

Hygiene and cleaning – food premises get a clean sweep

Equipment used to clean food and drink premises can often be a major source of cross-contamination. This article offers advice – including on the use of antimicrobial cleaning tools – to help ensure this does not occur.

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The food industry has the ultimate responsibility for ensuring that the products companies source, process and pack can be safely consumed. Physical, chemical and biological cleanliness is an absolute prerequisite for food safety. A wide range of hazards face manufacturers in the making of foodstuffs that can contaminate food. These include primarily micro-organisms and their toxins, as well as allergens, cleaning residues and lubricants. At the same time, consumers demand the highest quality food, which not only requires the food to be fresh and nutritious but ultimately safe to eat.

Throughout the entire supply chain there are significant risks of cross-contamination, no more so than within the factory environment where raw materials and ingredients come into contact with surfaces and an environment that can carry and harbour pathogenic bacteria, such as campylobacter, Methicillin-resistant *Staphylococcus aureus* (MRSA), *E. coli*, legionella, listeria and salmonella, among other micro-organisms.

Implementing and adhering to good hygiene practice is an essential part of preventing contamination on food contact surfaces. This is nothing new, but the industry still struggles to maintain the correct standards and media headlines still shout about cross-contamination and microbiological failures through inadequate, lack of, or a misunderstanding of cleaning requirements.

New BRC global standard

The new British Retail Consortium (BRC) Global Standard for Food Safety – Version 8,



implemented in February 2019, has a fundamental clause in Section 4.11 – Housekeeping and Hygiene stating that: ‘Housekeeping and cleaning systems shall be in place which ensure appropriate standards of hygiene are maintained at all times and the risk of product contamination is minimised.’

New requirements to this clause have significant re-writes to clause 4.11.7 relating to cleaning in progress (CIP) equipment highlighting key aspects of the CIP systems that should be managed – validation of the design and operation, schematic diagram of the CIP layout, rinse solutions risk assessment, authorised alterations and additions, limits of acceptable and unacceptable performance, effective cleaning of the CIP system and re-validation of the process.

Such emphasis on CIP that can often be overlooked includes cleaning equipment that should deliver high levels of cleanliness but can often contribute to introducing additional microflora due to inadequate, uncontrolled, non-validated systems.

In addition, a new clause has been introduced, Section 4.11.8, to ensure a fully developed and managed programme of environmental monitoring.

This has been introduced for areas containing open food and drink products to monitor and control micro-organisms (pathogen and/or spoilage) that may be

present in the factory and could, therefore, represent a risk to them.

Implementing these clauses may be challenging for some manufacturers, but assistance is available via both practical resources or advisory courses and conferences.

Management and advice

Providing expert advice in the field of hygiene and cleaning is becoming a popular addition to the support and due diligence of foodservice or food manufacturing establishments. Hygiene managers need additional support and advice in understanding their cleaning requirements and problem solving when micro contamination is identified but the source cannot be located.

This support is provided by chemical suppliers, equipment manufacturers, distributors of janitorial goods and through industry-paid research and funded projects. It offers cleaning methodology recommendations, training, auditing post cleaning to identify weaknesses and gaps in cleaning, dosing checks and equipment recommendations.

Such support also works in reverse, with manufacturers being asked to take part in trials and cleaning equipment tools

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specifically designed around and incorporating customers' views and cleaning challenges. Manufacturers should harness these opportunities to further develop their cleaning skills.

Equipment developments

Cleaning tools are an essential 'must have' to implement an effective cleaning programme, but the choice available is vast and often confusing and conflicting with many variations and designs to choose from.

Efficiency and effectiveness in their ability to clean equipment and reduce contamination are the essential requirements for purchasing cleaning tools. They need to offer the protection against threats and dangers you can see and, more importantly, for those you can not – 24 hours a day.

Cleaning equipment is often used over large surface areas and can collect and spread contamination. Data has shown that 47% of the cleaning equipment used can be positive for *Listeria monocytogenes* which demonstrates that cleaning equipment can be a major collection point for pathogens.

Incorrect storage, failure to replace old or faulty cleaning tools, and incorrect design of cleaning equipment are all key factors contributing to potential microbiological hazards. Cleaning should reduce the risk of bacteria, not contribute to the loading on equipment and the environment.

Using clean equipment that is fit for purpose and effective sanitising of equipment between use is one line of defence to prevent bacterial contamination. But a second line of defence that is increasing in popularity and reduces the threat of cross-contamination is the use of antimicrobial cleaning tools within the food production environment. These can provide round-the-clock antimicrobial product protection. A growing range of cleaning tools that make cleaning and hygiene both effective and more efficient are coming on to the market.

Antimicrobial cleaning tools are

specifically designed to prevent the growth and reduce the risk of bacterial cross-contamination, minimise foreign body contamination and support HACCP (hazard analysis critical control point) and 5S (workplace organisation) best practice with colour-coded segregation.

With incidents of food poisoning from food manufacturing on the rise, the need for improved cleaning practices – especially in difficult to reach places where bacteria can collect and spread – has been identified.

The additive used in the antimicrobial agent and designed to inhibit bacterial growth has been proven to be up to 99.99% effective against harmful pathogens. All plastics in the products, including the brush filaments and resin, are infused with the additive. In addition, all components are US Food and Drug Administration/EU food contact approved.

Other initiatives designed to assist production and processing sites include the use of colour-coded tools.

Although a standard within the industry for some years, there are now specific references included in the BRC Retail Standard and UK Retailer Codes of Practice on using colour-coded tools to reduce the risk of cross-contamination. Assigning specific coloured cleaning tools to areas to control allergen usage, high-risk and low-risk factory zones, floor cleaning and food contact equipment.

Increased food safety regulations are demanding the need for more stringent controls built into food safety management systems. The impact of implementing and use of colour-coded equipment on site is looked upon favourably by customers, auditors and inspectors.

The cost of hygiene

The visual appearance of a food factory can be the first assessment by an auditor or customer to a site and an indication of the standards and culture of the business. It can have an extremely big impact on the final outcome of an inspection.

But, with pressure on manufacturers to



reduce cost and shrink cleaning times to allow for more production or shorter shifts, the hygiene and cleaning of sites can reduce dramatically. Cleaning costs money; it does not add value to the product and often has hidden financial impacts such as the costs of water, heating, chemicals, corrosion, monitoring and validation of cleaning.

New developments to aid the speed of cleaning and improve its effectiveness can significantly reduce costs and considerations should be made to these:

- The right chemicals – consideration of chemicals that do not need rinsing to save water.
- Use of electrolysed cleaning water to totally eliminate the use of chemicals and an alternative for chemicals containing quaternary ammonium compounds (QACs). It saves water, energy and time.
- Correct equipment – use of antimicrobial tools to increase the lifespan of cleaning tools and understanding what equipment is needed for each cleaning task for optimum results.
- Use of cleaning expertise from service and equipment providers.

Innovation and developments are key to keeping abreast of legislation and customer requirements. As new equipment is implemented into our factories, we have to stay one step ahead of how we clean effectively and efficiently and prevent the development of microbiological food safety issues.

Cleaning and hygiene is a critical part in the management of food safety and culture. It cannot be avoided. Keeping abreast of developments is key to maintaining excellent hygiene standards. ■

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