



Thioclear®

**THE SCIENCE OF SULFUR OXIDATION.
THE POWER OF THIOCLEAR®**

Advanced Biological Sulfide Control for
Wastewater Collection Systems, Lift Stations,
Force Mains, Biofilters, and Treatment Plants







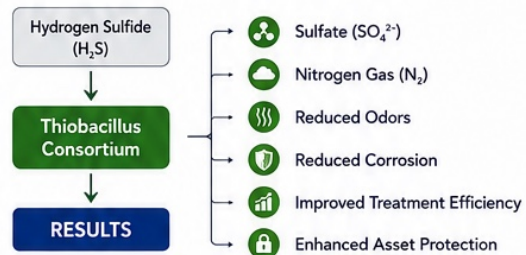
WHY THIOBACILLUS MATTERS

Thiobacillus species are naturally occurring sulfur-oxidizing bacteria that convert nuisance sulfides into stable sulfate while simultaneously supporting denitrification pathways. These beneficial organisms help wastewater utilities control odors, reduce corrosion, optimize biological treatment, and lower dependence on traditional chemical programs.



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| ✓ Controls hydrogen sulfide at the source | ✓ Enhances biofilter performance |
| ✓ Reduces odor complaints | ✓ Extends activated carbon service life |
| ✓ Minimizes concrete and equipment corrosion | ✓ May reduce chemical consumption |
| ✓ Supports biological nitrate reduction | ✓ Improves sustainability and resource recovery |

ONE BIOLOGICAL PROCESS. MULTIPLE WASTEWATER BENEFITS.



BIOLOGICAL MEDIA REJUVENATION



Thioclear supports sulfur-oxidizing bacteria that can help break down sulfur compounds accumulated on activated carbon media, restoring adsorption capacity and extending media service life.

BENEFITS

- Longer media life
- Fewer changeouts
- Reduced disposal costs
- Improved carbon performance

SPENT CAUSTIC BIOREGENERATION



Research has demonstrated that *Thiobacillus* species can biologically oxidize sulfides and mercaptans present in spent sulfidic caustic streams, converting contaminants into less harmful sulfate compounds.

BENEFITS

- Reduces sulfide loading
- Supports caustic recovery programs
- Lowers waste handling costs
- Supports circular treatment strategies

OPTIMIZE BIOFILTER PERFORMANCE



Thioclear can be added through nutrient ports or recirculation systems to help establish and maintain sulfur-oxidizing populations in:

- Biofilters
- Biotrickling filters
- Bioscrubbers
- Biological sulfur reactors

APPLICATIONS

- ✓ New system startup
- ✓ Seasonal recovery
- ✓ Recolonization after upset conditions
- ✓ Improved H₂S removal efficiency

COLLECTION SYSTEM BIOAUGMENTATION



Establish beneficial sulfur-oxidizing bacteria throughout wastewater collection systems.

IDEAL FOR

- Lift stations
- Force mains
- Interceptors
- Wet wells
- Long detention systems
- Remote collection networks

BENEFITS

- Sulfide control before the plant
- Reduced odor complaints
- Lower corrosion potential
- Improved downstream treatment



PROTECT ASSETS. REDUCE CHEMICALS. CONTROL ODORS.

Unlike conventional sulfide-control programs that rely exclusively on chemical oxidation, Thioclear introduces a living sulfur-oxidizing consortium that works continuously to convert sulfides into stable end products while supporting denitrification and biological treatment processes.



PROTECT ASSETS

Reduce sulfide-induced corrosion and extend the life of critical infrastructure and equipment.



REDUCE CHEMICALS

Lower dependence on oxidizers and nitrate feed. Reduce chemical usage and costs.



OPTIMIZE BIOFILTERS

Restore sulfur-oxidizing populations and improve H₂S removal efficiency and stability.



EXTEND MEDIA LIFE

Support biological regeneration of sulfur-fouled carbon and other media.



CONTROL ODORS AT THE SOURCE

Stop H₂S formation before it becomes an odor and corrosion problem.



SUSTAINABLE BIOLOGY

Harness naturally occurring sulfur oxidizers for a more sustainable future.



SCIENCE. BIOLOGY. RESULTS.

Thioclear® combines specialized *Thiobacillus* strains, beneficial bacteria, and proprietary enzymatic technology to help wastewater professionals control hydrogen sulfide, reduce corrosion, support denitrification, and improve system performance.

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Thioclear®
Biological Control of
Hydrogen Sulfide and Nitrates

Cleaner Systems.
Stronger Performance.
A Better Future.



Thioclear

Biological Control of Hydrogen Sulfide and Nitrates

— ADVANCED BIOLOGICAL SOLUTIONS. —
REAL-WORLD RESULTS.

Powerful bacteria. Proven performance.
Cleaner systems. Healthier environments.



POWERFUL BIOLOGICAL CONSORTIUM

Thioclear contains a synergistic blend of beneficial bacteria and enzymatic agents to aggressively disrupt the sulfide cycle and reduce odors, corrosion, and nutrient pollution.

