codex alimentarius commission

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

WORLD HEALTH ORGANIZATION

JOINT OFFICE: Viale delle Terme di Caracalla 00100 ROME Tel: 39 06 57051 www.codexalimentarius.net Email: codex@fao.org Facsimile: 39 06 5705 4593

Agenda Item 13 **CX/NEA 03/16**
December 2002

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COORDINATING COMMITTEE FOR THE NEAR EAST

Second Session

Cairo, Egypt, 20 - 23 January 2003

WORKING PAPER ON ELABORATION OF A REGIONAL STANDARD FOR MICROBIOLOGICAL LEVELS IN FOODS
(prepared by Egypt)

Purpose

1 Food control aims to safeguard public health and provide assurance on food safety. To this end, microbiological analyses are useful tools to assess the safety and quality of food involved. This paper presents the recommended microbiological guidelines for foods.

Scope of the Guidelines

2. In Egypt, the Egyptian Standards are the legal powers and instruments for the establishment of microbiological safety limits of food. Egyptian Food standards stipulate the microbiological requirement for each commodity. In addition, the Public Health laboratory, Ministry of Health, is to implement microbiological guidelines to ensure safety of foods and limits sets by standards is already met.

Definition and Explanation

4. Microbiological Guidelines are criteria indicating the microbiological condition of the food concerned so as to reflect its safety and quality.

5. Foods are any foods packed in containers or without containers and sell to consumer.

6. "**Aerobic colony count (ACC)"** is a count of viable bacteria based on counting of colonies grown in nutrient agar plate. This is commonly employed to indicate the sanitary quality of foods. The incubation condition of ACC used in this guideline is 30^{o}C for 48 hours.

7. "**Indicator organism**" The main objective of using bacteria as indicators is to reflect the hygienic quality of food. ***E. coli*** is commonly used as potential indicator. Its presence in food generally indicates direct or indirect faecal contamination. Substantial number of *E. coli* in food suggests a general lack of cleanliness in handling and improper storage.

8. **"Specific pathogens"** refer to bacteria that may cause food poisoning. Mechanisms involved may be toxins produced in food or intestinal infection. The symptoms of food poisoning vary from nausea and vomiting (e.g. causes by *S. aureus*), through diarrhoea and dehydration (*Salmonella spp.* and *Campylobacter* spp.) to paralysis and death in the rare cases of botulism. The infectious doses vary from less than 10 to more than 10^6 organisms.

Components of Microbiological Criteria

9. The microbiological al limits of this set of guidelines are organised under the following three components:

i. Aerobic Colony Count;

ii. Indicator Organisms - *E. coli* count is the only indicator organism included;

iii. Specific Food Poisoning Pathogens – specific bacterial pathogens are included in the annex.

Microbiological Standards

10. The microbiological limits of packages foods and ready-to-eat food on the above three components will be reflected on the recommended limits as per the attached annex.

11. Annex categorized the microbiological limits as per food type.

Microbiological criteria for foods and food ingredients

1. Dairy Products

Item	Microorganisms	Limit per ml or gram			
		n	c	m	M
Pasteurized milk	- Aerobic plate count	5	1	$3x10^4$	10^5
	- Coliforms (MPN)	5	0	5	-
	- Escherichia coli	5	0	0	-
Fermented milk products : yoghurt laban - labena	- Coliforms	5	1	10	10^2
	- Escherichia coli	5	0	0	-
	- Yeast and mould	5	1	10^2	10^3
Fermented milk products With added flavour	- Coliforms	5	1	10	10^2
	- Yeast and mould	5	1	10^2	10^3
	- Salmonella	5	0	0	-
	- Escherichia coli	5	0	0	-
UHT milk	Incubation at 30º - 35º C for 7 days (for local factories)				
	- Aerobic plate count	5	0	10	-
	- Coliforms	5	0	0	-
UHT milk with added flavour	Incubation at 30º - 35º C for 7 days (for local factories)				
	- Aerobic plate count	5	0	10	-
	- Salmonella	10	0	0	-
	- Coliforms	5	0	0	-
Condensed and sweeten condensed milk	- Aerobic plate count	5	2	10^2	10^3
	- Staphylococcus aureus	5	2	0	10
Pasteurized cream	- Aerobic plate count	5	1	$5x10^4$	10^5
	- Coliforms (MPN)	5	0	10	-
	- Yeast and moulds	5	1	20	10^2
	- Listeria monocytogenes	5	0	0	-
	- Escherichia coli	5	0	0	-
Pasteurized cream with added flavour	- Aerobic plate count	5	1	$3x10^4$	10^5
	- Coliforms (MPN)	5	0	10	-
	- Yeast and moulds	5	1	20	10^2
	- Salmonella	5	0	0	-
	- Listeria monocytogenes	5	0	0	-
	- Escherichia coli	5	0	0	-

