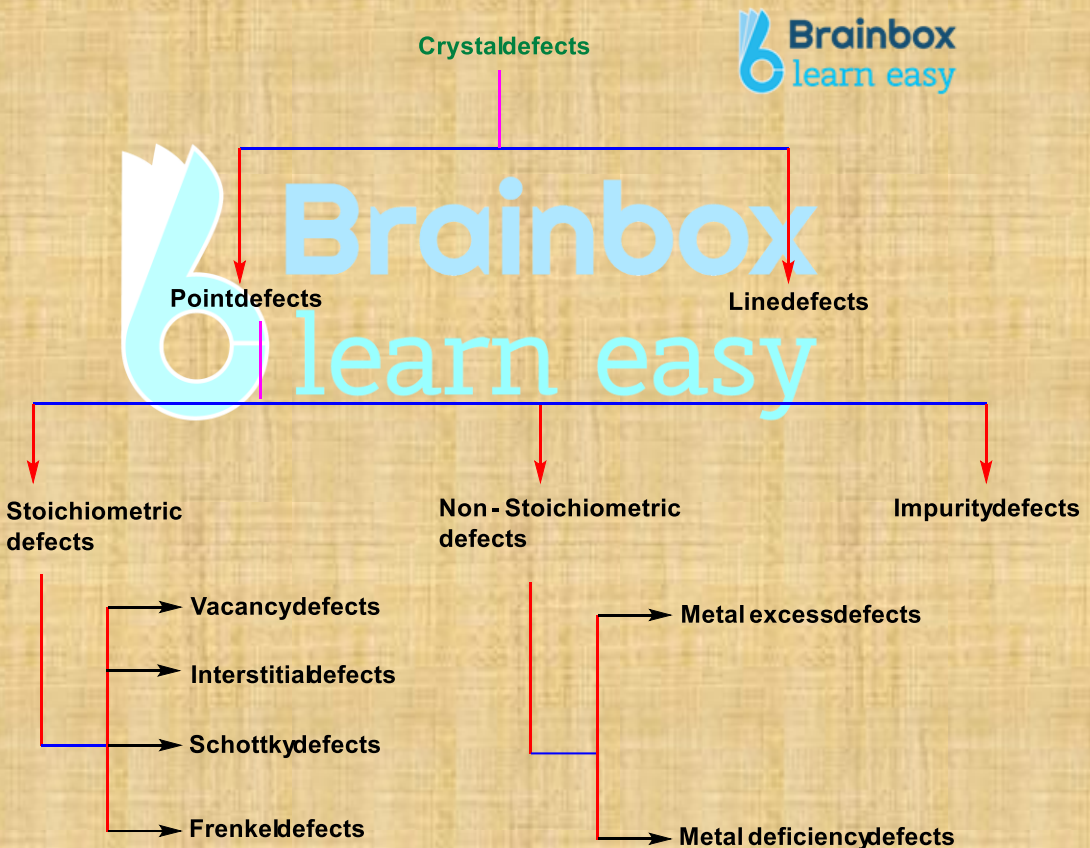


Unit
1
The Solid State

Imperfection in solids:

Crystal defects:

Any imperfections in close packed arrangements is known as crystal defects.



Point defects:

Imperfections or irregular in crystal structure about a point.

Stoichiometric defects:



The defects in which composition of the crystals not altered.

Vacancy defect:

When some lattice points are left vacant, it is called Vacancy defect.

