

**DRAFT FOR COMMENTS**

**FDA CIRCULAR**

No. \_\_\_\_\_

**SUBJECT: Updated Guidelines for the Assessment of Microbiological Quality of Processed Food Products Repealing FDA Circular No. 2013-010 “Revised Guidelines for the Assessment of Microbiological Quality of Processed Foods”**

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**I. RATIONALE**

The Implementing Rules and Regulations of Republic Act 10611 otherwise known as the “Food Safety Act of 2013” states that food safety standards and codes of practice for processed and pre-packaged foods are to be developed, amended/revised, or updated.

Whereas FDA Circular No. 2013-010 or “*Revised Guidelines for the Assessment of Microbiological Quality of Processed Foods*”, was implemented in 2013, the FDA has not introduced any updated guidelines. Hence, this updated guidelines is hereby issued with the following considerations: 1. Addition of new food categories/products and, 2. Update of references.

The reference criteria for specific food commodities as stated in Tables 1 to 15 now includes pre-packaged tubed and cubed ice, ethnic milk-based confectioneries, and food supplements.

The methods used for the enumeration or detection of specified microorganisms shall be those that have been internationally established. Such methods, as well as the cited specifications were obtained from the following internationally recognized references:

1. FDA Bacteriological Analytical Manual published by the Association of Official Analytical Chemists International (AOAC)
2. Compendium of Analytical Methods of the Canadian Health Protection Branch
3. Compendium of Methods for the Microbiological Examination of Foods compiled by the American Public Health Association (APHA)
4. Specifications and Standards for Foods, Food Additives, etc., Japan External Trade Organization
5. Microbiological Guidelines for Food (For ready-to-eat food in general and specific food items), August 2014
6. Microorganisms in Foods by the International Commission on Microbiological Specifications for Foods (ICMSF)
7. Codex Alimentarius Commission Guidelines
8. International Standards Organization (ISO) Microbiological Methods
9. Australia New Zealand Food Authority (ANZFA)
10. Philippine National Standards (PNS)
11. Standard Methods for the Examination of Water and Wastewater (SMEWW)
12. Canadian Food Inspection Agency

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13. Association of Official Analytical Chemists (AOAC)
14. American Dehydrated Onion and Garlic Association standards (ADOGA)
15. Gelatin Manufacturers Institute of America (GMIA)

### **II. OBJECTIVES**

To serve as updated guidelines for the assessment of microbiological quality of certain processed food products and help ensure that food manufacturers comply with Good Manufacturing Practices (GMP).

### **III. SCOPE**

This Circular covers food establishments engaged in the manufacture, trade, repacking, wholesale, importation and distribution of processed food products in the Philippines.

### **IV. DEFINITION OF TERMS**

**APC or Aerobic Plate Count** as a routine test provides an estimate of the total number of mesophilic aerobic bacteria in a sample without differentiating among the various types. This analysis can be used as a general index of the bacterial population.

*Bacillus cereus* is a sporulating, Gram-positive organism that grows aerobically and is most commonly isolated from rice, cereals and pasta.

*Campylobacter* is a microaerophilic organism, Gram-negative, oxidase positive, spiral-shaped rods with flagella. The *Campylobacter* genus is part of the family Campylobacteraceae.

*Clostridium perfringens* is a Gram - positive anaerobic sporulating bacillus unusual among Clostridia in being non-motile. Categorised into sub categories dependent upon the toxin produced, it is a key food poisoning pathogen in meat dishes.

**Coliform** bacteria are organisms and are commonly used as bacterial indicators of sanitary quality in foods and water. They are Gram-negative rods, which can ferment lactose with the production of acid and gas when incubated at 35°C to 37°C.

**Commercial sterility** means the absence of microorganisms capable of growing in the food at normal non-refrigerated conditions at which the food is likely to be held during manufacture, distribution and storage.

*Cronobacter spp.* is a Gram-negative, motile, peritrichous non-spore forming, facultative anaerobic bacterium. It is an opportunistic pathogen and has been linked with serious infections in infants.



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*E. coli* or *Escherichia coli* are a member of the family Enterobacteriaceae, and are divided into many sub-groups. *E. coli* is used as an indicator organism in water testing for the presence of faecal coliforms.

**Enterobacteriaceae** is a family of gram-negative, non-spore forming bacteria that includes many bacteria that are found in human or animal intestinal tracts, as well as plants and the environment. The family includes a number of foodborne pathogens such as *Salmonella*, pathogenic *E. coli*, *Shigella* and *Cronobacter*, as well as non-pathogenic bacteria.

**Lactic acid bacteria** are Gram-positive, acid tolerant, rods or cocci that usually produce lactic acid as the major metabolic end product of carbohydrate fermentation.

*Listeria* are Gram-positive, catalase positive, non spore forming rods with flagella. *Listeria monocytogenes* and *Listeria ivanovii* are consistently associated with human illness isolated from soil, vegetation and water.

*Salmonella* genus belongs to the family Enterobacteriaceae. *Salmonella* bacteria are Gram - negative, non spore forming rods. There are approximately 2,500 serovars of *Salmonella*, which are characterized according to somatic and flagella antigens. *Salmonella* is one of the most frequent causes of food poisoning and a major public health problem worldwide.

*S. aureus* or *Staphylococcus aureus* is a Gram-positive, non-spore forming cocci bacteria that belongs to the *Staphylococcus* genus. Several staphylococcal species (coagulase-negative and coagulase-positive strains) have the ability to produce heat-stable enterotoxins that cause gastroenteritis in humans.

*V. parahaemolyticus* or *Vibrio parahaemolyticus* is a Gram-negative, curve-shaped rod naturally present in coastal and estuarine waters. *V. parahaemolyticus* is halophilic (salt-tolerant) and is lysed almost immediately in freshwater. It is a natural contaminant of seafood (fish, shellfish and crustaceans).

## **V. GENERAL GUIDELINES**

This guidelines shall be used as reference to enhance food safety for the protection of public health.

## **VI. SPECIFIC GUIDELINES**

1. The responsibility of ensuring the microbiological quality of processed food product(s) and compliance to GMP shall rest upon the establishments or any person involved in the production, sale, handling, packing, transport, distribution, trading and storage of the product.
2. The guidelines shall be used as reference for the assessment of microbiological quality of processed food products, and as a regulatory tool in post market monitoring and surveillance.

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**VII. SEPARABILITY CLAUSE**

If any provision of this Circular is declared unauthorized or rendered invalid by any court of law or competent authority, those provisions not affected thereby shall remain valid and effective.

