

# MICtreat® FPS Chemical

Industrial Antimicrobial for Fire Protection Systems



## key features

- \*Rapid kill of microbes, including MIC-related bacteria & SRB
- \*Reduces free oxygen in FPS, controlling all corrosion
- \*Non-flammable
- \*Compatible with FPS system components & waters
- \*Economical
- \*Unusually good (low) toxicity profile
- \*Good environmental profile/readily biodegradable
- \*Easy to apply & test
- \*Simple & inexpensive to deactivate
- \*Registered with the Environmental Protection Agency

Sold exclusively by:



BTIproductsLLC

# MICtreat® FPS Chemical

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## BTI PRODUCTS, LLC PROVIDES SOLUTIONS TO YOUR MICROBIAL & CORROSION PROBLEMS

BTI Products, LLC has been providing industrial systems with testing, consulting, and treatment solutions to microbiologically influenced corrosion (MIC) and other microbial and corrosion problems for over 35 years. The company approaches diagnosis and treatment of such problems based on scientific analysis of data from actual facilities. To help their clients properly diagnose and treat microbial and corrosion problems, BTI Products provides on-site test kits, patented treatment devices, and treatment chemicals for a variety of industries.

In order to better serve the specific needs of the fire protection industry, BTI Products has developed a line of testing and treatment products specifically for FPS: MICKit® FPS and MIPkit® FPS test kits, MICtreat® FPS Chemical, and the patented MICtreat® FPS System chemical delivery devices.

MICtreat® FPS Chemical is a new generation antimicrobial agent offering outstanding performance and a good environmental profile.

## FEATURES & BENEFITS

MICTREAT FPS CHEMICAL FEATURES	BENEFITS
Rapid control of MIC-related bacteria: -Aerobic & anaerobic bacteria (AERO & ANA) -Slime-formers (LNB) & iron-depositing bacteria (IRB) -Acid-producing bacteria (APB) -Sulfate-reducing bacteria (SRB)	Controls bacteria, fouling, corrosion, & hydrogen sulfide production
Reduces free oxygen	Reduces an important nutrient for MIC-related bacteria & a reactant in many forms of severe corrosion, rusting, & severe pitting
System compatibility; Non-flammable	Safe to use in FPS
Cost of treatment is \$465.00* per 2,500 gallons of water	Economical treatment; only new water needs additional treatment
Compatible with many water treatment chemicals (e.g., surfactants)	Treatment can be done right after cleaning
Biodegradable; Simple & inexpensive to deactivate in waters removed from FPS	Reduced risk to environment & added safety to maintenance personnel
Good environmental profile	Low environmental impact
Unusually good (low) toxicity profile	Ease of handling & added safety to maintenance personnel
Simple & quantitative field test for active ingredient	Easy, on-site monitoring & control of treatment levels
Simple test for treatment effectiveness using MICKit® technology	Accurate & easy on-site monitoring of treatment success
Registered with EPA for use in FPS	EPA-registered specifically for FPS
Manufactured to ISO 9002	Quality assurance

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## MECHANISM

THPS, the active ingredient in MICtreat® FPS Chemical, disrupts bacterial cells and inhibits enzymes and energy production in microbes, including those causing MIC. THPS also reacts with oxygen (forming a non-toxic oxide), thus reducing an important nutrient for MIC-related bacteria and a very important reactant in many severe corrosion reactions. Results of treating steel FPS pipes with MICtreat® FPS Chemical are shown in the following pictures and table.



Untreated Steel FPS Pipe



New Steel FPS Pipe Treated with MICtreat® FPS Chemical

mechanism & test results

## MICtreat® FPS CHEMICAL CHALLENGE TEST RESULTS

SAMPLE	PIPE CLEANED BEFORE TEST	TREATMENT	COLOR OF WATER/PIPE	DISSOLVED OXYGEN (PPM)	RESIDUAL CHLORINE (PPM)	RESIDUAL THPS (PPM)	LOW NUTRIENT BACTERIA (PER ML)	IRON-RELATED BACTERIA (PER ML)	ACID-PRODUCING BACTERIA (PER ML)	SULFATE-REDUCING BACTERIA (PER ML)
TEST WATER	N/A	None	Clear	5	0	0	>100,000	>100,000	>100,000	>100,000
PIPE 1	No	None	Black/Black	2	0	0	>100,000	100	>100,000	10,000
PIPE 2	No	50 ppm Chlorine	Black/Black	5	0	0	>100,000	0	>100,000	10
PIPE 3	Yes	50 ppm Chlorine	Black/Black	5	0	0	0	0	>100,000	0
PIPE 4	No	450 ppm MICtreat	Clear/Clean	0	0	400	0	0	0	0
PIPE 5	Yes	50 ppm MICtreat	Clear/Clean	0	0	50	0	0	0	0

These results demonstrate that:

1. MICtreat® FPS Chemical kills all types of MIC-related bacteria, even in some uncleaned pipes.
2. MICtreat® FPS Chemical can be used at low concentrations to kill all types of MIC-related bacteria in cleaned pipes.
3. MICtreat® FPS Chemical consumes oxygen, thus preventing microbial growth, tubercule formation, MIC, and other forms of corrosion.
4. MICtreat® FPS Chemical residuals are maintained in FPS pipes, thus maintaining control over long periods of time.
5. MICtreat® FPS Chemical aids in removing oil and dirt from FPS pipes allowing access of biocide to microbes.

