IRANIAN SOCIETY of CRYSTALLOGRAPHY and MINERALOGY

Vol. 26, No. 2, Summer 1397/2018

IRANIAN JOURNAL of CRYSTALLOGRAPHY and MINERALOGY

Mineral chemistry, paragenesis and geochronological studies of the Hormuz Formation diabase rocks in the salt domes of sothern Iran, Hormozgan Province

P. Ahmadi Moghadam*[1], M. Mortazavi[1], M. Poosti [1], H. Ahmadi pour[2]

1- Department of Geology, Faculty of Sciences, University of Hormozgan, Bandar Abbas, Iran
2- Department of Geology, Faculty of Sciences, Shahid Bahonar University, Kerman, Iran

(Received: 7/5/2017, in revised form: 23/9/2017)

Abstract: The studied diabase rocks of the Hormuz Formation have undergone a variety of secondary processes and greenschist facies to amphibolite facies metamorphism. These rocks are metasomatized due to the effect of infiltrating metasomatism and hydrothermal alteration and are metamorphed due to CO_2-rich aqueous fluids and rock-fluid interaction. Feldespat, pyroxene, olivine, apatite, rutile, magnetite and pyrite are the primary magmatic minerals present in these rocks and other minerals, are products of the transformation of the primary minerals due to metasomatism and thermal metamorphism. Feldspars are labrador, albite and orthoclase. Labrador and albite were crystalized at tempretures of <700℃ and pressures of <6 kbar which is their recrystallization tempreture. Orthoclase was crystalized at tempretures and pressures of 700℃, 6 kbar and >1000℃, >7 kbar and is a magmatic mineral. Clinopyroxens are augite and diopside and were crystalized at 1100℃ to 1300℃ and are magmatic minerals. Pyroxenes are subalkaline to alkaline and were formed within plate tholleitic basalt or oceanic floor basalt environment. Plagioclase and pyroxene minerals show oxidation conditions. According to the analyzed zircons from Band-e Moullem (539/4 ± 6/4 Ma) and Champeh (543/5 ± 6/1 Ma) salt dome diabase, these rocks have been crystalized and formed during Early Cambrian time. In addition, most of these zircons have a magmatic origin. This estimated age suggests that the intrusion of these diabase, occurred during and/or after the Neoproterozoic to Early Cambrian rifting of the northern part of the Arabian plate and the sedimentation of the Hormuz Formation in the Persian Gulf Basin.

Keywords: *salt dome; Hormuz Formation; diabase; mineral chemistry; paragenesis; geochronology.*

متن فارسی اصل مقاله از صفحه ۳۵۵ تا ۳۶۸ در این شماره به چاپ رسیده است.

*Corresponding author: Tel: 09151163292, Fax: 05138807152, Email: pahmadimoghadam@yahoo.com