

Units and Constants in MedeA

Contents

- *Units and Constants in MedeA*
 - *Units*
 - *Constants*

1 Units

Quantity	Symbol	Units	in SI units
amount	mol	mole	1.0 mol
caacitance	F	farad	1.0 F
electric charge	C	coulomb	1.0 C
electric conductance	S	siemens	1.0 S
electric current	A	ampere	1.0 A
electric potential	V	volt	1.0 V
electric resistance	ohm	ohm	1.0 ohm
energy	E rel	rest energy of electron	8.187111E-14 J
	Ha	hartree	4.359748E-18 J
	J	joule	1.0 J
	Ry	rydberg	2.179874E-18 J
	btu	british thermal unit	1.054350E+03 J
	cal	calorie	4.184000E+00 J
	eV	electronvolt	1.602177E-19 J
	erg	erg	1.000000E-07 J
energy density	Pa	pascal	1.0 Pa
	bar	bar	100000.0 Pa
force	N	newton	1.0 N
	dyn	dyne	1.000000E-05 N
frequency	Hz	hertz	1.0 Hz
inductance	H	henry	1.0 H
length			
	Ang	Angstrom	1E-10 m
	bohr	bohr	5.291773E-11 m
	ft	foot	3.048000E-01 m
	in	inch	2.540000E-02 m
	l rel	length unit relativistic	3.861593E-13 m
	m	meter	1.0 m
	mi	mile	1.609344E+03 m
	rd	rod	5.029200E+00 m
	ua	astronomical unit	149598000000.0 m
	yd	yard	9.144000E-01 m
magnetic flux	Wb	weber	1.0 Wb
magnetic flux density	T	tesla	1.0 T
mass	g	gram	0.001 kg

Continued on next page

Table 1 – continued from previous page

	kg	kilogram	1.0 kg
	lb	pound	4.535924E-01 kg
	t	ton	1000.0 kg
	u	unified atomic mass unit	1.6605402E-27 kg
moment of force	E rel	rest energy	8.187111E-14 J of electron
	Ha	hartree	4.359748E-18 J
	J	joule	1.0 J
	Ry	rydberg	2.179874E-18 J
	btu	british thermal unit	1.054350E+03 J
	cal	calorie	4.184000E+00 J
	eV	electronvolt	1.602177E-19 J
	erg	erg	1.000000E-07 J
plane angle	°	degree	1.745329E-02 rad
	'	angular minute	2.908882E-04 rad
	rad	radian	1.0 rad
	deg	degree	1.745329E-02 rad
power	W	watt	1.0 watt
pressure	Pa	pascal	1.0 Pa
	bar	bar	100000.0 Pa
solid angle	sr	steradian	1.0 sr
temperature	K	Kelvin	1.0 K
	C	deg Celsius	1.0 K
	F	deg Fahrenheit	5.555556E-01 K
time	d	day	86400.0 s
	h	hour	3600.0 s
	min	minute	60.0 s
	s	second	1.0 s
volume	L	liter	1.0 s

2 Constants

Constant	Description	in SI units
Eh	Hartree energy	4.359748E-18 J
G	gravitational constant	6.672590E-11 m ³ /(kg*s ²)
Na	Avogadro constant	6.022137E+23 1/mol
R	molar gas constant	8.314510E+00 m ² *kg/(mol*K*s ²)
Ralpha	Rydberg constant	1.097373E+07 1/m
Vm	molar volume of ideal gas	2.241410E-02 m ³ /mol
a0	Bohr radius	5.291773E-11 m
alpha	fine structure constant	7.297353E-03 1
atm	standard atmosphere	101325.0 Pa
c	speed of light in vacuum	299792458.0 m/s
e	elementary charge	1.602177E-19 C
eps0	permittivity of vacuum	8.854188E-12 A ² *s ⁴ /(m ³ *kg)
gamma	Euler's constant	5.772157E-01 1
gn	standard acceleration of gravity	9.806650E+00 m/s ²
h	Planck constant	6.6260755E-34 m ² *kg/s
hbar	Planck constant / 2pi	1.054573E-34 m ² *kg/s
k	Boltzmann constant	1.380658E-23 m ² *kg/(K*s ²)
lambdac	Compton wavelength	2.426311E-12 m
me	electron mass	9.109390E-31 kg
mp	proton mass	1.672623E-27 kg
mu0	permeability of vacuum	1.256637E-06 m*kg/(A ² *s ²)
re	classical electron radius	2.817941E-15 m
ub	Bohr magneton	9.274015E-24 m ² *A