

论文

调浆剪切强度对煤泥浮选的影响

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摘要:

以开滦钱家营炼焦煤选煤厂的煤泥为样品, 在对原煤泥、>0.074 mm为主的粗煤泥、 <0.074 mm 为主的细煤泥等煤样进行实验室调浆试验的基础上, 利用自行研制的新型调浆机完成了35 m³/h负荷的半工业性试验, 重点考察调浆机叶轮线速度对浮选可燃体回收率的影响。结果表明: 在实验室、半工业性规模的煤泥调浆试验中, 均存在适宜的调浆剪切强度, 不足或过度调浆都不利于提高可燃体回收率; 实验室试验中对原煤泥、>0.074 mm为主的粗煤泥, 优化的调浆叶轮线速度相似, 均为6.00 m/s, 对<0.074 mm为主的细煤泥, 优化的调浆叶轮线速度为2.33 m/s; 对半工业性试验中采用的新型煤泥调浆机, 叶轮线速度在5~8 m/s时可获得较好的调浆效果, 浮选可燃体回收率比矿浆预处理器平均提高9.65个百分点。

关键词: 调浆; 煤泥; 浮选; 叶轮线速度; 可燃体回收率

Effects of shearing strength in slurry conditioning on coal slime flotation

Abstract:

The coal slime samples from Qianjiaying Coking Coal Preparation Plant of Kailuan Mining Group were used in the experimental study on the effects of shearing strength in slurry conditioning on coal slime flotation. The raw coal slime, coarse coal slime with grain size greater than 0.074 mm and fine coal slime with grain size less than 0.074 mm were tested with different shearing strengths. Based on above laboratory test, a pilot experiment was conducted at the Qianjiaying Coking Coal Preparation Plant using a newly designed slurry conditioning machine with 35 m³/h capacity. The results show that the suitable shearing strengths could be selected in slurry conditioning processes either on a laboratory scale or in a pilot experiment. Otherwise, inadequate or excessive conditioning strength will result in the decrease of combustibles recovery. The optimized impeller linear speeds for conditioning of raw coal slime are similar, which is 6 m/s on average, and 2.33 m/s for the fine coal slime with the grain size less than 0.074 mm. The suitable impeller linear speed of the new slurry conditioning machine used in pilot experiment covers the range between 5- 8 m/s. Compared with the existing coal slurry conditioning equipment, the new slurry conditioning machine can increase the combustibles recovery by 9.65 percents in a pilot experiment.

Keywords: slurry conditioning; coal slime; flotation; impeller linear speed; combustibles recovery

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