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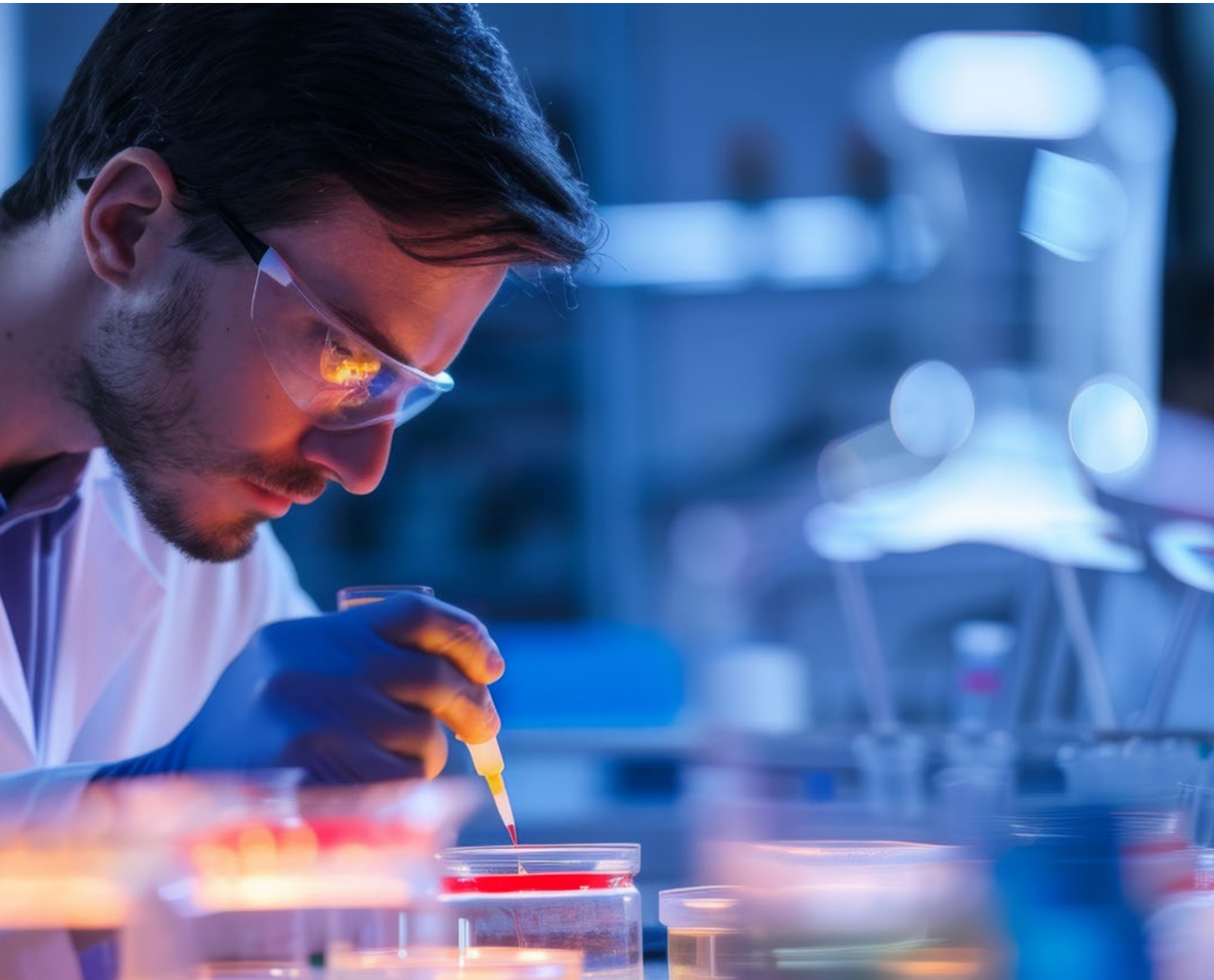
VARUNA
BIO TECHNOLOGY

