

ABF II COATING

Advanced MIC Prevention Breakthrough



WARRANTY
EXTENDED
UP TO 5 YEARS OR
25 FLUSHES
PROTECTION

 **allied**
TUBE & CONDUIT

Problem: **MIC**

Microbiologically Influenced Corrosion (MIC) is more complicated than other types of corrosion because of its rapid growth rate and reoccurrence if left untreated. In the past it was thought that MIC was remedied by replacing the infected pipe... *but this is not the case.*

MIC is a corrosion process influenced by microorganisms and is a major cause of tuberculation, pitting and pipe failure in fire sprinkler systems, including carbon steel, copper and galvanized pipe systems.

Fire sprinkler systems provide a favorable environment for the growth and development of bacteria resulting in MIC failures, as recognized by members of the AFSA, NFPA, NFSA, NACE, sprinkler manufacturers, end users and fire protection service/mechanical contractors working within the industry.

MIC-related bacteria include aerobes (i.e., thrive in oxygen) and anaerobes (inhibited or die when exposed to oxygen). Aerobic microorganisms and their secretions on wetted pipe surfaces lead to the formation of biofilms, which frequently become embedded with iron, scale, oil, dirt, and other debris. This biofilm adheres to metal surfaces and forms a mass around bacterial deposits creating differential oxygen cell corrosion and other types of corrosion.

Photos courtesy of BioIndustrial Technologies, Inc.

General Pipe Deposit



Pitting

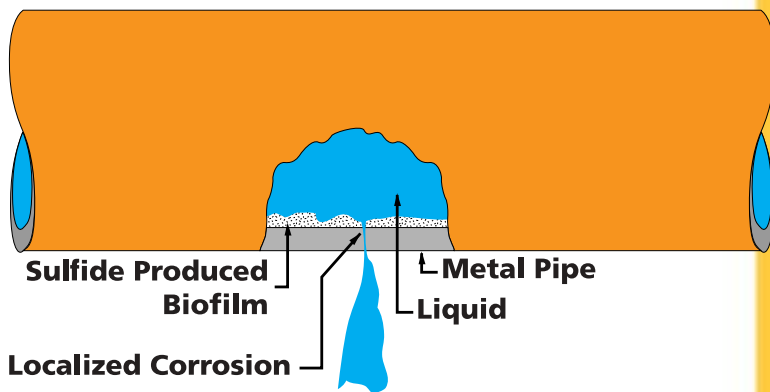


Dry Pipe Deposit



Pinhole

Anaerobic bacteria, acid producers, and sulfate-reducers seek out and colonize the patchy biofilms (slime layers) under debris or inside porous tubercles where the environment is deficient or devoid of oxygen. These bacteria produce acids and sulfides (the rotten egg odor of hydrogen sulfide, H₂S) causing tuberculation, restricted water flow, and severe metal loss (pitting). Taking remedial action will prevent further system damage caused by MIC.



Solution:

Allied

ABF II

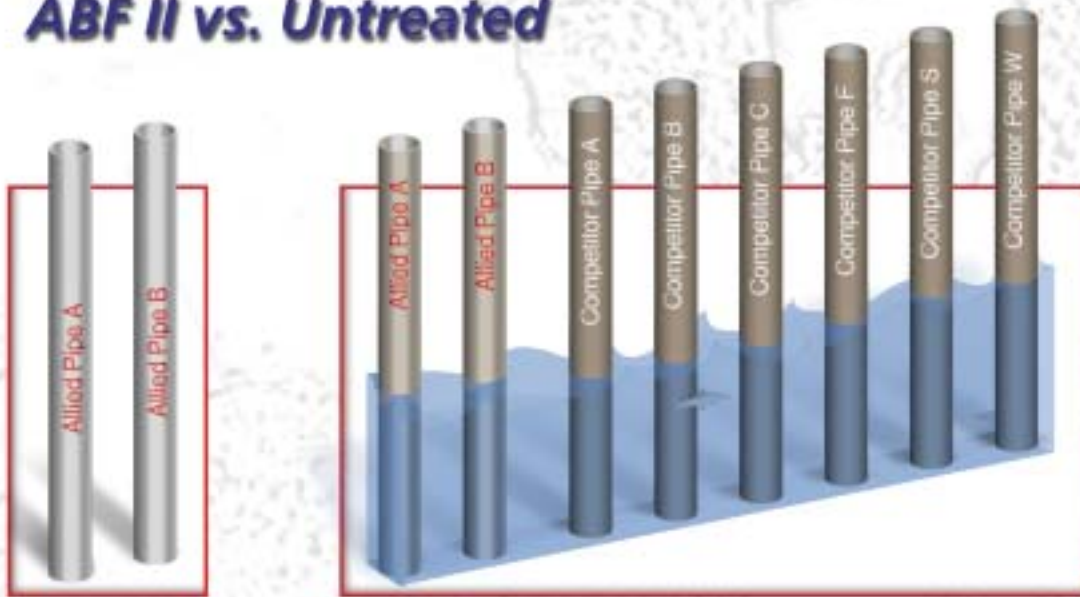
In scientific laboratory tests, our second generation coating (ABF II) proved to have superior resistance to Microbial colonization of pipe walls, thereby delaying and preventing the onset of MIC upon installation and the first 25 flushes of the fire sprinkler system. (See test results on next page.)

