



BIONICS ENVIRO TECH PVT LTD

Sustainable Biological Solutions for Textile & Dyeing Wastewater Treatment

Innovative Nanozyme
Bioculture Technology



KEY HIGHLIGHTS

-  COD & BOD Reduction
-  Dye Colour Reduction
-  Sludge Reduction
-  Odour Control
-  Improved Biological Treatment
-  Lower Operating Cost
-  Eco-Friendly Technology
-  Supports PCB Compliance



Textile
Industries



Efficient ETP
Treatment



Clean Water
Better Tomorrow



Sustainable
Environment

*Innovative Biotechnology for
Sustainable Textile Wastewater Treatment*

About Bionics Enviro Tech

ABOUT US

Bionics Enviro Tech Pvt. Ltd. is a Scientific Manufacturer of Nanozyme Bioculture for industrial and municipal wastewater treatment

Built on continuous laboratory research and scientific innovation, we innovate and manufacture microbial biocultures for biological treatment processes

in ETPs and STPs. Every Nanozyme Bioculture is innovated, tested, and validated to support the degradation of organic pollutants, improve biological activity, reduce to zero sludge generation, and maintain stable wastewater treatment performance. From laboratory innovation to industrial application, our focus is on manufacturing scientifically validated Nanozyme Biocultures that contribute to reliable treatment performance, lower operating costs, and sustainable environmental practices.



OUR EXPERTISE



Industrial ETP Solutions



STP Solutions



CETP Applications



Anaerobic Digester Solutions



Biological Revamping



ETP Commissioning Support



Performance Optimization



INDUSTRIES SERVED



Textile & Dyeing



Chemical



Pharma



Sugar



Distillery



Food Processing



Paper & Pulp



Municipal STP

*Innovative Biotechnology for
Sustainable Tomorrow*

Textile Industry Wastewater Challenges

Textile processing generates one of the most complex industrial wastewaters due to the extensive use of dyes, chemicals, surfactants, salts, and finishing agents. These contaminants significantly affect biological treatment efficiency and increase treatment costs.



MAJOR SOURCES



Desizing



Scouring



Bleaching



Mercerizing



Dyeing



Washing



Printing



Finishing



WASTEWATER CONTAINS



Reactive dyes



Azo dyes



Sulphur dyes



Disperse dyes



High TDS



High COD



High BOD



Suspended solids



Surfactants



Heavy metals



Colour compounds



Organic chemicals

Complex
PollutantsHigh
Treatment CostDifficulty in
Colour RemovalImpact on
Biological ProcessEnvironmental
Compliance Risk



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Common Problems in Textile ETP



High COD



High BOD



Persistent Colour



Poor Biodegradability



High Sludge Production



Excess Chemical Consumption



OPERATIONAL CHALLENGES



High Aeration Cost



Foaming



Odour



Poor Settling



Seasonal Shock Loads



PCB Compliance Issues



IMPACT



Increased Operating Costs



Reduced Biological Efficiency



Frequent ETP Instability



Higher Sludge Disposal Expenses



Difficult Regulatory Compliance



Addressing these challenges is essential for
Sustainable, Efficient & Compliant Textile Wastewater Treatment.



Nanozyme Technology

Nanozyme Bioculture Technology

Nanozyme is a specially developed microbial consortium consisting of multiple beneficial bacterial strains selected for treating complex industrial wastewater.

Manufactured using **Solid-State Fermentation (SSF)** technology, Nanozyme provides superior microbial stability, higher cell concentration, and faster activation.



TECHNOLOGY FEATURES

-  60+ beneficial microbial strains
-  Aerobic bacteria
-  Facultative bacteria
-  Anaerobic bacteria
-  High enzyme production
-  Long shelf life
-  Rapid microbial activation
-  Shock-load resistance



SOLID-STATE FERMENTATION (SSF)

An advanced fermentation process where microbes are cultured on solid substrates without free water. This ensures higher microbial density, enhanced stability, and better performance in industrial environments.

HOW IT WORKS



1. WASTEWATER POLLUTANTS



2. ENZYME PRODUCTION



3. BIOLOGICAL DEGRADATION



4. CLEANER WATER



Enhanced
Treatment Efficiency



Lower Operating
Cost



Eco-Friendly
Solution



Consistent Performance
& Compliance



Dye Degradation Mechanism

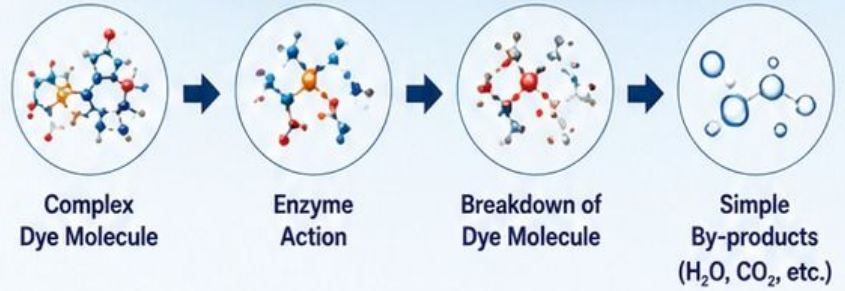
Nanozyme Microorganisms

Enzymes
(oxidases & azoreductases)

Dye Molecule
(Complex Structure)

Biological Dye Removal

Nanozyme microorganisms produce specialized enzymes such as oxidases and azoreductases that help break down complex dye molecules.



