



>>Entry Name: Argon

CAS Registry Number: 7440-37-1

Related CAS Registry Numbers(s): 11130-84-0 12595-59-4 12650-44-1 14343-01-2 14791-69-6 14864-12-1 15056-24-3 15099-26-0 15801-88-4 16249-22-2 16740-17-3 16904-17-9 16941-40-5 16941-44-9 17428-37-4 17596-58-6 18973-74-5 20499-74-5 26603-53-2 34247-59-1 37352-46-8 61762-54-7
Ar

Molecular Formula: Ar

Molecular Weight: 39.948

Accurate Mass: 39.962384

Percentage Composition: Ar 100.00%

General Statement: Atomic No. 18. Ground state electron config. [Ne]3s²3p⁶. Discovered in air in 1894 by Sir W. Ramsey and M.W. Travers. There are 8 isotopes of which 3 are natural. Abundance: 9300 ppm in air (by vol.). Solid state struct. is ccp or hcp (metastable)

Source/Synthesis: Obt. by fractionation of liq. air

Use/Importance: Used as inert atmosphere, particularly in welding; as gas fill for electric light bulbs, discharge tubes, and lasers. Commercially available

Physical Description: Colourless, odourless, tasteless, monatomic gas. Forms no true chemical compds. Forms clathrates with H₂O and hydroquinone. Forms complex with HBr

Melting Point: Mp -189.4°

Boiling Point: Bp -185.9°

Solubility: Sol. H₂O (33.6 cm³ kg⁻¹ at 20°)

Other Data: Forms clathrate compds. with phenols

Aldrich: 29500-0

>>Variant: Argon 35

CAS Registry Number: 14952-24-0

General Statement: Radioactive, *t*_{1/2} 1.775 s

Source/Synthesis: Prod. from ³²S (α,n), or ³⁵Cl (p,n)

Other Data: *I* = + 3/2 ; μ = +0.633 μ_N. Decays by orbital electron capture or β⁽⁺⁾ emission to ³⁵Cl

>>Variant: Argon 36

CAS Registry Number: 13965-95-2

General Statement: Stable. Representative abundance 0.3365 atom % (in air)

Other Data: *I* = +0

>>Variant: Argon 37

CAS Registry Number: 13994-71-3

General Statement: Radioactive, *t*_{1/2} 35.0 d

Source/Synthesis: Prod. from ³⁷Cl (p,n), ³⁷Cl (d,2n), ³⁴S (α,n), ³⁹K (d,α), ⁴⁰Ca (n,α), or ³⁶Ar (n, γ)

Other Data: *I* = + 3/2 ; μ = 1.15 μ_N. Decays by orbital electron capture to ³⁵Cl

>>Variant: Argon 38

CAS Registry Number: 13994-72-4

General Statement: Stable. Representative abundance 0.0632 atom % (in air)

Other Data: *I* = +0

>>Variant: Argon 39

CAS Registry Number: 25729-41-3

General Statement: Radioactive, *t*_{1/2} 268 y

Source/Synthesis: Prod. by neutron bombardment of KCl, or from ³⁸Ar (n,γ)

Use/Importance: ³⁹Ar used for radiometric dating. ³⁹Ar/⁴⁰Ar used for radiometric dating of geological samples

Other Data: *I* = - 7/2 ; μ = -1.3 μ_N. Decays by β⁽⁻⁾ emission to ³⁹K

>>Variant: Argon 40

General Statement: Stable. Representative abundance 99.6003 atom % (in air)

Use/Importance: ⁴⁰K/⁴⁰Ar used for radiometric dating of geological samples

Other Data: *I* = +0