Hyalotekite $(Ba, Pb, Ca)_6(B, Si, Al)_2(Si, Be)_{10}O_{28}(F, Cl)$

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Crystal Data: Triclinic. *Point Group:* $\bar{1}$. Coarsely crystalline, massive.

Physical Properties: *Cleavage:* Easy in two directions at ~90°; indistinct in a third direction in the same zone as the other two. *Tenacity:* Brittle. Hardness = 5–5.5 D(meas.) = 3.81–3.82 D(calc.) = 3.83 Fluoresces blue, light brownish orange, or yellow in SW UV; bright yellow or blue cathodoluminescence.

Optical Properties: Transparent in very thin plates. *Color:* White to pearly gray.
Luster: Vitreous to greasy.
Optical Class: Biaxial (+). *Dispersion:* $r < v$, weak to strong. α = 1.646–1.656 β = 1.649–1.660 γ = 1.659–1.671 2V(meas.) = 57°–60.5° 2V(calc.) = 55.4°–62.5°

Cell Data: *Space Group:* $I\bar{1}$. a = 11.310(2) b = 10.955(2) c = 10.317(3) α = 90.43(2)° β = 90.02(2)° γ = 90.16(2)° Z = 2

X-ray Powder Pattern: Långban, Sweden. (ICDD 19-572).
3.45 (100), 3.53 (80), 2.94 (80), 3.81 (70), 2.297 (65), 2.143 (65), 7.7 (60)

Chemistry:

	(1)	(2)		(1)	(2)
SiO_2	39.47	40.74	SrO		0.07
B_2O_3	3.73	4.46	BaO	20.08	27.30
Al_2O_3	0.18	0.03	Na_2O	0.17	0.77
Fe_2O_3	0.06	0.05	K_2O	0.89	0.74
MnO	0.29	0.00	Rb_2O		0.01
CuO	0.09		F	0.99	0.77
PbO	25.11	17.46	Cl	0.06	
BeO	0.75	0.57	LOI	0.59	
MgO	0.09	< 0.01	$-O = F_2$	[0.43]	0.32
CaO	7.82	6.81	Total	[99.94]	99.43

(1) Långban, Sweden; original total given as 100.37%, corresponds to $(Ca_{2.07}Ba_{1.94}Pb_{1.67}K_{0.28}Na_{0.08})_{\Sigma=6.04}(B_{1.60}Si_{0.19}Al_{0.05}Mn_{0.06}Mg_{0.03}Cu_{0.02}Fe_{0.01})_{\Sigma=1.96}(Si_{9.56}Be_{0.44})_{\Sigma=10.00}O_{28}(F_{0.78}Cl_{0.02})_{\Sigma=0.80}$. (2) Dara-i-Pioz massif, Tajikistan; by electron and ion microprobe, corresponds to $(Ba_{2.58}Ca_{1.76}Pb_{1.13}Na_{0.36}K_{0.23}Sr_{0.01})_{\Sigma=6.07}(B_{1.85}Si_{0.14}Mg_{0.03}Fe_{0.01})_{\Sigma=2.03}(Si_{9.67}Be_{0.33})_{\Sigma=10.00}O_{28.5}F_{0.58}$.

Occurrence: Sparingly in feldspar in a metamorphosed Fe–Mn deposit (Långban, Sweden); in reedmergnerite pegmatite in an alkaline massif (Dara-i-Pioz massif, Tajikistan).

Association: Quartz, calcite, hematite, barylite, barite, manganoan pectolite, ferrian potassic feldspar, calderitic andradite, melanotekite, barian hedyphane, plumboan taramellite, rhodonite, manganoan aegirine (Långban, Sweden); feldspars, reedmergnerite, aegirine, pyrochlore, eudialyte, polylithionite (Dara-i-Pioz massif, Tajikistan).

Distribution: At Långban, Värmland, Sweden. From the Dara-i-Pioz massif, Alai Range, Tien Shan, Tajikistan.

Name: From the Greek for *glass* and *to melt*, in allusion to its easy fusibility.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 422. (2) Moore, P.B., T. Araki, and S. Ghose (1982) Hyalotekite, a complex lead borosilicate: its crystal structure and the lone-pair effect of Pb(II). Amer. Mineral., 67, 1012–1020. (3) Grew, E.S., M.G. Yates, D.I. Belakovskiy [Belakovskii], R.C. Rouse, S.-C. Su, and N. Marquez (1994) Hyalotekite from reedmergnerite-bearing peralkaline pegmatite, Dara-i-Pioz, Tajikistan, and from Mn skarn, Långban, Sweden: a new look at an old mineral. Mineral. Mag., 58, 285–297.

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