

DEM&MELT

Innovative in-can vitrification process

Orano has over 40 years of commercial high-level waste vitrification experience, producing up to 1,100 glass canisters per year with significant waste loading—approximately 1 curie per gram of glass.

Our DEM&MELT process is a robust, simple, and versatile in situ vitrification process for decontamination and decommissioning (D&D) and remediation waste. The in-can vitrification process is an innovative solution for treating intermediate and high level waste arising from remediation and D&D. DEM&MELT operates within a compact unit, ensuring significant volume reduction, safe radionuclide containment, and waste stabilization.

The modular design is fully adaptable to nuclear operators' requirements and features:

- Compact size that can be implemented in a decommissioned cell or close to the waste to be treated
- Low investment and operating costs
- Canister is used as the melter—no pouring device, therefore no corrosion issue
- Heated by a simple and robust resistance furnace



Full-scale pilot fully commissioned in 2020

- Optimum homogeneity in the melted mixture
- Efficient temperature control and volatility management
- Highly efficient off-gas treatment system
- Suitable for solid or liquid waste, including
 - Zeolites
 - Liquids
 - Deposits
 - Solids
 - Sludge



DEM&MELT is a full and integrated solution

- Flexible enough to accommodate uncertainties in waste composition
- Designed to produce a small amount of secondary waste

The DEM&MELT process offers a full and integrated solution, ranging from scenario studies and matrix design definition to industrial implementation.

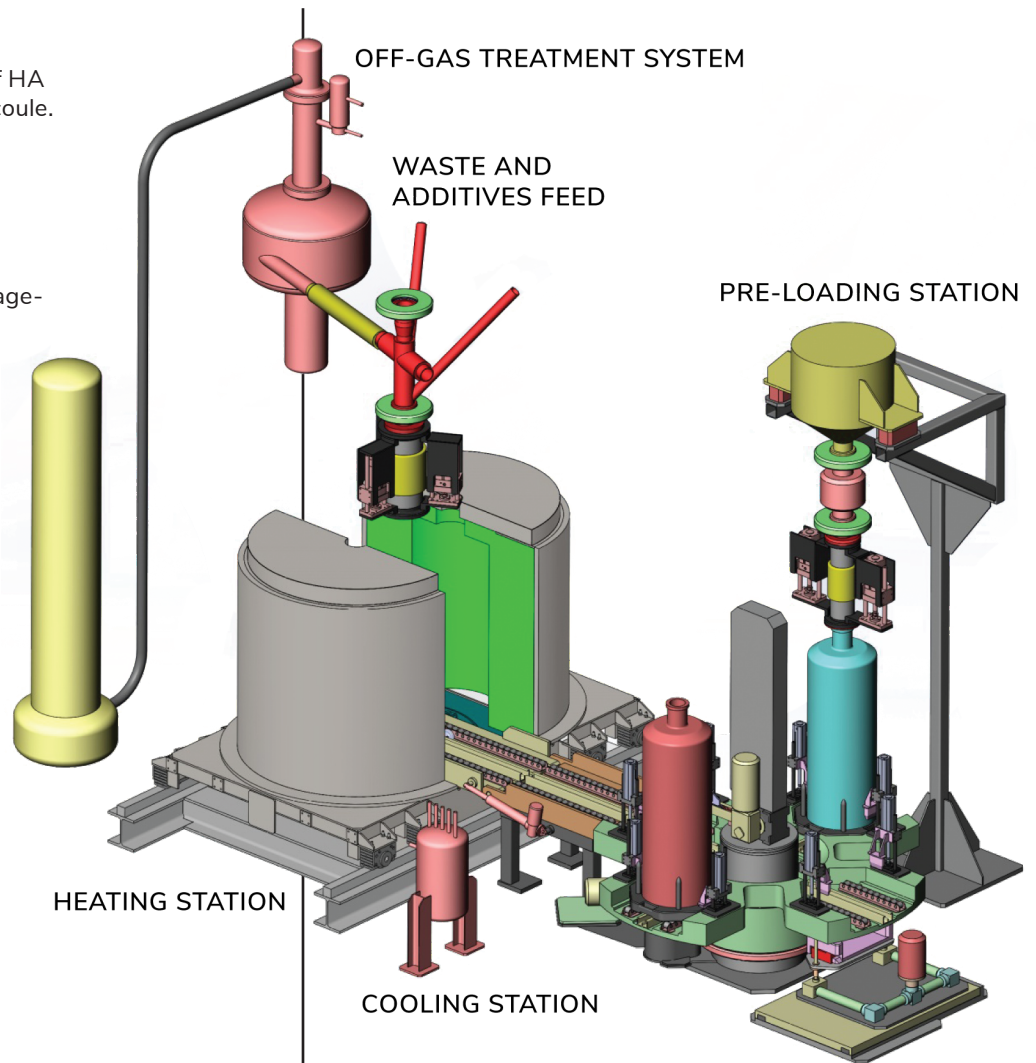
The DEM&MELT design benefits from mature and proven technologies, from upstream functions to downstream functions, and has been used

Orano DEM&MELT

successfully for over 40 years of HA operation at La Hague and Marcoule.

Most of the process functions are already qualified and can be rated TRL9:

- Off-gas treatment system
- Can and final package management functions including handling, supply, evacuation, contamination control, and welding
- Remote-controlled operation and maintenance functions
- Glass formers feeding
- Auxiliary functions



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