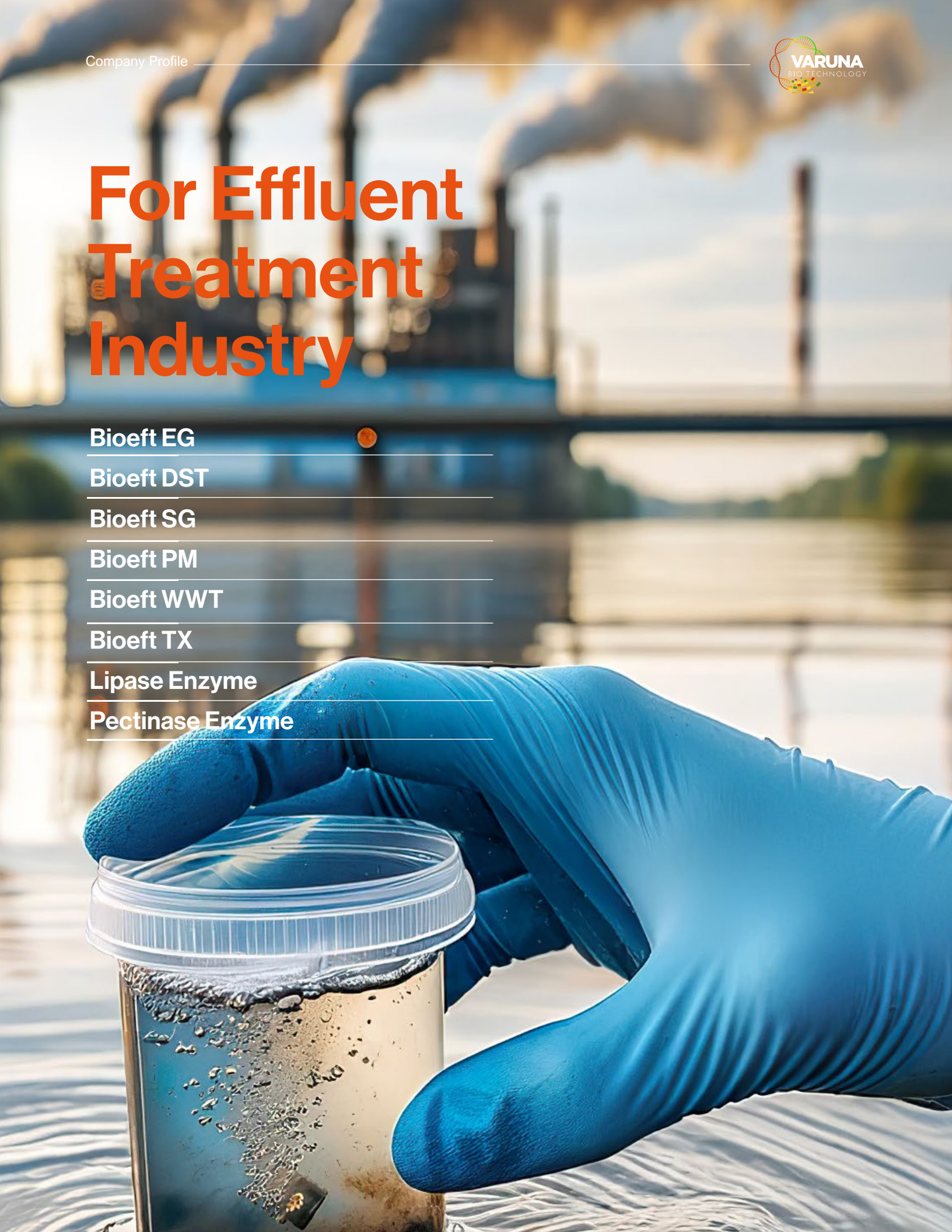
Transforming industries through enzymatic innovation



VARUNA
BIO TECHNOLOGY

For Effluent Treatment Industry

- Bioeft EG
- Bioeft DST
- Bioeft SG
- Bioeft PM
- Bioeft WWT
- Bioeft TX
- Lipase Enzyme
- Pectinase Enzyme



Bioeft-EG

Optimised effluent treatment bio-formula

Bioeft-EG is the synergistic blend of specially screened beneficial and safe bacterial organisms, micro and macro nutrients, bio-additives with optimized nonpathogenic microbial flora in organic effluence.

It is a synergistic blend of natural bio-catalysts capable of hydrolyzing macro-molecules like fats, proteins and polysaccharides to simpler molecules in effluent treatment plants.

Bioeft-EG is a well-studied product for application in effluent treatment plants.

