

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)

Chemistry:	(1)	(2)
As ₂ O ₅	27.4	30.52
SiO ₂	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 ₂ O	[27.0]	26.32
Total	100.0	100.00

(1) Sterling Hill, New Jersey, USA; H₂O by difference. (2) Ca₂Mn₃(AsO₄)₂(OH)₄•9H₂O.

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, manganohörnnesite, rhodochrosite, sarkinite, sterlinghillite, strashimirite, castellarite (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) Castellarite, Mn²⁺₃(AsO₄)₂•4.5H₂O, a new mineral from Italy related to metaswitzerite. *Eur. J. Mineral.*, 28(3), 687-696 [locality].