



Keep it shiny ... inside and out!

by Liza Burger

The cooling tank is a vital link in the beverage quality chain. Besides efficient and reliable cooling capacity, the cooling tank and silos must be cleaned regularly without exception. One thing modern cooling products and systems have in common is that every system must be effectively adapted and managed to eliminate contamination of the milk or beverage in question.

Cleaning-in-place (CIP) and sterilisation-in-place (SIP) are systems designed to automatically clean and disinfect without major disassembly and assembly having to take place. A well-designed CIP system that employs double-seat valve (block and bleed) technology and a

bit of process integration, will enable you to clean one part of the plant, while other areas continue to produce the product.

CIP and SIP technology is important to many industries including food, dairy, beverage, biotechnology, pharmaceutical, health and many other industries in which processing must take place in a hygienic or aseptic environment.

What CIP can do for you

According to manufacturer GEA Process Engineering, a modern CIP system will not only save money in terms of higher plant utilisation, but also water, owing to significant savings in CIP liquid. This is done by recycling cleaning solutions and using the optimum quantity of water.

Jan Coetzee from Bon Mella Estate in the Western Cape firmly believes that CIP is the way to go. Bon Mella is a supplier of pre-packed milk, low-fat yoghurt, drinking yoghurt, smoothies, amasi, cream and soft-serve mixes to agents, retailers and also exports to countries in Africa.

“The advantage of a CIP system is that less soap is used and that soapy water is reused,” says Jan. “The soap concentration in the CIP tank is continuously monitored and maintained at the correct concentrate with an automatic calibrated pump.

“Another advantage of this self-regulating system is that the water is always the correct temperature and the soap concentration is always right. Johnson Diversey is our supplier of all the detergents and other products used in the CIP system.”

How it is done

At Bon Mella, the CIP system is used as follows:

1. Tanks are rinsed with cold or lukewarm water to remove excess milk. A brush is used to clean the mixer and tap on the front of the tank.
2. The tank is washed with 1% Reclaim (10 ml per litre). About 100 l of water, at a temperature of between 60 to 70°C, is used for 10 minutes in the cleaning process.
3. The tank is then rinsed with cold water to remove all the Reclaim.
4. Diverclean Vf14 is used to wash the tank out for 5 to 10 minutes (0,5% diluted with 100 l of cold water).
5. The water and disinfectant is then drained, but not rinsed.
6. All the tanks are washed twice a week with 1% CIP acid solution at a temperature of between 60 and 65°C for 10 minutes, after which steps 3 to 5 are repeated.

The tanks are washed twice a day when empty. Bon Mella has designated, trained workers who wash the tanks. All the tanks are inspected daily by the factory manager, who sees to it that cleaning schedules are followed and that cooling and holding tanks are in good working order.

Shiny on the outside

“It is very important to keep the tanks clean on the outside as well,” says Jan. “Tanks are washed down daily, especially to prevent dust on the outside.” All tanks are inspected and serviced by a trained technician every six months.

According to Jan, the cleaning process and management of the milk’s cooling and storage process is vital to retain the quality of the milk. Effective management in this department could significantly extend the shelf life of especially fresh milk by keeping the bacterial count low.

“The temperature of the milk in the tanks is important. We distribute the milk in various tanks, so that it can reach the correct temperature as soon as possible and so that the milk is cold enough within half an hour after milking.”

“Our laboratory on the premises monitors quality on a daily basis and a specific person reads the temperature of all tanks every two hours, and notes it for HACCP purposes.”

Pick and choose

There are a number of reputable suppliers that sell CIP and control systems. When deciding to take the plunge and make the initial investment, make sure that you will also receive after-sales service together with your new system.

Some of the well-known companies selling CIP systems include Ecolab, GEA Process Engineering and Johnson Diversey. **M&J**