

4th European Sustainable Phosphorus Conference (ESPC4)

with Nutrient Recovery Technology Fair
and 5th European Phosphorus Research Meeting (PERM5)
20 – 22 June 2022, Vienna Austria - and online (hybrid)

Andaz Vienna Am Belvedere (Hyatt), Arsenalstrasse 10, Vienna, Austria.

v21/1/2022 Programme updates and registration <https://phosphorusplatform.eu/esp4>



ESPC4 – Day 1 - Monday 20th June 2022

9h00 – 10h15 – Plenary - Opening and keynotes – Climate, nutrients and eutrophication

- P Climate, energy, agriculture: What has to be done about phosphorus and nutrients?
Franz Josef Radermacher, Research Institute for Applied Knowledge Processing (FAWn), Germany
- P Interactions between climate change, phosphorus losses and eutrophication:
Wenfeng Liu, China Agricultural University.

10h15 – 11h00 – break – posters – stands - Tech Fair - networking

11h00 – 12h45– Plenary – EU, regional, national and city phosphorus policies

- P What the Green Deal means for EU policies on nutrients
Virginijus Sinkevičius European Commissioner for Environment
- P Implementation of Germany's 2017 P-recycling regulation and of Switzerland's 2016 P-recycling regulation: *Sibylla Hardmeier, Swiss Federal Office for the Environment (BAFU): Overview of developments, case studies*
- P Implementation of Germany's 2017 P-recycling regulation:
Andrea Roskosch, German Federal Environment Agency (UBA)
- P Case study Switzerland: *Leo Morf, AWEL Zürich*
- P Vision for implementation of the German P-recovery obligation by a regional water operator:
Uli Paetzel, Emschergenossenschaft and Lippeverband
- P Case study Switzerland: *Leo Morf, AWEL Zürich*
- P Perspectives for nutrient policy and action for the Baltic, *Lotta Ruokanen, HELCOM*
- P Towards national phosphorus recycling policy in Austria: *Arabel Amann, TU Vienna*
- P Case study: Vienna City (5"), *Florian Huber, Vienna City Administration, with Wien Energie*

14h15 – 15h45 – Parallel sessions

List of speakers for parallel session below

- ← **Nutrient recovery operating experience technology showcase**
(companies in ESPP-DPP-NNP Nutrient Recovery [Technology Catalogue](#))
Moderator/rapporteur: Karyn Georges, Isle Utilities & Bertrand Vallet, EurEau
- ← **Phosphorus recovery from ashes**
Moderator/rapporteur: Paulo Pavinato, University of São Paulo & TBD
- ← **Biochars and hydrothermal carbonisation**
Moderator/rapporteur: Céline Vaneekhaute, Université Laval, Québec, Canada & TBD

16h30 – 17h45 – Business perspectives for nutrient sustainability

- P Reports from parallel sessions, questions and discussion
- P Business vision statements from nutrient sustainability leading companies
Jean-Christophe Ades, Kemira
Matt Kuzma, Ostara
Wim Moerman, NuReSy
José María Gómez Palacios, Biomasa Peninsular
Henk Aarts, N2 Applied
Hubert Halleux, Prayon
Marina Ettl, Yara
Matthias Staub, Veolia
- P The fertilisers industry, phosphorus sustainability and the Green Deal
Jacob Hansen, Fertilizers Europe
- P Market perspectives for phosphate fertilisers and other uses of phosphorus, and place of recycling:
Alberto Persona, Principal Analyst Fertecon/HIS

19h00 Evening networking event:

Vienna City Town Hall festivities hall (Rathaus Festsaal)

30'' by metro, 50'' by foot from Andaz hotel.

19h00 Pre-dinner drinks. 20h00 Conference dinner,
Viennese music interlude.

22h00 Big John Whitfield & The Vienna Soul Society



ESPC4 – Day 2 - Tuesday 21st June 2022

9h00 – 10h30 – Plenary - EU Policies

- P Implementation of the nutrient loss reduction target set by the Green Deal Farm-to-Fork and Biodiversity Strategies: European Commission, DG Agriculture (tbc)
- P Phosphorus and Organic Farming productivity, Green Deal targets for Organic Farming and perspectives for recycled nutrients
- P Business vision statements from nutrient sustainability leading companies
- P Update on EU water policies, *Michel Sponar, Deputy Head of Unit, Marine Water and Water Industry, European Commission DG Environment*
- P Industry innovation in phosphorus chemistry and sustainability perspectives: *Clariant*
- P Towards an integrated EU approach, the proposed INMAP (EU Integrated Nutrient Management Action Plan).
European Commission DG Environment

