

Ionic vs Covalent Compounds

The difference between ionic and covalent compounds can be confusing. A basic definition of an ionic compound is that they are molecules that consist of charged ions. These ions have opposite (both negative and positive) charges. On the other hand, covalent compounds are non-metals which are bound together, and consist of two electrons that are shared between two atoms.

The molecules of an ionic compound are bonded together by the electrical attraction of the two or more ions. These ions can be of two types “ cation and anion. Cation refers to the ions with a positive charge, while anion refers to the ions with a negative charge. Cations are usually metals, while anions are usually non-metals, or polyatomic. On the other hand, a covalent compound is usually formed when two non-metals are bonded together. In this type of compound, the electrons are shared (and not transferred), and this causes the bond between them.

Ionic compounds have a high melting and boiling point, whereas covalent compounds have a comparatively lower melting and boiling point. The reason for this fact, is that ionic compounds require a huge amount of energy to break their ionic bonds, and pull apart the positive and negative charges. Covalent compounds are separated much more easily, because they are formed from distinct molecules that do not interact with each other.

The bonds of the ionic compounds are more crystal-like than the bonds of the covalent compound. Therefore, covalent compounds are softer, and more flexible. Covalent compounds are also more flammable than ionic compounds, due to the fact that they often contain Carbon and Hydrogen.

Ionic compounds help to conduct electricity in water, as they are charge carriers. Covalent compounds do not have this capability, because they do not contain ions. Ionic compounds are also more soluble in water than covalent compounds. This is because water dissolves polar substances, which is the consistency of the ionic compound, whereas covalent compounds are non-polar.

Summary:

1. Ionic compounds are formed by the transfer of electrons that are positively and negatively charged, whereas, covalent compounds are formed by sharing the electrons.
2. The melting and boiling points of ionic compounds are much higher compared to those of the covalent compounds.
3. Ionic compounds are hard and crystal-like, while covalent compounds are softer and more flexible.
4. Covalent compounds are more flammable when compared to ionic compounds.
5. Ionic compounds are more soluble in water than covalent compounds.

