

## **Post-doctorate position in civil engineering**

Establishment: CY Cergy-Paris University

Laboratory: L2MGC - Civil Engineering Mechanics and Materials Laboratory

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Start date: 01/03/2023

End date: 29/02/2024

Deadline to apply: 31/01/2023

### **Description**

The activities are a part of Work Package 2, Selective Separation & Demolition, of the European Project MOBICON-PRO, "MOBile and Innovative Circularity for CONstruction PROducts."

The task's main objective is to assess the impact of pollutants in CDW (construction and demolition waste) on the quality of recovered materials. In order to characterize, identify, and control the presence of Inert Waste (IW) in CDW other than concrete waste and Non-hazardous Industrial Waste (NHIW) using various technologies, the recruited post-doctoral researcher will undertake laboratory testing (image analysis, SEM coupled with X-rays, IR, leaching tests, etc.). The major aim is to develop standards and/or recommendations that identify the contaminants in CDW and the acceptable limit values.

The mission of the recruited candidate is strongly related to the other project objectives, especially the work that involves the production and characterization of concrete incorporating NHIW.

The missions are:

- Effects of the presence of controlled quantities of Non-hazardous industrial waste (NHIW) and Inert Wastes (IW) : bricks, tiles and bitumen debris in recycled materials (crushed stone for unbound applications and concrete aggregates)

- Effects of pre-saturation CDW (IW and NHIW) aggregates on the physical and mechanical properties of fresh and hardened concrete
- Development of an experimental methodology to identify and to control the presence of Inert Waste (IW), other than concrete waste, and NHIW using different technologies
- Development of recommendations and/or standards to identify the pollutants contained in CDW and the limit values not to be exceeded

### **Skills required**

- PhD degree with strong training in experimental thesis, materials science, waste recovery, physical measurements, and data gathering systems.
- English proficiency and writing skills are required.

### **Available experimental tools**

- Laboratory scale crusher
- Experimental tools for aggregates characterization (particle size distribution, cleanliness, mechanical properties, ...=
- Leaching machine
- Inductively Coupled Plasma Spectroscopy machine, SEM, ...
- Climatic chamber