

THIOGUARD® TST

Premier Technical Resources — Magnesia Specialty Chemicals



HILL BROTHERS *Chemical Co.*

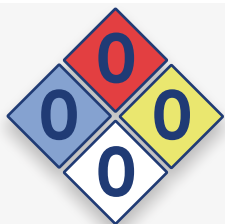
Special Points of Interest

THIOGUARD® TST is non-hazardous, nonpharmaceutical milk of magnesia for use in municipal wastewater treatment

THIOGUARD® adds mid to high levels of biologically available alkalinity while raising pH only modestly

THIOGUARD® adds divalent cations (Mg^{+2}) which improves the Monovalent/Divalent (M/D) cation ratio, a predictor in efficient settling and dewatering

THIOGUARD® and Premier's highly trained staff, are available from numerous locations nationwide



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

Find us online at:
www.hillbrothers.com
or
www.THIOGUARD.com

Hill Brothers Chemical Company – Western Region Thioguard Supply

THIOGUARD® Case Study Tyler, TX

The Problem: The Southside WWTP in Tyler, TX is a multi-train activated sludge plant, that in recent years (2003-2004) had seen sporadic effluent quality as a result of aeration limitations in the biological processes. These limitations were compounded by low and unstable pH and insufficient influent alkalinity. On top of that, Tyler's recently commissioned water plant occasionally sends low pH solids and process water to the Southside WWTP.

The Result: Uncontrollable processes leading to intermittent permit limit infringement and a significant potential for permit violations.

Caustic soda was used with limited success to supply much needed alkalinity and raise pH. However, tremendous care was required to prevent pH "spiking" and the amount of alkalinity supplied with these spiking limitations was marginal, at best.

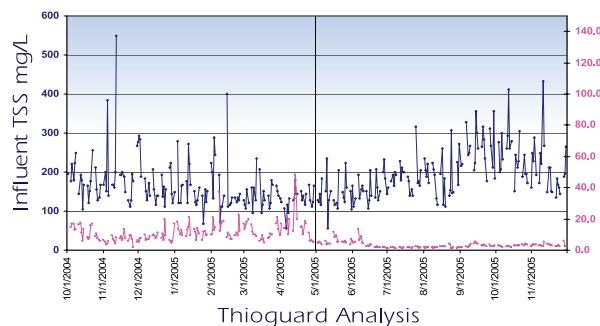
The Answer: **THIOGUARD® TST.** The properties of milk of magnesia allowed Tyler personnel the ability to supply significantly more alkalinity in a biologically reactive form, while shifting the pH into a bio-optimal range without the spikes. Additionally, **THIOGUARD®** added divalent cations, improving the M/D ratio.

The Result: Once on **THIOGUARD®** and through a full activated sludge age cycle, effluent BOD, TSS and NH₃ numbers dropped to better than expected (well below permit limits) and remained level. The graphs shown, depict data 6 months prior to the start of **THIOGUARD®** use, and 6 months with **THIOGUARD®** use. The City of Tyler has used **THIOGUARD®** continuously ever since, allowing them to withstand random influent quality swings and aeration system upsets.

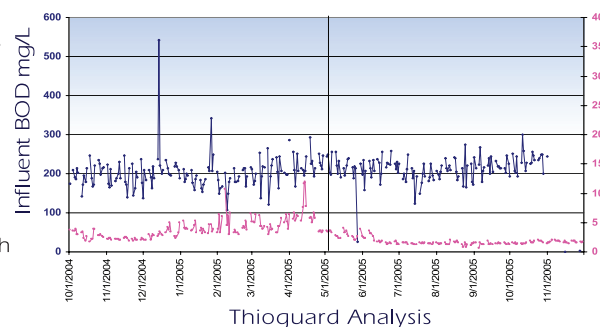
As an added bonus: The improved biological process efficiency led to lower %VS in the biosolids sent to the filter press and a significant reduction in odors emanating from the solids dewatering facility.

AND: The 12 month period with **THIOGUARD®** use had 17.5 % fewer solids tons produced and therefore 17.5% lower disposal costs than the 12 month period prior to **THIOGUARD®** use.

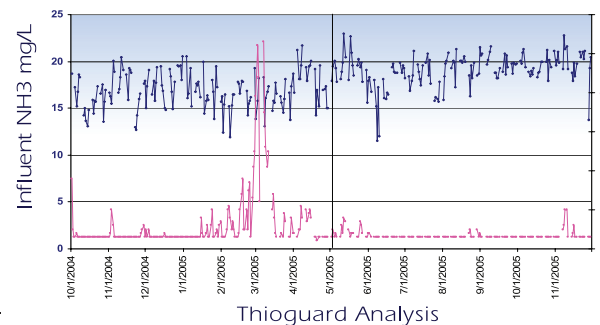
TSS Reduction with THIOGUARD®



BOD Reduction with THIOGUARD®



Ammonia Reduction with THIOGUARD®



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