

Thermal analysis of doped lanthanum gallate electrolyte (LSGM)

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Sr and Mg substituted LaGaO₃ (LSGM) is a promising solid electrolyte for intermediate temperature solid oxide fuel cells (IT-SOFC). Phase purity of this material and bulk high densities were a subject of investigation for a long time [1 - 3]. Thermal behavior of intermediate phases and final LSGM phase were investigated by means of differential scanning calorimetry (DSC), DTA/TG analysis combined with FTIR spectrometry and dilatometry analysis. The thermodynamic parameters of intermediary phases were evaluated.

The powders and sintered bodies were characterized using scanning electron microscopy (SEM) and X-ray diffraction (XRD). On the basis of thermal analysis combined with FTIR spectrometry a detailed reaction mechanism was proposed.

References

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