

Appendix A6: National Standards – Meat

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National Standards Applicable to Meat Category

General Standards for Multiple Meat Categories

GB 2707-2005 Hygienic Standard for Fresh (Frozen) Meat of Livestock



National Standards of People's Republic of China

GB 2707-2005

Hygienic Standard for Fresh (Frozen) Meat of Livestock

Issued on: 2005-01-26

Implemented on: 2005-10-01

**Issued by Ministry of Health of the People's Republic of China & China National
Standardization Management Committee**

Foreword

The entirety of this standard is mandatory.

This standard will supersede GB 2707-1994 “Hygienic Standard for Pork” and GB 2708-1994 “Hygienic Standard for Beef, Mutton and Rabbit Meat.”

As compared to the GB 2707-1994 and GB 2708-1994, this standard has these key changes:

- Format of this standard had been modified in accordance with GB/T 1.1-2000;
- GB 2707-1994 and GB 2708-1994 had been combined with its applicable scope expanded;
- Structure used in GB 2707-1994 and GB 2708-1994 had been amended and sections on hygienic requirements for raw materials, food additives, manufacturing and processing, packaging, transportation and storage had been added;
- Requirements on index limits for lead, inorganic arsenic, cadmium, total mercury and pesticide residues were added;
- Limits on volatile nitrogen was modify to $\leq 15\text{mg}/100\text{g}$.

This standard will be implemented on Oct.1, 2005, with a transitional period of one year given. Products manufactured before Oct.1, 2005 but comply with the requirements of the earlier standards relevant are allowed to be legally sold up till Sept.30, 2006.

The standard is proposed by Ministry of Health of People's Republic of China and it will also fall under their jurisdiction.

The organizations involved in the drafting process: Jiangsu Center for Disease Control and Prevention, Shanghai Health Supervision Institute, Hangzhou Health Supervision Institute, Liaoning Health Supervision Institute, Health Supervision Center of Ministry of Health, Beijing Center for Disease Control.

Key personnel involved in the drafting process: Baojun Yuan, Zhenhua Gu, Baorong Fan, Yanping Cai, Jiangping Li, Yunyan Zheng, Xiuying Ding.

The following earlier versions will be replaced by this standard:

- GB 2707-1981, GB 2707-1994;
- GB 2708-1981, GB 2708-1994.

Hygienic Standard for Fresh (Frozen) Meat of Livestock

1. Scope

This standard specifies the hygiene index limits and the corresponding testing methods for fresh (frozen) meat of livestock as well as the hygiene requirements on food additives, production and processing procedure, labeling, packaging, transportation and storage.

This standard is applicable to fresh or frozen meat of livestock produced by proper slaughter and processing methods and then declared qualified after hygiene inspection by a veterinarian

2. Normative References

Clauses involved in the following documents constitute the ones in this part through reference in this standard. Any dated reference and the following amendment or revised version are not applicable to this part. However, the study of whether the latest version of these documents can be used by all parties who reach agreement according to this part is encouraged. Any latest version of the non-dated reference is applicable to this part.

GB2763	<i>Maximum Limit for Amount of Pesticide Residues in Foods</i>
GB /T 5 009.11	<i>Testing Method for Total Arsenic in Foods</i>
GB /T 5 009.12	<i>Testing Method for Lead in Foods</i>
GB /T 5 009.15	<i>Testing Method for Cadmium in Foods</i>
GB /T 5 009.17	<i>Testing Method for Mercury in Foods</i>
GB/T5009.44	<i>Analysis Method for Hygienic Standard of Meat and Meat Products</i>
GB7718	<i>General Principle for Prepackaged Food Labels</i>
GB12694	<i>Hygienic Specifications for Meat Processing Plant</i>

3. Requirements on Index

3.1 Requirements on Raw Materials

Livestock should be healthy, sourced from non-epidemic regions, and possess inspection and quarantine certification from veterinarians based in the area of production.

3.2 Sensory Requirements

Absence of weird odor or rancid smell/taste.

3.3 Chemical-Physical Index Requirements

Chemical-physical index values should comply with requirements listed in Table 1.

Table 1 Requirement on Index

Item		Index
Volatile Nitrogen (mg/100g)	≤	15
Lead (Pb) / (mg/kg)	≤	0.2
Inorganic Arsenic / (mg/kg)	≤	0.05
Cadmium (Cd) / (mg/kg)	≤	0.1
Total Mercury (Hg) / (mg/kg)	≤	0.05

3.4 Pesticide Residues

Implemented according to GB 2763.

3.5 Veterinary Drug Residues

Implemented according to relevant national standards and relevant regulations.

4. Production and Processing Procedures

Hygiene requirements on the production and processing procedures of fresh (frozen) meat of livestock should comply with GB 12694.

5. Packaging

Packaging container and materials used should comply with corresponding hygienic standard and relevant regulations.

6. Labeling

Requirements on packaging label should comply with GB 7718.

7. Storage and Transportation

7.1 Storage

Products should be stored in dry, well-ventilated locations, isolated from toxic, foul-smelling, hazardous, volatile and easily decomposable products.

7.2 Transportation

Direct sunlight and rain should be avoided during product transportation. Products should not be transported together with toxic, hazardous, foul-smelling substances or any substances that may have material effect on the products' quality.

8. Testing Methods

8.1 Sensory Index

Tested according to the method specified in GB/T 5009.44.

8.2 Chemical-Physical Index

8.2.1 Volatile Nitrogen: Determined by method specified in GB/T 5009.44.

8.2.2 Lead: Determined by method specified in GB/T 5009.12.

8.2.3 Inorganic Arsenic: Determined by method specified in GB/T 5009.11.

8.2.4 Cadmium: Determined by method specified in GB/T 5009.15.

8.2.5 Total Mercury: Determined by method specified in GB/T 5009.17.

GB 2726-2005 Hygienic Standard for Cooked Meat Products



National Standards of People's Republic of China

GB 2726-2005

Hygienic Standard for Cooked Meat Products

Issued on: 2005-01-25

Implemented on: 2005-10-01

**Issued by Ministry of Health of the People's Republic of China & China National
Standardization Management Committee**

Foreword

The entirety of this standard is mandatory.

This standard is not equivalent to the Codex Alimentarius Commission (CAC) standard Codex Stan 89-1981 (Rev.1-1991) "Luncheon Meat", Codex Stan 96-1981 (Rev.1-1991) "Cooked Cured Ham", Codex Stan 97-1981 (Rev.1-1991) "Cooked Cured Pork Shoulder", Codex Stan 98-1981 (Rev.1-1991) "Cooked Cured Chopped Meat"; there are differences between this standard and the international codices abovementioned, in terms of technical content and text formatting.

