Tistarite Ti_2O_3

Crystal Data: Hexagonal. *Point Group*: $\bar{3}\,2/m$. As a single ~5 × 7 μm grain.

Physical Properties: *Cleavage*: n.d. *Fracture*: n.d. *Tenacity*: n.d. Hardness = n.d.
D(meas.) = n.d. D(calc.) = 4.53

Optical Properties: Opaque. *Color*: Gray in reflected light. *Streak*: n.d. *Luster*: n.d.
Optical Class: n.d.

Cell Data: *Space Group*: $R\bar{3}\,c$. a = 5.158 c = 13.611 Z = 6

X-ray Powder Pattern: Calculated for synthetic Ti_2O_3.
1.703 (100), 2.579 (90), 2.707 (88), 3.734 (84), 1.489 (46), 2.242 (38), 1.867 (33)

Chemistry:

	(1)
Ti_2O_3	94.94
MgO	2.06
Al_2O_3	1.50
ZrO_2	0.44
FeO	0.24
CaO	0.10
Cr_2O_3	0.06
HfO_2	0.02
Total	99.36

(1) Allende meteorite; average electron microprobe analysis supplemented by Raman spectroscopy; corresponding to $(Ti^{3+}_{1.90}Mg_{0.07}Al_{0.04}Zr_{0.01})_{\Sigma=2.02}O_3$.

Mineral Group: Corundum-hematite group.

Occurrence: In a ferromagnesian chondrule in a CV3 carbonaceous chondrite meteorite.

Association: Khamrabaevite, rutile, corundum, mullite.

Distribution: In the Allende meteorite.

Name: *Ti* for the essential titanium in the compound and the word *star*, implying that this refractory mineral is among the first solids formed in the solar system at the birth of our star.

Type Material: National Museum of Natural History, Washington D.C., USA (USNM 3510-6).

References: (1) Ma, C. and G.R. Rossman (2009) Tistarite, Ti_2O_3, a new refractory mineral from the Allende meteorite. Amer. Mineral. 94, 841-844.