

WP4 Webinar Summary

Webinar Date	February 16, 2021
Webinar Time	13:00 to 16:00 CET
Chair	Bernd Grambow and Abdesselam Abdelouas
Prepared by	Abdesselam Abdelouas, Bernd Grambow and Tim Schatz

Background

The PREDIS project hosted a technical webinar (*Innovations in metallic material treatment and conditioning*) on February 16, 2021. This webinar was focussed on the goals and objectives of work package 4 (WP4) and is the second in a series of technical webinars to also include solid organic waste treatment and conditioning (WP6), liquid organic waste treatment and conditioning (WP5) and waste acceptance criteria (WP2).

The WP4 leaders put together a program (see Appendix 1 for agenda) that consisted of two sessions of presentations by invited speakers and WP4 partners. The presentations in the first session covered the management strategies of metallic waste by end-users including utility, waste management and service companies, survey results on metallic waste inventories across Europe and IAEA's perspective on metallic waste management. The presentations in the second session focussed more on technical issues related to specific decontamination activities in nuclear power plants as well as encapsulation of metallic waste and its radiological characterization. This session concluded with presentations on the decontamination, characterisation and confinement technologies being developed in WP4. The presentations are available on the PREDIS website (<https://predis-h2020.eu/wp4-webinar-16-2-2021/>).

Following the formal presentation sessions, a set of small group discussions were held. Attendees were randomly assigned to 1 of 4 moderated breakout rooms. The aim of the 30-minute discussion session was to gather end user (and broader) information on future objectives in metallic waste management, the gaps standing in the way of meeting those objectives and input on the technologies being developed in WP4.

In all, more than 130 participants registered to attend the webinar from 24 countries including some from outside Europe. Representation was divided between end user group members + general stakeholders and consortium partners at 55% to 45%.

Over the course of the webinar live-polling was conducted. Poll questions were intended to gauge feedback and opinions on the biggest challenges in the predisposal management of metallic waste, the urgency with which these challenges need to be met and the primary focus of near-term R&D related to metallic waste treatment and conditioning.

Outcomes

Some key takeaways from the deliberations of the discussion sessions were as follows:

- ☐ Industrial procedures for metallic waste decontamination exist in various European countries for clearance or declassification. These involve mechanical and chemical techniques as well as melting at specialized facilities.
- ☐ Challenges remain with chemical decontamination regarding the management of the residues/secondary waste. Some chemical compounds are not acceptable for disposal and waste acceptance criteria (WAC) are getting more and more strict.

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- ▣ In spite of the technical advances made in the management of metallic waste, costs remain a significant obstacle.
- ▣ Small volume inventory holders are in the position of choosing between treatment, conditioning and disposal versus (very) long-term storage.
- ▣ Improvement of radiological characterization methods is an important issue for clearance and waste conditioning in special matrices.
- ▣ Gamma cameras are useful to obtain the distribution of the activity in a container or a large component. Portable devices should be improved for better characterization under specific circumstances.
- ▣ Many uncertainties in neutron activation calculations exist and should be reduced for accurate characterization of metallic waste.
- ▣ Hydrogen production remains a major issue for the geological disposal of reactive metallic waste. The waste load in the encapsulation matrix should be carefully estimated. The effect of leaching and irradiation should be evaluated. The cost of the promising magnesium phosphate cement should be decreased.
- ▣ There is a commercial pathway to cross-border, mobile treatment of small waste volumes, but it won't be easy.
- ▣ Segregation and characterization are critical aspects of metallic waste management; more consideration should be given to clearance levels and recycling and reuse.

Live-polling indicated (see Appendix 2 for all live-polling results):

- ▶ The majority of respondents registered for the webinar to increase their general knowledge.
- ▶ The majority of respondents considered treatment and conditioning to be the biggest challenge in the predisposal management of metallic waste.
- ▶ The majority of respondents thought that the challenges in the predisposal management of metallic waste need to be met over the next 5 to 10 years.
- ▶ The majority of respondents agreed that the primary focus of near-term R&D related to metallic waste treatment and conditioning should be focussed on volume reduction.

Overall, the level of interest and satisfaction with the WP4 webinar was favourable. The webinar had a high retention rate (> 63%) to its close. Preliminary analyses of participant responses to a post-webinar survey also indicated a good level of satisfaction (average overall score of 4.2/5.0). Participants also reflected that more time for discussions in the breakout rooms would have been beneficial.

The WP4 webinar will be further summarized in PREDIS Newsletter #2 which is planned for publication in April 2021.

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Appendix 1. WP4 Webinar Agenda

Innovations in Metallic Waste Treatment and Conditioning

Section 1: Objectives (13:00 to 14:10)

- Welcome (Erika Holt, VTT)
- PREDIS WP4 Scope and Objectives (Bernd Grambow, IMT)
- Metallic Waste Management & Characterisation
 - José Luis Nieto (ENRESA, Spain)
 - Alys Devine (UNS, UK)
 - Clément Bocquier (EDF, France)
- Results of PREDIS WP4-6 inventory questionnaire (Adam Fuller, GSL)
- IAEA Perspective (Rebecca Robbins, IAEA)

Section 2: Selected Work Items (14:20 to 15:10)

- Decontamination activities in NPP (Erik Komocar, NEK)
- Stability of magnesium phosphate cement as host matrix for metallic waste (Céline Cau Dit Coumes, CEA)
- Uncertainties in neutron activation calculations (Stefan Coninx, DTM)
- Technologies being developed in PREDIS WP4
 - Needs & Opportunities (Adam Fuller, GSL)
 - Decontamination (Abdesselam Abdelouas, IMT)
 - Characterization (Anastasia Savidou, NCSR)
 - Confinement (Céline Cannes, CNRS)

Section 3: Breakout Room Discussions (15:10 to 15:40)

- What are the most pressing challenges in the management of metallic waste?
- What should R&D be focussed?

