

EROX[®] CO₂ removal - Case Study

Initial situation

Due to its high alkalinity the deep well water of this brewery is treated with cation exchangers. This process creates free, aggressive carbonic acid, which must be removed as some pipelines in the brewery are made of non-durable material and replacement would involve significant investment.

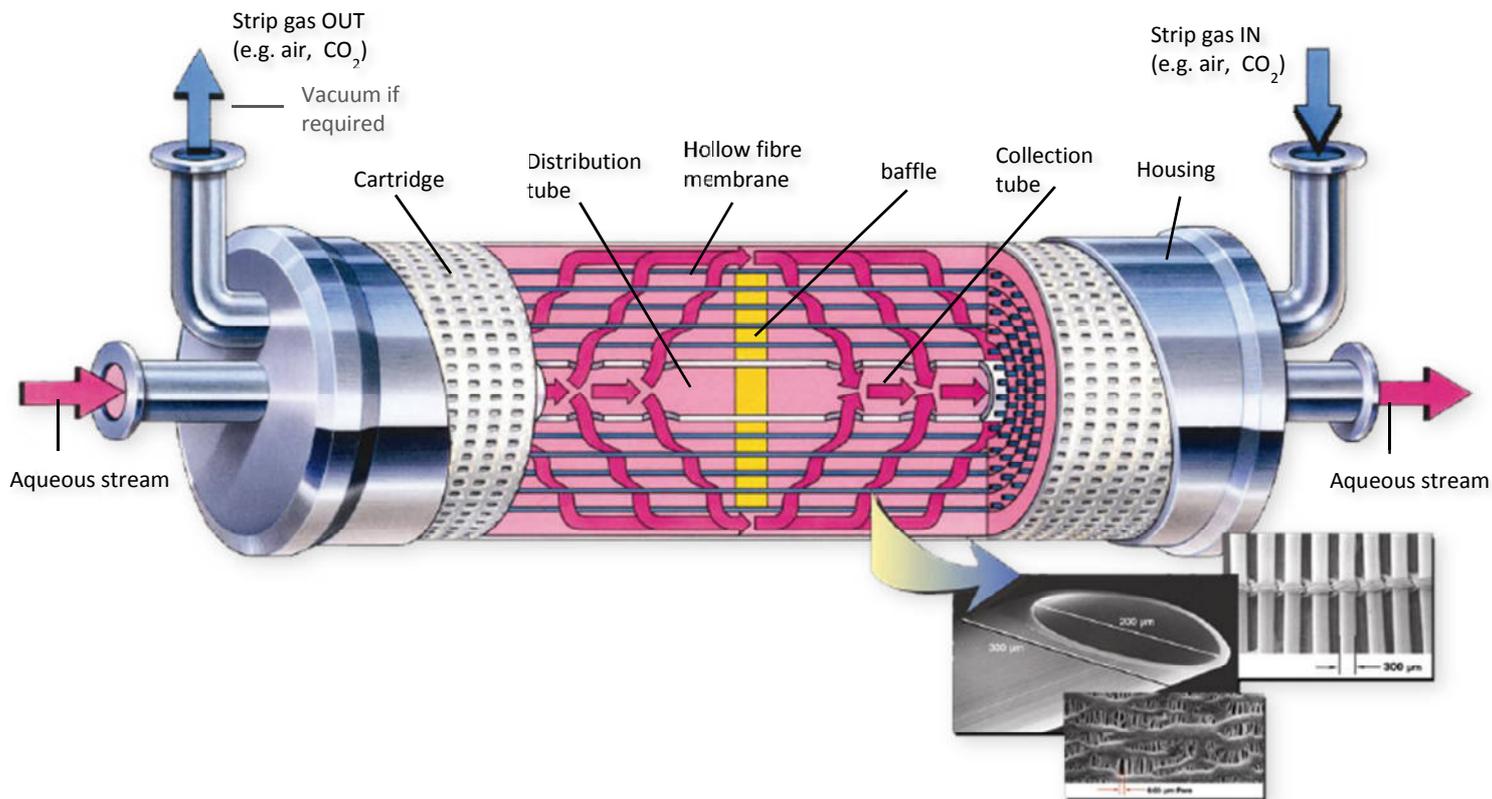
Before installing the EROX[®] CO₂ removal system, the free CO₂ was removed by a trickler column. Since this is an open system, microbiological problems occurred repeatedly which could be maintained only with a good deal of maintenance and cleaning effort to keep the infection under control. Another disadvantage of the open system was that it works without pressure and a pump station was necessary to forward the water to the reservoir downstream. In addition to the additional energy required, the cost of the maintenance was not negligible.

The EUWA solution

To completely eliminate the disadvantages of an open CO₂ stripping column, the brewery decided to install an EROX[®] membrane system designed for a capacity of 60 m³/h. The investment decision was made on the following characteristic advantages of EUWA solution:

- closed system, no risk of contamination from outside
- Inline membrane degassing process, no additional pump station necessary
- significantly less air required compared to open stripping
- possible to clean in place
- much more compact and space-efficient than open stripping column
- by controlling the stripping gas flow a small residual CO₂ level is adjusted to achieve desired m alkalinity in the brewing water
- negligible cleaning and maintenance

EROX[®] - CO₂ removal



Practical experience

The EROX[®] membrane system was installed in a single day and fully integrated into the existing control of the entire water treatment plant. Under operation, the following technical / technological key figures are reproducibly achieved:

Performance: 60 m³/h
CO₂ content in the feed: 300 ppm
CO₂ content in the outlet: 8 ppm (after adjustment of the desired alkalinity to 0.7 meq/L)
pH in the feed: 4.8
pH value in the outlet: 7.3
Stripping air flow: 2.4 Nm³/min

Water Chemical background

Natural water contains CO₂ either as associated carbonic acid to keep the water in the carbonate balance or in excess as free carbonic acid. If there is excess of carbonic acid, the water is aggressive to piping and systems incorporating mild steel, galvanised steel, copper, or similar materials. Therefore, it is essential to remove the CO₂ from the water.

THE WORLD OF WATER TREATMENT



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