

High Purity Alumina and Potash Produced From Feldspar

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ABSTRACT

High purity alumina (HPA) is a processed premium non-metallurgical alumina product characterised by its purity level i.e. 99.99% (4N), 99.999% (5N). The market price, application, and performance of HPA varies widely according to its degree of purity. High purity alumina is a form of aluminium oxide (Al_2O_3) with growing use in LED lighting and coating on the ceramic cathode separator sheets in lithium ion batteries.

This paper describes a study on producing high purity alumina from feldspar to produce HPA and potash for use as a fertiliser. The project was positive for a number of reasons. High potassium extraction >99% was achieved in the alkali leach using sodium hydroxide as the leaching agent and full dissolution of the alkali leach residue was achieved with hydrochloric and sulphuric acid. The potential to produce a high purity alumina product via a complex but promising emerging process was assessed. The potential to extract potassium as potassium sulphate to add value to the project was also demonstrated with the testwork