

## EmO MH Harde

**Monolithic surface hardening compound for concrete floors**

### Uses

EmO MH provides a highly abrasion resistant surface to fresh concrete floors by the dry shake method which ensures that the hard wearing surface bonds monolithically to the base concrete. It is ideally suited for all industrial areas subjected to heavy traffic such as:

- Power stations
- Heavy industry
- Agricultural building
- Distillation plants
- Laboratories
- Car parks
- Abattoirs
- Warehouse floors and loading bays
- Work shops

### Advantages

- Supplies ready to use - no additives requires
- Provides a hard, abrasion resistant surface
- Forms monolithic bond with fresh concrete base
- Hard, dense surface resistant to oils and grease
- Available in a range of colours to improve working environment

### Description

EmO MH surface hardening compound is a quality controlled, factory blended powder which is ready to use on site. It consists of special hard wearing emery aggregates selected for their physical properties of abrasion and wear resistance, port land cement and special additives to improve workability.

This combination produces a material which is easy to trowel in the surface of fresh, wet concrete. EmO MH cures monolithically to provide a dense, non-porous surface which is extremely hard wearing and abrasion resistant. Monolithic cure ensures that problems normally associated with thin ('granolithic') screeds, e.g. Curling, shrinkage, cracking, and etc. are completely overcome.

### Design criteria

Base concrete

The base concrete should have a minimum cement content of 300 kg/m<sup>3</sup>. The concrete mix should be designed to minimize segregation and control bleeding, although some limited bleed is desirable to ensure sufficient moisture is available to wet out EmO MH when it first applied.

The base concrete should have an on-site slump of between 75 and 100 mm.

The base concrete should be laid and compacted in accordance with good concrete practice, taking care to ensure accurate finished profile and minimum laitance buildup. Particular attention should be paid to bay edges and corners to ensure full compaction of the base concrete. Vacuum dewatering is not recommended.

### Properties

#### Abrasion resistance

The abrasion resistance of EmO MH has been tested using a taber abrasion machine (fitted with 1 kg, H-22 wheels) showing that EmO MH improves the abrasion resistance to concrete by between 300 – 500 % dependent up on coverage rate.

#### Specification

Floors shall be surfaced where shown with EmO MH, a monolithic surface hardening compound. The aggregate shall have a value not less than 8 on the mohs original scale and the compound shall have the ability to improve the abrasion resistance of concrete by minimum 300 %.

EmO MH can be applied to the freshly laid concrete floor by the dry shake method. It shall be applied at the point where light foot traffic leaves imprint of about 3 – 6 mm.

The powder shall be applied in two stages to achieve an overall application rate less than 5 Kg/m<sup>2</sup>. Special attention shall be paid to bay edges.

### Instructions for use

EmO MH should be applied at an even application rate of between 3 – 5 kg/m<sup>2</sup>. It is recommended that the floor be marked off into bays of known area. Sufficient materials should then be laid out to meet the recommended spread rate. Application of EmO MH should begin without delay when the base concrete has stiffened to the point when light foot traffic leaves an imprint about 3 – 6 mm. any bleed water should now have evaporated, but the concrete should have a wet sheen. On large floors it will be necessary to work progressively behind the laying team to ensure application at the correct time.

EmO MH is applied in two stages.

1. The first application is broadcast at an even rate of 2- 3 Kg/m<sup>2</sup> onto the concrete surface. When the material becomes uniformly dark by the absorption of moisture from the base concrete, this first application can be floated. Wooden floats or, on large areas, a power float, may be used. That the surface is not overworked.
2. Immediately after floating, the remaining 1 -2 Kg/m<sup>2</sup> of EmO MH is applied evenly over the surface at right angles to the first. Again, when moisture has been absorbed the surface can be floated in the same way as before.

Final finishing of the floor using the blades of a power float can be carried out when the floor has stiffened sufficiently so that damage will not be caused.

### **Bay edges**

Where bay edges are likely to suffer particularly heavy wear or impact and where saw-cut transverse control joints are to be located, it is desirable to give these areas additional protection, by one of the following Methods prior to full treatment of the entire surface

1. Immediately after levelling the freshly placed concrete, EmO MH should be sprinkled by hand at a rate of 0.5 Kg/lin.m (5 Kg/m<sup>2</sup>) in a strip 100 mm wide along the bay edge and hand trowelled into the surface.
2. Immediately after levelling the freshly placed concrete, remove a wedge of the concrete 10 mm deep at the slab edge and tapered up to slab level. Replace this with a very stiff paste of EmO MH, mixed thoroughly with a small amount of water. Ensure it is fully compacted on to the base concrete.

These reinforced areas will be further strengthened when the subsequent full treatment is applied.

Timing of the application of EmO MH is important and care should be taken to ensure adequate labour, machinery and material is available to complete the whole area while sufficient moisture is available to fully react with the powder to provide a good dense finish. Conversely, the full benefit will not be achieved if the material is applied too early when bleed water is still present.

Any addition of water to wet out the surface on either the first or second application of EmO MH will be detrimental to the overall quality of the floor. Pigmented floors require extra care and need to be protected from damage and staining after completion. It is essential that the correct recommended rate of application is achieved over the entire floor Area in order to avoid possible localized variation in shading

### **Cleaning**

All equipment should be washed with clean water immediately after use before the material has hardened.

### **Curing**

Proper curing of concrete floors treated with EmO MH is essential to the physical properties of the finished floor. For indoor application where curing conditions are less arduous and breakdown of curing membrane is slower alternative approved methods of curing such as polythene sheets taped at the edges is acceptable.

### **Surface treatments**

Subsequent surface treatments are not normally necessary with EmO MH because of the high density, low porosity finish.

### **Limitations**

Do not use EmO MH in areas exposed to acids and their salts or other materials known to rapidly attack or deteriorate concrete containing ordinary Portland cement. Do not apply to concrete containing calcium chloride or concrete having greater than 3 % air entrainment

### Technical support

Elmrr offers a comprehensive range of high performance high quality repair, maintenance and construction products. In addition, Elmrr offers a technical support package to specifiers, end- users and contractors, as well as onsite technical assistance.

### Estimating

#### Supply

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EmO MH harde : 25 Kg

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Applications should comply with the recommended rate to obtain the published performance characteristics. Any reduction may have a detrimental effect on the finished floor's abrasion resistance and, in the case of pigmented floors, the quality and consistency of the finish. The average figures for liquid products are theoretical. Due to the variety and nature of possible substrates, and wastage factors, practical coverage figures will be reduced.

### Storage

If protected from the environment in original undamaged packing, the shelf life of EmO MH is 12 months.

If stored in high temperature and high humidity locations the shelf life will be reduced.

### Health and safety

EmO MH harde contains cement powders which, when mixed with water or upon becoming

damp, releasing alkalis which can be harmful to skin. During use, avoid inhalation of the dust and contact with skin or eyes. Wear suitable protective clothing- eye protection, gloves. In case of contact with eyes rinse immediately with plenty of clean water and seek medical advice.

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