PurGreen™ Concentrated Blend | Bio-XL™ Liquids

OVERVIEW

Our PurGreen™ Bio-XL formulation increases the surface wetting ability, reduces the surface tension of hydrophobic contaminants, increases the permeability of clay soils, and normalizes the conversion of urea to ammonia.

In wastewater processes, odor reduction in the sludge material is generally attributed to activity against the anaerobic bacteria. By changing the surface tension and a disruption of the metabolic process, enough changes are induced to cause a reduction or elimination of unwanted by-products. Additional lignin's and heterogeneous modifiers catalyze the biological activity. Glycoside formation provides the sugars to the process to encourage aerobic bacteria growth.

APPLICATIONS:

- WASTE WATER TREATMENT
- DRAIN LINE & GREASE TRAPS
- SEPTIC SYSTEMS
- LEACH FIELDS
- COMPOSTING
- ANAEROBIC DIGESTERS
- SEWERS AND LIFT STATIONS
- AERATION CHAMBERS – STABILIZATON PONDS
- LAGOONS, ALGAE & DUCKWEED CONTROL
- ODOR CONTROL
- OTHERS

ADVANTAGES:

- DERIVED FROM NATURAL PLANT EXTRACTS SO IT IS ENVIRONMENTALLY SAFE
- BIOLIGICAL NUTRIENTS AND ORGANIC STIMULANTS
- CONTROLS ODORS
- PROVIDES ODOR MITIGATION DURING AND AFTER PROCESSING
- INCREASES SURFACE WETTING ABILITY

ODOR PREVENTION:

PurGreen Bio-XL is a natural concentrated liquid for biological treatment of waste handling systems.

- ✓ Inhibits the formation of odors.
- ✓ Biodegradable, non-toxic to equipment and handlers.
- ✓ Decomposition process produces rich dark compost.
- ✓ Controls odors during and before processing.
- ✓ Provide odor mitigation during and after processing.
- ✓ Long lasting.
- ✓ Not an making agent

REX-BAC-T® technologies

P.O. Box 661 | Cumming, GA 30028 | (888) 886-1461

Suggested Usage Rates:

Compost:	Dilute at a rate of 1 gal: 200 gal of water. Apply 1-1/4 Gallons of 1:200 solution per cubic yard of waste material after processing. Top dress new windrow to seal surface until crust forms. Reseal surface after first turning.
Atmospheric Spray Spraying:	a 2.0 – 5.0% solution around retention ponds, compost sites, truck bays, waste processing area etc.
Municipal Solid Waste:	Make 1.0 – 5.0% solution. Spray liberally on surface of garbage to control odors emanating from surface. Spray anywhere odor emissions from garbage and garbage handling are a potential
Waste Water:	Apply a 5.0 – 10.0% spray to open tanks to eliminate odors. Use in mist air applicators. Add to waste stream to reduce sludge build up.
Sludge:	Apply a 5.0 – 7.0% solution to sludge either on dewatering screen or discharge belt.

USES & APPLICATIONS:

PURGREEN BIO-XL IS A CONTACT PRODUCT

CONTACT APPLICATIONS:

Bio-XL is extremely effective for deodorizing surfaces contaminated by urine, feces, garbage or other organic substances. BIO-XL is diluted to a rate of 1 – 200 and sprayed liberally onto the surfaces. No particular safety equipment is required besides common sense items such as gloves and fabric mask.

Appropriate contact applications include: concrete surfaces such as floors, loading ramps, docks, piling or walls, tile surfaces, metal surfaces such as dumpsters, bins, containers or other similar areas. Carpeting and cloth surfaces may be deodorized if sufficient BIO-XL is applied, although odors may be trapped in carpet padding, requiring several deep applications. Similarly, wooden surfaces may be effectively deodorized is water contact is not harmful to the wood. When diluted with water in a solution of 1 – 200, BIO-XL should not cause staining or discoloration.

COMPOSTING APPLICATION

BIO-XL formulations have been proven very effective in reducing or eliminating odors generated by composting operations. The stock BIO-XL formulation is diluted at a rate of 1 to 200 and fed into fresh waste as it is formed into static piles or windrows. Subsequent application is made when windrows or piles are turned and moistened and the dilute BIO-XL may also be sprayed onto surfaces of the compost during curing. Operators need to adjust the application rate, dosage and frequency of application depending upon their own particular composting design and operation.

Dilution rate would be one gallon of Concentrate for every 1,000 gallons of water. Operators should only dilute sufficient formulation as needed to ensure optimal activity.

