Version 3, July 2018

EM BLACK
Liquid Polyurethane Waterproofing

PRODUCT FEATURES

EM BLACK is single component liquid applied coating based on polyurethane technology, which cures by reacting with atmospheric moisture to give a seamless and waterproof polymer film that is rubbery and elastic.

EM BLACK, by virtue of its chemical reactivity in the wet state, has good adhesion to a wide range of substrates. Unlike more traditional bitumen based products, EM BLACK does not readily embrittle with age, exposure to ultra violet radiation or weathering, hence it does not crack or craze.

EM BLACK is not adversely affected by extremes of temperature – consequently it does not crack at low temperatures or suffer thermal flow at elevated temperatures.

EM BLACK is a very high solid coating designed to give a high-build film. It can be brush or roller applied but it has a higher viscosity than a conventional paint and should not be diluted.

EM BLACK can be supplied as a *sprayable* grade, suitable for airless spray equipment. Please refer to Isothane instructions on the correct procedure.

EM BLACK is designed to bond to many types of substrate, either directly or in conjunction with a suitable primer, particularly those commonly used in roofing, such as felt, asphalt, slate, tiles, asbestos, concrete, brick, wood, glass and metals. In addition, EM BLACK can also be applied directly to spray applied polyurethane (PU) foam insulation such as Thermadek® or Agrispray®.

GENERAL GUIDANCE ON THE USE OF THIS PRODUCT

EM BLACK is a membrane coating, not a paint and as such protection is only achieved with a high film build, i.e. 1mm on flat surfaces, minimum. It is therefore essential that this is achieved. The membrane can be applied in two 0.5mm coats. Two coats are required to minimise the possibility of thin patches, missed areas and pinholing. It is important to re-coat within 24 hours of the first coat becoming sufficiently cured to allow operator access, preferably on the day following the initial application.

On smooth flat surfaces, the dry film thickness (DFT) of EM BLACK should not be less than 0.5mm or more than 1.0mm for each coat. Rough or textured surfaces will reduce the coverage rate and consequently more material must be allowed to achieve the minimum DFT.

In all application scenarios it is essential that the substrate and structures are properly prepared and stable. Surfaces previously treated with silicone-based materials will inevitably be difficult to overcoat and this should not be attempted with Isothane products. Substrates with poor adhesion to the underlying structure (e.g. blistered roofing felt) may also cause problems in providing sound over-coating.

Substantial fissure-cracks in any existing roof structure should be fully investigated before any attempt is made to fill and overcoat, as this type of damage points to an underlying problem with the structure of the roof.

Preferential vapour drive in buildings must also be borne in mind when over-coating the roof and it may be judged expedient to employ ventilation to cope with transmission of high levels of moisture vapour.

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COVERAGE

Coverage rates may vary with surface texture, porosity and required length of service. The information given is based on average usage. A site trial is recommended.

EM PRIMER: 6 - 10m² / lt

EM BLACK: 1 litre / m² in two coats, on a smooth flat surface will provide an adequate film thickness of approx. 1mm. Any surface texture will increase the surface area, which must be allowed for when calculating usage e.g. **on a chipping embedded surface the actual area will be approximately doubled.**

Sloping/vertical surfaces:
To minimise drips and runs, EM BLACK should be applied to sloping or vertical surfaces in thin coats of approximately 0.3L/m² Total coverage 0.9lt / m² in 3 coats to give D.F.T approx. 800 microns. A Thixotropic additive can be mixed with EM BLACK on-site to allow increased film thickness to be achieved, reducing the number of required coats.

APPLICATION METHOD – TYPICAL FLAT ROOF SCENARIO

Do not dilute EM BLACK.

