

Crystal Data: Monoclinic. *Point Group:* 2/*m*. As lathlike or subhedral rounded grains, to 30 μ ; in polycrystalline aggregates rimmed by melilite.

Physical Properties: Hardness = n.d. D(meas.) = n.d. D(calc.) = 2.88

Optical Properties: Transparent. *Color:* White to colorless. *Streak:* White.

Luster: Vitreous.

Optical Class: Biaxial (+); low birefringence. *Orientation:* Elongation negative. $n = < 1.730$
 $\alpha = 1.6178(3)$ (synthetic). $\beta = 1.6184(3)$ $\gamma = 1.6516(3)$ $2V(\text{meas.}) = 12(1)^\circ$
 $2V(\text{calc.}) = 15.5^\circ$

Cell Data: *Space Group:* C2/*c*. $a = 12.94(1)$ $b = 8.910(8)$ $c = 5.446(4)$ $\beta = 107.0(1)^\circ$
 $Z = 4$

X-ray Powder Pattern: Acfer 182 meteorite.

3.515 (100), 4.460 (43), 2.605 (36), 2.440 (21), 1.764 (20), 3.609 (13), 2.882 (13)

Chemistry:	(1)	(2)
SiO ₂	0.11	
TiO ₂	0.15	
Al ₂ O ₃	77.8	78.43
FeO	0.31	
MgO	0.06	
CaO	21.4	21.57
Total	99.83	100.00

(1) Acfer 182 meteorite; by electron microprobe, average of 20 grains; corresponding to (Ca_{1.00}Fe_{0.01})_{Σ=1.01}Al_{3.99}O₇. (2) CaAl₄O₇.

Occurrence: In argillaceous limestones metamorphosed at high temperature and low pressure (Hatrum Formation, Israel); in Ca–Al-rich inclusions thought formed by condensation from a hot gas or molten droplets (meteorites).

Association: Brownmillerite, mayenite, larnite (Hatrum Formation, Israel); perovskite, melilite, hibonite, spinel, calcian pyroxene (meteorites).

Distribution: In the Hatrum Formation, Israel. From the chondritic meteorites Acfer 182, Acfer 059-El Djouf 001, ALH85085, and others.

Name: Honors Dr. Shulamit Gross (1923–), Geological Survey of Israel, Jerusalem, Israel, who noted the species in the Hatrum Formation, Israel.

Type Material: Institute for Planetology, Münster; Natural History Museum, Humboldt University, Berlin, Germany.

References: (1) Weber, D. and A. Bischoff (1994) Grossite (CaAl₄O₇) – a rare phase in terrestrial rocks and meteorites. *Eur. J. Mineral.*, 6, 591–594. (2) (1995) *Amer. Mineral.*, 80, 630 (abs. ref. 1). (3) Gross, S. (1977) The mineralogy of the Hatrum Formation, Israel. *Geol. Sur. Israel Bull.* 70, 11. (4) Boyko, E.R. and L.G. Wisnyi (1958) The optical properties and structures of CaO•2Al₂O₃ and SrO•2Al₂O₃. *Acta Cryst.*, A11, 444–445.