

Merlin Barrier Coat with Calcium Sulphate Screeds

Merlin Barrier Coat is a durable solvent free epoxicoating 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.

Preparation of Unheated Floors

Newly laid screed up to 60 millimetres thickness must be left for up to 28 days to reach an acceptable strength (refer to manufacturers data) before any preparation is attempted. Surface laitance should be removed by light sanding using a suitable pad or disc, all dust and debris should be removed by vacuum.

Preparation of Heated Floors

After installing the screed it must be left to dry as per the screed manufacturers instructions, typically 7 days before the under floor heating system is commissioned. Commissioning should be performed as instructed by the heating system manufacturer and screed supplier ensuring heat is applied in small increments over given period of time. Once the heating system has reached the maximum temperature the screed should be held at this level for a minimum of 24 hours before allowing to cool, again at a controlled rate. Surface laitance should be

removed by light sanding using a suitable pad or disc with all dust and debris removed by vacuum.

Conditions

Before any application is considered the moisture content of the screed should be determined using an accepted method. Should the moisture level still be above that specified by the screed, adhesive or coverings manufacturer the use of Merlin Barrier Coat should be considered to provide a controlled moisture releasing membrane. From both experimental data and practical experience Merlin Barrier Coat can be safely applied to screeds with a moisture level of less than 87% RH, should the moisture level still be in excess of this, please refer to the screed manufacturers product data for further drying instructions. It is important that any coverings or finishes applied to Merlin Barrier Coat have a vapour transmission rate greater than 3.0 g/m²/day as determined by BS EN ISO 7783-1 Determination of Water Vapour Transmission Rate (Free films). Prior to application the surface must be clean, free of surface water or laitance. The air and surface temperature must be above 8° Celsius both during application and the curing time for Merlin Barrier Coat.

Mixing

Merlin Barrier Coat is supplied in pre weighed units to ensure 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. Diluents or solvents must not be added to Merlin Barrier Coat in any circumstance. To achieve thorough mixing, a helical paddle attached to a slow speed drill or mixer is recommended. The contents of the Part B container should be poured into the Part A container, removing as much Part B component as is practically achievable. Once transferred mix at a controlled speed until homogeneous. Beware excessive mixer speed or using a whipping action will result in air being entrainment in the mix resulting in increased vapour permeability of the cured film. 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.

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Application

Merlin Barrier Coat must only be used as a two coat application on Calcium Sulphate Screeds. 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, low coverage rates and variable vapour transmission rates. Application of the second coat should be at 90 degrees from the direction of the first to minimise the possibility of missed areas. A minimum application rate 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 to achieve maximum product performance.

The procedure of broadcasting an aggregate onto the wet Merlin Barrier Coat is only recommended if there will be a significant time delay (over 6 days) before any further processes take place or the manufacturer of the subsequent flooring system specifically requires it. Should aggregate be applied, the area must not be subjected to any traffic other than that associated with the finishing of the floor. Foot traffic can lead to voids forming through or within the film resulting in increased vapour transmission. Under no circumstance should aggregate be broadcast onto the first coat.

Over Coating or Subsequent Installations

Over coating can be performed once the Merlin Barrier Coat film has reached sufficient hardness to be walked on without the risk of causing physical damage. Typical over coating time at temperatures above 10° Celsius would be 14 hours or overnight curing. Most polymer screeds can be applied onto Merlin Barrier Coat whilst the surface is still tacky without the need to apply a further coat of bonding primer. It should be noted that once the surface of the Merlin Barrier Coat loses its tack it will not provide sufficient adhesion for polymer levelling screeds to be applied onto it without incorporating a bonding primer as recommended by the screed manufacturer. Coatings, adhesives and bonding primers should be applied to the cured Merlin Barrier Coat within 5 days of the application of the final coat. Should over coating not be carried out within 5 days the surface of the cured Barrier Coat must be lightly abraded to remove the surface gloss and a mechanical key obtained. On areas subjected to under floor heating only primers, levelling compounds and adhesives specifically designated as suitable the product manufacturers should be used.

Cured Film Properties

Life Expectancy

Merlin 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 Merlin 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

Merlin Barrier Coat when applied at the recommended minimum film thickness will give a Water Vapour transmission rate of less than 2.0 grams 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.

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.

Test Reports available on request.

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 ₂ per kilo 2nd coat 6 m ₂ 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
Lap shear adhesion:	16.0 Mpa
Adhesion to damp concrete (abraded):	10.0 Mpa
Adhesion to wet concrete (applied through surface water):	4 Mpa
Hardness	84 Shore D
Flash point	Over 100° C

Smet Building Products Limited

28 Castleowen | Newry | Co. Down | BT34 1GF | UK

T: +44 (0)28 3082 5970 F: +44 (0)28 3025 2777

E: info@smetbuildingproducts.com

