

Wessex 325

FLOORING ADHESIVE

Technical Data Sheet

DESCRIPTION

This two part epoxy composition has been specifically developed for bonding a variety of floor tiles and coverings, categorised by low smoke/low toxicity characteristics in a fire situation, to metal, wood and concrete substrates. These floor coverings include rubber based compounds such as Vamac and blends of E.P.D.M. and E.V.A. The epoxide resin is mixed in equal proportions with the epoxide hardener to produce a high viscosity adhesive which is designed to maximise safety in a fire/burning condition. The two components are supplied in pre-weighed packs to facilitate on-site use by eliminating the need for weighing out and therefore reducing application time.

The standard pack sizes are 1.4kg (700g each of the two components), 3.0kg and 6.0kg units but other pack sizes will be considered to suit customer requirements.

STORAGE

Epoxy systems cure by a polymerisation reaction which is exothermic and it is important to appreciate that the temperature of both the environment and the two components before mixing, together with the total mass of the epoxy determines both the working and gelation time of the adhesive.

Thus, storage of the Wessex 325 packs is most important and it is recommended that the units are held at temperatures greater than 15°C. To shorten the period between the application of the adhesive and the subsequent trafficking of the tiled area the material should be held at higher temperatures up to, say, 25°C. Even under these storage conditions both resin and hardener exhibit excellent anti-settling properties.

PREPARATION OF THE SUBSTRATES

It is important to ensure that thorough surface preparation is undertaken to enable the Wessex 325 epoxy to develop maximum properties. The presence of contaminants such as paint, dirt, grease and moisture will provide a barrier or release coat and thus prevent or minimise adhesion.

Wood

Surfaces must be dry, free of contamination and ideally, abraded.

METAL

All previous surface pre-treatments should be removed, taking the surface back to bare metal. This should be abraded and then degreased.

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CONCRETE

Any unsound material must be cut back to uncover sound concrete. The surface must then be degreased.

FLOOR TILES & COVERING

The under surface must be dry, free of contamination and lightly abraded. Some products, e.g. Vamac, are supplied to these requirements but the under surface must be checked before the Wessex 325 epoxy is applied. If cloth-backed floorings are used, then any release agent must be removed before bonding. If in any doubt, degrease and then abrade before applying the adhesive.

MIXING

It must be appreciated that any epoxide resin and hardener must be well mixed to produce homogeneity - an essential requirement to achieve ultimate bond strengths and with heavily filled systems such as the Wessex 325 epoxy, complete mixing is even more important. With the Wessex 325 pack, it is only necessary to pour the total contents of the polybucket containing the epoxide resin into the epoxide hardener and mix thoroughly for four minutes.

The larger the pack size, the more difficult and time-consuming the mixing operation becomes. The volume of the pack is blended into a homogeneous mass by mixing for a minimum of four minutes with an air driven mixer ideally having a large gate paddle. The differently coloured components provide a visual aid to complete mixing which is indicated when the adhesive forms a uniform colour and all signs of streakiness have disappeared.

As stated earlier, when the resin and hardener are homogeneously mixed, heat is generated as a result of the reaction which is taking place, i.e. an exothermic reaction. The heat which is generated speeds up the gelation time of the epoxy which, in turn, shortens the working time available.

VISCOSITY

High temperatures provide lower viscosities but between these temperatures this epoxy system will provide excellent wetting of the substrates with which it is in contact and good spreading/coverage characteristics.

APPLICATION

When the epoxy composition has been thoroughly mixed for the stated period of time it is ready for use and within ten minutes must be applied to the substrates. Rough surfaces, such as a concrete floor, must be completely wetted and a thin coating spread onto the floor covering and the concrete floor to which it is to be bonded. In practice, it has been found when working with smooth, new surfaces, i.e. wood and metal, only the base floors need to be coated. A screeding tool such as a saw tooth scraper has been found to be the most suitable for applying the adhesive to a thickness of approximately 0.3mm - this will give a coverage of about 0.3kg/m² - and to obtain this thickness of coating, the scraper has a serrated edge having a minimum depth of 0.5mm. Immediately after application onto the substrates, the mixed epoxy will flow to the required uniform thickness and the floor covering can be positioned onto the floor. To ensure that intimate contact is maintained between the floor covering and the floor throughout the curing cycle, some weight should be placed onto the covering.

