

SOME OPTICAL AND PHOTOELECTRICAL PROPERTIES
OF MOLYBDENITE.¹

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[ABSTRACT.]

THIS paper gives data on the transmissivity and the reflectivity of molybdenite; also data upon its change in electrical conductivity, when exposed to thermal radiations of wave-lengths extending from the ultra-violet into the extreme infra-red.

The effect of temperature, humidity, intensity of the exciting light, etc., upon the photoelectrical sensitivity of molybdenite was investigated.

It was found that:

(1) Samples of molybdenite, obtained from various localities, differ greatly in sensitivity.

(2) There are maxima of sensitivity in the region of 0.73μ , $.85\mu$, 1.02μ , and 1.8μ .

(3) There is no simple law governing the variation in the photoelectric response with variation in intensity of the radiation stimulus.

(4) The increase in photoelectric current with increase in intensity of the incident radiation is greatest for infra-red rays. It is greatest for low intensities of the exciting light and it is greatest on the long wave-length side of the maximum.

(5) The photoelectric sensitivity increases with decrease in temperature. At 70° C. the bands at 1.02μ and 1.8μ have practically disappeared. On the other hand, at liquid air temperatures, the greatest change in electrical conductivity is produced by radiations of wave-lengths between 0.8μ and 0.9μ .

Unlike selenium, molybdenite appears unique in being photoelectrically sensitive to infra-red rays, extending to about 3μ .

* Communicated by the Director.

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