

Innovative raw materials for energy efficient production of metals

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Swerea MEFOS AB

- Swerea MEFOS is an independent research institute, and its business concept is applied research, technical development and consulting in process metallurgy, heating, metalworking, environmental engineering and energy efficiency mainly for the ferrous and non-ferrous industry. Research is carried out in collaborative research projects or in projects on contract basis, financed by individual companies.
- Swerea MEFOS is well known worldwide for its unique large scale pilot plant equipment in metallurgy and metalworking and its ability to perform very large research projects.
- We have approx. 100 employees, 55 of which are research engineers.

Our primary research areas are:

- Project management, operational and applied engineering for major EU and pilot projects.
- Metallurgical process technology, including heating and machining, particularly reduction metallurgy, alloys, energy and gasification technology.
- Process integration.
- Measurement techniques and process analysis.
- Computer modelling, simulation and calculations, particularly CFD and FEM technology.
- Environmental and residual product technologies
- Swerea MEFOS is a part of the Swerea group, which in turn is part of RISE Research Institutes of Sweden.

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- **SC5-11-2014/2015: New solutions for sustainable production of raw materials.**
- **The proposed idea aims at designing new metallurgical systems for the production of metals including ferroalloys and high alloyed steels.**
- The proposals will design an integrated sustainable pyro metallurgical system maximising metal recovery yield and minimising energy consumption and/or the environmental footprint, while ensuring the economic viability of the entire process.
- The activities includes pre-processing of minerals and reducing agents, integrating pyro-metallurgical processes in one step. Raw materials includes the use of metallurgical wastes such as slags, dusts as raw materials in the processing.

Idea impact

- Lower specific use of resources and energy in the production of ferroalloys and high alloyed steels including the use of secondary materials
- Possible simplification of process route
 - lowering the capital costs and increasing the competitiveness of industry
 - cost efficient processing technologies
- Increasing process efficiency, reducing energy consumption and environmental footprint

Possible partners

Industrial producers and users of ferroalloys and steel

Mining companies

Universities and institutes in the area of mineral processing and metallurgy

Industrial partners in the area of waste handling and recycling