



>>Entry Name: Manganese oxide (MnO), 11CI

ENTRY UNDER REVIEW

Synonym(s): Cassel green. C.I. 77726. Manganese green

CAS Registry Number: 1344-43-0

MnO

Molecular Formula: MnO

Molecular Weight: 70.937

Accurate Mass: 70.932962

Percentage Composition: Mn 77.45%; O 22.55%

Source/Synthesis: Synth. by H<sub>2</sub> reduction of Mn<sub>2</sub>O<sub>3</sub> or MnO<sub>2</sub> at high temp. or by thermal dec. of MnCO<sub>3</sub> or MnC<sub>2</sub>O<sub>4</sub>. The sample is cooled in absence of O<sub>2</sub> to prevent oxidn.

Use/Importance: Miscible with many metal oxides and plays a role in iron metallurgical processes. High purity MnO used in production of ferrites. Technical grade used as fertiliser and food additive

Physical Description: Bright green powder; mod. stable in air. Thermal dec. of MnCO<sub>3</sub> at 420-250° produces pyrophoric MnO which rapidly becomes brown. Basic oxide: insol. H<sub>2</sub>O. Relatively easily reduced to Mn by metals but not by H<sub>2</sub> or CO

Melting Point: Mp 1850°

Other Data: Will take up oxygen if left to stand in air, becoming brown. Paramagnetic at r.t., becomes antiferromagnetic at *ca.* 120°. Below Néel temp. lattice becomes rhombohedral. Tetragonal high press. modification also known

Aldrich: 37720-1

Fluka: 63561

>>Variant: Mineral-form

Synonym(s): Manganosite

CAS Registry Number: 1313-12-8

Molecular Formula: MnO

Molecular Weight: 70.937

Accurate Mass: 70.932962

Percentage Composition: Mn 77.45%; O 22.55%

Source/Synthesis: Occurs in New Jersey, USA and in Sweden

Solubility: Emerald green cryst., becoming black on exp.

#### References:

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Howe, A.T. *et al.*, *Q. Rev., Chem. Soc.*, 1967, **21**, 507, (*magnetism*)

Hush, N.S. *et al.*, *Prog. Inorg. Chem.*, 1968, **10**, 259, (*uv-vis*)

Finsley, D.M. *et al.*, *J. Therm. Anal.*, 1971, **3**, 43, (*synth*)

Goodenough, J.B., *Prog. Solid State Chem.*, 1971, **5**, 145, (*magnetism*)

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