

Latin America – Europe: Cooperation opportunities for a more sustainable raw materials industry.

The EU-ALSiCal project case

Background

This Workshop is organized with the aim of discussing the main challenges faced by the Aluminum and other metallurgical industry throughout its value chain, from extraction to the production of final products.

Firstly, the energy transition has become a determining factor for the aluminum industry. The demand for this metal has significantly increased due to its use in key sectors for the transition to cleaner and more sustainable energy sources. One of the most important challenges in the Aluminum industry is to find alternative sources and processes that can reduce the carbon footprint, diversify supply and adopt more sustainable practices.

Each stage of the Aluminum value chain presents challenges in terms of environmental, social, and economic sustainability. It is necessary to minimize the environmental impact of mineral extraction and ensure proper management of waste and by-products generated in the process while maintaining the industry's competitiveness and profitability in an increasingly demanding global market.

This entails striking a balance between adopting more sustainable technologies and optimizing costs in the production chain.

Furthermore, it is essential for different stakeholders in society, including industry, science, governments, and communities, to reach a consensus on what a truly sustainable mining and metallurgical industry means, with clear and measurable criteria that allow for the continuous evaluation and improvement of practices and processes used in aluminum production.

Lastly, it is crucial for the industry and governance to establish open and transparent dialogue with communities, promote participation and collaboration, and foster practices that generate trust and social acceptance.

EU ALSiCal project

ALSiCal is a Research & Innovation H2020 project that has developed an innovative, groundbreaking technology for the sustainable production of three high-demand raw materials (alumina, silica, and precipitated calcium carbonate) from currently unexploited aluminosilicate resources (anorthosite), with no bauxite residue generation and potentially with a negative balance of CO₂ emission. This technology is based on one single processing route and has been validated at TRL4 (partly at TRL5). The Consortium is now assessing the techno-economic feasibility, the potential value creation for Europe, as well as the impact and potential risks based on three key sustainability pillars: economy, society, and environment.





Scope and objectives

This Workshop is organized by the Association of Iberoamerican Geological and Mining Surveys (ASGMI) with the support of PNO, IFE and the Brazilian Geological Survey (CPRM-SGB). **The main objective is to establish a dialogue among different social actors (industry, research, governance, and communities) that allows for obtaining answers to meet the growing demand for Aluminum as a result of the energy transition, in a sustainable manner while maintaining the industry's competitiveness and profitability, as well as social acceptance.** The workshop will also increase awareness of EU AISiCal proposed technology for the co-production of 3 key raw materials (alumina, silica and precipitated calcium carbonate) with negative CO₂ emissions and zero-waste, highlighting its main achievements and way forward.

Hence, this event aims to:

- Discuss different perspectives related to sustainability, stewardship, R&D situation and needs in the Aluminium industry, with focus on alumina production, as well as challenges and roadmap for Aluminium as a raw material essential for the green transition.
- To provide an overview of new technologies, innovations, and challenges related to the aluminum and other metals industries throughout their value chain, encompassing social acceptance of mining activities, extraction processes, and transformation of the mineral into its final products.
- Position AISiCal technology as a supplementary route to the existing alumina value chain. We will address the challenges of turning an unexploited domestic ore (anorthosite) into a sustainable resource for the alternative alumina production and boost symbiotic value chains.
- Foster future synergies with governance, academia and industry.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 820911



Registration

The Workshop is freely accessible. Only registered participants will have access to the workshop and the informative material. This event will be organised in a hybrid format.

Online Attendance: https://us06web.zoom.us/webinar/register/WN_gER7ZQWcS1uMfsPrld-XCQ

Programme in following page



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 820911



Latin America – Europe: Cooperation opportunities for a more sustainable raw materials industry. The EU-AISiCal project case

30th January – 4th February 2024

Programme

Location: Ministry of Mining and Energy (MME, Ministério de Minas e Energia da República Federativa do Brasil). Esplanada dos Ministérios - Bloco U, Brasília - DF, 70065-900, Brasil. Room TBC

DAY 1 – Tuesday 30th January

Welcome by public authorities and Government

8:30-9:00	Attendee registration	
9:00-9:20	Welcome by the Brazilian authorities	Name TBC

Session 1

The Raw Materials world challenge: European and Latin American perspectives

Chair:

9:20-09:40	EU policy on raw materials and EU R&I funding for raw materials	Daniel Cios. EU DG Grow
09:40-10:00	Latin American Raw Materials: Overview of status, ambitions and the Brazilian roadmap	Ministry of Industry and Mining Brazil. Confirmed
10:00-10:20	Brazilian mineral industry position: Current business and needs for further expansion	Cinthia Rodrigues, Gerente de Pesquisa e Desenvolvimento (IBRAM – Mineração do Brasil)
10:20-10:40	<i>Coffee Break</i>	
10:40-11:00	Status and sustainability projections of the world's Aluminium industry	International Aluminium Institute (TBC). Pernelle Nunez or colleague
11:00-11:20	Suggested title: The aluminium industry in Brazil: strengths and needs for steady growth	Brazilian Aluminum Association, TBC Roberta Sousa Versiani or colleague
11:20-11:40	Industry. Suggested title: Hydro's innovation path for more sustainable aluminium	Rafael Vieira da Costa. Hydro. Confirmed



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 820911



11:40-12:00	Industry	TBC
12:00-12:10	Final Q&A and remarks from the session	
12:10-13:30	<i>Lunch pause</i>	

