WESSEX
RESINS+ADHESIVES

# Wessex 310

## FLOORING ADHESIVE

Technical
Data Sheet

### DESCRIPTION

This two part epoxy composition has been specifically developed for bonding a variety of floor tiles and coverings such as linoleum, PVC and certain rubber based compounds including E.P.D.M. to metal, wood and concrete substrates. The epoxide resin is mixed in equal proportion with the epoxide hardener to produce a high viscosity adhesive. The two components are supplied in pre-weighed packs to facilitate on-site use by eliminating the need for weighing out, hence reducing application time.

The standard pack sizes are 1.4kg (700g of both resin and hardener), 3.0kg and 6.0kg units.

### STORAGE

Because epoxy systems are exothermic, 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

In consequence, storage of the Wessex 310 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.

### PREPARATION OF THE SUBSTRATES

#### Steel

Degrease the surface ( use WEST SYSTEM 850 Solvent, acetone, methyl ethyl ketone or isopropanol ) before removing all previous surface pre-treatments. Take the surface back to bare metal using 80 grit paper and degrease again after abrading.

The epoxy adhesive must be applied soon after the steel surface has been abraded and degreased - ideally within two hours - to minimise oxidation of the metal.

#### Aluminium

A similar procedure can be adopted as for steel but to maximise the bond strength of the adhesive to aluminium, an etching compound may be applied subsequent to the degreasing operation.

To minimise oxidation of the aluminium, it is important to apply the adhesive within

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Wessex Resins & Adhesives, Cupernham House, Cupernham Lane, Romsey, Hampshire, SO51 7LF, UK
wessex-resins.com +44(0)1794 521111

fifteen minutes of completing the surface preparation.

### Wood

All previous coatings must be removed, surfaces should be dry, free of contamination and abraded with 100 grit paper.

Note: If the adhesive is to be applied to an “oily” wood e.g. teak, it is necessary to degrease the surface of the timber with one of the solvents recommended above. To ensure that the surface does not become “greasy” again, apply the adhesive to the wooden substrate soon after the solvent has evaporated and certainly within 30 minutes of the solvent application.

### Concrete

Unsound material must be cut back to expose sound concrete. The surface must then be degreased to remove any contaminants.

### Floor Tiles & Coverings

The under surface must be dry, free of contamination and lightly abraded. Some products such as Vamac, are supplied to these requirements but the under surface must be checked before the Wessex 310 epoxy is applied. If cloth-backed floorings are used, then any release agent must be removed before bonding. If in doubt, degrease and abrade with 80-100 grit before applying the adhesive.

The above figures are typical of this product and should not be taken as an agreed specification.

## MIXING

It is vital that the epoxide resin and hardener are well mixed to produce a homogeneous blend - an essential requirement to achieve ultimate bond strengths - and with heavily filled systems such as the Wessex 310 epoxy, complete mixing is even more important. With the Wessex 310 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 and the recommended maximum pack is a 6kg unit. The volume of the pack is blended into a homogeneous mass by mixing for the required period 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.

## APPLICATION

When the epoxy composition has been thoroughly mixed for the required period of time it is ready for use and within a further ten minutes a thin coating must be applied to both the flooring substrate and the floor to which it is to be bonded. Position the floor covering onto the floor and ensure that intimate contact between the two substrates is maintained throughout the curing cycle by placing some weights onto the covering.

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 0.5mm and to obtain this thickness of coating, the scraper has a serrated edge having a minimum depth of 1.5mm. 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.

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### PHYSICAL DATA WESSEX 310 ADHESIVE

#### Handling Characteristics

| | Appearance | S.G. | Flash Point (°C) |
|---|---|---|---|
| Resin | Highly filled black liquid | 1.5 | 102 |
| Hardener | Highly filled buff liquid | 1.4 | 150 |
| Mixed System (1:1 by weight) | Black liquid no streakiness | 1.45 | 102 |

#### Mix Properties

| | |
|---|---|
| Wessex 310 epoxide resin, | Part A 100 parts by weight |
| Wessex 310 epoxide hardener, | Part B 100 parts by weight |
| 100g Gel Time @ 25°C: | 285 mins |
| Thin Film Gel Time @ 25°C: | 720 mins |

#### Working quanties

| Mass (kg) | Working Time (Mins @ 25°C) | Gelation Time (Mins @25°C) |
|---|---|---|
| 1.4 | 45 | 60 |
| 3.0 | 40 | 55 |
| 6.0 | 36 | 50 |

#### The effect of temperature and mass on the working and gelation time of Wessex 310 flooring adhesive

| TEMPERATURE | WORKING TIME (Minutes) | | | GELATION TIME (Hours) | GELATION TIME (Minutes) | | CURE TIME OF THIN FILM (Hours) |
|---|---|---|---|---|---|---|---|
| °C | Thin film 1mm thick | 1.4kg mass | 6.0kg mass | Thin film 1mm thick | 1.4kg mass | 6.0kg mass | Thin film 1mm thick |
| 15 | N/A | 95 | 75 | 10 | 130 | 108 | 24 |
| 25 | N/A | 45 | 36 | 4.75 | 60 | 50 | 16 |
| 35 | N/A | 27 | 20 | 3.25 | 33 | 23 | 10 |
| 50 | N/A | 12 | 9 | 1.75 | 15 | 11 | 4 |

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## FLOORING ADHESIVE

### ADHESIVE STRENGTH

#### On Steel

After seven days cure, the bond strength of the above epoxy mix between circular mild steel plates is greater than 4.38 MPa - the minimum requirements to meet specification. Typical strength values when tested to failure are approximately 10.0 MPa.

#### On Aluminium

Tests on extruded aluminium which was degreased, then abraded and degeased again before coating with WRA 310 produced an average adhesive strength of 7.55 MPa (six specimens tested after seven days) and, importantly, the coefficient of variation was low. The failure mode was primarily cohesive (approximately 70%) within the adhesive layer.

The coverage rate of the WRA 310 epoxy for these tests on aluminium was about 0.7 kg/m2 spread i.e. the adhesive thickness was approximatley 0.5mm.

#### On WBP Plywood

Tests to determine the bond strength of the epoxy on timber after seven days cure produced an average adhesive strength of 3.79 MPa with a low coefficient of variation illustrating the excellent reproducability of the bond. The mode of failure, which was almost 90% cohesive within the wooden substrate, is of significant importance.

#### Tiles based on Vamac to London Underground Specifications

After seven days cure at room temperature, the average bond strength of WRA 310 epoxy on this tile substrate is 3.97 MPa and, again, the failure mode was cohesive (approximately 85%) within the Vamac compound. The coefficient of variation was extemely low.

NOTE: The work detailed above was carried out with glue lines nominally 0.5mm thick but in practice, because of undulating surfaces, glues lines of greater thickness may well be necessary.

### INDUSTRIAL HYGIENE

#### Personal Protection

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

Wessex 310 Epoxide Resin Part A

Wessex 310 Epoxide Hardener Part B

#### Equipment

Mixing equipment and tools should be cleaned with a suitable solvent such as WEST SYSTEM 850 Solvent or acetone.

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

It is important that these solvents are not used for cleaning the skin as this can cause defatting.