

# BIO SOLUTIONS 38™

A Biological Technology Product  
Big Bore Bio-Cultures with Natural Enzymes

**Bio Solutions 38™** is specifically designed as an industrial strength liquid concentrate containing a unique consortium of 38 different species of naturally-occurring microorganism capable of degrading complex carbohydrates and proteins: fats, oils, and grease: selected hazardous organics and odor-causing compounds. This diversity of metabolic capabilities enables the bio-cultures to degrade a wide variety of complex/high strength/multiple substrate waste streams. The consortium is facultative and thus capable of growth under aerobic, microaerophilic and anaerobic conditions.

Bio Solutions 38™ is a premium product that may be used as directed wherever biological waste and odor need to be eliminated

## Characteristics:

- Fast Acting Cultures
- Easy To Handle Liquid
- Biologically Attacks Odors
- Synergistically Active Cultures
- Premium Quality/Cost-Effective
- Resists Toxicity and Shock Loading
- Degrades A Wide Variety of Wastes
- Produces Natural Enzymatic Activity
- Cultures That Grow With or Without Air
- Non-Toxic, Non-Pathogenic, Non-Corrosive

## Capabilities:

- Controls Malodors
- Increases Settle Ability
- Reduces Toxicity in Effluent
- Decreases Aeration Requirements
- Accelerates Recovery from Upsets
- Cleans Grease in Collection Systems
- Reduces BOD, TSS, FOG and NH<sub>3</sub>
- Eliminates Hydrogen Sulfide Corrosion
- Removes Organic Sludge Accumulation
- Enhances Degradation of Digester Solids

Bio Solutions 38™ Helps Systems meet Permit Requirements by Reducing BOD, TSS, FOG, NH<sub>3</sub>, Fecal Coliform and Lowers Sludge Volumes/Removes Sludge Accumulations in Ponds

## Areas of Use:

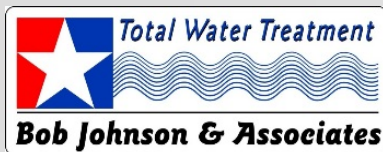
Industrial Wastewater Plants  
Digesters  
Collection Systems

Municipal Wastewater Plants  
Sludge Basins  
Lagoons

Bob Johnson & Associates  
16420 W. Hardy Rd. Ste 100  
Houston, Texas 77060  
**281 - 873-5555**

Available in 5, 15, 30, 55, 250 Gallon Containers

To order: Call or Email to Sales@bjja.com



# BIO SOLUTIONS 38™

A Biological Technology Product

## A Microbial Consortium:

A microbial consortium is a group of different species of microorganisms that act together as a community. Examples of microbial consortia are found in activated sludge basins, biofilms such as found on trickling filters, and in various soil ecosystems. In a microbial consortium the organisms work together in a complex system where all benefit from the activities of others in the community. It has long been known that microbial consortia are much more efficient at degrading complex organic wastes than single strains of organisms or even blended mixtures of microorganisms with a diversity of metabolic capabilities. Blended microbial mixtures are not able to maintain a stable community structure when introduced into harsh environmental conditions.

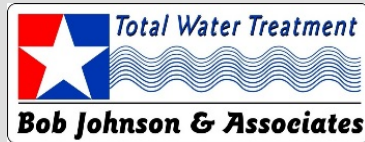
In a microbial consortium one might find any number of organisms with different metabolic capabilities. This could include organisms that are proteolytic (are able to degrade proteins and amino acids); organisms that are saccharolytic (able to degrade various sugars); organisms that are lipolytic (able to digest lipids or fats); and organisms that are cellulolytic (able to degrade cellulose or plant matter). These different metabolic capabilities allow the consortium to work together in degrading a variety of complex waste streams.

Single strains of microorganisms are not capable of degrading all of these compounds, therefore microbial consortia are essential in the complete mineralization of these fuels to carbon dioxide and water. A microbial consortium is more resistant to environmental shock and can better compete and survive in complex environments than blended "pure" cultures.

Bio Solutions 38™ has been specifically designed to replenish and supplement bacterial populations and functions in wastewater treatment systems that deal with high-strength/complex substrates.

