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Mechanosynthesis and characterization of Hydrotalcite like Mg-Al-SO4-LDH

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MATERIALS LETTERS

Volume: 165 Pages: 192-195
 DOI: 10.1016/j.matlet.2015.11.132
 Published: FEB 15 2016
[View Journal Impact](#)

Abstract

Sulfate intercalated Mg-Al layered double hydroxides (Mg-Al-SO4-LDH) was successfully synthesized by the one step mechanochemical activation method followed by subsequent water washing and aging. Pursuant XRD and FTIR data indicates, product with high purity was obtained after 60 min milling. Results demonstrated that the structural features of Mg-Al-SO4-LDH were affected strongly by milling time (30-900 min) so that interlayer spacing of LDH showed upward trend with some fluctuation. Microscopic analysis showed rounded platelet structure with the average particle size of 50-100 nm. A facile synthesis method was employed and Mg-Al-SO4-LDH was characterized by complementary physical techniques. (C) 2015 Elsevier B.V. All rights reserved.

Keywords

Author Keywords: Mg-Al-SO4-LDH; Mechanochemical activation; Structural features; Electron microscopy
KeyWords Plus: LAYERED DOUBLE HYDROXIDE; PLASMID DNA; BEHAVIOR

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Funding

Funding Agency	Grant Number
National Science Foundation (PREM center for interfaces)	DMR-1205670
Robert A. Welch Foundation	AI-0045

[View funding text](#)

Publisher

ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS

Categories / Classification

Research Areas: Materials Science; Physics
Web of Science Categories: Materials Science, Multidisciplinary; Physics, Applied

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Document Type: Article
Language: English
Accession Number: WOS:000367236500048
ISSN: 0167-577X
eISSN: 1873-4979

Journal Information

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Impact Factor: [Journal Citation Reports](#)

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IDS Number: CZ6UM
Cited References in Web of Science Core Collection: 19
Times Cited in Web of Science Core Collection: 4

