

Advanced Materials**Araldite® R1, Araldite® R3KS, Araldite® R5
Hardener HS67-1**

Structural Adhesives

TECHNICAL DATA SHEET**Araldite® R1, Araldite® R3KS, Araldite® R5
Hardener HS67-1****Two component epoxy adhesive for brush bonding****Key properties**

- Solvent free
- Curing at room temperature possible
- Self-leveling
- Low shrinkage
- Several viscosities available

Description

This Araldite range of solvent-free, liquid epoxy resins was developed specifically for brush bonding applications. The adhesives give excellent adhesion to bristles, hairs, metals, wood and plastics. The choice of resin and hardener allows a variety of viscosities and rate of curing.

Product data

Property	Araldite® R1	Araldite® R3KS	Araldite® R5	Hardener HS 67-1
Appearance (visual) (A112)*	beige opaque liquid	beige opaque liquid	beige opaque liquid	Clear blue liquid
Viscosity (Pa.s) (A93)*	30 - 57	22 - 32	7.5 - 13.5	0.5 - 0.7
Specific gravity (g/cm ³)	1.55	1.50	1.45	1.00

* Specified data are on a regular basis analyzed. Data which is described in this document as 'typical' is not analyzed 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 dependent 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, 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. Abrading should be followed by a second degreasing treatment.

Mix Ratio and Pot life

Both components should be blended until they form a homogeneous mix.

The required viscosity can be obtained by mixing the R1 and R5 resins in various ratios. Tests should be made to ensure the correct viscosity for a given type of brush. Araldite® R3KS provides a pre-blended option suitable for many applications.

	R1 / HS67-1	R3KS / HS67-1	R5 / HS67-1
Mix ratio (wt:wt)	100:14	100:15	100:16
Pot life (100g, 23°C)	65 – 70 min.	65 – 70 min.	65 – 70 min.

Cure schedule

Systems cured at room temperature do not achieve full properties before 8 to 10 days.

Curing below 15 °C gives unsatisfactory results.

Particularly good adhesion and solvent resistance can be obtained by post-curing at elevated temperatures.

Finishing operations such as cleaning, trimming and packing can be carried out after the times given in the table below.

Temperature (°C)	20	25	30	40
Minimum cure time (hours)	12	10	5 - 6	3 - 4

Important notes about processing

Crimping or embossing the sheet metal ferrule eliminates the need of pinning or nailing. The resin cures without shrinkage or cracking, anchoring itself firmly in grooves and corners.

The butt of the bristles should be covered with a 2 mm layer of adhesive when penetration is complete.

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.

Storage

Araldite®R1, Araldite®R3KS, Araldite®R5 and Hardener HS67-1 must be stored at room temperature 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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