

FERRIDE GROUP OF ELEMENTS AND THEIR SIGNIFICANCE IN THE ORIGIN OF BANDED MAGNETITE-QUARTZITE (BMQ) OF TIRTHAMALAI AREA, DHARMAPURI DISTRICT, TAMILNADU, INDIA

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Abstract

The Magnetite-Quartzites of Tirthamalai form a part of the large iron ore belt which occurs in the Precambrian high grade granulite terrain of Tamilnadu. In the present study an attempt is made to understand the ferride group of elements and their significance in the origin of Banded Magnetite-Quartzite (BMQ) of the study area. They are associated with pyroxene granulites and hornblende biotite-gneisses. About 20 magnetite-quartzite samples were collected and analyzed for the ferride group of elements (FGE) like Mn, Ni, Ti, Co, Cr, and V. The results of geochemical analyses show FGE very much lesser in the magnetite -Quartzite than in pyroxene granulites. The proportions of Mn and Ti are enriched compared to other elements. The FGE depleted concentrations in the magnetite-quartzite of the study area indicate that the source materials might have been derived from weathering of landmasses and not from any volcanic sources. Also, the FGE studies clearly show their similarities with other well-known metasedimentary iron ores. The results, strongly suggested that the magnetite-quartzite and associated pyroxene granulites of Tirthamalai region are of different modes of origin, namely meta-sedimentary and meta-volcanic respectively.

Keywords: Banded Magnetite-quartzite, Ferride Group Elements (FGE) and Tirthamalai region, India