TECHNICAL DATA SHEET

GreenUmbrella®

ICESTART

Start High-Performance Concrete

Green Umbrella® IceStart™ is a unique curing agent used to ensure an adequately cured floor and is the first of a two-part treatment GreenIce Cure™ system. Using a treatment & trowel process to achieve high-performance floors. IceStart reduces subsurface lateral micro-cracks, mud & shrinkage cracks, cat faces and is formulated to ease finishing by reducing drag on concrete. IceStart provides increased finishability in hot weather without extending the set time in cold weather. IceStart minimizes false sets. Used on dry shake, it will finish as if conventional concrete. Control joints will have a sharper cut that will be shallower. From the Start, you will have the treatment for a high-performance architectural concrete floor.

BASIC USE

Green Umbrella IceStart is a *Surface Applied SCM (Supplementary Cementitious Material) Admixture* that is the first treatment of a *Two-part Surface Applied Admixture Cure and Densification System*, called GreenIce Cure System™ with GUnanoInside™ technology— that is designed for Interior or Exterior concrete. Used only *@EarlyAge* concrete staging, it is a chemical and mechanical process applied at time of concrete placement and power troweling. IceStart is a unique, non-film-forming, no VOC cure. Working as a finishing aid that provides initial cure protection that also ensures a final cured floor with many benefits conventionally seen only in polished concrete floors and the highest abrasion-resistant, high-performance concrete floors. It is additionally providing an unconventional advancement in concrete staging.

GreenUmbrella®

ICESTOP

Stop the Damage @EarlyAge

Green Umbrella® IceStop™ is applied on the surface as the second part of the GreenIce Cure™ system. Working as a fixative, IceStop is sprayed on concrete once power trowels are finished. It creates a protected slab while curing, extending protection during construction. With specially designed properties, this product will densify and add abrasion resistance while repelling water. IceStop increases the strength and longevity of any concrete surface whether covered or exposed in an Architectural Concrete setting. Gloss readings average in the 40s. Start with a high-performance floor and Stop the damage *@EarlyAge™*.

BASIC USE

Green Umbrella IceStop is a *Hydrophobic Fixative for Surface Applied Admixture Cure* that is the second treatment of a *Two-part Surface Applied Admixture Cure and Densification System*, GreenIce Cure™, with GUnanoInside™ technology— that is designed for Interior, or Exterior concrete—applied after the power trowel concrete finishing is complete. IceStop crosslinks to IceStart cure to form surface and deep subsurface benefits conventionally seen only in polished concrete floors, the highest abrasion-resistant, and high-performance concrete floors. Used *@EarlyAge* staging reduces mobilizations by removing the need for monitoring water cure, chemical cure applications, chemical cure removal, and the need for concrete densifiers and hardeners.

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GreenUmbrella®

ICESTART

- Concrete Cure
- Advance The Construction Stage
- Finishing Aid
- Eliminate Bond Issues For Flooring
- Minimizes False Set
- Minimizes Crusting
- Closes Capillaries to Water & Vapor Transmission
- No Free Water Creating Denser Concrete
- Surface Applied Admixture
- Neutral pH Calm Surface Reaction
- Increase ACI 302 Window of Finishability
- Mechanical and Chemical Densification
- Compression Dewatering of Slab
- GreenIce Cure™ penetration >25mm (>0.98").
- Moisture retention evaporation control
- Prevents Rapid Surface Moisture Loss
- Passes ASTM C156 And E96 Parameters For Curing
- Maximum Moisture Retention for Cement Hydration
- Extended Workability Of Slab Surface
- Provides The Ability To Correct Errors In Finishing
- Reduces Drag On Trowel Blades Decreasing Sub-Surface Parallel Micro-Fracturing
- Significantly Reduces Surface Crazing
- Can Be Used In Conjunction With Trap-Rock Or Dry-Shake Hardeners To Ease Their Application
- Densify at placement, no return, no remobilization
- Hard Troweled Surface, Without Over-Troweling
- Ease Of Finishing, Eliminates False Set
- Reduces Drag On The Concrete
- Reduces Subsurface Lateral Micro Cracking
- Removes Cat Faces
- Increases Window of finish-ability In Hot Weather
- Does Not Extend Set Times In Cold Weather
- No More Chasing A Slab That Is Quick Setting
- Collateral Best Practice provides Exceptional Finish And Strength With Superior Fl And Ff Results
- Reduces Plastic Shrinkage Cracks

