

The JPL Spectral Library 0.4 to 2.5 Micrometers

Simon J. Hook, Cindy I. Grove and Earnest D. Paylor II

Jet Propulsion Laboratory / California Institute of Technology
4800 Oak Grove Drive, Pasadena, California
91109

During the 1980's the Geology Group at the Jet Propulsion Laboratory (JPL) gradually acquired a large collection of mineral specimens. The hemispherical reflectance of these specimens in the 0.4 to 2.5 micrometer wavelength region was measured with a Beckman UV5240 Spectrophotometer. In addition, the purity of each specimen was evaluated by X-ray diffraction (XRD) and the chemical composition of certain samples known to deviate strongly from idealized end-member compositions was determined by electron microprobe analysis. The results from 160 of the purest minerals, as determined by XRD, were presented in Grove *et al.* 1992.

The spectral data for 135 of the minerals in Grove *et al.* 1992 were presented at three different grain sizes to demonstrate the effect of particle size. These were 125-500 μ m, 45-125 μ m and <45 μ m. Ancillary information, which included the mineral name, mineralogy, supplier and sampling locality, was provided with each mineral spectrum. The compositional information obtained by microprobe analysis and accessory minerals identified by XRD were noted with the ancillary information.

In addition, the spectrum acquired from the coarsest grain size available for each sample was processed with a feature-finding algorithm to quantify the characteristics of the spectral absorption features.

All the reflectance spectra presented in Grove *et al.* 1992 were provided in digital form on IBM-compatible 3.5" diskettes included with the publication together with a program for displaying the spectral data and searching for spectral features. The program runs on an IBM-compatible PC with standard VGA graphics.

This presentation summarizes the results presented in Grove *et al.* 1992 and discusses, in detail, the software for displaying and analyzing the spectral data.

Copies of Grove *et al.* 1992 are available free of charge from:

JPL PLDS User Support Office
Geology and Planetology Section
Mail Stop 183-501
JET PROPULSION LABORATORY
4800 Oak Grove Drive
Pasadena, California, 91109

Phone: (818) 354-6363
Facsimile: (818) 354-0966

References

C. I. Grove, S. J. Hook, and E. D. Paylor II. Laboratory Reflectance Spectra of 160 Minerals, 0.4 to 2.5 Micrometers. JPL Publication 92-2, 1992, 405 p.

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