Corrosion In Sprinkler Systems

Corrosion (both oxygen and microbiologically influenced) is prevalent in fire sprinkler systems. Wet, dry, and preaction fire sprinkler systems have seen an increase in corrosion since the late 1990s. Several factors may be responsible such as the use of lower grade materials and material selection. Corrosion monitoring and mitigation is needed to forecast and eliminate such costly corrosion. Testing of water, sludge and tubercles from fire sprinkler systems is required to fulfill certain requirements of NFPA 13 and 25.

MIC Bacteria

Microbiologically Influenced Corrosion (MIC) has recently been discovered as a contributing force in corrosion of wet, dry, and preaction fire sprinkler systems. Symptoms of MIC, including pinhole leaks, rotten egg smelling water, black water, and tubercles were long considered to be “normal” for fire sprinkler systems and to be part of the industry. The awareness of corrosion issues has increased in the past few years and further investigation has discovered that the forces of MIC are present. There are several theories as to the “why” the increase in microbiologically influenced corrosion (MIC) is present in fire sprinkler systems and the popularity of lower schedule piping has increased the awareness since the effects are seen sooner than with higher scheduled piping. The National Fire Protection Agency (NFPA) is addressing the MIC problem with changes in NFPA 13 & 25.

Oxygen corrosion is also prevalent in fire sprinkler systems and evidence of high corrosion exists especially at the air/water interface at the high points of fire sprinkler systems.

All water contains entrapped air and this air migrates to the top of fire sprinkler systems. Thus, creating an air water interface. Potter Corrosion Solutions has the solution for this problem with an air vent (Model PAAR-B stock #1030001), which “burps” the system.

To view a brief video overview of what causes corrosion, please visit: www.pottersignal.com/corrosion/videos
**Testing**

Various forms of corrosion including MIC (Microbiologically Influenced Corrosion) and oxygen corrosion endanger the functionality of your fire sprinkler system. While these systems are built to last, deterioration remains inevitable. In recent years, studies have shown that corrosion causes a steady decline in your fire sprinkler system if not properly maintained. Testing for corrosion symptoms such as pinhole leaks, rotten egg smelling water, black water, and tubercles (mounds on pipe wall) will extend the life of your fire sprinkler system.

**Treatment**

When it comes to corrosion treatment, Potter takes a proactive approach. We understand the need to protect and extend the life of your investment and we meet those demands with industry-leading technology. Potter Pipe-Shield® Corrosion Inhibitor will contain existing corrosion and form a protective barrier to prevent further corrosion. Potter Pipe-Shield® protects the environment with stringent regulations and your wallet with longer life and less maintenance. Additionally, Potter’s Nitrogen Generators offer the best value in nitrogen protection for dry and pre-action systems.

**Monitoring**

Prevention is the least expensive form of maintenance for protecting your fire sprinkler system. At Potter, we understand this fact and offer a wide array of cost-effective, proven solutions to monitor your precious investment. From monitoring the fire sprinkler riser with the Potter Corrosion Monitoring Station (PCMS-RM) to the Potter Corrosion Monitoring Probe (PCMPK) tied directly to the building fire alarm panel alerting you of corrosion with a supervisory or trouble signal, Potter will protect your fire sprinkler system every step of the way.
Bac-Pak  
Stock # 1119172
Features:
- Easy do-it-yourself test
- Tests for the three most common MIC causing bacteria
- Water in vial changes to color of lid if bacteria present

Watch a how-to video for this product!
Go to: www.pottersignal.com/corrosion/videos

Water Test Kit  
Stock # 1119178
Features:
- Complete MIC Analysis through water sample
- Kit comes with prepaid return label - Domestic Only
- Complies with NFPA 13, requiring MIC testing of the water supply

5-Year Deposit / Sludge Test Kit  
Stock # 1119174
Features:
- Designed to conform to the requirements of NFPA 25 requiring testing for MIC if slime or tubercles are discovered during an internal inspection
- Kit comes with prepaid return label - Domestic Only

Watch a how-to video for this product!
Go to: www.pottersignal.com/corrosion/videos

Pipe Failure & Pipe Test Kits  
Stock # 1119183
Includes:
- Sample identification form
- Prepaid Shipping - Domestic Only
- Laboratory analysis of pipe sample

Testing is the FIRST step in corrosion prevention. Receive your FREE water test today!
Scan this code with your smartphone or visit: www.FindTheHow.com
Potter Nitrogen Generators

Features:
- Pre-engineered and sized air compressor system
- Easy installation
- Nitrogen generator with air filtration
- Nitrogen analyzer — detachable for portable use during purge process
- Meets NFPA 30 minute fill requirements
- Nitrogen storage tank
- System purge valves available in manual and automatic

IntelliPurge Nitrogen Purge Valve — INS-PV

Features:
- Consistent Nitrogen Level Monitoring — Local Display
- Intelligent Control - Stops purging when system reaches 98%+ Nitrogen
- BMS connectivity and alarm notification

IntelliPurge Remote Annunciator — INS-RA

Features:
- Remotely monitors and controls up to 27 IntelliPurge Nitrogen Valves
- Provides detailed history of all IntelliPurge Nitrogen Valves
- Allows Syncing of IntelliPurge Nitrogen Valves to enhance nitrogen generator performance

Nitrogen Generation

Potter’s Nitrogen Generator Systems provide a low cost, reliable, and efficient method of producing up to 99% pure nitrogen on-site at the point of usage. The Potter Nitrogen Generator is specifically designed for use in Fire Protection Sprinkler systems to slow the oxygen corrosion process by filling system piping with clean, dry, nitrogen. The Potter Nitrogen Generator is a pre-engineered, turn-key system ready to connect to a new or existing system including everything needed to operate at peak efficiency.