Item	Microorganisms	Limit per ml or gram			
		n	c	m	M
Whipped cream	- Aerobic plate count	5	2	$5x10^4$	$5x10^5$
	- Coliforms (MPN)	5	1	10	20
	- Staphylococcus aureus	5	1	10	10^2
	- Salmonella (25 gm)	5	0	0	-
	- Listeria monocytogenes	5	0	0	-
	- Escherichia coli	5	0	0	-
Fermented cream	- Coliforms	5	1	10	20
	- Staphylococci	5	1	0	-
	- Yeast and moulds	5	1	20	10^2
	- Listeria monocytogenes	5	0	0	-
	- Escherichia coli	5	0	0	-
Butter	- Proteolytic or lipolytic bacteria	5	1	10^2	5×10^2
	- Coliforms	5	1	10	20
	- Yeast and moulds	5	1	10	10^2
	- Listeria monocytogenes	5	0	0	-
	- Salmonella (25 gm)	5	0	0	-
	- Escherichia coli	5	0	0	-
Edible ices (Ice cream - ice milk - water ice)	- Aerobic plate count	5	1	$5x10^4$	10^5
	- Coliforms	5	2	10	10^2
	- Escherichia coli	5	0	0	-
	- Staphylococcus aureus	5	1	10	10^2
	- Salmonella (25 gm)	10	0	0	-
	- Listeria monocytogenes	5	0	0	-
Ice cream mixes, Dehydrated	- Aerobic plate count	5	2	$3x10^4$	$3x10^5$
	- Coliforms	5	1	10	10^2
	- Salmonella	10	0	0	-
	- Escherichia coli	5	0	0	-
Soft cheese	- Escherichia coli	5	2	0	10
	- Staphylococcus aureus	5	2	0	10
	- *Salmonella	5	0	0	-
	- Listeria monocytogenes	5	0	0	-
	- Coliforms	5	2	10	10^2
	- Fungus	5	2	10	10
	- Yeast	5	2	$4x10^2$	10^3
Hard and semi - hard cheese	- Staphylococcus aureus	5	0	0	-
	- Salmonella	5	0	0	-
	- *Coliforms	5	2	10^2	10^3
	- Listeria monocytogenes	5	0	0	-
	- Escherichia coli	5	0	0	-

Item	Microorganisms	Limit per ml or gram			
		n	c	m	M
Processed cheese packed in non-metal containers	- Aerobic plate count	5	2	10^4	$5x10^4$
	- Staphylococci	5	1	0	10
	- Coliforms	5	2	10^3	10^4
	- Escherichia coli	5	0	0	-
	- Salmonella (25 gm)	5	0	0	-
	- Listeria monocytogenes	5	0	0	-
Powdered milk (skimmed, semi - skimmed)- Whey dried or powdered condensed whey	- Aerobic plate count	5	2	$5x10^4$	$3x10^5$
	- Coliforms	5	1	10	10^2
	- Escherichia coli	5	0	0	-
	- Salmonella	10	0	0	-
	- Staphylococcus aureus	5	0	0	
	- Listeria monocytogenes	5	0	0	-
Caseinate	- Aerobic plate count	5	2	$2x10^4$	$2x10^5$
	Coliforms	5	1	10	10^2
	- Staphylococci	5	0	0	-
	- Salmonella	10	0	0	-
	- Escherichia coli	5	0	0	-
Gee (Butter oil) Fats form milk	- Coliforms	5	1	0	10
	- Staphylococcus aureus	5	1	0	10

