FIRST-Nuclides
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2nd Annual Newsletter

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| Dissemination Level | Description | | --- |
| PU | Public | X |
| RE | Restricted to a group specified by the partners of the FIRST-Nuclides project |
| CO | Confidential, only for partners of the FIRST-Nuclides project |
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(D-N°:5.10) – 2nd Annual Newsletter
Dissemination level: **PU**
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About FIRST-Nuclides

The Collaborative Project "Fast / Instant Release of Safety Relevant Radionuclides from Spent Nuclear Fuel (FIRST-Nuclides)" started in January 2012 and extends over three years. It falls within the European EURATOM (European Atomic Energy Community) program and is implemented within the European Commission’s 7th Framework Program.

The project consortium consists of 10 Beneficiaries, 6 End User Members from National Waste Management Organizations and 11 Associated Groups.

The overall objective of the FIRST-Nuclides project is to provide for improved understanding of the fast / instantly released radionuclides from disposed high burn-up UO₂ spent nuclear fuel.

Coordinator: Bernhard Kienzler and Volker Metz (Karlsruhe Institute of Technology, KIT)
Scientific-Technical Secretariat: Lara Duro and Alba Valls (Amphos 21)

2nd Annual Newsletter

The objective of the Annual Newsletters is to inform the project beneficiaries and the broader community on the progresses achieved within the FIRST-Nuclides project.

This edition falls together with the 1st Periodic Activity and Management Report.

The 2nd Annual Newsletter provides a brief description of the current status of each workpackage. Sources where information of interest for the project can be found is provided, as well as the institutions participating in FIRST-Nuclides and the last news of the second year of the project.

In the last news section, the main issues related with the project such as training activities, next events, etc. are addressed.
Workpackage status

• **WP1: Samples and tools**

This WP was planned to be finished at month 18. During this period, all participants collected theoretical and experimental data on various \(\text{UO}_2\) HBU-SNF* materials, which were available for subsequent studies within CP FIRST-Nuclides. Since there are delays in the documentation and with the sample preparation of HBU-SNF materials used by JRC-ITU and CTM, it was decided to extend WP1 until project month 33. Within the extension period, sample preparation and characterization will be completed and all available data will be documented. As a consequence, a deliverable D1.3 is defined as an update of D1.2 in order to include all information of the characterization of all HBU-SNF samples.

• **WP2: Gas release + rim and grain boundaries diffusion**

In general, the progress of the experiments scheduled to quantify the release of fission gases and grain boundary diffusion are in agreement with the work planning.

**JRC-ITU** has reported a delay with the starting of the experiment due to a delay on the ownership transfer of fuel. This deviation has not caused any impact on the expected results or in the use of resources.

• **WP3: Dissolution based release**

Almost all the experimental work on quantifying the fast release of gaseous and non-gaseous activation/fission products is done as scheduled. Two experiments are slightly delayed with any impact on the outcome results expected in this WP.

JRC-ITU and CTM reported a delay attributed to a retardation on the sample preparation and characterization. Sample preparation in the PSI hot cells is delayed due to overbooking of the facility and it will be prepared during the next reporting period.

• **WP4: Modelling**

The modelling of the migration/retention processes of fission product in the spent fuel structure is developed as scheduled.

Deliverable D4.2, led by Amphos21, were delayed due to a maternity leave without consequences on the workpackage objectives.

• **WP5: Knowledge, reporting and training**

All the elaboration of the state of the art, the dissemination of the knowledge generated within the project through different communication ways and organization of training activities are in progress. The first update of the state of the art are slightly delayed.
Find at
www.firstnuclides.eu

**General Information**
General information: project organization, topics of interest, activities in the frame of the project, etc.

**Events & Training activities**
Information regarding the forthcoming events and training activities.

**Interested? Questions? Comments?**
Please, do not hesitate to contact the coordination team for specific information:
info@firstnuclides.eu

**Technical Information**
Detailed information on the work performed in each workpackage and results obtained during the first year of the project:
- 1st Annual Proceedings
- Deliverables submitted to the EC

**Last News & Events**

- The **first periodic report** has been submitted to the commission by end of August. The final periodic report will be at the end of the project.

- The **lab exchange meeting** was held at PSI facilities with the aim of discussing analytical and technical issues for the experimental work with the spent nuclear fuel samples.

- A **Training Course** aiming on teaching young scientist from beneficiary or AG institutions on spent nuclear fuel behaviour was organized by KIT/INE, JRC-ITU and AMPHOS 21. It was held at KIT/JRC-ITU facilities (9-10th July 2013). The global punctuation given by the attendees was 4.7 over 5 due to the quality of the lectures and laboratory visits and the excellent organization.

- **Training mobilities:** Two of the three foreseen training mobilities have been successfully completed.
  - **Albert Martínez** (CTM): 25th February to 9th March 2013 (KIT/INE)
    Study of the effect of a-radiolysis on \( \text{UO}_2\text{(s)} \) grain / matrix dissolution, using \(^{238}\text{Pu}\) as a-emitter, at low and high ionic strength under alkaline conditions.
  - **Péter Szabo** (MTA): 8-19th July 2013 (KIT/INE)
    Specific training on hot-cell work and experimentation with spent nuclear fuel samples.

- The **2nd Annual Workshop** will be held in Antwerp (Belgium), 5-7th November 2013. It will be hosted by SCKCEN. The main outcome of the workshop is the elaboration of the proceedings with contributions describing the technical work performed during the second project year.
FIRS-Nuclides participants

The institutions/organizations involved in the project and its activities can be divided into: beneficiaries, end-users-group (EUG) and associated groups (AG).

**Beneficiaries** are in charge of the implementation of the Project.

**EUG** review the work done by beneficiaries.

**AG** are institutions which present an interest on the Project.

**Website FIRST-Nuclides:**

www.firstnuclides.eu