②規格基準に係る公式文書

Lignes Directrices Pour L'Interpretation des Resultats Analytiques en Microbiologie Alimnetaire, 2003

2.16 Fresh Dough

Definition: includes pasta, dough, battered dough, regular or stuffed with or without cheeses, that should be cooked before consumption.

PARAMÈTRE	SIGNIFICATION	PLAN of Interpretation Criteria			
		n	c	m	M
NAM without cheese	BPF	5	2	$1,0 \times 10^6$	$1,0 \times 10^7$
NAM with cheese	Do not apply				
Yeasts of molds 1	Deterioration	5	3	$1,0 \times 10^3$	$1,0 \times 10^4$
E. coli	BPF	5	2	10	$1,0 \times 10^2$
S. aureus	Health 2	5	2	$1,0 \times 10^3$	$1,0 \times 10^4$
B. cereus	Health 2	5	2	$1,0 \times 10^3$	$1,0 \times 10^4$
C. perfringens	Health 2	5	2	$1,0 \times 10^3$	$1,0 \times 10^4$
Microorganismes pathogènes (1:7.1.4)	Health 1	χ	0	Not detected/25 g	

1. If this product contains cheese with mould (e.g. blue cheese), be careful when interpreting results.

1.6 Characteristics of risks associated to different criteria

This section defines certain determinants proper to the microbiologic criteria related specifically to the concept of human health. Certain microbiologic criteria may be characterized differently in relation to the situation.

1.6.1 Health 1

The danger indicated for health represents a direct and high risk for health of the population with serious imminent consequences. Appropriate measures must be adopted with respect to the product so that the consumer will not be exposed to the risk to health. These interventions must ensure that the sale of the product be interrupted and that the population will not consume what is being kept. The follow-up measures must ensure that the cause has been defined and the corrective and appropriate measures have been brought.

1.6.2 Health 2

The danger indicated for health represents a risk for health of human beings if the microorganisms are found in sufficient number. It represents a situation that may result in temporary undesirable consequences on people health, without menacing their life. The probability of serious undesirable consequences is deemed remote. The danger may be associated also to the presence of an indicator (ex. E. coli). Required measures must be taken in order to limit the exposition of people to the product if the "M"-value (lower than the infecting dose) is exceeded. The repeated excesses must be verified. If the "c"-values are exceeded, progressive measures must be taken in order to establish the conformity and to review the BPF/HACCP (from the start) (ex.: E. coli, Staphylococcus aureus, Clostridium perfringens, and Bacillus cereus).

1.6.3 Good Practices of Manufacture

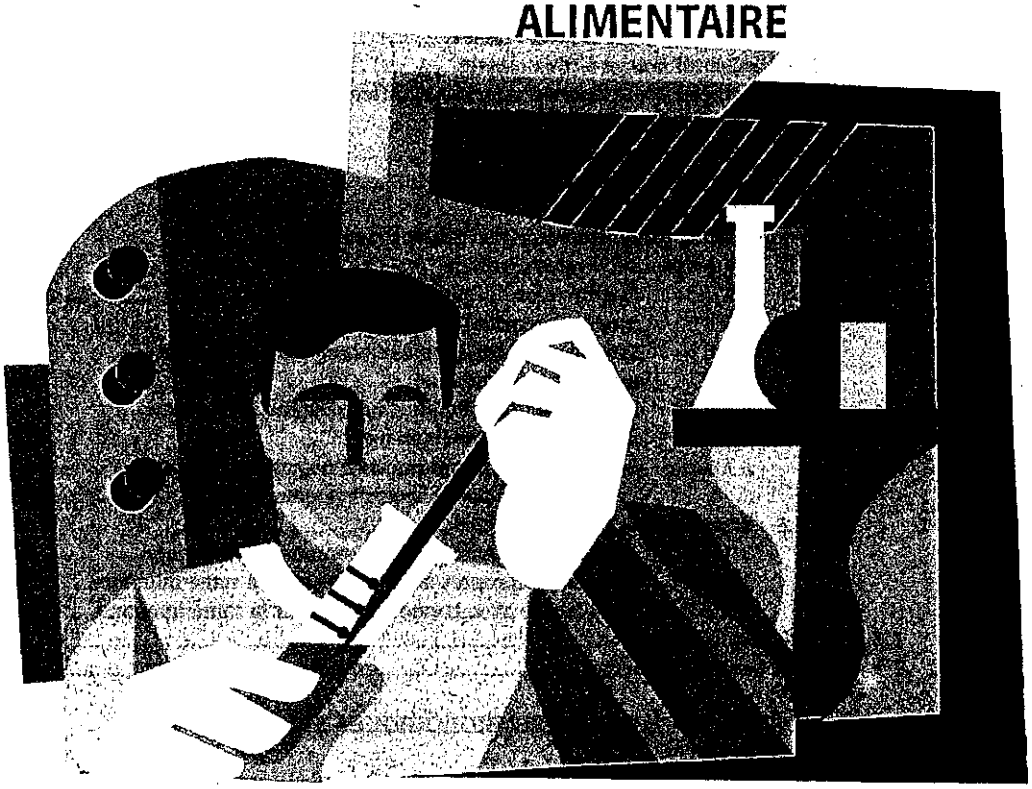
The problem that is observed indicates a rupture in the practice of hygiene. The good practices of manufacture (BPF/HACC) of the Manufacturer must be reviewed when the "M"- or "c"- values are exceeded. According to the cases, the non-compliancy with the good practices of manufacture may result in a risk for health since the food is not produced under conditions that ensure its innocuousness (ex. Abuse of temperature in a food that is potentially dangerous).

1.6.4 Alterations

Exceeding the criterion would indicate that the process of microbiological alteration of

the product is firmly engaged, and that the food is of unacceptable microbiological quality due to the loss of its characteristics of freshness. In general, by exceeding the criterion, this would not result in a risk to health, but it may reflect on bad practices (ex. excessively long duration of conservation on the food display). By exceeding the criterion, this would not result automatically in the manifestation of macroscopic organoleptic alteration.

LIGNES DIRECTRICES POUR L'INTERPRÉTATION DES RÉSULTATS ANALYTIQUES EN MICROBIOLOGIE ALIMENTAIRE



Québec

TABLE DES MATIÈRES

2.16 Pâtes fraîches

Définition : comprend pâtes alimentaires, pâtes à pâtisserie, pâtes à frire, nature ou farcie avec ou sans fromage devant être cuites avant consommation.

