

Merlin Barrier Coat

Merlin Barrier Coat is a durable solvent free epoxcoating system specially formulated for use as a water resistant membrane in both new build and refurbishment projects. Barrier Coat can be applied directly onto wet surfaces free from standing water and when used as a primer and allowed to cure will accept most adhesives, coatings and screeds. Barrier Coat has been tested and certified to meet BS 476 surface spread of flame, Class 0 and has been assessed by the Building Research Establishment for water vapour permeability.

- No harmful solvents
- Penetrates into wet substrates
- Fire retardant
- Very high water vapour resistance
- Excellent adhesion to wet concrete
- Will tolerate lightly contaminated substrates

Preparation

Prior to the application of Barrier Coat, the surface must be clean, cured sufficiently to take foot traffic and be free of surface water or laitance. All surfaces must be sound, free from oil, grease and loose material. Mechanically prepare the area to give a suitable key for the Barrier Coat. Remove all debris by sweeping or vacuum. The air and surface temperature must be above the minimum required both during application and the curing process. The use of naked flame heaters is not advisable as they increase the relative humidity to a point which condensation can form on the cured Barrier Coat leading to reduced adhesion of any subsequent application.

New Concrete Preparation

New concrete must be left to reach an acceptable hardness before any preparation is attempted. Surface laitance should be removed by light vacuum shot blasting, scarifying or surface grinding. The use of acid etch solutions is not recommended.

Old Concrete Preparation

On lightly stained concrete the removal of the surface layer would be sufficient preparation. Areas of heavy staining should be treated by one or more of the following methods: Vacuum shot blasting, Scabbling or Hot compressed air burning. Consultation with a SMET technician is strongly recommended to establish the most apt method.

Note

With all the above techniques, pre-cleaning of heavy deposits of oil or grease with a suitable multipurpose degreaser then rinsing with clean towns water will reduce the transmission of contaminants to other areas during final preparation. Expansion joints should either be raked out or protected during the preparation and coating processes.

Mixing

Barrier Coat is supplied in pre-weighed units this ensures the correct ratio of base to activator is achieved, the splitting of packs is not recommended. Only mix as much material as can be applied during the stated working life. Pour the Part B component into the Part A container, removing as much Part B component as is practically possible. Once all the Part B component has been transferred to the Part A container, mix at a controlled speed until homogeneous. To ensure correct mixing, a helical paddle attached to a slow speed drill or mixer is recommended. Moving the paddle gently across and round the mixing vessel will stop dead spots occurring. Excessive speed or movement of the mixing paddle will result in air entrainment which can affect the coating film and vapour permeability. After mixing, to maximise the working life of the product, transfer into several smaller containers, this will help dissipate any heat build up in the bulk material.

Application

Barrier Coat can be applied as either a one or two coat application depending on the surface finish or condition of the base slab. Unlike conventional priming systems Barrier Coat can safely be applied to the substrate as soon as sufficient strength has been obtained to allow preparation. Barrier Coat can be applied to very green slabs to aid the curing process and enable subsequent installations to take place much sooner than with conventional systems.

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One Coat Application

One coat application should only be carried out on substrates that are smooth, free from defects such as hairline cracking, heavy blast profile or erosion. Apply by pouring the mixed Barrier Coat directly onto the area to be treated and spread using a rubber edged squeegee or trowel to give the required film thickness. Working in regular blocks will help to reduce the possibility of missed areas especially in low light conditions. A minimum application rate of 3 square metres per kilo is required.

Two Coat Application

Apply by brush or short pile mohair roller to give an even, smooth finish, reducing the possibility of bubbles forming within the film. The use of a roller tray or scuttle is advised, as pouring the material directly onto the area to be treated then rolling out will result in uneven film thickness, giving low coverage rates and a patchy appearance to the finished coating. When applying two coats, the second coat if possible should be applied at 90 degrees from the direction of the first, this minimises the possibility of missed areas. Minimum application rates of 4 square metres per kilo for the first coat and 6 square metres per kilo for the second are required. On very uneven or porous surfaces the practical coverage rate can be significantly reduced, also in some instances a patchy appearance is obtained in the finished coating resulting in the need to apply a further coat. The cured surface of Barrier Coat has a natural tack. The procedure of broadcasting an aggregate into the wet primer is not recommended as this can lead to voids forming through or within the film resulting in increased vapour transmission. Under no circumstance should aggregate be broadcast during a one coat application.

