

Use Eductors to Effectively and Affordably Treat Your Wastewater

The Issue

Chemical producers, refineries, and manufacturers, heavily regulated for gases and chemicals produced and added to our environment are now being scrutinized for resource consumption, specifically *water*. *Sustainability has moved* to the head of the line, placing the conversation of natural resources at the forefront of every scientific and political agenda. Facility's "water footprint" has joined "carbon footprint" discussions (www.waterfootprint.org). Companies handling water in storage tanks, detention or retention basins, or actively recycling water may benefit from faster more efficient water blending. The potential benefits include decreasing costs, increasing output, avoiding costly penalties, or identify their niche in helping the environment.



Scope

Who is affected? The person responsible for water quality in any facility...

- Using water as part of their production process
- Consuming water to make a product
- Losing water to atmosphere
- Catching water simply running off their site

All of these facilities must examine how they handle their water. Not handling water properly can lead to penalties / fines by environmental agencies. Greater emphasis is placed on reuse of water within facilities as well as meeting required parameters for returning the water to the natural eco system.

The Wrong Solution

When dealing with millions of gallons of waste water for neutralization, general blending must be done to ensure the pH is equal throughout the tank or basin. Mechanical mixers can provide general blending capabilities but require a significant amount of horsepower which increase the cost of electricity required to run a mechanical mixer. Mechanical mixers are also more prone to have “dead zones” in the tank because they provide one vortex. Mechanical mixers also have a risk of mechanical failure in any one of their moving parts. This would cause untimely and inconvenient shut downs.

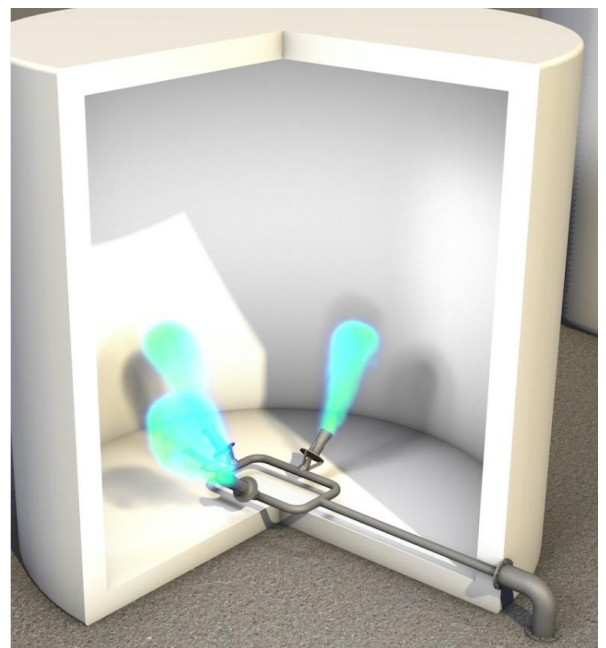
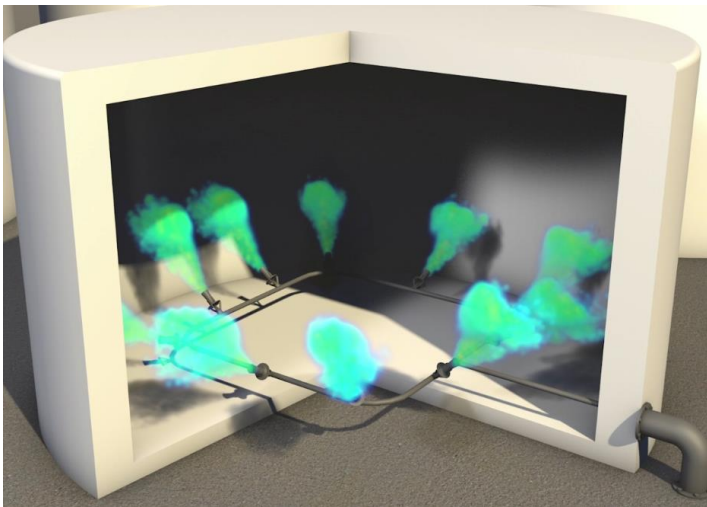
The Right Solution

Jacoby-Tarbox Tank Liquid Agitators (TLAs) provide the optimal mixing for blending waste water. TLAs are unique in how they can provide optimum mixing in both its efficiency and design. The TLA, or network of TLAs, are connected to a recirculation line and submerged in the tank. The pump connected to the recirculation line provides energy to the TLAs for both entraining the surrounding tank liquid and creating a flow field to blend even the far corners of the tank liquids. The fluid from the recirculation line (motive fluid) goes through the nozzle at a specified flow rate and pressure based on the pump’s capabilities (http://www.jacoby-tarbox.com/company_products/accublend-cfd-eductor/).



