

BEST PRACTICES AND TECHNOLOGIES

Reducing our Water Footprint

El Agua Nos Une – SuizAgua América Latina



Steam condensate recovery system - Acid refinery

SDG: 6.4 Water Efficiency



Company / Implementer

Ingredion Colombia S.A.S

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

Location:

Cali, Valle del Cauca, 3.462958, -76.499513

Update: 26 Jan. 2018



Results

- Reduction of effluent temperature by **20°C** (at the acid refinery).
- Reduction in carbon dioxide emissions by **112 tons CO₂-eq/year**.
- Reduction in water extraction by **13,000 m³/year**.
- Reduction in natural gas consumption by **1,895 MBTU/year**.



Other benefits

- Income tax deductions, as well as VAT-exempt purchase of equipment and tools required for the implementation of the system.
- Recovery of **50%** of the total condensate steam available at the refinery.
- Reduction of **USD\$40,600/year** in the costs of water production by reverse osmosis.
- Reduction of the use of reverse osmosis equipment and frequency of membrane replacements.
- Reduction of **USD\$11,600/year** due to the use of residual heat.



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

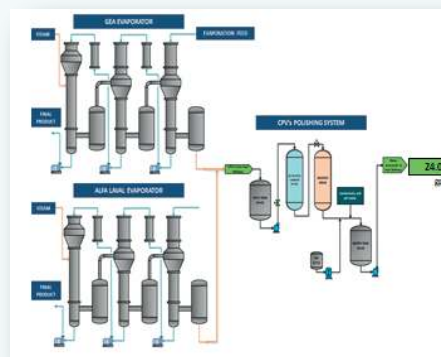
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Description

Recovery of condensate water generated in the acid refinery and use it to replace 12% of the water obtained from reverse osmosis required in the polyol production process with the purpose of avoiding the discharge of demineralized water into the effluent system and increasing the temperature of the system. These waters are at a temperature above 60°C.

To recover these waters, a system consisting of the following equipment and auxiliary components is required: container for the ion-exchange resin, container for the activated carbon filter, regeneration system, 6-m³ tank for storing the condensate steam, centrifugal pump, control valves and instrumentation, piping and mechanical accessories, civil works.



Investment and Operating Costs

Investment Costs: USD\$247,891

Operating Costs: The cost of replacing the ionic resin and activated carbon is estimated at **USD\$15,000** every five years



Recommendations and Limiting Factors

Solution tailored to the plant's operating conditions and needs.



References

Polyols are alcohols used in the manufacturing of pharmaceutical products such as: mouthwash, toothpaste and moisturizing creams.