

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:* I4₁/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)

Chemistry:	(1)
Lu ₂ O ₃	7.12
Yb ₂ O ₃	36.37
Tm ₂ O ₃	2.86
Er ₂ O ₃	8.29
Ho ₂ O ₃	0.94
Dy ₂ O ₃	3.72
Tb ₂ O ₃	0.19
Gd ₂ O ₃	0.26
Y ₂ O ₃	8.75
<u>P₂O₅</u>	<u>27.25</u>
Total	95.75

(1) SHE-5 pegmatite, southeastern Manitoba, Canada; average electron microprobe analysis; corresponding to (Yb_{0.48}Y_{0.20}Er_{0.11}Lu_{0.09}Dy_{0.05}Tm_{0.04}Ho_{0.01}Gd_{0.004}Tb_{0.003})_{Σ=0.99}P_{1.00}O₄.

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), YbPO₄, a new mineral species from the Shatford Lake pegmatite group, southeastern Manitoba, Canada. *Can. Mineral.*, 37, 1303-1306.