An Overview of Bauxite Residue Utilisation

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Abstract

Bauxite residue is a solid waste generated during the production of alumina from bauxite. The disposal of this waste is a global challenge due to its potential environmental impact. If not well managed, its high alkalinity is a potential source of contamination of water, land and air in close proximity of the disposal site. Extensive work is carried out by researchers worldwide on value addition and fruitful utilization of bauxite residue. Some of the opportunities for utilization include adsorbents for the removal of heavy metals, dyes, phosphate, nitrate and fluoride; preparation of catalysts; recovery of iron, titanium and other trace metals; production of radio opaque materials; production of construction bricks; wood substitutes; cement; geo-polymers; development of coatings and pigments. This paper examines the details of bauxite residue utilization with the ultimate aim of solving the challenges of disposal and environmental impact.

Keywords: Bauxite residue utilization; wood substitutes; coatings and pigments; radio opaque material;geo-polymers