

Mineral Chemistry of Extraordinary Ilmenite from the Gabbroic Rocks of Abu Ghalaga Area, Eastern Desert, Egypt: Evidence to Metamorphic Modification

Authors : Yaser Maher Abdel Aziz Hawa

Abstract : An assemblage of Mn-bearing ilmenite, titanomagnetite (4-17 vol.%) and subordinate chalcopyrite, pyrrhotite and pyrite is present as disseminations in gabbroic rocks of Abu Ghalaga area, Eastern Desert, Egypt. The neoproterozoic gabbroic rocks encompass these opaques are emplaced during oceanic island arc stage which represents the Nubian shield of Egypt. However, some textural features of these opaques suggest a relict igneous. The high Mn (up to 5.8 MnO%, 1282% MnTiO₃) and very low Mg contents (0.21 MgO%, 0.82 MgTiO₃) are dissimilar to those of any igneous ilmenite of tholeiitic rocks. Most of these ilmenites are associated mostly with metamorphic hornblende. Hornblende thermometry estimate crystallization of about 560°C. the present study suggests that the ilmenite under consideration has been greatly metamorphically modified, having lost Mg and gained Mn by diffusion.

Keywords : titanomagnetite, Ghalaga, ilmenite, chemistry

Conference Title : ICGSE 2014 : International Conference on Geological Sciences and Engineering

Conference Location : Paris, France

Conference Dates : August 28-29, 2014