Carbobystrite $Na_8[Al_6Si_6O_{24}](CO_3)\cdot 4H_2O$

Crystal Data: Hexagonal. *Point Group*: 3*m*. As a corroded grain (3 mm).

Physical Properties: *Cleavage*: None. F*racture*: Conchoidal. *Tenacity*: Brittle.
D(meas.) = n.d. D(calc.) = 2.366 *Hardness* = 7 Fluoresces pale yellow in SW and LW UV.

Optical Properties: Transparent. *Color*: Colorless. *Streak*: White. *Luster*: Vitreous.
Optical Class: Uniaxial (-). ω = 1.500(2) ε = 1.488(2)

Cell Data: *Space Group*: *P*31*c*. *a* = 12.6678(5) *c* = 10.3401(4) Z = 2

X-ray Powder Pattern: Mount Koashva, Khibina alkaline massif, Kola Peninsula, Russia.
4.689(100), 3.249(100), 6.378(80), 2.661(80), 3.867(70), 3.664(70), 2.117 (60)

Chemistry:

	(1)	(2)
Na_2O	22.66	24.06
K_2O	1.75	
SiO_2	35.74	34.99
Al_2O_3	30.42	29.69
CO_2	4.37	4.27
H_2O	6.26	6.99
Total	101.20	100.00

(1) Mount Koashva, Khibina alkaline massif, Kola Peninsula, Russia; electron microprobe analysis supplemented by IR spectroscopy, H_2O and CO_2 calculated from stoichiometry; corresponds to $(Na_{7.40}K_{0.38})_{\Sigma=7.78}(Al_{6.04}Si_{6.02})_{\Sigma=12.06}O_{24}(CO_3)\cdot 3.5H_2O$. (2) $Na_8[Al_6Si_6O_{24}](CO_3)\cdot 4H_2O$.

Mineral Group: Cancrinite group.

Occurrence: From zoned hyperagpaitic pegmatite in an ijolite-urtite body near its contact with apatite-nepheline rocks and apparently crystallized from residual peralkaline pegmatite-forming melt or solution.

Association: Sodalite, megakalsilite, natrite, bitumen.

Distribution: From Mount Koashva, Khibina alkaline massif, Kola Peninsula, Russia.

Name: For the compositional relationship with *bystrite* $\{(Na,K)_7Ca[Al_6Si_6O_{24}](S)_{1.5}\cdot H_2O\}$ and the essential role of CO_3 in the compound. It is a K-deficient, (CO_3), and Na analogue of bystrite.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (#3836).

References: (1) Khomyakov, A.P., F. Cámara, and E. Solokova (2010) Carbobystrite, $Na_8[Al_6Si_6O_{24}](CO_3)\cdot 4H_2O$, a new cancrinite-group mineral species from the Khibina alkaline massif, Kola Peninsula, Russia: description and crystal structure. Can. Mineral., 48, 291-300.
(2) (2011) Amer. Mineral., 96, 939 (abs. ref. 1).