

Conversion Factors (continued)

Weight

	To Obtain					
	gms	kg	mg	oz*	lbs*	tons (short, U.S.)
Multiply	By					
gms	—	0.001	1000	0.0352740	0.0022046	1.102 x 10 ⁻⁶
kg	1000	—	1,000,000	35.273962	2.2046226	0.0011023
mg	0.001	0.000001	—	3.5274 x 10 ⁻⁵	2.2046 x 10 ⁻⁶	1.102 x 10 ⁻⁹
oz*	28.34952	0.0283495	28,349.5	—	0.0625	3.125 x 10 ⁻⁵
lbs*	453.59237	0.4535924	453,592	16	—	0.0005
tons (short, U.S.)	907,185	907.18474	9.07185 x 10 ⁸	32,000	2000	—

*avoirdupois

Concentration

Concentration	Equivalent
1,000,000 ppm	100%
100,000 ppm	10.0%
10,000 ppm	1.0%
1,000 ppm	0.1%
100 ppm	0.01%
10 ppm	0.001%
1 ppm	0.0001%
1,000 ppb	1 ppm
100 ppb	0.1 ppm
10 ppb	0.01 ppm
1 ppb	0.001 ppm

Exponential Equivalents

Scientific Notation	Equivalent
1 x 10 ¹⁰	10,000,000,000
1 x 10 ⁹	1,000,000,000
1 x 10 ⁸	100,000,000
1 x 10 ⁷	10,000,000
1 x 10 ⁶	1,000,000
1 x 10 ⁵	100,000
1 x 10 ⁴	10,000
1 x 10 ³	1,000
1 x 10 ²	100
1 x 10 ¹	10

Scientific Notation	Equivalent
1 x 10 ⁻¹	0.1
1 x 10 ⁻²	0.01
1 x 10 ⁻³	0.001
1 x 10 ⁻⁴	0.0001
1 x 10 ⁻⁵	0.00001
1 x 10 ⁻⁶	0.000001
1 x 10 ⁻⁷	0.0000001
1 x 10 ⁻⁸	0.00000001
1 x 10 ⁻⁹	0.000000001
1 x 10 ⁻¹⁰	0.0000000001

Miscellaneous Physical Constants

Numerical Constant	Value	Units
Avogadro's Number	6.022045 x 10 ²³	Molecules/gm-mole
Gas-Law Constant R	1.98719	cal/(gm-mole)(°K)
	1.98719	Btu/(lb-mole)(°R)
	82.0568	(cm ³)(atm)/(gm-mole)(°K)
	0.0820568	(liter)(atm)/(gm-mole)(°K)
	10.7314	(ft ³)(lb)/(in ²)(lb-mole)(°R)
	0.730228	(ft ³)(atm)/(lb-mole)(°R)