

**Crystal Data:** Hexagonal. *Point Group:* 6/m. As radial clusters of acicular crystals to 50  $\mu\text{m}$ .

**Physical Properties:** *Cleavage:* None. *Tenacity:* Brittle. *Fracture:* Uneven. Hardness =  $\sim 3.5$   
D(meas.) = n.d. D(calc.) = 3.424

**Optical Properties:** Translucent. *Color:* Yellowish green. *Streak:* White. *Luster:* Vitreous.  
*Optical Class:* n.d.

**Cell Data:** *Space Group:*  $P6_3/m$ .  $a = 13.2197(18)$   $c = 5.8591(9)$   $Z = 2$

**X-ray Powder Pattern:** Calculated pattern.

11.449 (100), 4.327 (13), 3.305 (12), 2.426 (10), 2.862 (9), 4.327 (7), 2.879 (7)

<b>Chemistry:</b>	(1)
P <sub>2</sub> O <sub>5</sub>	21.671
SiO <sub>2</sub>	0.921
Ce <sub>2</sub> O <sub>3</sub>	3.097
Y <sub>2</sub> O <sub>3</sub>	1.988
La <sub>2</sub> O <sub>3</sub>	2.176
Pr <sub>2</sub> O <sub>3</sub>	0.361
Nd <sub>2</sub> O <sub>3</sub>	1.575
Sm <sub>2</sub> O <sub>3</sub>	0.268
Gd <sub>2</sub> O <sub>3</sub>	0.617
Dy <sub>2</sub> O <sub>3</sub>	0.190
CuO	51.489
CaO	2.528
H <sub>2</sub> O	[13.120]
Total	100.00

(1) Cherry Creek District, Yavapai County, Arizona, USA; average of 7 electron microprobe analyses supplemented by Raman spectroscopy, H<sub>2</sub>O by difference; corresponds to  $\text{Cu}_{6.05}(\text{Ce}_{0.18}\text{Y}_{0.16}\text{La}_{0.12}\text{Nd}_{0.09}\text{Gd}_{0.03}\text{Pr}_{0.02}\text{Dy}_{0.01}\text{Sm}_{0.01}\text{Ca}_{0.42})_{\Sigma=1.04}[(\text{PO}_4)_{2.54}(\text{SiO}_4)_{0.14}(\text{PO}_3\text{OH})_{0.32}(\text{OH})_6] \cdot 3.65\text{H}_2\text{O}$ .

**Mineral Group:** Mixite group.

**Occurrence:** A rare secondary mineral in weathered granite crossed by veins of milky quartz with a small amount of tourmaline.

**Association:** Malachite, chlorite, biotite, quartz, albite, orthoclase, hematite, chalcopyrite, a hisingerite-like phase.

**Distribution:** Found on a micromount specimen from an unnamed prospecting pit, Cherry Creek District, Yavapai County, Arizona, USA.

**Name:** As the Ce-dominant analogue of *petersite*-(Y), which was named after brothers Thomas and Joseph Peters, curators of the Paterson Museum in Paterson, New Jersey and the American Museum of Natural History in New York, USA respectively.

**Type Material:** Mineral Museum, University of Arizona, Tucson, USA (19801) and the RRUFF Project (R050541).

**References:** (1) Morrison, S.M., K.J. Domanik, H. Yang, and R.T. Downs (2016) Petersite-(Ce),  $\text{Cu}^{2+}_6\text{Ce}(\text{PO}_4)_3(\text{OH})_6 \cdot 3\text{H}_2\text{O}$ , a new mixite group mineral from Yavapai County, Arizona, U.S.A. Can. Mineral., 54(6), 1505-1511. (2) (2018) Amer. Mineral., 103, 2529-2530 (abs. ref. 1).