2. Infants, children and certain categories of dietetic foods

Item	Microorganisms	Limit per ml or gram			
		n	**c**	**m**	**M**
Biscuits. simple, plain, dried	- Coliforms	5	1	0	10^2
	- Salmonella	5	0	0	-
	- Escherichia coli O157	5	0	0	-
Coated or filled dried shelf - stable biscuits	- Coliforms	5	2	10	10^2
	- Salmonella	30	0	0	-
	- Escherichia coli O157	5	0	0	-
Dried and instant products requiring reconstitution	- Aerobic plate count	5	2	10^3	10^4
	- Coliforms	5	1	0	10^2
	- Salmonella	60	0	0	-
	- Staphylococcus aereous	5	0	0	-
	- Escherichia coli O157	5	0	0	-
Dried products requiring heating to boiling before consumption	- Aerobic plate count	5	2	10^3	10^4
	- Coliforms	5	2	0	10^2
	- Salmonella	15	0	0	-
	- Bacillus cereus	10	1	0	5x10
	- Clostridium perfringens	10	1	0	-
Dietetic food to be eaten by high risk category of consumers	- Aerobic plate count	5	1	10^3	10^4
	- Coliforms	5	2	0	10
	- Staphylococcus aureus	5	1	0	10
	- Bacillus cereus	10	1	10^2	10^3
	- Clostridium perfringens	10	1	10^2	10^3
	- Salmonella	60	0	0	-
	- Listeria monocytogenes	5	0	0	-
	- Escherichia coli *	5	0	0	-
	- Thermophylic campylobacter	5	0	0	-

3. Meat , poultry and its products

Item	Microorganisms	Limit per ml or gram			
		n	c	m	M
Frozen meat, whole or half carcasses, pieces with or without bones	- Aerobic Plate Count	5	3	10^6	10^7
	- Salmonella	5	0	0	-
	- Escherichia coli 0157	5	0	0	-
	- Staphylococcus aureus	5	2	10^2	10^3
Fresh meat, chilled, whole or half carcasses pieces with or without bones	- Aerobic Plate Count	5	3	10^6	10^7
	- Salmonella	5	0	0	-
	- Staphylococcus aureus	5	2	10^2	10^3
Raw minced meat, chilled	- Aerobic plate count	5	3	10^6	10^7
	- Staphylococcus aureus	5	2	$5x10^2$	10^3
	- Salmonella	5	0	0	-
Frozen minced meat	- Aerobic plate count	5	2	$5x10^5$	$5x10^6$
	- Salmonella	5	0	0	-
	- Escherichia coli O157 (25g for sample)	5	0	0	-
	- Staphylococcus aureus	5	2	10^2	10^3
Un- cooked chilled and frozen meat Raw minced meat with soy, kubba, beef meat balls, fresh sausage, meat burgers	- Aerobic plate count	5	3	10^6	10^7
	- Staphylococcus aureus	5	2	$5x10^2$	10^3
	- Coliforms	5	2	50	$5x10^2$
	- Salmonella	5	0	0	-
	- Escherichia coli 0157	5	0	0	-
Edible offal: Liver, testes, kidney, gizzard frozen	- Aerobic plate count	5	3	$5x10^5$	10^7
	- Salmonella	5	0	0	-
	- Escherichia coli 0157	5	0	0	-
Cured and/ or smoked meat, mortadella, luncheon	- Staphylococcus aureus	5	0	0	-
	- Salmonella	10	0	0	-
	- Escherichia coli 0157	5	0	0	-
Sausages, cooked	- Aerobic plate count	5	3	10^4	10^5
	- Staphylococcus aureus	5	1	10^3	10^4
	- Salmonella	5	0	0	-
	- Coliforms	5	2	$5x10^2$	$5x10^3$
Dehydrated meat or meat components, protein concentrates from meat	- Clostridium perfringens	5	1	10^2	10^3
	- Staphylococcus aureus	5	1	10^2	10^3
	- Salmonella	10	0	0	-
Meat soups	- Aerobic plate count	5	1	10^4	10^5
	- Coliforms	5	2	10	10^2
	- Clostridium perfringens	5	1	10^2	10^3
	- Salmonella	10	0	0	-

