PhD position for Smelter Development

(m/f/d)

Company description

K1-MET is one of the leading and internationally renowned metallurgical competence centres for ferrous and nonferrous metallurgy in Austria working on research issues such as energy efficiency, circular economy, and climate neutral metal production, as well as digitalization potential of the metal-producing sector. The basis for a fruitful development of K1-MET is the well-established co-operation with our partners from industry and academia. Our main sites are in Linz and Leoben, Austria, in close proximity to the most important locations of the Austrian metal industry. Together, we are working on process solutions to advance the modernization of the European metallurgical industry, driving forward the development and application of advanced future technologies from fundamental research towards industrial implementation.

Description of position and tasks

You will be working on the development of a novel electric smelting furnace for green steelmaking as a complementary technology to the electric arc furnace. The PhD thesis will be carried out at Montanuniversitaet Leoben and supervised by the Chair of Ferrous Metallurgy. The PhD topic is **"Smelter Development – a new ferrous hot metal production process for green steelmaking".** You will conduct lab scale melting tests to investigate the metallurgical reactions, the slag composition, process yield and off-gas properties. Various raw materials and their influence on the process will be characterised: iron carriers ranging from low grade direct reduced iron to steel mill recycling materials, carbon carriers and slag forming additives. Thermodynamic and empirical models will be used for modelling of product properties. During your PhD thesis, you will work with experienced colleagues in the field of metallurgy and process technology. You will become part of an international and professional team which includes academic and industrial partners in national research projects. With your work, you will make an important contribution to achieve an innovative and green process route for a climate-friendly steel industry.

Competences and experiences

We are looking for the following competences and experiences:

- Academic qualification (diploma / master) in technical or natural sciences (metallurgy, material science, mechanical engineering, chemical engineering, or related fields)
- Experience or strong interest in metallurgy and process technology
- Experience with scientific methods and scientific writing
- Experience or strong interest in thermodynamic models and their application
- Autonomous time management
- Proficiency in English language obligatory, proficiency in German language advantageous

Start of employment:	October 2023
Duration of employment:	limited until June 2027
Type of employment:	Full time (38.5 h / week), flexible working hours
Employer:	K1-MET GmbH, www.k1-met.com
Place of work:	Leoben, Austria
Compensation:	The gross salary for this PhD position with a Diploma / Master's degree is € 3,400 (14 × p.a., full time according to the collective labour agreement of mining and iron-producing industries).

Does this position sound interesting to you? Then feel free to send your CV, a motivation letter, and your references to **office@k1-met.com**, using "PhD position – Smelter Development" as the subject of your email. The position is open starting right away until a suitable candidate is found. International applications are encouraged. K1-MET GmbH and Montanuniversitaet Leoben are equal opportunity employers – we encourage female researchers to apply.

Employer
K1-MET GmbH
office@k1-met.com
www.k1-met.com

K1-MET Head office
Stahlstrasse 14
4020 Linz
Austria

Contact K1-MET
Dr. Johannes Gabl
Project Management in Area
Decarbonisation & Sector Coupling

Contact MUL
Prof. DI Dr. Johannes Schenk
Chair of Ferrous Metallurgy
https://www.unileoben.ac.at/en