**VIII. PENALTY CLAUSE**

Sanctions over violations of any of the provisions of this FDA Circular shall follow the Rules of Administrative Procedure provided in the IRR of RA 9711.

**IX. REPEALING CLAUSE**

FDA Circular No. 2013-010 “Revised Guidelines for the Assessment of Microbiological Quality of Processed Foods” and other issuances inconsistent or contrary to this Circular are hereby repealed.

**X. EFFECTIVITY**

This FDA Circular shall take effect fifteen days (15) after its publication in two (2) national papers of general circulation, Official Gazette, and upon filing submission at the Office of the National Registrar (ONAR) at the UP Law Center, Diliman, Quezon City.

**ROLANDO ENRIQUE D. DOMINGO, MD**  
Director General

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**TABLE 1. MILK AND DAIRY PRODUCTS**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Milk Powders</b> ( e.g. whole, nonfat or filled milk, buttermilk, whey & whey protein concentrate)	<i>Salmonella</i> /25g, normal routine	5	0	0	-
	or high risk population	5	0	0	-
(intended for children more than 36 months of age and adults)	<b><sup>2</sup>Process Hygiene Indicators:</b>				
	SPC/APC, cfu/g	5	2	5x10 <sup>3</sup>	5x10 <sup>4</sup>
	<i>Enterobacteriaceae</i> cfu/g	5	1	10	10 <sup>2</sup>
<b>Sweetened Condensed Milk</b>	<sup>1</sup> Coliforms, cfu/g	5	1	10	10 <sup>2</sup>
	YMC, cfu/g	5	1	10	10 <sup>2</sup>
	SPC/APC, cfu/g	5	1	10 <sup>3</sup>	10 <sup>4</sup>
<b>Sweetened Condensed Milk/Creamer in hermetically sealed containers</b> (thermally processed)	Commercial Sterility	6	0	Commercially sterile	
<b>Liquid Milk</b> (evaporated or ready to drink) & <b>Cream</b> (UHT/sterilized)	Commercial Sterility	6	0	Commercially sterile	
<b>Pasteurized Milk</b>	<sup>1</sup> Coliforms, cfu/mL	5	1	10 <sup>2</sup>	10 <sup>3</sup>
	<i>Salmonella</i> /25mL	5	0	0	-
	<i>Listeria monocytogenes</i> /25 mL	5	0	0	-
	SPC/APC, cfu/mL	5	1	5x10 <sup>4</sup>	10 <sup>5</sup>
	Ø for flavored milk	5	2	5x10 <sup>4</sup>	10 <sup>6</sup>

1 Coliforms must be negative for E.coli

2 Process hygiene criteria to be applied to the finished product (powder form) or any other previous point that provides the information for the purpose of verification. The criteria is intended to be used by the manufacturer as a means of on-going assessment of their hygiene programs

**Legend:** n - number of sample units selected from a lot of food to be examined

c -Maximum allowable number of defective or marginally acceptable samples

m- Acceptable level of microorganisms determined by a specified method; the values are generally based on levels that are achievable under GMP

M- Level which when exceeded in one or more samples would cause the lot to be rejected as this indicates potential health hazard or imminent spoilage



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**TABLE 1. MILK AND DAIRY PRODUCTS Cont.**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
Pasteurized Cream	<sup>1</sup> Coliforms, cfu/g	5	1	10 <sup>2</sup>	10 <sup>3</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	<i>Listeria monocytogenes</i> /25g	5	0	0	-
	SPC/APC, cfu/g	5	1	5x10 <sup>4</sup>	10 <sup>5</sup>
Yogurt and other fermented milk	<i>S. aureus</i> (coagulase +), cfu/mL	5	2	10	10 <sup>2</sup>
	<sup>1</sup> Coliforms, cfu/mL	5	2	10	10 <sup>2</sup>
	<i>Salmonella</i> /25mL	5	0	0	-
	Lactic Acid, cfu/mL (required minimum level: ≥10 <sup>6</sup> cfu/mL)	-	-	-	-
Cheese and Cheese Products; e.g. Cottage Cheese; Soft and Semi-soft cheese (moisture ≥9%, pH > 5)	<i>S. aureus</i> (coagulase +), cfu/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
	<i>E.coli</i> , MPN/g	5	1	11	110
	<i>Coliforms</i> , MPN/g	5	1	11	10 <sup>3</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	<i>Listeria monocytogenes</i> /25g	5	0	0	-
Processed Cheese Spread	<sup>1</sup> Coliforms, cfu/g	5	1	10	10 <sup>2</sup>
	<i>S. aureus</i> (coagulase +), cfu/g	5	1	10	10 <sup>2</sup>
	SPC/APC, cfu/g	5	2	10 <sup>4</sup>	5x10 <sup>4</sup>
All Raw Milk Cheese; Raw Milk Un-ripened cheese w/moisture>50%, pH > 5.0	<i>Campylobacter</i> /25g	5	0	0	-
	<i>Listeria monocytogenes</i> /25g	5	0	0	-
	<i>Salmonella</i> /25g	5	0	0	-
	<i>S. aureus</i> (coagulase +), cfu/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>

<sup>1</sup> Coliforms must be negative for *E.coli*

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**TABLE 2. FATS, OILS AND FAT EMULSIONS**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Butter</b> (whipped, pasteurized)	YMC, cfu/g	5	1	20	10 <sup>2</sup>
	Coliforms, cfu/g	5	1	10	10 <sup>2</sup>
	<i>S. aureus</i> (coagulase +), cfu/g	5	2	10 <sup>2</sup>	10 <sup>4</sup>
	SPC/APC, cfu/mL	5	1	5 x 10 <sup>4</sup>	10 <sup>5</sup>
<b>Butter made from unpasteurized milk or milk products</b>	Coliforms, cfu/g	5	1	10	10 <sup>2</sup>
	<i>E.coli</i> , MPN/g	5	1	3	9
	<i>S. aureus</i> (coagulase +), cfu/g	5	1	10	10 <sup>2</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	<i>Listeria monocytogenes</i> /25g	5	0	0	-
	SPC/APC, cfu/g	5	0	5 x 10 <sup>5</sup>	-
<b>Margarine</b>	<i>S. aureus</i> (coagulase +), cfu/g	5	0	10	-
	Faecal Coliform, MPN/g	5	2	50	5 x 10 <sup>2</sup>
	<i>Listeria monocytogenes</i> /25g	5	0	0	-
	<i>Salmonella</i> /25g	5	0	0	-
	SPC/APC, cfu/g	5	2	2.5 x 10 <sup>4</sup>	2.5 x 10 <sup>5</sup>
	YMC, cfu/g	5	2	50	5 x 10 <sup>2</sup>

