

**9. Department of Science and Technology – X  
Regional Standards and Testing Laboratory**

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 Field of Testing : Chemical Testing and  
 Microbiological Testing

**Chemical Testing**

Products	Specific Tests	Method/Reference
<b>I. Foods</b>		
<b>01.0 Milk and Dairy products</b>		
01.1 Milk powder and cream powder	Ash	AOAC 942.05 AOAC 945.46, AOAC 923.03
01.2 Whey and whey products 01.3 Condensed milk 01.4 Liquid milk 01.5 Pasteurized milk 01.6 Pasteurized cream 01.7 Yogurt and other fermented milk 01.8 Cheese and cheese products 01.9 Processed cheese spread 01.10 All raw milk cheese	Fat	Automated Soxhlet Method/ Tecator and AOAC 936.15
	Protein	Automated Kjeldahl Method/ Tecator and AOAC 948.15
	Moisture	Air Oven Method AOAC 930.15, AOAC 945.03, AOAC 925.23 AOAC 985.35
	Calcium	Varian Flame Atomic Absorption Spectrophotometry Analytical Methods/ and Spectra A Software 220 FS AOAC 985.35
	Iron	Varian Flame Atomic Absorption Spectrophotometry Analytical Methods/ and Spectra A Software 220 FS AOAC 985.35
	Sodium	

		Varian Flame Atomic Absorption Spectrophotometry Analytical Methods/ and Spectra A Software 220 FS
<b>07.0 Cereals and cereal products</b>		
07.1 Breakfast cereals 07.2 Cereal/cereal grains 07.3 Cultured seeds and grains 07.4 Soya flours concentrates and isolates 07.5 Flour, corn meal, corn grits, semolina 07.6 Frozen entrees containing rice or corn flour 07.7 Soy protein 07.8 Tofu 07.9 Pasta products and noodles 07.10 Starch 07.11 Cereal and starch-based desserts 07.12 Batters	Ash	AOAC 942.05, AOAC 945.46, AOAC 923.03
	Fat	Automated Soxhlet Method/ Tecator and AOAC 936.15
	Protein	Automated Kjeldahl Method/ Tecator and AOAC 948.15
	Moisture	Air Oven Method AOAC 930.15, AOAC 945.03, AOAC 925.23 AOAC 985.35
	Calcium	Varian Flame Atomic Absorption Spectrophotometry Analytical Methods/ and Spectra A Software 220 FS AOAC 985.35
	Iron	Varian Flame Atomic Absorption Spectrophotometry Analytical Methods/ and Spectra A Software 220 FS AOAC 985.35
	Sodium	Varian Flame Atomic Absorption Spectrophotometry Analytical Methods/ and Spectra A Software 220 FS
	<b>IV. Water</b>	
1.0 Bottled water	Calcium	SMEWW Method 3030F Varian Flame Atomic Absorption Spectrophotometry Analytical Methods/ and Spectra A Software 220 FS SMEWW Method 3030F

	Iron	Varian Flame Atomic Absorption Spectrophotometry Analytical Methods/ and Spectra A Software 220 FS SMEWW Method 3030F
	Sodium	Varian Flame Atomic Absorption Spectrophotometry Analytical Methods/ and Spectra A Software 220 FS SMEWW Method 3030F
	Lead	Varian Flame Atomic Absorption Spectrophotometry Analytical Methods/ and Spectra A Software 220 FS

## Microbiological Testing

Products	Specific Tests	Method/Reference
<b>I. Foods</b>		
<b>01.0 Milk and Dairy products</b>		
01.1 Milk powder and cream powder	Aerobic Plate Count <i>Salmonella</i>	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
01.2 Sweetened condensed milk	Aerobic Plate Count Yeast and Mold Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
01.4 Pasteurized milk	Aerobic Plate Count <i>Salmonella</i>	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
01.5 Pasteurized cream	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB
	Fecal coliform Count	MPN Method US FDA BAM. Online/ CAM-MFHPB
	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
01.6 Yogurt and other fermented milk	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and

		Standards Laboratory Specialists and Reference Microbiology, March 2005
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
01.7 Cheese and cheese products; e.g. Cottage Cheese, soft and semi-soft cheese (moisture $\geq$ 39%, pH > 5.0)	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB
	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
01.8 Processed cheese spread	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
01.9 All raw milk cheese; raw milk unripened cheese with moisture > 50%, pH > 5.0	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
<b>02.0 Fats and oils, and fat emulsions</b>		
02.1 Butter (whipped, pasteurized)	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	Yeast and Mold Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB

