

**GRANATES EN RIOLITAS Y DACITAS DE LA FORMACIÓN CERRO CARRIZALITO,
SIERRA PINTADA, MENDOZA.**

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Abstract

Garnets from rhyolites and an associated dacite (Cerro Carrizalito Formation, Permotriassic, San Rafael Massif, Mendoza, Argentina) were studied by petrographic, XRD and microprobe techniques. The rhyolites bear almandines with different contents of the spessartine molecule and minor contents of grossular, whereas the dacite contains almandine-pyrope. Both types of garnets are similar to those crystallized from peraluminous magmas in highly differentiated granites and in acid and intermediate volcanic rocks, elsewhere. The application of experimental data published in the literature allowed to put some constraints in P-T conditions. The spessartine richer garnets occur in rhyolites with biotite and orthopyroxene which suggests crystallization at pressures < 3 kb and temperatures 800-850 °C. Garnets of rhyolites related to the dacite, are associated to muscovite and topaz and contain less spessartine. These would imply crystallization at higher pressures (< 4 kb) and lower temperatures (700 °C). However, their Mn content grows with increasing differentiation. This feature together with reverse zoning patterns (Mn rich rim- Fe rich core) observed in some crystals, in which Ca decreases as Mn increases, could reflect the continuous growth of garnets as the magma emplaced at shallower levels, while differentiation proceeded. The spessartine poor and the pyrope rich garnets of the dacite would imply higher pressure (> 5kb) and temperature 950° C) conditions. Hence, if a co-magmatic link between the dacite and the rhyolites could be demonstrated, then the dacite would represent the basal portion of a zoned magma chamber that was rapidly brought to the surface. The similar compositions of garnets obtained through XRD and microprobe methods suggest that, if no chemical data are available, a careful determination of XRD back-reflections could give a good approximation of garnet compositions.