This standard supersedes the following 7 standards, GB 2725.1-1994 Hygienic Standard for Meat Sausage, GB 2726-1996 Hygienic Standard for Sauced Braised Pork, GB 2727-1994 Hygienic Standard for Roasted Meat, GB/T 2728-1981 Hygienic Standard for Salted Pork, GB 2729-1994 Hygienic Standard for Dried Meat Floss, GB/T 13101-1991 Hygienic Standard for Western-style Steamed Pork and Smoked Ham, GB 16327-1996 Hygienic Standard for Jerky and Meat Slice.

As compared to GB 2725.1-1994, GB 2726-1996, GB 2727-1994, GB/T 2728-1981, GB 2729-1994, GB/T 13101-1991, GB 16327-1996, key changes are as follows:

- Format of this standard was modified according to GB/T 1.1-2000;
- Product classifications used in GB 2725.1-1994, GB 2726-1996 and 5 other standards had been combined into this current standard;
- Applicable scope had been expanded to all cooked meat products;
- Hygiene requirements on raw materials, food additives, production and processing procedure, packaging, transportation and storage were added;
- Index limits for lead, total mercury, cadmium, inorganic arsenic were added;
- Out-factory index for aerobic bacterial count and coliform included in the original standards were removed from this standard.

This standard will be implemented on Oct.1, 2005, with a transitional period of one year given. Products manufactured before Oct.1, 2005 but comply with the requirements of the earlier standards relevant are allowed to be legally sold up till Sept.30, 2006.

The standard is proposed by Ministry of Health of People's Republic of China and it will also fall under their jurisdiction.

The organizations involved in the drafting process: Jiangsu Center for Disease Control and Prevention, Shanghai Health Supervision Institute, Heilongjiang Food Health Supervision Institute, Liaoning Health Supervision Institute, Beijing Food Health Supervision Institute, Shanghai Center for Disease Control.

Key personnel involved in the drafting process: Baojun Yuan, Zhenhua Gu, Baorong Fan, Yanping Cai, Jiangping Li, Yunyan Zheng, Xiuying Ding.

The following earlier versions will be replaced by this standard:

- GB 2725.1-1981, GB 2725.1-1994;
- GB 2726-1981,GB 2726-1996;
- GB 2727-1981,GB2727-1984;
- GB/T 2728-1981;
- GB 2729-1981, GB 2729-1994
- GB/T 13101-1991;
- GB 16327-1996.

Hygienic Standard for Cooked Meat Products

1. Scope

This standard specifies the hygiene index limits and corresponding testing methods for cooked meat products as well as hygiene requirements on food additives, production and processing procedure, labeling, packaging, transportation and storage.

The standard is applicable to cooked meat products made mainly from fresh or frozen meat of livestock and poultry, including cooked jerky, dried meat products.

2. Normative References

Clauses involved in the following documents constitute the ones in this standard through reference in this standard. Any dated reference and the following amendment or revised versions are not applicable to this standard. However, the study of whether the latest version of these documents can be used by all parties who reach agreement according to this standard is encouraged. Any latest version of the non-dated reference is applicable to this standard.

GB 2760	<i>Hygienic Standard of Food Additives</i>
GB/T 4789.17	<i>Food Hygiene Microbiological Tests: Test for Meat and Meat Products</i>
GB/T 5009.3	<i>Determination of Moisture in Foods</i>
GB/T 5009.11	<i>Testing Method for Total Arsenic in Foods</i>
GB/T 5009.12	<i>Testing Method for Lead in Foods</i>
GB/T 5009.15	<i>Testing Method for Cadmium in Foods</i>
GB/T 5009.17	<i>Testing Method for Mercury in Foods</i>
GB/T 5009.27	<i>Testing Method for Benzopyrene in Foods</i>
GB/T 5009.33	<i>Testing Method for Nitrite and Nitrate in Foods</i>
GB/T 5009.44	<i>Analysis Method for Hygienic Standard of Meat and Meat Products</i>
GB/T 5009.87	<i>Testing Method for Phosphorus in Foods</i>
GB 7718	<i>General Principle for Prepackaged Food Labels</i>
GB 12694	<i>Hygienic Specifications for Meat Processing Plant</i>
GB/T 19480	<i>Terminology for Meat and Meat Products</i>

3. Terms and Definition

The terms and definition defined in another standard, GB/T19480 will apply to this standard.

4. Requirements on Index

4.1 Requirements on Raw Ingredients

Main and supplementary (optional) ingredients should comply with relevant standards and regulations.

4.2 Sensory Requirements

Absence of weird odor, rancid smell/taste and foreign body; cooked jerky, dried meat products should not have burnt or moldy patches.

4.3 Chemical-Physical Index

Chemical-physical index values should comply with requirements listed in Table 1.

4.4 Microbiological Index

Microbiological index values should comply with requirements listed in Table 2.

Table 1 Chemical-Physical Index

Item		Index
Moisture (g/100g)		
Jerky, dried meat floss and other cooked jerky products	≤	20.0
Dried meat slice	≤	16.0
Oily meat floss and meat meal floss	≤	4.0
Composite phosphate ^a (g/kg)		
Smoked and steamed ham	≤	8.0
Other cooked meat products	≤	5.0
Benzopyrene ^b / (μg/kg)	≤	5.0
Lead (Pb) / (mg/kg)	≤	0.5
Inorganic Arsenic / (mg/kg)	≤	0.05
Cadmium (Cd) / (mg/kg)	≤	0.1
Total Mercury (Hg) / (mg/kg)	≤	0.05
Nitrite	≤	Implemented according to GB 2760
a. Includes phosphorus in meat originally and phosphate added, but excludes dried products.		
b. Only applies to roasted and smoked products.		

Table 2 Microbiological Index

Item		Index
Aerobic Bacterial Count / (cfu/g)		
Roasted meat, salted pork, meat sausage	≤	50,000
Sauced braised pork	≤	80,000
Smoked and steamed ham and other cooked meat products	≤	30,000
Dried meat floss, oily meat floss and meat meal floss	≤	30,000
Jerky, dried meat slice and other cooked jerky products	≤	10,000
Coliform / (MPN/100g)		
Meat sausage	≤	30
Roasted meat, smoked and steamed ham	≤	90
Salted pork, sauced braised pork	≤	150
Dried meat floss, oily meat floss and meat meal floss	≤	40
Jerky, dried meat slice and other cooked jerky products	≤	30
Pathogenic Bacterium (Salmonella, Staphylococcus Aureus, Shigella)		None should be detected

5. Food Additives

5.1 The quality of food additives used should comply with the corresponding standards and relevant regulations.

5.2 The variety and amount of food additives used should comply with the requirements specified in GB 2760.

6. Hygiene Requirements on Food Production and Processing Procedures

Hygiene requirements on the production and processing procedure for cooked meat products should comply with GB 12694.

