



The Chemical Company

# MASTERTOP® 100

## Quartz Aggregate Surface Hardener

### Description of Product

**MASTERTOP® 100**, is a cement based, quartz aggregate ready to use surface hardener which is applied as a dry shake over freshly floated surface concrete working under middle and heavy load..

### Fields of Application

- Indoors and outdoors,
- On floors of industrial plants,
- In hangars and mechanical workshops,
- In garages and car parks,
- In warehouses, loading and unloading areas, floors on where there is a rubber tyred traffic

### Features and Benefits

- Easily applied on freshly floated surface concrete.
- With its modified polymers, it absorbs the water of the surface concrete on which it has been applied and forms a monolithic structure together with the concrete after floating.
- The applied surface is 2-4 times more resistant to abrasion when compared to regular concrete.
- Contains specially graded quartz aggregate.
- Resistant to freeze-thaw cycle.
- Resistant to flaking due to salt applied against freezing.

### Application Procedure

The concrete or screed design on which surface hardener is to be applied should be made according to the loads and condition of the surface. The surface hardener application aims to increase abrasion, dusting and impact strengths of the concrete or screed on the upper parts and does not have any effect on compressive, flexural and tensile strengths of the concrete. The cracks which may occur in screed concrete due to incorrect design and application and service loads will reflect in exactly the same way on the surface hardener. **MASTERTOP® 100** surface hardeners should be applied by designing according to the below mentioned conditions.

1. To concrete or screed directly on the ground,
2. On a bearing BA floor,
  - a. On floating screed
  - b. On monolithic screed

### Preparation of Substrate

**Screed is poured on the existing concrete if MASTERTOP® 100 surface hardener is going to be applied**, after the concrete surface is cleaned, depending on the project requirements, floating or monolithic screed application should be chosen. The surface should be roughened where necessary with various methods and any grout should be removed. The existing concrete surface should

### Technical Data

Material Structure	Mod. Polymer, quartz aggregate and special concrete
Colour	Natural - red - green
Compressive Strength (28 days)	75 - 80 N/mm <sup>2</sup>
Abrasion Resistance (w/Böhme Method)	6,8 cm <sup>3</sup> / 50 mm <sup>2</sup>
Abrasion Resistance (w/Capon Method)	67 mm <sup>3</sup> (in 100 cycles)

*It is possible to provide colours other than standard ones upon request.*



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be saturated with water at least for one day before the application begins and surplus water on the surface should be prevented. The application should be carried out on a saturated concrete surface. Before starting the application, planning according to the project, the concrete forms should be placed to form squares, crack control joints should be determined and the pouring of screed should be done accordingly. If box shaped forms are used, the mortar used for anchoring should be removed while screed is poured.

While the screed concrete is poured, it should be separated from the existing walls and columns by using 1 cm width extrusion plates and gaps/joints thus enabling the screed concrete to work and also to expand and contract freely without cracking. After the application is completed, said gaps can be filled with **Sonolastic® SL1**, **Sonomeric® 1** and **Masterflex®** series sealants.

In order to achieve smooth edged screed concrete, the concrete forms should be cleaned prior to each application and **YKS -Yapol®** form release agent should be used. The concrete forms used while screed concrete is poured should have the same height as the designed screed height. Forms having a tongue and groove system will prevent the slumping and separation of concrete from the cold joints under heavy load. Using tie rods between slabs will prevent the screed concrete to move longitudinal and therefore will not create shear force on the joint sealant and thus the sealant life will be prolonged.

## Spacer

The steel reinforcement which will be used in the project should be installed with a spacer. When the reinforcement is installed on the floor without using a spacer, as the reinforcement will not have any adherence with the screed concrete, and the fact that it cannot prevent tension and yield, and as a result will cause concrete forms to crack under heavy load.

If single layer reinforcement is used, it is ensured that the reinforcement is installed in the middle depth of the concrete.

## Reinforcement

The iron reinforcement should not protrude from the concrete forms. If steel meshwork is used, steel meshworks should be installed overlapping each other. Crack control joints and cold joints should be formed to control any change in form or movement in the concrete without causing cracks. In order to control the movements in these joints to be only in a horizontal and directive mode, joint reinforcement should protrude from the reinforced forms as well as being tied to the reinforcement forms themselves. Joint reinforcement protruding from the forms should be fitted on with a plastic pipe or hose to form the formwork and then the concrete of this other formwork should be poured. This will prevent the vertical and longitudinal movements of cold joints during movement of concrete forms.

## Priming

In monolithic screed applications, in order to provide adherence between the old and new concrete, before starting to pour concrete, epoxy adhesive (**Concresive® 1420**) or PCC (Polymer Cement Concrete) adherence enhancing **Binder® 5** should be applied. In floating screed applications, polyethylene covers should be laid on the old concrete to prevent the new screed concrete from adhering to the old concrete.

