



## NATURAL ZEOLITES

### Odor Control

Steelhead Specialty Minerals zeolites are naturally occurring earth minerals which are uniquely effective in the control of ammonia and its resultant malodor. These zeolite minerals also appear to have some impact upon hydrogen sulfide, another olfactory irritant.

Ammonia and hydrogen sulfide are two gaseous by-products from the breakdown of organic matter whether it be food or waste products in the home environment or in animal rearing areas. Both of these gases, when released into the atmosphere, are irritating and, according to health officials, damaging when prolonged exposure occurs at relatively high levels.

Ammonia is an offensive odor for both man and animal and its potential for aggravation of both eye and respiratory systems becomes acute as accumulations increase in confined areas. Concentrations of ammonia in enclosed chicken areas have been severe enough to cause blindness and inhibit growth. A reduction in swine feed conversion has been noted where levels of ammonia are elevated. Horses are prone to bronchial infections which are believed to be caused, in part, by irritation to the respiratory system from the inhalation of ammonia.

Hydrogen sulfide, a typical gaseous by-product from waste decomposition, is also believed to be a cause of some respiratory ailments in both animals and humans.

Unpleasant odor can also result from the breakdown of foods and other organic products in storage areas as well as the decomposition of wastes and unwanted by-products in various

industrial processes, disposal sites, garbage bins, and pet litter boxes.

Natural zeolites, such as those available through Steelhead Specialty Minerals, have been found to be particularly helpful in the control of ammonia and hydrogen sulfide in confined livestock rearing areas, zoos, kennels, catteries, pet shops and pet litter trays. These natural minerals have also been used very effectively in the control of malodors emanating from waste disposal areas, garbage bins, diaper pails, refrigerators, pantries, and some industrial processes.

Steelhead Specialty Minerals zeolites are able to perform this function due to their ability to adsorb certain cations and gases. Sweet PDZ™, a natural zeolite product, can selectively adsorb the ammonium ion present as wastes breakdown, as well as impact ammonia as it begins to volatilize off. The "capture" of ammonium removes the basis of odor generation.

Due to the variety of applications of this unique mineral, the application rates are generalized as follows: ½ to 2 pounds per square foot in animal confinement areas adjusted according to animal concentration and resultant ammonia and hydrogen sulfide levels; dusted over waste in waste depositories according to mass of waste and rate of decomposition; one pound of zeolite per month placed in an open container and stirred weekly in food storage areas; used as a filter media in air ventilation systems for removal of airborne malodors.

Due to its unique properties, and once loaded with ammonium from odor control applications, Steelhead Specialty Minerals zeolites make a remarkable soil amendment and may be added to potted plants, lawns, gar-

dens, and agricultural fields. The zeolite then makes nitrogen (from the ammonium) available to the plants over an extended period of time. This acts as a slow release mechanism in the soil, making fertilizers more effective by increasing their efficiency. Therefore, use of Steelhead Specialty Minerals zeolites for odor control can result in a useful or saleable by-product.

This unique mineral has other diversified uses for which the following Data Sheets are available:

- #201 General Information
- #202 Agriculture
- #204 Heat Storage & Solar Refrigeration
- #205 Aquaculture
- #206 Gas Separation
- #207 Water Treatment

For further information or assistance regarding natural zeolites for your particular application, contact:



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