



>>Entry Name: Platinum

CAS Registry Number: 7440-06-4

Related CAS Registry Numbers(s): 20561-56-2 22541-31-7 22542-10-5
Pt

Molecular Formula: Pt

Molecular Weight: 195.08

Accurate Mass: 194.964766

Percentage Composition: Pt 100.00%

struct. Abundance: 0.01 ppm (earth's crust). First described by Dr. Brownrigg (1750) and Don Antonio de Ullva (1748)

Source/Synthesis: Obt. from waste from Cu and Ni ores. Occurs as native Pt, as sperrylite (PtAs₂). Metal may be obt. by heating (NH₄)₂PtCl₆

Use/Importance: V. many applications in catalysis, e.g. in H₂SO₄ manuf. and in petrochemicals industry, also in electronics, jewellery. Absorbs H₂, but less well than Pd. Absorbs O₂. Used in construction of specialised laboratory apparatus. May be sealed into glass

Physical Description: Silvery-white, lustrous, malleable and ductile metal. Unaffected by air or H₂O. 'Platinum-black' is velvety-black, finely divided, and this is attacked by O₂ at 500°. At 100° HBr, HI, Br₂, FeCl₃, NaCN (+ O₂) are sl. corrosive. No reaction with SO₂. Does not form an amalgam with Hg

Melting Point: Mp 1772°

Boiling Point: Bp 3827°

Solubility: Sol. aq. regia, HCl in air, fused alkali

Hazard & Toxicity: Spongy and other finely divided forms require care in handling. ¹⁹⁰Pt is an α emitter

Aldrich: 26726-0

Fluka: 80963

>>Variant: Platinum 184

CAS Registry Number: 14993-38-5

Source/Synthesis: Prod. from Yb (O,6n), or ¹⁹³Ir (p,10n)

Other Data: *I* = +0. Decays by orbital electron capture or β⁽⁺⁾ emission (99.999%) to ¹⁸⁴Ir, also by α emission (0.001%) to ¹⁸⁰Os

>>Variant: Platinum 186

CAS Registry Number: 14993-39-6

Source/Synthesis: Prod. by proton bombardment of Ir

Other Data: *I* = +0. Decays by orbital electron capture or β⁽⁺⁾ emission to ¹⁸⁸Ir, also by α emission (1.4 x 10⁻⁴ %) to ¹⁸²Os

>>Variant: Platinum 188

CAS Registry Number: 14922-70-4

Source/Synthesis: Prod. from Ir (p,4n)

Other Data: *I* = +0. Decays by orbital electron capture or β⁽⁺⁾ emission to ¹⁸⁸Ir, also by α emission (2.6 x 10⁻⁵ %) to ¹⁸⁴Os

>>Variant: Platinum 190

Other Data: *I* = +0. Decays by α emission to Os

>>Variant: Platinum 191

CAS Registry Number: 15706-36-2

Source/Synthesis: Prod. from Ir (d,2n), ¹⁹⁰Pt (n,γ), or by proton bombardment of Ir

Other Data: *I* = - 3/2 (value uncertain); μ = 0.50 μ_N. Decays by orbital electron capture or β⁽⁺⁾ emission to ¹⁹¹Ir

>>Variant: Platinum 192

CAS Registry Number: 14913-85-0

Other Data: *I* = +0