

Alumovesuvianite**Ca₁₉Al(Al,Mg)₁₂Si₁₈O₆₉(OH)₉**

Crystal Data: Tetragonal. *Point Group:* 4/m. As striated prismatic crystals, elongated along [001] to 6 mm, displaying {100}, {110}, {210}, and terminated by {111}, {101}, {001}; sometimes {112} and/or {221}.

Physical Properties: *Cleavage:* None. *Tenacity:* n.d. *Fracture:* n.d. *Hardness:* = 6.5
D(meas.) = 3.31(1) D(calc.) = 3.36

Optical Properties: Transparent. *Color:* Colorless to purplish pink. *Streak:* n.d. *Luster:* Vitreous.
Optical Class: Uniaxial (-). $\omega = 1.725(2)$ $\varepsilon = 1.722(2)$ *Pleochroism:* None.

Cell Data: *Space Group:* P4/n. $a = 15.5103(2)$ $c = 11.8096(2)$ $Z = 2$

X-ray Powder Pattern: Jeffrey mine, Asbestos, Estrie region, Québec, Canada.
2.761 (100), 2.612 (61), 2.593 (25), 2.96 (22), 1.3443 (22), 1.6247 (21), 1.7658 (20)

Chemistry:	(1)	(2)
SiO ₂	37.08	37.7
Al ₂ O ₃	18.82	19.5
CaO	36.57	37.1
MgO	2.48	2.82
Mn ₂ O ₃	0.67	
Fe ₂ O ₃	0.22	
<u>H₂O</u>	<u>2.61</u>	<u>2.82</u>
Total	98.45	99.94

(1) Jeffrey mine, Asbestos, Estrie region, Québec, Canada; average electron microprobe analysis supplemented by FTIR spectroscopy and MAS NMR, H₂O by TGA; corresponds to

Ca_{19.00}(Al_{0.92}Fe³⁺_{0.08})_{Σ=1.00}(Al_{9.83}Mg_{1.80}Mn³⁺_{0.25})_{Σ=11.88}Si_{17.98}O_{69.16}(OH)_{8.44}.

(2) Ca₁₉Al(Al₁₀Mg₂)Si₁₈O₆₉(OH)₉.

Mineral Group: Vesuvianite group.

Occurrence: Lining cavities in rodingite (granular diopside) at the contact with host serpentinite. Likely of low-temperature hydrothermal origin (< 350° C).

Association: Diopside, grossular, prehnite.

Distribution: From the Jeffrey mine, Asbestos, Estrie region, Québec, Canada.

Name: As a member of the vesuvianite group with Al³⁺ as a dominant cation in the Y1 site.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Science, Moscow, Russia (4829/1 and 4829/2).

References: (1) Panikorovskii, T.L., N.V. Chukanov, S.M. Aksenov, A.S. Mazur, E.Yu. Avdontseva, V.V. Shilovskikh, and S.V. Krivovichev (2017) Alumovesuvianite, Ca₁₉Al(Al,Mg)₁₂Si₁₈O₆₉(OH)₉, a new vesuvianite-group member from the Jeffrey mine, Asbestos, Estrie region, Québec, Canada. *Mineralogy and Petrology*, 111(6), 833-842. (2) (2018) *Amer. Mineral.*, 103, 657 (abs. ref. 1).