



PREDIS

Update on PREDIS Project Work on WAC Issues Key takeaways from PREDIS WAC webinars

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PREDIS Task 2.3 Waste Acceptance Systems

Overall objective of the subtask:

- **The advice on establishing a waste acceptance system for programmes with different size and stage of development**

Steps:

- **Collection of information to be used and elaborated in the following sub-tasks**
- **Assessment of methods used for waste characterisation, considering technical and economic aspects**
- **Advice on the approach and practicalities regarding waste qualification process**
- **Creating a set of generic waste acceptance criteria that can be used by programmes with different levels of development**

Motivation of Webinars

- **WAC issue addressed in different projects and international activities**
- **Approaches and outcomes follow goals of a particular project**
- **EC calls for the coordinated effort to systematically advise on WAC issues**
- **Searching for opinion of main stakeholders**
- **Two seminars performed:**
 - **Information and Resources (21 April 2021)**
 - **Needs, Challenges, and Opportunities (20 May 2021)**

Webinar 1: Information and Resources

Sharing information and experience regarding WAC from

- **EC projects - PREDIS, EURAD-ROUTES, CHANCE, THERAMIN, MICADO, LWC/ERDO**
- **International institutions - NEA/OECD, IAEA**
- **8 presentations**
- **4 Breakout Room discussions**
- **About 200 registered participants**

Webinar 2: Needs, Challenges, and Opportunities

Highlights of Webinar 1 & Historical excursion to WAC story

Expressing position of:

- EC
 - Waste generators (small & large)
 - Operator of Cross-Border Waste Treatment facility
 - Waste management organisation
 - Nuclear regulator
- 9 presentations
 - 4 Breakout Room discussions
 - About 150 registered participants
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Presentations and more information

<https://predis-h2020.eu/events/>



Challenges in developing and/or modifying WAC

- **Different types of institutions are responsible for developing and implementing WAC in different countries**
- **A systematic application of common criteria would help to ensure the widespread application of best practice**
- **There is greater confidence in using established (verified and tested) approaches (comparing to innovative ones)**
- **Looking for WAC harmonization when treatment/conditioning results in waste category change (e.g. from LLW to ILW)**

The needs of less mature RWM programmes

- **A lack of clear regulations may result in waste storage instead of its disposal**
- **WAC can be regarded also as an instrument helping to design a national policy/strategy for waste management**
- **Purchasing a conditioning technology together with a proof of the long term performance of the waste form may ease otherwise arduous waste form qualification process**
- **Advice on how to treat uncertainties in the WAC context**

