Environmental and Economic Benefits of Bauxite Residue Management through the Use of Pressure Filtration, a Case Study

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Abstract

Filtration of Bayer process bauxite residue using filter presses permits efficient material handling and stacking. The low moisture content can also translate to improved soda recovery. The fine fraction of bauxite residue known as 'red mud' can be a relatively complex slurry, having a solid portion made up of a mixture of different phases which can influence the material's filterability. For this reason, detailed testing of the residue slurry is necessary to define the filtration conditions best suited to achieve the required performance. This paper describes the different phases of testing that Aqseptence Group Srl follows in determining the filtration conditions best suited to a particular slurry. A case study is presented in which Aqseptence Group Srl undertook characterization testing on a particular bauxite residue slurry. This allowed Aqseptence experts to define the kind of filter most suitable for this application, to achieve the required performance targets and to meet the plant operational and safety standards.

Keywords: bauxite residue, filtration; filter presses; bauxite residue slurry testing pilot; cake filterability.