CATHOLIC SECONDARY SCHOOLS ASSOCIATION CHEMISTRY DATA SHEET

Avogadro's constant, NA		$6.022 \times 10^{23} \text{ mol}^{-1}$
Volume of 1 mole ideal gas: at 1		
-	at 0°C (273 K)	22.71 L
8	at 25°C (298 K)	24.79 L
Ionisation constant for water at 2	25°C (298.15 K), K w	1.0 ×10 ⁻¹⁴
Specific heat capacity of water		$4.18 \times 10^3 \text{ J kg}^{-1} \text{ K}^{-1}$

Some useful formulae

$$pH = -log_{10} [H^+]$$
 $\Delta H = -mC\Delta T$

Some standard potentials

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$K^+ + e^-$	\rightleftharpoons	$\mathbf{K}_{(s)}$	-2.94 V
$Ba^{2+} + 2e^{-}$	\rightleftharpoons	$Ba_{(s)}$	−2.91 V
$Ca^{2+} + 2e^{-}$	\rightleftharpoons	$Ca_{(s)}$	−2.87 V
$Na^+ + e^-$	\rightleftharpoons	$Na_{(s)}$	−2.71 V
$Mg^{2+} + 2e^{-}$	\rightleftharpoons	$Mg_{(s)}$	-2.36 V
$Al^{3+} + 3e^{-}$	\rightleftharpoons	$Al_{(s)}$	-1.68 V
$Mn^{2+} + 2e^{-}$	\rightleftharpoons	$Mn_{(s)}$	-1.18 V
$H_2O + e^-$	\rightleftharpoons	$^{1}/_{2}$ $H_{2(g)} + OH^{-}$	−0.83 V
$Zn^{2+} + 2e^{-}$	\rightleftharpoons	$Zn_{(s)}$	−0.76 V
$Fe^{2+} + 2e^{-}$	\rightleftharpoons	$Fe_{(s)}$	-0.44 V
$Ni^{2+} + 2e^{-}$	\rightleftharpoons	$Ni_{(s)}$	-0.24 V
$Sn^{2+} + 2e^{-}$	\rightleftharpoons	$\mathrm{Sn}_{(s)}$	-0.14 V
$Pb^{2+} + 2e^{-}$	\rightleftharpoons	$Pb_{(s)}$	−0.13 V
$H^+ + e^-$	\rightleftharpoons	½ H _{2(g)}	0.00 V
$SO_4^{2-} + 4H^+ + 2e^-$	\rightleftharpoons	$SO_{2(aq)} + 2H_2O$	0.16 V
$Cu^{2+} + 2e^{-}$	\rightleftharpoons	$Cu_{(s)}$	0.34 V
$\frac{1}{2} O_{2(g)} + H_2 O + 2e^{-}$	\Rightarrow	2OH ⁻	0.40 V
$Cu^+ + e^-$	\rightleftharpoons	$Cu_{(s)}$	0.52 V
$\frac{1}{2} I_{2(s)} + e^{-}$	\rightleftharpoons	I^-	0.54 V
$\frac{1}{2} I_{2(aq)} + e^{-}$	\rightleftharpoons	Γ	0.62 V
$Fe^{3+} + e^{-}$	\rightleftharpoons	Fe ²⁺	0.77 V
$Ag^+ + e^-$	\rightleftharpoons	$Ag_{(s)}$	0.80 V
$^{1}/_{2} Br_{2(l)} + e^{-}$	\rightleftharpoons	Br ⁻	1.08 V
$^{1/_{2}} Br_{2(aq)} + e^{-}$	\rightleftharpoons	Br ⁻	1.10 V
$^{1/2}$ $O_{2(g)} + 2H^{+} + 2e^{-}$	\rightleftharpoons	H_2O	1.23 V
$\frac{1}{2} \text{Cl}_{2(g)} + e^{-}$	\rightleftharpoons	Cl¯	1.36 V
$^{1/2}$ Cr ₂ O ₇ ²⁻ + 7H ⁺ + 36	e¯ ≕	$Cr^{3+} + \frac{7}{2}H_2O$	1.36 V
$\frac{1}{2} \text{Cl}_{2(aq)} + e^{-}$	\rightleftharpoons		1.40 V
$MnO_4^- + 8H^+ + 5e^-$		$Mn^{2+} + 4H_2O$	1.51 V
$\frac{1}{2} F_{2(g)} + e^{-}$	\rightleftharpoons	F^-	2.89 V

