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## **PERSNICKETY® BRAND ODOR COUNTERVAILANT® 312E Sludge and High-Strength Waste Formula**

### **GENERAL DISCUSSION**

#### **PERSNICKETY® Brand Odor Countervailant®**

312E Formula is compounded to address the highly complex malodors associated with the biological decomposition of sludges and high-strength liquid wastes. Such wastes have a high Biochemical Oxygen Demand (BOD), and it is impractical and/or impossible to maintain free or chemically uncombined oxygen (DO) in the solutions. Consequently the biological process is always anaerobic. Anaerobic bacteria must obtain their oxygen by chemically breaking down organic compounds which contain combined oxygen. This reductive process produces malodorous by-products. The type of nuisance malodors produced depends on the substrates available.

The rotten egg smell of hydrogen sulfide (H<sub>2</sub>S) is a common by-product as is the pungent, stinging odor of ammonia (NH<sub>3</sub>). Other sulfides, mercaptans, amines, indole and skatole compounds are also common. In addition to available macro organic substrates, many other factors influence the types and amounts of malodors produced — pH, temperature, retention time, inorganic ions, trace elements, vitamins, iron-chelating compounds, amino acids, unsaturated fatty acids, nucleic acid bases, exoenzymes, to name a few.

Such complex conditions are most often too rigorous for the effective use of chemical oxidants and metallic salts, which work well on only a portion of the spectrum of malodors and under narrow operating conditions. Biocides are environmentally unsound as odor control agents because they stop the necessary reductive process. Masking agents and counteractants can be overwhelmed. 312E is the most broadly capable formulation of all PERSNICKETY® Brand Odor Countervailant products and provides the following very important advantages:

### **Superior Malodor Control**

- Formulated specifically for the complexities inherent in sludges and high-strength wastes.
- Functions effectively in all field ranges of temperature and pH.
- Is not affected by the presence of non-malodorous organics.
- **IMPORTANT NOTE:** *Because 312E Formula works so effectively, pay special attention to appropriate safety procedures when entering confined spaces.*

### Improved Safety for Operators and the Environment

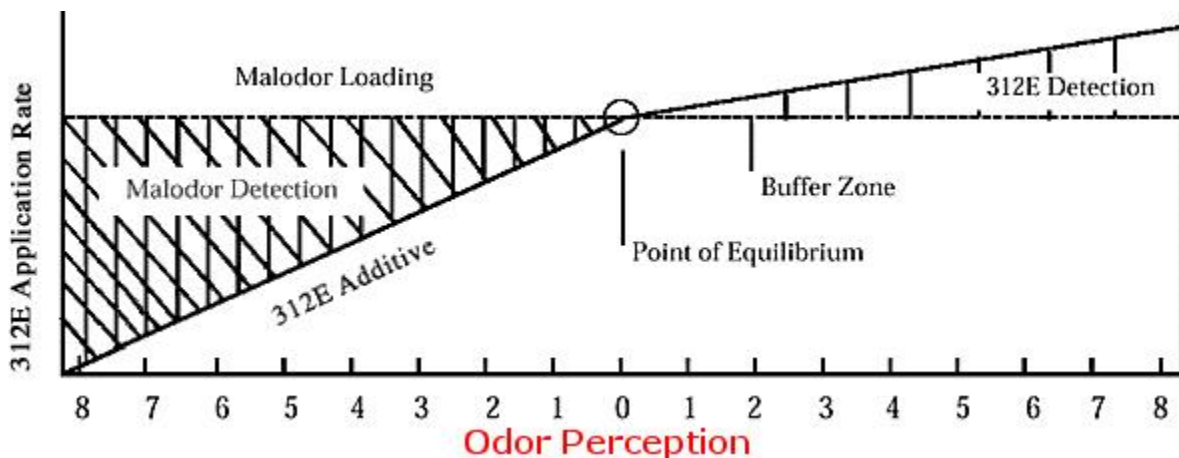
- Contains no toxic materials and forms no toxic by-products.
- Is non-explosive, non-flammable and non-corrosive.
- Biodegrades fully and forms no damaging decomposition by-products.
- Meets national and international health and safety standards.

