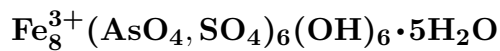


Tooeleite

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Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$ or $mm2$ (probable). Bladed crystals, to 1 cm, are elongate along [001], showing {010}, {304}, {100}; usually in compact crystalline crusts.

Physical Properties: *Cleavage:* On {010}, good. *Hardness* = 3 *D*(meas.) = 4.23(8) *D*(calc.) = 4.15

Optical Properties: Transparent. *Color:* Cadmium-orange, may be brownish orange or yellowish orange. *Streak:* Cadmium-orange. *Luster:* Greasy. *Optical Class:* Biaxial (-). *Pleochroism:* Moderate; *Y* = orange; *X* = *Z* = lemon-yellow. *Orientation:* *X* = *a*; *Y* = *c*; *Z* = *b*. *Dispersion:* $r > v$, slight. *Absorption:* $Y > X = Z$. $\alpha = 1.94$ $\beta = 2.04$ $\gamma = 2.05$ $2V$ (meas.) = 2° - 5° $2V$ (calc.) = 32°

Cell Data: *Space Group:* $Pbcm$ or $Pbc2_1$ (probable). $a = 6.416(4)$ $b = 19.45(17)$ $c = 8.941(8)$ $Z = 2$

X-ray Powder Pattern: U.S. mine, Utah, USA.
9.725 (10), 3.208 (9), 3.047 (5), 4.476 (4), 2.680 (4), 2.153 (4), 1.604 (4)

Chemistry:	(1)
	SO ₃ 7.24
	As ₂ O ₅ 38.61
	Fe ₂ O ₃ 43.56
	H ₂ O 9.80
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	Total 99.21

(1) U.S. mine, Utah, USA; by electron microprobe, average of 11 analyses, total Fe as Fe₂O₃, H₂O by the Penfield method; corresponds to Fe_{7.58}[(AsO₄)_{4.73}(SO₄)_{1.27}]_{Σ=6.00}(OH)_{6.00}•4.66H₂O.

Occurrence: An uncommon secondary mineral in the oxidized zone of a replacement orebody in metamorphosed limestone.

Association: Jarosite, scorodite, sulfur, kaatialaite, pyrite, arsenopyrite, galena, sphalerite, goethite, gypsum.

Distribution: From the U.S. mine, Gold Hill, Tooele Co., Utah, USA.

Name: For its initially noted occurrence in Tooele Co., Utah, USA.

Type Material: National School of Mines, Paris, France.

References: (1) Cesbron, F.P. and S.A. Williams (1992) Tooeleite, a new mineral from the U.S. Mine, Tooele County, Utah. *Mineral. Mag.*, 56, 71-73. (2) (1992) *Amer. Mineral.*, 77, 1306-1307 (abs. ref. 1).