

**10. Department of Science and Technology – XI  
Regional Standards and Testing Laboratory**

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 Field of Testing : Chemical Testing and  
 Microbiological Testing

**Chemical Testing**

Product	Specific Test	Method Reference
<b>I. Foods</b>		
<b>.01 Cereal and cereal products</b>		
1. Breakfast Cereals	Crude Protein	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)
2. Cereal/cereal grains		
3. Cultured seeds and grains	Crude Fat	Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)
4. Soya flours concentrates and isolates		
5. Flour, corn meal, corn grits, semolina		
6. Frozen entrees containing rice or corn flour	Moisture	Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)
7. Soy protein	Ash	Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)
8. Tofu		
9. Pasta products and noodles (e.g. rice paper, rice vermicelli, soybean pastas and noodles)		
10. Starch		
<b>.02 Nuts and nut products</b>		

1. Peanut butter and other nut butters	Crude Protein	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)
	Crude Fat	Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)
	Moisture	Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)
	Ash	Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)

**.03 Dairy products**

1. All cheese made from pasteurized milk (cottage cheese, soft & semi-solid cheese)	Crude Protein	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)
2. Processed cheese spread		
3. Ice cream and sherbet plain and flavoured	Crude Fat	Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)
4. Ice cream with added ingredients		
5. Flavored ice		
6. Milk powders (whole, nonfat or filled milk, buttermilk, whey & whey protein concentrates)	Moisture	Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)
7. Sweetened condensed milk		
8. Liquid Milk (evaporated or Ready-To-Drink) and Cream (Ultra-Heat Temperature/Sterilized)	Ash	Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)
9. Pasteurized milk		
10. Pasteurized cream		
11. Yogurt and other fermented milk		

**.04 Meat and meat products**

1. Dried animal products	Crude Protein	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)
2. Meat paste and patè (heat treated)		
3. Cold cuts, frozen and chilled hotdogs, corned beef, luncheon meat	Crude Fat	Soxhlet Method, CHE-TM-003

4. Packaged cooked cured/salted meat (ham, bacon)	Moisture	Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)
5. Fermented comminuted meat, not cooked (dry and semi-dry fermented sausages)		Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)
6. Cooked poultry meat, frozen to be reheated before eating (e.g. prepared frozen meals)	Ash	Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)
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		

**.05 Fish and fish products, including molluscs, crustaceans, and echinoderms**

1. Fresh and frozen fish and cold-smoked	Crude Protein	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)
2. Pre-cooked breaded fish	Crude Fat	Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)
3. Frozen cooked crustaceans		
4. Cooked, chilled & frozen crabmeat	Moisture	Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)
5. Fish and shellfish products in hermetically sealed containers	Ash	Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)
6. Smoked, dried, fermented, and/or salted fish and fish products	Crude Protein	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)
	Crude Fat	Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)
	Moisture	Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)
	Ash	Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)

**.06 Sugar and sugar products**

1. Refined and raw sugar		
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2. Brown sugar	Crude Protein  Crude Fat  Moisture  Ash	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)  Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)  Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)  Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)
3. Sugar solutions and syrups		
4. Other sugars and syrups (e.g. xylose, maple syrup, sugar toppings)		
5. Honey		
6. Table-top sweeteners, including those containing high-intensity sweeteners		

**.07 Confectioneries**

1. Cocoa powder	Crude Protein  Crude Fat  Moisture  Ash	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)  Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)  Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)  Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)
2. Chocolate products		
3. Chocolate confectioneries (chocolate bars, blocks, bonbons)		
4. Sugar confectioneries (hard and soft candies, toffees, caramel, fondants, creams, nougats and pastes)		

**.08 Fruits, jams, and other fruit products**

1. Frozen fruits	Crude Protein  Crude Fat  Moisture  Ash	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)  Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)  Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)  Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)
2. Coconut (desiccated)		
3. Sun dried fruits		
4. Jams, jellies, marmalades		
5. Fruit-based spreads		
6. Candied fruit		
7. Fruit preparations (pulp, purees, fruit toppings, and coconut milk)		
8. Fermented fruit products		
9. Fruit fillings for pastries		

