

GEOCHEMISTRY OF EVAPORATE DEPOSITS IN THE GARMSAR AREA, NORTH OF CENTRAL IRAN

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The worldwide sea-level fluctuations during Pyrenean orogeny caused some regressions in the North of Central Iran in the Eocene-Oligocene time and in some places formed shallow marginal marine basins which were sites of evaporite deposition. These evaporite deposits which are located in the north of the Garmsar area (SE of Tehran) contain gypsum, anhydrite, halite, sylvite, calcite, dolomite and some other evaporite minerals, with considerable thickness. Field, petrographic and geochemical studies showed that these evaporites are deposited in the semi-restricted shallow marginal marine basins which were sporadically influxed by continental runoffs and normal seawater. As their well-preserved microfabrics exhibit, most of the evaporite minerals were crystallized on the floor of the basins and after syndepositional cementation buried to the shallow depths. Postdepositional alterations by meteoric waters were not prevalent as it is reflected in their well-preserved primary microtexture and high Br contents of potash minerals. Geochemical studies showed that the origin of the ions in the brines were normal seawater and/or submarine volcanic emissions, which were active during the evaporite deposition. The Bromometry technique is employed to define the origin of the potash deposits and their distribution in the evaporite sequences of the area. High Br content of potash minerals clearly indicates their marine origin which is consistent with their low secondary meteoric alterations that usually causes loss of Br.