

化学与化工

燃煤烟气脱硫脱硝用氨与三聚氰酸联产制备法

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摘要:

针对现有烟气脱硫脱硝氨气制备工艺中液氨法危险性大和尿素法运行成本高的缺点,提出了尿素衍生物和脱硫脱硝所用氨气的联产制备新工艺。选择了一系列尿素反应中微波照射尿素制备三聚氰酸的工艺进行研究,考察了反应物配比、微波火力以及反应时间对该工艺的影响。优化得到了最佳反应工艺为尿素与氯化铵以质量比为36:1混合,在微波高火照射下反应分10min,然后酸煮精制,产率达70%。与现有的尿素制氨技术相比,该技术具有无排放、副产高附加值尿素衍生物的优点。

关键词: 氨法脱硫 选择性催化还原脱硝 尿素制氨 三聚氰酸 微波

The co-production of cyanuric acid and the ammonia used in coal-fired flue gas desulphurization and denitrification

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Abstract:

A new method was proposed to prepare the derivative of urea and simultaneously to generate ammonia, which was utilized for desulfurization and reduction of NO_x of flue gas. In a series of urea reactions, the reaction by which urea was heated by microwave to prepare cyanuric acid was chosen to investigate the effect of the mass ratio of reactants, microwave power and reaction time on the reaction. The best reaction condition was obtained with the mass ratio of urea to ammonium chloride of 36:1, heated by high power microwave for ten minutes, and refined by boiling in acid solution. The productive rate of the reaction was 70%. Compared to existing ammonia preparation technology by urea, this technology had the advantage of no emission and could prepare high value added urea derivatives.

Keywords: the ammonia process for SO_x removing selective catalytic reduction of NO_x ammonia production by urea cyanuric acid microwave

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