



*Environmentally safe  
Non-toxic & Non-Hazardous  
Water Soluble  
100% Biodegradable  
Meets published EPA, OSHA, &  
California Prop. 65 Stds.  
Authorized by USDA*

Animal waste, and up to 90% of the chemical substances considered hazardous, can be biodegraded naturally, without chemicals or microbial additives.

To do this, Nature requires a small number of native microbes in the contaminated system which have the genetic ability to break down the contaminant. Basically, the bio-transformation process develops through a complex series of enzyme-related reactions, which may or may not be performed by a specific bacterial group.

The specific waste system is important in determining the percentage of microbes that can act upon a contaminant, as well as whether it will work under site-specific conditions. The longer the bacteria is exposed to a contaminant, the better it can adapt to degrade it.

We have yet to see the need to add foreign or recombinant bacteria to handle the biodegradation task. Bio-remediation specialists often rely on the diverse microbial populations found in the waste system.

Microbial life is found in any ecosystem, such as all geological soils and animal waste, as well as all climactic conditions. These microbes are extremely aggressive, under the appropriate circumstances and with adequate stimulation. They were created to be very competitive in performing their assigned tasks. This competitive process is how ecological balance is maintained for a specific location:

As excessive foreign materials, such as large amounts of animal waste, are introduced to a specific ecosystem, such as a slurry lagoon or compost pile, a natural process to

# Global-Life Fact Sheet: Animal Waste Remediation & Odor Control

eliminate the overload problem begins. As continuous additions of this waste are made, the surplus begins to burden the natural process, resulting in serious contamination.

This problem can be corrected by adding Global-Life Bio-Stimulant to the system.

When the overload is eliminated, the revived natural and native system resumes its normal process. As this happens, the additional microbes that were created are phased out and allowed to become dormant again. In other words, when the process is complete, the treated site returns to its original state.

Global-Life's enzyme "recruitment system" offers the potential for new bio-remediation methods. It allows greater flexibility in the ability of microbes to degrade complex materials, including animal waste that is unfamiliar to those microbes (i.e. adding dairy waste to a hog lagoon).

## **Animal Waste Treatment: Cellulose**

High levels of cellulose in animal waste are one of the compounds difficult to liquefy and decompose. Cellulose is bio-degraded by certain bacterial and fungal strains capable of secreting cellulose enzymes that convert the tough, fibrous structures of cellulose to a soluble, fluid state. This process is known as hydrolyzing.

Cellulose can benefit from the rapid hydrolyzing capabilities of Global-Life. Global-Life contains selected inducer molecules for microbial ecosystems that can degrade native cellulose by secreting a variety of cellulose digestive enzymes within the microbes. A limited quantity of these enzymes are produced by the normal microbes of the average animal waste system, but some of them have been forced into dormancy. As a system is overloaded, more microbes must be developed and dormant microbes must be reactivated to meet the system's demands. The addition of Global-Life to the animal waste system reactivates many trillions of cellulose enzyme-secreting, inducer-molecule triggering microbes that can efficiently hydrolyze and biodegrade the waste and cellulose found in the system.

The bio-stimulant applications may be:

- 1) added to an incoming line of a biological treatment section of a waste treatment system;
- 2) added into a lagoon or slurry pond;
- 3) added through a primary clarifier or process pump;
- 4) sprayed over the surface of a lagoon or holding pond.

Using native microbes may be the ideal animal waste treatment technique. The waste areas act as a reactor structure. Commercial waste treatment sites have activated naturally occurring hormonal enzymes and coenzymes, which enhances microbial growth through the addition of nutrients or oxygen. The additional nutrients or oxygen then accelerate natural biodegradation, without a formal reactor. Using this approach, the in situ environment itself becomes a giant reactor, accentuated by the addition of Global-Life.

## **Nitrification Process in Animal Waste Treatment**

It is possible to reduce ammonia in wastewater by treating the native microbes with Global-Life Bio-Stimulant. As a result, the normal step of ammonium nitrate/nitrite conversion in the biodegradation process is reduced or eliminated, with subsequent energy and cost savings.

The treatment of enzymes/coenzymes with Global-Life is directed toward the natural microbial population. It enhances the microbes' ability to degrade a specific waste compound, such as cellulose or ammonia. Subsequently, greater substrate bio-conversion is possible, even when the microbes are exposed to drastic changes in conditions. The microbes are able to adjust to these changes because of the application of Global-Life enzymes and coenzymes. This is useful for systems where the production of useful metabolites is the objective. This method is also ideal for waste treatment where degradation of waste into a more acceptable form, such as water, is necessary.

It's during aerobic respiration that organic carbon is converted to carbon dioxide, nitrogen to nitrates, sulfur to sulfates, and

phosphorous to phosphates. The presence of excessive organic matter causes a great demand for oxygen because of the microbes' intense activity. If there is not enough oxygen, the metabolic processes become anoxic (lacking oxygen) rather than occurring with a normal amount of oxygen.

Microbes exist in different metabolic types. When there is a change in the substrate's chemistry and environment, different organism types take over. When oxygen is depleted, anaerobes become active. At this point, nitrates, phosphates, and sulfates become the basic oxidants, and odor occurs.