7. Packaging

Packaging container and materials used should comply with corresponding hygienic standard and relevant regulations, with specific measures taken to prevent contamination from toxic, hazardous substances.

8. Labeling

Requirements on packaging label should comply with GB 7718.

9. Storage and Transportation

9.1 Storage

Products should be stored in dry, well-ventilated locations, isolated from toxic, foul-smelling, hazardous, volatile and easily decomposable products. Products that need to be kept chilled/frozen should be stored at the appropriate low temperatures.

9.2 Transportation

Mode of transport used should be kept clean, contamination-free, and direct sunlight or rain should be avoided during the transportation process, while products that need to be kept chilled/frozen should be also transported at the appropriate low temperatures. Products should not be transported together with toxic, hazardous, foul-smelling substances or any substances that may have material effect on the products' quality.

10. Testing Methods

10.1 Sensory Index

Tested according to the method specified in GB/T 5009.44.

10.2 Chemical-Physical Index

10.2.1 Moisture: Determined by method specified in GB/T 5009.3.

10.2.2 Composite Phosphate: Determined by method specified in 14.3 of GB/T 5009.87.

10.2.3 Lead: Determined by method specified in GB/T5009.12.

10.2.4 Inorganic Arsenic: Determined by method specified in GB/T5009.11.

10.2.5 Cadmium: Determined by method specified in GB/T 5009.15.

10.2.6 Total Mercury: Determined by method specified in GB/T 5009.17.

10.2.7 Benzopyrene: Determined by method specified in GB/T 5009.27.

10.2.8 Nitrite: Determined by method specified in GB/T 5009.33.

10.3 Microbiological Index

Determined by method specified in GB/T 4789.17.

GB 2730-2005 Hygienic Standard for Cured Meat Products



National Standards of People's Republic of China

GB 2730-2005

Hygienic Standard for Cured Meat Products

Issued on: 2005-01-25

Implemented on: 2005-10-01

**Issued by Ministry of Health of the People's Republic of China & China National
Standardization Management Committee**

Foreword

The entirety of this standard is mandatory.

This standard supersedes GB 2730-1981 Hygienic Standard for Cantonese Cured Meat, GB 2731-1988 Hygienic Standard for Ham, GB 2732-1988 Hygienic Standard for Pressed Salted Duck, GB 10147-1988 Hygienic Standard for Sausage and GBn137-1981 Hygienic Standard for Salted Pork.

As compared to GB 2730-1981, GB 2731-1998, GB 2732-1998, GB10147-1998, GBn137-1981, key changes are as follows:

- Format of this standard was modified according to GB/T 1.1-2000;
- Amended the structure and scope of the original standard, added sections on hygiene requirements on raw materials, food additives, production and processing, packaging, transportation and storage;
- Merged the original five standards abovementioned into this standard;
- Index limit on trimethylamine nitrogen in ham was amended to $\leq 2.5\text{mg}/100\text{g}$;
- Index limits for lead, inorganic arsenic, cadmium, total mercury were added;
- Index limit for edible salt was removed.

This standard will be implemented on Oct.1, 2005, with a transitional period of one year given. Products manufactured before Oct.1, 2005 but comply with the requirements of the earlier standards relevant are allowed to be legally sold up till Sept.30, 2006.

The standard is proposed by Ministry of Health of People's Republic of China and it will also fall under their jurisdiction.

The organizations involved in drafting process: Jiangsu Center for Disease Control and Prevention, Shanghai Health Supervision Institute, Health Supervision Center of Ministry of Health, Heilongjiang Health Supervision Institute, Liaoning Health Supervision Institute, Beijing Center for Disease Control.

Key personnel involved in the drafting process: Baojun Yuan, Zhenhua Gu, Baorong Fan, Yanping Cai, Jiangping Li, Yunyan Zheng, Xiuying Ding.

The following earlier versions will be replaced by this standard:

- GB2730-1981;
- GB2731-1981, GB2731-1988;
- GB2732-1981, GB2732-1988;
- GB10147-1988;
- GBn137-1981.

Hygienic Standard for Cured Meat Products

1. Scope

This standard specifies the hygiene index limits and corresponding testing methods for cured meat products as well as hygiene requirements on food additives, production and processing procedure, labeling, packaging, transportation and storage.

The standard is applicable to any meat products (uncooked), made mainly from fresh or frozen meat of livestock and poultry.

2. Normative References

Clauses involved in the following documents constitute the ones in this standard through reference in this standard. Any dated reference and the following amendment or revised versions are not applicable to this standard. However, the study of whether the latest version of these documents can be used by all parties who reach agreement according to this standard is encouraged. Any latest version of the non-dated reference is applicable to this standard.

- GB 2760 *Hygienic Standard of Food Additives*
- GB /T 5009.11 *Testing Method for Total Arsenic in Foods*
- GB /T 5009.12 *Testing Method for Lead in Foods*
- GB /T 5009.15 *Testing Method for Cadmium in Foods*
- GB /T 5009.17 *Testing Method for Mercury in Foods*
- GB/T 5009.27 *Testing Method for Benzopyrene in Foods*
- GB/T 5009.33 *Testing Method for Nitrite and Nitrate in Foods*
- GB/T 5009.37 *Analysis Method for Hygienic Standard for Edible Vegetable Oil*
- GB/T 5009.44 *Analysis Method for Hygienic Standard of Meat and Meat Products*
- GB/T 5009.179 *Determination of Trimethylamine Nitrogen in Ham*
- GB7718 *General Principle for Prepackaged Food Labels*
- GB12694 *Hygienic Specifications for Meat Processing Plant*
- GB/T19480 *Terminology for Meat and Meat Products*

3. Terms and Definition

The terms and definition defined in another standard, GB/T19480 will apply to this standard.

4. Requirements on Index

4.1 Requirements on Raw Ingredients

4.1.1 Main Ingredients: Should comply with national standard and relevant regulations.

4.1.2 Supplementary Ingredients: Should comply with national standard and relevant regulations.

4.2 Sensory Requirements

Absence of slime, mildew, unusual odor and rancid smell/taste.

4.3 Chemical-Physical Index

Chemical-physical index values should comply with requirements listed in Table 1.

