Petrogenesis of Oligo-Miocene granitoid intrusive in west Natanz, central part of Uroma-Dokhtar magmatic belt, NE Isfahan, Iran

ALI KHAN NASR ESFAHANI [1]* AND BEHAFARIN SHOJAEI[2]

[1]Islamic Azad University, Khorasgan Branch, Geology department, Isfahan, Iran.
(*correspondence: nasr@khuisf.ac.ir)
[2]Islamic Azad University, Khorasgan Branch, Petrology department, Isfahan, Iran.

Oigo-Miocene granitoid intrusive is located in west Natanz city, NE Isfahan and is a central part of Uromia-Dokhtar magmatic assemblage in Iran. This plutonic rock is the result of extensive magmatism which occurred during and after the Alpine Orogeny. The Plutonic composition is Granodiorite to Tonalite. The main minerals consist of quartz, plagioclase, alkali-feldspar. It contains a number of dioritic enclaves of different sizes. This granitiod is similar to those of the subalkaline, calc-alkaline series, metaluminous, and displays typical features of magnesian I-type granites. The chondrite normalized REE patterns are characterized by moderate to high LREE enrichment and unfractionated HREE. This granitoid magma involves partial melting of crustal protoliths and mantle-derived basaltic magmas emplaced into the lower crust. The Natanz granitoid stock has mineralogical field and geochemical characteristics typical of volcanic arc granites related to an active continental margin. Probably, Oigo-Miocene granitoid is the result of the subduction of Neo-Tethyan oceanic plate below the Lut microcontinent and this oceanic residual plate during Mesozoic to Cenozoeic time.

The isotopic composition of carbon and oxygen in calcite of veinlets and host rocks within the limits of the Kokhanivka oil field (Carpathian Foredeep, Ukraine)

I. NAUMKO[1]*, V. ZAGNITKO[2] AND YU. BELETS'KA[1]

[1]Institute of Geology and Geochemistry of the Combustible Minerals of NAS of Ukraine, 3a, Naukova St., Lviv, 79060, Ukraine (igggk@mail.lviv.ua)
[2]Taras Shevchenko Kyiv National University of MESYoS of Ukraine, 90, Vasylkivska St., Kyiv, 03022, Ukraine (zagnitko@igmr.relc.com)

Conditions of postsedimentogenous mineralogenesis in sedimentary strata within the limits of the Kokhanivka oil field in Jurassic limestones (Carpathian Foredeep) [1] were specified according to data of isotopic composition of carbon and oxygen research in calcite of veinlets and host rocks.

The isotopic analysis has revealed sufficiently homogenous values both of $\delta^{13}C$, correspondingly, -3.13÷+2.16 and -0.46÷+2.56 ‰ (standard PDB), and $\delta^{18}O$ – 24.25÷25.75 and 25.11÷29.21 ‰ (standard SMOW) that are not correlated with a depth of occurrence and a spatial distribution of a veinlet etc. It is established too that carbon and oxygen from veinlet's calcite is almost always somewhat lighter (enriched by isotope ^{12}C and ^{16}O) compared with carbon and oxygen in calcite of host rocks.

The predominance of CH_4 (56.3–62.8 vol. per cent) and steam among volatile as well as high relative water-saturation (93.9–98.9 vol. per cent) of fluid inclusions and closed cavities in rosks (by data of chemical mass-spectrometry [2]) indicates the important role of carbon-water fluids relicts of which were captured by defects in minerals into processes of postsedimentary transformations of oil-saturated strata.

Migrative processes were reduced to the formation, on the one hand, of oil deposit of the Kokhanivka field, but on the other hand, veinlet-impregnated mineralization at host rocks. Healing of fractures by the mineral substance of deep-seated high-temperature fluid [3, 4] with the formation of the calcite veinlets probably occurred from the single homogenized source similarity to the Lopushna oil field (Ukrainian Carpathians) [5].

[1] *Atlas of oil & gas fields of Ukraine* (1998). [2] Naumko *et al*. (2008) Moscow, IGEM RAS, 218–220 (http://www.minsoc.ru/2008-1-113-0). [3] Naumko (2006) *Thesis for a doctor's degree*, 52 p. [4] Naumko, Svoren' (2008) *Rep. of the NAS of Ukraine* **9**, 112–114. [5] Naumko *et al*. (2011) *Rep. of the NAS of Ukraine* **2**, 100–115.