

WP6 Webinar Summary

Webinar Date	March 9, 2021
Webinar Time	13:00 to 16:00 CET
Chair	Thierry Mennecart
Prepared by	Thierry Mennecart and Tim Schatz

Background

The PREDIS project hosted a technical webinar (*Innovations in solid organic waste treatment and conditioning*) on March 9, 2021. This webinar was focussed on the goals and objectives of work package 6 (WP6) and is the third in a series of technical webinars from the PREDIS project. Upcoming webinars ([register here](#)) will examine liquid organic waste treatment and conditioning (WP5) and waste acceptance criteria (WP2). Previous webinars have addressed [cemented waste package monitoring and storage \(WP7\)](#) and [metallic material treatment and conditioning \(WP4\)](#).

For their webinar, the WP6 leaders put together a program (see Appendix 1 for agenda) that consisted of two sessions of presentations by invited speakers and WP6 partners. The presentations in the first session covered the management strategies of solid organic waste including the treatment of problematic waste using a variety of thermal technologies (by end-users including waste management and service companies), survey results on solid organic waste inventories across Europe and IAEA's perspective on solid organic waste management. The second session began with a presentation on the EURAD-ROUTES work package which aims to describe and compare the different approaches to characterisation, treatment and conditioning and to long-term waste management routes between EU member states making it uniquely positioned for good collaboration with the PREDIS project. Following this, a specific description on the disposal of geopolymer-conditioned waste was given by a WMO. The second session concluded with presentations on the hot isostatic pressing, geopolymer immobilization and some decomposition technologies being developed in WP6. The presentations are available on the PREDIS website (<https://predis-h2020.eu/wp6-webinar-9-3-2021/>).

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 solid organic waste management, the gaps standing in the way of meeting those objectives and input on the technologies being developed in WP6.

In all, more than 160 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 54% to 46%.

Thirty minutes after the start of the webinar, the number of attendees online was 113.

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 solid organic waste and the primary focus of near-term R&D related to solid organic waste treatment and conditioning.

Outcomes

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

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- ▣ A key problem is the disposability which is strictly regulated and with which treated and conditioned wastes must comply; good cooperation with regulators is needed. Disposability is the ultimate goal.
- ▣ One main problem is the lack of resources available to investigate and implement innovative and novel proposed processes, beyond more routine waste treatments including the general difficulty of disposability assessment for novel or conceptual processes that requires development or adaptation of existing facility WAC.
- ▣ Electrochemical methods for the degradation of resins are another possible treatment option.
- ▣ New and better ways to manage IERs would be welcome; optimization of incineration and geopolymer immobilization techniques is of interest.
- ▣ In-drum pyrolysis of bituminized waste is also a possible option and can be applied to cellulosic waste.
- ▣ It will be important to compare the impact of various technologies on sustainability and wider environmental aspects along the predisposal management chain (treatment, conditioning and storage).
- ▣ There is a general interest and acceptance of thermal treatment technologies. Moreover, it is commercially available and can be operated in mobile fashion.
- ▣ For those with large volumes of waste, technologies leading to volume reduction will be of interest. However, making such technology available to those managing small volumes of waste should be kept in mind.
- ▣ HIP is a very interesting technique as there is no volatilization; however, there is a significant cost barrier.
- ▣ Behaviour of heavy metals is an uncertainty.
- ▣ The technological output of the PREDIS project should be consolidated and standardized with respect to WAC.
- ▣ The objective is not necessarily to prove that one technique is better than another, but rather that any waste product is safe and meets applicable WAC. Compliance of waste forms with WAC should be robust, i.e., not sensitive to waste composition, which will make them easier to accept and, therefore, more cost effective.
- ▣ It will be important to increase the waste loading of geopolymer matrices to reduce the costs, both in absolute terms and compared to other matrices.
- ▣ Treatment by thermal plasma technology is limited by torch lifetimes.
- ▣ The oxidation methods under development look promising but they are at a low TRL.
- ▣ Viable waste treatment methods should be scalable, applicable to wide range of waste streams and provide cost effectiveness.
- ▣ Lack of good waste stream characterization data (particularly for historical wastes) make it difficult to select the most appropriate treatment technology.

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

- ▶ The majority of respondents registered for the webinar to increase their general knowledge.

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- ▶ The majority of respondents considered characterisation and conditioning to be the biggest challenges in the predisposal management of solid organic waste.
- ▶ The majority of respondents agreed that volume reduction and legacy wastes should be the primary focus of near-term R&D related to solid organic waste treatment and conditioning.

