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Mechanochemical Preparation and Magnetic Properties of Ultrafine Strontium Ferrite Powders

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Abstract : In this work ultrafine single phase $SrFe_{12}O_{19}$ powders were prepared using $SrCc_3$ and $FeCl_3$ as raw material. The materials were then milled in high energy mills for 0.5 to 24 hours. The powders were then calcined between 700 and 1000 °C for 0.5 h with different heating rates. The calcined powders were then washed with deionized water for several times, to remove undesired stontium chloride salt. XRD examinations were used to characterize the prepared ferrites. To measure saturation magnetization and coercive force of the samples, a vibrating sample magnetometer was used. The magnetic results were compared with those obtained in conventional ceramic technique and were discussed according to core-shell model.