



Environmental Applications of Chemically Modified Clay Minerals

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Message from the Guest Editor

On behalf of the Minerals Journal, I would like to invite you to join me in the special issue related to the investigation of clay minerals with a focus on their environmental applications.

Clay minerals are natural materials with unique properties (large specific surface area, cation exchange capacity). Most known clay mineral groups, smectites, and kaolinites are investigated for decades, and their usage has now an extensive range from cosmetics through paper and paints additives to environmental applications. Smectites have a large specific surface area and cation exchange capacity due to the negative layer charge. They are excellent natural adsorbents, but their properties can be enhanced by chemical modification to study their: (1) structural stability under extreme pH conditions (the isolation layers of a toxic waste dumps and spent radioactive fuel storages - acid and alkali activation), (2) redox activity to remediate contaminated waters and soils by industrial or agricultural discharges (chemical and biological redox activation of structural Fe), and (3) reactivity with oversaturated saline solutions (geological clay barriers). These studies are highly recommended for this special issue of the Minerals Journal, but other environmental utilizations of chemically modified clay minerals are welcome, as well.

Finally, the overall goal of this issue is to bring a message about the actual environmental applications of chemically modified clay minerals.

