

Alpha Cleantec AG
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Feasibility Study Alpha Cleantec

In 2021, Alpha Cleantec AG, located in Zug, and Kernkraftwerk Gösgen-Däniken AG successfully completed a feasibility study on wastewater containing a high concentration of organic materials and radionuclides (concentrated wastewater after evaporation). The presence of organic materials hampers the effective separation of radionuclide residues in the wastewater.

The primary objective of the study was to examine the capability of Alpha Cleantec's oxidation process (NWT-SOA) to decompose organic materials in the wastewater, thereby releasing radionuclides and facilitating their separation from the remaining concentrate of the evaporation system.

The results of the feasibility study demonstrated that, after one hour of batch reaction at normal temperature and pressure conditions, Alpha Cleantec's procedure achieved decomposition levels of organic materials in the concentrate, enabling a reduction of Co-60 activity by more than 99% through precipitation. Following the Alpha Cleantec methodology, precipitation of corrosion products and a simple filtration step were applied. Further reduction of activity in the wastewater can be achieved by use of ion exchange resins.

Furthermore, Alpha Cleantec's process exhibited promising proof of concept for reducing activity in spent ion exchange resins. However, additional treatment cycles and adjustments are required for the efficient treatment of ion exchange waste.

Kernkraftwerk Gösgen-Däniken experienced Alpha Cleantec AG as a reliable partner during the feasibility study.

KERNKRAFTWERK GÖSGEN-DÄNIKEN AG



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