

# HARD TOP

NON-METALLIC SHAKE-ON FLOOR HARDENER

## PURPOSE

HARD TOP is a natural aggregate, dry shake material that increases the abrasion and impact resistance of concrete floor surfaces.

HARD TOP increases the density and durability of concrete floor surfaces. This increases wear resistance, reduces dusting and minimizes maintenance and repair expenses for maximum service life.

HARD TOP is recommended for commercial, industrial and manufacturing applications where improved wear resistance is required.

## DESCRIPTION

HARD TOP is a specially blended mixture of cement, natural silica aggregate, pigments and proprietary admixtures.

## PACKAGING

HARD TOP is available in 50 lb. (22.7 kg) bags or pails.

## COVERAGE

HARD TOP is installed at a rate of 1.0 lb./ft<sup>2</sup> (4.9 kg/m<sup>2</sup>) and provides increased abrasion resistance when installed at a rate of 1.5 lb./ft<sup>2</sup> (7.3 kg/m<sup>2</sup>).

## APPLICATION

**Storage:** Opened bags should be used immediately or discarded. Material should be stored in a cool, dry place.

It is highly recommended that a minimum 10'x10' (3.0m x 3.0m) test placement (mock up) be made using the same concrete, with the same finishing procedure and under the same conditions as anticipated on the project. It is essential to learn about the concrete mix design and any information regarding anticipated set times, bleeding and finishing times need to be assessed.

**Standards:** Follow the recommendations of American Concrete Institute (ACI) Manual of Concrete Practice:

- ◆ ACI 302 - Guide to Concrete Floors and Slab Construction (for measuring, mixing, transporting, placing and finishing concrete).
- ◆ ACI 305 - Hot Weather Concreting
- ◆ ACI 306 - Cold Weather Concreting
- ◆ ACI 308 - Curing of Concrete
- ◆ ACI 309 - Consolidation of Concrete

**Placement of Base Concrete:** Concrete slump NOT to exceed 5" (12.7 cm) without water reducer. Concrete should have a minimum compressive strength of 4,000 psi, and an aggregate ratio (sand / aggregate) of approx. 0.40-0.45. Gap grading of concrete aggregates in the mix design should be avoided.

Only place when ambient temperature is between 40°-90°F (4°-32°C). For conditions such as direct sun on

warm days, or high winds, contact a Symons representative. Calcium chloride containing admixtures should not be used. Superplasticizers (high range water reducers) should be avoided if possible. Base slab concrete shall be free of entrained or entrapped air when tested in accordance with ASTM C-173 or ASTM C-231. For interior concrete surfaces, use only non air-entrained concrete.

Place, consolidate (vibrate) and level concrete to proper grade, with vibratory (50-60 Hz) or laser screed filling all pockets ahead of screed. For voids left behind screeding, fill in with concrete. Use a highway type straight edge or wood bull float to level, consolidate and restraighten the surface.

**General Application Procedure:** Uniformly broadcast about two-thirds (<sup>2</sup>/<sub>3</sub>) of the HARD TOP after the concrete has been screeded, straightened and bull-floated prior to the appearance of bleed water on the surface. Be sure to apply HARD TOP uniformly and to avoid concentration or piling up of the HARD TOP. Broadcast by hand, or a mechanical spreader (a mechanical spreader will give the most uniform results and a Morrison, Somero or equivalent is recommended). **Do not broadcast HARD TOP directly into bleed water.**

If HARD TOP is distributed by hand, try to avoid separation of fines and granular material. Avoid clumping of the material on the surface. At this point, the concrete should still be soft and workable. Allow HARD TOP to remain on the surface and absorb water until it has darkened and is uniform in color. HARD TOP will darken as it absorbs bleed water. Then float with weighted wood bull floats or highway straightedge to embed and integrate the HARD TOP into the concrete surface as well as remove any surface irregularities. Wait until the concrete will support the weight of a power trowel using float shoes or a pan (*do not use combination blades*). Break open the surface across the placement in the short direction. Immediately apply the remaining one-third (<sup>1</sup>/<sub>3</sub>) amount of HARD TOP uniformly at right angles to the first application. The second application does not have to be applied at right angles to the first application if a mechanical spreader is used. Early setting around the slab edges will occur and should be watched closely to properly time the floating operation.

