



ICE XL™

whitefox

Waste Less. Produce More.

Challenge

Molecular Sieve (MSU) Dehydration is a Pressure Swing Adsorption (PSA) technology commonly used in ethanol production.

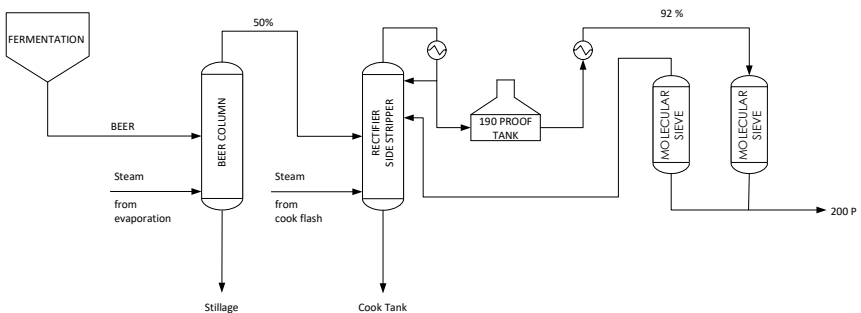
- i. Operation is cyclical with a variety of recycle streams, creating bottlenecks in Distillation, Dehydration & Evaporation (DD&E).
- ii. The conventional molecular sieve dehydration method is energy intensive as 184 – 190 Proof is required as the MSU feed.

Whitefox ICE XL™ Solution

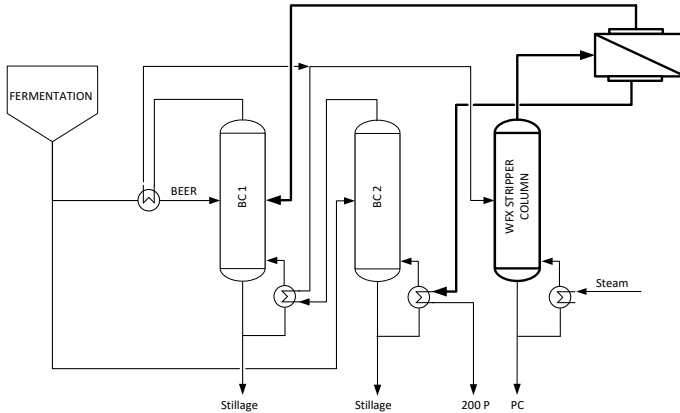
Whitefox ICE XL™ is a proprietary integrated solution fully replacing the existing molecular sieves, establishing continuous dehydration and reducing the energy consumption per gallon of ethanol produced, through

- i. Reconfiguration of existing distillation,
- ii. Installation of a 100% energy neutral Whitefox ICE XL™ system,
- iii. Elimination of i) 190P condensation and ii) re-vaporization steps, and
- iv. Steam reduction in evaporation due to 25% lower water load

Before



After



Benefits of Whitefox ICE XL™ Solution



- Reduce steam consumption of DD&E to 8,000 BTU/gal
- Stable, continuous operation of distillation and dehydration (no pressure swings)
- Cooling water reduction
- Elimination of molecular sieve dust contamination
- Diversify to lower moisture for export
- Re-use existing infrastructure
- Emission saving - Carbon Intensity (CI) point reduction
- Reduction in operational and maintenance cost

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