Wangdaodeite $FeTiO_3$

Crystal Data: Hexagonal. *Point Group*: 3*m*. As irregular grains to 20 μm.

Physical Properties: *Cleavage*: None observed. *Fracture*: n.d. *Tenacity*: n.d.
Hardness = 5-5.5 (estimated from relief compared to ilmenite) D(meas.) = n.d. D(calc.) = 4.72

Optical Properties: n.d. *Color*: n.d. *Streak*: n.d. *Luster*: n.d.
Optical Class: n.d.
R_1-R_2: (470) 21.0-18.7, (546) 19.9-17.9, (589) 20.1-18.0, (650) 20.4-18.3

Cell Data: *Space Group*: *R*3*c*. *a* = 5.13(1) *c* = 13.78(1) Z = 6

X-ray Powder Pattern: Suizhou L6 chondrite meteorite.
2.72 (100), 2.56 (89), 3.75 (72), 1.86 (59), 2.23 (57), 1.51 (44), 1.48 (44)

Chemistry:

	(1)
FeO	41.05
MgO	2.79
MnO	2.74
Al_2O_3	0.04
V_2O_3	0.19
Cr_2O_3	0.04
TiO_2	52.69
Total	99.54

(1) Suizhou L6 chondrite meteorite; average of 11 electron microprobe analyses supplemented by Raman spectroscopy; corresponds to $(Fe_{0.86}Mg_{0.10}Mn_{0.06})_{\Sigma=1.02}Ti_{0.99}O_3$.

Polymrphism & Series: High-pressure polymorph of ilmenite.

Occurrence: In or adjacent to shock-melt veinlets in chondritic parts of a meteorite, P-T conditions of formation estimated to be 20-24 GPa and >1200 °C.

Association: Ringwoodite, majorite, xieite.

Distribution: From the Suizhou L6 chondrite meteorite that fell in the suburb of Suizhou City, Hubei Province, China.

Name: Honors Professor *Daode Wang* (1932-2012) Guangzhou Institute of Geochemistry, Chinese Academy of Sciences for his contributions to systematic study of meteorites of China and Antarctica.

Type Material: Geological Museum, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou, China (15010) and the Mineral Museum, University of Arizona (21312) and the RRUFF Project (R150142), Tucson, Arizona, USA.

References: (1) Xie, X., X. Gu, H. Yang, M. Chen, and K. Li (2020) Wangdaodeite, the $LiNbO_3$-structured high-pressure polymorph of ilmenite, a new mineral from the Suizhou L6 chondrite. Meteoritics and Planet. Sci., 55(1), 184-192. (2) (2020) Amer. Mineral., 105, 1924 (abs. ref. 1).