

عنوان مقاله:

Recovery of titanium dioxide from red mud generated during alumina production in Jajarm alumina plant

محل انتشار:

سومین همایش ملی تحقیقات نوین در شیمی و مهندسی شیمی (سال: 1390)

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خلاصه مقاله:

In Jajarm, above 99% alumina is produced using tube digestion Bayer method. Tailing of this process is called Red mud. Red mud contains valuable components such as Titanium, Iron, Aluminum and Silicium. Red mud is toxic and a lot of expensive efforts have been done in order to develop an economical method to extract them. Titanium is one of the valuable elements of red mud which is very important due to an increase in its worldwide consumption and depletion of its original sources. In general, various methods such as, pyrometallurgical, hydrometallurgical and magnetic separation methods are used all over the world for extraction of titanium dioxide from the red mud. In this study, two stage leaching is performed. In the first stage, red mud is leached in hydrochloric acid (HCl) in order to dissolve impurities. Then the TiO₂ rich residue is leached by sulphuric acid (H₂SO₄). As a result, the 61% of titanium dioxide is recovered in aqueous phase. In design of these experiments, Taguchi method is used to determine the optimum conditions for titanium dioxide recovery.

کلمات کلیدی:

Red mud - Titanium dioxide – Recovery - removal of impurities – Taguchi method

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