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**TABLE 3. EDIBLE ICES, INCLUDING SHERBET AND SORBET**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Ice Cream &amp; Sherbet</b> (plain and flavored)	<sup>1</sup> Coliforms, cfu/g	5	1	10	10 <sup>3</sup>
	<i>Listeria monocytogenes</i> /25g	5	0	0	-
	<i>Salmonella</i> /25g	5	0	0	-
	SPC/APC, cfu/g	5	2	10 <sup>5</sup>	5 x 10 <sup>6</sup>
	<i>S. aureus</i> (coagulase +), cfu/g	5	1	10	10 <sup>2</sup>
<b>Ice Cream with added ingredients</b> (nuts, fruits, cocoa etc.)	<sup>1</sup> Coliforms, cfu/g	5	2	10	10 <sup>3</sup>
	<i>S. aureus</i> (coagulase +), cfu/g	5	1	10	10 <sup>2</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	SPC/APC, cfu/g	5	2	5 x 10 <sup>4</sup>	2 x 10 <sup>5</sup>
	<i>Listeria monocytogenes</i> /25g	5	0	0	-
<b>Flavored Ice</b> (e.g. Ice candy)	SPC/APC, cfu/g	5	2	10 <sup>2</sup>	10 <sup>4</sup>
	Coliforms, MPN/g	5	0	< 3.0	-
	YMC, cfu/g	5	0	10 <sup>2</sup>	-
	<i>Salmonella</i> /25g	5	0	0	-
<b>Ice Products (pre-packaged tubed and cubed ice)</b>	Coliforms, MPN/100mL	5	0	<1.1	-
	Thermo-tolerant <i>Coliform</i> / <i>E. coli</i> , MPN/100mL	5	0	<1.1	-
	Heterotrophic Plate Count, cfu/mL	5	0	<500	-

<sup>1</sup>Coliforms must be negative for E.coli

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**TABLE 4. CONFECTIONERIES**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Cocoa Powder</b>	Molds, cfu/g	5	2	10 <sup>2</sup>	10 <sup>4</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	Coliforms, MPN/g	5	2	1.8	10
	SPC/APC, cfu/g	5	2	10 <sup>4</sup>	10 <sup>6</sup>
<b>Chocolate Products</b>	Molds, cfu/g	5	2	10 <sup>2</sup>	10 <sup>4</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	Coliforms, MPN/g	5	2	1.8	10 <sup>2</sup>
	SPC/APC, cfu/g	5	2	10 <sup>4</sup>	10 <sup>6</sup>
<b>Chocolate Confectionaries</b> (chocolate bars, blocks, bonbons)	Molds, cfu/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	Coliforms, MPN/g	5	2	1.8	10 <sup>2</sup>
	SPC/APC, cfu/g	5	2	10 <sup>3</sup>	10 <sup>6</sup>
<b>Sugar Confectionaries</b> (Hard and soft candies, toffees, caramel, fondants, creams, nougats and pastes)	Molds, cfu/g	5	2	10	10 <sup>2</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	Coliforms, MPN/g	5	2	1.8	10 <sup>2</sup>
	SPC/APC, cfu/g	5	2	10 <sup>4</sup>	10 <sup>6</sup>
<b>Ethnic Milk-based Confectioneries</b> (Pastillas and Yema)	YMC, cfu/g	5	2	10 <sup>2</sup>	10 <sup>4</sup>
	<i>Salmonella</i> /25g	10	0	0	-
	Coliforms, MPN/g	5	2	<1.8	10 <sup>2</sup>
	SPC/APC, cfu/g	5	2	10 <sup>4</sup>	10 <sup>6</sup>

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**TABLE 4. CONFECTIONERIES cont.**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Ethnic Flour-based Confectioneries</b> (Polvoron, Piaya and Barquillos)	YMC, cfu/g	5	2	10	10 <sup>3</sup>
	Coliforms, cfu/g	5	2	10	10 <sup>2</sup>
<b>White sugar</b>	Mesophilic Bacteria cfu/10g	5	0	2 x 10 <sup>2</sup>	-
	YMC, cfu/10g	5	0	10	-
	Thermophilic Spores cfu/10g	5	0	1.5 x 10 <sup>2</sup>	-
<b>Coconut sap sugar</b>	<i>Salmonella</i> /25g	5	0	0	-
	<i>E.coli</i> cfu/g	5	0	<10	-
	Coliforms, cfu/g	5	0	< 10	-
	SPC/APC, cfu/g	5	0	< 10	-
	YMC, cfu/g	5	0	< 10	-

**TABLE 5. FRUITS AND VEGETABLES, NUTS AND SEEDS**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Frozen Vegetables &amp; Fruits</b> (pH >4.5)	<i>E.coli</i> , MPN/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
<b>Fermented Vegetables, Ready to Eat</b> (e.g. Kimchi)	YMC, cfu/g	5	2	10 <sup>2</sup>	10 <sup>4</sup>
	Coliforms, MPN/g	5	0	< 3	-
	<i>E.coli</i> , MPN/g	5	0	< 3	-
	<i>Salmonella</i> /25g	5	0	0	-
	<i>S. aureus</i> (coagulase +), cfu/g	5	0	10	-
<b>Fruits &amp; Vegetable products in Hermetically sealed containers</b> (thermally processed)	Commercial Sterility	6	0	Commercially sterile	

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**TABLE 5. FRUITS AND VEGETABLES, NUTS AND SEEDS Cont.**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Dried Vegetables</b>	<i>E.coli</i> , MPN/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
<b>Coconut</b> (desiccated)	<i>Salmonella</i> /25g	5	0	0	-
	SPC/APC, cfu/g	5	0	5 x 10 <sup>3</sup>	-
	Coliforms, cfu/g	5	0	50	-
	YMC, cfu/g	5	0	10 <sup>2</sup>	-
	<i>E.coli</i> , MPN/g	5	0	< 3	-
<b>Peanut Butter &amp; other Nut Butters</b> Ø consumed without heating or other treatment to destroy microbes Ø used as ingredient in high moisture food	<i>Salmonella</i> /25g	5	0	0	-
<b>Sun Dried Fruits</b>	Molds, cfu/g	5	2	10 <sup>2</sup>	10 <sup>4</sup>
	Osmophilic Yeasts, cfu/g	5	2	10	10 <sup>3</sup>
	<i>E.coli</i> , MPN/g	5	2	3	11
<b>Ethnic food products – Sweet preserves in syrup</b> e.g. <i>Kaong</i> , <i>Langka</i> , Banana, legumes, chickpeas, red beans, white kidney beans, Coconut, <i>Nata de Coco</i> , Mixed Preserves (halo-halo)	Acidified sweet preserves: <b>pH ≤4.6; (a<sub>w</sub>) &gt; 0.85</b>				
	SPC/APC, cfu/g	5	0	10 <sup>2</sup>	-
	YMC, cfu/g	5	0	10 <sup>2</sup>	-
	Low acid sweet preserves: <b>pH &gt; 4.6; (a<sub>w</sub>) &gt; 0.85</b>				
	Commercial Sterility	6	0	Commercially sterile	
<b>Purple Yam (Ube) Jam (Halaya)</b>	Commercial Sterility	6	0	Commercially sterile	

