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--- SUMMER 1998 ---

TABLE OF CONTENTS

Odor Control on Surfaces

A study of odor control on surfaces was recently carried out under funding from the Technology Grant Program.

Fifteen commercial odor control products were tested on garbage odors using a trained odor panel and ASTM test methods.

A wide variation in effectiveness was found.

The best were : Sci Corp's Biologic SRC, Global's BAT 505, Epoleon N7 C, and Nature Plus' Ecocare Odor Shield. **Ecocare is low in cost, and appears to be a very good "value."** ZEP's Envirochem CX did quite well also.

ZEP's Formula 5764, Neozyme's Eccomate, Odor Management's Ecosorb, Pyrocap's Odor Go 300, Odor Seal JG200 by Fire Freeze, NCM SL 1000 and Chemstation 6073 did not work well.

The others, Odor Control Technology(Diversey/Nalco) 50391, VWR SP's Roccal and Wheatec Bra-Vo 1002, were in between these two groups.

In some respects, this was a follow-up to last year's study in which three commercial products were tested for their ability to remove odor from air by misting. Water did as well as or better than the commercial products in that test. See the September, 1997 issue of this newsletter.

Purpose

This study was designed to evaluate product performance of odor control products when applied to an odorous surface and to identify the best performing products. The intent was to simulate the application of odor control agents to the interior surfaces of containers, trucks and buildings.

Procedure

Product efficacy was determined by testing on surface samples prepared with a slurry of decayed food waste. The surfaces used for testing were six inch square tile and a six inch square area of Whatmann "Benchkote" absorbent lab-bench protector attached to a tile. These surfaces were coated with a measured amount of a slurry of decaying food waste, sprayed with an odor control product, and then incubated for two days. A fine spray was used to achieve a uniformly wetted surface, with no runoff. After treatment, the samples were placed in a plastic bag. The bags were stored in a temperature- and humidity-controlled environmental chamber at 30 (superscript: o)C and 90% relative humidity. Treated samples were tested using an odor panel after 2, 24, 48, and 72 hours of storage. A total of 167 samples were prepared and evaluated.

The measurement method selected for data acquisition was the ASTM Static Scale Method and Odor Panel. The method, when used in conjunction with a screened and trained odor panel, provides measures of odor intensity and odor character. This study was benchmarked from the ASTM Standard Practices Referencing Suprathreshold Odor Intensity. The odor panel was screened using the 1-butanol screening procedure before testing.

1. Nonporous surfaces were loaded with 4g of food waste.
2. Porous surfaces were loaded with 8g of food waste.
3. The concentrations of odor control products tested included 25%, 4% and 1%

Key Experimental Results

Best Products are listed first; non-porous surface for 48 hours.

25% dosage : Epoleon N7C, BAT 505, Biologic SRC, Ecocare Odor Shield

4% dosage : BAT 505, Biologic SRC, Ecocare Odor Shield

1% Dosage : Ecocare Odor Shield ,Odor Seal JG 200, Epoleon N7C, Biologic SRC

Performance of Repeat Spraying

Seventeen plates from one series of tests (single samples) were recovered, a second application of the same odor control products was applied, and the plates were incubated for a further 30 hours. The results were very distinctive, and the best performers had little if any odor, verses the worst performers which were undeniably rank. Encouragingly, the best performers of this test corresponded well to those products identified by earlier tests.

The complete report, including appendices with raw data and experimental details, is available if you wish to receive a copy. For the full report or for more information, call Dick Ayen at 630-513-4356 (until July 31).
