

Evaluation of thermodynamic simulation (FactSage) for the interpretation of the presence of phases and the firing behavior of triaxial ceramics

L.I.P.Baccarin, W.V.Bielefeldt, S.R.Bragança

LASID-Federal University of Rio Grande do Sul

The present work provides an evaluation of the thermodynamic calculation, using the FactSage software, which allows the study of the interaction of a system of various oxides. It started with the examination of the crystalline phases present in the raw materials indicated by the FactSage and compared with the analysis by XRD. Subsequently, the crystalline phases and the amount of liquid phase predicted by the software at different firing temperatures were analyzed. These results were compared with experimental data and records from the literature. The FactSage showed consistent results, managing to indicate the presence of the main phases in the raw materials; however, the actual and predicted secondary phases did not always coincide. The type of phase in the firing was correctly indicated, tridymite (stable phase above 867 °C), mullite and liquid phase, but their quantity in relation to the firing temperature was quite different from the experimental data.