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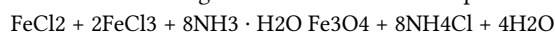
THE EFFECT OF ACID ON THE STRUCTURAL PROPERTIES OF NANOPARTICLES BASED ON Fe_3O_4 IRON OXIDE

Magnetic nano structured materials have huge interest because of their unique properties. The most widely studied magnetic nanoparticles is magnetite Fe_3O_4 , which has great physical properties such as half metallic properties and strong spin polarization at room temperature. Moreover, its magnetic properties can be adjusted in size and shape. Therefore, Fe_3O_4 is applied in tunneling magnetoresistance devices, sensors, magnetic data storage, ferro fluids, and biomedical fields.¹⁻⁴

This work presents a synthesis of nano structures based on Ferrum oxide by method of chemical deposition and a study of their structural properties and morphology which depend on changing solution pH.

The magnetite Fe_3O_4 was obtained by hydrolysis of a mixture of iron chloride (II) and (III) in a molar ratio of 1: 2 and with the addition of ammonium hydroxide.

This reaction of magnetite formation can be represented as follows:



Summary

In this research the change of solution pH 1,5,7, the time of being in solutions is 1,5 and 10 days, the temperature of solutions 25 and 37 °C were examined.

Kinetic curves of changes in structural properties are established depending on the acidity of the medium.

Primary author: Ms YERMEKOVA, Assel (Yermekovna)

Co-author: Ms TULEBAYEVA, Dinara (L.N.Gumilyov Eurasian National University)

Presenter: Ms YERMEKOVA, Assel (Yermekovna)

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