
EXPERIMENT 12 STUDY OF PACKAGING SYSTEM OF MILK

The Pouch Filling Machine: Demonstration

Structure

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12.1 INTRODUCTION

Packaging of milk is done in several types of containers such as bottles, plastic pouches and cartons. Out of these, the bottle filling machines are seldom used these days. Cartons are normally used for long-life or UHT-processed milk. Pasteurized milk, therefore, is normally packaged and distributed in pouches all over the country.

12.2 OBJECTIVES

Study the working of the pouch filling machine.

12.3 EXPERIMENT

i. Principle

Plastic sachets are packaging materials that can be used only once and hence, come under the category of single-service containers. They are pillow-shaped and made of low-density polyethylene film (LDPE). They come in rolls of single or double film or as a flat tube. The sealing, cutting and shaping operations are done inside the packaging machine.

ii. Requirements

Pouch filling machine, adequate quantity (rolls) of LDPE film, milk to be filled.

iii. Procedure

1. Fix the roll of film onto the machine and shape it, if it is in the form of a roll. (If already shaped into a tube, this is not necessary).
2. Run hot water through the machine to sanitize it in the 'manual operation' mode.
3. While water is running, change to 'automatic' mode to check the seals of the machine and for leaks in the pouches. If there are pinholes replace the film. If the sealing temperature is not sufficient increase it. Also check the quantity and correct it if faulty.
4. Fill the overhead tank with the milk to be filled.
5. Start the machine. The vertical and horizontal seals and the milk injection system

should be in the 'on' position.

6. Check the volume of milk in the pouches periodically.
7. After the filling operation, the machine should be cleaned thoroughly using the following steps.
 - i) Let the machine be in the 'manual operation' mode.
 - ii) Switch off the horizontal seal and liquid injection systems.
 - iii) Empty the product in the balance tank into a vessel/can.
 - iv) Flush the balance tank with water and drain.
 - v) Clean by circulating 1% caustic soda at 80° C.
 - vi) Drain alkali and flush with sufficient quantity of water.
 - vii) Cool the machine before switching off.
8. Follow the daily maintenance schedule for the pouch-filling machine in the following manner.
 - i) Clean machine parts with a soft brush and warm liquid soap solution.
 - ii) Wash with clean water.
 - iii) Dry with air blower.
 - iv) Lubricate parts that need lubrication.
 - v) Inspect horizontal and vertical electrodes for milk solid deposits. Ensure that no sharp materials are used for removing these.
 - vi) The heating elements should be checked daily for burns or physical damages and replaced if found damaged.

iv. Observations

Volume of milk in pouches

12.4 PRECAUTIONS

All necessary hygienic precautions to be maintained in a food processing industry/plant should be observed at the milk packaging area so as to avoid contamination and ensure public safety.