

# MasterTop® 100

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## Dry Shake Surface Hardener for Newly-Laid (New) Industrial Concrete Floors



### DESCRIPTION

MasterTop 100 is a ready-to-use, dry shake surface hardener based on highly active portland cement, specially selected quartz fillers and additives.

### APPLICATION AREA

MasterTop 100 is designed for surface hardening of newly-laid (new) concrete floors inside and outside premises, exposed to moderate abrasive and moderate impact loads.

### PACKAGING

MasterTop 100 is available in moisture resistant bags:

- Russian-manufactured – 30 kg, 48 bags on pallet – 1 440 kg;
- Belgian-manufactured – 25 kg, 60 bags on pallet – 1 500 kg.

### SHELF LIFE AND STORAGE CONDITIONS

The guaranteed shelf life of the material in sealed, intact package is 18 months. Do not use the material from open or damaged bags.

Store the material in a dry, closed premise, protect it from moisture and do not allow it to freeze.

### FEATURES AND BENEFITS

- By abrasion resistance, a floor, hardened by MasterTop 100, exceeds a heavy concrete of class B25 in 2-3 times. It ensures a high level of surface non-dustiness and increases floor working life.

- Floor surface, processed by MasterTop 100 material, becomes very dense, it increases concrete impenetrability against water and aggressive substances, qualitatively improving frost resistance and resistance to oils and other petroleum, oil and lubricants.
- Hardened top layer is homogeneous with concrete slab, which exclude its delamination during floor use.
- Floor surface hardening with MasterTop 100 takes only one technological cycle. It reduces expenses, decreases performance time and allows to put floor into service earlier.
- The material is available in various, ultraviolet resistant colors. The surface does not fade in operation.

### LIMITATIONS

- Floors, where ~~operation~~ (operating and service) conditions require application of a more wear resistant or more impact resistant coating.
- Floors, exposed to acids, salts or other substances, aggressively affecting concrete.
- Floors, having extra requirements to decorativeness and hygiene.

### APPLICATION DIRECTIONS:

A dry shake surface hardener MasterTop 100 is applied to a newly-laid concrete and is trowelled using concrete finishing machines

#### 1. Preparatory Work

When performing the work, the ambient, material and substrate temperatures should be at least +5°C.

When temperature is higher than +25°C and/or humidity is less than 60%, as well as when there are no protection from draughts and sun, the upper layer of concrete floor quickly loses water and dries up. It does not allow to perform a qualitative floating and troweling of a dry shake. It is recommended to use MasterKure 111 WB after each process operation to decrease water evaporation from concrete in plastic consistency.

Underlayment preparation, type, quantity and location of reinforcement, class of concrete and thickness of concrete slab, parameters of concrete

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mixture are defined by a project in accordance with applicable regulatory documents (SNiP 2.03.13, SNiP 3.03.01, SNiP 3.04.01, etc.) and by standard operating procedures.

## 2. Concrete and Concrete Mixture Requirements

A qualitative concrete mixture with parameters, specified in a project, should be used. The percentage of entrained air shall not exceed 3%.

Calcium chloride, salt water and air-entraining agents cannot be used in the concrete mixture. To reduce probability of shrinkage cracks, it is recommended to use superplasticizers for ex. MasterGlenium

For floors exposed to light and average loads, it is recommended to use concrete class at least B22,5 by compressive strength. For floors exposed to heavy loads, it is recommended to use concrete class at least B25.

*Note: When choosing additives, consult with BASF specialists.*

## 3. Concrete Placing, Levelling and consolidating

Concrete is poured into a prepared map in such a way as to reach a "finished floor" level. To compact concrete, an internal vibrator or a vibrating beam can be used depending on concrete slab thickness and pouring technology. Upon compaction, concrete surface is leveled by leveling boards, until a required smoothness parameter is achieved.

## 4. Preliminary Concrete Floating

Immediately after the concrete is able to withstand, almost without depression, a human weight and concrete finishing machine weight, the concrete is preliminarily floated by disk to remove a dried crust of laitance and to press out water on to surface in order to create a small layer of fresh slurry mix. Concrete, near columns, doorways, walls and other constructions, is processed in the first place, because it dries up more quickly than on remaining area. Zones, inaccessible for machine finishing, are floated and trowelled manually using trowels. Water excess should be removed from concrete surface before processing start.

## 5. The First Application of MasterTop 100

The dry shake (~ 65% of total consumption) is applied on the processed concrete surface using special distribution carts. Try to achieve a uniform layer thickness. First of all, apply the dry shake to areas near walls, columns, doorways and other constructions, because these areas lose moisture in the first place.

*Note: It is forbidden to add water and to dampen the dry shake, because it will lead to reduction of technical characteristics of the hardened floor and can entail a delamination.*

## 6. The First Floating of MasterTop 100

Immediately after the dry shake has absorbed moisture from concrete, which is noticeable by its darkening, the floating using a disk-equipped concrete finishing machine is to be performed. The floating should be started near walls, columns and doorways. The floating has to continue until a homogeneously mixed mixture of hardener and slurry mix is obtained on the surface. Zones, inaccessible for machine processing, are floated manually using trowels.