Item	Microorganisms	Limit per ml or gram			
		n	c	m	M
Poultry; frozen or chilled	- Aerobic plate count	5	3	10^{5}	10^{6}
	- Salmonella	5	0	0	-
Cured and/or smoked poultry meat; mortadella, frankurers, turkey, pastrami, smoked turkey breast	- Aerobic plate count	5	2	10^{3}	10^{4}
	- Staphylococcus aureus	5	0	0	-
	- Salmonella	10	0	0	-
	- Escherichia coli	5	0	0	-
Cooked poultry meat, frozen to be reheated before eating (e.g. prepared frozen meals; chicken burgers; chicken liver pate: chicken loaf)	- Aerobic plate count	5	2	10^{3}	10^{4}
	- Staphylococcus aureus	5	0	0	-
	- Coliforms	5	2	10	-
	- Salmonella	5	0	0	-
	- Escherichia coli O157	5	0	0	-
Cooked poultry meat, frozen; ready-to-eat (e.g. Turkey rolls and chicken)	- Aerobic plate count	5	3	10^{4}	10^{5}
	- Staphylococcus aureus	5	0	0	-
	- Salmonella	10	0	0	-
Dehydrated poultry products	- Salmonella	10	0	0	-
	- Escherichia coli	5	0	0	-

4. Fish and shellfish

Item	Microorganisms	Limit Per ml or gram			
		n	c	m	M
Iced or chilled raw fish and frozen fish at sea, fish blocks, comminuted fish blocks fish eaten raw	- Aerobic plate count	5	3	$5x10^5$	10^6
	- Escherichia coli O157	5	3	10	$5x10^2$
	- Vibrio parahaemolyticus	5	0	10^2	-
Smoked Fish including herring, cooked prior to eating and eaten uncooled	- Aerobic plate count	5	3	10^5	10^6
	- Escherichia coli	5	3	10	$5x10^2$
	- Staphylococcus aureus	5	2	10^2	10^3
	- Vibrio parahaemolyticus	5	0	10^2	-
Frozen raw crustaceans, raw shrimp, prawns and lobsters	- Aerobic plate count	5	2	10^5	10^6
	- Escherichia coli	5	3	10	$5x10^2$
	- Vibrio parahaemolyticus	5	1	10^2	10^3
	- Listeria monocytogenes	5	0	0	-
	- Staphylococcus aureus	5	2	10^2	10^3
	- Salmonella	5	0	0	-
Cooked, chilled, and frozen crabmeat	- Aerobic plate count	5	2	10^5	10^6
	- Escherichia coli	5	1	10	$5x10^2$
	- Staphylococcus aureus	5	0	10^2	-
	- Vibrio parahaemolyticus	10	1	10^2	10^3
	- Salmonella	5	0	0	-
Pre- cooked breaded fish products including fish sticks (fingers), fish protein, and fish cakes	- Aerobic plate count	5	2	10^5	10^6
	- Escherichia coli	5	2	10	$5x10^2$
	- Staphylococcus aureus	5	1	10	10^2
	- Vibrio parahaemolyticus	5	0	0	-
	- Salmonella	5	0	0	-
Frozen raw breaded shrimp and prawn	- Aerobic plate count	5	2	$5x10^5$	10^6
	- Coliforms	5	2	10	$5x10^2$
	- Staphylococcus aureus	5	1	10	10^2
	- Vibrio parahaemolyticus	5	1	10^2	10^3
	- Salmonella	5	0	0	-
Dried sea food, dehydrated fish and fish protein	- Clostridium Perfringens	5	1	10^2	10^4
	- Staphylococcus aureus	5	1	10	10^2
	- Salmonella	10	0	0	-

5. Egg products , margarine and nut butters

Item	Microorganisms	Limit Per ml or gram			
		n	c	m	M
Liquid egg (whole, yolk or white), chilled or frozen	- Aerobic plate count	5	2	$5x10^4$	10^5
	- Coliforms	5	2	10	10^3
	- Staphylococcus aureus	5	0	0	-
	- Salmonella	10	0	0	-
Any egg product intended for special dietary purposes (infants, aged, relief foods, etc.)	- Aerobic plate count	5	2	10^4	10^5
	- Staphylococcus aureus	5	0	0	-
	- Salmonella	30	0	0	-
Pudding with egg (powders)	- Aerobic plate count	5	2	10^4	10^5
	- Escherichia coli	5	2	0	10
	- Staphylococcus aureus	5	1	10	10^2
	- Salmonella	10	0	0	-
Margarine	- Yeasts and moulds	5	1	50	10^2
	- Salmonella	5	0	0	-
Nut butters	- Salmonella	10	0	0	-
Egg mix dehydrated	- Aerobic plate count	5	2	10^4	10^5
	- Salmonella	10	0	0	-
	- Escherichia coli	5	0	0	-
	- Staphylococcus aureus	5	0	10	-
Dried cake mixes with high egg content	- Salmonella	10	0	0	-
	- Bacillus cereus	5	0	10^2	-
	- Staphylococcus aureus	5	0	0	-

6. Tomato products , salad , vinegar and spices

*- shall pass commercial sterility test. Incubation at 25°-37 for 10 day.

