(Unofficial)

Notification of the Ministry of Public Health
(No.416) B.E.2563 (2020)
Issued by virtue of the Food Act B.E. 2522
Re: Prescribing the quality or standard, principles, conditions and methods of analysis for pathogenic microorganisms in foods

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It deems appropriate to amend requirements for standard criteria for Pathogenic Microorganisms in Food

By the virtue of provisions of Section 5 in the first phrase and 6(2) (3) and (9) of the Food Act B.E.2522 (1979); the Minister of Public Health hereby issues the notification as follows:

Clause 1. The Notification of the Ministry of Public Health (No.364) B.E.2522 Re: Standards for Pathogenic Microorganisms in Food , dated 25th September B.E. 2556 (2013) shall be repealed.

Clause 2. Food listed in Annex 1 produced or imported for sale or sold of this Notification shall be free from pathogenic microorganisms except for pathogenic microorganisms specified in Annex 2 of this Notification.

Clause 3. Methods of Analysis are prescribed in Annex 3 of this Notification.

Clause 4 This Notification shall not be enforced to health supplement products, food additives.

Clause 5. This notification shall come into force after 90 days as from the day of its publication in the Government Gazette.

Notified on 2nd September B.E. 2563 (2020)

(Signed) Anutin Charnvirakul
(Mr. Anutin Charnvirakul)

Minister of Public Health

(Published in the Government Gazette Vol. 137, Special Part 237 Ngor, dated 9th October 2020.)

Note: This English version of the notification is translated to meet the need of the non-Thai speaking people. In case of any discrepancy between the Thai original and the English translation, the former will take priority.

Annex 1

List of food products

Attached to the Notification of the Ministry of Public Health (No. 416) B.E. 2563 (2020)

Issued by virtue of the Food Act B.E. 2522

Re: Prescribing the quality or standard, principles, conditions and methods of analysis for pathogenic microorganisms in foods

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1. List of food which have specific requirements for pathogenic microorganisms.

1) Modified Milk for Infants and Follow-up Formula Modified Milk for Infants and Young Children according to Notification of the Ministry of Public Health regarding Modified Milk for Infants and Follow-up Formula Modified Milk for Infants and Young Children

2) Infant Foods and Follow-up Formula Food for Infant and Young Children according to Notification of the Ministry of Public Health regarding Infant Foods and Follow-up Formula Food for Infant and Young Children

3) Supplementary Foods for Infant and Young Children according to Notification of the Ministry of Public Health regarding Supplementary Foods for Infant and Young Children

4) Weight-control Foods according to Notification of the Ministry of Public Health regarding Weight-control Foods

5) Cow's Milk according to Notification of the Ministry of Public Health regarding Cow's Milk

6) Flavoured Milk according to Notification of the Ministry of Public Health regarding Flavoured Milk

7) Other Milk Products according to Notification of the Ministry of Public Health regarding Other Milk Products

8) Fermented Milk according to Notification of the Ministry of Public Health regarding Fermented Milk

9) Ice Cream according to Notification of the Ministry of Public Health regarding Ice Cream

10) Cheese according to Notification of the Ministry of Public Health regarding Cheese

11) Cream according to Notification of the Ministry of Public Health regarding Cream

12) Beverages in Sealed Containers according to Notification of the Ministry of Public Health regarding Beverages in Sealed Containers

13) Tea according to Notification of the Ministry of Public Health regarding Tea

14) Coffee according to Notification of the Ministry of Public Health regarding Coffee

15) Soybean Milk in Sealed Containers according to Notification of the Ministry of Public Health regarding Soybean Milk in Sealed Containers

16) Electrolyte Drinks according to Notification of the Ministry of Public Health regarding Electrolyte Drinks

17) Herbal Tea according to Notification of the Ministry of Public Health regarding Herbal Tea

18) Drinking Water in Sealed Containers according to Notification of the Ministry of Public Health regarding Drinking Water in Sealed Containers

19) Ice according to Notification of the Ministry of Public Health regarding Ice

20) Natural Mineral Water according to Notification of the Ministry of Public Health regarding Natural Mineral Water

21) Semi-processed Foods according to Notification of the Ministry of Public Health regarding Semi-processed Foods

