

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Acicular, elongated along [001], showing {110} and {111}, to 1 cm.

Physical Properties: *Cleavage:* On {001}, distinct. *Tenacity:* Brittle. Hardness = 4
D(meas.) = 3.08–3.128 D(calc.) = 3.132

Optical Properties: Transparent. *Color:* Pale yellow to wine-yellow, pale pink; colorless in transmitted light.

Optical Class: Biaxial (-). *Orientation:* $X = a$; $Y = b$; $Z = c$. *Dispersion:* $r < v$. $\alpha = 1.640(3)$
 $\beta = 1.663(3)$ $\gamma = 1.665(3)$ $2V(\text{meas.}) = 40^\circ$

Cell Data: *Space Group:* $Pbnm$. $a = 7.811(5)$ $b = 15.114(10)$ $c = 6.691(5)$ $Z = 4$

X-ray Powder Pattern: Chicagoan mine, Michigan, USA.
6.917 (10), 2.843 (8), 3.777 (7), 2.502 (7), 7.551 (6), 4.204 (6), 3.467 (6)

Chemistry:	(1)	(2)
P_2O_5	15.94	19.05
B_2O_3	9.94	9.34
FeO	0.11	
MnO	56.42	57.11
(Mg, Ca)O	1.33	
H_2O	14.57	14.50
Total	98.31	100.00

(1) Chicagoan mine, Michigan, USA; average of four analyses. (2) $\text{Mn}_3\text{B}(\text{PO}_4)(\text{OH})_6$.

Occurrence: In fractures cutting siliceous rock.

Association: Sussexite, calcite, manganese oxide.

Distribution: In the Chicagoan mine, near Iron River, Iron Co., Michigan, USA.

Name: To honor Professor Arthur Edmund Seaman (1858–1937), American mineralogist, Michigan College of Mining and Technology, Houghton, Michigan, USA, who first noted the mineral.

Type Material: Michigan Technical University, Houghton, Michigan; National Museum of Natural History, Washington, D.C., USA, 96282.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 388–389. (2) Kurkutova, E.N., B.G. Rau, and I.M. Rumanova (1971) Crystal structure of seamanite $\text{Mn}_3[\text{PO}_4/\text{BO}_3] \cdot 3\text{H}_2\text{O} = \text{Mn}_3[\text{PO}_3\text{OH}][\text{BO}(\text{OH})_3](\text{OH})_2$. Doklady Acad. Nauk SSSR, 197, 1070–1073 (in Russian). (3) Moore, P.B. and S. Ghose (1971) A novel face-sharing octahedral trimer in the crystal structure of seamanite. Amer. Mineral., 56, 1527–1538.