Åkermanite $Ca_2MgSi_2O_7$

Crystal Data: Tetragonal. *Point Group:* $\bar{4}2m$. Crystals short prismatic to thin tabular, which may resemble squashed, octahedrally-modified cubes; granular, massive. *Twinning:* On {100} and {001}, cruciform.

Physical Properties: *Cleavage:* Distinct on {001}, poor on {110}. *Fracture:* Uneven to conchoidal. *Tenacity:* Brittle. Hardness = 5–6 D(meas.) = 2.944 D(calc.) = 2.922

Optical Properties: Transparent to translucent. *Color:* Colorless, yellowish gray, green, brown; in thin section, colorless to yellow. *Luster:* Vitreous to resinous.
Optical Class: Uniaxial (+). *Absorption:* Weak; $E > O$. $\omega = 1.630–1.632$ $\epsilon = 1.639–1.648$

Cell Data: *Space Group:* $P\bar{4}2_1m$ (synthetic). $a = 7.8288(8)$ $c = 5.0052(5)$ $Z = 2$

X-ray Powder Pattern: Synthetic.
2.87 (100), 3.09 (30), 1.764 (30), 2.039 (20), 2.488 (18), 3.73 (14), 5.55 (12)

Chemistry:

	(1)	(2)	(3)
SiO_2	46.55	44.07	44.08
TiO_2		0.05	
Al_2O_3	0.96	0.33	
Fe_2O_3		0.00	
FeO	0.12	0.47	
MnO	0.00	0.11	
ZnO		1.56	
MgO	13.30	12.87	14.78
CaO	39.30	40.09	41.14
Na_2O		< 0.05	
Total	100.23	[99.55]	100.00

(1) Vesuvius, Italy. (2) Cascade Mountain, New York, USA; by electron microprobe; original total given as 99.52%. (3) $Ca_2MgSi_2O_7$.

Polymorphism & Series: Forms a series with gehlenite.

Mineral Group: Melilite group.

Occurrence: A product of contact metamorphism of siliceous limestones and dolostones, and in rocks of the sanidinite facies. Also forms from alkalic magmas rich in calcium.

Association: Monticellite, wollastonite, spurrite, larnite, merwinite, "fassaite," grossular, diopside, forsterite.

Distribution: Occurrences are typically of intermediate series members; relatively pure examples have been found at Monte Somma and Vesuvius, Campania, and Monte Cavalluchio, Sacrofano, near Rome, Lazio, Italy. From Crestmore, Riverside Co., California; on Cascade Mountain, Adirondack Mountains, Essex Co., New York; and from the Tres Hermanas district, Luna Co., New Mexico, USA. On Dufresne Hill, Oka, Quebec, Canada. From near Kilchoan, Ardnamurchan, Argyllshire, Scotland. At Scawt Hill, near Larne, Co. Antrim, Ireland. In the Wessels mine, near Kuruman, Cape Province, South Africa.

Name: For Anders Richard Åkerman (1837–1922), Swedish metallurgist.

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