

Microorganisms Pertinent to the Food Industry

The respective microbiological analyses are performed at DonLevy Laboratories.

Aerobic Plate Count - Enumeration of viable bacteria capable of reproduction in the presence of oxygen. The three day, twenty-five degrees C incubation format is recommended. Spore forming bacteria and *pseudomonads* are relatively easy to differentiate by colonial morphology on agar plates.

Coliform - Coliforms are universally accepted as an indicator of sanitary quality, and can be used for control step verification. Generally, coliform bacteria are not heat or chemical tolerant, making them easy to eradicate in the production environment. Effective intervention techniques and sanitation will eliminate coliform bacteria.

E. coli - *E. coli* is found throughout the environment and is not always a direct result of warm-blooded animal fecal contamination. Sanitation and intervention techniques should eliminate *E. coli* from the product flow.

E. coli O157:H7 - Specific serotype of *E. coli*. A human pathogen with a low infectious dose. Ingestion of 100 cells can cause disease. Associated with meat products, particularly raw ground beef.

Coagulase Positive Staphylococcus (CPS) - About sixty percent of CPS can produce enterotoxins, which may cause food poisoning if ingested. Cell numbers typically have to reach approximately 100K/g for toxin detection. The potential for enterotoxin production is greater in foods that are exposed to temperature elevation.

Yeast – Yeast are common spoilage flora. Issues can be minimized through preventative measures at time of manufacture. Intervention techniques may not be totally effective against yeast; sanitation efficacy must be determined.

Mold - Mold is everywhere in the environment and is considered an unavoidable contaminant. Minimizing levels at time of manufacture and fungistatic agent incorporation are the primary controls. Molds can grow over a wide pH and temperature range.

Lactic Acid Bacteria - Spoilage organisms in meats, dairy products, and salad dressings. Depressed pH favors lactic growth. It is common for strains to acclimate to the refrigerated processing environment and the nutrient base associated with product formulation.

Salmonella species – Food borne pathogen isolated from a wide variety of food types, including raw meat products, dairy products, chocolate, confectionery products, grains, and many other food stuffs. The number of *Salmonella* present in food is usually low. Enrichment is required to increase the number of cells to a detectable level.

Listeria species – Isolated from a wide variety of sources. Seven *Listeria* strains have been classified with *L. monocytogenes* being the singular pathogenic strain. Ability to reproduce at refrigerated temperatures. *Listeria* has been associated with ready to eat meats, dairy products, vegetables, and prepared and frozen meals.