Properties

Physical property	:	Off white to light brown coloured powder
Dispersibility in water	:	High
Moisture	:	<5%
Operating temperature	:	30°C to 50°C
pH (1% solution)	:	6.5 +/-0.5
Active ingredients	:	Selective non-GMO micro-organisms and blend of hydrolyzing enzymes

Application

Dose: 10 PPM of effluent water to be applied every 5-7 days. Dosing and frequency of application should be adjusted as per the effluent loading.

Direction for use

- Disperse well 1 kg of Bioeft-EG in 10 liters of water.
- Allow for overnight in a closed container at ambient temperature
- This Bioeft-EG mixture should be well mixed to 100 liters.
- This 100 Lits mixture of Bioeft-EG should be well dispersed in the effluent water using some spraying device.
- This process should be repeated in 5-7 days depending upon the ETP condition and flow rate.

Dosing points

Collection Tank / Equalization tank, Aeration tank

Target industries

- Egg processing industry
- Fish processing industry
- Dairy and Milk processing industry
- Food processing industry

Storage

Store in airtight containers, under cool (<30°C) and dry conditions. It should be used within 12 months beyond which loss of activity starts which may accelerate in the case of improper storage.

Safety

Contact or inhalation of enzymes in any form may cause allergic reactions and should be avoided. In case of contact with the skin or eyes, promptly rinse with water for at least 15 minutes. Please refer Material Safety Data Sheet (available on request) for all safety instructions.

Benefits

Regularizes MLSS

Increases efficiency of effluent treatment plant

Reduction in operational cost

Normalizes BOD, COD and Total soluble solids as per regulatory norms

Helps in reducing obnoxious odour

Accelerated decomposition of organic materials

Environment friendly

Bioeft-DST

Bio-solution for Septic tank

Bioeft-DST is the synergistic blend of specially screened beneficial and safe bacterial organisms, micro and macro nutrients, bio-additives with optimized nonpathogenic microbial flora in organic septic tank.

It is a synergistic blend of natural bio-catalysts capable of hydrolyzing macro-molecules like fats, proteins and saccharides and microbial loads in septic tanks.

Bioeft-DST is a well-studied product for application in Septic tank.

Properties

Physical property	:	Off white to light brown coloured powder
Dispersibility in water	:	High
Moisture	:	<5%
Operating temperature	:	30°C to 50°C
pH (1% solution)	:	6.5 +/-0.5
Active ingredients	:	Selective non-GMO micro-organisms and blend of hydrolyzing enzymes

Application

Dose: 100 Gms per 1000 Lit of Septic tank to be applied every 5-7 days. Dosing and frequency of application should be adjusted as per the effluent loading.

Direction for use

- Disperse well 1 kg of Bioeft-DST in 10 liters of water.
- Allow for overnight in a closed container at ambient temperature
- This Bioeft-DST mixture should be well mixed to 100 lits.
- This 100 Lits mixture of Bioeft-DST should be well dispersed in the septic tank using some spraying device or dose in different points of septic tanks.
- This process should be repeated in 5-7 days depending upon the septic tank condition and flow rate.

Dosing points

Collection Tank / Equalization tank, Aeration tank

Storage

Store in airtight containers, under cool (<30 °C) and dry conditions. It should be used within 12 months beyond which loss of activity starts which may accelerate in the case of improper storage.

Safety

Contact or Inhalation of enzymes in any form may cause allergic reactions and should be avoided. In case of contact with the skin or eyes, promptly rinse with water for at least 15 minutes. Please refer Material Safety Data Sheet (available on request) for all safety instructions

Benefits

Regularizes MLSS

Increases the efficiency of septic treatment plant

Reduction in operational cost

Normalizes BOD, COD and Total soluble solids as per regulatory norms

Helps in reducing obnoxious odour

Accelerated decomposition of organic materials

Environment friendly

Bioeft-SG

Optimized effluent treatment bio-formula

Bioeft-SG is the synergistic blend of specially screened beneficial and safe bacterial organisms, micro and macro nutrients, bio-additives with optimized nonpathogenic microbial flora in organic effluent. It is a synergistic blend of natural bio-catalysts capable of hydrolyzing macro-molecules like fats, proteins and polysaccharides to simpler molecules in effluent treatment plants. Bioeft-SG is a well-studied product for application in effluent treatment plant in sugar industry.

