

The NaCl Lattice

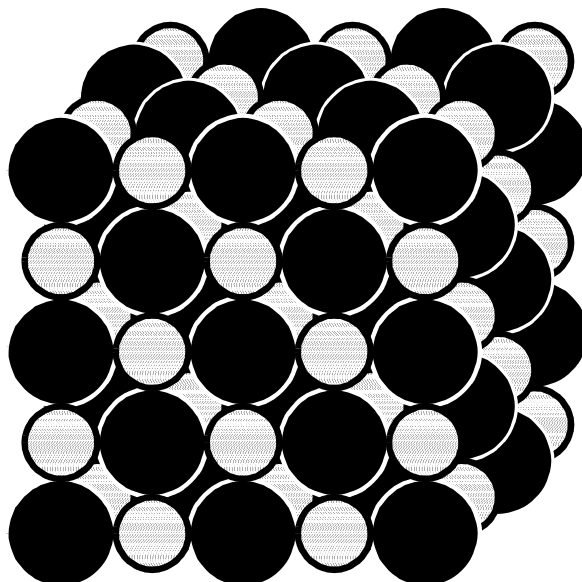


Figure 1. The NaCl Lattice.

In this lattice the anions (Cl^-) are layered in a cubic closest packing (or a face centered cubic) arrangement with the cations (Na^+) fitting into the octahedral holes left in the anion layer. This produces a cubic closest packing for the cations as well.

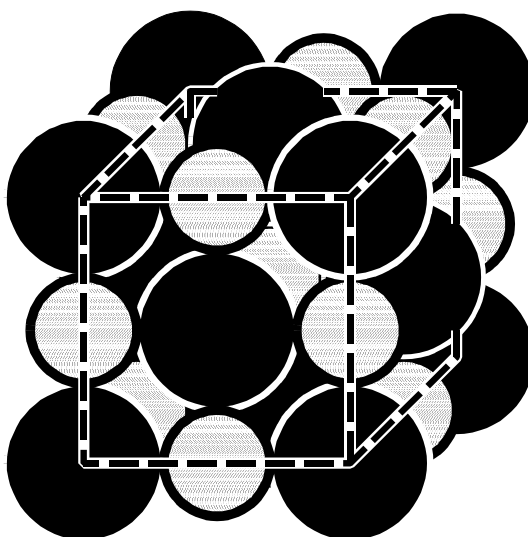


Figure 2. Unit Cell for the NaCl Lattice.

The anions (Cl^-) are at the center of cell faces and at the corners of the cell. The cations (Na^+) are on the edges of the cell and at the center of the cell. The entire unit cell uses twenty-seven atoms (parts of fourteen anions plus all of parts of thirteen cations) in seven layers.

The CsCl Lattice

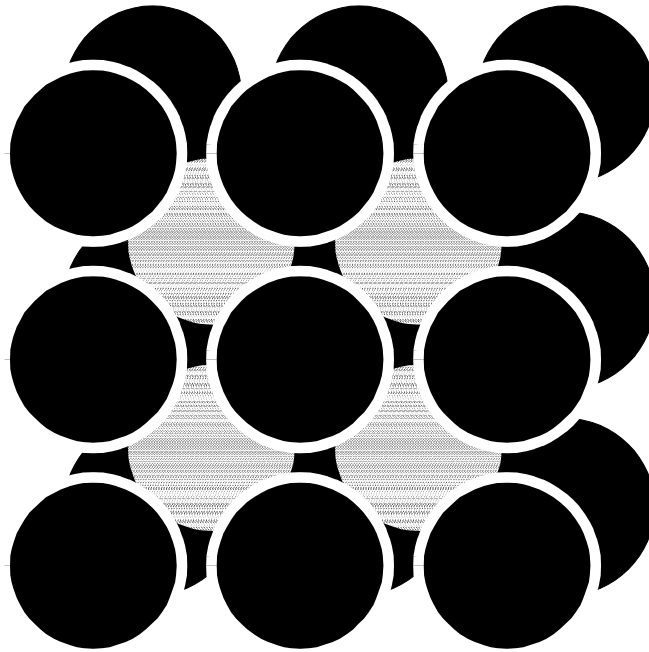


Figure 3. The Cesium Chloride Lattice.

In this lattice the anions (Cl^-) are layered in a simple cubic packing arrangement with the cations (Cs^+) fitting into the cubic holes left in the anion layer.

