vantico

Adhesives and Tooling

Structural Adhesives

Brake and Clutch Bonding

ARALDITE® 70

Brake bonding adhesive primer

Key properties

- **Vinyl-phenolic basis**
- **Suitable for use as an adhesive or dilution to primer viscosity**
- **Can be applied by dipping or spraying**
- **Dark brown/black when cured**
- **Formerly known as Redux 70**

Description

Araldite 70 is a solution of a vinyl modified phenolic resin, designed specially for application as a primer and friction lining adhesive. Araldite 70 is the recommended primer for use with Araldite 64 - 1 and Araldite 71.

Typical product data

Property	Typical Data
Appearance	Clear brown liquid
Viscosity at 25 °C	500 - 800 mPas
Solids Content (160 °C)	38 - 44%
Primary solvents	Ethanol
Specific Gravity	ca 0.99
Flash point	ca 18 °C

Processing

Pretreatment
The strength and durability of a bonded joint are dependent on proper pre-treatment of the surfaces to be bonded. Steel parts should be prepared by degreasing, followed by shot-blasting to a clean uniform matt surface. The friction material should be free of any loose materials and traces of grease. If metals other than steel are to be used for the process, then these should be pre-treated in an appropriate way. More detailed information on surface pre-treatments is given in Vantico Publication No A15.

Application of Product
Araldite 70 is suitable for application by brushing, spraying or roller coating. When used as the primary adhesive, it is suggested that the product is coated onto the liner surfaces. A dried coating weight of 150 - 200gsm is typical.
When used for dip application as a primer for shoes or plates, the product must be further diluted with industrial Ethanol (IMS). The level of dilution will control the thickness applied. It is suggested that initial dilution to a solids content of 10-15% is evaluated.
A dilution to 15% solids is obtained by blending 10kg of adhesive with 17kg of solvent.
A dilution of 10kg of adhesive with 30kg of solvent will give ca 10% solids content.

Curing the adhesive

Araldite 70 requires drying free of solvent at 20°C - 70°C, followed by a thermal cure at 150°C - 230°C. Solvent drying should be in a well ventilated area, allowing at least 20 minutes at 20°C or 5 minutes at 70°C. The dried parts may then be stored for several weeks before subsequent bonding operations, or may be bonded immediately.

During the bonding operation the coated lining and brake parts are positioned together under a pressure of 0.35 - 1.0MPa and heated to fuse and cure the adhesive layer. The pressure must be maintained in order to prevent bubbling of the adhesive as volatile products are released during the curing. Optimal curing conditions vary from 30 minutes at 150°C, 15 minutes at 165°C to 5 minutes at 200°C. Fast curing by induction heating at temperatures up to 230°C is possible but prolonged heating must be avoided at these temperatures, otherwise the adhesive performance may be adversely affected.

Where the product is applied as a dip coat in order to give corrosion protection to the metal part, it is normal to apply an undiluted adhesive to the friction lining material, in order to ensure that there is adequate material for a good bond line.

Typical properties of the cured adhesive

The data quoted below is for guidance and does not constitute a specification.

- In tests on common friction lining materials (both of the older asbestos based types and the modern non asbestos types) Araldite 70 has been shown to give shear test failures in the friction materials, both at 20°C and 200°C. Typical failure values on a 25mm x25mm area are >4.5MPa at 20°C and 1.6 - 4.5MPa at 200°C depending on friction material type.

- Steel / steel lap shear test joints (overlap 25mm width x 15mm length) dip primed with Araldite 70, and bonded with Araldite 71, gives values greater than 7.5MPa at 23°C, and values greater than 4.5MPa at 200°C.

Storage

Araldite 70 has an assigned shelf life of 18 months when stored between 6 and 28°C in original unopened containers. Storage at higher temperatures will reduce the shelf life. For example, if storage is at 40°C, it is recommended that the remaining life, at that point, be reduced by one quarter. The expiry date and standard storage conditions are quoted on the product label.

Handling precautions

Caution

Vantico 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 Vantico publication No. 24264/3/e Hygienic precautions for handling plastics products of Vantico and in the Vantico Material Safety Data sheets for the individual products. These publications are available on request and should be referred to for fuller information.

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