

# ICS/PENETRON INTERNATIONAL LTD.

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## PENETRON LIQUID FLOOR HARDENER

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### SPECIFICATIONS: PENETRON LIQUID FLOOR HARDENER

**PRODUCT NAME:**

PENETRON LIQUID FLOOR HARDENER

**MANUFACTURER:**

ICS PENETRON INTERNATIONAL LTD.

**PRODUCT DESCRIPTION:**

Penetron Liquid Floor Hardener is a transparent, chemically reactive, water-based sealer that penetrates concrete and masonry building materials, protecting, preserving and strengthening them permanently by:

**Curing:** Penetron Liquid Floor Hardener controls hairline checking and temperature cracking on new concrete. When applied to properly placed, structurally sound, freshly finished concrete. Penetron Liquid Floor Hardener will uniformly cure the concrete through a combined chemical/moisture retention reaction so vital to the complete hydration process.

**Sealing:** Penetron Liquid Floor Hardener 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:** Penetron Liquid Floor Hardener solidifies the component parts of the concrete into one solid mass, increasing the density, toughness and hardness and substantially increasing the abrasion resistance and durability of the concrete surface. Smooth steel troweled surfaces develop a marble-like finish and sheen. Penetron Liquid Floor Hardener treated concrete has been compressively tested 38% harder after 30 days than fully cured, untreated concrete.

**Dustproofing:** Penetron Liquid Floor Hardener chemically reacts with the salts in the concrete, permanently eliminating the release of concrete dust through the surface pores.

**Neutralizing Alkali:** As the Penetron Liquid Floor Hardener progressively penetrates the concrete; it neutralizes the alkali forcing them to the surface where they can be washed away during the application. The deep alkali are locked in and efflorescence and the increase in impact resistance and the leaching and alkali stop.

**Bonding:** Penetron Liquid Floor Hardener 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. Penetron Liquid Floor Hardener contains no silicone and is coatable and compatible with any type of covering when standard surface preparation guidelines followed.

**Treatment Results:** With one application of Penetron Liquid Floor Hardener, concrete or other masonry is cured and permanently sealed for its lifetime, and rendered highly resistant to oils, greases, and other surface contaminants. The component parts of the concrete are solidified into a solid mass, which toughens, hardens and increases the density. The surface alkali are neutralized and efflorescence and the leaching of lime and alkali are stopped.

**Treatable Materials:** Concrete, heavy weight concrete block, mortar, plaster, stucco, terrazzo, exposed aggregate, and any sand, aggregate, cement combination.

**Limitations:** Do not apply Penetron Liquid Floor Hardener in the following cases:

- To seal lightweight block or other extremely porous masonry that contains actual holes and air pockets.
- When temperature falls to below 350F (1.7°C)
- To areas previously treated with curing or sealing agents, unless these coatings have been removed by chemical or mechanical means.

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**NOTE:** Apply to colored only after the slab is fully cured. Do not get on glass or other finished surfaces. If so, flush immediately.

**Methods of Application:** Spray or pour and broom to saturate the surface.

**Tools Needed:** Low-pressure sprayer, soft bristle broom, squeegee, water hose.

**Surface Preparation:** Sweep all areas to be treated with a fine bristle broom or scrub brush, hose off with water and let dry, to remove surface dust, dirt and contamination. Penetron Liquid Floor Hardener can be applied to damp surfaces as long as all puddled areas are swept away so that the Penetron Liquid Floor Hardener is not diluted before it is able to penetrate the surface.

### For New Concrete:

**Step 1:** Apply Penetron Liquid Floor Hardener immediately following the finishing operation as soon as the surface is firm enough to walk on before hairline checking and temperature cracking begin. Keep the entire surface wet with Penetron Liquid Floor Hardener for 30minutes.

**Step 2:** As the Penetron Liquid Floor Hardener becomes slippery underfoot, lightly mist the surface with water. This will cause the material to lose its slipperiness.

**Step 3:** As the Penetron Liquid Floor Hardener again becomes slippery underfoot, thoroughly flush the entire surface with water and squeegee the surface completely dry to remove all surface alkali or Penetron Liquid Floor Hardener residue. On exterior broom finished surfaces, no flushing is required, but any remaining Penetron Liquid Floor Hardener must be squeegeed or broomed from the surface after 30-40 minutes.

### For Old Concrete (all cured surfaces):

**Step 1:** Saturate the surface with Penetron Liquid Floor Hardener so that the entire surface is wet with Penetron Liquid Floor Hardener for 30 minutes.

