

BacTerminator[®]

Improving process water quality in cottage cheese production

Shelf life and product quality of cottage cheese can be improved when treating the cooling water with the new BacTerminator[®] Water Disinfection System.



Challenges in cottage cheese production

In cottage cheese production, water is used in the process stage "10-15% water addition" in the cheese vat. The quality of this water is an important factor regarding the final quality of the end product as well as its shelf life.

Cottage cheese is a delicate product to make and even low levels of bacteria may lead to reduced shelf life and poorer product quality (formation of microorganisms on the surface).

The microbiological quality of the drinking water (Total Viable Count <200 CFU/ml in the EU) which is added in the cheese vat, is often inadequate to ensure the desired product quality and shelf life for cottage cheese.

Consequently, dairies producing cottage cheese are seeking ways to improve the microbiological quality of the added water.

Treating the added water with the BacTerminator[®] disinfection system, gives the following advantages:

- Obtaining a water quality close to sterile water
- Bacteria & microorganism elimination guarantee of TVC <10 CFU/ml in the adding water for the cheese vat
- Eliminating the high energy costs for pasteurization, BacTerminator has approx. 10 times lower operating costs
- Eliminating of treating the adding water with chloride dioxide (ClO₂), which is a hazardous chemical handled at the dairy
- Longer product shelf life
- Less customer & retailer complaints



Immediate disinfection effect

BacTerminator® is a flow-through system. Disinfection is achieved immediately as the water flows through the disinfection chamber. Thus, the BacTerminator System does not produce any biocides, which have to be dosed into the water

The electrochemical processes in the BacTerminator®-chamber result in effective disinfection – within six seconds



Verified Test Results

The table below shows an example of the killing effect.

The TVC reductions are above 99,9% at both 22° C and at 37° C, results with are obtained by single pass through the disinfection chamber.

All control water samples were analysed by EUROFINS, a major international accredited laboratory.

eurofins Laboratory analysis TAP WATER ADDITION	Reference untreated water	BacTerminator® treated water	Factor reduction	Log reduction	% reduction
TVC/ml at 22°	300	1	300	Log 2,4	99,4%
TVC/ml at 37°	249	3	83	Log 1,9	99,0%

Six killing effects in six seconds

The BacTerminator system achieves it effective disinfection through six different effects caused by electrolysis:

- **OXYGEN & OZONE:** Both strong toxic oxidizing agents. Ozone is generated from oxygen, a very potent biocide that only exists temporarily
- **CHLORINE:** Generated electrochemically from chloride present in the water; a potent biocide
- **HYPOCHLOROUS ACID:** Chlorine is dissolved in water and at low pH becomes an extremely potent biocide. Hypochlorous acid is the primary biocide in the disinfection process – is neutrally charged and is 50-100 times as effective as hypochlorite. Hypochlorous acid penetrates the cell membranes and destroys the metabolism of the cells
- **HYPOCHLORITE:** Also known as “bleach”, hypochlorite is the medium/high pH chlorine based biocide, it is negatively charged and requires an ion channel to penetrate the cell membrane, but otherwise acts as hypochlorous acid
- **HYDROGEN PEROXIDE:** A short-lived, but very effective biocide

BacTerminator® Specifications

WATER:		
Temperature	<50	°C
Filtration level	<1	mm
Chloride content	>10	mg/l
Conductivity	>200	µS/cm
NVOC	<50	mg/l
ELECTRICAL:		
Voltage	400	VAC
Power consumption	2	kWh