



>>Entry Name: Tin

Synonym(s): Stannum (L.)

CAS Registry Number: 7440-31-5

Related CAS Registry Numbers(s): 12597-39-6 15700-33-1 22537-50-4 22541-90-8 26288-30-2 53237-30-2
Sn

Molecular Formula: Sn

Molecular Weight: 118.71

Accurate Mass: 117.9022

Percentage Composition: Sn 100.00%

Essential trace element. Abundance: 2.1 ppm (earth's crust); 3×10^{-3} ppm (sea water)

Source/Synthesis: Cassiterite (SnO₂) is the only important ore, but other, sulfide ores e.g. stannite, sometimes worked. Oxide is smelted, the impure metal refined electrolytically

Use/Importance: Important as coatings and alloys, e.g. Bronzes (with Cu), *Pewter* (with Sb), and type metals (with Pb, Sb, Bi). Radioactive ¹¹⁰Sn used as a tracer

Melting Point: Mp 232°

Boiling Point: Bp 2625°

Aldrich: 24343-4

Fluka: 96523

Sigma: T1036

>>Variant: α-form

Synonym(s): Grey tin

Molecular Formula: Sn

Molecular Weight: 118.71

Accurate Mass: 117.9022

Percentage Composition: Sn 100.00%

Physical Description: Reacts with conc. HCl (aq.) → SnCl₄

Other Data: d²⁰ 5.77 g cm⁻³. Transforms into the β-form at 13.2°

>>Variant: β-form

Synonym(s): White tin

Molecular Formula: Sn

Molecular Weight: 118.71

Accurate Mass: 117.9022

Percentage Composition: Sn 100.00%

Physical Description: Soft, pliable, silvery-white metal. Reacts with conc. HCl (aq.) → SnCl₂. Unreactive to O₂ (film protection). Dissolves in acids and bases with liberation of H₂. Steam → H₂. Reacts with Cl₂, Br₂ in cold and F₂, I₂ on warming. Reacts vigorously with S, Se when heated

Other Data: d²⁰ 7.27g cm⁻³

>>Variant: Tin 108

CAS Registry Number: 24558-38-1

Source/Synthesis: Prod. from Cd (α,2n)

Other Data: *I* = +0. Decays by orbital electron capture or β⁽⁺⁾ emission to ¹⁰⁸In

>>Variant: Tin 111

CAS Registry Number: 15720-78-2

Source/Synthesis: Prod. from Cd (α,3n), or ¹¹²Sn (γ,n)

Other Data: *I* = + 7/2 ; μ = +0.61 μ_N. Decays by orbital electron capture or β⁽⁺⁾ emission to ^{111m}In

>>Variant: Tin 112

CAS Registry Number: 15125-53-8

Other Data: *I* = +0