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***Solid state***

**Types of solid:**

The solids are of the following types:

1. Crystalline solids

2. Amorphous solids

**1. Crystalline solids:** If various ions,atoms and molecules constituting the solid are arranged in definite geometry pattern within the solid it is called a crystalline solid.All solid elements and compounds exist in this form.

**2. Amorphous solids:** A solid is known as amorphous solid if the constituent particle f the substance are not arranged in any regular fashion. Glass,pitch and olymers of high molecular mass appear in this category.They are regarded s supercooled liqids of high viscosity.

**Space lattices**

A solid is a form of matter which has both definite shape and volume .A solid is bounded by plane surfaces called faces.These faces always intersect one another at fixed angles charecteristicof the solid which give rise to the typical geometrical shape of the solid.Solids having typical geometrical shapes and fixed interfacial angles are called crystalline .Crystalline solids are actually true solids.A crystalline solid consists of crystal .Ions ,atom or molecules that make up a crystal are called points.All crystal have well ordered arrangement of oints.The pattern of points,which describes the arrangement of pointsin crystals is called space lattice.

**Unit cell**

Hence space lattice is an arrangement of points in three dimensional space.The smallest portion of a space lattice which sets the pattern of the whole lattice is called unit cell.

Unit cell can be divided into four type:

1. **Simple unit cells:** This type of unit cell is produced when the particles are present only at the corners of the unit cells.The simple unit cell is also called primitive unit cell.
2. **Face Centre unit cell :** If the particles are located at the centre of each face in addition to the corners,face centred unit cell is produced.
3. **End Face Centre unit cell :** If the particles are located at the centre of end faces in addition to the corners end face centred unit cell is produced.
4. Body centred unit cell: If the particles are located at the centre of the cell in addition to the corners,body centred unit cell is produced.