

Tetratomic Encyclopedia Article

Tetratomic

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Molecules of tetratomic elements contain four atoms. Elements are substances that cannot be chemically broken into two or more pure substances. Examples of elements include **carbon**, **hydrogen**, **potassium**, and **fluorine**. The smallest unit of a chemical element that has the properties of that element is called an **atom**. Atoms, in turn, combine with one another in infinite variation to produce the molecules of our universe. Many pure elements occur naturally as single atoms. For example, **aluminum**, **helium**, and **sodium** are *monatomic* elements, or elements whose atoms can exist alone, without forming molecules. Other elements only occur naturally as molecules made up of more than one atom of that same element chemically bonded together. For example, hydrogen is always found as a **molecule** in its elemental form (pure hydrogen). In other words, pure hydrogen gas never exists as single hydrogen atoms. Many elements ordinarily occur as **diatomic** molecules, or molecules consisting of two atoms chemically bonded. In addition to hydrogen, the elements **nitrogen**, **oxygen**, **chlorine**, **iodine** and **bromine**, all of which are **gases** at room **temperature**, also are diatomic. Oxygen, however, in addition to being diatomic can be found in a **triatomic** form called ozone. Fewer elements exist naturally as molecules consisting of four or more atoms. An example of a common and biologically important element that consists as molecules of four atoms chemically bonded together is the element **phosphorus**. Solid phosphorus usually occurs as a *tetratomic* molecule (tetra=four). Similarly, other elements are polyatomic. Crystalline **sulfur**, for example, occurs as molecules containing eight atoms.