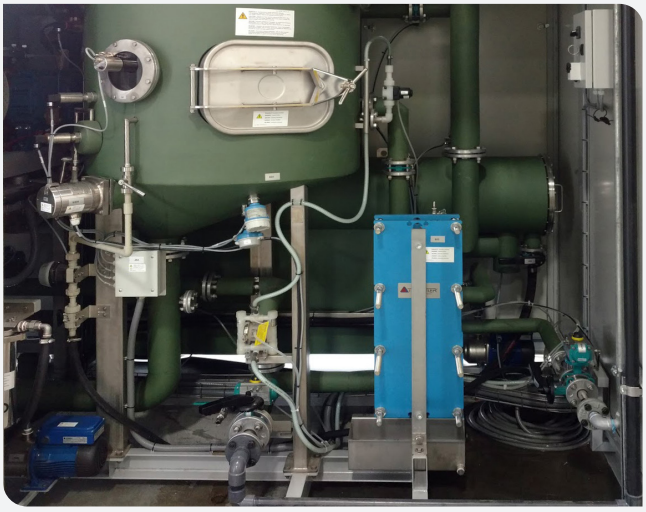
APPLICATION REVIEW

Concrete Additives Facility Reduces Wastewater Disposal Costs Through Vacuum Evaporation and Distillation



Application Summary

Challenge: Reduce haul-away costs for tanker washdown wastewater

Results: Lowered wastewater disposal costs by ~$250,000/year

Return on Investment: Less than one year

Project Background

A global specialty chemicals company utilizing tanker trucks to deliver its product was producing about 3,000 gallons of wastewater each day tankers are washed. This resulted in about $250,000 in annual costs to haul away the wastewater. The company sought a wastewater treatment solution that would significantly lower the company's haul-away expenses.

The Challenge

The global specialty chemicals company develops and produces systems and solutions for bonding, sealing, damping, reinforcing and protecting building materials, pipelines, energy applications, and more. The company's unique product technologies include concrete admixtures and fibers, mortars, epoxies, urethanes, and structural strengthening systems. Other products include industrial flooring, PVC and liquid-applied membrane roofing systems, thermal insulation, plaster and stucco, below-grade waterproofing, and acoustical and reinforcing materials. Their products serve a wide range of industries including construction, residential and home improvement, oil and gas, as well as transportation, marine, and automotive manufacturing.

At the company's concrete additives facility, hundreds of different formulas are produced. The specific additives required for the concrete depend on the type of cement used. When the additive mixture is prepared, it is pumped into the cement that fills tanker trucks, which haul the product to different locations.

After the cement has been delivered and the tanker is empty, it needs to be powerwashed in order to prepare the vessel for the next customer's cement and additive mixture. At the truck bay, which can accommodate three tanker trucks at one time, about 3,000 gallons of water is used each day to clean tankers. The wastewater from this process contains surfactants, soil from the wash bay, as well as the additives that were unique to the cement being used. All of this wastewater was being routed to a floor drain.

The tanker-washing operation needed a system that would treat the wash water from the tankers, hoses, and floor of the admixture plant's truck bay. Although the wastewater was classified as non-hazardous, the company needed to reduce the volume of wastewater that would go to the sewer district.

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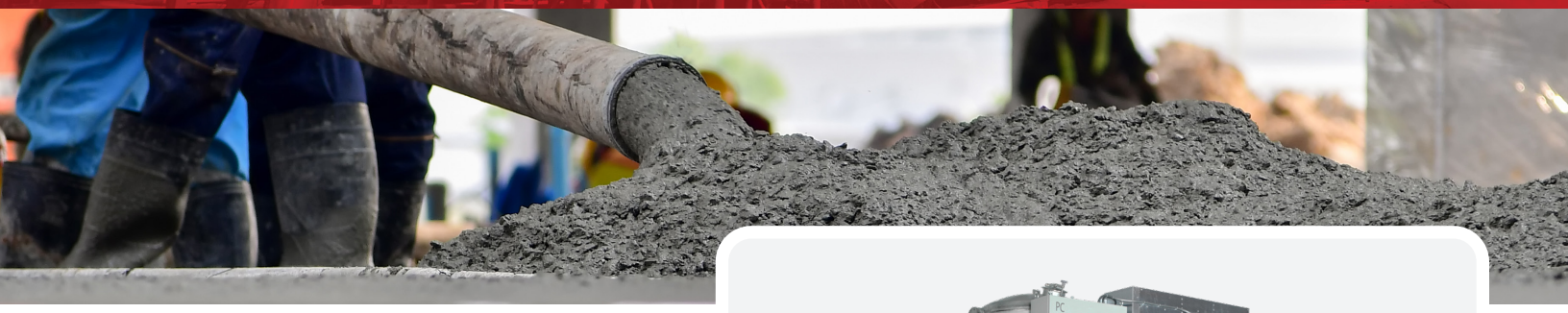

The Solution

The chemicals company sought an industrial wastewater treatment system to reduce the volume of wastewater the tanker-cleaning process was producing. This would enable the concrete additives supplier to lower its wastewater disposal costs. Due to its Zero-Liquid Discharge (ZLD) capabilities, PRAB recommended the EVALED® Vacuum Evaporator (Model RV F 10), a solution that provides vacuum evaporation and distillation.

EVALED® Evaporators concentrate and remove salts, heavy metals, and a variety of hazardous wastes, producing high-quality distillate that may be sent to sewer. The vacuum evaporator is modular, fully automated, has low energy consumption, and a low CO2 footprint.

After the wastewater from the tanker cleaning is collected in a screened floor drain, it is now transferred to a holding tank. From there it is sent to a mixing tank for pH adjustment and then it is processed in the vacuum evaporator. After distillation and evaporation in the EVALED® Model RV F 10, the distillate goes to sewer, resulting in considerably lower annual haul-away costs. Return on investment was less than one year.

EVALED® Vacuum Evaporator System Summary

Model RV F 10

- Mechanical vapor recompression vacuum evaporator with forced circulation and external shell and tube heat exchanger with external feed pump
- Evaporation chamber and heat exchanger in super-duplex stainless steel
- Automatic chemical cleaning system
- Feed water pH controller
- Two chemical metering systems and PVDF static mixer
- Ethernet interface device

Parameters	Value	UM
Flow Rate	3,000	Gal/day
Temperature	74.5	°F

About PRAB

PRAB engineers and manufactures metal chip processing and fluid filtration equipment, conveyors, and industrial water and wastewater treatment equipment. Honed by more than 4,500 installations for the world's leading OEMs and suppliers, PRAB continuously improves material handling, housekeeping, and compliance to environmental rules and regulations within the automotive, aerospace, medical, electronics, defense, off-road, energy markets, and more. For more information visit **prab.com.**

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