

Zeolite Technology

An Emerging Nutrient Management Solution

Abstract

Introduction:

There is significant potential for zeolite to yield manure management benefits post anaerobic digestion. Quasar energy group (quasar) would like to expose this emerging technology to investors, pork and dairy producers, and distressed watershed areas across the country. Zeolite technology can result in significant manure management cost reductions to agricultural producers and yield environmental benefits, specifically dealing with algal blooms, through nutrient capture.

While initial research on the benefits of zeolite additive to digested manure is promising, further development is needed to establish the market potential, full nutrient capture rates, scalability, and affordability.

During Zeolite treatment, nutrients are captured and expelled as solids. Zeolite works through ion exchange, only attracting certain nutrients. For our intentions, zeolite will capture and absorb ammonium-N and phosphorus creating "clumps" or solids. The solids can be transported from a distressed watershed to help prevent algal blooms. Transporting the solids becomes cost effective because limited liquid is hauled. The nutrient concentrated solids can be taken to nutrient poor areas and used as a soil amendment while the liquids can be used for irrigation and/or standard farming practices.

Zeolite treatment can be applied to both raw hog and dairy manure as well as anaerobic digester effluent (to date, quasar's research has been on anaerobic digester effluent). It is quasar's intent to advance zeolite research to reduce nitrogen and phosphorus in both raw manure and digested effluent.

Conclusion:

Algal blooms in watersheds across the country have been attributed to runoff from the land application of manure. Cost effective solutions for effectively managing the nutrients associated with livestock are underdeveloped. Regulatory changes require immediate solutions and cost effective methods are not available to farmers. quasar believes that treating digested effluent and raw manure with zeolite is a cost effective solution that results in financial savings to farmers and improved environmental health in watersheds across the country.