Sulfhydrylbystrite $Na_5K_2Ca(Al_6Si_6O_{24})(S_5)(SH)$

Crystal Data: Hexagonal. *Point Group*: 3*m*. As elongated platy crystals to 5 mm or as irregular grains to 3 mm.

Physical Properties: *Cleavage*: Good on {10$\bar{1}$ 0}; poor parting on {0001}. *Tenacity*: Brittle. *Fracture*: Conchoidal. Hardness = 4.5-5 VHN = 554-657 (100 g load). D(meas.) = 2.391(1) D(calc.) = 2.368

Optical Properties: Translucent. *Color*: Yellow, yellow-brown, orange-yellow, or orange. *Streak*: Yellow. *Luster*: Vitreous.
Optical Class: Uniaxial (+). ω = 1.661(2) ε = 1.584(2) *Pleochroism*: Strong, deep yellow or orange to pale yellow.

Cell Data: *Space Group*: *P*31*c*. *a* = 12.9567(6) *c* = 10.7711(5) Z = 2

X-ray Powder Pattern: Malaya Bystraya lazurite deposit, Eastern Siberian Region, Russia.
3.331 (100), 3.739 (94), 2.692 (56), 4.857 (48), 3.948 (38), 2.715 (32), 3.417 (25)

Chemistry:

	(1)
SiO_2	32.0
Al_2O_3	27.2
CaO	4.9
Na_2O	14.3
K_2O	7.8
S	14.7
Cl	0.2
- O = S	1.82
- O = Cl	0.05
Total	99.28

(1) Malaya Bystraya lazurite deposit, Eastern Siberian Region, Russia; average of 16 electron microprobe analyses supplemented by FTIR spectroscopy; corresponds to $Na_{5.17}K_{1.87}Ca_{0.99}[Al_{6.01}Si_{5.99}O_{24}](S_5)^{2-}_{0.86}[(SH)^-_{0.86}Cl^-_{0.07}]$.

Mineral Group: Cancrinite group.

Occurrence: As metasomatic lenses in dolomitic marble replacing lazurite.

Association: Lazurite, diopside, calcite, phlogopite, pyrite.

Distribution: Found at the Malaya Bystraya lazurite deposit, ~6 km above the confluence of Malaya Bystraya river and Lazurnyi creek, ~25 km from Sludyanka, near Lake Baikal, Eastern Siberian Region, Russia.

Name: Reflects the chemical relationship with *bystrite* and by analogy to carbobystrite, a prefix *sulfhydryl*, for its distinctive chemical difference from other members of the group.

Type Material: Mineralogical Museum, Saint Petersburg State University, Saint Petersburg, Russia (1/19636).

References: (1) Sapozhnikov, A.N., E.V. Kaneva, L.F. Suvorova, V.I. Levitsky, and L.A. Ivanova (2017) Sulfhydrylbystrite, $Na_5K_2Ca(Al_6Si_6O_{24})(S_5)(SH)$, a new mineral with the LOS framework, and re-interpretation of bystrite: cancrinite-group minerals with novel extra-framework anions. Mineral. Mag., 81(2), 383-402. (2) (2017) Amer. Mineral., 102, 2345-2346 (abs. ref. 1).