Appendix A3: Regulation and National Standards – Dairy

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Regulations Applicable to Dairy Categories

Administrative Measure on Inspection, Quarantine and Supervision of Imports and Exports of Dairy Products

Chapter 1 General Principle

Article 1 In order to enhance inspection, quarantine and supervision of imported and exported dairy products, this Measure is formulated in accordance with the Law on Food Safety of the People's Republic of China (hereinafter referred to as Food Safety Law) and its implementation regulations, the Regulation on Supervision and Management of Dairy Quality and Safety, Law on Inspection of Imported and Exported Commodities of the People's Republic of China and its implementation regulations, the Law on Quarantine of Imported and Exported Animals and Plants of the People's Republic of China and its implementation regulations, and the State Council's Special Rule on Enhancement of Safety Supervision and Management of Food and Other Products (hereinafter referred to as Special Rule).

Article 2 Dairy products described in this Measure include colostrum, raw milk and milk products.

Colostrum refers to milk produced from postpartum dairy stocks within 7 days.

Raw milk refers to natural milk without any change of component that is milked from udders of healthy dairy stocks that comply with relevant regulations by Chinese government. Colostrums, milk produced during antibiotics using period and withdrawal period, and alterative milk shall not be used as raw milk.

Milk products refer to foods use milk as main ingredient, such as: pasteurized milk, sterilized milk, modified milk, fermented milk, cheese and processed cheese, cream, butter, anhydrous cream, condensed milk, milk powder, whey powder, whey protein powder and milk-based infant formula foods. Those produced from fresh milk and without heat sterilization are called raw processed dairy products.

Article 3 General Administration of Quality Supervision, Inspection and Quarantine (hereinafter referred to as AQSIQ) is in charge of supervision and management of inspection and quarantine of imported and exported dairy products.

AQSIQ's local inspection and quarantine agencies of imported and exported goods (hereinafter referred to as CIQ) are responsible for supervision and management of inspection and quarantine of imported and exported dairy products in their respective regions.

Article 4 Producers and marketers of imported/exported dairy products shall operate their business according to the law and regulations, behave on an honest and accountable basis to ensure food safety, take responsibility to the public and society, accept social supervision and carry out social responsibility.

Chapter 2 Import of Dairy products

Article 5 AQSIQ assesses the food safety management systems and food safety conditions of countries or regions that export dairy products to China in accordance with related Chinese laws and regulations, and conduct retrospective reviews in accordance with the safety conditions and needs of supervision and management of imported dairy products.

For the countries or regions that export dairy products to China for the first time, the competent authorities shall provide materials to AQSIQ for assessment, including legal system and organizations of veterinarian health and public health, veterinarian service system, safety and health control system, residuals monitoring system, animal epidemics inspection and monitoring conditions, and categories of products planned to export to China.

AQSIQ will gather experts for assessment according to the law, and send experts to conduct field investigation in the country (region). If the risk is identified as acceptable and relative requirements for inspection and quarantine, including certificates is confirmed, the dairy products meeting the requirements are allowed to be exported to China. Both sides can sign the protocol to confirm inspection and quarantine Requirements.

Article 6 AQSIQ implements a registration system for overseas food producers (hereinafter referred to as overseas producers) that export dairy products to China. Registration is executed subject to AQSIQ's regulations.

Overseas producer shall be an entity established under official competent authority's approval of the exporting country (region) and comply with related laws and regulations of the exporting country orregion.

Overseas producer shall be familiar with and ensure that its dairy products exported to China will be complied with China's national standard of food safety and requirements, and be able to provide test report of items regulated by the national standard. Overseas producer shall clarify the types and brands of dairy products it plans to export to China when applying for registration.

The list of registered overseas producers shall be published on AQSIQ's official website.

Article 7 Dairy products exported to China shall have health certificate(s) issued by the competent authority of the exporting country (region). The certificate shall include information that:

1) The raw materials of the dairy products comes from healthy animals;

2) The dairy products do not have and will not transfer animal epidemics through processing;

3) The dairy producer is under supervision of the competent authority in the region where it operates; and

4) The dairy products are safe and fit for human consumption.

The certificate shall have the official stamp of the country (region)'s competent authority, and the signature of its authorized representative. The destination shall be the People's Republic of China.

The sample of the certificate shall be confirmed by AQSIQ and published on AQSIQ's official website.

Article 8 In the event that a quarantine approval is required, the dairy products are allowed to be imported after obtaining the Quarantine Import Permit for Animals and Plants of the People's Republic of China (hereinafter referred to as the Permit).

AQSIQ may adjust and announce the types of dairy products that shall have quarantine approval according to the law.

Article 9 Exporters or agents that export dairy products to China shall submit required information for record to AQSIQ. The exporter or agent shall provide information in accordance with relevant requirements and be responsible for the authenticity of the information.

The list of record shall be published on AQSIQ's official website.

Article 10 The inspection and quarantine agencies document and manage the importers of imported dairy products. The importer shall have professionals in food safety, administrative personnel and rules and regulations ensuring the food safety. The importer shall apply for registration at the local CIQ where it registered the business according to AQSIQ's regulation.

Article 11 The importer of imported dairy products or its agent(s) shall declare inspection to the CIQ at the customs of declaration, while providing materials as follows:

1) Necessary certificates, such as contract, invoice, packing list and bill of lading;

2) Health certificate which complies with Article 7 under this Measure;

3) A test report of items listed in the corresponding national standards of food safety is required in the event that the dairy is imported for the first time. Imported for the first time refers to the dairy product with exactly identical information including overseas producer, product name, formula, overseas exporter, and domestic importer which is imported from the same port.

4) A copy of the test report when first-time imported, and a test report of items requested by AQSIQ is required for the dairy that is not imported for the first time. The items requested for testing for non first-time import are decided by AQSIQ according to the situation including risk monitoring of dairy and will be published on AQSIQ's official website.

5) The dairy which fails the safety and sanitary requirements (including pathogen, mycotoxin, contaminant, heavy metal and illegal additive) shall provide test report of items listed in the corresponding national food safety standard when imported once again. If all the safety and sanitary requirements are met for the five consecutive shipments, a copy of the test report of items listed in the corresponding national food safety standard and a test report of items requested by AQSIQ shall be provided when imported the next time.

6) Materials including sample of label in original language, Chinese translation of original label and sample of Chinese label are required when importing pre-packaged dairy.

7) The Permit in the event that quarantine approval is required on the dairy to be imported;

8) Certificate of import Permit issued by the Ministry of Health of the People's Republic of China (hereinafter referred to as MOH) in the event that the dairy is imported for the first time and not covered by the national standard on food safety;

9) Certificate of Permit issued by related authority in the event that the dairy has a function of health care; and

10) Certificate confirmed through diplomatic channel in the event that the dairy is labeled with award, prize or certification.

Article 12 Importer shall ensure the imported dairy products comply with China's national food safety standards and public the type, place of production and brand of its imported dairy products.

The dairy that is not covered by the national standard on food safety shall comply with the requirements included in the certificate of import Permit issued by MOH.

Article 13 The packing and transport tools of imported dairy products shall comply with requirements on safety and health.

Article 14 Pre-packed dairy products shall have labels and instructions with Chinese language. These labels and instructions shall comply with Chinese laws and regulations and national standard on food safety.

Article 15 Imported dairy products shall be stored in a location that is designated or approved by the CIQ prior to obtaining the Qualification of Inspection and

Quarantine (hereinafter referred to as Qualification) . Any unit or individual shall not handle the dairy without CIQ's approval.

Article 16 CIQ shall inspect imported dairy products according to the measures regulated by Law on Inspection of Imported and Exported Commodities of the People's Republic of China. Imported dairy products with risks of transmitting animal and plant diseases shall be quarantined according to the Law on Quarantine of Imported and Exported Animals and Plants of the People's Republic of China

Article 17 Imported dairy products shall not be marketed or used before being qualified from inspection and quarantine and issued with certificate of imported goods inspection and quarantine by CIQ.

The certificate of imported goods inspection and quarantine shall specify the information, such as the product's name, brand, exporting country (region), specifications, quantity/weight, production date (lot number) and expiry date.

Article 18 CIQ will issue a certificate of disqualification for the imported dairy that fails to pass inspection and quarantine. For those incompliant with safety, health and/or environmental protection requirements, the CIQ is entitled to command the importer to destroy the goods or issue a notice of goods return according to which the consignee shall return the goods back to the exporting country. Those incompliant with other requirements may be retreated technically under CIQ's supervision and are allowed to be marketed and used after being qualified through inspection and quarantine.

Prior to destroy or return, the importer shall isolate the disqualified dairy products and store in a location that is designated or approved by the CIQ, and shall not move them without CIQ's approval.

The importer shall destroy the goods within three months, and report to CIQ the result.

Article 19 The importer shall establish a dairy import and sales recording system to record related information of the imported dairy on an honest basis, including the Qualification No., name, specifications, production date or batch number, shelf life, names and contacts of exporter and buyer, and consignment date. The records shall be authentic and maintained for two years minimally.

CIQ should inspect the import and sales records of the importers in its responsible territory.

Article 20 For imported raw materials of dairy products all of which will be reexported after processing, CIQ is entitled to inspect in accordance with the standard of the import destination country (region) or the contract requirement, and marks "export processing only" on the Qualification issued.

Article 21 CIQ should establish and maintain records of credits of imported dairy importers.

In case of identifying disqualified imported dairy products, CIQ can put the consignee, inspection declarer and agent on the list of bad records; for those with illegal activities and filed administrative penalty, CIQ can put them on the list of companies with illegal records and disclose to the public.

Chapter 3 Export of Dairy products

Article 22 AQSIQ implements a registration system towards producers that export dairy products. Registration is executed subject to AQSIQ's regulations.

Exported dairy products shall be come from registered producers of exported dairy products.

Article 23 Dairy stock plants for raw milk export shall register at CIQ. On the basis of risk analysis, CIQ monitors registered plants in terms of animal epidemics, residuals of pesticides and veterinary drugs, environmental polluters and other poisonous and hazardous elements.

Article 24 Diary stock plants for raw milk export shall establish dairy stock breeding file, recoding the information as the following:

1) Varieties, quantities, propagation records, labeling, sources and entry dates of dairy stocks;

2) Sources, names, target stocks, time and using quantities of inputs such as feedstuffs, feedstuff additives, and veterinary drugs;

3) Records of quarantine, immunization and sterilization;

4) Records of dairy stock diseases, deaths and disposal of disqualified raw milk; and

5) Records of raw milk production, storage, inspection and sales.

The records shall be authentic and shall be maintained for two years minimally.

Article 25 For breeding of dairy stocks with the purpose of raw milk export, it is not allowed to use feedstuffs, feedstuff additives, veterinary drugs and other elements with direct or potential harms to animals and humans and prohibited by China and importing country (region). Milk produced during regulated drug period and withdrawal period of dairy stocks shall not be exported.

Article 26 Producers of exported dairy products shall comply with good production standard, establish and implement Hazard Analysis and Critical Control Points (HACCP), and make sure its effective operation.

Article 27 Producers of exported processed dairy products shall establish:

1) Receiving and inspection system for raw materials, food additives and related products to record faithfully the names, specifications, quantities, names and contacts of suppliers and dates of receiving;

2) Production record files to record faithfully safety management situations in food production process;

3) Delivery inspection system to inspect every lot of dairy products to be delivered and maintain inspection reports and sample dairy products;

4) Delivery inspection recording system to inspect qualification certificates and safety of dairy products to be delivered, recording faithfully the names, specifications, quantities, production dates, shelf lives, lot numbers, qualification certificate No., names and contacts of buyers and dates of sales.

The records above shall be true and shall be maintained for two years minimally.

Article 28 Producers of exported dairy products shall inspect or commit a qualified institution to inspect raw materials and supportive materials used and finished dairy products to be exported, and issue inspection report.

Article 29 The packing and transport manners of exported dairy products shall comply with safety and health requirements.

For transport tools like containers, ship cabins, airplanes and vehicles used for delivery of perishable dairy products which require refrigeration, the forwarder, container loading unit or their agents shall clean and sterilize the transport tools and containers subject to related regulations and establish records, and shall apply to the CIQ for inspection of loading capacity in terms of hygiene, sanitation, refrigeration and airproof and reinforcement. The dairy products shall not be loaded before the transport tools are inspected or in case the tools are judged as disqualified.

Article 30 The consigner of exported dairy products or its agent shall declare inspection to the CIQ responsible for the region where the producer operates, while in accordance with AQSIQ's regulations on inspection declaration.

Article 31 CIQ formulates the plan of exported dairy random inspection based on the risk of exported dairy products, safety and health quality management level of the producer, product safety and health quality records, track record of export, and requirements of the importing country (region). The CIQ inspects exported dairy products according to:

1) Inspection and quarantine requirement outlined in agreement, protocol and memorandum between China and the importing country (region);

2) Laws and regulations of the importing country (region);

3) Inspection and quarantine requirements specified in trade contract or letter of credit; and

The dairy products from the importing country (region) without above standards or requirements shall be inspected in accordance with China's laws and regulations and national standard on food safety.

Producers and exporters of exported dairy products shall ensure their products comply with the requirements above.

Articles 32 CIQ will issue Customs Clearance Document of Exported Goods or Exchange Certificate of Exported Goods for exported dairy products qualified from inspection and quarantine, and will issue inspection and quarantine certificate. CIQ will issue Notice of Disqualification of Exported Goods for dairy products disqualified from inspection and quarantine which shall not be exported.

Article 33 The CIQ of the departure port of exported dairy products inspects the conformity of the goods and certificates in accordance with the regulations on certificate exchange of exported goods. For those qualified, Customs Clearance Document of Exported Goods will be issued in exchange of the Exchange Certificate of Exported Goods; and for those disqualified, the CIQ will issue a certificate of disqualification and the products shall not be exported.

The CIQ of the product origin and CIQ of the departure port should build up information exchange mechanism to inform, on a timely basis, safety and health-related problems found during inspection and quarantine of dairy products to be exported and report to superior units according to related regulations.

Article 34 Producers of exported dairy products shall establish product traceability system and related files to ensure effective tracing. The files shall be maintained for two years minimally.

Article 35 Producers of exported dairy products shall establish sample product management system. The conditions and periods of sample maintaining shall be appropriate to the characteristics of the products and the quantity shall meet the requirement of inspection.

Article 36 In case of identifying disqualified exported dairy products, CIQ can put the producers and sellers on the list of bad records; for those with illegal activities and filed administrative penalty, CIQ can put them on the list of companies with illegal records and disclose to the public.

Chapter 4 Risk Alert

Article 37 AQSIQ and CIQs should collect and process dairy safety information gained from active monitoring, on-site inspection, lab inspection, notification from overseas organizations, notification from domestic organizations, media and online reports, complaints and exposures, and information forwarded by related authorities.

Article 38 Producers and sellers of imported/exported dairy products shall establish risk-related information reporting system, prepare emergency plan upon dairy safety risk-related information, and assign emergency liaison; and assign dedicated risk information reporting officer to report to the CIQ in a timely manner of the risk-related information found, including product recall and disposal.

Article 39 CIQ should provide primary advice on the basis of confirmed and filed safety-related information of imported/exported dairy products, and shall report to AQSIQ and notify local governments and associated authorities in accordance with related regulations and procedures.

Article 40 AQSIQ and its directly controlled Inspection and Quarantine Bureaus shall notify risk warning according to the levels of safety risk information of imported/exported dairy products. AQSIQ can announce risk warning and decide to take the following measures:

1) Restrict the import/export conditionally,including strong monitoring, enhancement of inspection and command of recall;

2) Prohibit the import/export and destroy or return the products; or

3) Implement safety emergency plan for imported/exported dairy products.

CIQs are responsible for organizing and implementing risk warning and control Measure.

Article 41 In case of animal epidemic that would affect dairy safety or other significant food safety incidents found in the country (region) that exports dairy products to China, AQSIQ may take risk alert and control method included in Article 40 towards the imported dairy products subject to Chinese laws and regulations.

AQSIQ may adjust risk warning and control methods through assessment on the basis of the change of epidemic, the situation of how the food safety incident is solved, and related materials provided by the

competent authority from exporting country (region) and related diary producer(s).

Article 42 In the event the safety risk of imported/exported dairy products does not exist any longer or has been reduced to an acceptable level, the risk warning notice and announcement and control measure should be released in time.

Article 43 In case the imported dairy has safety-related problem and has been harmed or would harm human health and lives, the importer shall actively recall the products and report to the CIQ of the region, disclose related information to the public, notify wholesalers and retailers to stop wholesales and retails, inform consumers to stop using the products, and create records of recall.

After receiving the report, the CIQ should conduct inspection and report to superior unit in accordance with the scope affected by the imported dairy and subject to related regulations.

In case the importer fails to implement recall actively, the immediate Inspection and Quarantine Bureau will send notice of forced recall to the importer and report to AQSIQ. AQSIQ may send notice of forced recall if necessary. AQSIQ may notify or report risk warning and take the Measure specified in Article 40and other Measure in order to prevent the occurrence of the harm.

Article 44 In case that safety problem that has harmed or would harm human health and lives is found existing in the exported dairy, the producer shall take Measure to prevent and/or reduce the occurrence of harms and report immediately to its local CIQ.

Article 45 During legal execution of responsibilities to inspect, quarantine and supervise imported/exported dairy products, the CIQs is entitled to:

1) Enter the sites of production/operation for inspection;

2) Review, reproduce, suspend, and impound related contracts, bills, accounting books and other materials;

3) Suspend and impound disqualified products, illegally used raw materials, supportive materials, additives and agricultural inputs, and tools and equipment used for illegal production;

4) Close down the production/operation site that has significant potential of harming human health and lives

Article 46 CIQ should report to AQSIQ and notify local government and related authorities of the control Measure to be taken in accordance with related regulations.

AQSIQ will notify related authorities of the imported/exported dairy safety information and Measure to be taken in accordance with related regulations.

Chapter 5 Legal Obligations

Article 47 In case that the seller markets and/or uses imported dairy which is identified through inspection and quarantine as incompliant with national standard on food safety, the CIQ is entitled to confiscate its illegal income, dairy products under illegal sales, and tools, equipment and raw materials according to Article 85 and Article 89 under Food Safety Law. In the event that the value of illegal diary products is less than 10,000 yuan, a penalty ranging from 2,000 yuan (exclusive) to 50,000 yuan (exclusive) will be imposed; in

the event the value is more than 10,000 yuan, a penalty ranging from fives times (exclusive) to ten times (exclusive) of the value will be imposed; and in case of serious situation, the seller will be deregistered. Article 48 In case that the importer of dairy products takes one of the following activities, it will be commanded to correct and be warned by CIQ in accordance with Article 87 and Article 89 in the Food Safety Law; in case the importer fails to correct, a penalty ranging from 2,000 yuan (exclusive) to 20,000 (exclusive) will be imposed; and in case of serious situation, the exporter will be deregistered:

1) It fails to establish dairy import and sales recording systems;

2) The import and sales recording systems are not complete and/or true;

3) The import and sales records are maintained less than two years;

4) The records are altered or destroyed or there is other incident which causes impossibility of revealing real situation;

5) It makes fake import and/or sales records;

Article 49 In case that the importer is found other illegal activities not included in Article 48 under this Measure, the CIQ will confiscate its illegal income and dairy products and penalize a sum of three times of product value in accordance with the special Article 8. In case that the activity is judged as crime, the importer shall bear criminal obligation.

Article 50 In case that the exporter fails to comply with Food Safety Law and takes one of the following activities, the CIQ will confiscate its illegal income, dairy products under illegal sales, and tools, equipment and raw materials according to Article 89 and Article 85 under Food Safety Law; in the event that the value of illegal diary products is less than 10,000 yuan, a penalty ranging from 2,000 yuan (exclusive) to 50,000 yuan (exclusive) will be imposed; in the event the value is more than 10,000 yuan, a penalty ranging from fives times (exclusive) to ten times (exclusive) of the value will be imposed; and in case of serious situation, the producer of exported dairy will be deregistered:

1) It exports dairy without inspection declaration or inspection by competent CIQ;

2) It exports dairy that is identified as disqualified through inspection;

3) It exchanges, the dairy products that have been supervised, randomly inspected and issued with inspection and quarantine certificate by CIQ with other dairy products;

4) The dairy to be exported comes from a producer not registered at CIQ.

Article 51 In case that the exporter is found other illegal activities not included in Article 50 under this Measure, the CIQ will confiscate its illegal income and dairy products and penalize a sum of three times of product value in accordance with the special Article 7. In case that the activity is judged as crime, the exporter shall bear criminal obligation.

Article 52 In case of occurrence of one of the following activities, the CIQ will command the organization to correct and will penalize a sum of less than three times of illegal income, if any, and the sum does not exceed 30,000 yuan; in case of no illegal income, the penalty is less than 10,000 yuan:

1) The importer of imported dairy fails to dispose the disqualified products within the period regulated by the CIQ;

2) The importer of imported dairy breaches Article 18 under this Measure that it fails to take necessary Measure to isolate and store separately the disqualified products before they are destroyed or returned;

3) The importer of imported dairy moves, without permission, the disqualified products away from the location designated or approved by the CIQ;

4) The dairy stock plant for raw milk export fails to comply with related regulations when using agricultural chemicals during breeding process;

5) The records of the dairy stock plant for raw milk export are found not true or the records are maintained less than two years;

6) The producer of exported dairy fails to establish or ensure the effectiveness of the traceability system;

7) The producer of exported dairy fails to establish sample product management system or the sample maintained does not conform with real product;

8) The exporter of dairy fails to comply with packing and transport regulations included in this Measure.

Article 53 Related laws and regulations shall apply in case of other illegal activities of producers/operators of imported/exported dairy products, CIQs and/or their staffs.

Chapter 6 Attached Articles

Article 54 The consignee and/or consigner of diary is entitled to apply for re-inspection in accordance with the Management Measure on Re-inspection of Imported and Exported Commodities if it disagrees with the result of inspection and quarantine.

Article 55 Dairy products which are for feedstuff, inedible or imported/exported through express, mailing or brought by passengers shall be handled in accordance with corresponding regulations.

Article 56 AQSIQ is responsible for interpreting this Measure.

Article 57 This Measure goes to effect from 1/May/2013.

National Standards Applicable to Dairy Categories

Milk

GB 19301-2010 Raw Milk

National Standards of People's Republic of China

GB 19301-2010

National Food Safety Standard

Raw Milk

Issued on: 2010-03-26 Implemented on: 2010-06-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard supersedes GB 19301-2003 Hygienic Standard for Raw Milk and its first revised edition.

Key updates from the earlier version, GB 19301-2003 are as follows:

- Standard's title was renamed as Raw Milk;
- Section on "Terms and Definition" was added;
- Guidelines on "Contaminants Limits" was referenced directly from GB 2762;
- Guidelines on "Mycotoxin Limits" was referenced directly from GB 2761;
- Guidelines on "Pesticide Residue" was referenced directly from GB 2763 and relevant national regulation and announcement;
- Section on "Microorganism Index" was amended.

This standard supersedes all earlier versions, including:

- GBn 33-1977, GB 19301-2003.

National Standard for Food Safety

Raw Milk

1. Scope

This standard will apply to raw milk, but exclude instant raw milk.

2. Normative References

The normative documents that have been referenced in this text are essential to the interpretation and application of this standard. For dated references, only the edition bearing the stipulated date is applicable to this standard. For undated references, the latest edition of the normative document (including all its amendments) will apply.

3. Terms and Definitions

3.1 Raw Milk

Refers to milk derived directly from the breasts of healthy animals (animals compliant with relevant Chinese national regulations), without any further processing or alteration of its chemical/physical composition. Milk produced within seven days after birth (i.e. colostrum), during periods when antibodies were administered, and during drug holiday, as well as milk with deteriorated conditions must not be used as raw milk for the production of dairy products.

