



Diversey Celebrates World Food Safety Day 2022

Salmonella and the Chocolate Factory: Lessons Learned

If the recent Salmonella outbreak at a large chocolate factory has proven anything, it is that a food safety incident of this scale can cause a huge impact on the brand of a company.

After *Campylobacter*, Salmonella is the most common bacterial causative agent of intestinal diseases in Europe. High-risk foods are -in particular-undercooked or raw meat and products made from it, eggs and egg-products that have not been heat-treated, and plant-based foods. However, fatty foods such as chocolate, when contaminated with Salmonella, can also cause an infection with Salmonella as recently shown by a global chocolate supplier resulting in a large recall. But what are the lessons learned from this event?

3 words: cleaning, hygienic design and a real food safety culture are key.

The art of detection

Salmonella is rarely detected in chocolate but when present, a low dose is sufficient to cause an infection. Depending on the age and health of the people affected, the minimum infectious dose of Salmonella may be 10,000 – 1,000,000. In the case of chocolate, however, low bacterial counts can be enough to cause a disease. These low infectious doses are attributed to the fact that high-fat chocolate provides Salmonella with effective protection against the acidic conditions present in the human stomach and, for the most part, allows it to reach the intestines alive, where it can cause an infection. *Salmonella* can survive in chocolate for several years. It is also well protected against heat due to the low water content of chocolate and the protective effect of the fat.

Identifying the critical points in the production chain is critical for pathogen control and traceability. Traceability requires a thorough and structured sampling of large surfaces with suitable swab material, sampling of hard-to-reach places and the dismantling of the equipment in this process is also a must. The

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Safer food, better health



approach must go further than just surface sampling. It starts with the inspection of the raw materials coming in, to frequent checks of the end products.

Whole genome sequencing can be used to fully reveal the DNA or passport of each bacterium. This is done routinely for every strain isolated from sick people. This way, the outbreak and the people who are infected with the same strain can be mapped out. Within a factory genome sequencing can equally be used to unravel the cause of contamination by this new analysis technique. When Salmonella strains are isolated, this technique allows you to verify whether it is a house strain or rather a temporary passer-by induced by contaminated raw material. This way, one can identify the source of contamination and take targeted action.

Hygienic design is a must

Hygienic design is much more than bright and shiny stainless-steel installations in a facility. Basically, it's the application of design techniques that allow for all assets to be cleaned effectively and efficiently in order to minimize the risk of any kind of hazards. It is considered as a prerequisite program within a robust HACCP program.

To ensure rapid, effective cleaning in food production and to minimize contamination with microorganisms, hygienic design is a must. Not only for the equipment used, but also for buildings and facilities. This applies equally to food product businesses, commercial kitchens, food service production area's or kitchen hospitals. Also, in these sectors there is a need for a better understanding on how good hygienic design looks like. With the use of training and building awareness, it's crucial to demonstrate how critically important hygienic design is for food safety.

A food safety mindset

Improving food safety and managing the risks that come with the production of food should be top of mind for all food producers. Yet this can only be done when a true food safety culture is embedded in the organization and where food safety is not seen as a cost, but as the cornerstone of a company.

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