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REACTION KINETICS, CATALYSIS AND ....

超声内环流气升式反应器中环己烯环氧化反应的研究

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摘要 Epoxidation of cyclohexene to cyclohexene oxide was studied in a new type reactor---the ultrasound airlift loop reactor. The influences of ultrasound intensity, molar ratio of isobutyraldehyde to cyclohexene and oxygen gas flow rate on the conversion of cyclohexene and selectivity of cyclohexene oxide were investigated and discussed, and the optimal operation condition was found, under which 95.2% conversion of cyclohexene and 90.7% selectivity of cyclohexene oxide were achieved. The ultrasonic airlift loop reactor utilizes the synergistic effect of sonochemistry and higher oxygen transfer rate. Possible reaction mechanisms were outlined and the reason of ultrasound promotion of epoxidation reactionwas analyzed.

关键词 airlift loop reactor; ultrasound; epoxidation; cyclohexene; oxygen;

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Epoxidation of cyclohexene with oxygen in ultrasound airlift loop reactor

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