22) Alkaline-preserved Eggs according to Notification of the Ministry of Public Health regarding Alkaline-preserved Eggs

23) Foods in Sealed Containers according to Notification of the Ministry of Public Health regarding Foods in Sealed Containers

24) Fortified Rice with Vitamins according to Notification of the Ministry of Public Health regarding Fortified Rice with Vitamins

25) Chocolates according to Notification of the Ministry of Public Health regarding Chocolates

26) Butter Oil according to Notification of the Ministry of Public Health regarding Butter Oil

27) Margarine, Blends, Fat spreads, and Blended fat spreads according to Notification of the Ministry of Public Health regarding Margarine, Blends, Fat spreads, and Blended fat spreads

28) Honey according to Notification of the Ministry of Public Health regarding

29) Jam, Jelly, and Marmalade in Sealed Containers according to Notification of the Ministry of Public Health regarding Jam, Jelly, and Marmalade in Sealed Containers

30) Ghee according to Notification of the Ministry of Public Health regarding Ghee

31) Butter according to Notification of the Ministry of Public Health regarding Butter

32) Some Particular Kinds of Sauces according to Notification of the Ministry of Public Health regarding Some Particular Kinds of Sauces

33) Food Seasonings derived from the Hydrolysis or Fermentation of Soy Bean Protein according to Notification of the Ministry of Public Health regarding Food Seasonings derived from the Hydrolysis or Fermentation of Soy Bean Protein

34) Sauces in Sealed Containers according to Notification of the Ministry of Public Health regarding Sauces in Sealed Containers

35) Processed Gelatin and Jelly Desserts according to Notification of the Ministry of Public Health regarding Processed Gelatin and Jelly Desserts

36) Bread according to Notification of the Ministry of Public Health regarding Bread

37) Husked Rice Flour according to Notification of the Ministry of Public Health regarding Husked Rice Flour

38) Chewing Gum and Candy according to Notification of the Ministry of Public Health regarding Chewing Gum and Candy

39) Some Meat Products according to Notification of the Ministry of Public Health regarding Some Meat Products

40) Ready-to-Eat foods according to Notification of the Ministry of Public Health regarding Ready-to-Cook foods and Ready-to-Eat foods

2. List of food which have not specific requirements for pathogenic microorganisms.

1) Ready-to-Eat foods other than Notification of the Ministry of Public Health regarding Ready-to-Cook foods and Ready-to-Eat foods

2) Prepackaged fermented food made from animal products including animal products pickled with vinegar salt, etc

3) Fresh noodle

Annex 2

Standard for pathogenic microorganisms in foods

Attached to the Notification of the Ministry of Public Health (No. 416) B.E. 2563 (2020)

Issued by virtue of the Food Act B.E. 2522

Re: Prescribing the quality or standard, principles, conditions and methods of analysis for pathogenic microorganisms in foods

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Food product	Type of pathogen	Requirement
1.Modified Milk for Infants and Follow-up Formula Modified Milk for Infants and Young Children *and* Infant Foods and Follow-up Formula Food for Infant and Young Children		
(1.1) Modified Milk for Infants (powder or dry forms) (1.2) Infant foods (powdered or dried forms)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not detected in 0.1 g
	3. *Bacillus cereus*	not more than 100 CFU/g
	4. *Cronobacter* spp.	not detected in 10 g
(1.3) Follow-up Formula Modified Milk for Infants and Young Children (powdered or dried forms) (1.4) Follow-up Formula Food for Infants and Young Children (powdered or dried forms)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not detected in 0.1 g
	3. *Bacillus cereus*	not more than 100 CFU /g
(1.5) Follow-up Formula Modified Milk for Infants and Young Children other than powdered or dried forms (1.6) Infant Foods other than powdered or dried forms (1.7) Follow-up Formula Food for Infant and Young Children other than powdered or dried forms	1. *Salmonella* spp.	not detected in 25 g or mL
	2. *Staphylococcus aureus*	not detected in 0.1 g or mL
2. Supplementary Foods for Infants and Young Children		
(2.1) Supplementary Foods for Infant and Young Children (powdered or dried forms)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not detected in 0.1 g
	3. *Bacillus cereus*	not more than 100 CFU /g
	4. *Clostridium perfringens*	not more than 100 CFU /g
(2.2) Supplementary Foods for Infant and Young Children other than powdered or dried forms	1. *Salmonella* spp.	not detected in 25 g or mL
	2. *Staphylococcus aureus*	not detected in 0.1 g or mL
3. Weight-control Foods (excluding low energy food: sweetener)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU /g

