



GREASE-X[®] BIOZYME

Microbial Ecosystem for Municipal Collection Line and Wastewater Treatment

COLLECTION SYSTEM PROBLEMS

Municipal wastewater contains many dissolved and suspended contaminants that present big problems for collection system managers. Contaminants such as fats, grease, soap scum, and cellulose can stick to the collection lines and restrict the water flow to the point of causing a blockage and subsequent back-up. Clearing blocked lines the traditional way is a difficult job requiring expensive jetting equipment and usually overtime labor. Back-ups are embarrassing and can be costly for Utility Departments. Now, through biotechnology, there is a reliable and easy to use treatment that offers a preventative maintenance solution.

THE BIOTECHNOLOGY SOLUTION: GREASE-X BIOZYME Microbial Ecosystem

Microorganisms are nature's own method of eliminating organic waste. The specially selected mixtures of live microbes contained in GREASE-X BIOZYME, along with the enzymes they secrete, are well suited to digesting fat, oil, grease (FOG), and other organic matter as it enters and flows through the collection system. The GREASE-X BIOZYME microbes adhere to the collection system lines and lift station walls. In digesting organic waste, they reproduce and form colonies that continue to consume floating waste and accumulated FOG. The wall coating also acts as a lubricant to help reduce back-ups. The by-products of microbial digestion are perfectly natural, environmentally safe substances like carbon dioxide and water.

PRODUCT DESCRIPTION

GREASE-X BIOZYME is a highly concentrated microbial ecosystem containing specialized natural microorganisms selected for maximum efficiency in the biodegradation of organic contaminants in industrial and municipal wastewater. It is supplied as a dry fine granule, packaged in water-soluble bags for ease of use.

BENEFITS OF GREASE-X BIOZYME USAGE

- Maintains free flowing collection systems.
- Reduces the floating FOG blanket and accumulation of grease on lift station walls.
- Reduces line and manhole deterioration due to sulfates.
- Saves utilities money versus mechanical and chemical line cleaning.
- Environmentally friendly approach.
- Contains no hazardous caustic, surfactants or solvents.
- Supplied in dry granular form for optimum stability.
- Easy to handle water-soluble bags.

APPLICATION SUGGESTIONS

Application techniques are very important to the success of any biological product. GREASE-X BIOZYME treatment dosage depends on how plugged the collection lines are at the start of treatment and how large the continual FOG load is.

General Application Guidelines

Sewer Lines:

- (1) Start at the furthest downstream line section.
- (2) Treat the first 500 feet of line before moving upstream.
- (3) For best results apply GREASE-X BIOZYME one or two manholes upstream of the treatment section.
 - (3.1) If not able to dose upstream, make two inch slit in bag before dosing or,
 - (3.2) If dosing at beginning of line, soak bags in water for 15 minutes before dosing.
- (4) Repeat the process for each next upstream 500-foot section until the entire line section is clean.

SEWER LINE APPLICATION RATES

**Initial
Inoculation (per
500' Section)**
5 consecutive
days applications

Pipe Dia.	Average Grease	Heavy Grease
4	0.5	1
6	0.5	1
8	1	1.5
10	2	2.5
12	2.5	3
18	5	7
24	9	6.5

* lbs per day

**Maintenance
Plan (per 1000'
Section)**
Once a week
applications

Pipe Dia.	Average Grease	Heavy Grease
4	0.5	1
6	0.5	1
8	1	2
10	2	3
12	2.5	3.5
18	5	6
24	9	9.5

*lbs per week

1 water soluble bag of Grease-X Biozyme = .5 lbs

1 cup of bulk dry Biozyme = .5 lbs

- (5) Once each line section is inoculated with GREASE-X BIOZYME and clean, begin the maintenance treatment program on each 1,000 foot section.
 - (6.1) After the last section is initially treated and cleaned, the entire line can be treated at one time.
 - (6.2) Treat once per week.
 - (6.3) Best results are obtained by treating one manhole upstream of the problem line section.
 - (6.31) If not able to dose upstream, make a two-inch slit in bag before dosing or,
 - (6.32) If dosing at beginning of line, soak bags in water for 15 minutes before dosing.
 - (6.4) Make the maintenance treatment based on the following rates

Lift Stations:

- (1) For best results apply GREASE-X BIOZYME one or two manholes upstream of the treatment section.
- (2) Raise upper and lower floats 1-6 inches.
- (3) If heavy grease deposits are present as a ring or ridge or as float deposits, apply GREASE-X EMULSIFIER at a rate of one quart per manhole for each of ten days starting after beginning GREASE-X BIOZYME treatment.