EFFECTIVE ON

-  Reactive dyes
-  Acid dyes
-  Direct dyes
-  Azo dyes
-  Sulphur dyes
-  Vat dyes

BENEFITS


Colour reduction
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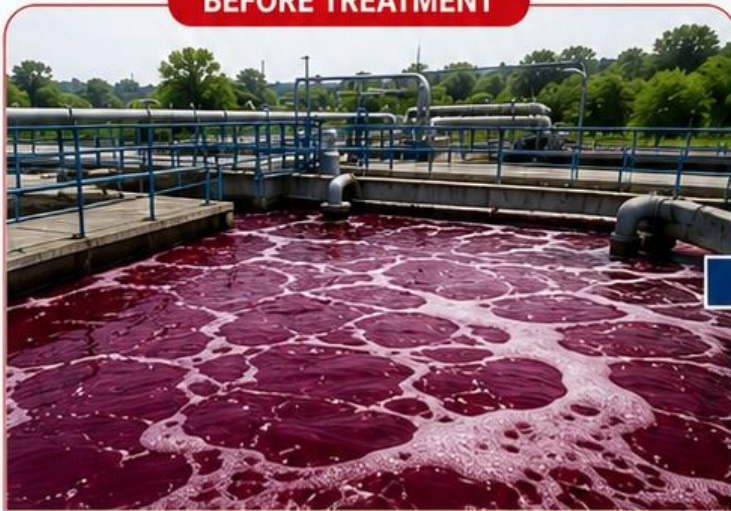

Improved biodegradability
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Lower toxicity
.....


Better downstream treatment
.....

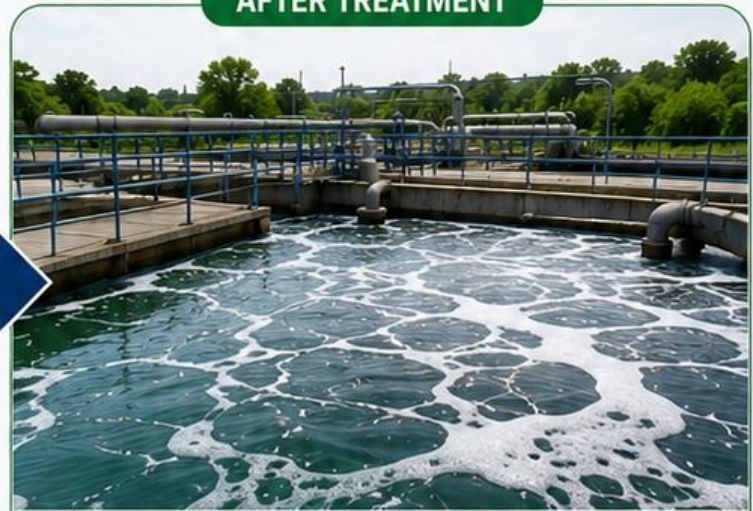

Reduced environmental impact
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BEFORE TREATMENT



High Colour | High COD | Poor Biodegradability

AFTER TREATMENT



Colour Reduced | Lower COD | Improved Biodegradability



Biological
Solution



Eco-Friendly
Technology



Cost-Effective
Operation



Consistent
Performance



Supports PCB
Compliance



Benefits of NANOZYME

Why Textile Industries Choose Nanozyme

Nanozyme Bioculture enhances biological performance, reduces treatment costs, and supports sustainable operations for textile wastewater treatment systems.



PROCESS BENEFITS



Faster startup



Stable biology



Reduced foaming



Better settling



Higher MLSS performance



Improved oxygen transfer



Lower sludge generation



FINANCIAL BENEFITS



Lower chemical consumption



Lower sludge disposal cost



Lower operating expenses



Reduced maintenance



Longer equipment life



Improved return on investment



ENVIRONMENTAL BENEFITS



Sustainable treatment



Eco-friendly process



Reduced pollutant load



Supports water reuse



Improved compliance



BETTER BIOLOGY
BETTER PERFORMANCE
BETTER TOMORROW



Improves Treatment Efficiency



Enhances Water Quality



Reduces Cost Significantly



Ensures Consistent Compliance



Promotes a Cleaner, Greener Future



BIONICS
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APPLICATIONS SUITABLE FOR

Nanozyme Bioculture is a versatile microbial solution designed to enhance the efficiency and stability of various wastewater treatment systems in textile industries.



