Davisite $CaScAlSiO_6$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As aggregates of irregular 2-12 μm grains. *Twinning*: None observed.

Physical Properties: *Cleavage*: n.d. *Tenacity*: n.d. *Fracture*: n.d. Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.38

Optical Properties: Transparent. *Color*: Light gray in thin-section. *Streak*: n.d. *Luster*: n.d. *Optical Class*: [Biaxial]. *n* (calc.) = 1.736

Cell Data: *Space Group*: *C*2/*c*. $a = 9.884$ $b = 8.988$ $c = 5.446$ $\beta = 105.86°$ Z = 4

X-ray Powder Pattern: Allende meteorite.
3.039 (100), 2.564 (47), 2.619 (40), 2.989 (31), 2.600 (26), 1.676 (20), 2.943 (18)

Chemistry:

	(1)	(2)
SiO_2	26.24	25.45
CaO	23.55	23.75
Al_2O_3	21.05	21.59
Sc_2O_3	14.70	29.21
TiO_2	8.66	
MgO	2.82	
ZrO_2	2.00	
Y_2O_3	0.56	
V_2O_3	0.55	
FeO	0.30	
Dy_2O_3	0.27	
Gd_2O_3	0.13	
Er_2O_3	0.08	
Total	100.91	100.00

(1) Allende meteorite; average electron microprobe analysis supplemented by Raman spectroscopy, total Ti was partitioned between Ti^{3+} and Ti^{4+} to make ideal stoichiometry; corresponds to $Ca_{0.99}(Sc_{0.50}Ti^{3+}_{0.16}Mg_{0.16}Ti^{4+}_{0.10}Zr_{0.04}V^{3+}_{0.02}Fe^{2+}_{0.01}Y_{0.01})_{\Sigma=1.00}(Si_{1.03}Al_{0.97})_{\Sigma=2.00}O_6$. (2) $CaScAlSiO_6$.

Mineral Group: Clinopyroxene group.

Occurrence: Likely formed through high-temperature condensation in the solar nebula, followed by melting and crystallization in Ca-,Al-rich refractory inclusions in a meteorite.

Association: Spinel, perovskite.

Distribution: In the Allende meteorite.

Name: Honors Andrew M. *Davis* (b. 1950), Professor of Cosmochemistry at the University of Chicago, USA for his contributions to meteorite research.

Type Material: National Museum of Natural History, Washington D.C., USA (USNM 7555).

References: (1) Ma, C. and G.R. Rossman (2009) Davisite, $CaScAlSiO_6$, a new pyroxene from the Allende meteorite. Amer. Mineral., 94, 845-848.