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## **Mid-infrared emission spectroscopy of sulfate and sulfate-bearing minerals**

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### **ABSTRACT**

Mid-infrared thermal emission spectra were acquired and are presented for 37 different sulfate minerals representing Strunz classes 6/A-D as well as a few other miscellaneous sulfate-bearing minerals (Strunz class 3/C and 8/J). Sulfate vibrational modes are assigned to each spectrum; also assigned are the modes of component OH, H<sub>2</sub>O, and carbonate where applicable. A discussion also is presented regarding the effect of hydration state on the emissivity spectra; dehydration of the Ca-sulfate mineral series (e.g., gypsum-bassanite-anhydrite), as well as the Mg-sulfate series, causes the high-frequency edge of the sulfate  $\nu_3$  band to shift to a larger wavenumber.

**Keywords:** Mid-infrared, vibrational, spectroscopy, emissivity, emission, sulfate, spectra