

Procorp

Enterprises LLC

Targeted mineral extraction
pellet reactor systems



*Zero discharge, chloride-free
water treatment*

Advancing Resource Recovery™

Sustainable water treatment made simple . . . the Procorp way



Safely and quickly
extract high purity minerals
into the recycle bin...

...before they deposit
in your plumbing



Calcium carbonate pellets
(approx. 7X magnification)



The Procorp pellet reactor is a simple, efficient,
and reliable water treatment system:

- Crystallizes calcium/magnesium salts into concentrated, self-dewatering, reusable pellets
- Removes carbonates and sulphates
- Eliminates brine, regeneration, wasted water
- Prevents salinity / chloride issues, common to other softening technologies
- Lowers Total Dissolvable Solids (TDS)
- Provides a small footprint, modular, skid mounted "plug and play" turnkey solution
- Minimizes operator attention with automated technology
- Robust, reliable design minimizes maintenance

***Field-proven pellet reactor
technology makes the
goal of affordable zero
discharge a reality for today's
water treatment facilities.***

Since their introduction in the 1970s, fluidized-bed crystallization systems have become increasingly popular for industrial and municipal water treatment. Full-scale operations for flows up to 120 MGD are in operation in more than 50 facilities worldwide. The proven design is supported by DHV WATER BV, the Netherlands, and is licensed exclusively in North America by Procorp Enterprises LLC.

How much water is being wasted in your facility?

What are the environmental impacts?

What are the associated costs for labor, material, by-product handling and disposal?

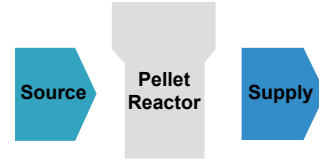
Pellet extraction provides real savings when used independently or in conjunction with ion exchange or reverse osmosis.

Pellet extraction is the most sustainable technology for water treatment and the most cost-effective overall.

Procorp is a team of water experts that fully understands the challenges facing industrial and municipal water operations. We partner with our customers to create sustainable, cost-effective, environmentally-balanced systems that maximize resource recovery in conjunction with reducing operating costs.



The heart of the Procorp system is the pellet reactor. Water is pumped in an upward direction maintaining the seed material in a fluidized state – the crystal pellets form around the seed material. The pellets grow and move toward the reactor bottom. Periodically, the pellets are discharged from the reactor and fresh seed material is added without any downtime, parallel capital equipment or labor. Simple atmospheric drying produces readily handled and virtually water-free, pure pellets.



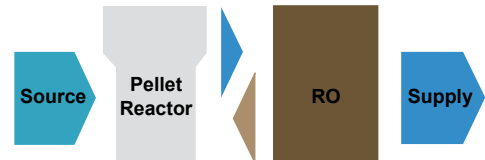
Stand-alone pellet extraction

- Extracts calcium/magnesium salts creating reusable CaCO_3 pellets
- Eliminates ion exchange water softening equipment and the associated cost for its operation and maintenance
- Completely eliminates NaCl, brine, regeneration and water waste



Enhanced ion exchange

- Extracts calcium hardness prior to ion exchange reducing overall cost
- Reduces salt usage, wastewater, and chloride discharge up to 80%
- Reduces TDS and chlorides
- Improves ion exchange resin bed life



Enhanced reverse osmosis

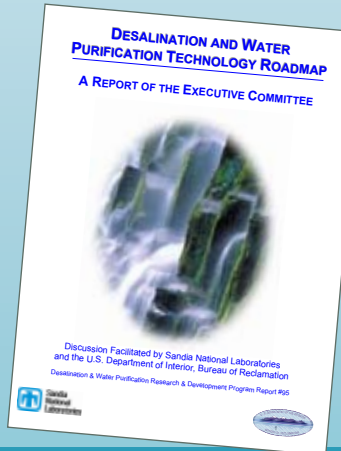
- By itself, reverse osmosis results in a softened permeate stream typically 75-85% by volume and a concentrate stream of 15-25% by volume with significant contaminant levels. RO efficiency is commonly limited by calcium, silicates, and carbonate concentrations
- Pellet extraction removes the hardness before the RO improving efficiencies to >90% permeate and <10% waste concentrate
- Removes calcium hardness and silicates from RO brine allowing the brine to be recycled

"There exists the very real promise that water of usable quality will become increasingly scarce in the United States, and that the water that is made available will require increasing levels of treatment before it can be used by the industrial, or consumer markets, and in some cases the agricultural market.

Current and future pressures on our water supply will cause change – it is our choice as a nation as to what type of change occurs, when it occurs, where it occurs, and what effect those changes will have on society. Ignoring our national water supply problems will likely result in large magnitude, negative changes in the future. By acting today to develop revolutionary desalination and water purification technologies, we can minimize negative ramifications and maximize positive impacts."

From the "Desalination and Water Purification Technology Roadmap" by the U.S. Department of the Interior, Bureau of Reclamation & Sandia National Laboratories, Report #95, page 51.

Visit our website for a free pdf copy.



Better. Faster. Closer.

Procorp's passion is Advancing Resource Recovery in water and wastewater treatment. We implement the pellet reactor technology and minimize our customer's risk by applying comprehensive engineering practices:

- Scientifically proven technology
- Water quality evaluation
- Process modeling and performance forecast
- Verification through bench scale testing in R&D
- Estimate of equipment and capital requirements
- On-site pilot testing to prove system performance
- Final equipment design and cost
- Manufacturing and factory testing of equipment packages
- Shipment and installation of skid-mounted, plug and play solutions
- On-site commissioning and training
- On-going technical support

To find out if pellet extraction is right for your application, please complete and submit the Water Softening Questionnaire on our website. Or, call or email us for a copy.

Please visit our website for more information on pellet extraction and other Procorp water treatment products.

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