Acuminite $SrAlF_4(OH)\cdot H_2O$

Crystal Data: Monoclinic. *Point Group:* $2/m$ or m. As acute dipyramidal crystals, showing {110}, {$\bar{1}$11}, and rare {$\bar{1}$12}, resembling spearheads, to 1 mm; in groups of crystals. *Twinning:* On {100}, as contact twins.

Physical Properties: *Cleavage:* {001}, perfect. Hardness = 3.5 D(meas.) = 3.295(10) D(calc.) = 3.305(5) Becomes yellow on exposure to X-rays.

Optical Properties: Transparent, yellowish if coated by "limonite". *Color:* Colorless, white. *Optical Class:* Biaxial (+). *Orientation:* $X = b$; $Y \wedge c = 15(1)°$. *Dispersion:* $r > v$, strong. $\alpha = 1.4507(3)$ $\beta = 1.4528(3)$ $\gamma = 1.4624(3)$–$1.4627(3)$ 2V(meas.) = 46°–57°

Cell Data: *Space Group:* $C2/c$ or Cc. $a = 13.223(1)$ $b = 5.175(1)$ $c = 14.251(1)$ $\beta = 111.61(2)°$ Z = 8

X-ray Powder Pattern: Ivigtut, Greenland.
4.767 (10), 4.706 (10), 3.505 (10), 3.353 (10), 2.075 (9), 3.310 (8), 3.286 (8)

Chemistry:

	(1)	(2)
Ca	0.02	
Sr	37.04	38.84
Al	11.86	11.96
F	33.52	33.68
OH	[6.82]	7.54
H_2O	[7.80]	7.98
Total	[97.06]	100.00

(1) Ivigtut, Greenland; by AA, Al by CDTA, F by electrolysis; OH calculated from charge balance, H_2O from theory; corresponds to $Sr_{0.98}Al_{1.02}F_{4.07}(OH)_{0.93}\cdot 1.00H_2O$.
(2) $SrAlF_4(OH)\cdot H_2O$.

Polymorphism & Series: Dimorphous with tikhonenkovite.

Occurrence: In a small cavity in a specimen from a strontium-rich portion of a cryolite deposit.

Association: Fluorite, jarlite, thomsenolite, pachnolite, ralstonite, gearksutite, celestine.

Distribution: In the Ivigtut cryolite deposit, southwestern Greenland.

Name: From the Latin *acuminis*, *sharp point*, for *spear head*, the characteristic shape of the crystals.

Type Material: University of Copenhagen, Copenhagen, Denmark.

References: (1) Pauly, H. and O.V. Petersen (1987) Acuminite, a new Sr-fluoride from Ivigtut, South Greenland. Neues Jahrb. Mineral., Monatsh., 502–514. (2) (1988) Amer. Mineral., 73, 1492 (abs. ref. 1). (3) Krogh Andersen, E., G. Ploug-Sørensen, and E. Leonardsen (1991) The structure of acuminite, a strontium aluminium fluoride mineral. Zeits. Krist., 194, 221–227.