4. Technical Requirements

4.1 Sensory Requirements: should comply with the requirements listed in Table 1.

Table 1 Sensory Requirements

Items	Requirements	Test Method
Color and Luster	Appears milky white or light yellow in color	Take appropriate amount of sample and put it into a 50ml beaker, observe color and texture under natural light. Smell it, taste it after rinsing your mouth with warm water
Taste and Aroma	Possesses aroma of milk solids, without any unusual odor	
Texture / Appearance	Liquid appears uniform, without any forms of unusual coagulation, deposit, and visible contaminant	

4.2 Physical-Chemical Index: Should comply with the requirements listed in Table 2.

Table 2 Physical-Chemical Index

Item		Index	Test Method
Freezing Point[a,b] / (°C)		−0.500~−0.560	GB 5413.38
Relative Density / (20°C/4°C)	≥	1.027	GB 5413.33
Protein / (g/100g)	≥	2.8	GB 5009.5
Fats / (g/100g)	≥	3.1	GB 5413.3
Impurities / (mg/kg)	≤	4.0	GB 5413.30
Milk Solid Non-Fats / (g/100g)	≥	8.1	GB 5413.39
Acidity / (°T) Milk[b] Goat Milk		12~18 6~13	GB 5413.34
[a] tested 3 hours after milking process [b] only apply to Holstein Cow Specie			

4.3 Contaminant Limits: Should comply with the requirements of national standard GB 2762.

4.4 Mycotoxin Limits: Should comply with the requirements of national standard GB 2761.

4.5 Microorganism Limits: Should comply with the requirements listed in Table 3.

Table 3 Microorganism Limits

Item		Limits [CFU/g(ml)]	Test Method
Aerobic Bacterial Count	≤	2×10^6	GB 4789.2

4.6 Limits on Pesticide Residues and Veterinary Drug Residues

4.6.1 Amount of pesticide residues should comply with the standard GB 2763 and other relevant national regulations and announcements.

4.6.2 Amount of veterinary drug residues should comply with relevant national regulations and announcements.

National Standards of People's Republic of China

GB 19302-2010

National Food Safety Standard

Fermented Milk

Issued on: 2010-03-26 Implemented on: 2010-12-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard corresponds to the Codex Stan 243-2003 (Revision 2008), Codex Standard for Fermented Milks published by The Codex Alimentarius Commission (CAC). Despite that, they are non-equivalent; there are differences between this standard and the international Codex Stan 243-2003 (Revision 2008), in terms of technical content and text formatting.

This standard will supersede the related earlier versions, GB 19302-2003 Hygienic Standard for Yoghurt and its corresponding first amendments, along with relevant segments of GB 27496-1999 Yoghurt. Compliance with this standard will take precedence in scope and requirements shared by both GB 19302-2010 and GB 27496-1999.

Key updates from the earlier version, GB 19302-2003 are as follows:

- Standard titled was renamed as Fermented Milk;
- Description of Scope was amended;
- Section on “Terms and Definition” was refined;
- Section on “Sensory Requirements” was amended;
- Sections on the fats requirements for skimmed and partially skimmed products were removed;
- Section on “Requirements on MSF (Milk Solid Fats)” was removed;
- Section on “Requirements on MSNF (Milk Solid Non-Fats)” was removed;
- Guidelines on “Contaminants Limits” was referenced directly from GB 2762;
- Guidelines on “Mycotoxin Limits” was referenced directly from GB 2761;
- Presentation of “Microorganism Index” Section was changed;
- Requirements for Shigella Limits were removed;
- Requirements on Lactobacillus Count within products were amended;
- Reinforced the requirements pertaining to the use of Nutritional Supplements.

This standard supersedes all earlier versions, including:

- GB 19302-2003.

National Standard for Food Safety

Fermented Milk

1. Scope

This standard will apply to full-cream, skimmed and partially skimmed fermented milk.

2. Normative References

The normative documents that have been referenced in this text are essential to the interpretation and application of this standard. For dated references, only the edition bearing stipulated date is applicable to this standard. For undated references, the latest edition of the normative document (including all its amendments) will apply.

3. Terms and Definitions

3.1 Fermented Milk

Refers to products with reduced pH value, that is produced through the processes of sterilization and fermentation of raw milk (derived from cow or goat) or milk powder as its main ingredient.

3.1.1 Yoghurt

Refers to products produced through the processes of sterilization and fermentation, by the use of specific lactic acid bacteria, i.e. S. thermophilus and L. bulgaricus (L. delbrueckii subsp. Bulgaricus), of raw milk (derived from cow or goat) or milk powder as its main ingredient.

3.2 Flavored Fermented Milk

Refers to products with reduced pH value that is produced through the processes of sterilization and fermentation of raw milk (derived from cow or coat) or milk powder, of which made up 80% or more of total content composition. The minority proportion will consists of a mix of other ingredients that can be added either before or after the fermentation process, e.g. food additives, nutritional supplements, fruits, vegetables, grains, etc.

3.2.1 Flavored Yoghurt

Refers to products produced through the processes of sterilization and fermentation, by the use of specific lactic acid bacteria, i.e. S. thermophilus and L. bulgaricus (L. delbrueckii subsp. Bulgaricus), of raw milk (derived from cow or goat) or milk powder, of which made up 80% or more of total content composition. The minority proportion will consists of a mix of other ingredients that can be added either before or after the fermentation process, e.g. food additives, nutritional supplements, fruits, vegetables, grains, etc.

4. Technical Requirements

4.1 Ingredient Requirements

4.1.1 Raw Milk: Should comply with the standard GB 19310.

4.1.2 Other Ingredients: Should comply with relevant safety standards and/or relevant regulations.

4.1.3 Fermentation Strains: Bacteria strains used in fermentation process should fall under the category explicitly permitted by the State Council's administrative department for health and hygiene issues. Such strains include L. bulgaricus (L. delbrueckii subsp. Bulgaricus), Streptococcus thermophiles.

4.2 Sensory Requirements: Should comply with the requirements listed in Table 1.

Table 1 Sensory Requirements

Item	Requirements		Test Method
	Fermented Milk	Flavored Fermented Milk	
Color and Luster	Uniform milky white or light yellow color	Possesses the supposed color corresponding to the additional ingredient(s) used	Take appropriate amount of sample and put it into a 50ml beaker, observe color and texture under natural light. Smell it, taste it after rinsing your mouth with warm water.
Taste and Aroma	Possesses taste and aroma unique to fermented milk	Possesses the supposed taste and aroma corresponding to the additional ingredient(s) used	
Texture / Appearance	Uniform and fine texture, allowing for a minute amount of whey coagulation; flavored fermented milk displays texture corresponding to the ingredients added for flavoring		

4.3 Physical-Chemical Index: Should comply with the requirements listed in Table 2.

Table 2 Physical-Chemical Index

Item		Requirement		Test Method
		Fermented Milk	Flavored Fermented Milk	
Fats[a] / (g/100g)	≥	**3.1**	**2.5**	**GB 5413.3**
Milk Solid Non-Fats / (g/100g)	≥	**8.1**	—	**GB 5413.39**
Protein / (g/100g)	≥	**2.9**	**2.3**	**GB 5009.5**
Acidity / (°T)	≥	**70.0**		**GB 5413.34**
[a] only applicable to full-cream based products.				

4.4 Contaminant Limits: Should comply with the requirements of national standard GB 2762.

4.5 Mycotoxin Limits: Should comply with the requirements of national standard GB 2761.

4.6 Microorganism Limits: Should comply with requirements listed in Table 3.

Table 3 Microorganism Limits

Item	Sampling plan[a] and limits (if not specified, expressed as CFU/g or CFU/ml)				Test method
	n	c	m	M	
Coliforms	5	2	1	5	GB 4789.3 Plate Counting Method
Staphylococcus aureus	5	0	0/25g (ml)	—	GB 4789.10 Qualitative Test
Salmonella	5	0	0/25g (ml)	—	GB 4789.4
Yeast ≤	100				GB 4789.15
Molds ≤	30				
[a] sample should be analyzed and treated according to GB4789.1 and GB4789.18.					

4.7 Lactobacillus Count: Should comply with requirements listed in Table 4.

Table 4 Lactobacillus Count

Item	Limitation [CFU/g (ml)]	Test Method
Lactobacillus Count[a] ≥	1×10^6	GB 4789.35
[a] products that have gone through heat treatment after the fermentation process will not be subjected to any requirements on the minimum Lactobacillus Count.		

4.8 Food Additives and Nutritional Supplements

4.8.1 The quality of food additives and nutritional supplements should comply with relevant safety standards and regulations.

4.8.2 The use of food additives and nutritional supplements should comply with the requirements of national standards GB 2760 and GB 14880.

5. Others

5.1 Products that have gone through proper heat based treatment after the fermentation process should be labeled with “XX heat-treated fermented milk”, “XX heat-treated flavored fermented milk”, “XX heat-treated yoghurt” or “XX heat-treated flavored yoghurt”.

5.2 Products manufactured entirely from milk powder should be labeled, in the proximate area of products’ brand/product name as “reconstituted dairy” or “reconstituted milk”; products that used a mixture of raw milk (derived from cow or goat) and milk powder should be labeled with “Contains XX% reconstituted dairy” or “Contains XX% reconstituted milk” in the proximate area of products’ brand/product name.

Note: “XX%” refers to the mass of milk powder used as a percentage of the product’s total milk solid content.

5.3 The “reconstituted dairy” or “reconstituted milk” labels should be positioned at main display section of the product’s packaging, together with the product’s brand/name label; fonts used for the “reconstituted dairy” or “reconstituted milk” labels should be obvious/striking, i.e. font size of the labels should not be smaller than that of the product name’s and the height of the fonts used should not be less than one fifth of the height of the main display section. All labels mentioned above should be in Chinese.

National Standards of People's Republic of China

GB 19644-2010

National Food Safety Standard

Milk Powder

Issued on: 2010-03-26 Implemented on: 2010-12-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard corresponds to the Codex Stan 207-1999 Codex Standard for Milk Powders and Cream Powder published by The Codex Alimentarius Commission (CAC). Despite that, they are non-equivalent; there are differences between this standard and the international Codex Stan 207-1999, in terms of technical content and text formatting.

This standard will supersede the earlier relevant versions, GB 19644-2005 Hygienic Standard for Milk Powders and relevant segments of the voluntary national standards, GB/T 5410-2008 Milk Powder. Compliance with this standard will take precedence in scope and requirements shared by both GB 19644-2010 and GB/T 5410-2008.

Key updates from the earlier version, GB 19644-2005 are as follows:

- Standard's title was renamed as Milk Powder;
- Description of Scope was amended;
- Section on "Terms and Definition" was refined;
- Section on "Sensory Requirements" was modified;
- Requirements for full-cream sweetened milk powder" was removed;
- Fats requirements for skimmed and partially skimmed milk powder were removed;
- Section on "Reconstituted Lactic Acid Index Requirements for Milk Powder Manufactured with Goat Milk: was added;
- Section on "Impurities Index" was added;
- Guidelines on "Contaminants Limits" was referenced directly from GB 2762;
- Guidelines on "Mycotoxin Limits" was referenced directly from GB 2761;
- Presentation of the "Microorganism Index" Section was amended;
- Reinforced the requirements pertaining to the use of Nutritional Supplements.

This standard supersedes all earlier versions, including:

- GB 19644-2005.

National Standard for Food Safety

Milk Powder

1. Scope

This standard will apply to full-cream, skimmed, partially skimmed milk powder and formulated milk powder.

2. Normative References

The normative documents that have been referenced in this text are essential to the interpretation and application of this standard. For dated references, only the edition bearing the stipulated date is applicable to this standard. For undated references, the latest edition of the normative document (including all its amendments) will apply.

3. Terms and Definitions

3.1 Milk Powder

Refers to powdered product produced through the processing of raw milk (derived from cow or goat) as the main ingredients.

3.2 Formulated Milk Powder

Refers to powdered product with milk solid content exceeding 70%, produced through the processing of raw milk (derived from cow or goat), along with a mix of other ingredients, e.g. food additives, nutritional supplements.

4. Technical Requirements

4.1 Requirements on Raw Materials

4.1.1 Raw Milk: Should comply with the standard GB 19301.

4.1.2 Other Ingredients: Should comply with relevant safety standard and regulations.

4.2 Sensory Requirements: Should comply with the requirements listed in Table 1.

Table 1 Sensory Requirements

Item	Requirements		Test Method
	Milk Powder	Formulated Milk Powder	Take appropriate amount of sample and put it into a 50ml beaker, observe color and texture under natural light. Smell it, taste it after rinsing your mouth with warm water.
Color and Luster	Uniformly distributed, milky yellow color	Possesses supposed color for products in this category	
Taste and Aroma	Possesses authentic/ pure milk-like taste and aroma	Possesses supposed taste and aroma for products in this category	
Texture / Appearance	Powder that is evenly dry throughout		

4.3 Physical-Chemical Index: Should comply with the requirements listed in Table 2.

Table 2 Physical-Chemical Index

Items		Index		Test Method
		Milk Powder	Formulated Milk Powder	
Protein / (%)	≥	34% of MSNF[a]	16.5	GB 5009.5
Fats[b] / (%)	≥	26.0	—	GB 5413.3
Reconstituted Lactic Acid / (°T) Milk Goat Milk	≤	 18 7~14	 — —	GB 5413.34
Impurities / (mg/kg)	≤	16	—	GB 5413.30
Moisture / (%)	≤	5.0		GB 5009.3
[a] MSNF, Milk Solid Non-Fats (%) = 100% − fats (%) − moisture (%). [b] only applicable to full-cream milk powder.				

4.4 Contaminant Limits: Should comply with the requirements of national standard GB 2762.

4.5 Mycotoxin Limits: Should comply with the requirements of national standard GB 2761.

4.6 Microorganism Limits: Should comply with the requirements listed in Table 3.

Table 3 Microorganism Limits

Item	Sampling plan[a] and limits (if not specified, expressed as CFU/g)				Test Method
	n	c	m	M	
Aerobic Bacterial Count	5	2	50,000	200,000	GB 4789.2
Coliforms	5	1	10	100	GB 4789.3 Plate Counting Method
Staphylococcus aureus	5	2	10	100	GB 4789.10 Plate Counting Method
Salmonella	5	0	0/25g	—	GB 4789.4
[a] sample should be analyzed and treated according to GB4789.1 and GB4789.18. [b] not applicable to products with active bacteria added (i.e. aerobic and facultative anaerobic probiotics).					

4.7 Food Additives and Nutritional Supplements

4.7.1 The quality of food additives and nutritional supplements should comply with relevant safety standards and regulations.

4.7.2 The use of food additives and nutritional supplements should comply with the requirements of national standards GB 2760 and GB 14880.

National Standards of People's Republic of China

GB 19645-2010

National Food Safety Standard

Pasteurized Milk

Issued on: 2010-03-26 Implemented on: 2010-12-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard supersedes GB 19645-2005 Hygienic Standard for Pasteurized and Sterilized Milk and relevant segments of GB 5408.1-1999 Pasteurized Milk. Compliance with this standard will take precedence in scope and requirements shared by both GB 19645-2010 and GB 5408.1-1999.

Key updates from the earlier version, GB 19646-2005 are as follows:

- The Hygienic Standard for Pasteurized and Sterilized Milk is divided into three separate standards on Pasteurized Milk (i.e. this standard), Sterilized Milk and Modified Milk.
- Description of Scope was amended;
- Section on “Terms and Definition” was refined;
- Section on “Sensory Requirements” was amended;
- Fats requirements for skimmed and partially skimmed products was removed;
- Protein requirements was added for goat milk;
- Acidity requirements listed in the section on “Physical-Chemical Index” was reported as range of values rather than a specific required limit;
- Section on “Veterinary Medicine Residue Index” was removed;
- Section on “Pesticide Residue Index” was removed;
- Guidelines on “Contaminants Limits” was referenced directly from GB 2762;
- Guidelines on “Mycotoxin Limits” was referenced directly from GB 2761;
- Presentation of the “Microorganism Index” Section was amended;
- Requirements for “Food Additives” were removed;
- Requirements on “Labeling” were amended.

This standard supersedes all earlier versions, including:

- GB 19645-2005.

National Standard for Food Safety

Pasteurized Milk

1. Scope

This standard will apply to full-cream, skimmed and partially skimmed pasteurized milk.

2. Normative References

The normative documents that have been referenced in this text are essential to the interpretation and application of this standard. For dated references, only the edition bearing the stipulated date is applicable to this standard. For undated references, the latest edition of the normative document (including all its amendments) will apply.

3. Terms and Definitions

3.1 Pasteurized Milk

Refers to liquid product manufactured using raw milk (derived from cow or goat) as key ingredient via the process of pasteurization.

4. Technical Requirements

4.1 Ingredient Requirements: Raw milk should comply with the standard GB 19310.

4.2 Sensory Requirements: Should comply with requirements listed in Table 1.

Table 1 Sensory Requirements

Items	Requirements	Test Method
Color and Luster	Appears milky white or light yellow	Take appropriate amount of sample and put it into a 50ml beaker, observe color and texture under natural light. Smell it, taste it after rinsing your mouth with warm water.
Taste and Aroma	Possesses milk solid aroma, without producing any unusual odor	
Texture / Appearance	Liquid with even texture, without any unusual coagulation, residue or visible contaminant	

4.3 Physical-Chemical Index: Should comply with requirements listed in Table 2.

Table 2 Physical-Chemical Index

Item		Index	Test method
Fats[a] / (g/100g)	≥	3.1	GB 5413.3
Protein / (g/100g)			GB 5009.5
Milk	≥	2.9	
Goat milk	≥	2.8	
Milk Solid Non-Fats / (g/100g)	≥	8.1	GB 5413.39
Acidity / (°T)			GB 5413.34
Milk		12~18	
Goat milk		6~13	
[a] only applicable to full-cream pasteurized milk.			

4.4 Contaminant **Limits: Should comply with the requirements of national standard GB 2762**.

4.5 Mycotoxin **Limits: Should comply with the requirements of national standard GB 2761**.

4.6 Microorganism Limits: Should comply with requirements listed in Table 3.

Table 3 Microorganism Limits

Item	Sampling plan[a] and limits (if not specified, expressed as CFU/g or CFU/ml)				Test method
	n	c	m	M	
Aerobic Bacterial Count	5	2	50,000	100,000	GB 4789.2
Coliforms	5	2	1	5	GB 4789.3 Plate Counting Method
Staphylococcus aureus	5	0	0/25g (ml)	—	GB 4789.10 Plate Counting Method
Salmonella	5	0	0/25g (ml)	—	GB 4789.4
[a] sample should be analyzed and treated according to GB4789.1 and GB4789.18.					

5. Others

5.1 For products that fall under this product definition, there should be label(s) positioned on the main display section of the product packaging, in the proximate area of the product's name/brand, that indicates that it is "fresh (goat) milk" or "fresh (goat) dairy" in Chinese. The label's font size should not be smaller than that of the product name/brand's label and the height of the font should not be less than one fifth of the main display section of packaging.

National Standards of People's Republic of China

GB 13102-2010

National Food Safety Standard

Evaporated Milk, Sweetened Condensed Milk and Formulated Condensed Milk

Issued on: 2010-03-26 Implemented on: 2010-12-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard corresponds to the Codex Stan 281-1971 (Revised in 1999) Codex Standard for Evaporated Milks and Codex Stan 282-1971 (Revised in 1999) Codex Standard for Sweetened Condensed Milks published by The Codex Alimentarius Commission (CAC). Despite that, they are non-equivalent; there are differences between this standard and the international Codex Stan 281-1971 (Revision 1999), Codex Stan 282-1971 (Revision 1999), in terms of technical content and text formatting.

This standard will supersede the earlier version, GB 13102-2005 Hygienic Standard for Evaporated Milk and Sweetened Condensed Milk and relevant segments of the voluntary national standards, GB/T 5417-2008 Condensed Milk. Compliance with this standard will take precedence in scope and requirements shared by both GB 13102-2010 and GB/T 5417-2008.

Key updates from the earlier version, GB 13102-2005 are as follows:

- Standard's title was renamed as Evaporated Milk, Sweetened Condensed Milk and Formulated Condensed Milk;
- Description of Scope was amended;
- Section on "Terms and Definition" was refined;
- Section on "Sensory Requirements" was modified;
- Section on "Impurities Index" was removed;
- Section on "Moisture" was added;
- Guidelines on "Contaminants Limits" was referenced directly from GB 2762;
- Guidelines on "Mycotoxin Limits" was referenced directly from GB 2761;
- Presentation of the "Microorganism Index" Section was amended;
- Section on "Shigella Index" was removed;
- Reinforced the requirements pertaining to the use of Nutritional Supplements.

This standard supersedes all earlier versions, including:

- GB/T 13102-1991, GB 13102-2005.

National Standard for Food Safety

Evaporated milk, sweetened condensed milk and formulated condensed milk

1. Scope

This standard will apply to evaporated milk, sweetened condensed milk and formulated condensed milk.

2. Normative References

The normative documents that have been referenced in this text are essential to the interpretation and application of this standard. For dated references, only the edition bearing the stipulated date is applicable to this standard. For undated references, the latest edition of the normative document (including all its amendments) will apply.

3. Terms and Definitions

3.1 Evaporated Milk

Refers to the viscous end product produced through the processing of raw milk and/or dairy products, with or without the addition of food additives or nutritional supplements, as main raw materials.

3.2 Sweetened Condensed Milk

Refers to the viscous end product produced through the processing of raw milk and/or dairy products together with sugar, with or without the addition of food additives or nutritional supplements, as main raw materials.

3.3 Formulated Condensed Milk

Refers to the viscous end product produced through the processing of raw milk and/or dairy products together with a certain set of additional ingredients, with or without the addition of sugar, food additives or nutritional supplements, as main raw materials.

4. Technical Requirements

4.1 Requirements on Raw Materials

4.1.1 Raw Milk: Should comply with requirements specified in GB 19301.

4.1.2 Other Ingredients: Should comply with relevant safety standard and/or regulations.

4.2 Sensory Requirement: Should comply with the requirements listed in Table 1.

Table 1 Sensory Requirements

Item	Requirements			Test Method
	Evaporated Milk	**Sweetened Condensed Milk**	**Formulated Condensed Milk**	
Color and Luster	Lustrous, milky white or creamy yellow color uniformly distributed		Color should correspond to that of the additional ingredients used	Take appropriate amount of sample and put it into a 50ml beaker, observe color and texture under natural light. Smell it, taste it after rinsing your mouth with warm water.
Taste and Aroma	Possesses milk-like taste and aroma	Possesses milk-like aroma and a pure sweet palate	Taste and aroma should correspond to that of the formulation used	
Texture / Appearance	Uniform and fine texture, displays an appropriate level of viscosity required of this product category			

4.3 Physical-Chemical Index: Should comply with the requirements listed in Table 2.

Table 2 Physical-Chemical Index

Item		Index				Test Method
		Evaporated Milk	**Sweetened Condensed Milk**	**Formulated Condensed Milk**		
				Formulated Evaporated Milk	**Formulated Sweetened Condensed Milk**	
Protein / (g/100g)	≥	34% of MSNF[a]		**4.1**	**4.6**	GB 5009.5
Fats (X) / (g/100)		**7.5≤X<15.0**		X≥7.5	X≥8.0	GB 5413.3
MSF[b] / (g/100g)	≥	**25.0**	**28.0**	—	—	—
Sucrose / (g/100g)	**≤**	—	**45.0**	—	**48.0**	GB 5413.5
Moisture / (%)	**≤**	—	**27.0**	—	**28.0**	GB 5009.3
Acidity / (°T)	**≤**	**48.0**				GB 5413.34

[a] **M**SNF, Milk Solid Non-fats (%) = 100% − Fats (%)− Moisture (%) – **Sucrose (%).**
[b] **MSF, Milk Solid Fats (%) = 100%** − Fats (%)− Moisture (%)**.**

4.4 Contaminant Limits: Should comply with the requirements of national standard GB 2762.

4.5 Mycotoxin Limits: Should comply with the requirements of national standard GB 2761.

4.6 Microorganism Limits

4.6.1 Evaporated milk and formulated evaporated milk should comply with requirements on commercial sterility, and be tested according to the guidelines recommended in GB/T 4789.26.

4.6.2 Sweetened condensed milk and formulated sweetened condensed milk should comply with the requirements listed in Table 3.

Table 3 Microorganism Limits

Item	Sampling plan[a] and limits (if not specified, expressed as CFU/g or CFU/ml)				Test Method
	n	c	m	M	
Aerobic Bacterial Count	5	2	30,000	100,000	GB 4789.2
Coliforms	5	1	10	100	GB 4789.3 Plate Counting Method
Staphylococcus aureus	5	0	0/25g (ml)	—	GB 4789.10 Plate Counting Method
Salmonella	5	0	0/25g (ml)	—	GB 4789.4
[a] samples should be analyzed and treated according to GB 4789.1 and GB 4789.18.					

4.7 Food Additives and Nutritional Supplements

4.7.1 The quality of food additives and nutritional supplements should comply with relevant safety standards and regulations.

4.7.2 The use of food additives and nutritional supplements should comply with the requirements of national standards GB 2760 and GB 14880.

5. Others

5.1 The product should be labeled with warnings such as “This product cannot be used as breast-milk substitute for infants and young children.”