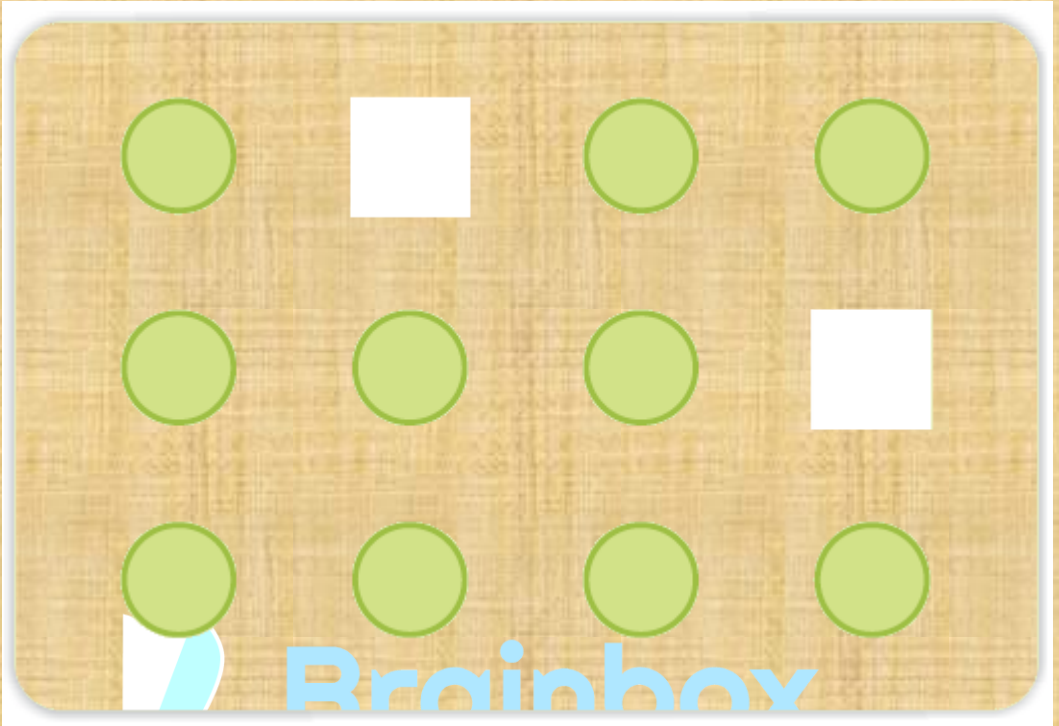


Fig. Vacancy defects

This results in decrease in density of solid.

Interstitial defect:

When some particles occupy interstitial sites, it is called interstitial defect.

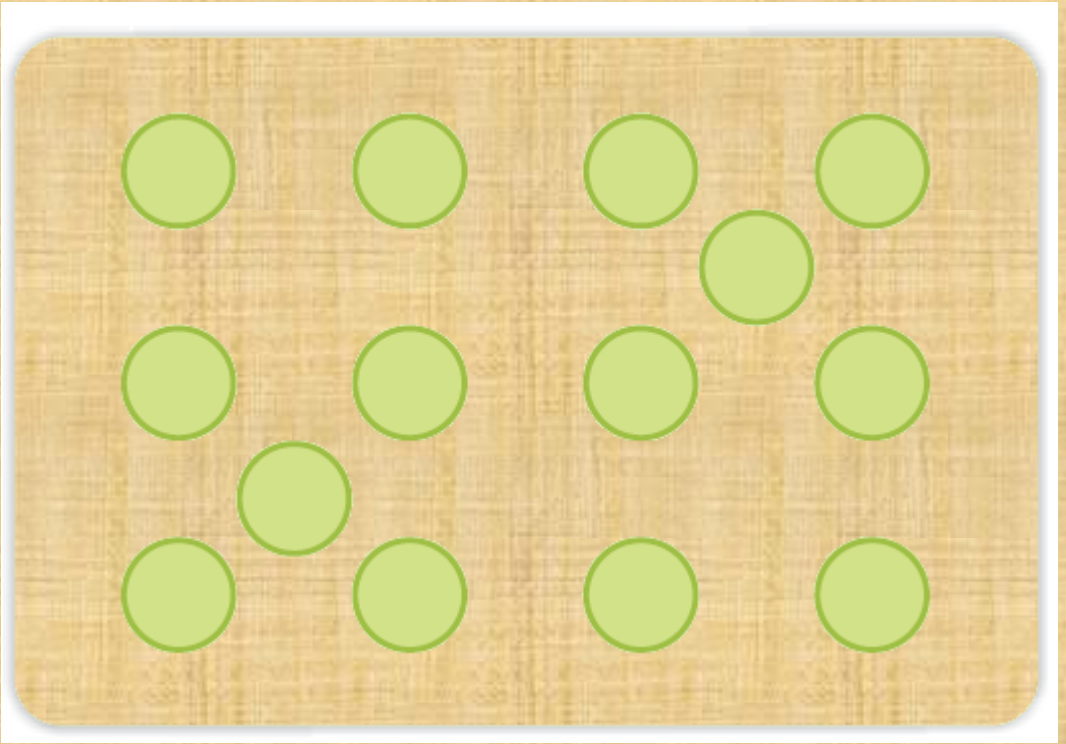


Fig. Interstitial defects

This results in increase in density of solid.