**Bob Johnson & Associates**  
16420 W. Hardy Rd. Ste 100  
Houston, Texas 77060  
**281 - 873-5555**

To order: Call or Email to [Sales@bjja.com](mailto:Sales@bjja.com)



# BIO SOLUTIONS 38™

A Biological Technology Product

As the primary decomposers of organic waste, bacteria reduce influent solids and organics to harmless compounds of water and carbon dioxide. All wastewater treatment systems, from septic tanks to large municipal and industrial plants, are designed around this bacterial function. The failure of a wastewater treatment system to meet its design parameters or discharge permit requirement is usually due either to (1) an insufficient bacterial population, or (2) organic wastes which the existing bacteria cannot digest. The results are noxious odors, sludge build-up, sewage backups, wastes that are discharged before they are completely decomposed, facilities that are overloaded with organic waste and a lot of expense for facility repair, replacement or expansion. Bio Solutions 38™ has been specifically designed to replenish and supplement bacterial populations and functions in wastewater treatment systems. It contains a consortium of bacterial strains which quickly degrade such difficult compounds as detergents, tissue, fats, oils and grease. They also digest other waste constituents such as starches, cellulose, proteins, vegetable gum and hydrocarbons pollutants. Regular applications of Bio Solutions 38 to your system will help achieve permit parameters while overcoming such related problems as odor, toxicity, plugged drain fields and excessive solids accumulation.

Bio Solutions 38™ has a unique blend of live, active microorganisms remedies wastewater treatment problems in Municipal and Industrial wastewater treatment systems. Bio Solutions 38™ breaks down and digests carbohydrates, proteins and fats, and dissolves organic materials in both anaerobic and aerobic wastewater treatment systems. In addition to dramatic improvements in oxidizing organic compounds, it can lower operating costs for users. Bio Solutions 38™ keeps wastewater systems operating properly for a very nominal fee. Field performance has proven that plant operation cost savings will be greater than the material cost for Bio Solutions 38™ treatments. Bio Solutions 38™ can lower operating costs by improving the oxidation of carbohydrates, proteins and fats, as well as, reduction of aeration capacity required. It can also reduce the need to use chemical settling aids (polymers), cut your energy costs, save de-foamer expenses, cut down on routine maintenance and lower overall labor costs.

Bio Solutions 38™ not only improves system performance, it can also overcome shock loads and kills. There are several reasons why wastewater treatment systems become upset and why imbalances occur. Bacteria are living organism; some care is required to maintain an environment for them to live and work as efficient decomposers of waste. They usually prefer an environment with plenty of oxygen and they cannot usually thrive in extremely cold or hot temperatures nor in acidic or strong alkaline solution. For example, pH is common problem in wastewater and should be maintained between 6 and 9 with an ideal pH of 7.5. Temperature shock is also common. Bacteria can work in wastewater with varying temperature from 45 to 104° F. Oxygen is usually required by bacteria to oxidize wastes with minimal requirements of 1 milligram per liter and 2-3 milligrams per liter for overcoming shock loads. Toxic chemicals also kill bacteria and diminish their population. An additional factor in poorly operating wastewater plants is hydraulic overload. Hydraulic overload occurs when wastewater passes through the plant too rapidly and does not allow the indigenous bacteria adequate to digest or metabolize wastes.

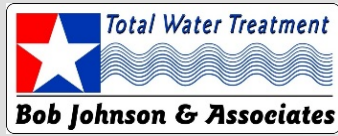
**Bob Johnson & Associates**

16420 W. Hardy Rd. Ste 100

Houston, Texas 77060

**281 - 873-5555**

To order: Call or Email to [Sales@bjja.com](mailto:Sales@bjja.com)



# BIO SOLUTIONS 38™

A Biological Technology Product

Bio Solutions 38™ provides even more benefits, including: no harmful chemicals to worry about, an end to noxious odors, quick recovery from shock loading, reduced sludge generation and lower effluent Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), Fats, Oils and Grease (FOG), Ammonia (NH<sub>3</sub>), fecal coliform and toxicity.

Bio Solutions 38™ works naturally, introducing live, safe bacteria with known functions into your wastewater treatment facility to improve waste decomposition. The bacteria require specific nutrients in order to metabolize waste and reproduce. These nutrients – nitrogen and phosphorous – are usually found in abundance in domestic wastewater. However, some industrial wastes may be deficient in nitrogen/phosphorous. If so, the wastewater should be supplemented with the deficient nutrient. Agricultural fertilizers are a good economic source of nitrogen and phosphorous. The accepted minimum levels are a ration of biochemical oxygen demand: nitrogen: phosphorous of 100:5:1.

Bio Solutions 38™ selected bacteria are non-toxic, non-pathogenic and remain viable in liquid culture for several months at room temperature. Once in contact with the nutrients present in your wastewater facility, this microbial consortium goes to work to liquefy grease and fats, to reduce sludge build-up and line corrosion, to eliminate overloading and chemical shocks, to increase dissolved oxygen in the final effluent and to dramatically reduce OBD, TSS and FOG levels.

Bio Solutions 38™ increases your wastewater treatment capability, making it an obvious alternative to expansion of your facilities and a sensible way to extend the life of your facilities. Only small amounts are required and the product is easy to apply.

**Bob Johnson & Associates**  
16420 W. Hardy Rd. Ste 100  
Houston, Texas 77060  
**281 - 873-5555**

To order: Call or Email to [Sales@bjja.com](mailto:Sales@bjja.com)