After it has absorbed the surface water and uniformly darkened, float the surface with a float machine equipped with float shoes or pan. When the surface can support the weight of a power trowel and finisher, then power trowel multiple times using trowel blades or pan to thoroughly embed and integrate the HARD TOP into the concrete for a smooth finish. Initially, the trowel blades should be set as flat as possible to avoid digging into the surface. The trowel blade may be gradually raised to slowly close the surface. Proper and uniform finishing is essential at this point. Do not rewet, and do not overwork. **Prevent closing the slab too early as blistering**

**or delamination may occur (do not use combination blades).** Surface may be broomed or textured.

During hot, dry or windy conditions, use Symons FINISHING AID to reduce moisture loss and extend concrete workability. Use of FINISHING AID during final troweling operations may cause some discoloration.

**Curing:** Apply a single coat of CURE & SEAL 1315 or CURE & SEAL 309 WB at a coverage rate not to exceed 300 ft<sup>2</sup> per gallon (7.4 m<sup>2</sup>/L). Do not use a water cure, a wet burlap cure or waterproof paper.

Unusual applications or conditions may require the technical assistance of a Symons representative.

### CLEAN-UP

Clean all tools and equipment with water before HARD TOP has set.

### LIMITATIONS

Install only when the ambient temperature is between 40°-90°F (4°-32°C).

Not recommended for steel-wheeled traffic and high point loading. For these applications, use Symons METAL TOP.

Do not use on floors that will be exposed to acids, as their salts are known to deteriorate concrete.

Air-entrainment should not exceed 3%. On interior floors, use only non air-entrained concrete. For exterior concrete surfaces, contact a Symons representative concerning the air-entrainment.

Do not add other cements or additives to HARD TOP. The color uniformity is application-oriented and requires consistency and control for good results. Do not burnish colored floors on final finishing operation.

### WARRANTY

Symons warrants, for 12 months from the date of manufacture, or for the duration of the published product shelf life, whichever is less, that at the time of shipment by Symons, the product is free of manufacturing defects and conforms to Symons' published specifications in force on the date of acceptance by Symons of the order. Symons shall only be liable under this warranty if the material has been applied, used, and stored in accordance with Symons instructions in this technical data sheet.

The purchaser must examine the product when received and promptly notify Symons in writing of any nonconformity before the product is used, or no later than 30 days after such nonconformity is first discovered. If Symons, in its sole discretion, determines that the product breached the above warranty, it will, in its sole discretion, replace the nonconforming product, refund the purchase price or issue a credit. This is the sole and exclusive remedy for breach of this warranty.

Only a Symons officer is authorized to modify this warranty. The sales information on the Symons website and received by the customer during the sales process does not supersede this warranty and the specifications of the product in force on the date of sale. THE FOREGOING WARRANTY SHALL BE EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL OTHER WARRANTIES OTHERWISE ARISING BY OPERATION OF LAW, COURSE OF DEALING, CUSTOM, TRADE OR OTHERWISE.

### SHELF LIFE

Shelf life of properly stored material is one year.

### PRECAUTIONS

It is mandatory to take the following precautions to protect workers and the public:

1. KEEP OUT OF THE REACH OF CHILDREN.
2. Contains free silica and may cause delayed lung injury (silicosis). Avoid inhalation of dust and ensure adequate ventilation.
3. Avoid contact with skin. Protective clothing is recommended. Contact areas should be thoroughly washed with soap and water.
4. Avoid contact with eyes. Protective goggles are recommended in case of splashing. Flush eyes with water if contact occurs.
5. Avoid ingestion of material. If ingestion occurs, contact poison center or physician.

Additional precautions, safety information and first aid treatments are contained in the Material Safety Data Sheet.

### LIMITATION OF LIABILITY

Symons shall not be liable, in contract or in tort (including, without limitation, negligence, strict liability or otherwise) for loss of sales, revenues or profits; cost of capital or funds; business interruption or cost of downtime, loss of use, damage to or loss of use of other property (real or personal); failure to realize expected savings; frustration of economic or business expectations; claims by third parties (other than for bodily injuries), or economic losses of any kind; or for any special, incidental, indirect, consequential, special, punitive or exemplary damages arising in any way out of the performance of, or failure to perform, this Agreement, even if Symons could foresee or has been advised of the possibility of such damages. The Parties expressly agree that these limitations on damages are allocations of risk constituting, in part, the consideration for this agreement, and also that such limitations shall survive the determination of any court of competent jurisdiction that any remedy provided in these terms or available at law fails of its essential purpose.

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