THIOBACILLUS (3 STRAINS)





Thiobacillus denitrificans Thiobacillus thioautotrophicus Thiobacillus novellus

BACILLUS



Bacillus strains

PSEUDOMONAS



Pseudomonas strains

ENZYMATIC AGENTS



Enzymatic agents to disrupt sulfide cycle

ENZYMATIC DISRUPTION OF THE SULFIDE CYCLE

$$\text{H}_2\text{S} \rightarrow \text{S}^0 \rightarrow \text{SO}_4^{2-} \rightarrow \text{NO}_3^-$$

(Hydrogen Sulfide) (Elemental Sulfur) (Sulfate) (Nitrate)

Our proprietary enzymatic agents accelerate sulfide oxidation and denitrification for faster, more complete contaminant removal.

POWERFUL APPLICATIONS. PROVEN PERFORMANCE.



CONTROLS HYDROGEN SULFIDE AND NITRATES

Effectively reduces H₂S odors and nitrates in wastewater treatment plants and collection systems.





BOOSTS BIOLOGICAL ODOR CONTROL SYSTEMS

Add Thioclear to the nutrient port to enhance bacterial activity and maximize odor control.





REGENERATES SPENT CARBON

Colonizing bacteria break down accumulated contaminants and restore carbon performance.





REGENERATES SPENT CAUSTIC SODA

Helps recover and extend the life of spent caustic, reducing waste and lowering operating costs.





VERSATILE. COLONIZING. EFFECTIVE.

Our proprietary blend of beneficial bacteria colonizes and thrives in challenging environments.





PROVEN. RELIABLE. TRUSTED.

Backed by science and real-world results in demanding applications worldwide.





CASE STUDIES

See how Thioclear is making a difference. Explore our case studies and success stories.

CLEANER SYSTEMS. STRONGER PERFORMANCE.

A BETTER FUTURE.



SAFE & NATURAL



ECO-FRIENDLY



EASY TO USE



PROVEN RESULTS



Thioclear

Biological Control of Hydrogen Sulfide and Nitrates

Clean Water. Healthy Environment. Sustainable Future.

ADVANCED BIOLOGICAL SOLUTION FOR ODOR & CORROSION CONTROL

Thioclear contains chemical-free, hydrogen sulfide oxidizing and denitrifying bacteria that provide full biological control of hydrogen sulfide and nitrates. Our proprietary blend of *Thiobacillus*, *Pseudomonas*, and *Bacillus* bacteria oxidize hydrogen sulfide to sulfates and elemental sulfur and convert nitrates to nitrogen gas. Enzymatic agents disrupt the sulfide cycle and inhibit odor and corrosion causing sulfur-reducing bacteria.



REMOVES CONTAMINANTS



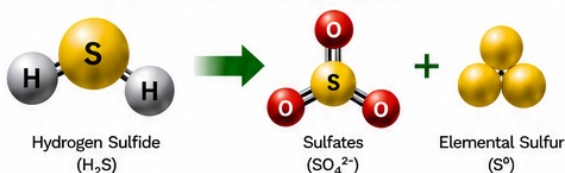
PROTECTS OUR PLANET



SAFE. NATURAL. EFFECTIVE.

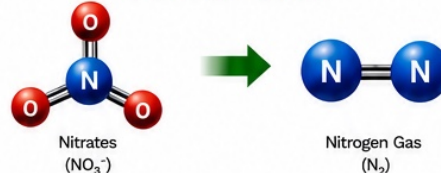
HOW THIOCLEAR WORKS

HYDROGEN SULFIDE CONVERSION



Thioclear bacteria oxidize hydrogen sulfide to sulfates and elemental sulfur, eliminating odors and reducing corrosion.

NITRATE CONVERSION



Thioclear bacteria reduce nitrates to nitrogen gas, decreasing nutrient levels and improving system performance.

KEY BENEFITS

- ✓ Eliminates hydrogen sulfide (H_2S) odors
- ✓ Reduces corrosion and protects infrastructure
- ✓ Controls nitrates and improves water quality
- ✓ Supports biological treatment processes
- ✓ Safe, natural, and environmentally responsible
- ✓ Works in a wide range of pH and temperatures

APPLICATIONS

- Lift/Pumping Stations
- Wastewater Treatment Plants
- Belt Filter Presses
- Digesters
- Biotrickling Filters
- Collection Systems
- Biological Odor Control Unit
- Nutrient Ports & Headworks
- Regenerates Spent Caustic Soda and Carbon

WORKS IN CONJUNCTION WITH

Thioclear can augment calcium nitrate, magnesium hydroxide, and other chemical treatments or be used as a standalone technology. Thioclear provides a much-needed boost or replacement for existing odor and corrosion control technologies.



55-GALLON DRUM



1-GALLON JUG



275-GALLON IBC TOTE

PACKAGING & PRICING

Thioclear 11X Concentrate	3.04×10^{12} CFU/gallon	\$250.00 per gallon
Thioclear 37X Concentrate	1.02×10^{13} CFU/gallon	\$650.00 per gallon
Thioclear RTU 55-gallon drum	2.76×10^{11} CFU/gallon	\$995.00
Thioclear 275-gallon tote	2.76×10^{11} CFU/gallon	\$4,950.00
Thioclear Water Soluble Pouches	2.27×10^{12} CFU/pound	\$575.00 for 50 qty 0.5-lb pouches



WATER SOLUBLE POUCHES

Toss pouches into target treatment zones or nutrient ports for easy application and enhanced performance.

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