GreenUmbrella®

ICESTOP

- Unlike a Densifier—it Crosslinks to IceStart Cure
- A Hardener Treatment
- Initial Cure protection for Inclimate Weather
- High Water Repellence
- Natural Look
- Eliminates Off-gassing
- Eliminates Concrete Off-Dusting
- Reduces Slab Curl
- Impermeable
- E-96 Perm Test Exceeds Flooring Requirements.
- Retains Water Inside The Slab For Prolonged, Slow Curing Of Concrete
- More effective than 309 cure
- Stripping Not Required Prior To Placement Of Coverings
- Applied @ Time of placement
- Does Not Contribute To ASR
- Almost No Moisture Loss
- Moisture Mitigated Floor
- Concrete densification
- Monogamous Ionic Connection
- Increases Surface Density And Reduces Permeability
- Create Denser Concrete For Enhanced Insulation Qualities And Improves Energy Performance
- Increase In Abrasion Resistance
- Abrasion Resistance To Wear Characteristics Compared To Trap Rock Or Dry-Shake Hardeners
- Reduces Dusting reduces Long-Term Maintenance Costs By Improving The Surface Cap
- Increased Life-Cycle
- Attain A Highly Refined Surface Finish
- Gloss Readings 40-60
- Increased Light Reflectivity (Ave. 45 On 4500 Psi Mix)
- Naturally Darkens Slab

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TECHNICAL INFORMATION

GreenUmbrella®
ICESTART

Appearance: Purple
Odor: Fragrant smell
pH Level: 6.5-8.5
VOC(grams/Liter): <50
Freezing Point: 32° F
Film Forming: Non
Active Ingredients: 100%
Shelf Life: 18 months
Evaporation Rate: >1.0
Packaging: 5 Gal Pail, 55 Gal Drum, 275 Gal Tote

GreenUmbrella®
ICESTOP

Appearance: Orange
Odor: Fragrant smell
pH Level: 11.6
Evaporation Rate: 1.0
Freezing Point: 32° F
Foot Traffic: 1 hour
Film Forming: Non
Active Ingredients: 100%
Shelf Life: 18 months
VOC(grams/Liter): <50
Wheeled Traffic: 6 hours
Packaging: 5 Gal Pail, 55 Gal Drum, 275 Gal Tote

Safety Data Sheets available at www.GreenIceCure.com

ARCHITECTURAL APPLICATIONS

Ideal for interior or exterior, horizontal Demanding Applications; warehouse/distribution centers, food service, parking decks, garages, hospitals, or similar & specifically for dye and pigment Decorative Color Applications; retail spaces & showrooms, restaurants, business offices, lobby areas, museums, municipalities, airports, hospitals, schools, fire-stations, or most concrete surfaces

MANUFACTURE & PRODUCT CONSULTING

Green Umbrella
20 Jetview Drive Rochester, NY 14624
(844) 200-7336

Website & Documents Available At:
GreenUmbrellaSystems.com
CutSheet, Application Sheet, Feature Brochure, Technical Data Sheet, Safety Data Sheet

Product Consulting Email:
Info@GreenUmbrellaSystems.com

ESTIMATING

Container Size:
IceStart or IceStop
5 gallon (18.9L) - 43 lbs. (19.5 kgs)
55 gallon (208L) - 469.1 lb (212.8 kg)
275 gallons (1,041 L) - 2,345.6 lb (1,064 kg)

Each Green Umbrella IceStart or IceStop container is properly labeled with information, including the product name, description, batch number, and application instructions.

DILUTION

IceStart & IceStop
None.
R.T.U. (Ready-To-Use)
S.O.L.O. (Spray-on-leave-on)

COVERAGE RATES

IceStart is applied 3x in the finishing process. It has a net application rate of 1200 SF per gallon and should not cover less than or more than this amount.

IceStop has an average coverage rate of 400 SF per gallon and should not cover less than this amount.

