

UOP Xceed™ Bioreactor Technology

Advanced solution for efficient contaminant removal from industrial waste streams

UOP Xceed Bioreactor Process

UOP's Xceed bioreactor technology is an advanced, fixed-film biological treatment technology ideal for bulk contaminant removal from industrial wastewater streams. Typical contaminants treated include simple and complex organics that contribute to high levels of biological oxygen demand (BOD) as well as the reduction of metals to stable benign forms. The technology can be directly applied to wastewater applications as diverse as food and beverage, textile and garment industries, specialty chemical plants, and refinery and petrochemical plants. The system employs a unique combination of plug-flow, fixed-film modular design with a proprietary media resulting in low operations and maintenance costs.

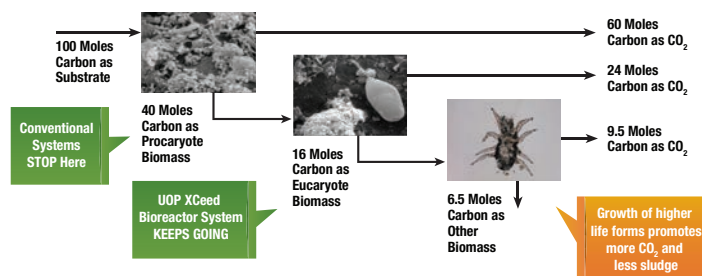
High Efficiency in a Compact Design

The UOP Xceed bioreactor system is based on immobilized cell bioreactor technology. The system's modular design incorporates unique mixed-media support for immobilized bio-catalysts that provide high removal rates of organic and inorganic contaminants.

UOP's Xceed bioreactor system contains:

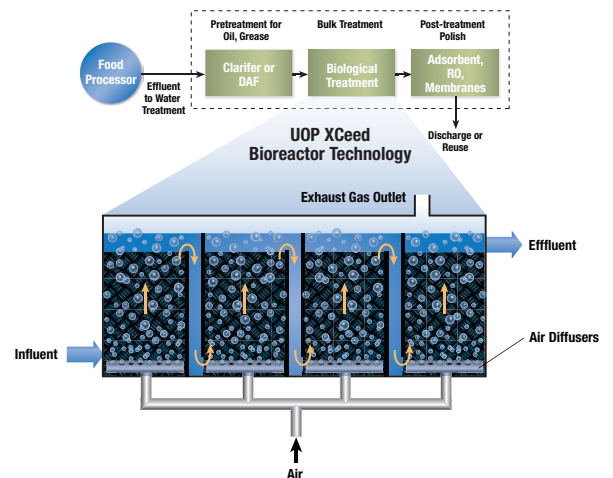
- Proprietary multi-chamber reactor
- Proprietary mixed-media packing
- Bio-catalyst support

UOP's Xceed bioreactor technology is distinguished by use of extended biological degradative pathways, which leads to highly efficient contaminant breakdown and very low sludge generation with conversion of up to 93% of carbon to CO₂ versus only 60% with other biological systems.



Cost-effective, high-performing wastewater treatment solution with turnkey delivery for industrial wastewater applications.

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Comparison of Biological Treatment Systems

Biological Treatment Systems					
Attributes	UOP Xceed Bioreactor Technology	Activated Sludge	Engineered Plastic Fixed Film	Moving Bed Bioreactor (MBBR)	Membrane Bioreactor (MBR)
<i>BOD Removal Efficiency</i>	HIGH rate of BOD removal due to design of proprietary high surface area biomass supports	Medium	Medium to high	Medium to high	High
<i>Space Requirement</i>	SMALL space requirement – many configurations possible with high biomass concentrations	Large	Medium	Medium	Small
<i>Sludge Generation</i>	VERY LOW sludge formation due to long biomass retention times	High	Low to medium	Medium	Low
<i>Capital Costs</i>	MODERATE	Low but dependent on land availability	Moderate	Moderate	High
<i>Operating Costs</i>	LOW energy demand and LOW sludge handling costs	High	Medium	Medium	High
<i>Maintenance Costs</i>	LOW due to simple design and non-moving packed bed	Low	Low	Moderate	High

For more information

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