

# Expanfloor Emeritop\*



CONSTRUCTION CHEMISTRY

## Emery based monolithic surface hardening compound for concrete floors

### Uses

Expanfloor Emeritop provides an extremely hard abrasion resistant surface to fresh concrete floors. Application by the dry shake method ensures the hard wearing surface bonds monolithically to the base concrete. It is ideally suited for all industrial areas subjected to the heaviest traffic, e.g. power stations, heavy industry, agricultural buildings, distillation plants, laboratories, abattoirs, warehouse floors, loading bays and workshops.

### Advantages

- Supplied ready to use - no additives required
- Contains emery aggregate which provides an extremely hard wearing, abrasion and impact resistant surface
- Forms monolithic bond with fresh concrete base
- Hard, dense surface resistant to oils and grease
- Available in a range of colors to improve working environment
- Non-metallic aggregate - will not rust when wet

### Description

Expanfloor Emeritop surface hardening compound is a quality controlled, factory blended powder which is ready to use on-site. It consists of selected and graded emery aggregate, Portland cement and special additives to improve workability, providing a material which is easy to trowel into the surface of fresh wet concrete. Expanfloor Emeritop 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, etc. are completely overcome.

Emery is an extremely hard, chemically inert aggregate which resists polishing when exposed after initial wear and provides a skid resistant surface even when wet.

Expanfloor Emeritop is available in natural standard color (concrete grey), Special colors can be produced on request for large orders.

### Technical support

Fospak offers a comprehensive range of high performance, high quality flooring, and jointing and repair products for both new existing floor surfaces. In addition, Fospak offers a technical support package to specifiers, end users and contractors, as well as on-site technical assistance in locations all over the world.

### Design criteria

#### Base concrete

The base concrete should have a minimum cement content of  $300 \text{ kg/m}^3$ . 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 the Expanfloor Emeritop when it is first applied.

The use of water reducing admixtures from the Fospak Expanplast\* range is strongly recommended in order to achieve a water:cement ratio below 0.55. 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 – see Instructions for use, Bay edges.

Vacuum dewatering is not recommended.

### Properties

#### Abrasion resistance

Test methods similar to those recommended in ASTM C779 - 89a, procedure B indicate that Expanfloor Emeritop improves the abrasion resistance of even the best untreated concrete floors by over 300%.

#### Compressive strength (to BS 1881 part 116 1983)

At water contents equivalent to those obtained in practical applications the typical 28 day compressive strength of Expanfloor Emeritop cubes is  $60 \text{ N/mm}^2$ .

#### Hardness (Mohs scale)

The emery based aggregate contained within Expanfloor Emeritop has a hardness value of 9 on the Mohs original scale.

#### Other physical properties of Emery (to BS 812)

<b>Aggregate abrasion value:</b>	1.9 (part 113.1990)
<b>Aggregate impact value :</b>	8.0 (part 112. 1990)
<b>Aggregate crushing value:</b>	8.2 (part 110. 1990)



## Specification

Floors shall be surfaced where shown with Expanfloor Emeritop, a monolithic surface hardening compound containing non-metallic, rust-free emery aggregates. The aggregate shall have a value not less than 9 on the Mohs original scale and the compound shall have the ability to improve the abrasion resistance of concrete by 300% when measured in accordance with the requirements of ASTM C779 - 89a procedure B.

Expanfloor Emeritop powder shall 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 an imprint of about 3- 6 mm.

The powder shall be applied in two stages, in full accordance with the manufacturer's instructions, to achieve an overall application rate not less than 5 kg/m<sup>2</sup>. Special attention shall be paid to bay edges in accordance with the manufacturer's written requirements.

## Instructions for use

Expanfloor Emeritop should be applied at an even application rate of 5kg/m<sup>2</sup>. It is recommended that the floor be marked off into bays of known area. Sufficient material should then be laid out to meet the recommended spread rate.

Application of Expanfloor Emeritop should begin without delay when the base concrete has stiffened to the point when light foot traffic leaves an imprint of 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.

Expanfloor Emeritop is applied in two stages.

a) The first application is broadcast at an even rate of 3kg/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. It is important, however, that the surface is not overworked.

b) Immediately after floating, the remaining 2kg/m<sup>2</sup> of Expanfloor Emeritop 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.

c) 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:

a) Immediately after leveling the freshly placed concrete, Expanfloor Emeritop should be sprinkled by hand at a rate of 0.5 kg/linear m. (5 kg/m<sup>2</sup>) in a strip 100 mm wide along the bay edge and hand-trowelled into the surface.

b) Immediately after leveling 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 Expanfloor Emeritop 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 Expanfloor Emeritop is important and care should be taken to ensure adequate labor, 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 Expanfloor Emeritop 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 variations in shading.

**Note:** It is recommended that Expanfloor Emeritop is applied by an approved Fospak specialist applicator who has been given detailed training in its use. For further information, please contact your local Fospak office or representative.

## Cleaning

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



## Curing

Proper curing of concrete floors treated with Expanfloor Emeritop is essential to the physical properties of the finished floor, however, if the floor is to receive further surface treatments please consult your local Fospak office for advise on recommended curing methods.

For indoor applications 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 Expanfloor Emeritop because of the high density, low porosity finish. Where further treatments are required please consult your local Fospak office.

## Limitations

Do not use Expanfloor Emeritop 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.

Where a colored floor is required, it is strongly recommended that a site trial is undertaken to assess possible local variations caused by aggregates and sands used in the base concrete.

## Estimating

### Supply

Expanfloor Emeritop	:	20 kg bags
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### Coverage

Expanfloor Emeritop	:	4 m <sup>2</sup> /bag
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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 Expanfloor Emeritop, Expanfloor FC100 and Expanfloor FC140 is 12 months.

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

## Precautions

### Health and safety

Expanfloor Emeritop contains cement powders which when mixed or become damp, release alkalis which can be harmful to the skin.

Expanfloor Emeritop is irritating to the eyes, respiratory system and skin. Avoid inhalation of dust and contact with skin and eyes. Wear suitable gloves and eye protection.

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

For further information, see Product Safety Data Sheet.

## Fire

Expanfloor Emeritop is non-flammable.



### REGIONAL SALES OFFICES IN PAKISTAN:

#### Fospak (Pvt) Ltd.

##### Head Office

702, Business Avenue,  
Block-6, PECHS.  
Shahra-e-Faisal,  
Karachi, Pakistan

##### Lahore Sales Office

2<sup>nd</sup> Floor Sarwar Shaheed Plaza,  
Cavalry Ground,  
Main Boulevard,  
Lahore Cantt, Lahore.

##### Rawalpindi Sales Office

1<sup>st</sup> Floor, Al-Harmin Plaza,  
Main Murree Road,  
Rawalpindi

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