Table 1 Chemical-Physical Index

Item		Index
Peroxide value (by fats) / (g/100g)		
Ham	≤	0.25
Cured meat, salted meat, sausage products	≤	0.50
Non-smoked, smoked pressed salted duck	≤	2.50
Acid value (by fats) (KOH) / (mg/g)		
Sausage products, cured meat, salted meat	≤	4.0
Non-smoked, smoked pressed salted duck	≤	1.6
Trimethylamine nitrogen / (mg/100g)		
Ham	≤	2.5
Benzopyrene ^a / (μg/kg)	≤	5
Lead (Pb) / (mg/kg)	≤	0.2
Inorganic arsenic (mg/kg)	≤	0.05
Cadmium (Cd) / (mg/kg)	≤	0.1
Total mercury (Hg) / (mg/kg)	≤	0.05
Nitrite residue	≤	Implemented according to GB 2760
a. Only applies to smoked cured meat product		

5. Food Additives

5.1 The quality of food additives used should comply with the corresponding standards and relevant regulations.

5.2 The variety and amount of food additives used should comply with the requirements specified in GB 2760.

6. Hygiene Requirements on Food Production and Processing Procedures

Hygiene requirements on the production and processing procedure for cured meat products should comply with GB 12694.

7. Packaging

Packaging container and materials used should comply with corresponding hygienic standard and relevant regulations.

8. Labeling

Requirements on packaging label should comply with GB 7718.

9. Storage and Transportation

9.1 Storage

Products should be stored in dry, well-ventilated locations, isolated from toxic, foul-smelling, hazardous, volatile and easily decomposable products.

9.2 Transportation

Direct sunlight or rain should be avoided during the transportation process. Products should not be transported together with toxic, hazardous, foul-smelling substances or any substances that may have material effect on the products' quality.

10. Testing Methods

10.1 Sensory Requirements

Tested according to the method specified in GB/T 5009.44.

10.2 Chemical-Physical Index

10.2.1 Peroxide Value: Sample(s) should be treated according to GB/T5009.44 and tested according to GB/T5009.37.

10.2.2 Acidity Value: Determined according to clause 14.3 in GB/T5009.44.

10.2.3 Trimethylamine Nitrogen: Determined according to GB/T5009.179.

10.2.4 Benzopyrene: Determined according to GB/T5009.27.

10.2.5 Lead: Determined according to GB/T5009.12.

10.2.6 Inorganic Arsenic: Determined according to GB/T5009.11.

10.2.7 Cadmium: Determined according to GB/T5009.15.

10.2.8 Total Mercury: Determined according to GB/T5009.17.

10.2.9 Nitrite: Determined according to GB/T5009.33.

GBT 5009.44-2003 Method for Analysis of Hygienic Standard of Meat and Meat Products



National Standards of People's Republic of China

GB/T 5009.44-2003

Method for Analysis of Hygienic Standard of Meat and Meat Products

Issued on: 2003-08-11

Implemented on: 2004-01-01

**Issued by Ministry of Health and Quarantine of the People's Republic of China & China
National Standardization Management Committee**

Foreword

This standard replaces GB/T 5009.44-1996 Method for Analysis of Hygienic Standard of Meat and Meat Products.

As compared with the earlier version GB/T 5009.44-1996, key changes are as follows:

Structure/layout of the original standard was modified according to GB/T 20001.4-2001 Rules for Drafting Standards – Part 4: Methods for Chemical Analysis.

This standard is under the jurisdiction of the Ministry of Health of the People's Republic of China.

This standard is drafted by the Shanghai City Institute of Food Hygiene Supervisory and Inspection.

This standard was first issued in 1985 and amended for the first time in 1996. The current version is the standard's second amendment.

Method for Analysis of Hygienic Standard of Meat and Meat Products

1. Scope

This standard specified the analysis methodology to determine the hygiene indexes of meat and meat products.

This standard applies to analysis of hygienic indexes of products of the following categories: fresh (frozen) meat, sausage, sauce braised pork, salted meat, barbecued meat, meat floss (Taicang style), cured meat, ham, pressed salted duck, etc.

2. Normative References

Clauses involved in the following documents constitute the ones in this standard through reference in this standard. Any dated reference and the following amendment or revised versions (excluding errata) are not applicable to this standard. However, the study of whether the latest version of these documents can be used by all parties who reach agreement according to this standard is encouraged. Any latest version of the non-dated reference is applicable to this standard.

GB 2707	<i>Hygienic Standard for Fresh (Frozen) Meat of Livestock</i>
GB2726	<i>Hygienic Standard for Cooked Meat Products</i>
GB2729	<i>Hygienic Standard for Meat Floss (Taicang Style)</i>
GB2730	<i>Hygienic Standard for Cured Meat Products</i>
GB/T 5009.3-2003	<i>Determination of Moisture Content in Foods</i>
GB/T 5009.17	<i>Testing Method for Mercury in Foods</i>
GB/T 5009.33-2005	<i>Testing Method for Nitrite and Nitrate in Foods</i>
GB/T 5009.37-2005	<i>Analysis Method for Hygienic Standard for Edible Vegetable Oil</i>
GB/T 5009.202	<i>Determination of Permitted Components (PC) in the Frying Process with Vegetable Oil</i>

Fresh (Frozen) Meat Category

Applicable to the determination of hygiene indexes for fresh (frozen) pork, fresh (frozen) beef, fresh (frozen) mutton, fresh rabbit meat and fresh (frozen) chicken meat.

3. Sensory Inspections

3.1 Tests for Color and Luster, Viscosity, Elasticity, Smell, etc.

3.1.1 Fresh Pork

Implemented according to GB 2707.

3.1.2 Fresh Beef, Fresh Mutton, Fresh Rabbit Meat

Implemented according to GB 2707.

3.1.3 Fresh Chicken Meat

Implemented according to GB 2707.

3.1.4 Frozen Pork

Implemented according to GB 2707.

3.1.5 Frozen Beef

Implemented according to GB 2707.

3.1.6 Frozen Mutton

Implemented according to GB 2707.

3.1.7 Frozen Chicken Meat

Implemented according to GB 2707.

3.2 Tests for Boiled Soup of Meat

Weigh and extract 20g minced sample and place it in a 200mL beaker. Add 100mL water, cover with lid and heat up to 50°C~60°C. Remove the lid and inspect the smell of the soup. Continue to heat and boil for another 20min~30min, and then inspect the smell, taste and clarity of the soup, as well as the smell and taste of the fats, with references to relevant hygiene standards.

4. Physical-Chemical Inspections

4.1 TVB-N

4.1.1 Semi-micro Kjeldahl Method

4.1.1.1 Principle

TVB-N is an alkaline nitrogenous substance based on ammonia, amine or their likes, as a result of the breakdown of protein during the spoilage process, due to enzymes and bacteria activities in animal based food products.

