Benefits outlined in this table require Thioguard's superior technical grade magnesium hydroxide combined with the Thioguard Advantage Package of consulting, performance testing, inventory control and delivery services.

### THIOGUARD® BENEFITS IN YOUR COLLECTION SYSTEM

**Odors | Corrosion | FOG (Fats, Oil, Grease) | Air Relief**

<table>
<thead>
<tr>
<th>HOW IT WORKS</th>
<th>WHAT TO LOOK FOR</th>
<th>HOW TO MEASURE</th>
<th>OPTIMAL RESULT/ BENEFIT/ SAVINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Increases wastewater pH</td>
<td>1. Reduced odors</td>
<td>1. Odalogs</td>
<td>1. 95% reduction in odors</td>
</tr>
<tr>
<td>2. Buffers long-range</td>
<td>2. Increased Surface pH</td>
<td>2. Surface pH paper</td>
<td>2. Surface pH &gt;4</td>
</tr>
<tr>
<td>4. Facilitates chemical and biological breakdown of FOG</td>
<td>4. Decreased Pump Station runtimes</td>
<td>4. Pump out frequency</td>
<td>4. Reduced PS</td>
</tr>
<tr>
<td>5. Minimizes gas evolution</td>
<td></td>
<td>5. Air Relief Valve Discharge Volume and Frequency</td>
<td>Energy Costs</td>
</tr>
</tbody>
</table>

With the Thioguard Advantage Package, it's your process Mg‘nified!™
6. Neutralizes acid/preserves corrosion
7. Reduces collection system gas binding

Comments: Customers can “dial in” the desired level of treatment. Best acid neutralization prevents premature infrastructure corrosion & replacement, adds numerous benefits downstream. Thioguard can reduce FOG related SSOs. Thioguard® can reduce pumping costs on long force mains.

THIOGUARD® BENEFITS IN WASTEWATER TREATMENT

BOD (Biological Oxygen Demand) | TSS (Total Suspended Solids)
NH₃ (Ammonia) | Phosphorus | FOG

<table>
<thead>
<tr>
<th>HOW IT WORKS</th>
<th>WHAT TO LOOK FOR</th>
<th>HOW TO MEASURE</th>
<th>OPTIMAL RESULT/ BENEFIT/ SAVINGS</th>
</tr>
</thead>
</table>
| 1. Increases wastewater pH  
2. Sustainable non-carbonate alkalinity  
3. Provides nutrient enhancement for biological efficiency  
4. Improves nitrification efficiency | 1. Increased Bioreactor Aeration Basin pH  
2. Increased Bioreactor Alkalinity  
3. Lower SVI (Sludge Volume Index) | 1. Basin pH profile  
2. Soluble Alkalinity  
3. Higher F/M (Food/Mass) Ratio  
4. Lower Mixed Liquor Suspended Solids  
5. Blower Run Times | 1. Increased Oxygen Uptake Rate  
2. Lower Aeration Energy Costs  
3. Lower SVI  
4. Lower Solids Production |

Comments: Thioguard® is the only liquid phase treatment used in the collection system that can enhance the treatment process at the Wastewater Treatment Plant.

THIOGUARD® BENEFITS IN BIOSOLIDS TREATMENT

Digestion | CH₄ Methane Production | Enhanced Dewatering

<table>
<thead>
<tr>
<th>HOW IT WORKS</th>
<th>WHAT TO LOOK FOR</th>
<th>HOW TO MEASURE</th>
<th>OPTIMAL RESULT/ BENEFIT/ SAVINGS</th>
</tr>
</thead>
</table>
| 1. Increases pH and buffering alkalinity  
2. Stabilizes and enhances volatile acid and methane generation | 1. Increased digester pH and alkalinity  
2. Higher Alkalinity/Volatile Acid ratio | 1. pH Meter  
2. Alkalinity Titration  
3. Volatile Acid Analysis  
4. pH profile across process basins | 1. Higher Digester Gas quantity and quality  
2. Increased Digester Load Capacity  
3. Lower Solids Disposal Costs |

Comments: Thioguard® added to the collection system or sludge digestion process can also help the digestion and dewatering processes at the Wastewater Treatment Plant.
**THIOGUARD® BENEFITS IN NUTRIENT REMOVAL/MODIFICATION**

Phosphorus-Removal | Nitrogen-Removal

<table>
<thead>
<tr>
<th>HOW IT WORKS</th>
<th>WHAT TO LOOK FOR</th>
<th>HOW TO MEASURE</th>
<th>OPTIMAL RESULT/ BENEFIT/ SAVINGS</th>
</tr>
</thead>
</table>
| 1. Increases pH and buffering alkalinity  
2. Nutrient enhancement of Phosphorus uptake | 1. Increased Biological Nutrient Removal  
2. Phosphorus uptake | 1. pH Meter  
2. Alkalinity Titration  
3. Phosphorus and Nitrogen Balance | Improved Phosphorus uptake and condition for Phosphorus wasting or recovery through side-stream treatments |

**Comments:** Thioguard® added at the plant or collection system is the only odor control strategy that can have positive influence on a BNR process.

---

**DOWNLOAD PDF OF THE CHART ABOVE**

Ask me how the *NEW Thioguard Omega-S* program can help you take advantage of Thioguard benefits while addressing struvite and nutrient management needs!  
Call 1-800-227-4287 today for details.