

Considerations when establishing a cleaning & disinfection programme

When establishing a cleaning and disinfection programme in the food industry for food processing equipment, a number of considerations are required.

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Firstly, the objective of the cleaning programme should be determined. This could include the need to remove visual soiling for organoleptic reasons, the need to remove soils for brand protection issues such as different meat species, the need to control food spoilage micro-organisms or the need to control hazards such as allergens or pathogens.

Secondly, a selection process and risk assessment should be undertaken to determine the optimum cleaning and disinfection chemicals and application techniques to meet these objectives.

Factors to consider

Factors to consider can include the chemical nature of the food soil to be removed and the food processing conditions that has led to its formation; the chemical compatibility of the surface the soil has formed on; the nature of any microbiological hazard identified; the hardness of the water supply; where the soil is (open or closed surfaces); the chemical application method (manual or automated); the rinsing method and pressure; any impact on effluent treatment plants present; and more practical aspects



such as production implications (length of cleaning window available) and costs.

The current Covid-19 pandemic has done nothing to change these considerations (the original cleaning objective must still be met) and to thus attempt to change current food processing equipment cleaning programmes, without due consideration, may be counterproductive.

It may, however, be prudent to ask the question as to whether current routine cleaning programmes for food processing equipment have any effect on SARS-CoV-2.

All stages have an impact

Cleaning and disinfection are well understood for their impact on bacteria and all stages of the cleaning programme have an impact on bacterial control. Gross soil removal and pre-rinsing remove many bacteria that are associated with the food soil.

Detergent application can remove bacteria from food contact surfaces and the detergents themselves have known impacts on bacteria.

This is due to extremes of pH (acidic to caustic detergents) outside the tolerance of the bacteria and the effects of surfactants on bacterial cell walls which could affect cell permeability.

Disinfection, undertaken on pre-cleaned surfaces where the level of soiling is much reduced, is well established with a number of European disinfectant tests available to

assess the antibacterial activity of biocide active ingredients and formulated finished products (for example, EN 1276 and EN 13697).

Indeed, a combined cleaning and disinfection programme for microbial control has been described as a unit process and a combined 5 log reduction or more of bacteria present on the surfaces is expected.

However, as foodborne viruses have only recently been identified as a potential issue in food safety, our knowledge of viruses on food contact surfaces and their associated removal via cleaning programmes is poor and Covid-19 has only now brought this into focus.

Viruses embedded in the food soil will be removed via the rinsing and detergent steps from surfaces.

How strongly viruses attach to food processing surfaces and how well they are removed from them via detergency is, however, not well known, as is the potential effects of detergents on the virus structure or its infectivity (technically the virus is not 'alive' so it cannot be 'killed').

One of the lessons that we have learnt about the control of Covid-19, and well broadcast to the public, is that 'washing your hands with soap and water dissolves the virus', which is based on established facts. Some detergents may, therefore, influence coronaviruses. ■

References are available
from the author on request