Effects of Lime and Ferric Chloride Addition on Volatile Organic Sulfur Compounds Production in Biosolids

Chen, Y., Higgins, M.J., Murthy, S.N., Maas, N.A., Toffey, W., Eschborn, R., Wagoner, D. and Mendenhall, T.

ABSTRACT

A full-scale study project was initiated to investigate the effect of ferric chloride and/or low dose lime addition on the production of odors from centrifuge dewatered biosolids. Ferric chloride was added prior to dewatering and the dosages ranged from 0 to 3% by weight and lime was added to the cake after dewatering with dosages from 0 to 5% by weight. The addition of lime resulted in proportionally greater concentrations of odor causing compounds produced by the cake. The odorous compounds measured were mainly volatile organic sulfur compounds (VOSCs). The addition of ferric chloride decreased the odorant production when added alone. However, when added with lime, the ferric chloride only showed a decrease in the VOSC concentration at the highest dosage of 3% Fe. The results provide some promise for the use of ferric chloride to control the emission of odorous compounds from cake samples. However, low dose lime addition was not recommended as an odor control measure.