

DETERGENTS

A detergent is any substance that cleanses or aids the removal of dirt. Soaps and synthetic detergents are all detergents.

Soap

Soap is made by the reaction between fats/ oils of animal / vegetable origin, and alkalis, chiefly caustic soda or caustic potash. Caustic soda is used because it is cheap. The process is called saponification. The products are soap and glycerine.

Fats + Alkali

Heat

Soap + Glycerine

Glycerine is an important by-product, which is used in many industries as a base raw material. Soap can be made into long or short bars, or soap flakes. Good bar soap should not be too soft as they become easily used up when it is rubbed on articles.

Synthetic Detergents

Synthetic detergents are made from mineral oil or petroleum products rather than vegetable oils or animals fats. They are not affected by the hardness of water. They contain certain ingredients which are absent in soaps. These ingredients enable synthetic detergents to produce lather quickly. The lather or foam formed does not collapse readily. Many synthetic detergents also contain bleaching agents.

Types of Detergents

- i. Heavy Duty Detergents: These produce much lather readily. They can give mild leaching action. Examples are Omo, Elephant, Tide, Appolo, etc. They are suitable for washing heavy soiled articles.
- ii. Light Duty Detergents: These dissolve readily in water. They do not contain bleaching agents. They are suitable for washing delicate materials, woolens and baby's clothes.

General Cleansing Action of Soap and Synthetic Detergents.

Soaps and synthetic detergents have several properties in common. For instance, their molecules are alike and behave similarly. The detergent molecule is made up of two parts, the "head",

which is the water-loving part (hydrophilic part) and the tail”, which is the water-hating part (hydrophobic part). Factors that Influence the Cleansing Effect of a Detergent

1. It must be a good wetting agent.
2. It must be able to remove the dirt from the article.
3. It should be able to prevent the dirt from being deposited back on the fabric.
4. There must be a sufficient quantity of the detergent for the articles being laundered.
5. Enough time must be given for the detergent to work. Therefore, heavily soiled articles need to be soaked for some time except where colours are not fast.
6. There must be sufficient mechanical action, that is, the fabric needs to be rubbed, squeezed or agitated so that the detergent can penetrate the fibres of the fabric and remove the dirt.
7. Increased temperature causes increased movement of the water and detergent molecules. Thus, increased temperature helps the detergent to work more efficiently. Hot water also helps to break up fats into small droplets.

Differences Between Soaps and Synthetic Detergents

Soaps Synthetic Detergents

1 These are made from animal fats and vegetable oils.

These are made from mineral oils.

2 They form scum with hard water. They do not form scum with hard water.

3 They make a foam which dies away quickly by itself.

They form a foam which only dies down very slowly.

4 Soaps remove dirt but cannot take out stains.

They can remove some stains and make many look much paler.

5 Soap does not, by itself, harm fabrics, although the rubbing of its on the fabric

may do so.

They are strong and any tiny bits left to dry on the fabric may bore a hole on a delicate fabric.

6 Soaps have a weaker effect on grease. They have a stronger effect on grease.

7 Soaps are less expensive.

They are more expensive.

BLEACHES

Bleaches are used for the following purposes:

1. To make white cotton and linen articles whiter.
2. To remove certain stains.
3. They are also used as sterilizers for sinks, drains, etc.

Types of Bleaches

There are two classes of bleaches:

- i. Oxidizing Bleaches: These decompose and give out oxygen which attacks stains and fabric. Examples are hydrogen peroxide, chlorine bleaches, or sodium hypochlorite such as Jik and Parazone. Oxidizing bleaches are the commonly used household bleaches. Sunlight is also a bleaching agent, especially in the presence of moisture. This is why coloured materials, such as veritable wax prints, should be dried under a shade.
- ii. Reducing Bleaches: These remove stains by removing oxygen from them, e.g. sodium hydrosulphite.