Ethiopian Experience in the Use of Distilled Palm Fatty Acid and Distilled Palm Kernel Fatty Acid from Malaysia as Raw Materials for Soap Making

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This article records some of our experiences during the total substitution of distilled tallow fatty acid (DTFA) and coconut oil fatty acid, as raw materials for laundry and toilet soap, with distilled palm fatty acid (DPFA) and distilled palm kernel fatty acid (DPKFA) from Malaysia. This substitution was tried out because of rises in the prices of DTFA and coconut oil fatty acid, and in order to have alternatives whenever there are unprecedented price rises in future.

The following are some brief notes on observations made while the substitution was being carried out, and on the advantages realized.

1. Packing

During negotiations for the purchase of DPFA and DPKFA certain packing standards were agreed upon. According to the purchase agreement, fatty acids specified at FAC-3 were packed in new iron drums while those specified at FAC-1 were packed in new epoxy-lined iron drums.

2. Raw Materials

The quality of the raw materials was within the limits specified by the purchaser. However, over a period of time the fatty acids packed in unlined iron drums showed some change in colour, tending to pink, around the areas in contact with the metal. However, the effect is not significant in the preparation of laundry soaps.

3. Processing

The first trial was made on toilet soap production.

Since the raw materials were being used for the first time, it was necessary to try different formulations, taking cost of production and quality of the product into consideration.

Accordingly, the first formulation was

DPFA at FAC-1	75%
DPKFA at FAC-1	25%

and the second was

DPFA at FAC-1	80%
DPKFA at FAC-1	20%

The second of the two formulations was adopted taking into account cost and quality.

The advantages realized due to the substitution are:

- The acid-base reaction between caustic soda and these fatty acids is quite vigorous, fast, and exothermic, which reduced the boiling time and steam energy requirement.
- The raw materials are white and clean, and hence all costs of bleaching were eliminated.
- After the substitution the perfume used is for the enhancement of the odour whereas previously it was to mask the unpleasant smell of tallow. Hence the substitution resulted in a toilet soap with greater perfume impact.
- When tallow-based raw materials are used, in most cases high concentrations of dyes are used to screen disagreeable colours. This problem is not significant even with DPFA at FAC-3. Hence there is a saving in the use of dyes, which are quite expensive.
- Laundry soap is manufactured entirely from DPFA at FAC-3. The soap is firm and smooth with a soft and stable lather.

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