RAMAN SPECTRA DATABASE OF MINERALS AND INORGANIC MATERIALS ON THE WEB

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Abstract: The amounts of Raman standard spectra obtainable from commercial databases and data books are not satisfactory, especially for inorganic materials. To remedy the situation, we have started to construct a ***Ra***man ***S***pectra Database of ***M***inerals and ***In***organic Materials (RASMIN) at RIO-DB of AIST (http://www.aist.go.jp/RIODB/rasmin/E_index.htm). We provide spectrum images in PDF format, wavenumber - intensity data in ASCII text, and mineral photos in JPEG format. The number of spectra for minerals and inorganic materials will be 800 and 1500, respectively, at the end of the project.

We have started to construct a ***Ra***man ***S***pectra Database of ***M***inerals and ***In***organic Materials, abbreviated as RASMIN at RIO-DB of AIST, as 3 years project (2003-5).

Raman spectroscopy can offer valuable information on the physics and the chemistry of materials, such as phase transition, lattice dynamics, chemical reaction, identification, and more. By the technological development of the CCD, notch filters, and semiconductor lasers, Raman spectroscopy is now established as the technique that is easy to use and open to every laboratory related to material sciences. However, if one compares Raman with X-ray diffraction, the most versatile identification technique for ceramics and mineral research, the amounts of standard spectra obtainable from commercial databases and data books are not satisfactory, especially for inorganic materials. Table 1 shows the commercially available database and Table 2 summarizes the standard Raman spectra of minerals available on the Internet web. To remedy the situation, we have started the RASMIN project.

RASMIN provides spectrum images in PDF format (Figure 1), wavenumber - intensity data in ASCII text, and mineral photos in JPEG format (Figure 2). Also, Raman literature references have been added for researcher's convenience. The number of spectra for minerals and inorganic materials will be 800 and 1500, respectively, at the end of the project.

We welcome your donation of samples and spectra to RASMIN. If you can contribute, please contact at rasmin@ni.aist.go.jp.

Table 1. Commercial Databases

Company	Title	Number of Spectra
Sadler	Raman of Inorganics •4702•	1600
Renishaw	Spectral database of inorganics	1200

Table 2. Raman spectra databases for minerals on the web

Organization	URL	Number of Samples
CALTECH, USA	http://minerals.caltech.edu/FILES/raman/index.htm	310
Parma University, Italy	http://www.fis.unipr.it./~bersani/raman/raman/spettri.htm	197
AIST, RASMIN	http://www.aist.go.jp/RIODB/rasmin/E_index.htm	421(minerals), 357 (inorg. compounds)

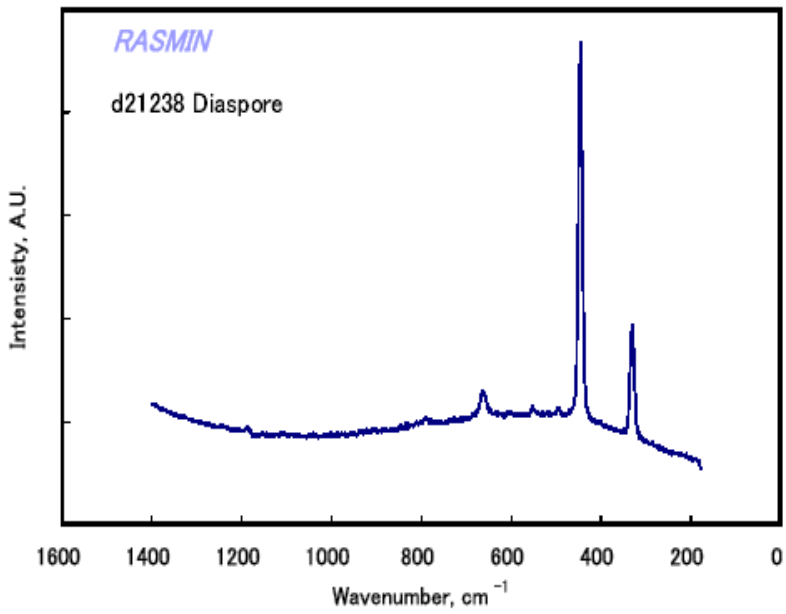

Fig. 1. Typical example of PDF formated spectrum image. Raman spectrum of diaspore

Fig. 2. Typical example of JPEG formated mineral photo, diaspore.

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