

Assessment of alkali activated geopolymer binders as an alternative of portland cement

ABSTRACT

This study summarizes the recent achievements in the development of alternative cement free binder materials (cementless) called alkali activated binder or more popularly known as geopolymers. The history of the development of alkali activated binder and recent terminology are discussed. The influence of the type of the base materials on the properties of geopolymers are thoroughly reviewed. The effect of composition and concentration of alkali and curing temperature on the properties and mechanical behavior of the resulting alkali activated material are discussed. Different type of base materials used in the formation of alkali activated material are blast furnace slag, metakaolin, fly ash, bottom ash, volcanic ashes, and red mud. The state-of-the art in this field demonstrated that this type of materials are ecologically friendly alternative of the Ordinary Portland cement.