

## **THERMODURICS**

Thermoduric bacteria are heat resistant. They survive the normal temperatures used in milking machine cleaning and may also survive pasteurisation and product processing, causing spoilage in some high valued milk products, for example milk powders, and long-life milk. To kill thermoduric bacteria you need to remove their source of food. They are usually found in milkstone (milk residues), protein films, perished rubberware and poorly made silage. Thermoduric bacteria prefer ambient temperatures above 20° to grow.

Thermoduric organisms occur in primary sources such as soil, water, dust, vegetation and fodders. It is from these sources that they gain access to the milk and utensils. Milkstone and perished rubberware provide ideal living conditions for thermoduric bacteria. The main causes of high thermoduric counts are generally found in the plant rather than from the environment.

Formation of milkstone can occur when proteins in the milk combine with the salts of hard wash water.

## Control Measures

- Check rubberware for cracking and perishing. Replace ALL rubber components on a set cycle.
- Prevent milkstone formation on stainless steel components and prevent cheesy deposits in rubberware.
- Rinse the plant with plenty of clean cold water to remove most of the milk before washing. Use at least 10 litres/cluster. Insufficient rinsing followed by boiling water can cause the protein to be cooked onto the plant.
- Alternate acid and alkaline detergents at regular intervals. Follow the manufacturer's recommendations, eg. If using an acid wash daily, then ensure that the required alkaline wash is performed at the correct time.
- Check plant for pitted, cracked, scratched or damaged stainless steel surfaces.
- Sanitise the plant before milking to kill bacteria and remove dust contamination.
- If water is suspect then test and treat to remove mineral impurities.
- Protect rubberware from sunlight and the action of hypochlorites.
- Thoroughly rinse chlorinated alkaline detergents.