## Pouring of Concrete

Concrete forms should be placed according to the project. Before starting to pour concrete, **MASTERTOP® 100** bags should be placed next to the concrete forms in accordance with the anticipated consumption.

The thickness of the screed on which **MASTERTOP® 100** will be applied should be more than 7 cm, the water/cement ratio should be over 0.45 and concrete class should be at least C25. While pouring concrete between concrete forms, a concrete vibrator should be used to consolidate the concrete. Before bleed water rises to the surface, the surface should be smoothed as necessary

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with a bull float and wooden trowel. The Bleeding water should be removed by sweeping off with a long handled wooden bull float.

## Application of the Surface Hardener

An adequate amount of surface hardener to be used in the slab which will receive the application should be put aside. The applications should be carried out as stated below.

Before sprinkling the material, approximately 5 x 5 cm triangular shaped concrete along the joint should be removed with a trowel from the slab sides. To replace the removed concrete, with a very small amount of **MASTERTOP® 100** should be applied with a trowel. This will prevent the joint edges from breaking under heavy load. The surface hardener should not be sprinkled to distant places; this may cause the aggregates to segregate. To start sprinkling, depending on the ambient and weather conditions, the concrete should be hardened such that when stepped on 0,5 - 1,5 cm depth foot print is left on the concrete.

The surface hardener should not be applied as a lump but should be sprinkled as homogenous as possible and smoothed with a water blade. If the product is applied in groups on the slab and spread with a water blade, any excess product where the product first applied should be removed by scraping. With the first shake, 2//3 of the total amount should be sprinkled on the concrete surface and spread with a water blade or a machine. The shake should absorb moisture from the concrete beneath it (and change colour) and then the surface hardener should be floated as necessary to work into the concrete. Then apply the last 1/3 of the product by repeating the same stages as in the first application.

When floating, the over flown surface hardener on the previously poured slab should be cleaned continuously with a spatula. Otherwise, there may

be a level difference and a foul joint appearance between two slabs.

After the floating, finishing should begin. Finishing should be done by using finishing blades. Finishing should continue until the required sheen is achieved. After the surface hardener application has been completed, curing compound (**Masterkure®**) should be applied to the surface to prevent shrinkage crack and dusting. Thus maximum performance expected from **MASTERTOP® 100** can be achieved. Curing should always be carried out both in summer and in winter. For correct curing product, please consult **BASF Yapı Kimyasalları San. A.S.** technical services.

After the concrete is hardened so as not to be marred by application, the attachment points of concrete forms are cut with a width of at least 4 mm and joints are formed. To prevent dusting and breaking due to the joints, the formed joints should be filled with **Sonolastic® SL1**, **Sonomeric® 1** and **Masterflex®** series sealants.

The application of surface hardener is done in different periods depending on the quality and type of the concrete, temperature and ambient conditions. In hot temperatures the application time increases, in cold temperatures the application time decreases. During application, set phases of the concrete should be observed.

## Coverage

Based on the purpose of use and traffic load 4 - 8 kg/m<sup>2</sup>. For light coloured applications, the application should not be less than 7 kg/m<sup>2</sup>.

## Watchpoints

- During application the ambient and floor temperature should not be less than +5°C and more than +35°C'.
- Surface hardener applications should be carried out by suitably qualified people.
- Surface Hardeners are only aimed to increase the abrasion and impact resistance of a surface; they have no effect on mechanical strengths

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(flexural, tensile and compression) of the concrete on which they are applied. Therefore, the concrete should be designed in accordance with the mechanical loads that affect the surface thereof.

- The thickness of the screed on which **MASTERTOP® 100** will be applied should be more than 7 cm, the water/cement ratio should be over 0.45 and the concrete class should be at least C25.

## Cleaning of Tools

Tools and equipment should be cleaned with water after the application. Hardened **MASTERTOP® 100** can only be cleaned from the surface by mechanical abrasion.

## Packaging

In 25 kg polyethylene reinforced kraft bags

## Storage

It should be stored in its original package, in a cool and dry place protected from frost. For short term storage, maximum 3 pallets should be placed on top of each other and the shipment should be made on a first come first go basis. Pallets should not be placed on top of each other during long term storage.

## Shelf Life

The shelf life is 12 months from the date of production under suitable storage conditions. Opened packages should be stored under suitable storage conditions and used within 1 week.

## Health and Safety Precautions

During application, protective apparel, protective gloves, goggles and masks which comply with the Occupational Health and Safety Rules should be used. Due to the irritation effect of the uncured materials, the mixture should not come into contact with skin and eyes, in case of a contact, the affected area should be washed with plenty of water and soap; in case of swallowing, a physician should

be consulted immediately. No food or drink should be brought into the application area. It should be stored and kept out of reach of children. For detailed information please consult the Material Safety Data Sheet.

## Disclaimer

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