



Worthwhile Operational Guidelines & Suggestions

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Verifying sanitation: How clean is clean?

Effective sanitation of food-contact surfaces is critical in meeting operational food safety objectives. Sight, feel, and even smell are effective organoleptic tools to evaluate the effectiveness of day-to-day cleaning and sanitation activities. However, Sanitation Standard Operating Procedures (SSOPs) should also include microbiological verification in most food processing environments. An ideal microbial limit on cleaned and sanitized food-contact surface would be the total absence of viable bacteria. However, this would rarely be achieved and may not be necessary in most food processing facilities. Many microorganisms exist naturally in the air, environmental and equipment surfaces. Even the potable water used in cleaning and sanitation activities is expected to contain some bacteria. Aerobic colony or plate count (APC) has been a standard microbiological component of most SSOPs. APC is determined by plating and counting all bacteria on a growth media incubated under aerobic conditions. APC does not directly correlate to presence or absence of pathogens and/or their toxins and a low APC does not necessarily indicate a pathogen free surface. On the other hand, a high APC is interpreted as an indication of poor process control and/or sanitation. **So, how clean is clean?** An APC of 100 cfu/cm² is universally accepted as an acceptable microbial limit for monitoring proper cleaning and disinfection of food-contact surfaces. Since APC have a limited value in assuring food safety, it should be supplemented by setting limits for other indicator bacteria (for example, <10 cfu/cm² of coliforms or absence of *E. coli*) or specific pathogens of concern (*Salmonella*, *Campylobacter*, *Listeria*, *Staphylococcus* etc.). A comprehensive cleaning and sanitation program, backed by a well-designed microbiological verification plan is a must in most operations, especially in those producing ready-to-eat products.



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