**.09 Vegetable and vegetable products**

1. Frozen vegetables	Crude Protein  Crude Fat  Moisture	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)  Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)  Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)
2. Dried vegetables		
3. Vegetables in vinegar, oil, brine, or soybean sauce		
4. Canned or bottled (pasteurized) or retort pouch vegetables		
5. Fermented vegetable		

6. Cooked or fried vegetables	Ash	Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)		
<b>.10 Alcoholic Beverages</b>				
1. Beer and malt beverages	Crude Protein	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)		
2. Cider and perry				
3. Grape wines				
4. Wines other than grapes				
5. Mead			Crude Fat	Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)
6. Distilled spirits containing more than 15% alcohol			Moisture	Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)
7. Aromatized alcoholic beverages (e.g. beer, wine and spirituous cooler-type beverages, low alcoholic refreshers)			Ash	Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)
<b>.11 Soft drinks and cordial</b>				
	Crude Protein	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)		
	Crude Fat	Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)		
	Moisture	Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)		
	Ash	Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)		
<b>.12 Fruit juices, drinks and concentrates</b>				
1. Fruit and vegetable juices	Crude Protein	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)		
	Crude Fat			
	Ash			
2. Fruit and vegetable nectars	Crude Fat	Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)		
3. Water-based flavoured drinks (Carbonated, Non-carbonated, Concentrates (liquid or solid))	Moisture Ash	Air Oven Method, CHE-TM-004(AOAC 20th Ed.) Gravimetric Method, CHE-TM-001(AOAC 20th Ed.)		

4. Coffee, coffee substitutes, tea, herbal infusions, and other hot cereal and grain beverages, excluding cocoa	Crude Protein	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)
	Crude Fat	Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)
	Moisture	Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)
	Ash	Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)

**.13 Edible fats and oils**

1. Butter (whipped, pasteurized)	Crude Protein Crude Fat Moisture Ash	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.) Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.) Air Oven Method, CHE-TM-004 (AOAC 20th Ed.) Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)
2. Butter made from unpasteurized milk and milk products		

3. Fats and oils essentially free from water (vegetable oils and fats, lard tallow, fish oil and other animal fats)	Crude Protein Crude Fat Moisture Ash	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.) Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.) Air Oven Method, CHE-TM-004 (AOAC 20th Ed.) Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)
4. Fat spreads, dairy fat spreads and blended spreads		

**.15 Eggs and eggs products**

1. Egg product (liquid, frozen, dried)	Crude Protein	(AOAC 20th Ed.)
	Crude Fat	Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027

2. Preserved eggs, including alkaline, salted, and canned egg	Moisture Ash	(AOAC 20th Ed.) Air Oven Method, CHE-TM-004 (AOAC 20th Ed.) Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)
3. Egg-based desserts (e.g. custard)		
<b>.20 Other food products</b>	Crude Protein	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)
	Crude Fat	Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)
	Moisture	Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)
	Ash	Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)
<b>.24 Sauces, spices, and condiments</b>	Crude Protein	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)
1. Dry mixes for soup and sauces	Crude Fat	Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)
2. Yeast	Moisture	Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)
3. Spices and herbs	Ash	Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)
4. Salad dressing (e.g. Mayonaise, Thousand island, Mustard)		
5. Vinegars		
6. Salt		
7. Sauces and like products (e.g. fish sauce)		
8. Soybean-based seasonings and condiments (e.g. soy sauce)		
<b>.25 Food supplement and/or Dietary Supplement</b>	Crude Protein	Kjeldahl Method, CHE-TM-002 (AOAC 20th Ed.)

	Crude Fat	Soxhlet Method, CHE-TM-003 Soxtec Method, CHE-TM-027 (AOAC 20th Ed.)
	Moisture	Air Oven Method, CHE-TM-004 (AOAC 20th Ed.)
	Ash	Gravimetric Method, CHE-TM-001 (AOAC 20th Ed.)

