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Do Your Rocks Need Sunscreen?

This project was a collaborative effort to see if damage occurs to fluorescent minerals when ultraviolet light shines on them. Environments used in this project include sunlight and long-wave ultraviolet light. A sample of Sphalerite from the Sweet Home Mine and a sample of Wernerite from Quebec, Canada were cut into thirds using a rock saw. After taking a picture of the rocks, a sample from each rock was placed in one of three environments: outside under the sun, inside under a black light, and in a darkened room. A digital photograph was taken weekly to record the results and our naked eyes evaluated them. We did not use tools to measure the change because we wanted to know if people at a museum could see the difference in the fluorescence of the rocks. Noticeable changes in the fluorescence occurred within the first week. In our sample of Wernerite, the changes were more dramatic than those seen in the Sphalerite. The rocks faded as more ultraviolet light exposure occurred. Samples in sunlight were damaged, but not as much as the ultraviolet light samples. The controls kept in the darkened room showed no visible changes. Museums need to ameliorate their fluorescent rock exhibits by limiting the time UV light shines on the rocks. Two ways to minimize UV exposure would be to use a timer or a motion sensor, depending on the number of people who visit the exhibit.