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HBI C-Flex

The HBI C-Flex project has the goal to determine the reoxidation behaviour and stability of direct reduced and hot briquetted iron (HBI) with variable iron and carbon content to promote safe handling and transport for future decarbonisation of the steelmaking process.

The project in a nutshell

HBI C-Flex is a 3.5-year project funded by the European Union's Research Fund for Coal and Steel research programme. It demonstrates the direct reduction of iron ore using various qualities (including lower-grade ores typically not used for direct reduction) followed by hot briquetting. The consortium consists of 10 partners and includes steel producers, RTOs, technology providers, and universities from Austria, Germany, Belgium, France and the Netherlands, each of which has specific knowledge, skills and equipment to achieve the project objectives. A Supportive Advisory Board, consisting of 13 globally operating companies along the supply chain and led by the International Iron Metallurgy Association, assists with their knowledge and expertise regarding HBI production and handling.



Grant agreement ID: 101112479



Start date: July 1st, 2023



Duration: 42 months



Budget: 2.4 Mio. €



Coordinated by: K1-MET, Austria



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1st HBI C-Flex workshop and project meeting

In February, the HBI C-Flex consortium partners and supportive advisory board members held their 16th status meeting. This time, the meeting took place in a hybrid format, both online and in person at CRM in Liège. The first day started with a successful mid-term workshop. The event brought together experts and stakeholders to discuss innovative topics ranging from the reoxidation behaviour and stability of direct reduced and hot briquetted iron to the use of green hydrogen and recycled metallurgical gases in steelmaking. Additionally, projects about maximising H₂ enrichment in direct reduction shaft furnaces and ensuring the safe handling of H₂-based DRI, considering reactivity, passivation methods, and recycling aspects were discussed.

The presentations generated interesting discussions and provided valuable insights into the potential applications and challenges of these developments. The knowledge exchange demonstrated the importance of collaboration in driving innovation forward.

All presentations, including titles and presenters, are available on our website: [Click here](#)

- HBI C-Flex
Lukas Schmidt (K1-MET)
- MaxH2DR
Thomas Pionek (BFI)
- Safe H-DRI
Valentina Alemanno (RINA-CSM)
- RecHycle
Reinhard Kaindl (Joanneum Research)

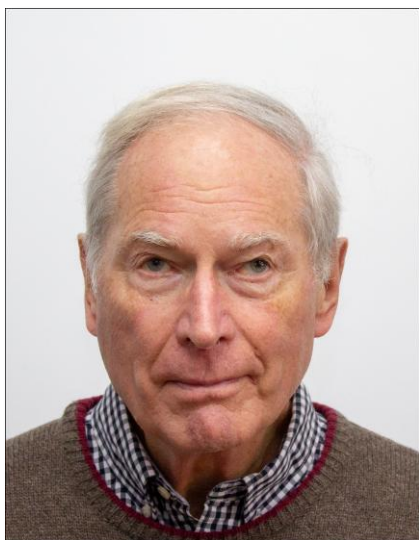


Supportive Advisory board (SAB)

A key strength of the HBI C-Flex project is the involvement of the Supportive Advisory Board (SAB), coordinated by the International Iron Metallurgy Association (IIMA). It brings together 14 internationally companies from across the HBI and steelmaking value chain. By actively contributing through participation in project meetings, feedback, technical insights, and strategic guidance, SAB members help ensuring that project outcomes are relevant, practical, and ready for future implementation across the sector.



This project is co-funded by the European Union under grant agreement number 101112479



Meet Chris Barrington

Chris Barrington has over 50 years of experience in international natural resources, including 17 years in the global iron ore industry. He has worked in ore purchasing and ore marketing for British Steel, Samarco and LKAB, and served as Managing Director of Fergusson Wild & Co., which is a processor and distributor of industrial minerals then belonging to the Stinnes/Veba group. In 2000 Chris founded a business for minerals distribution, sold to Prince Minerals in 2007.

From 2005 to 2011 he led the International Pig Iron Association, now the International Iron Metallurgical Association where he was Chief Adviser until the end of 2024 (he was also Acting Secretary General from 2015 to 2019). Chris also managed the REACH Iron Platform and REACH Boron Consortium for EU chemical regulation compliance and founded the Zircon Industry Association, serving as Executive Director until 2015. He is now retired but undertakes occasional consultancy assignments.

Interview with Chris

With a lifetime spent in the international iron and steel industry, Chris Barrington has witnessed, and helped shape, some of the most significant developments in the natural resources and iron ore sectors. As one of the initiators behind the HBI C-Flex project, his deep knowledge of direct reduced iron (DRI) and maritime safety has been supportive in shaping this initiative.

In our interview, Chris explains how the project began with a technical challenge: Could HBI with higher carbon content still meet safety standards for maritime transport? What started as a question of density and classification expanded into a broader effort to align evolving production methods with international shipping regulations, ensuring that innovation doesn't come at the cost of safety.

Chris also shares a front-row perspective on three of the biggest transformations in the sector: the growth in direct reduction ore iron ore, the shift to index-based iron ore pricing, and the longer-term focus on "green" steel and the need to reduce GHG emissions along the value chain.

Looking ahead, he believes the industry is technically ready for hydrogen-based steelmaking, but economic and logistical barriers remain, especially the availability of affordable green hydrogen. One likely development in some cases is the decoupling of iron and steel production, with iron production moving to regions where energy/hydrogen (and iron ore) is most economically available. To young professionals entering the field, Chris offers this advice: think "green", stay realistic, and work across disciplines. "There is no one-size-fits-all solution, but collaboration is the key to real progress."

Having someone with Chris's depth of experience and long-term vision on board is not only a privilege, it's a major asset for the success of this project.

Read the full interview with Chris Barrington on our website and explore what it takes to build a safer, greener iron and steel future. [Click here to read the interview](#)

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