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**TABLE 5. FRUITS AND VEGETABLES, NUTS AND SEEDS Cont.**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
Carrageenan - Food grade	SPC/APC, cfu/g	5	0	$5 \times 10^3$	-
	YMC, cfu/g	5	0	$3 \times 10^2$	-
	<i>E.coli</i> , MPN/g	5	0	< 3	-
	<i>Salmonella</i> /25g	5	0	0	-
Virgin coconut oil	SPC/APC, cfu/mL	5	0	$10^2$	-
	YMC, cfu/mL	5	0	10	-
	<i>Salmonella</i> /25mL	5	0	0	-
	<i>E.coli</i> , MPN/mL	5	0	<3	-

**TABLE 6. EGG AND EGG PRODUCTS**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
Pasteurized & Smoked Egg Products (liquid, frozen or dried)	Coliforms, cfu/g	5	2	10	$10^3$
	<i>Salmonella</i> /25g	5	0	0	-
	YMC, cfu/g (for dried products)	5	0	10	-
	SPC/APC, cfu/g	5	2	$5 \times 10^4$	$10^6$

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**TABLE 7. CEREALS AND CEREAL PRODUCTS**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Breakfast Cereals</b>	Molds, cfu/g	5	2	10	10 <sup>3</sup>
	Yeast & Yeast-like fungi, cfu/g	5	2	10	10 <sup>2</sup>
	Coliform, cfu/g	5	2	10	10 <sup>2</sup>
	SPC/APC, cfu/g	5	2	10 <sup>3</sup>	10 <sup>4</sup>
<b>Cereals/Cereal Grains</b>	YMC, cfu/g	5	2	10 <sup>2</sup>	10 <sup>4</sup>
	SPC/APC, cfu/g	5	2	10 <sup>3</sup>	10 <sup>6</sup>
	Coliform, cfu/g	5	2	10 <sup>2</sup>	10 <sup>4</sup>
	<i>E.coli</i> , MPN/g	5	2	10 <sup>2</sup>	10 <sup>4</sup>
<b>Cultured seeds and grains (Sprouted seeds) (e.g. bean sprouts, alfalfa etc.)</b>	<i>E.coli</i> , MPN/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
	Fecal Coliform, MPN/g	5	2	10 <sup>3</sup>	10 <sup>5</sup>
	<i>Salmonella</i> /25g	5	0	0	-
<b>Soya Flours, Concentrates and Isolates</b>	Molds, cfu/g	5	2	10 <sup>3</sup>	10 <sup>5</sup>
	<i>Salmonella</i> /25g	5	0	0	-
<b>Flour, Corn meal, Corn grits, Semolina</b>	Molds, cfu/g	5	2	10 <sup>2</sup>	10 <sup>4</sup>
	Yeast & Yeast-like fungi, cfu/g	5	2	10	10 <sup>2</sup>
	Coliform, cfu/g	5	2	10	10 <sup>2</sup>
	<i>Bacillus subtilis</i> , cfu/g "rope spores"	5	2	10	10 <sup>2</sup>
<b>Dry Mixes (e.g. Pancake mix, Purple yam mix)</b>	SPC/APC, cfu/g	5	2	10 <sup>2</sup>	10 <sup>6</sup>
	YMC, cfu/g	5	2	10 <sup>2</sup>	10 <sup>5</sup>
	Coliforms, cfu/g	5	0	10 <sup>4</sup>	-
<b>Frozen entrees containing Rice or Corn Flour as main ingredient</b>	<i>Bacillus cereus</i> , cfu/g	5	1	10 <sup>2</sup>	10 <sup>4</sup>

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m- Acceptable level of microorganisms determined by a specified method; the values are generally based on levels that are achievable under GMP

M- Level which when exceeded in one or more samples would cause the lot to be rejected as this indicates potential health hazard or imminent spoilage

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**TABLE 7. CEREALS AND CEREAL PRODUCTS cont.**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
Soy Protein	Coliforms, cfu/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
	<i>E. coli</i> , MPN/g	5	1	10	10 <sup>2</sup>
	<i>Clostridium perfringens</i> , cfu/g	5	2	10	10 <sup>2</sup>
	YMC, cfu/g	5	2	10	10 <sup>2</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	SPC/APC, cfu/g	5	2	10 <sup>2</sup>	10 <sup>5</sup>
Tofu	<i>Bacillus cereus</i> , cfu/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
	<i>E. coli</i> , MPN/g	5	0	1.8	-
	<i>S. aureus</i> (coagulase +), cfu/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
Pasta Products and Noodles Uncooked (wet & dry)	Coliforms, cfu/g	5	2	10	10 <sup>3</sup>
	YMC, cfu/g	5	2	10 <sup>2</sup>	10 <sup>5</sup>
	<i>S. aureus</i> (coagulase +), cfu/g	5	1	10 <sup>2</sup>	10 <sup>4</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	SPC/APC, cfu/g	5	2	10 <sup>3</sup>	10 <sup>5</sup>
Starch	Coliforms, cfu/g	5	2	10	10 <sup>2</sup>
	YMC, cfu/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	SPC/APC, cfu/g	5	2	10 <sup>3</sup>	5 x 10 <sup>4</sup>
Coconut Flour	SPC/APC, cfu/g	5	0	10 <sup>4</sup>	-
	Coliforms, cfu/g	5	0	50	-
	<i>E. coli</i> , cfu/g	5	0	<10	-
	<i>S. aureus</i> (coagulase +), cfu/g	5	0	<10	-
	<i>Salmonella</i> /25g	5	0	0	-
	YMC, cfu/g	5	0	10 <sup>2</sup>	-

Legend: n - number of sample units selected from a lot of food to be examined

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M- Level which when exceeded in one or more samples would cause the lot to be rejected as this indicates potential health hazard or imminent spoilage



