Rosenbergite $AlF_3 \cdot 3H_2O$

Crystal Data: Tetragonal. *Point Group:* $4/m$. As slender tetragonal prismatic crystals, elongate along [001], to 0.25 mm, in radiating tufts.

Physical Properties: *Cleavage:* {001}, good. Hardness = n.d. VHN = 92–113, 103 average (15 g load). D(meas.) = 2.10(1) D(calc.) = 2.111

Optical Properties: Transparent. *Color:* Colorless. *Luster:* Vitreous.
Optical Class: Uniaxial (–). $\omega = 1.427$ $\epsilon = 1.403$

Cell Data: *Space Group:* $P4/n$. $a = 7.715(1)$ $c = 3.648(1)$ $Z = 2$

X-ray Powder Pattern: Cetine mine, Italy.
5.47 (100), 1.725 (85), 1.775 (78), 2.439 (72), 2.027 (70), 1.306 (70), 1.388 (65)

Chemistry:

	(1)
Al	19.94
F	41.05
H_2O	[39.01]
Total	[100.00]

(1) Cetine mine, Italy; by electron microprobe, H_2O by difference; corresponds to $Al_{1.02}F_{2.98} \cdot 2.99H_2O$.

Occurrence: Very rare in cavities in a silicified limestone from an antimony deposit in highly silicified evaporites (Cetine mine, Italy); in volcanic sublimates (Mt. Erebus, Antarctica).

Association: Gypsum, fluorite, elpasolite, ralstonite, onoratoite (Cetine mine, Italy).

Distribution: In the Cetine mine, 20 km southwest of Siena, Tuscany, Italy. On Mt. Erebus, Antarctica.

Name: Honors Professor Philip E. Rosenberg, Washington State University, Pullman, Washington, USA, who first noted the mineral in Antarctica.

Type Material: University of Florence, Florence, Italy, 1934/RI.

References: (1) Olmi, F., C. Sabelli, and R. Trosti-Ferroni (1993) Rosenbergite, $AlF[F_{0.5}(H_2O)_{0.5}]_4 \cdot H_2O$, a new mineral from the Cetine mine (Tuscany, Italy): description and crystal structure. Eur. J. Mineral., 5, 1167–1174. (2) (1994) Amer. Mineral., 79, 765 (abs. ref. 1).