

PRODUCT NAME

Gem-Crete™ HDO Premix

Heavy Duty Overlay



MANUFACTURER

Gemite® Products Inc.

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FEATURES

- Waterproof (negative & positive)
- Stops chlorides
- Highly abrasion resistant
- Superior freeze thaw durability
- High strength
- Exhibits high bond to wet and dry concrete
- Breathable
- Thixotropic - for vertical or horizontal applications
- Nonflammable & Nontoxic

PRODUCT DESCRIPTION

Basic Use

Heavy duty, waterproofing traffic topping for parking garages, bridge decks and airport runways. *Gem-Crete HDO Premix* is used in restoration and waterproofing (negative or positive) of water storage treatment and marine structures, industrial & chemical plants, dams, tunnels and sewers. *Gem-Crete HDO Premix* can be applied over damp and rough surfaces to provide a continuous (crack and joint free), waterproof and skid resistant surface. Unlike epoxies, acrylics and polymer concrete, *Gem-Crete HDO Premix*'s thermal movement and Modulus of Elasticity is fully compatible with concrete.

Composition and Materials

Gem-Crete HDO Premix is a Portland cement based, fibre-reinforced micro-silica modified material, shrinkage compensated mortar especially formulated for repair, protection and waterproofing of concrete. The combination of micro-silica and chemical admixtures provide excellent resistance to drying shrinkage, salt and weak acids and high abrasion resistance. The fibre reinforcement allows for high impact and crack resistance.

Limitations

Do not apply *Gem-Crete HDO Premix* when the temperature is expected to be below 4°C (40°F) within 48 hours or when rain is imminent. Follow Hot Weather concreting precautions at temperatures exceeding 25°C (77°F) or under sunny and windy conditions.

Health and Safety

Gem-Crete HDO Premix is nontoxic and nonflammable. Your skin might be sensitive to cement. We recommend use of rubber gloves. Avoid contact with eyes and prolonged contact with skin. If contact occurs, flush immediately with water. Seek medical advice if irritation occurs. Harmful if digested. Keep product out of reach of children. FOR INDUSTRIAL USE ONLY. Consult MSDS for additional information.

Colors

Dark Grey

Packaging

Yield

When mixed with water *Gem-Crete HDO Premix* yields 12.1 L (0.43 ft³) per bag.

Storage and Transportation

Gem-Crete HDO Premix, when stored on pallets in a dry area, has a shelf-life of 12 months. Packaged 55 bags per pallet.

TECHNICAL DATA

Tested and approved by US Army Corps of Engineers, MTO (Ontario), other DOT's and agencies. Approved for contact with potable water and for use in food processing facilities.

Modulus of Rupture (ASTM C348)	8.1-9.3 MPa (1,170 - 1,350 psi)
Modulus of Elasticity	18.2- 22.5 GPa (2.64 -3.26 x 10 ⁶ psi)
Compressive Strength (ASTM C109)	46.2 -55.2 MPa (6,700 - 8,000 psi)
Freeze-Thaw Resistance (ASTM C666, Procedure A)	0% weight loss after 300 cycles
Water Vapor Permeability (ASTM E96)	0.28-0.50 metric perm cm (0.17 to 0.30 perm-in)
Thermal Expansion & Contraction	10 x 10 ⁻⁶ / °C (6 x 10 ⁻⁶ / °F)
Direct Tension Bond	2.0 - 3.5 MPa (290 - 500 psi) Failure in concrete substrate
Slant-Shear Bond Strength (ASTM C882, CRD-C 596)	15.8-20.7 MPa (2,300-3,000 psi) 14.5-15.8 MPa (2,100-2,300 psi)
Bond in Flexure (ASTM C293, CRD-C 17)	8.9-10.3 MPa (1,300-1,500 psi)
Unrestrained drying shrinkage ASTM C596-05 modified	< 0.05%
Resistance to Chloride Penetration (AAHSTO T259)	no chloride penetration
Resistance to Chloride Penetration (AASHTO T277)	430-530 Coulombs

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03550 Concrete Topping
07570 Traffic Topping