Application

- Sugar industry
  - ETP/UASB/Aeration Tank
  - Biogas plant
- Distilleries
- Biogas plant and spent wash

Mode of Action

Bacteria in Bioeft-SG produces various enzymes capable of breaking down complex compounds to simpler ones, hence degrades the organic waste more rapidly and efficiently, and hence it helps to improve the MLSS faster in aeration tank and makes. The system is more efficient in ETP.

- Fats to glycerol and fatty acids
- Proteins to amino acids
- Cellulose to sugars
- Starch to glucose

Properties

Physical property	:	Off white to light brown coloured powder
Dispersibility in water	:	High
Moisture	:	<5%
Operating temperature	:	30°C to 50°C
pH (1% solution)	:	6.5 +/-0.5
Active ingredients	:	Selective non-GMO micro-organisms and blend of hydrolyzing enzymes

Doses

- Disperse well 1 kg of Bioeft-SG in 10 litres of water.
- Allow for overnight in a closed container at ambient temperature
- This Bioeft-SG mixture should be well mixed to 100 lits.
- This 100 Lits mixture of Bioeft-SG should be well dispersed in the appropriate dosing point using some spraying device.
- This process should be repeated in 5-7 days depending upon the ETP condition and flow rate.

Safety

This product is non-toxic, non-pathogenic, non- hazardous, non-contagious, non-corrosive. Bacteria used are from WHO recommended natural strains for safety which are not genetically modified, hence poses no threat to environment' It creates no heat, no fumes, no boiling. It does not attack live tissue or any inorganic materials.

Storage and Transport stability

Product can be stored at room temperature under dry conditions. Product stability is for 12 months at the prescribed conditions from the date of production. The product is safe to transport by any means of surface transport and air transport.

Benefits

To reduce parameter like BOD, COD, TSS

Increases the efficiency of UASB/ Anaerobic ragoon

To optimize the power cost in the aeration tank

Clean environment with natural and eco-friendly technologies

Increase in MLSS drastically even with limited organic substrates

Great capability to withstand any type of shock loads

Efficient & fast decomposition of the organic material (e.g fatty acids, animal and vegetable fats)

To comply treated water to water discharge standards for irrigation

To optimize and utilize total capacity of the ETP

Short time duration for commissioning ETP

Bioeft-PM

Bio-solution for press mud treatment

Bioeft-PM is the synergistic blend of specially screened beneficial and safe bacterial organisms, micro and macro nutrients, bio-additives with optimized nonpathogenic microbial flora in organic press mud.

It is a synergistic blend of natural bio-catalysts capable of hydrolyzing macro-molecules like fats, proteins and saccharides and microbial loads in press mud.

Bioeft-PM is a well-studied product for application in Press Mud

Properties

Physical property	:	Off white to light brown coloured powder
Dispersibility in water	:	High
Moisture	:	<5%
Operating temperature	:	30°C to 50°C
pH (1% solution)	:	6.5 +/-0.5
Active ingredients	:	Selective non-GMO micro-organisms and blend of hydrolyzing enzymes

Application

Dose: Bioeft-PM 10 Gm of applied Press Mud per ton. Bioeft PM 10 Gms mix 2 to 2.5 Kg than per ton of Press Mud to be applied every 2-3 days.

Direction for use

- Disperse well Bioeft-PM diluted through Press Mud applied 2-2.5 kg of and tentative mixed 50 Kg Press mud.
- Further mix to 1 ton of press Mud and allow for 2-3 days.

Storage

Store in under shed dry conditions. It should be used within 12 months beyond which loss of activity starts which may accelerate in the case of improper storage.

Safety

Please use with hand gloves. In case of contact with the skin or eyes, promptly rinse with water for at least 15 minutes. Please refer Material Safety Data Sheet (available on request) for all safety instructions.

Benefits

Regularizes MLSS

Increases the efficiency of septic treatment plant

Reduction in operational cost

Press mud converts into bio-fertiliser

Helps in reducing obnoxious odour

Accelerated decomposition of organic materials

Environment friendly

Bioeft-WWT

Optimised Bio-Culture for Organic Wastewater Treatment

Bioeft-WWT is a high-performance microbial formulation designed to accelerate the biological treatment of organic and biodegradable wastewater. It contains:

- Select strains of natural, non-pathogenic bacteria,
- Hydrolytic enzymes for organic matter breakdown,
- Bio-stimulants and nutrients to support microbial growth.