Section 4: Conclusions (15:40 to 16:00)

- Feedback from breakout rooms
- Summary and conclusions

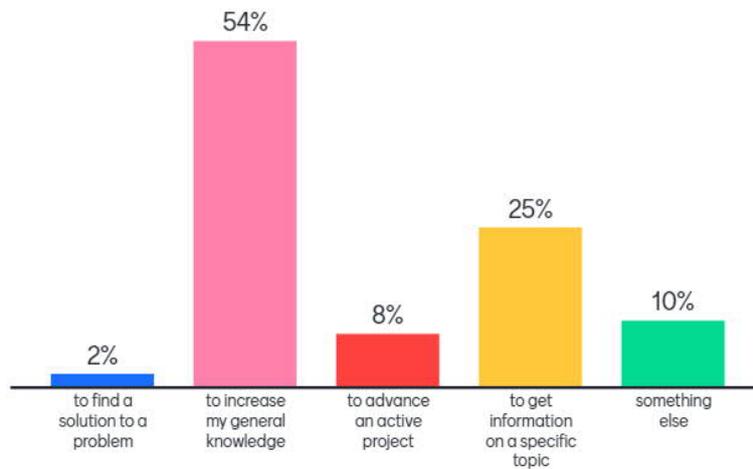
16:00 Adjourn

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Appendix 2. Live-Polling Results

Why did you register for this webinar?

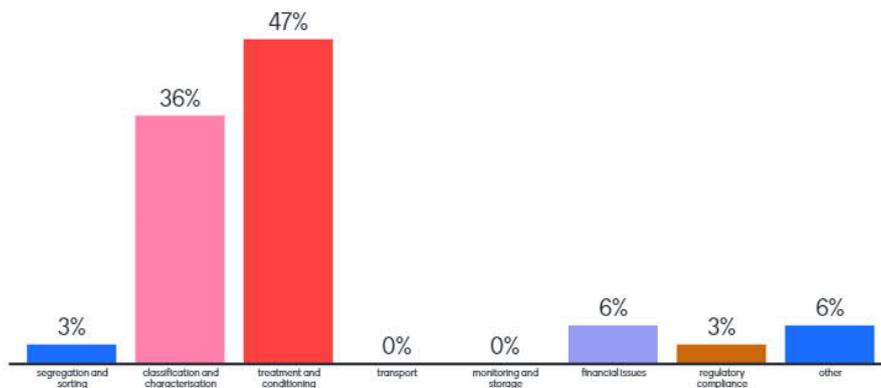
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What is the biggest challenge in the predisposal management of metallic waste?

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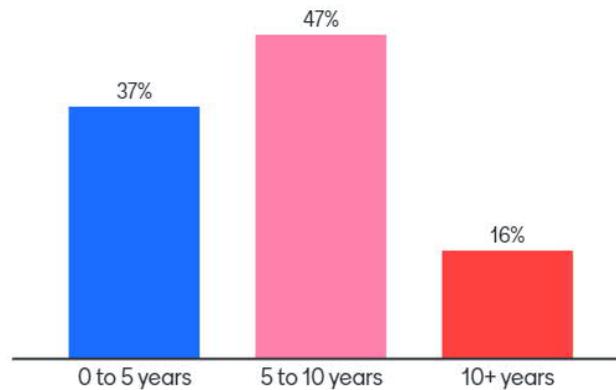


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What is the urgency for which the challenges in the predisposal management of metallic waste need to be met?

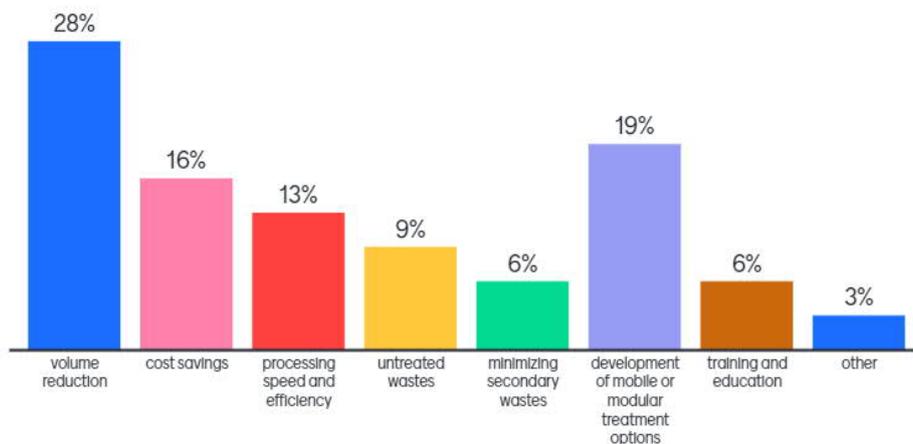
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What should be the primary focus of near-term R&D related to metallic waste treatment and conditioning?

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