Rousselot Dubuque

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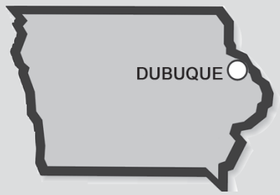

Rousselot Inc., a Vion Company, is a leading manufacturer of gelatin in the world. Raw materials for gelatin production include bones, skins, and hides from pork, beef, poultry, and fish. Rousselot Inc. markets their specialized gelatin for various markets. These markets include confectionery uses, dairy products, meat, fish, and wine products, pharmaceutical applications, photography applications, and cosmetics.

Project Background

Due to gelatin production methods, large quantities of water are used for various purposes in the plant. The goal of the 2006 project was to identify further methods for reducing water consumption and costs and to identify ways to mitigate a wastewater product, called "stick water," that requires special treatment and handling in Iowa. Stick water contains a unique composition of solids, organic matter and grease. A study to evaluate stick water reduction/disposal alternatives and valuable by-products that could be recovered was begun.

Incentives to Change

Rousselot Inc. participated in the P2 program in 2005 and was able to implement several waste reduction opportunities identified by the previous intern. However, there were still many opportunities for water and waste reduction. As regulations and costs for disposal continue to increase, Rousselot Inc. would like to stay environmentally progressive and sustainable.

Results

Stick Water

After cooking and washing processes, streams of wastewater are sent to the "grease plant" for further protein recovery as well as grease recovery. A study of 16 alternatives for further by-product recovery and disposal of waste products was completed. By modifying equipment in the grease plant, a significant savings in disposal costs for stick water can be had. In addition, the risks of land application are avoided. Dewatering equipment and analytical testing demonstrated that stick water could be reduced further to create valuable by-products, resulting in an effluent for disposal with 66 percent less water.

City to Well Water

Rousselot has the option of using water from a private well already existing at the plant. According to pumping tests, the private well is capable of supplying the necessary capacity. Water quality issues such as iron and hardness were considered for treatment options. By using water from the well as opposed to buying water from the city, Rousselot can save economically. The city can save by reducing energy, chemicals, operation and maintenance costs in treatment.

Pump Seal Water

A seal water inventory was performed to determine the amount of excess water used to cool pumps throughout the plant. By using a retention system, water is recycled to a holding tank, rather than released through the seal to the sewer drain.

Permeate Water

Permeate water discharged to the sanitary sewer from an ultrafiltration unit is high quality. By making an amendment to Rousselot's existing NPDES permit, this water may be able to be discharged to the storm sewer, resulting in significant savings.

Warehouse Lighting

Lighting in the warehouse is kept on 24 hours a day, 7 days per week. By modifying the switch system so that only specific fixtures stay on during the night hours, energy savings can be had.

Frozen Skin Boxes

Nearly 46,000 boxes per year are used to store frozen raw materials. These boxes were landfilled because they have a wax-like lining. However, by doing research, it turns out that these boxes can be traditionally recycled or used for composting. Now, Rousselot can recycle all packaging.

Dryer Efficiency

Waste heat from the dryer can be recycled to increase efficiency in the regenerator. An evaluation by the dryer manufacturer is recommended to ensure efficiency values.

Air Pollutants Diverted in Tons

	Total for all sectors
SO2	0.346
CO	0.384
NOX	0.286
VOC	0.457
LEAD	0.0
PM	0.021

Green House Gases Diverted in Tons (CO2 Equivalent)

	Total for all sectors
CO2	645.6
CH4	144.5
N2O	47.9
CFCS	0.94

Project	Annual Cost Savings	Environmental Results	Status
STICK WATER	$200,000	17 milion lbs. of waste	In progress
PRIVATE WELL WATER	$138,700	N/A	In progress
PUMP SEAL WATER	$6,500	4 million gallons of water	Recommended
PERMEATE WATER FROM UF	$8,700	2.5 million gallons of water	Recommended
WAREHOUSE LIGHTING	$2,500	47,000 kWh	In progress
FROZEN SKINS BOXES	$1,500	39 tons diverted from the landfill	In progress
INCREASE DRYER EFFICIENCY	$78,000	87,000 therms	Recommended