Thematic Session 06

Clays for contaminants control

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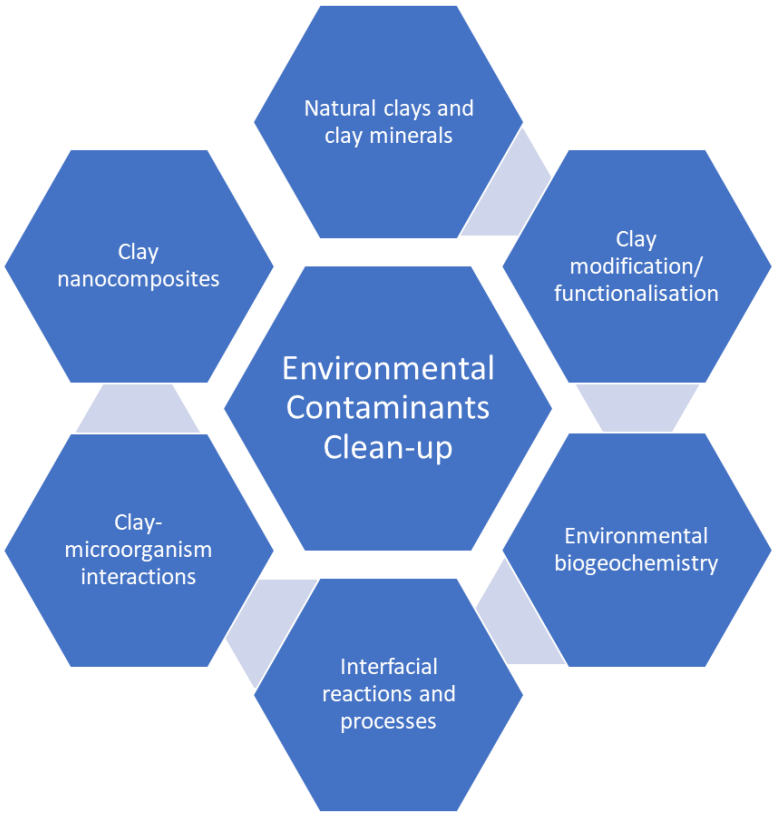
Clays and clay minerals influence the source, transformation, and mobility of contaminants via diverse interfacial reactions and processes in the natural environment. Owing to their unique physicochemical characteristics, clay materials can immobilise and/or eliminate both inorganic and organic environmental contaminants from soil, water and air. Following physical, chemical or biological modifications, the contaminant immobilisation or clean up abilities of clays can be further enhanced, leading to practical applications of these engineered materials for wastewater treatment, soil remediation or air filtration. Various routes of modification, such as with surfactants, polymers, metals, nanoparticles and microorganisms, can yield improved functionality and performance of clay minerals for the remediation of environmental contaminants. This session aims to provide a platform to share and discuss recent research advances on the interactions of natural and modified clay materials with organic, inorganic and biological contaminants in liquid, solid and gaseous phases. Papers highlighting methodological advancement to unravel complex clay-contaminant interactions, and performance evaluations and standardisation of mineral materials under pilot and field-scale applications, are also welcome. The conveners of this session plan to arrange a special issue of a high-quality journal with submissions of full papers presented in this session.

Keywords: Clay-contaminant interactions, Clay modification, Environmental biogeochemistry, Environmental remediation, Functional clay materials, Interfacial reactions and processes.

Potential Journals: Chemical Engineering Journal, Environmental Pollution, Journal of Hazardous Materials, Applied Clay Science, Clays and Clay Minerals.


Natural clays and clay minerals
Clay modification/ functionalisation
Environmental biogeochemistry
Interfacial reactions and processes
Clay-microorganism interactions
Clay nanocomposites
Environmental Contaminants Clean-up