

ODOR CONTROL ABATEMENT STUDY No. 2

A large Florida Sanitary Landfill, Recycling & Disposal Facility January 31 through February 2, 1995

A national solid waste management firm operates a very large Sanitary Landfill and Recycling & Disposal Facility in southern Florida. The landfill accepts consolidated waste products that include activated municipal sludge flow a nearby wastewater treatment plant- After capping a closed area of the landfill with hurricane debris, the site started to produce acceptable levels of hydrogen sulfide (H₂S). Even with the siphoning off of gas through over 1.00 gas wells the U₂₅ gas was percolating through the grassed surface to the extent that it affected plant and vegetative cover growth. The added weight of the hurricane debris compressed the bill and accelerated the decomposition, aided by the study and increased the natural production of hydrogen sulfide.

In October 1994, Natural Adsorbents, LLC and the sanitary landfill operator conducted an odor control study at a Michigan landfill controlled by the same company. Two products were used, KZI-600, our basic KZN-100 material impregnated with KMnO₄ (Potassium permanganate) and the KZN-100. Mesh sizes were 10x20 for the KZI-600 and 12x40 for the KZN-100. Both products were successful as to controlling odors on the landfill face. The KZI-600 worked more rapidly and has more capacity because of its oxidizing properties with the potassium permanganate, but the KZN-100 was also successful within a few minutes. Both products have a desirable working life before reapplication.

Both products were also applied to the critical areas of the Florida Sanitary Landfill and they both gave immediate or very quick abatement of the characteristic hydrogen sulfide odors. The KZI-600 was applied to the severe gas spots with a portable cyclone seed spreader and that spread pattern was adequate to reduce the gas odors to below a noticeable level. The KZN-100 was applied with a tractor mounted spreader onto a five acre plot that had noticeable leakage across it. Within minutes the gas odor was gone and you could qualitatively smell fresh air. Gas surface readings were taken to obtain quantitative comparisons between before and after applications and to determine the longevity and efficacy of each product.

Both products work on the principle of trapping (molecular sieving) sulfur-containing molecules into their "cage" structure and stripping them out of the odor stream. The products have a neutral pH (8.0) act as a soil buffer and help retain nutrients in the soil to support vegetative growth and enhance cover growth. Because of these properties they aid in abetting erosion and sedimentation runoff. They are environmentally, very friendly.

In another study at a South Carolina landfill which has amine and nitrogen generated odors from a composting (cuttings & clippings) operation these molecular sieve products were effective in stripping out the ammonia-containing odors.

Natural Adsorbents, LLC also offers a line of fermentation derived natural enzymes, non-chemical, for use in odor control at wastewater treatment plants, sludge composting and in transfer station operations.