ATOMIC UNITS AND THEIR SI EQUIVALENTS

Quantity	*Atomic unit*	*SI equivalent*
Mass	$m = 1$ (electron mass)	9.1091×10^{-31} kg
Charge	$\|e\| = 1$ (electron charge)	1.6021×10^{-19} C
Angular momentum	$\hbar = 1$	1.0545×10^{-34} J·s
Permittivity	$\kappa_0 = 4\pi\varepsilon_0 = 1$	1.1126×10^{-10} $C^2 \cdot J^{-1} \cdot m^{-1}$
Length	$\kappa_0\hbar^2/me^2 = a_0 = 1$ (bohr) (Bohr radius)	5.29177×10^{-11} m
Energy	$me^4/\kappa_0^2\hbar^2 = e^2/\kappa_0 a_0 = 1$ (hartree) (twice the ionization energy of atomic hydrogen)	4.35944×10^{-18} J
Time	$\kappa_0^2\hbar^3/me^4 = 1$ (period of an electron in the first Bohr orbit)	2.41889×10^{-17} s
Speed	$e^2/\kappa_0\hbar = 1$ (speed of an electron in the first Bohr orbit)	2.18764×10^6 m·s^{-1}
Electric potential	$me^3/\kappa_0^2\hbar^2 = e/\kappa_0 a_0 = 1$ (potential energy of an electron in the first Bohr orbit)	27.211 V
Magnetic dipole moment	$e\hbar/m = 1$ (twice a Bohr magneton)	1.85464×10^{-23} J·T^{-1}

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

Greek alphabet

Alpha	A	α	Iota	I	ι	Rho	P	ρ
Beta	B	β	Kappa	K	κ	Sigma	Σ	σ
Gamma	Γ	γ	Lambda	Λ	λ	Tau	T	τ
Delta	Δ	δ	Mu	M	μ	Upsilon	Υ	υ
Epsilon	E	ε	Nu	N	ν	Phi	Φ	ϕ
Zeta	Z	ζ	Xi	Ξ	ξ	Chi	X	χ
Eta	H	η	Omicron	O	o	Psi	Ψ	ψ

SI BASE UNITS

Physical quantity	*Name of unit*	*Symbol*
Length	meter	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

NAMES AND SYMBOLS FOR SOME SI DERIVED UNITS

Physical quantity	*Name of SI unit*	*Symbol for SI unit*	*Definition of SI unit*
Energy	joule	J	$kg \cdot m^2 \cdot s^{-2}$
Force	newton	N	$kg \cdot m \cdot s^{-2}$
Power	watt	W	$kg \cdot m^2 \cdot s^{-3}$ ($= J \cdot s^{-1}$)
Electric charge	coulomb	C	A·s
Electric potential	volt	V	$kg \cdot m^2 \cdot s^{-3} \cdot A^{-1}$ ($= J \cdot A^{-1} \cdot s^{-1}$)
Magnetic flux density	tesla	T	$kg \cdot s^{-2} \cdot A^{-1}$ ($= V \cdot s \cdot m^{-2}$)
Frequency	hertz	Hz	s^{-1} (cycle per second)

SOME COMMONLY USED NON-SI UNITS

Unit	*Symbol*	*SI value*
Angstrom	Å	10^{-10} m
Micron	μ	10^{-6} m
Calorie	cal	4.184 J
Gauss	G	10^{-4} T
Debye	D	3.3356×10^{-30} C·m