Dairy Science &Technology
(Animal Husbandry and Dairying)

E –Content

Topic-Cleaning and Sanitation of Dairy Equipment

by

Professor (Dr.) Devesh Gupta
Professor and In charge (Department of Dairy Science &Technology),
J.V.(P.G.) College, Baraut(Baghpat) U.P.

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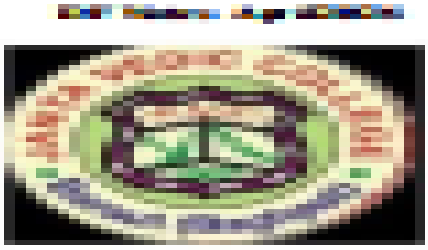

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Introduction-

Cleaning and sanitization are essential practices in the dairy industry to maintain hygiene and ensure the quality of milk and milk products. Milk is a highly perishable food and provides a suitable environment for the growth of microorganisms, so proper cleaning of equipment is necessary. Cleaning involves the removal of milk residues from the surfaces of dairy equipment using water and detergents. After cleaning, sanitization is carried out to reduce the number of harmful microorganisms by using chemical or physical agents. These practices help prevent contamination, maintain product quality, and increase the shelf life of dairy products.

Cleaning or washing of dairy equipment means removal of soil and dirt from the surface of machine and substances used for cleaning is known as detergent.

.**Properties of Detergent**- 1.Wetting power 2.Emulsifying power 3. Penetration power 4. Deflocculating power 5.Quick and complete solubility 6. free rinsing 7.Economical 8.Stability during storage. 9. Should possess germicidal action 10.Should be mild on hand.

Classification of Detergent-

1.**Alikali**-Sodium hydroxide, sodium carbonate, sodium phosphate, sodium bi carbon.

Strong alkali used to saponify fat and weak alkali to dissolve protein.

2.Acids-Phospheric, tartaric, citric, gluconic and nitric.

Mild acid are used for milk stone.

3.Poly phosphate and chelating chemicals- Tetra phosphate, hexa meta phosphate, tri polyphosphate, pyrophosphate. These are used with alkali and acids.

4.Wetting /Surface-active agents-Teepol, Acinol N, Common soap. These are

used either alone or with acid or alkali.

Sanitization: The application of different agents to a cleaned surfaces to reduce the number of microorganisms to a safe level and substances used for sanitation is known as sanitizer.

Classification of Sanitizer-I Hot water II Steam

III Chemicals-Chlorine, iodophor and quaternary ammonium compound(QAC).

Properties of Sanitizer- I. Non toxic II. Quick acting III. Non corrosive to hands IV. Easily and quickly applied V. Relatively in expensive.

Cleaning and Sanitation procedure-The usual procedure for cleaning and sanitation of major items of dairy equipment should consist of –1.Draning 2. Pre-rinsing 3.Warm to hot detergent washing 4.Hot water rinsing 5.Sanitizing.

CI.P. (Clean in place)-Also called IPC (in place cleaning)System of cleaning and sanitization which does not required the daily dismantling of dairy equipments.

Advantages- 1.saving cleanup cost 2. Less damage of equipment.3.reduce possibility of contamination through human error.

Milk stone-Accumulation of dried milk solids and salts from hard water and washing solution. It Consists largely of calcium phosphate, milk protein, coagulated and baked on heat and insoluble calcium salt from water and washing solution.

AV.Composition- Moisture 2.7to 8.7%

Protein 4.4 to 43.8%

Fat 3.6 to 17.7%

Ash 42 to 67.3%

References- 1.Outlines of Dairy Technology 2.Dairy Science.3. Google