Cadernos Lab. Xeolóxico de Laxe
Coruña. 2000. Vol. 25, pp. 243-244

Stanniferous quartz veins and quartz veins with scheelite and cassiterite from the Rebordelo-Ervedosa-Agrochão Region, Northeastern Portugal: Mineralogical and geochemical characteristics

Venas de cuarzo-estanníferas y con scheelita y casiterita de la Región de Rebordelo-Ervedosa-Agrochão, Norte de Portugal

M. E. P. GOMES.

Department of Geology, University of Trás-os-Montes e Alto Douro, 5001-911 Vila Real, Portugal
E-mail: (mgomes@utad.pt)

The stanniferous quartz veins with cassiterite from Ervedosa are associated with a Sn-bearing muscovite granite (327 ± 9 Ma) (Gomes, 1996) which resulted from a muscovite-biotite granite magma by fractional crystallization of quartz, plagioclase, K-feldspar and biotite. The quartz veins with scheelite and cassiterite are associated with a muscovite-biotite granite at Trigueiriça and with a biotite-muscovite granite (357 ± 9 Ma) at Carvalhal (Gomes, 1996). The three granite are tin specialized (Lehmann, 1990). All these veins contain rutile, apatite, muscovite, quartz, cassiterite, pyrrhotite, arsenopyrite, bismuth, pyrite, sphalerite, chalcopyrite, stannite, but at Ervedosa occur fluorite and inclusions of bismuthinite and matildite in arsenopyrite also occur, while at Trigueiriça and Carvalhal tourmaline, scheelite, and K-feldspar were also found. Herzenbergite was only found at Carvalhal. There are also some supergenic minerals (Fe oxides, U oxides, covellite and arsenates).

Cassiterite is zoned with alternating darker and lighter zones. The darker zones of cassiterite from the W-Sn quartz veins are richer in Ti and poorer in Ta, Nb and Fe than the darker zones of cassiterite from stanniferous veins. At Ervedosa the darker zones of cassiterite show exsolved columbite, titanian ixiolite, W Ti - ixiolite, niobian rutile and very rare woframite, while at Carvalhal only rutile was exsolved from cassiterite. Generally arsenopyrite from W-Sn quartz veins is richer in As+Sb than the arsenopyrite from stanniferous quartz veins. The dominant arsenopyrite in the three localities crystallized at about 440 °C. The compositions of pyrite from Ervedosa and Trigueiriça are similar, but pyrite from Carvalhal is the richest in As+Sb. At Ervedosa and Carvalhal, earlier sphalerite crystallized at about 280-240 °C, but a later sphalerite in equillibrium with stannite from Ervedosa crystallized at about 262-207 °C, while at Carvalhal it crystallized at 110 °C. In W-Sn quartz veins, stannite is generally richer in Fe and poorer in Zn than stannite from stanniferous quartz veins. At Ervedosa and Trigueiriça the hexagonal pyrrhotite inverted to monoclinic pyrrhotite at about 248 °C. The stanniferous quartz veins from Ervedosa were originated from hydrothermal fluids related to the Sn-bearing muscovite granite magma. The W-Sn quartz veins may have been originated from hydrothermal fluids related to a two-mica granite magma. However the crystallizations of microcline, tourmaline, cassiterite and scheelite of W-Sn quartz veins may be attributed to remobilization of several elements from metasedimentary country rocks.

REFERENCES

LEHMANN, B. (1990) Metallogeny of tin. Lecture notes in earth sciences, 32, Springer-Verlag, 211pp.

GOMES, M. E. P. (1996) - Mineralogy, petrology and geochemsitry of granitoid rocks from Rebordelo-Bouça-Torre de D. Chama-Agrochão and associated mineralizations. Unpublished Ph.D.Thesis, University of Trás-os-Montes e Alto Douro, 323 pp.