

Structural Adhesives

Araldite® 2022 (XD 4662 A/B)

Two component toughened methacrylate adhesive system

Key properties

- Excellent bond to a wide range of plastics, composites and metals
- Excellent resistance to petrol and oils
- Tolerant to “less than ideal” pretreatment
- Rapid curing
- Gap filling to 4mm

Description

Araldite 2022 is a two component, room temperature curing, methacrylate adhesive for fast assembly operations on a wide range of substrates including those which can be “difficult to bond”.

Product data

	2022/A	2022/B	2022 (mixed)
Colour (visual)	Off white	Yellow	Beige
Specific gravity	1.03	0.97	1.00
Viscosity (Pas)	ca 70	ca 45	ca 60
Pot Life (100 gm at 25°C)	-	-	ca 10 mins
Flash point (°C)	10	10	-

Processing

Pretreatment

The strength and durability of a bonded joint are dependant on proper pretreatment of the surfaces to be bonded, however the methacrylate adhesives can be used effectively with little surface preparation.

Ideally 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.

Mix ratio	Parts by weight	Parts by volume
Araldite 2022/A	100	100
Araldite 2022/B	94	100

Resin and hardener are available in cartridges incorporating mixers and can be applied as ready-to-use adhesive with the aid of the tool recommended by Huntsman Advanced Materials.

Application of adhesive

The resin/hardener mix is applied directly to the prepared and dry joint surfaces.

A layer of adhesive 0.10 to 0.20 mm thick will normally impart the greatest lap shear strength to a joint, although joints of up to 4mm gap can be assembled.

Note that layers of adhesive thicker than 4mm will react very vigorously during cure generating large amounts of heat.

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.

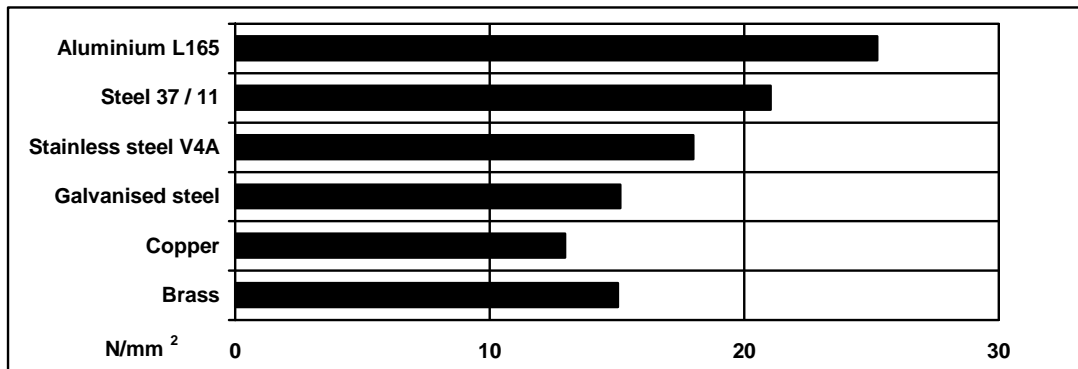
Equipment maintenance

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.

Temperature	°C	10	15	23	40
Cure time to reach	hours	-	-	-	-
LSS > 1N/mm ²	minutes	60	25	18	15
Cure time to reach	hours	-	-	-	-
LSS > 10N/mm ²	minutes	90	45	30	20

