



>>Entry Name: Iodine, JAN, USAN

Synonym(s): Diiodine

CAS Registry Number: 7553-56-2

Related CAS Registry Numbers(s): 12596-31-5 14362-44-8 14914-30-8 22541-93-1 25730-91-0

I₂

Molecular Formula: I

Molecular Weight: 126.905

Accurate Mass: 126.904473

Percentage Composition: I 100.00%

natural. Distribution: 0.46 ppm (earth's crust), 0.05 ppm (sea water)

Source/Synthesis: Occurs naturally e.g. thyroxine (animal world), and as iodates e.g. lauterite Ca(IO₃)₂ and AgI but also in Chile saltpetre as an iodate impurity. May be extracted from brines. Synth. from NaIO₃ treated with NaHSO₃. Prepd. also by oxidation of iodide salts. Some produced commercially by chlorination of brine

Use/Importance: Soln. in EtOH used a mild antiseptic. A laboratory reagent in organic chemistry. No large-scale commercial uses. ¹²³I₂ has applications in medical scintigraphy, inorganic analysis, and photography

Physical Description: Purple-black, lustrous flakes with penetrating odour. Sublimes slowly at r.t. Orthorhombic

Melting Point: Mp 113.6°

Boiling Point: Bp 185.2°

Solubility: Sl. sol. H₂O, more so in the presence of I⁽⁻⁾. Sol. many org. solvs.

Other Data: Forms adducts (charge transfer complexes) with org. liqs. which are coloured e.g. EtOH (deep brown), CCl₄ (violet), C₆H₆ (reddish brown). Forms blue colour with amylose

Hazard & Toxicity: Incompatible with a range of materials incl. C₂H₂, Al, NH₃, EtOH, HgO, O₂, Li, Mg, HCONH₂, Py, P, SO₃. OES: short-term 0.1 ppm. Eye, skin and mucous membrane irritant. Skin contact causes lesions and discolouration. Can cause hypersensitivity reactions

Aldrich: 22969-5

Fluka: 57667

Sigma: I8899

>>Variant: Iodine 121

CAS Registry Number: 15755-17-6

Source/Synthesis: Prod. from Sb (α,4n), ¹²²Te (d,3n), or by proton bombardment of La

Other Data: *I* = + 5/2 ; μ = 2.3 μ_N. Decays by β⁽⁺⁾ emission (13%) or orbital electron capture (87%) to ¹²¹Te

>>Variant: Iodine 122

CAS Registry Number: 18287-75-7

Source/Synthesis: Prod. from Sb (α,3n), Te (p,n), ¹²²Te (d,2n), or by proton bombardment of La. Daughter of ¹²²Xe

Other Data: *I* = +1; μ = 0.94 μ_N. Decays by β⁽⁺⁾ emission or orbital electron capture to ¹²²Te

>>Variant: Iodine 123

CAS Registry Number: 15715-08-9

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

Use/Importance: Used in diagnostic nuclear medicine

Other Data: *I* = + 5/2 ; μ = 2.82 μ_N. Decays by orbital electron capture to ¹²³Te

>>Variant: Iodine 124

CAS Registry Number: 14158-30-6

Source/Synthesis: Prod. from Sb (α,n), ²³Sb (α,3n), or proton bombardment of Te

Use/Importance: Used in diagnostic nuclear medicine

Other Data: *I* = -2; μ = 1.1 μ_N. Decays by β⁽⁺⁾ emission, or orbital electron capture to ¹²⁴Te

>>Variant: Iodine 125

CAS Registry Number: 14158-31-7