Food product	Type of pathogen	Requirement
4. Milk product such as Cow's Milk, Flavoured Milk, Other Milk Products and Other Milk Products other than cow's milk		
(4.1) Ready-to-drink milk passed through the heat treatment process by Pasteurization or other equivalent process: 1) Cow's Milk 2) Flavoured Milk 3) Other Milk Products 4) Other Milk Products other than cow's milk	1. *Salmonella* spp.	not detected in 25 mL
	2. *Staphylococcus aureus*	not more than 100 CFU/mL
	3. *Bacillus cereus*	not more than 100 CFU/mL
	4. *Listeria monocytogenes*	not detected in 25 mL
(4.2) Powder Milk (4.3) Flavoured Milk (dried form) (4.4) Other Milk Products (dried form)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g
(4.5) Cow's Milk, Flavoured Milk, Other Milk Products other than Ready-to-drink milk passed through the heat treatment process by Pasteurization or other equivalent process	1. *Salmonella* spp.	not detected in 25 g or mL
	2. *Staphylococcus aureus*	not detected in 0.1 g or mL., except food product according to note 4 shall not be more than 100 CFU/mL or CFU/g
5. Fermented Milk	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not detected in 0.1 g or mL., except food product according to note 4 shall not be more than 10 CFU/mL or CFU/g
6.Cheese		
(6.1) Cheese (a_W) > 0.9	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/g
	5. *Listeria monocytogenes*	not detected in 25 g
(6.2) Cheese (a_W) between 0.82-0.9	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 500 CFU/g
	4.*Listeria monocytogenes*	not detected in 25 g
(6.3) Cheese (a_W) ≤ 0.82	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Listeria monocytogenes*	not detected in 25 g

Food product	Type of pathogen	Requirement
7.Cream		
(7.1) Dried cream	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g
(7.2) Cream which is passed through the heat treatment process by Pasteurization or other equivalent process	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g
	4. *Listeria monocytogenes*	not detected in 25 g
(7.3) Cream other than Dried cream and Cream which is passed through the heat treatment process by Pasteurization or other equivalent process	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not detected in 0.1 g., except food product according to note 4 shall not be more than 100 CFU/g
8.Ice Cream		
(8.1) Milk ice cream, Modified ice cream, Mixed ice cream	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 500 CFU/g
	4. *Listeria monocytogenes*	not detected in 25 g
(8.2) Milk ice cream, Modified ice cream, Mixed ice cream (liquid form which passed through pasteurization heat treatment powdered or dried form)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g
	4. *Listeria monocytogenes*	not detected in 25 g
(8.3) Edible ice, Milk ice cream, modified ice cream, mixed ice cream other than liquid form which passed through pasteurization heat treatment powdered or dried form	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not detected in 0.1 g., except food product according to note 4 shall not be more than 100 CFU/g
9. Beverage products		
(9.1) Ready-to-drink products which have pH $\geq$4.3 and are passed through the heat treatment process by Pasteurization or other equivalent process: 1) Beverages in sealed container 2) Tea 3) Coffee 4) Soybean Milk	1. *Salmonella* spp.	not detected in 25 mL
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/mL., except Bird's Nest Beverage shall not be more than 1,000 CFU/mL.
	5. *Listeria monocytogenes* (2)	not detected in 25 mL
(9.2) Concentrated or dried beverages in sealed container	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g
	4. *Clostridium perfringens* (3)	not more than 100 CFU/g
	5. *Listeria monocytogenes* (2)	not detected in 25 g

