LOMC – UMR 6294 CNRS- Le Havre Normandie University

Postdoctoral Position

VALBOSED (VALorisation BOues et SÉdiments)

Remediation and Valorization of sediments by thermal processing

Profile/ expected skills	The candidate, holder of a PhD or Master's degree in civil engineering, Environmental Sciences or related disciplines, with the qualities of a researcher (rigor, writing, synthesis...), have strong experimental skills in soil testing and sediments analysis, as well as a knowledge in geoenvironmental engineering or related fields. Finally, the candidate is expected to be able to easily integrate a research team and work independently.
Location	*Laboratoire Ondes et Milieux Complexes (LOMC, UMR CNRS 6294 – Le Havre Normandie University), 75 rue Bellot, 76600 Le Havre* ***Involved group**: Civil and Environmental Engineering (GCE)*
Duration	*18 months (Extendable for a further period) – full-time-position*
Gross salary	From 2390 € to 2590 € / month according to the candidate experience
Deadline	Apply before: September 2nd, 2024 – Contract start: October 1st, 2024
Application	Send CV + cover letter by e-mail to: mohamed-tahar.ammami@univ-lehavre.fr and ahmed.benamar@univ-lehavre.fr

Job Description:

The proposed job is part of a regional project including a company and academics, dedicated to reuse sludge from water treatment plants (WWTP) – most of which is spread in the field despite its high pollutant content, and dredged sediments – which will soon no longer be able to be discharged into the sea. By mixing them with clays, and after mechanical and thermochemical treatments, expanded aggregates will be produced. The developed process includes several steps: preparation/conditioning, drying step and finally a two-step thermochemical conversion to produce recoverable aggregates almost free of their contaminants. This designed material is of a great interest for the construction industry, which can use it as backfill materials or used into specific concrete, while giving it insulation properties, acoustic and thermal performance. The obtained material can also be integrated into green roofs and landscaping.

The project is under collaboration between researchers and industrial partners, and is devoted to design a clean and sustainable material from waste after remediation by a thermal process. Organic contaminants are destroyed during the process, as well as sulfates. Heavy metals are retained during the process and transformed into "ultimate waste". Finally, the energy contained

in the processed organic matter, recovered by the process itself, makes it energy efficient and dealing with circular economy approach.
After demonstrating in the laboratory the viability of the process, which has been the subject of a patent application, tests in a pre-industrial pilot will be carried involving large volumes of mixed waste materials.

The proposed work is structured as follows:

- Identifying and mapping appropriate waste materials from local sites and waste streams,
- Geotechnical and environmental characterization of resources, particularly sediments and sludges.
- Using a thermal technique to treat polluted sediments selected to be suitable for manufacturing light aggregates
- Mixing process quality assessment - Verify that the aggregates produced are suitable for their potential use in construction activities
- Analysing and monitoring product quality (standards) and safety – ensure that there are no harmful materials (contaminants) in the designed aggregates.

Requirements:

- Deep knowledge of soil treatment (restoration) and chemical analysis, including data quality and geoenvironmental skills.
- Experience will be appreciated on environmental footprinting and quantification
- Experienced as team's researcher

Desirable:

- Experience in laboratory research
- Experience in scientific management
- Communication and team working attitude.
- Good integration in multidisciplinary teams.
- Organization and motivation.
- Compromise and cooperation.

The candidates will be evaluated based on their qualifications and ability to fulfil the responsibilities as outlined for this project. We are looking forward to receiving your application including the following documents:

1. A cover letter summarizing your qualifications for the position and stating your major achievements
2. A detailed curriculum vitae with a list of your publications
3. The names, addresses and emails of two potential referees

For further information, please contact:

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