Fluorcarletonite $KNa_4Ca_4Si_8O_{18}(CO_3)_4F \cdot H_2O$

Crystal Data: Tetragonal. *Point Group*: 4/*m* 2/*m* 2/*m*. As grains to 0.7 cm.

Physical Properties: Cleavage: Perfect on {001}. *Parting*: Good on {110|. *Tenacity*: Brittle. *Fracture*: Conchoidal. Hardness = 4.5-5 D(meas.) = n.d. D(calc.) = 2.491

Optical Properties: Translucent. *Color*: Light blue to blue, colorless in thin section. *Streak*: n.d. *Luster*: n.d.
Optical Class: Uniaxial (-). ω = 1.520(3) ε = 1.515(3)

Cell Data: *Space Group*: *P*4/*mbn*. *a* = 13.219(1) *c* = 16.707(2) Z = 4

X-ray Powder Pattern: Maly Murun syenite massif, Aldan Shield, Siberia, Russia.
4.190 (100), 8.417 (76), 2.917 (28), 2.790 (27), 16.92 (22), 2.393 (22), 3.358 (20)

Chemistry:

	(1)
SiO_2	44.1
CaO	20.0
Na_2O	11.1
K_2O	4.5
F	1.3
TiO_2	0.1
Al_2O_3	0.03
CO_2	14.9
H_2O	1.17
$-O = F_2$	0.54
Total	96.66

(1) Maly Murun syenite massif, Aldan Shield, Siberia, Russia; average electron microprobe, and Raman and FTIR spectroscopic analyses, H_2O and CO_2 by TG-differential scanning calorimetry; corresponds to $K_{1.04}Na_{3.89}Ca_{3.87}Ti_{0.01}Si_{7.99}Al_{0.01}O_{18}(CO_3)_{3.86}[F_{0.72}(OH)_{0.28}) \cdot 1.11H_2O$.

Occurrence: In an ultra-agpaitic, potassic alkaline complex.

Association: Fluorapophyllite-(K), pectolite, charoite, apatite, aegirine.

Distribution: From the Severny district, Maly Murun syenite massif, Aldan Shield, Siberia, Russia.

Name: The prefix indicates the F-dominant analogue of *carletonite*.

Type Material: Sidorov State Mineralogical Museum, Irkutsk, Russia (12/1764).

References: (1) Kaneva, E., T. Radomskaya, L. Suvorova, I. Sterkhova, and M. Mitichkin (2020) Crystal chemistry of fluorcarletonite, a new mineral from the Murun alkaline complex (Russia). Eur. J. Mineral., 32, 137-146.