

Beneficiation of Phosphates IX

Helsinki, Finland
5-10 June 2022

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Monday, June 6, 2022

06:30 – 08:30	Breakfast	
08:30 – 08:40	<u>Welcoming Remarks</u> Conference Co-Chair, Erika Rova, Yara International, Finland	
08:40 – 08:50	<u>Opening Remarks</u> Conference Chair, Patrick Zhang, FIPR Institute, Florida Polytechnic University, USA	
08:50 – 09:00	<u>ECl & Vital Conference Information</u> Kevin Korpics, ECl, USA	
09:00 – 12:00	<u>Session I: Recovery of Critical Elements</u> Session Co-chairs: James Mennie and Elves Matiolo	
09:00 – 09:25	Challenges and Limitations of Processing Carbonatite Rare Earths Deposits in Brazil Elves Matiolo, Centro de Tecnologia Mineral, Brazil	1
09:25 – 09:50	Continuous Recovery of Phosphoric Acid and Rare-Earths Containing Particles from Phosphoric Acid Sludge Using a Decanter Centrifuge Patrick Zhang, Oak Ridge National Lab, USA	2
09:50 – 10:15	Nanofiltration Membrane and Liquid Extraction for Rare Earth Separation from Phosphate Ore Waste of Djebel Onk Algeria Mourad Amara, University of Science and Technology Houari Boumediene, Algeria	3
10:15 – 10:45	Coffee Break	
10:45 – 11:10	Recovery of Valuable Elements from Phosphate Water Processing by Dissolved Air Flotation Technique Mustapha Adjadi, AMENHYD SPA, Algeria	4
11:10 – 11:40	Flotation of apatite and REEs as co-products from a Vietnamese sedimentary phosphate ore rich in carbonate and finely intergrowth Huu Duong HOANG, Maelgwyn Mineral Services Ltd, Vietnam	5
11:40 – 12:05	Rare Earths in Phosphate: Occurrence, Significance and Opportunities for Recovery Patrick Zhang, FIPR Institute, Florida Polytechnic University, USA	6
12:05 – 13:30	Lunch	
14:00 – 17:40	<u>Session II: Advances in Reagent Development</u> Session Co-Chairs: Gabriela Budemberg and Guoxin Wang	
14:00 – 14:25	Atrac® 922 collector for phosphate flotation, jointly developed by Nouryon and Yara, yields high performance and reduces environmental impact Henrik Nordberg, Nouryon Surface Chemistry, Sweden	7
14:25 – 14:50	Characterization of fatty acid-based collectors vis-à-vis apatite flotation in basic medium Laurindo de Salles Leal Filho, Brazil	8
14:50 – 15:15	New reagent scheme for processing Florida phosphate ores Guoxin Wang, Arkema-ArrMaz, USA	9
15:15 – 15:45	Coffee break	
15:45 – 16:10	Synergy of collectors for phosphate flotation in Serra do Salitre Complex Gabriela Budemberg, BASF, Brazil	10
16:10 – 16:35	Natural Alternative Source of Fatty Acids for Phosphate Rock Flotation André Carlos Silva, Federal University of Catalão, Brazil <i>(Virtual)</i>	11

Monday, June 6, 2022 (continued)

16:35 – 17:00	Bioflotation of Apatite with <i>Saccharomyces Cerevisiae</i> in Hallimond Tube André Carlos Silva, Federal University of Catalão, Brazil (<i>Virtual</i>)	12
17:00 – 17:25	Low Grade Igneous Phosphatic Rock Flotation Using Sorghum Starch as Depressor Elenice M. S. Silva, Federal University of Catalão, Brazil (<i>Virtual</i>)	13
19:00 – 20:30	Dinner	
20:30 – 21:30	Social Hour	

Tuesday, June 7, 2022

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08:30 – 12:20	<u>Session III: Physical Separation and Process Analysis</u> Session Co-Chairs: Sahla Al-thyabat and Ashma Singh		
08:30 – 08:55	Beneficiation of medium and low grade African phosphates in the context of stimulating supply Ashma Singh, Mintek, South Africa	14	
08:55 – 09:20	The increasing usage of GEOSCAN online analysis in phosphate processing Luke Balzan, Scantech International, Australia	15	
09:20 – 09:45	Mineral liberation using selective fragmentation of phosphate ore Lev Filippov, Universiyé de Lorraine, France	16	
09:45 – 10:10	The run of mine grade is on target but the process plant is underperforming – what's the problem? Ewan Wingate, Bechtel Australia, Australia	17	
10:10 – 10:50	Coffee break		
10:50 – 11:15	Innovative Gravity Separation for Sustainable Utilization of Mineral Resources James Mennie, FIPR Institute, Florida Polytechnic University, USA	18	
11:15 – 11:40	Beneficiation of phosphate ores using tribo-electrostatic separator Abhishek Gupta, ST Equipment & Technology, USA	19	
11:40 – 12:05	Flotation processing of Elandsfontein sedimentary phosphate ore from South Africa Getrude Marape, Mintek, South Africa	20	
12:05 – 13:30	Lunch		
Afternoon	Free time Dinner on your own		

