

Structural Adhesives

Araldite® AV 138M with XB 5323 Two component epoxy industrial adhesive

Key properties

- Gap filling paste
- Excellent environmental and chemical resistance
- Excellent performance up to 120°C
- Can be cured at ambient or elevated temperatures
- KIWA approved (Netherlands) for bonding potable water pipes

Description

Araldite AV 138M with XB5323 hardener is a two-component epoxy thixotropic paste adhesive with high chemical, environmental and temperature resistance. It is suitable for bonding a wide range of materials including most metals and GRP. The adhesive has been tested by KIWA (Netherlands) for use in bonding of potable water pipes.

Typical product data

	AV 138M	XB 5323	Mixed adhesive
Visual Appearance	Beige	Grey	Grey
Viscosity at 25°C (Pa s)	ca. 300	ca. 100	thixotropic
Density at 25°C (g/cm ³)	1.65 - 1.75	1.55 - 1.60	ca. 1.65
Flash point (DIN 51758)	110°C	120°C	-
Pot Life (100 gm at 25°C)	-	-	2 hours

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
AV 138M	100	100
XB 5323	40	43

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	10	15	23	40	60	100
LSS > 1N/mm ² *	16 h	10 h	6 h	65 min	15 min	6 min
LSS > 10N/mm ²	24 h	16 h	12 h	90 min	20 min	6 min

LSS = Lap shear strength. *Handling strength

Typical cured properties

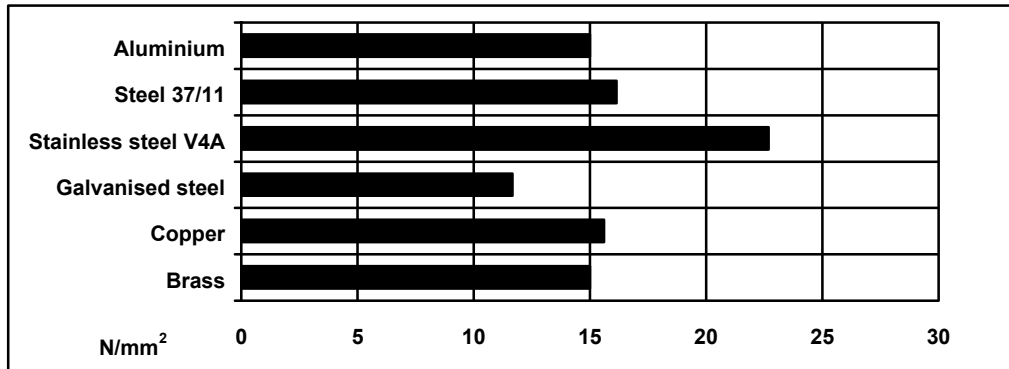
Unless otherwise stated, the figures given below were all determined by testing standard specimens made by lap-jointing 170 x 25 x 1.5 mm strips of aluminium alloy. The joint area was 12.5 x 25 mm in each case.

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)

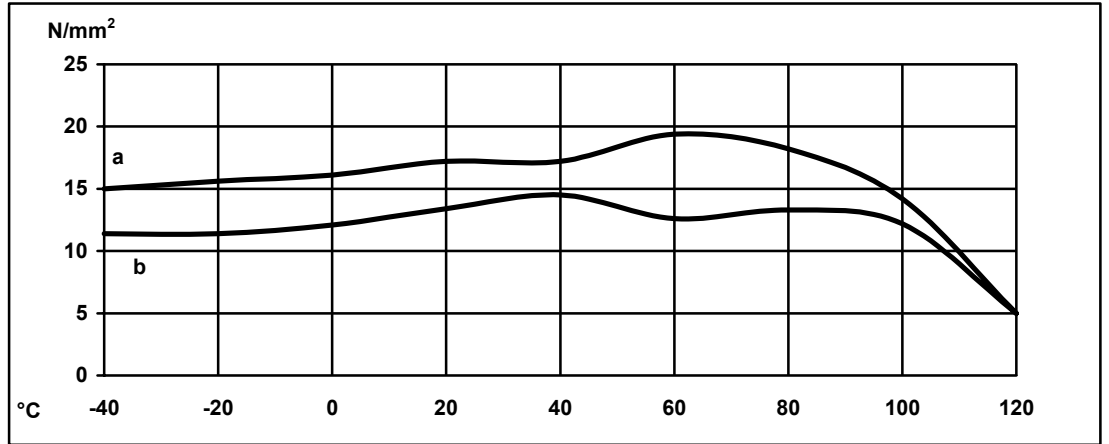
Cure: 16 hours at 40°C and tested at 23°C

