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Editorial

Editorial for Special Issue "Clay Minerals and Waste Fly Ash Ceramics"

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This Special Issue published a collection of eight scientific contributions. Three papers [1–3] investigated an effective use of power plant fly ash (FA) for FA/clay-based ceramics. The first article [1] focuses on FA with the admixture of kaolins (10% by mass) sintered at 1300 °C to mullite ceramics. The ceramics' suitable porosity and density, formed due to the high content of kaolinite and orthoclase in the raw kaolins, supported the compressive strength. A similar FA/clay mixture in article [2] investigated the use of talc (10% and 25% by mass) and the influence of iron oxide in fly ash on the transformation of talc to Fe-enstatite, which was assumed using molecular models. The mullite-cordierite ceramics sintered at temperatures of 1200 °C exhibited textural properties similar to the commercial ceramics produced at sintering temperatures higher than 1250 °C. The third paper [3] examined pulverized firing fly ash and fluidized fly ash from the power plant for their potential use in the production of building ceramics. In spite of the fact that the fly ash, being up to 40% of the mass in mixtures of illitic clay, reduced Young's modulus and mechanical strength in clay ceramics, their values were high enough to be used as ceramics for the production of bricks and tiles.

The fourth paper [4], dealing with the evaluation of the glassy (amorphous) phase alongside the crystalline phases in clay-based cordierite ceramics, is a quantitative analysis of crystalline phases using chemical analysis and amorphous phases by scanning electron microscopy using the CQMA program.

The three articles that follow investigations of FA include the following: the formation of alkali-activated materials (AAMs) which have properties similar to ceramic materials prepared at lower temperatures in comparison to the traditional fired ceramics [5], the removal of non-environmentally safe metals from FA [6], and mechanical and chemical conditions for suspensions of recycled glass and inorganic waste powders to promote novel functionalities [7].

The final article [8] focuses on the phase transformation mechanism in fly-ash-based solids investigated over eight years. A scheme describing phase transformations in fly-ash-based solids has been proposed.

Conflicts of Interest: The author declares no conflict of interest.

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