SUPERSHIELD HARDSEAL

CONCRETE HARDENING, SEALING & DUSTPROOFING COMPOUND

- Hardens and strengthens within the concrete mass protecting against deterioration
- Treated surface resists dust, oils, greases and other surface contaminants
- Effective curing agent when applied immediately after the finishing operation
- Eliminates dusting and enhances surface bonding of paints

PRODUCT DESCRIPTION

Supershield Hardseal is a concrete hardner, sealer and dustproofing compound based on salts from the catalyzed inorganic chemistry. Supershield Hardseal is a single component ready to use, transparent, chemically reactive water based sealer that penetrates concrete and other masonry building materials to protect, preserve and strengthen them permanently by curing, sealing, hardening, dustproofing, neutralizing alkali and increasing bonding on the subsequent coatings. It is non-toxic and contains no volatile organic compound.

PROPERTIES

Supershield Hardseal when sprayed onto the concrete takes a different approach to concrete floor protection by filling the natural pores and voids within the concrete with crystals formed as a result of unique and unmatched catalytic chemistry. It strengthens them permanently by

- Curing - Supershield Hardseal controls hairline checking and temperature cracking on new concrete. When applied to properly placed, structurally sound freshly finished concrete, Supershield Hardseal will uniformly cure the concrete through a combined chemical/moisture retention reaction so vital to the complete hydration process
- Sealing - Supershield Hardseal penetrates deep into the concrete forming a chemical reaction that locks the pores from within, providing a deep permanent seal on all types of concrete surfaces
- Hardening - Supershield Hardseal solidifies the component parts of the concrete into one solid mass, increasing the density, toughness, hardness and substantially increasing the abrasion resistance and durability of the concrete surface. Smooth steel troweled surfaces develop a marble-like finish and sheen. Supershield Hardseal treated concrete has been compressively tested 38% harder after 30 days than fully cured, untreated concrete
- Dustproofing - Supershield Hardseal chemically reacts with the salts in the concrete, permanently eliminating the release of concrete dust through the surface pores
- Neutralizing Alkali - As the Supershield Hardseal progressively penetrates the concrete, it neutralizes the alkalis, forcing them to the surface where they can be washed away during the application. The deep alkalis are locked in, and efflorescence and the leaching of lime and alkalis stop
- Bonding - Supershield Hardseal prepares the treated surface for paints, caulking compounds, adhesives and floor coverings by eliminating the surface concrete salts that are so detrimental to proper bonding. Supershield Hardseal contains no silicone and is coatable and compatible with any type of covering when standard surface preparation guidelines are followed

RECOMMENDED FOR

Treatable materials include concrete, heavyweight concrete block, mortar, plaster, stucco, terrazzo, exposed aggregate and any sand-aggregate-cement combination. Applications include warehouses, distribution facilities, aviation hangars, manufacturing plants, food processing units and distribution buildings, pulp and paper mills or other types of facilities with large exposed concrete floors.

TECHNICAL DATA	
Product Code	SCP105
Colour and Appearance	Transparent - Liquid
Density	1.14 Kg/litre
Curing	At least 95% greater moisture retention during the initial critical 24 hour curing period compared to untreated samples
Compressive Strength - ASTM C39	At least 41% increase in compressive strength at 7 days & At least 38% increase at 28 days compared to untreated samples

Performance characteristics for CE certification according to EN 1504-2:2004, 2+

Test type	Standards	Performance
Capillary Absorption	EN 1062 - 3	$W< 0.1\ Kg/m^2 * h^{0.5}$
Depth of penetration	EN 1504 - 2	>= 5mm
Resistance to Abrasion	EN ISO 5470 - 1	At least 30% increase in abrasion resistance compared with non impregnated sample
Impact Resistance	EN ISO 6272 - 1	Class III
Adhesion Strength by pull-off test	EN 1542	$4.98\ N/mm^2$

I.INSTRUCTIONS FOR FRESHLY FINISHED CONCRETE

A. SURFACE PREPARATION

Freshly finished concrete surfaces require no surface preparation if Hardseal is to be applied as a curing agent immediately after the finishing operation. Remove surface dust, dirt and contamination by sweeping all areas to be treated with a fine bristle broom or scrub brush. Hose off with water and let dry on areas where forms are recently removed, all form oil and breaking compound residue must be removed so as not to inhibit the penetration of Hardseal into the surface. Hardseal can be applied in temperatures from 1.7˚C to 57˚C (35˚F to 135˚F).