Session 2

Innovation efforts for more sustainable raw materials industry		
Chair:		
13:30-13:50	Overview of key European Innovation projects related to aluminium, silica and calcium carbonate among others	Thymis Balomenos, Mytilineos
13:50-14:10	Innovation initiatives in Latin America/Brazil in the raw materials industry	TBD. Tentative Brazilian Ministry of Science and, Technology and Innovation
14:10-14:30	<i>Coffee Break</i>	
14:30-14:50	The AISiCal project: radical innovation for exploiting alternative sources	Suni Aranda - Institute for Energy Technology (IFE) Confirmed
14:50-15:10	Business potential and market opportunities of the AISiCal technology	Tassos Kladis - Advanced Minerals and Recycling Industrial Solutions (AdMiRis) Confirmed
	How modelling tools and interdisciplinary collaboration make innovation efficient (and successful)	Luis Miguel Romeo University of Zaragoza (Spain). UNIZAR. Confirmed
15:10-15:20	Final Q&A and remarks from the session	

DAY 2 – Wednesday 31st January

Session 3

The source for change: Geology of critical raw materials		
Chair:		
9:00-9:20	Critical raw materials in Ibero-America. Mapping of critical minerals	Guilherme Ferreira (Serviço Geológico do Brasil – Brazil Geological Survey, Mineral Resources



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 820911



		Expert Group of ASGMI) Confirmed
9:20-09:40	Brazilian potential in raw materials	Serviço Geológico do Brasil – Brazil Geological Survey. Confirmed
9:40-10:00	Anorthosites in Brazil	Ana Claudia de Aguiar Accioly (Serviço Geológico do Brasil – Brazil Geological Survey). Confirmed
10:00-10:20	<i>Coffee Break</i>	
10:20-10:40	Potential for critical minerals recovery as by-products of major ore deposits in Brazil	Prof. Dr. Roberto Xavier, Diretor Executivo (ADIMB) Confirmed
10:40-11:00	TBC	Gustavo Alves Guerra, Diretor EDEM (Empresa de Desenvolvimento em Mineração) Confirmed
11:00-11:10	Final Q&A and remarks from the session	TBC

Session 4

Sustainability views		
Chair:		
11:10-11:30	Identification, characterization, and recovery of mining environmental liabilities.	Fredy Guzman - Head of Environmental Projects at the Mexican Geological Survey and a member of the Mine Environmental Liabilities Group of ASGMI. Confirmed
11:30-11:50	TITLE Suggested topic: New technologies and methods for geological mapping and data management	Achim Constantin – German Federal Institute for Geosciences and Natural Resources (BGR) as Head Project Manager for the program cooperation for a sustainable management of mineral resources in the Andean countries. Confirmed
11:50-13:30	<i>Lunch pause</i>	
13:50-14:10	TITLE	Mauricio Pereira – Researcher at ECLAC since 2009, where he has coordinated and conducted studies related to climate change, sustainable production and consumption patterns, mining and its connection to the environment, and policy analysis using economic



		models and sustainable development indicators. Confirmed
14:10-14:30	Shaping resilience: geomorphic technical approaches to erosion monitoring and the crafting of stable, sustainable rehabilitated mining landscapes	Ignacio Zapico – Assistant Professor at UCM (Complutense University of Madrid) and CTO of STONE161. Confirmed
14:30-14:50	Social sustainability. Title to be confirmed	Anne Merrild. University of Aalborg, Denmark. Confirmed
14:50-15:00	Final Q&A and remarks from the session	
14:30-14:50	<i>Coffee Break</i>	

Session 5: Panel discussion.

Innovation opportunities: Ongoing initiatives, needs, synergies and collaboration.		
Chair:		
14:50-16:30	<ul style="list-style-type: none"> • What are the main opportunities for collaboration between the government, scientific, industrial, and environmental sectors to promote a more sustainable and responsible aluminum mining? • What actions or measures could be implemented to foster greater synergy among the different actors and sectors involved in the aluminum industry? • What are the key challenges faced by the aluminum industry in terms of environmental, social, and economic sustainability, and how can they be addressed collaboratively? • What existing initiatives or programs promote research and development of more efficient and sustainable technologies in aluminum extraction, processing, and recycling? How can we strengthen and expand these initiatives? • What are the specific opportunities and challenges that Brazil faces in the aluminum industry, and how can we leverage strengths and overcome limitations through collaboration among different sectors and stakeholders? 	<ul style="list-style-type: none"> • EU office in Brazil (alternatively EU-LAC) • Academia or Technical and innovation (e.g. Mauricio Pereira or, Center from Mining Technologies, from our Ministry of Science, Technology and Innovation or someone from the Center for sustainable growth cds Centro.de.Desenvolvimento.Sustentável - CDS - INÍCIO (unb.br)) • Industry (TBC) • Brazilian Aluminium Association (TBC) • Brazil – innovation funding bodies / authorities (Ministry of Science, Technology and Innovation with one of its Agencies: Brazilian Innovation Agency (FINEP) or National Council for Scientific and



	<ul style="list-style-type: none"> • Transoceanic collaboration opportunities: Existing collaboration frames and necessary additional mechanisms? 	Technological Development (CNPq)
--	--	----------------------------------

DAY 3: Thursday 1st February:

Visit to Terra Goyana mining area		
Full day	Transfer from Brasilia to the Terra Goyana mining area https://www.terragoyana.com.br/ where the visit will take place. Visit to the mine and bauxite/anorthosite outcrops. Overnight stay at a hotel in the mining area.	https://www.terragoyana.com.br/

DAY 4: Friday 2nd February

Transfer from mine site to Brasilia airport

