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论文**氨法脱硫过程烟气中细颗粒物的变化特性**

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摘要:

采用电称低压冲击器(electrical low pressure impactor, ELPI)对氨法脱硫前后的细颗粒进行测量, 获得烟气中细颗粒的数浓度和粒径分布特性, 分析了氨法脱硫过程细颗粒的生成机制及洗涤塔对细颗粒的捕集特性。结果表明, 氨法脱硫后细颗粒的数浓度明显增加, 在SO₂浓度为1 767 mg/m³和氨水浓度为5%, 平均粒径由洗涤前的0.07 mm增大到0.09 mm; 常规洗涤对细颗粒的脱除效率很低且几乎不受液气比影响; 而氨水脱硫时, 洗涤塔出口的颗粒数浓度随液气比的增大而提高, 特别是氨水浓度较高的情况; 氨水浓度为10%, 液气比从2 L/m³增加到5 L/m³, 颗粒数浓度增加了10%; 此外, 随氨水浓度和烟气中SO₂浓度的增大, 洗涤后颗粒的数浓度增加。

关键词: 氨法脱硫 细颗粒 粒径分布 洗涤**Impact Property on Fine Particles From Coal Combustion in Ammonia Flue Gas Desulfurization Process**

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Abstract:

Fine particles before and after wet flue gas desulfurization with ammonia were measured by electrical low pressure impactor (ELPI). Number concentrations and size distributions characteristics of fine particles in flue gas were obtained. The capture effects of fine particles using scrubber and aerosol formation mechanisms in ammonia desulfurization process were investigated. The results show that particle number concentration has an obvious increase after ammonia desulfurization and the mean size increase from 0.07mm before scrubbing to 0.09mm after ammonia desulfurization. The removal efficiency of submicron particles is extremely low using wet scrubber with plain water and independent on the ratio of liquid to gas. But particle number concentration in the outlet of scrubber increases with the ratio of liquid of gas with ammonia desulfurization, especially for higher concentration of ammonia. With the ratio of liquid to gas improved from 2L/m³ to 5L/m³ and ammonia concentration of 10%, the particle number concentration can be improved more than 10%. Moreover, particle number concentration after ammonia desulfurization increases with the concentration of SO₂ and ammonia.

Keywords: ammonia desulfurization fine particles size distribution scrubbing

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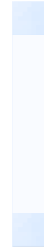
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