

Jeffreyite

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Crystal Data: Orthorhombic. *Point Group:* 222. As thin micaceous pseudotetragonal plates, to 1.2 mm, composed of {001} and {110}. *Twinning:* On {100}.

Physical Properties: *Cleavage:* Perfect on {001} and {110}. *Tenacity:* Brittle. Hardness = ~5 D(meas.) = 2.99(2) D(calc.) = 2.98

Optical Properties: Transparent. *Color:* Colorless, but commonly with a brown coating. *Optical Class:* Biaxial (-). *Orientation:* X = c; Y = a; Z = b. $\alpha = 1.625(2)$ $\beta = 1.641(2)$ $\gamma = 1.643(2)$ $2V(\text{meas.}) = 40(2)^\circ$ $2V(\text{calc.}) = 39^\circ$

Cell Data: *Space Group:* C222₁. a = 14.90(1) b = 14.90(1) c = 40.41(8) Z = 64

X-ray Powder Pattern: Jeffrey mine, Canada.

2.774 (100), 2.993 (90), 2.541 (60), 1.755 (50), 5.00 (40), 2.360 (40), 2.229 (40)

Chemistry:

	(1)
SiO ₂	46.7
Al ₂ O ₃	2.8
BeO	8.1
CaO	37.4
Na ₂ O	2.3
H ₂ O	1.8
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Total	99.1

(1) Jeffrey mine, Canada; by electron microprobe, average of nine analyses, Be by AA, H₂O by TGA; corresponds to $(\text{Ca}_{1.69}\text{Na}_{0.19})_{\Sigma=1.88}(\text{Be}_{0.82}\text{Al}_{0.14})_{\Sigma=0.96}\text{Si}_{1.97}[\text{O}_{6.49}(\text{OH})_{0.51}]_{\Sigma=7.00}$.

Polymorphism & Series: Dimorphous with gugiaite.

Occurrence: In a cavity in a highly calcium-metasomatized granite dike.

Association: Grossular.

Distribution: In the Jeffrey mine, Asbestos, Quebec, Canada.

Name: For the type locality, the Jeffrey mine, Quebec, Canada.

Type Material: Canadian Museum of Nature, Ottawa, Canada, 48740.

References: (1) Grice, J.D. and G.W. Robinson (1984) Jeffreyite, $(\text{Ca, Na})_2(\text{Be, Al})\text{Si}_2(\text{O, OH})_7$, a new mineral species and its relation to the melilite group. *Can. Mineral.*, 22, 443–446. (2) (1985) *Amer. Mineral.*, 70, 872 (abs. ref. 1).