Over Coating or Subsequent Installations

Polymer screeds or adhesives should be applied to Barrier Coat within 5 days of the application of the final coat. Should over coating not be carried out within 5 days, the surface must be lightly abraded to remove the surface gloss and a mechanical key obtained. If required, a suitable bonding primer can be applied onto the cured Barrier Coat to increase the level of adhesion with subsequent applications. Once Barrier Coat has cured it is compatible with most screed, coatings and adhesive systems. Overcoating can be performed once the Barrier Coat film has reached sufficient hardness to be walked on without the risk of causing physical damage. Typical overcoating time at temperatures above 10° Celsius would be 14 hours or overnight curing.

Cured Film Properties

Life Expectancy

Barrier Coat is a permanent membrane to control the transmission of water vapour from the base slab and subject to there being no future structural movement, cracking, physical or mechanical damage will protect for the life of the floor.

Fire Protection

When fully cured Barrier Coat applied using the correct coverage rates and application methods will give Class 0 Surface Spread of Flame fire protection as tested by Warrington Fire Research, January 2004. Test reports WARRES No's 136762 & 136763.

Vapour Permeability

Barrier Coat when applied at the recommended minimum film thickness will give a Water Vapour Transmission rate of less than 2 milligrams per square metre per 24 hours, as tested to BS EN ISO 7783-1 by the Building Research Establishment Ltd, February 2005, test report 219725/R1.

Water Permeability

When tested using a Karsten permeability test all samples gave a nil result, Barrier Coat applied at the recommended film thickness is classified as impermeable.

Bond Strength

Lap shear adhesion 16 Mpa. Adhesion to damp concrete (abraded) 10 Mpa. Adhesion to wet concrete (applied through surface water) 4 Mpa.

In all tests to both damp and wet concrete the bond strength exceeds the cohesive strength of 40 N/mm concrete.

Storage Conditions

Up to 2 years when stored in unopened containers with normal warehouse conditions. Minimum storage temperature 10 - 40 ° Celsius. Do not expose to direct heat or sunlight. Keep away from sources of ignition. Keep dry. Do not allow to freeze. Keep containers sealed, handle open containers with care. Store away from food stuffs, beverages and animal feeds.

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Disposal Considerations

Waste treatment methods. Recommendation: For local disposal, local regulations issued by the authorities must be observed. Dispose of liquid components at suitable incineration plant. After curing, the product can be disposed of with general waste. European waste catalogue:

08 00 00 Wastes from the manufacture, formulation, supply and use of coatings, adhesives, sealants and printing inks.

08 20 00 Wastes from MFSU of other coatings.

08 02 99 Waste not otherwise specified.

Unclean packaging: Recommendation: disposal must be made according to official regulations.

Safety

All standard precautions for the handling of construction materials/chemicals must be taken. Contains epoxy constituents: See detailed information on Merlin Barrier Coat Activator provided by the manufacturer. See Health and Safety Data Sheet for further detailed information on Merlin Coat Base. **Labelling: Hazard symbol: Xi** Irritant, **N** Dangerous for the environment

Hazard determining components of labelling: Reaction product: Bisphenol F Epoxy resin; Alkyl(C12-C14) glycidalether.

Water hazard class: Water hazard class 2 (self assessment): hazardous to water.

Risk Phrases::

36/38 Irritating to eyes and skin.

43 May cause sensitisation by skin contact.

51/53 Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.

Safety phrases:

24 Avoid contact with skin.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

28 After contact with skin, was immediately with plenty of soap and water.

37/39 Wear suitable gloves and eye/face protection.

57 Use appropriate container to avoid environmental contamination.

60 This material and its container must be disposed of as hazardous waste.

Technical Information

Mixing Ratio	3:2 by weight
Application rate	1st coat 4 m_ per kilo 2nd coat 6 m_ per kilo
Porosity of the substrate can affect coverage	
Working life	40 minutes @ 20° C
Dry film thickness	1st coat 225 microns 2nd coat 150 microns Total 375 microns
Minimum application temperature	8° C
Maximum air RH	100%
Maximum slab RH	99%
Cure time:	
Touch dry	12 hours @ 20° C
Foot traffic	18 hours @ 20° C
Over coat	14 hours @ 20° C
Adhesion:	
Lap Shear	16.0 Mpa
Wet concrete	10.0 Mpa
Hardness	84 Shore D
Flash point	Over 100° C

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