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Chapter:- 3. ATOMS AND MOLECULES.

CLASS:- IXth

SUBTEACHER:-VIKASH KR. RAJAK

SUBJECT:-CHEMISTRY

DATE :-02/06/2020



Topic:- How Do Atom Exist.

➤ **Significance of the Symbol of an Element:-**

1. Symbol represents name of the element.
2. Symbol represents one atom of the element.
3. Symbol also represents one mole of atoms of the element. That is, symbol also represents 6.022×10^{23} atoms of the element.
4. Symbol represents a definite mass of the element (equal to atomic mass expressed in grams).

➤ **As an example, let us give the significance of symbol C:-**

1. Symbol C represents carbon element.
2. Symbol C represents one atom of carbon element.
3. Symbol C also represents one mole of carbon atoms. That is, symbol C also represents 6.022×10^{23} atoms of carbon.
4. Symbol C represents 12 grams of carbon (which is equal to the atomic mass of carbon expressed in grams).

➤ **HOW DO ATOMS EXIST:-**

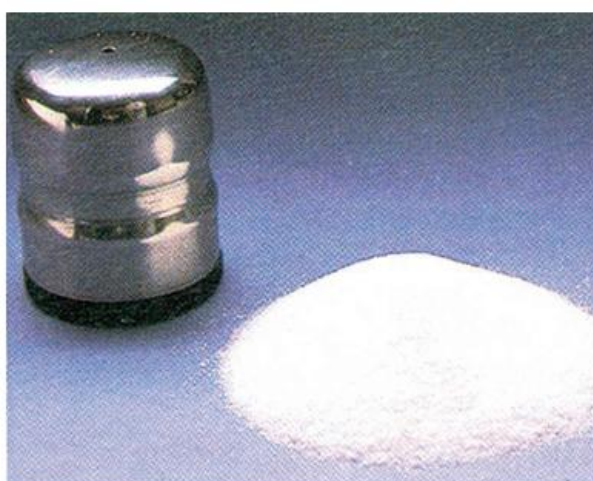
The atoms of only a few elements called noble gases (such as helium neon, argon and krypton, etc.) are chemically unreactive and exist in the free state (as single atoms). Atoms of most of the elements are chemically very reactive and do not exist in the free state (as single atoms). Atoms usually exist in two ways:

1. In the form of molecules, and
2. In the form of ions.

☞ When atoms form molecules or ions, they become stable (because in doing so they acquire the stable electron arrangements of noble gases). The molecules and ions stick together in large numbers to form the various types of matter around us. Though we cannot see the individual molecules or ions with our eyes, we can, however, see the various substances which are a big collection of molecules or ions. For example, we cannot see the individual iodine molecules (I_2) with our eyes because they are very, very small but we can see iodine crystal as a violet coloured solid because it is a collection of millions and millions of iodine molecules held together. Similarly, we cannot see the individual sodium ions (Na^+) and chloride ions (Cl^-) but we can see the sodium chloride compound (common salt) as a white powder because it is formed by the collection of millions and millions of sodium ions and chloride ions. We will now discuss the molecules and ions in detail, one by one.



Iodine Crystal



Sodium Chloride Compound

☞ Home Work (Based on study material of 01-06-20)

Answer the following questions:-

1. What is Latin Names?
2. What is Atomic Mass Unit?
3. Write the Latin name of following elements.

(i) Sodium (ii) Iron (iii) Copper (iv) Gold (v) Tin (vi) Silver

4. Write the Atomic masses of following elements?

(i) Hydrogen (ii) Nitrogen (iii) Carbon (iv) Oxygen (v) Sodium (vi) Magnesium