	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
02.2 Butter made from unpasteurized milk or milk products	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB
	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
<b>03.0 Edible ices, including sherbet and sorbet</b>		
03.1 Ice cream and sherbet (plain and flavoured)	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
<b>04.0 Confectioneries</b>		
04.1 Cocoa powder	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
<b>05.0 Fruits and vegetables, nuts and seeds</b>		
	<i>E. coli</i>	MPN Method

05.1 Frozen vegetables and fruits (pH > 4.5)		US FDA BAM. Online/ CAM-MFHPB
05.4 Dried vegetables	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB
05.5 Coconut (desiccated)	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	Yeast and Mold Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
05.6 Peanut Butter & other Nut Butters	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
05.7 Sun dried fruit	Mold Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB
<b>07.0 Cereals and cereal products</b>		
07.1 Breakfast cereals	Aerobic Plate Count Mold Count Yeast and Yeast-like fungi Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB Pour Plate Method US FDA BAM. Online/ CAM-MFHPB Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
07.2 Cereal/cereal grains	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	Yeast and Mold Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB
07.4 Soya flour concentrates and isolates	Mold Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB

	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
07.5 Flour, corn meal, corn, grits, semolina	Mold Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	Yeast and Yeast-like fungi	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
<b>08.0 Bakery Products</b>		
08.1 Frozen bakery products (ready to eat) with low acid or high $a_w$ fillings or toppings	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
08.2 Frozen bakery products(to be cooked) with low acid or high $a_w$ fillings or toppings(e.g. meat pies and pizzas)	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
08.3 Frozen and refrigerated dough (Chemically leavened)	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	Mold Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	Yeast and Yeast-like fungi Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB



	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB
	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
08.4 Frozen and refrigerated dough	Aerobic Plate Count Mold Count Yeast and Yeast-like fungi Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB Pour Plate Method US FDA BAM. Online/ CAM-MFHPB Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
08.5 Baked Goods (microbiologically sensitive types e.g. containing eggs and dairy products)	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	Yeast and Mold Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
<b>11.0 Fish and fish products</b>		
11.1 Fresh Frozen Fish and Cold-Smoked	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB
	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the

		Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
11.2 Pre-cooked Breaded and Fish	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB
	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
11.3 Frozen raw crustaceans	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB
	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
11.4 Frozen cooked Crustaceans	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB

	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
11.5 Cooked, chilled and frozen crabmeat	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB
	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
11.6 Fresh and frozen bivalve molluscs	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
<b>12.0 Spices, soups, sauces, salads and protein products</b>		
12.3 Spices	Aerobic Plate Count Mold Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
12.4 Spices (ready to eat)	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	Mold Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB

	<i>S. aureus</i> (coagulase +)	Coagulase positive count/ Surface Plate Method, / Chromogenic Plate for the Enumeration of <i>S. aureus</i> F12 Standard Units Evaluation and Standards Laboratory Specialists and Reference Microbiology, March 2005
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
<b>13.0 Beverages</b>		
13.1 Non-alcoholic (e.g. Ready to drink soft drinks, iced tea, energy drinks)	Aerobic Plate Count Yeast and Mold Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
13.2 Frozen juice concentrate	Aerobic Plate Count Yeast and Mold Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
13.3 Powdered beverages (Juices)	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
<b>14.0 Food for infants and young children</b>		
14. 1 Powdered infant formula with or without added lactic acid producing cultures (intended for 0 to 6 months old)	Aerobic Plate Count	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB
	<i>E. coli</i>	MPN Method US FDA BAM. Online/ CAM-MFHPB
	<i>Salmonella</i>	Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
14.5 Dried and instant products requiring reconstitution	Aerobic Plate Count <i>Salmonella</i>	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
14.6 Dried products requiring reconstitution and boiling before consumption	Aerobic Plate Count <i>Salmonella</i>	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature

14.7 Cereal based foods for infants	Aerobic Plate Count <i>Salmonella</i>	Pour Plate Method US FDA BAM. Online/ CAM-MFHPB Merck, Rambach/ Compact Dry SL medium for <i>Salmonella</i> literature
<b>IV. Water</b>		
1.0 Bottled Water	Heterotrophic Plate Count	Pour Plate Method SMEWW Method 9221
	Coliform Count	Multiple Tube Fermentation Technique SMEWW Method 9221
	Fecal Coliform Count	Multiple Tube Fermentation Technique SMEWW Method 9221
	<i>E. coli</i>	Multiple Tube Fermentation Technique SMEWW Method 9221