

RESEARCH NOTES

大庆常压催化裂解动力学研究

孟祥海, 徐春明, 张倩, 高金森

State Key Laboratory of Heavy Oil Processing, University of Petroleum, Beijing 102249, China

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摘要 Catalytic pyrolysis of Daqing atmospheric residue on catalyst CEP-1 was investigated in a confined fluidized bed reactor. The results show that reaction temperature, the mass ratios of catalyst to oil and steam to oil have significant effects on product distribution and yields of light olefins. The yields of light olefins show the maxima with the increase of reaction temperature, the mass ratios of catalyst to oil and steam to oil, respectively. The optimized operating conditions were determined in the laboratory, and under that condition the yields of ethylene, propylene and total light olefins by mass were 15.9%, 20.7% and 44.3% respectively. The analysis of pyrolysis gas and pyrolysis liquid indicates that CEP-1 has good capacity of converting heavy oils into light olefins, and there is a large amount of aromatics in pyrolysis liquid.

关键词 [catalytic pyrolysis](#) [heavy oil](#) [olefin](#) [yield](#)

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Studies on Catalytic Pyrolysis of Daqing Atmospheric Residue

MENG Xianghai, XU Chunming, ZHANG Qian, GAO Jinsen

State Key Laboratory of Heavy Oil Processing, University of Petroleum, Beijing 102249, China

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Abstract Catalytic pyrolysis of Daqing atmospheric residue on catalyst CEP-1 was investigated in a confined fluidized bed reactor. The results show that reaction temperature, the mass ratios of catalyst to oil and steam to oil have significant effects on product distribution and yields of light olefins. The yields of light olefins show the maxima with the increase of reaction temperature, the mass ratios of catalyst to oil and steam to oil, respectively. The optimized operating conditions were determined in the laboratory, and under that condition the yields of ethylene, propylene and total light olefins by mass were 15.9%, 20.7% and 44.3% respectively. The analysis of pyrolysis gas and pyrolysis liquid indicates that CEP-1 has good capacity of converting heavy oils into light olefins, and there is a large amount of aromatics in pyrolysis liquid.

Key words [catalytic pyrolysis](#); [heavy oil](#); [olefin](#); [yield](#)

通讯作者:

孟祥海

作者个人主页: [孟祥海](#); [徐春明](#); [张倩](#); [高金森](#)

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