# Joint ICTP-IAEA International School on Radioactive Waste Package Performance Testing

**2 - 29 November 2021**
**An ICTP - IAEA Virtual Meeting**
**Trieste, Italy**

**Further information:**
**http://indico.ictp.it/event/9656/**
**smr3636@ictp.it**

Radioactive waste requires immobilization to meet the waste acceptance criteria (WAC) for storage and disposal. Waste package performance testing is critical aiming to confirm that the final waste package, including the wasteform, fulfils all the specified requirements as stated in the relevant WAC, and to ensure long-term safety.

## Description:

Nuclear energy is a reliable solution to the finite energy supply and climate change issues of fossil fuels. All Member States (MSs) that benefit from the peaceful uses of nuclear energy have radioactive waste that must be managed in a way that it does not present a burden now and to future generations. Thus, long-term durability of waste packages is a key parameter to ensure a high degree of safety during storage, transportation, and disposal.

The most practical approach to obtain a better understanding of the durability of waste packages earmarked for disposal is to focus on performance testing of the waste form itself, its compatibility with the waste container, and the influence of proposed geochemical disposal conditions.

Since the waste form is considered the primary barrier for radionuclide release, the focus is on waste form properties. This is particularly the case of many legacy and novel waste streams as well as for the novel waste forms devised to improve the retention of contaminants, where performance testing is necessary to approximate long term lifetimes.

While it is recognised that short-term waste package performance testing does not accurately define long-term durability, waste package performance testing results provide a first indication of relative long-term waste package performance and are therefore included in many repository waste acceptance criteria.

## Topics:

**Specific topical areas within the scope of this workshop includes:**

- In depth description of international wasteform quality control protocols with illustrated examples (for instance water content, penetration, viscosity, leaching test, differential thermal analysis (DTA), flammability, radiolysis and radiation durability).
- In depth description of international waste container quality controls with illustrated examples (for instance mechanical tests, corrosion and radiation resistance properties).
- International protocols regarding long-term durability determination of total waste package (for instance leaching, mechanical strength, transportation requirements, radiation durability and geochemical durability).
- Wasteform-waste container compatibility.
- New testing protocol developments.

## Directors:

**D. GREGG, ANSTO, Australia**
**W. MEYER, IAEA, Austria**
**M. OJOVAN, Imperial College London, UK**
**R. ROBBINS, IAEA, Austria**
**J. RYAN, PNNL, USA**

## Local Organiser:

**N. SERIANI, ICTP, Italy**

## How to apply:

**Online application:**
**http://indico.ictp.it/event/9656/**

**Female scientists are encouraged to apply.**

## Registration:

**There is no registration fee.**

## Deadline:

**28 October 2021**

IAEA
International Atomic Energy Agency

The Abdus Salam
International Centre
for Theoretical Physics
www.ictp.it
Trieste, Italy