

PROCESS AND PRODUCT TECHNOLOGY

纳米 $\gamma\text{-Fe}_2\text{O}_3/\text{SiO}_2$ 复合氧化物的制备及气敏性质

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收稿日期 修回日期 网络版发布日期 接受日期

**摘要** Nanostructured  $\gamma\text{-Fe}_2\text{O}_3/\text{SiO}_2$  complex oxide was prepared by sol-gel method with tetraethoxysilane and iron nitrate as precursors. The particle size distribution, thermal and phase stabilities and gas sensing properties were systematically characterized by TEM, granularity distribution, TG-DTA, XRD and gas sensitivity measurements. The particle size is about 10 nm and size distribution is very narrow. The sensitivity of the sensing element to CO, H<sub>2</sub>, C<sub>2</sub>H<sub>4</sub>, C<sub>6</sub>H<sub>6</sub> and the effects of calcination temperature on the sensitivity and conductance of gases were examined. The combination of excellent thermal stability and tunable gas sensing properties through careful control of the preparation and judicious selection of material compositions gives rise to novel nanocomposites, which is attractive for the sensitive and selective detection of reducing gases and some hydrocarbon gases.

**关键词** [气敏性质](#)  [\$\gamma\text{-Fe}\_2\text{O}\_3\$ - \$\text{SiO}\_2\$](#)  [化合物](#) [氧化物](#) [硝酸钾](#) [接触反应](#) [氧化反应](#)

分类号

DOI:

**The Preparation and Gas-sensing Property of Nanosize  $\gamma\text{-Fe}_2\text{O}_3 / \text{SiO}_2$**

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Received Revised Online Accepted

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**Key words** [nanostructural composites](#);  [\$\text{Fe}\_2\text{O}\_3\$](#) ;  [\$\text{SiO}\_2\$](#) ; [gas-sensing properties](#)

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