

GEOLOGICAL SOURCES OF FELDSPATHIC MATERIALS FOR CERAMIC INDUSTRY IN PORTUGAL

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The Portuguese ceramic industry consumes more than 200.000 t/year of feldspathic materials, coming from pegmatitic, aplite-pegmatitic and feldspathic sands exploited in Viana, Porto, Vila Real, Viseu, Guarda and Évora districts. In genetic terms, the pegmatitic deposits are closely related with sin-D3 Hercynian porphyroid biotitic granites. Normally the ore bodies are zoned with the K-feldspar and albite concentrated in the intermediate zone associated with quartz, muscovite, phosphates, beryl, etc. The aplite-pegmatite deposits are essentially intragranitic sills with a thickness varying from 1m to more than 10m being constituted by quartz, albite, k-feldspar, muscovite, lithium-bearing minerals, phosphates, topaz, beryl, etc. The aplite-pegmatite raw ore has a mean composition of c.a. 8% alkalis, 70% SiO₂, and less than 0.8 % FeO+TiO₂. The richest of these Li-bearing veins range from 5.800 ppm Li in Guarda lepidolite ores to 7.000 ppm Li in spodumene aplite-pegmatite loads from northern Portugal, where important reserves have been defined, although not yet exploited. Feldspathic sands are being exploited from tailing dumps of old aplite-pegmatitic cassiterite mines. However, tertiary arkosic deposits, such as a well studied ore body from Coimbra district, containing at least 35×10⁶t of arkoses with industrial application, averaging 48.7 % hyaline quartz, 47.7% of orthoclase, 3.4% of muscovite and a total of Fe₂O₃+TiO₂ less than 0.15%, seem to be the most important source of feldspar to the ceramic industry in the near future.