

Energy Savings that will Improve Your Bottom Line!

Investing in a study will give you the tools to save thousands of dollars in annual energy!



Dryer entrance showing hydrocarbon condensate

Project and Baseline

Increase Dryer Throughput 20% and Reduce Costs by \$240,000/year:

Management was concerned that current production operating practices might be inefficient and significant energy saving opportunities existed.

The customer's manufacturing facility produces various molded fiber cartons. The plant utilizes recycled newspaper as their fiber feed stock and the factory has three production lines that

produce various carton configurations. The rate of production for Dryer #1 was measured by paper kg/hour. The amount of water the dryer evaporated was approximately 2,268.5 kg/hour. The dryers required regular cleaning to remove condensate which appeared to be some form of hydrocarbon and the capacity was below specifications.

Baseline:

A natural gas consumption baseline was developed to benchmark the dryer operating efficiencies. A temperature profile was then developed for the dryer and end product.

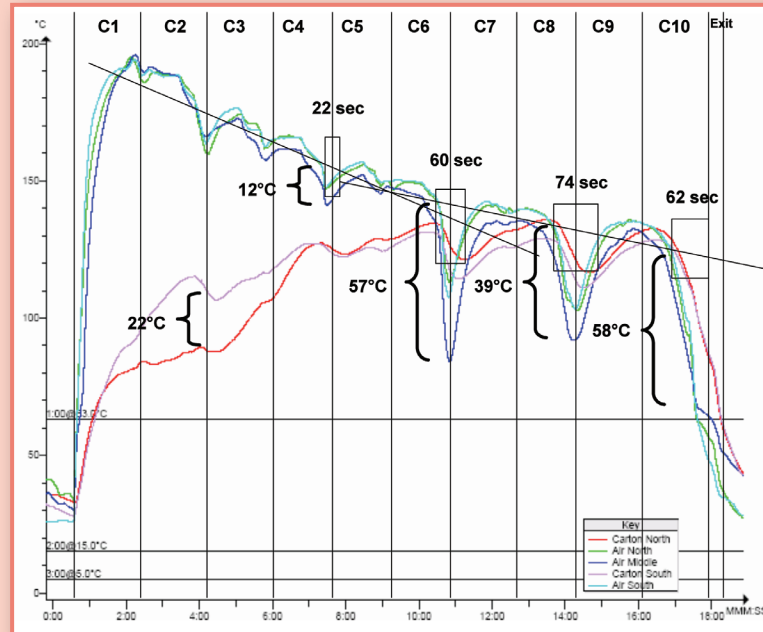
Energy saving strategies and priorities were determined through a systematic analysis of the existing equipment. The framework which was used to identify energy saving was based on the following:

Heat Generation – Heat Containment/Heat Transfer – Operational/Process Strategy

Diagnosis:

- Poor air and temperature distribution
- Poor de-watering on molding machine
- Problems with exhaust
- Poor dryer pressure control
- Excessive mold release oil contributing to external condensation

Dryer and Product Temperature Profile



Solutions Implemented:

- Firebridge modified oven design to improve air balance and heat distribution
- Raised allowance for moisture content in product by 3%
- Increased steam flow to molding machine to increase dewatering by 1.3%
- Reduced exhaust and increased relative humidity by 2%
- Reduced quantity of mold release oil

Improvements Achieved:

- ✓ Payback less than one year.
- ✓ Annual fuel savings of \$182,000
- ✓ 20% increase in dryer throughput
- ✓ Annual mold release oil savings \$60,000
- ✓ Hydrocarbon condensate problem eliminated
- ✓ Greenhouse gas emission reduced
- ✓ Lower maintenance, less product loss