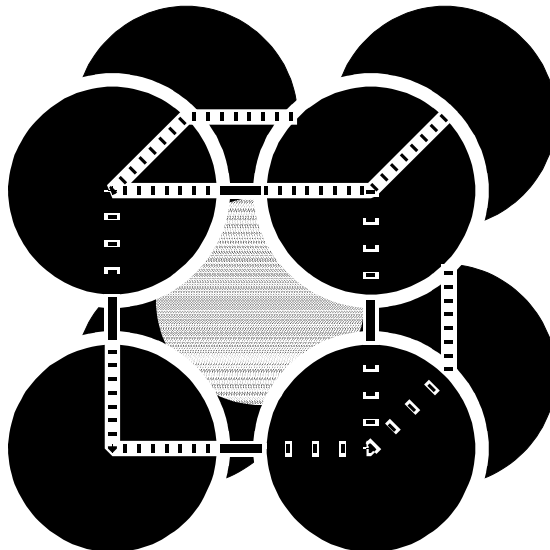


Figure 4. Unit Cell for the CsCl Lattice.

The cation (Cs^+) is at the center of eight anions (Cl^-). The entire unit cell uses nine atoms (parts of eight anions plus one whole cation) in three layers.

The Zinc Blende Lattice

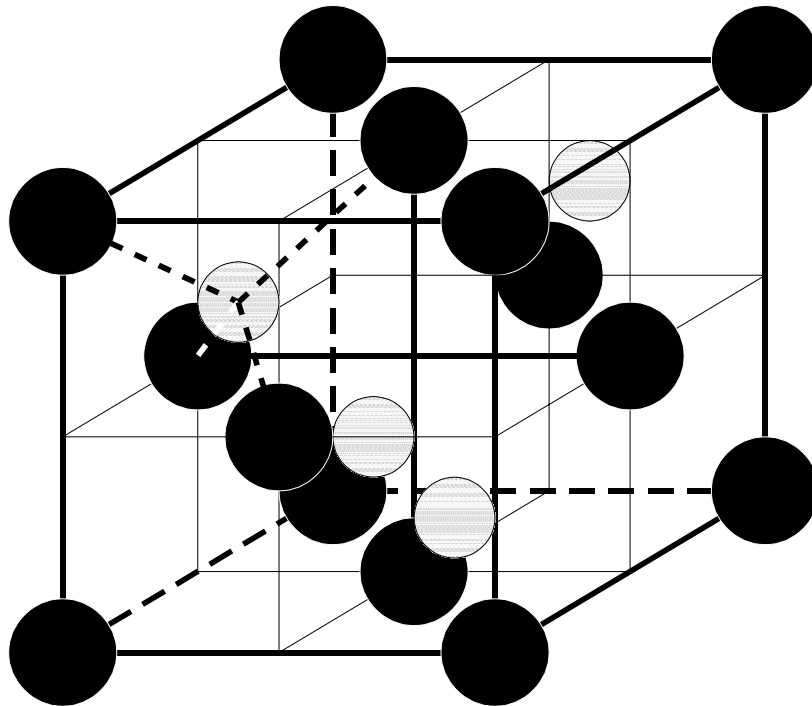


Figure 5. The Zinc Blende Unit Cell.

In this lattice the anions (S^{-2}) are layered in a cubic closest packing (or a face centered cubic) arrangement with the cations (Zn^{+2}) fitting into alternating tetrahedral holes left in the anion layer.

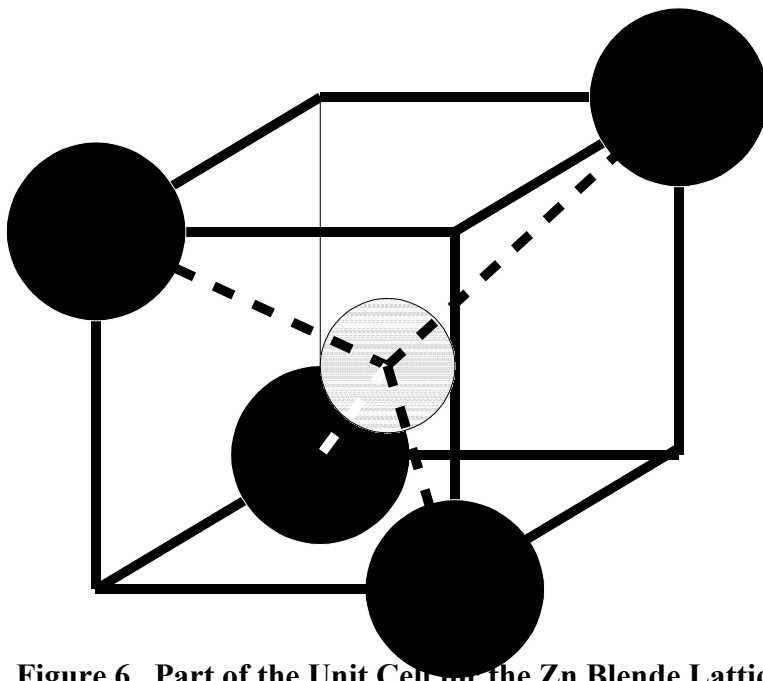


Figure 6. Part of the Unit Cell for the Zn Blende Lattice.

The cation (Zn^{+2}) is at the center of four anions (S^{-2}). The entire unit cell uses eighteen atoms (parts of fourteen anions plus four whole cations) in five layers.