

MASTERO[®]

>>BUILDERS

SOLUTIONS

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MASTERKURER[®] 260

Liquid Hardener Sealing and Dustproofing Compound

BITeC

BEYOND

MATERIALS

BASF

The Chemical Company

MASTERKURE[®] 260

A dilemma sometimes faced by concrete floor contractors and owners is what to do about a recently installed or existing industrial floor that has a weakened surface. After concrete has been installed, how can contractors most effectively correct the dusting, poor abrasion resistance, and high porosity that characterize such a surface? (Weakened floor surfaces are typically caused by adding excess water to the concrete, poor finishing techniques, and a poor-quality cure.)

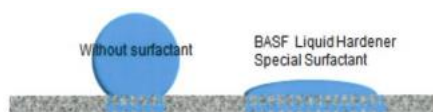
Obviously, removing and replacing the concrete is not a favorable option, because it is disruptive, labor-intensive, and costly. A simpler, less expensive option is to use a liquid chemical treatment to harden and density the concrete surface.



What Is a Liquid Hardener?

Liquid floor hardener formulations vary from manufacturer to manufacturer, but they usually contain inorganic compounds that under-go a series of complex chemical reactions with the available lime in mature concrete. Some liquid hardeners also contain special proprietary ingredients to make treated floors more resistant to chemical attack and wear and to improve the aesthetics of the finished surface. Unlike solvent-based, membrane forming sealers, which usually contain resins and hazardous solvents, most liquid floor hardeners contain inorganic compounds that are water soluble and comply with today's environmental, health, and safety regulations. Wetting agents (surfactants) are usually added to a liquid hardener to help the product penetrate the pores of the concrete substrate. The efficiency of the floor hardening treatment increases with the depth of penetration, which usually ranges from 1/8 to 1/4 inch

Contained wet surfactants help product penetrate the pores of concrete substrate around 4-6 mm



With special surfactant, BASF Liquid Hardener can penetrate deep into pores and capillaries of cement matrix.

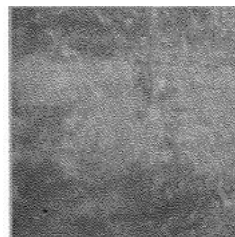
How Do MASTERKURE® 260 Liquid Hardeners Work?

As soon as a Masterkure® 260 liquid floor hardener is applied to a concrete substrate, a chemical reaction takes place between the inorganic compounds and lime (whether hydrated or unhydrated) in the pores of the concrete matrix. The primary product of this reaction is a mixture of dicalcium and tricalcium silicate compounds, which hydrate (react with water) even further to produce a chemical compound called **calcium silicate hydrate, or tobermorite gel**.

The ultimate strength and binding properties of hydrated Portland cement are primarily due to the presence of tobermorite gel in the concrete matrix. Therefore, Masterkure® 260 liquid hardener increases concrete strength by increasing the concentration of tobermorite gel. Masterkure® 260

Liquid floor hardeners can also increase concrete's density. When the tobermorite gel forms in the concrete pores, its crystalline growth effectively blocks voids in the concrete, decreasing the pathways for moisture movement. Since chemical attack concrete by penetrating the matrix, the presence of an insoluble gel in the substrate's pores and on its surface greatly increases the concrete's chemical resistance.

In addition to the benefits of strength gain and chemical resistance, a Masterkure® 260 liquid hardener can enhance the beauty of a toweled floor by giving it a polished look. This high sheen results when the treated floor is polished by mechanical means. Floors treated with Masterkure® 260 liquid hardeners will not dust when abraded or polished



Before



After

Performance Criteria

Compressive strength, psi (MPa)

ASTM C 109, modified

Untreated : 5,000 (34.5)

MASTERKURE 260 treated*: 6,000 (41.4)

20% increase in compressive strength at 3 days over untreated samples

Comparative abrasion resistance, gloss

1,000 g load;1,000 revolutions

Taber Abraser CS-17 Wheel

Untreated sample: 8(100%)

MASTERKURE 260 treated*: 6 (78%)

20% increase in abrasion resistance over untreated samples

Moisture retention, gloss

ASTM C 156

1,000 g load ;1,000 revolutions

Untreated sample: 90

MASTERKURE 260 treated*: 63

30% improvement in moisture retention

* Application to fresh mortar. Abrasion resistance measured at 7 days, 23 'c and 50% relative humidity.

MASTERKURE® 260 is a water-soluble inorganic, silicate-based curing, hardening, sealing and dustproofing compound. It is used for freshly placed and finished concrete and in renovation of aged concrete. It contains no VOCs.

Features and Benefits

Protect floors during construction	Cost efficient
Easy application, quick drying	Saves on labour; minimizes downtime.
Water based	Has no VOCs, environmentally Friendly, easy to clean up.
Aid for curing new concrete	Minimises shrinkage cracking; improves strength development.
Concrete hardener	Withstands light to moderately heavy duty traffic.
Improved abrasion resistance	Extends wearability.



Fields of Application

MASTERKURE® 260 is recommended for the following application :

- Concrete floors and pavements
- Curing of fresh concrete
- Renovation of aged concrete
- Industrial, processing and brewing plants
- Educational, medical and nursing facilities
- Utility, public and residential buildings
- Warehouses
- Aircraft
- Commercial garages
- Chemical installations
- Hospitals
- Breweries
- Schools
- Canneries
- Laundries
- Textile mills
- Industrial plants
- Computer rooms under access floors

Concrete is designed to meet specified strength requirements. It will achieve and retain these strengths only if it is cured, treated, or maintained properly. Using the correct curing or sealing compound, silicate hardener, or surface treatment for the appropriate application leads to a longer service life, an extended aesthetic life of decorative surfaces, and provides a better return on investment.



