Fluorapophyllite-(NH_4) $NH_4Ca_4(Si_8O_{20})F\cdot 8H_2O$

Crystal Data: Tetragonal. *Point Group*: 4/*m* 2/*m* 2/*m*. As clusters, aggregates, or crystalline crusts of prismatic crystals with pyramidal terminations to 4 mm, that exhibit {110}, {101} and {001}.

Physical Properties: Cleavage: Perfect on {001}. *Tenacity*: Brittle. *Fracture*: Irregular. Hardness = 4.5-5 D(meas.) = n.d. D(calc.) = 2.325 Nonfluorescent.

Optical Properties: Translucent. *Color*: Colorless to light pink. *Streak*: White. *Luster*: Vitreous to pearly.
Optical Class: Uniaxial (+). ω = 1.5414(5) ε = 1.5393(8) Non-pleochroic.

Cell Data: *Space Group*: *P*4/*mnc*. *a* = 8.99336(9) *c* = 15.7910(3) Z = 2

X-ray Powder Pattern: Vechec quarry, Vranov nad Topľou Co., Prešov Region, Slovak Republic. 3.946 (100), 2.985 (39), 7.897 (31), 4.547 (14), 7.812 (13), 1.579 (12), 2.484 (11)

Chemistry:

	(1)	(2)
Na_2O	0.23	
K_2O	1.67	
$(NH_4)_2O$	1.62	2.94
CaO	25.74	25.31
MgO	0.11	
SiO_2	53.97	54.24
F	1.80	2.14
H_2O	[16.41]	16.27
$-O = F_2$	0.76	.
Total	100.79	100.00

(1) Vechec quarry, Vranov nad Topľou Co., Prešov Region, Slovak Republic; average electron microprobe and Raman spectroscopic analyses, H_2O calculated; corresponds to $[(NH_4)_{0.55}K_{0.32}Na_{0.07}Ca_{0.06}]_{\Sigma=1.00}(Ca_{4.01}Mg_{0.02})_{\Sigma=4.03}Si_{7.97}O_{20}[F_{0.84}(OH)_{0.16}]_{\Sigma=1.00}\cdot 8H_2O$. (2) $NH_4Ca_4(Si_8O_{20})F\cdot 8H_2O$.

Mineral Group: Apophyllite group.

Occurrence: In cavities of quartz-illite-saponite-tobelite xenoliths embedded in pyroxene andesite. A hydrothermal mineral, formed at a late stage of auto-hydrothermal alteration.

Association: Calcite, tridymite, pyrite, chabazite-Ca, heulandite-Ca.

Distribution: From the Vechec andesite quarry, 2.8 km southwest of Vechec village, Vranov nad Topľou Co., Prešov Region, Slovak Republic.

Name: The prefix indicates the NH_4-dominant analogue of *fluorapophyllite*-(K), *fluorapophyllite*-(Na) and *fluorapophyllite*-(Cs).

Type Material: Department of Mineralogy and Petrology, National Museum, Prague, Czech Republic (P1P 44/2019).

References: (1) Števko, M., J. Sejkora, J. Plášil, Z. Dolníček, and R. Škoda (2020) Fluorapophyllite-(NH_4), $NH_4Ca_4(Si_8O_{20})F\cdot 8H_2O$, a new member of the apophyllite group from the Vechec quarry, eastern Slovakia. Mineral. Mag., 84, 533-539.