

Solid State Reaction Study of the System $\text{Li}_2\text{CO}_3/\text{Fe}_2\text{O}_3$

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A thermoanalytical (TGA/DSC) and diffractometric (XRD) study has been performed on the solid state reaction system Li_2CO_3 – Fe_2O_3 in the x_{Li} range 0.10–0.50. A detailed analysis of the results shows that the data are in agreement with a reaction model where the carbonate decomposition is regulated by the formation of both LiFeO_2 and LiFe_5O_8 , and the relative amount of the two phases depends on the initial composition. The DSC evidence offers the possibility to directly quantify the LiFe_5O_8 phase. Furthermore it allows one to obtain the enthalpies of formation of both LiFeO_2 and LiFe_5O_8 .

Key words: Lithium Ferrites; Solid State Reaction; Iron (III) Oxide; Lithium Carbonate; TGA; DSC.

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