

LA PREHNITA DE LAS VOLCANITAS DE "EL MOLLE", CHUBUT.

Maria E. Vattuone
Facultad de Ciencias Exactas y Naturales (UBA) e INGEIS (CONICET).
E mail: elena@gl.fcen.uba.ar

Carlos O. Latorre
INGEIS (CONICET). E mail: latorre@gl.fcen.uba.ar y latorre@ingeis.uba.ar

Pablo R. Leal
Facultad de Ciencias Exactas y Naturales (UBA) y (CONICET). E mail: leal@gl.fcen.uba.ar

Abstract

We found prehnite in the dikes of volcanic rocks of El Molle, Chubut province. These dikes cross the Cretaceous basalts of the Tres Picos Prieto Formation, and are affected by brecciation and hydrothermal alteration that give origin to very low grade metamorphic minerals: prehnite associated with yugawaralite, albite and hematite.

This mineral assemblage is found in breccia fragments in different microdomains:

- 1) Partial replacement of the primary phenocrysts (plagioclase, pyroxene and amphibole) by albite, prehnite, yugawaralite, hematite and calcite.
- 2) Partial replacement of matrix by albite, yugawaralite, prehnite, magnetite, hematite and mafic phyllosilicates.

The prehnite has sometimes fibrous habit, very pale green in color, and their birefringence is yellow of second order but some crystals have low birefringence and display anomalous blue colors. In few cases it shows radiating habit and birefringence of yellow, red and green colors. The $2V$ is 70° .

The TGA and DSC analyses show a lost of weight of 2% between 350°C and 400°C . The chemical analyses by EDAX (7) are: SiO_2 between 42,59 and 41,86; Al_2O_3 between 25,24 and 23,93 and CaO between: 27,17 and 29,21. The FeO values are negligible. Cations per 24 O : Si between 6,43 and 6,39; Al between 4,49 and 4,30 and Ca between 4,40 and 4,77. The ppCO_2 $\ll 0,002$ and the ratio $\text{Ca}/\text{Al}_2\text{O}_3 > 1$ in the volcanites, permitted the prehnite formation.

The prehnite, yugawaralite and albite assemblage indicates a geothermal mode! developed at temperatures that could be lower than 220°C . The yugawaralite prehnite association indicates very low pressures ($< 0,6\text{kb}$) in the zeolite facies.