

Avogadro's Number and the Mole



Avogadro's Law

equal volumes of gases at the same temperature and pressure contain the same number of particles.

Relative Atomic Mass Unit

... is $\frac{1}{12}$ the mass of a carbon atom

hydrogen = 1 amu carbon = 12 amu

The masses of all the elements were then calculated from this relationship. Thus, creating a relative atomic mass scale.

Avogadro's Number (N)

... is the number of atoms in 12.00 grams of the carbon-12 isotope

$$N = 6.022 \times 10^{23}$$

The Mole (mol)

... is an Avogadro's number of anything.

Molar mass

...is the mass of 1 mole of a substance in grams.

Gram molecular mass – the molar mass of a covalent compound.

Gram formula mass – the molar mass of any compound.