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# CEM-HARD

Non metallic, High abrasive resistant surface hardening cementitious floor hardner

**CEM-HARD** is a high quality durable cementitious based, non-metallic, non-oxidising concrete floor hardener free from organic impurities. This hard-wearing dry shake powder is a well-manufactured, graded composition of selected cement, additives, graded aggregates & polymers to ensure ease of placing and finishing. This is best suited for residential, commercial and industrial floors to deliver a monolithic and high abrasion-resistant floor. The finished surface with floor hardener provides better impact resistance and also protects the surface from gas, oil and chemical attack owing to its non-skid, anti-slip properties.

## Key Features

1. Abrasion monolithic surface hardening compound
2. Binds surface concrete with base
3. Chemical resistance and aesthetic appeal
4. Resistant to rust and stain
5. Prevents shrinkage and cracking
6. Smooth and hard surfaces prevent dust generation
7. Low Water absorption

## Application

Trucking lanes, Loading bays, Car parks, workshops, machine shops, spillways, ramps, heavy traffic areas.

## Chemical Base

Natural mineral aggregates are graded and mixed with cement, admixtures.

## Shelf Life

6 Months from the date of packing.

## Storage Conditions

The product must be stored in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +10 °C and +30 °C

### Bulk Density

1.5 ± 0.1 kg/L at +27 °C

### Abrasion Resistance

1.70 mm wear loss (IS:1237)

### Compressive Strength

≥ 70 N/mm<sup>2</sup> (IS:4031 Part 6)

### Layer Thickness

2.5–3.0 mm at dosage of ~5.0 kg/m<sup>2</sup>



### Ambient Air Temperature

+5 °C min. / +35 °C max.

### Relative Air Humidity

30% min. / 98% max.

### Substrate Temperature

+5 °C min. / +35 °C max.

### Applied Product Ready for Use

Foot Traffic	Fully Serviceable
72 hours	7 days

The above values are at substrate temperature of +27 °C and dependent upon the concrete reaching its design strength for serviceability and will be affected by changing ambient conditions, particularly temperature and relative humidity.

### Consumption

Application	Consumption
Light duty	3.5–4.0 kg/m <sup>2</sup>
Medium duty	4.5–5.0 kg/m <sup>2</sup>
Heavy duty	5.5–6.0 kg/m <sup>2</sup>

## Substrate Quality

- The concrete deliveries must be of consistent quality.
- A concrete slump in the range 75 to 110 mm will normally give best results.
- The slab must be of good quality concrete with a minimum water/cement ratio consistent with the production of a fully compacted slab.
- The compressive strength must be a minimum of 20 N/mm<sup>2</sup>.
- Air Entrained Concrete is not a suitable substrate for the application of dry shake hardeners.

## Application

Application time for dry shake products is influenced by every variable which affects the placing of concrete, and can therefore vary substantially, depending on the prevailing conditions.

Depending on the conditions, remove the surface bleed water or allow it to evaporate. Use onto the screed concrete evenly in 2 stages, first stage 60% and second stage 40%. Care must be taken to apply the product without creating ripples etc. in the concrete surface.

The first application must be worked into the slab immediately followed by application of the second stage quantity of Cem Hard. Final finishing, closing pores and removing undulations can be achieved either by hand or powered trowel.

Please also note:

- Never add water to the surface where the dry shake has been applied.
- The product results in the slab surface becoming stiff more quickly than usual. Careful trimming must take place along the edges where adjoining slabs are to be poured.

Periodical checking of the condition and development of the concrete will determine the correct time frame for each stage and sequence of application.

For mechanical application with automatic spreader and laser screed, the spreading can start almost immediately after the concrete has been leveled to allow for the hydration of the dry shake. Compaction with the trowel can start as soon as the weight of the power trowels is supported by the concrete.

For manual application, the dry shake must be spread once the concrete can be stepped on, without leaving a print deeper than 3–5 mm.

## Curing Treatment

Adequate curing is extremely important. Curing should commence as soon as the final set has occurred, just before the surface starts to dry. Conventional moisture curing procedures such as water spray, ponding, wet burlap or plastic covers can be used, if precise color uniformity is not essential. Moisture curing should be carried out for a minimum of 48 hours. Most efficient method of curing is by using a curing compounds which conform ASTM C 1519 or DOT specifications.

## Precautions

**PRECAUTIONS** Timing of application is critical. Pre-mature application results in excess water being absorbed by CEM-HARD, which leads to lowered strength and dusting on the floor surface. Another problem could be dense aggregate formation, leading to sinking. Delayed application will result in insufficient moisture to ensure hydration, resulting in improper application, pitting & crazing of the surface

## Special Instructions

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. Free water cement ratios of less than 0.55 is appropriate. The slump of the concrete should be between 70 to 100 mm. Vacuum dewatering is not recommended when w/c ratios of less than 0.55 has been used. The base concrete should be laid and compacted in accordance with good concreting practices. Accurate finished profile and minimum laitance build up should be ensured.

**COVERAGE** Application rate intended traffic use.

General vehicular traffic	3 kg/m <sup>2</sup>
Medium vehicular traffic	5 kg/m <sup>2</sup>
Heavy vehicular traffic	7 kg/m <sup>2</sup>



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