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RESEARCH NOTES

填充结构规整填料的NOx吸收模型和实验研究

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摘要：A mathematical model of nitrogen oxide（NOx）absorption is adopted and solved for adiabatic operation of a column with structured packings on the basis of the film theory. Removal rate, outlet concentration, oxidation degree of NOx and outlet acid concentration, liquid acid temperature are simulated and tested. The gas phase reactions and equilibria, gas phase mass transfer, interracial equilibria, and liquid phase reactions are considered in the model. Absorption of nitrogen oxides is studied in packed with Mellapak 250Y columns in series in an industrial process of 20000 t oxalic acid per year. Favorable agreement is shown between the model predictions and the on site observations.

关键词：吸收塔结构；NOx；吸收过程模型；实验研究；氧化酸；数值模拟；

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NOx Absorption in Full Scale Plant Columns with Structured Packings

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Abstract A mathematical model of nitrogen oxide（NOx）absorption is adopted and solved for adiabatic operation of a column with structured packings on the basis of the film theory. Removal rate, outlet concentration, oxidation degree of NOx and outlet acid concentration, liquid acid temperature are simulated and tested. The gas phase reactions and equilibria, gas phase mass transfer, interracial equilibria, and liquid phase reactions are considered in the model. Absorption of nitrogen oxides is studied in packed with Mellapak 250Y columns in series in an industrial process of 20000 t oxalic acid per year. Favorable agreement is shown between the model predictions and the on site observations.

Key words nitrogen oxides; absorption; mathematic model; structured packing;

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