PRODUCT NAME

Gem-Crete HF ST

Polymer modified, highly flowable mortar topping

MANUFACTURER

Gemite® Products Inc.

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FEATURES

- Highly flowable - almost self leveling
- Superior adhesion
- High abrasion resistance
- Stops chlorides
- Tough and impact resistant
- Totally waterproof
- Long term durability and toughness
- Exceptional UV light resistance
- Breathable
- Easily applied
- Economical
- Nonflammable, nontoxic
- Resistant to oils and hydraulic fluids
- Can be applied to concrete or asphalt surfaces

PRODUCT DESCRIPTION

Basic Use

Gem-Crete HF ST™ is a heavy duty thin topping for protection of new and restoration of deteriorated concrete and asphalt concrete decks and other areas exposed from medium to heavy traffic. *Gem-Crete HF ST* is suitable for the repair of bridge decks, parking garages, runways and tarmacs. *Gem-Crete HF ST* can be applied to rough and damp surfacesto providea continuous waterproofing and skid resistant surface.

Composition and Materials

Gem-Crete HF ST, a high performance, polymer modified Portland cement based mortar topping. The combination of polymers with selected mineral admixtures provides an excellent resistance to water,weak acids as well as an excellent abrasion and impact resistance. This water borne formula is VOC compliant, breathable and releases water vapor from the substrate. It exhibits self-leveling characteristics.

Limitations

Do not apply when rain is imminent. Surface and ambient temperature during and 24 hours after the application must not be less than 45°F (7°C) or above

90°F (32°C). Fresh (green) concrete must be cured for at least three days prior to the application of *Gem-Crete HF ST.* Must not freeze during first 48 hours after application. The minimum thickness of *Gem-Crete HF ST* on concrete substrate is 1.6 - 6 mm (1/16-1/4 in) depending on traffic conditions - heavier traffic requires a thicker application. For very high impact loading use glass fibre reinforced *Gem-Crete HF Plus*, or use the *Reinforcing Mat*.

Health and Safety

Gem-Crete HF ST is nontoxic and nonflammable. If contact with skin occurs, wash with water. Harmful if digested. Keep the product out of reach of children. For industrial use only. Consult MSDS for additional information.

Finishes and Colors

Gem-Crete HF ST is available in grey, light grey and white colors, smooth or textured finish. The materials can be tinted using conventional pigments for waterborne systems. Some custom colours are available on request. Contact Gemite Technical Service for further information.

Packaging

Gem-Crete HF ST is a two component material. The dry component "A" is packaged in 50 lbs (22.7 kg) bags and a ready-to-use liquid component "B", 4.3 L (1.13 USG)- industrial grey. The light grey and white formulations contain 3.7 L (0.97 USG) of the liquid component B, packaged in plastic containers.

Coverage

Gem-Crete HF ST Industrial Grey: Mixing one bag of the dry component with the liquid results in 0.46 ft^3 (13 L) of material. The theoretical coverage at 1/8 in (3 mm) thickness is 46.3 ft^2 (4.3 m^2). The coverages are only given as guideline and depend greatly on the roughness and porosity of the substrate, thickness of the application and application method used. Carry out field application to determine the exact material quantity requirements.

Storage and Transportation

The shelf life of the dry component "A" is 12 months when stored in a dry environment. The shelf life of the liquid unopened containers is two years. Store the liquid component "B" in temperatures above 40°F (4°C). It must not freeze.

TECHNICAL DATA (Industrial Grey)

Modulus of Rupture (ASTM C348)	9.7 - 11.7 MPa (1,400 - 1,700 psi)
Ultimate Tensile Stress	3.4 - 4.8 MPa (500 - 700 psi)
Compressive Strength (ASTM C109)	37.2 - 39.3 MPa (5,400 -5,700 psi)
Freeze-Thaw Resistance (ASTM C666, Procedure A)	0% weight loss after 300 cycles

Toxicity	Non-toxic in both wet or dry
Water Vapor Permeability (ASTM E96)	0.14-0.25 metric perm cm (0.085 to 0.15 perm-in)
Direct Tension Bond	1.0 - 2.5 MPa (150 - 360 psi) Failure in concrete substrate
Slant-Shear Bond Strength (ASTM C882, CRD- 596)	15.8-20.7 MPa (2,300-3,000 psi) 14.5-15.8 MPa (2,100-2,300 psi)
Resistance to Chloride Penetration (AAHSTO T259)	no chloride penetration
Resistance to Chloride Penetration (AASHTO T277)	300-400 Coulombs
Salt Scaling Resistance (MTO Ontario, Form 1351)	accumulative weight loss, 50 cycles, 0.004 g/cm^2

INSTALLATION

Current Guide Specification and Application Instructions contain additional information specific to each application and must be followed. Check with the distributor or manufacturer that the current current product data sheet literature is used.

