

发电

提升管内熟石灰浆液雾化脱除烟气中SO₂过程

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摘要

应用非接触在线测量SO₂浓度装置,研究了提升管内熟石灰浆液雾化时SO₂脱除过程。研制了夹层式抽气热电偶,测得了浆液雾化干燥时烟气温度场分布。结果表明:SO₂脱除和浆液干燥过程沿塔高呈先增加后降低的趋势,在距离喷嘴200mm处出现SO₂脱除和温度降低份额的最大值。浆液雾化区径向温度呈双峰分布。气液质量比由0.1提高到0.2时脱硫效率提高8%;雾化高度提高。夹层式抽气热电偶适于测量气液两相流场内气体温度,通过测定温度场可以判定浆液蒸发情况,标定不同工况喷嘴雾化状态。

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Study on Process of SO₂ Removal in Flue Gas by White Lime Slurry Atomization in Riser

Abstract

The experimental research was carried out about process of SO₂ removal in flue gas using white lime slurry atomization, and with the method of non-contact on-line measuring for SO₂ concentration in riser. The temperature distribution of slurry atomization drying was measured by new sandwich structure thermocouple with air pump. The results showed that the process of SO₂ removal and slurry atomization increases firstly and then decreases along the tower. The maximum SO₂ removal and temperature decreasing amplitude were got at a distance 200mm from the nozzle. There are two apexes on the radial temperature distribution curves of slurry atomization area. When the gas to liquid mass ratio increase from 0.1 to 0.2, desulfuration efficiency was improved by 8% and atomization height was also increased. The sandwich structure thermocouple with air pump is appropriate for measuring the gas temperature in the two-phase gas liquid flow field. By determining slurry evaporation condition with measuring gas temperature field, the nozzle spray patterns in different work conditions can be calibrated.

Key words [SO₂](#) [desulfuration](#) [atomization](#) [flue gas wet emission](#) [white lime slurry](#)

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