

Biological Wastewater Treatment Market Grows with Eco-Friendly Solutions for Industry & Municipal Use | DataM Intelligence

Biological wastewater treatment market grows steadily as industries embrace sustainable, cost-effective, and regulation-compliant water treatment solutions.

NEW YORK, NY, UNITED STATES, June 30, 2025 /EINPresswire.com/ -- The [Biological Wastewater Treatment Market](#) is witnessing steady growth, driven by increasing environmental concerns, tightening regulations, and the urgent need to treat industrial and municipal wastewater sustainably.

Biological treatment methods use microorganisms, bacteria, algae, and fungi to break down organic pollutants, making them an eco-friendly and cost-effective alternative to chemical treatment. With rising urbanization, industrial expansion, and climate change pressures on freshwater resources, biological wastewater solutions have become integral to achieving water security and environmental

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Biological wastewater treatment isn't just a process it's a promise of sustainability, delivering clean water while aligning industry with environmental responsibility.”

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compliance. The market is expected to grow at a CAGR of 4.99% during the forecast period 2024-2031, supported by technological advancements and a greater focus on circular economy practices.

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Market Drivers are :

Stringent environmental regulations: Governments are enforcing strict effluent discharge norms, particularly in developed countries, accelerating the adoption of biological treatment.



Rising urban population: Increased domestic wastewater generation from expanding cities and towns is pushing municipalities to invest in cost-effective and scalable treatment solutions.

Growing industrial wastewater demand: Sectors such as chemicals, food and beverages, pulp and paper, and pharmaceuticals require reliable solutions to meet sustainability goals and avoid penalties.

Focus on water reuse and recycling: Biological systems enable effective treatment that supports wastewater reuse in irrigation, cooling towers, and even potable applications.

Technological advancements: Innovations in membrane bioreactors (MBRs), sequencing batch reactors (SBRs), and integrated fixed-film activated sludge (IFAS) systems are improving treatment efficiency and reducing footprint.

Public-private partnerships (PPPs): Joint ventures between governments and private players are enabling the development of centralized and decentralized treatment plants globally.

Environmental awareness and CSR policies: Companies are investing in advanced biological systems to reduce their environmental impact and enhance brand reputation.

Key Players in the Market are :

Prominent companies are shaping the biological wastewater treatment landscape through technological innovation, turnkey solutions, and global expansion. Key players include:

Hitachi Industrial

Ecolab Inc.

Veolia

Suez Water Technologies & Solutions

Aquatech Global

Evoqua Water Technologies LLC

Pentair plc

Samco Technologies, Inc.

Dryden Aqua Ltd

Xylem Inc.

DAS Environmental Expert GmbH

These players cater to municipal utilities, industrial sectors, and large infrastructure projects with customized solutions for both aerobic and anaerobic treatment systems.

Market Segmentation

By Treatment Type

Aerobic Treatment: Most commonly used; includes activated sludge, trickling filters, and MBRs.

Anaerobic Treatment: Suitable for high-strength industrial wastewater; generates biogas as a byproduct.

By End-User Industry

Municipalities: Demand for large-scale, centralized wastewater treatment infrastructure.

Food & Beverage: Requires high-efficiency biological treatment for organic-rich effluents.

Pulp & Paper: Addresses high biochemical oxygen demand (BOD) and chemical oxygen demand (COD).

Chemicals & Petrochemicals: Specialized biological systems for toxic and complex waste streams.

Pharmaceuticals: Treatment of antibiotic-laden wastewater with high toxicity.

Textile Industry: Management of dye-laden effluents with biological pre-treatment integration.

By Geography

North America: Leading in technological adoption and regulatory enforcement.

Europe: Focus on circular economy and resource recovery.

Asia-Pacific: Rapid urban and industrial growth creating strong demand for wastewater solutions.

Middle East & Africa: Increasing desalination and wastewater reuse projects.

Latin America: Government-backed infrastructure investments for water management.

Latest News – USA

In March 2024, Xylem Inc. partnered with the city of Chicago to upgrade its wastewater treatment plants with membrane bioreactor (MBR) systems, improving effluent quality and reducing energy usage by 20%. Meanwhile, Ecolab Inc. launched a real-time monitoring platform integrated with biological treatment systems to help industries track microbial activity and optimize operational parameters.

Latest News – Japan

In early 2024, Hitachi Industrial announced a breakthrough in anaerobic treatment for chemical plant wastewater, combining high-rate reactors with advanced process automation to double methane recovery. In parallel, Suez Water Technologies & Solutions partnered with a municipal authority in Kyoto to retrofit aging facilities with hybrid aerobic-anaerobic systems, cutting sludge generation by 30% while improving effluent quality.

Key Developments are :

Veolia launched a next-gen sequencing batch reactor (SBR) system with intelligent aeration controls, reducing energy costs by up to 25% in municipal applications.

Pentair plc expanded its membrane bioreactor portfolio for small to mid-size industrial plants with compact modular designs.

Aquatech Global introduced a bioreactor optimized for high TDS effluents common in refinery wastewater, enabling cost-efficient water recovery.

DAS Environmental Expert GmbH rolled out a containerized biological wastewater unit for remote mining and drilling sites, offering plug-and-play functionality.

Dryden Aqua Ltd developed a bio-filtration system using recycled glass media, enhancing denitrification in nutrient-sensitive watersheds.

These innovations show the market's push toward modular, energy-efficient, and digitized solutions that balance cost with sustainability.

Conclusion :-

The biological wastewater treatment market is poised for sustained expansion as industries and governments look to balance growth with environmental stewardship. The shift from conventional chemical treatment to more sustainable, biology-based systems is not just about compliance it's a strategic move toward long-term operational efficiency and water security. As regulations tighten and water scarcity intensifies, biological solutions offer a scalable, eco-friendly, and cost-effective answer. With a CAGR of 4.99% forecasted through 2031, the market will continue to evolve through smart technologies, innovative reactor designs, and collaborative frameworks between public and private sectors.

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