

BEST PRACTICES AND TECHNOLOGIES

Reducing our Water Footprint

El Agua Nos Une – SuizAgua América Latina



Recovery of residual heat from the cooling tank of the enzyme refinery

SDG: 6.4 Water Efficiency
7.3. Energy Efficiency



Company / implementer

Ingredion Colombia S.A.S

Sector: : ISIC 1052. Production of starches and starch-derived products

Ubicación:

Cali, Valle del Cauca, 3.462958, -76.499513

Update: 26 Jan. 2018



Results

- Recovery of residual heat: **9.5 mmbtu/year.**
- Reduction in water extraction: **3,600 m³/year.**
- Reduction in carbon footprint: **0.6 ton CO₂-eq/year.**



Other benefits

Savings:

- Savings of **USD 65,000/year** with an investment of **USD\$99,000** and a return on investment period of 2.2 years.
- Income tax deductions.
- Reduction of operating costs due to the elimination of emissions controls, since this solution resulted in the elimination of a fixed source of emissions.



Supplier Information

Supplier: Internal Engineering



Implementing Company

Company in charge of implementing the solution: Ingredion Colombia S.A.S
Planta Cali, Valle del Cauca.

Contact Information: Carlos Arturo Martínez Urrea
Manager and Director of Environmental Management.

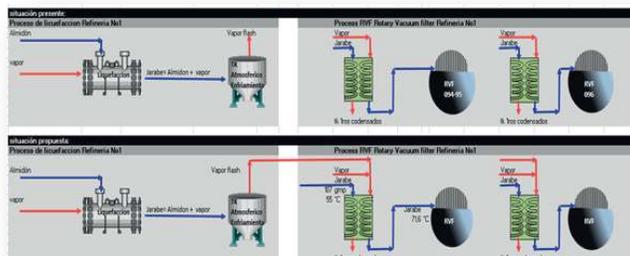
E-mail: carlos.martinez@ingredion.com



Description

An atmospheric cooling flash tank is used during the liquefaction process to lower the temperature of the syrup from 107°C to 93°C, which generates a continuous emission of steam. Through the implementation of the "Pinch Technology" methodology, which consists of crossing lines that need process heat with lines that have residual heat, it was established that the syrup line can use the steam from the liquefaction tank to raise the temperature from 50°C to 70°C, which is the temperature required in the clarification process. By means of this solution, the steam consumption standard of the enzyme refinery was reduced from 0.90 to 0.87 tons of steam per tons of syrup produced.

An exchanger to cross currents, a pump, interconnecting piping, instrumentation and the assembly of equipment were required for this implementation.



Investment and Operation Costs

Investment Costs: USD\$99,000 over 9 months: August 2015–May 2016



Recommendations and Limiting Factors

Solution tailored to the company's specific needs and characteristics.



References

"Pinch Technology" is used in industrial fluid processes based on the following principles:

- Analyzing processes and systems based on the laws of thermodynamics.
- Systematic procedure to design efficient networks and exchange heating and cooling in the recovery process.
- Maximizing the heat recovery process, reducing the dependence on external loads such as steam, natural gas and cooling water.