1.008 Hydrogen Lithium Be Lithium Be Lithium Be-yllium Lithium Be-yllium Lithium Be-yllium Lithium Lithium Serandium Calcium	ABLE He He 4.003 Helium	5 6 7 8 9 B C N 0 F	10.81 12.01 14.01 16.00 19.00 20.18 Boron Curbon Nitrogen Oxygen Fluorine Noon	14 15 16 17 Si P S CI	26.98 28.09 30.97 32.07 35.45 39.95 Argon Alaminium Silicon Phosphorus Sulfar Chlorine Argon	29 30 31 32 33 34 35 Cu Zn Ga Ge As Se Br	63.55 65.39 69.72 72.61 74.92 78.96 79.90	Copper Zine Gallium Germanium Arsenic Selenium Bromine	47 Ag	107.9 112.4 114.8 118.7 121.8 127.6 126.9	70 00 01 00 00 05	Au Hg Tl Pb Bi Po At	197.0 200.6 204.4 207.2	Gold Mercury Thallium Load Bismuth Polonium Astatine	Unu Uub Uup Uuq Uuh		nilium Ununnium Ununbium Ununberium Ununbezium Ununbezium
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4 Be 9.012 Berytlium 12 Mg 24.31 Magnesium 20 Ca Sc 44.96 Calcium Scandium 38 Sr Y 87.62 Sr Y 87.62 Sr St 137.3 Ba 137.3 Barium Vartium 137.3 Barium Lanthanides 88 89–103 Radium Actinides						23 <	50.94	Vanadium	4 \q	92.91	Nioden	Z EI	180.9	Tantalum	105 De		_
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						S ₂₁	44.96	Scandium	39 Y	88.91	Yttmum	2/-/1		Lanthanides	89-103		Actinides
1 H H Hydrogen 1.008 Hydrogen 3 Li 6.941 Lithium 111 Na 22.99 Sodium 19 K A 39.10 Potassium 37 Rb 85.47 Rabidium 55 Cs 132.9 Caestium 87 Fr Fr Francium Francium Francium		1	9.012 Beryllium	12 Mg	24.31 Magnesium	85	40.08	Calcium	% % %	87.62	Strontum	 B	137.3	Barium	æ2	[226.0]	Radium
	1 H 1.008 Hydrogen	E. 3	6.941 Lithium	II S	22.99 Sodium	65 X	39.10	Potassium	37 86	85.47	Kubidium	కర	132.9	Cacsium	87 Fr	[223.0]	Francium

Lanthanid	cs													
57	58	59	09	19	62	63	2	65	99	1.9	89	69	0/	71
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138.9	140.1	140.9	144.2	[146.9]	150.4	152.0	157.3	158.9	162.5	164.9	167.3	168.9	173.0	175.0
Lanthanum	Cerium	Prascodymium	Neodymium	Promethium	Samaniam	Europium	Gadolinium	Torbium	Dysprosium	Holmium	Erbium	Thulium	Yttcrbium	Lutctium

Actinid	Sa													
88	6	91	92	93	94	95	96	97	86	66	8	101	102	103
Ac	Ҵ	Pa	ב	å	Z	Am	Cm	Bķ	Ç	Es	Fin	Md	å	L
[227.0]	1 232.0	231.0	238.0	[237.0]	[239.1]	[241.1]	[244.1]	[249.1]	[252.1]	[252.1]	[257.1]	[258.1]	[259.1]	[262.1]
Actinium		Protactinium	Uranium	Neptunium	Plutonium	Americium	Carium	Berkelium	Californium	Einsteinium	Fermium	Mendelevium	Nobelium	Lawrencium