1.4.3 SI derived units with special names and symbols

Physical quantity	*Name of SI unit*	*Symbol for SI unit*	*Expression in terms of SI base units*	
frequency[1]	hertz	Hz	s^{-1}	
force	newton	N	$m\ kg\ s^{-2}$	
pressure, stress	pascal	Pa	$N\ m^{-2}$	$= m^{-1}\ kg\ s^{-2}$
energy, work, heat	joule	J	N m	$= m^{2}\ kg\ s^{-2}$
power, radiant flux	watt	W	$J\ s^{-1}$	$= m^{2}\ kg\ s^{-3}$
electric charge	coulomb	C	A s	
electric potential, electromotive force	volt	V	$J\ C^{-1}$	$= m^{2}\ kg\ s^{-3}\ A^{-1}$
electric resistance	ohm	Ω	$V\ A^{-1}$	$= m^{2}\ kg\ s^{-3}\ A^{-2}$
electric conductance	siemens	S	Ω^{-1}	$= m^{-2}\ kg^{-1}\ s^{3}\ A^{2}$
electric capacitance	farad	F	$C\ V^{-1}$	$= m^{-2}\ kg^{-1}\ s^{4}\ A^{2}$
magnetic flux density	tesla	T	$V\ s\ m^{-2}$	$= kg\ s^{-2}\ A^{-1}$
magnetic flux	weber	Wb	V s	$= m^{2}\ kg\ s^{-2}\ A^{-1}$
inductance	henry	H	$V\ A^{-1}\ s$	$= m^{2}\ kg\ s^{-2}\ A^{-2}$
Celsius temperature[2]	degree Celsius	°C	K	
luminous flux	lumen	lm	cd sr	
illuminance	lux	lx	$cd\ sr\ m^{-2}$	

(1) For radial (angular) frequency and for angular velocity the unit rad s^{-1}, or simply s^{-1}, should be used, and this may *not* be simplified to Hz. The unit Hz should be used *only* for frequency in the sense of cycles per second.

(2) The Celsius temperature θ is defined by the equation

$$\theta/°C = T/K - 273.15$$

The SI unit of Celsius temperature is the degree Celsius, °C, which is equal to the Kelvin, K. °C should be treated as a single symbol, with no space between the ° sign and the letter C. (The symbol °K, and the symbol °, should no longer be used.)

Physical quantity	*Name of SI unit*	*Symbol for SI unit*	*Expression in terms of SI base units*	
activity[3] (radioactive)	becquerel	Bq	s^{-1}	
adsorbed dose[3] (of radiation)	gray	Gy	$J\ kg^{-1}$	$= m^2\ s^{-2}$
dose equivalent[3] (dose equivalent index)	sievert	Sv	$J\ kg^{-1}$	$= m^2\ s^{-2}$
plane angle[4]	radian	rad	1	$= m\ m^{-1}$
solid angle[4]	steradian	sr	1	$= m^2\ m^{-2}$

(3) The units becquerel, gray, and sievert are admitted for reasons of safeguarding human health.

(4) The units radian and steradian are describe as 'SI supplementary units'. However, in chemistry, as well as in physics they are usually treated as dimensionless derived units, and this was recognized by CIPM in 1980. Since they are then of dimension 1, this leaves open the possibility of including them or omitting them in expressions of SI derived units. In practice this means that rad and sr may be used when appropriate and may be omitted if clarity is not lost thereby.