

# Development of porous glass-ceramic using silica sand for wall tiles application

## Abstract

The objective of this study was to create porous glass–ceramic from natural silica sources and industrial waste for use as wall tiles. The silica sand and soda lime glass waste were milled and sieved separately before being mixed in the appropriate ratios with a foaming agent (PCC). The mixed sample was then pressed into a button shape and sintered at different temperatures. The samples were characterized using universal testing machine for mechanical analysis and XRD for phase analysis. The results found that modulus of rupture (MOR) and density decrease while water absorption and porosity increased as sintering temperature increase. It was indicated that it already achieves the minimum requirement of ISO 13006 standard in term of MOR at sintering temperature 800 °C to produce porous glass–ceramic for wall tiles.

## Keywords

Porous Glass-Ceramic; Silica Sand; Sintering; Soda Lime Glass; Tiles