

## HYDROTHERMAL TALC AND CHLORITE MINERALIZATION IN CENTRAL SARDINIA/ITALY

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In Central Sardinia talc-chlorite and Na-feldspar deposits are hosted in Palaeozoic series of the Ottana-Orani district. Palaeozoic metasediments, Hercynian granitoids and Tertiary volcanic rocks host a series of mineralizations of variable size. A number of the known talc-chlorite deposits, distributed over an area of 120 km<sup>2</sup>, have been mined for many years and in 1980 the exploitation of the Na-feldspar deposits started. The metasediments are intruded by syn-tectonic leucogranites and by late and/or post tectonic two-mica granites. The metasedimentary rocks are composed of mica schists, marbles and gneiss. They are the product of regional greenschist facies metamorphism of pelitic and carbonate sedimentary protoliths.

All the formations in this area have undergone tectonic displacement primarily in a N45E direction, to a lesser extent NS (ARTHAUD, F. & MATTE, P.H., 1975).

Both mineralizations under investigation, the Su Venosu and the Sa Matta talc-chlorite mines are structurally controlled and the hydrothermal formation of the economic ore minerals in veins and shear zones is evident.

In general the host rock marbles show heavier O and C- isotope composition compared to the carbonates of the mineralization in the shear zone. There are two groups of hydrothermal carbonates with dramatically different stable isotope compositions from the mineralized shear zone. Medium grained recrystallized, usually white dolomitic or calcitic or marbles and crystals of calcite up to 10 cm in size.

The most striking features of the chemical composition of the inclusion fluids of the talc-chlorite mineralization of Central Sardinia are the extremely high contents of Br and a depletion in Na which may be a consequence of albitization; this would indicate a consanguineous origin of the talc-chlorite mineralization and the ubiquitous albitization. High Br-contents usually are taken as indicators of evaporitic fluids. As there are no obvious geologic indications for evaporitic processes in that area it is concluded that the mechanism for the formation of the highly saline fluids are fractionation processes in an endogene environment due to the consumption of water by the formation of hydrosilicates in a retrograde shear zone.