

层状前体镍铁水滑石及磁性材料的制备及表征

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摘要 提出了利用镍铁水滑石作为磁性前体再经高温焙制备尖晶石型铁氧体思路,深入研究了水滑石的制备工艺及结构性能并初步探讨了其焙烧后的磁学性能。由共沉淀法合成了Ni/Fe摩尔比为2, 3, 4, 6的镍铁水滑石, XRD结果表明镍铁比为3时晶形较为理想,且随着晶化温度的升高及晶化时间的延长,水滑石的晶体结构规整性增强。热重-差热结果显示镍铁水滑石的分解有两个过程,当镍铁比为3时,水滑石的热稳定性相对最高。高温焙烧后的镍铁水滑石具有磁性。

关键词 [镍](#) [铁](#) [水滑石](#) [沉淀](#) [热分解](#) [磁性](#) [铁氧体](#) [X射线衍射分析](#) [磁性](#)

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Preparation and Characterization of Layered Precursor Nickel-Iron Hydrotalcites and Magnetic Materials

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Abstract A systematic study of preparation, structural characterization of Ni-Fe hydrotalcites and magnetism of the materials obtained after calcination was reported. A series of Ni-Fe hydrotalcites with Ni/Fe molar ratios of 2, 3, 4 and 6 was synthesized by coprecipitation. XRD patterns show that a well-crystallized hydrotalcite can be obtained when the Ni/Fe molar ratio is 3 with a long aging time at high temperature. TG-DTA results show that the materials decompose in two stages and the thermal stability of Ni-Fe-LDH is the best when the Ni/Fe molar ratio is 3. The materials obtained by calcination at 900 °C exhibit magnetism.

Key words [NICKEL](#) [IRON](#) [HYDROTALCITE](#) [PRECIPITATION](#) [THERMAL DECOMPOSITION](#) [MAGNETISM](#) [FERRITE](#) [XRD](#) [MAGNETISM](#)

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