



## Application & Use - Hydro-Biodigesters

### Information on Application and Use

Hydro-Biodigesters are a super concentrated, naturally occurring, biological based odor control and organic digester product for use in wastewater treatment systems. The powerful enzymes in this product effectively break-down oil, grease, fuels, animal fats, solvents, organics, and other materials that contribute to BOD and COD levels in waste water. First into starches and fats and then into sugars that are consumed as food by the Biodigester bacteria. When Hydro-Biodigesters break down waste material they produce enzymes, water and odor free CO<sub>2</sub>.

Hydro-Biodigesters are activated by water and will remain active until environmental conditions change and/or the food source is depleted.

The effectiveness of the Hydro-Biodigesters will degrade through population progression. Each generation of cells is less effective than the last at consuming waste products and competing with naturally occurring bacteria. Regular Biodigester dosing is required to maintain optimal performance.

### Prior To Application:

If the wastewater system exhibits a foul odor, it should be disinfected prior to dosing with Hydro-Biodigesters. The recommended disinfection method, using chlorine bleach, added (and thoroughly mix) at a rate of 1 gallon per 500 gallons of wastewater in the system. Allow 48 hours for the chlorine to dissipate before adding the initial seed dose (outlined below).

NOTE: All disinfectant dosing; ozone, chlorine, hydrogen peroxide, etc., must be eliminated from the system prior to Biodigester use.

### Initial Seed Dose:

Use dry formula Hydro-Biodigesters to initially dose the system. Use a 16 oz. package of Hydro-Biodigesters for each 1000 gallons of waste water in the system.

Determine the amount of product required to treat the total system volume then dissolve the product in warm (75-90F) water to activate the Hydro-Biodigesters.

Thoroughly mix up to a 16 oz. jar of Hydro-Biodigesters into 2-3 gallons of water. Allow the solution to remain in the mixing container for 1-2 hours. This allows the bacteria count to multiply several times before introducing the product into the waste water system. Disburse the solution throughout the system tanks.

### Liquid Formula Maintenance Dosage Rate :

Use the Hydro Engineering 500ml / minute Auto Dosing System (PN: 3C0942) to automatically control injection of the liquid Biodigester product.

The default dose rate is 3 ounces of Hydro-Biodigesters per day for each 500 gallons of system capacity. Dose rate may vary depending upon wastewater composition and discharge requirements.

Estimate the daily dose rate in ounces and divide it by 0.281 oz/sec (dose rate of the 3C0942 Auto Dosing System) to determine the seconds per day to dose. Set the 3C0942 timer to inject the Hydro-Biodigesters in no less than three evenly timed intervals (once every eight hours) throughout the day.

### Expectations:

- 2-4 days: Reduction in nitrogen and phosphorus levels
- 3-4 days: Reduction in odors
- 2-weeks: Organics, dissolved solids and hydrocarbon will reduce resulting in a visible improvement in water quality
- 1-month: Noticeable reduction in accumulation of tankbottom sludge will be found.

### Environmental Requirements For Best Performance:

#### Dissolved Oxygen (DO):

At least 3 ppm (mg/l) of DO are recommended. An air injection system is required to fulfill this requirement. Use a high-volume pumping system with air injection to maintain DO levels and disperse Hydro-Biodigesters throughout the system. Hydro-Biodigesters contain facultative bacterial strains, which will function with, or without oxygen but will metabolize or biodegrade the targeted substances 5 to 7 times faster in the presence of oxygen.

#### pH Levels:

Optimum performance will occur between 6.6pH to 7.5pH. Below 5.5pH or above 9.5pH should be avoided.

#### Temperature:

Temperatures of 70° to 90°F provides the best condition for growth. Outside this range down to 45° or up to 150°F the product will remain active. Sustained temperatures above 150°F will cause cell death. Below 45°F cell growth will slow and eventually stop. The cells can survive down to freezing (32°F).

#### Nitrogen:

Hydro-Biodigesters require at least 5 ppm nitrogen. Cell reproduction rate is higher if nitrogen content is higher than 20 ppm. This is usually found in earthen matter in washing processes.

#### Salinity:

Hydro-Biodigesters are effective in marine and fresh water applications.

#### Toxic shock:

Hydro-Biodigesters are resistant to toxic chemical shock, including sudden influx of petroleum-based hydrocarbons, chlorinated compounds, cyanide, and heavy metals.

Please contact Hydro Engineering with any questions about using Hydro-Biodigesters.