Fluorlamprophyllite $(SrNa)Ti_2Na_3Ti(Si_2O_7)_2O_2F_2$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As bladed crystals to 3 mm.

Physical Properties: *Cleavage*: Perfect on {100}. *Fracture*: n.d. *Tenacity*: Brittle. Hardness = ~3 D(meas.) = n.d. D(calc.) = 3.484

Optical Properties: Transparent. *Color*: Brownish orange. *Streak*: Pale yellow. *Luster*: Adamantine.
Optical Class: Biaxial (+). $\alpha = 1.735(7)$ $\beta = 1.749(7)$ $\gamma = 1.775(9)$ 2V(meas.) = 72(3)° 2V(calc.) = 74° *Pleochroism*: *X* = yellow-green, *Y* = yellow-brown, Z = brown.
Orientation: $X \perp b$, $Z \wedge c \cong 5°$.

Cell Data: Space Group: *C*2/*m*. $a = 19.255(2)$ $b = 7.0715(7)$ $c = 5.3807(6)$ $\beta = 96.794(2)°$ $Z = 2$

X-ray Powder Pattern: Morro do Serrote, Minas Gerais, Brazil.
2.762 (100), 4.120 (63), 3.704 (40), 2.126 (33), 2.857 (26), 2.655 (25), 2.587 (24)

Chemistry:

	(1)		(1)
Na_2O	10.63	MnO	5.03
K_2O	0.47	TiO_2	27.41
SiO_2	30.51	Fe_2O_3	2.45
SrO	18.30	F	2.86
MgO	0.81	H_2O	[1.00]
Al_2O_3	0.23	–O = F	1.20
CaO	1.11	Total	99.61

(1) Morro do Serrote, Minas Gerais, Brazil; average of 9 electron microprobe analyses supplemented by Raman spectroscopy, H_2O = 1.00 added to bring the total close to 100%; corresponds to $(Na_{2.63}Sr_{1.35}Mn_{0.54}Ca_{0.15}Mg_{0.15}\ K_{0.08})_{\Sigma=4.90}(Ti_{2.63}Fe_{0.24}Al_{0.04})_{\Sigma=2.91}Si_{3.89}O_{16}[F_{1.15}(OH)_{0.85}]_{\Sigma=2.00}$.

Mineral Group: Seidorzerite supergroup, lamprophyllite group.

Occurrence: Embedded in nepheline syenite in an alkaline massif.

Association: Aegirine, analcime, natrolite, nepheline, microcline.

Distribution: From Poços de Caldas alkaline massif, Morro do Serrote, Minas Gerais, Brazil.

Name: The *fluor*ine-analogue of *lamprophyllite*.

Type Material: University of Arizona Mineral Museum, Tucson, Arizona, USA (19589) and the RRUFF Project (R130421).

References: (1) Andrade, M.B., H. Yang, R.T. Downs, G. Färber, R.R. Contreira Filho, S.H. Evans, C.W. Loehn, and B.N. Schumer (2018) Fluorlamprophyllite, $Na_3(SrNa)Ti_3(Si_2O_7)_2O_2F_2$, a new mineral from Poços de Caldas alkaline massif, Morro do Serrote, Minas Gerais, Brazil. Mineral. Mag., 82(1), 121-131. (2) (2019) Amer. Mineral., 104(9), 1362 (abs. ref. 1). (3) Sokolova, E., and F. Cámara (2017) The seidozerite supergroup of TS-block minerals: nomenclature and classification, with change of the following names: rinkite to rinkite-(Ce), mosandrite to mosandrite-(Ce), hainite to hainite-(Y) and innelite-1*T* to innelite-1*A*. Mineral. Mag., 81(6), 1457-1484.