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SPECIFICATIONS

GreenUmbrella® CUTSPEC™
Simplified Product Spec

EarlyAge Conventional Concrete:
IceStart™ and IceStop™ by Green Umbrella® of Rochester, NY (844) 200-7336 an R.T.U. (Ready to Use), S.O.L.O. (Spray-On, Leave-On), Green Umbrella IceStart is a *Surface Applied SCM (Supplementary Cementitious Material) Admixture* that is the first treatment of a *Two-part Surface Applied Admixture Cure and Densification System*, called GreenIce Cure System™ with GUnanoInside technology— that is designed for Interior or Exterior concrete. Used only *@EarlyAge* concrete staging, IceStart is a chemical and mechanical process applied during concrete placement and power troweling. Apply IceStart before initially breaking open the floor with pans or float shoes. Next, spray onto the slab surface in three equal applications at a rate of 400 SF per gallon using the retardant system for the ride-on trowels. Alternatively, a low-pressure--high volume battery-pack, manual, or commercial quality sprayer Completely works into the surface using a walk-behind or ride-on power trowel equipped with float pans following each application. After completing the application of IceStart, and finishing by burning the floor. Once the concrete is hard enough for walking, apply IceStop™, a fixative for the IceStart. Green Umbrella IceStop is a *Hydrophobic Fixative for Surface Applied Admixture Cure* that is the second treatment of a *Two-part Surface Applied Admixture Cure and Densification System*. No need to specify a cure & seal or concrete hardener, or wet cure. Apply IceStart in temperatures 40 (and rising) -95°F (4-35°C) at 400 SF per gallon . Keep wet for a dwell time of 30 minutes. Allow to air dry. (For certified installers and manufacturer instructions, visit www.GreenUmbrellaSystems.com)

EarlyAge Concrete To Be Abrasively Trowel Polished:
IceStart™ and IceStop™ by Green Umbrella® of Rochester, NY (844) 200-7336 an R.T.U. (Ready to Use), S.O.L.O. (Spray-On, Leave-On), Green Umbrella IceStart is a *Surface Applied SCM (Supplementary Cementitious Material) Admixture* that is the first treatment of a *Two-part Surface Applied Admixture Cure and Densification System*, called GreenIce Cure System™ with GUnanoInside technology— that is designed for Interior or Exterior concrete. Used only *@EarlyAge* concrete staging, IceStart is a chemical and mechanical process applied during concrete placement and power troweling. Apply IceStart before initially breaking open the floor with pans or float shoes. Next, spray onto the slab surface in three equal applications at a rate of 400 SF per gallon using the retardant system for the ride-on trowels, or a low-pressure—high volume commercial sprayer. Work into the surface with a walk-behind or ride-on power trowel equipped with float pans following each application. After last application of IceStart. trowel burn as needed. When the concrete is hard enough for walking apply IceStop™, a fixative for the IceStart. Green Umbrella IceStop is a *Hydrophobic Fixative for Surface Applied Admixture Cure*, the second treatment of a *Two-part Surface Applied Admixture Cure and Densification System*. No cure & seal, concrete hardener, or wet cure is needed. Apply IceStop in temperatures 40 (and rising) -95°F (4-35°C) at 400 SF per gallon. Keep wet for a dwell time of 30 minutes. Allow to air dry. Use a power trowel machine adapted for abrasive concrete polishing or propane power abrasive grinder. GreenIce Cure Systems allows *Profile, Hone and Polishing @EarlyAge* concrete a few days after concrete placement and finishing or within 28 days. 1) Wet profile and hone with GreenCut™ abrasives with GreenCut™ cutting agent to specified profile. 2) Optional: Apply Green Umbrella NanoDye™ for colorant 3) Apply DryShield™ for surface densifier in temperatures 40 (and rising) -95°F (4-35°C) at 400-500 SF per gallon. Keep wet for a dwell time of 30 minutes. Allow to air dry. 5.) Apply Shield & Enhance™ as color and salt guard. 6) Hone and polish to specified gloss with Green Cut™ abrasives. 7) Apply Green Umbrella Microfilm™ - a wear guard - at a rate of 1000-1200 SF per gallon. 8) Burnish with GreenGloss™ concrete-weighted, high-speed burnisher and GreenGloss™ pads. (For certified installers and manufacturer instructions, visit www.GreenUmbrellaSystems.com)

CSI SPECIFICATIONS

DIVISION 03 & 09
Section 03 3536
EarlyAge Concrete
Mature Concrete or Retrofit
Section 03 3543 & 03 3536 Abrasive Polish
Coordinate with section:
Section 032400 - Synthetic Fiber Reinforcement Section 033119 - Shrinkage Compensating Concrete Section 033550 - Integrally Colored Concrete Section 033000 - Cast in place concrete

