

论文

甲醇在氧化锌表面吸附的研究

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摘要:

摘要用原位红外和脉冲实验研究了甲醇在氧化锌表面的吸附行为. FTIR结果表明, 甲醇吸附于氧化锌上易生成甲氧基, 且其生成量随着吸附温度的提高而增加. 进一步的研究结果表明, 甲氧基是由甲醇同氧化锌表面的羟基反应生成的, 将其暴露于水蒸汽中后很快消失. 脉冲实验发现, 氧化锌上脉冲甲醇时产生水, 再脉冲水则产生甲醇. 因此甲醇在氧化锌表面吸附生成甲氧基和水的反应是可逆的.

关键词: 关键词氧化锌; 甲醇; 水; IR光谱; 吸附; 脉冲反应

Adsorption of Methanol on Surface of Zinc Oxide

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Abstract:

Abstract The adsorption of methanol on the surface of zinc oxide was investigated by in situ FTIR and pulse reaction. The FTIR results show that methoxyl group was formed from the adsorbed methanol on the surface of zinc oxide, and its amount increased with increasing adsorption temperature. Further investigation indicates that methoxyl group was produced only by the reaction of methanol with surface hydroxyl group. It was also revealed that methoxyl group vanished quickly when it was exposed to water vapor. In the pulse reaction, water was detected while methanol was adsorbed on the the surface of zinc oxide, and then methanol was found while methoxy group contacted with water. Thus, the reaction of methanol with hydroxy group on the surface of zinc oxide surface was reversible.

Keywords: Keywords ZnO; Methanol; Water, IR Spectrum; Adsorption; Pulse reaction

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