4.1.1.2 Reagent

4.1.1.2.1 Magnesium oxide mixture suspension (10 g/L): Weigh and extract 1.0g magnesium oxide and add 100ml water, then shake into mixture suspension.

4.1.1.2.2 Boric acid absorption solution (20 g/L).

4.1.1.2.3 Standard volumetric solutions of hydrochloric acid [$c(\text{HCl})=0.010\text{mol/L}$] or sulfuric acid [$c(1/2 \text{H}_2\text{SO}_4)=0.010 \text{mol/L}$].

4.1.1.2.4 Methyl red-ethyl alcohol indicator solution (2 g/L).

4.1.1.2.4 Methylene blue indicator solution (1 g/L).

Create a mixture indicator solution by mixing the above two indicator solutions of equal volume together before use.

4.1.1.3 Apparatus

4.1.1.3.1 Semi-micro Kjeldahl Test Equipment.

4.1.1.3.2 Micro burette: Minimum scale marking is 0.01 mL.

4.1.1.4 Analysis Procedure

4.1.1.4.1 Sample processing: Remove fats, bones and tendons from the sample, mince and mix. Weigh and extract 10.0g of minced sample and place it into a conical flask. Add 100mL water, shake intermittently then let it to sit for the next 30mins. Filter the solution and keep the filtrate in the refrigerator for use later.

4.1.1.4.2 Steam distillation and titration: Place a conical flask containing 10mL absorption solution and 5~6 drops of indicator solution mixture under the condenser pipe, then accurately extract 5.0mL of the sample distillate prepared above into the steam distillation reaction compartment. Add 5 mL magnesium oxide mixture suspension (10 g/L) and then cover it immediately and add water so as to prevent gas leakage. Perform steam distillation by steaming for 5mins, then stop thereafter. Add standard volumetric solution of hydrochloric acid (0.010mol/L) or sulfuric acid into the absorption solution mixture and fix it to volume or until the mixture turns purplish-blue. Conduct control experiment at the same time with the same reagents used.

4.1.1.5 Result Calculation

TVB-N content can be calculated with the following formula (1).

$$X = \frac{(V_1 - V_2) \times c \times 14}{m \times 5 / 100} \times 100 \dots\dots\dots (1)$$

In the formula:

X – TVB-N content in the sample, mg/100g;

V₁ – Volume of standard volumetric solution used for actual test, hydrochloric or sulfuric acid, mL;

V₂ – Volume of standard volumetric solution used for control test, mL;

c – Actual concentration of standard volumetric solution used, mol/L;

14 – Weight of nitrogen that is equivalent to the weight of 1.00mL standard volumetric solutions of hydrochloric acid [c(HCl)=0.010mol/L] or sulfuric acid [c(1/2 H₂SO₄)=0.010 mol/L], mg;

m – Weight of sample, g.

Keep the calculated results in 3 significant figures.

4.1.1.6 Precision

Absolute value discrepancies between two independent experiment results under iterative test conditions and the average value of the experiments should not exceed a 10% range.

4.1.2 Micro-Diffusion

4.1.2.1 Principle

Volatile nitrogenous substance will be released in 37°C alkaline solution. Upon volatilization, it will be absorbed into the absorption liquid. Titrate with standard acidic solution, and then calculate the TVB-N content value.

4.1.2.2 Reagent

4.1.2.2.1 Saturated potassium carbonate solution: Weigh and extract 50g potassium carbonate, add 50mL water, heat slightly to dissolve. Use the clear liquid on the upper layer.

4.1.2.2.2 Water-soluble gel: Weigh and extract 10g Arabic gel, add 10mL water, 5mL glycerinum and 5g anhydrous potassium carbonate (or anhydrous sodium carbonate), and ground evenly.

4.1.2.2.3 Absorption solution, indicator solution mixture, hydrochloric or sulfuric acid standard titration solution (0.010 mol/L), prepared in the same manner as in section 4.1.1.2.

4.1.2.3 Apparatus

Diffusion dish (standard): Vitreous, total diameter of internal and external compartment at 61mm, internal diameter at 35mm; external depth at 10mm, internal depth at 5mm; thickness of external compartment wall at 3mm, thickness of internal wall at 2.5mm, comes with thick frosted glass lid.

4.1.2.4 Analysis Procedure

Spread water-soluble gels on the surrounding edge of the diffusion dish, then add 1 mL of absorption solution and 1 drop of indicator solution mixture into the center of the internal compartment. Add 1.00 mL of sample solutions prepared as specified in section 4.1.1.4 at one corner of the external compartment, followed by 1 mL of saturated potassium carbonate solution on opposite corner of the external compartment, then immediately covering the compartments after ensuring that these did not mix. Lightly rotate the diffusion dish on the table after sealing the dish so as to ensure that the sample solution and the alkaline solution will mix. Thereafter, place the dish in a box with a temperature of 37°C for 2 hours. Remove the lid and then titrate with hydrochloric or sulfuric acid standard titration solution (0.010mol/L) until the color of the mixture turns purplish-blue. Conduct control experiment at the same time with the same reagents used.

4.1.2.5 Result Calculation

TVB-N content can be calculated with the following formula (2).

$$X = \frac{(V_1 - V_2) \times c \times 14}{m \times 1/100} \times 100 \dots\dots\dots (2)$$

In the formula:

X, V₁, V₂, c, 14, m are same thing as in section 4.1.1.5.

4.1.2.6 Precision

Same as that specified in section 4.1.1.6.

4.2 Mercury

Implemented according to GB/T 5009.17.

Sausage Category

Applicable to the determination of hygiene indexes for dried sausages, sweet-smelling snow sausages, red sausages, etc. Physical-chemical inspection methods apply to sausages (saveloy) and sausage in bladder skin.

5. Sensory Inspections

Sensory inspection on sausage types such as dried sausage, sweet-smelling snow sausage, red sausage and meatloaf should be implemented according to GB 2726.

6. Physical-Chemical Inspection

Nitrite should be tested for according to the determination methodology of nitrite specified in the standard GB/T 5009.33-2003.

Sauce Braised Pork

Applicable to the determination of hygiene indexes for sauce braised pork category products.

7. Sensory Inspections

Sensory inspection on for sauce braised pork should be implemented according to GB 2726.

Barbecued Meat

Applicable to the determination of hygiene indexes for barbecued meat.

8. Sensory Inspections

Sensory inspection on for barbecued meat should be implemented according to GB 2726.

Salted Pork

Applicable to the determination of hygiene indexes for salted pork.

9. Sensory Inspections

Sensory inspection on for salted pork should be implemented according to GB 2726.

