

Crystal Data: Tetragonal. *Point Group:* 4/m. As crystals to 10 μm, in aggregates to 15 μm.

Physical Properties: *Cleavage:* n.d. *Fracture:* n.d. *Tenacity:* n.d. *Hardness =* n.d.
D(meas.) = n.d. D(calc.) = 3.98

Optical Properties: Transparent. *Color:* Colorless. *Streak:* n.d. *Luster:* n.d.
Optical Class: n.d.

Cell Data: *Space Group:* I4/m. *a* = 9.15(14) *c* = 2.74(13) *Z* = 2

X-ray Powder Pattern: Zagami meteorite.

2.890 (100), 2.036 (87), 6.463 (53), 1.442 (27), 1.859 (16), 1.317 (16), 1.266 (15)

Chemistry:	(1)	(2)
SiO ₂	65.4	64.76
Al ₂ O ₃	19.0	18.32
CaO	0.37	
Na ₂ O	1.62	
<u>K₂O</u>	<u>13.02</u>	<u>16.92</u>
Total	99.41	100.00

(1) Zagami meteorite; average electron microprobe analysis supplemented by IR and Raman spectroscopy; corresponds to (K_{0.76}Na_{0.14}Ca_{0.02})Al_{1.03}Si_{3.00}O₈. (2) KAlSi₃O₈.

Polymorphism & Series: High pressure polymorph of KAlSi₃O₈.

Mineral Group: Feldspar group.

Occurrence: Shock-generated, high-pressure mineral formed via solid-state transformation of primary igneous K-feldspar in a Martian-enriched basaltic shergottite meteorite.

Association: Lingunite, silica, ilmenite, baddeleyite, augite-pigeonite, maskelynite, titanomagnetite (assemblage 1); silica, chlorapatite, baddeleyite (assemblage 2).

Distribution: From the Zagami meteorite [TL] and Northwest Africa (NWA) 480 meteorite.

Name: Honors Robert C. *Liebermann*, a high-pressure mineral physicist at Stony Brook University, New York, USA.

Type Material: National Museum of Natural History, Washington, D.C., USA (USNM 7619).

References: (1) Ma, C., O. Tschauner, J.R. Beckett, G.R. Rossman, C. Prescher, V.B. Prakapenka, H.A. Bechtel, and A. Macdowell (2018) Liebermannite, KAlSi₃O₈, a new shock-metamorphic, high-pressure mineral from the Zagami Martian meteorite. *Meteoritics and Planetary Science*, 53, 50-61. (2) Williams, P.A., F. Hatert, M. Pasero, and S.J. Mills (2014) IMA Commission on new minerals, nomenclature and classification (CNMNC) Newsletter 20. New minerals and nomenclature modifications approved in 2014. *Mineral., Mag.*, 78, 551.