1. Remove all loose material by vigorous brushing, wire brush if necessary.
2. Treat any fungal growth with proprietary fungicide as recommended.
3. It may be necessary to jetwash or abrasive-blast the roof structure to remove heavy or well-rooted deposits of organic material. If the substrate to be prepared is old asbestos, please refer to the guidance from the HSE regarding proper working practices with asbestos cleaning and handling
4. Any chemicals used in the preparation process, must be washed away thoroughly with water.
5. Allow surface to dry thoroughly and any moisture contained in the structure to evaporate. EM PRIMER and EM BLACK should not be applied to damp substrates. Recommended moisture content; <5%
6. Fill cracks and voids with a polyurethane mastic sealant. Large cracks and gaps may require filling with backing rods first. Refer to the specific guidance of the sealant used.
7. Apply a bead of polyurethane mastic sealant to all square edges such as between the roof surface and parapet walls, corners and around the edges of upstands
8. Prime entire surface with EM PRIMER (6 - 10 m² / lt depending on substrate texture and porosity) which cures to a slightly tacky film within 2-4 hours.
9. Apply EM BLACK (0.5L/m²) by roller 150mm either side of all upstands, corners, edges, seams/joints, filled-in cracks and other repairs and while the EM BLACK is still wet, apply suitable width reinforcing scrim tape to these areas (minimum 150mm wide or at least 50mm wider than the detail being covered).
10. Immediately apply a second coat of EM BLACK on top of the reinforcing scrim and to the extent of the first coat of EM BLACK. Allow the roller to push out any air bubble s trapped in the reinforcing scrim
11. The following day, Overcoat all areas with EM BLACK, or within 48 hours of the initial primer application. If delays cause the overcoat window to be exceeded, re-priming is advised.
12. Apply EM BLACK at a maximum film thickness of 1 mm for a single coat
13. The first coat should be touch dry in as little as 6 hours but more typically within 12 - 24 hours (in some weather conditions this might be delayed, such as low temperature or low humidity).
14. Second coat delay: - if more than 24 hours elapse after touch dry stage of the first coat, prime the entire surface with EM PRIMER and allow to dry before recoating within 4 - 8 hours.
15. Day-work joints – where application extends over more than a working day, an overlap of 150mm should be used. Strategic priming and detail work should also be considered if the project is going to run for several days.
16. Aromatic hydrocarbon solvent should be used to clean equipment etc.

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SPRAY APPLICATION (Refer to Isothane procedure guide)

Only airless spray equipment should be used, such as a 63 : 1 Graco King
Compressor:- 100psi, 60cfm min
Tip Size :- 21-25 thou 50º Angle
100' x 3/8 Hose and 25' Whip End
Note: For ambient temperatures below 10ºC consult Isothane's Technical Department.

APPLICATION RATE

Once all the preparation is completed. The final coats of EM BLACK can be applied by hand at a rate of 100m² per day per man or up to 400m² per day by spray application.
It is recommended to incorporate a gridding system to assist in the accurate metering of coverage

REPAIRS

Minor damage to **EM BLACK** can be repaired by removing loose membrane; cleaning the surrounding area with aromatic hydrocarbon solvent; overlapping by 150mm; priming the area with **EM PRIMER** and finishing with two coats of **EM BLACK**.

STORAGE, HANDLING AND PERSONAL PROTECTION

The recommendations in our Safety Data Sheet for this product must be followed at all times. More general information is included in our publication "A Guide to the Safe Handling of Polyurethane Chemicals". Shelf Life 6 months.

TYPICAL PROPERTIES

For the properties of EM Primer, please refer to the separate datasheet for that product.

	EM BLACK
SOLIDS % min	90
ABEL CLOSED CUP FLASHPOINT °C (ISO1523, 1983)	>62
APPLICATION LIMITS °C	5 – 30
APPROXIMATE DRY TIME (20°C, 50% RH)	12 – 24 HRS touch dry, 7 days full cure
ELONGATION % (ASTM D412)	250
TENSILE STRENGTH MN/m^2 (ASTM D412)	2.0 – 3.0
STORAGE STABILITY (when stored at 25°C)	6 MONTHS

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