

## **RECENT PROGRESS IN GEOPOLYMER CONSTRUCTION MATERIALS RESEARCH: PROCESSING AND PERFORMANCE**

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The development of geopolymer research is to step ahead towards searching for green materials with the purpose to minimize or replace the use of ordinary Portland cement (OPC) and emissions of carbon dioxide (CO<sub>2</sub>). The production method applied is significant and user and eco-friendly with lower consumption of energy. The potential of source materials in a wide range of slag, natural clay, waste and natural Al–Si minerals possibly will provide as potential source materials for the production of geopolymer. current research on geopolymer demonstrates how geopolymer products display superior properties good for many applications including as a new building materials (lightweight concrete, insulating concrete, lightweight brick, lightweight aggregate, a new steel fiber reinforced concrete), a new materials for road base application, as a repair materials, a new materials for corrosion application, a new filler in piping application, as underwater concrete materials, a low sintering temperature ceramic, as reinforced material in solder alloy, lightweight ceramic application and also high strength paste application. The advancement made in the various research of science and technology has helped us to have equivalence or a better quality of existing product. The characteristic and performance of geopolymer products has proved for better thermal insulation properties, higher fire resistance, lower processing temperature, low permeability, good chemical resistance, excellent in acid and salt environment.