

Chemistry 104 Formulas and Relationships

Mass: 454 g = 1 lb = 16 oz; 2000 lb = 1 ton

Volume: 0.9464 L = 1 qt = 2 pt = 32 fl oz = 0.25 gallons; 1 cm³ = 1 mL

Distance: 12 inch = 1 foot; 2.54 cm = 1 inch; 1.61 km = 1 mile = 5280 feet

$$1.8(^{\circ}\text{C}) + 32 = ^{\circ}\text{F}$$

$$^{\circ}\text{C} + 273.15 = \text{K}$$

$$1 \text{ mol} = 6.02 \times 10^{23} \text{ particles}$$

$$\text{Heat} = (SH)(m)(\Delta T)$$

$$\text{amount remaining} = \text{initial amount}(0.5)^n$$

Polyatomic ion	Formula	Greek Prefix	Meaning
ammonium	NH ₄ ⁺¹	mono	one
acetate	CH ₃ CO ₂ ⁻¹	di	two
carbonate	CO ₃ ²⁻	tri	three
chlorate	ClO ₃ ⁻¹	tetra	four
hydroxide	OH ⁻¹	penta	five
nitrate	NO ₃ ⁻¹	hexa	six
phosphate	PO ₄ ⁻³	hepta	seven
phosphite	PO ₃ ⁻³	octa	eight
sulfate	SO ₄ ⁻²	nona	nine
sulfite	SO ₃ ⁻²	deca	ten

Gases:

Standard Temperature and Pressure (STP): 273 K, 1.00 atm = 760 mm Hg

At STP, 1.00 mol of gas = 22.4 L

$$PV = nRT; PM = dRT; R = 0.0821 \text{ L atm / mol K}; \quad \frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$$

Helpful metrics

G	10 ⁹
M	10 ⁶
k	10 ³
d	10 ⁻¹
c	10 ⁻²
m	10 ⁻³
μ	10 ⁻⁶
n	10 ⁻⁹
p	10 ⁻¹²