Overall, the level of interest and satisfaction with the WP4 webinar was favourable. The webinar had a high retention rate (> 65%) to its close. Preliminary analyses of participant responses to a post-webinar survey also indicated a good level of satisfaction (average overall score of 4.3/5.0). Participants also reflected that more topical discussions in the breakout rooms would have been beneficial.

The WP6 webinar will be further summarized in PREDIS Newsletter #2 which is planned for publication in April 2021.

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Appendix 1. WP6 Webinar Agenda

Innovations in Solid Organic Waste Treatment and Conditioning

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

- Welcome (Erika Holt, VTT)
- PREDIS WP6 Scope and Objectives (Thierry Mennecart, SCK CEN)
- Solid Organic Waste Management
 - Solid organic waste: a WMO perspective (Katrien Meert, ONDRAF/NIRAS)
 - Treatment of problematic waste by thermal technologies (Jurgen Hansen, Belgoprocess N.V.)
 - An overview of solid organic waste management & expectations from WP6 (Anders Puranen, SVAFO)
- Results of PREDIS WP4-6 inventory questionnaire (Adam Fuller, GSL)
- IAEA Perspective (Rebecca Robbins, IAEA)

Section 2: Selected Work Items (14:15 to 15:05)

- EURAD – ROUTES WP (Elisa Leoni, IRSN)
- Disposal of geopolymer conditioned waste in the Czech Republic (Jiří Faltejsek, SURAO)
- Technologies in PREDIS WP6
 - HIP for densification (Charlie Scales, NNL)
 - Immobilisation of treated wastes with geopolymers or cement-based materials (Maria Cruz Alonso, CSIC)
 - Wet Oxidation (Francesco Galluccio, POLIMI and Sam Walling, USFD)
 - Molten Salt Oxidation (Jan Hadrava, CVRez)
 - Molten Glass Coating (Hélène Nonnet, CEA)

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)

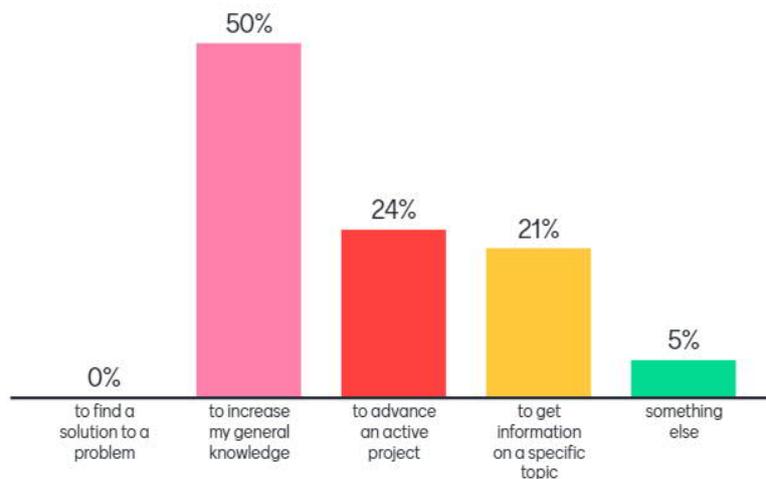
- Feedback from breakout rooms
- Summary and conclusions

16:00 Adjourn

Appendix 2. Live-Polling Results

Why did you register for this webinar?

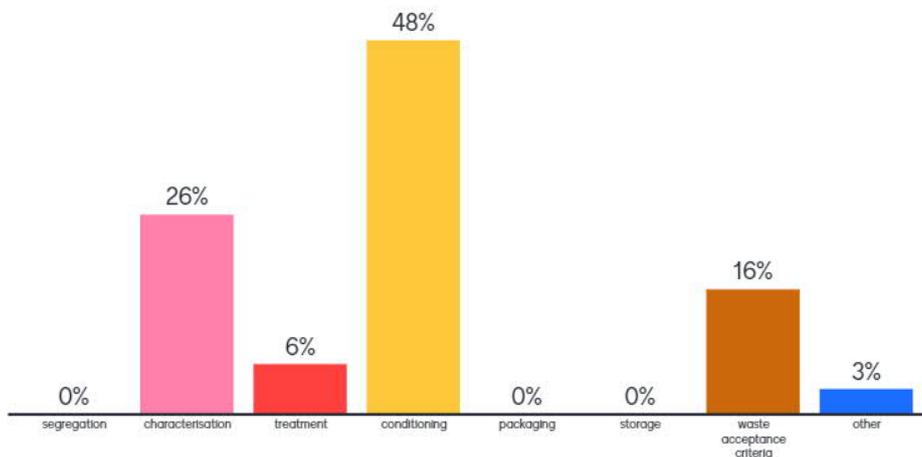
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What is the biggest challenge in the predisposal management of solid organic waste?

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

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