

1. Product:

DENSIFIER, a Colloidal Silicate Subsurface Membrane. Also formerly known as PROTECRETE- CDS Concrete Densifier Sealer.

2. Manufacturer:

Applied Concrete Technology, Inc.
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3. Description/Basic Use:

DENSIFIER is a cloudy white (dries clear), non petroleum, odorless, environmentally neutral penetrate in a colloidal liquid base.

As a Densifier/Sealer:

When applied to already set portland cement concrete, DENSIFIER integrally waterproofs, densifies and preserves concrete of any age at any point during its useful lifespan. DENSIFIER provides concrete an effective chloride ion barrier that helps preserve its imbedded steel. DENSIFIER also prevents contaminants from entering the concrete as well as reducing the amount of vapor that can pass through, which preserves the integrity of the treated concrete. It increases surface abrasion resistance as well as surface acid/chemical damage resistance. As DENSIFIER penetrates deeply into concrete, it reacts with interior ingredients such as free alkali or unused calcium hydroxide residue and prolifically converts DENSIFIER's unusually low solids colloidal liquid to a 100% solids insoluble precipitant. It instantly provides added density and becomes an integral part of the concrete by occupying its accessible porosity and other tiny voids. It forms a breathable barrier which begins in concrete's transitional porosity located between the large surface porosity and its small microporosity. The uniquely induced precipitant barrier does not generate any heat during its conversion from liquids to solids, nor expansion pressures at any time. This internally generated barrier

remains resilient and consists of pore sizes that are much smaller than concrete's micropores. This further diminishes concrete's void percentages while increasing the impermeability, yet still allowing the concrete to retain its ability to breathe, expand and contract as it needs to. It significantly decreases the potential vapor gas transmission rate. Because the internally generated barrier has extremely small porosity, it alleviates or eliminates transmission of gases such as radon, forcing them to seek other avenues of escape rather than passing through the concrete.

DENSIFIER halts or significantly retards internal corrosion activity. It seals, strengthens, supplements, densifies and detoxifies concrete without deleterious effect to its external appearance or physical characteristics. DENSIFIER will not impair surface traction quality or bonding ability. Areas treated only need to be closed while treating and may be reopened immediately afterward.

NOTE: If surface coating is planned, wait about 8 hours (not necessary to wait if surface is track blasted) following treatment. Flush.

This removes purged salts, sediments, etc. Then allow the surface to dry. Surface can then be prepared to coating manufacturer specifications. DENSIFIER is an excellent primer application for surface toppings, paints, adhesives, etc. It addresses the reasons of potential early coating failures such as capillary/alkaline moisture, saponification, laitance, poor surface adhesion, etc.

DENSIFIER can be applied to old or new concrete, inside or out without detrimentally affecting the surface quality. It can be used to improve or enhance any concrete whether traffic bearing or not. DENSIFIER is excellent for use on streets, highway pavement, bridges, parking garage decks, airport pavement, dams, pavers, sidewalks, driveways, basements, tunnels, etc. It will stop water leakage in concrete while it is occurring in installations such as water storage reservoirs, water treatment tanks, below grade

concrete with or without hydrostatic pressure, etc. The liquid travels against the water flow when applied to the negative side, permanently arresting the flow of water, a unique feat that is much less complex and labor intensive (and more economical) than trowel on remedies.

As a Cure Method:

DENSIFIER is an excellent alternative concrete curing method, providing a cure equal or better than water curing. It provides the usual benefits of a curing agent, plus it provides special ingredients to the yet available capillary mix water waiting to participate in the hydration reaction process in the plastic or semi-plastic concrete, reciprocating acceleration of hydration's reaction rates. This in turn generates increased volumes of cement paste or hydration product in a much shorter time. It utilizes all of the remaining capillary water and leaving none to later evaporate and create void spaces. As a result, the concrete's capillary void spaces become more segmented and smaller than usual. DENSIFIER provides concrete a superior cure imparting extraordinary strength, surface hardness and impermeability and subsequent maximum durability.

