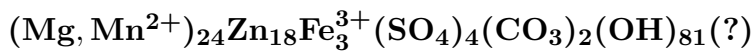


# Hauckite



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**Crystal Data:** Hexagonal. *Point Group:* 6/m 2/m 2/m. As hexagonal crystals, extremely flattened on {0001}, with {01 $\bar{1}$ 0} and {0001}, to 1 mm; as almost spherical to imperfect rosettes.

**Physical Properties:** *Cleavage:* On {0001}, perfect. *Tenacity:* Brittle. *Hardness* = 2–3  
D(meas.) = 3.02, thought low due to adhering air bubbles. D(calc.) = 3.10

**Optical Properties:** Semitransparent. *Color:* Bright orange to pale yellow. *Streak:* Yellow to pale yellow. *Luster:* Vitreous to slightly pearly.

*Optical Class:* Uniaxial (+). *Pleochroism:* *O* = golden brown; *E* = pale yellow.

*Absorption:* *O* > *E*.  $\omega = 1.630(2)$   $\epsilon = 1.638(2)$

**Cell Data:** *Space Group:* 6/mmm (Laue symmetry).  $a = 9.17(4)$   $c = 30.21(9)$   $Z = [1]$

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

3.96 (100), 7.8 (90), 4.57 (60), 3.02 (60), 5.02 (50), 3.78 (50), 1.748 (30)

## Chemistry:

	(1)
SO <sub>3</sub>	7.4
CO <sub>2</sub>	[2.1]
Al <sub>2</sub> O <sub>3</sub>	0.5
Fe <sub>2</sub> O <sub>3</sub>	6.0
MnO	17.1
ZnO	36.0
MgO	13.2
H <sub>2</sub> O	[17.7]
Total	[100.0]

(1) Sterling Hill, New Jersey, USA; by electron microprobe, total Fe as Fe<sub>2</sub>O<sub>3</sub>, confirmed by microchemical test, total Mn as MnO, CO<sub>2</sub> and H<sub>2</sub>O calculated for stoichiometry; corresponds to (Mg<sub>13.5</sub>Mn<sub>9.9</sub>Fe<sub>0.5</sub><sup>2+</sup>Zn<sub>0.2</sub>) $\Sigma=24.1$ Zn<sub>18.0</sub>(Fe<sub>2.6</sub><sup>3+</sup>Al<sub>0.4</sub>) $\Sigma=3.0$ (SO<sub>4</sub>)<sub>3.8</sub>(CO<sub>3</sub>)<sub>2.0</sub>(OH)<sub>80.8</sub>.

**Occurrence:** Very rare, found in several different parageneses in a metamorphosed stratiform zinc orebody.

**Association:** Mooreite, phlogopite, calcite; sussexite, pyrochroite, zincite; chlorophoenicite, calcite;

**Distribution:** From Sterling Hill, Ogdensburg, Sussex Co., New Jersey, USA.

**Name:** To honor Richard Philip Hauck (1935– ), mineral collector of Bloomfield, New Jersey, USA, for his contributions to preserving scientifically significant specimens from Franklin and Sterling Hill, New Jersey, USA.

**Type Material:** Royal Ontario Museum, Toronto, Canada, M35860; American Museum of Natural History, New York City, New York, T45495; Harvard University, Cambridge, Massachusetts, 126591; National Museum of Natural History, Washington, D.C., USA, 142854, 164107.

**References:** (1) Dunn, P.J., D.R. Peacor, and B.D. Sturman (1980) Hauckite, Fe<sub>3</sub><sup>3+</sup>(Mg, Mn)<sub>24</sub>Zn<sub>18</sub>(SO<sub>4</sub>)<sub>4</sub>(CO<sub>3</sub>)<sub>2</sub>(OH)<sub>81</sub>, a new mineral from Sterling Hill, New Jersey. *Amer. Mineral.*, 65, 192–195.