

Hygienic Design as a strategy of mitigation microbial contamination on food industry

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Abstract

There is a knowledge gap when the topic is the hygienic design of equipment and sanitation. Mechanical engineers and electricians tend to be focused on the operational performance of the equipment, without looking at the cleanability, as they do not have a background in health sciences. On the other hand, microbiologists and food safety specialists are unaware of engineering concepts that influence the decision-making process to specify and purchase sanitary components. Meanwhile, the sanitation team suffers the day-to-day pain of not having full access to parts of the equipment and the time pressure to perform the task that is not accounted as productive time.

There are several cases of recalls all over the world, caused by microorganisms such as *Listeria monocytogenes* and species of *Salmonella*, because they are environmentally persistent, they take shelter in places of installations and machines where cleaning products do not reach, simply because such equipment is not designed for that. Microbiological contamination usually happens silently inside closed or open equipment. The internal side of valves, piping, fittings, and welds (figure 1) can hide biofilms formed by spoilage or pathogenic microorganisms.

There are many references available clarifying concepts that are in most cases, intuitive. Roughness, internal angles of equipment, absence of niches and gaps, constructive and geometric details, and drainability. Once these concepts are known and understood across the organization, many problems can be prevented.

The lecture will present cases of modifications (before and after) in equipment and installations where principles of sanitary design were applied, improving food safety and reducing risks. The best choices are not always the most expensive, and even when there is a greater initial investment, the return on maintaining microbiological standards is rewarded.

Biography

Food Engineer, specialist on Quality and Food Safety Management (Unicamp) Industry experience: Danone (cookies), Bimbo (bakery), Sadia (meat processing), on production and quality assurance. Research experience on food microbiology. International experience on Latin America. Lead Auditor of Bureau Veritas Certification on ISO 9001, BRC Food, FSSC 22000. GMA-Safe auditor. Member of the board of Brazilian Society of Food Science and Technology. Food Safety Brazil Association Founder and former president. EHEDG authorized trainer and co-chair in Brazil. Flavor Food consulting Founder and general manager

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