

**A CRITICAL APPROACH TO TI IN THE BIOTITE GEOTHERMOMETER.
CASE STUDY ON BIOTITES FROM PEGMATITES OF ROMANIA**

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Abstract

The present study reveals that, while the use of the Ti in the biotite geothermometer on biotites from metamorphic rocks seems to provide acceptable data on temperature, in the case of biotite from pegmatites, the temperature data have only limited credibility. As the geothermometer lies on the chemical composition of biotites, the analytical technique that provides the chemistry of the mineral is of major importance. Despite the criticism that might be brought to the method, the wide range of temperatures determined for the biotite from pegmatites of the Carpathian Pegmatite Province is obvious; it seems to prove the multistage character of the mineralogical associations of pegmatites, which can be produced either by successive stages of one single phase (i.e. pegmatitic, pneumatolytic, and hydrothermal) or the successive development of the three genetic phases. The obviously higher temperature of biotites from the metamorphic rocks, compared to that of biotites from pegmatites, suggests that the metamorphic processes develop enough temperature to generate fluids of pegmatite composition; this fact could be in agreement with the theory of genesis of some pegmatite bodies through metamorphic differentiation.

Keywords: pegmatite; medium-grade metamorphic rocks; biotite; geothermometry; Ti in biotite

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