11h15 – 12h45 – Parallel sessions

List of speakers for parallel session below

- ← **New fertilisers for nutrient sustainability**
Moderator/rapporteur: Alzbeta Klein, International Fertilizer Association & Hans Ingels, Head of Unit Bioeconomy – Chemicals – Cosmetics, European Commission DG GROW
- ← **Emerging nutrient recovery technologies**
Moderator/rapporteur: Erik Meers, University of Gent and Biorefine Cluster Europe & Ana Soares, Cranfield University, UK
- ← **Policies and regional actions for phosphorus sustainability**
Moderator/rapporteur: Lukas Egle, European Commission JRC (Joint Research Centre) & Geneviève Metson, Center for Climate Science and Policy Research CSPR, Sweden

14h15 – 15h30 – Plenary – Visions and Actions

- P Reports from parallel sessions, questions and discussion
 - P Vision statements from ESPC4 sponsors
Pär Larshans, Chief Sustainability Officer, Ragn-Sells Group / EasyMining
Wolfgang Hofmair, Borealis Group
- Experience and future objectives of the nutrient platforms in Europe and worldwide
- *Chris Thornton, European Sustainable Phosphorus Platform (ESPP)*
 - *Matt Scholz, Arizona State University US Sustainable Phosphorus Alliance*
 - *Jacob Jones, North Carolina State University, for STEPS (US National Science Foundation's new Convergence Research Center for Phosphorus Sustainability)*
 - *Eiji Yamasue, Ritsumeikan University, Japan Phosphorus Industry Development Organisation (PIDO)*
 - *Tabea Knickel, German Phosphorus Platform (DPP)*
 - *Nathalie Tijdink, Netherlands Nutrient Platform*

16h00 – 17h00 – Plenary – Perspectives and Conclusions

- Perspectives for global nutrient management and 'Our Phosphorus Future'
Mahesh Pradhan, United Nations Environment.
- Horizon Europe Mission "Soil Health and Food"
- Panel discussion on perspectives for phosphorus sustainability policies

Tuesday evening social event:

TBC 19h00 – 22h00 The Third Woman – NESTERVAL City Adventure
inspired by the 1949 Movie "The Third Man"

Wednesday 22nd June 2022

- P **Optional excursion:** Vienna municipal sewage treatment works, new sewage sludge incinerator, urban vegetable farmers using waste heat from sludge incinerator. **Max. 80 participants.** Free.
- P **5th Phosphorus in Europe Research Meeting (PERM5):** 9h00 – 16h30, Andaz Vienna Am Belvedere (Hyatt). Programme <https://phosphorusplatform.eu/espc4> NOTE: additional registration fee required.
- P **Young scientists and R&D networks event:** 17h – 18h30 and Wednesday evening social.

Selected speakers for ESPC4 parallel sessions June 2022

Parallel Session #1:

Nutrient recovery operating experience technology showcase

Limited to technologies presented in the ESPP-DPP-NNP Nutrient Recovery Technology Catalogue
Confirmed to date

Marc Sonveaux, Prayon, Belgium

Leon Korving, Vivimag – WETSUS, The Netherlands

Christian Kabbe, EasyMining (Ragn-Sells) – N, P, and K recovery technologies

ICL Fertilisers

Henk Aarts, N2 Applied: Plasma treatment of slurry and digestate, sustainable fertiliser from air and electricity

Parallel Session #2: P-recovery from ashes

Werner Preisig & Friedrich Studer, ERZO, Switzerland: The Leachphos-REALphos process

Beatrice Decker, MFPA Weimar, Germany: Resin-in-Pulp technology, an adapted holistic approach for nutrient and P-recycling from sewage sludge ashes (Abonocare)

Florian Benedikt, Technische Universität Wien, Austria: P-recycling from sewage sludge with fluidized bed incineration applying in-situ heavy metal removal

Eva Erhart, BioForschung, Austria: Testing sewage sludge ash for a P-enriched organic fertilizer

Theresa Sichler, BAM, Germany: European sewage sludge ash monitoring

Lasse Fabian Köhl, Fraunhofer IKTS, Germany: Decentralised phosphorus recycling from sewage sludge using dust firing and in-situ heavy metal separation (DreiSATS)

