

# VARATOP EMERY

## EMERY BASED SHAKE - ON FLOOR HARDENER

### DESCRIPTION

**VARATOP EMERY** is a pre-mixed ready to use dry powder consisting of selected and graded high quality Emery aggregates, Portland cement and special additives to impart the desired properties.

The emery aggregate used is an extremely hard, chemically inert aggregate which resists polishing, therefore, providing a non-slip skid resistant surface even when wet. Also being non-metallic it will not rust.

Use of special additives reduces placing time about 20% compared to site batched material and ensures full compaction and proper hydration of the "**VARATOP EMERY**" wearing course.

**VARATOP EMERY** is available in natural grey colour but special colours can be produced upon request for large orders.

### USE

**VARATOP EMERY** is used to provide an extremely hard wearing, abrasion resistant monolithic surface to new concrete floors. Excellent non-slip characteristic which allows use on wet areas and ramps.

**VARATOP EMERY** is ideally suited for all industrial areas subjected to the heaviest traffic like car parks, loading bays, warehouse floors, machine shops, etc.

### ADVANTAGES

- Provides a monolithic floor topping of concrete floors.
- Provides an extremely strong, hardwearing, abrasion resistant and impact resistant surface.
- Resistant to oils and greases.
- Non-rusting in wet conditions as the aggregate is non-metallic.
- Excellent non-slip properties.

### SPECIAL FEATURE

**VARATOP EMERY** contains high quality hardwearing aggregate which meets the requirement of  $Al_2O_3$  as emery content is greater

than 55%. Additionally the aggregates used is high quality Emery only.

### TYPICAL PROPERTIES

**Abrasion Resistance** : Test methods similar to those recommended in **ASTM 779**, procedure B, indicate that **VARATOP EMERY** improves the abrasion resistance of even the best untreated concrete floors by over 350%.

### Light Reflectance (to ASTM E97) :

Use of **VARATOP EMERY** can reduce the lighting requirements in industrial applications and hence save on energy costs in the long term.

Colour	% reflectance
Natural Grey	35%

**Compressive strength** : At water contents equivalent to those obtained in practical applications, very high compressive and flexural tests. Independent tests carried out have shown the following values of compressive strength at various ages, when 100 mm cubes are made at 0.10 water-powder ratio.

### Typical Values :

Age (days)	in (N/mm <sup>2</sup> )
1	40
3	60
7	75
28	100

**Hardness (Mohs scale)** : The emery aggregate used has a hardness of 9 on the Mohs scale.

Other physical properties of aggregate in **VARATOP EMERY** (to **BS 812**)

Polished stones value	68.0
Aggregate abrasion value	1.9
Aggregate impact value	8.0
Aggregate crushing value	8.2

### INSTRUCTION FOR USE

**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 minimise segregation and bleeding. Water cement ratios of less than 0.55 are required. The concrete should have a slump of between 75 and 100 mm.

The base concrete should be laid and compacted in accordance with good concrete practice. Accurate finished profile and minimum laitance build up should be ensured. Particular attention should be paid to bay edges and corners to ensure full compaction. Vacuum dewatering is not recommended when w/c ratios of less than 0.55 have been used.

**Application** : **VARATOP EMERY** is applied at different rates per m<sup>2</sup> to provide floor surfaces suitable for different grades of industrial use.

**Application rate kg/m<sup>2</sup> Intended traffic use**

7.0	Heavy
5.0	Moderate
3.0	Light

It is recommended that the floor be marked off into base of known area. Sufficient material should be laid out to meet the required spread rates.

Application of **VARATOP EMERY** can only begin when the base concrete has stiffened to the point when light foot traffic leaves an imprint of about 3mm. Any bleed water should now have evaporated. **VARATOP EMERY** is applied in two application stages.

- a. First application is made using 1/2 to 2/3 of material required for the eventual end use. **VARATOP EMERY** is evenly broadcast onto the concrete surface. When the material becomes uniformly dark by the absorption of moisture from the concrete this first application can be floated by wooden floats, or on large areas the disc of a power float may be used. It is important, however, that the surface is not over worked.
- b. Immediately after floating the remaining **VARATOP EMERY**, is spread evenly over the surface. Again moisture is absorbed and 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.

**PRECAUTIONS**

1. **Timing of application** : Timing of the application of the **VARATOP EMERY** is important. If too early, excess water will be absorbed and resulting in poor strength and will be subject to dusting. Also the dense emery

aggregate of **VARATOP EMERY** could sink and be lost from the surface. If too late, insufficient moisture will be available to completely hydrate the **VARATOP EMERY**. Cracking and pitting of the surface are likely to result.

2. **Bay edges** : Where bay edges are likely to suffer particularly heavy impact or wear these can be given additional protection. Immediately after the base concrete is levelled, sprinkle **VARATOP EMERY** on a strip 100-150 mm wide along the bay edges. Steel trowel into the surface. Areas where saw-cut transverse control joints are located can also be pretreated in this manner.
3. **Curing** : Tests have shown that proper curing of concrete floors treated with products such as **VARATOP EMERY** is essential to ensure the physical properties of the floor. The most efficient method of curing is to use **VARACURE P** curing membrane. However, in indoor applications where curing conditions are less arduous alternative approved methods of curing such as polythene sheeting are acceptable.
4. **Ready to use** : **VARATOP EMERY** is supplied as ready-to-use on site. Never add cement or aggregates to **VARATOP EMERY**.
5. **Coloured Floors** : When a coloured floor is required It is strongly recommended that a job site trial is laid.

**Storage** : If kept in original, undamaged packing the shelf life of **VARATOP EMERY** should be at least 12 months.

**Fire resistance** : **VARATOP EMERY** is not flammable

**PACKAGING**: **VARATOP EMERY** is supplied in 25 kgs bags.

**Coverage** : The coverage **VARATOP EMERY** depends on the end use. The Application rates should comply with the coverages recommended for that use to give the following yields:

Light traffic	: 8 m <sup>2</sup> /bag	3kg/m <sup>2</sup>
Moderate traffic	: 5 m <sup>2</sup> /bag	5kg/m <sup>2</sup>
Heavy traffic	: 3½ m <sup>2</sup> /bag	7kg/m <sup>2</sup>

**HEALTH AND SAFETY**

**VARATOP EMERY** is non-toxic but is mildly alkaline. Gloves should be worn during application. Splashes to the skin or eyes should be removed with clean water. In the event of prolonged irritation, seek medical advice.