

PRODUCT NAME

# Cem-Kote Flex CR

Flexible, Hydrogen Sulfide Resistant  
Cementitious Waterproofing



MANUFACTURER

**Gemite® Products Inc.**

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FEATURES

- Excellent resistance to sulfuric acid (MIC generated)
- Flexible
- Good chemical resistance
- Long-term crack resistance
- Superior freeze/thaw resistance
- Excellent bond to clean substrate
- Self-curing
- Breathable
- Very low shrinkage
- Vermin proof
- Nontoxic
- Easy application

PRODUCT DESCRIPTION

Basic Use

*Cem-Kote Flex CR* provides an excellent waterproofing and protection for concrete exposed to sulfuric acid (generated by microbiological oxidation of hydrogen sulfide) - wastewater plant digesters, sludge tanks, clarifiers, and manholes & sewer systems. Thin, highly-flexible & breathable *Cem-Kote Flex CR* delivers superior waterproofing & protection for concrete exposed to attack by various chemicals - industrial floors, tanks & secondary containment structures, and protects concrete against carbonation.

**System selection depends on Exposure level.**

Refer to current Technical Data Sheets & Guide Specifications for application instructions. Contact Gemite Technical Service for advice on suitable System for your project.

**System # 1 - “Open” structures (with H2S freely escaping)**

**System # 1 = 2 coats *Cem-Kote Flex ST* - min. 2 mm (80 mils)**

Use when hydrogen sulfide can escaping - channels, clarifiers and other “open” concrete structures.

**System # 2 - “Closed” structures (H2S 20-50 PPM)**

**1<sup>st</sup> coat - *Cem-Kote Barrier Cote 100* - min. 1 mm (40 mils)**  
**2<sup>nd</sup> coat - *Cem-Kote Flex CR* - min. 1 mm (40 mils)**

Use when hydrogen sulfide cannot escape + concentrations are between 20-50 PPM - closed sludge tanks, digesters, pumping / lift stations & other “closed” concrete structures.

**System # 3 - Heavy-Duty Chemical Protection**

**1<sup>st</sup> coat - *Cem-Kote Barrier Cote 100* - min. 1 mm thick**  
**2<sup>nd</sup> - 2-coats of *Gem-Cote EP 100* - min. 0.5 mm (20 mils)**

For “Closed” structures, when hydrogen sulfide concentrations exceed 50 PPM, such as chemical storage tanks, secondary containment structures and industrial floors.

*Note: Some new treatment technologies may result in much higher H2S concentrations than 50 PPM.*

**Compositions and Materials**

*Cem-Kote Flex CR* is a flexible, hydrogen sulfide resistant cementitious modified polymer coating, supplied as Kit - dry Comp. A + liquid Comp. B.

**Limitations**

Do not apply *Cem-Kote Flex CR* when temperatures expect to be below 4°C (40°F) within 48 hours or when rain is imminent. Follow Hot Weather concreting procedures when applying *Cem-Kote Flex CR* above 25°C (77°F).

**Health and Safety**

*Cem-Kote Flex CR* is nontoxic. Your skin might be sensitive to hydraulic cement or the liquid additive - we recommend use of rubber gloves. Avoid contact with eyes & 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.

**Color**

Dark Gray.

**Packaging**

*Cem-Kote Flex CR kit* = Comp. A - 22.7 kg (50 lbs.) bag + Comp. B - 6.8 L (1.8 USG) plastic bottle.

**Yield**

*Cem-Kote Flex CR* yields 14.75 L (0.52 ft<sup>3</sup>) and covers approx. 14.7 m<sup>2</sup> @ 1.0 mm (156 ft<sup>2</sup> @ 40 mils) per kit - applied in 1 (one) coat.

In projects requiring 2 coats of *Cem-Kote Barrier Cote 100* the coverage is approx. 9.2 m<sup>2</sup> @ 1.6 mm (104 ft<sup>2</sup> @ 60 mils) per kit applied in 2 (two) coats.

The actual coverage depends on surface roughness & thickness applied. The applicator must carry out a test application to determine the actual coverage for the given substrate & application thickness. Refer to *Cem-Kote Barrier Cote 100* & *Gem-Cote EP 100* data sheets for yield and coverage information.

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09820 Flexible Cementitious Coating  
07145 Cementitious Waterproofing

## Storage and Transportation

When stored in a dry area Cem-Kote Flex CR has 12-months shelf life. Liquid Comp. B must not freeze. Packaged 40 kits per pallet.

