

Crystal Data: Monoclinic. *Point Group:* 2/m. As micrometer-sized euhedral crystals within aluminous melilite.

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

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

Cell Data: Space Group: *C2/c*. *a* = 9.80 *b* = 8.85 *c* = 5.36 β = 105.62° *Z* = 4

X-ray Powder Pattern: Calculated pattern.

2.996 (100), 2.535 (47), 2.581 (41), 2.964 (33), 2.560 (29), 2.909 (20), 2.131 (19)

Chemistry:	(1)
CaO	24.83
MgO	1.51
Al ₂ O ₃	23.36
V ₂ O ₃	9.35
Sc ₂ O ₃	6.89
SiO ₂	25.69
TiO ₂	8.49
Total	100.12

(1) Allende CV3 meteorite; average of 5 electron microprobe analyses; corresponds to $\text{Ca}_{1.04}[(\text{V}^{3+}_{0.29}\text{Sc}_{0.24}\text{Ti}^{3+}_{0.13}\text{Al}_{0.09})\text{Ti}^{4+}_{0.13}\text{Mg}_{0.08}]\Sigma=0.96(\text{Si}_{1.01}\text{Al}_{0.99})\Sigma=2.00\text{O}_6$.

Mineral Group: Pyroxene group.

Occurrence: Probably formed in reducing conditions from an ultra-refractory parent of a carbonaceous chondrite meteorite.

Association: Aluminous melilite, pakeite, spinel, perovskite, grossmanite-davisite, hibonite.

Distribution: From a V-rich, fluffy Type A Ca-Al-rich inclusion (CAI) A-WP1 in Allende carbonaceous chondrite CV3, Pueblito de Allende, Chihuahua, Mexico.

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Type Material: National Museum of Natural History, Smithsonian Institution, Washington, DC, USA (USNM 7617).

References: (1) Ma, C. and J.R. Beckett (2016) Burnettite, CaVAlSiO₆, and pakeite, Ca₃TiSi₂(Al₂Ti)O₁₄, two new minerals from Allende: clues to the evolution of a V-rich Ca-Al-rich inclusion. 47th Lunar and Planetary Science Conference, session T335, 1595. (2) (2020) Amer. Mineral., 105(10), 1599 (abs. ref. 1).