

Filtration and Centrifuging Systems

Filtration and Centrifuging Systems are designed to provide mechanical separation and removal of solids and un-dissolved particulates from primary acid solutions, mixed acid solutions, and waste acid solutions.

These mechanical separation and removal systems utilize various pieces of equipment including settling tanks, bag filters, cartridge filters and centrifuges. Several systems are illustrated in this brochure.

Filtration and Centrifuging Systems can be used for the filtration of most liquid chemicals including the following:

- ◆ Acid Solutions
- ◆ Alkaline Solutions
- ◆ Alcohol/Solvents
- ◆ Resins

Many Industrial processes and metal finishing applications require the acid solutions to be disposed of due to the buildup of metal solids in the acid solution. This often occurs before the acids and alkalis in the solution (process bath) has been consumed. Disposal of such waste acid streams is becoming increasingly difficult and expensive.

The continuous recycling and filtering of an acid bath to remove the solids will extend the useful life of the bath. They will produce savings in raw material costs, waste disposal costs, and meeting EPA compliance regulations.

Mech-Chem's acid and chemical filtration and purification systems are designed to produce a clean, solid free solution with appropriate chemical concentration for use in your manufacturing operations.

Acid Recovery Applications

Waste Acid Streams:

- ◆ Hydrochloric (HCL)
- ◆ Hydrofluoric (HF)
- ◆ Nitric (HNO₃)
- ◆ Sulfuric (H₂SO₄)
- ◆ Methylsulfonic Acid (CH₃SO₂OH)
- ◆ Acid Mixtures

Applications:

- ◆ Acid Purification
- ◆ Metals Removal
- ◆ Waste Reduction
- ◆ Reduce Acid Usage
- ◆ Acid Concentration
- ◆ Acid Distillation

Typical Sources:

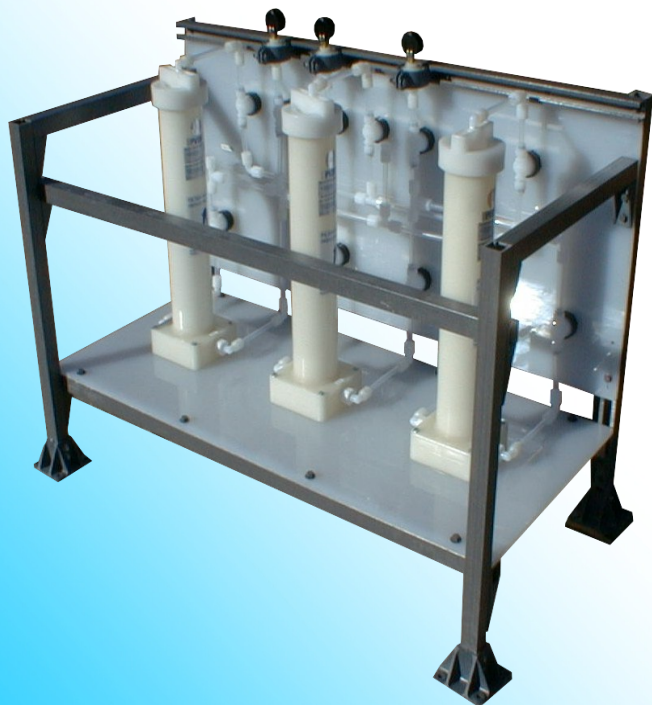
- ◆ Acid Etching
- ◆ Acid Pickling
- ◆ Chemical Milling
- ◆ Metal Finishing
- ◆ Metal Processing
- ◆ Stainless Steel Production
- ◆ Chemical Processing
- ◆ Electronics
- ◆ Battery Recycling
- ◆ Mining
- ◆ Specialty/Fine Chemicals



Closed loop filtration system for continuous removal of solids from a sulfuric acid pickle tank. The system tripled the usable life of the H₂SO₄ pickle bath with 50% reduction in acid usage and waste.



Acid filtration system for removal of fine particulates. System has parallel filtration trains to pre-filter various acid and chemical solutions before usage in solids sensitive equipment.



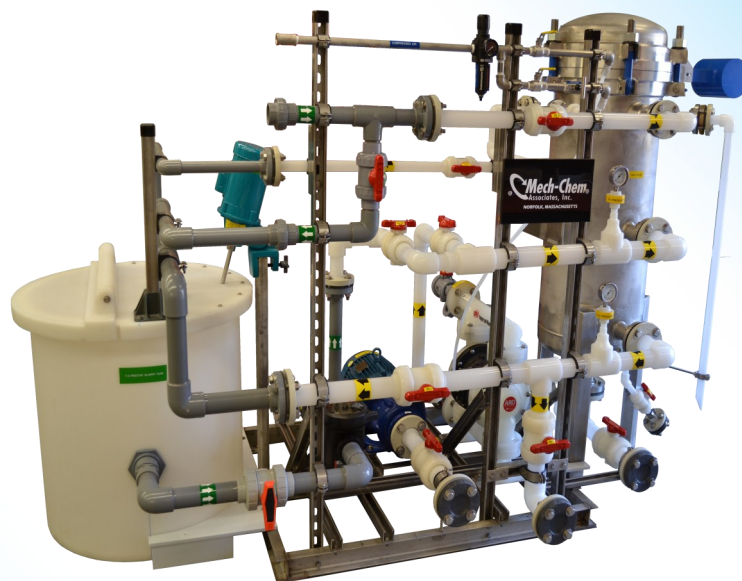
Acid Filtration Systems for solids removal of spent hydrochloric (HCl) acid prior to distillation of HCl Acid Distillation Unit

Filtration and Centrifuging are two of Mech-Chem's family of acid recovery and chemical purification systems which include:

- ◆ Filtration Systems
- ◆ Centrifuging Systems
- ◆ Diffusion Dialysis Systems
- ◆ Vacuum Evaporators
- ◆ Distillation System

Benefits of this technology:

- ◆ Fine Solids Removal
- ◆ Extended Bath Life
- ◆ Operator Friendly
- ◆ Safe Design
- ◆ Reduce Chemical Usage



Closed loop system for filtering nitric and sulfuric acids. Filter has passivated metal surface with polypropylene filters coated with diatomaceous earth for removal of fine carbon particles. Piping is fused Kynar pipe and fittings.

Mech-Chem
Associates, Inc.

Telephone: (508) 528-5990

Fax: (508) 528-8972

P.O. Box 473 144 Main Street Norfolk, MA 02056

E-mail: inquiry@mech-chem.com Visit: www.mech-chem.com