### More Economic

- Normally reduces chemical costs for effective complex-malodor control.
- Potentially allows avoidance of litigation costs via more effective malodor control, and improves operator morale and productivity.

### APPLICATION INFORMATION

Application rates for 312E Sludge and High-Strength Waste Formula are largely dictated by the intensity of malodor. The proper rate establishes an equilibrium between malodor and 312E. This equilibrium is illustrated below.



In practice, a constant level of malodor is not always present. Intensity variations occur. Therefore, many customers choose to operate with a faint odor of 312E present to act as an olfactory guide in order to provide a buffer zone. 312E is normally fed into waste streams, sludge and slurry holding, consolidation and thickening tanks by automatic dosing pumps. If the holding vessel is equipped for mixing, an automatic or manual batch dose is appropriate. For 312E to be most effective, it is very important that it is dispersed as homogeneously as possible throughout the material being treated in order to insure full contact and treatment. This is best accomplished by diluting the appropriate amount of 312E with water to make up a 1-2% solution. The diluted solution is then fed or mixed into the waste stream or holding vessel. The necessary dosage rates must be determined on a case-by-case basis. Good starting guidelines can be provided, however. An exhaustive list of waste types would be nearly endless.

The malodorous materials listed below represent a fairly wide spectrum of odor intensity. Weigh the intensity of malodors under consideration against those listed, and increase or decrease the recommended starting application rate accordingly. Initial assessments can be readily made on the laboratory bench.

<b>STARTING RECOMMENDATIONS (concentrated 312E Formula)</b>		
<b>MALODOROUS MATERIALS</b>	<b>PPM</b>	<b>GALS. 312E/10,000 GALS. WASTE</b>
Digested Domestic Sludge	100	1.0
Pulp & Paper Sludge	150	1.50
Raw Domestic Sludge	175	1.75
Fruit & Vegetable Processing Sludge	175	1.75
Dairy/Cheese Sludge	200	200
Meat, Fish & Rendering Sludge	225	2.25
Cattle Slurry	175	1.75
Poultry Slurry	175	1.75
Pig Slurry	225	2.25
Septic Domestic Influent	25	.25
Silage Juices	100	1.0
Vault Toilets	500	500

### **DOSING**

Malodor treatment chemicals are pre-mixed or mixed in-line in a mixing vessel. Once properly mixed, treatment chemicals are pumped into the sludge/waste stream or holding vessel. Automatic dosing pumps vary widely in sophistication. The single most important criteria remains obtaining an adequately sized pump to insure proper rate of delivery.

<b>PHYSICAL AND SAFETY DATA</b>	
Weight per Gallon	8.37 lbs
Weight per Liter	2.21 lbs.
Specific Gravity @ 77° F	1.004
Specific Gravity @ 25° C	1.004
Boiling Point ° F	205°
Boiling Point ° C	95.2°
Flash Point ° F	> 200°
Flash Point ° C	> 93.3°
Solubility in Water @ 77° F	Soluble
Solubility in Water @ 25° C	Soluble
Color	Green

Toxicity	Non-toxic, non-hazardous. Good housekeeping procedures and general principles of safety should be observed when handling any chemical product.
First Aid	Skin contact – in cases of prolonged skin contact, wash off with soap and water. If any irritation exists, seek medical advice. Eye contact – wash eyes with lots of water for at least 10 minutes and seek medical advice. If swallowed – drink lots of water and seek medical advice immediately.
pH	7.4 – 7.6
Corrosivity	Non-corrosive
Biodegradability	Fully biodegradable
Packaging	5 U.S. gallon pails, 55 U.S. gallon drums
Shelf Life	12 months in unopened containers
Storage	Protect from freezing. Do not store in temperatures above 120° F, 48.9 ° C.

**Limited Warranty:**

Our only obligation shall be to replace or pay for any material proved defective. Beyond the purchase price of materials supplied by us, we assume no liability for damages of any kind and the user accepts the product “as is” and without warranties, expressed or implied. The suitability of the product for an intended use shall be solely up to the user.