---

## **Animal Waste Transformation**

The capacity of a microbe to degrade animal waste is controlled by enzyme stimulation that causes a specific oxidation. Even though a microbe contains the information to create its own enzymes in its genetic makeup, the cell may not spend the energy to produce those enzymes needed for rapid reproduction. As a result, the desired degradation of specific waste materials may not take place.

The application of Global-Life Bio-Stimulant serves as a trigger of the genetic material, which serves as an inducer molecule. These multifactorial inducers may then degrade the waste substrate. The final products of the enzyme-stimulated, bacterial degradation of the animal waste are reduced cells of H<sub>2</sub>O (water) and CO<sub>2</sub> (carbon dioxide).

---

## **How does Global-Life work?**

Global-Life Bio-Stimulant is a highly concentrated, multi-enzyme system. The water soluble solution contains enzymes, coenzymes, exoenzymes, natural nutrients, and inducer molecules. This combination stimulates a wide variety of specialized natural organisms that are composed of aerobic and anaerobic microbial strains. These strains exist within industrial, animal, and municipal waste treatment systems.

Global-Life has a higher rate of efficiency at biodegrading various toxicants within waste treatment systems than isolated strains of imported bacteria. This system offers the

user the advantage of immediate activity within native microbes at precalculated levels of biochemical capability.

The use of Global-Life results in greater concentrations of highly effective substances which improve digestion rates, thereby increasing the overall efficiency of the aerobic waste treatment system. As a result, higher concentrations of waste can be accommodated. Global-Life "enzymatically" alters the physical structure of the suspended solids, causing them to separate more efficiently. The reduced sludge volume that follows is a result of the more complete liquefaction and gasification of the organic waste, as well as the destruction of waste-binding molecules.

Global-Life is a carefully developed system which keeps its water medium in a constant state of oxygen saturation. It includes an ecologically-balanced combination of stimulants that serve as "triggers" and remain active over a wide range of temperature and environments. Continuous treatment of waste material and wastewater will greatly reduce any objectionable odors, and will also regenerate the natural eutrophic in these liquids. Over a period of time (relative to BOD/COD ratios and contact periods), treated material may be totally returned to life-supporting oxygenated water.

Global-Life is safe to use on plants and animals for natural remediation and is USDA authorized for use in sewage and/or drain lines of official establishments operating under the Federal meat, poultry, shell grading, and egg products inspection programs.

---

## **Applying Global-Life**

Apply Global-Life by diluting one part product with nine parts of clean, unchlorinated water. To begin treatment, spray the solution over the surface of the area at a rate of 10 gallons of solution to each foot/acre of waste. This application may need to be doubled as a shock treatment for the initial application. The application should be repeated every two weeks until the pond or lagoon is liquefied. Follow the directions for application on the label, or in the Global-Life Technical Manual, available from WE International, Inc.

Continuous application of Global-Life is most effective when applied as a spray, either over the surface of an aeration pond or directly at the top of a pipe mouth. It is best to cover as much area as possible. Over time, the eutrophic process will penetrate deeper; however, initially, most of the odor control will be through the surface layers.

When Global-Life is applied to fields or stockyards, a spray application is best. However, when used in this application, adequate moisture must be maintained because microbes are moisture sensitive.

## **Application parameters for Global-Life Bio-Stimulant**

1. pH: Optimum of 7, min. of 4.5, max. of 9.0
2. DO (dissolved oxygen): Optimum 3 PPM+, minimum of 2 PPM
3. C/N (carbon/nitrogen ratio): Optimum 10:1, maximum 20:1
4. Temperature: Optimum 86° F/30° C, minimum 66° F/19° C, maximum 120° F/49° C
5. Free of toxic metals, such as hexavalents and chromium, and reasonable dilution of organic and inorganic cyanide wastes and normally toxic compounds.
6. Increased surface area or solubility allows for more rapid oxidation and stimulated metabolism of the biota of the animal waste being treated.

## **Specific treatment systems**

1. Activated sludge systems
2. Trickling filters
3. Oxidation lagoons
4. Wastewater treatment tanks

### **Information distributed by:**



**WE International, Inc.**

POST OFFICE BOX 97 • SYRACUSE, INDIANA 46567 USA  
PHONE: (574) 457-3066 • FAX: (574) 457-8807  
email: weexport@we-intl.com • http://www.we-intl.com

based on information from the book *Environmental Care & Share* by Dr. William Jackson

- Global-Life is a highly concentrated, multi-component, bio-ecosystem in translucent aqueous solution.
- Chemical analysis reveals almost pure water with a number of common trace elements detected spectrographically.
- Contains 100% organic materials. Able to exist and thrive in waters with wide variations of salt control.
- Classified non-hazardous and poses no health hazard either internally or externally.
- Produced according to Federal Regulations 1910.1200.
- USDA authorized for use in sewage and/or drain lines of official establishments operating under the Federal meat, poultry, shell egg grading, and egg products inspection programs.
- Meets all published OSHA, EPA, and DOT regulatory requirements.
- Contains no ingredients listed in California Proposition 65 (The Safe Drinking Water and Toxic Enforcement Act of 1986).