FAQ:

1. What is clarification?

Ans. Clarification is a process of removing milk impurities comprising fine dust and dirt particles, body cells, etc. by means of a centrifugal machine (although 'filtration' is also sometimes termed as one of the methods of clarifying milk).

2. What is `standardization of milk'?

Ans. Adjustment of the composition of milk with regard to fat alone, or both fat and SNF, so that the milk has predetermined levels of these components. It usually involves mixing of a calculated quantity of cream or skim milk with milk in order to attain the desired values of the compositional parameters.

3. What is the function of a bactofuge?

Ans. A bactofuge achieves removal of bacteria, bacterial spores in particular from milk by subjecting it to a centrifugal force, the heavier bacteria being thrown away from the axis of rotation and thereby getting collected in the sludge space of the disc bowl.

4. Give two reasons for pasteurizing the milk.?

Ans. i. To make safe for human consumption by destroying pathogenic microorganisms present in milk.

ii. To improve the keeping quality of milk.

5. Describe the time-temperature combination normally used for milk pasteurization.

Ans. i. Batch, holding or Low Temperature Long Time (LTLT):63°C for 30

minutes.

ii. Continuous, High Temperature Short Time (HTST): 72° C for 15

seconds

6. What is stock's law and how it is related to creaming phenomenon?

Ans. This equation provides basis for explaining rise of fat globules in the un-homogenized milk. As the density of milk fat is less than that of the skim milk, depending on the diameter/size, the fat globules rise to the surface during storage and form cream layer.

7. How would you define homogenized milk?

Ans. Homogenized milk is milk which has been treated in such manner as to ensure break-up of the fat globules to such an extent that after 48 hours of quiescent storage no visible cream separation occurs on the milk and the fat percentage of the milk in the top 100 ml of milk in a quart bottle (946ml), or of the proportionate volume in containers of other sizes, does not differ by more than 10 per cent of itself from the fat percentage of the remaining milk as determined after thorough mixing.

8. Why is a two stage homogenization often recommended for milk?

Ans. During the first stage homogenization, new fat globule membranes are formed. Proteins, particularly casein from the serum phase are utilized for the purpose. Sharing of the casein micelles in the newly created membranes cause fat globules to form large aggregates, which have a tendency to rise to the surface. A second stage homogenization at reduced pressure (20% of the first stage) disrupts these larger aggregates and forms stable emulsion.

9. Define sterilized milk.?

Ans. Sterilized milk refers to a product obtained by heating milk in a sealed container in a commercial retort at temperatures of 110-130°C for 10-30min. The sterilized product can be stored for 4-6 months at room temperature without spoilage.

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10. Why Clostridium botulinum is so important in sterilization?

Ans. Clostridium botulinum can produce botulin, a toxin that is fatal to human. For ensuring safety of low acid foods like milk, 12 decimal reduction of this organism equivalent to Fo of 3 is required which can be achieved by heating milk at 121°C for 3 min or such equivalent time-temperature combinations.

11. Describe UHT milk?

Ans. UHT milk refers to a product obtained by heating milk in a continuous flow to a temperature in excess of 125 °C for not less than 2 sec and subsequent packaging in sterile containers under aseptic conditions. Generally, UHT milk in India is processed at 140 °C/ 2s.

12. Why quality of milk processed in direct type UHT plant is better?

Ans. In direct type UHT systems, milk is instantly heated (takes only 1 sec to reach 140 °C) and therefore heat damage to the products' quality is minimal. Furthermore, removal of oxygen and volatile compounds responsible for heated flavour result in improved taste and delayed oxidation during storage

13. Why UV rays alone are not effective medium for package sterilization?

Ans. During exposure of the package surface to UV radiations the intensity of radiation is not uniform. The bacteria adhering to the package surface could also be protected from the radiations due to hindrances offered by dust and dirt particles present.

14. What are the regulatory requirements for H_2O_2 levels during aseptic packaging?

Ans. As per IDF requirements, residual H_2O_2 in the freshly packaged UHT milk should not exceed 100 ppb and should subsequently reduce to 1 ppb after 24 hours. The atmospheric concentration of H_2O_2 in the aseptic packaging hall must not be more than 1 pm.