

论文

粉煤灰中难浮未燃炭的柱式浮选脱除试验研究

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摘要:

采用粒度分析、X射线衍射、接触角测量和X荧光分析等手段对矿样的物理化学性质进行表征,从表面性质的角度探讨未燃炭可浮性较差的内在原因;研究黏性起泡剂KD对浮选体系的泡沫稳定作用;采用实验室型旋流-静态微泡浮选柱研究未燃炭的柱式浮选行为。研究结果表明:黏性起泡剂可有效提高浮选体系的泡沫稳定性,在起泡剂KD用量400 g/t、表观充气速率1.8 cm/s、泡沫层厚度150~200 mm、浮选柱循环压力0.22 MPa的优化试验条件下,可以得到烧失量3.15%的低炭灰产品,炭脱除率达91.88%。

关键词: 粉煤灰; 未燃炭; 泡沫稳定性; 浮选柱

Experimental study on removal of unburned carbon from coal fly ash using flotation column

Abstract:

The fly ash sample was characterized by size fraction, X-ray diffraction, contact angle measurements and X-ray fluorescence. The function of a new type of frother(KD) which can produce more stable foam than conventional frothers was studied. The effect of the column flotation operating variables on the removal of unburned carbon from the fly ash was also systematically examined. Within the range studied, the optimum frother dosage is 400 g/t, superficial gas velocity is 1.8 cm/s, froth thickness is about 150-200 mm and circulating pressure is 0.22 MPa. The results indicate that Cyclonic-Static Micro-bubble Flotation Column(FCSMC) technique is effective in removing the unburned carbon from coal fly ash. Under the optimized conditions, a cleaning ash with 3.15% LOI(Loss on Ignition) and 91.88% RUC(Removal Rate of Unburned Carbon) is obtained.

Keywords: coal fly ash; unburned carbon; froth stability; flotation column

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