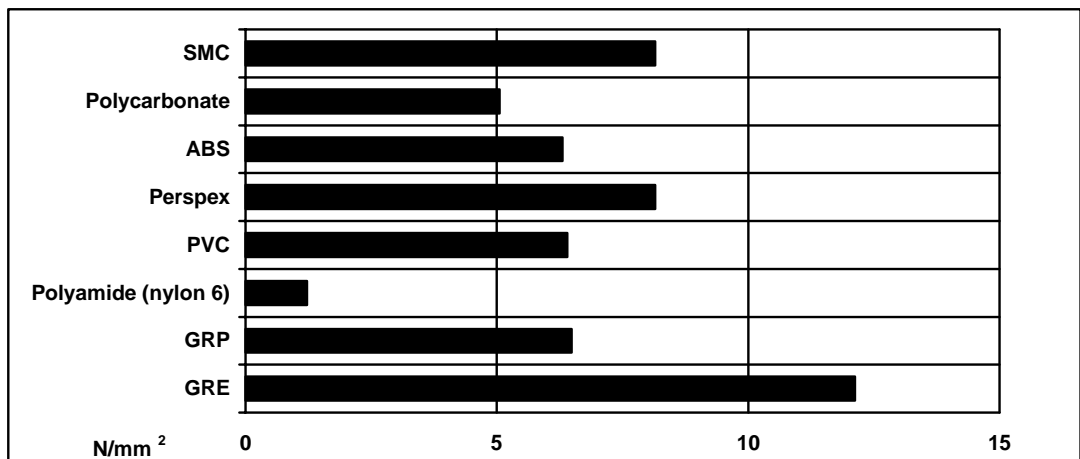
Typical cured properties



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

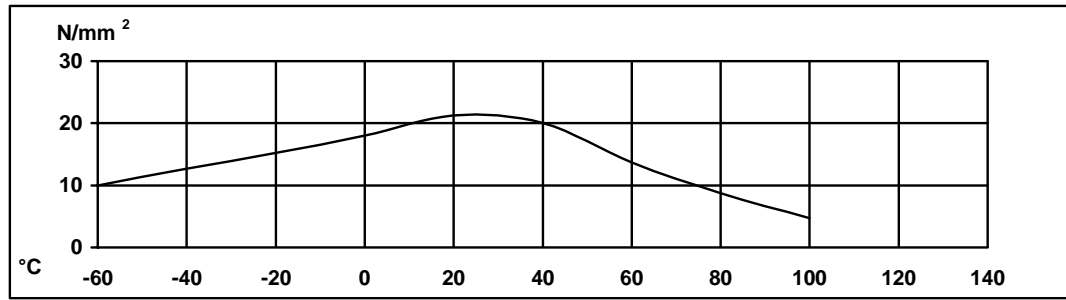
Cured for 7 days at 23°C and tested at 23°C

Pretreatment - Lightly abrade and alcohol degrease.



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

Cure: = 7 days at 23°C



Roller peel test (ISO 4578) 4N/mm

Shore hardness: D75

Elongation at break: 50-75%

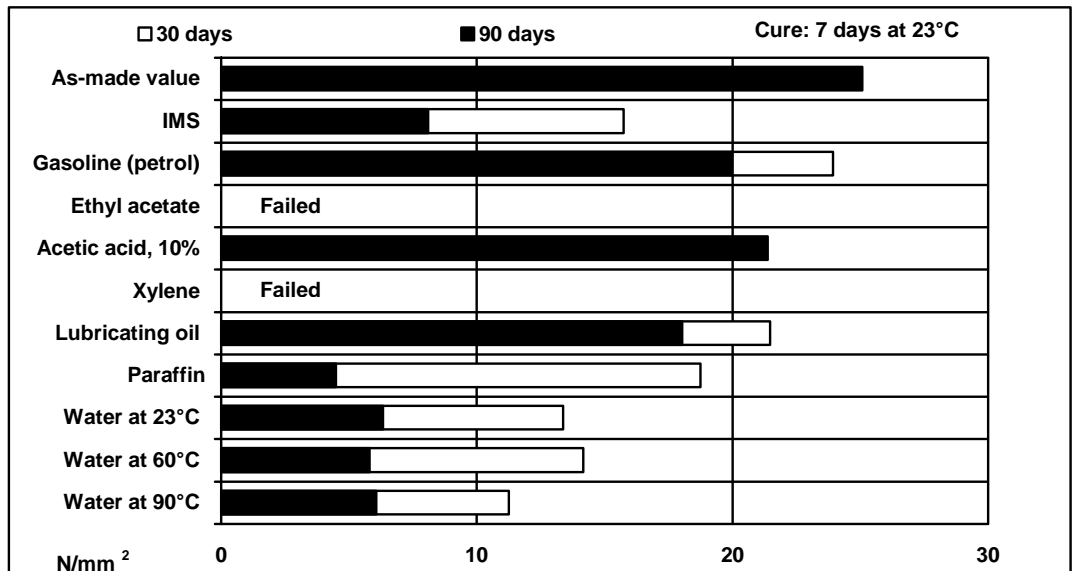
Flexural Properties (ISO 178) Cure 1 day/ 23°C tested at 23°C

