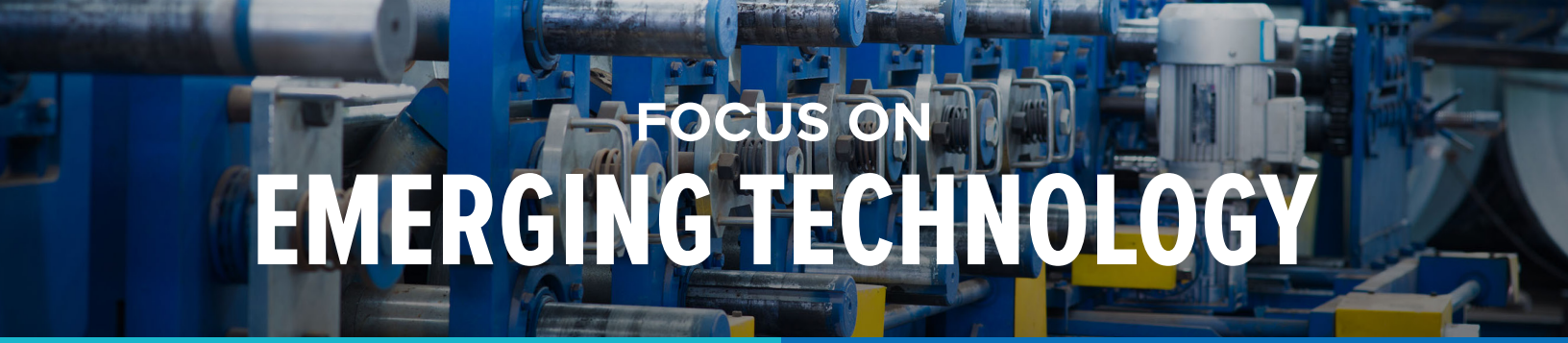

FOCUS ON

EMERGING TECHNOLOGY

CORN SYRUP SOLIDS OPTIMIZATION THROUGH HIGH SOLIDS EVAPORATORS

Technology Description

As part of corn ethanol production, water is removed from thin stillage in multiple effect evaporators to create syrup. In conventional evaporator design, boiling causes scale to be formed at the heat transfer surface. A high solids evaporator keeps the solution at high pressure and velocity conditions and boiling occurs in a flash tank resulting in less scaling.

Syrup is sent to the distillers dried grains with soluble (DDGS) dryer, where it is dried along with the distiller's grains. High solids evaporators can create syrup with much higher solids content because there is less scaling. The result is a reduction in natural gas used in the dryer and Regenerative Thermal Oxidizer (RTO).

Increasing syrup solids will result in natural gas savings if one or more of the following are true:

- High solids evaporator is driven with waste heat.
- High solids evaporator is driven with steam, but the resulting waste heat is used productively.
- High solids evaporator is of multiple effect design.

Benefits

1. Natural gas savings due to greater evaporator process efficiency and higher solids content. There may be an increase in electric demand and use depending on the design and size of recirculation pumps.
2. Increased syrup solids content (lower water content) may have a higher sale value and/or eliminate or reduce further processing to remove excess water.

Customer Type

Corn Ethanol producers.

Applications

High solids evaporators.

Market Sectors

Industrial.

Potential Energy Savings

Site dependent- 1,000,000+ Annual Therm savings.

Potential Payback Range

2- 3 years pre- incentives.

Incentives Available

Download and complete the Custom Project Incentive Guide [PDF] or Find an Energy Advisor to get started.