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过程与工艺

Effects of Polymeric Flocculants on Settlement of Bayer Red Mud Generated from Chinese Diaspore Bauxite

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摘要 A systematic investigation on the interaction between Bayer red mud particles generated from Chinese diaspore bauxite and commercial sodium polyacrylate (SPA) or polyacrylamide (PAM) was performed by red mud settling tests, conductivity-pH titration and Ubbelodhe viscosimetric measurement. The results indicate that the treatment with red mud by SPA gives a lower red mud settling rate and lower supernatant turbidity than the treatment with red mud by PAM. There is an optimum polymer dosage of 300 g/t (based on the weight of dry red mud) when red mud slurry is treated by SPA or PAM, so "bridging" adsorption is one of the main interactions between red mud and SPA or PAM. With the increase of NaOH concentration, the hydrolysis degree of PAM dissolved in NaOH solution increases and its molecular weight almost does not change, but the settling rate of red mud treated by it drops rapidly. The settling rate of red mud treated by PAM dissolved in 10 g/L NaOH solution is 0.61 m/h while by PAM dissolved in distilled water it is 1.31 m/h, because the adsorption ability of the hydrolyzed PAM onto red mud surface declines primarily due to the formation of ?CONH2~?COO-~?CONH2 intramolecular hydrogen bond.

关键词 alumina red mud flocculant settlement clarification Chinese diaspore bauxite

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