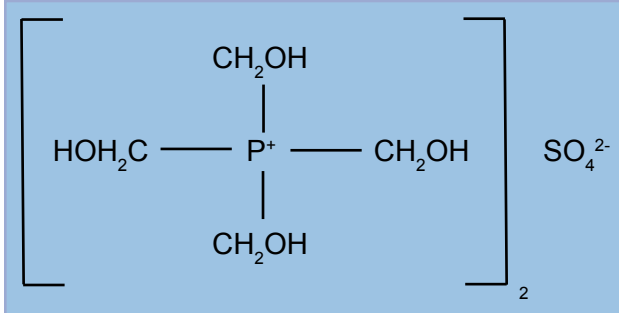
# MICtreat® FPS Chemical

Industrial Antimicrobial for Fire Protection Systems

chemical & physical attributes

## CHEMICAL ATTRIBUTES

MICtreat® FPS Chemical contains the active ingredient tetrakis(hydroxymethyl) phosphonium sulfate (THPS), shown in the chemical formula below:



MICtreat® FPS Chemical kills MIC-related bacteria & consumes oxygen, thus preventing microbial growth, tubercule formation, MIC, & other forms of corrosion.



MICtreat® FPS Chemical starts out clear and ends up clear. Shown here: water from FPS pipe treated with MICtreat® FPS Chemical.

## PHYSICAL ATTRIBUTES

	Chemical Concentrate	Use Concentrations
<b>Active Content</b>	750,000 ppm	100 to 400 ppm
<b>Appearance</b>	Clear, colorless to pale yellow	Clear
<b>Specific gravity (25° C)</b>	Typically 1.38	Typically 1.0
<b>pH</b>	Typically 4.0	Depends on pH of water to which it's added; Has minor effect on pH
<b>Flash point</b>	Non-flammable	
<b>Solubility</b>	Miscible in all proportions with fresh water & sea water	
<b>Stability</b>	Long-term stability under normal handling & storage conditions	Stable in FPS long enough to kill MIC-related microbes & reduce oxygen levels
<b>Compatibility</b>	Compatible with many water treatment chemicals. Avoid: strong bases, strong acids, strong oxidizing agents, strong reducing agents	

# MICtreat® FPS Chemical

Industrial Antimicrobial for Fire Protection Systems

compatibility, environmental & health profiles

MICtreat® FPS Chemical is compatible with all types systems, waters, & other treatment chemicals

## COMPATIBILITY PROFILE

MICtreat® FPS Chemical is compatible with FPS system components and is non-flammable, making it an excellent choice for use in FPS.

MICtreat® FPS Chemical is miscible in all proportions with every type of water and is compatible with a wide range of water treatment additives, allowing for greater treatment flexibility.

## ENVIRONMENTAL PROFILE

A key advantage of treating with MICtreat® FPS Chemical is its good environmental profile. It is readily biodegradable and can be simply and inexpensively deactivated under controlled conditions, resulting in reduced risk to the environment.

Detailed information can be found in the Safety Data Sheet that accompanies this manual.

MICtreat® FPS Chemical offers outstanding performance & good environmental & toxicity profiles

## HEALTH/SAFETY PROFILE

The active ingredient in MICtreat® FPS Chemical has been extensively tested and has a very good (low) toxicity profile. The added benefit of easy and inexpensive deactivation results in safer handling for maintenance personnel.

For more detailed information, please refer to the Safety Data Sheet that accompanies this manual.



MICtreat® FPS Chemical has a good environmental profile, which makes it an excellent treatment choice.



## USE LEVELS

- Initial treatment of all parts of FPS should be done using water containing 400 parts per million (ppm) MICtreat® FPS Chemical to ensure adequate initial treatment.
- All waters subsequently added to the FPS should also be treated with MICtreat® FPS Chemical.

## COST

- Cost of treatment with MICtreat® FPS Chemical is \$465.00\* per 2,500 gallons of water.

## OTHER CONSIDERATIONS

- Because MICtreat® FPS Chemical is a registered biocide, you should check with authorities having jurisdiction about the use and disposal of chemicals in your facility before ordering or using MICtreat® FPS Chemical. Please contact BTI Products if you require assistance.

## APPLICATION

- BTI Products' patented MICtreat® FPS System automatically delivers the proper amount of MICtreat® FPS Chemical to all waters entering the FPS.

## FIELD ANALYTICAL METHOD

- Concentrations of the active ingredient in MICtreat® FPS Chemical is accurately and simply determined by site personnel in minutes using a self-contained field test kit.

## FURTHER INFORMATION

The following support documents are available upon request:

- SDS

\*Price subject to change without notice.

Every effort has been made to ensure that the information provided herein is reliable, however, BTI Products cannot assume liability for any loss, injury, or damage, consequential or otherwise, which may result from its use.

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