



November 2009

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Upcoming Webinar

Technical experts from Outokumpu, a leading supplier of stainless steel, will host a free webinar on water treatment and desalination on November 18, 2009. To register for this webinar, log on to www.outokumpu.com.

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Duplex Approved for ANSI/NSF Standard 61: Municipal Drinking Water Systems

Three grades of duplex stainless steel produced by Outokumpu—including two proprietary grades—have been approved for drinking water applications by the NSF. The Duplex grades join Outokumpu stainless steel types 304, 304L, 316 and 316L, which had previously been accepted under Standard 61 Municipal Drinking Water Systems, the United States standard for safe potable water. The duplex grades are:

- Lean Duplex LDX 2101®
- 2205 Code Plus Two®
- Lean Duplex Outokumpu 2304

In approving the duplex stainless steels, the NSF analyzed water samples for a wide range of contaminants that could dissolve from stainless steel and, thus, mix with drinking water. Test results on the Outokumpu duplex grades showed that contaminants were far below the allowable concentrations, in fact barely measurable.



Stainless steels, and particularly duplex grades, are gaining attention as water-related infrastructures in the U.S. begin to reach the end of their life cycles.

"The older technologies used over the past century—from cast carbon steel to concrete to plastic polycarbonates—are now approaching the end of their life," explained Mike Stateczny, Senior VP, Plate Products for Outokumpu. "We're showing people that duplex stainless steel is the material that should be used

when municipalities rebuild their infrastructures. Once a community has installed duplex grades of stainless steel, they likely won't have to replace their water distribution network for another 100 years," he added.

For more than 35 years Outokumpu duplex alloys have made breakthroughs in many industries due to their excellent corrosion resistance and mechanical properties, as well as the material thickness reductions they provide. Outokumpu's duplex stainless steels offer the right ferrite-austenite balance for the most challenging desalination industry applications.

Membranes Technologies is the style of MSF and MED

Material choice	LDX 2101®, 316L, Outokumpu 2304	2205 Code Plus Two®, 904L	Outokumpu 2507, 254SMO®
Water treatment			
Water salinity	Sweet water	Brackish water	Sea water
Pretreatment with micro filtration, MF	X	X	X
Pretreatment with nano filtration, NF			X
Replacing sand filters with ultra filtration, UF	X	X	
Replacing lime softeners with nano filtration, NF	X	X	
Salt removal with Reversed Osmosis	X	X	X
Concentrate management			
2nd RO loop brackish water	X		
2nd RO loop sea water		X	
Electro Dialysis Removal Zero Liquid Discharge		X	
- Evaporator	X	X	
- Crystallizer		X	X

Stainless Steels Put to Use in Membrane Technology

Municipalities and industries across North America are using Outokumpu stainless steel to help provide new sources of drinking water through advances in membrane technology. One recent projects in the United States boasts stainless from Outokumpu—a global leader in stainless steel.

Modernized Water Treatment in Minneapolis

In Minneapolis, Minnesota, the largest surface water treatment plant in the U.S. was constructed featuring an ultrafiltration process originally developed for purification in the beer and wine industries. More than 9,000 feet of stainless steel tube and pipe, from 2-inch to 60-inch diameter, was used on the project. Much of the large



Stainless steel pipe from producer Outokumpu was used in the construction of the Minneapolis water treatment facility.

diameter stainless steel pipe for the project's concentrate side was provided by Outokumpu's Wildwood, Florida facility.

"Ultrafiltration is a cost-effective technology if water re-use, softening, or the removal of organic matter are the main issues-as opposed to salt removal," noted Elisabeth Torsner, VP Technology and Market Development for Outokumpu. The new facility replaced a sand filter operation that had been in operation since 1913, when it was installed to fight the city's outbreak of typhoid and cholera linked to their drinking water. The new \$65 million synthetic filtration water plant was named as Public Works Project of the Year in 2007 by the American Public Works Association.

Editor: Maureen Meeker

Please submit your comments by calling Maureen Meeker at 1-847-413-4111; fax 1-708-448-6821; or email maureen.meeker@outokumpu.com

Outokumpu is a global leader in stainless steel. Our vision is to be the undisputed number one in stainless, with success based on operational excellence. Customers in a wide range of industries use our stainless steel and services worldwide. Being fully recyclable, maintenance-free, as well as very strong and durable material, stainless steel is one of the key building blocks for sustainable future.