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Class of Test Structure – Biological Testing

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Introduction

The field of Biological Testing is divided into classes of test. Applications for accreditation may be made for one or more classes of test, or for one or more sub-classes or specific tests within a single class of test, whenever possible, an application for accreditation should be specific and in the form of the list of classes of test provided below.

The classes of test shown below are a first order description of a laboratory's accreditation cover. Most accreditation is described in more detail and usually includes reference to specific determinations, relevant standard test methods and specification, or in-house test method.

The scope of accreditation may be reviewed and extended on request, provided that the laboratory complies with condition for accreditation for the classes of tests or specific test involved.


Where the existing classes of test do not appear to cover the needs of a laboratory, the PAB Laboratory Accreditation Technical Committee for Biological Testing welcomes proposals for additional classes to be included in this field.

1.01 Tests on Human Drugs, Biological Products and Medical Devices

- . 01 Endotoxin
- . 02 Toxicity
- . 03 Pyrogen
- . 04 Antimicrobial
- . 05 Assay of blood products
- . 06 Potency
- . 07 Safety
- . 08 Sterility
- . 09 Microbial limits
 - .01 Aerobic Plate Count
 - .02 Yeast and Mold Count
 - .03 Enterobacteriaceae Count
 - .04 Coliform Count
 - .05 *Escherichia coli* Detection
 - .06 *Pseudomonas aeruginosa* Detection
 - .07 *Staphylococcus aureus* Detection
 - .08 Salmonella Detection
 - .09 Others
- .10 Preservative efficiency
- .11 Others

1.02 Tests on Veterinary Pharmaceutical and Biological Products

- . 01 Endotoxin
- . 02 Toxicity
- . 03 Pyrogen
- . 04 Antimicrobial
- . 05 Assay of blood products
- . 06 Potency
- . 07 Safety
- . 08 Sterility
- . 09 Microbial limit:
 - .01 Aerobic Plate Count
 - .02 Yeast and Mold Count

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- .03 Enterobacteriaceae Count
- .04 Coliform Count
- .05 *Escherichia coli* Detection
- .06 *Pseudomonas aeruginosa* Detection
- .07 *Staphylococcus aureus* Detection
- .08 Salmonella Detection
- .09 Others
- .10 Preservative efficiency
- .11 Others

1.03 Tests on Biocides


- .01 Efficacy
- .02 Shelf life
- .03 Others

1.04 Tests on Cosmetics, Perfumes and Essential Oils

- .01 Microbial limits
 - .01 Aerobic Plate Count
 - .02 Yeast and Mold Count
 - .03 *Pseudomonas aeruginosa* Detection
 - .04 *Staphylococcus aureus* Detection
 - .05 *Candida albicans* Detection
 - .06 Others
- .02 Preservative efficacy
- .03 Others

1.05 Microbiological Tests on Foods and Beverages (Refer to Appendix A)

- .01 Microbial Enumerations
 - .01 Aerobic Plate Count
 - .02 Anaerobic Plate Count
 - .03 Psychrotrophic Bacteria Count
 - .04 Proteolytic Bacteria Count
 - .05 Halophilic Bacteria Count
 - .06 Lipolytic Bacteria Count
 - .07 Osmophilic Bacteria Count
 - .08 Lactic Acid Bacteria Count
 - .09 Yeast and Mold Count
 - .10 Enterococci Count/ Fecal Streptococci Count
 - .11 *Bacillus subtilis* Count
 - .12 Total spore Count
 - .13 Thermophilic flat sour spore Count
 - .14 Mesophilic Aerobic sporeformers Count
 - .15 Mesophilic Anaerobic sporeformers Count
 - .16 Thermophilic Aerobic sporeformer Count
 - .17 Thermophilic Anaerobic sporeformer Count
 - .18 Sulfide spoilage sporeformers/Sulfide reducing Bacterial Count
 - .19 Thermophilic aciduric Bacteria Count
 - .20 Others
- .02 Indicator Microorganisms (Count^a/Detection^b)
 - .01 Enterobacteriaceae
 - .02 Coliform
 - .03 Fecal Coliform
 - .04 *Escherichia coli*

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- .05 Others
- .03 Pathogens (Count^a/Detection^b)
 - .01 *Escherichia coli* O157:H7
 - .02 *Staphylococcus aureus* (coagulase positive)
 - .03 *Bacillus cereus*
 - .04 *Vibrio parahaemolyticus*
 - .05 *Clostridium perfringens*
 - .06 *Pseudomonas aeruginosa*
 - .07 *Salmonella*
 - .08 *Vibrio cholera*
 - .09 *Listeria monocytogenes*
 - .10 *Campylobacter*
 - .11 *Yersinia enterocolytica*
 - .12 *Shigella*
 - .13 *Cronobacter* species
 - .14 *Aspergillus flavus*
 - .15 Others
- .04 Commercial sterility
- .05 Others