PARAMÈTRE	SIGNIFICATION	PLAN D'INTERPRÉTATION CRITÈRES			
		n	c	m	M
NAM sans fromage	BPF	5	2	$1,0 \times 10^6$	$1,0 \times 10^7$
NAM avec fromage	Ne s'applique pas				
Levures ou moisissures [1]	Altération	5	3	$1,0 \times 10^3$	$1,0 \times 10^4$
E. coli	BPF	5	2	10	$1,0 \times 10^2$
S. aureus	Santé 2	5	2	$1,0 \times 10^3$	$1,0 \times 10^4$
B. cereus	Santé 2	5	2	$1,0 \times 10^3$	$1,0 \times 10^4$
C. perfringens	Santé 2	5	2	$1,0 \times 10^3$	$1,0 \times 10^4$
Microorganismes pathogènes (1.7.1.4)	Santé 1	χ	0	Non détecté/25 g	

1. Si le produit renferme du fromage avec moisissures, interpréter avec discernement.

Rappels :

- n = 5 est retenu à titre d'application générale, mais ne représente pas la règle (n = 1, 2, 3, 4, 5 etc. ou selon la situation à évaluer). n = χ à déterminer dans le cadre du plan d'échantillonnage (voir chapitre 1.9).
- Les critères sont présentés en fonction de leur pertinence pour chaque catégorie d'aliment. Ils ne sont pas exclusifs; au besoin, certains peuvent être ajoutés ou exclus en fonction de la situation.
- Absence de microorganismes pathogènes et de leurs toxines dans tous les aliments prêts à consommer (voir chapitre 1.7.1.4).
- À moins de spécification contraire, les valeurs indiquées dans les tableaux sont exprimées en UFC/g ou UFC/ml.

③その他カナダにおける食品の規格基準

a) Processed product regulation

・加工食品に関する規準

・果物・野菜の冷凍食品の細菌数の規定はあり

全て

http://laws.justice.gc.ca/en/C-0.4/C.R.C.-c.291/text.html

目次

http://laws.justice.gc.ca/en/C-0.4/C.R.C.-c.291/index.html

b) Food and Drug Regulation

・食品・薬品に関する規準

全て

http://laws.justice.gc.ca./en/F-27/C.R.C.-c.870/text.html

目次

http://laws.justice.gc.ca./en/F-27/C.R.C.-c.870/index.html

・製品ごとに冷凍に関する記述

・多くの食品によっては単位あたりバクテリアの個数の許容量に関する記述あり。

（例：次ページ参照）

・冷凍パン生地という項目はなく、穀物とベーカリー製品というカテゴリはある。そのカテゴリにはバクテリアに関する記述なし

・冷凍食品に関する記述は書く食品毎にあるものの、まとめて括った規定は不明

B.08.041.8. (1) [S]. Cold-Pack Cheese Food with (naming the added ingredients)

(*a*) shall

(i) be the product made by comminuting and mixing one or more varieties of cheese, other than cream cheese, cottage cheese or whey cheese, into a homogeneous mass without the aid of heat,

(ii) contain the named added ingredients which shall be one or more of the following ingredients in amounts sufficient to differentiate the product from cold-pack cheese food but not in amounts so large as to change the basic nature of the product:

(A) seasonings, spices, flavouring preparations, condiments or chocolate,

(B) fruits, vegetables, pickles, relishes or nuts,

(C) prepared or preserved meat, or

(D) prepared or preserved fish, and

(iii) contain

(A) added milk or milk products,

(B) not more than 46 per cent moisture, and

(C) not less than 22 per cent milk fat; and

(*b*) may contain

(i) water added to adjust moisture content,

(ii) added milk fat,

(iii) sweetening agents, salt and vinegar,

(iv) one or more of the following colouring agents:

(A) in an amount consistent with good manufacturing practice, annatto, beta-carotene, chlorophyll, paprika, riboflavin, turmeric, and

(B) in an amount not exceeding 35 parts per million, either singly or in combination thereof, beta-apo-8'-carotenal, ethyl beta-apo-8'-carotenoate,

(v) the following emulsifying, gelling, stabilizing and thickening agents:

ammonium carrageenan, calcium carrageenan, carob bean gum (locust bean gum), carrageenan, gelatin, guar gum, Irish Moss Gelose, potassium carrageenan, propylene glycol alginate, sodium carboxymethyl cellulose (carboxymethyl cellulose, cellulose gum, sodium cellulose glycolate), sodium carrageenan, tragacanth gum, xanthan gum or a combination thereof in an amount not exceeding 0.5 per cent,

(vi) acetic acid, calcium carbonate, citric acid, lactic acid, malic acid, phosphoric acid, potassium bicarbonate, potassium carbonate, sodium bicarbonate, sodium carbonate and tartaric acid as pH adjusting agents in an amount consistent with good manufacturing practice,

(vii) wood smoke as a preservative in an amount consistent with good manufacturing practice, and

(viii) the following preservatives:

(A) propionic acid, calcium propionate, sodium propionate or any combination thereof in an amount not exceeding 2,000 parts per million, calculated as propionic acid,

(B) sorbic acid, calcium sorbate, potassium sorbate, sodium sorbate, or any combination thereof in an amount not exceeding 3,000 parts per million, calculated as sorbic acid, or

(C) any combination of the preservatives named in clauses (A) and (B) in an amount not exceeding 3,000 parts per million, calculated as propionic acid and sorbic acid respectively.

(2) Only a cheese to which wood smoke has been added as permitted in subsection (1) may be described by the term "smoked" on a label.

(3) Where a cheese is labelled as permitted in subsection (2), the word "smoked" shall be shown on the principal display panel. SOR/79-752, s. 2.

B.08.042. No manufacturer shall sell whole cheese that is not made from a pasteurized source unless the date of the beginning of the manufacturing process is

(*a*) marked or branded thereon within three days thereof; or

(*b*) marked on the label at the time of packaging, if the cheese is such that, because of its texture, consistency, or physical structure, such date cannot be effectively branded or marked on the cheese.

B.08.043. No manufacturer shall sell any cheese that is not made from a pasteurized source if it has been cut into smaller portions, unless

(*a*) it has been duly stored; or

(*b*) each portion of cut cheese is marked, branded or labelled with the date of the beginning of the manufacturing process.

B.08.044. (1) Subject to subsection (2), no person shall sell cheese, including cheese curd, that is not made from a pasteurized source unless it has been stored.

(2) Cheese, including cheese curd, that is not made from a pasteurized source may be used as an ingredient in any food providing such food is manufactured or processed so as to pasteurize the cheese in the manner described in the definition "pasteurized source" in section B.08.030(1). SOR/78-405, s. 1; SOR/79-752, s. 3.

B.08.045. Notwithstanding B.08.044, cheese that has not been manufactured from a pasteurized source and has not been stored but is marked or branded with the date of the beginning of the manufacturing process, may be sold to

(*a*) a wholesaler;

(*b*) a jobber; or

(*c*) in quantities of not less than 900 pounds, to a retailer.

