Unit 3. The Chemical Bond

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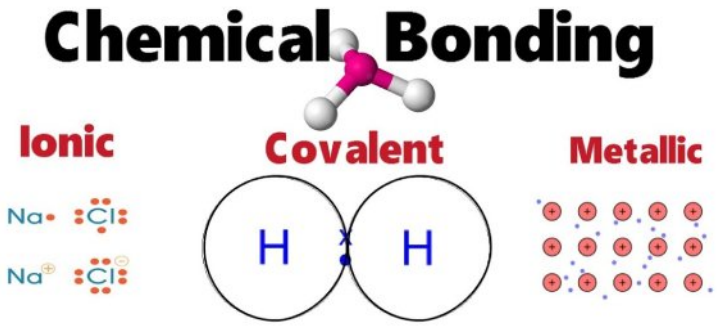
October 28, 2021

1 Introduction. Key Concepts



All chemical elements (except noble gases) combine with each other, because in this manner they are more stable.

- A **chemical bond** is an electrical attraction between atoms. Its purpose it is obtaining a stable electronic configuration (i.e, 8 electrons in the outer shell (**valence shell**), except for H and Li that are stable with two electrons in the outer shell.).
- **Valence** or **valency of an element** is the number of electrons that the element needs or exceeds to have a stable electronic configuration.

Noble gases

They are are called **inert gases** because they do not combine with any other atom, since they have and already **stable electronic configuration** in the valence shell.

Noble gases have **very low melting and boiling points**.

Types of chemical bonds

- **Covalent bonds**. Characterized by the **sharing of pairs of electrons** between **non-metallic atoms**.
- **Ionic bonds**. Characterized by the **loss of one or more of electrons** in **metallic atoms**, that are **gained** by a **non-metallic** atom.
- **Metallic bonds**. Characterized by the **sharing or loss pairs of electrons** between **metallic atoms**.

bond name	**covalent**	**ionic**	**metallic**
atoms involved	non-mettalic	metallic and non-mettalic	mettalic
description	sharing pair of electrons	loss of electrons in the metal, that are gained by the non-metal	losing or sharing electrons