*- NO signs of microbial growth, no swells or seam defective on packages are found during incubation.

Item	Microorganisms	Limit Per ml or gram			
		n	c	m	M
Tomato Ketchup, tomato, juice, tomato paste, tomato puree, tomato sauce and tomato products	- *Yeasts and moulds	5	2	10	0
	- *Pathogenic microorganisms	5	0	0	-
Coleslaw (cabbage)	- Aerobic plate count	5	1	10^5	10^6
	- Staphylococci	5	1	10^2	10^3
	- Escherichia coli	5	2	10	10^2
	- Listeria monocytogenes	5	0	0	-
Salad of raw vegetable	- Escherichia	5	2	10	10^2
	- Salmonella	5	0	0	-
Mayonnaise, mustard, salad sauce and other sauces	- Aerobic plate count	5	1	10^3	10^4
	- Coliforms	5	1	10	10^2
	- Salmonella	5	0	0	-
	- Escherichia coli	5	0	0	-
	- Yeast and moulds	5	1	20	10^2
Vinegar	- Aerobic plate count	5	1	30	10^2
Spices	- Aerobic plate count	5	2	10^3	10^4
	- *Staphylococcus aureus	5	1	10^2	10^3
	- Salmonella	5	0	0	-
	- *Yeasts and moulds	5	2	10^2	10^3
	- Coliform	5	2	10	10^3
	- Escherichia coli	5	0	0	-

7. Cereals and cereal products

Item	Microorganisms	Limit Per ml or gram			
		n	c	m	M
Cereals (Whole)	- Moulds	5	2	10^2	10^4
Cereals by-products flours , bran	- Bacillus cereus	5	1	10^3	10^4
	- Clostridium perfringens	5	1	10^2	10^3
Soya flours , concentrates and isolates	- Moulds	5	2	10^2	10^4
	- Salmonella	5	0	0	-
	- Escherichia coli	5	0	0	-
	- Bacillus cereus	5	0	10^2	-
Cakes and bakery products (ready -to-eat) toppings	- Staphylococcus aureus	5	1	10	10^2
	- Salmonella	20	0	0	-
	- Escherichia coli	5	0	10	-
	- Bacillus cereus	5	0	10	-
Pizza , meat pies frozen dough with fillings or entrees containing rice flour as a main ingredients	- Staphylococcus aureus	5	1	10^2	10^4
	- Salmonella	10	0	0	-
	- Bacillus cereus	5	1	10^3	10^4
Puffed , flaked cereal products *- Potatoes , dried and processed	- Aerobic plate count	5	1	$5x10^4$	10^5
	- Bacillus cereus	5	1	10^3	10^4
	- Salmonella	5	0	0	-
	- Clostridium perfringens	5	0	0	-
	- Escherichia coli	5	0	0	-
Dried cake mixes with high egg content	- Coliforms	5	1	50	10^2
	- Yeasts and moulds	5	1	$2x10^2$	10^3
Special breads , sweet with egg or milk	- Coliforms	5	1	50	10^2
	- Yeasts and moulds	5	1	10^2	2×10^3
	- Staphylococcus aureus	5	1	10	10^2
	- Salmonella	10	0	0	-
Macaroni /pasta , dry , with or without filling	- Sulphite -reducing clostridia	5	2	20	10^2
	- Coliforms	5	2	10	10^2
	- Yeasts and moulds	5	2	10^2	10^3
	- Salmonella	10	0	0	-
	- Escherichia coli	5	0	0	-
Starch	- Aerobic plate count	5	2	10^4	10^5
	- Yeast and moulds	5	2	10^2	10^3
	- Staphylococcus aureus	5	2	10	10^2
	- Salmonella	5	0	0	-