Chemical Resistance

As ACI Standard 302, 1R-89, masterkure[®] 260 can be used to increase resistance to chemicals including, but not limited to the following.

Aluminum sulfate	Lead refining solution, 10%	Potassium persulfate
Ammonium	Lignite oils	Potassium sulfate
Barium hydroxide	Machine oils	Rapeseed oil
Beef fat	Magnesium chloride	Sea water
Calcium hydroxide	Magnesium sulfate	Silage
Calcium nitrate	Manganese sulfate	Sodium bromide
Carbon dioxide	Manure	Sodium carbonate
Carbonic acid	Mash, fermenting	Sodium chloride
Castor oil	Mercuric chloride	Sodium dichromate
Coal-tar oils	Mercurous chloride	Sodium nitrite
Cottonseed oil	Mine water, waste	Sodium sulfate, 10%
Creosote	Mineral oil	Sodium sulfite, 10%
Cresol	Molasses	Sodium thiosulfate
Distillers slop	Mustard oil	Soybean oil
Ethylene glycol	Nickel sulfate	Sugar
Ferric chloride	Oleic acid 100%	Sulfite liquor
Ferric sulfate	Olive oil	Tallow and tallow oil
Ferrous chloride	Paraffin	Tannic acid
Ferrous sulfate	Phenol 25%	Tanning liquor 10%
Fish oil	Phosphoric acid, 85%	Tobacco
Fruit juices	Picking brine, 10%	Walnut oil
Glucose	Poppy seed oil	Zinc chloride
Glycerin	Potassium aluminum sulfate, 10%	Zinc sulfate
Hydrogen sulfide	Potassium Carbonate	Zinc nitrate
Iodine	Potassium chloride	
Lactic acid, 25%	Potassium dichromate	

Compliances

- Recommended for use on all classes of concrete floors as noted in Table 1.1, ACI Standard 302.1R-89
- USDA compliant for use in meat and poultry areas

Application

Surface preparation

New Concrete

Freshly finished concrete surfaces do not require surface preparation if MASTERKURE 260 is to be applied immediately after the final finishing operation in place of a resin or acrylic curing compound.

On areas where forms have been recently removed, all form oil or breaking compound residue must be removed

Existing Concrete (Cured for 28 days or more) Install joint sealants before application of MASTERKURE 260.

If not possible, test first for adhesion. To remove all dust and dirt, sweep all areas to be treated with a fine-bristled broom or hose off with water and let stand until completely dry.

The surface must be free from all contaminants that will inhibit the penetration of MASTERKURE 260 into the pores of the concrete. Any curing, scaling or coating agents must be chemically or mechanically removed before MASTERKURE 260 is applied. A floor buffing machine with an aggressive pad can be used along with Citrus Degreaser (see Form No. 1017985) or other cleaners to remove existing compounds.

Protect metal, glass, wood, paint and brick from contact with MASTERKURE 260. If accidentally misapplied to these surfaces, wash with clean water within 30 minutes.



Installation

MASTERKURE 260 is not a film forming product but should fully saturate the concrete for maximum effect.

Perform enough applications for MASTERKURE 260 to saturate the concrete.

New Concrete

Spray apply undiluted MASTERKURE 260 on the concrete surface with a low pressure sprayer following final finishing operation and after all surface water has evaporated and the concrete surface is hard. To ensure proper performance apply MASTERKURE 260 to entire surface area as soon as the surface can bear foot traffic. Keep entire surface wet for 30 minutes by spraying MASTERKURE 260 or by broom sweeping away the excess material from low spots to saturate dry spots. Failure to remove all excess material from floor surfaces may result in unsightly white stains. Keep MASTERKURE 260 from drying out on surface for a full 30 minutes to ensure full penetration. As MASTERKURE 260 begins to penetrate into the surface, lightly sprinkle the surface with water to aid penetration. When MASTERKURE 260 begins to dry a second time, flush the surfaces with water and squeegee the surface to remove any excess material and other impurities that were brought to the surface. On exterior applications, environmental factors, such as wind and heat may greatly reduce the effectiveness of MASTERKURE 260 as a curing aid. To improve sheen, dry buff with a non aggressive pad the following day. If applications with pozzolanic additives in the concrete, additional MASTERKURE 260 is required.



Existing Concrete (28 days or more)

Saturate the surface with undiluted MASTERKURE 260 by sprayer, squeegee, or broom. If dry spots appear, more excess material onto them or respray them immediately so that the entire surface is wet with MASTERKURE 260 for a minimum of 30 minutes. Complete job using one of the following finishing options:

- If after 30 to 40 minutes, the majority of MASTERKURE 260 has been absorbed into the surface, use broom or squeegee to remove any excess material from the low spots.
- Use a floor buffing machine with a non aggressive pad to help work MASTERKURE 260 into fully cured concrete during application. Application method and concrete porosity will affect final appearance of MASTERKURE 260.

White residue signifies too strong a mix or the surfaces reaching maximum hardness. Applications should stop and the surface be flushed with clean hot water, swept with stiff-bristled broom and allowed to dry. If any applications remain, a dilution may be required to avoid further problems.

Note: Allow at least 7 days interval before applying tile or floor covering adhesives over MASTERKURE 260



Quality Management

Our engineers continually create innovative and long-lasting engineering solutions to meet our clients' satisfaction conforming to our above-mentioned motto and also to the foundation to our business success which is, "Customer satisfaction always comes first." Having established a high reputation domestically, we are ceaselessly expanding our knowledge base with a strong emphasis on the ever increasing construction demands in hi-tech commercial and industrial sector. We are fully staffed with highly skilled personnel and complied with ISO9001:2015.



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MATERIALS

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