



## Preparing a Cleaning & Sanitising Program

**A documented cleaning and sanitising program plays an essential role in effectively controlling and preventing the contamination of dairy food. This program must cover food contact equipment and surfaces. It should also cover cleaning and sanitising parameters for non-contact surfaces such as walls, ceilings and fittings to minimise the risk of cross contamination into food.**

### Cleaning and sanitising systems

- CIP: Clean In Place is one example of a mechanical cleaning method. This cleaning and sanitising system generally does not require any part of the processing equipment to be disassembled.
- COP: Clean Out of Place. This is another example of a mechanical cleaning method. Requires partial disassembly of equipment. Includes dishwashers, hose cleaning machines and 'car-wash' systems such as Mackie bin washers. Sanitising may be carried out on the separate parts just before reassembly, or the plant may be assembled and then sanitised.
- Manual cleaning: Total disassembly of equipment for cleaning by hand. Sanitising process as for COP method.
- Dry cleaning: Cleaning without water or chemicals. For example, brushing, sweeping, wiping and vacuuming. Sanitising may be carried out using 70% ethanol solution or other sanitiser which is fit for the purpose, e.g. some no-rinse sanitisers.

### Identifying the important parameters

A documented cleaning and sanitising program describes all important cleaning and sanitation tasks and helps ensure that they are carried out correctly and reliably. The following factors should be considered when developing the program:

#### **Critical hygiene areas**

Some food processing areas and equipment require critical hygiene conditions. For example, where high risk foods, ready-to-eat foods or post-pasteurisation additions are prepared or added.

Suggested actions: All equipment and areas which are to be cleaned and sanitised should be documented in a schedule which states how frequently these tasks are to be carried out. Ensure that the schedule meets the needs of each process or areas, e.g. increased cleaning frequency for high risk areas, segregation of high risk areas from other areas.

Document procedures where appropriate to help ensure that complex tasks are carried out correctly, e.g. where a piece of equipment needs to be disassembled for cleaning. Provide training materials, e.g. provide procedures in a convenient place, provide posters for the different types of cleaning chemicals or tools, their applications, and how to use them.

#### **Process flow and design requirements**

Some systems have specific cleaning and sanitising requirements which should be met to minimise food safety risks. For example, equipment or areas used for preparing raw foods must be cleaned and sanitised before being used to prepare ready-to-eat foods. Some equipment designs are difficult to clean and may require special attention and training to ensure that they are consistently cleaned to the required standard, e.g. cheese cutting equipment. Also, products containing different allergens must be separated by a validated cleaning step if required by the allergen management program.

Suggested actions: Compile the specific cleaning outcomes, e.g. as identified by the HACCP plan/s. Ensure that the documented cleaning and sanitising program delivers these outcomes. Develop detailed cleaning instructions if required to manage poor equipment design or other issues. Obtain advice when designing new equipment or assessing the cleaning and sanitising program, e.g. from cleaning chemical suppliers and equipment manufacturers.

#### **Processing environment and conditions**

Soiling can become more difficult to remove from some equipment or plants due to factors such as time, processing or environmental conditions. For example, food residues dry out and become more difficult to remove. pH changes can precipitate proteins and warm, humid conditions promote overall bacterial growth more quickly compared to cool, dry conditions.

Suggested actions: Provide training to maximise good practices and good decision-making by operators and cleaning crew, e.g. clean-as-you-go

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and more frequent cleaning in warmer conditions. Provide adequate information to address situations where heavy-duty cleaning should be carried out instead of following the standard procedure.

### **Types of soils**

Fats, proteins, carbohydrates, minerals, biofilms, greases/oils and inert materials require different cleaning methods and cleaning agents. Food usually consists of a mixture of soil types.

Suggested actions: Document the correct chemicals and/or cleaning methods for each task. Clearly identify usage instructions. Document periodic treatments, e.g. weekly acid wash for milk stone.

### **Types of surfaces**

Damaged surfaces or poor finishes are more difficult to clean and can pose a contamination risk since in some cases a damaged surface may not be able to be sufficiently cleaned. Polished stainless steel can be cleaned more easily and aggressively than pitted steel, mild steel, rubber or plastic.

Damaged surfaces may require longer contact periods (e.g. with sanitiser) to achieve an equivalent result.

Suggested actions: Provide adequate information and training materials to prevent damage to sensitive surfaces and to ensure that sufficient time and attention are allocated when needed. If damage is severe and equipment and surfaces cannot be cleaned then fixing or replacement of such items would be necessary.

### **Cleaning strategy and the suitability of the cleaning and sanitising agents**

Poorly designed cleaning processes can result in spreading micro-organisms from one area to another instead of leaving the whole area clean at the end of the process. It is important to recognise a logical order for cleaning a given area:

1. Remove gross soiling.
2. Rinse all surfaces starting from the highest points and leading down to the lowest points.
3. Clean environmental areas such as drains, walls and floors.
4. Rinse environmental surfaces.
5. Clean production equipment.
6. Rinse production equipment.
7. Sanitise equipment.
8. (Optional) Fog area to achieve overall sanitising.

