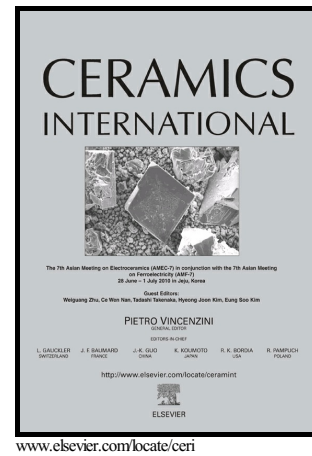


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## Microstructure and phase composition of cordierite-based co-clinker

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### Abstract

The aim of this work is to study the effect of phase composition and microstructure of cordierite-based co-clinkers on the electrical properties and coefficient of thermal expansion of cordierite briquettes. To achieve this aim talc and kaolinite samples were collected from quarries in the Egyptian desert. The samples are characterized using XRD, XRF, polarized light, cathodoluminescence and SEM microscopy attached with EDAX, in addition to X-ray micro-computed tomography (3D-  $\mu$ XCT). The electrical properties and coefficient of thermal expansion of the cordierite briquettes are determined using HiTESTER instrument and automatic Netzsch DIL402 PC dilatometer, respectively.

Five talc-based batches were shaped and fired in the temperature range 1000-1350°C for 2h. The microstructural and physical characteristics of the resulted cordierite-based co-clinkers depend mainly on the viscosity of the liquid phase developed during firing. The microchemistry of the cordierite briquettes confirms their enrichment of both cordierite and ferroan-cordierite crystallized directly from

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