



## ORGANIC CHEMICAL WASTEWATER

### Significant Savings

- Waste stream reduction lowers discharge fees
- Water reuse reduces overall consumption
- Material recovery saves on processing chemicals
- Easy maintenance avoids labor costs and regulations
- Higher quality water
- Lower treatment cost

### Technology Benefits

Membrane Separation System Using Tubular Ultrafilters (UF)

- Simple mechanical process
- Consistent high quality water
- Ability to reuse purified water
- Low operating costs
- Unattended operation
- Minimal disposal costs

### Contaminants Removed

- Pigments and Dyes
- Polymers
- Machine Lubricants
- Heavy Metals
- COD & BOD

### Services Provided

- Systems Design
- Equipment and Installation
- Operator Training
- Maintenance Contract
- Operating Contract

The wash and rinse water from many organic chemical manufacturing processes can be successfully purified by ultrafiltration (UF) membrane systems. The wash water from an organic chemical manufacturing process can contain hundreds of different chemicals, such as amines, glycols, plasticizers, fatty acids, etc. The wastewater generated by the plant clean up process can be high in fats, oils and grease, total suspended solids, BOD, COD, metals and volatile organics. The pH may also require adjustment.

The UF will remove fats, oil, grease, TSS, metals and reduce the other contaminants such as BOD and COD. The ultrafiltration system will volumetrically reduce the waste in the range of 96-97%. The concentrate from the UF can be handled in a number of different ways, depending on the nature of the concentrate. In some cases, it is less expensive to haul the liquid waste to a licensed treatment facility. In other cases, it will be more economical to treat the concentrate and produce a dewatered sludge that can be disposed as a solid waste. In most cases, both the liquid and solid waste are considered non-hazardous.

The UF permeate can be further purified by applying nanofiltration, reverse osmosis or MBR post treatment. These systems will remove soluble organic and soluble inorganic, thereby further reducing the soluble components present in the water phase. In most cases, the water can be made suitable for reuse or discharge to sewer without a surcharge.

If post treatment is applied for the ultrafilter permeate, it typically makes more sense to reuse the purified water instead of discharging it. The RO filter will reduce the soluble inorganic that can accumulate over time in the form of salts.

The ultrafilter provides an ideal feed for either the nanofilter, the RO filter or the MBR by preseparating essentially all suspended and colloidal material, as well as, metals and oils.

Large tubular configurations are typically utilized because of the proven ease of cleaning, as well as the ability to mechanically clean.

