



REFRACTEUR
Digital REfractory FRAMework for a Carbon-neutral
and Resilient induSTry in EUROpe



JOB VACANCY
PhD 01

PHD 01 - DIGITAL PRODUCT PASSPORT AND DATA INTEGRATION FOR CIRCULAR REFRACTORY RAW MATERIALS AND INDUSTRIAL APPLICATIONS (M/F/X)

ULiège - Chemical Engineering

START DATE : OCTOBER 2026 (36 MONTHS PHD)

JOINT SUPERVISION BETWEEN ULIEGE (BELGIUM) AND RHIM-LEOBEN (AUSTRIA)

NEW DEADLINE: 24 JUNE 2026

Located in the French-speaking part of Belgium, the University of Liège welcomes nearly 27,000 students of 123 different nationalities in a dynamic, multicultural city less than an hour away from Brussels and Cologne, two hours from Paris and three hours from London and Amsterdam. ULiège is spread across 4 campuses and boasts over 5,700 staff members, including 3,600 teachers and researchers active in all areas of the humanities and social sciences, science and technology, and health sciences.

As a key player in social change and environmental awareness, ULiège promotes ethical, transdisciplinary and open science. It contributes to the socio-economic development of its region through numerous partnerships with several institutions, including the university hospital (CHU). Given its international orientation, the University participates [in the European University of Post-Industrial Cities \(UNIC\)](#) initiative and has one of the most extensive collaborative networks in the world.

ULiège offers attractive career prospects [in a high-quality working environment](#) where well-being, diversity and equality of opportunity are promoted. Since 2011, ULiège has been proud to display the European [Human resources strategy for researchers \(HRS4R\)](#) label, which reflects its commitment to open, transparent and merit-based procedures. In addition, it upholds quality and diversity in line with the recommendations of the [Coalition for Advancing Research Assessment \(CoARA\)](#). ULiège encourages its academic staff to travel internationally and welcomes international researchers through its EURAXESS center.

ABOUT THE RESEARCH PROJECT

Europe's high-temperature industries, such as steel, cement, and glass, rely on refractory materials that are critical for safe, efficient, and sustainable operations. As the EU is currently under strong Green and Digital Transitions, the refractory sector faces urgent challenges: decarbonisation, circularity, and digitalisation. In this specific industrial sector, current practices are still limited by empirical design, fragmented

data, and low recycling rates, while new regulations demand traceability and reduced carbon footprint.

REFRACTEUR (Digital REfractory FRAMework for a Carbon-neutral and Resilient indusTry in EUROpe) addresses these challenges by gathering a unique consortium spanning the entire refractory value chain, from raw materials to end-users, across academia and industry. The project will train 15 Doctoral Candidates through an innovative programme combining advanced research in materials science, process engineering, digital tools (AI, digital twins, and sustainability (life cycle assessment)). Each researcher will benefit from dual academic/industrial supervision and spend at least 50% of their time in industry, ensuring strong intersectoral skills and real-world impact.

REFRACTEUR will deliver: (1) new sustainable refractory materials with improved durability and recyclability; (2) the first unified circularity framework for refractories, integrating digital product passports and life cycle assessment; (3) validated digital twins and AI-based decision-support systems for predictive maintenance and energy optimisation; and (4) an open, standardised data backbone to accelerate innovation and knowledge transfer.

By embedding training, research, and innovation in a single European network, REFRRACTEUR will strengthen Europe's industrial sovereignty, reduce dependency on critical raw materials, and position the EU as a global leader in sustainable, digitalised refractory technologies. The project's outcomes will directly support the EU's climate, circular economy, and skills agendas, creating lasting impact for industry, society, and future generations of researchers.

More info <https://www.refracteur.eu/>

JOB DESCRIPTION

Detailed information about the PhD position, including objectives, expected results, supervision, and project structure, is available on the official REFRRACTEUR website: <https://www.refracteur.eu/phd-positions/>

HOW TO APPLY?

Applications must be submitted through the official REFRRACTEUR recruitment platform. Full details on the application procedure are available at: <https://www.refracteur.eu/refracteur-phd-recruitment-procedures/>

Release date: 05/05/2026

Privacy policy

Personal data collected in the context of applications for **PhD-01 and PhD-02 positions**, within the REFFRACTEUR recruitment process (<https://www.refracteur.eu/refracteur-phd-recruitment-procedures/>), will be processed by Prof. Angélique Léonard of the University of Liège, solely for the purpose of organizing the selection and recruitment process. et la suite

The data will be processed within the framework of pre-contractual measures (art. 6-1, b. of the General Data Protection Regulation) and kept for up to 9 months after the publication of the vacancy. Your personal data will not be passed on to any third parties.

In accordance with the provisions of the GDPR (EU 2016/679), you may exercise your data protection rights (right of access, rectification, erasure, restriction, and portability) by contacting ULiège Data Protection Officer (dpo@uliege.be - Mr. Data Protection Officer, Bât. B9 Cellule "GDPR", Quartier Village 3, Boulevard de Colonster 2, 4000 Liège, Belgium). You may also lodge a complaint with the Data Protection Authority (<https://www.autoriteprotectiondonnees.be>, contact@apd-gba.be).