



Nitto

HYDRANAUTICS
Nitto Group Company

Membrane Solutions for the Maple Market

Your Maple Syrup – Quicker and Sweeter

Hydranautics at a glance

Hydranautics – A Nitto Group Company, the global leader in membrane innovations, uses cutting-edge technology to make life better around the world. Hydranautics entered the reverse osmosis (RO) water treatment field in 1970 and is one of the most respected and experienced firms in the membrane separations industry.

Reverse osmosis is a process that has been growing rapidly especially in the food processing industry where there is an ever-growing demand for foods that are healthy, safe and convenient. Considering the water-intensive nature of the industry, there is much at stake.

There are several applications where Hydranautics' reverse osmosis systems have been proven very beneficial, such as bottled water, dairy, and maple sugaring.

Our comprehensive product line, technical expertise and presence in North America allow us to continuously and consistently focus on innovation and manufacture the most effective membrane products for maple sap concentration. With strong technical support before, during, and after the sale, the result is a reverse osmosis performance you and your sugarhouse can trust.

Maple Syrup Processing – As Nature Intended

Traditional methods of making maple syrup involve boiling off the water to increase the sugar concentration of the sap. This could affect the composition of the syrup in terms of its color and flavor. A better and more efficient process is to utilize Hydranautics reverse osmosis membranes which are manufactured in USA, especially for the maple syrup concentration market. Hydranautics uses the energy-saving reverse osmosis technology to concentrate and

de-water the maple sap under high pressure, greatly increasing the concentration of sugar. This process makes the final step of boiling the sap down to syrup in the evaporator more efficient by shortening the boiling time. Not only does this conserve energy but it also helps in retaining the flavor and improving the clarity of the syrup. The process of maple syrup production is explained below.



1
Springtime sees the maple sap flowing from maple trees



2
The maple trees are tapped to collect the maple sap using buckets or tubes



3
The collected sap is sent to the sugarhouse for storage, concentration and boiling



4
In the sugarhouse, the sap is pumped through a vacuum pump for storage and further processing



8
Once the grading is complete, the syrup is bottled and packed into containers



7
The syrup is checked for its thickness, color and flavor and graded accordingly



6
The concentrated sap is boiled down to syrup in the evaporator and then sent for further inspection and grading



5
RO membranes concentrate the sap by removing a large portion of the water from it

Our Technology just got Sweeter

Hydranautics understands that the global marketplace for maple syrup is large, diverse and dependent on consumer perceptions of quality and nutritional value. At Hydranautics, we offer the best products for the maple market which would help maple producers

deliver on the ever-increasing consumers' demand for both quality and consistency in their maple syrup. The features, capabilities and benefits of our products for the maple market are listed below.

Our Features, Capabilities and Benefits

 <p>Enhanced Membrane Chemistry</p>	 <p>High Flow and High Rejection with High Pressure Capabilities</p>	Our renowned ESPA membrane flatsheets offer the highest flow and highest rejection RO membranes for the maple sap concentration market which are capable of delivering at the highest pressure (up to 1200 psi)
	 <p>Increased Membrane Durability</p>	Our membranes provide increased chemical resistance for high pH operation
	 <p>Enhanced Cleaning Performance</p>	The LD Technology® offers a wide pH cleaning range so that effective cleaning can be performed without degrading the performance
 <p>Innovative Spacer Design</p>	 <p>Lower Colloidal Fouling</p>	Hydranautics unique feed spacer design prevents trapping of smaller colloidal particles and reduces colloidal fouling of the membranes
	 <p>Lower Differential Pressure</p>	Lower differential pressure reduces power consumption, saving energy costs and decreasing the carbon footprint of the system
 <p>Robust Element & ATD Assembly</p>	 <p>Stronger membrane elements</p>	Innovative Anti-Telescoping Device (ATD) now bonds more aggressively to element body via embedded internal supports which now ensure a more secured element assembly

Hydranautics' Membrane Solutions for the Maple Market

<p>ESPA4-LD-4040</p>  <p><i>Our 4-inch reverse osmosis membrane</i></p>	<p>ESPA4-LD</p>  <p><i>Our 8-inch reverse osmosis membrane</i></p>
<p>ESPA4 1640</p>  <p><i>Our 16-inch reverse osmosis membrane</i></p>	<p>HYDRAPRO®102</p>  <p><i>Our unique solution for high-pressure applications</i></p>



About Hydranautics

Since our founding in 1963, Hydranautics has been committed to the highest standards of technology research, product excellence and customer fulfillment. Hydranautics joined the Osaka, Japan based Nitto Denko corporation in 1987 which was founded in 1918 and now has 117 companies in more than 20 countries, with over 30,000 employees worldwide. Our alliance with this global film industry giant boosts Hydranautics to a superior level of technological sophistication, product performance and customer response.

We are not simply product manufacturers; we are your membrane technology partners. As leaders of high quality membrane solutions, we believe our obligations extend beyond manufacturing and selling our products. Our skilled staff of technicians, engineers and service professionals assist in designing, operating and maintaining a robust, reliable and efficient membrane system to meet your requirements and exceed your expectations.

Our full range of membrane technology and services will help you achieve optimal performance from your plant and deliver the most economical approach to difficult separations.

Contact us to help us understand your unmet needs so that we can develop tailored solutions for you.

Corporate Office

Hydranautics – A Nitto Group Company

401 Jones Road, Oceanside, CA 92058, USA

Toll Free: 1-800-CPA-PURE

Tel: +1 760 901 2500

Fax: +1 760 901 2578

hy-info@nitto.com

www.membranes.com