Item	Microorganisms	Limit Per ml or gram			
		n	c	m	M
Topping , dessert and bakery products , frozen or dehydrated	- Aerobic plate count	5	2	10^4	10^5
	- Escherichia coli	5	2	0	-
	- Staphylococcus aureus		0	0	-
	- Salmonella	5	0	0	-
Malt , Malt derivatives	- Aerobic plate count	5	1	$5x10^4$	10^5
	- Yeast and moulds	5	1	10^3	$5x10^3$
	- Staphylococcus aureus	5	1	10^2	10^3
	- Salmonella	5	0	0	-

8. Vegetables and fruits

Item	Microorganisms	Limit Per ml or gram			
		n	c	m	M
Fresh vegetables (to be consumed raw)	- Escherichia coli	5	2	10	10^2
	- Salmonella	10	0	0	-
Dried vegetables	- Escherichia coli	5	2	10^2	10^3
Dried fruits ; dates , figs , apricot	- Osmophilic yeasts	5	2	10	10^2
	- Moulds	5	2	10^2	10^3
	- Escherichia coli	5	2	0	10
Frozen vegetables and frozen fruits , pH equal or higher than 4.5	- Escherichia coli	5	2	10^2	10^3
	- Yeast and Moulds	5	2	10	-
Frozen vegetables and frozen fruits , pH less than 4.5	- H measured at the time of sampling	pH values shall be less than 4.5 in all tested samples			

9. Jelly and jam products

*- Packages shall be incubated at 35 o - 37°C for 10 days.

*- No sings of microbial alteration on packages or , On physical , chemical or organoleptic , characteristics of the product.

Item	Microorganisms	Limit Per ml or gram			
		n	c	m	M
Jam, jelly and marmalade Fruits in syrup , fruit pieces in syrup	- Yeasts and moulds	5	1	10^3	10^4
	- Escherichia coli	5	0	0	-

10. Chocolate and Candy products

Item	Microorganisms	Limit Per ml or gram			
		n	c	m	M
Chocolate ; plain , butter , liquor , sweet , sweet coating , milk , milk coating , nuts , discs , bullercrunch or toffee	- Salmonella	10	0	0	-
	- Staphylococcus aureus	5	0	0	-
	- Escherichia coli	5	0	0	-
Dehydrated or frozen desserts , (bonbons , caramels and other similar products)	- Aerobic plate count	5	2	10^4	10^5
	- Staphylococcus aureus	5	2	10	10^2
	- Salmonella	5	0	0	-
	- Escherichia coli	5	0	0	-
Cocoa	- Aerobic plate count	5	2	10^2	10^4
	- Yeast and moulds	5	2	10^2	10^4
	- Salmonella	10	0	0	-
	- Escherichia coli	5	0	0	-
Coconut , desiccated apricot	- Coliforms	5	2	10^2	10^3
	- Moulds	5	2	10	10^2
	- Salmonella	10	0	0	-
	- Escherichia coli	5	0	0	-
Nuts	- Moulds	5	2	10^2	10^3
	- Escherichia coli	5	2	0	10
Chewing gum	- Yeast and moulds	5	1	$5x10^2$	10^3
	- Salmonella	5	0	0	-
Honey	- Yeast and moulds	5	1	10^2	10^3
	- Clostridium perfringens	5	0	0	-
	- Clostridium botulinum	5	0	0	-
Molasses , hard brown sugar , debs	- Yeast and moulds	5	1	10^2	10^3
	- Escherichia coli	5	1	0	10
	- Salmonella	5	0	0	-

11. Ingredients for food industries

Item	Microorganisms	Limit Per ml or gram			
		n	**c**	**m**	**M**
Enzymes	- Escherichia coli	5	2	0	10
	- Salmonella	10	0	0	-
Dyes (food colours)	- Aerobic plate count	5	2	10^4	10^6
	- Salmonella	10	0	0	-
Gums	- Aerobic plate count	5	2	10^4	10^5
	- Coliforms	5	2	10	10^3
Eggs products	- Aerobic plate count	5	2	10^4	10^6
	- Salmonella	10	0	0	-
Yeasts	- Spores of rope-forming bacteria	5	1	10^2	10^3
	- Escherichia coli	5	2	0	10
	- Salmonella	10	0	0	-
Gelatin	- Aerobic plate count	5	3	5×10^3	10^4
	- Clostridium perfringens	5	1	10^2	10^4
	- Staphylococcus aureus	5	1	10^2	10^4
	- Salmonella	5	0	0	-