Flexural Strength 43.4 MPa

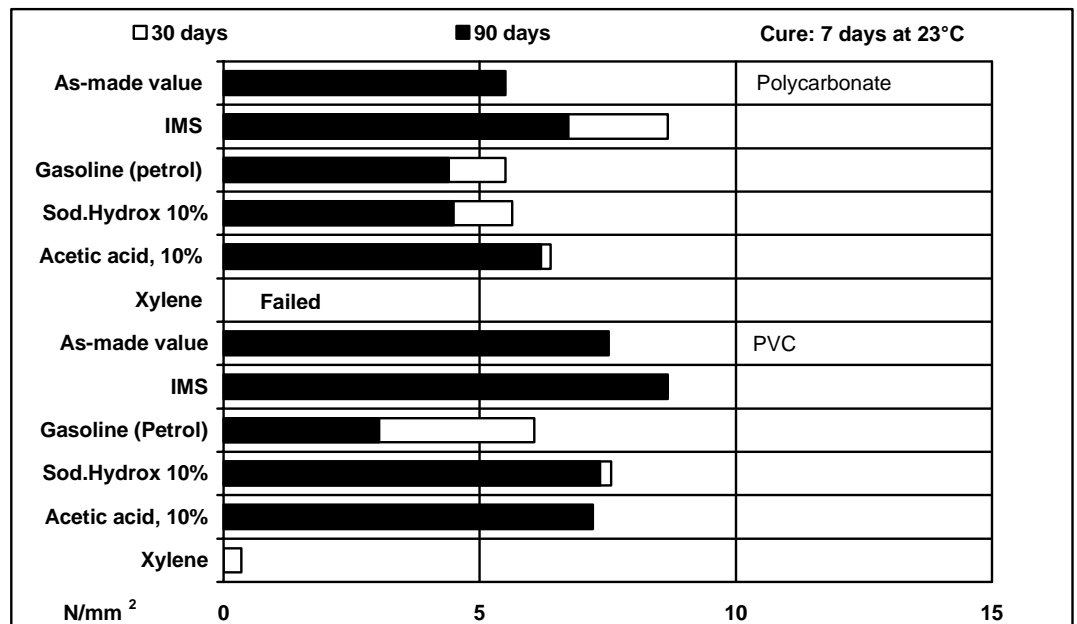
Flexural Modulus 1692.3 MPa

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

Substrate – aluminium

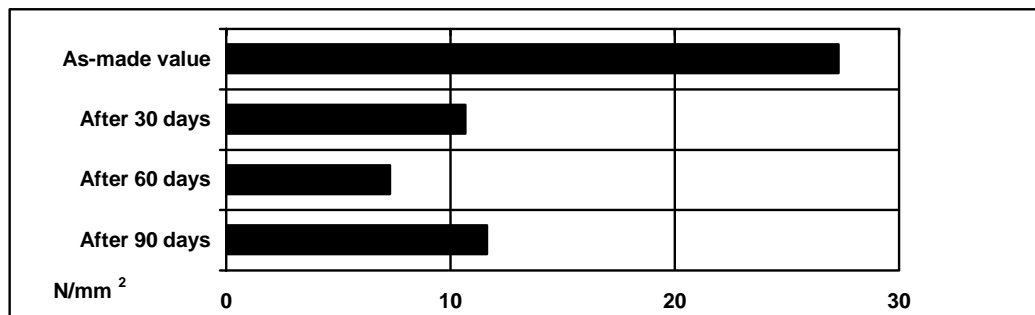


Substrate - Plastics Polycarbonate and PVC



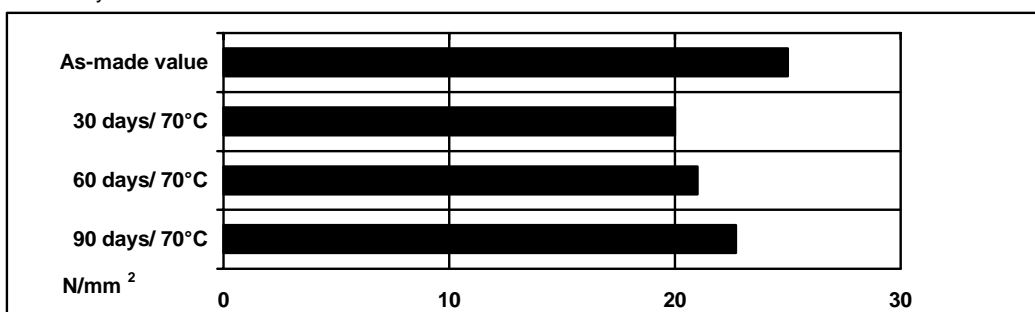
Lap shear strength versus tropical weathering (40/92, DIN 50015; typical average values)

Cure: 7 days at 23°C.



Lap strength versus heat ageing

Cure: 7 days at 23°C



Thermal cycling

100 cycles of 6 hour duration from -30°C to 70°C: 19.1 N/mm²

Storage

Araldite 2022/A and Araldite 2022/B may be stored for up to 18 months at 0-8°C provided the components are stored in sealed containers. When stored at 15 - 25°C the life is a maximum of 12 months. The combined expiry life when cold stored and then stored at 15-25°C should not exceed 18 months total. The expiry date assuming 0-8°C is indicated on the packaging

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.

Huntsman Advanced Materials

All recommendations for the use of our products, whether given by us in writing, verbally, or to be implied from the results of tests carried out by us, are based on the current state of our knowledge. Notwithstanding any such recommendations the Buyer shall remain responsible for satisfying himself that the products as supplied by us are suitable for his intended process or purpose. Since we cannot control the application, use or processing of the products, we cannot accept responsibility therefor. The Buyer shall ensure that the intended use of the products will not infringe any third party's intellectual property rights. We warrant that our products are free from defects in accordance with and subject to our general conditions of supply.

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