National Standards of People's Republic of China

GB 19646-2010

National Food Safety Standard

Cream, Butter and Anhydrous Milkfat

Issued on: 2010-03-26 Implemented on: 2010-12-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard corresponded to Codex Stan 279-1971（Revision 1999，Amendment 2003, 2006）Codex Standard for Butter, Codex Stan 280-1973（Revision 1999，Amendment 2006）Codex Standard for Milkfat Products，Codex Stan 288-1976（Revision 2003,Amendment 2008）Codex Standard for Cream and Prepared Creams published by CAC，the consistency level between this standard and Codex Stan 279-1971（Revision 1999，Amendment 2003，2006），Codex Stan 280-1973（Revision 1999,Amendment 2006）,Codex Stan 288-1976（Revision 2003,Amendment 2008）is non-equivalent.

This standard replaces GB 19646-2005 Hygienic standard for cream and butter and some indexes from GB/T 5415-2008 Butter, indexes contained in the standard of GB/T 5415-2008 Butter, which in reference to this text, should comply with this standard.

Comparing with GB 19646-2005, the following main changes have been made to this standard:

- Titled as Cream, butter and anhydrous milkfat;
- Modify the description of Scope;
- Add Terms and Definition;
- Modify Sensory Requirements;
- Add acidity indicator of cream;
- Add MSNF indicator;
- Quote rules about Contaminant limitation directly from GB 2762;
- Quote rules about Mycotoxin limitation directly from GB 2761;
- Modify the representing method of microorganism;
- Add requirements for nutritional fortification substances.

The editions replaced by this standard include:

- GB 19646-2005.

National Standard for Food Safety

Cream, butter and anhydrous milkfat

1. Scope

This standard applies to process(ed) cheese.

2. Normative References

The normative documents referenced in the text are indispensable to the application of this standard. For dated references, only the edition bearing such date applies to this standard. For undated references, the latest edition of the normative document referred to (including all the amendments) applies.

3. Terms and definitions

3.1 Cream

Refer to products with 10.0％～80.0％ fat content, made through special processing technology, of which the main ingredient is fatty part divided from milk, with or without other ingredients, food additives or nutritional fortification substances.

3.2 Butter

Refer to products with no less than 80.0％ fat content, through special processing technology, of which main ingredient is milk and/or cream（fermented or unfermented), with or without other ingredients, food additives or nutritional fortification substances.

3.3 Anhydrous milkfat

Refer to products with no less than 99.8％ fat content, made through special processing technology, of which main ingredient is milk and/or butter or cream(fermented or unfermented), with or without other ingredients, food additives or nutritional fortification substances.

4. Technical Requirements

4.1 Requirements for Raw Materials

4.1.1 Raw milk: should comply with GB 19301.

4.1.2 Other ingredients: should comply with relevant safety standard and regulations.

4.2 Sensory requirement: should comply with Table 1.

Table 1 Sensory Requirements

Items	Requirements	Test method
color and luster	uniform ivory-white, ivory-yellow or supplemental ingredients' special color	Take proper amount of sample, put it into a 50ml beaker, observe its color and structure in natural light, smell it, taste it after gargle with warm water.
taste and flavor	special taste and luster of cream, butter, anhydrous milkfat or supplemental ingredients, no odors	
structural	uniform structure, may have sediment from certain supplemental ingredients , no visible extrinsic contaminant	

4.3 Physical-chemical indexes: Should comply with Table 2

Table 2 Physical-chemical indexes

Items	Indexes			Test Method
	Cream	Butter	Anhydrous milkfat	
moisture/(%) ≤	–	16.0	0.1	test butter as is in GB 5009.3 use Karl-Fischer method from GB 5009.3 to test anhydrous milkfat
Lipid/(%) ≥	10.0	80.0	99.8	GB 5413.3[a]
Acidity[b]/(°T) ≤	30.0	20.0	-	GB 5413.34
MSNF[c]/(%) ≤	-	2.0	-	-

[a] Lipid in anhydrous milkfat (%) = 100%-moisture(%)
[b] Not apply to products made of fermented cream.
[c] MSNF (%)=100%-lipid(%)-moisture(%) (minus salt content from Salted butter).

4.4 Contaminant limitation: should comply with the standard of GB 2762.

4.5 Mycotoxin limitation: should comply with the standard of GB 2761.

4.6 Microorganism limitation

4.6.1 Cream products processed through canning or UHT method, should comply with Commercial sterility requirements, and be tested as is in GB/T 4789.26.

4.6.2 Other products: should comply with Table 3**.**

Table 3 Microorganism limitation

Item	Sampling plan[a] and limitation(if not specified, expressed as CFU/g or CFU/ml)				Test method
	n	c	m	M	
aerobic plate[b]	5	2	10000	100000	GB 4789.2
Coliforms	5	2	10	100	GB 4789.3 plate counting method
Staphylococcus aureus	5	1	10	100	GB 4789.10 plate counting method
Salmonella	5	0	0/25g(ml)	—	GB 4789.4
Molds ≤	90				GB 4789.15

[a] sample should be analyzed and treated as is in GB4789.1 and GB4789.18.

[b] not apply to products made of fermented cream.

4.7 Food additives and nutritional fortification substances

4.7.1 The quality of food additives and nutritional fortification substances should comply with relevant safety standards and regulations.

4.7.2 The using of food additives and nutritional fortification substances should comply with the standard of GB 2760 and GB 14880.

National Standards of People's Republic of China

GB 25190-2010

National Food Safety Standard

Sterilized Milk

Issued on: 2010-03-26 Implemented on: 2010-12-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard replaces GB 19645-2005 Hygienic standard for pasteurized and sterilized milk and part of the indexes from GB 5408.2-1999 Sterilized milk, indexes contained in the standard of GB 5408.2-1999 Sterilized milk , which in reference to this text, should comply with this standard.

Comparing with GB 19645-2005, the following main changes have been made to this standard:

- Divide Hygienic standard for pasteurized and sterilized milk into three standards as Pasteurized milk, Sterilized milk and Modified milk, this standard is Sterilized milk.
- Modify the description of Scope;
- Add Terms and Definition;
- Modify Sensory Requirements;
- Cancel Lipid Requirements for skimmed and partially skimmed products;
- Add PRO Requirements for goat milk;
- Modify the limitation of acidity in “Physical-chemical indexes” into range;
- Cancel “veterinary residue index”
- Cancel “pesticide residue index”
- Quote rules about Contaminant limitation directly from GB 2762;
- Quote rules about Mycotoxin limitation directly from GB 2761;
- Cancel requirements for “food additives”;
- Modify rules about “label”;

The editions replaced by this standard include:

- GB 19645-2005.

National Standard for Food Safety

Sterilized Milk

1. Scope

This standard applies to full-cream, skimmed and partially skimmed modified sterilized milk.

2. Normative References

The normative documents referenced in the text are indispensable to the application of this standard. For dated references, only the edition bearing such date applies to this standard. For undated references, the latest edition of the normative document referred to (including all the amendments) applies.

3. Terms and definitions

3.1 Ultra high-temperature milk

Refer to liquid products, of which ingredient is raw (goat) milk with or without reconstituted milk, made through sterilization by heating continuous-flow for an extremely short period, at a temperature exceeding 135°C and processes as aseptic filling.

3.2 Retort sterilized milk

Refer to liquid products, of which ingredient is raw (goat) milk with or without reconstituted milk, made through processes as sterilization after bottling and sealing with or without preheating treatment.

4. Technical Requirements

4.1 Ingredient Requirements

4.1.1Raw milk: should comply with the standard of GB 19310.

4.1.2 Milk powder: should comply with the standard of GB 19644.

4.2 Sensory Requirements: should comply with Table 1.

Table 1 Sensory Requirements

Items	Requirements	Test method
color and luster	Ivory white or light yellow	Take proper amount of sample, put it into a 50ml beaker, observe its color and structure in natural light, smell it, taste it after gargle with warm water.
taste and flavor	Inherent flavor of milk, no odors	
structural	Liquid in uniform structure, no clots, no sediment, no visible extrinsic contaminant	

4.3 Physical-chemical indexes: Should comply with Table 2

Table 2 Physical-chemical indexes

Item	Index	Test method
Lipid[a]/(g/100g) ≥	3.1	GB 5413.3
PRO/(g/100g) milk ≥ goat milk ≥	 2.9 2.8	GB 5009.5
MSNF/(g/100g) ≥	8.1	GB 5413.39
Acidity/(°T) milk goat milk	 12~18 6~13	GB 5413.34
[a] Only applicable to full-cream sterilized milk.		

4.4 Contaminant limitation: should comply with the standard of GB 2762.

4.5 Mycotoxin limitation: should comply with the standard of GB 2761.

4.6 Microorganism Requirements: should comply with Commercial sterility requirements, and be tested as is in GB/T 4789.26.

5. Others

5.1 Ultra high-temperature milk, completely made of raw (goat) milk, should be labeled as “pure (goat) milk” or “pure (goat) dairy” right next to the product name at the main section on the packaging container, of which Chinese characters the font size should be no smaller than that of the product name’s, the font height should be no less than one fifth of the main section height

5.2 Ultra high-temperature milk, completely made of milk powder, should be labeled as “reconstituted milk” or “rehydrated milk” right next to the product name; ultra high-temperature milk made of raw (goat) milk and some milk powder should be labeled as “XX % reconstituted milk” or “XX% rehydrated milk”.

Note: “XX%” refers to the mass fraction of milk powder in whole milk solid.

5.3 The label of “Reconstituted milk” or “Rehydrated milk” should be at the same main section on the packaging container as the product name label; the letters of “reconstituted milk” or “rehydrated milk” should be striking, of which the font size should be no smaller than that of the product name’s, the font height should be no less than one fifth of the main section height.

National Standards of People's Republic of China

GB 25191-2010

National Food Safety Standard

Modified Milk

Issued on: 2010-03-26 Implemented on: 2010-12-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard supersedes GB 19645-2005 Hygienic Standard for Pasteurized and Sterilized Milk and relevant segments of GB 5408.1-1999 Pasteurized Milk and GB 5408.2-1999 Sterilized Milk. Compliance with this standard will take precedence in scope and requirements shared by GB 25191-2010, GB 5408.1-1999 and GB 5408.2-1999.

Key updates from the earlier relevant version, GB 19645-2005 are as follows:

- *The Hygienic Standard for Pasteurized and Sterilized Milk* is divided into three separate standards on *Pasteurized Milk*, *Sterilized Milk* and *Modified Milk* (i.e. this standard).

This standard supersedes all earlier versions, including:

- GB 19645-2005.

National Standard for Food Safety

Modified Milk

1. Scope

This standard will apply to full-cream, skimmed and partially skimmed modified milk.

2. Normative References

The normative documents that have been referenced in this text are essential to the interpretation and application of this standard. For dated references, only the edition bearing the stipulated date is applicable to this standard. For undated references, the latest edition of the normative document (including all its amendments) will apply.

3. Terms and Definitions

3.1 Modified Milk

Refers to liquid based product manufactured through proper disinfection and sterilization processes, with more than 80% composition of raw milk (derived from cow or goat) or reconstituted milk as main ingredients, supplemented with other ingredients such as food additives or nutritional supplements.

4. Technical Requirements

4.1 Ingredient Requirements

4.1.1 Raw Milk: Should comply with the standard GB 19310.

4.1.2 Other Ingredients: Should comply with relevant safety standards and/or relevant regulations.

4.2 Sensory Requirements: Should comply with the requirements listed in Table 1.

Table 1 Sensory Requirements

Items	Requirements	Test Method
Color and Luster	Displays the supposed color and luster characterized of modified milk products	Take appropriate amount of sample and put it into a 50ml beaker, observe color and texture under natural light. Smell it, taste it after rinsing your mouth with warm water.
Taste and Aroma	Possesses the supposed aroma characterized of modified milk products, and do not produce any unusual odor	
Texture / Appearance	Liquid with even texture, without any unusual coagulation or visible contaminant but residues corresponding to the extra ingredients added is allowed	

4.3 Physical-Chemical Index: Should comply with the requirements listed in Table 2.

Table 2 Physical-Chemical Index

Item		Index	Test Method
Fats[a] / (g/100g)	≥	2.5	GB 5413.3
Protein / (g/100g)	≥	2.5	GB 5009.5
[a] only applicable to full-cream products			

4.4 Contaminant Limits: Should comply with the requirements of national standard GB 2762.

4.5 Mycotoxin Limits: Should comply with the requirements of national standard GB 2761.

4.6 Microorganism Limits

4.6.1 Modified milk products that are manufactured through sterilization process should comply with the Commercial Sterility requirements, and be tested according to GB/T 4789.26.

Table 3 Microorganism Limits

Item	Sampling plan[a] and limits (if not specified, expressed as CFU/g or CFU/ml)				Test Method
	n	c	m	M	
Aerobic Bacterial Count	5	2	50,000	100,000	GB 4789.2
Coliforms	5	2	1	5	GB 4789.3 Plate Counting Method
Staphylococcus aureus	5	0	0/25g (ml)	—	GB 4789.10 Plate Counting Method
Salmonella	5	0	0/25g (ml)	—	GB 4789.4
[a] sample should be analyzed and treated according to GB4789.1 and GB4789.18.					

4.7 Food Additives and Nutritional Supplements

4.7.1 The quality of food additives and nutritional supplements should comply with relevant safety standards and regulations.

4.7.2 The use of food additives and nutritional supplements should comply with the requirements of national standards GB 2760 and GB 14880.

5. Others

5.1 Products manufactured entirely from milk powder should be labeled, in the proximate area of products' brand/product name as "reconstituted dairy" or "reconstituted milk"; products that used a mixture of raw milk (derived from cow or goat) and milk powder should also be labeled with "Contains XX% reconstituted dairy" or "Contains XX% reconstituted milk" in the proximate area of products' brand/product name.

Note: "XX%" refers to the mass of milk powder used as a percentage of the product's total milk solid content.

5.2 The “reconstituted dairy” or “reconstituted milk” labels should be positioned at main display section of the product’s packaging together with the product’s brand/name label; fonts used for the “reconstituted dairy” or “reconstituted milk” labels should be obvious/striking, i.e. font size of the labels should not be smaller than that of the product name’s and the height of the fonts used should not be less than one fifth of the height of the main display section. All labels should be in Chinese.

National Standards of People's Republic of China

GB 10765-2010

National Food Safety Standard

Infant Formula

Issued on: 2010-03-26 Implemented on: 2011-04-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard is modified in relation to CODEX STAN 72-1981 (Revision 2007) (Part A of the Standard for Infant Formula and Formulas for Special Medical Purposes Intended for Infants) formulated by Codex Alimentarius Commission and by reference to Chinese Dietary Reference Intakes compiled by Chinese Nutrition Society in 2000.

This Standard will replace GB 10765-1997, Infant Formula Ⅰ, GB 10766-1997, Infant Formula II, III, and GB10767-1997, General Technical Regulations for Infant Blended Milk Powder and Infant Completed Grain Flour and amendments thereto.

Compared with GB 10765-1997, GB 10766-1997 and GB 10767-1997, the following changes have been made to the Standard:

- Integrate the above three standards to one, titled as “Infants Formula”;
- Provisions therein are modified.

Annex A and Annex B of this present National Standard is informative.

The original editions replaced by this present National Standard include:

- GB 10765-1997;
- GB 10766-1997;
- GB 10767-1997

National Standard for Food Safety

Formula Infant

1. Scope

This Standard applies to infant formulas

2. Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this present standard. Note: As for the dated references, all the amendments or revisions after them except the corrigenda are not applicable to this present standard. As for the references that are not dated, their most recent editions are applicable to this present national standard

3. Terms and Definitions

3.1 Infants

Refer to persons of 0 - 12 month old.

3.2 Infant Formula

3.2.1 Milk-based infant formula: refers to liquid or powder products made only through physical methods, of which the main material is milk and milk protein products, supplemented with a proper amount of vitamin, minerals and other supplementary materials, which are applicable to normal infants, where the energy and nutrition can satisfy the requirements of growth and development of normal infants of 0~6 months old..

3.2.2 Soybean-based infant formula: refers to liquid or powder products made only through physical methods, of which the main material is soybean and soybean protein products, supplemented with a proper amount of vitamin, minerals and other supplementary materials, which are applicable to normal infants, where the energy and nutrition can satisfy the requirements of growth and development of normal infants of 0~6 months old.

4. Technical Requirements

4.1 Requirements for raw materials

The raw materials should comply with the related safety standard and/or related regulations, should ensure the infants' safety and meet the nutrition demands, and should not use the substances that may endanger the nutrition and health of infants.

Ingredients and food additives adopted should not contain gluten.

Hydrogenated oil and fat should NOT be used.

Raw and supplementary materials treated by irradiation should not be used.

4.2 Sensory requirements: Should comply with the requirements set out in table 1.

Table 1 Sensory Requirements

Items	Requirements
color	conform to the features of related product
flavor and smell	conform to the features of related product
structure	conform to the features of related product, no visible foreign substances should be included in the product
fast dissolvability	conform to the features of related product

4.3 Essential components

4.3.1 All essential components in the product is essential for the growth and development of infants

4.3.2 The energy in the ready-to-eat infant formulas per 100ml should be within the range of 250 kj (60 kcal)～ 295 kj (70 kcal). The calculation of energy should be the value of the product of the content of protein, fat and carbohydrate per 100 ml product multiplied by the energy coefficient of 17 kj / g, 37 kj / g, 17 kj / g (the energy coefficient of dietary fiber should be based on 50% of carbohydrate energy coefficient) respectively, and the sum (kj/100ml) is divided by 4.184 to kcal / 100 ml.

4.3.3 The protein, fat, carbohydrate content of infant formula per 100kj (100 kcal) should be consistent with the provisions set out in Table 2.

4.3.4 For milk-based infant formula, the preferred carbohydrate should be lactose, or lactose and the polymer of glucose. Only after pre-gelatinization, the starch can be added into the infant formula. Fructose can not be used.

Table 2: Indices of Protein, Fat and Carbohydrate

Nutrient	Per 100 KJ		Per 100 kcal		Test method
	Minimum	Maximum	Minimum	Maximum	
Protein[a)] Milk-based infant formula/(g)	0.45	0.70	1.88	2.93	GB 5009.5
Soybean-based infant formula/(g)	0.50	0.70	2.09	2.93	
Fat [b) / (g	1.05	1.40	4.39	5.86	GB5413.3
In which: linoleic acid(g)	0.07	0.33	0.29	1.38	GB5413.27
□-linolenic acid(mg)	12	N.S .[c]	50	N.S .[c]	
Linoleic acid/ □-linolenic acid ratio	5:1	15:1	5:1	15:1	-
Total carbohydrate [d.a] /(g)	2.2	3.3	9.2	13.8	-

a For milk based infant formulas, the content of whey protein should be over or equal to 60%; the content of protein should be calculated as nitrogen (N) × 6.25

b Among the finished products, the amount of lauric acid and myristic acid (tetradecanoic acid) should account for no more than 20% of the total fatty acid; the maximum content of trans fatty acid should not exceed 3% of the total fatty acid; the erucic acid content should not exceed 1% of the total fatty acid. The total fatty acid refers to the sum of C4～C24 fatty acid.

c. N.S.: No specification

d. The content of lactose in total carbohydrate should be over or equal to 90%. For calculation of the proportion of lactose among the total carbohydrates, the added oligosaccharides and polysaccharides should not be included; the requirement of lactose content percentage does not apply to soy-based formula.

e. Carbohydrate content A1 should be calculated according to formula(1):

$$A1 = 100 - (A2 + A3 + A4 + A5 + A6) \quad \text{……(1)}$$

Where:

A 1 ——carbohydrate content，g/100g；

A 2 ——protein content，g/100g；

A 3 ——fat content，g/100g；

A 4 ——moisture content，g/100g；

A 5 ——ash content，g/100g；

A 6 ——dietary fiber content，g/100g。

4.3.5 Vitamin: shall comply with the provisions set out in Table 3.

Table 3 Indices of Vitamin

Nutrient	Per 100 KJ		Per 100 kcal		Test method
	Minimum	Maximum	Minimum	Maximum	
Vitamin A(□g	14	43	59	180	GB5413.9
Vitamin D(□g) b	0.25	0.60	1.05	2.51	
Vitamin E /mg □-te c	0.12	1.20	0.50	5.02	
Vitamin K1/(μg)	1.0	6.5	4.2	27.2	GB 5413.10
Vitamin B 1 /(μg)	14	72	59	301	GB 5413.11
Vitamin B 2 /(μg	19	119	80	498	GB 5413.12
Vitamin B6/(μg)	8.5	45.0	35.6	188.3	GB 5413.13
Vitamin B12/(μg)	0.025	0.360	0.105	1.506	GB 5413.14
Niacin (niacinamide) /(μg) d	70	360	293	1506	GB 5413.15
Folic acid/(μg)	2.5	12.0	10.5	50.2	GB 5413.16
Pantothenic acid/(μg)	96	478	402	2000	GB 5413.17
Vitamin C） /(mg)	2.5	17.0	10.5	71.1	GB 5413.18
Biotin/(μg)	0.4	2.4	1.5	10.0	GB 5413.19

a. RE is retinol equivalent. 1 □g retinol = 1 RE. When calculating or claiming activities of Vitamin A, no carotenoids shall only include preformed retinol. ingredient shall be included.

b. Calciferol, 1□g Vitamin D = 40 IU Vitamin D

c. 1 mg □-TE (□-tocopherol equivalent) =1 mg d-□-tocopherol.

The content of Vitamin E should be at least 0.5mg of □-TE per gram of polyunsaturated fatty acid. The minimum content of Vitamin E content should be regulated according to the number of double bonds in polyunsaturated fatty acids in the formula as follows: 0.5 mg of □-TE per gram of linoleic acid (18:2 n-6); 0.75 mg of □-TE per gram of □-linolenic acid (18:3 n-3); 1.0 mg of □-TE per gram of arachidonic acid (20:4 n-6); 1.25mg of □-TE per gram of Eicosapentaenoic Acid (20:5 n-3); 1.5mg of □-TE per gram of docosahexenoic acid (22:6 n-3).

d. Niacin: excludes precursor form.

4.3.6 Minerals

The indices of minerals in infant formulas should meet the specification of Table 4.

Table 4 Indices of Minerals

Nutrient	Per 100 kJ		Per 100 kcal		Test Method
	Minimum	Maximum	Minimum	Maximum	
Sodium /(mg)	5	14	21	59	GB5413.21
Potassium/(mg)	14	43	59	180	
Copper/(ug)	8.5	29.0	35.6	121.3	
Magnesium/(mg)	1.2	3.6a	5.0	15.1 a	
Iron/(mg)	0.10	0.36	0.42	1.51	
Zinc/(mg)	0.12	0.36	0.50	1.51	
Manganese/(mg)	1.2	24.0	5.0	100.4	
Calcium/(mg)	12	35	50	146	
Phosphorus /(mg)	6	24 a	25	100 a	GB5413.22
Calcium/phosphorus ratio	1:1	2:1	1:1	2:1	-
Iodine/(ug)	2.5	14.0	10.5	58.6	GB5413.23
Chloride/(mg)	12	38	50	159	GB5413.24
Selenium/(ug)	0.48	1.90	2.01	7.95	GB5009.93

4.4 Optional components

4.4.1 In addition to the essential components in 4.3, if one or more nutrients listed in Table 5 can be selected to add or claimed on label, whereas the content of such nutrients should meet the specification of Table 5.

4.4.2 To improve the protein quality of infant formula or enhance its nutritional value, the monomer L-amino acid may be added by referring to the amino acid content recommended in Annex A. The used L-amino acid monomer sources shall comply with GB14880 or Appendix B requirements

4.4.3 If other substances are added not covered in Table 5 and Annex B, they shall comply with the relevant state regulations.

Table 5 Indices of optional components

Optional Components	Per 100 kJ		Per 100 kcal		Test method
	Minimum	Maximum	Minimum	Maximum	
Choline(mg)	1.7	12.0	7.1	50.2	GB/T5413.20
Inositol(mg)	1.0	9.5	4.2	39.7	GB/T5413.25
Taurine(mg)	N.S. a	3	N.S. a	13	GB/T5413.26
L-Carnitine(mg)	0.3	N.S. a	1.3	N.S. a	
Docosahexaenoic acid(% total fatty acid)	N.S. a	0.5	N.S. a	0.5	GB/T5413.27
Arachidonic acid(% total fatty acid)	N.S. a	1	N.S. a	1	GB/T5413.27

a. N.S.: No specification.

b. .If docosahexaenoic acid (22:6 n-3) is supplemented to the infant formula; at least the same amount of Arachidonic acid (20:4 n-6) should be supplemented. Eicosapentaenoic acid (20:5 n-3) may exist in long chain unsaturated fatty acids, of which the total content should not exceed that of docosahexaenoic acid.

c. Total fatty acid refers to the sum of C4 ~ C24 fatty acids.

