**INTRODUCTION**

Sodium chloride is commonly known as salt is an ionic compound with chemical formula NaCl. It is one of the most abundant minerals on earth and essential nutrient for many animals and plants. It is naturally found in sea water and in underground rock formation. The molar mass or formula mass of sodium chloride is 58.5g where mass of sodium is 23g and mass chlorine is 35.5g.

**STRUCTURE OF SODIUM CHLORIDE (ROCK SALT STRUCTURE)**

Sodium chloride crystal is made up of sodium (Na+) ion known as cation and chloride (Cl-) ion known as anion. Sodium chloride crystal is a face centred cubic closed packed structure. The chloride ion is being comparatively larger in size or occupy the corner and face centred position. Sodium ion being smaller in size so they fill up the octahedral voids is the cubic close structure. In this structure each chloride ion is surrounded by six sodium ions and each sodium ion is surrounded by six chloride ion. So the co ordination number is 6.

**USES OF SODIUM CHLORIDE**

* In addition to the familiar domestic uses it also used in many chemical industries for the manufacture of different chemicals.
* It is used in chlor-alkali process the production of sodium hydroxide.
* Sodium chloride is also use in solvay process to produce sodium carbonate and calcium carbonate
* It is also used in textile industries.
* In rubber manufacture salt is used to make buna, neoprene and white rubber types.

**CALCULATION OF TOTAL NUMBER OF IONS PER UNIT CELL**

Total no. of chloride ions = sum of chloride ions at corners and at face centre

= 8corners x per unit cell + 6 faces x per face

= 4

Total no. of sodium ions = sum of sodium ions at the 12 edges and one at the centre

= 12 edges x per edge + 1 at the centre

= 4

Thus the unit cell of sodium chloride contains 4 chloride ions and 4 sodium ions