Names and symbols

As per NF X 02-004

In this paragraph, we provide examples of usual physical quantities with the corresponding units and symbols, along with the expression of derived units in base units and supplementary units.

Physical quantities and base units of the International system of units

PHYSICAL QUANTITY	UNIT	SYMBOL
length	metre	m
mass	kilogram	kg
time	second	s
electrical current strength	ampere	A
thermodynamic temperature	Kelvin	K
quantity of material	mole	mol
light intensity	candela	cd

Note: The temperature in Celsius t is associated to the thermodynamic temperature T via the relationship t = T-273.15
A temperature interval may be expressed either in Kelvins or in degrees Celsius.
In this case, 1 °C = 1 K

Supplementary physical quantities and units of the international system (which may be used as quantities and base units)

PHYSICAL QUANTITY	UNIT	SYMBOL
plane angle	radian	rad
solid angle	steradian	sr

Table presenting the main multiples and sub-multiples of units of measurement

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

Some quantities and derived units of the International system of units:

	PHYSICAL QUANTITY	UNIT NAME	UNIT SYMBOL	IN BASE UNITS
SPACE TIME	surface area	square metre	m^2	m^2
	volume	cubic metre	m^3	m^3
	angular speed	radian per second	rad/s	$rad.s^{-1}$
	speed	metre per second	m/s	$m.s^{-1}$
	acceleration	metre per squared second	m/s^2	$m.s^{-2}$
	frequency	hertz	Hz	s^{-1}
	frequency of rotation	second to the power minus 1	s^{-1}	s^{-1}
MECHANICAL	density	kilogram per cubic metre	kg/m^3	$kg.m^3$
	mass flow	kilogram per second	kg/s	$kg.s^{-1}$
	volume flow	cubic metre per second	m^3/s	$m^3.s^{-1}$
	quantity of movement	kilogram-metre per second	kg.m/s	$kg.m.s^{-1}$
	kinetic moment	kilogram-metre squared per second	$kg.m^2/s$	$kg.m^2.s^{-1}$
	moment of inertia	kilogram-metre squared	$kg.m^2$	$kg.m^2$
	force	Newton	N	$kg.m.s^{-2}$
	moment of force	Newton-metre	N.m	$kg.m^2.s^{-2}$
	pressure, stress	Pascal	Pa	$kg.m^{-1}.s^{-2}$
	dynamic viscosity	Pascal-second	Pa.s	$kg.m^{-1}.s^{-1}$
	kinematic viscosity	square metre per second	m^2/s	$m^2.s^{-1}$
	surface tension	Newton per metre	N/m	$kg.s^{-2}$
	energy, work, heat	joule	J	$kg.m^2.s^{-2}$
	power, energy flow	watt	W	$kg.m^2.s^{-3}$
THERMO-DYNAMIC	linear dilation coefficient	Kelvin to the power minus 1	K^{-1}	K^{-1}
	Thermal conductivity	watt per metre-Kelvin	W/(m.K)	$kg.m.K^{-1}.s^{-3}$
	Specific heat capacity	joule per kilogram-Kelvin	J/(kg.K)	$m^2.K^{-1}.s^{-2}$
	entropy	joule per Kelvin	J/K	$kg.m^2.K^{-1}.s^{-2}$
	internal energy, enthalpy free energy, free enthalpy	joule	J	$kg.m^2.s^{-2}$
OPTICAL	light flow	lumen	lm	cd.sr
	luminous luminescence	candela per cubic metre	cd/m^2	$cd.m^{-2}$
	luminous exitance	lumen per cubic metre	lm/m^2	$cd.sr.m^{-2}$
	illumination	lux	lx	$cd.sr.m^{-2}$
	luminous exposure	lux-second	lx.s	$cd.sr.s.m^{-2}$
ELECTRICITY MAGNETISM	luminous efficiency	lumen per watt	lm/W	$cd.sr.s3.kg^{-1}.m^{-2}$
	electrical charge, quantity of electricity	coulomb	C	A.s
	electrical field	volt per metre	V/m	$m.kg.A^{-1}.s^{-3}$
	potential difference, voltage, electromotive force	volt	V	$kg.m^2.A^{-1}.s^{-3}$
	capacity	farad	F	$A^2.s4.kg^{-1}.m^{-2}$
	magnetic field	ampere per metre	A/m	$A.m^{-1}$
	magnetic induction	Tesla	T	$kg.A^{-1}.s^{-2}$
	magnetic induction flow	Weber	Wb	$kg.m^2.A^{-1}.s^{-2}$
	inductance, permeance	Henry	H	$kg.m^2.A^{-2}.s^{-2}$
	reluctance	Henry to the power minus 1	H^{-1}	$A^2.s^2.kg^{-1}.m^{-2}$
	resistance, impedance, reactance	ohm	Ω	$kg.m^2.A^{-2}.s^{-3}$
	conductance, admittance, susceptance	siemens	S	$A^2.s^3.kg^{-1}.m^{-2}$
	resistivity	ohm-metre	Ω.m	$kg.m^3.A^{-2}.s^{-3}$
	conductivity	siemens per metre	S/m	$A^2.s^3.kg^{-1}.m^{-3}$
CHEMISTRY PHYSICS	molar mass	kilogram per mole	kg/mol	$kg.mol^{-1}$
	molar volume	cubic metre per mole	m^3/mol	$m^3.mol^{-1}$
	concentration	kilogram per cubic metre	kg/m^3	$kg.m^{-3}$
	molar concentration	mole per cubic metre	mol/m^3	$mol.m^{-3}$
	molarity	mole per kilogram	mol/kg	$mol.kg^{-1}$