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### 浸渍沉淀法制备活性炭负载Co-Mo双金属脱硫催化剂

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### Preparation of activated carbon-supported Co-Mo bimetallic catalyst by impregnation-precipitation method

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**摘要** 以氧化改性活性炭为载体, 尿素为沉淀剂, 采用浸渍沉淀法制备了负载型Co-Mo催化剂, 并用CO还原SO<sub>2</sub>反应作为模型反应考察了催化剂的催化活性。结果表明, 催化剂焙烧温度500℃、Co/Mo物质的量比0.45、最佳反应条件(硫化温度为500℃、空速为7 000 mL/(g·h)、CO/SO<sub>2</sub>物质的量比为2:1, 反应温度为450℃)时, 催化剂具有最好的催化活性和选择性。XRD表征结果表明, 催化CO还原SO<sub>2</sub>反应的活性相为CoS<sub>2</sub>和MoS<sub>2</sub>, 硫化温度影响活性相的形成。该催化剂稳定性好, 反应运行24 h后活性仍能保持最高活性的99%。

**关键词:** 活性炭 钴钼催化剂 浸渍沉淀法 一氧化碳 二氧化硫

**Abstract:** Supported Co-Mo catalyst was prepared by impregnation-precipitation method using modified activated carbon as carrier and urea as precipitant. Catalytic activity of catalyst was studied by using the reduction of SO<sub>2</sub> by CO. Under optimum reaction conditions (sulfidation temperature 500℃; GHSV=7 000 mL·g<sup>-1</sup>·h<sup>-1</sup>; CO/SO<sub>2</sub> mol ratio =2:1; reaction temperature 450℃), the best catalytic activity and selectivity were obtained for Co-Mo catalyst with calcination temperature was 500℃ and Co/Mo mol ratio =0.45. Catalyst samples were characterized by X-ray powder diffraction (XRD) in order to relate the phase composition to the activation behavior and catalytic performance. The active phases of catalyst were detected as CoS<sub>2</sub> and MoS<sub>2</sub>, and the formation of them were greatly dependent on the sulfidation temperature. And the catalytic activity of cobalt molybdenum catalyst decreased less than 1% after the reaction lasted for 24 h.

**Key words:** activated carbon Co/Mo catalyst impregnation-precipitation method carbon monoxide sulfur dioxide

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