

Case Study

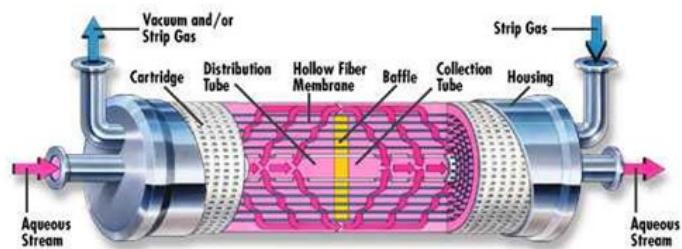
Heineken Choose Envirogen to Supply Significant Deaeration Plant Upgrade

Due to an increase in production requirements at their Hereford plant, Heineken needed to upgrade and extend the existing deaeration plant and its capability.

De-aeration and de-gassing technologies are typically used to remove or add atmospheric gases such as oxygen and carbon dioxide from liquids. The most common application is the reduction of dissolved oxygen content. The properties in Oxygen can negatively impact many stages in the manufacturing process. Produced beverages react sensitively to the presence of oxygen in the product, having a long-term impact on taste, colour and shelf life.

At Heineken

At Heineken, the de-aeration process of removing Oxygen is carried out using hollow -fibre hydrophobic membranes. The process water passes through the membranes while a vacuum pressure applied to the core of the membrane removes the dissolved gases. The membranes properties repel water, whilst allowing gas molecules to readily pass across the membrane structure. The vacuum pressure is applied together with a sweep gas of either carbon dioxide in order to reduce the equilibrium concentration of the stripped gas. Each membrane contactor contains thousands of micro-porous hollow fibres arranged within uniform open packing



allowing large liquid flow rates while creating a large intimate contact surface for gas addition or removal.

Performance

The process performance of the upgraded plant was achieved by the installation of 12 new membrane contactors. This enabled the plant to consistently produce 100m³/hr of deaerated liquor at less than 10ppb dissolved oxygen from a feed of 13ppm of dissolved oxygen which is within the required specification.

Software / PLC

Envirogen upgraded the system to a fully automated plant, including PLC, inverter controlled pumps, and pneumatically operated valves.



Benefits

Service and Maintenance

As part of an onsite agreement covering various water treatment plant, the Dearation plant is supported by a PureCare service and maintenance contract, where weekly visits are in place to ensure the plant continues to operate at its optimum.

"In 2010, Bulmer's, now owned by Heineken approached Puresep part of the Envirogen Group to overhaul and upgrade the existing De-aeration system from 60m³/hr per hour to 100m³/hr. This was to satisfy the increase in demand for DAL site wide. We gave Envirogen a brief of what was required, and they responded with a highly efficient overhaul and upgrade solution, meeting strict time and budgetary requirements. A complete process review was conducted with a new operating procedure, system pumps, control system, and an increase in membrane surface area making up the package together with an additional vacuum pump. Flow path configuration changes, adjustments to our vacuum levels and sweep gas supply resulted in the exact performance that was required. The new system enables us to rely on the production of DAL at a target dissolved O² level of less than 10ppb"

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