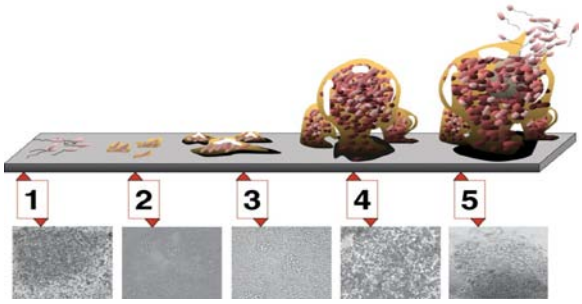
Worthwhile Operational Guidelines & Suggestions

BROILER PROCESSING TIMELY INFORMATION – SEPTEMBER 2009

Biofilms: A potential hazard for Poultry Processing

There are many opportunities for microorganisms such as *Listeria monocytogenes* to spread and colonize in a food processing environment. Floors and drains been implicated as the primary source of *L. monocytogenes* in poultry processing plants primarily due to their ability to attach to surfaces and form biofilms. Bacterial biofilms are microbially derived sessile communities characterized by cells that are attached to a substratum or to each other. Biofilms formed in food processing environments are of significant importance as they have the potential to act as a chronic source of microbial contamination that can eventually lead to food spoilage or illness. The essential aspects in controlling biofilm formation and minimizing the biotransfer (transfer of pathogenic bacteria) potential on the food processing equipment and environments include proper cleaning and sanitation procedures. While there are multiple causes of disinfection failure in meat and poultry processing facilities, the generation of protective biofilms by microorganisms that aggregate on food processing equipment surfaces is a major contributing factor to contamination.



Five stages of biofilm development:

(1) Initial attachment; (2) Irreversible attachment; (3) Maturation I; (4) Maturation II; (5) Dispersion.

Source: From: Looking for Chinks in the Armor of Bacterial Biofilms Monroe D PLoS Biology Vol. 5, No. 11, e307 doi:10.1371/journal.pbio.0050307

Traditional disinfectants, such as bleach and halogenated organics, chlorine-based formulations, and quaternary ammonium salts do not effectively penetrate and remove the biofilm matrix and are therefore, unable to adequately control pathogens that are embedded within it. Thus, the ongoing research is targeting efficient cleaning and sanitation alternatives to facilitate biofilm removal and to prevent new biofilm formation on inert surfaces.

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