TEXTILE SEGMENTS



Cotton Processing



Yarn Dyeing



Fabric Dyeing



Denim Processing



Garment Washing



Textile Printing



Processing Houses



TREATMENT SYSTEMS



Activated Sludge Process



MBBR



SBR



MBR



Aeration Tank



Equalization Tank



CETP



ZLD Systems



Improves Treatment Efficiency



Ensures Stable Biological Performance



Reduces Operating Costs



Supports Sustainable Operations



Helps Achieve Regulatory Compliance



WHY BIONICS ENVIRO TECH?

Why Partner With Us?

At Bionics Enviro Tech, we combine advanced biotechnology with deep industry understanding to deliver effective, sustainable and reliable wastewater treatment solutions for the textile industry.

WHAT MAKES US DIFFERENT

-  ✓ Advanced SSF Technology
-  ✓ Industry-Specific Solutions
-  ✓ Customized Microbial Formulations
-  ✓ Technical Support
-  ✓ Site Evaluation
-  ✓ Performance Monitoring
-  ✓ Process Optimization
-  ✓ Experienced Environmental Team

OUR COMMITMENT

-  **Better ETP Performance**
Enhancing biological efficiency and ensuring consistent, reliable treatment.
-  **Sustainable Treatment**
Eco-friendly microbial solutions for a cleaner and greener tomorrow.
-  **Reduced Operating Cost**
Lower chemical, energy, and sludge disposal costs for higher savings.
-  **Long-Term Customer Support**
We build lasting partnerships through continuous support and trust.

CONVENTIONAL TREATMENT vs. NANOZYME-ENHANCED TREATMENT

PARAMETER	CONVENTIONAL TREATMENT	NANOZYME-ENHANCED TREATMENT
 Startup Time	Longer (Weeks to Months)	Faster (Days to Weeks)
 Microbial Activity	Moderate & Unstable	High & Stable
 COD / BOD Removal	70 – 85%	95 – 98%+
 Colour Removal	Partial	High (Up to 98%+)
 Sludge Generation	High	Low (Up to 50–70% Reduction)
 Chemical Consumption	High	Low
 Aeration Requirement	High	Low (Energy Saving)
 Odour & Foam	High	Minimal
 Process Stability	Affected by Shock Loads	High Stability & Shock Load Resistance
 Overall Cost	High Operating Cost	Low Operating Cost
 Environmental Impact	Higher Pollution Load	Lower Pollution Load



OUR PRODUCTS & SERVICES

Innovative Biological Solutions for
Sustainable Wastewater Treatment

Bionics Enviro Tech offers advanced microbial products and expert services to help industries achieve better treatment performance, reduce costs and ensure environmental compliance.



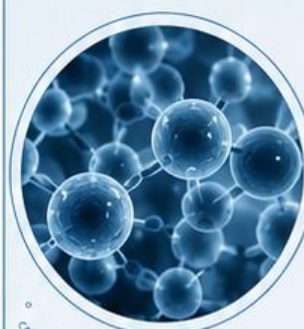
NANOZYME PRODUCT PORTFOLIO

NANOZYME BET-ETP SERIES



-  **COD** Biological COD Reduction
-  **BOD** BOD Reduction
-  **Zero Sludge**
-  **Biomass Enhancement**

NANOZYME NUTRIENT SERIES



-  **Microbial Nutrients**
-  **Culture Activation**
-  **Biomass Stabilization**

SERVICES



ETP STUDY

Detailed study of existing treatment plant and performance evaluation.



SITE INSPECTION

On-site inspection to understand process conditions.



PROCESS AUDIT

Comprehensive audit of treatment process and system.



PRODUCT RECOMMENDATION

Right product selection as per process needs.



DOSAGE DESIGN

Customized dosage design for optimal results.



PERFORMANCE MONITORING

Regular monitoring and reporting for better control.



TECHNICAL CONSULTATION

Expert guidance for process improvement and troubleshooting.



ONLINE SUPPORT

Quick response and continuous online support.



Better Performance



Reduced
Operating Cost



Reliable
Solutions



Sustainable
Treatment



Environmental
Compliance



LET'S BUILD A CLEANER FUTURE TOGETHER

At Bionics Enviro Tech Pvt. Ltd., we believe biological innovation is the key to sustainable wastewater treatment.

Our Nanozyme technology helps textile industries improve efficiency, reduce operational costs, and move toward environmentally responsible manufacturing.



**BETTER
PERFORMANCE**



**LOWER
OPERATING COST**



**SUSTAINABLE
TREATMENT**

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ECO-FRIENDLY SOLUTIONS

Nature-friendly
treatment process



BIOLOGICAL INNOVATION

Advanced microbial
technology



TRUSTED BY INDUSTRIES

Delivering consistent
results



COMMITTED TO A SUSTAINABLE TOMORROW

Building a cleaner planet
for future generations