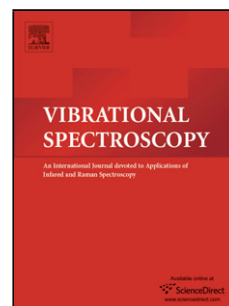


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Amorphous iron oxides investigated by portable and bench-top Raman spectrometers: an extraterrestrial analytical perspective

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Abstract

One of the current issues in the Mars regolith investigation is the performance evaluation of the instruments that are to be sent on the next missions, and commercial portable Raman instruments have been used in experiments aiming to simulate the capabilities of the Mars mission prototypes. In this study, several types of iron oxides with low crystallinity, some of them containing other metals as impurities, were synthesized and characterized using a bench-top research grade Raman microscope and a portable instrument, both with excitation at 785 nm. The obtained results clearly indicated that luminescence is an issue in such type of samples, even with excitation at 785 nm, and this is particularly more important with the portable instrument which

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