Apply GREASE-X BIOZYME based on level of flow according to the schedule indicated below:

LIFT STATION APPLICATIONS RATES

<u>Flow Rate</u>	<u>1st Week</u>	<u>There After</u>
Up to 50,000 gpd	1 lb / day	1 lb / week
50,000 to 100,000 gpd	2 lb / day	2 lb / week
100,000 to 200,000 gpd	3 lb / day	3 lb / week
200,000 gpd and above	4 lb / day (per 300,000gpd)	4 lb / week (per 300,000gpd)

Apply the Grease-X Biozyme directly to the lift station.

PARAMETERS FOR USE

	<u>Optimum</u>	<u>Minimum</u>	<u>Maximum</u>
pH	7.0	4.5	9.0
Dissolved oxygen	> 3 ppm	2 ppm	none
Carbon/nitrogen ratio	10:1	10:1	20:1
Temperature	86°F	66°F	104°F
Compatibilities:	avoid concentrated toxicants like heavy metals, disinfectants and acids		

PRODUCT SPECIFICATIONS

Overall, the number of microorganisms the product contains best measures microbial product quality. The typical measurement is done by plate count and is reported in terms of microbe cells (called colony forming units or CFU) per gram of product. GREASE-X BIOZYME is manufactured to have as high strength as possible in order to give the municipal customer the best value. Customers should be careful when comparing microbial products. Some claiming higher cell counts will distort the truth and quote counts for quantities of product greater than one gram. For example, a pound of GREASE-X BIOZYME contains over 900 billion cells but the specification is,

GREASE-X BIOZYME Specification = 2,000,000,000 (2E+9) CFU per gram minimum

PRODUCT FORM AS SUPPLIED

For long-term stability GREASE-X BIOZYME is supplied as a dry fine granule. As supplied, the microorganisms in GREASE-X BIOZYME are alive but in a dormant state. When added to water, the microorganisms become activated and begin vegetative growth utilizing the organic contaminants available. For ease of handling, GREASE-X BIOZYME is supplied in 0.5 pound water-soluble bags packed in 5-gallon plastic pails.

PRODUCT STORAGE: Biological products are unlike inert chemical products. They require special treatment during storage and handling.

- Do not store continuously at temperatures above 40°C (104°F).
- Do not freeze (the water-soluble bags may break).
- Store out of direct sunlight in a well-ventilated area.
- Keep product dry until ready to use.
- Do not mix with any materials not recommended by RootX, especially disinfectants and harsh chemicals.

SAFETY

GREASE-X BIOZYME utilizes natural microorganisms, which are harmless to humans, plants and animals. GREASE-X BIOZYME does not contain genetically altered microorganisms. GREASE-X BIOZYME does not contain toxic or hazardous chemicals, acids, caustics or solvents. It is not corrosive to metal, ceramic and plastic. Users are advised to consult the Material Safety Data Sheet for further information and guidance.

**For institutional and industrial use only.
Keep out of reach of children.**

IMPORTANT NOTICE TO PURCHASER:

“RootX warrants that the product conforms to its compositional description and is reasonably fit for the purpose stated on the label when used in accordance with the label instructions under normal conditions of use. There are no other express or implied warranties, whether as to merchantability, fitness for any use, or otherwise, given in respect of the product. Neither RootX nor its agents shall be liable for any damage, loss, or injury, whether the same arises directly or consequentially, by reason of any matter whatsoever relating to the use of the product, and any buyer’s or user’s exclusive remedy in any instance shall be limited to a replacement of the amount of product used to treat the service lateral or mainline at no cost.