



## **Ostara's Technology Key in Creating the New Energy and Nutrient Factories of the Future**

- ***Ostara's Nutrient Recovery Solution in Conjunction with Thermal Hydrolysis and Side-stream Ammonia Removal Delivers a Complete Resource Recovery Solution***

**NEW ORLEANS & VANCOUVER, BC – SEPTEMBER 22, 2016** – Forward-thinking utilities and Ostara partners will be recognized for their innovation as Utilities of the Future at WEFTEC 2016, as advanced technologies allow utilities to close the loop on resource recovery, meeting growing demands for clean water, nutrients to grow food, and energy.

A showcase example of complete resource recovery is the recent transformation of the Amersfoort, Netherlands water treatment facility to an Energy and Nutrient Factory. Launching in spring 2016 with the Dutch Waterboard's Vallei en Veluwe, in partnership with Ostara and Eliquo Water & Energy BV, the factory features advanced digestion with thermal hydrolysis in combination with nutrient recovery.

At the transformed Amersfoort plant, digestion was enhanced with LysoTherm® thermal hydrolysis, resulting in production of sufficient energy to treat all the wastewater from the City of Amersfoort on a 100 per cent energy-autonomous basis, as well as a surplus to provide 600 households with green electricity during the year. Using Ostara's nutrient recovery solution, the new facility is also able to produce approximately 1000 tons of Crystal Green® annually, which is recognized in Europe and North America as an enhanced efficiency fertilizer. Residual ammonia is also removed from the Pearl effluent in DEMON® - a simultaneous nitrification/deammonification process which converts nutrients to harmless nitrogen gas.

Using Ostara's Pearl® and WASSTRIP® technology in combination with thermal hydrolysis, 50-60 per cent of phosphorus entering a wastewater treatment plant can be recovered. With thermal hydrolysis, the release of phosphorus and other nutrients in the digester is increased, escalating struvite formation both in the digester and in downstream assets. This also creates an opportunity for innovation: increasing the phosphorus available for recovery and in-turn maximizing operational benefits such as chemical avoidance, reduced sludge and decreased struvite maintenance.

By leveraging Ostara's advanced nutrient recovery technology, utilities on the path to energy autonomy can capitalize on their investment, while gaining an additional revenue stream through the manufacturing of a market-ready fertilizer. Bridging the gap between industry, technology and environment, the successful implementation of full-scale resource recovery validates the demand for circular systems that capitalize on resources that would otherwise go to waste.

The byproduct of Ostara's process is a high value fertilizer: Crystal Green®, the only continuous release, Root Activated™ phosphorus fertilizer ready for commercial sale directly from utilities. With more than 14 facilities producing renewable fertilizer, Ostara has now been able to take a stronghold in producing fertilizer for the agriculture market – meeting increased demand for a sustainable source of phosphorus.

As utilities play an increasing role in watershed management, Crystal Green also has a significant impact on non-point source pollution. Accredited university research now shows that Crystal Green not only

improves crop performance, but can reduce leaching by up to 75 per cent when compared to conventional phosphorus fertilizer, closing the loop on the phosphorus cycle. Crystal Green has been approved as a slow-release source of phosphorus by the Association of American Plant Food Control Officials (AAPFCO) and recognized as an approved input by the US Department of Agriculture's Conservation Stewardship Program.

Setting the standard for water stewards, Utility of the Future winners - the Metropolitan Water Reclamation District (MWRD) of Greater Chicago, the Department of Water Resource Gwinnett County, Clean Water Services, and Hampton Road Sanitation District are Ostara clients who have successfully illustrated how resource recovery today can shape the landscape and the future of the water industry by viewing wastewater as what it is – a valuable resource.

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#### **About Ostara & Crystal Green:**

Ostara helps protect precious water resources by changing the way cities around the world manage nutrients in wastewater streams. The company's Pearl® and WASSTRIP® technology recovers phosphorus and nitrogen at municipal and industrial wastewater treatment plants and transforms them into a high-value, eco-friendly fertilizer, Crystal Green®. The process greatly reduces nutrient management costs and helps plants meet increasingly stringent discharge limits while improving operating reliability. Crystal Green is the first continuous release granular fertilizer to provide Root-Activated™ phosphorus, nitrogen and magnesium (5-28-0-10Mg), and is marketed globally to professionals in the turf, horticultural and agriculture sectors. Its unique Root-Activated™ mode-of-action minimizes phosphorus tie-up in the soil, enhancing crop yields, turf performance and significantly reducing the risk of leaching and runoff, thus protecting local waterways from nutrient pollution. Ostara operates multiple facilities throughout North America and Europe and opened the world's largest nutrient recovery facility in partnership with the Metropolitan Water Reclamation District (MWRD) of Greater Chicago in Spring 2016. For more information, visit [www.ostara.com](http://www.ostara.com) and [www.crystalgreen.com](http://www.crystalgreen.com).

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