

Microbially Induced Corrosion Defense for Concrete Sanitary Systems



PRODUCT APPLICATIONS

ConBlock MIC is designed and tested to stop the biogenic process of converting hydrogen sulfide gas into sulfuric acid, and is appropriate for protecting sewer pipe, sewer manholes, lift stations, sewer plants, wet wells, deep tunnel shafts, and septic tanks. ConBlock MIC can be added to cement based mortar and shotcrete used for manhole and pipe rehabilitation.

PRODUCT DESCRIPTION

ConBlock MIC is an admixture for concrete that inhibits the colonization of the bacteria which causes microbially induced corrosion of concrete. Unlike sacrificial or leaching chemistries, the technology of ConBlock MIC controls microorganisms with a chemistry that remains a permanent part of the concrete structure. The active ingredient in ConBlock MIC – 3-(trihydroxysilyl) propyl dimethyl octadecyl ammonium chloride - relies on a charged ion and a unique spiked molecular structure to create an uninhabitable environment for the microorganisms. These molecular spikes are undetectable to human touch but overmatch single-cell organisms. In nature, most microbes carry the opposite ionic charge making them physically and irresistibly drawn into contact with ConBlock MIC, which punctures the cell walls of the offending microbes.

FEATURES AND BENEFITS - IN THE MIX

- Antimicrobial treatment permeates the entire concrete when added in the mix, protecting inside and out.
- The antimicrobial that is formed causes the microbe cell walls to break upon contact, keeping the surface free of excess bacteria and mold buildup.
- The treatment does not migrate out of the concrete.
- ConBlock MIC can be used in concrete, shotcrete, and gunite applications.
- ConBlock MIC is EPA registered and labeled for concrete and masonry applications.

PHYSICAL PROPERTIES

Color	Clear
Odor	Slight
Density	7.0–9.0 lbs/gal
pH	3.0–4.0
Actives Content	3.6%
Solids Content	5% max
Volatile Content	0 g/l
Shelf Life	One year in unopened container
US EPA Registration No.	87907-1

TESTING

ASTM C1904, Test Method A: Standard Test Methods for Determination of the Effects of Biogenic Acidification on Concrete Antimicrobial Additives and/or Concrete Products.

Treated with ConBlock MIC:	Initial pH 4.1	Final pH 4.3
Untreated Reference:	Initial pH 4.1	Final pH 2.06

ASTM D4783: Adapted for determination of antibacterial resistance of concrete to Thiobacillus species. Reduction of bacterial growth in 24 hours (pH~9.0).

Thiobacillus Novella:	99.9% reduction
Thiobacillus Intermedia:	99.9% reduction
Thiobacillus Thioparus:	99.9% reduction

ISO 22196: Measurement of antibacterial activity on plastics and other non-porous surfaces, modified for concrete. Inoculation of Thiobacillus Novella on concrete (pH~6.5-6.8).

Initial bacteria count on concrete at T0 hours	111,000	CFU/cm2
Bacteria count on control concrete at T24 hours	632,000	CFU/cm2
Bacteria count on ConBlock MIC treated concrete at T24 hours	666	CFU/cm2

DO NOT SUBJECT CONBLOCK MIC TO FREEZING TEMPERATURES BEFORE USE.

DIRECTIONS FOR USE

- Stir thoroughly prior to use. **Do not thin or dilute ConBlock MIC.**
- Add with the batch water and mix as usual or add as the final product and mix for an additional 5 minutes.
- For every gallon of ConBlock MIC, the mix water content should be reduced by one gallon to maintain the design water-cementitious materials ratio.
- ConBlock MIC may affect slump or air. Run a trial batch prior to production.
- When used in mortar for shotcrete or relining, dosage is 12 oz/CWT (hundred pounds of total cementitious materials)
- **When used in concrete, dosage is 12-24 oz/ CWT.** Dosage rate depends on the sewer environment.
- Check compatibility with other admixtures.
- Reference installation instructions for more information.

LIMITED WARRANTY

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