

Resumen ponencia 25

Mineralogic, technological and fluxing characteristics of the granitic igneous rocks of Biga Peninsula (NW Turkey): Its using possibilities as the Na- and K-Feldspar alternatives for the ceramic tile production

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The Istanbul and Ukrainian clays, Aydın-Çine albite, and Düvertepe (Balıkesir, Turkey) or some local kaolines are the main components of the Turkish ceramic tile products. Increasing in the ceramic production is leading to a fast consumption of the available raw materials. On the other hand, transportation of raw materials from long distances cause directly high production costs. Thus, the ceramic manufacturers are looking for local and low-cost fluxing raw materials. A research project focusing on the availability of the fluxing materials, was carried out on the Biga peninsula in order to find possible solutions to this problem.

A number of granitic igneous rocks which are Oligo-Miocene in age (35-19 MA), crop out in the Biga Peninsula (NW Turkey). These rocks are represented mainly by I-Type granites with the variable mafic mineral contents, and the mafic mineral-free leucogranite, aplogranite, granophyre, aplite and pegmatites. Whereas the pegmatites are rich in K. Feldspar (orthoclase, anorthoclase, microcline), the others in Na-Feldspar (albite to oligoclase). We have investigated their fluxing characteristics and probabilities of using instead of the Na-Feldspar in the ceramic tile production. For this purpose, totally 30 samples derived from the granitic rocks were characterized by the optical microscope, XRD and XRF methods, and then classified on the quartz-alkali feldspar-plagioclase (QAP) and total alkali-silica (TAS) diagrams. These studies have revealed that the granitic samples are the granite, leucogranite, aplogranite, granophyric granite, aplite, pegmatite, monzonite, quartz monzonite and granodiorite.

The Biga Peninsula granitic rocks were investigated on the basis of their thermal behavior (DTA-TG), thermal expansion and sintering kinetics with water absorption, firing shrinkage. Data obtained from this study indicates that leucogranites can be used, especially, as flux material in the variable rates instead of the common Çine-Aydın albite, and has shown that lower-cost ceramic tile production is possible.

Keywords: Leucogranite, Flux, Feldspar alternative, Technologic properties