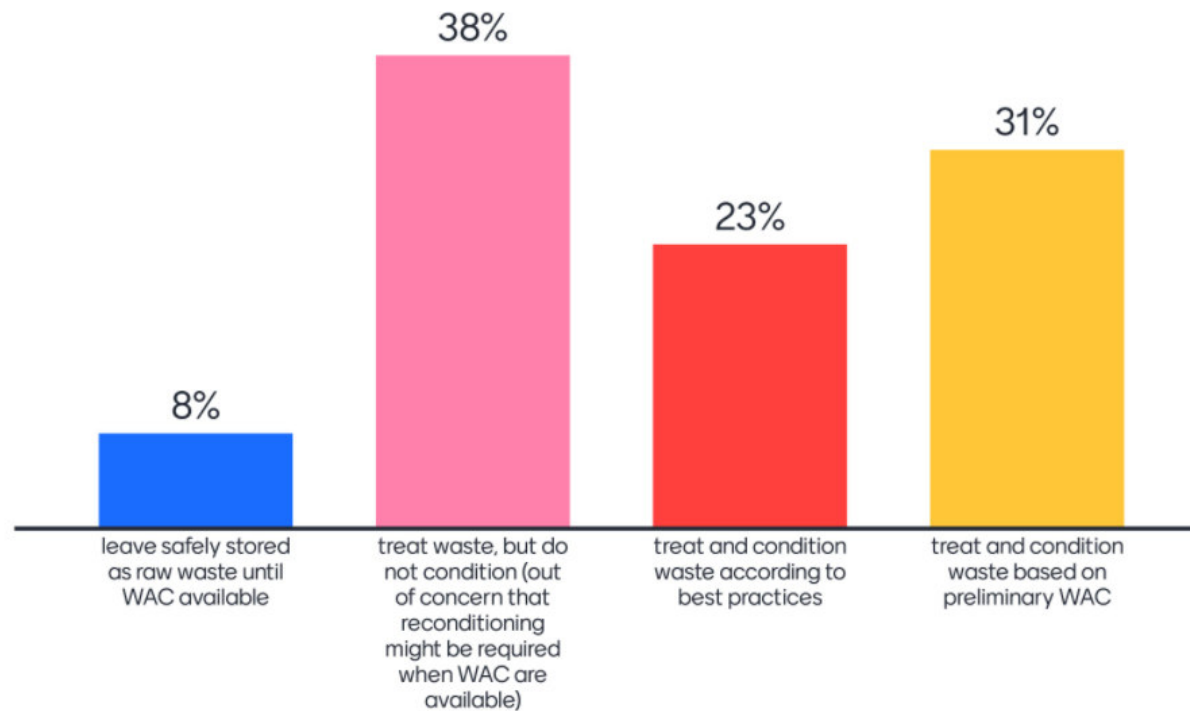
RW characterisation & WAC development

- **Chemical, physical and other properties may be more important than radiological properties***
- **International harmonisation of methodology may ease problems**
- **Communication gap exists between characterization (laboratory-oriented) and WAC establishment (engineering-oriented)**
- **New waste forms still pose a challenge to the establishment of WAC**
- **The characterization, both radiological and chemical, should be performed on raw waste as early as possible**

Solving WAC when repository is missing

- **Need to assess the pros and cons of delaying the conditioning (liquids be solidified)**
- **RW processed without disposal WAC needs re-characterisation followed by a decision on re-processing: archiving characterisation data may help in waste form re-assessment**
- **Reversible packaging might be a solution: this allows for easy RW handling and decision making**
- **UK ,Letter of Compliance‘ process can help in formulating WAC**
- **Design of a LLW repository may be adapted to accept any waste form generated prior the design has existed**
- **Generic WAC may be developed based on international experience***

In the absence of disposal solutions and/or WAC, what should be the approach to pre-disposal?



Other issues

- **Cross border cooperation and sharing experience in technology implementation may be supportive for WAC specification**
- **Development of WAC for new matrixes (e.g. geopolymers) remains a challenge ***
- **Predisposal technologies specify requirements on input waste streams = WAC for processing**
- **Predisposal and disposal WAC shall optimally be formulated together**
- **Shared disposal facility – currently unrealistic - may help to solve non-proliferation issue (collecting and control of fissile materials), but hardly other ILW/HLW due to their huge volume**
- **From practical point of view, there are only two waste categories: those acceptable to shallow land facilities and those requiring geological disposal**

Highest priority activities

- **Need for shared predisposal solutions** (facilities and/or technologies), **including characterization** (mobile units, etc.)
- **Shared approach shall consider also regulatory activities**
- **Searching for common approaches to characterization and representative sampling of legacy waste**
- **Formulating requirements relating to hazardous / toxic waste as they may call for a different approach to its management compared to requirements defined for radioactive waste**

Where would shared solutions and information provide the most benefit regarding WAC?



ROUTES-PREDIS cooperation

- Exchange of the gained information,
- Coordinate the effort, and
- Prevent overlapping

Note: As some institutions are participating in both projects, it is anticipated that the information exchange will be informal and effective

Summary of the main issues

- **More focus be put on legacy waste sampling/characterization methods**
- **The determination and development of the methodology of quantifying parameters for the important features of WAC**
- **SIMS option: sharing the technology and regulatory activities**
- **The trade-off between early conditioning and postponed conditioning should be explored**
- **Harmonisation of WAC among countries is useful**
- **Call for coordinated approach in EC, IAEA, NEA projects**

Thank you for your attention

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