B.08.046. No person shall sell any whole cheese that has not been made from a pasteurized source unless there is stamped thereon the date of the beginning of the manufacturing process.

B.08.047. Every manufacturer, wholesaler, or jobber who sells cheese not made from a pasteurized source and which has not been stored shall keep a record of

(*a*) the registered number of the cheese factory,

(*b*) the date of manufacture of the cheese,

(*c*) the vat number or vat numbers,

(*d*) the name and address of the person to whom the cheese is sold, and

(*e*) the weight sold from each vat,

for each lot of cheese sold.

B.08.048. (1) Subject to section B.08.054, no person shall sell cheese, including cheese curd, made from a pasteurized source if the cheese contains more than

(*a*) 100 *Escherichia coli*, or

(*b*) 100 *Staphylococcus aureus*

per gram, as determined by official method MFO-14, Microbiological Examination of Cheese, November 30, 1983.

(2) No person shall sell cheese, made from an unpasteurized source if the cheese contains more than

(*a*) 500 *Escherichia coli*, or

(*b*) 1,000 *Staphylococcus aureus*

per gram, as determined by official method MFO-14, Microbiological Examination of Cheese, November 30, 1983. SOR/78-405, s. 2; SOR/82-768, s. 21; SOR/84-17, s. 4.

B.08.049. [S]. Whey

(*a*) shall be the product remaining after the curd has been removed from milk in the process of making cheese; and

(*b*) may contain

(i) catalase, in the case of liquid whey that has been treated with hydrogen peroxide,

(ii) lactase,

(iii) hydrogen peroxide, in the case of liquid whey destined for the manufacture of dried whey products, and

(iv) benzoyl peroxide and calcium phosphate tribasic, as a carrier of the benzoyl peroxide, in the case of liquid whey destined for the manufacture of dried whey products other than those for use in infant formula. SOR/79-752, s. 4; SOR/89-555, s. 1.

B.08.050. [Repealed, SOR/95-281, s. 1]

7）アメリカ

①メール本文

Your letter was forwarded to the Division of Dairy and Egg Safety for response.

Frozen foods, as with other foods imported into the United States, are subject to the provisions of the Federal Food, Drug, and Cosmetic Act (FFDCA) and the Fair Packaging and Labeling Act (FPLA). In general terms, the FFDCA Act requires food to be prepared from sound, wholesome raw materials, to be prepared, packed and held at all times under sanitary conditions, the food itself to be a safe, clean, and wholesome article and its labeling to be honest and informative. The FPLA provides for additional labeling for consumer size packages, so that the labels will enable consumers to obtain accurate information as to the quantity of contents and to facilitate value comparisons. For more information on labeling requirements please go to http://www.cfsan.fda.gov/label.html.

Frozen food shipments from other countries are subject to examination for compliance with the requirements of these acts when offered for entry into the United States. Also, there are several guidance documents that deal with frozen foods, including:

* Eggs and Egg Products - Frozen - Adulteration Involving Decomposition (CPG 7107.02)
http://www.fda.gov/ora/compliance_ref/cpg/cpgfod/cpg537-100.html

* Drupelet Berries (Blackberries, Raspberries, etc.) Common or Usual Names of Varieties; Canned and Frozen - Adulteration with Rot and Insects (CPG 7110.03)
http://www.fda.gov/ora/compliance_ref/cpg/cpgfod/cpg550-200.html

* Cherries Brined, Fresh, Canned and Frozen - Adulteration Involving Rot and Insect (CPG 7110.04)
http://www.fda.gov/ora/compliance_ref/cpg/cpgfod/cpg550-225.html

* Peaches, Canned, Frozen - Adulteration Due to Insects and Mold (CPG 7110.22)
http://www.fda.gov/ora/compliance_ref/cpg/cpgfod/cpg550-650.html

* Strawberries; Frozen, Whole, or Sliced - Adulteration with Sand, Mold (CPG 7110.30)
http://www.fda.gov/ora/compliance_ref/cpg/cpgfod/cpg550-850.html

* Identity of Foods - Use of Terms Such as Fresh, Frozen, Dried, Canned, Etc. (CPG 7120.06)
http://www.fda.gov/ora/compliance_ref/cpg/cpgfod/cpg562-450.html

* Asparagus, Canned or Frozen - Adulteration with Insect Filth (CPG 7114.02)
http://www.fda.gov/ora/compliance_ref/cpg/cpgfod/cpg585-150.htm

* Broccoli, Frozen - Adulteration with Insects (CPG 7114.06)
http://www.fda.gov/ora/compliance_ref/cpg/cpgfod/cpg585-260.htm

* Spinach, Canned or Frozen - Adulteration Involving Insects, Decomposition (CPG 7114.24)
http://www.fda.gov/ora/compliance_ref/cpg/cpgfod/cpg585-775.htm

* List of Compliance Programs
http://www.cfsan.fda.gov/~comm/cp-toc.html

Please note that many of these programs are somewhat out of date and FDA is working to update them. Though out of date, the general guidance, priorities, and principles of the programs usually do not vary too significantly from one version to another.
In addition, various types of foods are subject to identity and quality standard regulations contained in Title 21, parts 100 - 799 of the Code of Federal Regulations. For a complete listing of foods that have standard of identities please visit
http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?CFRPartFrom=100&CFRPartTo=799

We also have established Current Good Manufacturing Practices (CGMP's) for the processing of frozen foods. These are the sanitation requirements for processing foods, which can be viewed at
http://www.cfsan.fda.gov/~lrd/cfr110.html.

When a product arrives at the port of entry, U.S. Customs and Border Control notifies FDA of

the shipment. FDA then determines if it is appropriate to sample the product for microbial pathogens and/or labeling. You may want to refer to the Bacterial Analytical Manual (BAM) to review methods used to test foods for pathogens at http://www.cfsan.fda.gov/~ebam/bam-toc.html.

For an outline of the importation process, please refer to http://www.cfsan.fda.gov/~dms/industry.html and look under Imports.

Consumer Safety Officer.
Office of Plant and Dairy Foods
Division of Dairy and Egg Safety

②規格基準に係る公式文書

COMMERCIAL ITEM DESCRIPTION

DOUGH, COOKIE, UNBAKED, REFRIGERATED OR FROZEN

6. ANALYTICAL REQUIREMENTS.

6.1 **Analytical requirements.** Unless otherwise specified in the solicitation, contract, or purchase order, the analytical requirements for the refrigerated or frozen cookie dough shall comply with the following tolerances:

Salmonella	Shall be negative
Aerobic (Standard) Plate Count	Less than 50,000 colony forming units (CFU) per gram
Coagulate positive *Staph. aureus*	Less than 10 per gram using the MPN (most probable number) technique
Coliform	Less than 100 per gram using the MPN technique
E. coli	Less than 10 per gram using the MPN technique

A-A-20307

Yeast and Mold	Less than 1000 CFU per gram
Fat	Shall not exceed the amount specified on the "Nutrition Facts" panel 2/

2/ Fat shall be tested on the finished baked product for Style C Low fat and Style D Fat free.

