

ALTERATION PROCESSES IN HIPO BENTONITE DEPOSIT. SAN JUAN PROVINCE, ARGENTINA.

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In San Juan Province, northwest Argentina, a white bentonite deposit was formed after Pleistocene volcanic rocks (Las Trancas Formation). Geological and stratigraphic evidences indicate that this sequence forms part of a silicic lava dome. These rocks were subsequently faulted and intruded by andesitic/ dacitic dikes. The deposit, found in the central part of a 10 Km² elliptical area, results from the alteration of both coarsely vesicular rhyolitic glasses and a poorly vesicular interlayered obsidian. The main alteration products are smectites, opal C-T and zeolites (mordenite and clinoptilolite). The highest concentration of smectites is controlled by dikes and faults while the zeolitization is widespread and laterally extensive. The geochemical characteristics of the acid parent rock with high Si/Al ratio(5,3), high alkalies content (9,1%) and low MgO content (0,17%) would have favoured the formation of alkali zeolites instead of smectites. Therefore, it seems plausible that the provision of Mg for forming smectites could have been supplied by external fluids. The d¹⁸O values (+ 18,30/00 - +18,5 0/00) and dD values (-89 0/00) of smectite plot nearby the magmatic smectite field but with these data, the influence of low temperature meteoric water cannot be discarded. The above mentioned evidences indicate that alteration process was favoured by the textural discontinuities of the obsidian and the secondary permeability due to fractures and dikes which resulted in high water / rock relation facilitating fluid flow.