national milk laboratories

THERMODURICS: TOP TIPS

Environmental bacteria are found in the soil, bedding and faeces of dairy cows. Some of these bacteria can continue to grow at low temperatures – i.e. the bulk milk tank – and can survive pasteurisation. This has significant detrimental effect on the shelf life of fresh milk and causes the consumer to lose confidence in the product if they experience short shelf life.

Environmental bacteria can be controlled at farm level by making sure that good hygiene practices are in place, especially during milking.

By following these key steps, you will be able to minimise environmental bacteria on your farm:

- Ensure that teats are clean and dry before milking. If the milk sock is soiled after milking, then teat preparation is inadequate.
- The best form of teat preparation is to predip. Use an approved predip solution. Apply to the teats and allow a 30 second contact time. Wipe dry. Herds that predip have very clean teats before milking and this reduces the risk of environmental mastitis. A very clean milk sock after milking is a good indicator that the predipping regime is effective.
- If you wash cows, they must be dried — otherwise environmental contamination gets sucked into the bulk tank.
- Keep cows in a clean environment – if the udders and teats look dirty, then there is a problem. Maybe the beds are dirty, the yard not scrapped, inadequate bedding etc.
- If cows are walking through a lot of slurry, then this splashes up against the udder and teats and means more work cleaning these at milking, and a greater risk of clinical mastitis. Keep yards regularly scraped.
- Keep tails trimmed.
- Singe or clip the udder so there is no excess hair present. Hairy udders trap dirt.
- Keep milking clusters clean throughout milking and if they fall on the floor flush out completely.
- Keep hands clean throughout milking.
- After the wash cycle disinfect the milking plant with a hypochlorite solution. Some farmers just rinse bore hole water to waste. Sometimes bore hole water contains environmental contamination and this will significantly increase the risk of bacterial problems

If you follow all of the above, the amount of faecal contamination in milk will be minimal.

With thanks to:
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Best Practice Guide for control of thermoduric bacteria in milk

Thermoduric bacteria are bacteria that survive pasteurisation. Along with yeasts and moulds, they are spoilage organisms (which in themselves are not harmful to humans) but they do adversely affect the shelf life of the milk. Levels of thermodurics are historically elevated in the summer months, when airborne spores are rife. These can get into the bulk milk tank and the milking plant. The presence of thermoduric bacteria is indicative of ineffective cleaning somewhere in the plant.

AREAS FOR CONCERN

Bulk Milk Tank	Milking Parlour	Automatic Washer
Spray balls clogged / in need of cleaning	No regular maintenance of plant	Not regularly maintained
Spinners not turning freely and / or missing	Insufficient volume of water to reach furthest part of the parlour	Inadequate water temperature for chemical used
Milk stone build up on walls of tank	Temperature at furthest part of parlour too low for the chemical in use	Insufficient rinse and contact times for chemical in use
Bung and outlet dirty	Insufficient contact time for the chemical in use	Inadequate detergent or drum empty / not drawing up chemical
Filters dirty / damaged / clogged up	Insufficient turbulence to ensure all surfaces are in contact with detergent (air injection)	No periodic change of detergent - caustic / acid
No periodic manual clean	Manual intervention required to ensure valves are cleaned - eg 3-way valve at receiver jar	No final rinse with hypochlorite or peracetic acid
Reuse of previous wash water	Spreader plate on top of receiving jar not in cleaning position during washing cycle	Warm final rinse with hypo or PAA - makes chemical ineffective. Should be cold
Dead ends in pipework not reached by detergent	Dead legs / redundant pipework in plant	
	Wash cycle carried out with filters removed	
	Filters not checked for damage / debris on regular basis	
	Build up of debris in plate cooler as a result of filters not being in place during the wash. (recommended that this is done only with a suitably qualified dairy engineer)	
	No use of milk stone remover or acid descaling in hard water areas	