

Crystal Data: Tetragonal. *Point Group:* 4/m. As grains to 3 mm, elongated along [001].

Physical Properties: *Cleavage:* Good on {100}. *Tenacity:* Brittle. *Fracture:* Conchoidal. Hardness = ~5.5 D(meas.) = 2.75 D(calc.) = 2.77

Optical Properties: Transparent. *Color:* Slightly yellow. *Streak:* White. *Luster:* Subvitreous. *Optical Class:* Uniaxial (-). $\omega = 1.585$ $\varepsilon = 1.558$

Cell Data: *Space Group:* I4/m. $a = 12.134(2)$ $c = 7.576(2)$ $Z = 2$

X-ray Powder Pattern: McBride Province, North Queensland, Australia. 3.45 (100), 3.07 (40), 3.82 (20), 3.04 (15), 2.69 (15), 6.03 (5), 3.49 (5)

Chemistry:	(1)
SiO ₂	45.26
Al ₂ O ₃	26.25
Fe ₂ O ₃	0.22
Na ₂ O	3.49
K ₂ O	0.06
CaO	16.95
SrO	0.08
Cl	0.02
SO ₃	4.82
CO ₂	[1.92]
Total	99.08

(1) McBride Province, North Queensland, Australia; electron microprobe analysis, CO₂ calculated by charge-balance using $\text{CO}_3^{2+} = [(\text{Na}+\text{K}) + 2(\text{Ca}+\text{Fe}+\text{Sr}) - \text{Al} - \text{Cl} - 2\text{S}]/2$; corresponds to $(\text{Na}_{1.06}\text{Ca}_{2.86})(\text{Al}_{4.87}\text{Si}_{7.13})\text{O}_{24}[(\text{SO}_4)_{0.57}(\text{CO}_3)_{0.41}]$.

Polymorphism & Series: Solid-solution series with meionite.

Mineral Group: Scapolite group.

Occurrence: In granulite facies metamorphic rocks, in mafic and ultramafic xenoliths from the lower crust or upper mantle, and in anorthosites in a meteorite-impact structure.

Association: Plagioclase (An₄₅), calcic amphibole, clinopyroxene, garnet, spinel with exsolved ilmenite (McBride Province).

Distribution: In the McBride Province, North Queensland, Australia [TL]. In the Manicouagan meteorite-impact structure.

Name: Honors *Silvia* Hillebrand, daughter of Tschermak, the second 'l' in the name added to the conventional 'ite' ending to denote a mineral name, hence silvialite instead of 'silviaite'

Type Material: Systematic Reference Series, National Mineral Collection, Geological Survey of Canada, Ottawa, Ontario (NMC 68080).

References: (1) Teertstra, D.K., M. Schindler, B.L. Sherriff, and F.C. Hawthorne (1999) Silvialite, a new sulfate-dominant member of the scapolite group with an Al-Si composition near the I4/m-P4₂/n phase transition. *Mineral. Mag.*, 63(3), 321-329. (2) (2000) *Amer. Mineral.*, 85, 264 (abs. ref. 1).