



## Steel fibre added Monolithic fresh concrete heavy Dusty surface hardener

### Uses

**METOP EX-4** gives very high abrasion resistance to the finished concrete surface. It is economical to use. Bonds monolithically with the surface of the fresh concrete. Specially suitable for heavy moveable loads, It's a steel fibre added form of Metopex Product.

### Advantages

- Supplied ready to use
- Easy and economical to apply
- Contains Corundum and natural Iron Oxide aggregates which gives the finished surface very high abrasion resistance

Aggregate type	Hardness (Mohs)
Corundum and natural Hard aggregates and Metal Oxide aggregates	Up to 9.0 Mohs

**MetopEx-4** will never rust and ,long lasting usage

### Description

METOP EX is a concrete dry shake hardener factory blended , quality controlled , ready to use powder.form surface hardener It consists of natural very hard mineral/metallic aggregates and micro steel fibres .. It also contains high quality cement and very special additives. Corundum aggregate has a hardness of 9 Mohs.It has very high abrasion and wear resistance.

### Color

color	Concrete color ,Dark gray ,Brick red, Green

### Design criteria

Base concrete :

The quality of the base concrete is important and will effect the final finished surface. High quality concrete mixture must be used with a minimum 350 kg/m<sup>3</sup> cement content. The water cement ratio and The concrete mix are very important too because excessive bleeding and segregation are not desirable and must be brought down to minimum level. The water/cement ratio can vary between 60-120mm according to the weather conditions.

**METOP EX-4** is a kind of dry shake hardener ,therefore some moisture from the surface of the concrete is necessary to wet the powder. If there is any excess bleed water on the surface then it should be removed before applying METOP EX-4

### Properties

#### Abrasion resistance

**METOP EX-4** has high abrasion resistance . It has been tested as described in ASTM D 4060-90 and in **Böhme test** and TS 699. the tests gave an improved abrasion resistance of over 300 % .

Table of the abrasion resistance of METOP EX coatings	
Type of coating	Average abrasion resistance Böhme test (TS 699) cm <sup>3</sup> / 50 cm <sup>2</sup> )
METOP EX	1.5

#### Compressive strength

The typical 28 day compressive strength of METOP EX-4 is 76.8 N/mm<sup>2</sup> .Without concrete mortar

### Instructions for use

#### -Site preparation

- \*Finish all necessary soil compaction and floor preparation work before placing the concrete.
- \*Sub grade must be well drained and must be graded in uniform thickness to create uniform load bearing characteristics and eventually reduce cracks

#### - Concrete placement

- \* Protect the working area from wind and direct sunlight. Preferably finish concreting work, after finishing roofing and wall construction.
- \* The concrete forms must be positioned in their correct positions one or two days before placing the Concrete, taking into consideration joint locations such as control and construction joints.
- \* Always use good quality concrete mix suitable for industrial floors and prepared according to internationally accepted standards.
- \*In industrial floors thickness of the placed fresh concrete should not be less than 10cm. unless it contains special additives to reduce thickness
- \* Discharge the concrete directly from the concrete mixer truck. Deposit concrete uniformly in front of the vibrating screed.
- \* The grade behind the screed must be checked frequently over vibration must be avoided to

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stop excess fine material from coming to the surface.

\* The surface is then bull floated with wood or magnesium floats.

### - Color hardener application

\* When no bleed water remains on the surface of the concrete and the concrete is firm enough so that an imprint of 1.5-2 cm is made by the weight of a person. Then apply the specified amount (5-8 Kg./m<sup>2</sup>) of **METOP EX-4** dry shake hardener spread evenly ( the amount depends on outdoor or indoor use and the amount of traffic on the floor ). **METOP EX-4** is sprinkled on the surface and spread using a squeegee. Minimum 6 kg/m<sup>2</sup> is recommended for industrial floors. 3-5 kg/m<sup>2</sup> for pedestrian traffic but this coverage is not recommended for long lasting use.

For 10 kg/m<sup>2</sup> and more ,the aggregate design and the application system must be changed .If such an application is chosen then please contact our office for application and type of **METOP EX-4** hardener used.

### Cleaning

All tools should be washed with water after use.

### Curing

-100-200 g/m<sup>2</sup> **METOCURE** curing agent should be applied to the dry cleaned concrete surface . It is manufactured to conform to ASTM C309.

-**METOCURE** has the advantage of preventing initial water loss from the concrete surface and eventually result in better quality and higher strength concrete . Bleeding water should not be present on the surface of the concrete during the application of **METOCURE** curing agent.

### STORAGE:

- Store in a dry , non humid area,
- No more than five bags should be stacked on top of each other,
- For cement based hardeners. preferably use in 6 months from production date.
- For properly stored bags this period can be as long as 1 year

### COVERAGE :

6-20 kg/m<sup>2</sup> can be used in industrial floors.

Coverage Minimum requirement for industrial purposes is 6- 7 kg/m <sup>2</sup> . Approximately 1mm thickness is achieved for each 2 kg/m <sup>2</sup> of hardener	Very Light traffic (pedestrian traffic) min 3 -5 Kg./m <sup>2</sup>
	Light traffic min5 -6 Kg./m <sup>2</sup>
	Medium traffic min7- 9 Kg./m
	Heavy traffic min10- 20 Kg./m <sup>2</sup> (used under special conditions) ( special mix mortar design is used)

### CAUTION:

#### Fire

**METOP EX -4** is not flammable.

#### Health and safety

\*It is cementitious material so do not use on floors subject to acids and other corrosive chemicals,

\*Avoid inhalation of dust while throwing the dry shake hardener on the surface by hand.

\*These application systems are for normal weather condition in very hot or very cold weather this system, the concrete mixing and curing must be modified accordingly.

\* **METOP EX-4** is a cementitious material and become alkaline when mixed with water therefore avoid contact with skin it can be harmful and wash thoroughly with water.

### LIMITED WARRANTY

All recommendations, statements and technical data herein are based on tests we believe to be reliable and correct also based on our long experience in this field of construction. **METOP LTD.** Warrants it's products ( **METOP EX-4**) to be free of manufacturing defects and contains best quality ingredients. Since no control is exerted over it's application and use **METOP LTD.** Makes no warranty ,either expressed or implied, concerning this product.

Extra and special guaranties can be granted to certain big project by obtaining mutual agreements between concerning parties. The company detailed application instructions must be complied with for any company guaranties to be applicable.

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