

QUantitative ANalysis of TOxic and non-toxic Materials

QUANTOM provides proof of waste acceptance criteria in the shortest possible time and ensures the lowest dose rates via remote control.

Challenge

To date, a material characterization review of (legacy) radioactive waste for ultimate disposal usually involves opening of the packages. That opening for visual inspection or sampling is a complex and costly process that includes dose exposure and environmental risks, leads to additional nuclear transports and secondary waste and at the end an extra repackaging effort.

Solution

QUANTOM provides a unique and automated measurement system based on a non-destructive analysis method using the prompt and delayed gamma neutron activation analysis (P&DGNAA) for material characterization.

This innovative waste package inspection system enables the waste producers to verify or, if necessary, complete the material description of the radioactive waste.

A random or full-scope QUANTOM-inspection of waste packages allows the plausibility checking of the declared substances for the inspection lot. This unique possibility of analyzing waste drums non-destructively and without repackaging greatly reduces the radiation exposure of the operating personnel and avoids increasing the volume of waste. On top, QUANTOM will be developed as a mobile system integrated into a 25-ft.-container. That means, QUANTOM can be used directly at the waste storage or at conditioning sites and no extra transportation of packages or samples are necessary.

Currently QUANTOM is designed to analyze 200L-drum waste packages.



View of the QUANTOM® facility

Technical information

- QUANTOM is a material characterization method using a neutron source for excitation
- Measuring by using the prompt and delayed gamma neutron activation analysis (P&DGNAA)
- Mobile Unit
- Transportable in a 25-ft.-container
- High shielding:
Minimize dose rate (<10 µSv/h)
Reduced licensing efforts during measurement campaign
- Equipped with handling crane assembly

Customer benefits

- QUANTOM guarantees proof of compliance with waste acceptance criteria in the shortest possible time with the lowest possible dose rate
- If material & radiological characterization is required, QUANTOM also has the capability to verify or even improve the radiological results from the γ -spectrometry, usually resulting in proof of lower radiation per drum
- Easy verification of existing waste documents
- Reduce opening of waste packages & minimizing reconditioning of waste packages
- Reduce the number of radioactive transports

Key figures

2-4 hours for one drum

50 % Cost Saving

Contact: waste-solutions@framatome.com
www.framatome.com

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