



Technews

National Dairy Development Board

For Efficient Dairy Plant Operation

March-April 1996

No. 1

Cleaning and Sanitation

This bulletin includes technical information, latest developments on products, systems, techniques etc. reported in journals, companies leaflets and books and based on experience. The technical information would be on different areas of plant operation in different issues. It is hoped that the information contained herein, if employed in the factory, will help in making dairy plant operations more efficient.

Your contributions and suggestions will make this bi-monthly bulletin more useful, and are welcomed.

*The theme of information in this issue is **Cleaning and Sanitation in dairy plant.***

It may be understood that the information given here is by no means complete.

1. Some Tips for Efficient Cleaning.....

1. Use soft water as high hardness decreases the chemical's cleaning efficiency. Alternatively, chemicals may include sequestrants, which combined with water hardness minerals and can maintain the chemical's cleaning efficiency.
2. Flow velocity of cleaning solution should be more than 1.5 mtr/sec. for high cleaning efficiency. If you need clarification please contact us.
3. Higher concentrations of cleaning detergents than necessary clean

In this Issue

- 1 Some tips for Efficient Cleaning
- 2 Suggested Chemical standards of water Quality for cleaning purposes
- 3 A New Efficient Cleaning Technology
- 4 Efficient Equipment Exterior Cleaning
- 5 Stop On-line Milk Entering the Wash Water
- 6 Watergun Gets Trigger Happy
- 7 Dry Hand Wash System
- 8 Typical Detergent Formulations

neither better nor faster. Increasing cleaning time of right mixture of chemicals cleans better.

4. Usually, every 10°C rise in cleaning solution increases the activity of chemicals almost two-fold.

Too high temperatures, however, are not desirable. The cleaning solution should be usually between 70-85°C.

5. Pre-rinse water should never be hot, otherwise soil will become harder to remove.

2. Suggested chemical standards of water quality for cleaning purposes

Design and Use of CIP Systems in the Dairy Industry, International Dairy Federation Bulletin No. 117 (1979) suggests the following chemical specifications of water for cleaning purposes:

Total hardness \leq 50 PPM expressed as CaCO₃.

Chloride (as NaCl) \leq 50 PPM

Chloride (as elementary) \leq 1 PPM

pH : 6.5 - 7.5

Iron (as Fe) : 1 PPM

Manganese (as Mn) : 0.5 PPM

Suspended solids : Substantially free

3. A New Efficient Cleaning Technology

A new cleaning technology eliminates the need for Cl, NaOH, and phosphate in clean-in-place systems as well as reduces the amount of rinse water required. It is suggested that, by changing to this product for CIP, the rinse water volume could be decreased by up to 50% and the amount of the cleaner needed would be only about 25% that of conventional cleaner.

(Source: Dairy Science Abstracts, 57(3), 1995)

4. Efficient Equipment Exterior Cleaning

Dairy Science Abstracts 57(4), 1995 reports : Special foam detergent and low pressure equipment have been developed for cleaning exposed surfaces in dairy industry premises in an efficient, economic and environmentally friendly manner. The process is often fully automatic. Preliminary rinse and final disinfection are essential. Efficient foam disinfectants include TP99, especially developed for daily treatment of exposed surfaces to guard against powerful micro-organisms. The foam method is useful for parts difficult to reach and untreated blank spots can be readily detected.

5. Stop On-Line Milk Entering the Wash Water

The Optec Sensor for on-line detection of milk products water ratio is manufactured from stainless steel, and is with an optical lense that will withstand rapid fluctuations in temperature within the range 0-100°C and both acid and alkaline washes. The sensor can be installed in HTST or CIP flow line of > 5 cm dia. The sensor operates by analysing the scatter intensity of light as it passes through the milk, and is set to the desired milk : water ratio (trigger point) by the user. It can accurately and instantaneously detect transit point from milk to water in the wash sequence and detect milk entering wash water due to faulty valve.

(Source : Dairy Science Abstracts, 57(5), 1995)

6. Watergun Gets Trigger Happy

Stainless steel waterguns, to be used with water hoses, are available, in addition to bronze and plastic ones, which stand upto aggressive water conditions and incorporate a

water saving trigger control to reduce waste.

It has features making it user friendly, and a trigger operation which gives a jet or spray of water depending on trigger position. It is also designed to give water and fuel savings when operating with hot water.

7. Dry Hand Wash System

According to a report published in Dairy Industries International, October 1994, hand hygiene is possible with or without water, thanks to a new cleaning system. Wall mounted dispensers contain a sealed cartridge pack of sanitising fluid for use wherever water and towels are not readily available. A quantity of the alcohol based gel formation can simply be applied and rubbed dry.

It is claimed sanitiser achieves 99.9% reduction in germs within just 15 seconds of use.

A leak and clog resistant valve ensures a metered output of product, so ensuring minimum maintenance and wastage.

Pack-in-box refills reduce the risk of contamination.

8. Typical Detergent Formulations

1. Acid Descalant Cleaner

Non-ionic surfactant	:	0.3%
Phosphoric acid	:	31%
Water	:	68.7%

2. General Purpose CIP Detergent

NaOH	:	68%
Soda ash	:	10%
Tetra sodium pyrophosphate	:	8%
Sodium metasilicate	:	6%
EDTA	:	4%
Trisodium phosphate	:	4%

3. CIP Heavy Duty

Caustic soda	:	95%
Sodium gluconate	:	5%

4. Pipeline Cleaner

Surfactant	:	3%
Sodium tri-poly phosphate	:	25%
Sodium metasilicate	:	10%
Sodium carbonate	:	30%
Sodium sulphate	:	32%

5. Manual Cleaning

Dodecyl benzene sodium sulphonate (LAS) 40% active	:	10%
Non-ionic surfactant	:	4%
Sodium tri-poly phosphate	:	25%
Sodium metasilicate	:	10%
Filler : Borax or sodium sulphate	:	51%

(Source : Design and Use of CIP Systems in the Dairy Industry, International Dairy Federation Bulletin 117)

I find this bulletin :

Useful

Informative

Boring

Only entertaining

I think the form of this bulletin needs/does not need changes.

I would like information in any subsequent issue on _____

Please send your letters to :

Executive Director

MS-WR Group

NDDB, Anand 388 001.