

# Appendix 1 SI Units and Their Abbreviations

For greater detail, use the authoritative online source: *National Institute of Standards and Technology. International System of Units (SI):* <http://physics.nist.gov/cuu/Units/units.html>

## SI Base Units and Symbols

Quantity	Name	Symbol
<b>Base Units</b>		
Length	metre	m
Mass	kilogram	kg
Commonly used unit of mass	gram	g
Time	second	s
Electric current	ampere	A
Temperature	degrees Kelvin	°K
	degrees Celsius (acceptable for experimental temperature)	°C
Volume	cubic metre	m <sup>3</sup>
Commonly used unit of volume	cubic centimetre	cm <sup>3</sup>
Amount of substance	mole	mol
Luminous intensity		cd
<b>Supplementary units</b>		
Plane angle		rad
Solid angle		sr

## Other Units Used with SI

Name	In Terms of Other Units	Symbol
atmosphere	101,325 Pa	atm
calorie	4.18 J	cal
day	24 h	d
degree	( $\pi/180$ ) rad	°
hour	60 min	h
kilogram-force	9.8067 N	kgf

Name	In Terms of Other Units	Symbol
litre	1 dm <sup>3</sup>	l
micron	10 <sup>-6</sup> m	μ
minute	60 s	min
minute	(π/10,800) rad	'
angular second	(π/648,000) rad	"
tonne	10 <sup>3</sup> kg	t
torr	133.322 Pa	torr

Examples of SI Derived Units

Quantity	Name	Symbol	In Terms of Other Units
Activity of a radionuclide	becquerel	Bq	s <sup>-1</sup>
Acceleration			m/s <sup>2</sup>
Capacitance	farad	F	C/V
Current density			A/m <sup>2</sup>
Electric charge, quantity of electricity	coulomb	C	sA
Electric potential, electromotive force, potential difference	volt	V	W/A
Energy, work, quantity of heat	joule	J	N m
Energy density			J/m <sup>3</sup>
Force	newton	N	(m kg)/s <sup>2</sup>
Frequency	hertz	Hz	s <sup>-2</sup>
Heat capacity, entropy			J/K
Illuminance	lux	lx	lm/m <sup>2</sup>
Luminance			cd/m <sup>2</sup>
Luminous flux	lumen	lm	cd sr
Magnetic flux	weber	Wb	V s
Moment of force			N m
Power, radiant flux	watt	W	J/s
Pressure, stress	pascal	Pa	N/m <sup>2</sup>

Standard Prefixes Used with SI Units

A prefix is a verbal element used before a word to qualify its meaning, e.g. *millimetre* (mm) – a thousandth of a metre; *kilometre* (km) – a thousand metres; *millilitre* (ml) – a thousandth of a litre; etc.

Term	Multiple	Prefix	Symbol
$10^{24}$	1 000 000 000 000 000 000 000 000 000	yotta	Y
$10^{21}$	1 000 000 000 000 000 000 000 000	zetta	Z
$10^{18}$	1 000 000 000 000 000 000 000	exa	E
$10^{15}$	1 000 000 000 000 000 000	peta	P
$10^{12}$	1 000 000 000 000	tera	T
$10^9$	1 000 000 000	giga	G
$10^6$	1 000 000	mega	M
$10^3$	1 000	kilo	k
$10^2$	1 00	hecto	h
$10^1$	10	deca	da
	1 unit		
$10^{-1}$	0.1	deci	d
$10^{-2}$	0.01	centi	c
$10^{-3}$	0.001	milli	m
$10^{-6}$	0.000 001	micro	$\mu$
$10^{-9}$	0.000 000 001	nano	n
$10^{-12}$	0.000 000 000 001	pico	p
$10^{-15}$	0.000 000 000 000 001	femto	f
$10^{-18}$	0.000 000 000 000 000 001	atto	a
$10^{-21}$	0.000 000 000 000 000 000 001	zepto	z
$10^{-24}$	0.000 000 000 000 000 000 000 001	yocto	y