



Hygiene monitoring

Good hygiene is the control of undesirable materials within the production process and its environment. Hygiene monitoring is the process of regular measurements to assess that the controls are operating within acceptable limits.

Many process controls are considered critical to food safety and the maintenance of high standards of quality. Cleaning is an essential component of good manufacturing practice and is often a pre-requisite of HACCP because history has shown that inadequate cleaning results in down-grades, spoilage, product recalls and food poisoning. Hygiene monitoring is frequently understood to mean the measurement of cleaning processes of production equipment or food contact surfaces and its immediate environment (non-food contact surfaces).

Cleaning and sanitation are often used interchangeably to describe cleaning processes but can mean different things and can have different requirements. The generally accepted order of events is rinse, clean, rinse and sanitise however dry cleaning can only be used for certain food-stuffs although these processes do not involve sanitation.

Cleaning is defined as the complete removal of food soil using appropriate detergent chemicals under recommended conditions. Different types of food soil require different chemistry of its removal. For example, alkaline detergents more efficiently remove fat- and protein-based soils, while mineral-based soils require acid cleaners. Accordingly the ideal test of cleaning efficiency is a direct objective test for food residue.

It is important to differentiate and define certain terminology:

- Sterilise refers to the statistical destruction and removal of all living organisms.
- Disinfect refers to inanimate objects and the destruction of all vegetative cells (not spores).
- Sanitise refers to the reduction of micro-organisms to levels considered safe from a public health viewpoint.

Chemical sanitisation involves the use of an approved chemical sanitiser at a specified concentration and contact time which for product contact surfaces are designed to reduce the contamination level by 99.999% (5

logs) in 30 seconds. Thermal sanitisation involves the use of hot water or steam for a specified temperature and contact time.

Accordingly the monitoring of these hygienic processes would require the measurement of time, temperature, chemical concentration and residual microbes.

Clearly sanitising an unclean surface would compromise the anti-microbial effect of the active agent and would be a waste of time and money, so a combination of appropriate tests need to be implemented to monitor the efficacy of each stage of the process.

Validation is intended to demonstrate that the process meets the operational needs and design specification. It measures the efficacy of the cleaning process and demonstrates its fitness for purpose and such studies are conducted when establishing cleaning for the first time, or when there is a change of chemical product/supplier or changes in food type or formulation. It establishes that the critical limits can be achieved.

Verification is intended to check that the process meets a set of design specifications. It is the regular measurement for compliance against the standards determined by the validation study and/or against an agreed standard. Tests are applied to critical control points which are influenced by the nature of the product and its manufacturing process. Clean-in-place systems are easier to control and deliver a higher standard compared to manual cleaning methods. Greater care and assessment is required for equipment that is complex and/or hard to clean.

The results of routine hygiene monitoring are assessed by trend analysis to aid interpretation and give an early warning of a drift out of control. Hygiene monitoring methods are also applied to identify and locate hotspots during trouble shooting or as part of a continuous improvement program.

For certain products and target consumers, cross contamination from the wider production environment may also require the monitoring of specific pathogens such as salmonella, listeria and cronobacter. But what methods and standards are applied to hygiene monitoring?