

Conversion Factors for SI and non-SI Units

To convert Column 1 into Column 2, multiply by	Column 1 SI Unit	Column 2 non-SI Units	To convert Column 2 into Column 1, multiply by
Length			
0.621	kilometer, km (10^3 m)	mile, mi	1.609
1.094	meter, m	yard, yd	0.914
3.28	meter, m	foot, ft	0.304
1.0	micrometer, μm (10^{-6} m)	micron, μ	1.0
3.94×10^{-2}	millimeter, mm (10^{-3} m)	inch, in	25.4
10	nanometer, nm (10^{-9} m)	Angstrom, \AA	0.1
Area			
2.47	hectare, ha	acre	0.405
247	square kilometer, km^2 (10^3 m 2)	acre	4.05×10^{-3}
0.386	square kilometer, km^2 (10^3 m 2)	square mile, mi 2	2.590
2.47×10^{-4}	square meter, m 2	acre	4.05×10^3
10.76	square meter, m 2	square foot, ft 2	9.29×10^{-2}
1.55×10^{-3}	square millimeter, mm 2 (10^{-3} m 2)	square inch, in 2	645
Volume			
9.73×10^{-3}	cubic meter, m 3	acre-inch	102.8
35.3	cubic meter, m 3	cubic foot, ft 3	2.83×10^{-2}
6.10×10^4	cubic meter, m 3	cubic inch, in 3	1.64×10^{-5}
2.84×10^{-2}	liter, L (10^{-3} m 3)	bushel, bu	35.24
1.057	liter, L (10^{-3} m 3)	quart (liquid), qt	0.946
3.53×10^{-2}	liter, L (10^{-3} m 3)	cubic foot, ft 3	28.3
0.265	liter, L (10^{-3} m 3)	gallon	3.78
33.78	liter, L (10^{-3} m 3)	ounce (fluid), oz	2.96×10^{-2}
2.11	liter, L (10^{-3} m 3)	pint (fluid), pt	0.473
Mass			
2.20×10^{-3}	gram, g (10^{-3} kg)	pound, lb	454
3.52×10^{-2}	gram, g (10^{-3} kg)	ounce (avdp), oz	28.4
2.205	kilogram, kg	pound, lb	0.454
0.01	kilogram, kg	quintal (metric), q	100
1.10×10^{-3}	kilogram, kg	ton (2000 lb), ton	907
1.102	megagram, Mg (tonne)	ton (U.S.), ton	0.907
1.102	tonne, t	ton (U.S.), ton	0.907
Yield and Rate			
0.893	kilogram per hectare, kg ha $^{-1}$	pound per acre, lb acre $^{-1}$	1.12
7.77×10^{-2}	kilogram per cubic meter, kg m $^{-3}$	pound per bushel, lb bu $^{-1}$	12.87
1.49×10^{-2}	kilogram per hectare, kg ha $^{-1}$	bushel per acre, 60 lb	67.19
1.59×10^{-2}	kilogram per hectare, kg ha $^{-1}$	bushel per acre, 56 lb	62.71
1.86×10^{-2}	kilogram per hectare, kg ha $^{-1}$	bushel per acre, 48 lb	53.75
0.107	liter per hectare, L ha $^{-1}$	gallon per acre	9.35
893	tonne per hectare, t ha $^{-1}$	pound per acre, lb acre $^{-1}$	1.12×10^{-3}
893	megagram per hectare, Mg ha $^{-1}$	pound per acre, lb acre $^{-1}$	1.12×10^{-3}
0.446	megagram per hectare, Mg ha $^{-1}$	ton (2000 lb) per acre, ton acre $^{-1}$	2.24
2.24	meter per second, m s $^{-1}$	mile per hour	0.447
Specific Surface			
10	square meter per kilogram, m 2 kg $^{-1}$	square centimeter per gram, cm 2 g $^{-1}$	0.1
1000	square meter per kilogram, m 2 kg $^{-1}$	square millimeter per gram, mm 2 g $^{-1}$	0.001
Density			
1.00	megagram per cubic meter, Mg m $^{-3}$	gram per cubic centimeter, g cm $^{-3}$	1.00
Pressure			
9.90	megapascal, MPa (10^6 Pa)	atmosphere	0.101
10	megapascal, MPa (10^6 Pa)	bar	0.1
2.09×10^{-2}	pascal, Pa	pound per square foot, lb ft $^{-2}$	47.9
1.45×10^{-4}	pascal, Pa	pound per square inch, lb in $^{-2}$	6.90×10^3