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Section 033500 - Concrete Finishing
Section 033900 - Concrete Curing
Section 079200 - Joint Sealer

For CSI Specifications Contact a Consultant:
info@greenumbrellasystems.com

Note to Specifier
Green Umbrella Architectural Concrete System treatments like Green Umbrella® IceStart™ & Green Umbrella® IceStop™ are just part of a successfully specified concrete floor.
The specifier must keep in mind several construction disciplines: the concrete mix design, concrete placement, concrete finishing, and finally, the "polisher" or the PHP craftsman. We encourage you to carefully specify these elements, even if Green Umbrella products are not used. Each of these disciplines is critical for the overall success of this design element. Ways and means generally need to be specified. Green Umbrella Architectural Concrete System is an approach from design to completion, created to help the specifier succeed, covering stages from the concrete pour through to the floor's maintenance.

There are six major components to the Green Umbrella Architectural Concrete System: knowledgeable CONSULTANTS, the CANVAS, the PROCESS made up of 'ways and means,' high productivity EQUIPMENT, TREATMENTS and finally, qualified flatwork and polishing CRAFTSMEN.
All of its components follow the Nine Fundamentals of Green Polishing (www.theconcrete9.com) that educate a specifier on these principles. Consulting ACI Guide to Decorative Concrete (ACI 310R-19) can be helpful. The GUAC System is not simply opening the concrete substrate and applying a resinous polymer sealer. Specify an environmentally responsible mechanical process that involves processing the floor wet to avoid silicosis issues for the installers and the future occupants and @EarlyAge to improve construction downtime. The process uses a progression of abrasive grits with a wet cut agent Green Umbrella GreenCut™ on a machine built for a wet profile & hone process. The use of water enables a higher-quality cut to the floor. The wet profile system is well supported in the industry for the best clarity, quickest aggregate exposure, and time-savings, among other advantages.

Designing the canvas or concrete slab: Green Umbrella GreenCanvas™ shrinkage compensating concrete can be specified in the mix design (ACI 223R-10) to ensure that the surface is ideal for a jointless, non-curling floor. For conventional concrete, consult American Concrete Institute Guide to Design of Slabs on Ground (ACI 302.1R-15) for joint spacing if shrinkage compensating concrete is not used. The specification should separate concrete slabs into 03 30 00 Cast-In-Place concrete for surfaces not designated for polished concrete and SECTION 033509 – CONCRETE CURE AND PROFILE FINISHING SYSTEMS for surfaces selected for polished concrete
Concrete specification SECTION 03 35 43 - POLISHED CONCRETE FINISHING should be referenced. Mix design should not exceed 20% slag or fly ash content, if at all, for clarity of polishing and color application ease. Due to many factors, pre-qualification of contractors should be in place and required in submittals. Concrete specifications may require ACI flatwork certification. A quality control plan, pre-construction conference, and mock-up are all critical.

For EarlyAge concrete to be Abrasively Polished: Considerations should be given to specifying the following products for an economical & sustainable floor 1) Green Umbrella IceStart™ (cure) & IceStop™ (fixative) during and immediately after concrete placement & finishing. 2) Green Umbrella Fiberlite™ to reduce plastic cracking and for strength. 3) Green Umbrella Hydro-Shield for the hardening of concrete and prevention of concrete off-dusting.

Specify equipment: It is critical to use the appropriate head pressure and rpm for concrete profiling, honing, and polishing. Green Umbrella recommends using equipment with propane and alternative fuels to reduce environmental impact. Cordless PHP equipment may allow for early access to projects with limited 220 volt electricity and eliminates the hazards common to dry grinding or attempting wet cutting using electric equipment. Specify high-productivity machines with sufficient equipment on large projects to meet production goals and not adversely affect project timeline and/or other trades. Specify equipent that meets LEED Building Operations and Maintenance (LEED O+M) requirements. Green Umbrella grinders (Green Grinder or GreenXtreme) and Green Umbrella Low Profile Edger process the entire floor, with the same abrasive profile within 1⁄4 inch of walls or under shelving. Specify the same matrix of all cutting abrasives, eliminating the inconsistencies found on projects when a mix of manufacturer brands is used.

