TOPSHELL™

TOPSHELL OVERLAY
TECHNICAL DATA SHEET

PRODUCT DESCRIPTION

TopShell overlay is a cementitious, non-bituminous pavement preservation product designed to protect and enhance the overall physical properties of asphalt and concrete surfaces. It creates a tough and durable high friction wearing course that bonds permanently to aggregate, pavement surfaces, and metal. TopShell stops further oxidation, giving a maximum lifespan to the underlying surface

Applying TopShell reduces the need to use petroleum-based preventative maintenance products. It is environmentally-friendly and available in a wide range of colors. TopShell is a single-component overlay material applied at 1/16" to 1/8" (1.6mm - 3.2mm).

TOPSHELL BENEFITS

PRESERVES: Extends pavement life by creating a new wearing surface; Inhibits oxidation (blocks UV rays and prevents water intrusion)
INCREASED FRICTION: Adds surface friction, providing a better grip in slippery conditions
EFFICIENT: A single application with a quick set time allows for a rapid return to traffic
LEED QUALIFIED: Contains no harmful VOCs emissions or emulsions and meets LEED requirements for solar reflectivity
APPEARANCE: Pre-blended product provides a consistently attractive surface and is available in a variety of colors
DURABLE: High compressive strength coupled with superior wet track abrasion performance reduces the frequency of pavement maintenance

RECOMMENDED APPLICATIONS

- Subdivisions & Private Roads
- Bike Lanes
- Highway Shoulders
- Local Road
- Sports Courts
- Parking Lots/Garages
- Sidewalks
- Bridge Decks
- Covered Garages
- Walking Paths

PACKAGING, STORAGE, & SHELF LIFE

TopShell is available in 50 lb. bags (23 kg) and 3,000 lb. (1361 kg) Super Sacks. Store TopShell bags/sacks off the ground and out of direct sunlight. Do not allow product to freeze. Precondition materials to a minimum of 45°F/8°C before mixing. For best results, use within 12 months.

TEMPERATURE AND WEATHER

Apply TopShell when temperature is above 40°F/5°C and rising. Do not install TopShell if rain or snow is expected within 24 hours. Water temperature should not exceed 80°F/27°C. Water temperature, humidity, and surface temperature will affect

PERFORMANCE DATA

TABLE 1: PHYSICAL PROPERTIES OF TOPSHELL GRAY*

PROPERTY	TEST METHOD	RESULTS
Density, lbs/gal (25°C)	ASTM D2939-07	16.5
Residue by Evaporation, %	ASTM D6934	74.5
Dry Time, 0.1 hrs	ASTM D711	0.31
Rotational Viscosity, mPa·s	ASTM D2983	5,200
Adhesion to Asphalt – New & Old	PRI	Pass
Compressive Strength, psi	ASTM C-109	24 hrs – 2,500 / 7 days – 5,800 / 28 days – 7,210
Freeze Thaw	FAA, P-627	Pass
Skid Resistance, BPN units	ASTM E303	0.667
Bond Adhesion	AASHTO TP-108	Pass
Water Resistance	ASTM D2939-15	Pass
Fuel Resistance	ASTM D2939-12	Pass
Wet Track Abrasion, g/m^2 (1 hr)	ISSA TB-100	Pass - 2.12 g/m^2 loss
Accelerated Weathering (1,000 hrs)	ASTM D4798	Pass – No Loss

TABLE 2: ENVIRONMENTAL PROPERTIES OF TOPSHELL GRAY**

PROPERTY	TEST METHOD	RESULTS
LEEDS Reflectance, SRI	ASTM E1980	0.49
LEEDS Emittance, SRI	ASTM E1980	0.91
VOC's, %	EPA 24	0.01

*All properties and results show are typical of those obtained when professionally tested using industry standard testing methods. Different application thicknesses and uses were tested due to variations in mix design or specific application techniques. Variables include; water ratio, application thickness, application tool/technique, drying temperature, environment, wind, curing temperature & humidity.

**The results shown for TopShell Gray may not represent the properties of other TopShell colors

SURFACE PREPARATION

- Preexisting surface must be structurally sound, clean and bondable.
- Remove all organics, grease, and other contaminants.
- Polished or glossy surfaces should be roughened and/ or treated.
- Thoroughly remove all debris and dust from the surface.
- Check the surface for standing water. Surface must be fully cured and dry.
- Cracks and spalling should be repaired, patched, and smoothed.
  Unrepaired cracks will remain visible in the finished surface.

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MIXING

One 50-pound (22.7 kg) bag of TopShell requires, 5.25-5.75 US quarts (5.0-5.45 liters) of clean water. Add water to a 5-gallon bucket or mixing device and slowly add TopShell powder while mixing. Mix completely until it is lump-free and pourable. Allow mixture to release air before immediately applying a thin layer to a section of the working area.

POT LIFE

Mixture will remain spreadable for approximately 20 minutes. In hotter conditions, working time will be reduced. Re-agitate prior to application if required.

APPLICATION & HANDLING

- Hand/Squeegee Application: After mixing, slowly pour a thin line of the TopShell mixture across the surface and evenly distribute the coating into a thin layer using a squeegee. Immediately broom or finish to desired texture.
- Spray/Hopper Gun: Immediately after mixing, pour TopShell mixture into the reservoir of the hopper gun outfitted with a large orifice. Cover the surface using a circular spray pattern.
- Micro-Surfacing Paver: Use only micro-surfacing pavers that are equipped with recommended spreader box. Apply material according to the guidelines of the paver manufacturer and contact TopShell's Technical Department.

The single pass application thickness should not exceed 1/8" (3.2mm).

COVERAGE RATES

1/16 inch (1.6 mm)
50-lb Bag: 140-160 ft^2 (13-15 m^2)
3,000-lb Super Sack: 935-1,075 yds^2 (780-890 m^2)

1/8 inch (3.2mm)
50-lb Bag: 80-100 ft^2 (7-9 m^2)
3,000-lb Super Sack: 535-670 yds^2 (445-555 m^2)

Coverage shown is for estimating purposes only. Actual jobsite coverage may vary according to substrate conditions and application method.

Cure Time	Multiple Coats
TopShell is self-curing. The product will initially set within 4 hours. Return to traffic after 8 hours. Full cure is reached in 28 days	TopShell may be applied in a single coat or in multiple coats. When applying multiple coats, allow the first coat to set thoroughly before starting the application of the next coat.
Cleanup	**Sealing**
Unset TopShell can be removed with water.	For additional aesthetic benefits and a reduction of efflorescence, use a recommended sealer. Allow TopShell to dry before sealing.

SAFETY

- Consult and follow the TopShell Safety Data Sheet (SDS).
- Use recommended PPE when handling or applying TopShell.
- Always follow the safety recommendations provided by equipment manufacturers.
- Do not inhale. Skin and eye irritant. Keep out of the reach of children.

LIMITATIONS

- For best results, test TopShell in a small, inconspicuous area before fully applying
- Do not apply TopShell if there is excessive ground water or hydrostatic pressure near the slab.
- TopShell should only be applied to structurally sound surfaces and is not intended for use as a crack or pot hole repair product