

**Crystal Data:** Hexagonal or triclinic. *Point Group:*  $6/m\ 2/m\ 2/m$ . Crystals short prismatic to equant, to 3 mm, showing prominent  $\{10\bar{1}0\}$ ,  $\{20\bar{2}1\}$ , and  $\{0001\}$ .

**Physical Properties:** *Cleavage:*  $\{0001\}$ , uneven;  $\{10\bar{1}0\}$ , imperfect. *Tenacity:* Brittle. Hardness = 3.5–4 D(meas.) = 7.9–8.0 D(calc.) = [7.87]

**Optical Properties:** Transparent to translucent. *Color:* Pale yellow, canary-yellow to orange, may be zoned, yellow cores with reddish orange rims; tenebrescent, deepening in color in daylight, the original color restored in darkness; yellow to colorless in transmitted light.

*Streak:* Sulfur-yellow. *Luster:* Adamantine to greasy.

*Optical Class:* Biaxial (–); uniaxial (+)  $\geq 130^\circ\text{C}$ ; isotropic  $\geq \sim 190^\circ\text{C}$ . *Dispersion:*  $r < v$ , very strong.  $\omega = 2.19$   $\epsilon = 2.21$   $\alpha = 2.16$   $\beta = 2.18$   $\gamma = 2.18$   $2V(\text{meas.}) = \text{Small to } 80^\circ$ .

**Cell Data:** *Space Group:*  $C6/mmc$ .  $a = 13.56$   $c = 11.13$   $Z = [18]$

**X-ray Powder Pattern:** Terlingua, Texas, USA.

2.914 (10), 2.615 (10), 3.884 (6), 2.013 (6), 1.434 (4), 1.242 (4), 5.228 (2)

<b>Chemistry:</b>	(1)
	Hg 85.86
	N 2.57
	Cl 7.30
	H <sub>2</sub> O 1.03
	SO <sub>4</sub> 3.10
	<hr/> Total 99.86

(1) Terlingua, Texas, USA; averages of numerous partial analyses, corresponds to  $\text{Hg}_{2.00}\text{N}_{0.86}[\text{Cl}_{0.96}(\text{SO}_4)_{0.15}]_{\Sigma=1.11} \cdot 0.53\text{H}_2\text{O}$ .

**Occurrence:** In hydrothermal mercury deposits.

**Association:** Terlinguaite, gypsum, barite, calcite, other mercury minerals (Terlingua, Texas, USA); mosessite, calomel, montroydite (McDermitt mine, Nevada, USA).

**Distribution:** In the USA, from Terlingua, Brewster Co., Texas; the New Idria district, San Benito Co., California; and in the McDermitt and Cordero mercury mines, Opalite district, Humboldt Co., Nevada.

**Name:** To honor Carl Klein (1842–1907), Professor of Mineralogy, University of Berlin, Berlin, Germany.

**Type Material:** Harvard University, Cambridge, Massachusetts; National Museum of Natural History, Washington, D.C., USA, 86639–86641, 86647.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 87–89. (2) Bird, P.H. (1932) A new occurrence and X-ray study of mosessite. *Amer. Mineral.*, 17, 541–553. (3) Heritsch, H. (1949) I. Röntgenuntersuchungen an Kleinite. *Tschermaks Mineral. Petrog. Mitt.*, 1, 300–312 (in German). (4) Foord, E.E. and B.A. Mills (1978) Biaxiality in 'isometric' and 'dimetric' crystals. *Amer. Mineral.*, 63, 316–325.