Hardeners & Densifiers: Research shows that these

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treatments are effective against concrete dusting and harden- ing of the surface and are accepted as a standard. Green Umbrella concrete treatments are non-sodium and do not generate hazardous waste. The Green Umbrella line of densifiers are not water-soluble and do not contribute to alkali-silica reaction.

Colorants: Green Umbrella treatments that are pH neutral will not resist color introduction or promote "walk-off" common with many color and hardener combinations; this is why it is essential to match the family of treatments to the colorants. Otherwise, the specifier may unknowingly specify treatments that do not work well together. Green Umbrella colorants, dyes, and micro-pigments have superior color fastness compared to traditional stains and dyes. FROM DESIGN TO COMPLETION, YOU EXPERIENCE A COMPLETE SYSTEM.

Environmental Responsibility and LEED Considerations

A Green Umbrella Architectural Concrete Systems specified process is specially designed to require less labor and downtime while lowering environmental impact. Green Umbrella HydroShield is easy and quick to apply, requiring less labor. HydroShield has zero VOC's with no impact on indoor air quality.

Human Health - Indoor Environmental Quality (IEQ)

• Architectural Concrete may be finished so as to dramatically reduce bacterial adhesion and the presence of biofilms, creating a healthier environment free of harmful bacteria and viruses.

Human Health - Indoor Air Quality (IAQ)

• Many studies indicate that indoor air quality is enhanced with properly maintained Architectural Concrete vs. carpet or other floor coverings
• Architectural concrete does not support combustion, nor does it produce smoke or toxic fumes (LEED v4.1 Operations and Maintenance, propane equipment)
• Architectural Concrete can eliminate moisture issues, shrinking possible growth of mold and fungus.

Optimize Energy Performance

• Polished concrete allows the advantage of utilizing the thermal mass of concrete in heating and cooling.
• Polished concrete increases light reflectivity, amplifying the benefit of ambient (natural) lighting, and reducing process loads from light fixtures.

Building Reuse/Construction Waste Management/Recycled Content

• Existing Buildings — Environmental stewardship through the reuse of the existing floor.
• New or Existing Buildings — Not wasting materials or energy required to produce a floor covering or topical coating.

VOC/IAQ/Long-term Maintenance

• Polished concrete has zero VOC content
• Many studies indicate that indoor air quality is enhanced with properly maintained hard surfaces vs. carpet
• Polished concrete does not support combustion, nor does it produce smoke or toxic fumes (LEED v4.1 Operations and Maintenance, propane equipment)
• Polished concrete has a lower maintenance cost and zero replacement cost compared to traditional floor coverings.

Life Cycle Cost

• Sources show polished concrete to be the lowest life-cost flooring option available

TESTING

For all independent lab testing contact us at Info@GreenUmbrellaSystems.com

ASTM C494 / C494M - 19 Standard Specification for Chemical Admixtures for Concrete

Water Loss

ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials

ASTM C156 Water Loss [from a Mortar Specimen] Through Liquid Membrane- Forming Curing Compounds for Concrete

ASTM 309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

Abrasion Resistance, Strength, Hardness

ASTM C779 / C779M 12 " Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces"

ASTM C944: "Abrasion Resistance of Concrete by Rotating-Cutter Method"

BS EN 13892-4: 2002 Standard Methods of test for screed

materials. Determination of wear resistance "BCA"
ASTM C1583 Standard Test Method For Tensile Strength Of Concrete Surfaces And The Bond Strength Or Tensile Strength Of Concrete Repair And Overlay Materials By Direct Tension (Pull-Off Method)

Chemical Resistance Of Finishes

ASTM 1308 Standard Test Method For Effect Of Household Chemicals On Clear And Pigmented Organic Finishes (Aviation Fluid Resistance With Green Umbrella GreenIce Cure & Profile System)

Mohs Scale Of Mineral Hardness

ACI 302 Standard Guide For Concrete Floor And Slab Construction

USDA COMPLIANT

FDA COMPLIANT

Green Umbrella GreenIce Cure & Profile™ System with Shield & Enhance provides a greater Chemical resistance to JP-8+100 fuel - 0.1% weight gain Chemical resistance to 30 wt motor oil — 0.007% weight gain Chemical resistance to Skydrol 500 B-4 - 0.05% weight gain

PROFILE, HONE & POLISHING EQUIPMENT

Green Umbrella propane equipment meets LEED v4.1 Operations and Maintenance Guidelines. Green Umbrella uses propane-fueled equipment to save the owner as much as 50 cents a square foot in electrical cost for three-phase and 220-volt equipment often used by PHP contractors. In itself, propane is not a direct greenhouse gas contributor and is one of the world's most widely used alternative fuels. Electric power adds 80% more CO2 into our atmosphere than does propane. Propane can be a safe, clean, and efficient fuel.

