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TORGHABEH MESOZONAL OROGENIC (PYRRHOTITE, PYRITE, ARSENOPYRITE) GOLD DEPOSIT, FORMED IN SHEAR ZONES WITHIN ILMENITE-TYPE GRANITOID ROCKS

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The Torgabeh gold mineralized area is part of collision zone formed during Late Paleozoic-Early Triassic time due to collision of Iran and Turan Plates. Oldest exposed rocks are meta-ophiolite and meta-flysch (Paleo-Tethys remnants). Dehnow- Vakilabad - Torgabeh tonalite- granodiorite (Early Mesozoic age) intruded low grade regional metamorphosed rocks of Late Paleozoic. Different types of schists were formed around the contact. Tonalite-granodiorite has low values of magnetic susceptibility [(1.5 to 2.5) * 10^{-5}SI], therefore, it belongs to ilmenite series or reduced-type granite. Mineralization is found within shear zones. The shear zones cut all of the exposed rocks, then, mineralization i younger than these rocks. Gold mineralization was associated with silica rich fluid. Parageneses from depth to the surface are: 1) arsenopyrite - pyrrhotite - gold, (2) pyrite - arsenopyrite - gold and (3) pyrite - gold- galenite. Gold is mainly associated with pyrite and arsenopyrite. The elemental content of Ag, Bi, Cu, Sb, Sn, Pb, Zn an W is low. Gold grade varies between 0.5 to 56 ppm and is less than 5 ppm on average. The width of mineralization is between 0.4 to 2.5 meters. Torgabeh deposit is mesozonal orogenic type gold deposit. The ore bearing solution was in reducing stage, in Sand T=420°C, pH=7, Log fO2<-40, Log fS2<-14

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