

Process Solutions

Water and Process Fluid Purification

Our New Addition!

Process Solutions, Inc. is pleased to introduce Mr. Shane Garan, who recently joined the company as a Project Manager. Shane holds a Bachelor's degree in Chemistry, and for the past five years has been working as a Production Chemist/Manager for a major chemical company in the Cincinnati area. He has been responsible for continuous improvement practices, GMP audits, and overseeing the operation of the water purification systems in his former role.

In addition to being involved in capital projects, Shane will be responsible for managing the field service component of our business. In that capacity, he will be responsible for scheduling, material sourcing, report generation and managing the safety program.

Please join us in welcoming Shane to the **Process Solutions, Inc.** team!

And a Milestone Anniversary!

We would like to congratulate our Administrative Assistant, Ms. Kim Stringer, on her 20th anniversary with **Process Solutions, Inc.** Kim always goes above and beyond to provide outstanding customer service. Please join us in congratulating her on 20 years of dedication to our customers!

Ozone Generator Needs a Home!

For anyone whose process requires ozone for disinfection, we have a unique opportunity. One of our customers purchased a system and now has no need for it. The system is still new in the original crate and has all of the documentation with it. It is an air-cooled unit with function indicators, feed gas flowmeter, compressor driven oxygen concentrator and variable output control. This unit is sized to produce 13 g/h of ozone.

If you can use this system or know someone who can, please let us know and we'll put you in touch with the current owner.

About Our Organization...

At **Process Solutions, Inc.** we're committed to being your full-service supplier of water treatment products, systems and services. We do this by providing our customers with high quality products, great service and *all at competitive prices.* Please feel free to call us with your feedback and suggestions as to how we can be of service to you.



MF/UF Services!

With the increasing use of both microfiltration (MF) and ultrafiltration (UF) membranes as pretreatment to reverse osmosis, there is an evolving need for specialized products to maintain the performance of these elements. They see a different variety of foulants and require more frequent cleaning than the “typical” RO membrane, and because MF and UF elements differ in materials and construction, they require different cleaning chemistry to restore performance. *Avista Technologies* has developed the *AvistaClean* line of MF/UF cleaning products to remove common foulants and to offer superior cleaning results compared to generics.

In addition to the cleaning products, support services such as MF/UF cleaning studies and MF/UF autopsies are available. The cleaning study may include a membrane foulant analysis to determine the efficacy of existing cleaners and regimens against select Avista formulations or the effectiveness of new chemistries to address site-specific foulants. The MF/UF membrane autopsy includes a physical dissection of the membrane to identify the causes of reduced performance, frequent cleaning requirements, reductions in permeate quality, extended system downtime or premature membrane replacement. The autopsy also includes Chromatic Elemental Imaging (CEI), a revolutionary innovation in autopsy technology that can identify the location and relative concentration of elements of a foulant in a membrane fiber sample. Used as a troubleshooting tool, CEI can successfully identify and resolve the primary sources of membrane fouling.

If you would like additional information on any of these products or services, please contact your **Process Solutions, Inc.** sales representative!



Avista offers products and services for maintaining your MF and UF membranes!

The Three R's!

It used to be **R**eading, **W**riting and **A**rithmetic – now it's **R**eclaim, **R**ecycle, and **R**euse! If you attended one of our “Good to the Last Drop” seminars recently, you heard about how quality sources of fresh water are declining and the opportunities for water reclamation are increasing. In addition, if you're operating on a municipal water supply, the economics of water recovery and reuse are becoming increasingly attractive.

To address the challenges of handling these more complex water streams, our friends at *Filmtec* have developed the *Fortilife*™ line of RO membranes for use in these types of applications. There are four different elements in this series, capable of concentrating brine stream TDS to levels over 80,000 ppm! And due to the nature of reclaim applications, they offer enhanced fouling resistance.

The Fortilife™ line can help you to:

- Reduce water costs
- Achieve sustainability goals
- Minimize biofouling problems
- Move toward Minimal Liquid Discharge (MLD)



Filmtec Fortilife™ membranes are designed for challenging waters!

For further information on the Fortilife™ series of membranes or for an evaluation of what these elements can do for **you**, please contact us at 513-791-3338!

Another Application for Membranes!

Without dating yourself, how many of you reading this have worked with an old-fashioned forced draft decarbonator or vacuum degasifier? (We won't tell, we promise!) For those who don't remember these, they were large, inefficient, and took up a lot of floor space with their large catch basins. And in the case of vacuum degasifiers, they were expensive both to buy and to operate.

The latest technology for removing dissolved gases from water is the membrane contactor, often referred to as the Liqui-Cel degasifier membrane. These are most often used to remove dissolved carbon dioxide downstream of a reverse osmosis system prior to electrodeionization or mixed bed polishers. As we all know, dissolved CO₂ in water is not rejected by RO membranes and can contribute a significant anion load to downstream EDI/CDI or mixed bed polishers.

Liqui-Cel membrane contactors have been used in high purity applications for over 20 years, where a "cleaner" process for removing CO₂ or dissolved oxygen is required, as this technology minimizes the potential for introducing atmospheric contaminants. However, they are becoming increasingly common in industrial applications due to their efficiency in removing dissolved gases and their small footprint. Membrane contactors operate in-line under pressure, so they do not require surge tanks or transfer pumps. These systems can be configured to fit in existing space, and due to the modular nature of the systems, can be upgraded for additional flow capacity as your needs expand. They are capable of achieving less than 1 ppm of CO₂ and less than 1 ppb of dissolved oxygen in the product water stream. These systems use a microporous hollow fiber membrane to add or remove gases from liquid streams, and there are no chemicals required to operate the systems.

In addition to dissolved CO₂ and O₂ removal, other applications for this technology include:

- Nitrogenation and carbonation in the beverage industry
- Hydrogen sulfide removal
- Alcohol adjustment
- Ammonia removal
- TOC/VOC removal

A variety of contactor sizes and configurations is available to meet a wide range of applications.

For further information, please contact your **Process Solutions Inc.** sales representative.



Membrane degasifier skid for Ultrapure Water production



Membrane contactors are available in a variety of sizes and capacities



Who Says It's Not Easy Being Green ?

If you would prefer to save a tree and receive our newsletter electronically, please email us at sales@psiwater.com and we'll add you to our electronic distribution list. Thank you!

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