The DENSIFIER Cure Method provides concrete with a permanent subsurface, specially formulated colloidal liquid precipitate barrier. Its pore sizes are smaller than concrete's micropores that even further diminish permeability. It forces even gases such as radon to seek avenues of escape other than through concrete's capillary system. The DENSIFIER Cure Method does not leave a surface residue to interfere with surface bonding quality. It produces concrete that is significantly more internally waterproofed, freeze-thaw damage resistant, dust resistant and acid/chemical resistant.

Limitations: DENSIFIER contacting glass should be flushed with water and not allowed to dry, since it could etch. It dulls the shine on shiny aluminum, but

DENSIFIER Continued

Technical Data

the integrity is unaffected. Do not apply on frozen substrate or when temperature is near freezing.

4. Some Advantages:

- Permanently integrally waterproofs concrete
- Provides internal humidity stability
- Preserves matrix and overall integrity
- Increases surface abrasion resistance
- Excellent coating or topping primer
- Improves thermal resistance
- Increases strength
- Zero VOC or VOS content
- Prevents water migration
- Ice removal and cleaning easier
- Improves dusting resistance
- Improves acid/chemical resistance
- Lowers internal chemical reaction potential
- Lowers creep deformation potential
- Lowers electrostatic discharge potential
- Improves past carbonation effects

5. Technical Data:

Physical: Liquid

Color: Cloudy-white (Dries clear)

Odor: None

Specific Gravity: 1.10

pH: ±12

Flammability: None

Toxicity: None

Paintability: Excellent

Cleanup Solvent: Water

Environmental Impact: None/Neutral

R-Factor Increase: Up to 20%

Surface Bond Quality: Excellent

Chloride Screen ability: Excellent

User Status: Friendly

VOC/VOS Compliant: Yes

Spill Cleanup: Dilute/flush with water

Recommended Coverage: 200 S.F./Gal

6. Installation:

Note: In hot climates, mist-wet the surface with water and remove any puddles prior to application.

- Use medium- to high-pressure airless sprayer complete with a 24-inch wand and a .019 fan tip spray jet.
- Hold spray tip 6 inches from surface.
- Apply to the point of saturation at the rate of 200 sq. feet per gallon with an overlapping spray pattern of approximately 10% to 15%.
- Begin applying at the lowest level elevation. For example, walls and slopes should be applied side to side, from the bottom up.
- Wax, paint or anything else restricting access to concrete's interior must be chemically or mechanically removed for DENSIFIER to penetrate.
- Areas of high porosity have a faster penetration rate. These areas appear dry immediately after spraying and will require additional product.
- Do not apply DENSIFIER on frozen substrate or when temperature is near freezing.
- When applying paint, adhesives or other coatings, wait 24 hours after sealing with DENSIFIER, then flush surface with water and allow to dry before coating.
- For very oily /greasy surfaces, use DENSIFIER PLUS CLEANER (or clean with detergent and high pressure hot water prior to application).
- Special note for concrete block:* Block quality, cement content and porosity size

can vary widely. Some may never be completely waterproofed and will only be dampproofed. Spray twice.

k. DENSIFIER may etch glass or dull shiny aluminum and can be difficult to remove from other surfaces once it dries. Cover surrounding surfaces or rinse immediately if sprayed.

l. DENSIFIER is safe to use and environmentally friendly. We do recommend use of a painter's mask during application. Refer to MSDS.

7. Installation as a Cure, Hardener & Sealer:

- Follow normal application instructions, except use a *medium*-pressure airless spray unit to avoid disturbing the top. For *broom finished* concrete that has not been allowed to harden, you may also use a non-atomizing spray apparatus such as a pump-tank sprayer.
- Apply to the newly placed surface as soon as is practical following surface finish.
- Apply at the rate of 150 to 200 square feet per gallon for broom finished concrete; 300 to 350 square feet per gallon on hard or steel troweled concrete.