This synergistic blend is suitable for diverse applications including municipal sewage, food processing waste, agro-industrial effluents, and biodegradable organic waste streams. Bioeft-WWT optimizes system performance, enhances decomposition, and supports eco-compliant discharge.

Application

Industrial and Domestic Sectors

- Sewage Treatment Plants (STPs)
- Effluent Treatment Plants (ETPs)
- Slaughterhouse Wastewater
- Dairy & Food Processing Plants
- Agro-industrial Wastewater (e.g., fruit/vegetable processing, poultry farms)

Application Points

- Anaerobic Lagoons : Bioreactors
- Aeration Tanks : Equalization Tanks
- Sludge Digesters

Mode of Action

Bioeft-WWT enhances degradation by breaking down:

- Fats into glycerol and fatty acids
- Proteins into amino acids
- Carbohydrates (including cellulose and starch) into sugars
- Organic solids into soluble, biodegradable intermediates

This microbial and enzymatic action boosts MLSS, stabilizes biological performance, and reduces organic loading rapidly, even in variable influent conditions.

Properties

Appearance	:	Beige to light brown free-flowing powder
Dispersibility	:	High
Moisture Content	:	< 5%
Operating Temperature Range:		25°C – 50°C
pH (1% Solution)	:	6.5 ± 0.5
Active Ingredients	:	Selective non-GMO microbial culture and hydrolytic enzymes

Dosage

10–20 gm per ton of wastewater, based on load and ETP conditions.

Usage Procedure

- Disperse 1 kg of Bioeft-WWT in 10 Litres of dechlorinated water.
- Incubate overnight in a closed, aerated container at room temperature.
- Mix into 100 Litres of water.
- Dose the mixture at appropriate treatment stages—aeration tank, anaerobic digester, or bioreactor.
- Repeat every 5–7 days depending on plant throughput and observed results.

Safety

- Non-toxic, non-hazardous, and non-corrosive
- Free from genetically modified organisms (GMO)
- Safe for operators, machinery, and natural ecosystems
- Does not produce fumes, heat, or exothermic reactions.

Storage & Transport

- Store in a cool, dry place away from direct sunlight.
- Shelf life: 12 months from date of manufacture.
- Stable and safe for all standard modes of transportation.

Benefits

Reduces BOD, COD, and TSS in domestic and industrial wastewater

Facilitates Odor control by reducing anaerobic fermentation

Eco-friendly and compatible with downstream treatment processes

Enhances decomposition of high-organic-load effluents

Builds robust MLSS and maintains system resilience during shock loads

Achieves compliance with effluent discharge norms

Reduces sludge volume and improves sludge settling characteristics

Shortens ETP/STP start-up and commissioning time

Improves biogas production in anaerobic digesters when applicable

Bioeft-TX

Optimised Bio-Culture for Textile Effluent Treatment

Bioeft-TX is a scientifically developed, synergistic formulation of:
- Selectively enriched, non-pathogenic microbial strains,
- Essential micro and macro nutrients,
- Performance-enhancing bio-additives.

Designed for high-performance treatment of textile industry effluents, Bioeft-TX offers robust enzymatic and microbial action to degrade complex dyes, surfactants, sizing agents, and another organic load from wastewater. It works effectively across various stages of Effluent Treatment Plants (ETPs), reducing pollutant loads and aiding in achieving discharge compliance.

Application

Textile Industry
- Effluent Treatment Plants (ETPs)
- Equalization and Aeration Tanks
- Biological Oxidation Tanks
- Sludge Handling Systems

Common Effluent Treatment Plants (CETPs)
- Shared wastewater infrastructure for textile clusters

Application Points

- Aeration tanks : Equalization tanks
- Sludge digesters : Biological oxidation tanks

Mode of Action

Bioeft-TX contains microbial strains capable of producing specific enzymes to break down textile wastewater pollutants:
- Reactive/azo dyes > Simpler, decolorized compounds
- Surfactants and detergents > Fatty acids and alcohols
- Starch/sizing agents > Glucose
- Proteins > Amino acids
- Cellulose-based residues > Simple sugars

By improving biodegradation, it enhances MLSS growth, reduces colour, lowers COD/BOD, and increases system efficiency.

