

Kangite**(Sc,Ti,Al,Zr,Mg,Ca,□)₂O₃**

Crystal Data: Cubic. *Point Group:* $2/m\bar{3}$. As irregular grains to 4 μm .

Physical Properties: *Cleavage:* n.d. *Fracture:* n.d. *Tenacity:* n.d. *Hardness:* = n.d.
D(meas.) = n.d. D(calc.) = 3.879

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

Cell Data: *Space Group:* $Ia\bar{3}$. $a = 9.842(1)$ $Z = 16$

X-ray Powder Pattern: Calculated Pattern.

2.8419 (100), 1.9307 (75), 1.7403 (51), 1.5191 (29), 1.4841 (23), 4.0190 (16), 2.0989 (15)

Chemistry:	(1)		(1)
TiO ₂	36.6	V ₂ O ₃	1.31
Sc ₂ O ₃	26.4	Er ₂ O ₃	0.92
ZrO ₂	11.3	FeO	0.8
Al ₂ O ₃	7.0	Gd ₂ O ₃	0.60
Y ₂ O ₃	5.4	Ho ₂ O ₃	0.40
CaO	3.9	Tb ₂ O ₃	0.18
MgO	3.14	Cr ₂ O ₃	0.09
Dy ₂ O ₃	1.8	ThO ₂	0.04
SiO ₂	1.7	<u>- O</u>	<u>0.3</u>
		Total	101.28

(1) Allende carbonaceous chondrite meteorite; average of 7 electron microprobe analyses; corresponds to $[(\text{Sc}_{0.54}\text{Al}_{0.16}\text{Y}_{0.07}\text{V}_{0.03}\text{Gd}_{0.01}\text{Dy}_{0.01}\text{Er}_{0.01})^{3+}_{\Sigma=0.83}(\text{Ti}_{0.66}\text{Zr}_{0.13})^{4+}_{\Sigma=0.79}(\text{Mg}_{0.11}\text{Ca}_{0.06}\text{Fe}_{0.02})^{2+}_{\Sigma=0.19}\square_{0.19}]_{\Sigma=2.00}\text{O}_3$.

Mineral Group: Bixbyite group.

Occurrence: An ultra-refractory mineral in an inclusion (ACM-3) in a carbonaceous chondrite meteorite, likely originating through low-temperature oxidation of a Sc- and Ti³⁺-enriched, high-temperature condensate oxide dating to the birth of the Solar System.

Association: REE-rich perovskite, spinel, davisite.

Distribution: From the Allende CV3 carbonaceous chondrite meteorite.

Name: Derived from “kang,” the Chinese word for the element scandium.

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

References: (1) Ma, C., O. Tschauer, J.R. Beckett, G.R. Rossman, and W. Liu (2013) Kangite, (Sc,Ti,Al,Zr,Mg,Ca,□)₂O₃, a new ultra-refractory scandia mineral from the Allende meteorite: Synchrotron micro-Laue diffraction and electron backscatter diffraction. *Amer. Mineral.*, 98, 870-878.