

Special Issue on

The Use of Anionic and Cationic Clays in Adsorption Processes and its Potential Applications

CALL FOR PAPERS

Clay minerals are abundant and inexpensive materials located on the surface of Earth. Since ancient times, these minerals have been well known, used in the synthesis of ceramics or pottery. The applications of clay minerals have increased due to their use as ceramics, pottery, refractory, porcelain, filler coating, or catalysts. One of the main applications of clay minerals is their use in adsorption processes. This application is ascribed to its structural composition since the sheets of the aluminosilicate display an excess of negative charge, which must be counterbalanced by the intercalation of cations in the interlayer spacing. These cation clays can be replaced by other inorganic or organic cations in such a way their applications or modifications to obtain nano-composites are innumerable.

Besides cationic clays, the use of anionic clays also displays great interest in adsorption processes. These anionic clays are rare on the planet. However, they can be easily synthesized in the laboratory. Generally, these anionic clays display a brucite structure where a portion of M2 cations is replaced by M3 cations leading to a charge deficiency of charge, which is counterbalanced by anions in the interlayer spacing. Considering their structure, these anionic clays can host anionic cations in their framework. More recently, it has been reported that anionic and cationic clay minerals can improve the adsorption capacity by the formation of pillars, composites or by the grafting of the clays to favor the selective adsorption of specific molecules.

This Special Issue welcomes original research and review articles, discussing the wide range of use of anionic and cationic clays in adsorption processes and its potential applications in several fields such as medical, environmental, polymers, membranes, and gas separation, among others. This Special Issue is interested in highlighting research where realistic solutions are employed, adsorption models are proposed, adsorption mechanisms are predicted, or the regeneration of adsorbents is studied, analyzing their adsorption and elution, among other innovative studies. This Special Issue aims to go beyond the typical batch adsorption tests and the fitting of the equilibrium/kinetic data with conventional model equations.

Potential topics include but are not limited to the following:

- ▶ Mechanism of adsorption processes
- ▶ Computational modeling of adsorption mechanisms
- ▶ Design of composites or nanohybrids
- ▶ Functionalization of anionic and cationic clays
- ▶ Selective adsorption processes
- ▶ Design of magnetic clays
- ▶ Adsorption of heavy metals, pesticides, drugs, proteins
- ▶ Spectroscopy studies in adsorption processes

Authors can submit their manuscripts through the Manuscript Tracking System at <https://review.hindawi.com/submit?specialIssue=927762>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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