



# Monitoring procedures

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# Various actions mentioned in HACCP-based plans:

**section V- HACCP-based Plans**  
**LACTIC COAGULATION CHEESES**

Cheeses made with predominantly lactic coagulation rely on acidification to set the curd. The acidification/coagulation time may be very long, taking several hours, but the low pH reached prevents the growth of pathogenic bacteria in the curd. The pH at the end of drainage is often significantly lower than 4.60. This category includes both fresh or unripened soft cheeses and others which may be ripened. While the pH of ripened cheeses may increase, especially at the rind, they often lose moisture as they mature, becoming harder and they would be considered to be less technologically sensitive than some other surface-ripened cheeses.

Process step to monitor	Why do we have to be careful?	Preventive actions	Checking/Monitoring procedure	Corrective actions
Filling the Vat	M, C: Microbiological and Chemical contamination of the milk from equipment and utensils (vats, stirrers, buckets, scoops etc.) Dirty equipment can contaminate milk with pathogenic bacteria. Residues of cleaning agents can contaminate milk.	Ensure that equipment is always clean. Never put small items of equipment directly on the floor. (1)	Visual inspection	Repeat cleaning and/or disinfection. Rinse sufficiently with potable water. Amend cleaning procedure. If it is a recurrent issue review training of cheesemaker. (7)
Maturation without inoculation	M: Growth of pathogenic bacteria: Milk can contain undesirable bacteria. When the number of lactic acid bacteria (LAB) is low or conditions for their development are unfavourable, pathogenic bacteria can dominate	Where possible, promote the development of LAB through good animal husbandry (see sheet milk production). Use proper maturation temperature and time to promote sufficiently rapid growth of LAB. (2)	Experience of cheesemaker: organoleptic inspection, measurement of temperature, time and acidity development	Add dose of acidifying culture. Reject suspect milk (taste, smell appearance). Adjust maturation parameters: temperature, if it is a recurrent issue, improve milk production practices or change milk supplier.
Maturation with inoculation	M, C: Improper process parameters can allow growth of pathogenic bacteria	Maintain correct temperature, time and dose of cultures. Add cultures as soon as possible. (3)	Experience of cheesemaker: organoleptic inspection, measurement of temperature, time and acidity development	Adjust production parameters: time, temperature, type and dose of cultures
	M: Contamination of milk during inoculation due to poor quality of starter bacteria or inadequate handling by the cheesemaker	Use only starters of known origin (including homemade starters) or those with a certificate of conformity as suitable for food-use. Handle with care. Reject starters of suspect odour, colour or appearance. (3)	Visual and organoleptic inspection of direct or bulk starters	Reject inactive starters or those with suspect or damaged packaging. Adjust bulk starter preparation procedure.

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Visual control

Acidity measurement

Organoleptic control

Temperature measurement



## Use of instruments

- pH meter
- Burette
- Thermometer





# Use of instruments

- pH meter
- Burette
- Thermometer



5.3 SH measurement

5.4 pH measurement



2.5 Maintenance of equipment



7.7 Groupwork on self-monitoring of milk





## Use of senses

- Sight
- Smell
- Taste
- Touch
- Hearing





# Use of senses

- Sight
- Smell
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2.3 Premises and equipment  
2.4 Buying and making equipment

3.1, 3.2, 3.3 Cultures  
3.4 Coagulants; 3.5 Brines



## Examples of Sensory inspection

Checks on tanks, vats, equipment, moulds, tools, clothing, etc.

- Is it clean?
- In good condition?
- Does it have a normal appearance and smell?





## Examples of Sensory inspection

Check on raw material, ingredients, brine, packaging material, etc.

- Does it have a normal appearance / smell / taste?
- Not expired?
- Is this the correct dosing?
- Is it clean, intact?







## Examples of Sensory inspection

Check during production process and ripening (formation of gel, drying of cheese surface, development of flora on rind, etc.):

- Does it have the expected appearance / smell / taste / sound?

