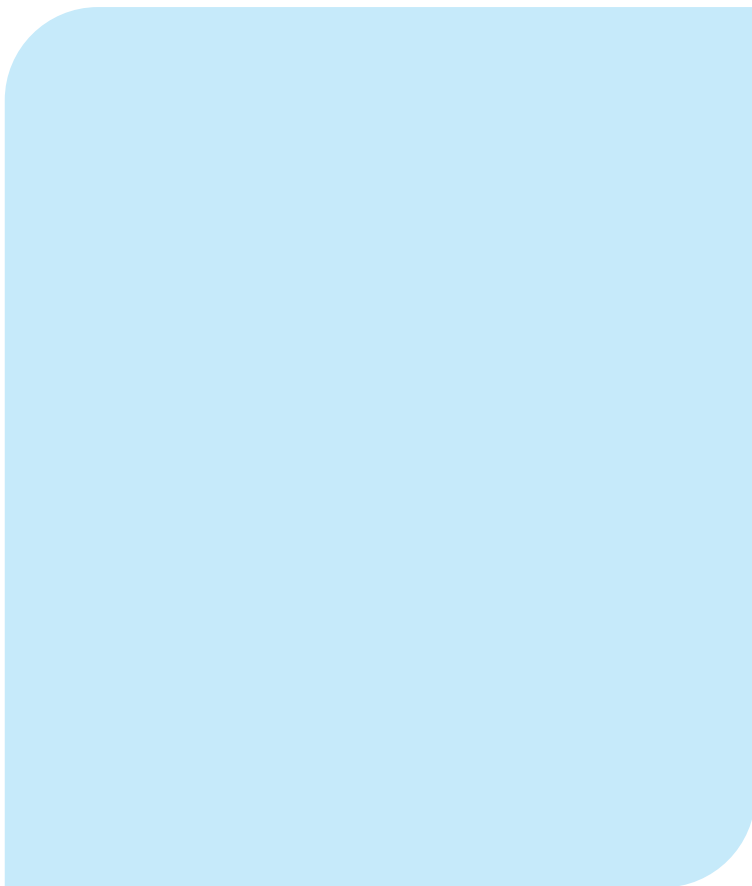


# Biolac<sup>®</sup>

## Extended Aeration Treatment System

- Low loaded activated sludge technology
- High oxygen transfer efficiency delivery system
- Exceptional mixing energy from controlled aeration chain movement
- Simple system construction







# Aeration components

## Simple Process Control and Operation

The control and operation of the Biolac® process is similar to that of conventional extended aeration. Parkson provides a very easy to use system to control both the process and aeration. Additional controls required for denitrification, phosphorus removal, dissolved oxygen control and SCADA communications are also easily implemented.

## Aeration System Components

The ability to mix large basin volumes using minimal energy is a function of the unique BioFlex moving aeration chains and the attached BioFuser® fine bubble diffuser assemblies. The gentle, controlled, back and forth motion of the chains and diffusers distributes the oxygen transfer and mixing energy evenly throughout the basin area. No additional airflow is required to maintain mixing.

Stationary fine-bubble aeration systems require 8-10 CFM of air per 1000 cu. ft. of aeration basin volume. The Biolac® system maintains the required mixing of the activated sludge and suspension of the solids at only 4 CFM per 1000 cu.ft. of aeration basin volume. Mixing of a Biolac® basin typically requires 35-50 percent of the

energy of the design oxygen requirement. Therefore, air delivery to the basin can be reduced during periods of low loading while maintaining effective food to biomass contact and without the risk of solids settling out of the wastewater.

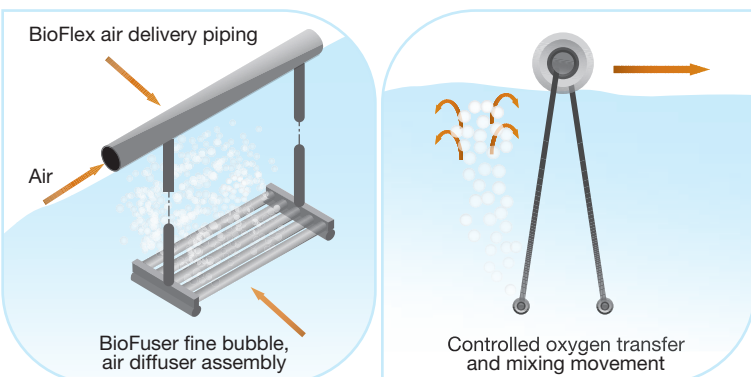
## System Construction

A major advantage of the Biolac® system is its low installed cost. Most systems require costly in-ground concrete basins for the activated sludge portion of the process. A Biolac® system can be installed in earthen basins, either lined or unlined. The BioFuser® fine bubble diffusers require no mounting to basin floors or associated anchors and leveling. These diffusers are suspended from the BioFlex floating aeration chains; The only concrete structural work required is for the simple internal clarifier(s) and blower/control buildings.

## Biological Nutrient Removal

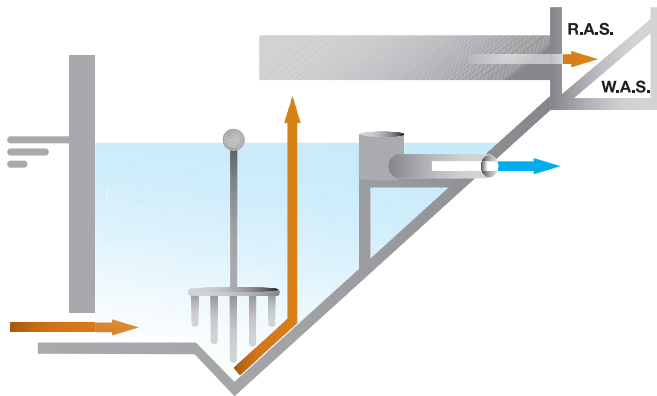
Simple control of the air distribution to the BioFlex® chains creates moving waves of oxic and anoxic zones within the basin. This repeated cycling of environments nitrifies and denitrifies the wastewater without recycled pumping of mixed liquor or additional external basins. This mode of Biolac® operation is known as the Wave Oxidation process. No additional in-basin equipment is required and simple timer-operated actuator valves regulate manipulation of the air distribution.

Biological phosphorus removal can also be accomplished by incorporating an anaerobic zone.



## Type "R" Clarifier

Land space and hydraulic efficiencies are maximized using the type "R" clarifier. The clarifier design incorporates a common wall between the clarifier and aeration basin. The inlet ports in the bottom of the wall create negligible hydraulic headloss and promote efficient solids removal by filtering the flow through the upper layer of the sludge blanket. The hopper-style bottom simplifies sludge concentration and removal, and minimizes clarifier HRT. The sludge return airlift pump provides important flexibility in RAS flows with no moving parts. All maintenance is performed from the surface without dewatering the clarifier.



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