IRANIAN SOCIETY of CRYSTALLOGRAPHY and MINERALOGY

Vol. 16, No. 4, Winter 1387/2009

IRANIAN JOURNAL of CRYSTALLOGRAPHY and MINERALOGY

Mineralogy of accessory and rare minerals associated with chromite deposits in the khoy area

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(Received: 7/3/2008, in revised form: 10/8/2008)

Abstract: The chromite deposits in the khoy area have lenticular, tubular and vein-like shapes which are found in serpentinized hurzburgite. Chromite and serpentine are major minerals and hematite and magnetite are minor phases in the chromitic ores .Furthermore, Fe , Ni , Cu , Co , Zn, Ru, Os, Ir, La, Ce, Gd and S elements are found as base metal sulfides (BMS) , sulfides of pelatinum group elements (PGE) , metal oxides , native elements , natural alloys and solid inclusions in chromite grains and or in serpentinic groundmass . These minerals have very fine grain sizes and recognitions of them by ore microscopic metod was limited, so the investigations were continued by EMPA. The majority of these minerals have secondary origin and are related with serpentinization procceses and only a few of them have primary origin.Among sulfide minerals bravoite,pyrotite,milerite,linaite and pyrite have secondary origin , wheras pentlandite has primary one.Chalcopyrite has been formed in two generations , as both primary and secondary origins.Among primary PGE minerals lourite ((Ru , Os, Ir)S_2) is considerable , which was found as a solid inclusion in the chromite grain and has primary origin.Native metals and natural alloys such as nickel,copper,iron and josephinite (Ni_3Fe) have been formed in microfracturs of chromite grains filled by serpentine.A few REE-rich compositions were found in microfracturs also and have secondary origin.

Keywords: *Khoy, Chromite, Serpentine, PGE, Solid Incusions, Base metal, sulfides, Natural metals and alloys, Josephinite, Lourite.*