## TECHNICAL DATA

Ultimate Tensile Strain (ASTM D 412 Mod.) at 20°C, non-reinforced	20-25 %
reinforced	25-30 %
Ultimate Tensile Stress (ASTM D 412 Mod.) at 20°C, non-reinforced	1.0-1.3 MPa
reinforced	2.0-2.5 MPa
Crack Spanning (ISO TP 005) at 20°C, non-reinforced	0.5 mm (20 mils)
reinforced	1.6 mm (63 mils)
Water Vapor Permeance (ASTM E96), wet cup, 1.6 mm thick	350 ng/Pa.s.m <sup>2</sup> 6.42 perms)
Salt Scaling Resistance ASTM 672	excellent
Chemical resistance	
Sulfuric acid, pH 1 - sewer test chamber, 1 year exposure	No deterioration or delamination
Sulfuric acid 5% - ISO TP 24	8% weight increase after 140 days exposure
Hydraulic Impermeability TT-P-1411 (negative side), 2 mm thickness	water head >39.8 m (>130 ft)
A high porosity concrete block, coated with <i>Cem-Kote Flex CR</i> , "burst" at 39.8 m (130 ft) water head pressure with <i>Cem-Kote Flex CR</i> showing no sign of wetness.	

*Cem-Kote Flex CR* exhibits a high resistance to majority of mineral acids in moderate concentrations. It is highly resistant to concentrated salt solutions and caustic environments. For more detail contact Gemite Technical Service.

## INSTALLATION

Latest Guide Specifications & Application Instructions contain additional information, and must be followed. Contact Gemite Technical Service for assistance with suitable System selection, surface preparation and application procedures specific to your application.

### Surface Preparation

Remove all deteriorated and loose concrete, form release agents, oil, grease, laitance, dust, dirt and efflorescence by dry or wet sandblast, or shotblast, to achieve CSP #3 profile as per ICRI (International Concrete Repair Institute). Repair deeper areas using *Gem-Plast TC* or *Fibre-Patch OV*. The proper surface preparation is essential for a successful installation.

### Reinforcing Steel

Remove all loose rust from any exposed reinforcing steel and apply two-coats of *Fibre-Prime* rustproofing.

### Crack Treatment

All cracks must be treated before application of *Cem-Kote Flex CR* or *Cem-Kote Barrier Coat 100*.

### Mixing

Mixing procedures for *Cem-Kote Flex CR* & *Cem-Kote Barrier Coat 100* are identical.

Thoroughly mix liquid Comp. B prior to its use. Use clean paddle, helix mortar mixer, or heavy duty drill (400-600 RPM) with a mixing paddle. Pour approximately 80% of the Comp. B into the mixer, gradually adding the dry material into the liquid, while mixing and mix until a smooth lump free mix is obtained. Add the remaining liquid (as required) for a given application consistency. A small amount of water can be added at higher ambient temperatures, if required.

### Application

1<sup>st</sup> coat - apply *Cem-Kote Barrier Coat 100*, min. 1 mm thick, to a saturated surface damp surface.

2<sup>nd</sup> coat - apply *Cem-Kote Flex CR* min. 1.6 mm (60 mils) thick, but not more than 3 mm (120 mils) into a "green" 1st coat. Time the application of the 2nd coat to assure that 1st coat is not disturbed, approx. 10-15 minutes, depending on temperature & RH. If wet-to-wet application is not practical (sewers), allow *Cem-Kote Barrier Coat 100* dry for 1-2 days, and pressure wash before applying *Cem-Kote Flex CR*.

### Reinforcing Fabric

When using the *Reinforcing Fabric HD* throughout the entire area, apply first a thin layer of *Cem-Kote Barrier Coat 100* by brushing or spraying. When spraying, brush each coat to eliminate all "pinholes". Embed the *Reinforcing Fabric HD* into the first coat and follow with the second coat of *Cem-Kote Flex CR*. The *Reinforcing Fabric HD* must be fully covered. The total minimum applied thickness of *Cem-Kote Barrier Coat 100* and *Cem-Kote Flex CR*, including the *Reinforcing Fabric HD*, must be 2 mm (80 mils).

### Curing

Cure *Cem-Kote Flex CR* by air drying for a minimum of 3 days prior to continuous exposure to water. Protect fresh applications from rain, strong wind and intense sunlight for 12 hours. When working under tarps at freezing temperatures, use electrical 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

*Cem-Kote Flex CR* is available worldwide. Contact Gemite Products Inc. for the name of the Representative/Distributor nearest you and pricing information.

### MAINTENANCE

Some maintenance may be required depending upon the type of chemical environment and the length of exposure.

### WARRANTY

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

### TECHNICAL SERVICE

For technical advice on the suitability of *Cem-Kote Flex CR* for a specific application, specification assistance and application advice, contact Gemite Technical Service: USA 888-443-6483, Canada 905-672-2020.