10. Physical-Chemical Inspections

Nitrite should be tested for according to the determination methodology of nitrite specified in the standard GB/T 5009.33-2003.

Meat Floss (Taicang Style)

Applicable to the determination of hygiene indexes for meat floss (Taicang style).

11. Sensory Inspections

Sensory inspection on for meat floss (Taicang style) should be implemented according to GB 2729.

12. Physical-Chemical Inspections

Moisture should be tested for according to the direct drying method specified in the standard GB/T 5009.3-2003.

Cured Meat

Applicable to the determination of hygiene indexes for cured meat.

13. Sensory Inspections

Sensory inspection on for cured meat should be implemented according to GB 2730.

14. Physical-Chemical Inspections

14.1 Moisture

Moisture should be tested for according to the direct drying method specified in the standard GB/T 5009.3-2003.

14.2 Edible Salt

14.2.1 Principle

Edible salt in the sample can be tested for by adopting carbonized leaching or ashed leaching method. Leaching solutions used will be as follows, potassium chromate as indicator solution silver nitrate standard volumetric solution as the titration solution. Edible salt content will be calculated by the volume of silver nitrate standard titration solution consumed.

14.2.2 Reagent

14.2.2.1 Silver nitrate standard volumetric solution [$c(\text{AgNO}_3)=0.100\text{mol/L}$]

14.2.2.2 Potassium chromate solution (50g/L)

14.2.3 Analysis Procedure

14.2.3.1 Sample Processing

14.2.3.1 Carbonized leaching: Weigh and extract 1.00g~2.00g evenly minced sample, then place the minced sample into a porcelain crucible. Carbonize completely with a small flame, then grind the carbonized substance with a glass rod. Thereafter, add 25mL~30mL water. Boil the mixture with a small flame and then let it cool. Filter the mixture into a 100mL volumetric flask and then wash off the residue and filter multiple times with minute amount of hot water, combining the washing water with those in the volumetric flask. Cool it to room temperature and add water till it reaches the mark, mix and prepare for use later.

14.2.3.1.2 Ashed leaching: Weigh and extract 1.00g~2.00g evenly minced sample, then place the minced sample into a porcelain crucible. Carbonize completely with a small flame, then put sample into high temperature furnace to go through ashing at a temperature of 500°C~550°C. Cool and remove sample.

Wash the residues and try to dissolve with 50mL hot water multiple times. Filter the solution each time after the washing into a 250 ml volumetric flask, cool to room temperature, add water to the scale, mix and prepare for use later.

14.2.3.2 Titration

Extract 25.0mL filtrate into a 100mL conical flask and then add 1mL potassium chromate (50g/L) into the flask, mix evenly. Titrate the mixture with silver nitrate standard volumetric solution until the mixture turns orange-red color as the experiment's end point. Conduct a control experiment at the same time.

14.2.3.3 Result Calculation

Edible salt (sodium chloride) content in sample is calculated with the following formula (3).

$$X = \frac{(V_1 - V_2) \times c \times 0.0585}{m \times V_3 / V_4} \dots\dots\dots (3)$$

In the formula:

X – Edible salt (sodium chloride) content in sample, g/100g;

V1 – Volume of silver nitrate standard volumetric solution consumed in the actual test, mL;

V2 – Volume of silver nitrate standard volumetric solution consumed in the control test, mL;

V3 – Volume of sample filtrate absorbed during the titration process, mL;

V4 – Volume of sample fixed to constant volume during processing, mL;

c – Actual concentration of silver nitrate standard volumetric solution, mol/L;

0.0585 – Weight of sodium chloride that is equivalent to the weight of 1.00mL silver nitrate standard titration solution [$c(\text{AgNO}_3)=0.100\text{mol/L}$], g;

m – Weight of sample, g.

14.2.3.4 Precision

Absolute value discrepancies between two independent experiment results under iterative test conditions and the average value of the experiments should not exceed a 5% range.

14.3 Acidity Values

14.3.1 Principle

Free fatty acid in the sample can be tested for by titrating with potassium hydroxide standard solution. The weight (mg) of potassium hydroxide consumed per every 1g of sample will be the acidity value.

14.3.2 Reagent

Prepared according to section 4.1.2 of GB/T 5009.37-2003.

14.3.3 Analysis Procedure

Weigh and extract 100g minced sample into a 500mL conical flask with a stopper, add 100mL~200mL petroleum ether (boiling point 30oC~60oC) and put it to oscillate for 10mins, leave it overnight. Filter with rapid filter paper method, depressurize and recover solvent. Resultant grease can be tested according to GB/T 5009.37-2003.

14.3.4 Result Calculation

Same as section 4.1.4 of GB/T 5009.37-2003.

14.3.5 Precision

Same as section 4.1.5 of GB/T 5009.37-2003.

14.4 Nitrite

Nitrite should be tested in line with the determination methodology of nitrite specified in GB/T 5009.33-2003.

Ham

Applicable to the determination of hygiene indexes for ham. Physical-chemical inspection methods apply to determination of hygiene indexes for bacon.

15. Sensory Inspections

15.1 Sensory Inspection on Ham

Sensory inspection on for ham should be implemented according to GB 2730.

16. Physical-Chemical Inspections

16.1 Nitrite

Nitrite should be tested in line with the determination methodology of nitrite specified in GB/T 5009.33-2003.

16.2 Trimethylamine Nitrogen

Implemented according to GB/T 5009.202.

Pressed Salted Duck

Applicable to the determination of hygiene indexes for pressed salted duck.

17. Sensory Inspections

17.1 Inspection on Appearance, Texture/Structure and Smell

Sensory inspection on for pressed salted duck should be implemented according to GB 2730.

17.2 Inspection on Boiled Soup of Meat

Same as section 3.2.

**GB 18406.3-2001 Safety Requirements for Non-environmental Pollution Meat
and Other Animal Products**



National Standards of People's Republic of China

GB 18406.3-2001

Safety Qualification for Agricultural Products

**Safety Requirements for Non-environmental Pollution Meat and
Other Animal Products**

Issued on: 2001-08-06

Implemented on: 2001-10-01

**Issued by Ministry of Health and Quarantine of the People's Republic of China & China
National Standardization Management Committee**

Foreword

“*Safety Qualifications for Agricultural Product*” of the standard GB 18406-2001 is divided into the following four parts:

- GB 18406.1-2001 *Safety Qualifications for Agricultural Product – Safety Requirements for Non-environmental Pollution Vegetables*
- GB 18406.2-2001 *Safety Qualifications for Agricultural Product – Safety Requirements for Non-environmental Pollution Fruits*
- GB 18406.3-2001 *Safety Qualifications for Agricultural Product – Safety Requirements for Non-environmental Pollution Poultry Meat*
- GB 18406.4-2001 *Safety Qualifications for Agricultural Product – Safety Requirements for Non-environmental Pollution Aquatic Product*

This section of GB 18406.3-2001 was formulated for the purposes of strengthening the safety and quality management of agricultural products, safeguarding the health of the people, protecting the legal interests of the manufacturers/producers, operators and consumers, promoting the development of non-environmental agriculture industry and regulating the non-environmental agriculture product market.

