

International seminar

Hydrogen use in Process Metallurgy

Date: 15-16 May 2024, Quality Hotel Prinsen, Trondheim, Norway (Hybrid)

Agenda Day 1

Speaker	Session/ presentation	Time (CET*)
NTNU, UToronto	Welcome	08:40-09:00
Session 1: Hydrogen-based iron and steelmaking I, Chair: Akbar Rhamdhani		
Mårten Gornerup, Metsol AB, Sweden	hydrogen-based iron- and steelmaking from an industrial perspective	09:00-09:25
Vincent Chevrier Midrex Technologies Inc., USA	Hydrogen Direct Reduction... well beyond the pilot stage	09:25-09:50
Richard Elliot, Hatch Ltd., Canada	Hydrogen Use for Blast Furnace Ironmaking	09:50-10:15
Coffee Break		10:15-10:45
Session 2: Hydrogen use in non-ferrous metallurgical processes I, Chair: Halvor Dalaker		
Akbar Rhamdhani, Swinburne University of Technology, Australia	Hydrogen reduction of Pb-containing resources: kinetics and challenges	10:45-11:10
Eli Ringdalen, SINTEF, Norway	Hydrogen use for silicon production	11:10-11:35
Lunch		11:35-12:50
Torben Edens, Aurubis, Germany	Hydrogen use for deoxidation of blister copper	12:50-13:15
Session 3: Hydrogen-based iron and steelmaking II, Chair:		
Jonas Dietzig; Roberto Valery, Parizat Panday Metso Outotec, Germany	The effect of preheating on the hydrogen based direct reduction of iron ore fines	13:15-13:40
Dali Hariswijaya, NTNU, Norway	Effect of H ₂ -H ₂ O mixture composition on reducibility of bauxite residue pellets	13:40-14:05
Casper van der Eijk, SINTEF, Norway	Hydrogen reduction in plasma rotary pilot furnace at SINTEF	14:05-14:30
Yan Ma, Max-Planck-Institut für Eisenforschung (MPIE), Germany	Basic science behind green ironmaking with hydrogen and ammonia	14:30-14:55
Coffee Break, Group photo		14:55-15:15
Session 4: Hydrogen; production, safety, transportation, economics, Chair: Torben Edens		
Martin Adendorff, Linde, Germany	Hydrogen safety, supply and logistics	15:15-15:40
Nick Mittica, Verdagy, Canada	Green Hydrogen-Paving the way to a clean energy future	15:40-16:05
Martin Adendorff, Linde, Germany	Hydrogen for oxyfuel combustion in high temperature processes, e.g., glass melting, steel reheating, Al recycling	16:05-16:30
Dinner (Quality Hotel Prinsen)		19:00

*Central European Time

Agenda, Day 2

Speaker	Session/ presentation	Time (CET)
Opening Day 2		08:45-09:05
Session 5: Hydrogen-based iron and steelmaking III, Chair: Richard Elliot		
Leili Tafaghodi, McMaster University, Canada	Hydrogen-Based Direct Reduction of Iron Ore Pellets: Microstructural Evaluations and Kinetic Studies	09:05-09:30
Geoffrey Brooks, Swinburne University of Technology, Australia	Kinetics of Hydrogen Flash Ironmaking	09:30-09:55
Henri Pauna, University of Oulo, Finland	H ₂ -plasma smelting reduction - an overview of H2PlasmaRed HEU project	09:55-10:20
Joohyun Park, Hanyang University, Korea	Challenge and vision of electric steelmaking technology for abatement of CO ₂ emissions with H ₂ use in steel sector	10:20-10:45
Coffee Break		10:45-11:15
Session 6: Hydrogen use in non-ferrous metallurgical processes II, Chair: Joohyun Park		
Halvor Dalaker, SINTEF, Norway	Manganese production with hydrogen plasma	11:15-11:40
Dursman Mchabe and Mopeli Khama, Mintek, South Africa	Evaluation of the effects of fluidization conditions on hydrogen reduction of manganese ore fines	11:40-12:05
Alok Sarkar, NTNU, Norway	Kinetics of hydrogen reduction of Nchwani manganese ore in a stationary bed reactor	12:05-12:30
NTNU, UToronto	Closing	12:30-13:00
Lunch		13:00-14:00
Visit to NTNU & SINTEF labs		14:00-16:00