

# Soluble Soaps

## Description

Soluble soaps are those used as toilet soaps, laundry soaps, etc. They are combinations of a fatty acid (oleic or stearic) with a base (sodium hydroxide, potassium hydroxide, ammonia or amine). Powdered soaps have almost disappeared from the retail market. With only a few exceptions, most of the products today are synthetic detergents combined with builders and fillers.

## Objective

The primary objective of soap is, of course, to clean. However, it is essential that no free alkali be present, if skin irritation is to be avoided. Standard toilet soaps are not usually homogenized, although the homogenizer could provide more complete saponification and uniformity in the soap. Specialty soaps such as shampoos and shaving creams and any soaps containing excess fatty acids, are homogenized to insure complete saponification and the absence of any free alkali.

## Equipment and Process

A homogenizer operating up to 3000 psi pressure capability is normally used for these products. The crude soap is prepared in an agitated, jacketed kettle at a temperature above the melt point of the fatty acid and is pumped to the homogenizer. The finished product is then pumped to a storage tank and cooled. A continuous system could be employed by metering the molten fatty acid into a stream of the alkali solution at the homogenizer inlet.

## Testing

The completeness of the saponification reaction is checked by titration of the product formed.