

# Standard Specification for ConBlock MIC

In Concrete and Cementitious Materials



## General Specifications

The intent of the antimicrobial additive, ConBlock MIC, is to render the concrete uninhabitable for microbial growth. In addition to Project Specifications, the following are general specifications for the use of antimicrobial additives in new concrete infrastructure and cementitious infrastructure repair products:

- a) The liquid antimicrobial additive shall be an EPA registered material.
- b) Required submittals for approval prior to use on the project:
  - o US EPA Product Registration Number.
  - o State pesticide registration documentation, where required by law.
- c) Submit from the producer Good Manufacturing Practice Plan and Quality Assurance Plan documentation.
- d) The amount of additive and the proper mixing procedures used shall be as recommended by the manufacturer of the antimicrobial additive. The additive shall be added into the concrete mix water to ensure even distribution of the additive throughout the concrete mixture.
- e) The antimicrobial additive shall have successfully demonstrated prevention of microbiological growth on concrete based on ISO 22196 Modified Method for Concrete to determine the antimicrobial resistance of concrete to *Thiobacillus* sp. The concrete shall be conditioned before testing to have a surface pH of no higher than 6.8.
- f) The mix design used shall be reviewed by the manufacturer of the antimicrobial additive to check compatibility with all other admixtures, chemicals and minerals.

**ConBlock MIC** EPA Registration Number: 64881-7-87907

Contact Concrete Sealants, Inc. for state pesticide registration documentation.

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## Specifications Specific to Application

The “General Specifications” shall be adopted for all concrete and cementitious material applications for antimicrobial additives. Additional specifications may be necessary in certain applications.

### Precast Concrete Pipe, Manholes, and Septic Tanks

The “General Specifications” shall be added to product requirements when concrete is needed to resist the corrosion from microbes: ASTM C76 Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe; ASTM C 478 Standard Specification for Precast Reinforced Concrete Manhole Sections; and ASTM C1227 Standard Specification for Precast Concrete Septic Tanks.

In addition to the “General Specifications”, the following specifications shall also be added to product requirements specifically for products of this category:

- a) Where concrete corrosion is already known, or likely to occur, the additional protection of a topical solution of one part **ConBlock MIC** to 4 parts clean water shall be applied topically to the steps, PVC pipes, lids, and risers to eliminate the potential for bacteria to grow on any surface.
- b) Field repairs to the precast concrete shall be made using a non-shrink repair mortar treated with **ConBlock MIC** at a dosage rate of 6 fl oz/50 lbs (148 mL/22.7 kg) of mortar. This repair mortar shall be used for filling joints, lift holes, damaged areas, benches, and similar areas of the precast structure.

### Ready-Mix Concrete

In addition to the “General Specifications”, the following specifications shall also be required for ready-mix concrete when concrete is needed to resist the corrosion from microbes:

- a) Where concrete corrosion is already known, or likely to occur, the additional protection of a topical solution of one part **ConBlock MIC** to 4 parts clean water shall be applied topically to all surfaces within a sewer system to eliminate the potential for bacteria to grow on any surface.
- b) Field repairs to the ready-mix concrete shall be made using a non-shrink repair mortar treated with **ConBlock MIC** at a dosage rate of 6 fl oz/50 lbs (148 mL/22.7 kg) of mortar. This repair mortar shall be used for filling joints, lift holes, damaged areas, benches, and similar areas of the concrete structure.

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## Shotcrete Rehabilitation and Field Repairs of Pipe, Manholes and Similar Sewer Structures

In addition to the "General Specifications", the following specifications shall also be required for shotcrete repair mortars when it is needed to resist the corrosion from microbes:

- a) The dosage rate for shotcrete and non-shrink repair mortar treated with **ConBlock MIC** is 6 fl oz/50 lbs (148 mL/22.7 kg) of mix. This amount shall be included in the total water content used with the shotcrete or repair mortar.
- b) Repair mortar shall be used for filling joints, lift holes, damaged areas, benches, and similar areas of the concrete structure.
- c) For both wet and dry shotcrete, the additive shall be blended with the shotcrete mix water to ensure even distribution of the additive throughout the shotcrete.
- d) Where concrete corrosion is already known to occur, the additional protection of a topical solution of one part **ConBlock MIC** to 4 parts clean water shall be applied topically to all surfaces within a sewer system to eliminate the potential for bacteria to grow on any surface.
- e) **OPTIONAL: ConBlock MIC** shall be diluted 4:1 with potable water and be spray applied to the cleaned and prepared interior surface prior to applying shotcrete to prepare and protect the underlying substrate.

