

Crystal structure -

Lattice - 3D array of points

Crystal structure = Lattice + Basis (motif)

Crystal system

Space Lattice

1. Cubic

$$a = b = c$$

$$\alpha = \beta = \gamma = 90^\circ$$

Simple

Body centered

Face centered

2. Tetragonal

$$a = b \neq c$$

$$\alpha = \beta = \gamma = 90^\circ$$

Simple

Body centered

3. Orthorhombic

$$a \neq b \neq c$$

$$\alpha = \beta = \gamma = 90^\circ$$

Simple

End centered

Body centered

Face centered

4. Rhombohedral

$$a = b = c$$

$$\alpha = \beta = \gamma \neq 90^\circ$$

Simple

5. Hexagonal

$$a = b \neq c$$

$$\alpha = \beta = 90^\circ$$

$$\gamma = 120^\circ$$

Simple

6. Monoclinic

$$a \neq b \neq c$$

$$\alpha = \beta = 90^\circ \neq \gamma$$

Simple

End centered

7. Triclinic

$$a \neq b \neq c$$

$$\alpha \neq \beta \neq \gamma \neq 90^\circ$$

Simple



7 - crystal system



(14) Bravais Lattice