

Solid Waste Treatment

Introduction

Urbanization and population growth are solely responsible for high increasing rate of solid waste and its proper management is a major problem of Municipal Corporation.

Around the world, waste generation rates are rising. In 2012, the world's cities generated 1.3 billion tones of solid waste per year, amounting to a footprint of 1.2 kilograms per person per day. With rapid population growth and urbanization, municipal waste generation is expected to rise to 2.2 billion tones by 2025.

Compared to those in developed nations, residents in developing countries, especially the urban poor, are more severely impacted by unsustainably managed waste. In low and middle-income countries, waste is often disposed in unregulated dumps or openly burned. These practices create serious health, safety, and environmental consequences. Poorly managed waste serves as a breeding ground for disease vectors, contributes to global climate change through methane generation.

Managing waste properly is essential for building sustainable and livable cities, but it remains a challenge for many developing countries and cities. Effective waste management is expensive, often comprising 20-50% of municipal budgets. Operating this essential municipal service requires integrated systems that are efficient, sustainable, and socially supported.

MiCroBial technologies products will help in reducing odor from municipal solid waste accelerate the decomposition of solid waste thus ultimately increase the composting rate of solid waste.

What is MiCroBial Technologies

MiCroBial Technologies provides Bioaugmentation solutions for the waste water treatment and waste management industries. Our advanced microbial solutions restore quality in the world's polluted waters with the help of organic enzymatic solutions. Using natural and organic products, we create beneficial shifts in microbial ecologies to help you change the world. We create reliable biological solutions for the environment problems.

MiCroBial technologies products consist of bacteria, enzymes, nutrients that degrade organic matter as Carbohydrate, Proteins & Fat (FOG). These microbes produce different types of enzymes as amylase, Protease, Lipase, Cellulase etc. It contains aerobic and facultative anaerobic microbes.

MiCroBial Technologies is on the cutting edge of developing technology to apply the concept of "probiotics" in a variety of industries and applications – from human health and agriculture to industrial waste management, and beyond. As such, our products cater to a full spectrum of microbiomes.

Why MiCroBial Technologies

MiCroBial is a powerful combination of active micro-organisms that creates a broad range of beneficial enzymes with the remarkable ability to fully oxidize or digest a wide range of organic compounds and pollutants, leaving the environment in natural balance. It is a 100% organic and bio-degradable culture that is safe for humans, animals and the environment. Extremely High Speed 'Hydrolytic Enzymes' makes our products thousands of times faster than previously possible. MiCroBial products contains specifically selected different microbial strains for specific function that makes our products unique than other products.

Typical Application Area

Wastewater Treatment Plant (WWTP)
Sewage Treatment Plant (STP)/ Effluent Treatment Plant (ETP)
Food/Beverage/Pharma/Dairy Effluent Treatment Plant
Drainage system Wastewater canal, Oxidation pond, Anaerobic digester
Fruit & Vegetables processing industries
Working Landfill, Composting windrow, Solid waste & Waste pond
Manure pond, Garbage station, Restaurant kitchen



MiCroBial Aqua

Application Area

Municipal Wastewater Treatment Plant
 STPs – Govt & Private
 Rudimentary sewage canal Treatment
 Rivers Treatment
 Lakes Treatment
 All Industrial Wastewater Treatment where
 Biological process unit's available

Benefits

Reduce BOD, COD, TSS, Biological Nutrients
 Improve MLSS, Biomass in the system
 Reduce odors
 Reduces aeration and saving energy
 Reduces need for chemical additives
 Improve plant stability
 Reduce sludge production
 Reduces hydrogen sulfide, ammonia and nitrates
 Enhance nitrogen and phosphorus removal
 100 % natural and non pathogenic



MiCroBial FOG

Application Area

Municipal Wastewater Treatment Plant
 STPs – Govt & Private
 Industrial Wastewater Treatment
 Wastewater contains Fat, Oil & Grease
 Hotels & Building Management
 Dairy, Food, Vegetables, Sugar Mill Industry
 Slaughter house, Paper & Pulp Industry
 Beverage, Pharma industry

Benefits

Degrade Fat, Oil & Grease
 Reduce BOD, COD, TSS, Biological Nutrients
 Improve MLSS, Biomass in the system
 Reduce odors
 Reduces aeration and saving energy
 Reduces need for chemical additives
 Improve plant stability
 Reduce sludge production
 Reduces hydrogen sulfide, ammonia and nitrates
 Enhance nitrogen and phosphorus removal
 100 % natural and non pathogenic



MiCroBial Odor

Application Area

Composting Industry
 Landfill Odor Control
 Garbage collection Plant
 Slaughter house odor control
 Kitchen waste odor control in Hotels
 Biogas producing plant
 Public urinals
 Solid waste management plants

Benefits

Rapidly reduces odor & VOC, Fast acting
 Improves nutritional quality of compost
 Decrease composting period by 30 %
 Reduces need for chemical additives
 Increase biogas production
 Reduce sludge production in septic tanks
 Reduces hydrogen sulfide, ammonia and nitrates
 Enhance nitrogen and phosphorus removal
 Operate at low dosage
 100 % natural & non pathogenic



MiCroBial Septic Tank

Application Area

Septic tanks, Sinks
 Private and Public Toilets
 Drainage systems
 All domestic wastewater system
 Hotels & Buildings Septic tanks
 Composting Toilets

