

**Crystal Data:** Tetragonal. *Point Group:* 4/m 2/m 2/m. As isolated ~20 μm grains and in aggregates to 50 μm.

**Physical Properties:** *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Brittle. *Hardness* = n.d. *D(meas.)* = n.d. *D(calc.)* = 5.85

**Optical Properties:** Transparent. *Color:* Colorless to slightly yellowish or brownish. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Uniaxial (+).  $\omega = 1.715(3)$   $\varepsilon = 1.802(5)$  Nonpleochroic.

**Cell Data:** *Space Group:* I4<sub>1</sub>/amd.  $a = 6.86612$   $c = 6.004(3)$   $Z = 4$

**X-ray Powder Pattern:** SHE-5 pegmatite, southeastern Manitoba, Canada. 3.437 (10), 2.556 (8), 4.515 (7), 1.760 (5), 2.730 (3), 2.138 (3), 2.430 (2)

<b>Chemistry:</b>	(1)
Lu <sub>2</sub> O <sub>3</sub>	7.12
Yb <sub>2</sub> O <sub>3</sub>	36.37
Tm <sub>2</sub> O <sub>3</sub>	2.86
Er <sub>2</sub> O <sub>3</sub>	8.29
Ho <sub>2</sub> O <sub>3</sub>	0.94
Dy <sub>2</sub> O <sub>3</sub>	3.72
Tb <sub>2</sub> O <sub>3</sub>	0.19
Gd <sub>2</sub> O <sub>3</sub>	0.26
Y <sub>2</sub> O <sub>3</sub>	8.75
<u>P<sub>2</sub>O<sub>5</sub></u>	<u>27.25</u>
Total	95.75

(1) SHE-5 pegmatite, southeastern Manitoba, Canada; average electron microprobe analysis; corresponding to (Yb<sub>0.48</sub>Y<sub>0.20</sub>Er<sub>0.11</sub>Lu<sub>0.09</sub>Dy<sub>0.05</sub>Tm<sub>0.04</sub>Ho<sub>0.01</sub>Gd<sub>0.004</sub>Tb<sub>0.003</sub>)<sub>Σ=0.99</sub>P<sub>1.00</sub>O<sub>4</sub>.

**Occurrence:** A primary phase in the saccharoidal albite unit of a gadolinite subtype of the NYF family of rare-element granitic pegmatite.

**Association:** Ferrian muscovite, ferrocolumbite, albite, microcline, quartz.

**Distribution:** From the SHE-5 pegmatite, Twp. 16, Rge. 15 EPM, southeastern Manitoba, Canada.

**Name:** *Xenotime* from the Greek for *vain* and *honor*, as the contained yttrium had been mistaken for a new element. The suffix, *Yb*, identifies the dominant rare earth element.

**Type Material:** R.B. Ferguson Museum of Mineralogy, Department of Geological Sciences, University of Manitoba (M699S - M7001) and Department of Earth Sciences, Royal Ontario Museum, Toronto, Canada.

**References:** (1) Buck, H.M., M.A. Cooper, P. Černý, J.D. Grice, and F.C. Hawthorne (1999) Xenotime-(Yb), YbPO<sub>4</sub>, a new mineral species from the Shatford Lake pegmatite group, southeastern Manitoba, Canada. *Can. Mineral.*, 37, 1303-1306.