

论文摘要

中国有色金属学报

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第18卷 专辑1 2008年6月

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文章编号: 1004-0609(2008)S1-0223-07

氧化锌和硫化钠反应合成制备纳米硫化锌的 粒度变化机制

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摘要: 在超声波作用下, 利用氧化锌粉和硫化钠溶液反应制备纳米硫化锌, 对该方法制备纳米ZnS颗粒的粒度变化机制开展研究。结果表明, ZnS粒度随着反应温度的提高及液固比的增加逐渐增大; 随反应时间的延长, 先增大后减小; 随Na₂S摩尔浓度的增加而减小; 随超声波的加入, 颗粒粒度显著变小, 并且能够达到纳米量级; 没有超声波作用所形成的ZnS颗粒只能达到微米量级。

关键字: 氧化锌; 纳米硫化锌; 结晶; 超声波

Mechanism of particle size change of nanoparticles ZnS prepared by solid-liquid reaction of ZnO and Na₂S

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Abstract: Nanoparticles ZnS were prepared with ZnO and Na₂S by solid-liquid chemical reaction under ultrasonic condition. Mechanism of the particle size change of nanoparticles ZnS was investigated. The results show that the particle size of ZnS gradually augments along with the increase of the reaction temperature and liquid-to-solid ratio; while with the increase of the reaction time, it augments at first and then reduces; and reduces with the increase of the molar concentration of Na₂S. Under the addition of ultrasound, the particle size of ZnS decreases significantly and can achieve the nanometer magnitude.

Key words: ZnO; ZnS nanoparticles; crystal; supersonic wave

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