ABF II is applied to the interior surface during manufacturing of all Allied Tube & Conduit sprinkler pipe products up to 4.5 inches in diameter (excluding hot-dip galvanized).

Testing: **Allied ABF II Coating**

Bacterial tests performed by BioIndustrial Technologies, Inc., proved that ABF II effectively prevents the initial onset of MIC bacteria formation.

ABF II vs. Untreated

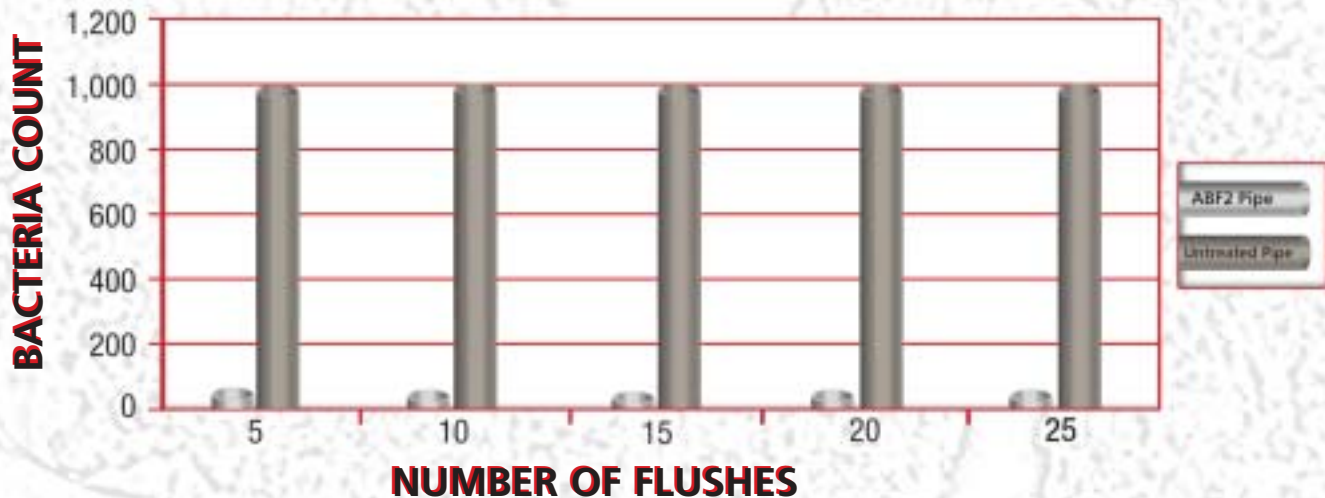


ZERO BACTERIA

> 1,000 BACTERIA

per square inch pipe surface

Allied and competitive sprinkler pipe samples were exposed to water up to fifteen days. In that time, only the Allied samples coated with ABF II protection did not show any sign of MIC. All other samples without ABF II (including the Allied control samples) were colonized by more than 1,000 of each type MIC bacteria.



In laboratory testing ABF II maintained a minimal bacteria count even after 25 flushes of the pipe.