



>>Entry Name: Titanium(III) oxide (Ti₂O₃), 11CI

Synonym(s): Ditungsten trioxide

CAS Registry Number: 1344-54-3

Ti₂O₃

Molecular Formula: O₃Ti₂

Molecular Weight: 143.758

Accurate Mass: 143.880639

Percentage Composition: O 33.39%; Ti 66.61%

Source/Synthesis: Synth. by reducing TiO₂ with Ti at high temp. or by arc melting

Use/Importance: Used in preparing Li/Ti/O superconducting Josephson junctions, thin film capacitors, a variety of catalyst compositions (for hydrocarbon reactions, deasphalting, NH₃ dec. etc) as well as a black pigment for cosmetics and inks

Physical Description: Black solid. Exhibits a semiconductor/metal transition on heating or doping with e.g. V³⁽⁺⁾

Solubility: Insol.

References:

Robinson, W.R., *J. Solid State Chem.*, **9**, 255, (cryst struct)

Rice, C.E. *et al.*, *J. Solid State Chem.*, **21**, 145, (cryst struct doped with M³⁽⁺⁾)

Courbin, P. *et al.*, *Rev. Chim. Miner.*, 1978, **15**, 508, (synth)

Ger. Pat., 1983, 3 316 320; *CA*, **100**, 57411x, (use)

Miyano, T. *et al.*, *Philos. Mag. A*, 1983, **48**, 163; 163, (synth, shear-form)

Sankur, H., *Mater. Res. Soc. Symp. Proc.*, 1984, **29**, 373; *CA*, **101**, 237870a, (use)

Hagemann, H.J. *et al.*, *Phillips Tech. Rev.*, 1984, **41**, 89; *CA*, **100**, 166323r, (use)

Japan. Pat., 1985, 60 236 783; *CA*, **104**, 208970q, (use)

U.S. Pat., 1985, 4 525 269; *CA*, **103**, 144643e, (use)

Inukai, T. *et al.*, *Rev. Electr. Commun. Lab.*, 1986, **34**, 269; *CA*, **104**, 235311g, (use)