**Step 2: Option 1.** If after 30-40 minutes the majority of the Penetron Liquid Floor Hardener has been absorbed into the surface, broom or squeegee any excess material from all low spots and puddles so that all remaining Penetron Liquid

Floor Hardener is entirely absorbed into the concrete or totally removed from the surface. \*

**Step 2: Option 2:** If after 30-40 minutes the majority of the Penetron Liquid Floor Hardener 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 Penetron Liquid Floor Hardener residue.

### TECHNICAL DATA:

Applicable Standards:

- Abrasion: ASTM C 779-32.7% increase in abrasion resistance.
- Bonding: ASTM D3359-17% increase in epoxy adhesion. No change for polyurethane adhesion.
- Curing: 94% greater moisture retention during the initial critical 24 hour curing period as compared to untreated samples.
- Hardening: ASTM c 39 – 40% increase in compressive strength 7 days; 38% increase at 28 days over untreated samples. ASTM C 805 – Schmidt hammer – 13.3% increase in impact resistance

**Permeability:** The seepage rate using a 7 foot (211 cm) head of water on a 4.91 square inch (31.2c<sup>2</sup>) area treated with Penetron Liquid Floor Hardener was 0.022cc per hour.

**Weathering:** ASTM G2381 – ultra-violet light and water spray exposure had no adverse effect on Penetron Liquid Floor Hardener treated samples.

**Packaging:** 55 gallon (208L) drums and 5 gallon (19L) containers. **Coverage:** Approximately 200 square feet per gallon (5m<sup>2</sup>/L) Coverage depends on the temperature and porosity of the concrete.

**Storage Life:** Indefinite. Agitate bucket or drum before using.

**Thinners:** None required. Clean all equipment with water only.

**Number of Applications Required:** One

**Duration of Effectiveness:** Permanent. The concrete becomes harder and better sealed the older it becomes.

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**Time Requirement for Curing, Sealing and Hardening:** 60-90 days.

Unlike surface coatings that wear away with use, Penetron Liquid Floor Hardener seals the concrete from within by permanently locking the pores, thus making the concrete itself the penetration barrier. This process is essentially complete with 90 days, but may continue at a much slower rate for up to one year.

**Color:** Clear. Penetron Liquid Floor Hardener will not change the natural appearance of the masonry or concrete. Where alkali, lime and other impurities are forced to the surface and the natural appearance is to be preserved, all treated surfaces must be flushed clean with clear water according to the manufacturer's instructions.

**Sheen:** Permanent. On smooth steel troweled concrete surfaces a natural wax-like sheen will appear between 6 and 12 months after treatment. This sheen is caused by the hardening and sealing effects of the Penetron Liquid Floor Hardener as well as abrasion from cleaning and use of the floor. As a permanent part of the concrete surface, the sheen will last the lifetime of the surface.

**Application Temperature Limits:** 135<sup>0</sup>F, 35<sup>0</sup>F (57<sup>0</sup> C, 1.7<sup>0</sup>C). At low temperatures completely protect new concrete from freezing for a period of six days.

**Drying Time:** 1-3 hours. The surface can be used as soon as the application is complete and the surface is again dry to the touch. Newly placed concrete requires the normal hardening period.

**Painting or Covering Preparation:** Old concrete – allow 3-7 days before applying paint or coverings.

New Concrete – allow 30 days for proper curing. Internal Makeup: Non-toxic, non-combustible, non-flammable. Not harmful to lungs or hands. Complies with all V.O.C. and U.S.D.A. regulations.

**AVAILABILITY AND COST**

Penetron Liquid Floor Hardener manufactured exclusively by ICS Penetron International Ltd. is distributed throughout the United States direct to the job-site or through regional factory warehouses and is competitively priced. For specific price information contact ICS Penetron International Ltd.

**WARRANTY:** ICS Penetron International Ltd. warrants that a properly prepared and structurally sound concrete or masonry surface treated with Penetron Liquid Floor Hardener according to the manufacturer's directions will remain dustproof, hardened and water repellent. If after the specified sealing period the treated surface does not remain dustproof, hardened and water repellent ICS Penetron International Ltd. will supply, at it's own expense, sufficient Penetron Liquid Floor Hardener to reseal any defective area. This warranty does not apply if Penetron Liquid Floor Hardener is improperly applied or if structural faults occur due to faulty workmanship, improper design or failure of materials other than the Penetron Liquid Floor Hardener.

**MAINTENANCE:** Floors: Wash or wet mop with neutral or high pH detergent. **Walls:** Flush with water.

**TECHNICAL SERVICES:** Technical information and assistance can be obtained from ICS Penetron International Ltd.