4.5 Other indices

Other indices of the components in infant formulas should meet the specification of Table 6.

Table 6: Other Indices

Item		Index	
Moisture, % [a]	≤	5.0	GB5009.3
Ash			GB5009.4
Milk –based powder products, %	≤	4.0	
Milk –based liquid products (calculated by dry substance) %	≤	4.2	
Bean based powder products, %	≤	5.0	
Bean based liquid products(calculated by dry substance) %	≤	5.3	
Impurities (for milk based product ONLY)			GB5413.30
Powder product, mg/kg	≤	12	
Liquid product, mg/kg	≤	2	

[a] Only for powdered infant formula

4.6 Limits of contaminants

The limit of contaminants in infant formulas should meet the specification of Table 7.

Table 7 Indices of Contaminants (calculated based on power product)

Item		Index	Test method
Lead, mg/kg	≤	0.15	GB 5009.12
Nitrate (based on $NaNO_3$),mg/kg	≤	100	GB 5009.33
Nitrite (based on $NaNO_2$)[a], mg/kg	≤	2	
a. Only for milk-based infant formulas.			

4.7 Limit of mycotoxin: the limit of mycotoxin should meet the specification of Table 8

Table 8 limit of mycotoxin (calculated based on power product)

Item		Index	Test Method
Aflatoxin M_1 or aflatoxin B_1[a] / (μg/kg)	≤	0.5	GB 5009.24
A Limit of Aflatoxin M 1 is for the milk-based infant formulas; and a Limit of aflatoxin B 1 is for the soybean-based infant formulas			

4.8 Limit of Microorganisms: Limit of Microorganism in power infant formulas should meet the specification of Table 9; the liquid infant formulas should meet the requirement of commercial sterilization and should be tested in accordance with the methods provided in GB/T 4789.26.

Table 9 Limit croorganisms

Microorganism	Sampling plan[a] and limit (Unless specified otherwise, it should be expressed in cfu/g or cfu/ml)				Test method
	n	c	m	M	
Total plate count[b]	5	2	1000	10000	GB4789.2
Coliform bacteria	5	2	10	100	GB4789.3 plate count method
Staphylococcus aureus	5	2	10	100	GB4789.10 plate count method
Enterobacter sakazakii[c]	3	0	0/100 g	-	GB4789.40 plate count method
Salmonella	5	0	0/25 g	-	GB 4789.4

a. Sample analysis and handling should comply with GB/T 4789.1 and GB4789.18.

b. Not applicable to products supplemented with active bacteria(aerobic and anaerobic probiotics)[the number of active bacteria of active probiotics in products should be ≥ 10 6 CFU/ g(ml)].

c. Only applicable to formulas for infants of 0-6 months old.

4.9 Food additives and nutrition fortifiers

4.9.1 Quality of food additives and nutrition fortifier should be consistent with relevant safety standards and requirements

4.9.2 The use of food additives and nutrient fortifiers should conform to GB 2760 and GB 14880 requirements

4.10 Urease activity: the urease activity of products containing soy component should be consistent with the provisions of Table 10

Table 10 Indices of Urease Activity

Item	Index	Test method
Qualitative determination of urease activity	Negative	GB/T 5413.31 a
a. The sampling quantity of liquid infant formulas should be converted according to the content of dry substances.		

5. Others

5.1 Labels

5.1.1 Contents indicated on the label should be subject to specifications of GB 13432. In addition, nutrient or nutritional component content as per 100kJ should be claimed.

5.1.2 On the label, product category and type (such as milk-based or soybean-based product and product form) and applicable infant age should be indicated. Label of the formula applicable to infants over 6 months old should be indicated with “If this product serves infants elder than 6 month, supplementary foods should also be used”.

5.1.3 Label of the infant formula should be indicated with “the most ideal food for infants is breast milk for infants of 0-6 months; when breast milk is absent or not enough, this product can be used.”

5.1.4 Images of infants or women cannot appear on the labels. It is not allowed to use the expressions such as “like human milk”, “like breast milk” or similar terms.

5.2 Directions for use

5.2.1 The directions for use, proper preparation and illustration as well as storage condition of the product should be clearly indicated on the label. If maximum surface area of the package is less than 100 cm 2 or if the quality of product is less than 100 g, illustration is not necessary.

5.2.2 The directions indicated should cover warning on the hazard to health resulting from incorrect preparation or application.

5.3 Packaging

Food-level or carbon dioxide and/or nitrogen with purity ≥99.9% may serve as packaging medium.

Appendix A

(Informative index)

Recommendation on essential and semi-essential Amino Acids Used in Infant Formula

A1 By reference to the representative data that have been published related to essential and semi-essential amino acids and nitrogen content and/or protein content in human milk in China and considering a certain range of variation, the lower limit of essential and semi-essential amino acids in infant formula can be calculated （mg/g N).

A2 According to the lower limit level of each kind of amino acid （mg/g N）in breast milk in China, to calculate the amino acid content per 100kcal infant formula when the protein content is lowest (1.88g/100 kcal）, the method is the amino acid level (in milligram) per gram of nitrogen in breast milk is divided by the nitrogen conversion factor, 6.25, and then multiplied by 1.88, the results see Table A1. The essential and semi-essential amino acids in infant formula are recommended not less than the recommended level in Table A1.

A3 In the calculations, the concentration of tyrosine and phenylalanine can be added; if the proportion of methionine to cysteine is less than 2:1, the content can be added also.

Table A.1.: Content of essential and semi-essential amino acids in recommended infant formula

Amino acid	mg/g N	Mg/100kcal
Cystine	80	24.1
Histidine	120	36.1
Isoleucine	300	90.2
Leucine	540	162.4
Lysine	350	105.3
Methionine	65	19.6
Phenylalanine	180	54.1
Threonine	250	75.2
Tryptophan	110	33.1
Tyrosine	200	60.2
Valine	310	93.2

Appendix B

(Informative Annex)

Monomer Amino Acid could be used in Infant Formula

B1 L-phenylalanine

B.1.1. Name and Origin

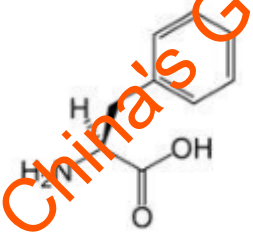
Name: L-phenylalanine L-2-amino -3 - phenyl propionate

Source: non-animal derived materials

Food Grade

B.1.2. Chemical structure, molecular formula and molecular weight

Chemical structure:



Molecular Formula: $C_9H_{11}NO_2$

Molecular Weight: 165.19

B.1.3. Physical and chemical properties: free flow of white crystal or crystalline powder.

B.1.4. Physical and chemical indicators: should be consistent with the provisions of Table B.1.

Table B.1 L-phenylalanine physical and chemical indices

Item	Value
Specific rotation [α]/（$_D^{20}$）	-33.2～-35.2
Content(calculated by dry substance)（%）≥	98.5
Moisture /（%） ≤	0.2
pH value	5.4～6.0
Ash /（%） ≤	0.1
Lead (calculated as Pb) （mg/kg） ≤	0.3
Arsenic (calculated as As)（mg/kg） ≤	0.2

B2 L-cystine

B.2.1. Name and source

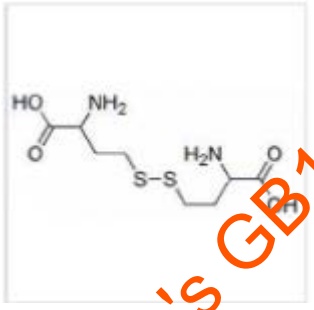
Name: L- cystine L-3, 3'-dithio-bis (2 - alanine)

Source: non-animal derived materials

Food Grade

B.2.2. Chemical structure, molecular formula and molecular weight

Chemical structure:



Molecular Formula: $C_6H_{12}N_2O_4S_2$

Molecular Weight: 240.3

B.2.3. Physical and chemical properties: Colorless to white crystal or crystalline powder, odorless.

B.2.4. Physical and chemical indicators: should be consistent with the provisions of Table B.2.

Table B.2 Physical and chemical indices of L-cystine

Item		Value
Specific rotation [α]/（$_D^{20}$）		-215～-225
Content(calculated by dry substance)（%）	≥	98.5
Moisture /（%）	≤	0.2
pH value		5.0～6.5
Ash /（%）	≤	0.1
Pb （mg/kg）	≤	0.3
As（mg/kg）	≤	0.2

B3 L-leucine

B.3.1. Name and source

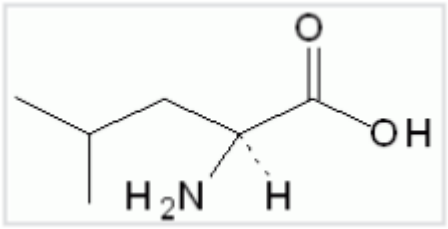
Name: L-Leucine L-2-amino -4 - methyl pentanoic acid

Source: non-animal derived materials

Food Grade

B.3.2. Chemical structure, molecular formula and molecular weight

Chemical structure:



Molecular Formula: $C_6H_{13}NO_2$

Molecular Weight: 131.17

B.3.3. Physical and Chemical Properties: White crystal or crystalline powder; no smell, taste slightly bitter.

B.3.4. Physical and chemical indicators: should be consistent with the provisions of B.3.

Table B.3: Physical and chemical indices of L- leucine

Item		Value
Specific rotation [α]/ ($^{20}_{D}$)		14.5～16.5
Content(calculated by dry substance)（%）	≥	98.5
Moisture /（%）	≤	0.2
pH value		5.5～6.5
Ash /（%）	≤	0.1
Pb（mg/kg）	≤	0.3
As（mg/kg）	≤	0.2

B4 L- tyrosine

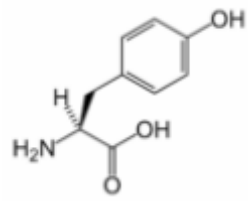
B.4.1. Name and source

Name: L-tyrosine S-amino -3 (4 - hydroxyphenyl) - propionic acid

Source: Separation from the beet wine

B.4.2. Chemical structure, molecular formula and molecular weight

Chemical structure:



Molecular Formula: $C_9H_{11}NO_3$

Molecular Weight: 181.19

B.4.3. Physical and Chemical Properties: This product is a white silk-like crystal or crystalline powder.

B.4.4. Physical and chemical indicators: should be consistent with the provisions of Table B.4.

Table B.4. Physical and chemical indices of L-tyrosine

Item		Value
Specific rotation [α]/（$_D^{20}$）		-11.0～-12.3
Content(calculated by dry substance)（%）	≥	99.0
Moisture /（%）	≤	0.3
pH value [a]		-
Ash /（%）	≤	0.1
Pb （mg/kg）	≤	0.3
As（mg/kg）	≤	0.2
[a] pH value is not required for tyrosine.		

B5 L- Tryptophan

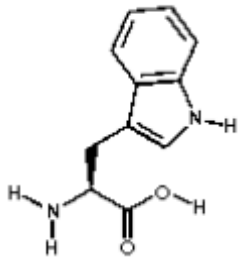
B.5.1. Name and source

Name: L-Tryptophan L-2-amino--3 - indolyl -1 - propionic acid

Source: derived from decomposition of serine and indole through E.coli fermentation

B.5.2. Chemical structure, molecular formula and molecular weight

Chemical structure:



Molecular Formula: $C_9H_{11}NO_3$

Molecular Weight: 181.19

B.5.3. Physical and Chemical Properties: white to yellow white crystal or crystalline powder.

B.5.4. Physical and chemical indicators: should be consistent with the provisions of Table B.5.

Table B.5 Physical and chemical indices of L-tryptophan

Item	Value
Specific rotation [α]/（$_D^{20}$）	-30.0～-33.0
Content(calculated by dry substance)（%）≥	98.5
Moisture /（%） ≤	0.3
pH value	5.5～7.0
Ash /（%） ≤	0.1
Pb （mg/kg） ≤	0.3
As（mg/kg） ≤	0.2

B6 L- histidine

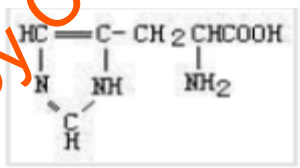
B.6.1. Name and source

Name: L-histidine α-amino-β-imidazole propionic acid

Source: non-animal derived materials

B.6.2. Chemical structure, molecular formula and molecular weight

Chemical structure:



Molecular Formula: $C_6H_9N_3O_2$

Molecular Weight: 155.15

B.6.3. Physical and chemical properties: free flow of white crystal or crystalline powder.

B.6.4. Physical and chemical indicators: should be consistent with the provisions of Table B.6.

Table B.6: Physical and chemical indices of L-histidine

Item	Value
Specific rotation [α]/（$_D^{20}$）	11.5～13.5
Content(calculated by dry substance)（%） ≥	98.5
Moisture /（%） ≤	0.2
Ph value	7.0～8.5
Ash /（%） ≤	0.2
Pb （mg/kg） ≤	0.3
As（mg/kg） ≤	0.2

National Standards of People's Republic of China

GB 10767-2010

National Food Safety Standard

Older Infants and Young Children Formula

Issued on: 2010-03-26 Implemented on: 2011-04-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard corresponds to the Codex Stan 156-1987 (Amendment 1989) (Codex Standard for Follow-up Infant Formulas) issued by Codex Alimentarius Commission (CAC). The consistency level between this standard and Codex Stan 156-1987 is non-equivalent. This standard is in reference to Chinese Dietary Reference Intakes compiled by Chinese Nutrition Society in 2000.

This Standard replaces GB10767-1997 *General Technical Regulations for Infant Blended Milk Powder and Infant Completed Grain Flour*, GB 10769-1997 *Formulated Weaning Foods for Infants and Young Children* and GB 10770-1997 *Supplementary Weaning Foods for Infants and Young Children*, as well as their amendments.

Comparing with GB10767-1997, GB 10769-1997 and GB 10770-1997, the following main changes have been made to the Standard:

- Integrate the above three standards to one, titled as “Older infants and young children formula”
- Provisions therein are modified.

The original editions replaced by this present National Standard include:

- GB 10767-1997;
- GB 10769-1989, GB 10769-1997;
- GB 10770-1989, GB 10770-1997.

National Standard for Food Safety

Older Infants and Young Children Formula

1. Scope

This Standard applies to older infants and young children formula.

2. Normative References

The normative documents referenced in the text are indispensable to the application of this standard. For dated references, only the edition bearing such date applies to this standard. For undated references, the latest edition of the normative document referred to (including all the amendments) applies.

3. Terms and Definitions

3.1 Older infants

Older infants refer to persons of 6 ~ 12 months old.

3.2 Young children

Young children refer to young children of 12 -36 months old.

3.3 Older infants and young children formula

Refer to liquid or powder products made only through physical methods, of which the main material is milk and its product, and/ or beans and their products, supplemented with a proper amount of vitamins, minerals and other supplementary materials, which are applicable to older infants and young children, where the nutrition can satisfy partial requirements normal older infants and young children.

4. Requirements

4.1 Requirements for Raw Materials

The raw materials used in products should comply with appropriate safety standards and/or relevant regulations, ensure the safety of older infants and young children, and meet the nutrition requirement. The substance that detrimental to the health and nutrition of older infants and young children should not be used.

Hydrogenated oil and fat should NOT be used in older infants and young children formula.

Raw and supplementary materials treated by irradiation should NOT be used in older infants and young children formula.

4.2 Sensory requirement

Table 1: Sensory requirement 4.3 Essential components

Items	Requirements
color	conform to the identity of related product
taste and flavor	conform to the identity of related product
structural	conform to the identity of related product, no visible foreign matter
dissolvability	conform to the identity of related product

4.3.1 All essential components used in products should be necessary for growth and development of older infants and young children.

4.3.2 The energy in the ready-to-eat older infants and young children formula per 100ml should be within the range of 250 kJ (60 kcal) 355 kJ (85 kcal). For calculation of energy, the content of protein, fat, carbohydrate per 100mL of product multiplied by the energy coefficient of 17 kJ / g, 37 kJ / g, 17 kJ / g (the energy coefficient of dietary fiber is calculated as 50% of carbohydrate energy coefficient) respectively, the obtained sum (kJ/100mL) divided by 4.184 to obtain the kcal / 100 ml value.

4.3.3 Protein, fat contained per 100kJ (100kcal) ready-to-eat older infants and young children formula should meet the specification in Table 2. The content of Trans fatty acid should not be more than 3% total fatty acid.

Table 2: Indices of Protein and Fat

Nutrient	Per 100 kJ		Per 100 kcal		Test method
	Minimum	Maximum	Minimum	Maximum	
Proteina/(g)	0.7	1.2	2.9	5.0	GB 5009.5
Fat/(g)	0.7	1.4	2.9	5.9	GB 5413.3
in which: linoleic acid/(g)	0.07	N.S.b	0.29	N.S.b	GB 5413.27
a the content of protein should be calculated as nitrogen (N) × 6.25; b N.S.: No specification					

4.3.4 Vitamins: should meet the specification in Table 3.

Table 3 Indices of Vitamins

Nutrient	Per 100 kJ		Per 100 kcal		Test method
	Minimum	Maximum	Minimum	Maximum	
Vitamin A/([a]	18	54	75	225	GB 5413.9
Vitamin D[b]/(g	0.25	0.75	1.05	3.14	
Vitamin E/ (mg -TE[c])	0.15	N.S.[e]	0.63	N.S.	
Vitamin K1/(μg)	1	N.S.	4	N.S.	GB 5413.10
Vitamin B1/(μg)	11	N.S.	46	N.S.	GB 5413.11
Vitamin B6/(μg)	11	N.S.	46	N.S.	GB 5413.13
Vitamin B12/(μg)	0.04	N.S.	0.17	N.S.	GB 5413.14
Niacin (Niacinamide)[d]/(μg)	110	N.S.	460	N.S.	GB 5413.15
Folic acid/(μg)	1	N.S.	4	N.S.	GB 5413.16
Pantothenic acid/(μg)	70	N.S.	293	N.S.	GB 5413.17
Vitamin C/(mg)	1.8	N.S.	7.5	N.S.	GB 5413.18
Biotin/(μg)	0.4	N.S.	1.7	N.S.	GB 5413.19

[a] RE is retinol equivalent. 1 g RE=1 trans retinol (Vitamin A)= 3.33 IU Vitamin A. Ingredients of Vitamin A shall only include preformed retinol. When calculating or claiming activities of Vitamin A, no carotenoids ingredient shall be included.

[b] Calciferol, 1 mg Vitamin D = 40 IU Vita

[c] 1 mg -TE (-tocopherol equivalent)=1 mg d- -tocopherol. There should be at least 0.5 mg of -TE per gram of polyunsaturated fatty acid. The minimum of Vitamin E content should be regulated according to the number of double bonds in polyunsaturated fatty acids in the formula as follows: 0.5 mg of -TE per gram of linoleic acid (18:2 n-6); 0.75 mg of -TE per gram of -linolenic acid (18:3 n-3); 1.0 mg of -TE per gram of arachidonic acid (20:4 n-6); 1.25mg of -TE per gram of Eicosapentaenoic Acid (20:5 n-3); 1.5mg of -TE per gram of docosahexenoic acid (22:6 n-3).

[d] Niacin: excludes precursor form.

[e] NS: No specification

4.3.5 Minerals: should meet the specification of Table 4.

Table 4 Indices of Minerals

Nutrient	Per 100 kJ		Per 100 kcal		Test method
	Minimum	Maximum	Minimum	Maximum	
Sodium/(mg)	N.S.[a]	20	N.S.	84	GB 5413.21
Potassium/(mg)	18	69	75	289	
Copper/(μg)	7	35	29	146	
Magnesium/(mg)	1.4	N.S.	5.9	N.S.	
Iron/(mg)	0.25	0.50	1.05	2.09	
Zinc/(mg)	0.1	0.3	0.4	1.3	
Calcium/(mg)	17	N.S.	71	N.S.	
Phosphorus/(mg)	8.3	N.S.	34.7	N.S.	GB 5413.22
Calcium / phosphorus	1.2:1	2:1	1.2:1	2:1	—
Iodine/(μg)	1.4	N.S.	5.9	N.S.	GB 5413.23
Chloride/(mg)	N.S.	52	N.S.	218	GB 5413.24

[a] NS: No specification

4.4 Optional components

4.4.1 Besides the essential components specified in 4.3, one or more optional components as shown in Table 5 can be added to or claimed in the label of older infants and young children formula, whereas the content should meet the specification of Table 5.

4.4.2 If the added components don't include in 4.3 and 4.4.1, it should follow national related regulations.

Table 5 Indices of Optional Components

Optional Components	Per 100 kJ		Per 100 kcal		Test method
	Minimum	Maximum	Minimum	Maximum	
Selenium/(μg)	0.48	1.90	2.01	7.95	GB 5009.93
Choline/(mg)	1.7	12.0	7.1	50.2	GB/T 5413.20
Manganese/(μg)	0.25	24.0	1.05	100.4	GB 5413.21
Inositol/(mg)	1.0	9.5	4.2	39.7	GB 5413.25
Taurine/(mg)	N.S. [a]	3	N.S.	13	GB 5413.26
L-Carnitine/(mg)	0.3	N.S.	1.3	N.S.	—
Docosahexaenoic acid/ (% total fatty acid b)	N.S.	0.5	N.S.	0.5	GB 5413.27
Arachidonic acid/ (% total fatty acid [b])	N.S.	1	N.S.	1	
[a] NS: No specification [b] total fatty acid is the sum of C4 ~ C24 fatty acid.					

4.5 Other indices: should meet the specification of Table 6.

Table 6 Other Indices

Item	Index	Test method
Water content/(%)[a] ≤	5.0	GB 5009.3
Ash Powder product/ (%) ≤ Liquid product (calculated based on dry matter) / (%) ≤	5.0 5.3	GB 5009.4
Impurities [b] Powder product/ (mg/kg) ≤ Liquid product / (mg/kg) ≤	12 2	GB 5413.30
[a] Only for powder products. [b] Not applicable to products supplemented with fruits and vegetables.		

4.6 Limits of Contaminants: should meet the specification of Table 7.

Table 7 Limits of Contaminants (calculated based on Powder product)

Item	Index	Test method
Lead/(mg/kg) ≤	0.15	GB 5009.12
Nitrate (based on $NaNO_3$)[a]/(mg/kg) ≤	100	GB 5009.23
Nitrite (based on $NaNO_2$)[b]/(mg/kg) ≤	2	
[a] Not applicable to products supplemented with fruits and vegetables. [b] Only applicable to milk-based product.		

4.7 Limits of Mycotoxins: should meet the specification of Table 8.

Table 8 Limits of Mycotoxins (calculated based on powder product)

Item	Index	Test method
Aflatoxin M1 or Aflatoxin B1 [a]/ (μg/kg) ≤	0.5	GB 5009.24
[a] The limit of Aflatoxin M1 is applicalbe to products of which the main materials are milk and its products; the limit of Aflatoxin B1 is applicalbe to products of which the main materials are beans and their products.		

4.8 Limits of Microorganisms: Indices of Microorganism in powder product should meet the specification of Table 9; Indices of Microorganism in liquid product should meet the requirement of commercial sterilization, and should be tested according to the method specified in GB/T 4789.26.

Table 9 Limits of Microorganisms

Items	Sampling plan [a] and limit (if not specified, it should be expressed in cfu/g or cfu/mL)				Test method
	n	c	m	M	
Total plate count [b]	5	2	1000	10000	GB 4789.2
Coliform bacteria	5	2	10	100	GB 4789.3 plate count
Salmonella	5	0	0/25g	—	GB 4789.4
[a]. the sample is analysed and processed according to GB 4789.1 and GB 4789.18. [b]. Not applicable to products supplemented with active bacteria (aerobic and combined-anaerobic probiotics) [viable count of active probiotic bacteria ≥106 CFU/g (mL)].					

4.9 Food additives and Nutrition enhancers

4.9.1 The quality of food additives and nutrition enhancers should comply with appropriate safety standards and/or relevant regulations.

4.9.2 The use of food additives and nutrition enhancers should comply with the requirements of GB 2760 and GB 14880.

4.10 Activity of Urease: The activity of urease in the products containing soybean component should meet the specification of Table 10.

