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Web of Science
Page 1 (Records 1 -- 1)
[ 1 ]

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**Record 1 of 1**

**Title:** BAUXITE MINING AND REFINERY: INVESTIGATING PROSPECTIVE RED MUD MANAGEMENT STRATEGIES

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**Abstract:** The bauxite or aluminium industry continues to play an important role in the global economy. However, efforts are still needed in the sector in order to meet the objective of the millennium for sustainability. Serious environmental and health concerns are raised at every stage of the industry starting from the bauxite preliminary exploration to the mining activities as well as the alumina refining process. In addition to the excessive energy requirement, huge amounts of greenhouse gases including carbon dioxide (CO2) and Perfluorocarbon Gases (PFCs) are emitted. Besides, large superficies of lands and forests are destroyed every year. Red mud obtained from alumina processing is among the world's biggest industrial wastes characterized by high alkalinity (about 2 to 3 g L-1). Based on the type of bauxite, the waste might contain some radioactive and hazardous elements. The high iron content in bauxite and red mud is also a source of various environmental and social issues. Run out of red mud and dust emission are potential sources of ground and surface water severe pollution and public health issues. This review briefly describes the potential environmental and health risks associated with bauxite mining and its transformation processes into alumina. An outline of the available environmental management strategies is given with a focus on those associated with the bauxite residue.

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Page 1 (Records 1 -- 1)
[ 1 ]

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