Answer on Question #52668, Physics, Other

Task: physical nature of most of the ionic compound is

Answer:

When metals react with non-metals, electrons are transferred from the metal atoms to the non-metal atoms, forming ions. The resulting compound is called an ionic compound.

Here are some examples:

sodium + chlorine → sodium chloride

magnesium + oxygen → magnesium oxide

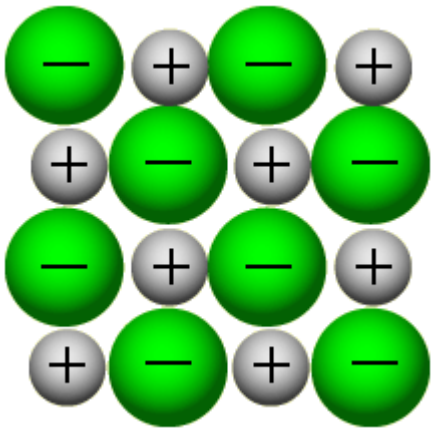
calcium + chlorine → calcium chloride

In each of these reactions, the metal atoms give electrons to the non-metal atoms, so that the metal atoms become positive ions and the non-metal atoms become negative ions.

There is a strong electrostatic force of attraction between these oppositely charged ions, called an ionic bond.

The ions in a compound such as sodium chloride are arranged in a lattice structure. This regular arrangement results in the formation of a crystal.

The diagram shows part of the crystal lattice of sodium chloride:



Positively charged Na ions, negatively charged Cl ions

This pattern is repeated in all directions, giving a giant three-dimensional lattice structure in sodium chloride crystals.

Because of the strong electrostatic forces between them, it takes a great deal of energy to separate the positive and negative ions in a crystal lattice. This means that ionic compounds have high melting points and boiling points.

Solid ionic compounds **do not conduct electricity**, because the ions are held firmly in place. They cannot move to conduct the electric current. But when an ionic compound melts, the charged ions are free to move. Molten ionic compounds **do conduct electricity**.

When a crystal of an ionic compound dissolves in water, the ions separate. Again, the ions are free to move, so a solution of an ionic compound in water also conducts electricity.