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**TABLE 8. BAKERY PRODUCTS**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Frozen Bakery products (ready to eat) with low-acid or high <math>a_w</math> fillings or toppings</b>	<i>S. aureus</i> (coagulase +), cfu/g	5	1	$10^2$	$10^4$
	<i>Salmonella</i> / 25g	5	0	0	-
<b>Frozen Bakery Products (to be cooked) with low-acid or high <math>a_w</math> fillings or toppings (e.g. meat pies, pizzas)</b>	<i>S. aureus</i> (coagulase +), cfu/g	5	1	$10^2$	$10^4$
	<i>Salmonella</i> / 25g	5	0	0	-
<b>Frozen and Refrigerated Doughs (Chemically leavened)</b>	Molds, cfu/g	5	2	$10^2$	$10^4$
	Yeasts & Yeast-like Fungi, cfu/g	5	2	$10^5$	$10^6$
	Coliforms, cfu/g	5	2	10	$10^2$
	SPC/APC, cfu/g	5	2	$10^2$	$10^7$
	<i>Salmonella</i> /25g	5	0	0	-
	<i>S. aureus</i> (coagulase +) , cfu/g	5	2	$10^2$	$10^4$
	<i>E. coli</i> , MPN/g	5	0	< 3	-
<b>Frozen and Refrigerated Doughs</b>	Molds, cfu/g	5	2	$10^2$	$10^4$
	Yeasts & Yeast-like Fungi, cfu/g	5	2	$10^5$	$10^6$
	Coliforms, cfu/g	5	2	10	$10^2$
	SPC/APC, cfu/g	5	2	$10^3$	$10^6$
<b>Baked Goods (microbiologically sensitive types e.g containing eggs &amp; dairy products)</b>	<i>S. aureus</i> (coagulase +), cfu/g	5	2	$10^2$	$10^4$
	YMC, cfu/g	5	2	$10^2$	$10^4$
	SPC/APC, cfu/g	5	2	$10^4$	$10^6$
	Coliforms, cfu/g	5	2	50	$10^3$
<b>Coated or Filled, Dried Shelf-Stable Biscuits</b>	<sup>1</sup> Coliforms, MPN/g	5	2	10	$10^2$
	<i>Salmonella</i> /25g	5	0	0	-

<sup>1</sup>Coliforms must be negative for *E.coli*

Legend: n - number of sample units selected from a lot of food to be examined

c -Maximum allowable number of defective or marginally acceptable samples

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M- Level which when exceeded in one or more samples would cause the lot to be rejected as this indicates potential health hazard or imminent spoilage

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**TABLE 9. READY TO EAT SAVOURIES**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
Snack Foods	Molds, cfu/g	5	2	10	10 <sup>3</sup>
	Yeast & Yeast-like fungi, cfu/g	5	2	10	10 <sup>2</sup>
	Coliform, cfu/g	5	2	10	10 <sup>2</sup>
	SPC/APC, cfu/g	5	2	10 <sup>3</sup>	10 <sup>4</sup>

**TABLE 10. MEAT AND MEAT PRODUCTS**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
Dried Animal Products	<i>S. aureus</i> (coagulase +), cfu/g	5	1	10 <sup>2</sup>	10 <sup>4</sup>
	<i>Clostridium perfringens</i> , cfu/g	5	1	10 <sup>2</sup>	10 <sup>4</sup>
	<i>Salmonella</i> /25g	10	0	0	-
Meat Paste & Pâté (heat treated)	<i>Salmonella</i> /25g	5	0	0	-
	<i>Clostridium perfringens</i> , cfu/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
	<i>S. aureus</i> (coagulase +), cfu/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
	<sup>1</sup> Coliforms, cfu/g	5	2	10	10 <sup>2</sup>
	SPC/APC, cfu/g	5	2	10 <sup>4</sup>	10 <sup>5</sup>
Cold Cuts, Frozen & Chilled Hot Dogs, Corned Beef, Luncheon Meat	<i>E.coli</i> , MPN/g	5	0	1.8	-
	<i>Salmonella</i> /25g	10	0	0	-
	<i>S. aureus</i> (coagulase +), cfu/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
	SPC/APC, cfu/g	5	2	10 <sup>5</sup>	10 <sup>6</sup>
Packaged cooked cured/salted meat (ham, bacon)	<i>S. aureus</i> (coagulase +), cfu/g	5	1	10 <sup>2</sup>	10 <sup>3</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	<i>Listeria monocytogenes</i> /25g	5	0	0	-
Fermented, comminuted meat, not cooked (dry & semi-dry fermented sausages)	<i>E.coli</i> , MPN/g	5	1	3.6	9.2
	<i>S. aureus</i> (coagulase +), cfu/g	5	1	10 <sup>3</sup>	10 <sup>4</sup>
	<i>Salmonella</i> /25g	5	0	0	-

<sup>1</sup>Coliforms must be negative for *E.coli*

Legend: n - number of sample units selected from a lot of food to be examined

c -Maximum allowable number of defective or marginally acceptable samples

m- Acceptable level of microorganisms determined by a specified method; the values are generally based on levels that are achievable under GMP

M- Level which when exceeded in one or more samples would cause the lot to be rejected as this indicates potential health hazard or imminent spoilage



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**TABLE 10. MEAT AND MEAT PRODUCTS Cont.**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Cooked Poultry Meat, Frozen to be reheated before eating</b> (e.g. prepared frozen meals)	<i>S. aureus</i> (coagulase +), cfu/g	5	1	10 <sup>3</sup>	10 <sup>4</sup>
	<i>Salmonella</i> /25g	5	0	0	-
<b>Cured/Smoked Poultry Meat</b>	<i>S. aureus</i> (coagulase +), cfu/g	10	1	10 <sup>3</sup>	10 <sup>4</sup>
	<i>Salmonella</i> /25g	10	0	0	-
<b>Dehydrated Poultry Products</b>	<i>Salmonella</i> / 25g	10	0	0	-
<b>Fresh/Frozen Raw Chicken</b> (during processing)	SPC/APC, cfu/g (at 20°C)	5	3	5 x 10 <sup>5</sup>	10 <sup>7</sup>
<b>Meat Products in hermetically sealed containers</b>	Commercial sterility	6	0	Commercially sterile	
<b>Meat products<sup>b</sup></b> -cooked (heat treated) meat products -intended to be eaten raw  ex. Marinated meat and meat preparations (tapa, sisig, etc.), - Marinated poultry, - Dim sum made from meat (siomai)	<i>Salmonella</i> /25g	5	0	0	-
	<i>Listeria monocytogenes</i> /25g	5	0	0	-
	<i>S.aureus</i> (coagulase +), cfu/g	5	1	10 <sup>2</sup>	10 <sup>3</sup>
<b>Minced meat and meat preparations made from poultry meat intended to be eaten cooked</b>	<i>Salmonella</i> /25g	5	0	0	-
<b>Minced meat and meat preparations made from species other than poultry intended to be eaten cooked</b>	<i>Salmonella</i> /25g	5	0	0	-

<sup>b</sup> Products from cooked (marinated, stewed, smoked, roasted, steamed, boiled, etc.) and raw (fermented or processed by special technologies) meat (pork, beef, lamb, chicken, rabbit, etc.), suitable for direct consumption.