All Green Umbrella propane equipment should have the following:

CARB and EPA certified engines to meet their strict guidelines for low CO2 emissions.
ESDS (emissions shut down system) — machines are manufactured to incorporate a 3-way catalytic muffler to lower CO2 emissions and an ESDS that monitors the engine for irregularities and automatically shuts the machine down if emissions rise.

High Productivity Rider Grinder - processes larger areas in less time
GreenXtreme by Green Umbrella
- Heavy duty commercial floor grinder/polisher or equivalent
- Minimum 933 pounds head pressure
- 77-inch grinding width
- Minimum 8000 square feet per hour production rate.
- Wet abrasive compatible

Variable Abrasive Concrete Grinder — profiles, hones, and mechanically polishes floors

GreenGrinder/Polisher by Green Umbrella
- Propane-powered, heavy-duty commercial floor wet abrasive compatible
- Minimum 785 pounds head pressure
- CARB/EPA approved.
- 30-inch grinding width
- 12 abrasives, counter-clockwise planetary rotation
- Minimum 800 square feet per hour production rate.
- Provide a minimum of two units on site

Variable Abrasive Concrete Edge Grinder — processes floors within a 1⁄4 inch of wall

GreenEdger by Green Umbrella
- Propane-powered, heavy-duty commercial floor edge grinder/polisher
- Wet abrasive compatible
- Minimum 165 pounds head pressure
- CARB/EPA approved
- 1/4 inch cut to the wall
- Four or six abrasive head, 640 RPM abrasive rotation
- Provide a minimum of one unit on site

Weighted Concrete Burnisher — removes unreacted material, promotes cross-linking and enhances gloss.
GreenGloss by Green Umbrella
- Propane-powered, UHS Burnisher
- CARB/EPA approved.
- 27 or 39-inch burnishing width
- Weighted Head Minimum 2000 RPM
- Provide a min of two on site Walk Behind Slurry Recovery Machine — cleans between abrasive steps to prevent contamination. Important: not all floor scrubbers are effective in slurry recovery.
- Green Umbrella recommended slurry recovery vacuum.
- Auto scrubber similar to Tomcat or Nilfisk-Advance

with accessible concrete clean-out
• Minimum 500-pound head pressure
• Water application and minimum 30-gallon recovery tank
Abrasives for PHP Equipment — cut concrete substrate in a sequence of steps.
• Stock removal, profiling, honing and polishing abrasives, hybrid bond abrasives by Green Umbrella
• Match hardness of abrasives to the hardness of concrete

Prep Equipment
• Power Washer on low psi
• Industrial WaterBroom by Water Miser or equivalent, up to 180 PSI of water
Application Equipment
• Hand-Pump Sprayer Applicator — used to apply the product evenly and consistently.
By Green Umbrella, Patriot Sprayers, or equivalent (A Non-Metal Canister)
Maximum tip pressure 40 psi
• T-bar with blended applicator — evenly distributes product sprayed on concrete substrate

All products can be seen at GreenUmbrellaSystems.com

End Note to Specifier

Note to Applicator:

TIME, TEMPERATURE & HUMIDITY

For a chemical reaction to take place successfully, time must be allocated for the full reaction. Likewise, when applying Green Umbrella IceStop to concrete, there must be an adequate amount of dwell time for the reaction to take place. Doing so will help to achieve the best result.

For IceStop to effectively penetrate the substrate, the temperature should not be less than 40°F (4°C) for several hours after application. If temperatures are lower than recommended, the chemistry may take much longer to react and penetrate the concrete substrate. If the temperature exceeds the recommended maximum of 95°F (35°C), or if conditions are windy, the chemistry could react and dry before penetrating the substrate. In such circumstances, keep floors hydrated with water for recommended dwell time.

