

论文

煤泥浮选过程能量输入优化

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摘要:

为探究浮选过程与能量输入的关系, 设计了在不同浮选时段(0.5, 0.5, 1.0, 1.0, 2.0 min)驱动电机转速为1 500, 1 800, 2 100, 2 400, 2 700 r/min的情况下, 进行逐步增加输入功率的浮选过程优化试验, 并通过能量测试系统对浮选功耗进行测定. 结果表明: 在浮选初始阶段, 转速越大, 浮选速率越快, 精煤可燃体回收率越高, 精煤累积灰分也越高; 在低能量输入的情况下精煤质量相对较高, 但精煤可燃体回收率相对较低; 在不同能量输入的浮选过程中, 驱动电机转速按浮选时段设计为1 500, 1 500, 1 500, 1 500, 2 400 r/min时, 其精煤累计灰分最低, 且可燃体回收率较高; 在总能量输入相同或相似的情况下, 浮选前期阶段采用低能量输入, 后期阶段采用高能量输入, 有利于保证精煤质量以及提高精煤回收率.

关键词: 煤泥; 能量输入; 浮选过程; 功率; 转速

Optimization of slime flotation process based on energy input

Abstract:

In order to find out the relationship between flotation process and energy input, the flotation tests were optimized by increasing input power in the flotation process. The drive motor speeds were 1 500, 1 800, 2 100, 2 400 and 2 700 r/min at different flotation periods. The flotation process was separated into five flotation periods of 0.5, 0.5, 1.0, 1.0, 2.0 min. The power dissipation in the flotation process was measured by energy measurement system. The flotation results show that the flotation rate, combustible matter recovery and accumulated ash content of clean coal increases with the increasing of rotate speed in the primary stage of flotation process. The combustible matter recovery is low while the quality of clean coal is high in the case of low energy input. The accumulated ash content of clean coal is the lowest and combustible matter recovery is higher while the drive motor speeds are 1 500, 1 500, 1 500, 1 500 and 2 400 r/min at the five flotation periods, respectively. The clean coal with higher combustible matter recovery and quality can be obtained while energy input is lower at the early stage of flotation process and higher at the later stage of flotation process in the case of same or similar total energy input.

Keywords: slime; energy input; flotation process; power; rotate speed

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