

SPECTRAL EVOLUTION

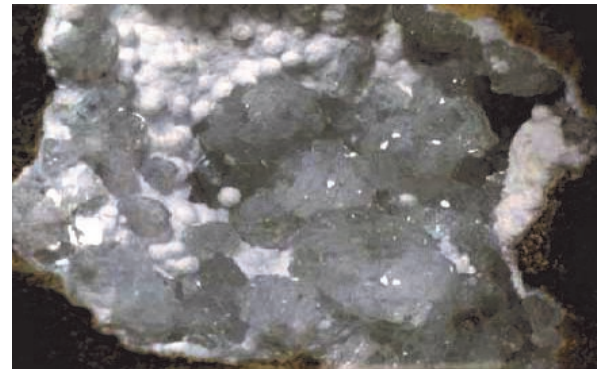
Zeolite Exploration

Zeolites are silica and aluminum hydrated tectosilicates. As holders of exchangeable cations such as calcium, sodium, and potassium, zeolites are of interest for use in agriculture due to their high cation exchange capacity (CEC). They have a cage-like structure that makes them useful for water softeners and filters. They are also used as catalysts in the pharmaceutical and petrochemical industries. Zeolites form in both volcanic and sedimentary rocks. The most commonly mined forms include chabazite, clinoptilolite, and mordenite.

With EZ-ID mineral identification software, the oreXpress can provide geologists with a tool for identifying and mapping potential zeolite deposits in the field.

The oreXpress is a high resolution/high sensitivity, field portable NIR spectrometer. Covering the full UV/VIS/NIR range from 350-2500nm, an oreXpress is lightweight and rugged with photodiode array design for no moving optical parts. oreXpress allows a geologist to take spectra in the field within seconds so that a detailed mineral map can be constructed. Scans of a sample taken with an oreXpress and a contact probe can be analyzed on a laptop using Spectral Evolution's EZ-ID mineral identification software and matching to known samples from the USGS and SPECMin libraries.

Clinoptilolite was matched to known samples in the EZ-ID libraries and showed absorption features 630nm, 1425nm, 1915nm, and 2430nm. EZ-ID's two libraries also contain known spectra for mordenite.



A sample of the zeolite clinoptilolite.



Identifying the mineral clinoptilolite using Spectral Evolution's EZ-ID software.

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1 Canal Street ♦ Unit B1
Lawrence, MA 01840 USA
Tel: 978 687-1833 ♦ Fax: 978 945-0372
Email: sales@spectralevolution.com
www.spectralevolution.com

