Unit 3: Quantities in Chemistry

Atomic Mass and Molecular Mass

- All matter is made up of atoms
- Covalent compounds are made of particles called molecules
- Ionic compounds are made of particles called formula units

The sum of all the individual atoms can be used to find the mass (m) of particles.

Atomic mass – the mass of one atom of an element (u)

Molecular mass – the mass of one molecule (u)

Formula unit mass – the mass of one formula unit of an ionic compound (u)

u = atomic mass units – the mass of 1/12 of a carbon -12 atom

Example 1. Find the atomic mass of red # on your P.T use 3 decimal places.

a) One hydrogen atom 1.008u
b) One oxygen atom 15.999u

Example 2. Find the molecular mass of hydrogen peroxide H_2O_2

4SF 5SF
$2(1.008u) + 2(15.999u)$
$= 2.016u + 31.998$
$= 34.014u$

Example 3. Find the formula unit mass of calcium phosphate.

$Ca_3(PO_4)_2$
$3(40.078u) + 2(30.974u) + 8(15.999u)$
$= 120.234u + 61.948u + 127.992u$
$= 310.174u$