

GENESIS AND THE ENVIRONMENTAL CONTROLLING FACTORS OF BORON CONCENTRATION IN GHAREHGOL DEPOSITS -ZANJAN -IRAN

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Genesis and the environmental controlling factors of boron concentration in the Gharehghol deposits, Zanzan -Iran Farjad Bastany Mohsen. Geological Survey of Iran. Tehran-Iran. The Gharehghol boron deposit which is the only boron mine in Iran, is situated 58 kms west-southwest of Zanzan city. The proved reserve of the mine is about 25,000 tons and it's probable reserve is about 40,000 tons. The orebody consists of various hydrous borate minerals. The country rock of the orebody is clay. In fact, the clay has preserved the orebody as it prevents from dissolution and disappearance of orebody. Genetically, boron is related to the volcanic activity in the Gharehghol area. In the area, the volcanic rocks are in the range of dacite, rhyodacite to rhyolite. Actually the acidic volcanic rocks have more ability to contain boron than the other volcanic rocks. However, in spite of 30ppm boron average in the acidic volcanic rocks, we can see more than 1000ppm boron (exceeding 2500ppm) in the acidic volcanic rocks in the Gharehghol area. In addition to acidic volcanic rocks, other kinds of volcanic activity such as boron hydrothermal springs contemporaneous with or later than the volcanic rocks could provide a large part of the necessary amount of boron for the mineralization in the Gharehghol area. I have proved that the boron mineralization has occurred in closed sedimentary basins, and an arid and evaporative environment such as a little playa lake.