Table 10 Indices of Urease Activity

Item	Index	Test method
Urease Activity Qualitative detection ≤	Negative	GB/T 5413.31 [a]

[a] The sample volume of liquid products should be calculated based on the content of dry matter.

5. Others

5.1 Labels

5.1.1 The label of older infants and young children formula should be subject to specifications of GB 13432. In addition, nutrients and optional components content per 100kJ should be also claimed.

5.1.2 On the label, product category and type of the older infants formula and older infants and young children formula (eg. Milk-based and/or Soy-based product and its state), as well as applicable infant age, should be indicated. Label of the older infants formula should be indicated with “supplementary foods should also be used”.

5.2 Direction for use

5.2.1 The directions for use, proper preparation and illustration as well as storage condition of the product should be clearly indicated on the label. If maximum surface area of the package is less than 100 cm^2 or if the quality of product is less than 100 g, illustration is not necessary.

5.2.2 The directions indicated should cover warning on the hazard to health resulting from incorrect preparation or application.

5.3 Packaging

Food grade or ≥99.9% carbon dioxide and/or nitrogen may be used as packaging medium.

National Standards of People's Republic of China

GB 10769-2010

National Food Safety Standard

Cereal-based Complementary Foods for Infants and Young Children

Issued on: 2010-03-26 Implemented on: 2011-04-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard corresponds to the Codex Stan 074 – 1981(Revision 2006) ,Codex Standard for Processed Cereal-based Foods for Infants and Young Children issued by Codex Alimentarius Commission (CAC). The consistency level between this standard and Codex Stan 074 - 1981 is non-equivalent. Thisstandard is also in reference to Chinese Dietary Reference Intakes compiled by Chinese Nutrition Society in 2000. This standard replaces GB10767 -1997 General Technical Regulations for Infant Blended Milk Powder and Infant Completed Grain Flour, GB 10769 -1997 Formulated Weaning Foods for Infants and Young Children and GB 10770 -1997 Supplementary Weaning Foods for Infants and Young Children and their amendments.

Compared with GB10767 -1997, GB 10769 -1997 and GB 10770 -1997, the following main changes have been made to the Standard:

- Integrate the above three standards to one, titled as Cereal-based Complementary Foods for Infants and
- Young Children
- Provisions therein are modified.

The versions replaced by this standard are:

- GB 10767 - 1997;
- GB 10769 - 1989, GB 10769 - 1997;
- GB 10770 - 1989, GB 10770 -1997.

National Standard for Food Safety

Cereal-based complementary foods for infants and young children

1. Scope

This Standard applies to cereal -based foods for infants and young children who are over 6 months old.

2. Normative References

The normative documents referenced in the text are indispensable to the application of this standard. For dated references, only the edition bearing such date applies to this standard. For undated references, the latest edition of the normative document referred to (including all the amendments) applies.

3. Terms and Definitions

3.1 Infants

Refer to persons of 0 - 12 month old.

3.2 Young children

Refer to persons of 12 - 36 month old.

3.3 Cereal-based complementary foods for infants and young children

Cereal-based complementary foods are prepared primarily from one or more milled cereals (for instance: wheat, rice, barley, oats, rye, corn, etc.), which should constitute at least 25% of the final mixture on a dry weight basis; they are with addition of sufficient amount of nutrient supplements or other adjuvant and suitable to be consumed by infants and young children who are over 6 month old.

4. Product categories

4.1 Cereal-based complementary foods for infants and young children

Cereal-based complementary foods for infants and young children are or have to be prepared for consumption with milk or other appropriate nutritious liquids.

4.2 High -protein Cereal-based complementary foods for infants and young children

Cereal-based complementary foods for infants and young children with addition of high protein food which are or have to be prepared for consumption with water or other appropriate protein -free liquid.

4.3 Raw Cereal-based complementary foods for infants and young children

Cereal-based complementary foods for infants and young children should be cooked until done.

4.4 Biscuits or other Cereal-based complementary foods for infants and young children

Cereal-based complementary foods for infants and young children which are to be used either directly or, after pulverization, with the addition of water, milk or other suitable liquids.

5. Technical Requirements

5.1 Requirements for raw materials

5.1.1 The raw materials should comply with related safety standards and or related regulations, ensure safety of infants and young children, satisfy nutrition needs and contain no materials which will jeopardize nutrition and health of infants and young children.

5.1.2 Hydrogenated oil and fat should not be used.

5.1.3 Raw materials treated by irradiation should not be used.

5.2 Sensory requirements: they should meet the specification in table 2.

Table 1 sensory requirements

Items	Requirements
color	conform to the identity of related product
flavor and smell	conform to the identity of related product
structure	conform to the identity of related product, no visible foreign matter
fast dissolvability	conform to the identity of related product

5.3 Essential components: Indices of essential components in the product should meet the specification in table 2.

Table 2 Essential components

Items	Cereal-based complementary foods for infants and young children	High –protein Cereal-based complementary foods for infants and young children	Raw Cereal-based complementary foods for infants and young children	Biscuits or other Cereal-based complementary foods for infants and young children [a]	Test method
Energy [b], kJ (kcal)/100g ≥	1250 (299)	1506 (360)	1250 (299)	1250 (299)	-
Proteins, g/100 kJ (kcal)	≥0.33 (1.4)	0.66 - 1.30 (2.8 - 5.4	≥0.33 (1.4)	0.33 - 1.30 (1.4 - 5.4)	GB 5009.5
Fat, g/100 kJ (kcal) ≤ Of which [c] : linoleic acid, g/100 kJ Lauric acid, % total fat ≤ Tetradecanoic acid, % total fat ≤	-	0.07 - 0.29 15.0 15.0	-	-	GB 5413.27

Table to be continued…

Table to be continued…

Items	Cereal-based complementary foods for infants and young children	High –protein Cereal-based complementary foods for infants and young children	Raw Cereal-based complementary foods for infants and young children	Biscuits or other Cereal-based complementary foods for infants and young children [a]	Test method
Vitamin A, μgRE/100 kJ (kcal)	14 - 43 (59 - 180)				GB 5413.9
Vitamin D, μg/100 kJ (kcal)	0.25 - 0.75 (1.05 – 3.14)				GB 5413.11
Vitamin B 1 , μg/100 kJ (kcal) ≥	12.5 (52.3)				GB 5413.11
Calcium, mg/100 kJ (kcal) ≥	12.0 (50.2)	20.0 (83.7)	12.0 (50.2)	12.0 (50.2)	GB 5413.21
Iron, mg/100 kJ (kcal) ≥	0.25 – 0.50 (1.05 – 2.09)				GB 5413.21
Zinc, mg/100 kJ (kcal)	0.17 - 0.46 (0.71 - 1.92)				
Sodium, mg/100 kJ (kcal) ≤	24.0 (100.4)				

a If vitamin A, vitamin D, iron and zinc are added into the biscuits or other Cereal-based complementary foods for infants and young children, the contents should meet the specifications for other components in table 2.
b The energy is calculated through multiplying the contents of protein, fat and carbohydrate contained in 100mg product by 17kJ/kg, 37J/kg and 17J/kg (the energy quotient of dietary fibers be calculated as 50% of the quotient of carbohydrates) respectively and then dividing the resulting sum (kJ/100ML) by 4.184; the resulting content is kcal/100mL.
The content of carbohydrates A 1 is calculated according to formula (1):
A 1 =100－(A 2 + A 3 +A 4 +A 5 +A 6) (1)
Of which:
A 1 – content of carbohydrates, g/100g;
A 2 - content of proteins, g/100g;
A 3 – content of fats, g/100g;
A 4 - content of water content, g/100g;
A 5 - content of ash, g/100g;
A 6 - content of dietary fibers, g/100g;
C only applicable for products with fats≥0.8 g/100 kJ

5.4 Optional components

Besides the essential components specified in 5.3, if one or more optional components as shown in table 3 are added into the product or in the label, their content should meet the specification of table 3. If other components not shown in 5.3 or table 3 are added, their contents should meet relevant regulations of the state.

Table 3 Indices of optional components

Items		Indices	Test method
Vitamin E, mg/100 kJ (kcal)		0.08 - 1.20 (0.33 - 5.02)	GB 5413.9
Vitamin B2, μg/100 kJ (kcal)	≥	13.0 (54.4)	GB 5413.12
Vitamin B6, μg/100 kJ (kcal)	≥	8.4 (35.1)	GB 5413.13
Vitamin B12, μg/100 kJ (kcal)	≥	0.02 (0.08)	GB 5413.14
Nicotinic acid, μg/100 kJ (kcal)	≥	83.7 (350.2)	GB 5413.15
Folic acid, μg/100 kJ (kcal)	≥	1.2 (5.0)	GB 5413.16
Pantothenic acid, μg/100 kJ (kcal)	≥	50.4 (210.9)	GB 5413.17
Vitamin C, mg/100 kJ (kcal)	≥	1.4 (5.9)	GB 5413.18
Biotin, μg/100 kJ (kcal)	≥	0.17 (0.71)	GB 5413.19
Phosphorus, mg/100 kJ (kcal)		8.4 -30.0 (35.1 -125.5)	GB 5413.22
Iodine, μg/100 kJ (kcal)		1.4 - 8.8 (5.9 - 36.8)	GB 5413.23
Potassium, mg/100kJ (kcal)		13 -66 (56 -278)	GB 5413.21

5.5 If carbohydrates (including sucrose, fructose, glucose, glucose syrup or honey) are added into the product, the contents should meet the specification in table 4.

Table 4: Limits of carbohydrates added

Items		Cereal-based complementary foods for infants and young children	High -protein Cereal-based complementary foods for infants and young children	Biscuits or other Cereal-based complementary foods for infants and young children	Test method
total amount of carbohydrates/(g/100kJ(kcal))	≤	1.8 (7.5)	1.2 (5.0)	1.8 (7.5)	Calculated as components
amount of fructose /(g/100kJ(kcal))	≤	0.9 (3.8)	0.6 (2.5)	0.9 (3.8)	

5.6 Other indices: Other indices should meet the specification of table 5.

Table 5 Other indices

Items	Cereal-based complementary foods for infants and young children	High -protein cereal-based complementary foods for infants and young children	Raw cereal-based complementary foods for infants and young children	Biscuits or other Cereal-based complementary foods for infants and young children[a]	Test method
Water content, % ≤	6.0		13.5	6.0	GB 5009.3
Insoluble dietary fiber, % ≤	5.0				GB 5413.6
a The index of water content is not applicable to other Cereal-based complementary foods for infants and young children.					

5.7 Limits of contaminants: they should meet the specification in table 6.

Table 6 Limits of contaminants

Items			Indices	Test method
Lead (mg/kg)	products added with fish, liver and vegetables	≤	0.30	GB 5009.12
	Other products	≤	0.20	
Inorganic arseni (mg/kg)	products added with algae	≤	0.30	GB/T 5009.11
	other the product	≤	0.20	
Nitrate[a] (based on $NaNO_3$), mg/kg		≤	100	GB 5009.33
Nitrite[b] (based on $NaNO_2$), mg/kg		≤	2	
a Nitrate index is not applicable to products added with vegetables and fruits. b Nitrite index is not applicable to products added with beans				

5.8 Limits of mycotoxins: they should meet the specification of Table 7.

Table 7 Limits of mycotoxins

Item		Index	Test method
Aflatoxin B 1 / (μg/kg)	≤	0.5	GB 5009.24

5.9 Limits of microorganisms: they should meet the specification of Table 8.

Table 8 Limits of Microorganisms

Microorganisms	Sampling plan[a] and limit (If not specified, it should be expressed in cfu/g or cfu/mL)				Test method
	n	c	m	M	
Total colony count[b]	5	2	1000	1000	GB 4789.2
Coliform bacteria	5	2	10	10	GB 4789.3 plate counting method
Saimonella	5	0	0/25g	-	GB 4789.4

[a] Subject to GB/T 4789.1.

[b] Not applicable to raw cereal-based complementary foods for infants and young children or products supplemented with probiotics (aerobic and facultative anaerobes) [the total number of viable probiotics should be no less than ≥106CFU/g (mL)].

5.10 Food Additives and nutrient supplements

5.10.1 The quality of food additives and nutrition enhancers should comply with appropriate safety standards and/or relevant regulations

5.10.2 The use of food additives and nutrition enhancers should comply with the requirements of GB 2760 and GB 14880

5.10.3 Urease activity: the urease activity in products containing components of soybean should meet the specification of Table 9

Table 9 Index of urease activity

Items	Index	Test method
Qualitative determination of urease activity	Negative	GB/T 5413.31

6. Others

6.1 Contents indicated on the label should be subject to specifications of GB 13432. In addition, nutrient ingredients and optional ingredients should be indicated as “content per 100 kJ or 100 kcal”.

6.2 The category name of the product should be on the label according to the specification in 4.1-4.4, for instance, “High -protein cereal-based complementary foods for infants and young children”.

For cereal-based complementary foods for infants and young children in 4.1, text “Be prepared for consumption with milk or other appropriate nutritious liquids” or similar text should be on the label.

National Standards of People's Republic of China

GB 10770-2010

National Food Safety Standard

Canned Complementary Foods for Infants and Young Children

Issued on: 2010-03-26 Implemented on: 2011-04-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard is adopted according to the part of Codex Stan 73-1981 (Modified in 1985，1987，1989) Codex Standard for Canned Baby Food; This standard is non-equivalent with CODEX Stan 73-1981. This Standard replaced GB10775-1989, “Supplementary foods for infants and young children-Apple paste”, GB 10776-1989 “Supplementary foods for infants and young children-Carrot paste”, GB10777-1989 “Supplementary foods for infants and young children-Meat paste”, GB10778-1989 “Supplementary foods for infants and young children-Bone Paste”, GB10779-1989 “Supplementary foods for infants and young children-Chicken Vegetable Paste”, GB10780-1989 “Supplementary foods for infants and young children -Tomato Juice”.

Comparing with previous six National Standards, major changes are as follows:

- Integrate the above six standards to one, titled as “Canned complementary foods for infant and young children”;
- Revise the clauses in this standard.

The edition status of standards replaced by this standard is as follows:

- GB 10775-1989;
- GB 10776-1989;
- GB 10777-1989;
- GB 10778-1989;
- GB 10779-1989;
- GB 10780-1989.

National Standard for Food Safety

Canned complementary foods for infants and young children

1. Scope

This Standard applies to canned complementary foods for child above 6 months

2. Normative reference

All references quoted into this standard are necessary. As for the dated references, all the amendments or revisions after them are not applicable to this standard. As for the references that are not dated, their most recent editions are applicable to this present national standard.

3. Terms and difination

3.1 Infants

Persons of 0 ~ 12 months of age

3.2 Young Children

Persons of 12 ~ 36 months of age

3.3 Canned Complementary Foods for Infant and Young Children

Foods made through raw materials pretreatment, filling, sealing, sterilization or aseptic filling to achieve commercial sterilization and can be storage in a normal temperature, which are applicable to normal infants of 6 months old and onward.

4. Products classification

4.1 Mash (Paste) Canned Foods

Means slurry (paste) canned food for infant and young children which does not need chewing before swallow

4.2 Grain Canned Foods

Refer to canned food for infant and young children which contains particles below 5mm.

It should ensure that the particle size will not cause baby's swallow trouble.

4.3 Juice Canned Foods

Refer to canned foods for infant and young children in liquid form.

5. Technical Requirements

5.1 Requirements for Raw Materials

The raw materials should comply with the relevant safety standard or other related standards; should ensure

infant and young children's safety and meet its nutrition needs.

Those materials used should not harm to infant and young children's nutrition and health.

The processing water which directly contacts with products should be compliance with the requirements of GB 5479.

Raw materials of carcass, poultry and fish should remove bone, squama and thorn which are not suitable for infant and young children; raw materials from plant should remove crude fiber when necessary.

Raw materials of fruits and vegetables or processed products thereof should not be spoiled and be with high quality; raw materials of carcass, poultry and fish and processed products thereof should be used in high quality of fresh or frozen ones.

Raw materials treated by irradiation should not be used.

No hydrogenated vegetable oil is allowed

No spices is allowed

5.2 Sensory requirement: should meet the requirements listed in table 1

Table 1: Sensory Evaluation Requirements

Items	Requirements	Testing method
Color	Should compliance with products own characteristics	GB/T10786
Taste and flavor	Should compliance with products own characteristics	
Texture	Should compliance with products own characteristics, no visible foreign body, no bone, squama and thorn which are not suitable for infant and young children	

5.3 Physical & chemical requirements: should meet requirements in table 2

Table 2: Physical requirements

Items		Requirements			Testing Method
		Product[a]	Product[b]	Product[c]	
Ingredients %	≥	40d	8e		Calculated on recipe
Protein/(g/100kJ(kcal)[f]	≥	1.7(7)	0.7(3)		GB5009.5
Fat[g](g/100kJ(kcal) [f]	≤	1.4(6)	1.4(6)		GB/T5009.6
Chloride Sodium				no extra addition	
Total Sodium [i](mg/100g)		200			

[a] carcass, poultry, fish or pluck is the only ingredient except water in the product or is the only resource of protein, exclude juice products
[b] products are produced by carcass, poultry, fish or pluck (or in combination) mixed with fruit or vegetable, exclude juice products
[c] the products excluded from a and b
[d] the percentage m/m of the ingredients like carcass, poultry, fish or pluck ect
[e] the percentage of most abundant ingredient accounted for a of the total mass
[f] energy calculation refers to GB10769
[g] only applicable for products which contain carcass, poultry, fish or pluck
[h] only applicable for fruits product
[i] as expressed as ready-to-eat

5.4 Contaminants limit: should meet the requirements in table 3

Table 3 Contaminant limits

Item			Index	Testing Method
Lead, mg/kg	Aquatic product and liver canned foods for infant and young children	≤	0.30	GB5009.12
	Other canned foods for infant and young children	≤	0.25	
Inorganic-Arsenic, mg/kg	Aquatic product and liver canned foods for infant and young children	≤	0.30	GB/T5009.11
	Other canned foods for infant and young children	≤	0.10	
Mercury, mg/kg		≤	0.02	GB/T5009.17
Tin[a], mg/kg		≤	50	GB/T5009.16
Nitrate[b] (based on $NaNO_3$), mg/kg		≤	200	GB5009.33
Nitrite[c] (based on $NaNO_2$), mg/kg		≤	4	

[a] is only limited to the products packed with tin can
[b] is not applicable for the products which use vegetable and fruits as major raw materials and contains small amount of other ingredients
[c] is not applicable for Soya based canned foods for infant and young children

5.5 Microorganisms requirements

Microorganism requirements should be compliance with Commercial Sterilization of Canned Food, tested according to GB/T4789.26; mould in tomato juice product should meet the specification of Table 4.

Table 4 Microorganisms requirements

Item	Other Information	Index
Mold / (% visual field)	tomato juice	≤ 40

5.6 Food Additives

5.6.1 Food additives and nutrients fortification should be in line with relevant safety standards and regulation

5.6.2 Food additives and nutrients fortificator should comply with GB 2760 and GB14880.

6. Others

6.1 Labeling should in line with requirements in GB13432. The nutritive value should added the column “content in 100kJ”.

6.2 Should have children ages for the suitable feeding, instruction for preparation and notes for feeding

6.3 The content of puree of fruits and vegetable should be declared for the juice products.

National Standards of People's Republic of China

GB 5420-2010

National Food Safety Standard

Cheese

Issued on: 2010-03-26 Implemented on: 2010-12-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard corresponds to the Codex Stan 285-1978 (Revision 1999, Amendment 2006 & 2008) Codex General Standard for Cheese published by The Codex Alimentarius Commission (CAC). Despite that, they are non-equivalent; there are differences between this standard and the international Codex Stan 285-1978 (Revision 1999, Amendment 2006 & 2008), in terms of technical content and text formatting.

This standard will supersede the earlier version, GB 5420-2003 Hygienic Standard for Cheese and relevant segments of the voluntary national standards, GB/T 21375-2008 Cheese. Compliance with this standard will take precedence in scope and requirements shared by both GB 5420-2008 and GB/T 21375-2008.

Key updates from the earlier version, GB 5420-2003 are as follows:

- Standard's title was renamed as Cheese;
- Description of Scope was amended;
- Section on "Terms and Definition" was added;
- Section on "Physical-Chemical Index" was removed;
- **Guidelines on "Contaminants Limits" was referenced directly** from GB 2762;
- **Guidelines on "**M**ycotoxin** Limits**" was referenced directly** from GB 2761;
- Presentation of the "Microorganism Index" Section was amended;
- Limits on Listeria monocytogenes was added into the Section on "Microorganism Index";
- Reinforced the requirements pertaining to the use of N**utritional Supplements.**

This standard supersedes all earlier versions, including:

- GB 5420-1985, GB 5420-2003.

National Standard for Food Safety

Cheese

1. Scope

This standard applies to ripened cheese, mould ripened cheese and unripened cheese.

2. Normative References

The normative documents that have been referenced in this text are essential to the interpretation and application of this standard. For dated references, only the edition bearing the stipulated date is applicable to this standard. For undated references, the latest edition of the normative document (including all its amendments) will apply.

3. Terms and Definitions

3.1 Cheese

Refers to ripened or unripened dairy products where the proportion of whey protein/casein did not exceed the proportion of milk in the total product composition; products under this category can have soft, semi-hard, hard or extra-hard textures and be with or without coatings. Cheese can be produced through either of the following processes:

a) The separation and removal of whey from curd produced as a result of the coagulation or partial coagulation of single or multiple types of protein composition in raw milk, skimmed milk, partial-skimmed milk, cream, whey cream or buttermilk, through the use of chymosin or other proper milk coagulants. This is classified as an enrichment process of whey protein (especially casein), with the purpose of increasing the composition of whey protein to a level significantly higher than that of its base protein composition;

b) Processing methods that include the coagulation of proteins in milk and/or dairy products, with the purpose of endowing the end products with physical, chemical and sensory characteristics similar to the end products derived from the process described above in (a).

3.1.1 Ripened Cheese

Refers to cheese, stored under a specified temperature and for a specified time period, optimized for it to undergo a series of physical, chemical and microbiological changes that are necessary for the development of the cheese's taste, texture, and body. It cannot be consumed immediately after the production process.

3.1.2 Mould Ripened Cheese

Refers to cheese ripened through the process of cultivating fungi/moulds within the cheese and (or) on the surface of the cheese.

3.1.3 Unripened Cheese

Refers to cheese can be consumed shortly after production, and this includes fresh cheese.

4. Technical Requirements

4.1 Ingredient Requirements

4.1.1 Raw Milk: Raw milk used in the process should comply with the requirements specified under standard GB 5420

4.1.2 Other Ingredients: Each ingredient used should comply with the individual corresponding safety standards and/or regulations.

4.2 Sensory Requirements: Should comply with requirements listed in Table 1.

Table 1 Sensory Requirements

Items	Requirements	Test Method
Color and Luster	Possesses the color and luster characteristic of this product category	Take appropriate amount of sample and put it into a 50ml beaker, observe color and texture under natural light. Smell it, taste it after rinsing your mouth with warm water.
Taste and Aroma	Possesses the taste and aroma unique to this product category	
Texture / Appearance	Uniform and fine texture, possesses the firmness required of this product category	

4.3 Contaminants Limits: Should comply with the requirements of national standard GB 2762.

4.4 Mycotoxin Limits: Should comply with the requirements of national standard GB 2761.

4.5 Microorganism Limits: Should comply with requirements listed in Table 2.

Table 2 Microorganism Limits

Item	Sampling plan[a] and limits (if not specified, expressed in CFU/g)				Test Method
	n	c	m	M	
Coliform	5	2	100	1,000	GB 4789.3 Plate Counting Method
Staphylococcusaureus	5	2	100	1,000	GB 4789.10 Plate Counting Method
Salmonella	5	0	0/25g	—	GB 4789.4
Listeria monocytogenes	5	0	0/25g	—	GB 4789.30
Yeast[b] ≤	50				GB 4789.15
Moulds[b] ≤	50				

[a] sample should be analyzed and treated according to G B4789.1 and GB 4789.18.
[b] not applicable to mould ripened cheese

4.6 Food Additives and Nutritional Supplements

4.6.1 The quality of food additives and nutritional supplements should comply with relevant safety standards and regulations.

4.6.2 The use of food additives and nutritional supplements should comply with the requirements of national standards GB 2760 and GB 14880.

