



>>Entry Name: Manganese

CAS Registry Number: 7439-96-5

Related CAS Registry Numbers(s): 14127-69-6 14546-48-6 16397-91-4 19768-33-3 20574-97-4
Mn

Molecular Formula: Mn

Molecular Weight: 54.938

Accurate Mass: 54.938047

Percentage Composition: Mn 100.00%

spectroscopy. Polymorphic. Minerals used in glass making since time of the Pharoahs. First isol. by J.G. Gahn and I.G. Kaim in 1770. Abundance: 1060 ppm (earth's crust), traces (sea water)

Source/Synthesis: Main mineral is pyrolusite (MnO_2), but also known as manganite (hydrated Mn_2O_3), hausmanite (Mn_3O_4), rhodochrosite (MnCO_3) etc., and also as Mn nodules on sea-bed. Pure metal also obt. electrolytically from aq. solns. of salts, or of fused salts

Use/Importance: Essential element for both plants and animals. One of the least toxic trace elements. Used in steel making. Mn imparts strength, hardness and stiffness to aluminium containers and other alloys

Physical Description: Red, grey or silvery metal resembling iron, hard and brittle. Reacts with H_2O or steam to give H_2 . Oxidises superficially in air. Readily dissolves in dil. mineral acids to give Mn^{2+} aq. + H_2

Melting Point: Mp 1244° (1260°)

Boiling Point: Bp 2060° (1960°)

Other Data: Combines with C, Si, P, As, S

Hazard & Toxicity: Metal dust is flammable and mod. explosive. Ignites in F_2 , and reacts exothermically with Cl_2 . Human systems affected by dust inhalation. Irritant. Suspected carcinogen

Aldrich: 26616-7

Fluka: 63532

>>Variant: α -form

Molecular Formula: Mn

Molecular Weight: 54.938

Accurate Mass: 54.938047

Percentage Composition: Mn 100.00%

Physical Description: Brittle

Other Data: $\alpha \rightarrow \beta$ transition 720°

>>Variant: β -form

Molecular Formula: Mn

Molecular Weight: 54.938

Accurate Mass: 54.938047

Percentage Composition: Mn 100.00%

Physical Description: Brittle

Other Data: $\beta \rightarrow \gamma$ transition 1100°

>>Variant: γ -form

Molecular Formula: Mn

Molecular Weight: 54.938

Accurate Mass: 54.938047

Percentage Composition: Mn 100.00%

Physical Description: Ductile, quickly reverts to α -form unless kept at low temp. Stabilised by small amts. of Cu or Ni

Other Data: $\gamma \rightarrow \delta$ transition 1136°

>>Variant: δ -form

Molecular Formula: Mn

Molecular Weight: 54.938

Accurate Mass: 54.938047

Percentage Composition: Mn 100.00%