

Bystrite

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Crystal Data: Hexagonal. *Point Group:* $3m$. Crystals tabular, to 5 mm; and as irregular grains and aggregates.

Physical Properties: *Cleavage:* $\{10\bar{1}0\}$, good; pinacoidal, weak, perhaps a parting. Hardness = 5 $D(\text{meas.}) = 2.43(1)$ $D(\text{calc.}) = 2.45$

Optical Properties: Semitransparent. *Color:* Deep yellow; in thin section, yellow. *Luster:* Vitreous.

Optical Class: Uniaxial (+). *Pleochroism:* Deep yellow to colorless. *Orientation:* Negative elongation. *Absorption:* $O > E$. $\omega = 1.584$ $\epsilon = 1.660$

Cell Data: *Space Group:* $P31c$. $a = 12.855$ $c = 10.700$ $Z = [2]$

X-ray Powder Pattern: Malaya Bystraya deposit, Russia. 3.720 (100), 3.313 (90), 3.919 (80), 4.824 (70), 2.676 (70)

Chemistry:

	(1)
SiO ₂	33.37
Al ₂ O ₃	26.74
CaO	5.10
Na ₂ O	14.42
K ₂ O	7.63
Cl	0.25
H ₂ O	1.62
S	12.03
SO ₃	0.50
CO ₂	0.32
-O = (S ₃ , Cl ₂)	2.06
Total	99.92

(1) Malaya Bystraya deposit, Russia; by electron microprobe, S by wet chemical analysis, H₂O by coulometry; corresponding to $(\text{Na}_{5.17}\text{K}_{1.80})_{\Sigma=6.97}\text{Ca}_{1.01}(\text{Si}_{6.17}\text{Al}_{5.83})_{\Sigma=12.00}\text{O}_{24}[\text{S}_{4.17}\text{Cl}_{0.08}(\text{CO}_3)_{0.08}(\text{SO}_4)_{0.07}]_{\Sigma=4.40} \cdot \text{H}_2\text{O}$.

Mineral Group: Cancrinite group.

Occurrence: In a lazurite deposit.

Association: Lazurite, calcite, diopside.

Distribution: In the Malaya Bystraya lazurite deposit, 25 km west of Slyudanka, south of Lake Baikal, Siberia, Russia.

Name: Presumably for the occurrence in the Malaya Bystraya deposit, Russia.

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

References: (1) Ivanov, V.G. and A.N. Sapozhnikov (1985) Lazurites of the USSR. Nauka, Novosibirsk, 1–172 (in Russian). (2) Sapozhnikov, A.N., V.G. Ivanov, L.F. Piskunova, A.A. Kashaev, L.E. Terentjeva, and E.A. Pobedimskaya (1991) Bystrite $\text{Ca}(\text{Na}, \text{K})_7(\text{Si}_6\text{Al}_6\text{O}_{24})(\text{S}_3)_{1.5} \cdot \text{H}_2\text{O}$ – a new cancrinite-like mineral. Zap. Vses. Mineral. Obshch., 120(3), 97–100 (in Russian). (3) Pobedimskaya, E.A., L.E. Terentjeva, A.N. Sapozhnikov, A.A. Kashaev, and G.I. Dorokhova (1991) Crystal structure of bystrite. Doklady Acad. Nauk SSSR, 319, 873–878 (in Russian). (4) (1993) Amer. Mineral., 78, 450 (abs. refs. 1 and 3).

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