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M- Level which when exceeded in one or more samples would cause the lot to be rejected as this indicates potential health hazard or imminent spoilage



**DRAFT FOR COMMENTS**

**TABLE 10. MEAT AND MEAT PRODUCTS Cont.**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Foods cooked immediately prior to sale or consumption</b>  ex. Takeaway food, burger patties, kebabs, nuggets	SPC/APC, cfu/g	n/a	n/a	<10 <sup>3</sup>	≥10 <sup>5</sup>
	Enterobacteriaceae, cfu/g	n/a	n/a	<10 <sup>2</sup>	>10 <sup>4</sup>
	<i>E.coli</i> , cfu/g	n/a	n/a	<20	>10 <sup>2</sup>
	<i>S. aureus</i> (coagulase +), cfu/g	n/a	n/a	<20	>10 <sup>4</sup>
	<i>Salmonella</i> /25g	n/a	n/a	Not detected	-
	<i>Listeria monocytogenes</i> / 25g				
	For refrigerated food (excluding frozen food) or food intended for infants	n/a	n/a	Not detected	-
	For other ready-to-eat food	n/a	n/a	<10	>100

**TABLE 11. FISH AND OTHER SEAFOOD PRODUCTS**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Fresh Frozen Fish<sup>a</sup> and Cold-Smoked<sup>b</sup></b>	<i>E.coli</i> , MPN/g	5	3	11	500
	<i>S. aureus</i> (coagulase +), cfu/g	5	2	10 <sup>3</sup>	10 <sup>4</sup>
	<i>V. parahaemolyticus</i> , cfu/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	SPC/APC, cfu/g	5	3	5x10 <sup>5</sup>	10 <sup>7</sup>
<b>Pre-Cooked Breaded Fish</b>	<i>E.coli</i> , MPN/g	5	2	11	500
	<i>S. aureus</i> (coagulase +), cfu/g	5	1	10 <sup>3</sup>	10 <sup>4</sup>
	SPC/APC, cfu/g	5	2	5 x 10 <sup>5</sup>	10 <sup>7</sup>

<sup>a</sup> For fish derived from inshore/inland waters of doubtful bacteriological quality, particularly warm areas or harvested during summer. Tests for *Salmonella* and *V. parahaemolyticus* recommended if fish is to be eaten raw.

<sup>b</sup> Test for *S. aureus* recommended for smoked fish.

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M- Level which when exceeded in one or more samples would cause the lot to be rejected as this indicates potential health hazard or imminent spoilage

**DRAFT FOR COMMENTS**

**TABLE 11. FISH AND OTHER SEAFOOD PRODUCTS Cont.**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
Frozen Raw Crustaceans <sup>c</sup>	<i>E. coli</i> , MPN/g	5	3	11	500
	<i>S. aureus</i> (coagulase +), cfu/g	5	2	10 <sup>3</sup>	10 <sup>4</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	<i>V. parahaemolyticus</i> , cfu/g	5	1	10 <sup>2</sup>	10 <sup>3</sup>
	SPC/APC, cfu/g	5	3	10 <sup>6</sup>	10 <sup>7</sup>
Frozen Cooked Crustaceans	<i>E. coli</i> , MPN/g	5	2	11	500
	<i>S. aureus</i> (coagulase +), cfu/g	5	0	10 <sup>3</sup>	-
	<i>Salmonella</i> /25g	5	0	0	-
	<i>V. parahaemolyticus</i> , cfu/g	5	1	10 <sup>2</sup>	10 <sup>3</sup>
	SPC/APC, cfu/g	5	2	5 x 10 <sup>5</sup>	5x10 <sup>7</sup>
Cooked Crustaceans	<i>S. aureus</i> (coagulase +), cfu/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	SPC/APC, cfu/g	5	2	10 <sup>5</sup>	10 <sup>6</sup>
Cooked, Chilled & Frozen Crabmeat <sup>d</sup>	<i>E. coli</i> , MPN/g	5	1	11	500
	<i>S. aureus</i> (coagulase +), cfu/g	5	0	10 <sup>3</sup>	-
	<i>V. parahaemolyticus</i> , cfu/g	10	1	10 <sup>2</sup>	10 <sup>3</sup>
	SPC/APC, cfu/g	5	2	10 <sup>5</sup>	10 <sup>6</sup>
Fresh & Frozen Bivalve Molluscs <sup>e</sup>	<i>E. coli</i> , MPN/g	5	0	16	-
	<i>Salmonella</i> /25g	20	0	0	-
	<i>V. parahaemolyticus</i> , cfu/g	10	1	10 <sup>2</sup>	10 <sup>3</sup>
	SPC/APC, cfu/g	5	0	5 x 10 <sup>5</sup>	-

<sup>c</sup> Test for *S.aureus* recommended for breaded products. *Salmonella* and *V. parahaemolyticus* applied to products from waters or harvested during summer.

<sup>d</sup> SPC/APC for frozen products only.

<sup>e</sup> Criteria to be used only for molluscs from approved harvesting areas where waters are free from enteric bacteria or virus contamination and no significant contamination by toxic metals or chemicals may be accumulated by animals. Test for *Salmonella* and *V. parahaemolyticus* recommended for molluscs from endemic or harvested from warm waters during summer.

