

Chemistry Conversion Factors and Constants

METRIC CONVERSION FACTORS

Prefix	Abbreviation	Conversion Factor		For Example...	For Example...
Mega-	M	1000000	10^6	1 Megabyte = 1×10^6 bytes	1 byte = 10^{-6} Megabytes
kilo-	k	1000	10^3	1 kilometer = 1000 meters	1 meter = 0.001 kilometers
deci-	d	0.1	10^{-1}	1 deciliter = 0.1 liters	1 liter = 10 deciliters
centi-	c	0.01	10^{-2}	1 centimeter = 0.01 meters	1 meter = 100 centimeters
milli-	m	0.001	10^{-3}	1 milliliter = 0.001 liters	1 liter = 1000 milliliters
micro-	μ	0.000001	10^{-6}	1 microgram = 10^{-6} grams	1 gram = 10^6 micrograms
nano	n	0.000000001	10^{-9}	1 nanometer = 10^{-9} meters	1 meter = 10^9 nanometers
pico	p	0.000000000001	10^{-12}	1 picometer = 10^{-12} meters	1 meter = 10^{12} picometers

OTHER CONVERSION FACTORS AND CONSTANTS

Weight/Mass 16 ounces = 1 pound 1 kilogram = 2.2 pounds 454 grams = 1 pound 1 ton = 2000 pounds	Volume 1 liter = 1.0567 quarts 1 mL = 1 cm ³ 1 gallon = 3.78 liters 1 gallon = 4 quarts = 128 fluid ounces 1 quart = 2 pints = 32 fluid ounces 1 pint = 2 cups = 16 fluid ounces	Length/Distance 1 inch = 2.54 centimeters 1 mile = 5280 feet = 1.609 kilometers 1 yard = 3 feet = 36 inches = 0.9144 meters 1 meter = 39.37 inches = 3.281 feet = 1.094 yards 1 kilometer = 1094 yards = 0.6215 miles
Density of Water: 1.00 g/mL		Energy: 1 cal = 4.184 J
Time 1 year = 365 days = 12 months = 52 weeks 1 day = 24 hours 1 hour = 60 minutes 1 minute = 60 seconds		Temperature $^{\circ}\text{C} = \frac{5}{9} (^{\circ}\text{F} - 32) \quad \text{and} \quad ^{\circ}\text{F} = \left(^{\circ}\text{C} \cdot \frac{9}{5} \right) + 32$ Kelvins = $^{\circ}\text{C} + 273.15$
Pressure Units: 1 atm = 760 mmHg = 101.325 kPa = 101325 Pa = 1.01325 bar = 14.7 psi = 29.92 inches Hg		
Useful Constants: Avogadro's Number (N_A) = 6.02×10^{23} items / mole Ideal Gas Constant (R) = $0.0821 \frac{\text{L} \cdot \text{atm}}{\text{mol} \cdot \text{K}}$		Speed of Light (c) = 3.00×10^8 m/s Planck's Constant (h) = 6.63×10^{-34} J • s