Food product	Type of pathogen	Requirement
(9.3) Beverages in sealed container, Tea, Coffee, Soybean Milk in sealed container other than listed in (9.1) and (9.2)	1. *Salmonella* spp.	not detected in 25 g or mL
	2. *Staphylococcus aureus*	not detected in 0.1 mL or g ., except food product according to note 4 shall not be more than 100 CFU/mL or CFU/g
10. Electrolyte Drinks	1. *Salmonella* spp.	not detected in 25 mL
	2. *Staphylococcus aureus*	not more than 100 CFU/mL
11. Herbal Tea	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
12. Drinking Water in Sealed Containers **13. Ice** **14. Natural Mineral Water**	1. *Salmonella* spp.	not detected in 100 mL
	2. *Staphylococcus aureus*	not more than 100 CFU/ 100 mL
15. Semi-processed Foods		
(15.1) Rice flake, Noodle, Chinese vermicelli, Rice vermicelli, Seasoned Mung bean vermicelli	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*)	not more than 100 CFU/g
(15.2) Seasonings of noodle in sealed containers, Paste of rice flour, Chinese vermicelli, Rice vermicelli, and Mung bean vermicelli	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 1,000 CFU/g
	4. *Clostridium perfringens*	not more than 1,000 CFU/g
(15.3) Seasoned rice soup and rice porridge (congee) , clear soup and broth (powdered or dried form)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 200 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/g
(15.4) Concentrated[(4)] Broth and soup, Broth and soup in cube	1. *Salmonella* spp.	not be detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 1,000 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/g
(15.5) Curries and curry pastes[(4)]	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 1,000 CFU/g
	4. *Clostridium perfringens*	not more than 1,000 CFU/g
(15.6) Semi-processed Foods other than listed in (15.1)-(15.5)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not detected in 0.1 g. , except food product according to note 4 shall not be more than 100 CFU/g
16. Alkaline-preserved Eggs	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Clostridium perfringens*	not more than 100 CFU/g

Food product	Type of pathogen	Requirement
17. Foods in Sealed Containers	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not detected in 0.1 g. , except food product according to note 4 shall not be more than 100 CFU/g
	3. *Clostridium botulinum* (5)	Not detected in 1 g
18.Fortified Rice with Vitamins	1. *Salmonella spp.*	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g
19. Chocolates **20.Honey** **21. Jam, Jelly, and Marmalade in Sealed Containers** **22.Butter Oil** **23.Margarine, Blends, Fat spreads, and Blended fat spreads** **24.Ghee** **25. Butter**	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
26. Some Particular Kinds of Sauces such as Chilly sauce, Tomato sauce, Papaya sauce, Flour sauce or colored flour sauce and Mixed sauces mean product		
(26.1) Some Particular Kinds of Sauces which are passed through any process that can destroy or inhibit microbial growth by thermal treatment or other equivalent process which kept in sealed containers which are made of metal or other rigid forms materials that can prevent transmission of air into the container and can be kept at room temperature.	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not detected in 0.1 g
(26.2) Some Particular Kinds of Sauces which are passed through any process that can destroy or inhibit microbial growth by other process other than listed in (26.1)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 1,000 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/g

Food product	Type of pathogen	Requirement
27. Food Seasonings derived from the Hydrolysis or Fermentation of Soy Bean Protein	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 1,000 CFU/g
	4. *Clostridium perfringens*	not more than 1,000 CFU/g
28.Sauces in Sealed Containers		
(28.1) Sauces in Sealed Containers which are passed through any process that can destroy or inhibit microbial growth by thermal treatment or other equivalent process which kept in sealed container which are made of metal or other rigid forms materials that can prevent transmission of air into the container and can be kept at room temperature.	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not detected in 0.1 g
(28.2) Other kind of sauces which are passed through any process that can destroy or inhibit microbial growth by other process other than listed in (28.1)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 1,000 CFU/g
	4. *Clostridium perfringens*	not more than 1,000 CFU/g
(28.3) Tao Chiew; Fermented soybean which are passed through any process that can destroy or inhibit microbial growth by other process other than listed in (28.1)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 2,500 CFU/g
	4. *Clostridium perfringens*	not more than 1,000 CFU/g
(28.4) Various kind of sauces other than listed in (28.1)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 500 CFU/g
	4. *Clostridium perfringens*	not more than 1,000 CFU/g
29. Processed Gelatin and Jelly Desserts		
(29.1) Processed Gelatin and Jelly Desserts, not in dried form	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Clostridium perfringens*	not more than 100 CFU/g
(29.1) Processed Gelatin and Jelly Desserts, not in dried form other than listed in (29.1)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
30.Bread	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/g

