

PROCESS FILTRATION / SEPARATION

Pressure Leaf Filters for MP&M Standards

Industry: Metal Finishing

Goals: Meet MP&M (Metal Products & Machinery) effluent standards

Project Overview:

As standards are becoming more and more stringent, companies are forced to adopt finer and more efficient methods for ensuring that metals are removed to mandated limits. Typical precipitation followed by clarification cannot ensure that tight standards are attained. Even following these conventional systems with sand filters will not guarantee success.

Pressure leaf filters are able to filter at a sub-micron level and have the added advantage of flexible precoat materials. Thus one can tailor a system to address specific metals such as mercury in order to remove them much more effectively than conventional technologies. Unlike membrane systems, these filters are very forgiving when upsets and fouling conditions occur.

Critical Issues:

Able to remove metals often to PPB levels

Vision for Solution:

- Special attention to pH and other parameters to ensure that removal is optimized.
- Precoat to ensure sub-micron filtration.

Typical Project Scope:

Complete system design
Fabrication / integration
Commissioning & start-up
Detailed design engineering

General Equipment Description:

Equalization
Chemical feed systems
PLC controls
Precoat system
Pressure leaf system

Special Features:

- No changing or handling of bags or cartridge filters.
- Wide range of media and filtration options.
- Choice of discharge methods - Dry cake, sluice.
- Complete containment of filtration process containing vapors and minimizing operator exposure.



Technical Data:

Application - Clarifier overflow from metal finishing type water treatment, polish effluent prior to discharge to POTW, pre-filtration to carbon or ion exchange, replace clarifier / filter press with more effective technology for metals removal.

Equipment - Pressure leaf filter, either vertical or horizontal tank configuration; dry cake or wet sluice discharge; manual or automated.

Materials of Construction - Any commercially available metal alloy or rubber lined steel.

Filtration Data:

Flow Rate ----- 0.2 GPM/sq.ft. to 0.5 GPM/sq.ft.

Suspended Solids ----- Metal hydroxides or sulfides, metal particulate.

Cycle Length ----- 8 hours to 1 week.

Precoat / Bodyfeed ----- DE, perlite, cellulose, carbon and others.