



HOBART AND WILLIAM SMITH COLLEGES



Using the Vreeland Spectroscope in a Geoscience Mineralogy course

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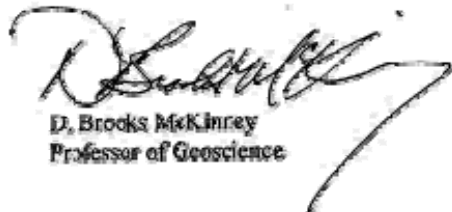
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Dear Mr. Hoyte,

You had expressed some interest in knowing how we were using the instrument. Our spectroscope gets very heavy use every year in our Geoscience 240 Mineralogy course. Students in that course work together to identify sets of unknown minerals in parallel with learning about them in class and lab. The Vreeland Spectroscope is one of their most important tools in this work. In the typical application, a student will have used physical properties (color, crystal form, cleavage, etc.) to make a tentative identification on an unknown mineral, and then will use the Vreeland Spectroscope as a way of testing that hypothesis by looking for the presence of diagnostic elements, for example barium in barite. In other cases, a student may use the spectroscope's key element films to make an initial determination of elemental content and on that basis develop mineral identification hypotheses for additional scrutiny. While durable, easy to use and very reliable (ours has done hundreds of analyses), the Vreeland Spectroscope is not a "black box" - it requires students to carefully think about what they are analyzing and what both the presence and absence of particular elements may imply about the identity and chemical composition of the mineral being tested. The critical thinking skills they develop in using this tool transfers well to a range of more advanced and expensive instruments.

Thanks for providing such an excellent tool, both for mineral identification and for scientific training.

Regards,



D. Brooks McKinney
Professor of Geoscience

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