



BIO-BASED MATERIALS IN METALLURGICAL PROCESSES

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Scandic Helsinki HUB

Annankatu 18, Helsinki



VUORIMIESYHDISTYS

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Heikkinen

Bio-based materials in Metallurgical Processes – Innovations for Sustainable Metallurgy

As the Metallurgical industry faces increasing pressure to reduce its environmental footprint and transition toward more sustainable practices, the integration of biomaterials into metallurgical processes is emerging as a promising frontier. Biomaterials—ranging from biomass-derived reductants to bio-based reagents and microbial agents—offer innovative pathways to enhance process efficiency, reduce emissions, and support circular economy principles.

This two-day seminar, organized by POHTO Oy in collaboration with Vuorimiesyhdistys ry (Metallurgy Department), brings together industry professionals, researchers, and innovators to explore the current and future roles of biomaterials in metallurgy. Through expert-led sessions, real-world case studies, and interactive discussions, participants will gain a knowledge in the science, technology, and practical applications of biomaterials across various metallurgical operations.

Whether you are seeking to implement greener technologies, drive innovation in process development, or understand the regulatory and environmental implications of biomaterials, this course offers a unique opportunity to deepen your knowledge and connect with peers at the forefront of sustainable metallurgy.

Focus group:

- Decision-makers and strategic planners in industrial operations
- Sustainability and environmental managers in the metals industry
- Process engineers and R&D professionals in metallurgy and materials science
- Academics and researchers in biomaterials and metallurgical engineering
- Graduate students specializing in metallurgy, materials science, or environmental engineering

Program planning group:

Jarmo Lilja, SSAB Europe, PJ
Matti Aula, Outokumpu Stainless Oy
Aino Kainulainen, VTT
Daniel Lindberg, Aalto University
Cavaliere Pasquale, University of Oulu
Aki Koskela, University of Oulu
Marika Juntikka, POHTO Oy, Siht.



8.30 Registration & Coffee

9.00 Opening of the event
Chair Jarmo Lilja

Biocarbon

9.15 Feedstock for bio-based materials; resources, volume & trade
M.Sc. Jaakko Jokinen
JAY Partners Oy

10.15 Bio-based material properties (composition, microstructure)
Dr. Markus Engblom
Åbo Akademi University

11.15 Break

11.30 Product technologies (thermochemical conversion processes)
Anssi Källi
Research Scientist, VTT Technical Research Centre of Finland Ltd

12.15 Lunch break

13.15 Case National Bio producer - Finnish biomaterial producer
Charlotta Liukas
Project Director, Carbo Culture Oy

14.00 Coffee break

14.30 Modification of Biocarbon properties
Dr. Aki Koskela
University of Oulu

15.15 Sustainability aspects of production and use of biochar in metallurgy
Esko Salo
Research Scientist, VTT Technical Research Centre of Finland Ltd

16.00 Summary and conclusion of the day
Chair Jarmo Lilja

18.00 Dinner
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- 8.45 **Opening**
Professor Daniel Lindberg
- 9.00 **Slag foaming in electric arc furnace with bio char**
M.Sc. Eetu Hoikkaniemi
SSAB Europe Oy
- 9.45 **Biochar as reductant agent**
Professor Daniel Lindberg
Åbo Akademi University
- 10.30 **Coffee break**
- 11.00 **Biochar in ferrochrome production**
Tapani Ylimäinen
Product Development Lead, Outokumpu EvoCarbon
- 11.45 **Lunch**
- Biogas
- 12.45 **Gas market outlook – the growing role and opportunities of biomethane and Bio-LNG**
Joel Unha
Head of Sales, Rohe Solutions Oy
- 13.30 **Coffee break**
- 14.00 **Raw materials and production of biogas; biogas as an enabler of the circular economy**
Dr. Erika Winqvist
Natural Resource Institute / Luke
- 14.45 **Case: Biogas in metallurgical industry**
Prof. Dr. Pasquale Cavaliere
University of Oulu
- 15.30 **Summary and conclusion of the event**
Professor Daniel Lindberg