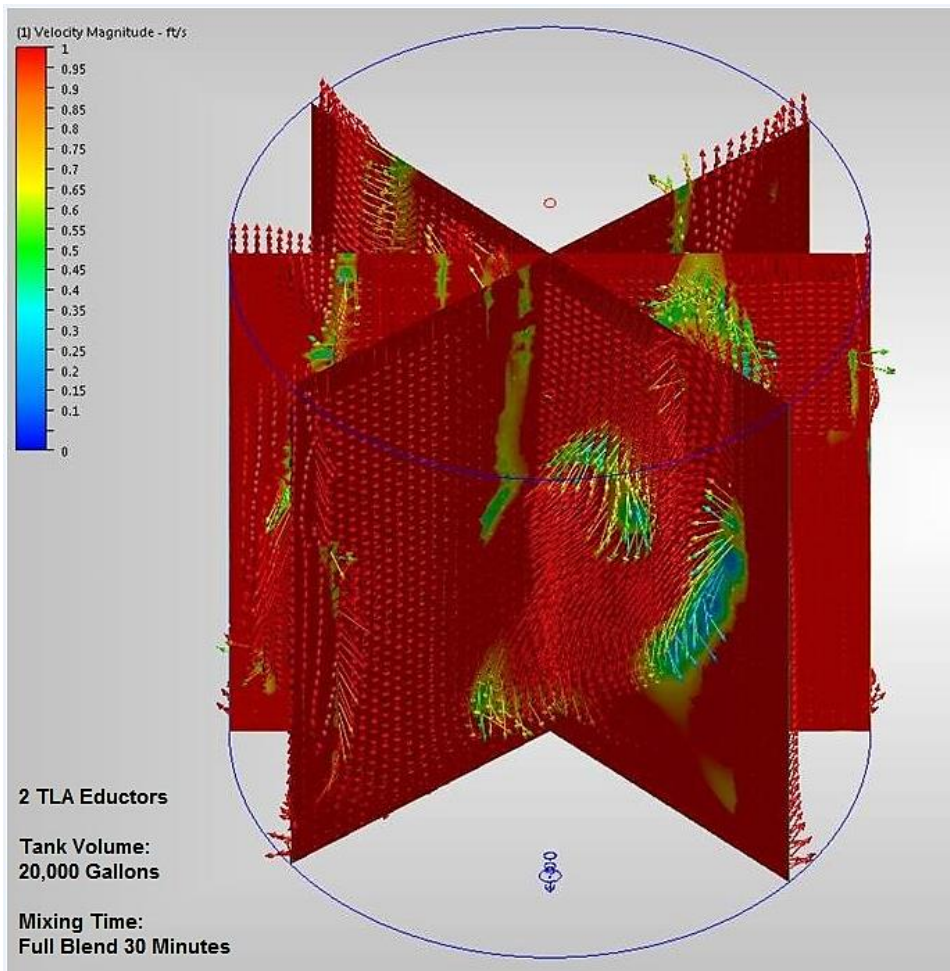
Because of the unique design of the TLA, for every one gallon pumped through the nozzle, the TLA will entrain four gallons, meaning that a total of 5 gallons will be moved for the cost of pumping one. The fluid pumped will generate an effective flow field in the tank which varies depending on the pump pressure and flow. As the flow field increase in length, the diameter of the flow field increases as well, ensuring that there is movement in the tank.

When multiple TLAs are placed in the tank, this creates multiple eddies, minimizing “dead spots” on route to optimal blending. Because a TLA operates on the Venturi Principle, there are no moving parts and nothing to potentially break down within the tank. This prevents shutdowns, a big advantage for chemical and petroleum industries that understand untimely shutdowns impede cash flow.



The Proof

Jacoby-Tarbox is the only manufacturer in the industry willing to prove the customer's application. Based on the customer's needs and specifications (general blending of waste water in a tank or directional sweep blending of waste water in a large basin, etc.), we are able to model the process to show optimum blending. The tank and placement of the TLAs are modeled in our CFD (computational fluid dynamics) software. The customer is presented with optimal placement and angle of the TLAs along with average velocities from start-up to full blend and the final velocity profile.



The Evidence

Various end users battling waste water management issues have successfully implemented eductor blending systems. Their industries range from car manufacturing, refining, and material processing. Government facilities have employed these systems successfully as well.



For more information on this product, please visit:
http://www.jacoby-tarbox.com/company_products/accublend-cfd-eductor/

With questions please contact:
Clarence Dela Vega, Eductors Sales Specialist
cdelavega@clark-reliance.com (440-846-7653)

JACOBY·TARBOX®
A PRODUCT OF CLARK-RELIANCE