An important principle of cleaning is to remove soiling first, then sanitise. This is to ensure that micro-organisms are not protected from the effects of the sanitising agent, and do not build up resistance to the agent.

The suitability of cleaning and sanitising agents needs to be considered carefully (i.e. these agents must be fit for purpose). For example only those chemicals that are suitable for use in food producing operations can be used and consideration should be given to their application, such as foam may be better to use on particular piece of equipment or surface, compared to a gel or liquid. Finally, the documented cleaning and sanitising program should ensure that cleaning and sanitising parameters are clearly outlined. For example, if using chemicals for cleaning or sanitising, the program may document pH limits, temperature limits, concentration ranges, and exposure times, e.g. soaking time. This helps to ensure that the correct amounts of chemicals are used, and not wasted, and that the desired effect is achieved.

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### **Preparing a cleaning and sanitising program**

#### **Documenting a cleaning and sanitising program**

The following components should be documented in the cleaning and sanitising program:

1. Schedule/s listing all equipment and areas to be cleaned and sanitised. List:
  - The cleaning and sanitising tasks for each area.
  - Frequency.
  - Person/s responsible for each task.
  - Cleaning & sanitising information (method, cleaning/sanitising agent and usage limits such as concentrations. For e.g. wash down excess soil with cold water. Dismantle and hand wash all parts in suitable detergent. Use 10ml in 20 L tub of cold water. Rinse until all detergent removed. Soak in suitable sanitiser bath for at least 10 minutes).
  - References to procedures where applicable.
  - Monitoring/recording methods (e.g. complete a daily checklist).
  - Corrective actions to be taken for adverse results.
  - Verification methods (e.g. monthly swabbing program).

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2. Cleaning and sanitising procedures for critical or complex tasks. And documentation for any important systems, e.g. CIP system manuals, information about the objectives and requirements of the program or tasks, and information about good practices.
3. Training records: Dates, names, training details, competency assessments.
4. Statement of roles and responsibilities: Clearly allocate responsibilities for overall and day to day management of the cleaning and sanitising program.
5. Records showing checks carried out to ensure that the cleaning and sanitising activities have been effective: Include dates, names, activities and outcomes of the checks.

Note: Some areas may be already covered by other areas of the food safety program, such as the training program.

### Supporting the cleaning and sanitising program

A cleaning and sanitising program can be compromised in the following areas:

1. Water: Use soft potable water. Water quality, hardness and pH all effect the performance of cleaning detergents/sanitiser. Test and treat water as necessary.
2. Equipment design: e.g. CIP system and maintenance. Design issues include lack of systems to detect and address blockages, adverse temperatures or chemical concentrations.
3. Care and use of cleaning tools: Provide appropriate cleaning tools and ensure that they are maintained in a clean condition to prevent cross contamination. Provide separate, clean and secure storage. Colour coding is often used to segregate equipment. Segregate dry cleaning equipment from wet washing equipment, and food-contact equipment from non food-contact equipment.
4. Good practices: Minimise delays in cleaning, remove all food during cleaning activities, maintain a dry environment, and remove all chemical residues.
5. The effectiveness of the program must be validated (i.e. data obtained to show that the procedures and methods are effective in cleaning and sanitising). The program should then be reviewed and approved, usually by the person with overall authority for the factory.

Appropriate training or advice should be provided to assist the reviewer, e.g. references, industry consultant or cleaning chemical supplier.

### Recommended Reading

Lielieveld H. L. M, Mostert M. A, Holah J. and White B., (2003), 'Hygiene in Food Processing - Overview: Sections 13.8 – 13.10' 1st edition, Woodhead Publishing Limited.

Stier, R.F, (2003), 'Clean Operation: Cleanliness is next to godliness and essential to ensure safe food,' Food Safety Magazine.

<http://www.foodsafetymagazine.com/issues/0404/clicnop0404.htm>

Arizona Department of Health Services – Division of Public Health Services: Office of Environmental Health, (December 2004), 'Food Equipment Cleaning and Sanitising – Background.'

[http://www.azdhs.gov/phs/oeh/fses/food\\_eq\\_cl\\_san.htm](http://www.azdhs.gov/phs/oeh/fses/food_eq_cl_san.htm)

Arizona Department of Health Services – Division of Public Health Services: Office of Environmental Health, (December 2004), 'Food Equipment Cleaning and Sanitising – Water Chemistry and Quality.'

[http://www.azdhs.gov/phs/oeh/fses/fecs\\_wcq.htm](http://www.azdhs.gov/phs/oeh/fses/fecs_wcq.htm)

Food Safety Authority of Ireland, (2005), 'The Control and Management of Listeria monocytogenes Contamination of Food.'

[http://www.fsai.ie/publications/reports/listeria\\_report.pdf](http://www.fsai.ie/publications/reports/listeria_report.pdf)

Standards Australia, (2001) - 'AS 4709: Guide to Cleaning and Sanitizing of Plant and Equipment in the Food Industry.'

### Further information

Other Dairy Food Safety Notes are available at [www.dairysafe.vic.gov.au](http://www.dairysafe.vic.gov.au)

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