PRODUCT DESCRIPTION

Pentra-Shield™ is a clear, penetrating, breathable, surface-applied liquid that strengthens, protects and hardens concrete and masonry surfaces. Pentra-Shield™ Anti-scale treatment helps protect concrete sidewalks, driveways and other concrete and masonry surfaces from freeze-thaw damage caused by moisture saturation within the pore structure of substrates. Scaling begins with the first freeze-thaw cycle and will continue through successive winter seasons resulting in repeated loss of the concrete surface, eventually leading to spalling, pop-outs and ultimately failure if left untreated.

Surfaces protected with Pentra-Shield™ have unique protective benefits that include increased strength and durability, reduced the porosity and increased hydrophobic characteristics which provide protection against alkaline degradation, water intrusion and salt brine crystallization (sub-florescence). It may be applied on both newly placed concrete and existing concrete to protect it against damage from the elements.

KEY BENEFITS

- Excellent scale resistance caused by freeze / thaw cycles and de-icing chemicals
- Penetrating--no surface film to peel or wear off
- Does not alter the coefficient of friction of the surface
- Will not discolor or change the substrate’s surface appearance
- Rapid tack-free surface cure time
- Reduces porosity and increases strength and durability

Pentra-Shield™ penetrates deep into the concrete pores (tested to 8mm) where it reacts evenly throughout the surface matrix of the concrete, with excellent particle distribution during absorption. Pentra-Shield™ water-based, low VOC formulation is environmentally friendly, easy to use, and fast acting, minimizing disruption.
USES

Pentra-Shield™ is a concrete, stone, and masonry preservation treatment designed to improve the anti-scaling, abrasion resistance, and durability of driveways, sidewalks, entrances, patios, loading docks, parking garages, pavers and for any other suitable exterior concrete, stone, or masonry. Pentra-Shield™ will help reduce the effects of scaling and other deterioration caused de-icing chemicals.

FREEZE-THAW/SCALE RESISTANCE

Scaling can be caused by freeze / thaw cycling in the presence of water or deicing salts, using non-air entrained concrete, deicing chemicals, poor finishing practices, or insufficient curing. These causes all lead to the same weak surface layer that leaves concrete and masonry surfaces susceptible to scaling and freeze-thaw damage. It begins with a slight flaking, which becomes deeper with continued exposure. Initially only the surface texture and a small amount of paste are eroded, but the coarser aggregates are not exposed. This moderate scaling exposes the larger aggregate and may involve loss of surface mortar. Severe scaling exposes more surface area and the coarse aggregate stands out. Eventually, scaling exposes the coarse aggregate, which over time will pop-out leaving a void. This leads to more spalling, cracking, and costly repairs. Most damage and deterioration of concrete surfaces are due to freeze thaw cycles that cause scaling of the surface. Once the surface begins to erode, other issues come into play such as corrosion to rebar, alkali silica reactivity (ASR), etc. Pentra-Shield™ shows excellent anti-scaling protective properties to help reduce spalling caused by repeated freeze thaw cycles. Applying the protective treatment is a practical way to reduce the infiltration of moisture into the concrete surface’s topical layer because of the low cost and ease with which the treatment can be applied compared to alternative methods. surfaces treated are better protected against aggressive environmental elements and the detrimental effects of deicing chemicals. Also, new concrete is more susceptible to scaling, especially critically saturated concrete. In some cases, regular use of de-icers can actually increase the number of freeze/thaw cycles as well as cause additional distresses such as sub-efflorescence, deterioration of cement paste and/or corrosion to rebar.

APPLICATION

BEFORE APPLICATION, ALWAYS DO A SMALL TEST SAMPLE IN A LESS-VISIBLE AREA TO BE SURE THERE ARE NO VARIABLES OR CONTAMINANTS IN THE SUBSTRATE THAT MAY BE INCOMPATIBLE WITH THIS PRODUCT.

Application by spray rig, squeegee or brush to new or existing concrete, stone, and masonry surfaces. (Always test each surface for suitability and desired results. Let surface dry before inspection and approval of desired application). Pentra-Shield™ may be applied to newly installed concrete as soon as the surface is hard enough to bear foot traffic without damage. Apply enough Pentra-Shield™ to keep the surface wet for 20 minutes. Let the surface dry. (Usually 1 to 2 hours). Follow with an ASTM C 309 approved curing agent.

Thoroughly clean all surfaces to be treated to remove all dirt, debris, curing materials, etc. that may hinder penetration. We do not recommend the use of citrus or other acidic cleaners. Pentra-Shield™ is a clear, penetrating product and will not cover stains.
Using a pump up sprayer or HVLP (high volume low pressure) sprayer, cover the surface evenly with Pentra-Shield™. Broom out any puddles with a soft bristle broom. Keep the surface wet with product for at least 20 minutes, spraying on more material if necessary. Only apply when temperatures will be over 40°F (4°C) for at least 4 hours following application. In hot, dry, or windy conditions, it may be necessary to cool the surface with water to prevent Pentra-Shield™ from flash drying on the surface. The surface may be used when it is dry to the touch, but complete curing may take hours to days to complete, depending on conditions.

**ESTIMATED COVERAGE**

- **Steel Troweled**: 400-500 ft² per gallon (1 liter per 9.5 to 12m²)
- **Broom Finished**: 250-350 ft² per gallon (1 liter per 6 to 8.5m²)

Coverage will vary with porosity and job site conditions.

**Other surfaces**: Testing will be necessary to determine proper coverage rates for the large variety of stone and masonry surfaces that may be treated.

**CLEAN UP/DISPOSAL**

Use soap and water to clean tools and equipment. Although Pentra-Shield™ is non-toxic and environmentally safe, it is alkali—use up or dry out extra material and dispose of according to local regulations. Don’t pour into sewer systems or storm drains.

**SAFETY/HEALTH INFORMATION**

Pentra-Shield™ is an aqueous Silicon Lithium Polysilicate (SLi)™ solution that uses proprietary compounds. The treatment is alkaline and may cause eye and skin irritation. KEEP OUT OF THE REACH OF CHILDREN. Do not take internally. Avoid prolonged contact with skin. Avoid ingestion of material. If swallowed, do not induce vomiting – call physician. Avoid contact with eyes. Protective clothing is recommended. Protective goggles are recommended in case of splashing. If splashed in eyes, wash immediately with clean water and call physician if irritation persists. Contact areas should be thoroughly washed with soap and water. Additional precautions, safety information and first aid treatments are contained in the Material Safety Data Sheet. Pentra-Shield™ will etch glass and painted surfaces. Immediately wash off with water all overspray from glass and painted surfaces. Caution: Surfaces wet with Pentra-Shield™ may be slippery.

**PROPERTIES**

- **Active Ingredients**: 100% of total solids
- **Specific Gravity**: 1.11
- **pH**: 11
- **VOC Content**: <50g/L
- **Flash Point**: N/A
- **Freeze Point**: 32°F (0°C)
- **Shelf Life**: 1 Year in unopened factory sealed container

**PACKAGING**

- 5 Gal Plastic Pail
- 55 Gal Drum
- 275 Gal tote (IBC)
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