



The zeolite mineralization associated with the Miocene volcano-sedimentary successions of Sardinia (Italy).

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Zeolite prospecting on Miocene volcano-sedimentary successions of Sardinia evidenced the presence of consistent reserves of zeolites, which assume an economic interest as resource of industrial minerals. Sardinian zeolites occur both as *in situ pyroclastic*-altered and *epiclastic*-altered mineralization. Authigenic mineral assemblage includes smectites, feldspars, opal CT, quartz, illite, which occur in different associations and proportions. The *in situ pyroclastic*-altered occurrences are spread in the calc-alkaline Miocene volcanic rocks of northern, western and central Sardinia. They occur as thick zeolitized layers and derive from the alteration of ash and pumice pyroclastic flow deposits, emplaced in sub-aerial conditions, generally distal from the vents. In spite of some common features (e.g. lithotype, degree of welding, etc.), differences in zeolite types and concentrations among the occurrences, which crop out in northern/western and central districts, can be recognized. In the former district, clinoptilolite prevails, whereas in central Sardinia both clinoptilolite and mordenite, which contents are inversely correlated, occur. The *epiclastic*-altered mineralization-type occurs in fluvial-lacustrine sediments and was recognized in northern (mordenite) and central (clinoptilolite) Sardinia. As concern the *in situ pyroclastic*-altered mineralization, in the western/northern districts the pervasive zeolitization could be ascribed to the action of deuteric phenomena, related to the phreato-magmatic character of the volcanic events. The genesis of zeolite mineralization in central Sardinia could be outlined in the general framework of a hydrological open system. The *epiclastic*-altered occurrences accumulated in lacustrine and/or marshy environments, after short transport. Zeolite minerals are typical of a post-depositional alteration, due to weathering.