

CHALLENGES

The challenge of nuclear waste disposal is both to ensure the safety of goods and people and to remain reasonably priced. Therefore, **the accurate characterization of waste** is essential because it provides necessary information for the selection of the most appropriate storage solution.

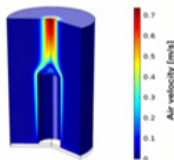
The present case concerns high activity waste mainly composed of $^{90}\text{Sr}/^{90}\text{Y}$. Its characterization **must address specific difficulties** like the impossibility to measure by sampling, the presence of radionuclides hardly detectable by traditional methods, or significant heating of the containers.

SOLUTION

HEAT-CHECK SV is a solution for the characterization of nuclear waste that is based on calorimetry. It quantifies or detects the nuclear materials present in a container using its heat release. It is therefore non-destructive, and not affected by matrices and conditioning.

After a specific thermal study phase, the proposed HEAT-CHECK SV solution could:

- Characterize containers with a 0,7 liter volume
- Measure very important heating powers of about 65W



simulation of natural convection effects in the calorimeter caused by its self-heating

BENEFITS

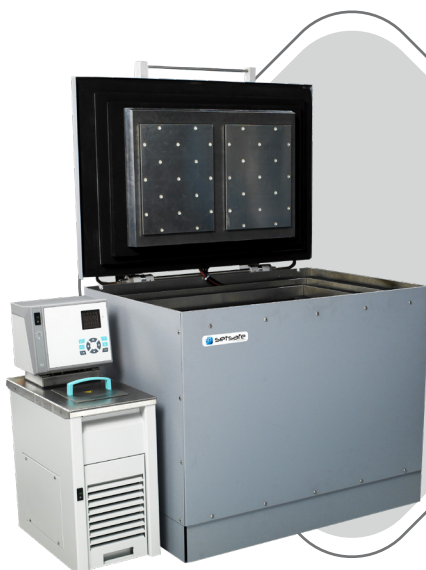
Characterize precisely

- Heat measurements of HEAT-CHECK SV are very reliable
- They can detect beta emitters like $^{90}\text{Sr}/^{90}\text{Y}$ that are hardly detectable by gamma spectrometry or neutron counting

Address specific characterization difficulties

- Measurements are non-destructive and achieved with the container
- The large self-heating effect of the containers is controlled during the measurement

HEAT-CHECK SV



MEASUREMENTS OF SMALL VOLUME WASTE OR CONTAINERS

Up to 3 to 15 liters

QUANTITATIVE AND NON-DESTRUCTIVE MEASUREMENTS

With the highest accuracy for isotopes like plutonium or tritium

RESULTS INDEPENDENT OF MATRIX AND CONDITIONING EFFECTS

Ideal addition to gamma spectrometry

SOFTWARE AND AUTOMATION OPTIONS

For simple and safe use