Humidity also plays a role in the dry time. The product applied to a dry slab of concrete in an arid climate will dry faster than in a humid environment. In dry climates with low humidity, it may be necessary to hydrate the slab to allow for proper dwell time. If several treatments are being applied, product staging should be planned to meet all treatment **dwell times** and **dry times**. It is recommended to use **dew point** data from a mobile hygrometer to determine the best staging of concrete treatments to eliminate needless downtime. Please consult a GreenUmbrella consultant with any questions. The use of on-site hygrometers and thermometers can provide meaningful data to facilitate treatment application success.

IceStop Time to traffic: For best results, light foot traffic when dry or after 1 hour. Wheeled traffic and profiling after 3 hours.

High Temperature or Windy (Consult ACI 305R-20 for Wind Advisory) Application Over (95°F or 35°C) *@EarlyAge* Next-day & *@MatureAge* Concrete Hot Slabs:

(Consult ACI 305R-20 for Wind Advisory)

Reduce slab temperature: Hydrate a hot slab to reduce the surface temperature so flash drying of HydroShield does not occur. Hydrate for an hour in the most arid of conditions, disperse any puddles, then immediately proceed to high temperature and high wind instructions below.

Apply IceStop at 400 SF per gallon, more if needed. If necessary, mist the slab with sufficient water at 20 minutes to achieve the required 30 minutes of wet surface dwell time.

PRODUCT PLACEMENT

EarlyAge Concrete:
IceStart (cure) is placed on new concrete the same day of pour after concrete placement and during the finishing process, once the concrete is hard for walking, after joint cutting IceStop (fixative) is applied. This GreenIceCure system removes reason for other products & processes such as cure & seal and wet cure to be placed in construction stages.

MatureAge Concrete:
Not Applicable

APPLICATION

Concrete Placement

After the above placement of the pour it is recommend that within days to a week the Profile Hone and Polish process is done.

1. Proper form setup is essential and must be established from a single benchmark.
2. Ensure sub-grade is properly compacted before placing any concrete. A properly consolidated base will support redi-mix trucks without rutting.
3. Concrete Slump should be maintained +/- 1"
4. Concrete placement should be as uniform as possble in front of the screed to avoid uneven aggregate exposures issues. Placing the concrete too high and striking it off will cause stripes of aggregate when polished, lows will become stripes of cream without visible aggregate.
5. Laser Screed / Truss / Hand-held Vibra Screed acceptable (Vibration is required for proper consolidation) Turn off vibration when stopping screed to avoid creating a cream line with the screed.
6. If above 50 degrees apply the first application of Green Umbrella IceStart @ 400 sqft/gal. Spray system may be mounted to the laser screed for larger pours (If ambient concrete temperature is below 50 degrees, follow ACI Standard 306R-16 for Cold Weather Concreting. Thus waiting for first application until after first pan, applying two other applications during finishing.)
7. Roller Bug (May also be adapted to the Laser Screed) Roller Bug is used to ensure large aggregate is pushed down. Should be run in 1/2 overlapping passes
8. Channel Float/Bull Float "Mop" (8' to 10' preferred) to smooth the surface and locate high and low spots that need to be corrected. Any major re-straightening if required must be done during this phase.
9. Re-straighten edges, columns, wall lines, and around all protrusions w/ 4' Board and smoothed with a magnesium hand float. (These areas shouldn't have a steel trowel used on them until the body of the floor is being closed with steel trowel blades.) Do not premature close the slab

CONCRETE FINISHING

1. If it does exist, wait until bleed water sheen has dissipated, and a footprint leaves 1/4" or less indentation before breaking the surface the first time with pans or float blades. First break w/pans should follow a pattern 90° to screed direction. Back all edges with trowel to avoid stacking the aggregate at the edges.
2. Apply the second application of Green Umbrella IceStart @ 400 SF per gallon. This application may be applied via the sprayers on ride on trowels to avoid walking on the slab, making sure to apply at 400 SF per gallon.
3. If you need to walk on the slab for any reason kneeboards or finishing slicks must be utilized to maximize your floatation and minimize depressing the aggregate. (Failure to do so may result in visible footprints after polishing.)
4. After each pass re-straighten edges, columns, wall lines and around all protrusions w/ 4' board and smoothed with a magnesium float. (These areas shouldn't have a steel trowel used on them until the body of the floor is being closed with steel trowel blades.)
5. Second break w/pans should follow a pattern 90° to initial break direction. Apply the third and final application of Green Umbrella IceStart @ 400 SF per gallon. This application may be applied via the sprayers on the riders to avoid walking on the slab.