Pretreatment - Sand blasting



Lap shear strength versus temperature (ISO 4587)

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



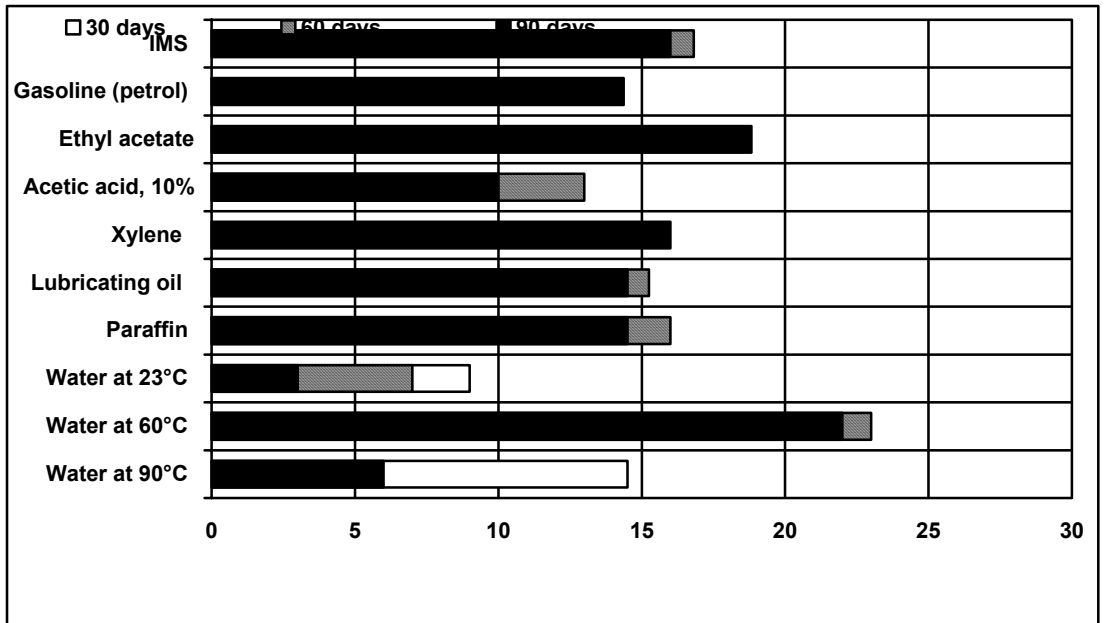
Roller peel test (ISO 4578) 1.28 N/mm

Cure: 16 hours at 40°C

Glass transition temperature (DSC) ca. 63°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 tropical weathering

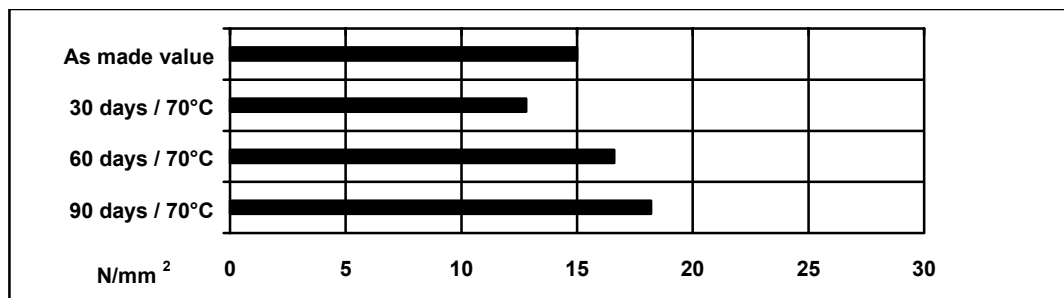
(40/92, DIN 50015; typical average values)

Cure: 16 hours at 40°C test at 23°C



Lap shear strength versus heat ageing

Cure: 16 hours at 40°C



Thermal cycling

100 cycles of 6 hr duration from -30°C to 70°C: 16.9 N/mm²

Storage

Araldite AV 138M may be stored for up to 6 years at room temperature, and XB 5323 for up to 3 years at room temperature, provided that storage is 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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