ZERO DISCHARGE TECHNOLOGIES, INC.
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METAL FINISHING P2 SYSTEMS

Acid Recovery Systems: Uses Diffusion Dialysis technology to recover a variety of mineral acids. The technology uses ion-exchange membranes positioned in a **patented** configuration to effectively recover acids and remove metals. Systems have been proven to effectively & economically recover Hydrochloric, Nitric, Hydrofluoric, Sulfuric and mixtures of these acids. These installations have seen a cost savings and an increase in process quality due to the System's ability to maintain a consistent acid bath activity.

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Electroless Nickel Dialysis Unit: Uses modified Electrodialysis technology to recover low, mid & high-phos EN baths. This technology is being used to recover EN baths used to plate a variety of substrates, Copper, Steel, Stainless Steel, Aluminum, etc. The system preferentially removes the bath contaminants versus the normal bath components. To date, there are many (greater than 50) EN baths which has been extended to well over 100 MTO's and several at over 200 MTO's. New bath make-ups can be eliminated, overall EN chemistry costs can be reduced dramatically (by up to 20%), and a drastic decrease in waste treatment costs (up to 70%) can all be realized.

Improve Plating Bath quality with a proven & cost-effective recovery technology.

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SNARE (Sulfamate Nickel Ammonium Removal Equipment): Uses Hybrid Electrodialysis technology to remove Ammonium from Sulfamate Nickel Plating baths. This technology incorporates cation-exchange membranes which have been prepared using a proprietary process. These membranes will preferentially allow the passage of single-charged cations (Ammonium) vs. multi-charged cations (Nickel). This system effectively removes 95% of the Ammonium in the plating bath with only a 10% loss of the Nickel metal and other bath components.

The SNARE has been proven in an FAA licensed repair facility which has actually seen an improvement in overall product quality. Operating costs have been reduced by decreasing both plating baths chemical costs and waste treatment costs by over 85%.

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CLOSED-LOOP RINSE WATER: Uses Donnan Dialysis to remove and recover metals followed by Electrodialysis to remove and concentrate remaining salts. The process recovers metals as an aqueous metal salt solution of any mineral acid desired (NiCl2, CuSO4 & etc.)

The Electrodialysis system removes and concentrates the nonmetallic salts in a volume of 1/50 to 1/100 of the original liquid volume. The process produces water of a sufficient quality for most rinsing applications. If necessary, other technologies can also be used to further polish the water. Systems have been in place since 1987 and have totally eliminated rinse water discharges.

We have engineers on hand to recommend the optimum method for your closed-loop process.