

**Wallkilldellite**

**Crystal Data:** Hexagonal. *Point Group:*  $6/m\ 2/m\ 2/m, \bar{6}\ m2$ , or  $6mm$ . As flattened, radial clusters of platy crystals, to about 0.1 mm.

**Physical Properties:** *Cleavage:* Perfect on {0001}. *Hardness* = ~3 *D*(meas.) = 2.85(5)  
*D*(calc.) = 2.90

**Optical Properties:** Semitransparent. *Color:* Dark red. *Streak:* Pale orange. *Luster:* Vitreous on cleavage surfaces; slightly resinous on fracture surfaces.

*Optical Class:* Uniaxial (-). *Pleochroism:* *O* = reddish orange; *E* = pale pinkish orange.

*Absorption:* Moderate; *O* > *E*.  $\omega = 1.728(4)$   $\epsilon = \text{n.d.}$

**Cell Data:** *Space Group:*  $P6_3/mmc, P\bar{6}\ 2c$ , or  $P6_3mc$ .  $a = 6.506(7)$   $c = 23.49(3)$   $Z = [1]$

**X-ray Powder Pattern:** Sterling Hill, New Jersey, USA.

11.5 (100), 5.61 (90), 2.844 (60), 2.748 (50), 2.545 (50), 4.56 (40), 3.25 (40)

<b>Chemistry:</b>	(1)	(2)
As <sub>2</sub> O <sub>5</sub>	27.4	30.52
SiO <sub>2</sub>	1.7	
FeO	0.3	
MnO	27.0	28.26
CuO	3.3	
ZnO	0.0	
MgO	0.9	
CaO	12.4	14.90
H <sub>2</sub> O	[27.0]	26.32
Total	100.0	100.00

(1) Sterling Hill, New Jersey, USA; H<sub>2</sub>O by difference. (2) Ca<sub>2</sub>Mn<sub>3</sub>(AsO<sub>4</sub>)<sub>2</sub>(OH)<sub>4</sub>•9H<sub>2</sub>O.

**Occurrence:** Extremely rare in massive granular franklinite-willemite ore from a metamorphosed stratiform zinc orebody (Sterling Hill).

**Association:** Manganoan cuprian adamite, franklinite, willemite, calcite (Sterling Hill); coralloite, manganohörnseite, rhodochrosite, sarkinite, sterlinghillite, strashimirite, castellarroite (Monte Nero).

**Distribution:** From Sterling Hill, Ogdensburg, Sussex Co., New Jersey, USA. At the Monte Nero mine, Rocchetta Vara, La Spezia, Liguria, Italy.

**Name:** For the *dell* of the *Wallkill* River, in which both the Sterling Hill and the Franklin deposits were discovered.

**Type Material:** Harvard University, Cambridge, Massachusetts, 113445; National Museum of Natural History, Washington, D.C., USA, 149767.

**References:** (1) Dunn, P.J. and D.R. Peacor (1983) Kittatinnyite and wallkilldellite, silicate/arsenate analogues containing calcium and manganese, from Franklin and Sterling Hill, New Jersey. *Amer. Mineral.*, 68, 1029-1032. (2) Kampf, A.R., F. Cámara, M.E. Ciriotti, B.P. Nash, C. Belestria, and L. Chiappino (2016) Castellarroite, Mn<sup>2+</sup><sub>3</sub>(AsO<sub>4</sub>)<sub>2</sub>•4.5H<sub>2</sub>O, a new mineral from Italy related to metaswitzerite. *Eur. J. Mineral.*, 28(3), 687-696 [locality].