MUNICIPAL WASTEWATER APPLICATION

PurGreen Bio-XL can be used for odor control in wastewater stabilizing ponds. The method of activity appears to be stimulation of beneficial oxygen-consuming bacteria by reduction of stress cause by organic acids, ammonia and toxic substances, which accumulate in wastewater. Extracts in PurGreen Bio-XL have been used to control odors in many wastewater unit processes including:

- **Sewers & Lift Station** – In some urban areas, sewers and lift stations generate strong smells due to hydrogen sulphide generation on slime-coated concrete surfaces or putrefying wastewater. Diluted or stock BIO-XL may be sprayed onto concrete surfaces of lift station structures to help control these odors. Stock BIO-XL may also be metered into lift station and sewage flows at rates of 1 to 5 ppm to reduce sewage odors. If wet scrubbers using caustic or chlorine are used for lift station air treatment, a 1 to 200 solution of BIO-XL may be substituted with scrubber blow down discharge directly into the sewage flow. Use of BIO-XL may reduce or eliminate the need for activated carbon in lift station odor treatment, producing substantial savings.

- **Grit Chambers** – Grit chambers and screens are typically employed at sewage plants to remove very large and heavy grit from sewage flows before pumping to aeration basins. Since these areas accumulate large quantities of garbage, hair ad other odorous materials, they are commonly the source of many odors at these plants. Stock or diluted BIO-XL may be metered directly into grit chambers, sprayed onto screens with automatic spraying equipment, or metered into the sewage plant influent prior to these processes. Typical metering dosages are 3 to 5 ppm of stock BIO-XL for effective odor control. Diluted or stock BIO-XL may also be applied to screenings as they are removed and used to deodorize surfaces and equipment on a regular basis.

- **Aeration Chambers, Ponds** – Most sewage plants in the US utilize stabilization ponds, aerated ponds, or aerated activated sludge-type biological secondary treatment plants to digest sewage organics into excess bacterial sludge. Since the processes rely upon efficient aerobic metabolism of the treatment micro-organisms, BIO-XL has been used to increase process microbe activity and reduce odors from aerosol formation. BIO-XL application may also help to control filamentous organisms, which produce foaming and poor settling. A dosage of 3 to 5 ppm of stock BIO-XL into the sewage flow is effective. Treatment ponds or chambers should first be treated with a one-time “shock dose” of 10 to 15 ppm stock formulation to acclimatize the aerobic biomass to the effects of the product. Following the shock dose treatment, regular “maintenance doses” of 3 to 5 ppm of stock formulation to sewage flow should be added daily into the headworks or directly into the basins or chambers.

- **Final Clarifiers, Sludge Thickeners** - BIO-XL may be added to a 3 to 5 ppm of stock formulation to the sewage flow in final clarifiers and sludge thickeners, and may also be sprayed in stock or diluted form onto concrete weirs, metal launders, and other components which may harbor sulphide producing slime growths.

- **Anaerobic Sludge Digesters** – BIO-XL has been proven to control volatile fatty acid build-up in anaerobic sludge digesters. This increases process stability, reduces odors in sludge discharge, improves methane gas production, and reduces or eliminates the need for supplemental caustics, such as lime, which can precipitate in digester tanks. A shock dose of 15 ppm and maintenance doses of 5 to 8 ppm stock BIO-XL is recommended. Aerobic sludge digesters will also benefit from a 3 to 5 ppm daily maintenance program of stock BIO-XL.

- **Sludge Dewatering, Drying** - Sludge dewatering and drying beds or processes typically produce the strongest and most objectionable odors at municipal treatment plants.

- BIO-XL may be added into the sludge prior to dewatering at a 10 ppm dosage to help control odors, and a 1 to 200 solution of stock BIO-XL formulation may be spray applied onto the surface of sludge in drying beds to further reduce odors. Also, a 10 ppm dosage may be applied to the sludge prior to mechanical dewatering via belt press or centrifuge and equipment may be washed down with a 1 to 200 solution of BIO-XL during clean up procedures. BIO-XL may be used during land application of sludges by using 10 ppm of stock BIO-XL into sludge prior to injection or surface spreading.

INDUSTRIAL WASTEWATER TREATMENT

Due to the concentrated nature of wastes from food processing, rendering and other industrial operations, wastewater treatment components such as clarifiers, ponds and biological processes may often become starved for oxygen, producing organic acids, sulphides and odors. BIO-XL may be added into these components as with municipal treatment systems. Operators may find that higher dosages will be required to achieve desired process optimization and odor reduction (for example, maintenance dosages of 10 ppm of stock BIO-XL to industrial effluent flow may be needed in aerated pond systems).

Our BIO-XL product line of odor control solutions are safe, proven and recognized by US regulatory agencies. Since each particular application is site-specific, operators will need to experiment with dosages, application rates ad dilution rates to ensure that optimal quantities of BIO-XL is applied for desired results.

COMPOST APPLICATION

BIO-XL effectively controls the odors created by decomposition of grass, landscape products and waste from similar waste streams. BIO-XL is also effective at landfill operations controlling food waste odors. To produce the most effective control we suggest that BIO-XL be applied in the following manner:

BIO-XL should be applied to the new material as soon as possible, after it arrives to prevent odors. If the yard is not going to be tub ground or processed in any way, then it is applied to the windrow when the material is first set out. If the waste material is to be tub ground or processed in some way, then it is applied after grinding to eliminate the odors contained in the material. Dilute BIO-XL at 1 gallon to 200 gallons of water and apply it at a rate of 1 – 11/4 gallons per cubic yard of landscape waste.

