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Effective Cleaning of Farm Bulk Milk Tanks

REGULATIONS (EC) NOS. 852/2004 AND 853/2004 (AS AMENDED)

Effective cleaning of all bulk tanks requires the use of approved bulk milk detergents at the concentration recommended by the manufacturer. As most systems operate with hot water, the correct temperature and contact time must be achieved. Application of detergents via sprayheads, wash spindles or spray bars must ensure total coverage of the internal surface. If visually inspecting enclosed tanks exercise caution and adhere to Health and Safety guidance.

Cleaning Operation

Milk residues contain milk fat, protein and milkstone. Water residues may include limescale, rusts and mineral deposits. Caustic detergents will remove fat and protein easily, whilst acid detergents are more effective at removing milkstone, limescale and minerals.

Up to 95% of the milk soil can be removed by thorough rinsing with cold water. This allows the detergent to work more effectively during the wash cycle. Detergents are formulated to hold the remaining solids in suspension allowing them to be rinsed away.

Detergent Choice

The type of detergent used will depend on the type of tank installed. The detergent should be used at the concentration recommended by the manufacturer. Most of the liquid detergents are purchased ready to use and require no dilution. The table below illustrates typical detergents.

	Type of Tank	**Post Collection Wash**	**Weekly Clean/De-Scale**
1	Conventional ice bank tank	COLD WASH Detergent. Minimum 10 minutes contact time	Bulk Tank Powder(Caustic Detergent)
2	Direct Expansion enclosed tank	Caustic based liquid detergent HOTWASH Introduce at 80^{o}C and circulated for a maximum of 10 minutes	Acid Based liquid detergent HOT WASH Introduce at 80^{o}C and circulated for a maximum of 10 minutes
3	Second Generation ice bank enclosed tank	As Point 2	As Point 2
4	Silo	As Point 2	As Point 2

For tanks with a hot wash system, water should be introduced at 80^{o}C, as the temperature drops rapidly during circulation, particularly in larger tanks. If water temperature is less than 50^{o}C during circulation, cleaning will be less effective.

Enclosed tanks should be acid washed every 7th collection although this will vary with water hardness.

Silica type deposits may occur in some tanks and can usually be seen at the outlet. The deposits are left because of too much water being used in the final rinse. When this problem is encountered it can be rectified by introducing a small amount of water as a final rinse through the sprayhead instead of bottom filling.

Automatic cleaning will not cure inherent problems and whatever the type of tank, it is recommended that the tank is inspected after each wash.

Water Usage

A potable water supply (Mains or well) should be used for tank washing which means that the water meets drinking water standards.

It is critical to have enough water circulating in the tank for cleaning. Water pressure needs to be sufficient to allow the correct amount of water into the wash system. If pressure is low, fill time should be increased or a pump fitted

Pre Rinses	To remove milk residues
↓	
Tepid Rinse	To Pre-Heat tank surfaces
↓	
Detergent Circulation 8-10 minutes	Commence at 80^{o}C
↓	
Cold Rinses	At least 2

The correct size of water heater must be installed and should be dedicated to tank washing Sufficient water is required to allow for tepid water rinses and the hot detergent wash.

For example, for 6000 litres bulk tank

60 litres tepid rinse
+ 85 litres hot rinse
= 145 litres Minimum

Detergent Application

Detergent may be applied via a high pressure fixed head or a rotating arm which covers all the surfaces of the tank. Alternatively, the washer can be an integral part of the rotating hollow agitation shaft, termed a rotojet. These should be regularly checked to ensure there are no blockages or damage to the heads.

External Cleanliness

External surfaces of the milk tank should be kept free from dust, flies, medicines, syringes, clothing including aprons, milk residues and dirt. The tank should not be used as a shelf for miscellaneous items.

Health and Safety

Follow the correct health and safety procedures. If an automatic washer fails to clean a tank, you should not enter the manhole in an attempt to clean the tank yourself, unless you are accompanied, are wearing breathing apparatus and are attached to a lifeline.
Care should always be taken when handling chemicals. Always read and follow the detergent manufacturer's instructions. Never mix acids with hypochlorite. Do not use detergents that are out of date. Look out for use by dates on the labels.

TBC (total bacterial count) and Bactocount Standards

With tightening TBC and Bactocount standards, poor tank cleaning may prove to be the weakest link in the clean milk production chain. Assure yourself of your TBC or Bactocount bonus by making tank cleaning a high priority in your daily milking routine.

For further information contact your local DAERA Milk Inspector.

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