Pretulite $ScPO_4$

Crystal Data: Tetragonal. *Point Group:* $4/m\ 2/m\ 2/m$. Dipyramidal crystals, {211}, with small {100}, {111}, and as anhedral grains, to 200 μm.

Physical Properties: *Cleavage:* Perfect on {100}. *Fracture:* Splintery. *Tenacity:* Brittle. Hardness = ∼5 D(meas.) = n.d. D(calc.) = 3.71 Weak orange fluorescence under SW UV; bright blue cathodoluminescence.

Optical Properties: Transparent to translucent. *Color:* Pink to white. *Streak:* White. *Luster:* Adamantine.
Optical Class: Uniaxial (+). $\omega = 1.790(5)$ $\epsilon = 1.86(1)$

Cell Data: *Space Group:* $I4_1/amd$. a = 6.589 (1) $c = 5.806(1)$ Z = 4

X-ray Powder Pattern: Höllkogel, Austria.
3.293 (100), 2.4636 (42), 1.6470 (33), 1.6927 (30), 2.0546 (21), 2.1777 (20), 1.7432 (9)

Chemistry:

	(1)	(2)
P_2O_5	50.02	50.72
Sc_2O_3	47.38	49.28
Y_2O_3	1.45	
Total	98.85	100.00

(1) Höllkogel, Austria; by electron microprobe, average of 50 determinations on 8 grains; corresponds to $(Sc_{0.98}Y_{0.02})_{\Sigma=1.00}P_{1.00}O_{4.00}$. (2) $ScPO_4$.

Occurrence: Rare in lazulite-quartz veins in phyllite-mica schist.

Association: Lazulite, muscovite, clinochlore, fluorapatite, rutile, chlorapatite, paragonite, augelite, wardite, hydroxylherderite, goyazite, florencite-(Ce), xenotime-(Y), corundum, bearthite.

Distribution: In Austria, from the Höllkogel, 12 km south-southwest of Mürzzuschlag, at Fürstenbauer, and additional localities near the Pretulalpe, Styria.

Name: For the Pretulalpe, Austria, on which the species was first discovered.

Type Material: Landesmuseum Joanneum, Graz; Natural History Museum, Vienna, Austria.

References: (1) Bernhard, F., F. Walter, K. Ettinger, J. Taucher, and K. Mereiter (1998) Pretulite, $ScPO_4$, a new scandium mineral from the Styrian and Lower Austrian lazulite occurrences, Austria. Amer. Mineral., 83, 625–630.