Food product	Type of pathogen	Requirement
31.Husked Rice Flour	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 1,000 CFU/g
32.Some Meat Products such as meat balls, sausages, fermented pork, moo-yor (Vietnamese pork sausages) , Chinese sausages, and products which are made by the same process and packed in containers ready for sale.		
(32.1) Some Meat Products, ready to eat such as fried meat balls and fried moo-yor (Vietnamese pork sausages) etc. (32.2) Some Chilled Meat Products	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/g
(32.3) Some Frozen Meat Products	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 50 CFU/g
	3. *Bacillus cereus*	not more than 50 CFU/g
	4. *Clostridium perfringens*	not more than 50 CFU/g
33.Chewing Gum and Candy	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
34.Ready-to-Eat foods[6]		
(34.1) Desserts and Thai desserts such as Thai custard cake (Maw kaeng), Golden drop, Steamed layer cake, Steamed Rice Flour (Kanom Kee Nu) Boiled Banana in coconut milk etc. (34.2) pickled or preserved vegetable and fruit	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/g
(34.3) Bakery product with filling or without filling which $a_W \geq 0.85$ [6]	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 10 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/g

Food product	Type of pathogen	Requirement
(34.4) Curry and rice, noodle, surimi, imitation crab stick, seasoned squid, sushi, sandwich, salad, papaya salad (som tam), Yum salad, slice grilled pork salad, ground pork salad and products which are made by the same process[6]:		
1) ready to eat or chilled	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 500 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/g
2) Frozen	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 50 CFU/g
	3. *Bacillus cereus*	not more than 50 CFU/g
	4. *Clostridium perfringens*	not more than 50 CFU/g
(34.5) Chilled and frozen ready to cook food that preheat before consume such as pizza, dumpling, stem bun etc.[6]		
1) chilled	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 500 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/g
2) frozen	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 50 CFU/g
	3. *Bacillus cereus*	not more than 50 CFU/g
	4. *Clostridium perfringens*	not more than 50 CFU/g
(34.6) food with water activity (a_W) < 0.85 such as crispy food, fried food, chili pasted, dried shredded pork, crispy pork, bakery product, cookie, cracker, biscuit etc.	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 10 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g; except food contain spice or cereal or nut shall not be more than 1,000 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/g; except food contain spice or cereal or nut shall not be more than 1,000 CFU/g
(34.7) Prepackaged cutting and trimming fresh fruits and vegetables	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 500 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/g

Food product	Type of pathogen	Requirement
(34.8) fresh and raw seafood in prepackaged food such as fish, shrimp, squid, clams, sasimi etc. (6)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/g
35. Prepackaged fermented food made from animal products (Ferment Food produced by yeast, mold, lactic acid bacteria etc) such as shrimped paste, fermented fish, pickled fish, fish sauce southern style(**Budu), pickled pork (Naem) including animal products pickled with vinegar salt, etc.** (7)	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 1,000 CFU/g
	4. *Clostridium perfringens*	not more than 1,000 CFU/g
36. Fresh noodle		
(36.1) Rice noodles	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 100 CFU/g
	4. *Clostridium perfringens*	not more than 100 CFU/g
(36.2) Noodles, Egg noodles, g̀iam-ı̀l, Japanese noodles (Udon) wonton wrapper and products which are made by the same process	1. *Salmonella* spp.	not detected in 25 g
	2. *Staphylococcus aureus*	not more than 100 CFU/g
	3. *Bacillus cereus*	not more than 1,000 CFU/g
	4. *Clostridium perfringens*	not more than 1,000 CFU/g

Remark

(1) Food products under 9 (9.1) 1) as Aloe vera beverages shall determine only *Salmonella* spp., *Staphylococcus aureus*, and *Bacillus cereus*.

