



CrystalGreen®
All Ways Green.

MEDIA BACKGROUNDER **September 2009**

ABOUT CRYSTAL GREEN®

Crystal Green® is the world's first renewable and environmentally safe fertilizer — and has been proven in industry and university trials to have commercial benefits for markets that include turf, nurseries, and specialty agriculture.

Crystal Green® was developed and is being marketed in the North America and Europe by Ostara Nutrient Recovery Technologies Inc. through national and regional distributors.

Crystal Green® is the only slow-release fertilizer on the market with a combination of nitrogen, phosphorus and magnesium (5-28-0 +10Mg).

Unlike fertilizers mined or derived from hydrocarbon sources, Crystal Green® is produced from a recycled and renewable product that is safe to use on plant material. In addition, the product's slow release characteristics provide a source of phosphorus that will not leach into the water table. Compared to conventional fertilizer manufacturing, the production of Crystal Green® is highly energy-efficient and is produced without adding greenhouse gases to the atmosphere.

The Ostara technology harvests phosphorus and ammonia from municipal wastewater and adds magnesium, which causes a chemical reaction resulting in crystalline ammonium phosphate hexa-hydrate.

Crystal Green® is being produced in suburban Portland at the Durham Advanced Wastewater Treatment Facility in Tigard, Ore. by Clean Water Services, the water resource management utility serving more than 500,000 customers in urban Washington County west of Portland. Ostara has successfully demonstrated this technology. Ostara has successfully demonstrated its nutrient recovery technology at 10 other wastewater treatment plants in the United States, and plans to develop some of these into commercial scale facilities during the next two years.

COMPETITIVE ADVANTAGES

Crystal Green® is a slow release fertilizer with proven full-season benefits and ease of handling. Crystal Green® is a 99.9 percent pure struvite compound, a slow release form of nitrogen, phosphorus and magnesium.

The prill is a hard crystalline material suitable for either top dressing or incorporation. Since Crystal Green® is crystalline, blenders and mixers will not affect the integrity of the prill — unlike coated products. The fertilizer can be pre-incorporated into a soil mix without the possibility of premature release due to the heat of the mix. Crystal Green® is available in various prill sizes from 70 SGN (0.7 millimetres) up to conventional 240 SGN.

Hard and dust-free particles make this product user-friendly and easy to handle. Crystal Green® is not chemically coated and is consistent in size and shape. Advanced technology allows Crystal Green® to be manufactured in a size that suits a customer's needs.

Crystal Green® was shown in trials to be safe for unrooted nursery stock and is not temperature dependent, therefore excessive temperatures will not influence its release. Release is consistent, whether incorporated or top dressed.

Water is the primary release agent but, unlike IBDU (isobutylidene diurea) and other slow-release fertilizers, release of Crystal Green® is consistent regardless of the amount of moisture applied due to its crystalline nature. In British Columbia, where Crystal Green® has been used for salmon restoration, it lasts four months in flowing water.

It has been tested for purity by British Columbia's Ministry of Water, Land and Air Protection, which is responsible for the management, protection and enhancement of the province's environment. Extensive independent lab testing has shown no pathogens or heavy metals present. Crystal Green® is actually cleaner than commercially available phosphates that are derived from mined phosphorous.

Testing at the University of British Columbia's Department of Engineering showed consistent longevity of eight to nine months, producing denser and greener turfs. The product is also approved to restore nutrients to salmon rivers in British Columbia.

Crystal Green® commercial specifications:

- Crystalline compound, granular
- Hard, dust-free particles
- Bulk density of 1.1g/cc or equal 69lbs/cu.ft.
- White in color
- Sparingly soluble
- Low salt index 7.7
- Slow-release nitrogen, phosphorous and magnesium
- Available in 50-240 SGN
- Non-detectable or an order of magnitude below minimum regulatory limits on heavy metals or pathogens based on independent testing
- Final product is cleaner than traditionally-mined
- phosphorous finished products

Magnesium ammonium phosphate hexa-hydrate (MgNH₄PO₄·6H₂O)

- Total nitrogen..... 5%
- 5% ammoniacal nitrogen

- 5% slowly available water soluble nitrogen
- Available phosphate (P2O5)..... 28%
- Soluble potash (K2O)..... 0%
- Magnesium (Mg) (total)..... 10%

THE ENVIRONMENTAL IMPACT

Each year more than 100 million tons of phosphate rock are mined and processed into fertilizer. Over time this fertilizer enters the ecosystem as waste and agricultural runoff, leading to excessive nutrient levels, or a condition known as eutrophication. Eutrophication causes excessive algae growth in lakes, streams and oceans which depletes the oxygen supply in the water that is necessary to support aquatic life.

Crystal Green[®] is in a slow release form, which reduces the amount of fertilizer lost through runoff into the environment.

In addition to reducing phosphorus runoff into the environment, Ostar's Crystal Green[®] customers contribute to environmentally sustainable development and to the reduction of greenhouse gases. Phosphorus is an essential ingredient in fertilizer and, therefore, critical to the world's food supply. However, the conventional phosphorus fertilizer production cycle is an energy-intensive process that releases greenhouse gases into the environment at every stage: 1) mining of phosphorus ore, 2) concentration into phosphate rock, 3) transportation from mine sites around the world, 4) centralized manufacture into fertilizer, and 5) transportation to customers.

Conversely, Ostar recovers phosphorus from wastewater. Heat needed to dry the Crystal Green[®] fertilizer pellets is recovered from the host wastewater treatment plant.

OSTARA

Ostar Nutrient Recovery Technologies Inc., founded in 2005, is a Vancouver-based company commercializing proprietary technologies that recover resources from wastewater and recycle them into valuable products. Ostar's core technology was developed at the University of British Columbia over a period of five years. Phillip Abrary, President and CEO, and Ted Jones, COO, founded the Company and the Ostar technology was licensed from UBC in 2005.

F. Phillip Abrary (BSC. CA), President, Chief Executive Officer and Director

Mr. Abrary has more than 20 years of financial management and executive experience and is a founder of Ostar. His business experience includes president and founder of RTM Norden Inc. (1995 – 2005), an international business and technology consulting firm working with the manufacturing sector throughout North America and Europe, and at Price Waterhouse (1990 – 1995) working with private, public and multinational corporations.

Jim Zablocki (MSc), Vice President Nutrient Operations

Mr. Zablocki has worked in the fertilizer industry for more than 30 years specializing in slow release fertilizers. He has written a number of scientific papers and has been a

consultant for government agencies regarding nutrient management programs. He has served in management positions with W. R. Grace & Co., the global specialty chemicals and materials company, and with the Scotts Company, the leading supplier of lawn care and garden care products in North America and a major supplier in other markets, including Europe. His work with these companies included developing formulations and blends, as well as evaluating new technologies, coatings, substrates, and release profiles.

- 30 -

Further complete information about Crystal Green[®], please visit the website at www.crystalgreen.com.

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