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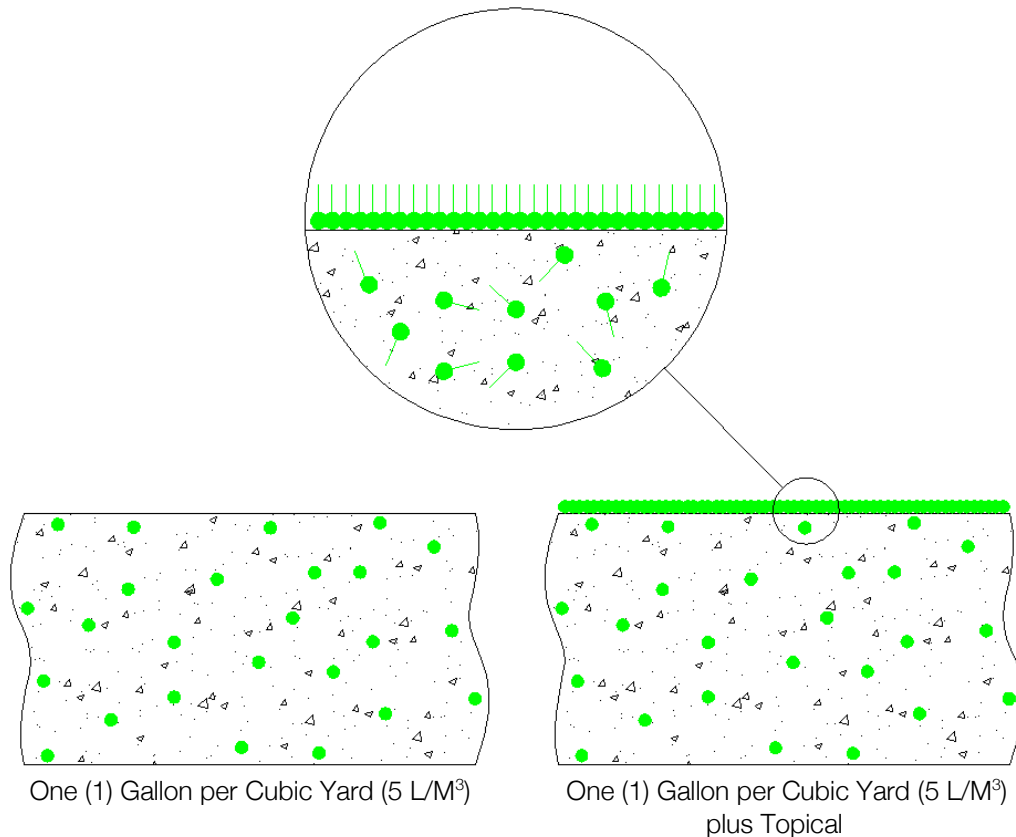


## Procedures

The following recommendations are based upon laboratory testing of **ConBlock MIC** using an adaptation of test method ISO 22196 for Determination of Antibacterial Resistance of Concrete to Thiobacillus Species.

- **Basic Protection:** One gallon of **ConBlock MIC** per cubic yard (5 L/M<sup>3</sup>) of concrete as a replacement for an equal amount of mixing water.
- **Additional Protection:** In addition to the Basic Protection, it is also recommended that a topical solution of one part **ConBlock MIC** to 4 parts clean water be applied topically to the steps, PVC pipes, lids, and risers to control the potential for bacteria to grow on any surface.

**ConBlock MIC** must be accurately dosed. Compatibility of all mix additives is critical to the successful performance of ConBlock MIC.



**Disclaimer:** This publication is to assist users to understand the proper use of ConSeal's products. *Contact ConSeal's technical staff for practices and procedures that meet your specific requirement.* Concrete Sealants, Inc. does not warranty any improper use of its products.

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