

Landfill Leachate Treatment



Aeration and Mixing Technologies Ideally Suited for Severe Wastewater Treatment



Nasty Wastewater Arising from Garbage

Rain and snowmelt percolating through masses of organic and inorganic landfill waste create a toxic brew known as landfill leachate.

This high-strength wastewater is composed of dissolved and suspended materials, including inorganic and organic chemicals, bacteria and other microorganisms, dissolved gases such as methane and carbon dioxide, organic acids, heavy metals, ammonia compounds, and more.

Factors affecting the mix include:

- Moisture content of the waste
- Degree of compaction
- Site hydrology profile
- Local environment and climate
- Age of the landfill

Newer landfills produce leachates high in biodegradable organic matter and volatile

fatty acids. Older landfills produce leachate high in ammonia that can be particularly tough to treat.

A Tricky Treatment Challenge

Landfill leachate is often difficult to collect and treat. Bacteria and fungi consume oxygen when decomposing waste, creating an anoxic environment. Temperatures rise, pH drops, and many metals that remain insoluble in the leachate become soluble under such conditions.

Leachate reacts with gypsum- and cement-based building material waste, generating hydrogen sulphide that acidifies leachate and increases the toxicity of decomposition by-products.

Processing leachate is usually a staged process. Wastewater drawn from well-mixed equalization tanks is partially treated on-site using aerated tanks or basins, then either hauled or piped to a local treatment plant for further processing.



Fluence Aeration and Mixing Technologies for Rigorous Treatment

Fluence offers aeration and mixing technologies ideally suited to meet the challenges of treating leachate wastewater.

Tornado® Family of Surface Aspirating Aerators

The Tornado aerator provides superior subsurface directional mixing and oxygen dispersion to wastewater bodies. The intense action of the aerator shears wastewater solids to increase treatment performance by enhancing the surface area for oxygen and bacteria contact.

- 2-100 HP (1.5 - 75 kW) Models
- 1800 rpm at 60 Hz (1500 rpm at 50 Hz)
- Grease-lubricated sealed bearings are ideal for high concentrations of solids, grit, and sand
- Solid shaft; vibration-free design
- Low maintenance and patented replaceable modular seals
- Tapered roller bearings prevent aerator shaft vibration and absorb propeller thrust loads
- Self-heating bearing design is ideal for cold climate locations
- Wall-mounted or pontoon-mounted options available
- Premium efficiency motor is designed to work with soft start VFD controllers to eliminate power surge penalties and reduce energy costs
- Blower-assisted models are available for high oxygen demand applications

Riptide™ Direct-Drive Surface Mixers

Riptide mixers offer reliable, low-maintenance, and complete water mixing at nearly any angle for all basin configurations. Mixing action occurs below the water surface to prevent spraying and splashing.

- 2-20 HP (1.5 - 15 kW) Models
- High efficiency, slow-speed propeller will not foul, even in heavy solids and weeds
- Corrosion- and UV-resistant stainless steel construction throughout
- Solid shaft and vibration-free design employs a double row of bearings
- Sealed ball bearings and no-maintenance mechanical seals
- Simplified motor change-out and motor shaft coupling
- Fully adjustable mounting on floats or brackets with angle adjustment locking bolts.



Check out our full range of aeration and mixing technologies at www.fluencecorp.com/aerators

Landfill Leachate Wastewater Treatment Challenges	Fluence Equipment Advantages
Acidic environment due to organic materials or chemicals causes corrosion	All components, including floats, are 304 stainless steel construction—no galvanized parts; 316 stainless steel is available as an option. The Tornado features grease-lubricated bearings which are not exposed to wastewater.
Heavy metals	Aeration equipment provides intense horizontal mixing action, maintaining solids in suspension and providing deep aeration and mixing action to help dissolve accumulated sludge.
Foul odors	Mixers are designed to eliminate splashing or spraying. Surface aerators create an air cap at the water's surface and provide aeration and mixing below the surface to avoid splashing or spraying.
Harsh wastewater environments	Fluence aerators are designed for harsh wastewater conditions. Industrial-grade, chemical-duty and explosion-proof motors are available options and are designed to withstand high temperatures associated with some processing applications. Corrosion- and UV-resistant stainless steel construction ensures long-lasting performance.
Energy-intensive treatment	Premium efficiency motors, turn-down capabilities, and smart aerator technologies.
Maintaining treatment equipment	Aerators are easy to install, require little maintenance, and some models are accessible at the surface with no draining or dredging necessary for regular maintenance.



TORNADO® Self Aspirating Aerator



RIPTIDE™ Direct Drive Mixer



Our Promise to You

Fluence has designed and built our aeration equipment in the US since 1987. We devote our full effort to support the needs of plant operators, consulting engineers, and contractors with premium technology solutions for your wastewater treatment challenges—worldwide.

Fluence has Your Back Every Step of the Way

We offer leasing arrangements to reduce your capital expenditures and to provide you with a low-cost method to evaluate our technology in your application. Our program also includes generous lease-to-purchase terms.

We provide high-quality spare parts for our equipment and products. Buying spare parts from Fluence benefits you by offering:

- Full warranty
- Reduced downtime and maintenance requirements
- The right fit and performance with original equipment

- The opportunity to upgrade equipment with the latest innovations
- Extended equipment life while maintaining equipment value.

Our certified field service technicians provide:

- Start-up and commissioning assistance
- Inspection, operation, and maintenance services and training
- Installation, supervision, and project management
- Remote monitoring when employing our Smart Operation software
- Technical, process optimization, and plant upgrading support

Applications

- Lagoons
- Aerated tanks
- Digesters
- Equalization basins

Contact the parts department at
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For more information on how we can help you solve your wastewater treatment challenges, contact us