6.2 **Product verification.** When USDA verification of analytical requirements is specified in the solicitation, contract, or purchase order, the following procedures will be followed.

6.2.1 **Sampling procedures.** USDA inspection service will select the number of product containers based on USDA inspection service sampling procedures and plans.

6.2.2 **Composite sample.** Analytical testing shall be performed on a composite sample. The composite sample shall be 454 grams (1 pound) and prepared from subsamples drawn from randomly selected containers. The number of subsamples used to create the composite sample shall be based on USDA procedures.

6.3 **Preparation of sample.** The composite sample shall be completely blended before sampling. The sample for the fat analysis shall be prepared according to the Official Methods of Analysis of the AOAC International, Method 983.18(b).

6.4 **Analytical testing.** When specified in the solicitation, contract, or purchase order, the analyses shall be made in accordance with the following Official Methods of Analysis of the AOAC International:

Test	Method
Salmonella	967.25, Section C-7 3/ 986.35, 996.08 or 4/
Standard Plate Count	966.23 or 990.12
E. coli and *Coliform*	992.30, Section C and F 5/
Coagulate positive *Staph. Aureus*	987.09
Yeast and Mold	997.02
Fat	922.06

3/ Chapter 5, 8th Edition, Food and Drug Administration (FDA) Bacteriological Analytical Manual (BAM).
4/ Any AOAC INTERNATIONAL Official Method of Analysis recognized as a rapid screening method that is appropriate for dough is permitted.
5/ Chapter 4, 8th Edition, FDA BAM.

6.5 **Test results.** The test results for *salmonella* shall be reported as negative. Coagulase positive *Staph. aureus* shall be reported to the nearest MPN. The test results for standard plate count shall be reported to the nearest 2,500 CFU per gram. The test results for yeast and mold shall be reported to the nearest 10 CFU per gram. The test results for *E. coli* and *Coliform* shall be reported to the nearest MPN. The test results for fat shall be reported to the nearest 0.1 g. Any result not conforming to the analytical requirements shall be cause for rejection the lot.

A-A-20289
December 9, 1998

COMMERCIAL ITEM DESCRIPTION

ROLLS, BREAD, UNBAKED, FRESH OR FROZEN

The U.S. Department of Agriculture has authorized the use of this Commercial Item Description.

1. SCOPE.

1.1 This Commercial Item Description (CID) covers fresh or frozen unbaked bread rolls, packed in commercially acceptable containers, suitable for use by Federal, State, local governments, and other interested parties.

2. CLASSIFICATION.

2.1 The fresh or frozen unbaked bread rolls shall conform to the type(s), style(s), and enrichment type(s) in the following list which shall be specified in the solicitation, contract, or purchase order.

Types, styles, and enrichment types.

Type I - Fresh
Type II - Frozen

Style A - Pan (dinner)
Style B - Rye (sandwich)
Style C - French
Style D - Kaiser
Style E - Other

FSC 8920

Enrichment type 1 - Enriched (21 CFR 136.115)
Enrichment type 2 - Unenriched (21 CFR 136.110)

3. SALIENT CHARACTERISTICS.

3.1 Processing: The fresh or frozen unbaked bread rolls shall be prepared in accordance with good manufacturing practice.

3.2 Ingredients: The fresh or frozen unbaked bread rolls shall consist of flour, water, salt, leavening agents, emulsifiers or other stabilizers, and other ingredients appropriate for the style of unbaked bread rolls specified in the solicitation, contract, or purchase order. The fresh or frozen unbaked bread rolls shall include mold inhibitors of proper levels as allowed by the Federal Food, Drug, and Cosmetic Act.

3.2.1 Enriched flour: When the unbaked bread rolls are enriched, the wheat flour used for the unbaked bread rolls shall conform to the U.S. Standards of Identity for Enriched Flour (21 CFR 137.165) and shall be milled from a variety of hard and/or soft wheat.

3.3 Finished product:

3.3.1 Appearance and color: The fresh or frozen unbaked bread rolls shall have a uniformly white to light brown dough characteristic of the product. The fresh or frozen unbaked bread rolls shall have a typical volume. There shall be no foreign color to the product. The delivered fresh or frozen unbaked bread rolls shall not be crushed or damaged.

3.3.2 Odor and flavor: The fresh or frozen unbaked bread rolls shall have a flavor and aroma characteristic of the particular style of unbaked bread rolls. There shall be no foreign odors or flavors such as, but not limited to, scorched, stale, rancid, or moldy.

3.3.3 Texture: The fresh or frozen unbaked bread rolls shall be soft and ready-to-bake characteristic of unbaked bread rolls. When baked the texture of the fresh or frozen unbaked bread rolls shall have a characteristic texture of the style specified in the solicitation, contract, or purchase order.

3.3.4 Enrichment: When enriched, the fresh or frozen unbaked bread rolls shall have the enrichment ingredients evenly distributed in the finished product.

3.3.5 Foreign material: All ingredients shall be clean, sound, wholesome, and free from evidence of rodent or insect infestation.

3.4 Age requirement: Unless otherwise specified in the solicitation, contract, or purchase order, the fresh unbaked bread rolls shall be delivered within 72 hours after baking. When frozen unbaked bread rolls are specified, the fresh product shall be in a freezer within 12 hours after baking and frozen to a maximum temperature of -17.8°C (0°F), -15°C to -20.6°C (±5°F) and shall be at a temperature not higher than -12.2°C (10°F) within 12 hours after being placed in the freezer. Unless otherwise specified in the solicitation, contract, or purchase order, the frozen bread rolls shall be manufactured not more than 120 days prior to delivery and shall not have exceeded -9.4°C (15°F) at any time during storage and delivery.

4. REGULATORY REQUIREMENTS.

4.1 The delivered fresh or frozen unbaked bread rolls shall comply with all applicable Federal, State, and local mandatory requirements and regulations relating to the preparation, packaging, labeling, storage, distribution, and sale of the fresh or frozen unbaked bread rolls within the commercial marketplace. Delivered fresh or frozen unbaked bread rolls shall comply with all applicable provisions of the Federal Food, Drug, and Cosmetic Act and regulations promulgated thereunder.