** Green Umbrella IceStart may still be utilized as a "Finishing Aid" to correct surface defects and "Cat-Faces" during this phase of floating and even in the early finishing.

6. Third break w/pans if needed however the finisher may use their judgement and experience to begin laying the floor down with combination blades.
7. Combination Blades should be used to close and finish the floor. Blades should be pitched as low as possible 5-8° maximum pitch to minimize edge pressure and ensure the aggregate matrix is consolidated as much as possible and to minimize rolling the aggregate and breaking the cementitious bond.
8. Use a rider trowel or walk behind for final finish. For best results, use a combo machine that has been kept clean for this purpose. At the time of final burnish its very important to make sure any small pieces of concrete that are on the surface are blown off the surface with a leaf blower. Do Not finish over these as there may be noticeable defects. Use the edge of a finish trowel to cut any of these off the surface and then correct if possible with the trowel.
9. After the finishing has been completed and the trowels have moved off the area ensure you can walk on the surface without marring apply Green Umbrella IceStop @ 300-400 SF per gallon.

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HEALTH & SAFETY

Clean Up And Disposal:
Clean sprayers and equipment with warm, soapy water and rinse thoroughly following use. Any product that cannot be saved for recovery or recycling should be disposed of according to local/state laws.

ICESTART

1	HEALTH
0	FIRE
0	REACTIVITY/INSTABILITY
C	PERSONAL PROTECTION
X	IRRITANT

ICESTOP

1	HEALTH
0	FIRE
0	REACTIVITY/INSTABILITY
C	PERSONAL PROTECTION
X	IRRITANT

WARNING:
Keep out of reach of children. Read the label before use.

FIRST AID:
Contact a Poison Center or physician if the injured feels unwell. If swallowed: DO NOT induce vomiting. Rinse eyes with water. Remove the injured to fresh air and keep at rest in a position comfortable for breathing. Wash with plenty of soap and water. Remove contaminated clothing and wash before reuse.

For Detailed SDS consult company website www.GreenUmbrellaSystems.com

For Medical Emergency call INFOTRAC (24/7): 1-800-535-5053

Green Umbrella Headquarters (Normal Business Hours): (844) 200-7336

WARRANTY & LIMITATIONS

For a period of ten (10) years beginning the date on which the concrete surface described is treated with Green Umbrella® products, Green Umbrella Companies (GU) warrants to the owner that after the specified completed installation, the treated surface will remain water-resistant, dust-proof, hardened, and abrasion-resistant. In the event the surface fails to perform, GU will, at its own expense and its own discretion, supply either sufficient product(s) to repair any such failure or provide materials cost reimbursement. A GU manufacturer's representative must be on-site to supervise the installation.

It is the contractor's responsibility to follow all directions and requirements, as outlined in the Green Umbrella installation specifications. A completed Project Survey form or equivalent document outlining the steps and products used in the process must accompany this warranty request.

Green Umbrella Companies (GU) solely and expressly warrants that its products shall be free from defects in materials and workmanship for six months from the date of purchase. Unless authorized in writing by an officer of GU, no other representations or statements made by GU or its representatives, in writing or orally, shall alter this warranty. GU MAKES NO WARRANTIES, IMPLIED OR OTHERWISE, AS TO THE MERCHANTABILITY OR FITNESS FOR ORDINARY OR PARTICULAR PURPOSES OF ITS PRODUCTS AND EXCLUDES THE SAME. Green Umbrella PRODUCT APPLIED TO SUB-STANDARD CONCRETE IS EXCLUDED FROM ANY KIND OF WARRANTY. If any Green Umbrella product fails to conform to this warranty, GU will replace Green Umbrella product at no cost to the Buyer. Replacement of any Green Umbrella product shall be the sole and exclusive remedy available, and the Buyer shall have no claim for incidental or consequential damages. Any installation of Green Umbrella products that fail to conform to such installation information and instructions shall void this warranty. If any, product demonstrations are done for illustrative purposes only and do not constitute a warranty or warranty alteration of any kind. The Buyer shall be responsible for determining Green Umbrella products' suitability for the Buyer's intended purposes.

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