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Magnetization of palygorskite nanoparticles

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Abstract

The development of nanotechnology has been intensively in recent years and consequently innovative methods have been used. Nanoscale magnetic particles brings a high performance in separation processes due to its high specific surface area and the absence of internal diffusion resistance, moreover they also can be easily recovered with an external magnetic field. Surface modification of magnetic nanoparticles is a challenged key for different applications and can be accomplished by physical/chemical adsorption of organic compounds. Dyes, pigments and others contaminants present in wastewaters from various industrial branches, such as petroleum industry, represent one of these problematic groups. Palygorskite nanoparticles Fe(III) adsorbed samples were covered by magnetite by a co-precipitation technique using $FeCl_3.6H_2O$ and $FeCl_2.4H_2O$ in basic medium magnetizing them. FTIR, TGA, X-ray diffraction and SQUID magnetometer analysis were used to characterize these particles. The results showed strongly support this phase transformation.

Biography

Luciana Spinelli Ferreira has completed her PhD at Federal University of Rio de Janeiro 8 years ago. She has been working as a graduate degree professor of Science and Technology of Polymers Program at Federal University of Rio de Janeiro/Macromolecules Institute. She also works as researcher and project coordinator at Laboratory of Macromolecules and Colloids in Petroleum Industry. She has published more than 20 papers in reputed journals.