12. Drinking water , beverages , fruit juice , tea and coffee

Item	Microorganisms	Limit Per ml or gram			
		n	c	m	M
Bottled drinking water a) Non -carbonated b) Carbonated waters	**Aerobic plate count**				
	- At 37° C	5	1	50	-
	- At 22° C	5	1	100	
	- Coliforms	5	0	0	-
	- Pseudomonas aeroginosa	5	0	0	-
	- Escherichia coli	5	0	0	-
	- Streptococcus fecalis	5	0	0	-
	- Clostridium	5	0	0	-
Drinking Water	**Aerobic plate count**				
	- At 37° C	5	1	50	-
	- At 22° C	5	1	100	
	- Coliforms	5	0	0	-
	- Pseudomonas aeroginosa	5	0	0	-
	- Escherichia coli	5	0	0	-
	- Streptococcus fecalis	5	0	0	-
	- Clostridium	5	0	0	-
Water for human consumption ; at source	**Aerobic plate count**				
	- At 37° C	5	1	10	-
	- At 22° C	5	1	50	
	- Coliforms	5	0	0	-
	- Pesudomonas aeroginosa	5	0	0	-
	- Escherichia coli	5	0	0	-
	- Streptococcus fecalis	5	0	0	-
	- Clostridium	5	0	0	-
Water for human consumption at bottling operation	**Aerobic plate count**				
	- At 37° C	5	1	20	-
	- At 22° C	5	1	100	
	- Coliforms	5	0	0	-
	- Pesudomonas aeroginosa	5	0	0	-
	- Escherichia coli	5	0	0	-
	- Streptococcus fecalis	5	0	0	-
	- Clostridium	5	0	0	-
Natural mineral water first examination	**Aerobic plate count**				
	- At 37° C	5	1	50	-
	- At 22° C	5	1	50	
	- Coliforms	5	0	0	-
	- Escherichia coli	5	0	0	-
	- Streptococcus fecalis	5	0	0	-

Item	Microorganisms	Limit Per ml or gram			
		n	c	m	M
Carbonated beverages	- Aerobic plate count	5	1	10^2	$3x10^2$
	- Coliforms	5	1	0	10
	- Yeast and moulds	5	1	2	10
Fruits juice and drink	- Aerobic plate count	5	2	$5x10^3$	10^4
	- Coliforms	5	3	5	10^2
	- Yeast and moulds	5	2	10^2	10^3
Tea and derivatives	- Coliforms	5	1	10	10^2
	- Yeast and moulds	5	1	10^2	10^3
Coffee , instant or roasted	- Coliforms	5	1	10	10^2
	- Yeast and moulds	5	2	10^2	10^3

13. Canned foods and ingredients for canning

Commercially sterilized canned foods shall pass sterility test described in GS No. ……..." Microbiological Methods of Foods Examination , Part III : Commercials Sterility Test " . In conjunction with the following steps :

Tests		Limit			
		n	c	m	M
Step 1	Shall be carried out on 24 cans sufficient thermal process and adequate safety is indicated when no swells or seam defective cans are found during incubation	24	-	0	-
Step 2	Shall be carried out if one or two defective cans are detected , further large number of cans sorted for the removal of defective cans . If this sorting reveals 1 % or more of visibly defective cans , the lot is rejected . If less than 1 % are defective , proceed to step 3.	-	1%	0	-
Step 3	Examine the 24 cans during incubation at 30 - 37 ^{o} C for 10 days at least for non-acid canned foods and at 25 ^{o} C for acid foods . Reject if 1 or more swells are found after incubation.	24	0	0	-
Step 4	If any of the cans incubated show swells , reject the lot. If no swells occurs , choose 10 cans at random and examine them for seam defectives . If none show defects accept the lot.	10	0	0	-

- Ingredients for canned foods(Starches , flour , alimentary pasts , sugars and dry milk)

Microorganisms	Limits		
Thermophylic spore count :	5 samples , 10 grams for each shall be tested		
	n	m	M
(1) Aerobic	5	125/10 g	150/10 g.
(2) Flat - Sour	5	50/10 g.	75/10 g
(3) Anaerobic H_2S -negative	5	3 negative	
(4) Anaerobic H_2S -positive	5	4 negative	