5. QUALITY ASSURANCE PROVISIONS. *Purchaser may specify 5.1 or 5.2.*

5.1 Product conformance. The fresh or frozen unbaked bread rolls provided shall meet the salient characteristics of this CID, conform to the producer's own specifications, standards, and quality assurance practices, and be the same fresh or frozen unbaked bread rolls offered for sale in the commercial market. The purchaser reserves the right to require proof of such conformance.

5.2 USDA certification. When specified in the solicitation, contract, or purchase order, the Federal Grain Inspection Service (FGIS), USDA, shall certify the fresh or frozen unbaked bread rolls according to FGIS procedures. The fresh or frozen unbaked bread rolls shall be examined or analyzed as applicable in accordance with applicable provisions in this CID, solicitation, contract, or purchase order, and, when applicable, the United States Standards for Condition of Food Containers in effect on the date of the solicitation.

6. PACKAGING.

6.1 Preservation, packaging, packing, labeling, and case marking. Preservation, packaging, packing, labeling, and case marking shall be as specified in the solicitation, contract, or purchase order.

Bacteriological Analytical Manual Online, January 2001
(http://www.cfsan.fda.gov/~ebam/bam-toc.html) <一部抜粋>

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2	Microscopic Examination of Foods, and Care and Use of the Microscope	J.R. BRYCE and P.L. POELMA
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4	Enumeration of *Escherichia coli* and the Coliform Bacteria	P. FENG, S. D. WEAGANT, and M.A. GRANT
4a	Diarrheagenic *Escherichia coli*	P. FENG and S.D. WEAGANT
5	*Salmonella*	W.H. ANDREWS and T.S. HAMMACK

Chapter 1 Food Sampling and Preparation of Sample Homogenate

A. Sampling plans

Aerobic plate counts, total coliforms, fecal coliforms, Escherichiacoli (including enteropathogenic strains), Staphylococcus spp., Vibrio spp., Shigella spp., Campylobacter spp., Yersinia spp., Bacilluscereus, and Clostridium perfringens

Sample collection

From any lot of food, collect ten 8-oz subsamples (or retail packages) at random. Do not break or cut larger retail packages to obtain an 8-oz subsample. Collect the intact retail unit as the subsample even if it is larger than 8 oz.

Sample analysis.

Analyze samples as indicated in current compliance programs

C. Receipt of samples

The official food sample is collected by the FDA inspector or investigator. As soon as the sample arrives at the laboratory, the analyst should note its general physical condition. If the sample cannot be analyzed immediately, it should be stored as described later. Whether the sample is to be analyzed for regulatory purposes, for investigation of a foodborne illness outbreak, or for a bacteriological survey, strict adherence to the recommendations described here is essential.

Condition of sampling container. Check sampling containers for gross physical defects. Carefully inspect plastic bags and bottles for tears, pinholes, and puncture marks. If sample units were collected in plastic bottles, check bottles for fractures and loose lids. If plastic bags were used for sampling, be certain that twist wires did not puncture surrounding bags. Any cross-contamination resulting from one or more of above defects would invalidate the sample, and the collecting district should be notified (see C-5, below)

Labeling and records. Be certain that each sample is accompanied by a completed copy of the Collection Report (Form FD-464) and officially sealed with tape (FD-415a) bearing the sample number, collecting official's name, and date. Assign each sample unit an individual unit number and analyze as a discrete unit unless the sample is

composited as described previously in this chapter.

Adherence to sampling plan. Most foods are collected under a specifically designed sampling plan in one of several ongoing compliance programs. Foods to be examined for Salmonella, however, are sampled according to a statistically based sampling plan designed exclusively for use with this pathogen. Depending on the food and the type of analysis to be performed, determine whether the food has been sampled according to the most appropriate sampling plan.

Storage. If possible, examine samples immediately upon receipt. If analysis must be postponed, however, store frozen samples at -20°C until examination. Refrigerate unfrozen perishable samples at 0-4°C not longer than 36 h. Store nonperishable, canned, or low-moisture foods at room temperature until analysis.

Notification of collecting district. If a sample fails to meet the above criteria and is therefore not analyzed, notify the collecting district so that a valid sample can be obtained and the possibility of a recurrence reduced.

Chapter 3 Conventional Plate Count Method

B. Procedure for analysis of frozen, chilled, precooked, or prepared foods

Using separate sterile pipets, prepare decimal dilutions of 10-2, 10-3, 10-4, and others as appropriate, of food homogenate (see Chapter 1 for sample preparation) by transferring 10 ml of previous dilution to 90 ml of diluent. Avoid sampling foam. Shake all dilutions 25 times in 30 cm (1 ft) arc within 7 s. Pipet 1 ml of each dilution into separate, duplicate, appropriately marked petri dishes. Reshake dilution bottle 25 times in 30 cm arc within 7 s if it stands more than 3 min before it is pipetted into petri dish. Add 12-15 ml plate count agar (cooled to 45 ± 1°C) to each plate within 15 min of original dilution. For milk samples, pour an agar control, pour a dilution water control and pipet water for a pipet control. Add agar to the latter two for each series of samples. Add agar immediately to petri dishes when sample diluent contains hygroscopic materials, e.g., flour and starch. Pour agar and dilution water control plates for each series of samples. Immediately mix sample dilutions and agar medium thoroughly and uniformly by alternate rotation and back-and-forth motion of plates on flat level surface. Let agar solidify. Invert solidified petri dishes, and incubate promptly for 48 ± 2 h at 35°C. Do not stack plates when pouring agar or when agar is solidifying.

Chapter 25 Investigation of Food Implicated in Illness

To investigate a food that has been implicated as the causative vehicle in an outbreak of illness, the microbiologist should make certain observations and perform certain tests as a matter of course; further analysis depends on the circumstances of the particular case. It is always crucial to note the general condition of the food sample, such as its consistency, color, and odor. As much information as possible should be obtained about its pre- and post-collection history (see Chapter 1). Microscopic examination and Gram staining must be carried out, as described in Chapter 2.

To decide what treatments, enrichments, or other tests are needed, the microbiologist should evaluate the data in relation to two types of information: 1) the causes epidemiologically associated with the type and condition of the implicated food, and 2) the clinical signs and symptoms observed in afflicted individuals. If possible, clinical microbial isolates (usually from stool specimens) and blood serum samples for serological and biochemical testing should be obtained from patients by way of their physicians.

Table 1 lists the major microbial or chemical agents of foodborne disease and their commonly associated food sources. Recently reported causative agents of foodborne outbreaks, cases, and deaths are given in Table 2. Clinical symptoms most often associated with specific microbial or chemical agents and their duration are listed in Table 3. Analysts should use these tables as an aid in deciding the most probable, less probable, and least likely associations. The tables should not be used to assume a single cause or to eliminate possibilities entirely.

