A study of wet chemistry determinations of iron cations in biotite

A. A. Tabbakh Shabani∗

Research Center for Earth Sciences, Geological Survey of Iran, Tehran, Iran

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Abstract: Content of iron cations in three biotite specimens of true trioctahedral mica were determined by Mössbauer spectroscopy, electron microprobe and wet-chemistry methods. International certified reference materials were analyzed simultaneously with micas to evaluate the accuracy of the wet-chemistry method. High precision Mössbauer spectroscopic Fe3+/Fe2+ ratios coupled with the electron microprobe iron determinations were compared with the wet-chemical data. Comparisons of data show that in wet-chemistry method powdered micas dissolve more readily during acid attack than the granular micas and thus yield higher precision and accuracy.

Keywords: biotite; iron cations; Mössbauer spectroscopy; electron microprobe; wet-chemistry; precision; accuracy.

∗Corresponding author, Tel.: (021) 64592285, Fax: (021) 66070517, E-mail: aatshabani@gmail.com