

**Advanced Materials****Araldite® AV 4738 / Hardener HV 4739****Structural Adhesives****Araldite® AV 4738 / Hardener HV 4739****Epoxy paste adhesive for composite pipe bonding****Key properties**

- Temperature resistant to 150°C
- Excellent resistance to most common chemicals
- Non flowing paste for ease of application
- Gap filling
- Bonds metals and reinforced composites such as GRP and GRE
- Good performance after cure at ambient temperature
- Application filed for KIWA potable water approval
- Properties further enhanced by postcuring

**Description**

Araldite® AV 4738 / Hardener HV 4739 is a two component, ambient temperature curing paste adhesive, which after post-curing either at application or in service, will give bonds with temperature resistance up to 150°C and excellent resistance to common chemicals. It is suitable for bonding a range of metals and polymeric substances such as GRE, GRP, ABS and SMC.

**Typical product data**

Property	Araldite® AV 4738	Hardener HV 4739	Mixed Adhesive
Appearance	Dark Grey paste	Light Grey paste	Grey paste
Viscosity at 25°C (Pas)	600 - 1000	42 - 64	Thixotropic
Specific gravity	1.45 - 1.55	1.75 - 1.85	ca 1.6
Pot Life (100 gm at 25°C)	-	-	40 - 50 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® AV 4738	100	100
Hardener HV 4739	25	22

Resin and hardener should be mixed together at room temperature stirring thoroughly.

**Application of adhesive**

The resin/hardener mix is applied directly or with a spatula, to the pretreated and dry joint surfaces.

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 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.

**Cure requirements**

Temperature	°C	15	25	40	60
Cure time to reach	hours	7	3	1	-
Lap shear strength > 1N/mm <sup>2</sup>	minutes	-	-	-	15
Cure time to reach	hours	15	4	1½	-
Lap/shear strength > 10 N/mm <sup>2</sup>	minutes	-	-	-	30

Good properties are obtained after ambient temperature curing, but in order to achieve optimum performance properties an elevated temperature cure or post-cure is recommended. Suggested post-cure schedules are:

2hrs at 80°C or 1 hr at 120°C or by post-curing in service

**Typical cured properties**

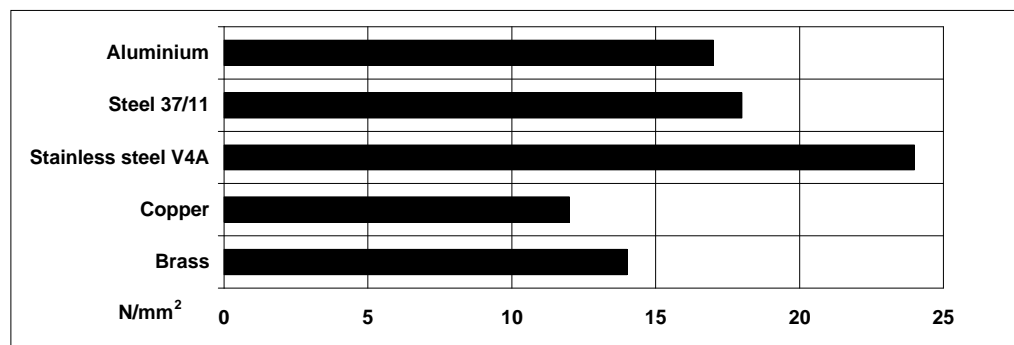
Unless otherwise stated, the figures given below were all determined by testing standard specimens made by lap-jointing 170 x 25 x 1.5 mm strips of aluminium alloy. The joint area was 12.5 x 25 mm in each case.

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)**

Cured for 24 hours at 23°C + 4 hours at 120°C and tested at 23°C

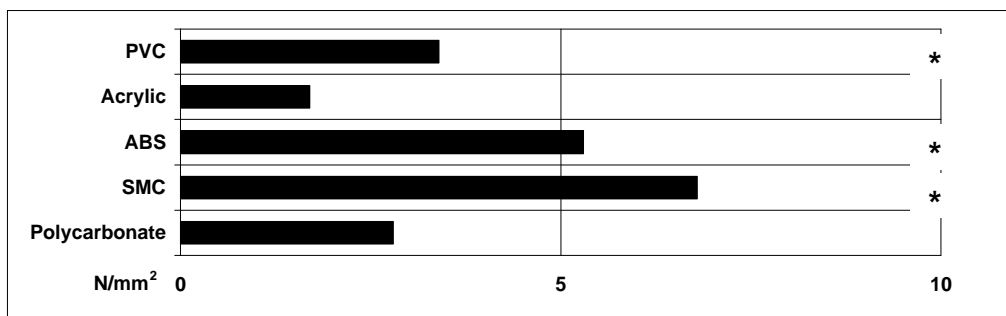
Pretreatment - Sand blasting



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

Cured for 24 hours at 23°C + 4 hours at 80°C and tested at 23°C

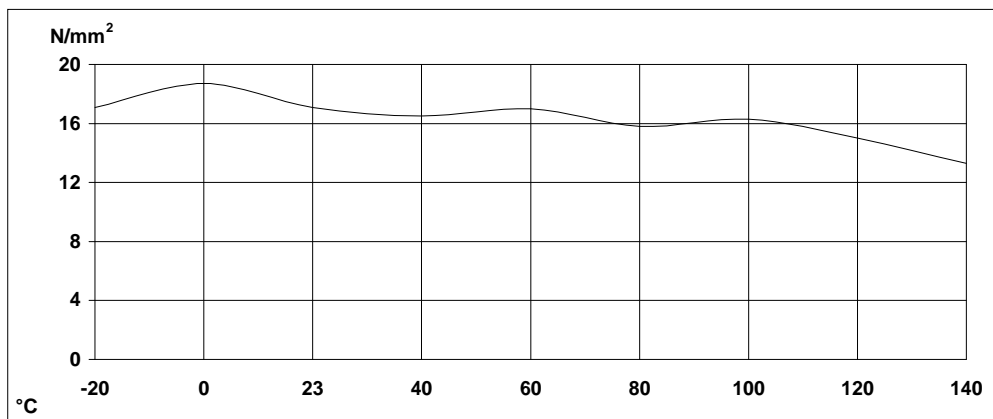
Pretreatment - Lightly abrade and alcohol degrease.