The information in Tables 1-3 concerns mostly those infections designated as "reportable" in the United States by the Centers for Disease Control and Prevention (CDC). This agency, which is the principal source of epidemiologic data on reported foodborne disease outbreaks in the United States, periodically publishes summary surveillance reports of foodborne diseases in the Morbidity and Mortality Weekly Report series.

Most reports of foodborne illness are submitted to CDC by state health departments. CDC defines a foodborne disease outbreak as an incident in which at least two (or more) persons experience a similar illness after ingestion of a common food, and epidemiologic analysis implicates the food as the source of the illness. A few exceptions

exist: for example, one case of botulism or chemical poisoning constitutes an outbreak. Although CDC's foodborne disease surveillance system has limitations (i.e., except for illnesses linked to chemicals or toxins, sporadic cases of foodborne illness are not reported), the system does provide helpful epidemiologic insights. The etiologic agent was confirmed in 909 (38%) of the 2397 outbreaks of foodborne disease reported to CDC from 1983 through 1987.

With new pathogens there is an inevitable lag before methods are installed and reporting by clinical and food laboratories becomes routine. Changes in food production or processing may make a food the vehicle or growth medium for microorganisms not previously associated with that product. For example, new varieties of tomatoes that are less acidic than the traditional types might support the growth and toxin production of Clostridium botulinum; freezing procedures improved to preserve taste may also preserve microorganisms that are killed in blast freezing. The food microbiologist should be aware that the clinical symptoms and diagnosis of the patient's illness, available when analysis of the food sample must begin, may be preliminary or incomplete. To proceed from the generalities given in the tables to an analytical course of action, the microbiologist must use reason, imagination, and caution.

Acknowledgments

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General Reading

For more detailed information and instructions on the step-by-step procedures used in investigating foodborne illness, see the Compendium of Methods for the Microbiological Examination of Foods, published by the American Public Health Association of Washington, DC, USA.

Table 1. Number of food-implicated outbreaks in the USA reported to CDC from 1983 to 1987, causative agents, and total and confirmed percentages

	FOOD SOURCE											Total	Total (%)	Confirmed (%)
Agent	Beef & pork	Poultry	Other meats	Seafood	Milk, eggs, cheese	Other dairy	Baked goods	Fruits&vegs	Salads	Other	Unknown			
Bacterial														
Bacillus cereus	1	0	0	1	1	0	0	1	0	9	4	16	0.7	1.8
Brucella	0	0	0	0	2	0	0	0	0	0	0	2	0.1	0.2
Campylobacter	0	1	0	0	12	0	0	1	1	4	9	28	1.2	.1
Clostridium botulinum	1	1	10	10	0	0	0	32	0	6	14	74	3.1	8.1
Clostridium perfringens	3	4	0	0	0	0	0	0	2	12	3	24	1.0	2.6
Escherichla coli	1	0	0	0	3	0	0	0	0	3	0	7	0.3	0.8
Salmonella	25	22	6	3	14	1	4	5	12	78	172	342	14.3	37.6
Shigella	0	2	1	2	0	0	0	3	7	9	20	44	1.8	4.8
Staphylococcus aureus	11	3	1	1	1	0	4	1	7	16	2	47	2.0	5.2
Streptococcus, Group A	0	0	0	0	0	0	0	0	2	2	3	7	0.3	0.8
Streptococcus, other	0	0	0	0	1	0	0	0	0	1	0	2	0.1	0.2
Vibrio cholerae	0	0	0	1	0	0	0	0	0	0	0	1	0.0	0.1
Vibrio parahaemolyticus	0	0	0	1	0	0	0	0	0	0	1	2	0.1	0.2
Other bacterial	0	0	0	1	2	0	0	0	0	0	1	4	0.2	0.4
Total	42	33	18	20	35	1	8	43	31	140	229	600	25.2	66.0
Chemical														
Ciguatoxin	0	0	0	86	0	0	0	0	0	0	1	87	3.6	9.6
Heavy metals	0	0	0	0	0	0	0	1	0	12	0	13	0.5	1.4
Monosodium glutamate	0	0	0	0	0	0	0	0	0	2	0	2	0.1	0.2
Mushrooms	0	0	0	0	0	0	0	0	0	14	0	14	0.6	1.5
Scombrotoxin	0	0	0	81	0	0	0	0	0	0	2	83	3.5	9.1
Shellfish	0	0	0	2	0	0	0	0	0	0	0	2	0.1	0.2
Other chemical	1	0	0	2	3	3	4	3	1	13	1	31	1.3	3.4
Total	1	0	0	171	3	3	4	4	1	41	4	232	9.7	25.5
Parasitic														
Giardia	0	0	0	0	0	0	0	1	0	1	1	3	0.1	0.3
Trichinella spiralis	24	0	8	0	0	0	0	0	0	0	1	33	1.4	3.6

Total	24	0	8	0	0	0	0	1	0	1	2	36	1.5	4.0
Viral														
Hepatitis A	1	0	0	0	0	0	0	1	2	2	22	28	1.2	3.1
Norwalk virus	0	0	0	1	1	0	0	1	1	4	4	12	0.5	1.3
Other viral	0	0	0	0	0	0	0	0	0	1	0	1	0.0	0.1
Total	1	0	0	1	1	0	0	2	3	7	26	41	1.7	4.5
Confirmed Total	68	33	26	192	39	4	12	50	35	189	261	909	37.9	
Unknown	34	22	9	42	8	5	11	9	34	220	1094	1488	62.1	
Total Outbreaks	102	55	35	234	47	9	23	59	69	409	1355	2397		

Table 2. Number and percent of confirmed foodborne disease outbreaks cases, and deaths in the USA reported to CDC from 1983 through 1987, listed by etiologic agent

	Outbreak		Cases		Deaths	
Etiologic agent	No.	%	No.	%	No.	%
Bacterial						
Bacillus cereus	16	1.8	261	0.5	0	0.0
Brucella	2	0.2	38	0.1	1	0.7
Campylobacter	28	3.1	727	1.3	1	0.7
Clostridium botulinum	74	8.1	140	0.3	10	7.3
Clostridium perfringens	24	2.6	2,743	5.0	2	1.5
Escherichia coli	7	0.8	640	1.2	4	2.9
Salmonella	342	37.6	31,245	57.3	39	28.5
Shigella	44	4.8	9,971	18.3	2	1.5
Staphylococcus aureus	47	5.2	3,181	5.8	0	0.0
Streptococcus, Group A	7	0.8	1,001	1.8	0	0.0
Streptococcus, other	2	0.2	85	0.2	3	2.2
Vibrio cholerae	1	0.1	2	0.0	0	0.0
Vibrio parahaemolyticus	3	0.3	11	0.0	0	0.0
Other bacterial	3	0.3	259	0.5	70	51.1
Total	600	66.0	50,304	92.2	132	96.4

