

QUARTZ CRYSTALS FROM THE VICINITY OF BRAD AND SACARÂMB, ROMANIA – MORPHOLOGICAL AND FLUID INCLUSION STUDIES

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The present work attempts to give additional information to the relationship between crystal morphology and physico-chemical circumstances of crystallization in the case of hydrothermal quartz.

The Neogene Brad–Sacarâmb Basin is situated in the southeastern part of the Carpathian–Pannonian region, genetically isolated from the western and eastern Carpathian volcanites. The studied crystals were obtained from low sulphidation veins, geodes and breccias from the following localities: Valea Morii Veche (Válemori, Altes Mühlental), Musariu (Muszári), Carpen (Kárpín), Sacarâmb (Nagyág, Großastdorf), Bocsă (Boksa), Hondol-Baiaga (Hondol-Bojága), Coranda (Koranda). The host rocks of the hydrothermal mineralization are dominantly Neogene andesites and dacites, subordinately Neogene sediments (sandstones and shales).

30 crystals from each locality were measured by a reflection goniometer. Two morphological types of quartz crystals were determined: “type D” where positive and negative rhombohedra were equally developed and “type B” where crystals are characterised by the dominancy of the positive rhombohedron.

Fluid inclusion studies were done on a Chaixmeca heating-cooling stage. The main results obtained by that method: homogenisation temperature is between 148–314 °C (T_h); the last ice crystals disappear at 2.8–0.6 °C ($T_{m_{ice}}$). Calculated salinity is 0.7–4.5 eq. wt% NaCl.

Two types of inclusions were found. Inclusions of “type L” (liquid rich) and “type V” (vapour rich) appear at the same frequency in “type D” crystals, which shows the boiling of the system (PINTEA, 1995). “Type B” crystals contain predominantly “type L” inclusions, supposedly as a result of dilution. These conclusions are derived from the $T_h/T_{m_{ice}}$ diagram of HEDENQUIST & HENLEY (1985).

The results suggest a correlation between quartz crystal morphology and the circumstances of crystallization in the case of the crystals studied. A comparison with quartz crystals from Alpine occurrences (RYKART, 1989) is the subject of further study.

References

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