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PHYSICAL DATA WESSEX 325 ADHESIVE

| | Appearance | Specific Gravity | Flash Point (°C) |
|------------------------------|-----------------------------|------------------|------------------|
| Resin Part A | Highly filled black liquid | 1.5 | >150 |
| Hardener Part B | Highly filled buff liquid | 1.4 | >150 |
| Mixed System (1:1 by weight) | Black liquid no streakiness | 1.45 | >150 |

Coverage

Between 0.3 & 0.5 kg/m²

Time to peak exotherm of 500g mass

60 to 80 minutes (approx. gelation time)

ADHESIVE STRENGTH

ON STEEL

The bond strength of the above epoxy mix when used as an adhesive between circular mild steel adherends (Test Method BS EN 26922) is greater than 4.38 MPa - the minimum requirements to meet specification - and the mode of failure is approximately 50% cohesive within the adhesive layer and 50% interfacial between the adhesive and the steel adherends. (This is one of the routine standard tests carried out on each batch of Wessex 325 epoxy by the Quality Assurance Laboratory). Typical strength values when tested to failure are approximately 16 MPa.

ON ALUMINIUM

It is generally recognised that when bonding to aluminium, good adhesion is not achieved unless degreasing, abrading, priming and/or etching the substrate is undertaken.

In consequence, tests have been conducted with an Elcometer to determine the bond strength of Wessex 325 epoxy to extruded aluminium sections when the substrate has (i) only been degreased and, (ii) a proprietary brand of primer has been subsequently applied. After seven days conditioning at room temperature the average bond strength of the epoxy onto the degreased aluminium surface (it was not abraded) was 7 MPa from the six specimens tested and the coefficient of variation was low. In every instance, the mode of failure was 100% cohesive within the adhesive.

The coverage rate of the Wessex 325 epoxy for these tests on aluminium was about 0.5kg/m² spread, i.e. the adhesive thickness was approximately 0.33mm.

FIRE PERFORMANCE

| TEST | REQUIREMENT | RESULT |
|--|----------------------------------|---------------------------------|
| BS 476 Part 7 (Spread of Flame) | Class 1 | Class 1 |
| BS 476 Part 6 (Fire Propagation) | < 12 | < 12 |
| Building Regs. 1991 (Appendix A, Clause 12 of the Approved Document B) | Class O | Class O |
| BS 6853 Part B5.4 1977 (Smoke Emission) | < 150 Ao (abs) m ² /m | < 70 Ao (abs) m ² /m |

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| TEST | REQUIREMENT | RESULT |
|---|--------------------------------|---|
| Toxic Fume Emission | Metallic elements | Magnesium,aluminium |
| LUL SD 6220-05-601 | detected | silicon, calcium |
| LUL SD 6220-05-001 | Non-metallic elements detected | Carbon < 40% Nitrogen < 2.5% Sulphur < 0.5% |
| Immediately Dangerous to Life or Health | | |
| HCN concentration (LUL Code of Practice) | < 50 ppm | < 30 ppm |
| BS 6401 1983 (Ds at 5 mins) NBS Smoke Box | < 50 | < 10 |

(Flooring Compound K8300N ex Gates Rubber Company)

INDUSTRIAL HYGIENE

PERSONAL PROTECTION

Synthetic resins can cause dermatitis if not handled properly and insufficient care is taken to avoid contact with the skin. Before working with these materials the relevant Material Safety Data Sheets must be read:-

Wessex 325 Epoxide Resin Part A

Wessex 325 Epoxide Hardener Part B

EQUIPMENT

Mixing equipment and tools should be cleaned with a suitable solvent before the adhesive has cured. Suitable solvents are acetone or WEST SYSTEM 850 Solvent.

These materials are flammable and must be handled with care away from any flames or sources of ignition.

It is important that these materials are only used for cleaning of equipment and not used for cleaning of the skin otherwise defatting can occur.

Solvents are ineffective against cured epoxide resins unless totally immersed for a very long period, when the resin will soften.

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