Chemical						
Ciguatoxin	87	9.6	332	0.6	0	0.0
Heavy metals	13	1.4	176	0.3	0	0.0
Monosodium glutamate	2	0.2	7	0.0	0	0.0
Mushrooms	14	1.5	49	0.1	2	1.5
Scombrotoxin	83	9.1	306	0.6	0	0.0
Shellfish	2	0.2	3	0.0	0	0.0
Other chemical	31	3.4	371	0.7	1	0.7
Total	232	25.5	1,244	2.3	3	2.2
Parasitic						
Giardia	3	0.3	41	0.1	0	0.0
Trichinella spiralis	33	3.6	162	0.3	1	0.7
Total	36	4.0	203	0.4	1	0.7
Viral						
Hepatitis A	29	3.2	1,067	2.0	1	0.7
Norwalk virus	10	1.1	1,164	2.1	0	0.0
Other viral	2	0.2	558	1.0	0	0.0
Total	41	4.5	2,789	5.1	1	0.7
Confirmed Total	909	100.0	54,540	100.0	137	100.0

Source: Bean, N.H., P.M. Griffin, J.S. Golding, and C.B. Ivey. 1990. *Morbid. Mortal. Weekly Rep.* Special Supplement No. 1, Vol. 39.

Chapter 4

Enumeration of Escherichia coli and the Coliform Bacteria

- Conventional Method for Determining Coliforms and *E. coli*
- LST-MUG Method for Detecting *E. coli* in Chilled or Frozen Foods Exclusive of Bivalve Molluscan Shellfish
- Bottled Water
- Examination of Shellfish and Shellfish Meats
- Analysis for *E. coli* in citrus juices
- Other Methods for Enumerating Coliforms and *E. coli*
- References

Sec. 562.450 Identity of Foods - Use of Terms Such as Fresh, Frozen, Dried, Canned, Etc. (CPG 7120.06)

BACKGROUND:

In TC-258, issued April 25, 1940a, we stated, "If the product is in fact frozen fillets, we believe the fact that the article is frozen should be stated on the wrapper, since the wrapped fillet may be sold to the consumer after thawing, when its physical condition no longer apprises the purchaser that it has been subject to a freezing process." We have consistently held to this view in advising inquirers about any food which might be thawed and sold as "fresh" food.

In the past, we have sanctioned the use of the term "frozen fresh" as applied to packaged frozen foods, provided they are actually fresh when frozen.

Generally, our standards of identity for foods prescribe names which include appropriate descriptive terms such as pasteurized, canned, frozen, or dried. We have insisted on the use of the term "canned" when it is obvious that the article is canned.

Certain packers of grapefruit juice have asked us to sanction use of the designation "grapefruit juice" without modifying terms, irrespective of whether the juice was pasteurized, canned, or otherwise processed. Investigation indicated that "canned" grapefruit juice, packed in glass, was being refrigerated and displayed under conditions which implied it was fresh. We advised the packers that to avoid deception, the name should include the word "canned" when the product was so packed, stored, and displayed (particularly if displayed under refrigeration) as to imply or suggest that it was fresh juice.

On the other hand, frozen foods packed in sealed metal cans like those used for similar articles so processed by heat as to prevent spoilage, unless adequately labeled, may be stored without proper refrigeration. We have received consumer complaints about foods which had spoiled because the label did not clearly state that they should be kept frozen.

POLICY:

The Federal Food, Drug, and Cosmetic Act requires that food labels bear the common or usual name of the food. The Fair Packaging and Labeling Act requires that a

statement of identity appear prominently on the principal display panel. To avoid misrepresentation and provide information needed to assure proper storage, food labels should include in the name or statement of identity appropriate descriptive terms such as pasteurized, canned, frozen, or dried.

Fresh: The term fresh should not be applied to foods which have been subjected to any form of heat or chemical processing.

Frozen: Frozen foods should be prominently labeled as "frozen." This deters deceptive practices such as thawing frozen foods and offering them as "fresh." It also serves to "flag" goods as requiring freezer storage.

Frozen Fresh: Foods which were quickly frozen while still fresh may be labeled "frozen fresh" or "fresh frozen."

Canned: A food is considered "canned," if it has been hermetically sealed and so processed by heat as to prevent spoilage. Foods which are in metal containers of the types normally used for canning, and are stored and displayed under conditions which do not suggest or imply that the article is
other than a canned food need not be labeled "canned." If packed in glass or plastic bottles or jars and stored or displayed under refrigeration which might cause consumers to believe it is fresh, the label designation should include the word "canned," or "pasteurized," as the case may be.

Dried or dehydrated: A food which is dried or dehydrated should be labeled with a designation which includes one of these words, unless the name is one like "raisins" which consumers recognize as indicating a dried product.

Freeze dried: A food which has been freeze dried may be designated as either "dried" or "freeze dried," though we believe "freeze dried" is more informative.

a Revoked: 5/20/69

Material between asterisks is new or revised.
Issued: 6/20/69
Revised: 10/1/80

Food Compliance Programs

- Import Acidified and Low-Acid Canned Foods Program
- Domestic and Imported Cheese and Cheese Products
- National Drug Residue Milk Monitoring Program
- Domestic Food Safety Program (Posted on 4/24/00)
- Domestic Acidified and Low-Acid Canned Foods (also available in PDF) (Updated on 3/17/2003)
- Domestic Fish and Fishery Products (Updated on 9/05/03)
- Import Seafood Products Compliance Program (also available in PDF) (Posted on 3/17/2003)
- Juice HACCP Inspection Program - FY 03
- Pesticides and Industrial Chemicals in Domestic Foods (Posted on 4/24/00)
- Pesticides and Industrial Chemicals in Imported Foods (Posted on 7/19/01)
- Toxic Elements in Food & Foodware - Import and Domestic (also available in PDF) (Updated on 3/17/2003)
- Total Diet Study (Updated on 8/14/03)
- Mycotoxins in Domestic Foods (also available in PDF) (Updated on 3/17/2003)
- Mycotoxins in Imported Foods (Updated on 8/14/03)
- Imported Foods - Food and Color Additives (Posted on 9/18/01)
- Retail Food Protection - State -FY 03/04
- Milk Safety Program (Updated on 7/19/01)
- Interstate Travel Program (Posted on 5/9/00)
- Medical Foods - Import and Domestic
- Domestic NLEA Nutrient Sample Analysis, and General Food Labeling Program (Posted on 7/19/01)
- Infant Formula Program -Import and Domestic
- Dietary Supplements - Import And Domestic - FY 02/03/04

8）EU

①規格基準に係る公式文書

現行の EU における規格基準

- Council Directive 80/777/EEC : natural mineral waters,
- Council Directive 89/437/EEC :egg products,
- Council Directive 91/492/EEC :live bivalve molluscs,
- Council Directive 92/46/EEC :raw milk, heat-treated milk and milk-based products
- Commission Decision 93/51/EEC :cooked crustaceans and molluscan shellfish
- Council Directive 94/65/EC :minced meat and meat preparations
- Commission Decision 2001/471/EC :fresh meat and fresh poultry meat

9）韓国

●冷凍食品の規格(和訳)

"冷凍食品"は 製造・加工または料理した食品を長期保存する目的で、急速冷凍処理を施して冷凍保管を要件と、包装された食品を言う.