Schottky defect:

This is a vacancy defect observed in ionic solids. Equal no of cations and anions are missing from lattice sites. This results in decrease in density of solid.

Ex. NaCl, KCl etc.

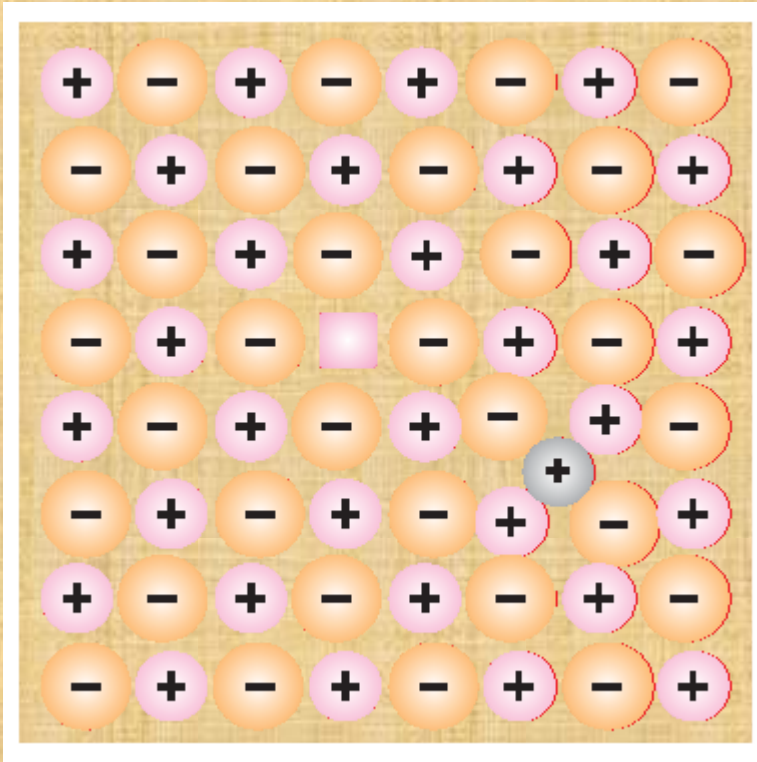


Fig. Frenkel defects

Frenkel defect:

This is the dislocation defect shown by ionic solids. Few cations are missing from lattice sites and occupy interstitial sites. This doesn't alter density of solids.

Ex. ZnS, AgCl, AgI etc.

AgBr shows both schottky and Frenkel defect.

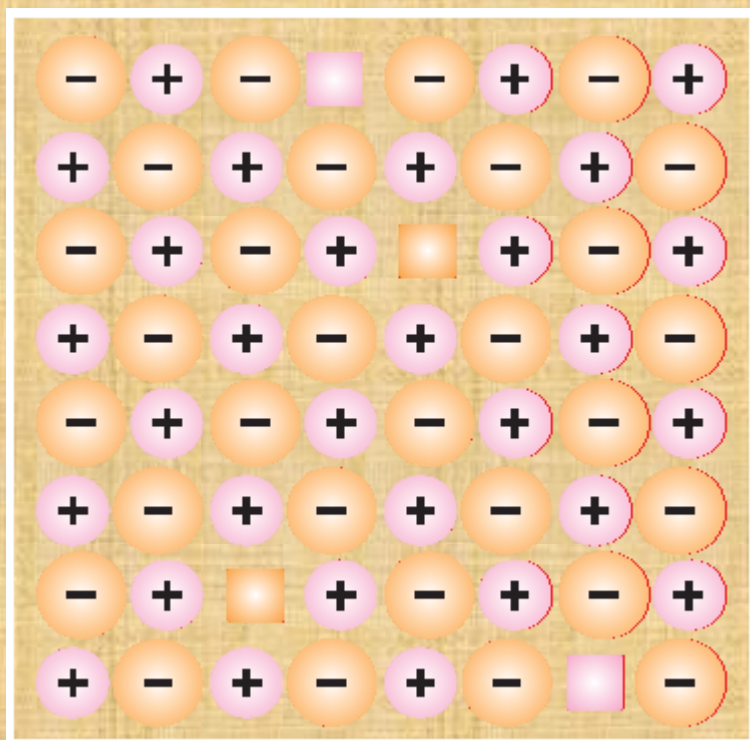



Fig. Schottky defects

 **Brainbox**
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