Mech-Chem designs, manufactures, and installs fully automated acid recovery and recycling systems. Systems include diffusion dialysis, vacuum evaporators, distillation systems and filtration/centrifuging equipment. Applications include recovery and recycling of acid solutions. These systems reduce raw material usage, waste treatment, and disposal costs. Mech-Chem interacts with our clients to develop the conceptual design, prepare the detail design, and provide the drawings to permit and construct the facility.

**Process Engineering Design**

- Process Selection
- Process Flow Diagrams (PFD's)
- Energy and Material Balances
- Equipment and Facility Layouts
- Equipment/Instrumentation Specifications
- Capital Cost Estimate

**Diffusion Dialysis Flow Diagram**

**Detailed Engineering and Design**

- Piping and Instrumentation Diagram (P&ID)
- Structural Drawings
- Mechanical and Piping Drawings
- Electrical/Instrumentation Drawings
- Detailed Equipment Specifications
- Construction Bid Packages
Environmental & Operator Safety

Facilities incorporate state of the art technology to protect the safety of the operators as well as the environment. Trenches are incorporated to keep pipes carrying hazardous materials from being installed overhead. This, along with double walled contained piping and leak detection systems, insure safe operating conditions for everyone in the facility.

Controls & Power Distribution

Mech-Chem also designs, fabricates, and installs the instruments and controls for full PLC automated systems and facilities. Power distribution panels can also be designed, fabricated, and installed for new or refurbished production facilities.

Codes and Regulations

Mech-Chem adheres to the applicable regulations and codes in the engineering, design, and construction of chemical handling and piping systems. For piping systems (including bulk storage, process piping, and secondary containment) these codes include:

- API Codes
- UL Codes
- ASME Codes
- NFPA Fire Protection Codes
- OSHA Safety Regulations
- EPA Environmental Regulations