\* Indicates substrate failure

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

Cure: 24 hours at 23°C + 4 hours at 120°C



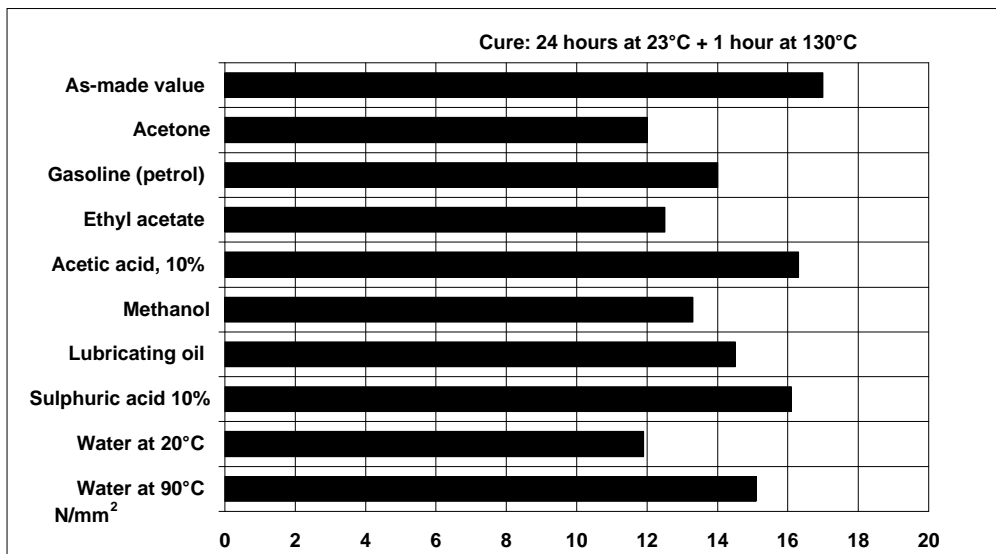
### Roller peel test (ISO 4578)

Substrate: Aluminium alloy

Cured 7d at 23°C	2.6 N/mm
Cured 7d/ 23°C + 1 hour at 80°C	4.6 N/mm
Cured 7d/23°C + 1 hour/125°C	5.6 N/mm

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

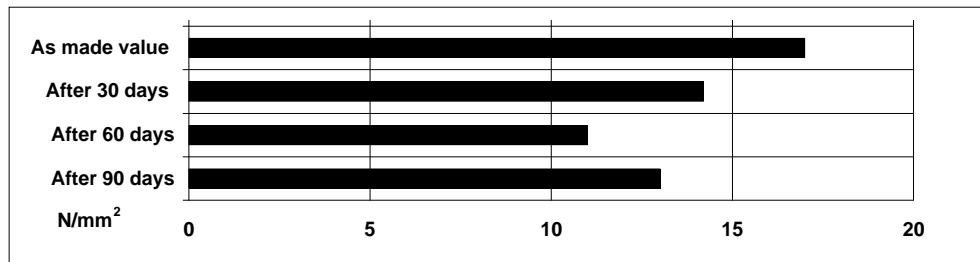
Unless otherwise stated, L.S.S. was determined after immersion for 90 days at 23°C



### Lap shear strength versus tropical weathering

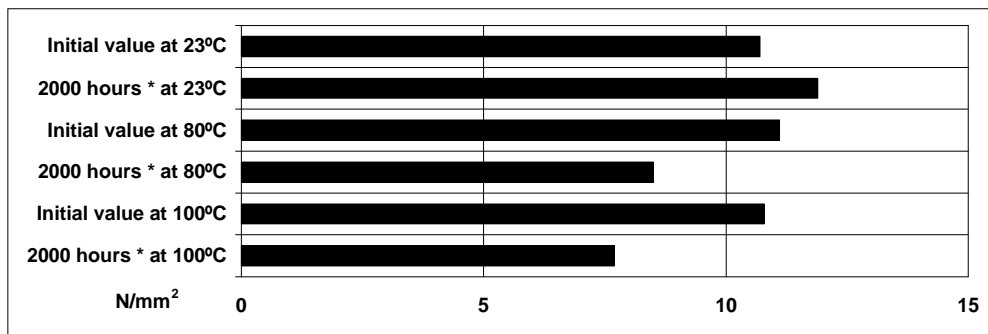
(40/92, DIN 50015; typical average values)

Cure: 24 hours at 23°C + 4 hours at 120°C and tested at 23°C



### Lap shear strength vs. water immersion on GRE

Cure: 7 days at 23°C + 4 hours at 120°C – overlap 25mm x 15mm



Immersion in water at specified temperature and tested at that temperature.

Araldite® AV 4738 / Hardener HV 4739

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**Storage**

Araldite® AV 4738 and Hardener HV 4739 may be stored for up to 3 years at 2 – 40°C, provided storage is in original sealed containers. The expiry date is indicated on the label.

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**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 food-stuffs 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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