



>>Entry Name: Terbium(IV) oxide (TbO₂)

Synonym(s): Terbium dioxide

CAS Registry Number: 12036-15-6

Extra CAS Registry Numbers(s): 12738-76-0

TbO₂

Molecular Formula: O₂Tb

Molecular Weight: 190.924

Accurate Mass: 190.915172

Percentage Composition: O 16.76%; Tb 83.24%

Source/Synthesis: Obtd. on oxidation of Tb₂O₃ with O at 450°

Physical Description: Dark red solid

>>Variant: Terbium oxide (Tb₄O₇)

CAS Registry Number: 12037-01-3

Molecular Formula: O₇Tb₄

Molecular Weight: 747.697

Accurate Mass: 747.665773

Percentage Composition: O 14.98%; Tb 85.02%

Physical Description: Brown (black) solid

Solubility: Insol. H₂O; sol. hot conc. acid

Other Data: Rhombic struct. Obtd. on ignition of sulfate, carbonate etc.

Aldrich: 20457-9

Fluka: 86390

Sigma: T5879

>>Variant: Terbium oxide (Tb₇O₁₂)

CAS Registry Number: 12534-66-6

Molecular Formula: O₁₂Tb₇

Molecular Weight: 1304.47

Accurate Mass: 1304.416374

Percentage Composition: O 14.72%; Tb 85.28%

Physical Description: Dark brown solid

>>Variant: Terbium oxide (Tb₁₁O₂₀)

CAS Registry Number: 56321-63-2

Molecular Formula: O₂₀Tb₁₁

Molecular Weight: 2068.166

Accurate Mass: 2068.077062

Percentage Composition: O 15.47%; Tb 84.53%

Physical Description: Dark brown solid

>>Variant: Terbium oxide (Tb₁₂O₂₂)

Molecular Formula: O₂₂Tb₁₂

Molecular Weight: 2259.09

Accurate Mass: 2258.992234

Percentage Composition: O 15.58%; Tb 84.42%

References:

Gruen, D.M. *et al.*, *J.A.C.S.*, 1951, **73**, 1475, (*synth*)

Baezinger, N.C. *et al.*, *J.A.C.S.*, 1961, **83**, 2219

Mikler, J. *et al.*, *Monatsh. Chem.*, 1965, **96**, 2018, (*synth*)

MacChesney, J.B. *et al.*, *J. Chem. Phys.*, 1966, **44**, 596, (*magnetism*)

Sastry, R.L.N. *et al.*, *J. Inorg. Nucl. Chem.*, 1966, **28**, 2167, (*synth*)

Gmelin Handbook Inorg. Chem., Syst. No. 39, 1974, **C1**, 391, (*rev*)

Künzmann, P. *et al.*, *J. Solid State Chem.*, 1975, **14**, 229, (*Tb₁₁O₂₀, Tb₁₂O₂₂*)

Lowe, A.T. *et al.*, *J. Solid State Chem.*, 1975, **14**, 383; **15**, 9, (*struct, Tb₄O₇*)

Brauer, G., *Handbuch Prap. Anorg. Chem.*, 3rd edn., Ferdinand Enke Verlag, 1975, **2**, 1089, (*synth*)

Eyring, L., *Handbook on the Physics and Chemistry of Rare Earths*, 1979, **3**, 337, (*rev*)