

Post-doctoral researcher on the synthesis of clay minerals (M/F)

Objective and tasks

This project is proposed as a continuation of a collaborative project between ANDRA and IS2M to synthesize iron-rich tri-octahedral clay minerals with controlled structure and chemistry. The results obtained to date have allowed to define favorable synthesis conditions in terms of pH to synthesize iron-rich clay minerals of the 1:1 and 2:1 type. However, the characterization of the synthesized material suggests the presence of amorphous by-products, and therefore a heterogeneity of the solid obtained. For this reason, additional characterization and synthesis experiments are needed to complete the current study.

To achieve the objective of the project, the activities will be grouped into 3 tasks: (1) bibliographic study on parameters of crystallinity and analysis of previous results, (2) characterization of the material by the method chosen in task 1, (3) synthesis to improve sample crystallinity.

The candidate will be part of the team "Transfer, Reactivity, Materials for Clean Processes" of IS2M and interaction with ANDRA will take place via status meetings.

Required skills

The candidate must hold a PhD in materials science, geochemistry, chemistry, chemical engineering or similar. Knowledge of the synthesis of inorganic compounds and their characterization is required. Knowledge of clay minerals or iron mineral synthesis and structure would be preferred. Other skills required include critical thinking, project management, scientific method, analysis of experimental data, fluent English, scientific writing.

Contact

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Duration and remuneration

12 months (starting on January 2023)

Between 2690 and 3100 EUR brut per month depending of experience

Application deadline: end of October