National Standards of People's Republic of China

GB 25192-2010

National Food Safety Standard

Process(ed) Cheese

Issued on: 2010-03-26 Implemented on: 2010-12-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard corresponds to The Codex Alimentarius Commission's (CAC) Codex Stan 285-1978 (Amendment 2008) Codex General Standard for Named Variety Process(ed) Cheese and Spreadable Process(ed) Cheese, Codex Stan 286-1978 (Amendment 2008) Codex General Standard for Process(ed) Cheese and Spreadable Process(ed) Cheese, Codex Stan 287-1978 (Amendment 2008) Codex General Standard for Process(ed) Cheese Preparations (Process(ed) Cheese Food and Process(ed) Cheese Spread). Despite that, they are non-equivalent; there are differences between this standard and the international Codex Stan 285-1978 (Amendment 2008), Codex Stan 286-1978 (Amendment 2008), Codex Stan 297-1978 (Amendment 2008), in terms of technical content and text formatting.

The Microorganism Index guidelines used in this standard corresponds to relevant guidance listed in Commission Regulation (EC) No 1441/2007 of 5 December 2007 issued by European Union (EU). Similarly, this standard and the EU guidelines are non-equivalent.

This standard is published for the first time.

National Standard for Food Safety

Process(ed) Cheese

1. Scope

This standard applies to process(ed) cheese.

2. Normative References

The normative documents that have been referenced in this text are essential to the interpretation and application of this standard. For dated references, only the edition bearing the stipulated date is applicable to this standard. For undated references, the latest edition of the normative document (including all its amendments) will apply.

3. Terms and Definitions

3.1 Process(ed) Cheese

Refers to product manufactured through processes such as heating, stirring and emulsification, using more than 15% proportion of cheese as main ingredient, along with emulsifying salt and the possibly other suitable ingredients.

4. Technical Requirements

4.1 Ingredient Requirements

4.1.1 Cheese: Should comply with the standard GB 5420

4.1.2 Other Ingredients: Should comply with relevant safety standards and/or regulations.

4.2 Sensory Requirements: Should comply with the requirements listed in Table 1.

Table 1 Sensory Requirements

Items	Requirements	Test Method
Color and Luster	Uniformly distributed color and luster	Take appropriate amount of sample and put it into a 50ml beaker, observe color and texture under natural light. Smell it, taste it after rinsing your mouth with warm water.
Taste and Aroma	Melts in the mouth with ease and possesses a smooth, cream-like texture during tasting. Possesses taste and aroma characteristic of such products	
Texture / Appearance	Surface appears smooth; possesses fine, smooth and even structure, with visible particles corresponding to the extra ingredients added for flavoring. Should have no visible contaminant.	

4.3 Physical-Chemical Index: Should comply with the requirements listed in Table 2.

Table 2 Physical-Chemical Index

Item	Index					Test Method
Fats (Dry Matter) [a] (X_1) / (%)	$60.0 \le X_1 \le 75.0$	$45.0 \le X_1 < 60.0$	$25.0 \le X_1 < 45.0$	$10.0 \le X_1 < 25.0$	$X_1 < 10.0$	GB 5433.13
Min. Dry Matter [b] (X_2) / (%)	44	41	31	29	25	GB 5009.3
[a] fats content in dry matter (%) : X_1 = [Process(ed) cheese fats mass / (Process(ed) cheese gross mass − Process(ed) cheese moisture mass)] × 100% [b] percentage of dry matter mass (%) : X_2 = [(Process(ed) cheese gross mass − Process(ed) cheese moisture mass) / Process(ed) cheese gross mass] × 100%						

4.4 Contaminant Limits: Should comply with the requirements of national standard GB 2762**.**

4.5 Mycotoxin Limits: Should comply with the requirements of national standard GB 2761**.**

4.6 Microorganism Limits: Should comply with requirements listed in Table 3.

Table 3 Microorganism Limits

Item	Sampling plan[a] and limits (if not specified, expressed as CFU/g)				Test Method
	a	c	m	M	
Aerobic Bacterial Count	5	2	100	1,000	GB 4789.2
Coliforms	5	2	100	1,000	GB 4789.3 Plate Counting Method
Staphylococcus aureus	5	2	100	1,000	GB 4789.10 Plate Counting Method
Salmonella	5	0	0/25g	—	GB 4789.4
Listeria monocytogenes	5	0	0/25g	—	GB 4789.30
Yeast ≤	50				GB 4789.15
Molds ≤	50				
[a] sample should be analyzed and treated according to GB4789.1 and GB4789.18.					

4.7 Food Additives and Nutritional Supplements

4.7.1 The quality of food additives and nutritional supplements should comply with relevant safety standards and regulations.

4.7.2 The use of food additives and nutritional supplements should comply with the requirements of national standards GB 2760 and GB 14880.

National Standards of People's Republic of China

GB 22031-2010

National Food Safety Standard

Determination of Added Citrate Content in Cheese and Processed Cheese Products

Issued on: 2010-03-26 Implemented on: 2010-06-01

Issued by General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China, Standardization Administration of China

Foreword

This standard replaces GB/T 22031-2008 Determination of added citrate content in cheese and processed cheese products, Enzyme- colorimetric methods.

Appendix A and B of this standard are normative appendixes.

The past republic situation of replaced standards is:

- GB/T 22031-2008

National Standard for Food Safety

Determination of added citrate content in cheese and processed cheese products

1. Scope

This standard specifies guidelines about the determination methods of added citrate content (citric acid) in cheese and processed cheese products.

This Standard applies to determination of added citrate content in cheese and processed cheese products.

2. Normative References

The normative documents referenced in the text are indispensable to the application of this standard. For dated references, only the edition bearing such date applies to this standard. For undated references, the latest edition of the normative document referred to (including all the amendments) will apply.

3. Theory

Measure the content of total citrate in sample, deduct the amount of citrate content added by the raw materials (covert by 0.04 times lactose), and obtain the added citrate content. The amount of citrate in the solution is measured by the amount of citric acid.

4. Analysis steps

Determination and content calculation of total citrate in sample is done according to the formulas in appendix A. Determination and content calculation of lactose in sample is done according to the formulae in appendix B.

5. Analysis result presentation

Added citrate in sample calculates according to formula (1).

$$w_a = w_c - rw_i \quad \text{---------- (1)}$$

In the formula,

w_a ------ Added citrate content basicity, counted by citric acid, unit is quality fraction (%);

w_c ------ Total citrate content in sample, unit is quality fraction (%);

r ------ration of total citrate content to lactose content in raw materials whey powder or milk powder (citrate/ lactose) (r=0.04).

Take the arithmetic mean value of two times independent identified result in repeated condition, reserve two decimals.

6. Precision

The absolute deviation of the two independent results done under the same condition should not exceed 10% of the mean value.

Appendix A

(Normative appendixes)

Determination of added citrate content in cheese and processed cheese products by enzyme methods

A.1 Scope

This standard is applicable to determination of added citrate content in cheese and processed cheese products by enzyme methods.

A.2 Theory

Citrate lyase (CL) transforms citrate to oxaloacetate and acetate, Malic dehydrogenase (MDH）and lactic dehydrogenase （LDH）catalyze decarboxylation oxaloacetate and decarboxylation product pyruvate with the existence of reduced nicotinamide adenine dinucleotide(NADH), separately transform to L-malic acid and L-lactic acid. In the reaction, DADH is oxidized to NAD+. Measure the absorbancy deviation of DADH in the sample at a condition of 340nm and calculate the citrate content in the sample.

A.3 Drugs and materials

Unless there is other rules and regulations, this standard uses chromatography test with the use of solution as stated in GB/T 6682.

A.3.1Trichloroacetic acid solution (200 g/L): Weigh 20 g trichloroacetic acid (CCl3COOH) and dissolve it into water, mix well into 100mL of water.

A.3.2 Sodium hydroxide solution (200 g/L): Take 20g sodium hydroxide (NaOH), dissolved by water, mix well and transfer it to 100ml volumetric flask.

A.3.3 Sodium hydroxide solution (40 g/L): Take 4g sodium hydroxide (NaOH), dissolved by water, mix well and transfer it to 100ml volumetric flask.

A.3.4 Sodium hydroxide solution (4 g/L): Take 0.4g sodium hydroxide (NaOH), dissolved by water, mix well and transfer it to 100ml volumetric flask.

A.3.5 Zinc chloride solution (0.8 g/L): Take 0.8g zinc chloride (ZnCl2), dissolved by water, mix well and transfer it to 1000ml volumetric flask.

A.3.6 Buffer (pH 7.8): Take 7.13g glycylglycine (H2NCH2CONHCH2CO2H), dissolved in 70ml water and transfer it to 100ml volumetric flask. Using sodium hydroxide solution (A.3.2), adjust pH to 7.8. Add in 10ml of zinc chloride solution (A.3.5) and mix well into 100ml of water. Store it in 0℃~4℃refrigerator. This solution can be stored for 4 weeks.

A.3.7 Sodium bicarbonate solution (4.0 g/L): Take 4.0g sodium bicarbonate (NaHCO3), dissolved by water,

mix well and transfer it to 1000ml volumetric flask.

A.3.8 Nicotinamide adenine dinucleotide (NADH) solution: Take 50mg Nicotinamide Adenine Dinucleotide Disodium Salt ($C_{21}H_{27}N_7O_{14}P_2Na_2$) and 100mg Sodium Bicarbonate ($NaHCO_3$), dissolved in 10ml water.

A.3.9 Ammonium sulfate solution (422 g/L): Take 42.2g ammonium sulfate [$(NH_4)_2SO_4$], dissolved by water, mix well and transfer it to 100ml volumetric flask.

A.3.10 Malic dehydrogenase (MDH)and lactic dehydrogenase（LDH）turbid liquid: Dissolve Malic Dehydrogenase (pork heart, EC 1.1.1.37) and Lactic Dehydrogenase (rabbit meat,EC 1.1.1.27) by Ammonium Sulfate solution (A.3.9) separately. Then, ensure that the activity of malic dehydrogenase (MDH) maintains higher than 600 IU/mL and the activity of lactic dehydrogenase maintains higher than 1400 IU/mL. When this is mixed well, it will form turbid liquid. Store the liquid in a refrigerator with a temperature range of 0℃~4℃The liquid can be stored for one year.

A.3.11Citrate lyase (CL) solution: Dissolve citrate lyase (enterobacter aerogenes, EC 4.1.3.6) by water at 0℃ Ensure that the activity of citrate lyase is not lower than 40 IU/mL. When this is mixed well, turbid liquid is formed. Store the liquid in a refrigerator at a temperature of 0℃~4℃The liquid can be stored for 4 weeks.

A.3.12 Citric acid standard solution (160μg/mL): Take 175mg citric acid monohydrate ($C_6H_8O_7 \cdot H_2O$), dissolve in water, mix well and transfer it to 1000ml volumetric flask.

A.4 Instruments and Equipments

A.4.1 Balance: Sensitive quantity is 0.1 mg.

A.4.2 Ph meter: Precise to 0.1.

A.4.3 Pulverizer

A.4.4 Colorimetric tube with scale: 10mL，division value 0.1mL.

A.4.5 Middle speed filter paper

A.4.6 Ultraviolet and visible spectrophotometer：340nm, 1 cm coloring plate

A.4.7 Water base kettle.

A.5 Preparation of sample

A.5.1 Cheese

Remove the coat or moldy surface to make the sample. Use a pulverizer (A.4.3) to smash the sample and mix equally.

A.5.2 Processed cheese products

Take a representative sample. Use a pulverizer (A.4.3) to smash the sample and mix equally.

A.6 Analysis steps

A.6.1 Preparation of sampling liquid

Take 1g (accurate to 0.0001g) sample (A.5), dissolve in 50ml warm water (40℃~50℃), and transfer it to 100ml of volumetric flask before cooling it down to 20℃.Add in 10ml trichloroacetic acid solution (A.3.1), mix equally and keep it still for 30min.Then, filter the solution by filter paper (A.4.5) and remove 10ml of the primary filtered liquid. After that, use sodium hydroxide solution (A.3.3) to adjust the pH value of the solution to 4 before absorbing the remaining 25ml filtered liquid into beaker. Further adjust the pH value to 8 by sodium hydroxide solution (A.3.4) .Transfer solution in beaker to 100ml volumetric flask with water and conduct the blank test simultaneously.

A.6.2 Test

A.6.2.1 Standard curve description

Ensure that the reagent is at room temperature before use. Obtain two groups of standard citric acid solution (A.3.12) 0.00mL, 0.50mL, 1.00mL, 1.50mL, 2.00mL (correspond to 0, 80, 160, 200, 320μg citric acid), separately put into colorimetric tube with scale (A.4.4) and add in 1.00ml buffer (A.3.6), 0.10ml NADH solution (A.3.8), 0.02ml malic dehydrogenase (MDH）and lactic dehydrogenase（LDH）turbid liquid (A.3.10), mix well. Keep the solution in 20℃~25℃of water bath (A.4.7) for 5 min and dilute the solution to 5.00ml. For the first group, measure the degree of absorbance using air as a form of reference. Taking air as reference, measure the absorbency A_0 of solution in the tube at 340nm place by 1cm coloring plate (A.4.6). For the other group, separately add in 0.02mL citrate lyase (CL) solution (A.3.11), equally mix, keep in 20℃~25℃ water bath (A.4.7) for 10 min, take air as reference, measure the absorbency A_{10} of solution in the tube at 340nm place by 1cm coloring plate (A.4.6). Calculate absorbency A according to formula (2), take citric acid content as vertical coordinate, absorbency A as x-coordinate, plot the curve.

$$A = A_0 - A_{10} \text{ ---------- (2)}$$

In the formula,

A_0 ------ Absorbency before adding citrate lyase;

A_{10} ------ Absorbency after adding citrate lyase water bathing for 10 minutes.

Note: If the absorbency decrease exceeds 0.800, dilute by water liquid and make blank test, repeat the steps of A.6.2.1.

A.6.2.2 Test of sampling liquid absorbency

Absorb double sampling liquid (A.6.1) by pipette into the 10ml colorimetric tube with scale (A.4.4).The following is same to operations in A.6.2.1 “separately add in 1.00ml buffer (A.3.6) … Standard curve description ”, Check out the corresponding citric acid content from standard curve. Make blank test the same time.

A.7 Analysis result presentation

Citric acid content in the sample calculates as formula (A.2).

$$X = \frac{c * V_1 * V_3}{10000 * m * V_2 * V_4} \text{ ---------- (A.2)}$$

X ------ Citric acid content in the sample, unit is gram per thousand grams (g/100g);

c------checked out citric acid content in the sampling liquid by standard curve, unit is milligram (μg);

m------quality of sample, unit is gram (g);

V_1 ------metered content volume of sample after deproteinization process, unit is milliliter (mL);

V_3 ------volume of absorbed filtered liquid, unit is milliliter (mL);

V_2 ------metered content volume of filtered liquid, unit is milliliter (mL);

V_4 ------volume of absorbed sampling liquid, unit is milliliter (mL);

Take the arithmetic mean value of two times independent identified result in repeated condition, to three decimal place.

A.8 Precision

The absolute deviation of the two times independent identified result in repeated condition should not exceed 10% of the arithmetic mean value.

Appendix B

(Normative Appendix)

Determination of lactose content in cheese and processed cheese products by enzyme methods

B.1 Scope

This Standard applies to determination of lactose content in cheese and processed cheese products by enzyme methods.

B.2 Theory

Lactose is enzymolysised to D-glucose(G) and D- galactose (GL) by the catalysis of β-galactosidase (β-GLS), hexokinase (HK) phosphorylate D-glucose to be 6-glucose phosphate (G6P), the same time transfer triphosadenine (ATP) to adenosine diphosphate (ADP). Catalyzed by 6-phospHogluconate dehydrogenase (G6PDH), 6-glucose phosphate oxidizes to 6-phosphogluconic acid (GA6P), the same time nicotinamide adenine dinucleotide phosphate acid (NADP+) is revivified to reduced nicotinamide adenine dinucleotide phosphate (NADPH). The absorbency value of NADPH and lactose content at wave length 340nm place is in direct ratio, compare ratio with standard system.

$$C_{12}H_{22}O_{11}\ (L) + H_2O \xrightarrow{\beta\text{-GLS}} D\text{-}C_6H_{12}O_6\ (G) + D\text{-}C_6H_{12}O_6\ (GL)$$

$$D\text{-}C_6H_{12}O_6\ (G) + ATP \xrightarrow{HK} G6P + ADP$$

$$G6P + NADP^+ + H_2O \xrightarrow{G6PDH} GA6P + NADPH + H^+$$

B.3 Drugs and materials

Except for additional rules, all drugs in this method is chromatographically pure, water is second degree water according to the requirements in GB/T 6682.

B.3.1 Standard lactose matter (C12H22O11·H2O), purity ≥99 %

B.3.2 Potassium ferrocyanide solution (36 g/L): take 3.6g potassium ferrocyanide {K4 [Fe(CN) 6]·3H2O}, dissolve in water, to a volume of 100ml, mix well.

B.3.3 Zinc sulfate solution (72 g/L): take 7.2g zinc sulfate (ZnSO4·7H2O), dissolve in water, to a volume of 100ml, mix well.

B.3.4 Sulfuric acid solution (2mol/L): take 60ml sulfuric acid, slowly pour water in, cool down to room temperature and dilute to 1000L by water, mix well.

Warning: Sulfuric acid has to be poured slowly into the water when diluting concentrated sulfuric acid. Otherwise it will cause explosion

B.3.5 Sodium hydroxide solution (200 g/L): take 20.0g sodium hydroxide (NaOH), dissolve in water, to volume of 100ml, and mix well.

B.3.6 Sodium hydroxide solution (4 g/L): take 4.0g sodium hydroxide (NaOH), dissolve in water, to volume of 100ml, and mix well.

B.3.7 Ammonium sulfate solution (422 g/L): take 42.2g ammonium sulfate [(NH4) 2SO4], dissolve in water, to volume of 100ml, and mix well.

B.3.8 Citric buffer (pH 6.6): separately take 2.8g sodium citrate (C6H5O7Na3·2H2O), 0.042g citric acid (C6H8O7·H2O) and 0.635g magnesium sulfate heptahydrate (MgSO4·7H2O), dissolve in 40ml water, adjust pH to 6.6±0.1 by sulfuric acid solution (B.3.4) or sodium hydroxide solution (B.3.6), to volume of 50ml, mix well, place it in 0℃~4℃in the refrigerator, can be stored for 3 months, and turn it to room temperature before usage.

B.3.9 Triethanolamine (TEA) buffer (pH 7.6): separately take 14.0g triethanolamine hydrochloride (C6H15NO3·HCl), 0.25g magnesium sulfate heptahydrate (MgSO4·7H2O),dissolve in 80ml water, adjust pH to 7.6±0.1 by Sodium hydroxide solution (B.3.5), to volume of 100ml, mix well, place it in 0℃~4℃in the refrigerator, and can be stored for 2 months.

B.3.10 NADP+—ATP—TEA buffer turbid solution: separately accurately take 65mg nicotinamide adenine dinucleotide phosphate disodium (C21H26N7O17P3Na2) and 170mg 5-adenosine disodium triphosphate (C10H14N5O13P3Na2), dissolve in 30ml triethanolamine (TEA) buffer (B.3.9), mix well, place it in 0℃~4℃in the refrigerator, can be stored for 2 weeks. Turn it to room temperature before usage.

B.3.11 β-galactosidase- ammonium sulfate solution [β-GLS-(NH4)2SO4] turbid liquid (pH about 7.6): take β-galactosidase (β-GLS, eschericia coli (EC 3.2.1.23) dissolved in ammonium sulfate solution (B.3.7), make the activity of β-galactosidase not lower than 60 IU/mL. Slowly mix it to turbid liquid, place it in 0℃~4℃in the refrigerator, can be stored for 12 months. The turbid liquid container should be dipped in ice water in usage.

B.3.12 Hexokinase-6-phosphogluconate dehydrogenase-ammonium sulfate solution [HK-G6PDH-(NH4)2SO4] turbid liquid: take hexokinase (HK, yeast, EC 2.7.1.1) and 6-phosphogluconate dehydrogenase (G6PDH, yeast, EC 2.7.1.49) dissolved in ammonium sulfate solution (B.3.7), make the activity of hexokinase not lower than 280 IU/mL (25 ℃), 6-phosphogluconate dehydrogenase not lower than140 IU/mL (25 ℃), slowly mix it to turbid liquid, place it in 0℃~4℃in the refrigerator, and can be stored for 12 months. The turbid liquid containers should be dipped in ice water in usage.

B.3.13 Lactose standard solution(80μg/mL): accurately take 0.0842g standard lactose matter (B.3.1) baked in 87℃for 2 hours, to a volume of 100ml, mix well, accurately absorb the above solution, dilute to 100ml by water, get the lactose standard solution with density 80μg/mL, place it in 0℃~4℃in the refrigerator, and get prepared before use.

B.4 Instruments and equipments

B.4.1 Balance: sensitive quantity is 0.1mg.

B.4.2 Filter paper: middle speed, diameter 15cm.

B.4.3 Colorimetric tube: 10mL, with scale.

B.4.4 Ultraviolet and visible spectrophotometer：340nm, 1 cm coloring plate

B.4.5 Water base kettle

B.5 Analysis steps

B.5.1 Preparation of sample

Take at least 200g typical sample, mix well, and place in sealed glass container.

B.5.2 Preparation of sampling liquid

Take 1g of sample in beaker, dissolve in hot water (40℃~50℃), mix by glass stick, and totally transfer it to 100ml volumetric flask, set volume by water, equally mix. Add in 5ml potassium ferrocyanide solution (B.3.2) and 5ml zinc sulfate solution (B.3.3) and 10ml NaOH solution (B.3.6), equally mix each time, set volume by water, equally mix, keep it still for 30min. Filter, remove partial filtered liquid. Absorb 5.00ml filtered liquid into 100ml volumetric flask, beaker, set content to 100ml, which is the sampling liquid.

B.5.3 Standard curve description

Absorb 0.00mL, 0.20mL, 0.040mL, 0.60mL, 0.80mL, 1.00mL (correspond to 0, 16, 32, 48, 64, 80μg lactose) lactose standard solution (B.3.13) by pipette, separately put into colorimetric tube (B.4.3) and add in 0.20ml citric buffer (B.3.8), 0.05ml β-galactosidase- ammonium sulfate solution turbid liquid, equally mix. Keep stable temperature in water bath (B.4.5) for 15 min. Take it out, add in 1.00mL NADP+—ATP—TEA buffer (B.3.10), 0.05mL hexokinase-6-phosphogluconate dehydrogenase-ammonium sulfate solution (B.3.12), and equally mix. Keep stable temperature in water bath (B.4.5) for 60 min. Take it out, cool down to room temperature, set volume to 5.00mL, equally mix and keep still for 5min. Take drugs with lactose content zero as reference, measure the absorbency of solution in the tube at 340nm place by 1cm coloring plate (B.4.4). Take lactose content as vertical coordinate, absorbency as x-coordinate, make standard curve.

B.5.4 Test of sampling liquid absorbency

Accurately absorb 1.00mL sampling liquid (B.5.2) by pipette into the colorimetric tube (B.4.3), add in 0.20ml citric buffer (B.3.8), 1.00mL NADP+—ATP—TEA buffer (B.3.10), 0.05mL hexokinase-6-phosphogluconate dehydrogenase-ammonium sulfate solution (B.3.12), equally mix, keep stable temperature in water bath (B.4.5) for 60 min. Take it out, cool down to room temperature, meter volume to 5.00mL, equally mix and keep still for 5min. Make it for referred solution.

Accurately absorb 1.00mL sampling liquid (B.5.2) by pipette into the colorimetric tube (B.4.3). The following is same to operations in B.5.3" add in 0.20ml citric buffer (B.3.8) …., keep still for 5min.", measure the absorbency of solution in the tube at 340nm place by 1cm coloring plate (B.4.4), check out the corresponding lactose content from standard curve.

B.6 Analysis result presentation

Lactose content in the sample calculates as formula (4).

$$X = \frac{c * V_1 * V_3}{10000 * m * V_2 * V_4} \text{ ---------- (4)}$$

X ------ Lactose content in the sample, unit is gram per thousand grams (g/100g);

c------checked out lactose content in the sampling liquid by standard curve, unit is milligram (μg)

m------quality of sample, unit is gram (g);

V_1 ------metered content volume of sample after deproteinization process, unit is milliliter (mL);

V_3 ------volume of absorbed filtered liquid, unit is milliliter (mL);

V_2 ------metered content volume of filtered liquid, unit is milliliter (mL);

V_4 ------volume of absorbed sampling liquid, unit is milliliter (mL);

Take the arithmetic mean value of two times independent identified result in repeated condition, keep to three decimals place.

