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Supplemental Material: Mechanics of Style

4.40 Style for Metric Units

International System (SI) Base and Supplementary Units

Quantity	Name	Symbol
Base units		
amount of substance	mole	mol
electrical current	ampere	A
length	meter	m
luminous intensity	candela	cd
mass	kilogram	kg
thermodynamic temperature[a]	kelvin	K
time	second	s
Supplementary units		
plane angle	radian	rad
solid angle	steradian	sr

[a]Celsius temperature is generally expressed in degrees Celsius (symbol: °C).

International System (SI) Prefixes

Factor	Prefix	Symbol	Factor	Prefix	Symbol
10^{18}	exa	E	10^{-1}	deci	d
10^{15}	peta	P	10^{-2}	centi	c
10^{12}	tera	T	10^{-3}	milli	m
10^{9}	giga	G	10^{-5}	micro	μ
10^{6}	mega	M	10^{-9}	nano	n
10^{3}	kilo	k	10^{-12}	pico	P
10^{2}	hecto	h	10^{-15}	femto	f
10^{1}	deka	da	10^{-18}	atto	a

International System (SI) Derived Units With Special Names

Quantity	Name	Symbol	Expression in terms of other units
absorbed dose, specific energy imparted, kerma, absorbed dose index	gray	Gy	J/kg
activity (of a radionuclide)	becquerel	Bq	s^{-1}
capacitance	farad	F	C/V
conductance	siemens	S	A/V
dose equivalent, dose equivalent index	sievert	Sv	J/kg
electric charge, quantity of electricity	coulomb	C	A · s
electric potential, potential difference, electromotive force, voltage	volt	V	W/A
electric resistance	ohm	Ω	V/A
energy work, quantity of heat	joule	J	N · m
force	newton	N	$(kg \cdot m)/s^2$
frequency	hertz	Hz	s^{-1}
illuminance	lux	lx	lm/m^2
inductance	henry	H	Wb/A
luminous flux	lumen	lm	cd · sr
magnetic flux	weber	Wb	V · s
magnetic flux density	tesla	T	Wb/m^2
pressure, stress	pascal	Pa	N/m^2
radiant flux, power	watt	W	J/s
volume (capacity)	liter	L	dm^3

Other International System (SI) Derived Units		
Quantity	**Name**	**Symbol**
absorbed dose rate	gray per second	Gy/s
acceleration	meter per second squared	m/s^2
angular acceleration	radian per second squared	rad/s^2
angular velocity	radian per second	rad/s
area	square meter	m^2
concentration (amount of substance)	mole per cubic meter	mol/m^3
current density	ampere per square meter	A/m^2
density, mass density	kilogram per cubic meter	kg/m^3
electric charge density	coulomb per cubic meter	kg/m^3
electric field strength	volt per meter	V/m
electric flux density	coulomb per square meter	C/m^2
energy density	joule per cubic meter	J/m^3
exposure (X and γ rays)	coulomb per kilogram	C/kg
heat capacity, entropy	joule per kelvin	J/K
luminance	candela per square meter	cd/m^2
magnetic field strength	ampere per meter	A/m
molar energy	joule per mole	J/mol
molar entropy, molar heat capacity	joule per mole kelvin	J/(mol · K)
moment of force	newton meter	N · m
permeability	henry per meter	H/m
permittivity	farad per meter	F/m
power density, heat flux density, irradiance	watt per square meter	W/m^2
radiance	watt per square meter steradian	$W/(m^2 \cdot sr)$
radiant intensity	watt per steradian	W/sr
specific energy	joule per kilogram	J/kg
specific heat capacity, specific entropy	joule per kilogram kelvin	J/(kg · K)
specific volume	cubic meter per kilogram	m^3/kg
surface tension	newton per meter	N/m
thermal conductivity	watt per meter kelvin	W/(m · k)
velocity, speed	meter per second	m/s
viscosity (dynamic)	pascal second	Pa · s
viscosity (kinematic)	square meter per second	m^2/s
volume	cubic meter	m^3
wave number	one per meter	m^{-1}

Examples of Conversions to International System (SI) Equivalents

Physical quantity	Traditional U.S. unit	SI equivalent
Area	acre	4,046.873 m^2
	square foot[a]	0.09290304 m^2
	square inch[a]	645.16 mm^2
	square mile (statute)	2.589998 km^2
	square yard	0.8361274 m^2
Energy	British thermal unit (IT)	1,055.056 J
	calorie (IT), thermochemical[a]	4.186800 J
	erg	10^{-7} J
	kilowatt hour[a]	3.6×10^6 J
Force	dyne	10^{-5}N
	kilogram force[a]	9.80665 N
	poundal	0.138255 N
Length	angstrom (Å)[a]	0.1 nm
	foot (international)[a]	0.3048 m
	inch[a]	2.54 cm
	micrometer[a]	1.0 μm
	mile (U.S. statute)	1.609347 km
	nautical mile (international; nmi)[a]	1,852.0 m
	yard[a]	0.9144 m
Light	footcandle	10.76391 lx
	footlambert	3.426359 cd/m^2
Mass	grain[a]	64.79891 mg
	ounce	28.34952 g
	pound (U.S.)[a]	0.45359237 kg
Power	horsepower (electric)[a]	0.746 kW
Pressure	atmosphere (normal)[a]	101,325.0 Pa
	pound per square inch (psi)	6.894757 kPa
	torr[a]	(101,325/760) Pa
	sound pressure level (SPL; 0.0002 dynes/cm^2)[b]	20 $\mu N/m^2$
Volume	cubic foot	0.02831685 m^3
	cubic inch	16.38706 cm^3
	fluid ounce	29.57353 ml
	quart (liquid)	0.9463529 L

Note. IT = International Table.

[a]Conversion factors for these units are exact. (For conversion factors that are not exact, the precision with which the quantity was measured determines the number of decimal places.) [b]A decibel value is a measure of the power of sound relative to a specific reference level. The most common reference level on which decibel values are based is at 20 $\mu N/m^2$. If decibel values are based on another reference level, specify the level. Also, always indicate how frequencies were weighted: If frequencies were equally weighted, write SPL (i.e., sound pressure level) in parentheses after the decibel value; if frequencies were unequally weighted, specify the standard weighting used (e.g., A, B, or C) in parentheses after the decibel value.