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Advanced Materials

Araldite® 71

Structural Adhesives

TECHNICAL DATA

Brake and Clutch Bonding

ARALDITE® 71

Brake bonding adhesive

Key properties

- **Vinyl-phenolic basis**
- **Suitable for use as an adhesive for brake shoes**
- **Can be applied by extrusion or roller coating**
- **Formerly known as Redux 71**

Description

Araldite® 71 is a thixotropic, modified phenolic resin, designed specially for application as a friction lining adhesive. Araldite® 71 is used with primer Araldite® 70 in shoe brake bonding operation.

Typical product data

Property	Typical Data
Appearance (A112)*	*Dark brown paste*
Viscosity at 25 ºC	Thixotropic
Solids Content (A27)*	*47 - 51%*
Primary solvents	Ethanol
Specific Gravity	ca 1.00
Flash point	Ca 13 °C

** Specified data are on a regular basis analysed. Data which is described in this document as 'typical' is not analysed 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 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 our surface treatment guide, available under www.aralditeadhesives.com.

Application of product

Araldite® 71 is suitable for application by extrusion or roller coating. When used as the primary adhesive, it is suggested that the product is coated onto both bonding surfaces, or that Araldite® 71 is applied to the friction lining material, and a dip-coat of Araldite® 70 is applied to the metal shoe. A dried coating weight of 150 - 200gsm is typical.

Curing the adhesive

Araldite® 71 requires drying free of solvent at 20ºC – 70ºC, followed by a thermal cure at 150ºC – 230ºC.

Solvent drying should be in a well-ventilated area, allowing at least 8 – 10 hours at 20ºC or 25 minutes at 70ºC. 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 - 1.0 MPa 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 150ºC 15 minutes at 165ºC to 5 minutes at 200ºC. Fast curing by induction heating at temperatures up to 230ºC are possible but prolonged heating must be avoided at these temperatures, otherwise the adhesive performance may be adversely affected.

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® 71 has been shown to give shear test failures in the friction materials, both at 20ºC and 200ºC. Typical failure values on a 25mm x25mm area are >5 MPa at 20°C and 1.6 - 3.5 MPa at 200ºC 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 7MPa at 23ºC, and values greater than 4 MPa at 200ºC.

Storage

Araldite® 71 has an assigned shelf life of 18 months when stored between 6 and 28ºC in original unopened containers. Storage at higher temperatures will reduce the shelf life. For example, if storage is at 40ºC, 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

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 warrants only that its products meet the specifications agreed with the user. Specified data are analysed on a regular basis. Data which is described in this document as 'typical' or 'guideline' is not analysed on a regular basis and is given for information purposes only. Data values are not guaranteed or warranted unless if specifically mentioned.

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