

Common Chemistry Conversions

English to Metric Conversions

The mass, length, volume, and area conversions are given to 4 significant figures. The temperature conversions are exact.

Mass	Length	Volume	Area	Temperature
1 lb = 453.6 g	1 in. = 2.540 cm	1 fl oz = 29.57 mL	1 in. ² = (2.54 cm) ² = 6.452 cm ²	$T_{\text{C}} = \frac{5}{9}(T_{\text{F}} - 32)$
1 oz = 28.35 g	1 ft = 30.48 cm	1 L = 1.057 qt	1 m ² = (3.281 ft) ² = 10.76 ft ²	$T_{\text{F}} = \frac{9}{5}T_{\text{C}} + 32$
1 kg = 2.205 lb	1 m = 3.281 ft	1 gal = 3.785 L		$T_{\text{K}} = T_{\text{C}} + 273.15$
1 metric ton = 1000 kg	1 mi = 1.609 km	1 in ³ = (2.54 cm) ³ = 16.39 cm ³		

English to English Conversions. All of these conversions are exact.

Mass	Length	Volume	Area
1 lb = 16 oz	1 ft = 12 in.	1 cup = 8 fl oz	1 ft ² = (12 in) ² = 144 in. ²
1 ton = 2000 lb	1 yd = 3 ft	1 pt = 2 cups	1 mi ² = 640 acres
	1 mi = 5280 ft	1 qt = 2 pt	
		1 gal = 4 qt	

Other Conversions

Energy	Pressure
1 cal = 4.184 J	1 atm = 760 mm Hg = 760 torr = 29.92 in. Hg
1 J = 1 $\frac{\text{kg}\cdot\text{m}^2}{\text{s}^2}$	1 atm = 14.7 psi = 101,325 Pa = 1.01325 bars
	1 Pa = 1 $\frac{\text{kg}}{\text{m}\cdot\text{s}^2}$

Constants

speed of light (in a vacuum)	$c = 2.998 \times 10^8 \text{ m/s}$
Planck's constant	$h = 6.626 \times 10^{-34} \text{ J}\cdot\text{s}$
electron mass	$m_e = 9.109 \times 10^{-31} \text{ kg}$
proton mass	$m_p = 1.673 \times 10^{-27} \text{ kg}$
neutron mass	$m_n = 1.675 \times 10^{-27} \text{ kg}$
Avogadro's number	$N_A = 6.0221367 \times 10^{23} \text{ particles/mol}$
Gas Constant	$R = 0.08206 \frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}}$ $= 8.315 \frac{\text{J}}{\text{mol}\cdot\text{K}}$ $= 8.315 \frac{\text{kPa}\cdot\text{dm}^3}{\text{mol}\cdot\text{K}}$
Faraday Constant	$F = 9.65 \times 10^4 \text{ C/mol}$
Electronic charge	$e = 1.602 \times 10^{-19} \text{ C}$