Salt Scaling Resistance (MTO Ontario, Form 1351)	accumulative weight loss, 50 cycles, 0.005g/cm ²
Water Absorption (MTO Report , MI-67)	2.3 -4.3 %
Abrasion Resistance (BS 812)	AAV = 2.75; resistance is similar to trap rock aggregate
Fire Resistance Testing (ULC 114)	noncombustible
Toxicity	nontoxic in both wet or dry
Chemical Resistance	resistant to solvent, fuels, strong alkalis and salt solutions
Wet Density	2.21 g/cm ³ (138 lbs/ft ³)

Gem-Crete HDO Premix satisfies the requirements of EN 1504-3: Products and systems for the protection and repair of concrete structures. Part 3: Structural and nonstructural repair, Class R4.

INSTALLATION

Current Guide Specification and Application Instructions contain additional information specific to each application and must be followed. Consult Gemite's Technical Service to ensure that the correct surface preparation and application procedures are followed.

Surface Preparation

Remove all loose, delaminated and oil & grease contaminated concrete. In majority of applications, the removal of 3 - 12 mm (1/8 - 1/2") of existing concrete maybe necessary, depending on deterioration, depth of contamination and specific application. Contact Gemite's Technical Service for instructions. Clean off all grease, laitance, dirt and efflorescence using shotblasting, sandblasting, high pressure waterblasting (min. 10,000 psi), scraifing or other approved methods. Acid cleaning must not be used.

Crack Treatment

Gem-Crete HDO Premix, with galvanized welded wire fabric mechanically fastened to the deck, spans moving cracks up to 2.4 mm (3/32 in). For details, see Guide Specification. Mix Designs:

Mixing

Use a paddle or helix mortar mixer large enough for a batch. Place most of the water into the mixer. Use 3.7-3.8 L water per 22.7 kg (50 lbs) bag depending on temperature and desired consistency. Adjust water for an easy spreading application of *Gem-Crete HDO*. Do not overmix. Convey mixed material to the point of placement in clean containers.

Application

Thoroughly water saturate concrete slab overnight. Remove all standing water to obtain saturated, surface damp condition.

Broom in *Cem-Kote Barrier Cote 100* bonding slurry. Apply *Gem-Crete HDO Premix* to wet bonding slurry to a uniform specified thickness. Note: *Cem-Kote Barrier Cote 100* must be wet when placing *Gem-Crete HDO*. Do not get ahead of *Gem-Crete HDO* placement more than approximately 60 cm (2 ft) with the bonding slurry. Keep wet edge of *Gem-Crete HDO*. Use hand or mechanical screed to spread the material on horizontal surfaces; wet shotcrete spraying method or trowel on vertical applications. Use trowel to mix the product after removal of screed bars to ensure that fibres are distributed across any joint. Use a wood or magnesium float (bull float) for compaction and finishing. Do not steel trowel for finishing - just float the surface. When the thickness exceeds 50 mm (2"), or where large variations in thickness exist, contact Gemite's Technical Service.

Curing

Protect the surface of *Gem-Crete HDO Premix* against fast surface evaporation to prevent surface crazing. Moist cure *Gem-Crete HDO Premix* for 48 hours using a wet burlap covered with polyethylene, or other suitable methods. When working under tarps at freezing temperatures, use electrical heaters. Avoid using propane heaters to prevent "carbonation" of the material.

Clean Up

All tools must be cleaned with water immediately after use. Cured material can only be removed mechanically.

AVAILABILITY AND COST

Gem-Crete HDO Premix is available worldwide. Contact the manufacturer for the name of the nearest Representative/Distributor and pricing information.

MAINTENANCE

None required.

WARRANTY

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

TECHNICAL SERVICE

For advice on suitability of *Gem-Crete HDO Premix* for a specific application, specification assistance and application instructions, contact Technical Service: USA 888-443-6483 or Canada 905-672-2020.

Short Specification

The [waterproofing] [traffic topping] [concrete repair-surfacing] will be *Gem-Crete HDO Premix*, fibre reinforced, waterproofing mortar manufactured by Gemite Products Inc., [USA 888-443-6483] [Canada 905-672-2020]. It will meet all the Technical Data specified in the current *Gem-Crete HDO Premix* Product Data Sheet.