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## *The New Generation of Wash Water Treatment*

# Introduction to the Electropulsation System

The electropulsation system is a new generation of electrocoagulation wastewater treatment systems designed for treating wash-water and wastewater.

The electropulsation water treatment system can process up to 150 gallons per minute ( GPM ) of wash - water or wastewater and is typically of a quality that can be recycled or discharged to a sanitary sewer. Average treatment cost is between \$ 0.003 - \$ 0.005 per gallon, or in other words \$3.00 - \$5.00 per 1,000 gallons.

Electropulsation system uses electro-coagulation, an electricity-based technology for treating wash-water and wastewater economically and on-site. As contaminated water passes through the Electropulsation cells, ( 3 ) three treatment reactions occur, which are integral with the electropulsation EC system:

- 1) Coagulation - As contaminated water passes through the electropulsation cell assembly, DC power is applied to the cell.
- 2) Oxidation - As wash - water or wastewater contaminated with heavy metals pass through the electropulsation cell, metals are reduced to an oxide. Metal oxides are changed from a dissolved state to a suspended state and are precipitated from the water. Heavy metals that are oxidized by passing through the Electropulsation cell assembly, generally pass a TCLP test, which provides significant savings for the cost of sludge disposal.
- 3) Aeration - A natural byproduct of the electropulsation EC process is aeration. No air or any other gases are injected into the process, oxygen and hydrogen are disassociated from the water causing the coagulated contaminants to become buoyant. As contaminants rise to the surface, they are skimmed off, leaving a clear phase of water for reuse or discharged to sewer.



The EC treatment process has proven successful in removing a variety of contaminants that are impossible or too expensive to be removed by filtration or chemical treatment systems. Among these contaminants are emulsified oil, TPH (Total Petroleum Hydrocarbon), suspended solids and heavy metals. System operations and sludge management is fully automated through the use of on-board automation. A PLC (programmable logic controller) manages all system processes, monitors operation and errors, and provides direct communication to the factory. The communication kit allows factory technicians to monitor the system, adjust operations and processes, and troubleshoot the system in real - time from the factory. This valuable feature of the electropulsation system can dramatically reduce cost and time associated with maintenance and problem-solving. Also, there are no filters to clean or replace.

The electropulsation systems are customized and modular for accommodating floor space. Systems are being used in many applications, including - heavy equipment washing, marinas, military wash operations, forest products processing, aircraft refurbishing, auto auctions, equipment washing, and metal finishing and deburring.