(continued on next page)

Conversion Factors for SI and non-SI Units

To convert Column 1 into Column 2, multiply by	Column 1 SI Unit	Column 2 non-SI Units	To convert Column 2 into Column 1, multiply by
Temperature			
1.00 (K – 273) (9/5 °C) + 32	kelvin, K Celsius, °C	Celsius, °C Fahrenheit, °F	1.00 (°C + 273) 5/9 (°F – 32)
Energy, Work, Quantity of Heat			
9.52 × 10 ⁻⁴ 0.239 10 ⁷ 0.735 2.387 × 10 ⁻⁵ 10 ⁵ 1.43 × 10 ⁻³	joule, J joule, J joule, J joule, J joule per square meter, J m ⁻² newton, N watt per square meter, W m ⁻²	British thermal unit, Btu calorie, cal erg foot-pound calorie per square centimeter (langley) dyne calorie per square centimeter minute (irradiance), cal cm ⁻² min ⁻¹	1.05 × 10 ³ 4.19 10 ⁻⁷ 1.36 4.19 × 10 ⁴ 10 ⁻⁵ 698
Transpiration and Photosynthesis			
3.60 × 10 ⁻² 5.56 × 10 ⁻³ 10 ⁻⁴ 35.97	milligram per square meter second, mg m ⁻² s ⁻¹ milligram (H ₂ O) per square meter second, mg m ⁻² s ⁻¹ milligram per square meter second, mg m ⁻² s ⁻¹ milligram per square meter second, mg m ⁻² s ⁻¹	gram per square decimeter hour, g dm ⁻² h ⁻¹ micromole (H ₂ O) per square centi- meter second, μmol cm ⁻² s ⁻¹ milligram per square centimeter second, mg cm ⁻² s ⁻¹ milligram per square decimeter hour, mg dm ⁻² h ⁻¹	27.8 180 10 ⁴ 2.78 × 10 ⁻²
Plane Angle			
57.3	radian, rad	degrees (angle), °	1.75 × 10 ⁻²
Electrical Conductivity, Electricity, and Magnetism			
10 10 ⁴	siemen per meter, S m ⁻¹ tesla, T	millimho per centimeter, mmho cm ⁻¹ gauss, G	0.1 10 ⁻⁴
Water Measurement			
9.73 × 10 ⁻³ 9.81 × 10 ⁻³ 4.40 8.11 97.28 8.1 × 10 ⁻²	cubic meter, m ³ cubic meter per hour, m ³ h ⁻¹ cubic meter per hour, m ³ h ⁻¹ hectare meter, ha m hectare meter, ha m hectare centimeter, ha cm	acre-inch, acre-in cubic foot per second, ft ³ s ⁻¹ U.S. gallon per minute, gal min ⁻¹ acre-foot, acre-ft acre-inch, acre-in acre-foot, acre-ft	102.8 101.9 0.227 0.123 1.03 × 10 ⁻² 12.33
Concentrations			
1 0.1 1	centimole per kilogram, cmol kg ⁻¹ gram per kilogram, g kg ⁻¹ milligram per kilogram, mg kg ⁻¹	milliequivalent per 100 grams, meq 100 g ⁻¹ percent, % parts per million, ppm	1 10 1
Radioactivity			
2.7 × 10 ⁻¹¹ 2.7 × 10 ⁻² 100 100	becquerel, Bq becquerel per kilogram, Bq kg ⁻¹ gray, Gy (absorbed dose) sievert, Sv (equivalent dose)	curie, Ci picocurie per gram, pCi g ⁻¹ rad, rd rem (roentgen equivalent man)	3.7 × 10 ¹⁰ 37 0.01 0.01
Plant Nutrient Conversion			
	<i>Elemental</i>	<i>Oxide</i>	
2.29 1.20 1.39 1.66	P K Ca Mg	P ₂ O ₅ K ₂ O CaO MgO	0.437 0.830 0.715 0.602