

Kraft Foods Global, Inc.

COMPANY BACKGROUND



Kraft Foods Global Inc. is one of the largest branded food and beverage companies in the world. They have more than 90,000 employees and 159 manufacturing and processing facilities worldwide. Kraft has more than 50 food brands with revenues of \$100 million or more, including Oscar Mayer, Post, Nabisco, Philadelphia and Oreo. The Mason City facility produces ready-to-eat Jell-O desserts and pudding cups and employs approximately 250 people.



ANDREW ENGLE
MECHANICAL ENGINEERING
IOWA STATE UNIVERSITY

PROJECT BACKGROUND

The Kraft Foods dessert plant in Mason City has realized big success with the Pollution Prevention Intern Program. The past two Pollution Prevention interns have produced large financial savings and helped Kraft become more sustainable. This year, the Kraft Mason City facility is focusing on three ways to reduce environmental impact: reduce energy use, reduce water consumption and decrease amount of scrap produced.

INCENTIVES TO CHANGE

Kraft Foods intends to reduce their environmental footprint in all their manufacturing plants around the world. Kraft is developing a mass balance tool to map where resources are used throughout a plant. This tool will show where energy and water are being used in large amounts and give the plant personnel a chance to optimize that process. In this time of rising energy and water prices this tool should help Kraft Foods set an example for other food manufacturers.

RESULTS

Compressed Air Leaks

Compressed air is widely used throughout the plant and accounts for approximately 24 percent of total electrical use. A compressed air leak audit was performed and 132 air leaks were found. An on-going compressed air leak program is recommended and could save Kraft Foods a large amount of energy in the future.

Aseptic Tanks

The aseptic tanks inside the plant are cooled with water using a timer control system. It was found the timer cycle could be reduced from 15 minutes to 2 minutes. Over the year, this adds up to a significant water savings for Kraft.

Steam Trap Survey

There are more than 900 total steam traps in the Mason City facility. Around 30 percent of the steam traps checked were failing. An on-going steam trap program would significantly reduce the amount of wasted steam and help reduce natural gas usage.

Loading Dock Seals

An opportunity to yield energy savings was found by installing leveler seals on all of Kraft's loading docks. These will seal the gaps at the bottom of the loading docks so the plant's heated or cooled air will remain inside the building. The seals also eliminate condensation on the metal dock levelers and make it safer for forklift drivers.

Waste Heat Recovery

The air compressor room on the south side of the plant has three compressors that produce a large amount of waste heat. Currently, this room has ductwork that circulates outside air through the room then exhausts it through the roof. During the winter this heat could be recovered and ducted into the plant for space heating.

Heat Exchanger Seal Water

A number of heat exchangers inside the plant use water to lubricate their seals. Flow restrictors were purchased and the volumetric flow rate of water was reduced from three gallons per minute to one gallon per minute. This produced a huge water savings with little capital cost.



Andrew Engle and Jim Wernet use an ultrasonic detector to measure an air leak at the Kraft plant.

Air Pollutants Diverted in Tons

	Total for all sectors
SO2	29.2
CO	3.66
NOX	14.03
VOC	2.03
PM	0.74

Green House Gases Diverted in Tons (CO2 Equivalent)

	Total for all sectors
CO2	5,511
CH4	813
N2O	169
CFCs	67.4

Project	Annual Cost Savings	Environmental Results	Status
COMPRESSED AIR LEAKS	\$63,750	1,275,000 kWh	IMPLEMENTING
ONGOING LEAK DETECTION PROGRAM	\$89,000	1,777,500 kWh	RECOMMENDED
ASEPTIC TANKS	\$2,200	607,750 GALLONS OF WATER	IMPLEMENTED
STEAM TRAP SURVEY	\$39,000	56,000 THERMS	IMPLEMENTING
STEAM TRAP MAINTENANCE PROGRAM	\$79,000	113,000 THERMS	RECOMMENDED
LOADING DOCK SEALS	\$7,000	110,000 kWh 2,100 THERMS	IMPLEMENTED
WASTE HEAT RECOVERY	\$41,000	50,000 THERMS	IMPLEMENTING
HEAT EXCHANGER SEAL WATER	\$54,000	15,000,000 GALLONS OF WATER	IMPLEMENTED