

REACTION KINETICS, CATALYSIS AND.....

负载金属氧化物分子筛催化氧化模拟汽油的脱硫研究

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摘要 A simulated gasoline consisting of model sulfur compounds of thiophene (C₄H₄S) and 3-

methythiophene (3-MC₄H₄S) dissolved in n-heptane was tested for the oxidative desulfurization in the hydrogen peroxide (H₂O₂) and formic acid oxidative system over metal oxide-loaded molecular sieve. The effects of the oxidative system, loaded metal oxides, phase transfer catalyst, the addition of olefin and aromatics on sulfur removal were investigated in details. The results showed that the sulfur removal rate of simulated gasoline in the H₂O₂/ formic acid system was higher than in other oxidative systems. The cerium oxide-loaded molecular sieve was found very active catalyst for oxidation of simulated gasoline in this system. The sulfur removal rates of C₄H₄S and 3-MC₄H₄S were enhanced when phase transfer catalyst (PTC) was added. However, the sulfur removal rate of simulated gasoline was reduced with the addition of olefin and aromatics.

关键词 [oxidative desulfurization](#) [simulated gasoline](#) [thiophene](#) [3-methythiophene](#) [molecular sieve](#)

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Oxidative desulfurization of simulated gasoline over metal oxide-loaded molecular sieve

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Abstract A simulated gasoline consisting of model sulfur compounds of thiophene (C₄H₄S) and 3-methythiophene (3-MC₄H₄S) dissolved in n-heptane was tested for the oxidative desulfurization in the hydrogen peroxide (H₂O₂) and formic acid oxidative system over metal oxide-loaded molecular sieve. The effects of the oxidative system, loaded metal oxides, phase transfer catalyst, the addition of olefin and aromatics on sulfur removal were investigated in details. The results showed that the sulfur removal rate of simulated gasoline in the H₂O₂/ formic acid system was higher than in other oxidative systems. The cerium oxide-loaded molecular sieve was found very active catalyst for oxidation of simulated gasoline in this system. The sulfur removal rates of C₄H₄S and 3-MC₄H₄S were enhanced when phase transfer catalyst (PTC) was added. However, the sulfur removal rate of simulated gasoline was reduced with the addition of olefin and aromatics.

Key words [oxidative desulfurization](#); [simulated gasoline](#); [thiophene](#); [3-methythiophene](#); [molecular sieve](#)

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