FLUID INCLUSIONS DATA ON QUARTZ SAMPLES FROM COSTESTI GOLD MINERALIZATION, SOUTHERN CARPATHIANS, ROMANIA

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Costesti gold mineralization is one of the shear zone related mineralization examples in Romania. It comprises quartz-carbonate-sulfide discordant veins and concordant lenses within a small size shear zone (Udubasa & Udubasa, 1998) developed in biotite blastomylonites. The ore minerals are represented by arsenopyrite, pyrite, pyrrhotite, galena, chalcopyrite, native gold, native bismuth, bismuthinite, greenockite, sphalerite, jamesonite etc. (Udubasa & Topa, 1995).

In order to identify the fluid types implicated in the mineralizing processes, a series of microthermometric analyses were performed on several quartz samples. Quartz samples used for microthermometric measurements were taken from a discordant mineralized vein (sample C6 - qtz-sulfide vein), and from two concordant non-mineralized lenses (samples C12 and C13 - qtz lenses). Ice melting temperatures, eutectic temperatures (when possible) and homogenization temperatures have been observed for the primary fluid inclusions and partly in fluid inclusion planes (Lespinasse, 1999; Pêcher et al., 1985). Several Raman spectroscopy analyses were performed also on the vapor phases of the inclusions.

The observed fluid inclusions match the two-phase aqueous inclusion type. The results of the measurements (Figure 1.a) indicate high salinity fluids for the non-mineralized veins (*samples C12, C13:* 10-18 wt. % NaCl eq.) and relatively low salinity fluids (*sample C6:* 6-11 wt. % NaCl eq.) for the mineralized veins. Raman spectroscopy analyses pointed out the presence in the vapor phase of CO_2, CH_4 and N_2 (Figure 1.b). CH_4 and N_2 predominate in the vapor phase of the inclusions from the non-mineralized quartz veins (samples C12, C13), whereas CO_2 and CH_4 predominate in the vapor phase of the inclusions from the mineralized quartz veins (sample C6).

The concordant, non-mineralized lenses are associated with higher T and higher salinity and the discordant, mineralized veins are associated with lower T and lower salinity. These data are concordant with earlier studies (Pintea, 1991; in Udubasa et al., 1991, IGR report) which concludes that the fluids are associated with aq retrograde metamorphic phase and the mineralization have formed at low temperatures and from fluisd rich in CO_2 and CH_4, with relatively low salinity.

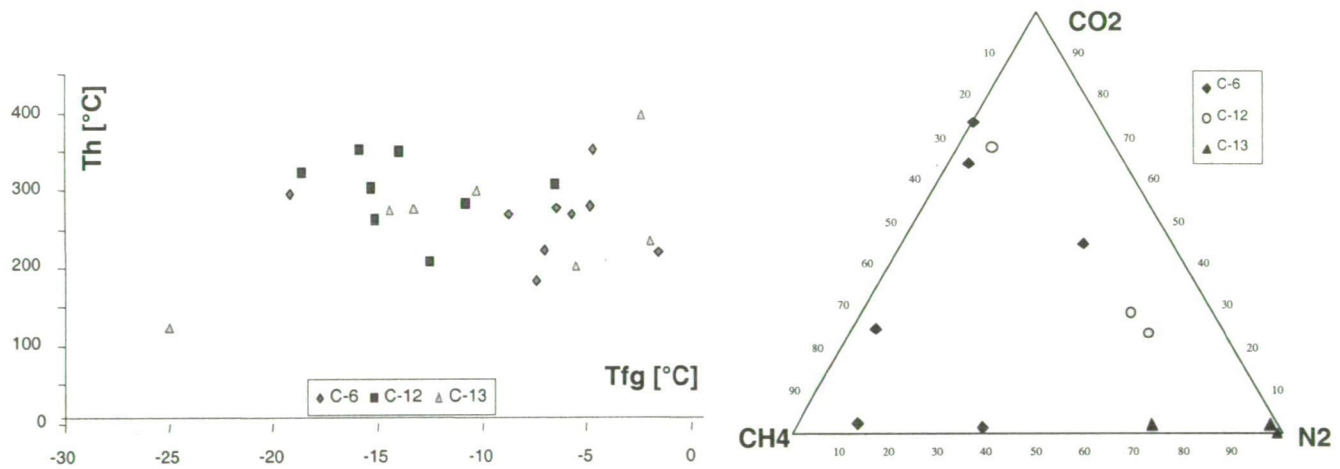

Figure 1: Fluid microthermometric properties of the fluids in the different Quartz veins. (C6 - mineralized vein; C12 and C13 - non-mineralized veins)

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