Laura Fiameni, University of Brescia and INSTM, Italy: Heavy metal stabilization in sewage sludge ash with poultry litter ash to enhance phosphorus recovery

Parallel Session #3: Biochars and hydrothermal carbonisation

Marc Buttman, TerraNova Energy, Germany: TerraNova@ultra - hydrochar from sludge, P-recovery and carbon sequestration

Helmut Gerber, Pyreg, Germany: Biochar from biosolids: the climate-positive alternative to conventional phosphorus fertilizer

Lisa Röver, Deutsches Biomasseforschungszentrum gGmbH, Germany: P-recycling via hydrothermal carbonization and the use of complexing agents and acids (Abonocare)

Raquel Zambrano Varela, TreaTech, Switzerland: Phosphorus recovery from hydrothermally treated sewage sludge. Closing the P cycle.

Clara Kopp, University of Copenhagen, Denmark: Activation of P-rich biochars and ashes to increase plant P availability

Maurizio Volpe, Carborem & Enna Kore University, Italy: Phosphorus Recovery from Digested Sludge Hydrochars Produced via Carborem C700 Continuous Hydrothermal Carbonisation Plant

Parallel Session #4: Emerging nutrient recovery technologies

Pim De Jager, Aquacare, Netherlands: BioPhree: next generation solution to remove and re-use phosphate in surface & effluent waters to ppb-level.

Álvaro Mayor Pillado, Cetaqua, Spain: Turning wastewater treatment plants into biorefineries: global value chain from bioresources to valuable products (LIFE Enrich)

Anders Øfsti, Hias How2O AS, Norway: Sustainable Phosphorus Removal with the Hias Process

Rubén Rodríguez-Alegre, LEITAT Technological Center & Universitat Politècnica de Catalunya, Spain: Innovative integration of membrane technologies for nutrient recovery from high organic load streams (FERTIMANURE)

Sabolc Pap, University of the Highlands and Islands, UK: New technology to recover phosphorus from wastewater within the Circular Economy: a Scottish case study (Phos4You)

Lidia Paredes, BETA Technological Centre (UVIC-UCC), Spain: Recovering nutrients from aquaculture industry by-products for the production of bio-based fertilizers (Sea2Land)

Parallel Session #5: Policies and regions for phosphorus sustainability

Katharine Heyl, Research Unit Sustainability and Climate Policy, University of Rostock, Germany: Sustainable phosphorus management under the future Common Agricultural Policy?

Francesco Avolio, HERA Spa, Italy: Feasibility and sustainability assessment of struvite recovery solutions in Bologna, WWTP Italy

Lisa Harseim, Albert-Ludwigs University of Freiburg, Germany: Cities revisited: Out-of-the-box governance of phosphorus flows in food

Fabian Kraus, Kompetenzzentrum Wasser Berlin, Germany: Mandatory P-recovery from sewage sludge (ash) in Germany – a multiple-goal conflict?

Esa Salminen, AFRY, Finland, Nutrient balance and handprint of the Finnish forest industry

Anna Muntwyler, European Commission JRC Ispra: Modelling phosphorus dynamics in European agricultural soils and assessing phosphorus policy goals

Parallel Session #6: New fertilisers for nutrient sustainability

Else Bünemann, FiBL, Switzerland: Bio-based fertilizers as efficient alternative phosphorus sources for closing nutrient cycles (Lex4Bio)

Farida Dechmi, Agrifood Research and Technology Centre of Aragon, Spain: Assessing phosphorus soil status and fertilisers management in the Ebro river intensive irrigated area (Spain)

Alicia Hernandez Mora, University of Natural Resources and Life Sciences Vienna (BOKU), Austria: Developing fertilizer compliance test methods for recycled P fertilizer products (Lex4Bio)

Julia Santolin, University of Antwerp, Belgium: Comparative consequential LCA: microbial fertilizers grown on potato wastewater, common organic fertilizers: and mineral fertilizers

Berta Singla, BETA Technological Centre (UCC-UVIC), Spain: Nutrient recovery from pig slurry – Production and agronomic quality assessment of added value bio-based fertilisers (Fertimanure)

Pauline Welikhe, Phospholutions Inc. / State College PA, USA: Corn Phosphorus Uptake and Yield Response to Reduced Phosphorus Rates Applied in Combination with RhizoSorb®

Kari Ylivainio, Natural Resources Institute Finland (Luke): Phosphorus losses from different soil types caused by bio-based fertilisers (Lex4Bio)