Wednesday, June 8, 2022

06:30 – 08:30	Breakfast	
08:30 – 12:00	<i>Session IV: Hydrometallurgical Processing</i> Session Co-Chairs: Sébastien Havelange and Laurin de Salles Leal Filho	
08:30 – 09:00	Phosphate Rock Beneficiation through Production of DCP “Super-Rock” as a Raw Material for Phosphoric Acid Plants Sébastien Havelange, Prayon Technologies, Belgium	21
09:00 – 09:30	Foaming and Defoaming of the Wet Process Phosphoric Acid Guoxin Wang, Arkema-ArrMaz, USA	22
09:30 – 10:00	New process to produce Di-calcium sulfate from low grade rock or tailing using diluted or by-product sulfuric acid Gauthier Humblet, Prayon Technologies, Belgium	23
10:00 – 10:30	Coffee break	
10:30 – 11:00	Brief Introduction of Ma’aden’s Phosphoric Acid Complexes Mohamed Belghiti Alaoui, Ma’aden Phosphate Company, Saudi Arabia	
11:00 – 11:30	Prospects of development smart collectors for phosphorite flotation: nanoparticles-based collectors Gary Albarelli, FIPR Institute, Florida Poly	24
11:30 – 12:00	Analysis of Different Schemes for Recovery of REE from Phosphoric Acid Patrick Zhang, FIPR Institute, Florida Polytechnic University, USA	
12:30 – 14:00	Lunch	
15:00 – 20:30	Conference Excursion with dinner included <i>Guided Tour of Helsinki until 17:15</i> <i>At 17:30, board boat for cruise and tour with buffet dinner</i> <i>Return to hotel approximately 20:30</i> At 15:00: Tour begins at the Hotel Hilton Kalastajatorppa <i>A comprehensive tour taking in the most important and interesting parts of Helsinki, such as the Helsinki Cathedral at the Senate Square, the Presidential Palace, City Hall, the Parliament building, Finlandia Hall, the Opera House, the Helsinki Music Centre, and Central Library Oodi. Stop at the Sibelius Monument.</i> <i>At about 17:15: Tour ends at the Market Square</i> At 17:30: Private dinner cruise starts from the Market Square <i>Tour presents the most beautiful shorelines in Helsinki and many fabulous sights, including the historic Suomenlinna Maritime Fortress, Helsinki Zoo on Korkeasaari Island, and Degerö Canal.</i>	

Thursday, June 9, 2022

06:30 – 08:30	Breakfast	
08:30 – 11:00	Session V: Sustainability & the Environment Session Co-Chairs: Ewan Wingate and Henrik Nordberg	
08:30 – 09:00	Smart Road with Phosphogypsum as Road Base Gary Albarelli, FIPR Institute, Florida Polytechnic University, USA	25
09:00 – 09:30	Contributions to a circular phosphate economy - Polyphosphate production in <i>Saccharomyces cerevisiae</i> Jana Fees, Institute of Applied Microbiology, RWTH Aachen University, Germany	26
09:30 – 10:00	Review of MgO Removal Processes for Florida Rock Charles Guan, The Mosaic Company, USA	
10:00 – 10:30	Coffee break	
10:30 – 11:00	Apatite flotation from iron oxide apatite (IOA) tailings Rickard Jolsterå, Luossavaara-Kiirunavaara AB, Sweden	27
11:00 – 11:30	Sustainability Programs of the Arab Fertilizer Association (to be confirmed) Mahamed Ali, Arab Fertilizer Association, Egypt	
11:30 – 12:00	Rare earths recovery and gypsum upgrade from Florida phosphogypsum Patrick Zhang, FIPR Institute, Florida Poly	
12:00 – 13:30	Lunch	
14:00 – 16:00	<i>Ad hoc</i> discussion on REE recovery	
16:00 – 16:30	Coffee Break	
19:30 – 22:00	Conference Banquet and Social Hour	