

Eco-friendly geopolymer materials based on industrial waste and by-products

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Abstract

In doctoral thesis, the main objectives were:

- obtaining ecological geopolymers using secondary raw materials by activating with classical and alternative activators.
- examination of the technical performance of the geopolymers obtained in order to identify opportunities for capitalization in the field of construction.
- evaluation of the long-term leaching behavior of the geopolymers obtained in order to determine their hazardous potential in relation to the environment.

The doctoral thesis entitled "Eco-friendly geopolymeric materials based on industrial waste and by-products" is structured in two parts, respectively A. Literature study and B. Original contributions.

The original contributions concern the synthesis of ecological "two-part" geopolymers based on light ash from thermal power plants with the addition of glass waste from end-of-life fluorescent lamps without their preliminary treatment, the synthesis of new assortments of solid alkaline activators based on glass waste from end-of-life cathode ray tubes (CRTs) by alkaline fusion and the synthesis of ecological "one-part" geopolymers based on ash light thermal power plant and red sludge using new assortments of solid alkaline activators based on glass waste CRT type.