1.06 Microbiological Tests of Surfaces in Abattoirs

- .01 Aerobic Pate Count
- .02 Coliform Count
- .03 *Escherichia coli* Count
- .04 Yeast and Mold Count
- .05 *Staphylococcus aureus* Count
- .06 *Salmonella* Detection
- .07 Listeria Detection
- .08 Others

1.07 Microbiological Tests for Factory Hygiene / Environmental Monitoring Purposes (Refer to Appendix D)


- .01 Aerobic Pate Count
- .02 Coliform Count
- .03 *Escherichia coli* Count
- .04 Yeast and Mold Count
- .05 *Staphylococcus aureus* Count
- .06 *Salmonella* Detection
- .07 Listeria Detection
- .08 Cronobacter Detection
- .09 Enterobacteriaceae Count
- .10 Others

1.08 Microbiological Tests on Diagnostic Kits

- .01 Efficacy
- .02 Shelf life
- .03 Others

1.09 Microbiological Tests on Packaging Materials

- .01 Aerobic Pate Count
- .02 Coliform Count
- .03 *Escherichia coli* Count
- .04 Yeast and Mold Count

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.05 Others

1.10 Microbial Cultures

- .01 Identification
- .02 Activity (specify)
- .03 Others

1.11 Identification of Pathogens in Plants/Animals (Specify)

- .01 Microbial pathogens
- .02 Parasites
- .03 Others

1.12 Aquatic Biology of Specified Water Source* (Refer to Appendix B)

- .01 Identification of Microalgae and Cyanobacteria to specified level**
- .02 Enumeration of microalgae and cyanobacteria to specified level**
- .03 Chlorophyll determination
- .04 Identification of protozoa to specified level**²
- .05 Enumeration of protozoa to specified level**
- .06 Identification of zooplankton to specified level**
- .07 Enumeration of zooplankton to specified level**
- .08 Identification of macroinvertebrates to specified level**
- .09 Enumeration of macroinvertebrates to specified level**
- .10 Identification of macrophytic algae to specified level**
- .11 Enumeration of macrophytic algae to specified level**
- .12 Enumeration of macrophytic plants to specified level*
- .13 General biomass of macrophytic plants
- .14 Sampling of macrophytic plants
- .15 Others

1.13 Microbial Test of Waters, including Effluents (Refer to Appendix B)


- .01 Heterotrophic Plate count
- .02 Yeast and Mold Count
- .03 Total Coliform (*Count^a/Detection^b*)
- .04 Fecal Coliform (*Count^a/Detection^b*)
- .05 *Escherichia coli* (*Count^a/Detection^b*)
- .06 *Pseudomonas aeruginosa* (*Count^a/Detection^b*)
- .07 Enterococci/Fecal Streptococci (*Count^a/Detection^b*)
- .08 Salmonella Detection
- .09 *Staphylococcus aureus* Count
- .10 *Legionella* (*Count^a/Detection^b*)
- .11 Others

1.14 Test on Substances for Potential Genetic Activity

- .01 Bacterial Mutagenicity Tests
- .02 Sister chromatid exchange tests
- .03 Transformation assays in cell structure
- .04 Others

² *potable water, industrial water, sewage, trade wastes, swimming pools and spas, environmental waters (freshwater, estuarine, marine)

**order/phylum, family, genus, species, genotype, user defined group

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1.15 Analysis of GMO

- .01 Detection by DNA
- .02 Detection by Protein
- .03 Others


1.16 Sample Collection

- .01 Human Drugs/biological product/medical devices
- .02 Cosmetics, perfumes, essential oils
- .03 Food and beverages
- .04 Veterinary pharmaceutical and biological products
- .05 Waters
- .06 Others

1.17 Sampling Plan

- .01 Human drugs/biological products/medical devices
- .02 Cosmetics, perfumes, essential oils
- .03 Food and Beverages
- .04 Veterinary pharmaceutical and biological products
- .05 Waters
- .06 Others

1.18 Others

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Appendix A: Classification of Foods and Beverages

A. Milk and Dairy Products

1. All cheese made from pasteurized milk
 - cottage cheese
 - soft & semi-soft cheese (moisture \geq 39%, pH>5)
2. All raw milk cheese
 - raw milk unripened cheese with moisture > 50%, pH>5
3. Processed cheese spread
4. Milk powders (whole, nonfat or filled milk, buttermilk, whey and whey protein concentrate)
5. Sweetened condensed milk
6. Liquid milk (evaporated or ready to drink) and Cream Ultra Heat Treated / sterilized
7. Pasteurized milk
8. Pasteurized cream
9. Yoghurt & other fermented milk
10. Others

