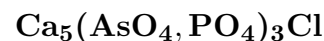


Turneaureite



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Crystal Data: Hexagonal. *Point Group:* 6/*m*. As prismatic crystals exhibiting {10 $\bar{1}$ 0} and {0001}, to 1.5 mm; usually massive.

Physical Properties: *Fracture:* Uneven. Hardness = 5 D(meas.) = 3.60(5) D(calc.) = 3.63
Fluoresces bright orange under SW UV; may be phosphorescent.

Optical Properties: Translucent. *Color:* Colorless, grayish white. *Streak:* White.
Luster: Vitreous to slightly greasy.
Optical Class: Uniaxial (-). $\omega = 1.708(3)$ $\epsilon = 1.700(3)$

Cell Data: *Space Group:* [*P*6₃/*m*] (by analogy to the apatite group). $a = 9.810(4)$
 $c = 6.868(4)$ $Z = 2$

X-ray Powder Pattern: Långban, Sweden.

2.907 (100), 2.826 (90), 3.43 (60), 3.98 (50), 2.670 (50), 1.864 (40), 1.995 (30)

Chemistry:

	(1)
P ₂ O ₅	6.1
As ₂ O ₅	44.9
MnO	1.9
PbO	0.7
MgO	0.0
CaO	43.8
F	1.2
Cl	3.2
H ₂ O	n.d
-O = (F, Cl) ₂	1.2
Total	100.6

(1) Långban, Sweden; by electron microprobe, total Mn as MnO, corresponding to (Ca_{4.85}Mn_{0.16}Pb_{0.02}) $\Sigma=5.03$ [(AsO₄)_{2.42}(PO₄)_{0.54}] $\Sigma=2.96$ (Cl_{0.56}F_{0.39}) $\Sigma=0.95$.

Mineral Group: Apatite group.

Occurrence: A rare component of manganiferous ores in high-grade marbles.

Association: Andradite, magnetite, calcite (Långban, Sweden); magnetite, andradite, manganian calcite (Franklin, New Jersey, USA); donpeacorite, tirodite, ferrian braunite, dravite, anhydrite, manganian dolomite (Fowler, New York, USA).

Distribution: From Långban, Värmland, Sweden. At Franklin, Sussex Co., New Jersey and in the Balmat #4 mine, Fowler, St. Lawrence Co., New York, USA.

Name: Honors Dr. Frederick Stewart Turneaure (1899–1986), Professor Emeritus of Geology, University of Michigan, Ann Arbor, Michigan, USA.

Type Material: Harvard University, Cambridge, Massachusetts, 124237; National Museum of Natural History, Washington, D.C., USA, 134981, C6270-1, C6270-2, 159862.

References: (1) Dunn, P.J., E.U. Petersen, and D.R. Peacor (1985) Turneaureite, a new member of the apatite group from Franklin, New Jersey, Balmat, New York and Långban, Sweden. *Can. Mineral.*, 23, 251–254. (2) (1986) *Amer. Mineral.*, 71, 1280 (abs. ref. 1).