

Crystal Data: Monoclinic. *Point Group:* 2/m. As anhedral grains in a ~15 μm spherical inclusion.

Physical Properties: *Cleavage:* n.d. *Fracture:* n.d. *Hardness =* n.d. *D(meas.) =* n.d.
D(calc.) = 3.44

Optical Properties: Semitransparent. *Color:* n.d. *Luster:* n.d.
Optical Class: [Biaxial.] *n =* n.d.

Cell Data: *Space Group:* C2/c. *a =* 9.609(3) *b =* 8.652(2) *c =* 5.274(2) *β =* 106.06(2)° *Z =* 4

X-ray Powder Pattern: n.d.

Chemistry:	(1)	(2)
SiO ₂	29.28	25.16
TiO ₂	0.10	9.59
Al ₂ O ₃	41.41	36.27
FeO	1.11	1.29
MgO	1.71	1.85
CaO	25.53	24.58
Total	99.14	98.74

(1) Carbonaceous chondrite meteorite ALH 85085; average electron microprobe analysis supplemented by Raman spectroscopy; corresponds to Ca_{1.008}(Mg_{0.094}Fe_{0.034}Al_{0.878})(Al_{0.921}Si_{1.079})O₆.

(2) Do.; average electron microprobe analysis supplemented by Raman spectroscopy; corresponds to Ca_{1.000}(Mg_{0.105}Fe_{0.041}Ti⁴⁺_{0.190}Ti³⁺_{0.084}Al_{0.579})(Al_{1.044}Si_{0.956})O₆.

Polymorphism & Series: Complete solid solution with diopside.

Mineral Group: Pyroxene group.

Occurrence: In a refractory inclusion in a CH group carbonaceous chondrite meteorite, perhaps formed by metastable crystallization from refractory melts in the solar nebula.

Association: Grossite (ALH 85085); addibischoffite, hibonite, perovskite, Ti-kushiroite, spinel, melilite, anorthite, FeNi-metal (Acfer 214).

Distribution: From carbonaceous chondrite meteorites ALH 85085 [TL] and Acfer 214.

Name: Honors Ikuo *Kushiro*, Professor Emeritus, University of Tokyo, Japan, for his seminal contributions to experimental petrology and mineralogy, including characterization of CaTs-bearing systems, planetary science, and meteoritics.

Type Material: Lyndon B. Johnson Space Center, National Aeronautics and Space Administration in Houston, Texas, USA (ALH 85085).

References: (1) Kimura, M., T. Mikouchi, A. Suzuki, M. Miyahara, E. Ohtani, and A. El Goresy (2009) Kushiroite, CaAlAlSiO₆: A new mineral of the pyroxene group from the ALH 85085 CH chondrite, and its genetic significance in refractory inclusions. *Amer. Mineral.*, 94, 1479-1482.
(2) Ma, C., A.N. Krot, and K. Nagashima (2017) Addibischoffite, Ca₂Al₆Al₆O₂₀, a new calcium aluminate mineral from the Acfer 214 CH carbonaceous chondrite: A new refractory phase from the solar nebula. *Amer. Mineral.*, 102, 1556-1560.