

**SELECTED INTERNATIONAL ATOMIC WEIGHTS AND PREPARATION OF
STANDARD SOLUTIONS**

Element		Atomic Mass	Standard Solution	
Aluminium	(Al)	26.98	1.759 dm ⁻³ Al ₂ (SO ₄) ₃	100µg cm ⁻³ Al
Antimony	(Sb)	121.76	0.100g Sb in 25cm ³ hot conc. H ₂ SO ₄ and dilute to 100cm ³ . Make up to 1dm ³ with 1:3 H ₂ SO ₄	100µg cm ⁻³ Sb
Arsenic	(As)	74.91	1.320g As ₂ O ₃ in 500 cm ³ water 10cm ³ 35% w/v NaOH. Neutralise with H ₂ SO ₄ and dilute to 1dm ³	1000µg cm ⁻³ As
Barium	(Ba)	137.36	0.1779g dm ⁻³ BaCl ₂ .2H ₂ O	100µg cm ⁻³ Ba
Beryllium	(Be)	9.01	By dilution of standard BeCl ₂ solution.	
Bismuth	(Bi)	209.00	0.2321g Bi(NO ₃) ₃ .5H ₂ O in 5cm ³ 1:10 HNO ₃ and dilute to 1 dm ³	100µg cm ⁻³ Bi
Boron	(B)	10.82	0.5716g dm ⁻³ H ₃ B ₃	100µg cm ⁻³ B
Bromine	(Br)	79.92	0.1489g dm ⁻³ KBr	100µg cm ⁻³ Br
Cadmium	(Cd)	112.41	0.1631g dm ⁻³ CdCl ₂ (anhyd.)	100µg cm ⁻³ Cd
Caesium	(Cs)	132.91	0.1267g dm ⁻³ CsCl	100µg cm ⁻³ Cs
Calcium	(Ca)	40.08	0.2497 dry CaCO ₃ in 5cm ³ HCl; boil out CO ₂ and dilute to 1dm ³	100µg cm ⁻³ Ca
Carbon	(C)	12.01		
Cerium	(Ce)	140.13	0.1228g CeO ₂ in 10cm ³ 1:2 H ₂ SO ₄ with heat. Dilute to 1 dm ³	100µg cm ⁻³ Ce
Chlorine	(Cl)	35.46	0.1648g dm ⁻³ NaCl	100µg cm ⁻³ Cl
Chromium	(Cr)	52.01	0.283g dm ⁻³ dry K ₂ Cr ₂ O ₇	100µg cm ⁻³ Cr
Cobalt	(Co)	58.94	0.2630g dry CoSO ₄ in 50cm ³ water plus 1 cm ³ conc. H ₂ SO ₄ . Dilute to 1 dm ³	100µg cm ⁻³ Co
Copper	(Cu)	63.54	0.1964g dm ⁻³ CuSO ₄ .5H ₂ O	100µg cm ⁻³ Cu
Fluorine	(F)	19.00	0.211g dm ⁻³ NaF	100µg cm ⁻³ F
Germanium	(Ge)	72.60	0.1441g GeO ₂ in water. Add a few drops 12% NaOH, dilute, neutralize with 1:1 HCl, add drops HCl in excess and dilute to 100 cm ³	100µg cm ⁻³ Ge
Gold	(Au)	197.00	0.1008g Na chloroaurate in 25 cm ³ 1.0M HCl; dilute to 500cm ³	100µg cm ⁻³ Au
Hydrogen	(H)	1.01		
Iodine	(I)	126.91	0.1308g dm ⁻³ KI	100µg cm ⁻³ I
Iron	(Fe)	55.85	0.7022g dm ⁻³ ammonium iron(III) sulphate plus 5cm ³ H ₂ SO ₄	100µg cm ⁻³ Fe
Lead	(Pb)	207.21	0.1599g Pb(NO ₃) ₂ in 1% HNO ₃ and dilute to 1dm ³	100µg cm ⁻³ Pb
Lithium	(Li)	6.94	0.6109g dm ⁻³ LiCl	100µg cm ⁻³ Li
Magnesium	(Mg)	24.32	1.0131g dm ⁻³ MgSO ₄ .7H ₂ O	100µg cm ⁻³ Mg
Manganese	(Mn)	54.94	0.3076g dm ⁻³ dry MnSO ₄	100µg cm ⁻³ Mn
Mercury	(Hg)	200.61	0.1354g dm ⁻³ HgCl ₂	100µg cm ⁻³ Hg
Molybdenum	(Mo)	95.95	0.150g MoO ₂ in 10cm ³ 1.0M NaOH, acidify with HCl and dilute to 1dm ³	100µg cm ⁻³ Mo
Nickel	(Ni)	58.71	0.4479g dm ⁻³ NiSO ₄ .6H ₂ O	100µg cm ⁻³ Ni
Nitrogen	(N)	14.01	0.236g dm ⁻³ (NH ₄) ₂ SO ₄ 0.361g dm ⁻³ KNO ₃ 0.246g dm ⁻³ NaNO ₂	50µg cm ⁻³ NH ₄ -N 50µg cm ⁻³ NO ₂ -N 50µg cm ⁻³ NO ₂ -N
Oxygen	(O)	16.00		
Phosphorus	(P)	30.98	0.2195g dry KH ₂ PO ₄ in 700cm water plus 25 cm ³ 3.5M H ₂ SO ₄ dilute to 1 dm ³	50µg cm ⁻³ P