Depending upon the operator's method for composting, it is recommended that BIO-XL be applied again after the pile is turned for the first time to control any build-up of anaerobic bacteria in a centre of the pile. Additional applications usually are not required.

Landscape material that has been put into windrows without benefit of tub grinding is heterogeneous. An application of BIO-XL is also recommended the day that the pile is first turned, in addition to the BIO-XL applied at the time of receiving. The paper or plastic bags hold odors and are usually released at this time.

Wet Conditions — During periods of wet weather, especially in the early spring or late fall, BIO-XL is also especially recommended for these times of year. The application rate of 1 – 11/2 gallons of dilution per cubic yard of compost do not raise the moisture content more than 0.1%. BIO-XL will prevent the development of odors that will be developing inside the compost pile due to poor operating conditions. A dilution ratio of 1 gallon to 250 is recommended for application under these conditions.

Dry Conditions — During periods of dry weather, the need for moisture and water to maintain moisture levels within the compost pile is increased. These adverse conditions create a situation of low moisture due to high temperatures. The compost can be reactivated with the addition of BIO-XL to the processing water.

As a natural surfactant, BIO-XL will allow the water and oxygen to penetrate deeper into the pile, helping to stabilize the pile to more normal conditions.

Leaves Over winter storage and composting, leaves will develop very strong musty odors from yeast and moulds that form on the leaf surface. Many people are offended by these odors. BIO-XL neutralized these odors and this has been confirmed at a number of composting sites.

Septic System(s) / Leach Field(s): Use 1 Quart of concentrated Bio-XL per 200 feet of leach field line 1-2 times per month. It is best to dilute the quart of concentrate in 5-10 gallons of water and 1 cup of baking soda and pour directly into the leach field lines through your distribution box or cleanout located immediately after the septic tank. If there is no access to the leach field add the diluted solution (per above) directly to septic tank or flush down a toilet. For septic systems with leach field problems use 1 Quart of Bio-XL stimulant mixed with ½ - ¾ cup of baking soda and 5-7 gallons of water weekly until flow improves.

For Leach Field problems our PurGreen Bio-XL should be used in combination with our BioMat-X Shock Kits for optimal performance.

Grease Traps:

We have formulated a highly concentrated product that is diluted into a ready-to-use (RTU) form using 50 parts water and 1 part BIO-XL Concentrate. Therefore, **SHAKE** or **MIX CONCENTRATE THOROUGHLY** and add 1 gallon of BIO-XL in 50 gallons of water. You can make smaller quantities of RTU product by diluting proportionally

Initial Dose: Initial treatment dose should be **1 QUART of diluted Ready-To-Use Bio-XL per 500 gallons** of grease trap capacity.

Maintenance Dose: Make **DAILY** additions of Bio-XL per dosing chart below. If you are administering via a dose pump use diluted RTU (ready-to-use) BIO-XL product through the pump.

IMPORTANT NOTE: If you are mixing Bio-XL with any other treatment product (i.e. Bio-G, Bio-G Max, Bio-G2 Series, Etc.) **you must monitor the pH and buffer with baking soda (or other) to keep pH above 6**. **DO NOT** let any mixed product sit for more than 24 hours before using.

Typical Dose Guideline (Chart) – RTU Form

Grease Trap Capacity (Gallons)	Daily Dosage (in Ounces)
100 - 250	4 to 8
250 - 500	8 to 16
500 - 750	16 to 24
750 - 1000	24 to 32
1000 - 1500	32 to 48
1500 - 2000	48 to 64

Note: Applications where flow into grease trap is low or kitchen loading is minimized you may try dosing 2-3 days per week to minimize product usage.

PurGreen™ Concentrated Blend | Bio-XL™ Liquids

PurGreen™ Bio-XL | Treatment for Water Gardens, Ponds, and Lagoons (Concentrate)

Treatment	Volume/Area	Gallons	Liters	Shock Dose	Maintenance Dose
Ponds		1,000	3,780	2 oz.	1 oz. (Every 1-2 Weeks)
Lagoons	Acre-Ft	325,855	1,231,732	3 quarts	1 quart (Every 1-2 Weeks)

Odors Controlled By BIO-XL:

Grass
Sludge
Garbage
Fish
Kennel Odors
Landscape Waste
Animal Excrement
Sewage Ammonia
Hydrogen Sulphide
Stagnant Water
Cat odors
Food Waste
Ammonia

TYPICAL PROPERTIES

- APPEARANCE ..... BROWN LIQUID
- FRAGRANCE ..... EARTHY
- FORM ..... LIQUID
- SHELF LIFE ..... 24 MONTHS
- pH ..... 6.0 – 7.0 WHEN MIXED

PACKAGING

- QUARTS, GALLONS, 5 GALLON, 55 GALLON, 275 GALLON CONTANERS

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