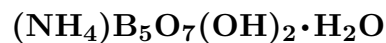


Larderellite

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Crystal Data: Monoclinic. *Point Group:* 2/m. Crystals are rhombic, flattened on {001}, to 0.1 mm; typically powdery.

Physical Properties: *Cleavage:* On {100}, {010}, perfect. *Hardness* = n.d.
D(meas.) = 1.905(4) D(calc.) = 1.887

Optical Properties: Semitransparent. *Color:* White, pale yellow if impure.
Optical Class: Biaxial (+). *Orientation:* Y = b; Z ∧ c ≈ 15°. *Dispersion:* r > v or r < v.
α = 1.493(1) β = 1.509(1) γ = 1.561(1) 2V(meas.) = 58°

Cell Data: *Space Group:* P2₁/a. a = 11.63–11.65 b = 7.615–7.63 c = 9.447–9.47
β = 96°45'–97°05' Z = 4

X-ray Powder Pattern: Larderello, Italy.
4.70 (100), 2.921 (100), 2.887 (100), 5.44 (71), 2.960 (71), 9.45 (50), 5.12 (50)

Chemistry:	(1)	(2)
B ₂ O ₃	71.64	68.49
(NH ₄) ₂ O	9.93	10.24
H ₂ O	[18.43]	21.27
Total	[100.00]	100.00

(1) Larderello, Italy; average of four analyses, H₂O by difference. (2) (NH₄)B₅O₇(OH)₂•H₂O.

Occurrence: In boric-acid-rich fumarolic lagoons.

Association: Sassolite, ammonioborite, santite.

Distribution: From Larderello, Val di Cecina, Tuscany, Italy.

Name: Honoring Francesco de Larderel (1848–1925), principal operator of the Tuscan borax works.

Type Material: Natural History Museum, Paris, France, 100.1384, 100.1386, 100.1388.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 365–366. (2) Clark, J.R. (1960) X-ray crystallography of larderellite, NH₄B₅O₆(OH)₄. Amer. Mineral., 45, 1087–1093. (3) Merlino, S. and F. Sartori (1969) The crystal structure of larderellite, NH₄B₅O₇(OH)₂•H₂O. Acta Cryst., 25, 2264–2270.