This section was proposed by General Administration of Quality Supervision, Inspection and Quarantine of People's Republic of China (AQSIQ).

The organizations involved in the drafting of this section: National Agriculture Standardization and Monitoring Center, Anhui Quality and Technical Supervision Bureau, Shanghai Quality and Technical Supervision Bureau, Zhejiang Quality and Technical Supervision Bureau.

The key personnel involved in the drafting of this section: Shengquan Qu, Xianhong Wang, Tiebing Liu, Jie Zhao, Changxing Xu, Yanli Hu.

Safety Qualification for Agricultural Products

Safety Requirements for Non-environmental Pollution Meat and Other Animal Products

1. Scope

This section of the standard GB 18406 stipulates the terms and definition, requirements, testing methods, test guidelines and logo, labeling, packaging, transportation and storage for non-environmental pollution meat and other animal products.

This section applies to meat and poultry products derived from healthy animals, produced and sold within China.

2. Normative References

Clauses involved in the following documents constitute the ones in this part through reference in this standard. Any dated reference and the following amendment or revised version are not applicable to this part. However, the study of whether the latest version of these documents can be used by all parties who reach agreement according to this part is encouraged. Any latest version of the non-dated reference is applicable to this part.

GB 4789.2	<i>Food Hygiene Microbiological Tests: Test for Aerobic Bacterial Count</i>
GB 4789.3	<i>Food Hygiene Microbiological Tests: Test for Coliform</i>
GB 4789.4	<i>Food Hygiene Microbiological Tests: Test for Salmonella</i>
GB 4789.6	<i>Food Hygiene Microbiological Tests: Test for Diarrhea-inducing Escherichia Coli</i>
GB /T 5 009.11	<i>Testing Method for Total Arsenic in Foods</i>
GB /T 5 009.12	<i>Testing Method for Lead in Foods</i>
GB /T 5 009.15	<i>Testing Method for Cadmium in Foods</i>
GB /T 5 009.17	<i>Testing Method for Mercury in Foods</i>
GB /T 5 009.18	<i>Testing Method for Fluorine in Foods</i>
GB /T 5 009.19	<i>Testing Method for Residues of BHC and DDT in Foods</i>
GB /T 5 009.20-1996	<i>Testing Method for Residues of Organophosphorus Pesticides in Foods</i>
GB /T 5 009.33	<i>Testing Method for Nitrates, Nitrites in Foods</i>
GB 9687	<i>Hygienic Standard for Polyethylene Moldings Used in Food Packaging</i>
GB 9693	<i>Hygienic Standard for Polypropylene Used in Food Packaging</i>
GB 11680	<i>Hygienic Standard for Raw Paper Used in Food Packaging</i>
GB /T 14931.1	<i>Testing Method for Oxytetracycline, Tetracycline, Aureomycin Residues in Meat and Other Animal Products (HPLC)</i>

GB/T 14931.2	<i>Testing Method for Diethylstilbestrol Residues in Meat and Other Animal Products</i>
GB /T 14962	<i>Testing Method for Chrome in Foods</i>
GB 16869	<i>Fresh and Frozen Poultry Products</i>
SN/T 0124	<i>Testing Method for Coumaphos Residues in Meat Exports</i>
SN/T 0125	<i>Testing Method for Trichlorfon Residues in Meat Exports</i>
SN/T 0197	<i>Testing Method for Olaquinox Residues in Meat Exports</i>
SN/T 0208	<i>Testing Method for Ten Different Kinds of Sulfanilamides Residues in Meat Exports</i>
SN/T 0347	<i>Testing Method for Chloramphenicol Residues in Meat Exports</i>
SN/T 0539	<i>Testing Method for Penicillin Residues in Meat Exports</i>
SN/T 0670	<i>Testing Method for Tylosin Residues in Meat Exports</i>
Ministry of Agriculture	<i>Testing Method for Residues of Veterinary Drug and Other Chemical Substance in Animal-based Edible Tissues</i>

3. Terms and Definition

The following terms and definition will be applicable in this section of standard GB 18406.

3.1 Non-environmental Pollution Meat and Other Animal Products

Refers to animal and poultry products produced under environmental conditions compliant with the requirements for non-environmental pollution meat and other animal products, i.e. the amount of toxic, hazardous substances fall within the safety ranges specified by the State laws, regulations, relevant compulsory standard guidelines, and the requirements of this section of the standard GB 18406. These include fresh (frozen) animal and poultry products.

3.2 Limits on Amount of Toxic, Hazardous Substances

Refers to the maximum allowable concentration for heavy metal, nitrite and pesticide or veterinary drugs found in meat and other animal products.

4. Requirements

4.1 Inspection and Quarantine Requirements on Non-environmental Pollution Meat and Other Animal Products

Non-environmental pollution meat and other animal products should pass the inspection and quarantine tests.

4.2 Quality (Content) Requirements on Toxic, Hazardous Substances in Non-environmental Pollution Meat and Other Animal Products

It should meet the requirements listed in Table 1.

Table 1 Quality (Content) Requirements on Toxic, Hazardous Substances in Non-environmental Pollution Meat and Other Animal Products

