

Waste Water Treatment by Evaporation

Advanced Radwaste Treatment

Highly effective evaporation process, significantly reducing the quantity of liquid radioactive waste.

Challenge

During normal operation of nuclear power plants waste water is generated. Depending on reactor type, this waste water results from cleaning the primary coolant, from laundry water or decontamination processes.

The waste water most often contains both soluble and insoluble radioactive substances. Authority requirements concerning discharge limits are getting stricter.

Solution

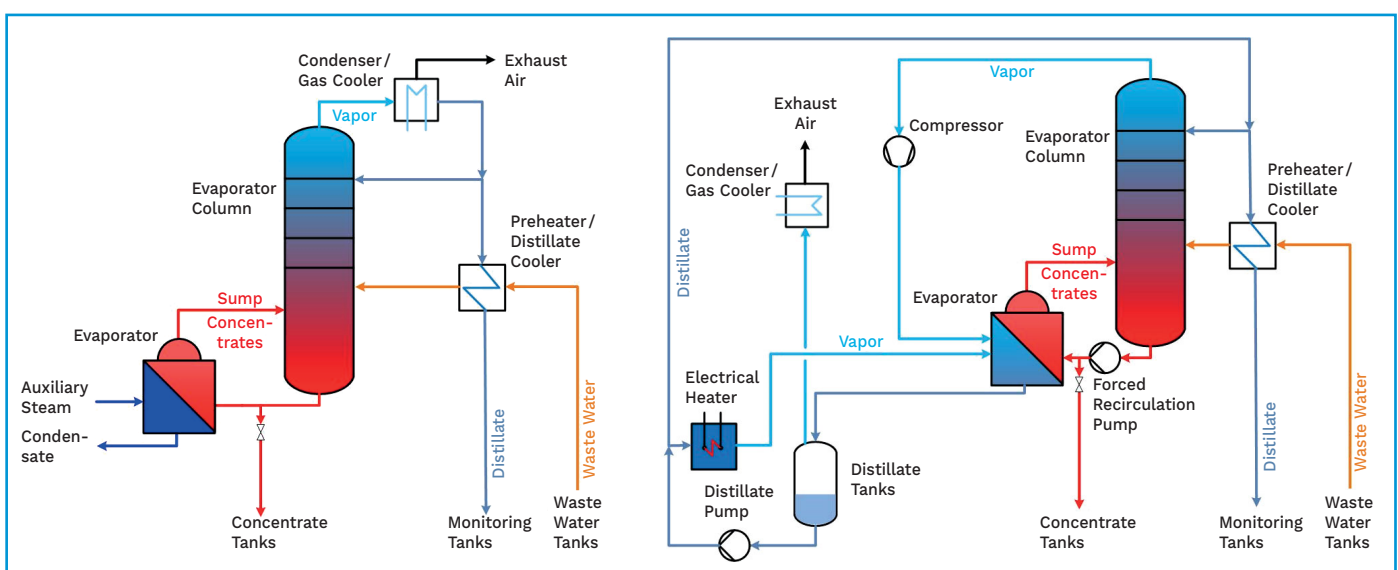
One of the most effective methods for chemical and radiological purification of waste water is evaporation.

During the evaporation process, water is removed from solids like salt and nuclides.

Our proven evaporator systems can be installed in power plants with pressure, boiling or heavy water reactors as well as in research centers.

Customer benefits

- Minimized discharge of radioactivity, chemical and solid impurities
- High decontamination factor
- Customized application to ideally fit desired mass flows and space availability
- Continuous and automatic operation without the need for constant supervision



Flow diagrams of different system variants. Natural circulation (left) and forced circulation with vapor compression (right).

Technical information

Depending on customer needs, evaporator units can be designed in different variants.

- Natural circulation with and without vapor compression
- Forced circulation with and without vapor compression

Design Data

- System throughput: 0.25 to 7 m³/h (1 to 30 gpm)
- Decontamination factor (bottoms/distillate) up to 10⁷ (adapted to special plant requirements)

Scope of Services

- System engineering and consulting
- Application and chemistry consulting
- Conceptual design and detail design
- Hardware supply
- Installation, start-up
- Turnkey system packages

Engineering, component design, and manufacturing is freely adaptable according to various standards (EU, US, China etc.)

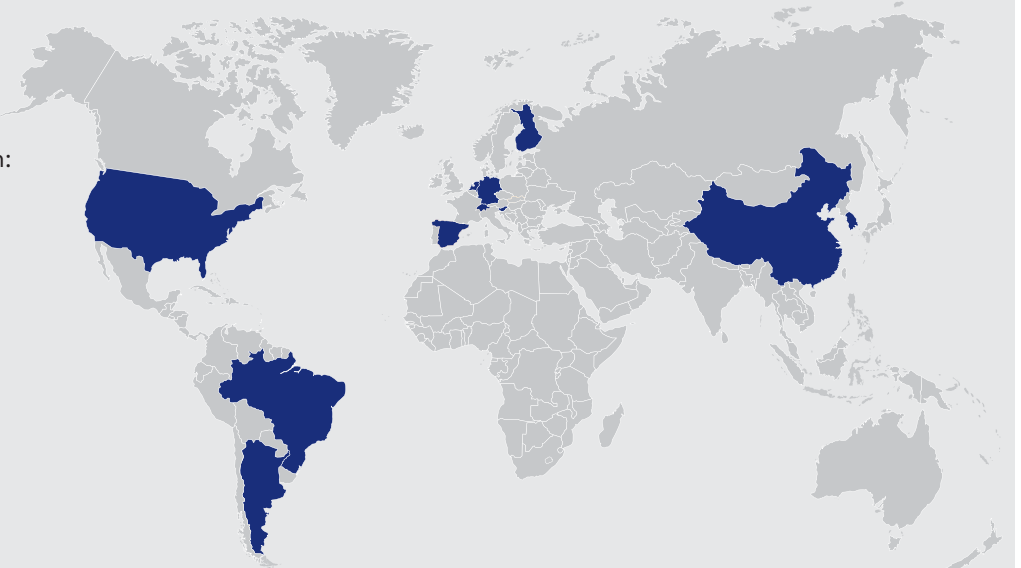


Installed evaporator unit

References

Framatome has designed, installed and commissioned numerous evaporator units in:

- Argentina
- Brazil
- China
- Finland
- Germany
- Netherlands
- Slovenia
- South Korea
- Spain
- Switzerland
- United States



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