Creaseyite $Pb_2Cu_2Fe_2^{3+}Si_5O_{17}\cdot 6H_2O$

Crystal Data: Orthorhombic. *Point Group:* [$2/m$ $2/m$ $2/m$ or $mm2$.] Fibrous crystals, elongated along [001] and flattened on {010}, to 0.5 mm. As densely packed spherules of crystals; in masses of matted and tangled fibers.

Physical Properties: *Cleavage:* Poor on {010}. Hardness = 2.5 for spherules, greater for crystals. D(meas.) = 4.1(1) D(calc.) = 4.01

Optical Properties: Transparent to translucent. *Color:* Pale green to yellow-green; yellow in thin section. *Streak:* Light green.
Optical Class: Biaxial (+). *Pleochroism:* X = yellow-green; Y = green; Z = yellow-green. *Orientation:* $X = a$; $Y = b$; $Z = c$. *Absorption:* $Z = X > Y$. $\alpha = 1.737(2)$ $\beta = 1.747(2)$ $\gamma = 1.768(2)$ 2V(meas.) = 69° 2V(calc.) = 70°

Cell Data: *Space Group:* *mmmCb* [diffraction symbol]. a = 12.483–12.497 b = 21.375–21.395 c = 7.283 Z = 4

X-ray Powder Pattern: Tiger, Arizona, USA.
10.726 (100), 6.024 (50), 4.067 (50), 3.555 (50b), 3.013 (50), 2.982 (50), 2.696 (50)

Chemistry:

	(1)	(2)
SiO_2	25.5	25.59
Fe_2O_3	12.3	13.61
Al_2O_3	2.1	
CuO	13.5	13.56
ZnO	1.2	
PbO	37.0	38.03
H_2O	8.8	9.21
Total	100.4	100.00

(1) Tiger, Arizona, USA; average of several microchemical analyses, corresponding to $Pb_{1.98}(Cu_{2.02}Zn_{0.18})_{\Sigma=2.20}(Fe^{3+}_{1.85}Al_{0.05})_{\Sigma=1.90}Si_{5.08}O_{17.18}\cdot 5.85H_2O$. (2) $Pb_2Cu_2Fe_2Si_5O_{17}\cdot 6H_2O$.

Occurrence: In the oxidized zone of a base-metal deposit, in andesite breccia loosely cemented with iron oxides and wulfenite (Tiger, Arizona, USA).

Association: Mimetite, dioptase, fluorite, willemite, wulfenite, descloizite, murdochite (Tiger, Arizona, USA); ajoite, fluorite (Potter-Cramer property, Arizona, USA).

Distribution: In the USA, in Arizona, from the Mammoth-St. Anthony mine, Tiger, Pinal Co., at the Potter-Cramer property and Tonopah-Belmont mine, near Wickenburg, Maricopa Co., from near Artillery Peak, Mohave Co., and in the the Copper Point prospect, Amole district, Pima Co.; from near Gold Point, Esmeralda Co., Nevada. In Mexico, at Caborca and Munihuaza, near Alamos, Sonora. In the Cruz del Sur mine, Rio Negro Province, Argentina.

Name: To honor Dr. Saville Cyrus Creasey (1917–), economic geologist, U.S. Geological Survey, expert on Arizona mineral deposits.

Type Material: The Natural History Museum, London, England, 1976,412; University of Arizona, Tucson, Arizona; Harvard University, Cambridge, Massachusetts, 117000; National Museum of Natural History, Washington, D.C., USA, 147661.

References: (1) Williams, S.A. and R.A. Bideaux (1975) Creaseyite, $Cu_2Pb_2(Fe,Al)_2Si_5O_{17}\cdot 6H_2O$. Mineral. Mag., 40, 227–231. (2) (1976) Amer. Mineral., 61, 503 (abs. ref. 1).