World Academy of Science, Engineering and Technology
International Journal of Materials and Metallurgical Engineering
Vol:13, No:10, 2019

Effect of Particle Size on Alkali-Activation of Slag

Authors : E. Petrakis, V. Karmali, K. Komnitsas

Abstract : In this study grinding experiments were performed in a laboratory ball mill using Polish ferronickel slag in order to study the effect of the particle size on alkali activation and the properties of the produced alkali activated materials (AAMs). In this regard, the particle size distribution and the specific surface area of the grinding products in relation to grinding time were assessed. The experimental results show that products with high compressive strength, e.g. higher than 60 MPa, can be produced when the slag median size decreased from 39.9 μm to 11.9 μm. Also, finer fractions are characterized by higher reactivity and result in the production of AAMs with lower porosity and better mechanical properties.

Keywords : alkali activation, compressive strength, grinding time, particle size distribution, slag, structural integrity
Conference Title : ICHPT 2019 : International Conference on Hydrometallurgy and Processing Technologies
Conference Location : Dublin, Ireland
Conference Dates : October 24-25, 2019