(2) Food products under 9 shall also determine *Listeria monocytogenes* only in Ready-to-drink products which have pH ≥4.3 and are passed through the heat treatment process by Pasteurization which contained milk and food products under 9 (9.2) particular concentrated beverages which contained milk

(3) Food products under 9(9.2) as Cereal beverages shall also determine *Clostridium perfringens*

(4) For food products other than food products which are passed through any process that cannot destroy or inhibit microbial growth by thermal treatment before or after a packing step in sealed containers which are made of metal or other rigid forms materials that can prevent transmission of air into the container and can be kept at room temperature.

(5) Food products under 17 shall also determine *Clostridium botulinum* as food products which are passed through any process that can destroy or inhibit microbial growth by thermal treatment before or after a packing step in sealed containers which are made of metal or other rigid forms materials that can prevent transmission of air into the container and can be kept at room temperature , Low acidified food (pH higher than 4.6 and water activity higher than 0.85)

(6) Food products under 32 and 34 shall also determine *Vibrio cholera* which shall not be detected in 25 g and *Vibrio parahaemolyticus* which shall not be more than 100 CFU/g

(7) Food products under 35 as Brine fermented and pickled fishery product shall also determine *Vibrio cholera* which shall not be detected in 25 g and *Vibrio parahaemolyticus* which shall be detected not more than 100 CFU/g

Annex 3

Methods of Analysis

Attached to the Notification of the Ministry of Public Health (No. 416) B.E. 2563 (2020)

Issued by virtue of the Food Act B.E. 2522

Re: Prescribing the quality or standard, principles, conditions and methods of analysis for pathogenic microorganisms in foods

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The analytical methods for pathogenic microorganisms in food shall be one of the following methods

1. The methods of analysis for concerned pathogens shall comply with the prescribed methods follow as

Type of pathogens	The methods of analysis
1. *Bacillus cereus*	Bacteriological Analytical Manual (BAM) Online, Chapter 14. U. S. Food and Drug Administration (updated version)
2. *Clostridium perfringens*	Bacteriological Analytical Manual (BAM) Online, Chapter 16. U. S. Food and Drug Administration (updated version)
3. *Listeria monocytogenes*	ISO 11290-1: Microbiology of the food chain-Horizontal method for the detection and enumeration of *Listeria monocytogenes* and of *Listeria* spp.–Part 1 Detection method (updated version)
4. *Salmonella* spp.	ISO 6579-1:–Microbiology of the food chain-Horizontal method for the detection, enumeration and serotyping of *Salmonella*– Part 1 Detection of *Salmonella* spp. (updated version)) except water and ice shall apply ISO 19250: Water Quality-Detection of *Salmonella* species (updated version)
5. *Staphylococcus aureus*	Bacteriological Analytical Manual (BAM) Online, Chapter 12. U. S. Food and Drug Administration (updated version) except water and ice shall apply Standard Methods for the Examination of Water and Wastewater: American Public Health Association (APHA) (updated version)
6. *Cronobacter* spp.	ISO 22964: Microbiology of the food chain–Horizontal method for the detection of *Cronobacte*r spp. (updated version)
7. *Vibrio cholerae*	ISO 21872-1: Microbiology of the food chain–Horizontal method for the determination of *Vibrio* spp.–Part1: Detection of potentially enteropathogenic *Vibrio parahaemolyticus* , *Vibrio cholera*e and *Vibrio vulnificus* (updated version)
8. *Vibrio paraheamolyticus*	ISO 21872-1: Microbiology of the food chain–Horizontal method for the determination of *Vibrio* spp.–Part1: Detection of potentially enteropathogenic *Vibrio parahaemolyticus* , *Vibrio cholera*e and *Vibrio vulnificus* (updated version)
	Bacteriological Analytical Manual (BAM) Online, Chapter 9**.** U. S. Food and Drug Administration (updated version)
9. *Clostridium botulinum*	Bacteriological Analytical Manual (BAM) Online, Chapter 21 A. U. S. Food and Drug Administration (updated version)

2. The analytical methods issued by the national organizations or international standards organizations, or published in the manuals or publications which are internationally recognized;

3. The analytical methods must be consistent, accurate and reliable. Method validation should perform by a collaborative study or single laboratory based on international guidelines. The analytical result shall be in document comply with the latest version of ISO/IEC 17025.