Useful Information - 59-240 Introductory Physical Chemisty

SI Units

Base quantity	**Name**	**Symbol**
length	meter	m
mass	kilogram	kg
time	second	s
electric current	ampere	A
thermodynamic temperature	kelvin	K
amount of substance	mole	mol

SI Derived Units

Derived quantity	**Name**	**Symbol**
volume	cubic meter	m^3
speed, velocity	meter per second	m/s
acceleration	m. per s. squared	m/s^2 *or* $m\ s^{-2}$
wave number	reciprocal meter	m^{-1}
mass density	kg per cubic m	kg/m^3 *or* $kg\ m^{-3}$
frequency	hertz	$Hz : s^{-1}$
force	newton	$N : kg{\cdot}m{\cdot}s^{-2}$
pressure, stress	pascal	$Pa : N/m^2 : kg{\cdot}m^{-1}{\cdot}s^{-2}$
energy, work, heat	joule	$J : N{\cdot}m : kg{\cdot}m^2{\cdot}s^{-2}$
power, radiant flux	watt	$W : J/s : kg{\cdot}m^2{\cdot}s^{-3}$
electric charge	coulomb	$C : A{\cdot}s$
electric potential, emf	volt	$V : W/A : kg{\cdot}m^2{\cdot}s^{-3}{\cdot}A^{-1}$

R with different units

8.31451	$J\ K^{-1}\ mol^{-1}$
8.20578×10^{-2}	$L\ atm\ K^{-1}\ mol^{-1}$
8.31451×10^{-2}	$L\ bar\ K^{-1}\ mol^{-1}$
8.31451	$Pa\ m^3\ K^{-1}\ mol^{-1}$
62.364	$L\ Torr\ K^{-1}\ mol^{-1}$
1.98722	$cal\ K^{-1}\ mol^{-1}$

Units of pressure:

Name	***Symbol***	***Value***
pascal	1 Pa	$1\ N\ m^{-2}$, $1\ kg\ m^{-1}\ s^{-2}$
bar	1 bar	10^5 Pa
atmosphere	1 atm	101325 Pa
torr	1 Torr	101325/760 Pa = 133.32 Pa
mm of mercury	1 mm Hg	133.322 Pa
pound per sq inch	1 psi	6.894 757 kPa