Lalondeite $(Na,Ca)_6Ca_3Si_{16}O_{38}(F,OH)_2 \cdot 3H_2O$

Crystal Data: Triclinic. *Point Group*: $\bar{1}$. As roundish plates, to 3 mm, dominated by {001}; as densely packed, randomly oriented aggregates.

Physical Properties: *Cleavage*: Perfect on {001}. *Fracture*: Splintery. *Tenacity*: Brittle, inelastic. Hardness = ~ 3 D(meas.) = 2.50(1) D(calc.) = 2.51

Optical Properties: Transparent. *Color*: Colorless. *Streak*: White. *Luster*: Pearly. Medium to strong, violet-blue fluorescence in MW UV; weak under SW; none under LW. *Optical Class*: Biaxial (-). $\alpha = 1.522(1)$ $\beta = 1.528(1)$ $\gamma = 1.529(1)$ 2V(meas.) = 48(1)° 2V(calc.) = 44(1)° *Orientation*: X ≈ *c*.

Cell Data: *Space Group*: $P\bar{1}$. $a = 9.589(2)$ $b = 9.613(2)$ $c = 12.115(2)$ $\alpha = 96.62(2)°$ $\beta = 92.95(2)°$ $\gamma = 119.81(2)°$ $Z = 2$

X-ray Powder Pattern: Poudrette Quarry, Mont Saint-Hilaire, Quebec, Canada.
2.888 (100), 11.987 (90), 5.968 (85), 2.967 (50), 3.972 (40), 2.981 (35), 4.142 (30)

Chemistry:

	(1)
Na_2O	11.28
K_2O	0.70
CaO	15.00
SiO_2	66.36
F	1.28
Cl	0.18
H_2O	4.27
-O = F+Cl	0.58
Total	98.49

(1) Poudrette quarry, Mont Saint-Hilaire, Quebec, Canada; average of 18 electron microprobe analyses, IR and structure analysis confirms OH and H_2O, H_2O calculated, corresponding to $(Na_{5.33}Ca_{0.91}K_{0.22})_{\Sigma=6.46}Ca_3Si_{16.16}O_{38}(F_{0.99}OH_{0.94}Cl_{0.07})_{\Sigma=2} \cdot 3H_2O$.

Mineral Group: Reyerite-gyrolite group.

Occurrence: A late-stage low-temperature hydrothermal mineral.

Association: Microcline, clinoamphibole, narsarssukite.

Distribution: Poudrette quarry, Mont Saint-Hilaire, Quebec, Canada.

Name: Honors Professor Andre E. Lalonde, Department of Earth Sciences, University of Ottawa, Canada, for work on mica minerals and alkaline intrusions.

Type Material: Canadian Museum of Nature, Aylmer, Quebec, Canada (catalog no. CMNMC 83720).

References: (1) McDonald, A.M. and G.Y. Chao (2009) Lalondeite, a new hydrated Na–Ca fluorosilicate species from Mont Saint-Hilaire, Quebec: description and crystal structure. Can. Mineral., 47, 181–191. (2) (2009) Amer. Mineral., 94, 1497-1498 (abs. ref. 1).