


ReMFra: RECOVERING METALS & MINERAL FRACTION FROM STEELMAKING RESIDUES

PORTRAITS OF UPPER AUSTRIAN PARTNERS

 K1-MET, based in Linz and Leoben (Austria), is one of the leading and research competence centres for advanced metallurgical and environmental process development.

 voestalpine Stahl GmbH is one of the leading steel producers of Europe. It operates a blast furnace - basic oxygen furnace route to produce high-quality steel.

BACKGROUND

The steel industry is one of the key sectors for EU's economic growth. Fostering circular economy in this field has been recognized as a highly important issue. By embracing circular economy principles, the steel industry can significantly reduce its environmental impact, promoting sustainable production and consumption patterns and combating climate change.

With this background, the ReMFra project will develop and validate a highly efficient industrial scale high-temperature process to treat a wide range of by-products from iron and steelmaking, to reuse metals and minerals in further applications to achieve a more complete closure of material cycles.

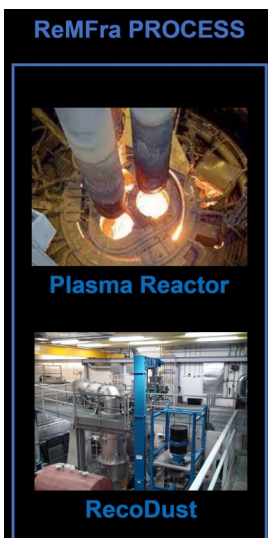
INNOVATIVE USE CASES

The treatment route is based on 2 processes, a Plasma Reactor for the treatment of coarse-grained residues (e.g., scale, slags), and the RecoDust process for fine-grained residues (steelmaking dusts). RecoDust is operated at the Chair of Thermal Processing Technology in Leoben/Austria.

Different use cases will be investigated using by-products from iron and steelmaking routes Blast Furnace - Basic Oxygen Furnace (BF-BOF), Electric Arc Furnace (EAF) and from Hlsarna (low carbon smelting reduction process developed by Tata Steel Nederland Technology). Further by-products to be tested in the Plasma Reactor part are secondary metallurgical slag from the ladle furnace (steel refining aggregate) and scale from the slab rolling mill. Current activities focus on the detailed ReMFra process design and the preparation of first melting and reduction campaigns.

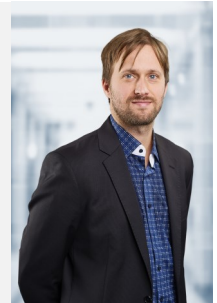
The ReMFra process: treating a wide range of metallurgical by-products to derive secondary raw materials for the steel and other industrial sectors.

@ Tenaris/Tenova & MUL/Thermal Processing Technology



„Circular economy is one important pillar to decarbonise the steel industry. In ReMFra, we focus on a recovery and reuse of metals and minerals from locally generated iron and steelmaking residues to achieve an efficient circular process. We can contribute to a long term green steel industry in Austria and Europe.“

Wolfgang Reiter, K1-Met GmbH




HIGH QUALITY EUROPEAN STEEL EXPERTS

The Austrian part of the 11 partner consortium includes voestalpine Stahl GmbH, K1-MET GmbH (located in Linz and Leoben), and the Montanuniversitaet Leoben (Chair of Thermal Processing Technology). Joint research activities focus on the valorisation of by-products from iron and steelmaking for the reuse of valuable fractions.



The non-Austrian part of the consortium comprises industrial and scientific partners from Belgium (European Steel Technology Platform ESTEP), Germany (FEhS Institut für Baustoffforschung, thyssenkrupp Steel Europe, Italy (project coordinator Tenaris Dalmine, Tenova, RINA Consulting - Centro Sviluppo Materiali), the Netherlands (Tata Steel Nederland Technology) and Spain (Celsa Barna Steel).

EU-FUNDING FOR EXCELLENT RESEARCH

 ReMFra receives funding from the European Union (Grant Agreement no. 101058362) within the Horizon Europe framework program and is part of the co-programmed Clean Steel Partnership. EU contribution equals to 4.7m €, whereas the Austrian consortium covers 1.2 m €. The project is running from 2022 to 2026.

SUPPORT FROM BUSINESS UPPER AUSTRIA

Business Upper Austria, the business agency of the Upper Austrian government, is an innovation driver and a partner for location development & settlement of companies, cooperation and public funding advisory services.

As a one-stop shop, it assists domestic and foreign companies by supplying tailor-made services and supports them from the initial business idea through to market success.