

SYNTHETIC BARS FOR PERSONAL CARE

Sitaram Dixit

Soaps are Sodium / Potassium salts of a fatty acid and is made from natural raw materials. It is the oldest cleansing agent still in use today. For centuries, it was the only known surfactant. Although synthetic detergents have replaced soap in many application product categories, it has largely retained its importance for skin cleansing.

The popularity of Soaps is due to the fact that

- It is relatively milder to skin
- Is inexpensive.

However, there are many disadvantages with soaps

- Its alkaline nature (high pH),
- Lime soap formation. Soap loses its effectiveness in hard water that contain Calcium and Magnesium ions to form curd, leaving its undesirable deposits in wash basins, bath tubs, etc.
- In some sensitive individuals, soap can also exhibit irritant properties.
- Irritation in some individuals may also occur when using alkali free, super fatted soaps that have extra fatty acids dosed as additives.

Many surface-active agents other than soap are used in the manufacture of Synthetic detergent bars. In the Indian subcontinent and in the Asia Pacific region Synthetic detergent bars are synonymous with Laundry detergent cakes / bars that have their surfactant actives derived from LAB (Linear Alkyl Benzene) obtained from petroleum distillates.

Although many Non-soap surface actives have been used earlier for detergency Ester and amide sulfonates introduced by, "I. G. Farben Industries" in 1930 in Germany is popular. It is marketed under the trade name "Igepon A" and "Igepon B" "Igepons" were the first in the series of surfactants that performed in hard water.

By definition, Syndet bars are cleansing bars that contain less than 10% soap.

Advantages of Syndet bars

- Syndet bars perform well in hard water without formation of lime soap.
- The pH is close to neutral or comparable to the pH of human skin.
- Many of the surfactants used in synthetic bars are relatively milder than normal or traditional soap,
- It can be used by individuals having soap sensitive skin.

Disadvantages of Syndet bars

- They lack lubricity,
- They are more slippery,
- They get easily become slimy.
- Syndet bars do not have the familiar feel of soap, which make consumer acceptance problematic and very difficult.
- They are not very popular as Toilet Soaps

- The production of these Syndets often requires special finishing equipments.
- It also entails difficult and time consuming production procedures, making the process expensive.
- The price to produce Syndet bars is minimally three to four times higher than that of traditional or normal Soap.

The basic formula of Synthetic Toilet bar is as follows

Igepon A (Fatty acid ester of Sodium Isethionate)	50 to 60%
Stearic acid	25 to 30%
Soap	1 to 10%
Oils / Fatty acids / Unsaponifiables / Other additives	1 to 8%
Moisture	6 to 10%

A Combi-bar is a combination of a traditional soap base with a Syndet surfactant composition.

Advantages of a Combi-bar formulation

- Have the properties of both a soap and Syndet.
- It has the familiar soapy feels as well as improved lather characteristics
- It also has lime soap dispersing properties.

Advantages of a Combi-bar formulation

- the pH of a Comb-bar is relatively higher and is closer to soap away for the neutral or low pH of pure synthetic detergent bars

Nowadays "Zetesap" Syndet bases are widely used in the manufacture of Toilet Syndet bars. It is manufactured by "Zschimmer and Schwarz GmbH Co" Lahnstein; Rhein

Different types of "Zetesap" bases have been developed. They are differentiated by the composition of the anionic active matter present, to meet dermatological behaviour and in-use property requirements.

- " Zetesap 813 A ", is a combination of Disodium fatty alcohol sulfosuccinate and Sodium coconut fatty alcohol sulphate.
- " Zetesap 5165 " is a combination of Disodium fatty alcohol sulfosuccinate and Sodium cocoyl Isethionate.
- " Zetesap 5213 " is a combination of Disodium fatty alcohol sulfosuccinate and Sodium fatty alcohol sulfoacetate.

Toilet bars made from "Zetesap" bases look very similar to traditional soap bars. However, their chemical structure is very different. This gives rise to many different properties and a variety of advantages.

1. "Zetesap" bases do not have the disadvantage of skin irritation like soaps
2. It can be formulated with various additives to promote specific performance properties and marketing requirement claims
3. The pH of the product is between 6 to 7 and can be further lowered if necessary.

4. Acid pH allows the use of a wide range of functional additives without the risk of stability problems.
5. Traditional colouring agents can be used without any difficulty.
6. "Zetesap" is virtually odourless. Lower concentrations of perfumes are only required to get a true odour of the fragrance.
7. "Zetesap" bases can be used in hard water areas.

Major disadvantages of " Zetesap"

- Excessive water intake leading to sloughing or mushing of the "Zetesap" toilet bar. This can however be minimised as required by the addition of expensive Aluminium trifluoride.

- The production of Toilet soaps with these Syndets often requires special finishing equipments.
- It also entails time consuming production procedures, compared to traditional soap finishing process.