

Hydroxycancrinite



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Crystal Data: Hexagonal. *Point Group:* 6. Massive aggregates, with grains to 1.5 cm.

Physical Properties: *Cleavage:* Perfect on $\{10\bar{1}0\}$. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 6 D(meas.) = 2.32(2) D(calc.) = 2.26

Optical Properties: Transparent. *Color:* Light blue; colorless in thin section. *Streak:* White. *Luster:* Vitreous.

Optical Class: Uniaxial (+). $\omega = 1.494(2)$ $\epsilon = 1.501(2)$

Cell Data: *Space Group:* $P6_3$. $a = 12.740(3)$ $c = 5.182(2)$ $Z = 1$

X-ray Powder Pattern: Lovozero massif, Russia; resembles cancrinite. 3.26 (100), 3.68 (70), 4.70 (60), 2.756 (50), 2.433 (30), 6.43 (25), 4.17 (20)

Chemistry:

	(1)
SiO ₂	36.32
Al ₂ O ₃	31.15
Fe ₂ O ₃	0.18
MnO	0.03
MgO	0.11
CaO	0.92
Na ₂ O	23.43
K ₂ O	0.45
H ₂ O	5.41
CO ₂	1.59
Total	99.59

(1) Lovozero massif, Russia, corresponding to $(\text{Na}_{7.46}\text{Ca}_{0.16}\text{K}_{0.10}\text{Mg}_{0.03}\text{Fe}_{0.02}^{3+})_{\Sigma=7.77}(\text{Al}_{6.03}\text{Si}_{5.97})_{\Sigma=12.00}\text{O}_{24}[(\text{OH})_{1.23}(\text{CO}_3)_{0.36}]_{\Sigma=1.59} \cdot 2.35\text{H}_2\text{O}$.

Mineral Group: Cancrinite group.

Occurrence: In veins in ultra-agpaitic pegmatites in a differentiated alkalic massif.

Association: Natrolite, steenstrupine, vuonnemite, epistolite, mountainite, ilmajokite, nastrophite.

Distribution: On Mt. Karnasurt, Lovozero massif, Kola Peninsula, Russia.

Name: For predominant *hydroxyl* in its composition, and its relation to *cancrinite*.

Type Material: Vernadsky Geological Museum, Moscow; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia.

References: (1) Khomyakov, A.P., T.N. Nadezhina, R.K. Rastsvetaeva, and E.A. Pobedinskaya (1992) Hydroxycancrinite $\text{Na}_8[\text{Al}_6\text{Si}_6\text{O}_{24}](\text{OH})_2 \cdot 2\text{H}_2\text{O}$ – a new mineral. *Zap. Vses. Mineral. Obshch.*, 121(1), 100–105 (in Russian). (2) (1993) *Amer. Mineral.*, 78, 1315 (abs. ref. 1). (3) (1994) *Mineral. Abs.*, 45, 111 (abs. ref. 1). (4) Nadezhina, T.N., R.K. Rastsvetaeva, E.A. Pobedinskaya, and A.P. Khomyakov (1991) Crystal structure of natural hydroxyl-containing cancrinite. *Kristallografiya (Sov. Phys. Crystal.)*, 36, 591–595 (in Russian). (5) Hassan, I. and H.D. Grundy (1991) The crystal structure of basic cancrinite, ideally $\text{Na}_8[\text{Al}_6\text{Si}_6\text{O}_{24}](\text{OH})_2 \cdot 3\text{H}_2\text{O}$. *Can. Mineral.*, 29, 377–383.