

# Converting SI to U.S. Customary Units

*We use Canadian spelling here (metres for meters and litres for liters).*

<i>To convert from (SI)</i>	<i>Conversion factor</i>	<i>To get U.S. Customary</i>
<b>Length and velocity</b>		
Metres (m)	Multiply by 3.28084	Feet (ft)
Metres	Multiply by 1.09361	Yards
Metres per second (m/s)	Multiply by 2.23694	Miles per hour (mph)
Centimeters (cm)	Multiply by 0.3937	Inches (in.)
Millimeters (mm)	Multiply by 0.03937	Inches
Kilometers (km)	Multiply by 0.621371	Miles (mi)
m <sup>3</sup> /(m <sup>2</sup> -day) = m/day	Multiply by 24.5421	gpd/ft <sup>2</sup>
<b>Area</b>		
cm <sup>2</sup>	Multiply by 0.155	Square inch
m <sup>2</sup>	Multiply by 10.76391	Square foot (ft <sup>2</sup> )
Hectare (ha = 10 000 m <sup>2</sup> )	Multiply by 2.471054	Acre
km <sup>2</sup> (= 100 ha = 10 <sup>6</sup> m <sup>2</sup> )	Multiply by 0.38610216	Square mile
<b>Volume and Flow</b>		
Litres (= 1 dm <sup>3</sup> )	Divide by 28.31685	Cubic foot (ft <sup>3</sup> )
cubic metre (m <sup>3</sup> )	Multiply by 35.31467	ft <sup>3</sup>
Litres (L)	Multiply by 0.264172	U.S. gal
Litres (L)	Multiply by 0.219969	Imp. gal
Litres/(s-ha)	Multiply by 0.014	Inches/hour
m <sup>3</sup>	Divide by 3 785.412	Million U.S. gal (mg/MG)
m <sup>3</sup>	Multiply by 8.521662	Barrel (US)
m <sup>3</sup>	Divide by 1 233.481	Acre-ft
Liters per second (L/s)	Divide by 43.8126	Million U.S. gal/day (mgd/MGD)
(L/s)	Multiply by 15.8508	gal/min (gpm)
Liters/m <sup>2</sup>	Divide by 40.7458	gal/ft <sup>2</sup>
<b>Mass</b>		
Gram (g)	Divide by 453.5924	Pounds (lb)
Gram	Multiply by 15.432	Grain
Kilogram <sup>a</sup> (kg = 1 000 g)	Multiply by 2.204623	Pounds
Newton (= 0.1 kgb)	Multiply by 0.2247	Pounds
Tonne, Metric ton (= 1 000 kg)	Multiply by 1.10231	U.S. ton
Tonne (t)	Multiply by 0.984206	English ton
<i>To convert from (SI)</i>	<i>Conversion factor</i>	<i>To get U.S. Customary</i>
<b>Concentration</b>		
Milligram per liter	Multiply by 1.0	Parts per million (ppm)

### SI-US Unit Conversion

(mg/liter = g/m <sup>3</sup> )		
mg/liter	Divide by 2.28835	Grain/ft <sup>3</sup>
Microgram per liter	Multiply by 1.0	Parts per billion (ppb)
(ug/liter = 10 <sup>-3</sup> g/m <sup>3</sup> )		

<b>Density</b>		
kg/m <sup>3</sup>	Multiply by 0.062428	lb/ft <sup>3</sup>
g/m <sup>3</sup>	Multiply by 6.2428 x 10 <sup>-5</sup>	lb/ft <sup>3</sup>
m <sup>3</sup> /kg	Multiply by 16.0185	ft <sup>3</sup> /lb

<b>Pressure</b>		
g/m <sup>2</sup>	Divide by 4 882.43	lb/ft <sup>2</sup>
Bar (= 10 <sup>5</sup> N/m <sup>2</sup> )	Multiply by 14.5038	psi (= lb/in. <sup>2</sup> )
kg/m <sup>2</sup>	Divide by 4.88243	lb/ft <sup>2</sup>
kg/cm <sup>2</sup>	Multiply by 14.2233	psi

<b>Energy etc.</b>		
Watt (W = N x m/s)	Multiply by 3.41214	Btu/hr
Kilowatts (kW = 1 000 W)	Multiply by 1.34048	Horsepower (hp)
Kilowatt-hours (kW-hr)	Multiply by 3 414.4259	Btu
W/m <sup>3</sup>	Multiply by 5	hp/mg
kW-hr/(m <sup>2</sup> x°C)	Multiply by 176.228	Btu/ft <sup>2</sup> /°F
kW-hr/(m <sup>3</sup> x°C)	Multiply by 53.714	Btu/ft <sup>3</sup> /°F
Calories (gram)	Divide by 251.9957	Btu
1 calorie = 1.16 x 10 <sup>-6</sup> kW-hr		
Degree celsius (°C)	Multiply °C by 1.8 and add 32	Degrees Fahrenheit (°F)

#### Some constants

1 m<sup>3</sup> of water weighs 1 000 kg.  
 1 ft<sup>3</sup> of water weighs 62.4 lb.  
 1 U.S. gal of water weighs 8.34 lb.  
 1 Imp. (English) gal of water weighs 10 lb.  
 1 day has 1 440 minutes and 86 400 seconds.

#### Some magnitude prefixes for SI units

G	giga	10 <sup>9</sup>
M	mega	10 <sup>6</sup>
k	kilo	10 <sup>3</sup>
m	milli	10 <sup>-3</sup>
μ	micro	10 <sup>-6</sup>

#### Time abbreviations

Second	s
Minute	min
Hour	h
Day	d
Week	week
Month	month
Year	y

\*Metric kilograms in this table are weight kilograms, which equal 9.81 (m/s<sup>2</sup>) x kg (mass) = 9.81 Newtons.