



>>Entry Name: Terbium borides

**Molecular Formula:** [BTb]

>>Variant: Terbium boride (TbB<sub>4</sub>), 9Cl, 8Cl

**Synonym(s):** Terbium tetraboride

**CAS Registry Number:** 12688-53-8

**Molecular Formula:** B<sub>4</sub>Tb

**Molecular Weight:** 202.169

**Accurate Mass:** 202.962562

**Percentage Composition:** B 21.39%; Tb 78.61%

**Source/Synthesis:** Synth. from Tb<sub>2</sub>O<sub>3</sub> + B<sub>2</sub>O<sub>3</sub> + Mg at 1200°

**Physical Description:** Golden cryst.

**Melting Point:** Mp *ca.* 2600°

**Other Data:** Transition to orthorhombic form at *ca.* 80K. Antiferromagnetic at low temp.  $\mu_{\text{eff}} = 9.64\mu_{\text{B}}$

>>Variant: Terbium boride (TbB<sub>6</sub>), 9Cl, 8Cl

**Synonym(s):** Terbium hexaboride

**CAS Registry Number:** 12008-31-0

**Molecular Formula:** B<sub>6</sub>Tb

**Molecular Weight:** 223.791

**Accurate Mass:** 224.981172

**Percentage Composition:** B 28.99%; Tb 71.01%

**Source/Synthesis:** Synth. from Tb<sub>2</sub>O<sub>3</sub> + B at 1500-1800° or Tb<sub>2</sub>O<sub>3</sub> + B<sub>2</sub>O<sub>3</sub> + Mg at 1200°

**Use/Importance:** Cathode material

**Physical Description:** Blue solid

**Melting Point:** Mp 2340°

**Other Data:** In vapour → TbB<sub>4</sub> + B.  $\mu_{\text{eff}} = 9.43\mu_{\text{B}}$

>>Variant: Terbium boride (TbB<sub>12</sub>), 9Cl, 8Cl

**Synonym(s):** Terbium dodecaboride

**CAS Registry Number:** 12589-39-8

**Molecular Formula:** B<sub>12</sub>Tb

**Molecular Weight:** 288.657

**Accurate Mass:** 291.037002

**Percentage Composition:** B 44.94%; Tb 55.06%

**Source/Synthesis:** Synth. from oxide + B at 1500-1700° or Tb + B at 1650° and high pressure

**Other Data:** Antiferromagnetic

**References:**

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