THE EFFECT OF ELECTRON BOMBARDMENT ON $LiFe_5O_8$

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POWDER LITHIUM FERRITE, $LiFe_5O_8$, HAS BEEN FAST MELTED BY ELECTRON BEAM BOMBARDMENT IN AN EDWARDS EVAPORATOR. DURING THE PROCESS THE MATERIAL BLEW UP INTO SMALL DROPLETS WHICH CRYSTALLIZED BY QUENCHING. SUBSEQUENT ANALYSIS BY MÖSSBAUER SPECTROSCOPY SHOWED THE MAGNETITE STRUCTURE AND A PARAMAGNETIC SITE.
THE X-RAY ANALYSIS INDICATED THE COEXISTENCE OF TWO MAGNETITE PHASES, ONE CORRESPONDING TO THE PURE MAGNETITE AND THE OTHER TO A MAGNETITE WITH VACANCIES, MAINBY IN B-SITES, AND WITH AN INCREASED LATTICE PARAMETER.