

SYSTÈM INTERNATIONAL D'UNITÉS

(SI UNITS)

CHEM 25 | SDSU

STANDARD UNITS

- In analytical chemistry, and all sciences, the numbers that we work with in calculations represent aspects of the physical world.
- We express what they represent in the units that follow the numbers.
- It is crucial to use the same units in all calculations (e.g. adding °C to °F does not work well).
- We will work exclusively with **SI units**, which are based on the metric system.

SI UNITS

The rational units of measurement.

Dimension	Unit name	Abbreviation
Mass	kilogram	kg
Length	meter	m
Volume	cubic meter	m ³
Time	second	s
Temperature	kelvin	K
Electric current	ampere	A
amount of substance	mole	mol
Power	watt	W

SCIENTIFIC NOTATION & PREFIXES

- For this course you are expected to know the common prefixes for chemistry, which are **between kilo and pico**.
- Know both the symbols and the scientific notation factor.

Table 2.3 Common Prefixes for Exponential Notation

Prefix	Symbol	Factor	Prefix	Symbol	Factor	Prefix	Symbol	Factor
yotta	Y	10^{24}	kilo	k	10^3	micro	μ	10^{-6}
zetta	Z	10^{21}	hecto	h	10^2	nano	n	10^{-9}
eta	E	10^{18}	deka	da	10^1	pico	p	10^{-12}
peta	P	10^{15}	-	-	10^0	femto	f	10^{-15}
tera	T	10^{12}	deci	d	10^{-1}	atto	a	10^{-18}
giga	G	10^9	centi	c	10^{-2}	zepto	z	10^{-21}
mega	M	10^6	milli	m	10^{-3}	yocto	y	10^{-24}