## 7. The Second Application of MasterTop 100

Immediately after completion of the first floating, the remaining part of the dry shake (~ 35%) should be promptly applied, so that it managed to be moistened from the concrete.

*Note: MasterTop 100 application in two shakes ensures its maximum concentration on the surface of finished floor.*

## 8. The Second Floating of MasterTop 100

Upon dry shake moistening, which is noticeable by its darkening, start the second disk floating right away.

*Note: Upon application and floating of the dry shake it is recommended to level the concrete surface using a leveling board to remove unevennesses.*

## 9. Additional Floatings by Disk

The surface can be additionally floated by disk a couple more times to ensure better processing of the surface with dry shake and to achieve a required smoothness (if time and concrete mixture properties allow).

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## 10. Floor Surface trowelling

When concrete surface becomes sturdier, it is time to start its Trowelling. The troweling is performed by a blade-equipped concrete finishing machine. Blades are installed with a minimum slope angle. With every subsequent trowelling, the blade slope angle rises, and the drier and the sturdier the surface is, the more speed should be set for a finishing machine. Interval between trowellings is determined according to surface condition. The signal for final troweling will be the sight of an even, smooth “mirror” surface.

*Note: When there are hot, dry and windy conditions, the trowelling is performed during a minimally possible time to obtain the correct surface structure. Delay in surface protection by curing agents can entail serious problems.*

*Try not to allow a surface “burning” by blades when trowelling a floor.*

## 11. Curing

Immediately after the final troweling apply concrete curing agent MasterTop CC 713, for MasterTop 100 of natural color, or MasterTop CC 714, for colored MasterTop 100. Apply a curing agent on the surface using a sprinkler or a roller.

*Note: Apply the material in a single layer! Do not exceed the recommended consumption of MasterTop Curing agents, because it can entail a change of color uniformity or a stain generation!*

*More uniform application of a curing agent is achieved using a sprinkler.*

## 12. Surface Protection

As soon as a curing agent has dried up, cover the floor surface by, for example, a polyethylene film to prevent contamination, coloration or physical damage of the surface, which are practically

impossible to eliminate. It is necessary to protect the surface for at least 7 days.

## 13. Tool Cleaning

Fresh MasterTop 100 is removed using water. Hardened material can only be removed physically.

## 14. Joint Sawing and Sealing

To maximally reduce the risk of chaotic shrinkage cracks, shrinkage joints should be sawed as soon as possible. Cut joints after concrete has gathered a sufficient strength and filler is not crumbled in the process of cutting. When ambient temperature is 18 – 20°C, joints should be cut in approximately 1 – 2 days upon concrete placing.

To prevent moisture and garbage from entering inside joint grooves, joints have to be sealed by special sealing compound MasterSeal NP 474 (MASTERFLEX 474). Joints should be sealed by the sealing compound upon the end of concrete shrinkage, when its humidity will not exceed 5% (in 1 – 2 months).

## SAFETY MEASURES

The material contains cement, which irritates skin and mucosae, therefore you should avoid contacts with eyes and long contacts with skin. In case of an eye contact, promptly rinse with large quantity of water for at least 15 minutes and consult a doctor, providing him/her information on the material properties. In case of a skin contact, wash it carefully with water and soap. Keep the product beyond reach of children. Use protective gloves and an eye protection, when working with the material.

## TECHNICAL CHARACTERISTICS

Characteristics	Value
Compressive strength in the age of 28 days	more than 55 MPa
Abrasive strength: - Bohme method- EN 13892-3:2004 - BCA method - EN 13892-4	A6 (maximum 6.0 sm <sup>3</sup> /50 sm <sup>2</sup> ) AR1 (trace depth maximum 100 µm)
Impact resistance: - method IR - EN ISO 6272-1 (EN 1504-2) - method GOST 30353	class I at least 15 kg from the height of 1 m
Filler	quartz



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Maximum filler diameter	D max = 1.4 mm
Physical impact intensity	significant according to SNiP 2.03.13
Liquid exposure intensity	large according to SNiP 2.03.13
Aggressiveness of operating environment	non-aggressive and mildly aggressive according to SNiP 2.03.11
Operating temperature	from - 50 to 200°C
Package	25 and 30 kg bags
<b>Consumption:</b> - for light and average load - for average and large load - for colored surfaces, especially for light tones	4 – 5 kg/m <sup>2</sup> 5 – 8 kg/m <sup>2</sup> 6 – 8 kg/m <sup>2</sup>
<i>Note: Specified data are based on test results, conducted in laboratory conditions, therefore reasonable deviations are possible depending on actual application conditions.</i>	

Represented information is based on our current experience. In case of various factors affecting the result, information does not mean legal responsibility. For additional information, please contact your local advisor.

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