



>>Entry Name: Mercury

Synonym(s): Quicksilver. Hydrargyrum (L.)

CAS Registry Number: 7439-97-6

Related CAS Registry Numbers(s): 11062-37-6 12596-25-7 14302-87-5 22542-11-6

Hg

Molecular Formula: Hg

Molecular Weight: 200.59

Accurate Mass: 201.970617

Percentage Composition: Hg 100.00%

element (except noble gases) to have vap. which is almost entirely monatomic. No biological role. α -Hg(s) is rhombohedral and transforms into β -form (tetragonal) at high pressure. Abundance: 0.08 ppm (earth's crust), traces (sea water)

Source/Synthesis: Main ore is cinnebar (HgS) which is roasted to release Hg and S (as SO₂)

Use/Importance: Of historical importance e.g. used by Torricelli in his barometer (1643). Uniform rate of thermal expansion allows use in thermometers. Metal also used in electrolysis cells and in dental alloys; also batteries and cells. Alloys (amalgams) have laboratory applications. Other uses include street lighting. Good electrical conductor

Physical Description: Liq. at r.t. freezing to white solid. Colourless vap. When heated, reacts with O₂ (historically important reaction), S, halogens. Reacts with conc. HNO₃, but not with dil. non-oxidising acids

Melting Point: Mp -38.9°

Boiling Point: Bp 357°

Hazard & Toxicity: Metal has appreciable vap. pressure (0.0019 mm at 25°) and vap. is poisonous

Aldrich: 21545-7

Fluka: 83359

>>Variant: Mercury 190

CAS Registry Number: 14922-73-7

Source/Synthesis: Prod. from Au (p,8n)

Other Data: $I = +0$. Decays by orbital electron capture or $\beta^{(+)}$ emission to ¹⁹⁰Au

>>Variant: Mercury 191

CAS Registry Number: 29956-69-2

Source/Synthesis: Prod. by proton bombardment of Pb. Daughter of ¹⁹¹Tl

Other Data: $I = -3/2$ (value uncertain); $\mu = -0.62 \mu_N$. Decays by orbital electron capture or $\beta^{(+)}$ emission to ¹⁹¹Au

>>Variant: Mercury 191m

Source/Synthesis: Prod. from Au (p,7n), or ¹⁹⁷Au (d,8n)

Other Data: $I = +13/2$; $\mu = -1.07 \mu_N$. Decays by orbital electron capture (94%) or $\beta^{(+)}$ emission (6%) to ¹⁹¹Au

>>Variant: Mercury 192

CAS Registry Number: 15715-06-7

Source/Synthesis: Prod. from Au (p,6n), or by proton bombardment of Pb

Other Data: $I = +0$. Decays by orbital electron capture or $\beta^{(+)}$ emission to ¹⁹²Au

>>Variant: Mercury 193

CAS Registry Number: 15116-82-2

Source/Synthesis: Prod. from Au (p,5n), or by proton bombardment of Pb

Other Data: $I = -3/2$; $\mu = -0.6276 \mu_N$. Decays by orbital electron capture or $\beta^{(+)}$ emission to ¹⁹³Au

>>Variant: Mercury 193m

Source/Synthesis: Prod. from Au (p,5n)

Other Data: $I = +13/2$; $\mu = -1.05843 \mu_N$. Decays by orbital electron capture or $\beta^{(+)}$ emission (92%) to ¹⁹³Au, also by isomeric transition (8%) to ¹⁹³Hg

>>Variant: Mercury 194