

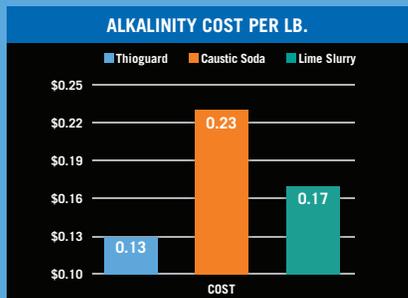
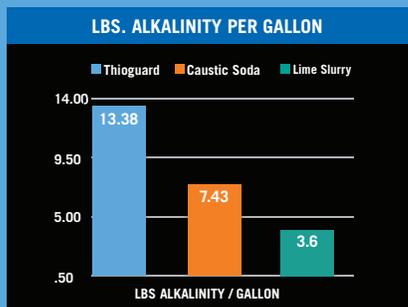
THIOGUARD® TST

PREMIER TECHNICAL RESOURCES — TECHNICAL GRADE TREATMENT SYSTEMS FOR ODOR, CORROSION, FOG, BIOLOGICAL, AND BIOSOLIDS PROCESSING

DID YOU KNOW?

100 mg/L of **THIOGUARD** has the same neutralizing power as 138 mg/L of caustic soda and 135 mg/L of lime and would be the equivalent of, though significantly more reactive than, adding 172 mg/L calcium carbonate alkalinity on a CaCO₃ basis, assuming 100% bicarbonate conversion...

NOW THAT'S POWER!



THIOGUARD® TST is a non-hazardous application with no required reportable quantities (RQ = None)

THIOGUARD BRIDGES THE CATION GAP SAVES MONEY ON BIOSOLIDS DISPOSAL

Problem: WWTP effluent and biosolids qualities vary for several reasons, many times due to unmeasured changes in wastewater chemistry. One of the more common, but often unmeasured, factors affecting effluent quality is cation balance, which in recent years has been quantified using the Monovalent/Divalent (M/D) Cation Ratio.

Excessive quantities of monovalent cations, whether from domestic sources such as common household detergents or sodium based water softeners, or from industrial sources that use caustic soda as a neutralizing agent, can cause poor flocculation and settling, in addition to a deterioration in dewatering properties, possibly leading to permit violations for effluent BOD and TSS, and high biosolids disposal costs.

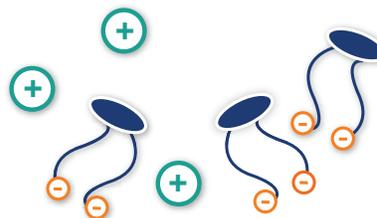
Background: The role of cations in biological treatment systems has been studied by several academic researchers since the mid-1970s. The results of that and ongoing research have outlined the significant role of relative cation concentrations on process values within an activated sludge plant that include: SVI (Sludge Volume Index), CST (Capillary Suction Time), SRF (Specific Resistance to Filtration), Cake Solids %, and Floc Strength.

These values can subsequently be correlated to effluent quality, polymer use, dewatering process efficiency, and ultimately to the costs of handling and disposing of biosolids.

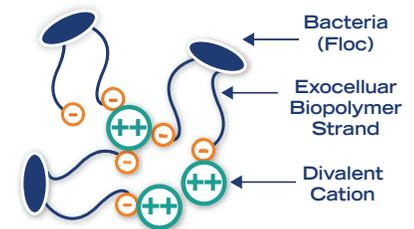
A significant amount of work on cations in activated sludge systems was performed by Dr. John Novak of Virginia Tech and Dr. Matthew Higgins of Bucknell, both of whom are prolific contributors to WEF publications, conferences and seminars, as well as participants on many WERF funded projects.

Solution: **THIOGUARD**, technical grade, magnesium hydroxide, contributes to wastewater treatability by adding alkalinity and buffering pH in systems that are found to be deficient in both of these parameters. **THIOGUARD** also adds divalent cations into the process stream, helping to improve BOD, TSS and Turbidity effluent qualities, as well as SVI, CST, SRF, and Cake Solids %, leading to savings in polymer use and biosolids dewatering and disposal costs.

Divalent Cations Compete With Monovalent Ions for Sites on Exocellular Biopolymers



Divalent Bridging Improves Floc Matrix



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