

Chemistry – The Mole

Introductions to numbers of particles

Names for certain numbers

Pair, dozen, gross, ream, etc

In Chemistry we have a very large number that we give a name to as well

6.02×10^{23} given the name of the Avogadro number

Recall from the past, Carbon-12 is our standard of mass

Impossible to measure the mass of one atom

Masses of atoms are relative to carbon, so let's take 12.0 grams of carbon and determine how many atoms are in this amount.

Measuring out the mass of any substance on the Periodic table equivalent to its atomic mass, gives us the Avogadro number of particles

Examples

Terminology

If we have the Avogadro number of particles, we say we have a “mole” of particles

Gives us a conversion factor

Example:

How many atoms of carbon are in 1.0 mole of carbon?

How many atoms are in 2.0 mole of carbon?

1.2×10^{24} atoms silver contains how many mole of silver?

Calculate the number of NH_3 molecules in 5.2 moles of Ammonia

How many moles are in each of the following?

3.35×10^{25} molecules of water

6.12×10^{22} formula units of sodium chloride