

# Hydro-Biodigesters "The Natural Alternative"

## HBD, Industrial Wastewater Treatment Formula

### The Problem

Wastewater filtration systems generally cannot remove odors present in processed or filtered water.

Decomposition of matter by naturally occurring bacteria and/or chemical reactions will release gases (H<sub>2</sub>S) to the atmosphere that have a very offensive smell. Hydro Engineering's **Hydro-Biodigesters (HBD)** is the answer to control of odors in wastewater.

### Historical Approaches

For years ozone gas (O<sub>3</sub>) produced by ozone generators has been introduced into wastewater to kill naturally occurring bacteria. Ozone is highly corrosive and degrades organics by oxidizing them. Ozone alone is not effective enough to eliminate odor problems due to its short half-life of only 25 minutes. This means if you have enough ozone to kill natural occurring bacteria it must come in contact with 100% of the water within the wastewater treatment system every 25 minutes. In a 5,000-gallon system (including sumps) you must move the water through an ozone injection system at a rate of 200 gpm to obtain an effective kill. Moving the wastewater this quickly through small 10-50 gpm wastewater treatment systems negates their ability to settle out solids, coalesce oils and effectively defeats the system.

To supplement the poor effectiveness of ozone generation/application other oxidizers are used such as chlorine and hydrogen peroxide. Just as ozone these are very corrosive and do damage to every metallic object they come in contact with.

### Hydro's Approach

In compliment to Hydro Engineering's superior filtration products, our Hydro- Biodigesters (HBD) product eliminates industrial wastewater odors by out competing the natural occurring bacteria. Hydro Biodigesters (affectionately referred to as "bugs") are a combination of all natural bacteria, lab grade purified enzymes with micro and macronutrients. HBD bacteria and enzymes



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are targeted to the food sources available in a wastewater treatment system. By out competing the natural occurring bacteria for the food sources, odor causing bacteria die off and thus the objectionable smell is eliminated.

Hydro-Biodigesters are so prolific they multiply by double every 15-20 minutes. If you start out with one cell in fifteen minutes you have two and so on. In 8 hours you will have 17-million and in twenty-four hours you have a 1 with one hundred and twenty six zeros behind it. They simply out number the bacteria present in the system.

### **The Selection Process**

There are over 3,000 known bacterial strains. Our bacteria and enzymes are selected for their ability to aggressively breakdown the targeted substrate. First, we select only facultative strains that can operate in aerobic (with oxygen) or anaerobic (oxygen depleted) situations. Our bacteria are most effective in an aerobic state working 5-7 times faster. We also take into consideration other factors like resistance to; high and low pH, chemical shock and temperature. HBD can tolerate a Ph of 4.5 to 9.5 without dieing off, but...the closer to neutral pH of 7 the better. They are resistant to disinfectants like chlorine up to 150 PPM and remain active in temperature ranges of 50-140 degrees F.

### **Safe To Use**

All Hydro-Biodigester products are guaranteed pathogen free; every batch is checked for purity. Our bacterial strains are **Not Genetically Engineered**; they are all naturally occurring strains. They are FDA and GRAS listed as safe.

### **Dry And Liquid Formulas**

HBD is supplied in two forms, liquid and dry. The patented process used to microencapsulate our product protects it from activation in its dry form. We guaranty an active cell count of 2.7 trillion cells per lb. for two years. Once stabilized in a liquid that does not break the micro encapsulation process HBD remains 100% viable with a cell count of 450 billion per gallon for one full year.

### **Dosing Rates**

HBD Dry formula is used for seed dosing (initial propagation) at a rate of one pound per 1,000 gallons of wastewater. You simply mix the product into warm (not hot) water and evenly introduce it into all water holding tanks within the system.

HBD Liquid can be automatically dosed into the treatment system with our unique Hydro-Ultra Dose system. For every one minute of run time the auto-doser adds 3 oz. to the system. Application rates are 3 oz. per 500 gallons of water per day. In a 1,500 gallon system you will dose three times evenly spaced through out a 24 hour period (every eight hours) seven days per week. Liquid HBD can be purchased in 6, 15, 30 and 55-gallon drums.

#### **Benefits Ozone And Corrosives Don't Provide**

Ozone, chlorine and hydrogen peroxide do nothing to aid the wastewater treatment system. HBD's breakdown and consumption of contaminants such as organic matter, oils, grease and other hydrocarbons like dissolved solvents, heavy and light fuels are an added side benefit to using our product.

They propagate the sumps bottom solids reducing them and liberating oils and grease. In most cases making the sludge remove process non-hazardous eliminating waste hauling fees. Our bacteria take up residence in the entire system constantly eating it clean, media filter changes are reduced, coalescing plates are kept clean, pipes and valves don't plug up.

Hydro-Biodigesters enzymes and microorganisms work in concert to digest long chain hydrocarbons, light fuels, sludge, grease and any decomposing organic matter. The result is a significant reduction of BOD/COD and TSS. The byproducts produced from this biological transformation are absolutely harmless and "stink" free – only carbon dioxide and water remain.

#### **Many Other Proven Applications**

Biodigesters can be used just about everywhere that odor problems exist. This includes: Septic Tanks, Lagoons, Settling Tanks, In-Ground Separators, Oil Coalescing Systems, Grease Traps, Above Ground Separators, Media and Cartridge Filters, Waste Holding Tanks, Evaporation Ponds, and essentially wherever there is a stagnant source producing offensive odors.

Hydro Engineering, Inc., Hydro Biodigesters are the modern day answer to foul odor control. In addition, continued treatment will produce a noticeable water clarity improvement and long-term system maintenance will be reduced.

Stop using those expensive, dangerous, and ineffective chemicals for wastewater treatment.

Contact us for the safe, economical, and productive solution to wastewater management. Hydro Biodigesters are the answer.