



Light Burned Magnesium Oxide for Hydrometallurgy

Effective hydrometallurgy can be achieved through chemical precipitation with an alkali such as magnesium oxide. In order to maximize the recovery of valuable metals such as cobalt, copper and nickel from an acid leach solution, a synthetic, high purity magnesium oxide with moderate reactivity is recommended. MagChem® 40 Magnesium Oxide is a fine powder produced from magnesium-rich brine in Manistee, Michigan to yield a 98% MgO purity product. This synthetic powder is calcined under tightly controlled conditions to produce a uniformly burned, reactive grade of magnesium oxide.

As shown in Figure 1, since MagChem 40 is calcined uniformly, its reactivity in an acid solution is faster than that of naturally-mined magnesium oxide which has lower MgO purity (<97% MgO) and a non-uniform burn. When 90% of the magnesium oxide is reacted with acid, the naturally-mined product's reactivity slows down significantly as a result of the 10% to 20% higher, inert impurities found in natural magnesium oxide.

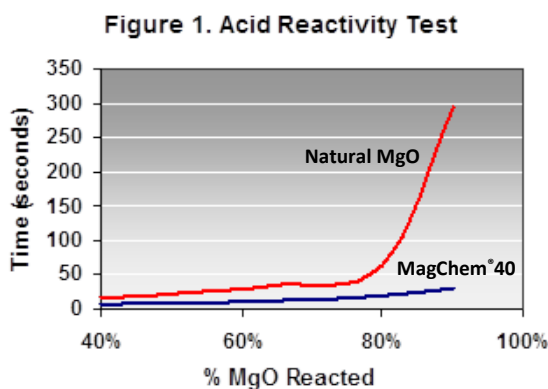
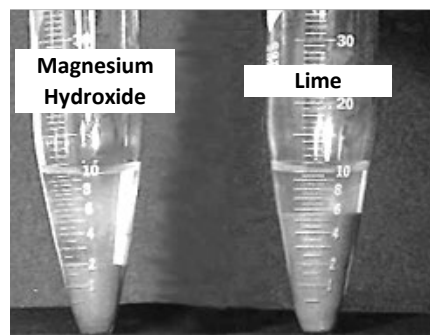


Figure 2. Metal Hydroxide Settling



The acid reactivity test is a good indicator of MgO performance in hydrometallurgy as MagChem 40 provides superior metal recovery and improved MgO utilization compared to naturally-mined products.

Compared to other alkalis such as lime or caustic soda, MagChem 40 produces a denser metal hydroxide precipitate with higher metal concentrations such as cobalt, nickel and copper. Since MagChem 40 gradually increases the pH of the acid solution, sufficient retention time is available for larger sludge crystals to grow which settle out faster and entrain less water (see Figure 2). With MagChem 40, sludge dewatering is easier compared to caustic soda or lime, greatly improving the efficiency of the hydrometallurgy process.

To learn more about MagChem® 40 for hydrometallurgy applications, please contact Martin Marietta today.

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
2700 Wycliff Road, Suite 320
Raleigh, North Carolina 27607 USA
Phone: (800) 648-7400
www.magnesiaspecialties.com



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

Produced under a Quality Management System certified
to ISO 9001:2015 by PRI Certification Registrar