



**Product Data Bulletin**  
**THIOGUARD®**  
**Technical Grade Magnesium**  
**Hydroxide Slurry**

**Product Advantages:**

THIOGUARD® is a proven highest quality technical grade product that is available and manufactured through a proprietary process for conditioning in municipal water and wastewater treatment. THIOGUARD® has the following qualities:

- THIOGUARD® is a highly reactive technical-grade magnesium hydroxide slurry that is produced and derived from highly reactive magnesium chloride brine.
- THIOGUARD® is sourced in the USA and manufactured by Martin Marietta (100% Made in the USA, pursuant to EOD Executive Order E.O. 14005 of Jan 25, 2021).
- THIOGUARD® has the highest available surface area and reactivity as a result of Premier's proprietary manufacturing process.
- Wastewater treatment is performed in a sensitive biological environment wherein operation is performed at near neutral or slightly alkaline conditions, requiring the highest reactive grade magnesium hydroxide available.
- Lower reactive grades are incapable of sufficiently neutralizing the acid generated in these environments and will pass through the system unused.
- THIOGUARD® is manufactured to exact particle size, specific surface area, and particle size distribution to provide the highest reactivity and proper stability for transportation, pumping, and handling. This provides consistent performance, better dispersion, and suspension stability that is critical to collection system and treatment plant operation while reducing acute in-plant sludge generation associated with lime and lower-grade brucite magnesium hydroxides.
- THIOGUARD® is a patented application for methods involving the use of magnesium hydroxide in municipal wastewater systems for total gas production and emission reduction, FOG accumulation, and alkalinity and struvite control are protected under one or more claims in patents owned by Premier Magnesia, LLC (recently purchased by Martin Marietta).
- THIOGUARD® will also aid in solids settling by supplying a non-carbonate/lime divalent cationic magnesium ion that enhances bioflocculation formation.
- THIOGUARD® increases alkalinity for bug enhancement without negatively impacting the pH at the wastewater plant.



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- THIOGUARD® adds more alkalinity per gallon than its competitors (higher % of solids that stay in suspension longer) resulting in increased phosphorous removal and improved denitrification.
- THIOGUARD® supplies a maximum amount of non-carbonate divalent cationic magnesium ion that is higher than its competitors which enhances bioflocculation formation that improves de-watering resulting in higher percentage biosolids/filter-cake that reduces disposal and polymer costs.
- The percent by weight of THIOGUARD® does not exceed 0.8% by weight of CaO. This prevents water softening and also prevents the precipitation of magnesium and calcium that results in sludge production and reduced reactivity and alkalinity. EPA Wastewater Technology Fact Sheet 832-F-00-018 states: “The addition of treatment chemicals, especially lime, may increase the volume a waste sludge up to 50%”. THIOGUARD® is therefor a superior choice when adding chemicals to increase alkalinity.

**THIOGUARD® Specifications:**

	Typical	Maximum	Minimum
<b>Slurry Basis:</b>			
Mg(OH) <sub>2</sub> contained lb./dry Gallon	7.6	8.0	7.5
<b>Dry Solids Basis:</b>			
Mg(OH) <sub>2</sub> , wt. %	98.8	99.0	98.5
CaO, wt. %	0.6	0.8	
SiO <sub>2</sub> , wt. %	0.15	0.35	
Fe <sub>2</sub> O <sub>3</sub> , wt. %	.10	0.21	
Median Particle Size, Micron	3.0	5.0	1.0
Specific Surface area, m <sup>2</sup> /g	12	14	10
Lbs. Alkalinity/Gallon, Equivalent CaCO <sub>3</sub> /gallon	13.5	14.0	13.0
Stabilized Residual Test, Grams	8.0	15.0	
Caustic Soda (NaOH) Alkalinity Equivalent	1 lb. Equivalent to .73 lb. Mg(OH) <sub>2</sub>		
Soda Ash (Na <sub>2</sub> CO <sub>3</sub> ) Alkalinity Equivalent	1 lb. Equivalent to .55 lb. Mg(OH) <sub>2</sub>		
<b>Physical Properties</b>			
Density, lbs./gal.	12.8	13.0	12.5
Solids, Weight Percent %	61.0	62.5	59.0
Viscosity, cps	150	300	100
% Passing -325 Mesh Sieve	99.6	100	99.0
Timed Liquid/Solids Settleometer Test (48 hrs)	248 ml	250 ml	240 ml
<b>Certifications:</b>			
The THIOGUARD® manufacturer (Martin Marretta) is ANSI/NSF-60 and ISO 9001 certified for Magnesium Hydroxide products.			



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**Patent and Trade Secret Technology:**

Methods involving the use of magnesium hydroxide in municipal wastewater collection systems for total gas production and emission, FOG accumulation, and in municipal wastewater processes for divalent Mg, alkalinity and struvite control are protected under one or more claims contained in the following patents owned by Premier Magnesia, LLC:

*United States Patent No. 9,845,258; Dated: December 19, 2017; Titled:  
Compositions and Methods for Treating Wastewater;*

*United States Patent No. 10,160,674; Dated: December 25, 2018; Titled:  
Improving Wastewater Pumping and Conveying Efficiency;*

*United States Patent No.10,280,100; Dated: May 7, 2019; Titled:  
Compositions and Methods for Treating Wastewater; and*

*United States Patent No.10,287,198; Dated: May 14, 2019; Titled:  
Compositions and Methods for Treating Wastewater.*

THIOGUARD® is a registered trademark of Premier Magnesia, LLC  
[www.PREMIERMAGNESIA.com/mg-water/thioguard](http://www.PREMIERMAGNESIA.com/mg-water/thioguard)

**Contact Us:**

Odyssey Manufacturing Co. (“Odyssey”) is the Florida distributor for THIOGUARD® and brings the Product by rail to its terminal in Tampa, Florida for distribution to its Florida customers. Please contact Odyssey at (813) 635-0339 or visit our website at [www.odysseymanufacturing.com](http://www.odysseymanufacturing.com) . Odyssey is a licensed contractor who can provide turnkey magnesium hydroxide storage and feed systems for sale or lease. We also offer a full-range of odor control services including regular site visits to monitor equipment and odors.