

## 15. Materials we Use

- Abrasives used in toothpaste such as calcium carbonate and calcium hydrogen phosphates helps our teeth get clean.
- Fluoride is the most common active ingredients used to prevent cavities in our teeth.
- Detergent is a cleansing agent that combines with the impurities to make them more soluble and hence wipe them away.
- Types of detergents
  - **Natural detergents:** They are obtained from nature and have no harmful effect on human skin or clothes.
  - **Man-made detergents:** They are chemically obtained and are used for bathing and washing. Soft soaps are used for bathing while hard soaps are used for washing clothes.
  - **Synthetic detergents** are an effective cleanser and even work with hard water.
- Soap can be prepared using oil and sodium hydroxide.

### Manufacture of Cement

1. It is an important synthetic compound used as a building material.
2. Cement is a mixture of calcium silicate and aluminate in addition with gypsum.
3. Raw materials used in the synthesis of cement are clay, lime stone and gypsum.
4. The homogeneous mixture of powdered clay and limestone with water is known as slurry.
5. Cement is prepared in a furnace, known as rotary kiln, which operates at very high temperatures.
6. Cement balls obtained from rotary kiln are known as clinkers, which are mixed with 3-5% of gypsum.
7. The hardening of cement with the treatment of water is known as curing process.
  - (i) During curing process, calcium silicate and aluminate are converted into colloidal gel.
  - (ii) It is an exothermic process and requires continuous supply of water.
8. Mixture of cement, gravel and sand in the ratio of 1:2:4 is known as concrete.