



>>Entry Name: Manganese oxide (Mn₂O₃), 11Cl

Synonym(s): Dimanganese trioxide. Manganese sesquioxide. Cassel brown. C.I. 77727. Cologne earth. Rubens brown. Vandyke brown. Many other names

CAS Registry Number: 1317-34-6

Mn₂O₃

Molecular Formula: Mn₂O₃

Molecular Weight: 157.874

Accurate Mass: 157.860839

Percentage Composition: Mn 69.60%; O 30.40%

Use/Importance: High purity grades used in prod. of ferrites, thermistors and other electronic applications. Pigment

Physical Description: Insol. H₂O

Melting Point: Mp 871-887 dec.°

Aldrich: 37745-7

>>Variant: α-form

Molecular Formula: Mn₂O₃

Molecular Weight: 157.874

Accurate Mass: 157.860839

Percentage Composition: Mn 69.60%; O 30.40%

Source/Synthesis: Synth. by heating hydrated Mn(NO₃)₂ at 150-200° and then heating the product to constant weight at 600°. Above this temp. O₂ lost

Physical Description: Black cryst. Reacts with SO₂ when heated to give MnSO₄ and Mn₃O₄. With CO Mn₃O₄ and CO₂ formed

Other Data: μ_{eff} = 3.5μ_B (293K). Forms Mn₃O₄ when heated *in vacuo* at 300-500°. Antiferromagnetic *ca.* 80K

>>Variant: γ-form

Molecular Formula: Mn₂O₃

Molecular Weight: 157.874

Accurate Mass: 157.860839

Percentage Composition: Mn 69.60%; O 30.40%

Source/Synthesis: Synth. by heating γ-MnO₂ *in vacuo* at 500° or careful dehydration of γ-MnOOH

Physical Description: Brown or black

Other Data: Unstable and transforms to α-Mn₂O₃. μ_{eff} = 4.1μ_B (293K)

References:

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Norrestam, J.R., *Acta Chem. Scand.*, 1967, **21**, 2871, (*cryst struct*)

Grant, R.W. *et al.*, *Phys. Rev.*, 1968, **175**, 686, (*magnetism*)

Tandon, S.P. *et al.*, *Z. Angew. Phys.*, 1970, **29**, 164, (*uv*)

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White, W.B. *et al.*, *Spectrochim. Acta A*, 1972, **28**, 501, (*ir*)

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