

## IDENTIFICATION OF MOISTURE LOSS AND WEIGHT DROP OF SOAP TABLETS IN DIFFERENT CONDITIONS

D.K. Ranasinghe and K.D.D.N. Dissanayake

*Department of Industrial Management, Faculty of Applied Sciences, Wayamba University of Sri Lanka, Kuliyaipitiya, Sri Lanka*

Corresponding author: ranasinghedilasha@yahoo.com

Soap which consists of fats, colours, perfumes, fillers, water etc. can be categorised into laundry, bathing and baby soap. The moisture level and weight of the soap tablet are formulated and manufactured according to the soap category. In general, shelf life of these soap tablets is expected to be around 24 months. During this period, moisture and weight of the soap are more vulnerable to the drop based on the storage condition. Therefore, it is important to identify the behaviour of moisture evaporation and weight drop under different conditions. Thus, this research was carried out to identify those fluctuations. The research was conducted on randomly selected 96 soap tablets from each main soap category. The initial weight of each soap tablet was measured before it was stored in four different conditions such as fridge, oven, shelf and direct sunlight. Two soap tablets from each category were taken out from each storage condition at the end of each week for testing and then removed from the storage. The moisture level and the weight of the soap were measured using laboratory equipment for a period of three months. Statistical analyses conducted using SPSS. The findings showed that the weight and moisture level of the soap tablets were dropped in all four conditions at different rates. Soap tablets stored in oven were given the highest weight & moisture drop which indicated around 25% of initial weight loss and 70% of moisture loss in laundry soap category. In bathing soap category, it indicated about 12% initial weight loss and around 62% to 70% of moisture loss. The next highest drop indicated in direct sunlight condition which has around 12% of initial weight loss and 26% to 30% of moisture loss in laundry soap category and 5% to 9% of initial weight loss and 45% to 47% of moisture loss were indicated in bathing soap category. In shelf condition about 5% of the initial weight loss and 11% to 16% of initial moisture loss were recorded in laundry soap category and 4% to 7% of the initial weight loss and 19% to 28% of initial moisture loss were evident at the end of three months. The results indicate that storage and distributing conditions as well as packaging materials of soap tablets are needed to be retested and properly maintained in order to minimize the moisture evaporation and weight drop to ensure predetermined standard of the product.

**Keywords:** Moisture loss, Shelf life, Soap, Weight drop