



Learning Objectives

After studying this lesson, students will be able to

- ◆ define solution.
- ◆ recognize the types of solutions.
- ◆ analyse the factors influencing solubility.
- ◆ explain the various modes of expression of concentration of solution.
- ◆ calculate the solubility of solutes in solvents.
- ◆ correlate the hydrated salts and anhydrous salts.
- ◆ distinguish between deliquescent and hygroscopic substances.



INTRODUCTION

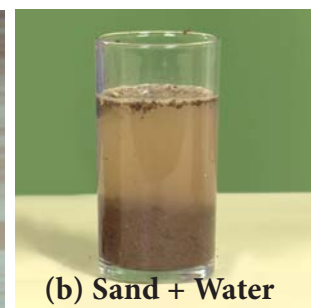
You have learnt about mixtures in your lower classes. Most of the substances that we encounter in our daily life are mixtures of two or more substances. The substances present in a mixture may exist in one or more physical state. For example, when we burn wood, the smoke released is a mixture of solid carbon and gases like CO_2 , CO , etc.

In some cases of mixtures, their components can be separated easily whereas in some other cases they cannot be. Consider the two mixtures, one which contains salt and water, and the another which contains sand and water. Water is the one of the components in both the mixtures. In the first case salt dissolves in water. In the second case the sand does not dissolve in water. Sand in water can be separated by filtration but salt cannot be separated as it dissolves in water to form a homogeneous

mixture. This kind of homogeneous mixtures are termed as “**solutions**”.



(a) Salt + Water



(b) Sand + Water

Figure 9.1 a) Homogeneous mixture
b) heterogeneous mixture

9.1 SOLUTIONS IN DAY-TO-DAY LIFE

One of the naturally existing solutions is sea water. We cannot imagine life on earth without sea water. It is a mixture of many dissolved salts. The another one is air. It is a mixture of gases like nitrogen, oxygen, carbon dioxide and other gases.