20 Month Pipe Test

20 Month Pipe Test with Air

20 Month Pipe Test with Nitrogen
There are many ideas on how to treat a sprinkler system once corrosion has been detected: flush the system and refill, pump the system full of toxic biocides to try to kill bacteria, replace bad pipe with new, thicker pipe. None of these solutions, however, protect your system, your environment, and your wallet as well as Potter Pipe-Shield®. Potter Pipe-Shield® is Potter’s patent pending biostatic environmentally friendly corrosion inhibitor. It was specifically developed to protect wet, dry and pre-action fire sprinkler systems from MIC (Microbiologically Influenced Corrosion) and oxygen corrosion.

Corrosion Inhibitors

Potter Automatic Air Release — PAAR-B
Stock # 1030001
Features:
• Provides automatic venting of trapped air in fire sprinkler systems
• Includes automatic shutoff and collection pan
• Automatic shutoff valve includes dry contacts for monitoring
• Limits oxygen corrosion when placed at the high point(s) of the systems
• UL listed and FM approved for fire sprinkler branch lines
• Patented

Potter Air Vent — PAV
Stock # 1119720
Features:
• Provides automatic venting of trapped air in fire sprinkler systems
• Limits oxygen corrosion when placed at the high point(s) of the systems
• UL listed and FM approved for fire sprinkler branch lines
• Complies to NFPA 13, 2010, A8.16.4.2.2
• Patented

Portable Chemical Injection System — PCIS-B
Stock # 1119925
Features:
• Designed and manufactured specifically for injecting Potter Pipe-Shield® Corrosion Inhibitor into fire sprinkler systems
• Completely self-contained portable system
• Durable wheeled shipping container with telescoping handle for easy transportation

Potter Pipe-Shield® Corrosion Inhibitor
5-gallon Stock # 1119105
15-gallon Stock # 1119115
55-gallon Stock # 1119155
275-gallon Stock # 1119275
Features:
• Biostatic, environmentally friendly corrosion inhibitor
• Developed to protect wet, dry, and pre-action fire sprinkler systems from MIC and oxygen corrosion
• Non-regulated, non-hazardous, and completely biodegradable with a neutral pH

Potter Chemical Delivery System — PCDS-B
Stock # 1119703
Features:
• Designed and manufactured specifically for injecting Potter Pipe-Shield® Corrosion Inhibitor into fire sprinkler systems
• Completely self-contained unit with storage of up to 30 gallons of Potter Shield
• Optional Containment Tank

Potter Air Vent — PAV
Stock # 1119720
Features:
• Provides automatic venting of trapped air in fire sprinkler systems
• Limits oxygen corrosion when placed at the high point(s) of the systems
• UL listed and FM approved for fire sprinkler branch lines
• Complies to NFPA 13, 2010, A8.16.4.2.2
• Patented
Monitoring Solutions to NFPA 13 & 25

**NFPA 13, 2013, 24.1.5.1**
Water supplies and environmental conditions shall be evaluated for the existence of microbes and conditions that contribute to MIC.

*The solution: Potter Water Test Kit (WTK)*

**NFPA 25, 2014, 14.2.1.2**
Tubercles or slime, if found, shall be tested for indications of microbiologically influenced corrosion (MIC).

*The solution: 5-Year Deposit / Sludge Test Kit*

**& NFPA 13, 2013, 24.1.5.2(2)**
Treat all water that enters the system using an approved corrosion inhibitor.

*The solution: Potter Pipe-Shield® Corrosion Inhibitor*

**NFPA 13, 2013, 24.1.5.2(4)**
Implement an approved plan for monitoring the interior of the pipe.

*The solution: Potter Corrosion Monitoring Station (PCMS-RM) along with, Corrosion Monitoring Probe Kit (PCMPK)*

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**Potter Corrosion Monitoring Station**
*Riser Mount — PCMS-RM*
Stock # 1119546
Features:
- Installed on a fire sprinkler riser to monitor corrosion in the system
- Suitable for wet, dry, or pre-action systems
- Designed to simulate conditions within the fire sprinkler system
- Easily accessed for servicing and monitoring of test specimens without interruption to fire protection
- Patent pending

*Watch a how-to video for this product! Go to: www.pottersignal.com/corrosion/videos*

**Potter Corrosion Monitoring Probe Kit**
*PCMPK*
Stock # 0090180
Features:
- Provides notification to the fire sprinkler administrator when there may be an excessive amount of corrosion taking place in the sprinkler piping
- Can be used to indicate when it is time to remove coupons from the monitoring station for analysis
- Patent pending

For engineering specifications on our complete line of Corrosion Solutions Products, please visit: [www.pottersignal.com/corrosion](http://www.pottersignal.com/corrosion)
Comprehensive corrosion solutions backed by over 115 years of fire sprinkler monitoring.

Minimizing your liability for damage caused by leaking or broken fire sprinkler pipes requires diligent corrosion monitoring. You need a resource you can trust to protect all of the sprinkler systems you design or install.

With more than 115 years of sprinkler monitoring experience, Potter is the trusted source for corrosion monitoring and prevention. With our comprehensive suite of corrosion solutions, you can rest assured that whether you want to protect your investment in a fire sprinkler system, or need to find a more permanent solution to a corrosion problem, Potter has the most innovative and reliable products on the market to get the job done.

Contact Potter or visit www.pottersignal.com/corrosion/videos for step-by-step tutorials on Potter Corrosion Solutions products.