B. Fats, Oils and Fat Emulsions

1. Butter (whipped, pasteurized)
2. Butter made from unpasteurized milk or milk products
3. Margarine
4. Others

C. Edible Ices, including Sherbet and Sorbet

1. Ice cream and sherbet (plain and flavoured)
2. Ice cream with added ingredients (nuts, fruits, cocoa, etc.)
3. Flavored ice
4. Others

D. Confectioneries


1. Cocoa powder
2. Chocolate products
3. Chocolate confectionaries (chocolate bars, blocks, bonbons)
4. Sugar confectionaries (hard and soft candies, toffees, caramel, fondants, creams, nougats and pastes)
5. Others

E. Fruits, Vegetables, Nuts and Seeds

1. Frozen vegetables & fruits (pH >4.5)
2. Fruit and vegetable products in hermetically sealed containers (thermally processed)
3. Dried vegetables
4. Coconut (desiccated)
5. Peanut butter and other nut butters
 - consumed without heating or other treatment to destroy microbes
 - used as ingredient in high moisture food
6. Sun dried fruits
7. Others

F. Egg and Egg Products

1. Pasteurized egg products (liquid, frozen or dried)
2. Others

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G. Cereal and Cereal Products/Legume-Based Products

1. Breakfast cereals
2. Cereals/cereal grains
3. Cultured seeds and grains (bean sprouts, alfalfa, etc)
4. Soya flours, concentrates and isolates
5. Flour, corn meal, corn grits, semolina
6. Frozen entrees containing rice or corn flour as main ingredient
7. Soy protein
8. Tofu
9. Pasta products and noodles uncooked (wet & dry)
10. Starch
11. Others

H. Bakery Products

1. Frozen bakery products (ready-to-eat) with low acid or high a_w fillings or toppings
2. Frozen bakery products (to be cooked) with low-acid or high a_w fillings or toppings (e.g. meat pies, pizzas)
3. Frozen and refrigerated doughs (chemically leavened)
4. Frozen and refrigerated doughs
5. Baked goods (microbiologically types e.g. contains egg & dairy products)
6. Coated or filled, dried shelf-stable biscuits
7. Others

I. Ready to Eat Savouries


1. Snack foods
2. Others

J. Meat and Poultry Products

1. Dried animal products
2. Meat paste and paté (heat treated)
3. Cold cuts, frozen and chilled hotdogs, corned beef, luncheon meat
4. Packaged cooked cure/salted meat (ham, bacon)
5. Fermented, comminuted meat, not cooked (dry and semi-dry fermented sausages)
6. Cooked poultry meat, frozen to be reheated before eating (e.g. prepared frozen meals)
7. Cooked poultry meat, frozen, ready-to-eat (e.g. Turkey rolls)
8. Cured/smoked poultry meat
9. Dehydrated poultry products
10. Fresh/frozen raw chicken during processing
11. Meat products in hermetically sealed containers (thermally processed)
12. Chilled meat/offals
13. Frozen meat/offals
14. Chilled/frozen comminuted meat/offals
15. Others

K. Fish and Shellfish Products

1. Fresh frozen fish and cold-smoked
2. Pre-cooked breaded fish
3. Frozen raw crustaceans
4. Frozen cooked crustaceans
5. Cooked, chilled & frozen crabmeat
6. Fresh and frozen bivalve molluscs
7. Fish and shellfish products in hermetically sealed containers (thermally processed)
8. Others

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L. Spices, Soups, Sauces, Salads and Protein Products

1. Dry mixes for soup and sauces
2. Yeast
3. Spices
4. Spices (ready to eat)
5. Salad dressing, pH \leq 4.6 (e.g. Mayonaise, Thousand Island, Ranch, French)
6. Others

M. Beverages

1. Non-alcoholic beverages (e.g. Ready to drink, softdrinks, iced tea, energy drinks)
2. Frozen juice concentrate
3. Powder beverages (iced tea, powdered juices/mixes)
4. Alcoholic beverages
5. Others

N. Food for Infants and Young Children

1. Powdered infant formula with or without added lactic acid producing cultures
2. Follow-up Formula/Milk Supplement
3. Infant formula (liquid) UHT/sterilized
4. Baby foods in hermetically sealed containers (thermally processed)
5. Dried & instant products requiring reconstitution
6. Dried products requiring reconstitution and boiling before consumption
7. Cereal based foods for infants
8. Others

O. Sugar and Sugar Products

P. Others

Appendix B: Classification of Waters

- A. Potable waters
- B. Non potable waters
- C. Sewage
- D. Effluents and trade wastes
- E. Cooling tower
- F. Industrial waters (treated, recirculating)
- G. Swimming and spa pools
- H. Marine waters
- I. Environmental waters
- J. Source water
- K. Others

Appendix C: Classification of Biocides

- A. Fungicides
- B. Bactericides
- C. Algacides
- D. Viricides
- E. Sporicides
- F. Sanitizer
- G. Insecticides
- H. Others