## Microbiological Testing

Product	Specific Test	Method Reference
<b>I. Foods</b>		
<b>1.0 Milk and Dairy products</b>		
01.1 Milk powder		
01.2 Sweetened condensed milk		
01.3 Liquid milk (evaporated or ready to drink) and cream (UHT/sterilized)	Aerobic Plate Count Yeast and Mold Count	BAM/ Pour Plate Method
01.4 Pasteurized milk		
01.5 Pasteurized cream	Coliform Count Fecal Coliform <i>E. coli</i> Count	BAM/MTFT
01.6 Yogurt and other fermented milk		
01.7 Cheese and cheese products; e.g. Cottage cheese, soft and semi-soft cheese (moisture > 39%, pH > 5)	<i>S. aureus</i> (coagulase positive) count <i>Salmonella</i> detection	Petrifilm/AOAC 2003.07, 2003.___, 2003.11 Petrifilm/Aoac 2014.01
01.8 Processed cheese spread		
01.9 All raw milk cheese; raw milk unripened cheese with moisture > 50%, pH > 5.0		
<b>02.0 Fats and oils, and fat emulsions</b>	Aerobic Plate Count Yeast and Mold Count	BAM/ Pour Plate Method
	Coliform Count Fecal Coliform <i>E. coli</i> Count	BAM/MTFT
02.1 Butter (whipped, pasteurized)	<i>S. aureus</i> (coagulase positive)	Petrifilm/AOAC 2003.07, 2003.___,



02.2 Butter made from unpasteurized milk or milk products	count <i>Salmonella</i> detection	2003.11 Petrifilm/Aoac 2014.01
02.3 Margarine		
<b>03.0 Edible ices, including sherbet and sorbet</b>	Aerobic Plate Count Yeast and Mold Count	BAM/ Pour Plate Method
03.1 Ice cream and sherbet (plain and flavoured)	Coliform Count Fecal Coliform <i>E. coli</i> Count	BAM/MTFT
03.2 Ice cream with added ingredient (nuts, fruits, cocoa etc.)	<i>S. aureus</i> (coagulase positive) count <i>Salmonella</i> detection	Petrifilm/AOAC 2003.07, 2003.____, 2003.11 Petrifilm/AOAC 2014.01
03.3 Flavored ice (e.g. Ice candy)		
<b>04.0 Confectioneries</b>		
04.1 Cocoa powder		
04.2 Chocolate products	Aerobic Plate Count Yeast and Mold Count	BAM/ Pour Plate Method
04.3 Chocolate confectioneries (chocolate bars, blocks and bonbon)	Coliform Count Fecal Coliform <i>E. coli</i> Count	BAM/MTFT
04.4 Sugar confectioneries (hard and soft candies, toffees, caramel, fondants, creams, nougats and pastes)	<i>S. aureus</i> (coagulase positive) count <i>Salmonella</i> detection	Petrifilm/AOAC 2003.07, 2003.____, 2003.11 Petrifilm/Aoac 2014.01
<b>06.0 Egg and egg products</b>	Aerobic Plate Count Yeast and Mold Count	BAM/ Pour Plate Method
06.1 Pasteurized egg products (liquid, frozen or dried)	Coliform Count Fecal Coliform <i>E. coli</i> Count	BAM/MTFT
	<i>S. aureus</i> (coagulase positive) count <i>Salmonella</i> detection	Petrifilm/AOAC 2003.07, 2003.____, 2003.11 Petrifilm/Aoac 2014.01
<b>07.0 Cereals and cereal products</b>	Aerobic Plate Count Yeast and Mold Count	BAM/ Pour Plate Method

07.1 Breakfast cereals	Coliform Count Fecal Coliform <i>E. coli</i> Count	BAM/MTFT
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 Uncooked (wet and dry)		
07.10 Starch		
<b>IV. Water</b>	Heterotrophic Plate Count	SMEWW 22nd Ed./Pour Plate Method
	Total Coliform Count	SMEWW 22nd Ed./MTFT
	Fecal Coliform Count	SMEWW 22nd Ed./MTFT
	<i>E. coli</i> Count	SMEWW 22nd Ed./MTFT (using ECB-MUG)
	<i>P. aeruginosa</i> Detection	SMEWW 22nd Ed./Multiple Tube Technique