B. APPLICATION INSTRUCTIONS

Step 1: Immediately following the troweling operation, and as soon as the slab is safe to walk on, saturate the surface with Hardseal at approximately 5 m^2 per liter (200 square feet per gallon) using a low-pressure, high-volume sprayer. Hardseal may also be applied by pouring it directly on the surface and spreading it evenly with a soft-bristled broom.

Note: Hardseal is a penetrant, not a membrane. Enough material must be on the surface to allow Hardseal to thoroughly soak in. As a guideline, there should be enough Hardseal on the floor to fill-in a footprint within several seconds of taking a step. This is often referred to as a flood coat or wet coat.

Once a wet coat has been achieved, work Hardseal into the concrete surface with soft-bristled brooms. This step breaks surface tension and aids penetration. Keep the surface wet with Hardseal for a minimum of 30 minutes, and then wait for Hardseal to become slippery and gel-like under foot. In extremely cool, windless conditions, Hardseal can take up to 1 hour or longer to become slippery. In extremely hot conditions, Hardseal may begin to become slippery before the full 30 minute soak-in period. Additional Hardseal must be applied to the concrete in order to keep all areas of the concrete surface wet with Hardseal for at least 15-20 minutes before becoming slippery in these hot conditions. Note: No spot or area on the slab should be allowed to become dry during the soak-in period. It is best to avoid dry areas either by brooming excess Hardseal over the more absorbent spots, or by putting down more Hardseal. Pay particular attention to porous areas and slab edges, as these tend to dry out more quickly.

Step 2: Immediately after Hardseal becomes slippery, lightly mist the surface with water. This can be done with either a low-pressure power sprayer or with a hose and nozzle (nozzle should be adjusted to create a mist). This step will resolubilize Hardseal so that it is no longer slippery or gel-like. Agitate the floor with a broom to aid the penetration of Supershield Hardseal. Wait for Supershield Hardseal to become slippery or gel-like a second time.

Step 3: At this point, thoroughly flush the surface with water. During the flushing process, the floor should be agitated with brooms to help loosen and remove excess Hardseal from the surface.

Step 4: Thoroughly squeegee the slab dry by pushing the water ahead of you off the slab edge. At this point, the floor should look like bare concrete with nothing on it. Note: During the squeegee process, there may be some slippery patches. This is an indication that excess Supershield Hardseal is still on the surface. These areas should be re-flushed and squeegeed again until the entire surface is dry.

ADDITIONAL NOTES

- Steps 1 - 4 can also be accomplished with the use of an auto-scrubber. The auto-scrubber should be equipped with four pneumatic tires to prevent damage to the concrete surface. Driving across

saw-cut joints at an angle will reduce the stress on the joint edges. Consult with the concrete contractor to determine the appropriate time to place the auto-scrubber on the floor to ensure the concrete is not too green and has enough compressive strength to support the weight of the auto-scrubber.

- Please consult with your local technical representative for questions regarding application in extreme or unusual weather conditions - hot, cold, windy or otherwise.
- When Supershield Hardseal is to be used as a curing agent, proper timing of the application is very important.
- In extremely hot, windy, sunlight exposed concrete slabs, Supershield Hardseal can be used in conjunction with any other type of curing system if the additional cure is applied after Supershield Hardseal application for additional curing benefits.
- Saw cutting may be done before or after Supershield Hardseal is applied, depending on the immediate need for curing. It is critical in either case that the dust or slurry from cutting be immediately and thoroughly removed from the slab.
- Abnormally porous or soft concrete floors may require additional applications of Supershield Hardseal. This also applies to surfaces with open finishes, such as broom finished or scarified floors.
- Burnishing the surface with a 2000-RPM propane burnisher will help develop the sheen more quickly. For complete instructions, contact the manufacturer.

