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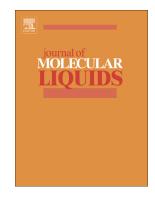
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Removing lead ions from water by using nano composite (rare earth oxide/alumina)

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Abstract

Alumina nanoparticles were prepared using reverse microemulsion method with particle size 3.8nm. Also, the precipitation method was utilized to prepare samarium and dysprosium oxides with particle size 14nm and 8.6nm respectively. Nano composites consist of $(x)R_2O_3/(100-x)y$ -Alumina; (x=16 and 44), (R=Sm and Dy) and (y= γ and α) were prepared with milling method. The characterization of all the prepared samples was studied using XRD analyses, transmitted electron microscope (TEM) and atomic force microscope (AFM). The removal efficiency of each prepared sample was measured using the atomic absorption spectroscopy. The study has clarified that the efficiency of the nano composite (x)Sm₂O₃/(100-x) γ -alumina; x=16 to remove lead ions from water after 24h is about 99.3%.

Keywords: A. composite, B. Chemical preparation, C. Atomic force microscope- TEM-XRDatomic absorption spectroscopy, D. crystal structure

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