Table 1.1. Basic chemical term definitions

Matter is anything that has **volume**, or takes up space, and has **mass**, or can be weighed. Matter generally exists in four states:

- As a **solid**, it has a definite shape and volume.
- As a **liquid**, it has a definite volume, but it takes the shape of its container.
- As a **gas**, it has no definite shape or volume; it takes the shape and volume of its container.
- As a **plasma**, is has no definite shape or volume; like a gas, it takes the shape and volume of its container. Unlike a gas, it can conduct electricity.

A **pure substance** has only one kind of matter in it; that matter may be an element or a compound.

An **element** is a pure substance that cannot be broken down chemically. Ninety-two elements are found in nature.

A **compound** is a pure substance that contains two or more different elements bonded together in exact proportions. A compound can be separated into its elements by chemical reactions.

A **mixture** is a combination of two or more kinds of matter that are not chemically bonded to each other. A compound has a fixed proportion of components, but a mixture may have different proportions. There are mixtures of different elements, mixtures of different compounds, and mixtures of elements and compounds.

An **atom** is the smallest unit of an element that still has the properties of that element. Atoms are composed of positively charged particles called **protons**, negatively charged particles called **electrons**, and neutral particles called **neutrons**. The number of protons, neutrons, and electrons in an atom determine its physical properties.

A **molecule** is the smallest unit of an element or a compound that can exist by itself. A molecule is always made of two or more atoms chemically joined together. A molecule of an element is made up of two or more atoms of the same element, while a molecule of a compound is made up of two or more atoms of different elements.