II. INSTRUCTIONS FOR EXISTING CONCRETE

A. SURFACE PREPARATION

The concrete surface must be free of any material that would inhibit the penetration of Supershield Hardseal. This would include any curing or sealing compound, paints or coatings, construction laitance, and any surface dust or dirt. In some instances, the floor may need to be stripped, in which case it may also need to be neutralized. Note: All surfaces that will be painted, striped, or have a coating or adhesive applied should use Step 2 (Option 2) as described on the next page. For additional information contact your qualified Supershield technical representative.

B. APPLICATION INSTRUCTIONS

Step 1: Saturate the surface with Supershield Hardseal so that the entire surface is wet with Supershield Hardseal for 30 minutes.

Step 2 - Option 1: If after 30-40 minutes the majority of Supershield Hardseal has been absorbed into the surface, broom or squeegee any excess Supershield Hardseal (while still in its liquid form) from all low spots and puddles so that all remaining Supershield Hardseal is entirely absorbed into the concrete or totally removed from the surface.

Step 2 - Option 2: If after 30-40 minutes the majority of Supershield Hardseal is still on the surface, wait until it becomes slippery underfoot, then thoroughly flush the entire surface with clear water and squeegee completely dry to remove all Supershield Hardseal residue. If Supershield Hardseal becomes slippery prior to the 30 minute period, follow the instructions for Freshly Finished Concrete (Section I).

III. INSTRUCTIONS FOR EXTERIOR CONCRETE

Step 1: Saturate the surface with Hardseal using a low-pressure, high-volume sprayer. Keep the entire surface glistening wet with Hardseal for 30 minutes.

Step 2: After the 30 minute application period, use a broom or mop to remove any puddles or concentrations of Hardseal from the slab. TIP: A wide, fine bristle push broom works well to disperse Hardseal on textured surfaces.

LIMITATIONS

- Hardseal is not to be used to seal lightweight block or other extremely porous masonry that contains actual holes and air pockets
- Hardseal is not for application over areas previously treated with curing or sealing agents unless these coatings have been removed by chemical or mechanical means
- On concrete that is abnormally porous or soft, additional applications of Hardseal may be required. This also applies to surfaces with open finishes, such as broom finished or scarified floors
- At standard coverage rates, Hardseal cannot resolve dusting or erosion problems related to over-troweling, carbonation or poor surface water to cement ratio. Additional material can, but not always resolve these problems

IV. GENERAL GUIDELINES FOR ALL SUPERSHIELD HARDSEAL APPLICATIONS

- Apply with low-pressure sprayer only. Do not use airless sprayers, as they atomize the material, allowing inhalation.
- Diaper all construction equipment components that might drip oil, hydraulic fluid or other liquids
- Apply Hardseal to colored concrete only after the slab is fully cured
- Avoid contact with glass, aluminum, or other glazed or finished surfaces. Where contact occurs, immediately wipe with a damp cloth or flush with water. When applying near windows, mask the glass.
- Do not apply Hardseal when the temperature falls to below 35 degrees F (1.7 degrees C)
- Protect new concrete from freezing for a period of 6 days
- Protect from freezing. If frozen, thaw and agitate before using. Do not use on cinder block or other highly porous material, which contains holes or air pockets.
- When used near blacktop, Hardseal must be flushed away with water to eliminate any white discoloration that may appear when the surface is dry.

HEALTH AND SAFETY

Hardseal contains chemicals, which may cause skin irritation. For personal precaution, protective gloves and goggles are recommended to be worn during handling of this product. If product gets in contact with the eyes, flush immediately with clean water and seek medical assistance if symptoms prolong. Surfaces treated with the Hardseal temporarily become slippery during application. Exercise care and caution to avoid falls

STORAGE

Supershield Hardseal must be stored under room temperature. Cold temperatures may cause the product to crystallize. When stored in a dry place in unopened, undamaged original packaging, shelf life is 24 months. Do not allow product to freeze. Repeated freezing and thawing might cause damage for the product.

PACKAGING

Available in 25 Ltr Carbouys and 200 Ltr Drums.