Surface Preparation -Concrete

The surface to be coated must be clean. Remove all dirt, efflorescence, loose particles, paint, cement scaling and other foreign matter which can interfere with the adhesion of the coating. Use scarifiers, shotblast, water blast, sandblast as required on concrete surfaces. The surface must be sound and solid.

Surface Preparation - Asphalt

All cracked and delaminated layers of asphalt must be removed. Some substrates may be beyond the repair using *Gem-Crete HF ST.* The asphalt surface must be free of contaminants, oil and grease. Use a high pressure water blast to clean the surface. Do not use shotblasting or sandblasting.The new asphalt must be exposed to air for a minimum of 60 days.

Crack Treatment

Rout out all the cracks and form grooves approximately 9 mm by 9 mm (3/8 in by 3/8 in) and fill them *Fibre-Patch OV* modified with *Adi-Con BA AC Super (*1:1 with water). Please contact Gemite Technical Service for detail information regarding crack treatment

Application

Patching

For spall repairs use *Fibre-Patch OV* material packaged in 22.7 kg (50 lbs) bag.Mix Fibre-Patch *OV with 0*.7 L of Gem-Crete HF *ST liquid component "*B" and 3.8 L (1 USG) of water to make brushable slurry. Use this slurry as a bonding agent. Apply *Fibre-Patch OV* mixed just with water into the wet slurry. For applications thicker than 25 mm (1 in) extend the bag of *Fibre-Patch OV* with 8 kg (17.6 lbs) of washed pea gravel. One bag of *Fibre-Patch OV* will yield approximately 12.1 L (0.43 ft^3. Addition of 8 kg (17.6 lbs) of pea gravel will increase the yield by 3 L (0.1 ft3).

Mixing

Place approximately 2/3- 3/4 of the liquid component into a plastic container. Gradually add the dry component A and mix well using a mixing paddle until the mix is free of lumps. Then add the remaining liquid component B to obtain a flowable mix. Avoid putting all the liquid into a mixer at the beginning of the mixing sequence. This may result in formation of lumps or a high air content.

Topping Installation -Concrete

Pour or pump the material to the areas of placement. Apply to clean saturated surface damp surface. " Brush in" the first coat using a stiff broom. Use squeegee or screed to apply the second coat into the "wet" brush coat, to provide the finished surface. A "spiked" roller can be used to remove the marks and provide uniform surface appearance. Depending o timing in the use of the "spiked" roller a fine texture in the surface can be formed. For a higher abrasion resistance or skid resistance a trap rock black aggregate or granite chips can be broadcast into the surface.

Topping Installation -Asphalt

Clean asphalt surface by scrubbing or a high pressure wash. Let the surface dry. Apply a thin coat of *Primer # 410* by spraying at the rate of 1,200 - 1,600 ft^2 per 5 USG pail (6-7.8m^2 per L). Let dry to tack free surface and apply *Gem-Crete HF ST* in the same manner as on concrete. (Note: when using the *Reinforcing Mat*, over concrete or asphalt substrates, the topping installation procedure is different. Contact Gemite Technical Service for detail information).

Curing

Gem-Crete HF ST will cure sufficiently by air drying in 12 to 48 hours, depending on temperature, relative humidity, substrate suction and thickness of the application.

Clean up

Clean tools and equipment immediately after use with water. For dry material use MEK or Xylol.

AVAILABILITY AND COST

Gem-Crete HF ST is available worldwide. When ordering a custom color, the color suitability and pricing must be established by Gemite before order can be processed.

WARRANTY

A limited twelve (12) month Material Replacement Warranty is available. For complete details contact Gemit"s Head Office.