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M- Level which when exceeded in one or more samples would cause the lot to be rejected as this indicates potential health hazard or imminent spoilage



**DRAFT FOR COMMENTS**

**TABLE 11. FISH AND OTHER SEAFOOD PRODUCTS Cont.**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
Fish & Shellfish products, Cooked Crustaceans in hermetically sealed containers (thermally processed) ex. cooked bagoong/shrimp paste	Commercial Sterility	6	0	Commercially sterile	
Ethnic food products – Dried, salted fish	SPC/APC, cfu/g	5	2	10 <sup>5</sup>	5 x 10 <sup>5</sup>
	YMC, cfu/g	5	2	10 <sup>3</sup>	10 <sup>4</sup>
	Coliforms, MPN/g	5	2	10	10 <sup>2</sup>
	<i>E.coli</i> , MPN/g	5	2	11	-
	<i>S. aureus</i> (coagulase +), MPN/g	5	2	10 <sup>3</sup>	-
Smoked Fish	SPC/APC, cfu/g	5	2	5 x 10 <sup>5</sup>	10 <sup>7</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	<i>E.coli</i> , MPN/g	5	3	11	< 500
	<i>S. aureus</i> (coagulase +) cfu/g	5	2	10 <sup>2</sup>	10 <sup>4</sup>
Salt Fermented Fish and Shrimps (bagoong)	SPC/APC, cfu/g	5	2	5 x 10 <sup>5</sup>	10 <sup>7</sup>
	Coliforms, cfu/g	5	2	10	10 <sup>2</sup>
Thermally processed fish products	Commercial Sterility	6	0	Commercially Sterile	
Aquatic products <sup>f</sup> -cooked (heat-treated) aquatic product -intended to be eaten raw aquatic animal products -intended for human consumption aquatic plant products (algae)	<i>Salmonella</i> /25g	5	0	0	-
	<i>Vibrio parahaemolyticus</i> , MPN/g	5	1	10 <sup>2</sup>	10 <sup>3</sup>
	<i>S. aureus</i> (coagulase +) cfu/g	5	1	10 <sup>2</sup>	10 <sup>3</sup>

<sup>f</sup>Products made from fish, crustaceans, molluscs, invertebrates, echinoderms and other aquatic organisms that have undergone heat treatment (steamed, cooked, baked, deep fried, etc.), suitable for direct consumption. Products that have been cleaned but not thermally processed, suitable for direct consumption, including live, fresh, frozen fish (fish slices), shrimp, cephalopods, live crab, live molluscs, as well as products made from live snails, crabs, molluscs, caviar by non-thermal treatment (salting, marinating, alcoholization), suitable for direct consumption. Products made from algae, suitable for direct consumption, which have undergone a certain treatment, including thermal (boiled, deep fried).

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**DRAFT FOR COMMENTS**

**TABLE 11. FISH AND OTHER SEAFOOD PRODUCTS Cont.**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Processed Fish and Fish Products, including molluscs, crustaceans and echinoderms</b>  ex. fish ball, squid ball	SPC/APC, cfu/g	5	2	10 <sup>5</sup>	10 <sup>6</sup>
	<i>S. aureus</i> (Coagulase +) cfu/g	5	0	10 <sup>3</sup>	
	<i>V. parahaemolyticus</i> , cfu/g, /25g	10	1	10 <sup>2</sup>	10 <sup>3</sup>
	<i>E.coli</i> , MPN/g	5	1	11	500
<b>Cooked Fish and Fish Products</b>	SPC/APC, cfu/g	n/a	n/a	n/a	10 <sup>5</sup> cfu/g

**TABLE 12. SPICES, SOUPS, SAUCES, SALADS AND PROTEIN PRODUCTS**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Dry Mixes for Soup and Sauces</b>	<i>Clostridium perfringens</i> , cfu/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
	YMC, cfu/g	5	3	10 <sup>3</sup>	4 x 10 <sup>3</sup>
	Coliforms, cfu/g	5	3	10	10 <sup>3</sup>
	SPC/APC, cfu/g	5	2	10 <sup>6</sup>	4 x 10 <sup>6</sup>
	<i>Salmonella</i> /25g	5	0	0	-
<b>Yeast</b>	<i>Salmonella</i> /25g	5	0	0	-
<b>Spices</b>	Molds, cfu/g	5	2	10 <sup>3</sup>	4 x 10 <sup>3</sup>
	SPC/APC, cfu/g	5	2	10 <sup>6</sup>	4 x 10 <sup>6</sup>
<b>Spices (ready to eat)</b>	<sup>1</sup> Coliforms, cfu/g	5	2	10 <sup>2</sup>	10 <sup>3</sup>
	<i>S. aureus</i> (coagulase +), cfu/g	5	2	10 <sup>2</sup>	10 <sup>4</sup>
	<i>Salmonella</i> /25g	5	0	0	
	Molds, cfu/g	5	2	10 <sup>3</sup>	4 x 10 <sup>3</sup>
	SPC/APC, cfu/g	5	2	10 <sup>6</sup>	4 x 10 <sup>6</sup>
<b>Food Grade Gelatin</b>	<i>E. coli</i> / 25g	5	0	0	-
	<i>Salmonella</i> / 25g	5	0	0	-
<b>Emulsified sauce</b> pH ≤4.6 (e.g. Mayonnaise, Thousand Island, Ranch, French)	SPC/APC, cfu/g	5	2	10	10 <sup>2</sup>
	YMC, cfu/g	5	2	10	10 <sup>2</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	<i>Listeria monocytogenes</i> /25g	5	0	0	-

<sup>1</sup>Coliforms must be negative for *E.coli*

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**TABLE 13. BEVERAGES**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
<b>Non Alcoholic Beverages</b> (e.g. Ready to drink, softdrinks, iced tea, energy drinks)	YMC, cfu/mL	5	0	<10	-
	Coliforms, cfu/mL	5	0	1	-
	SPC/APC, cfu/mL	5	1	10	10 <sup>2</sup>
<b>Frozen Juice Concentrate</b>	SPC/APC, cfu/mL	5	2	10 <sup>2</sup>	10 <sup>5</sup>
	YMC, cfu/mL	5	1	10	50
<b>Juices in hermetically sealed containers</b> (TetraPack etc.)	Commercial Sterility	6	0	Commercially sterile	
<b>Powdered Beverages</b> (e.g. iced tea, powdered juices/mixes)	SPC/APC, cfu/g	5	0	3x10 <sup>3</sup>	-
	Coliforms, cfu/g	5	0	10	-
<b>Mango beverage products</b>	SPC/APC, cfu/mL	5	0	10 <sup>3</sup>	-
	YMC, cfu/mL	5	0	50	-
	Coliforms, cfu/mL	5	0	10	-
	<i>E.coli</i> , cfu/mL	5	0	<1	-
<b>Bottled Water (Purified/Distilled Water)</b>	HPC, cfu/mL	5	1	10 <sup>3</sup>	10 <sup>5</sup>
	<sup>1</sup> Coliforms, MPN/100mL	5	1	<1.1	-
	<i>Pseudomonas aeruginosa</i> /100mL	5	0	0	-
	<i>Faecal streptococci</i> /100mL	5	0	0	-
<b>Bottled Water (Mineral Water)</b>	HPC, cfu/mL	5	1	10 <sup>4</sup>	10 <sup>6</sup>
	<sup>1</sup> Coliforms, MPN/100mL	5	1	<1.1	-
	<i>Pseudomonas aeruginosa</i> /100mL	5	0	0	-
	<i>Faecal streptococci</i> /100mL	5	0	0	-
<b>Chilled young coconut water (Buko juice)</b>	SPC/APC, cfu/mL	5	0	<10 <sup>4</sup>	-
	YMC, cfu/mL	5	0	< 2.5 x 10 <sup>2</sup>	-
	Coliforms, cfu/mL	5	0	< 10	-

