



SunOpta

By Loren Larson

Industrial Wastewater Treatment Facility

SunOpta, the 2009 winner of the CSWEA's Industrial Environmental Achievement Award, is committed to reducing its environmental footprint and promoting sustainable business practices. The company specializes in sourcing, processing and distributing natural and organic food products and food ingredients. As one of the world's largest organic ingredient suppliers,



SunOpta actively encourages farmers worldwide to convert to organic production. SunOpta's non-food divisions specialize in chemical-free pulp and paper technologies, cellulosic ethanol generation, and recyclable abrasives in the construction business.

SunOpta is one of 10 founding global corporations to endorse the United Nation's CEO Water Mandate which represents a call for action and provides a strategic framework to address issues of water sustainability in response to the emerging global water crisis. Since signing on to the mandate in July 2007, SunOpta has successfully completed a series of water conservation programs at its fiber production plants in Minnesota, Kentucky, and Iowa and has reduced consumption of water by over 200 million gallons.

The company continues to implement innovative wastewater conversion projects at its food manufacturing facilities. In addition, SunOpta is developing projects to extract methane from wastewater, reduce carbon emissions and waste materials, and drive energy savings. SunOpta is tracking its carbon footprint at each of its 74 facilities worldwide and is implementing company-wide energy conservation programs. Facility-based environmental teams are also actively involved in recycling and waste-reduction and supporting community environmental programs.

The SunOpta Ingredients Group, a division of SunOpta, has been a leader within the company when it comes to reducing water consumption. This division has three manufacturing facilities which produce oat fiber for food enrichment



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and for functional uses in food such as breakage reduction in fragile snack products. The production of these fibers requires water and creates a substantial volume of wastewater. Two of the fiber plants are located in metropolitan areas which have very large wastewater systems. However, the third plant is located in a small rural community, Cambridge, Minnesota, which has a smaller and less-forgiving wastewater treatment facility.

When the Cambridge plant was built in the late 1980s it was evident that a pre-treatment facility would be required, as the raw wastewater from the fiber manufacturing process was high in strength and flow. Anaerobic digestion was a logical choice for treating the wastewater before it entered the publicly owned water treatment system. A 6.3

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million gallon USAB anaerobic basin was commissioned late in 1989. A very unique raw wastewater, with inherent solids settling issues, forced subsequent equipment to be added. A dissolved air flotation (DAF) process was added to the system in 1994-1995 to address these concerns.

The anaerobic with DAF system met the fiber plants needs adequately until 2006 when increased demand for fiber began to push the daily capacities beyond the limits of the system. At the same time, decreased system performance led to additional biosolids generation and related odors, demanding the company’s attention. The fiber production system was essentially re-engineered to provide much needed relief to the anaerobic system. This manufacturing innovation, coupled with aggressive micro and macronutrient supplementation, has provided tremendous performance increases for the facility. This turnaround



and subsequent water savings from our re-engineering led us to receiving the 2009 CSWEA Environmental Achievement Award.

Currently, SunOpta is in the final stage of an energy recovery project which will utilize our anaerobic biogas (methane). This renewable fuel will supplement

our natural gas usage to power the production of fiber in the Cambridge plant. Over the years we have looked into this potential energy source. The organic material in our wastewater, however, is a good food source for animals and dairy cattle are the primary and optimum consumer. A tremendous amount of work was done pursuing the feed opportunity; however the continued loss of the dairy industry in the area has essentially eliminated this potential market. Therefore we chose to focus our efforts on utilizing the organic materials to make biogas for energy supplementation.

The next phase of SunOpta’s pre-treatment program in Cambridge is the

biosolids program. The company retains an agronomist to maintain this program. We are currently land spreading the biosolids generated from our DAF. Our agronomist’s responsibilities include the site acquisition from inquiries, site soil testing and approval, application records, yearly reporting requirements, and the shear logistics of the application process. The materials we generate are environmentally friendly. The traditional worries regarding heavy metals in the biosolids are not a concern with our material. We are virtually always limited by the nitrogen content in our application guidelines. Furthermore, we are located in an area that is predominantly a sandy soil type, so this material is also very desirable from a soil amendment perspective. We do apply the material in a liquid form. This is economically feasible because we are centrally located in an area that is still largely agricultural in nature. We may at some point, however, add equipment to concentrate and dry the material in hopes of making it a saleable by-product.

Sustainability is a relatively recent term. Even though our fiber plants have evolved on a somewhat independent basis, they have all been very conscious of water use and/or consumption. Our ratio of water usage to production poundage has been in a steady downward trend in all of our facilities, and we are proud of our water use optimization. Although we have long ago recognized and harvested the “low hanging fruit,” we will continue to strive to get the utmost use out of the water that we do use. Lastly, we hope to someday use anaerobic, or some other innovation, to capture energy from the organic material that is currently carried away in the water from our two metropolitan facilities. This will be an environmentally sound strategy as well as an economical one.

SunOpta is very proud to be the 2009 recipients of the CSWEA Industrial Achievement Award. This was most certainly one of the highlights of our year. Our company will continue to strive to minimize our impact on the environment while being successful in an increasingly competitive business world. 

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