

ABF COATING

MIC Prevention Breakthrough



allied

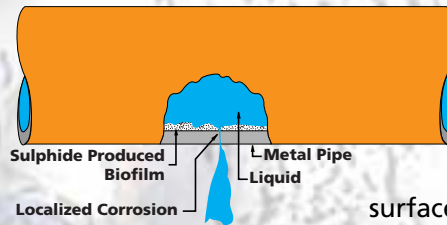
TUBE & CONDUIT

Problem: **MIC**

Microbiologically Influenced Corrosion (MIC) is more complicated than other types of corrosion because of its rapid growth rate and constant recurrence. Often, sprinkler contractors think that MIC is remedied by replacing the infected pipe... but this is no longer the case.

MIC is a corrosion process influenced, or caused by, microbiological organisms called microbes and is a major cause of tuberculation, pitting and subsequent pipe failure in fire sprinkler systems. These organisms, along with tuberculation and corrosion, cause pinhole leaks in 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.



The bacteria are either aerobic (i.e., thrive in oxygen) or anaerobic (inhibited or die when exposed to oxygen.) Aerobic microorganisms and their secretions on wetted pipe

surfaces leads to the formation of biofilms, which frequently become embedded with iron, scale, oil, dirt and other debris. This biofilm adheres to these metal surfaces and forms a gel-like mass around bacterial deposits, which promotes the formation of differential oxygen cell corrosion.

General Pipe Deposit



Pitting



Dry Pipe Deposit



Pinhole

In scientific laboratory tests, our new Antibacterial Formula coating (ABF) proved to have superior resistance to microbial colonization of pipe walls, thereby delaying or possibly preventing the onset of MIC when the Fire Sprinkler System is first installed.

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

Anaerobic bacteria, such as the class *Desulfovibrio desulfuricans* (sulfate reducers) and acid producers seek out and colonize beneath the spotty biofilms (slime layers), under debris or inside porous tubercles where the environment is deficient or devoid of oxygen. These bacteria produce metal sulfides as corrosion products and when exposed to air or hydrochloric acid, the rotten egg odor of hydrogen sulfide (H₂S) is easily detected. Sulfate reducing bacteria (SRB) is a typical example of anaerobic MIC and can cause rapid pitting and severe metal loss, accompanied by the H₂S odor and black colored water frequently found in fire sprinkler systems. Aerobic sulfur oxidizing bacteria of the type *thiobacillus* can create an environment of up to 10% sulfuric acid, thereby creating rapid corrosion. Taking remedial action will prevent further system damage caused by MIC.

Solution:
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ABF