<sup>1</sup>Coliforms must be negative for *E.coli*

Legend: n - number of sample units selected from a lot of food to be examined

c -Maximum allowable number of defective or marginally acceptable samples

m- Acceptable level of microorganisms determined by a specified method; the values are generally based on levels that are achievable under GMP

M- Level which when exceeded in one or more samples would cause the lot to be rejected as this indicates potential health hazard or imminent spoilage



**DRAFT FOR COMMENTS**

**TABLE 14. FOOD FOR INFANTS AND YOUNG CHILDREN**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M	
	Reference Criteria					
Powdered Infant Formula with or without added Lactic acid producing cultures (intended for 0 to 6 months old)	Routine analysis:					
	Cronobacter spp. / 10g	5	0	0	-	
	Salmonella / 25 g	5	0	0	-	
	For complaint investigation (additional to routine analysis):					
	<sup>1</sup> Coliforms, MPN/g	5	2	3	11	
	E. coli, MPN/g	10	1	1.8	10	
	<sup>2</sup> Process Hygiene Indicators:					
	SPC/APC, cfu/g	5	2	5x10 <sup>2</sup>	5x10 <sup>3</sup>	
	Enterobacteriaceae/ 10g	10	2	0	<sup>3</sup> NA	
Follow-up Formula/Milk Supplement (intended for infants 6 months on and for young children 12-36 months of age)	Routine analysis:					
	Salmonella / 25 g	5	0	0	-	
	For complaint investigation (additional to routine analysis):					
	<sup>1</sup> Coliforms, MPN/g	5	2	3	11	
	E. coli, MPN/g	10	1	1.8	10	
	<sup>2</sup> Process Hygiene Indicators:					
	SPC/APC, cfu/g	5	2	5x10 <sup>2</sup>	5x10 <sup>3</sup>	
	Enterobacteriaceae/10g	10	2	0	<sup>3</sup> NA	
Infant Formula - liquid (UHT/sterilized)	Commercial Sterility	6	0	Commercially Sterile		
Baby foods in hermetically sealed containers	Commercial Sterility	6	0	Commercially Sterile		
Dried and Instant products requiring reconstitution	<sup>1</sup> Coliforms, MPN/g	5	1	10	10 <sup>2</sup>	
	SPC/APC, cfu/g	5	1	10 <sup>4</sup>	10 <sup>5</sup>	
	*Salmonella/25g	60	0	0	-	
	Listeria monocytogenes/25g	5	0	0	-	

<sup>1</sup>Coliforms must be negative for *E.coli*

<sup>2</sup> Process hygiene criteria to be applied to the finished product (powder form) or at any other previous point that provides the information necessary for the purpose of verification. The criteria is intended to be used by the manufacturer as a means of ongoing assessment of their hygiene programs (CAC/RCP 66-2008)

<sup>3</sup> NA not applicable

Legend: n - number of sample units selected from a lot of food to be examined

c -Maximum allowable number of defective or marginally acceptable samples

m- Acceptable level of microorganisms determined by a specified method; the values are generally based on levels that are achievable under GMP

M- Level which when exceeded in one or more samples would cause the lot to be rejected as this indicates potential health hazard or imminent spoilage

**DRAFT FOR COMMENTS**

**TABLE 14. FOOD FOR INFANTS AND YOUNG CHILDREN Cont.**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
Dried products requiring reconstitution and boiling before consumption	<sup>1</sup> Coliforms, cfu/g	5	3	10	10 <sup>2</sup>
	<i>Salmonella</i> /25g	5	0	0	-
	SPC/APC, cfu/g	5	3	10 <sup>5</sup>	10 <sup>6</sup>
Cereal based foods for infants	<i>Bacillus cereus</i> , cfu/g	10	1	10 <sup>2</sup>	10 <sup>4</sup>
	<i>Clostridium perfringens</i> , cfu/g	5	1	10	10 <sup>2</sup>
	SPC/APC, cfu/g	5	2	10 <sup>3</sup>	10 <sup>4</sup>
	<i>Salmonella</i> /25 g	10	0	0	
	Coliforms, MPN/g	5	2	3	20
Ready-to-Use Therapeutic Foods (RUTF) and Ready-to-Use-Supplementary Foods (RUSF), 6 – 59 months of age	Enterobacteriaceae, cfu/g	10	2	10	100
	<i>Salmonella</i> /25g	25	0	0	-

<sup>1</sup>Coliforms must be negative for E.coli

<sup>2</sup> Process hygiene criteria to be applied to the finished product (powder form) or at any other previous point that provides the information necessary for the purpose of verification. The criteria is intended to be used by the manufacturer as a means of ongoing assessment of their hygiene programs (CAC/RCP 66-2008)

\* 25g sample units may be composited to a quantity not to exceed 400g

**TABLE 15. DIETARY FOOD SUPPLEMENT**

FOOD DESCRIPTION	TEST/MICROORGANISM	n	c	m	M
	Reference Criteria				
Food Supplement, e.g. Moringa	SPC/APC, cfu/g	-	-	-	10 <sup>4</sup>
	YMC, cfu/g	-	-	-	10 <sup>3</sup>
	<i>E.coli</i> , cfu/g	-	-	-	<10
	<i>Salmonella</i> /25g	-	-	-	Negative
	<i>S.aureus</i> (coagulase +),cfu/g	-	-	-	<10
	Enterobacteriaceae, cfu/g	-	-	-	10 <sup>2</sup>

Legend: n - number of sample units selected from a lot of food to be examined

c -Maximum allowable number of defective or marginally acceptable samples

m- Acceptable level of microorganisms determined by a specified method; the values are generally based on levels that are achievable under GMP

M- Level which when exceeded in one or more samples would cause the lot to be rejected as this indicates potential health hazard or imminent spoilage