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ELEMENT		Atomic Mass	Standard Solution	
Platinum	(Pt)	195.09	0.1000g cleaned Pt in 1:3 HNO ₃ HCl. Evaporate nearly dry, and add 10cm ³ HCl and 0.06g NaCl. Re-evaporate and dilute to 1dm ³	100µg cm ⁻³ Pt
Potassium	(K)	39.10	0.1907g dm ⁻³ KCl	100µg cm ⁻³ K
Rubidium	(Rb)	85.48	0.1415g dm ⁻³ RbCl	100µg cm ⁻³ Rb
Selenium	(Se)	78.96	0.1404g dm ⁻³ SeQ ₂	100µg cm ⁻³ Se
Silicon	(Si)	28.09	By dilution of analyzed sodium silicate solution	
Silver	(Ag)	107.88	0.1575g dm ⁻³ AgNO ₃	100µg cm ⁻³ Ag
Sodium	(Na)	22.99	0.2541g dm ⁻³ NaCl	1000µg cm ⁻³ Na
Strontium	(Sr)	87.63	0.2415g dm ⁻³ Sr(NO ₃) ₂ anhyd	100µg cm ⁻³ Sr
Sulphur	(S)	32.07	0.5370g dm ⁻³ CaSO ₄ .2H ₂ O	100µg cm ⁻³ S
Tellurium	(To)	127.61	0.1250g dm ⁻³ TeO ₂	100µg cm ⁻³ Te
Thallium	(TI)	204.39	0.1304g dm ⁻³ TINO ₃	100µg cm ⁻³ TI
Thorium	(Th)	232.05	0.2379g dm ⁻³ Th(NO ₃) ₄ .4H ₂ O	100µg cm ⁻³ Th
Tin	(Sn)	118.70	1.000g Sn in 100cm ³ 1:1 HCl and dilute to 1dm ³ with 1:1 HCl	1000µg cm ⁻³ Sn
Titanium	(Ti)	47.90	0.1668g TiO ₂ fused with K pyrosulphate. Dissolve in 6M HCl and dilute to 1dm ³	100µg cm ⁻³ Ti
Tungsten	(W)	183.86	0.18g dm ⁻³ Na ₂ WO ₄ .2H ₂ O	100µg cm ⁻³ W
Uranium	(U)	238.07	By dilution of analyzed uranyl nitrate solution	
Vanadium	(V)	50.95	0.2295g NH ₄ VO ₃ in 100 cm ³ water plus 15cm ³ 1:1 HNO ₃ . Dilute to 1dm ³	100µg cm ⁻³ V
Zinc	(Zn)	65.38	0.100g Zn in 50cm ³ water plus 1 cm ³ conc. H ₂ SO ₄ and dilute to 1dm ³	100µg cm ⁻³ Zn
Zirconium	(Zr)	91.22	By dilution of standardized zirconium nitrate solution	