

DOUGLASITE.

Douglashall, Westerregeln, Germany (Col. Roebling). Perceptibly uniaxial, optically +; the crystals tend to lie on the base.

$$\omega = 1.488 \pm 0.003. \quad \epsilon = 1.500 \pm 0.003.$$

DUFRENITE.

1. Saxony (U. of C.). Crystals with zonal growths showing variable optical properties, especially the axial angle. All show Z normal to the cleavage. Cleavage pieces show no extinction in white light but abnormal green, orange, and red interference colors over a wide angle. Fibers turned normal to the plane of Y and Z show sharp, parallel extinction in white light.

A. The greater part of the material is optically +, 2V medium to 90°, $\rho > \nu$ (marked), crossed extreme, pleochroism intense, absorption $Z > X > Y$.

$\alpha = 1.830 \pm 0.005$; bright green (when 2V is small, brownish).

$\beta = 1.840 \pm 0.005$; very pale yellowish to nearly colorless.

$\gamma = 1.885 \pm 0.005$; dark reddish brown.

B. 2V may pass through 90° and some of the crystals may be optically —, with large 2V and $\rho < \nu$ (marked). Otherwise similar to A.

C. Some of the crystals are optically +, 2V small to large, $\rho < \nu$. (marked). One fragment gave:

$$2E_{\text{red}} = 54^\circ \pm 5^\circ, \quad 2V_{\text{red}} = 28^\circ \pm 3^\circ. \quad 2E_{\text{Na}} = 70^\circ \pm 3^\circ, \quad 2V_{\text{Na}} = 36^\circ \pm 3^\circ$$

Strongly pleochroic.

$$\alpha = 1.840. \quad X = \text{light yellow-brown.} \quad Y = \text{dark brown.}$$

2. Krauerite. Uelersreuth bei Hof (U. of C.). Dark green, botryoidal coatings of fibers. Chiefly type C. Optically +, 2V large, $\rho < \nu$ (marked).

One piece gave $2E_{\text{Na}} = 53^\circ \pm 5^\circ$, $2V_{\text{Na}} = 28^\circ \pm 3^\circ$, $2E_{\text{red}} = 0^\circ \pm$, $2V_{\text{red}} = 0^\circ$; another $2E_{\text{Na}} = 85^\circ \pm 5^\circ$, $2V_{\text{Na}} = 43^\circ \pm 3^\circ$. Some pieces have larger or smaller values for 2V. Fibers tend to lie on cleavage normal to Z and give fairly sharp extinction with abnormal bluish-green interference colors. Y is parallel to the elongation. Pleochroism intense; absorption $Z > Y > X$.

$\alpha = 1.840 \pm 0.005$; pale yellowish.

$\beta = 1.845 \pm 0.005$; rather dark reddish brown, becoming bright green as 2V becomes small.

$\gamma = 1.89 \pm 0.01$; dark reddish brown to dark green.