

**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . Prismatic crystals, to 1 mm, elongated and lightly striated along [001], exhibit {100}, {010}, {230}, {011}, {031}, and {111}.

**Physical Properties:** *Cleavage:* Perfect on {010}, good on {100}, and fair on {001}.  
*Fracture:* Irregular. *Tenacity:* Brittle. *Hardness* = ~ 3.5  $D(\text{meas.}) = 3.00(1)$   $D(\text{calc.}) = 2.961$   
Dissolves in cold dilute HCl.

**Optical Properties:** Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous.  
*Optical Class:* Biaxial (-).  $\alpha = 1.580(1)$   $\beta = 1.590(1)$   $\gamma = 1.591(1)$   $2V(\text{meas.}) = 28(1)^\circ$   
 $2V(\text{calc.}) = 35^\circ$  *Dispersion:* strong,  $r < v$ . *Orientation:*  $X = a$ ,  $Y = c$ ,  $Z = b$ .

**Cell Data:** *Space Group:*  $Pnma$ .  $a = 10.6530(4)$   $b = 18.4781(13)$   $c = 5.05845(15)$   $Z = 4$

**X-ray Powder Pattern:** Palermo No.1 pegmatite, North Groton, New Hampshire, USA.  
2.873 (100), 9.27 (71), 3.424 (52), 4.62 (37), 2.644 (36), 1.953 (36), 2.540 (33)

Chemistry:	(1)	(2)
CaO	0.20	
MgO	0.61	
MnO	15.80	15.84
ZnO	33.34	36.35
Fe <sub>2</sub> O <sub>3</sub>	2.81	
Al <sub>2</sub> O <sub>3</sub>	0.10	
P <sub>2</sub> O <sub>5</sub>	32.05	31.71
H <sub>2</sub> O	[15.95]	16.10
Total	100.23	100.00

(1) Palermo No.1 pegmatite, North Groton, New Hampshire, USA; average of 10 electron microprobe analyses, H<sub>2</sub>O calculated from structure; corresponds to  $(\text{Mn}^{2+}_{0.99}\text{Ca}_{0.02})_{\Sigma=1.01}(\text{Zn}_{1.82}\text{Fe}^{3+}_{0.12}\text{Mg}_{0.07})_{\Sigma=2.01}(\text{P}_{1.00}\text{O}_4)_2(\text{H}_{1.96}\text{O})_4$ . (2)  $\text{MnZn}^{2+}(\text{PO}_4)_2(\text{H}_2\text{O})_4$ .

**Occurrence:** A relatively late-formed phase from secondary alteration of primary triphylite and associated sphalerite in the core margin of a granitic pegmatite.

**Association:** Childrenite-eosphorite, crandallite-goyazite, fairfieldite-messelite, falsterite, fluorapatite, frondelite-rockbridgeite, mitridatite, phosphophyllite, pyrite, quartz, siderite, schoonerite, sphalerite, vivianite.

**Distribution:** From the Palermo No.1 pegmatite, North Groton, Grafton County, New Hampshire, USA.

**Name:** Honors James W. Nizamoff (b. 1971) for his research on pegmatite mineralogy in general and on the phosphate mineralogy of the Palermo pegmatites. Nizamoff is one of the discoverers of this new mineral and provided the specimens used for its characterization.

**Type Material:** Natural History Museum of Los Angeles County, Los Angeles, California, USA (64009 and 64010).

**References:** (1) Kampf, A.R., A.U. Falster, W.B. Simmons, and R.W. Whitmore (2013) Nizamoffite,  $\text{MnZn}^{2+}(\text{PO}_4)_2(\text{H}_2\text{O})_4$ , the Mn analogue of hopeite from the Palermo No. 1 pegmatite, North Groton, New Hampshire. *Amer. Mineral.*, 98, 1893-1898.