Properties

Appearance	:	Creamy white to light brown powder
Dispersibility	:	High in water
Moisture Content	:	< 5%
Operating Temperature Range:		25°C – 50°C
pH (1% Solution)	:	6.8 ± 0.3
Active Ingredients	:	Non-GMO microbial consortia & enzymes

Dosage

10–15 gm per ton of effluent, depending on COD/BOD load.

Usage Procedure
- Disperse 1 kg of Bioeft-TX in 10 litres of clean, chlorine-free water.
- Incubate overnight in a closed, aerated container at room temperature.
- Dilute the activated culture into 100 Litres of water.
- Apply the culture into the aeration tank or bio-oxidation unit using a spray or drip dosing system.
- Repeat every 5–7 days, or as per effluent characteristics and plant performance.

Safety

- Non-toxic, non-pathogenic, non-hazardous
- Contains naturally occurring, non-GMO strains
- Free from corrosive agents, fumes, or health hazards
- Safe for handling, equipment, and ecosystems

Storage & Transport

- Store in cool, dry conditions away from direct sunlight.
- Stable for 12 months from production date under recommended conditions.
- Safe for road, rail, and surface transport.

Benefits

Reduces COD, BOD, and colour significantly

Reduces TSS and sludge bulking

Withstands variable effluent loads and shock conditions

Enhances dye degradation, including reactive and disperse dyes

Helps stabilize MLSS and increases floc formation

Eco-safe no toxic by-products or heat generation

Improves oxygen transfer efficiency in aeration systems

Boosts performance of biological reactors

Supports compliance with discharge norms for textile wastewater

Lipase Enzyme

Industrial grade. Targeted Lipid Hydrolysis for effluent treatment applications

Lipases are hydrolytic enzymes that catalyse the breakdown of triglycerides into glycerol and free fatty acids. These enzymes exhibit broad substrate specificity and operate effectively at oil–water interfaces, making them valuable in industries that deal with fats and oils. Lipases also support esterification and transesterification reactions, expanding their utility into biosynthesis and green chemistry.

Properties

Form	:	Liquid / Powder
Activity	:	≥900000 FIT /g (customizable based on application)
Source	:	Candida.sp.
Optimal pH Range	:	6.0 – 8.5
Optimal Temperature	:	35°C – 55°C
Stability	:	Stable under detergent, biodiesel & food processing conditions
Compatibility	:	Compatible with protease, amylase, cellulase

Packing

Available in 50 Kg drums / 25 Kg bags.

Storage

- Store in a cool, dry place below 25°C
- Shelf Life: 12 months (in sealed condition)

Benefits

Degrades
fats, oils, and grease (FOG) in effluents

Supports
bioremediation in oil-contaminated sites

Pectinase Enzyme

Industrial grade. Efficient Pectin breakdown for waste management.

Pectinases are a group of enzymes that catalyze the degradation of pectic substances, particularly pectin, a structural polysaccharide found in the middle lamella and primary cell walls of plants. Pectinases include polygalacturonase, pectin lyase, and pectin esterase, and are essential in industries requiring the clarification, extraction, and processing of plant-based materials.

Applications

- Bio-scouring of cotton and bast fibers
- Removal of pectic substances to improve dyeability

Properties

Form	:	Liquid / Powder
Activity	;	≥10,000 PGU/g (customizable)
Source	:	Aspergillus sp.
Optimal pH Range	:	4.0 – 6.5
Optimal Temperature	:	40°C – 55°C
Stability	:	Stable under fruit, textile, and wine processing conditions
Compatibility	:	Compatible with cellulase, amylase, hemicellulase

Packing

Available in 50 Kg drums.

Storage

- Store in a cool, dry place below 25°C
- Shelf Life: 12 months (in sealed condition)

Benefits

Speeds up
composting of fruit and vegetable processing waste

Aids
in treatment of effluents with high pectin content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Ravindrapuri Extn,
Varanasi - 221005 (India)

orders@varunabiotech.com
hello@varunabiotech.com

www.varunabiotech.com