非加熱摂取冷凍食品: 食用で食べる時に加熱を要しないことを言う.

加熱後摂取冷凍食品: 食用で食べる時に加熱を要することを言う.

類型 項目	非加熱摂取冷凍食品	加熱の後摂取冷凍食品	
		冷凍前加熱製品	冷凍前非加熱製品
성상 (charasteristic)	固有の色と香味を持っていなければならない。他の特異な匂いがあってはいけない	固有の色と香味を持っていなければならない. 他の特異な匂いがあってはいけない	固有の色と香味を持っていなければならない. 他の特異な匂いがあってはいけない
細菌数	1g あたり 100,000 以下 (ただ, 醗酵製品または乳酸菌添加製品は除く)	1g あたり 100,000 以下 (ただ, 醗酵製品または乳酸菌添加製品は除く)	1g あたり 3,000,000 以下 (ただ, 醗酵製品または乳酸菌添加製品は除く)
大腸菌群 group	1g 当たり 100,000 以下	1g 当たり 100,000 以下	
大腸菌			陰性(negative)
乳酸菌数	表示量以上(乳酸菌添加製品に限る)		

Food Code (食品コード)

第 3. 食品一般に対する共通基準及び規格

(3) 冷凍食品

①原料の前処理は保存場所と分離している別途の場所で実施しなければならず, 原料処理の各工程は汚染防止を適切に行い, 迅速に、下記の工程によって進めなければならない.

②冷凍する前に加熱する製品はその中心部の温度を 63° 以上から 30 分間加熱する、または、これと同等以上の効力がある方法で加熱殺菌しなければならない.

③冷凍はできるだけ個別急速冷凍しなければならない.

④製品は微生物の 二次汚染が防止されるように清潔で衛生的な容器に入れるか、または密封包装しなければならない.

문의하신 냉동식품규격은 우리 공전에 다음과 같이 규정되어 있습니다.만,

" pre-baked frozen dough for bread" 가 발효식품이라면 세균수 규격 적용 대상은 아닙니다.

그리고 제조공정상 냉동전가열제품인 경우 대장균군(coliform group) 10 이하/g, 냉동전비가열제품인 경우 대장균(E. coli) 음성으로 관리하고 있습니다.

원하시는 답변이 되는지 모르겠으나 일본 규격과 거의 유사합니다.

14) 냉동식품의 규격

"냉동식품"이라 함은 제조·가공 또는 조리한 식품을 장기보존할 목적으로 급속 냉동처리하여 냉동보관을 요하는 것으로서 용기 포장에 넣은 식품을 말한다.

비가열섭취냉동식품 : 식용으로 섭취할 때에 가열을 요하지 아니하는 것을 말한다.

가열후섭취냉동식품 : 식용으로 섭취할 때에 가열을 요하는 것을 말한다.

유 형 항 목	비가열섭취 냉동 식품	가열후 섭취냉동식품	
		냉동전가열제품	냉동전비가열제품
(1)성상	고유의 색택과 향미를 가지고 이미 · 이취가 없어야 한다.	고유의 색택과 향미를 가지고 이미 · 이취가 없어야 한다.	고유의 색택과 향미를 가지고 이미 · 이취가 없어야 한다.
(2)세균수	1g당 100,000이하 (다만, 발효제품 또는 유산균 첨가제품은 제외한다)	1g당 100,000이하 (다만, 발효제품 또는 유산균 첨가제품은 제외한다)	1g당 3,000,000이하 (다만, 발효제품 또는 유산균 첨가제품은 제외한다)
(3)대장균군	1g당 100이하	1g당 100이하	
(4)대장균			음성
(5)유산균수	표시량 이상(유산균 첨가제품에 한한다)		

건강하시고 항상 즐거운 하루 되시길 바랍니다.

Food Code (식품공전),

제 3. 식품일반에 대한 공통기준 및 규격

(3) 냉동식품

① 원료의 전처리는 저장장소와 분리되어 있는 별도의 장소에서 실시하여야 하며, 원료처리의 각 공정은 오염방지를 적절히 하고 신속히 다음 공정으로 연결되어야 한다.

② 냉동하기 전에 가열하는 제품은 그 중심부의 온도를 63°이상에서 30 분간 가열하거나 이와 동등이상의 효력이 있는 방법으로 가열 살균하여야 한다.

③ 냉동은 가능한 한 개별 급속냉동하여야 한다.

④ 제품은 미생물의 2 차오염이 방지되도록 깨끗하고 위생적인 용기에 넣거나 밀봉 포장하여야 한다

１０）検査方法のプロトコル

	プロトコル記載文書	入手状況
Switzerland	"Microbiology" of the Swiss Food Manual, Chapter 56	未
China	GB/T 4789.33 食品衛生微生物学検査 GB/T 5009.44 肉鳥肉製品衛生標準的分析方法 GB/T 5009.56 __点衛生標準的分析方法 GB 4789.2-1994 食品衛生微生物学検査 菌群総数測定 GB 4789.3-1994 食品衛生微生物学検査 大腸菌群測定 GB 4789.4-1994 食品衛生微生物学検査 サルモネラ菌検査 GB 4789.5-1994 食品衛生微生物学検査 志賀氏菌検査 GB 4789.10-1994 食品衛生微生物学検査 黄金ブドウ球菌検査 GB 4789.11-1994 食品衛生微生物学検査 溶血性連鎖球菌検査 GB 4789.15-1994 食品衛生微生物学検査 カビ菌及び酵母計数 SB 0168-1992 輸出食品平板菌群計数 SB 0169-1992 輸出食品中の大腸菌群、糞大腸菌群および大腸__菌検査方法 SN 0170-1992 輸出食品中サルモネラ菌属の検査方法 SN 0172-1982 輸出食品中黄金ブドウ球菌検査方法	未
Australia/ New Zealand	Australia/New Zealand Standard methods for Food Microbiology AS/NZS 1766	未
USA	Bacteriological Analytical Manual	○ (p.88−)
Canada	(文献名調査中)	
EU	(文献名調査中)	
Korea	(文献名調査中)	
England	(文献名調査中)	