B.7 Precision

The absolute deviation of the two times independent identified result in repeated condition should not exceed 10% of the arithmetic mean value.

National Standards of People's Republic of China

GB 11674-2010

National Food Safety Standard

Whey Powder and Whey Protein Powder

Issued on: 2010-03-26 Implemented on: 2011-04-01

Issued by Ministry of Health of the People's Republic of China

Foreword

This standard is based on Codex Stan 289-1995(Rev.1-2003, Amd.2006 codex standard for Whey Powders), but it is not equal to Codex stan 289-1995(Rev.1-2003, Amd. 2006) in conformity.

This standard replaces GB 11674-2005 Hygiene Standard of whey powder.

Compared to GB 11674-2005, the following items are revised in this standard:

- The name of this standard has been changed from “Hygiene standard of whey powder” to “Whey powder and whey protein powder”;
- The scope has been modified;
- In ‘terms and definitions’, the definition of whey and whey protein powder has been added;
- In “Physical and chemical requirements”, the product category has been modified to demineralized whey powder and non-demineralized whey powder and whey protein powder;
- The requirement of lactose is added;
- ‘Fat content’ is deleted;
- ‘acidity (count as lactic acid)’ is deleted;
- ‘Fe’ is deleted;
- ‘contaminants’ should comply with GB2762 the maximum limits for contaminants in foods
- ‘Mycotoxins’ should meet the requirement in GB 2761
- ‘veterinary drugs residual’ is deleted;
- The expression of Microbiological Index is Modified;
- The requirements of nutritional fortification substances are added.

This standard will replace the following editions released in the past:

- GB 16774-1989, GB11674-2005

National Standard for Food Safety

Canned complementary foods for infants and young children

1. Scope

This standard applies to demineralized whey powder and non-demineralized whey powder and whey protein concentrate and whey protein isolate, etc.

2. Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated reference documents, the latest version applies to this standard.

3. Terms and definitions

3.1 Whey

Whey is a fluid separated from the curd after coagulation of milk during the cheese making and casein preparation by rennet, acidified or membrane filtration.

3.2 Whey powders

Whey powders are powdered products by evaporating and drying the whey.

3.2.1 Demineralized whey powder

Demineralized whey powders are powdered products made from liquid whey by the process of demineralization and drying.

3.2.2 Non-demineralized whey powder

Non-demineralized whey powders are powder products made from liquid whey by directly drying and without the process of demineralization.

3.2.3 Whey protein powders

Whey protein powders are powder products made of the whey, through the process of ultra-filtration and concentration and dehydration, with protein content not less than 25%.

4 Specification

4.1 Requirement of raw material

4.1.1 Whey: whey obtained from the raw milk which meets the requirements of GB 19301.

4.1.2 Other materials: should comply with the corresponding hygiene standard and related regulations.

4.2 Sensory requirements: Should meet the requirement in table 1.

Table 1: Sensory Requirements

Item	Requirements	Test methods
Color	Color with good uniformity	Take sample with proper amount in 50 ml beaker, observe its color and texture under natural light. Smell and then taste after rinse mouth with warm water.
Taste and flavor	Proper taste and flavor of this kind of product, no off-flavor	
Texture	Powdered products with good uniformity, without clotting, without visible foreign bodies.	

4.3 Physical and chemical requirements

The physical and chemical requirements should meet the requirement in table 2.

Table 2: Physical and chemical requirements

Item	Requirements			Test method
	Demineralized whey powder	Non-demineralized whey powder	Whey protein powder	
Protein/(g/100g) ≥	10.0	7.0	25.0	GB5009.5
Ash /(g/100g) ≤	3.0	15.0	9.0	GB5009.4
Lactose /(g/100) ≥	61.0		-	GB5413.5
Moisture(g/100g) ≤	5.0		6.0	GB5009.3

4.4 Contaminates Limits

The Contaminates Limits should meet the requirement in GB 2762.

4.5 Maximum limits for Mycotoxins

Should meet the requirement in GB 2761.

4.6 Microbiological Index

The Microbiological level should meet the requirement in table 3.

Table 3 Microbiological requirements

Item	Sampling plan and requirements (if not specified, express as CFU/g)				Test method
	n	c	m	M	
Staphylococcus aureus	5	2	10	100	GB4789.10 Method 2 Standard plate count method
Salmonella	5	0	0/25g	-	GB4789.4
Sample analysis and preparation should comply with GB4789.1 and GB 4789.18.					

4.7 Food additives and nutritional fortification substances

4.7.1 The uses of food additives and nutritional fortification substances should comply with corresponding standard and related regulations.

4.7.2 Each kind of food additives or nutritional fortification substances used and its usage should meet the requirement of GB2760 and GB 14880.

Milk Based Frozen Beverages or Beverage Powder

GBT 20976-2007 Soft-serve Ice Cream Premix Powder

National Standards of People's Republic of China

GB/T 20976-2007

National Food Safety Standard

Soft-serve Ice Cream Premix Powder

Issued on: 2007-06-04 Implemented on: 2007-12-01

Issued by General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China, Standardization Administration of China

Foreword

This standard is proposed and centralized by the National Commercial Union.

This standard is responsibly drafted by Shenzhen HaiChuan industrial co., LTD,Shenzhen HaiChuan food science and technology co., LTD.

The main draftsmen of this standard are: Weiping He, Meisen Liu, Jingcai Lai, Mingzhu Sheng, Yanming Cao, Liying Zhang, Jianhua Zhao, Ke Li.

National Standard for Food Safety

Soft-serve ice cream premix powder

1. Scope

This standard makes rules about terms and definition, requirements, test methods, inspection rules and packaging of soft- serve ice cream premix powder.

This standard applies to the production, test and sales of now-make now-sell soft ice cream premix powder.

2. Normative References

The normative documents referenced in the text are indispensable to the application of this standard. For dated references, only the edition bearing such date applies to this standard. For undated references, the latest edition of the normative document referred to (including all the amendments) applies.

GB 317 *White Granulated Sugar*

GB 2760 *Hygienic Standards of Using Food Additives*

GB/T 5009.3 *Test of Water Content in Food*

GB/T 5009. 11 *Test of Total Arsenic and Inorganic Arsenic in Food*

GB/T 5009. 12 *Test of Plumbum in Food*

GB/T 5009. 13 *Test of Copper in Food*

GB 5410 *Whole Milk Powder, Skim Milk Powder, Milk Powder with Sugar and Flavored Milk Powder*

GB/T 5413. 1 *Infant Formula Food and Test of Milk Powder Protein*

GB/T 5413. 3 *Infant Formula Food and Test of Milk Powder Fat*

GB/T 5413. 5 *Infant Formula Food and Test of Lactose, Sucrose and Total Sugar*

GB14880 *Hygienic Standard of Food Nutrition Enhancer Usage*

State Bureau of Quality Technical Supervision [2005] the 75th order Supervision Management Methods of Quantitative Packaging Goods Net Content Measurement

3. Terms and definitions

The following terms and definitions apply to this standard.

3.1 Soft-serve ice cream premix powder

The main ingredients consist of formula with milk, sugar etc.; add water to them to make the soft-serve ice cream premix powder for the on-site making and selling of ice cream.

4. Requirements

4.1 Requirements for raw material

4.1.1 Milk powder

Should comply with the requirements of GB 5410

4.1.2 White granulated sugar

Should comply with the requirements of GB 317

4.1.3 Other raw materials and accessories

Should comply with the requirements of relevant standards

4.2 Sensory index

Sensory index should comply with the requirements of chart 1.

Table 1 Sensory Index

Items	Indexes
Color	The color is equal, have corresponding color of species.
Flavor and smell	Harmonious taste, pure smell, have corresponding smell and flavor, no peculiar smell
Form	Dry powder, have free-running property, no blocks.
Water solubility	Can be dissolved in water by mixing in usual temperature.
Impurities	No visible impurity.

4.3 Net content deviation

Net content requirements for prepackaged products refers to Supervision Management Methods of Quantitative Packaging Goods Net Content Measurement

4.4 Physicochemical Requirements

Physicochemical requirements should comply with the requirements of chart 2.

Table 2 Physicochemical Requirements

Items	Soft- serve ice cream premix powder		
	High fat type	Middle fat type	Low fat type
Weight lose on drying/ (%) ≤	5	5	5
Fat content/ (%)	＞21	10.5-21	≤10.5
Protein/ (%)≥	7.7	7.7	7.7
Viscosity [a] / mPa·s	≤400	≤400	≤400
Total sugar/ (%)≥	45	45	45
After formulating with water added in, it should comply with the relevant requirements of Physicochemical indexes.			
[a] Viscosity is the measured viscosity after maturing for 15 minutes in 25℃when the total curing surface is 25%.			

4.5 Hygienic Requirements

Should comply with the requirements of Chart 3

Chart 3 Hygienic Requirements

Items	Indexes
Lead/(mg/kg)	≤0.3
arsenic/(mg/kg)	≤0.2
Copper/(mg/kg)	≤5.0
The total number of bacterium falls/(cfu/g)	≤25000
Coliform group/(MPN/100g)	≤200
Pathogenicbacterium (salmonella, Shigella, staphylococcus aureus)	Can't be checked out

4.6 Requirements for Food Additives and Food Nutrition Enhancer

Food additives quality should comply with the requirements of GB 2760. Food nutrition enhancer should comply with the requirements of GB 14880.

5. Test Methods

5.1 Sensory Test

5.1.1 Color and Form

Put appropriate amount of sample on the white plate, observe its color and form in natural light.

5.1.2 Taste and Smell

Put appropriate amount of sample on the white plate, smell and taste it.

5.1.3 Water Solubility

Take 10.0g sample in 200ml flask with 100ml 25℃water, equally mix and observe the dissolving situation.

5.2 Physicochemical Indexes Test

5.2.1 Weight Lose on Drying

Test complying with direct drying method in GB/T 5009.3-2003.

5.2.2 Fat

Test complying with the requirements of GB/T 5413.3.

5.2.3 Protein

Test complying with the requirements of GB/T 5413.1.

5.2.4 Total sugar

Test complying with the requirements of GB/T 5413.5.

5.2.5 Viscosity

5.2.5.1 Experimental Instruments

Rotational viscometer

5.2.5.2 Experimental steps

5.2.5.2.1 Prepare the tested liquid, put it into flask or billy type container with diameter not lower than 70mm, accurately measure the temperature of the tested liquid.

5.2.5.2.2 Set up the fender bracket

5.2.5.2.3 Spin the chosen rotor into the screw rod, rotate the up and down button to make the instrument rotate slowly, the rotor slowly dip in the tested liquid until the rotor mark surface same to liquid surface, adjust the instrument level, open the switch, rotate the speed changing button to the speed number up till the marked speed point, let the rotor rotating in the liquid. After a few rotations (usual 20-30seconds), the pointer is basically stable, press the control rod, fix the number, then turn the electrical machine off, read the value.

5.2.5.3.1 Calculation of absolute viscosity

The read value on the dial multiplies the specific coefficient on coefficient form, that is the measured absolute viscosity (mPa·s), referring to formula (1).

η= K*α----------(1)

In the formula, η-----absolute viscosity; K------coefficient; α------ read value on the dial multiplies (angle of deflection).

5.2.5.3.2 Modification of Frequency Error

When the practical power frequency is not accurate, modification of practical viscosity refers to formula (2).

$$\text{Practical viscosity} = \text{indicated viscosity} * \frac{\text{nominal frequency}}{\text{prastical frequency}} \quad \text{---------- (2)}$$

5.3 Hygienic Requirements Test

5.3.1 Lead

Test should comply with the requirements of GB/T 5009.12.

5.3.2 Arsenic

Test should comply with the requirements of GB/T 5009.11.

5.3.3 Copper

Test should comply with the requirements of GB/T 5009.13.

5.3.4 Total bacteria falls

Test should comply with the requirements of GB/T 4789.18.

5.3.5 Coliform groups

Test should comply with the requirements of GB/T 4789.18.

5.3.6 Pathogenicbacterium

Test should comply with the requirements of GB/T 4789.18.

5.4 Net content

Take quantified amount of prepackaged sample, take the total quality, then pour the sample out, measure the quality of packaging bag, calculation of net content refers to formula (3).

m = m1-m2---------- (1)

In the formula,

m------ Net content of quantified amount of prepackaged sample, unit is gram (g);

m1------ total content of quantified amount of prepackaged sample, unit is gram (g);

m2------ total content of packaging bag, unit is gram (g).

6. Test Requirements

6.1 Ex-factory Inspection

Ex-factory inspection items includes: Sensory, water content, total bacteria falls, coliforms group.

6.1 Sampling

6.1.1 Sampling Methods

Separate batches by accessories of same batch.

6.1.2 Sampling Requirements

Mark code according to batch, take sample by batch number.

When plastic bags are used for packing powder, products can be separated by batch number.

Take one of thousand from different parts for test and reservation, not less than 2 units. Add one unit when the mantissa is over 500 units. Paste label, indicate the following items:

Product name;

Producer and produced date;

Sampling date;

Products quantity and batch number.

6.1.3 Judging Requirements

If any items are disqualified (except hygienic requirements) in ex-factory test, can take more samples to have re-inspection, can only test the disqualified item one at a time except for hygienic requirements. The quantity doubles the original batch samples, if the result is all complied with the standard requirements, the batch should be judged qualified, if the result is still disqualified, the whole batch should be judged qualified.

6.2Type Examination

Type examination items include all required items in this standard. Type examination of ordinarily produced products should be done half a year, but total bacteria falls and coliform group should be tested once every fortnight, type examination also should be done in any cases below:

Trial-manufacture and test of new products;

b) After production, if production technique or main raw material have huge changes, that may affect products' quality;

c) Resume production after new products or normal production stopped production for 3 months;

d) Ex-factory inspection result much differs from the last type examination;

e) Type examination is proposed by the state administration of quality supervision institutions.

6.2.2 Examination Items

Type examination items include all required items in this standard.

6.2.3 Sampling

Randomly take samples once from finished products of same batch, each time 2 units, one for hygienic index test, and the other for sensory and physicochemical index test.

6.2.3 Judging requirements: If any items are disqualified (except hygienic requirements) in ex-factory test, can take more samples to have re-inspection, only one time, can only test the disqualified item except for hygienic requirements. The quantity doubles the original batch samples, if the result is all complied with the standard requirements, the batch should be judged qualified, if the result is still disqualified, the whole batch should be judged qualified.

7. Package

7.1 Package should comply with the requirements of national relevant laws and regulations. Chosen packing material should be easy to degrade or recycle, complying with safe and environmental requirements.

7.2 Packing materials should comply with the requirements of food hygienic requirement.

7.3 Package of units should be complete, tightly sealed, no breakage, no revealed contents, indicated clear and obvious produced date.

National Standards of People's Republic of China

GB/T 31114-2014

National Food Safety Standard

Frozen Drinks – Ice Cream

Foreword

This standard has been drafted according to regulations given by GB/T 1.1—2009.

This standard has been proposed by China General Chamber of Commerce.

This standard has been put under centralized management of National Technical Committee for Standardization of Frozen Drinks (SAC/TC 497).

This standard has been drafted by Inner Mongolia Yili Industry Group Co.,ltd, Zhejiang Wufeng Cold Food Co.,ltd, Shenzhen Oceanpower Industry Company Limited, Youcan Food (Hangzhou) Co.,ltd, Beijing Baxi Food Co.,ltd, Inner Mongolia Mengniu Dairy (Group) Co.,ltd, Shenyang Deshi Group Co.,ltd, Guangzhou Meiyile Food Co.,ltd, Frozen Drink Specialized Committee of China Association of Bakery & Confectionery Industry and Business Standard Centre of China General Chamber of Commerce.

This standard has been drafted mainly by Li Ning, Hu Wulian, He Weiping, Zhao Jianhua, Fan Qing, Bi Peng, Liu Weixing, Zhang Yingchun, Wang Guoming, Ouyang Shuzhen, Jin Xiaolei and Zhangxi.

National Standard for Food Safety

Frozen drinks – ice cream

1. Scope

The standard specifies the terms and definitions of ice cream, its product classification, raw and auxiliary materials, technical requirements, production process management, test methods, test rules, labels, packages, transportation, storage, sales and request for recall.

This standard is applicable to the production, test and sales of shaped prepackaged ice cream. It is not applicable to made-for- selling soft ice cream.

2. Criteria for quotations and references

The following documents are indispensable to the usage of this document. Only dated versions of dated reference documents are applicable to this document. The latest versions (inclusive of all modification lists) of undated reference documents are applicable to this document.

GB 317 White granulated sugar

GB 2716 Hygienic standard for edible vegetable oil

GB 2749 Hygienic standard for egg products

GB 2759.1 Hygienic standard for cold drinks

GB 2760 National Standard for Food Safety-- application standard for food additives

GB 5749 Hygienic standard for drinking water

GB 7718 National Standard for Food Safety-- general rule for labels of prepackaged food

GB 14880 National Standard for Food Safety-- application standard for food nutritive fortifiers

GB 14881 National Standard for Food Safety—general hygienic standard for food production

JJF 1070 Measurement inspection rules for the net content of quantitative packing products

SB/T 10009 Test method of cold drinks

The Metrological Supervision and Management Measures for Quantitative Prepackaged Products (Order No. 75 issued by General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China)

Food Recall Management Regulations (Order No. 98 issued by General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China)

3. Terms and definitions

The following terms and definitions shall be applicable to the document.

3.1 Ice cream

A type of puffed frozen drink made of one or more raw and supplemental materials including drinking water, milk and/or dairy products, egg products, fruit products, bean products, refined sugar and edible vegetable oil after going through blending, sterilization, homogeneity, cooling, aging, freezing, hardening and other technologies with or without food additives and/or food nutritive fortifiers.

3.2 Full-milk fat ice cream

Ice cream whose milk fat content accounts for more than 8% of its main body (exclusive of the non-fat)

3.3 Milk fat ice cream

Full-cream ice cream without granules or dices, such as cream ice cream and cocoa ice cream.

3.4 Combination of milk fat ice cream

Products based on full-milk fat ice cream and combined with frozen drinks and/or chocolate, biscuits and other foods. Full-milk fat ice cream shall account for over 50% of its whole weight, such as the chocolate cream ice cream, egg roll cream ice cream, etc.

3.5 Half milk-fat ice cream

Ice cream whose milk fat content accounts for 2.2 % of its main body or higher

3.6 Uniform half-milk fat ice cream

Half-milk fat ice cream without granules or dices, such as vanilla half-milk fat ice cream, tangerine-flavored half-milk fat ice cream, purple yam half-milk fat ice cream, etc.

3.7 Combination of half-milk ice cream

Products based on full-milk fat ice cream and combined with frozen drinks and/or chocolate, biscuits and other foods. Half-milk fat ice cream shall account for over 50% of its whole weight, such as crispy half-milk fat ice cream, egg roll half-milk fat ice cream, sandwich half-milk fat ice cream, etc.

3.8 Vegetable fat ice cream

Ice cream whose milk fat content accounts for lower than 2.2 % of its main body

3.9 Uniform vegetable fat ice cream

Vegetable fat ice cream without granules or dices, such as soymilk and cocoa vegetable fat ice cream, etc.

3.10 Combination vegetable fat ice cream

Products based on full-milk fat ice cream and combined with frozen drinks and/or chocolate, biscuits and other foods. Vegetable fat ice cream shall account for over 50% of the whole weight, such as the chocolate crispy vegetable fat ice cream, waffle vegetable fat ice cream with filling, etc.

3.11 Collapse

The ice cream softens and collapses

3.123 Shrinkage

Shrinkage of ice cream after being shaped

3.13 Expansion

Expansion of ice cream paste after it is made into ice cream via relevant processes

3.14 Non-fat milk solid

Residue in milk solids with milk fat removed

4. Product classification

4.1 Full-milk fat ice cream

4.1.1 Milk fat ice cream

4.1.2 Combination of milk fat ice cream

4.2 Half milk-fat ice cream

4.2.1 Uniform half-milk fat ice cream

4.2.2 Combination of half-milk fat ice cream

4.3 Vegetable fat ice cream

4.3.1 Uniform vegetable fat ice cream

4.3.2 Combination vegetable fat ice cream

5. Raw and auxiliary materials

5.1 Drinking water

It shall be in accordance with GB 5749.

5.2 White granulated sugar

It shall be in accordance with GB 317.

5.3 Dairy products

It shall be in accordance with relevant national standards or industrial standards.

5.4 Egg products

It shall be in accordance with GB 2749.

5.5 Edible vegetable oil

It shall be in accordance with GB 2716.

5.6 Other raw and auxiliary materials

The application scope and amount shall be in accordance with GB 2760 and GB 14880.

5.7 Food additives and food nutritive fortifiers

Their quality shall be in accordance with relevant national standards or industrial standards.

6. Technical requirements

6.1 Sensory requirements

It shall be in accordance with Table 1.

Table 1 Sensory requirements

Items	Requirements					
	Full-milk		Half-milk		Vegetable fat	
	Uniform	Combination	Uniform	Combination	Uniform	Combination
Colors	Color uniformity with the characteristic colors					
Shape	Complete and uniform shape without deformation, collapse or shrinkage					
Tissue	Smooth and fine with the intrinsic tissue characters but no pores					
Taste and odor	Mild milk fat flavor with no off-flavor		Mild milk flavor with no off-flavor		Mild vegetable fat flavor with no off-flavor	
Impurities	No visible exogenous impurities					

6.2 Physicochemical indexes

It shall be in accordance with Table 2.

Table 2 Physicochemical indexes

Items	Indexes					
	Full-milk		Half-milk		Vegetable fat	
	Uniform	Combination	Uniform	Combination	Uniform	Combination
Non-fat solids /(g/100 g) ≥	6.0					
Total solids /(g/100 g) ≥	30.0					
Fat /(g/100 g) ≥	8.0		6.0	5.0	6.0	5.0
Protein /(g/100 g) ≥	2.5	2.2	2.5	2.2	2.5	2.2
Note 1: All indexes of the combination products refer to the main body of ice cream. Note 2: Non-fat solid content shall be calculated in terms of original materials.						

6.3 Hygienic index

The hygienic indexes shall be in accordance with GB 2759.1.

6.4 Net content

It shall be in accordance with the Metrological Supervision and Management Measures for Prepackaged Products.

6.5 Food additives and food nutritive fortifiers

They shall be respectively in accordance with GB 2760 and GB 14880.

7. Control over the production process

It shall be in accordance with GB 14881.

8. Test methods

8.1 Sensory requirements

Place an individual frozen packaged sample in a clean, dry white porcelain dish. First check the package and then unwrap it to check its colors, forms, textures or impurities with eyes. Then check its taste and odor with the mouth and nose.

8.2 Minus deviation of net content

It shall be implemented in accordance with JJF 1070.

8.3 Total solids, fat and protein

It shall be tested in accordance with SB/T 10009.

8.4 Hygienic indexes

It shall be tested in accordance with GB 2759.1.

9. Inspection rules

9.1 Lots

Products of the same type, batch and specification shall be classified into one lot.

9.2 Sampling methods and amount

Samples shall be chosen evenly from the finished product warehouse at random on a 1/2,000 basis. Each batch shall weigh 2 kg or more.

9.3 Delivery inspection

9.3.1 Finished products shall be inspected on a lot-by-lot basis before delivery. Only qualified products shall be entitled to delivery.

9.3.2 Delivery inspection items shall include sensory requirements, net content and the aerobic bacterial count and coli-group specified in hygienic indexes.

9.4 Type inspection

9.4.1 During the regular production, type inspections shall be carried out every half year. Such inspections shall be carried out under the following circumstances:

a) When new products is tested for trial-production;

b) When production resumes after long-term shutdown;

c) When the raw materials and technologies undergo great changes which may impact the product quality;

d) When big differences exist between the delivery inspection results and the previous type inspection results;

e) When the quality testing institution make requests for tests.

9.4.2 Type inspection items include all items in “6 Technical requirements”.

9.5 Judgment rules

9.5.1 Delivery inspection judgment and recheck

9.5.1.1 Products shall be considered as “qualified ones” when the delivery inspection items are all in accordance with this standard.

9.5.1.2 Sampling and recheck shall be carried out if any delivery inspection item fails to be in accordance with this standard (exclusive of aerobic bacterial count and coli group specified in the hygienic indexes). Products shall be considered as “disqualified ones” if they still fail to be in accordance with the standard in the recheck.

9.5.1.3 Products shall be considered as “disqualified ones” and no more rechecked if any microbiological indicator of aerobic bacterial count and coli group specified in the hygienic index fails to be in accordance with this standard.

