PRODUCT NAME

Gem-Crete™ CR

(Chemically Resistant)

Crack Resistant Waterproofing/Topping

MANUFACTURER

Gemite® Products Inc.

Toll Free: **888-4-GEMITE (888-443-6483)**
E-mail: ***techinfo@gemite.com***
Web Site: **www.gemite.com**

USA
160-3480 East Robinson Rd.
Amherst, NY 14228
Phone 888-443-6483
Fax 888•443•6329

CANADA
1787 Drew Road
Mississauga, Ontario L5S 1J5
Phone 905-672-2020
Fax 905•672•6780

FEATURES

- Resists high concentration of salts
- Resists weak acid environment
- Stops penetration of organic solvents,oil, gas and grease
- Not attacked by organic solvents
- Thin, lightweight topping
- High abrasion and impact resistance
- Easily applied, no maintenance
- Eliminates freeze/thaw damage
- Totally waterproofs
- Prevents salt penetration
- Bridges substrate cracks and resists cracking
- Vapor permeable (breathable)
- Non-flammable & Non-toxic
- Bonds to wet surfaces

PRODUCT DESCRIPTION

Basic Use

Gem-Crete CR has a superior chemical and crack resistance and is more economical than polymer modified cement mortars or concrete. Use for waterproofing, surfacing and repair of concrete floors, loading docks, tanks, silos and concrete block walls, beams, columns and machine bases exposed to chemical deterioration, high impact and abrasion. Protects new concrete floors, machine bases, walls and tanks against chemical attack. It prevents the penetration of organic solvents into the subgrade and acts as a containment liner.

Composition and Materials

Gem-Crete CR is a Portland cement based, fibre-reinforced micro-silica modified material, especially formulated for protection and waterproofing of concrete. The combination of micro-silica and chemical admixtures provide excellent resistance to water, salt and weak acids and high abrasion resistance. The fibre reinforcement allows for high impact, crack resistance and bridging of substrate cracks.

Limitations

Do not apply *Gem-Crete CR* 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 CR is non-toxic and non-flammable. 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

Gem-Crete CR Concentrate is packaged in 16 kg (35.3 lb) bags.
Gem-Crete CR Vertical Concentrate in 16.1 kg (35.4 lb) bags.
Gem-Crete CR Slurry Concentrate in 6.6 kg (14.6 lb) bags.

Yield

When mixed with the specified amounts of cement, sand and water:

Gem-Crete CR Slurry yields 61.3 L (2.3 ft^3) & covers approx. 38.3 m^2 at 1.6 mm (462.6 ft^2 @ 60 mils) thickness per unit mix.

Gem-Crete CR Horizintal yields 109.8 L (4.1 ft^3) & covers approx. 9.2 m^2 @ 12 mm (99.4 ft^2 @ ½") thickness per unit mix.

Gem-Crete CR Vertical yields 115.9 L (4.4 ft^3) & covers approx. 9.7 m^2 @ 12 mm (104.9 ft^2 @ ½") thickness per unit mix.

Storage and Transportation

Gem-Crete CR, when stored on pallets in a dry, cool area has a shelf-life of 12 months. Packaged 60 bags (*Concentrate* and *Vertical*) or 100 bags (*Slurry*) per pallet.

TECHNICAL DATA

Gem-Crete CR is reinforced with high stiffness alkali resistant glass fibre and low stiffness polymer fibre to assure sufficient tensile strength and long term crack resistance.

Modulus of Rupture (ASTM C348)	10.3 - 13.1 MPa (1,500 - 1,900 psi)
Ultimate Tensile Strength	3.4 - 4.8 MPa (500 - 700 psi)
Modulus of Elasticity	14 - 20 GPa (2.0 - 2.9 x 10^6 psi)
Compressive Strength (ASTM C109)	41.4 - 55.4 MPa (6,000 - 8,000 psi)
Izod Impact Strength	6.3 - 9.2 GJ/m^2 (31.5 - 45.0 in. lb/in^2)
Freeze Thaw Resistance (ASTM C666 Procedure A)	0% weight loss after 300 cycles
Water Vapor Permeability (ASTM E96)	0.28 - 0.5 perm-cm (0.17 - 0.30 perm-in)

Thermal Expansion & Contraction	10 x 10^{-6}/ °C (6 x 10^{-6} / °F)
Direct Tension Bond Strength	2.0 - 2.7 MPa (300 - 400 psi)
Fire Testing (ULC 114)	non-combustible, 0-Flame, 0-Smoke
Toxicity	non-toxic in wet and dry form

Chemical Resistance

Gem-Crete CR resists acidic, caustic and other environments better than normal concrete due to its physical and chemical action. Unlike epoxy and other polymer based mortars and coatings, *Gem-Crete CR* can bond to water saturated, and chemically contaminated concrete surfaces. Because it is fully "breathable", it will not debond due to entrapped moisture and capillary pressure at the concrete and *Gem-Crete CR* interface.

To evaluate the suitability of *Gem-Crete CR* for specific application, supply the following information to Technical Service.
Environment: type of chemicals, their concentrations, exposure temperature, pH value, frequency of chemical attack and length of time between washing.
Existing Concrete: type, compressive strength, degree of deterioration, surface treatment and type of traffic.

INSTALLATION

Current Guide Specification and Application Instructions contain information specific to each application and must be followed. Consult Gemite's Technical Service to ensure correct surface preparation, Application Procedures and chemical compatibility for your application.

Surface Preparation

Remove all loose, delaminated and oil & grease contaminated concrete. In the majority of applications, the removal of 3 - 12 mm (1/8 - 1/2") of existing concrete is 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), or other approved methods. Acid cleaning must not be used. *The perimeter of horizontal installations requires "keys"(see Specification).*

Crack Treatment

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

Mix Design

	CR Conc.	CR Vertical	CR Slurry
Concentrate	16 kg (35.3 lb)	16.1 kg (35.4 lb)	6.6 kg (14.6 lb)
Cement	80 kg (188 lb)	80 kg (188 lb)	40 kg (94 lb)
Sand	120 kg (283 lb)	120 kg (283 lb)	60 kg (141 lb)
Water	32 L (9.0 USG)	38 L (10.7 USG)	22 L (6.2 USG)

Mixing

Use a paddle or helix screw type mortar mixer large enough for a batch. Place most of the water into the mixer. Remove the separately packaged bag of fibres. Add powder into the water while mixing and mix for one (1) minute. Add sand and cement and mix until free of lumps. Add reinforcing fibres gradually and mix for not more than one (1) minute. Adjust the water for suitable workability. Do not overmix. Convey mixed material to the point of placement in clean containers.

Water Saturation and Slurry

Thoroughly saturate the slab. Remove all standing water to achieve a saturated surface damp condition. For horizontal applications, broom in *Gem-Crete CR Slurry* as a primer.

Application

Apply *Gem-Crete CR* into a wet slurry to a uniform specified thickness. Keep wet edge. Use hand or mechanical screed to spread the material. 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 use steel trowel or float.

When the thickness exceeds 38 mm (1.5 in), or where large variations in thickness exist, contact Gemite's Technical Service.

Curing

Protect against fast surface evaporation. Moist cure for 72 hours. Use wet burlap covered with polyethylene or other suitable method. 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 CR 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 CR* for specific application, specification assistance and application instructions, contact Technical Service: USA: 888-443-6483 or Canada: 905-672-2020.

Short Specification

The chemically resistant [waterproofing] [topping] [concrete surfacing] will be *Gem-Crete CR*, micro-silica modified, 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 CR* Product Data Sheet.