



# Economic Benefit Comparison: Hydrated Lime vs. Magnesium Hydroxide

## Material Costs

Although hydrated lime is typically lower in price on a volumetric or weight basis, magnesium hydroxide contributes much more alkalinity per pound. One gallon of magnesium hydroxide slurry typically replaces 2.85 gallons of 34%  $\text{Ca}(\text{OH})_2$  slurry on an equal-alkalinity basis. Compare the properties of magnesium hydroxide with those of other industrial alkalis.

## Transportation Costs

Less treatment agent, due to higher alkalinity contribution, translates to lower transportation costs because of fewer shipments. With high fuel costs, transportation costs loom large. Several established supply terminals strategically located near product users lowers transportation costs even more. Also, more favorable proximity enhances delivery conformance due to stronger logistics.

## Receiving Costs

User staff is required to off-load shipments of material. It costs much less to receive one shipment than it does to receive three shipments. If available storage capacity permits consideration of rail car deliveries, the receiving costs can be even lower.

## Disposal Costs

Hydrated lime treatment creates dramatically more sludge than does magnesium hydroxide treatment. This is because magnesium hydroxide treatment creates a much denser floc particle and less insoluble salts, particularly in sulfate-based systems. Higher density translates to less volume. Disposal in high-density population centers, and in regions where disposal is cost "penalized" can be significant.

## System Performance Costs

Magnesium hydroxide has no propensity to scale, as does hydrated lime. Therefore, occasions requiring clean-outs are eliminated with use of magnesium hydroxide. Industrial downtime is costly.

## pH Control Costs

Magnesium hydroxide offers unparalleled pH control. The buffering characteristic of  $\text{Mg}(\text{OH})_2$  does not raise wastewater effluent pH above 9.0 – the upper control limit mandated by many state EPAs. This eliminates the cost of the acids required when this upper pH limit is exceeded.

## Safety Costs

Magnesium hydroxide offers more favorable Safety Data Sheet (SDS) metrics, compared with hydrated lime. We welcome you to view our datasheet and SDS, and compare.

NOTICE: THE INFORMATION CONTAINED HEREIN IS, TO THE BEST OF OUR KNOWLEDGE AND BELIEF, ACCURATE. ANY RECOMMENDATIONS OR SUGGESTIONS MADE ARE WITHOUT WARRANTY OR GUARANTEE OF RESULTS SINCE CONDITIONS OF HANDLING AND OF USE ARE BEYOND OUR CONTROL; WE THEREFORE, ASSUME NO LIABILITY FOR LOSS OR DAMAGE INCURRED BY FOLLOWING THESE SUGGESTIONS. SELLER WARRANTS ONLY THAT THIS PRODUCT WILL MEET THE SPECIFICATIONS SET FORTH. ANY OTHER REPRESENTATION OR WARRANTY, EITHER EXPRESS OR IMPLIED, IS SPECIFICALLY DISCLAIMED INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND OF MERCHANTABILITY. SELLERS AND MANUFACTURERS ONLY OBLIGATION SHALL BE TO REPLACE SUCH QUANTITY OF THE PRODUCT PROVED TO BE DEFECTIVE. BEFORE USING, USER SHALL DETERMINE THE SUITABILITY OF THE PRODUCT FOR USERS INTENDED APPLICATION AND USER ASSUMES ALL RISK AND LIABILITY WHATSOEVER IN CONNECTION THEREWITH. NEITHER SELLER NOR MANUFACTURER SHALL BE LIABLE IN TORT, CONTRACT OR UNDER ANY THEORY FOR ANY LOSS OR DAMAGE, INCIDENTAL OR CONSEQUENTIAL, ARISING OUT OF THE USE OF OR THE INABILITY TO USE THE PRODUCT.

## Martin Marietta Magnesia Specialties, LLC

8140 Corporate Drive, Suite 220  
Baltimore, Maryland 21236 USA  
Phone: (800) 648-7400 or (410) 780-5500  
Fax: (410) 780-5777  
Email: [MagChem@martinmarietta.com](mailto:MagChem@martinmarietta.com)  
[www.magnesiaspecialties.com](http://www.magnesiaspecialties.com)

FloMag® is a trademark of  
Martin Marietta Magnesia Specialties, LLC



QUALITY SYSTEM  
ISO 9001 CERTIFIED