

# Water Recycle and Recovery through Mechanical Filtration and Ion Exchange

LT Technologies is a global leader in recycling and recovery purification technologies, and as such, has focused its efforts to provide our clients with the best possible cost benefit solutions for all of their water quality, recycling, environmental, and compliance challenges. Our systemized technologies are a virtual showcase of innovation and smart design. Our membrane and Ion Exchange systems are constantly evolving to be higher quality, lower cost, and more durable than any option on the market today. What makes us worth careful consideration is the way with which your system gets developed. We work to your budget and goals, not ours. We analyze your process in a thoughtful practical way and develop systems that keep in mind all of your valuable resources. Our Engineering group is educated and practical, and works to develop solutions using advanced standardized techniques we have employed for 20 years. All this adds up to a value unseen in our industry. We look forward to meeting your challenge.

## ION EXCHANGE WATER REUSE

The never-ending dilemma of reducing water consumption and discharge can be alleviated with the recycling of process waters. Through a dual bed (cation & anion) ion exchange unit, these goals can be achieved economically. There are many positives in recycling industrial wastewaters. The savings on water usage and discharge permitting are the two most significant. Another benefit some companies are not aware of is a consistent temperature. As water enters your plant in midwinter months, those cold temperatures can cause inconsistent rinsing. The rising need to conserve water and discharge is an aspect that should never be overlooked.

A standard dual bed ion exchange unit consists of a strong acid cation resin that exchanges hydrogen for positively charged cations present. The second step is a strong basic anion resin that exchanges hydroxide for negatively charged anions present in the water stream. The hydrogen (H+) from the cation exchanger and hydroxide (OH-) from the anion exchanger create the HOH or deionized water to be reused in the process.

There are certain processes that generate an abundance of either a cation or an anion. If this occurs, a more selective weak acid cation can be used to exchange the multi-divalent heavy metals that are in abundance. This “pre-treating” of the heavy metals will assist in the exchanging of the mono-valent cations. A weak basic anion before the strong basic anion can be implemented to assist in better deionizing the water fed back to the process.

The cation ion exchange resin is regenerated with an acid to exchange the hydrogen back onto the cation resin beads. The anion is regenerated with sodium hydroxide to exchange the hydroxide back onto the anion resin beads. The cost and wastewater associated with the regeneration of the ion exchange media is minimal.

LT Technologies, Inc. offers a wide array of standard (our Econo series) or custom tailored deionization units. LT Technologies, Inc. can be your road to recycling and recovering your aqueous solutions.



▲ 2-Bed High Capacity Water Recycle System

### ECONO Features and Benefits:

- E** - Efficient design, simple & durable.
- C** - Cost-effective, long-term solutions. The highest-quality, lowest cost option out there.
- O** - Options: many ECONO Series RO Systems means we have a system to meet your needs.
- N** - Never alone: remote and onsite 24-hour service, we are your total solutions vendor.
- O** - On budget, on-time delivered solutions to meet your product and financial needs.

## REVERSE OSMOSIS

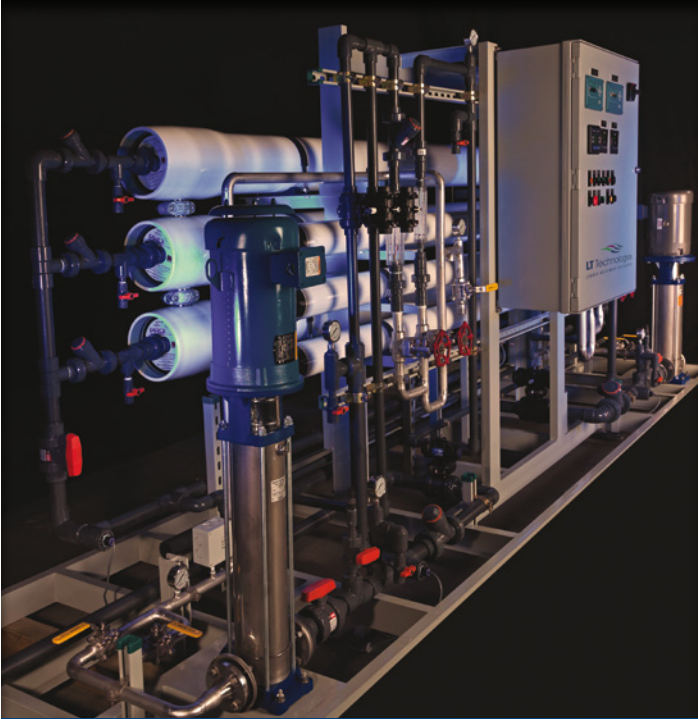
Reverse Osmosis Used the world over for everything from point source water purification to municipal drinking water supply purification, few technologies are so scalable and reliable, when so much is at stake.

Our engineering process has taken the science of water recycle and applied it to industrial waste water streams. LT Technologies is one of the few companies in the world with operational water and wastewater recycle systems using Reverse Osmosis Technologies.

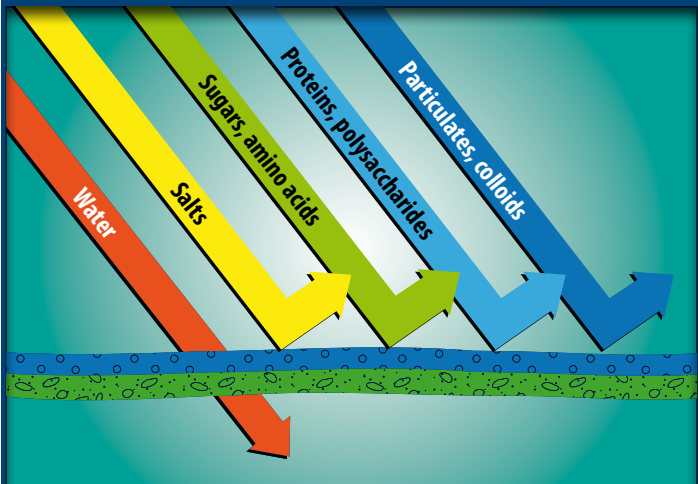
We have achieved this in part by working with innovative membrane manufacturers, to develop solutions that make this technology viable in the most challenging mixed waste stream environments.

As the substrate quality and design continues to evolve and improve, so do our capabilities of systemizations that make sense, in today's water challenged environments.

Regulatory agencies, water districts and the global community demand successful, smart businesses look seriously at water use reduction technologies and that means recycling waste water. Our systemizations answer that challenge every day the world over.



▲ High Recovery Reverse Osmosis Process



▲ Reverse Osmosis



**LT Technologies**  
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