

## 酯化硅胶的物理结构和表面性质的研究

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**摘要** 本文利用正庚醇或正辛醇与硅胶表面羟基反应制备了酯化硅胶。测定了酯化硅胶的物理结构、水蒸气吸附等温线、润湿热、差热分析和红外光谱。结果表明: (1)所有酯化硅胶的真密度(dT)、比表面(S)和比孔体积(V)均减少,而有观密度(dA)增加,但平均孔半径(r)变化不大; (2)酯化硅胶是憎水的,其在水蒸气吸附,以及对水和环己烷的润湿热均显著减少; (3)酯化硅胶的表面酯基在空气中于235-350℃破坏; (4)酯化反应是可逆的,硅胶表面酯基在水中大约可水解41-47%。

**关键词** [红外分光光度法](#) [酯化](#) [醇](#) [表面性质](#) [硅胶](#) [差热分析](#) [结构](#) [羟基化合物](#)

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## Studies on the physical structure and surface properties of esterified silica gels

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**Abstract** The esterified silica gel was prepared by the reaction between the surface hydroxyl groups of silica gel and n-heptanol or n-octanol. The phys. structure, water vapor adsorption isotherms, heat of wetting, DTA and IR for esterified silica gel were determine The results indicate: (1) for all esterified silica gels dT, S and V are all decreased, and dA is increased, but 2r suffers only a small change; (2) the esterified silica gel is hydrophobic, it shows a remarkable decrease in water vapor adsorption, and in heat of wetting for water and cyclohexane; (3) the surface ester groups of esterified silica gel are destroyed at 235-350 °C in air; (4) the esterification reaction is reversible and the surface ester groups of silica gels were hydrolyzed in water by about 41-47%.

**Key words** [INFRARED SPECTROPHOTOMETRY](#) [ESTERIFICATION](#) [ALCOHOL](#) [SURFACE PROPERTY](#) [SILICA GEL](#) [DIFFERENTIAL THERMAL ANALYSIS](#) [STRUCTURE](#) [HYDROXYL COMPOUNDS](#)

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