9.5.2 Type inspection judgment and recheck

9.5.2.1 Products shall be considered as “qualified ones” if type inspection items are all in accordance with the standard.

9.5.2.2 Sampling and recheck shall be carried out if 3 or less type inspection items (exclusive of the microbiological indicators specified in hygienic indexes) fail to be in accordance with the standard. Products shall be considered as “disqualified ones” if any type inspection item still fails to be in accordance with this standard. Recheck shall not be carried out and the product batch shall be considered as “disqualified ones” if more than 3 type inspection items fail to be in accordance with the standard.

9.5.2.3 Recheck shall not be carried out and the product batch shall be considered as “disqualified ones” if any microbiological indicator specified in the hygienic indexes fails to be in accordance with the standard.

10. Labels

10.1 The labels on the prepackaged products shall be in accordance with GB 7718 and note the categories.

10.2 Ice cream products whose juice content is below 2.5% shall be labeled as “××Fruity Ice Cream”. Products whose juice content is 2.5% or more shall be labeled as “×× Juice Ice Cream”. Products which contain fruit pulp or slices shall be labeled as “×× Fruit Ice Cream”.

11. Packages

11.1 Packaging materials shall be in accordance with relevant national standards or industrial standards.

11.2 The single packages shall be complete with intact, airtight seals.

11.3 The packaging boxes shall be firm, neat and complete without damages. They shall be in accordance with the content and sealed outward.

12. Transportation

12.1 Transport vehicles shall be in accordance with hygiene requirements. Refrigerated trucks shall be used in short-range transportation and the carriage temperature for long-range refrigerated trucks shall be below -15℃

12.2 Products shall not be stored or transported with hazardous objects or contaminants. Pressure shall be avoided.

12.3 Products shall be handled gently without being flung, impacted or pressed.

13. Storage

13.1 Products shall be stored in the special-purpose stores at or below -18℃The stores shall be cleaned and sterilized on a regular basis.

13.2 Products shall be piled on pallets more than 10 cm away from the ground and walls.

13.3 Products shall not be stored with poisonous, hazardous, odorous or volatile objects or other sundries.

14. Sales

Products shall be sold in low-temperature display cabinets at or below -15℃

15. Recall

It shall be implemented according to Food Recall Management Regulations.

National Standards of People's Republic of China

GB/T 31119-2014

National Food Safety Standard

Frozen Drinks – Ice Milk

Issued on: 2014-09-03 Implemented on: 2015-04-01

Issued by General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China, Standardization Administration of China

Foreword

This standard has been drafted according to regulations given by GB/T 1.1—2009.

This standard has been proposed by China General Chamber of Commerce.

This standard has been put under centralized management of National Technical Committee for Standardization of Frozen Drinks (SAC/TC 497).

This standard has been drafted by Zhejiang Wufeng Cold Food Co.,ltd, Youcan Food (Hangzhou) Co.,ltd, Shenzhen Oceanpower Industry Company Limited, Inner Mongolia Mengniu Dairy (Group) Co.,ltd, Inner Mongolia Yili Industry Group Co.,ltd, Guangzhou Meiyile Food Co.,ltd, Frozen Drink Specialized Committee of China Association of Bakery & Confectionery Industry and Business Standard Centre for China General Chamber of Commerce.

This standard has been drafted mainly by Hu Wulian, Wang Ying, He Weiping, Zhao Jianhua, Liu Weixing, Zhang Yingchun, Lan Hongwang, Ouyang Shuzhen, Jin Xiaolei and Zhangxi.

National Standard for Food Safety

Frozen drinks – ice milk

1. Scope

The standard specifies the terms and definitions of ice milk, its product classification, raw and auxiliary materials, technical requirements, production process management, test methods, test rules, labels, packages, transportation, storage, sales and request for recall.

This standard is applicable to the production, test and sales of ice milk.

2. Criteria for quotations and references

The following documents are indispensable to the usage of this document. Only dated versions of dated reference documents are applicable to this document. The latest versions (inclusive of all modification lists) of undated reference documents are applicable to this document.

GB 317 White granulated sugar

GB 2716 Hygienic standard for edible vegetable oil

GB 2749 Hygienic standard for egg products

GB 2759.1 Hygienic standard for cold drinks

GB 2760 National Standard for Food Safety-- application standard for food additives

GB 5749 Hygienic standard for drinking water

GB 7718 National Standard for Food Safety-- general rule of labels for prepackaged food

GB 14880 National Standard for Food Safety-- application standard for food nutritive fortifiers

GB 14881 National Standard for Food Safety—general hygienic standard for food production

SB/T 10009 Test methods for cold drinks

The Metrological Supervision and Management Measures for Prepackaged Products (Order No. 75 issued by General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China)

Food Recall Management Regulations (Order No. 98 issued by General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China)

3. Terms and definitions

The following terms and definitions are applicable to this document.

3.1 Ice milk

A type of frozen drink made of one or more raw and supplemental materials including drinking water, milk

and/or dairy products, egg products, fruit products, bean products, refined sugar and edible vegetable oil after going through blending, sterilization, homogeneity, cooling, shaping or freezing.

3.2 Uniform ice milk

Ice milk without granule- or lump-shaped supplemental materials

3.3 Combination ice milk

Products based on ice milk and combined with relevant supplemental materials such as chocolate. Ice milk shall account for over 50% of its total weight.

4. Product classification

4.1 Uniform ice milk

4.2 Combination ice milk

5. Raw and auxiliary materials

5.1 Drinking water

It shall be in accordance with GB 5749.

5.2 White granulated sugar

It shall be in accordance with GB 317.

5.3 Dairy products

It shall be in accordance with relevant national standards or industrial standards for dairy products.

5.4 Egg products

It shall be in accordance with GB 2749.

5.5 Edible vegetable oil

It shall be in accordance with GB 2716.

5.6 Food additives and food nutritive fortifiers

They shall be respectively in accordance with relevant national standards or industrial standards.

5.7 Other raw and supplemental materials

They shall be in accordance with relevant national standards or industrial standards.

6. Technical requirements

6.1 Sensory requirements

They shall be in accordance with Table 1.

Table 1

Items	Requirements	
	Uniform ice milk	Combination ice milk
Colors	With their characteristic colors	
Forms	Complete forms and uniform sizes. Sticks for the products shall be tidy without fracture or being surplus.	
Texture	Firmly frozen, fine and smooth	With their characteristic texture features
Taste and odor	Pure and mild with no undesirable odor	
Impurities	No visible extraneous matters	

6.2 Physicochemical indexes

They shall be in accordance with Table 2

Table 2 Physicochemical indexes

Items		Indexes	
		Uniform ice milk	Combination ice milk
Total solid content/(g/100 g)	≥	20	
Protein/(g/100 g)	≥	0.8	0.4
Fat/(g/100 g)	≥	2.0	1.0

6.3 Hygienic indexes

They shall be in accordance with GB 2759.1.

6.4 Food additives and food nutritive fortifiers

Their application scope and dosage shall be respectively in accordance with GB 2760 and GB 14880.

6.5 Net content

It shall be in accordance with the Metrological Supervision and Management Measures for Prepackaged Products.

7. Sanitary control over production

It shall be in accordance with GB 14881.

8. Test methods

8.1 Sensory requirements

Place an individual frozen packaged sample in a clean, dry white porcelain dish. First check the package and then unwrap it to check its color, form or impurities with eyes. Then check its taste and odor with the mouth and nose.

8.2 Minus deviation of net content

It shall be implemented in accordance with JJF 1070.

8.3 Total solid content, protein and fat

It shall be determined with the methods specified in SB/T 10009.

8.4 Hygienic indexes

It shall be detected with the methods specified in GB 2759.1.

9. Inspection rule

9.1 Group batching

Products of the same group, type or specification shall be classified into a batch.

9.2 Sampling methods and quantity

Samples shall be separately and evenly chosen at random from the finished product warehouse. Every batch of extracted samples shall be of 2 kg or more.

9.3 Delivery inspection

9.3.1 Finished products shall be detected on a lot-by-lot basis before delivery and leave the factory only when they pass the inspection.

9.3.2 Delivery inspection items shall include sensory requirements, net content and the aerobic bacterial count and coli-group specified in hygienic indexes.

9.4 Type inspection

9.4.1 As to the regular production, type inspections shall be carried out every half year. Such inspections shall be carried out under the following circumstances:

a) When new products is tested for trial-production;

b) When production resumes after long-term shutdown;

c) When the raw materials and technologies undergo great changes which may impact the product quality;

d) When big differences exist between the delivery inspection results and the previous type inspection results;

e) When the quality testing institution makes requests for tests.

9.4.2 Type inspection items include all items in “6 Technical requirements”.

9.5 Judgment rules

9.5.1 Delivery inspection judgment and recheck

9.5.1.1 Products shall be considered as “qualified ones” when the delivery inspection items are all in accordance with this standard.

9.5.1.2 Sampling and recheck shall be carried out if any delivery inspection item fails to be in accordance with this standard (exclusive of aerobic bacterial count and coli group specified in the hygienic indexes). Products

shall be considered as “disqualified ones” if they still fail to be in accordance with the standard in the recheck.

9.5.1.3 Products shall be considered as “disqualified ones” and no more rechecked if any microbiological indicator fails to be in accordance with this standard.

9.5.2 Type inspection judgment and recheck

9.5.2.1 Products shall be considered as “qualified ones” if all type inspection items are in accordance with the standard.

9.5.2.2 Sampling and recheck shall be carried out if 3 or less type inspection items (exclusive of the microbiological indicators specified in hygienic indexes) fail to be in accordance with the standard. Products shall be considered as “disqualified ones” if any type inspection item still fails to be in accordance with this standard. Recheck shall not be carried out and the product batch shall be considered as “disqualified ones” if more than 3 type inspection items fail to be in accordance with the standard.

9.5.2.3 Recheck shall not be carried out and the product batch shall be considered as “disqualified ones” if any microbiological indicator specified in the hygienic indexes fails to be in accordance with the standard.

10. Labels and tabs

10.1 The labels on the individual prepackaged products shall be in accordance with GB 7718 and note the categories.

10.2 Ice milk products whose juice content is below 2.5% shall be labeled as “××Fruity Ice Milk”. Products whose juice content is 2.5% or more shall be labeled as “×× Juice Ice Milk”. Products which contain fruit pulp or slices shall be labeled as “×× Fruit Ice Milk”.

11. Packages

11.1 Packaging materials shall be in accordance with relevant national standards or industrial standards.

11.2 The individual packages shall be complete with intact, airtight seals.

11.3 The packaging boxes shall be firm, neat and complete without damages. They shall be in accordance with the content and sealed outward.

12. Transportation

12.1 Transport vehicles shall be in accordance with hygiene requirements. Refrigerated trucks shall be used in short-range transportation and the carriage temperature for long-range refrigerated trucks shall be below -15°C.

12.2 Products shall not be stored or transported with hazardous objects or contaminants. Pressure shall be avoided.

12.3 Products shall be handled gently without being flung, impacted or pressed.

13. Storage

13.1 Products shall be stored in the special-purpose stores at or below -18°C. The stores shall be cleaned and sterilized on a regular basis.

13.2 Products shall be piled on pallets more than 10 cm away from the ground and walls.

13.3 Products shall not be stored with poisonous, hazardous, odorous or volatile objects or other sundries.

14. Sales

Products shall be sold in low-temperature display cabinets at or below -15°C.

15. Recall

It shall be implemented according to Food Recall Management Regulations.

SBT 10016-2008 Frozen Drinks – Ice Lolly

Domestic Commercial Standard of the People's Republic of China

SBT 10016-2006

Frozen Drinks – Ice Lolly

Issued on: 2008-12-04 Implemented on: 2009-07-01

Issued by Ministry of Commerce of the People's Republic of China

Foreword

This Standard will replace SB/T 1006-1999 Frozen Drinks-Ice Lolly.

Key updates from the earlier version SB/T 10013-1999 are as follows:

- Standard's title was renamed as Frozen Drinks- Ice Lolly;
- Terms and Definition were added for Ice Lolly products;
- Section on "Product Classification" was amended;
- Requirement indexes for total solids, total sugar were amended;
- Requirements for production and sales process controls were added.

This standard was co-proposed by China General Chamber of Commerce and China Association of Bakery & Confectionery Industry.

This Standard is under the jurisdiction of Ministry of Commerce of the People's Republic of China.

This standard is co-drafted by the following organizations: Business Standards Committee of China General Chamber, Frozen Drink Professional Committee of China Association of Bakery & Confectionery Industry, China National Research Institute of Food & Fermentation Industries, Inner Mongolia Yili Industrial Group Co., Ltd, Inner Mongolia Mengniu Dairy Industry (Group) Co., Ltd, Beijing Allied Faxi Food Co., Ltd, Shenyang Deshi Enterprise Group Co., Ltd., Hongbaolai Group Co., Ltd, Shanghai Yimin No.1 Foods (Group)Co. ,Ltd, Walls (China) Co., Ltd, Nestle (China) Co., Ltd ,Youcan Foods (Hangzhou) Co., Ltd, Hangzhou Wufeng Foods Co., Ltd, Liaoning Tianqi Foods Group Co., Ltd, Guangdong Mei Yile Foods Co., Ltd, Tianbing (Group) Frozen Drinks Co., Ltd, Shanghai Haagen-Dazs Foods Co., Ltd, Beijing Yoshinoya Co., Ltd, Danisco (China) Co., Ltd, Shanghai Tangjiu (Group) Co., Ltd, etc.

This standard was mainly drafted by: Zhang Lijun, Mao Jinmei, Chen Yan, Zhang Chong, Kang Huiling, Zhou Wei, Wang Guoming, Gao Haijun, Xie Guiying, Ji Hongzhi, Wu Chunzhu, Wang Ying, Lian Baolin, Zhang Ying, Oouyang Shuzhen, Liu Xingcang, Cao Min, Su Qinghui, Zou Chunlei, Feng Fusheng.

This standard supersedes all earlier versions, including:

- SB/T 1016-1999
- SB/T 1016-1992

Frozen Drinks – Ice Lolly

1. Scope

This standard will cover relevant requirements that fall under the frozen drinks-ice lolly product category, e.g. terms and definition, product classification, technical requirements, production process controls, sampling & test methods, labeling, packaging, transportation, storage and marketing.

This standard is applicable to the production, distribution, sampling and testing of prepackaged ice lolly products.

2. Normative References

The normative documents that have been referenced in this text are essential to the interpretation and application of this standard. For dated references, only the edition bearing the stipulated date is applicable to this standard. For undated references, the latest edition of the normative document (including all its amendments) will apply.

GB317 *White Granulated Sugar*

GB2759.1 *Hygienic Standard for Frozen Drinks*

GB2760 *Hygienic Standards for Uses of Food Additives*

GB/T4789.1 *Microbiological Examination of Food Hygiene - General Guidelines*

GB/T4789.2 *Microbiological Examination of Food Hygiene - Aerobic Plate Count*

GB/T4789.3 *Microbiological Examination of Food Hygiene - Enumeration of Coliforms*

GB/T4789.4 *Microbiological Examination of Food Hygiene - Examination of Salmonella*

GB/T4789.5 *Microbiological Examination of Food Hygiene - Examination of Shigella*

GB/T4789.10 *Microbiological Examination of Food Hygiene - Detection of Staphylococcus aureus*

GB/T4789.21 *Microbiological Examination of Food Hygiene - Examination of Frozen Drinks and Cold Drinks*

GB/T5009.11 *Determination of Total Arsenic and Abio-Arsenic in Food*

GB/T5009.12 *Determination of Lead in Foods*

GB/T5009.13 *Determination of Copper in Foods*

GB5749 *Standards for Drinking Water Quality*

GB7718 *General Standard for the Labeling of Prepackaged Foods*

GB14880 *Hygienic Standard for the Use of Nutritional Supplements in Foods*

GB14881 *General Hygienic Regulation for Food Enterprises*

SB/T10009 *Examination Methods of Frozen drinks - the Measures for the Measurement Supervision and Administration of Prepackaged Commodities with Fixed Content AQSIQ NO. 75 2005*

3. Terms and Definition

The following terms and definition will apply for this standard.

3.1 Ice Lolly

Refers to frozen beverage manufactured through proper processes such as mixing, sterilization, hardening and forming/shaping, using drinking water, sugar as key ingredients. Ingredients may or may not include food additives.

3.2 Vacancy

Refers to the hollow which appears upon the dissection of the root of the ice lolly product with a knife.

4. Product Classification

4.1 Pure/Uniform Ice Lolly

4.2 Blended/Make Up Ice Lolly

5. Technical Requirements

5.1 Raw Ingredients

5.1.1 Drinking Water: Should comply with the standard GB 5749.

5.1.2 White Granulated Sugar: Should comply with the standard GB 317.

5.1.3 Dairy Products: Should comply with relevant national standards for dairy products.

5.1.4 Food Additives and Nutritional Supplements：Should use additives and nutritional supplements explicitly permitted by GB 2760 and GB 14880; should also comply with the relevant food additives requirements and standards.

5.1.4 Other raw ingredients should comply with relevant national standards.

5.2 Sensory Requirements

Should comply with the requirements listed in Table 1.

Table 1 Sensory Requirements

Items	Requirements
Color and Luster	Possesses the color and luster that products supposed to have
State / Shape	Complete in shape, uniform in size. For products with sticks, stick used should arranged neatly without extra, and it should not be broken or missing
Texture / Appearance	Frozen solid, has texture/appearance that products supposed to have
Taste and Aroma	Harmonized palate and pure/authentic aroma, without unusual taste or aroma
Impurities	Displays no visible contaminant/impurity

5.3 Net Content

Should comply with the *Measures for the Metrological Supervision and Administration of Quantitatively Packed Commodities.*

5.4 Physical-Chemical Index

Should comply with the requirements listed in Table 2.

Table 2 Physical-Chemical Index

Item		Index	
		Pure/Uniform	**Blended/Make Up[a]**
Total Solids / %	≥	11.0	
Total Sugar (per unit sucrose) / %	≥	7.0	
[a] for blended/make up ice lolly, each index values listed are applicable just to the main body of ice lolly.			

5.5 Hygiene Index

The individual limits for the total amount of arsenic, lead, copper, aerobic bacteria, coliforms and other pathogens should comply with the standard GB2759.1.

5.6 Food Additives and Nutritional Supplements

The use of food additives and nutritional supplements should comply with the requirements of national standards GB 2760 and GB 14880.

6. Production Controls

Manufacturing enterprises should ensure that their production process complies with GB 14881.

7. Sampling and Test Methods

7.1 Sensory Requirements

Take out a single frozen prepackaged sample product and place it in clean, dry white porcelain plate. Check the quality of its packaging before extracting it from its packaging, then visually inspect its color, luster, state/shape, texture/appearance and for the presence of impurities, etc. Lastly, determine if product fulfills other sensory requirements by the means of tasting and smelling.

7.2 Net Content

Using a scale with accuracy of 0.1g, determine the total mass of the prepackaged sample. Following that, determine the mass of only its packaging (along with the milk ice stick). Compute the difference between the two results.

7.3 Total Solids, Fats, Protein and Overrun

Should be tested according to the standard SB/T 1009.

7.4 Total Arsenic Content

Should be tested according to the standard of GB/T 5009.11.

7.5 Lead Content

Should be tested according to the standard of GB/T 5009.12.

7.6 Copper Content

Should be tested according to the standard of GB/T 5009.13.

7.7 Aerobic Bacteria Count

Should be tested according to the standard of GB/T 4789.2.

7.8 Coliforms Index

Should be tested according to the standard of GB/T 4789.3.

7.9 Pathogens Index

Should be tested according to the standard of GB/T 4789.4, GB/T 4789.5 and GB/T 4789.10.

8. Sampling and Test Guidelines

8.1 Factory Out-Going Inspection

8.1.1 All finished goods have to clear the batch by batch inspection, conducted by the factory's internal inspection division before it is released and distributed to the market.

8.1.2 Factory out-going inspection tests cover sensory requirements, net content requirements and limits on microorganism, e.g. aerobic bacteria count and coliforms.

8.2 Type Inspection

8.2.1 Under normal production circumstances, type inspection should be conducted on a semiannual basis. On top of that, type inspection should also be done under the following situations:

a) New product trial was identified;

b) Resuming production after long period of production shutdown;

c) Significant changes in raw materials and/or processes that have material effect on product quality;

d) Recent out-going inspection result deviates significantly from the result of the last type inspection;

e) Explicitly required by institutions for quality control.

8.2.2 Type inspection tests cover all items required under the "Technical Requirements" section in this SB/T 10016-2008 standard.

8.3 Batch

Products classified under the same product category, manufactured using similar specifications during the same shift are considered as a single batch.

8.4 Sampling Methods and Quantity

Draw samples from the finished goods warehouse in a random, well-dispersed and uniform manner. Sample minimum unit is expressed in crates/boxes. The required quantity to be drawn for sampling and tests is calculated with formula (1), but sample size should not be less than 3 (inclusive of 3).

$$S = \sqrt{\frac{N}{10}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

In the formula:

S: sample size (in number of crates/boxes);

N: total number scheduled for inspection.

Required number of samples (smallest packaging) drawn from each selected crate/box is calculated with formula (2), but sample size should not be less than 12.

$$S_1 = \sqrt{\frac{N_1}{2}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

In the formula:

S1: sample size (smallest packaging);

N_1: total number of product (smallest packaging) in each selected crate/box.

8.5 Inspection Decision Rules

8.5.1 Decision Rules for Factory Out-Going Inspection and Re-Inspection

8.5.1.1 If the result of sampling tests fulfill all requirements stipulated in this standard, the products will be considered cleared.

8.5.1.2 If the drawn samples failed part of the technical tests stipulated in this standard (excluding tests for aerobic bacteria count, coliforms and pathogens), re-inspection can be carried out with double the sample quantity used in the first round. Under the circumstance that drawn samples failed the re-inspection, the out-going products will be rejected.

8.5.1.3 If the drawn samples failed to fulfill the requirements for any of the microorganism/pathogen limits (e.g. aerobic bacteria count, coliform), the outgoing products will be immediately rejected without given the chance for re-inspection.

8.5.2 Decision Rules for Type Inspection and Re-Inspection

8.5.2.1 If the result of sampling tests fulfill all requirements stipulated in this standard, the products will be considered cleared.

8.5.2.2 If the drawn samples failed part of the technical tests stipulated in this standard (excluding tests for aerobic bacteria count, coliforms and pathogens), re-inspection can be carried out with double the sample quantity used in the first round. Under the circumstance that drawn samples failed the re-inspection, the out-going products will be rejected.

8.5.2.3 If the drawn samples failed to fulfill the requirements for any of the microorganism/pathogen limits (e.g. aerobic bacteria count, coliform), the outgoing products will be immediately rejected without given the chance for re-inspection.

9. Labeling

9.1 Labels used for single prepackaged product should comply with the standard GB 7718.

9.2 Products containing equal to or more than 2.5% fresh fruit juice, can include the label, “XX fruit juice based ice lolly”; products containing less than 2.5% fresh fruit juice should be labeled “XX fruit-flavored ice lolly” instead of the abovementioned format; products containing fruit pulps (pieces of fruits) can be labeled as “XX fruit ice lolly”. All labels are in Chinese.

10. Packaging

10.1 Packaging material should comply with relevant national standards.

10.2 Product should be well packaged and tightly sealed without any damage to its packaging. The content of the packaging must not be exposed.

10.3 Crates/Boxes should be secured/firm, organized, complete and undamaged, while the appearance should be neat, corresponding to their contents. They should be well sealed with tapes externally.

11. Transportation

11.1 Vehicle fleet used for transportation and distribution should comply with relevant hygienic requirements. Refrigerated trucks and vehicles fitted with insulation technology can be used for short-haul product transportation, while refrigerated trucks with in-built temperature system are necessary for long-distance product distribution.

11.2 Product should not be packed, transported together with toxic, contaminated items. It is necessary to avoid product damage from deformation during transport process.

11.3 Product should be handles with care during the transportation process to minimize potential damages.

12. Storage

12.1 Products should be stored in specialized refrigerated warehouse with temperature controlled at less than −22°C. The refrigerated warehouse should be cleaned and sterilized regularly.

12.2 Product should be stacked in pallets, maintaining a distance of more than 20cm away from nearby walls, at less than 2m in height.

12.3 Products must not be stored together with toxic, poisonous, foul-smelling or volatile substances. Products should also not be stored together with other miscellaneous non-food items.

13. Marketing

Products should be retailed in frozen condition; temperature of the showcase freezer should be maintained at a level less than −15°C.