

CHẾ TẠO VẬT LIỆU NANO -Fe₂O₃ / CÁT THẠCH ANH HẤP PHỤ ASEN, SẮT VÀ MANGAN

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TÓM TẮT:

-Fe₂O₃ powder has been synthesized at low temperature (2500C) by the combustion of gel prepared from polyvinyl alcohol (PVA) and iron nitrate.

Factors affecting on structure and particle size of nanometer -Fe₂O₃ oxides including temperature of gel formation, molar ratio of ion metal and polyvinyl alcohol concentrations, molar ratio of ion metal and amoninitrate concentrations, temperature of calcining were investigated.

The crystalline process and the morphology of oxide particles were considered by X-Ray diffraction (XRD), Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM) and Vibrating Sample Magnetometer (VSM). Further thermal treatment at 250-3000C in 3h yields the single phase -Fe₂O₃ with the surface area by the BET (Brunauer- Emmett-Teller) 39,5 m²/g. - Fe₂O₃ powders with crystallite size 10 nm, H_c = 1,8 Oe, M_s = 29 emu/g, M_r = 0,4 emu/g have been prepared.

The adsorption treatment of iron, mangane and arsenic were investigated. The nanosized - Fe₂O₃ material yielded maximum sorption capacity of 48,02 mg/g for arsenic, 57,09 mg/g for arsenat; 138,89 mg/g for manganese and 150,07 mg/g for iron according to the Langmuir isotherm.