

Abstract

α Cordierite is very important phase in MgO-Al₂O₃-SiO₂ system because of their very outstanding thermal, chemical and electrical properties. In this presents study non-stoichiometry cordierite (MgO:Al₂O₃:SiO₂ = 3:1.5:5) using 2 different initial raw materials ((i)mixture of pure oxide, and ii) mainly mixture of minerals) were fabricated and compared in terms of phase transformation and physical properties. Cordierite was prepared by glass method at low melting temperature (1350°C). Low melting temperature has resulted in partly crystalline glass which has possesses higher hardness, required longer milling time and result in contamination from grinding media. However, α -cordierite has successfully crystallized and fully densified at 850°C/2h. Activation energy for densification was investigated from thermal expansion coefficient (TCE) results. Other properties that were discussed included thermal properties using DTA/TGA. © (2011) Trans Tech Publications, Switzerland.