Special Issue

Cement, Gypsum, and Lime Composites: Methods, Models, Kinetics, and Recent Advances

Message from the Guest Editor

Dear colleagues, A wide variety of analytical techniques are routinely used for chemical composition and microstructure characterization of building materials. Thermal analysis (TA) is one of the most important examples of such methods. It covers a variety of techniques detecting changes in material properties as a function of temperature. TA can be a powerful tool for the study of thermal stability and decomposition reactions of cement composites subjected to high temperatures, which can be consequently used for example for fire behavior models. In the field of cement science, methods of TA also allow the qualification and quantification of selected hydration products. Thermogravimetry (TG) and different scanning calorimetry (DSC) in particular have become popular for measurements of bound water, portlandite and CaCO3 contents in cement composites. As opposed to X-ray powder diffraction (XRD), TG is capable of identifying amorphous hydrates, such as C-S-H phases, and thus, can be widely used complementarily with this method. Moreover, results of TA are usually successfully combined also with scanning electron microscopy or mercury intrusion porosimetry.

Guest Editor

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