

Chapter 3

ATOMS AND MOLECULES

Molecular mass:

The molecular mass of a substance is sum of atomic masses of all the atoms in a molecule of a substance.

It is expressed in atomic mass unit (u).

Ex.

Relative molecular mass of NH_3 is

$$\text{N} + 3\text{H} = 14 + 3(1) = 17\text{u}$$

Carbon dioxide(CO_2): $\text{C} + 2(\text{O}) = 12 + 2(16) = 44\text{u}$

Formula unit mass:

The word molecular mass is not appropriate for ionic compounds as there is no discrete molecules in ionic compounds.

To indicate mass of the unit in ionic compounds formula unit mass is used.

Ex.

1) Sodium chloride (NaCl) = $\text{Na} + \text{Cl} = 23 + 35.5 = 58.5\text{u}$

2) Calcium chloride (CaCl_2) = $\text{Ca} + 2\text{Cl} = 40 + 2 \times 35.5 = 111 \text{ u}$