

currences. Ground truthing reveals that the bauxitic-lateritic occurrences outlined by the Crosta technique coincide well with the studied areas and the favorable geochemical characteristics determined. Detailed geology and estimation of ore reserve of these occurrences require a systematic sampling and drilling program.

---

### Geochemistry of the bauxitic-lateritic occurrences in the Deh-Dasht area, Zagros, Iran: exploration guidelines

---

ALIREZA ZARASVANDI<sup>1</sup> AND MARCOS ZENTILLI<sup>2</sup>

1. Department of Geology, Shahid Chamran University, Ahvaz, Iran  
<Zarasvandi\_a@scu.ac.ir> <zarasvandi@yahoo.com>

2. Department of Earth Sciences, Dalhousie University,  
Halifax, NS, B3H 3J5 Canada

This study is focused on the bauxitic-lateritic paleo-horizons in the Deh-Dasht area 250 km east of Ahvaz city, Iran, located within the Zagros fold belt. The bauxite horizon developed on strata of the Cretaceous Sarvak and Ilam Formations. Most occurrences are related to the exposure of the paleo-horizons in the eroded limbs and cores of major anticlines, and have a predominantly NW-SE elongation, parallel to the main structural trend of the Zagros. The age of folding and faulting is Oligocene-Miocene, which were followed by erosion, exposing the bauxite horizon.

Boehmite, Gibbsite and Diaspore are the main Al-bearing minerals in the Zagros bauxitic paleo-horizon. The bauxitic stratum in the study area can be divided into three main parts: 1) Argillite- argillaceous bauxite (Lower layer), 2) Bauxite zone (e.g., red and white bauxite; Middle layer) and 3) Ferruginous Limestone (Upper layer). Geochemically, the Zagros bauxitic horizon contains mainly Al<sub>2</sub>O<sub>3</sub> (19–62 wt. %), Fe<sub>2</sub>O<sub>3</sub> (3–38wt. %) and TiO<sub>2</sub> (0.28–3.0 wt. %). In general, Ti, Al, and the trace elements V, Cr, Zr, Nb, Y, and Th get enriched through all parts of the bauxite sequences with respect to the unweathered protolith. The highest value of Ba and Sr are observed in the Sarvak Formation's bauxitic limestones and marly limestones. The high values of Ca, Mg and Si in some yellow bauxite and red bauxite samples can be explained by the presence of kaolinite in the bauxite. The enrichment of V, LREE, Th, Nb, Co, Cr, Ni and Zr is interpreted to reflect the concentration of these elements in the Fe oxides and Ti-bearing minerals.

Geological and structural investigations in combination with remote sensing techniques are found to be useful in exploration of new bauxite-bearing districts in the Zagros. The Crosta technique, a multivariate statistical technique that uses multi-spectral image channel data, has been used in this project to help in the discrimination of economic bauxitic-lateritic oc-