基于综合工况评判模型的铅锌烧结过程操作参数优化方法

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摘　　要：针对铅锌烧结过程中复杂的过程优化控制问题，提出基于综合工况评判模型的铅锌烧结过程操作参数优化方法。在基于机理分析的基础上，综合运用主元分析、神经网络和模糊理论等方法，建立综合工况评判模型；并根据当前的操作参数和综合工况评判模型结果，采用基于模糊C均值聚类的匹配优化算法获得最优的操作参数，从而为现场操作人员提供科学的操作指导。结果表明：该方法可显著改善工况波动、提高烧结块的产量和质量，较好地解决铅锌烧结过程的优化控制问题。

关键字：　铅锌烧结过程；操作参数；透气性预测模型；产量质量预测模型；工况评判模型；模糊C均值聚类；匹配优化算法

Optimization method of operating parameters for lead-zinc sintering process based on comprehensive status evaluation model

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Abstract: An optimization method of operation parameter based on comprehensive status evaluation model was proposed on the background of optimization control problem for lead-zinc sintering process. Based on the sintering process mechanism analysis, the comprehensive status evaluation model was proposed, which synthesizes a lot of intelligent technique, including principle components analysis, neural network, fuzzy theory and so on. Then according to the current operating parameters and the result of comprehensive status evaluation model, the optimum operation parameters were calculated by using matching optimization algorithm based on fuzzy C-means clustering. The results show that the fluctuation of status can be meliorated efficiently and the output and quality of agglomerate is improved, so the problem of optimization control for lead-zinc sintering process can be resolved.

Key words: lead-zinc sintering process; operating parameters; permeability prediction model; output-quality prediction model; status evaluation model; fuzzy C-means clustering; matching optimization algorithm