

Aerodux 500 with Hardener 501

Resorcinol-phenol-formaldehyde Adhesive

Aerodux 500 is supplied in 500 M (Medium) hardener 501 is used

Aerodux 500 liquid resins mixed with Hardener 501, a resinous liquid containing filler, provide a range of resorcinol-phenol-formaldehyde adhesives which are fully weatherproof and gapfilling and are especially suited to the manufacture of large laminated timber structures. Aerodux 500 adhesives are also suitable for use in the production of heat resistant composite structures, e.g. fire-resisting doors. They are resistant to acids, weak alkalis, solvents and boiling water.

Aerodux 500 adhesives are simple to prepare. Both resin and hardener are liquids, and are mixed in a 1:1 ratio.

Typical properties of Aerodux 500 and Hardener 501

Aerodux 500

Appearance Reddish brown liquid
Viscosity at 25° C 0.35 - 1.3 Pas

Relative density
at 25° C..... 1.200 - 1.400
Solids content 52 - 58%
Flashpoint 31° C (88°F)

Hardener 501

Solids content 69 - 73%
pH 6.7 - 7.8
Flashpoint 38° C (100°F)

Specifications

Aerodux 500 resins with Hardener 501 meet the requirements of BS 1204: parts 1 and 2 (Type WBP), BS 1203 (Type WBP), DIN 68 705 (AW 100), DIN68 141. It is also approved under DIN 1052 for the manufacture of load bearing building components, and by FMPA, Stuttgart, for the manufacture of structural building elements.

These adhesives are highly suitable for bonding a wide range of materials to porous substrates. These materials include:

- .Wood, improved or densified woods, mineral fibre reinforced boards, brick, concrete, and unglazed porcelain.
- .Rigid expanded plastics, e.g. expanded polystyrene, polyurethane and PVC
- .Industrial and decorative laminated plastics (phenolic resin backed).
- .Leather, cork, linoleum and nylon.

Instructions for Use

Mixture

Mixing proportions are the same for each of the three resins.

parts by weight or volume

Aerodux 500M	100
Hardener	100

Note: Since resin and hardener have slightly different densities, but are supplied by weight, mixing by volume will result in uneven consumption of the components.

Viscosity of Mixture

Viscosity, 15-20 minutes after mixing, is similar for each grade of resin used:

Viscosity at 25° C 1.5 - 2.0 Pa s (15 - 20 poises)

Use of Extenders

Wood flour or some mineral fillers may be added to increase the viscosity and reduce glue costs.

Lightly-filled mix

	Parts by weight
Aerodux 500	100
Hardener 501	100
China Clay	40

Heavily-filled mix

	Parts by weight
Aerodux 500	100
Hardener 501	100
Fine chalk or china clay	200

The lightly filled mix still complies with the requirements of BS 1204: Part 1 (Type WBP). It may be necessary to adjust the viscosity of the heavily filled mix with water but the water addition should be kept to a minimum. This mix is suitable for bonding uneven-surfaced boards, such as mineral fibre reinforced boards, and where maximum strength and full weatherproof properties are not required.

Mixing

It is essential that Hardener 501 is well stirred before removal from the container. Add the required amount of Hardener 501 to the Aerodux 500 and mix thoroughly. The proportions may be measured by weight or volume.

Preparation of materials for bonding

Surface preparation

The surfaces to be bonded should be free from dust or other deposits. Wood, panels, laminates etc. should be of uniform thickness. Solid timber should be freshly machined, but does not usually require sanding. Smooth dense surfaces to be bonded, except expanded plastics and mineral fibre reinforced boards, should also be thoroughly sanded.

Metal surfaces should be abraded, degreased and coated with Primer L62 before bonding to porous materials (such as wood).

Moisture content

Satisfactory results may be obtained when the moisture content of the surfaces to be bonded is within the range 6 - 25% but for best results, 12 - 16% is preferred. Artificial drying will be required to reduce the moisture content to 16% or lower. Adjacent surfaces should not differ by more than 3% moisture content.

Effect of preservative treatment

Before bonding timber that has been treated with a preservative, it is necessary to machine the surfaces. Also the joint moisture content should be checked since this can be increased beyond acceptable level by water borne preservatives and may need to be reduced before gluing.

Application

Spread rates

Apply an even coating of mixed adhesive to both the surfaces to be bonded at a rate of about 225 grammes per square metre (4 1/2 lb/100ft)

Open/Closed assembly

Joints must be assembled and pressure finally applied.

Although the adhesive has gap-filling properties, it is important to bring surfaces into firm contact. It is essential that the joint should be made before the adhesive gels.

Control of Spread to Counteract Drying-Out

The defect known as drying-out is influenced mainly by relative humidity, temperature and thickness of glue spread. In conditions of high ambient temperature and low relative humidity, higher spreads may be necessary to limit drying-out. Under average conditions (65% r.h. and 18° C), a spread of about of about 225 g/m² (4 1/2 lb/100 ft²) to each face of a joint is sufficient.

Cleaning of equipment

Mixers, spreaders etc. should be cleaned by washing with warm water. The use of a warm dilute washing soda solution will help to remove persistent residue. Equipment should be cleaned before the glue has time to set.

Notes

Staining on absorbent boards

Light coloured absorbent boards, e.g. mineral fibre reinforced cement boards, bonded with resorcinol phenol formaldehyde adhesives may tend to show signs of staining when subjected to exposure to weather or very wet conditions. This is because certain soluble materials in the uncured resin are absorbed and retained by the board and may subsequently be leached out by soaking. These materials appear as dark stains on the surface of the board, but disappear with further weathering.

Storage

Aerodux resins and hardners should be stored firmly sealed in their original containers in a cool (ideally 5-20°C) dry place. Shelf life under these conditions is at least 1 year for both Aerodux 500 and Hardener 501.

Quantities available

Aerodux 500 and Hardener 501 are available in 1 kg tins.