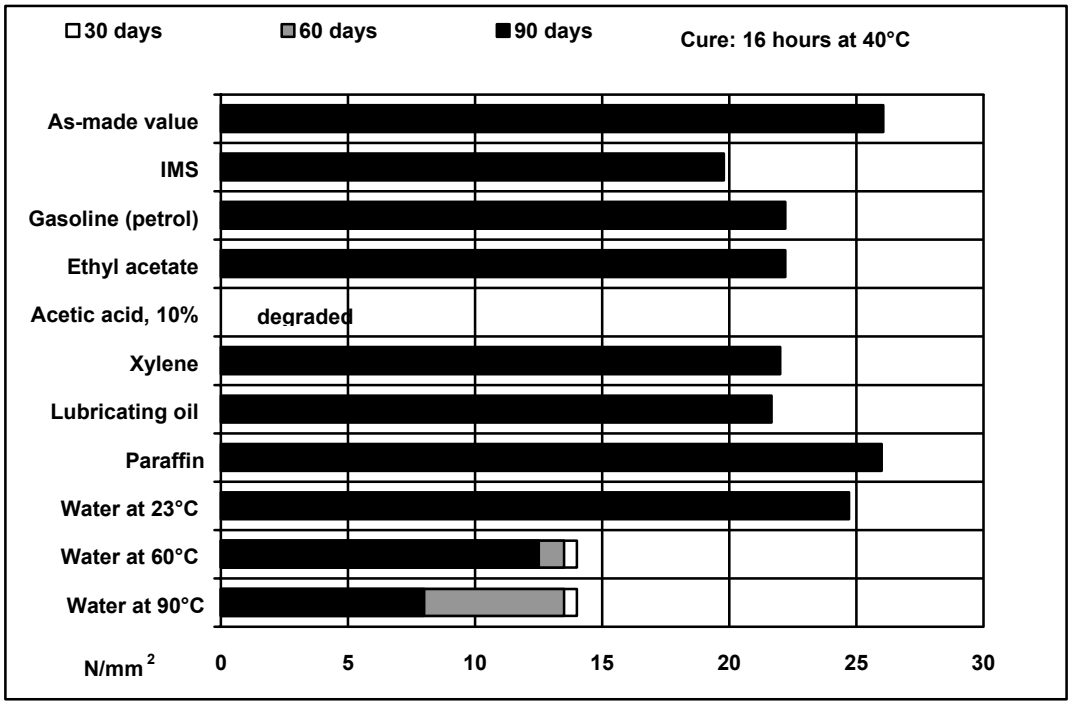
Cure: 16 hours at 40°C 5N/mm

Shear modulus (DIN 53445)

Cure: 16 hours at 40°C

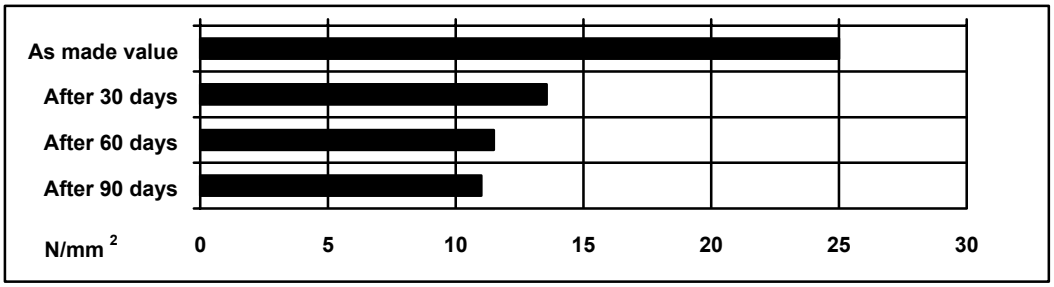
-50°C - 2GPa
0°C - 1.3GPa
25°C - 0.6GPa
50°C - 0.2GPa
75°C - 15.0MPa
100°C - 7.0MPa

Lap shear strength versus immersion in various media at 23°C (typical average values)



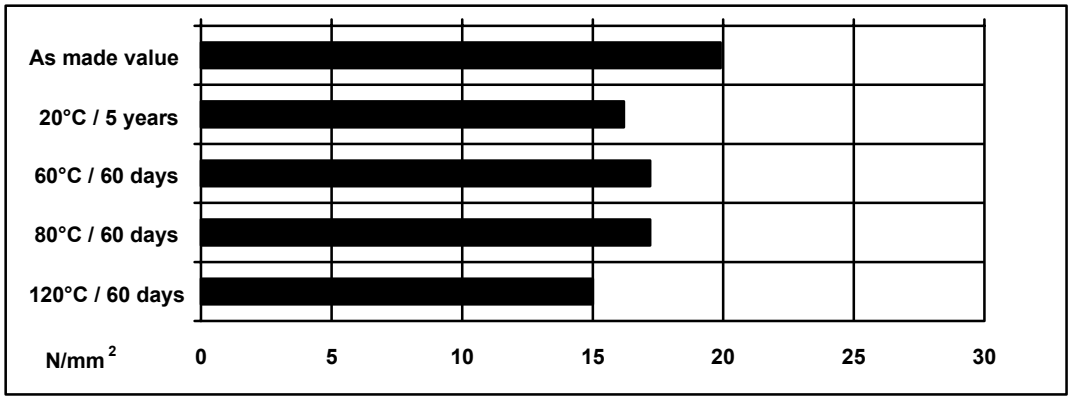
Lap shear strength versus tropical weathering

40/92, DIN 50015; typical average values



Lap shear strength versus heat ageing

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



Storage

Araldite AW 146 and Hardener HV 957 may be stored for up to 6 years 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.

Duxford, Cambridge
England CB2 4QA

Tel: +44 (0) 1223 832121
Fax: +44 (0) 1223 493322
www.araldite.com