

Chemistry Reference Sheet

1
1A

1
H
Hydrogen
1.01

2
2A

3
Li
Lithium
6.94

4
Be
Beryllium
9.01

11
Na
Sodium
22.99

12
Mg
Magnesium
24.31

3
3B

4
4B

5
5B

6
6B

7
7B

8
8B

9
8B

10
8B

11
1B

12
2B

13
3A

14
4A

15
5A

16
6A

17
7A

18
8A

18
He
Helium
4.00

2
2A

3
Li
Lithium
6.94

4
Be
Beryllium
9.01

5
B
Boron
10.81

6
C
Carbon
12.01

7
N
Nitrogen
14.01

8
O
Oxygen
16.00

9
F
Fluorine
19.00

10
Ne
Neon
20.18

11
Na
Sodium
22.99

12
Mg
Magnesium
24.31

13
Al
Aluminum
26.98

14
Si
Silicon
28.09

15
P
Phosphorus
30.97

16
S
Sulfur
32.07

17
Cl
Chlorine
35.45

18
Ar
Argon
39.95

19
K
Potassium
39.10

20
Ca
Calcium
40.08

21
Sc
Scandium
44.96

22
Ti
Titanium
47.87

23
V
Vanadium
50.94

24
Cr
Chromium
52.00

25
Mn
Manganese
54.94

26
Fe
Iron
55.85

27
Co
Cobalt
58.93

28
Ni
Nickel
58.69

29
Cu
Copper
63.55

30
Zn
Zinc
65.39

31
Ga
Gallium
69.72

32
Ge
Germanium
72.61

33
As
Arsenic
74.92

34
Se
Selenium
78.96

35
Br
Bromine
79.90

36
Kr
Krypton
83.80

37
Rb
Rubidium
85.47

38
Sr
Strontium
87.62

39
Y
Yttrium
88.91

40
Zr
Zirconium
91.22

41
Nb
Niobium
92.91

42
Mo
Molybdenum
95.94

43
Tc
Technetium
(98)

44
Ru
Ruthenium
101.07

45
Rh
Rhodium
102.91

46
Pd
Palladium
106.42

47
Ag
Silver
107.87

48
Cd
Cadmium
112.41

49
In
Indium
114.82

50
Sn
Tin
118.71

51
Sb
Antimony
121.76

52
Te
Tellurium
127.60

53
I
Iodine
126.90

54
Xe
Xenon
131.29

55
Cs
Cesium
132.91

56
Ba
Barium
137.33

57
La
Lanthanum
138.91

72
Hf
Hafnium
178.49

73
Ta
Tantalum
180.95

74
W
Tungsten
183.84

75
Re
Rhenium
186.21

76
Os
Osmium
190.23

77
Ir
Iridium
192.22

78
Pt
Platinum
195.08

79
Au
Gold
196.97

80
Hg
Mercury
200.59

81
Tl
Thallium
204.38

82
Pb
Lead
207.2

83
Bi
Bismuth
208.98

84
Po
Polonium
(209)

85
At
Astatine
(210)

86
Rn
Radon
(222)

87
Fr
Francium
(223)

88
Ra
Radium
(226)

89
Ac
Actinium
(227)

104
Rf
Rutherfordium
(261)

105
Db
Dubnium
(262)

106
Sg
Seaborgium
(266)

107
Bh
Bohrium
(264)

108
Hs
Hassium
(269)

109
Mt
Meitnerium
(268)

11

Na

Sodium

22.99

Atomic number

Element symbol

Element name

Average atomic mass*

* If this number is in parentheses, then it refers to the atomic mass of the most stable isotope.

58 Ce Cerium 140.12	59 Pr Praseodymium 140.91	60 Nd Neodymium 144.24	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 151.96	64 Gd Gadolinium 157.25	65 Tb Terbium 158.93	66 Dy Dysprosium 162.50	67 Ho Holmium 164.93	68 Er Erbium 167.26	69 Tm Thulium 168.93	70 Yb Ytterbium 173.04	71 Lu Lutetium 174.97
90 Th Thorium 232.04	91 Pa Protactinium 231.04	92 U Uranium 238.03	93 Np Neptunium (237)	94 Pu Plutonium (244)	95 Am Americium (243)	96 Cm Curium (247)	97 Bk Berkelium (247)	98 Cf Californium (251)	99 Es Einsteinium (252)	100 Fm Fermium (257)	101 Md Mendelevium (258)	102 No Nobelium (259)	103 Lr Lawrencium (262)

Formulas

Ideal Gas Law: $PV = nRT$

Combined Gas Law: $\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$

Pressure Formula: $P = \frac{F}{A}$

Mass-Energy Formula: $E = mc^2$

Calorimetric Formulas –

No Phase Change: $Q = m(\Delta T)C_p$

Latent Heat of Fusion: $Q = m\Delta H_{\text{fus}}$

Latent Heat of Vaporization: $Q = m\Delta H_{\text{vap}}$

Constants

Volume of Ideal Gas at STP: $22.4 \frac{\text{L}}{\text{mol}}$

Speed of Light in a Vacuum: $c = 3.00 \times 10^8 \frac{\text{m}}{\text{s}}$

Specific Heat of Water: $C_p(\text{H}_2\text{O}) = 1.00 \frac{\text{cal}}{(\text{g } ^\circ\text{C})} = 4.18 \frac{\text{J}}{(\text{g } ^\circ\text{C})}$

Latent Heat of Fusion of Water: $\Delta H_{\text{fus}}(\text{H}_2\text{O}) = 80 \frac{\text{cal}}{\text{g}} = 334 \frac{\text{J}}{\text{g}}$

Latent Heat of Vaporization of Water: $\Delta H_{\text{vap}}(\text{H}_2\text{O}) = 540 \frac{\text{cal}}{\text{g}} = 2260 \frac{\text{J}}{\text{g}}$

Unit Conversions

Calorie-Joule Conversion: $1 \text{ cal} = 4.184 \text{ J}$

Absolute Temperature Conversion: $\text{K} = ^\circ\text{C} + 273$

Pressure Conversions: $1 \text{ atm} = 760 \text{ mm Hg} = 760 \text{ Torr} = 101.325 \text{ kPa} = 14.7 \frac{\text{lbs.}}{\text{in.}^2} = 29.92 \text{ in. Hg}$