Benefits

Reduce sludge production
 Breaks down suspended solids & fats
 Reduce odors
 Digest solids & reduce pump outs
 Reduces need for chemical additives
 Improve plant stability and smooth operation
 Improve performance of septic/drainage system
 Reduces hydrogen sulfide, ammonia and nitrates
 Enhance nitrogen and phosphorus removal
 Breaks down Fat, Oil & Grease
 Remove blockages of septic/drainage system
 100 % natural and non pathogenic

MiCroBial Technology Overview

MiCroBial technologies prepare a powerful combination biocatalyst from a unique blend of microorganisms, enzymes, and co-factors. This composite biocatalyst co-exists with existing wastewater biology to enhance their rate of reaction, resulting in a more efficient biological treatment process. The technology fits into a relatively new scientific field called Bioaugmentation that presents a simple and cost effective way to solve wastewater treatment problems without expensive capital enhancements. Unique to MiCroBial technologies is the ability to reduce the required time for bacteria to adapt to new waste streams.

Why to Use MiCroBial Technologies Products ?

Probiotics are live microorganisms which, when administered in adequate amounts, confer a health benefit on the host and contribute to a more balanced microbiome. MiCroBial Technologies is on the cutting edge of developing technology to apply the concept of “probiotics” in a variety of industries and applications – from human health and agriculture to industrial waste management, and beyond. In effect, MiCroBial Technologies provides a natural, organic technology that provides completely biological solution for wastewater treatment, solid waste treatment, agriculture and aquaculture.

MiCroBial Composition

1. Group of human and environmentally friendly bacteria & enzymes
2. Probiotics
3. Metabolite Substrates - Digestive and metabolic Enzymes, Organic acids
4. Dextrose Carrier (also provides nutrients for microbials)

Key Components of MiCroBial Technologies

MiCroBial is a revolutionary microbial technology consisting of 9 microbes and aqua enzyme cocktail acting in symbiosis creating enzymes and powerfully working to rapidly digest fats, protein, carbohydrate, cellulose, bad organic odor and waste products. This makes MiCroBial perfect for a wide range of diverse applications. MiCroBial is formulated from 9 pure strain active ingredients which are stored in certified biological warehouses in the India. These are then cultured and fermented in a multi-stage process with a specially developed combination of bio vitamins and bio-minerals that are then further processed into forms of MiCroBial powder ready for packaging or inclusion in other products. For environment, solid waste treatment, animal feed, aquaculture applications further processes sterilize MiCroBial retaining only the pure MiCroBial enzymes and metabolites. Following are the microbes & enzymes include:

Denitrifying Bacteria
Nitrifying Bacteria
Fermentative Bacteria
Hydrolytic Enzymes

Compost Additives –

MiCroBial Odor product can be used as accelerant or compost aid in composting process; it will increase the decomposition rate of solid waste and will help in reduction of waste volume.

Composting period will be reduced by 30 – 40% with the help of MiCroBial Odor.

MiCroBial odor can be used to control the odor from compost and make it free from smell.

Biogas

MiCroBial Odor contains an aerobic and anaerobic microbe which works better in biogas system.

MiCroBial odor increases the production of biogas significantly by increasing rate of decomposition through hydrolysis, Acid formation and Methan formation. MiCroBial Technologies can help in energy production in anaerobic digestion of organic matter. The gas produced during anaerobic digestion contains large amount of methane gas which will be harvested and then burned to generate electricity.

Odor Control from Solid Waste –

MiCroBial Odor can be used to control the odor from different source of odor at different site like landfill, Garbage collection point, Garbage bins, Municipal solid waste and Composting machine. Along with odor control, MiCroBial Odor will assist microbial degradation in landfills and solid waste treatment. MiCroBial Odor microbes & enzymes eliminates the odor by reducing different odor generating gases and don't just mask the odor.

Sanitization - MiCroBial Technologies Odo is a very effective anti-microbial controlling most pathogenic bacteria (E.coli, Salmonella, Staphylococcus, Cholera etc)

Reduces compounds that attract flies and many other vermin (ammonia & amines)

Dosages are low and easily applied using existing equipment.

For example 1kg of MiCroBial Technologies Odor Eliminator will treat 200-250 tons of solid waste.

Control odor from Solid waste/Garbage

Method of Application

The MiCroBial Technologies product comes in a powder form and requires dosing directly onto solid waste from garbage station. A suggested approach would require 500 -1000 liters of fresh water for activation and tanker of 1000 liter capacity which is adequate for achieving activation of MiCroBial Technologies biocatalyst Spraying would be instant after addition of MiCroBial Technologies Odor into 500-1000 liter of fresh water.

MiCroBial Technologies Odor is supplied in powder form and must be mixed into fresh water to activate. To breakdown odor causing or polluting gases, the MiCroBial Technologies Odor must come into contact with the target molecule. The most common methods of application for MiCroBial Technologies Odor are summarized below.

Spray

MiCroBial Technologies Odor Eliminator can be applied via a spray across any odor causing substrate or area.

Examples: solid waste, sludge, pits and sumps.

Directions for Use

1. Mix 1 liter of MiCroBial Technologies Odor into 500 -1000 liter of fresh water.
2. Allow 15 minutes for activation.
3. Spray across substrate to achieve coverage of up to 100 - 200 tons of solid waste
4. Apply the product as per the requirement

Benefits of MiCroBial Technologies Product -