S/N	Item	Maximum Limit Allowable (mg/kg)
1	Arsenic (As) ≤	0.5
2	Mercury (Hg) ≤	0.05
3	Bronze (Cu) ≤	10
4	Lead (Pb) ≤	0.1
5	Chrome (Cr) ≤	1.0
6	Cadmium (Cd) ≤	0.1
7	Fluorine (F) ≤	2.0
8	Nitrite (NaNO ₂) ≤	3
9	BHC ≤	0.2
10	DDT ≤	0.2
11	Coumaphos ≤	0.5
12	Trichlorfon ≤	0.1
13	DDVP ≤	0.05
14	Chloramphenicol	Cannot be detected (if detected limited to ≤0.01)
15	Clenbuterol Hydrochloride	Cannot be detected (if detected limited to ≤0.01)
16	Enrofloxacin ≤	Cattle/Sheep: Muscle 0.1 Liver 0.3 Kidney 0.2
17	Gentamicin ≤	Cattle/Sheep: Muscle 0.1 Fat 0.1 Liver 0.2 Kidney 1
18	Oxytetracycline ≤	Edible Animal Tissues: Muscle 0.1 Fat 0.1 Liver 0.3 Kidney 0.6
19	Tetracycline ≤	Edible Animal Tissues: Muscle 0.1 Liver 0.3 Kidney 0.6
20	Penicillin ≤	Cattle/Sheep/Pig: Muscle 0.05 Liver 0.05 Kidney 0.05
21	Streptomycin ≤	Cattle/Sheep/Pig/Poultry: Muscle 0.5 Fat 0.5 Liver 0.5 Kidney 1
22	Tylosin ≤	Cattle/Pig/Poultry: Muscle 0.1 Liver 0.1 Kidney 0.1
23	Clopidol ≤	Cattle/Sheep: Muscle 0.2 Liver 3 Kidney 1.5 Pig (edible tissues): 0.2 Poultry: Muscle 5 Liver 1.5 Kidney 1.5
24	Olaquinox ≤	Pig: Muscle 0.004 Liver 0.05
25	Sulfanilamide ≤	Edible Animal Tissues: 0.1
26	Diethylstilbestrol	Cannot be detected (if detected limited to ≤0.05)

4.3 Requirements on Microbiological Indexes

It should meet the requirements listed in Table 2.

Table 2 Requirements on Microbiological Indexes

Item		Index	
		Fresh Meat and Other Animal Products	Frozen Meat and Other Animal Products
Aerobic Bacterial Count, cfu/g	≤	1×10 ⁶	5×10 ⁵
Coliform, MPN/100g	<	1×10 ⁴	1×10 ⁸
Salmonella		Cannot be detected	
Diarrhea-inducing Escherichia Coli		Cannot be detected	

4.4 Packaging Requirements for Non-environmental Pollution Meat and Other Animal Products

4.4.1 Raw paper used in the packaging of non-environmental pollution meat and other animal products should comply with the requirements in GB 11680.

4.4.2 Polyethylene molding used in the packaging of non-environmental pollution meat and other animal products should comply with the requirements in GB 9687.

4.4.3 N-hexane extract from polypropylene resin used in the packaging of non-environmental pollution meat and other animal products should comply with the requirements in GB 9693.

5. Testing Methods

5.1 Determination of Arsenic: Implemented according to GB/T 5009.11

5.2 Determination of Mercury: Implemented according to GB/T 5009.17

5.3 Determination of Bronze: Implemented according to GB/T 5009.13

5.4 Determination of Lead: Implemented according to GB/T 5009.12

5.5 Determination of Chrome: Implemented according to GB/T 14962

5.6 Determination of Cadmium: Implemented according to GB/T 5009.15

5.7 Determination of Fluorine: Implemented according to GB/T 5009.18

5.8 Determination of Nitrite: Implemented according to GB/T 5009.3

5.9 Determination of BHC and DDT: Implemented according to GB/T 5009.19

5.10 Determination of Coumaphos: Implemented according to SN/T 0124

5.11 Determination of Trichlorfon: Implemented according to SN/T 0125

5.12 Determination of DDVP: Implemented according to third chapter in GB/T 5009.20-1996

5.13 Determination of Chloramphenicol: Implemented according to SN/T 0539

5.14 Determination of Clenbuterol Hydrochloride: Implemented according to GB 16869.

5.15 Determination of Enrofloxacin, Gentamicin, Streptomycin and Clopidol: Implemented according to "Testing Method for Residues of Veterinary Drug and Other Chemical Substance in Animal-based Edible Tissues."

5.16 Determination of Oxytetracycline and Tetracycline: Implemented according to GB/T 14931.1

5.17 Determination of Penicillin: Implemented according to SN/T 0347

5.18 Determination of Tylosin: Implemented according to SN/T 0670

5.19 Determination of Olaquinox: Implemented according to SN/T 0197

5.20 Determination of Sulfanilamide: Implemented according to SN/T 0208

5.21 Determination of Diethylstilbestrol: Implemented according to GB/T 14931.2

5.22 Determination of Aerobic Bacterial Count: Implemented according to GB/T 4789.2

5.23 Determination of Coliform: Implemented according to GB/T 4789.3

5.24 Determination of Salmonella: Implemented according to GB/T 4789.4

5.24 Determination of Diarrhea-inducing Escherichia Coli: Implemented according to GB/T 4789.6

6. Testing Guidelines

6.1 Batch

One batch encompasses products of the same origin of production, variety and manufacturing process. For batch size of less than 500kg of products, 5 samples will be drawn; for size 501~2000kg, 10 samples; and above 2001kg, 15 samples.

6.2 Sampling Methods

Randomly draw samples from different sections of each batch of products, (2 kg per batch), mix drawn samples and segregate into two separate portions, one dedicated for laboratory tests & inspection and another as backup sample.

6.3 Decision

Specific batch of products will be deemed qualified if test results fulfill the requirements specified in this section of standard GB 18406. Any of the test results found to not meet the requirements will cause this batch of products fail the inspection.

7. Packaging, Logo, Labeling, Transportation and Storage

7.1 Packaging

Packaging materials used for non-environmental pollution meat and other animal products should be contamination-free and easily degradable. Also, packaging should comply with the requirements specified in this standard.

7.2 Logo

The “non-environmental pollution agricultural product” logo can be used on the product itself or its packaging under the circumstance that the product is officially approved with non-environmental pollution meat and other animal products classification.

7.3 Labeling

Labels used on products that are approved as non-environmental pollution meat and other animal products should indicate the product name, origin of production, production date, unit of production or unit of distribution.

7.4 Storage

Storage locations for non-environmental pollution meat and other animal products should be kept clean and hygienic and storage of products with toxic, hazardous substances is strictly forbidden. Storage conditions in these locations should comply with the requirements on the storage environment for each product.

7.5 Transportation

Non-environmental pollution meat and other animal products should be transported using non-contaminated mode of transport, and the products should be transported separately from toxic, hazardous substances. Products should be transported in environments that comply with the requirements on the storage environment for each product.

GB 18394-2001 Permitted Level of Moisture in Meat of Livestock and Poultry



National Standards of People's Republic of China

GB 18394-2001

National Food Standard

Permitted Level of Moisture in Meat of Livestock and Poultry

Issued on: 2001-07-20

Implemented on: 2001-12-01

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

Foreword

Chapter 3 and section 4.2.1 listed in this standard is mandatory, while the rest of this standard is voluntary.

This standard is applied together with the other 5 standards as a package, GB 9959.1-2001 Fresh and Frozen Demi-carcass Pork, GB 9959.2-2001 Cut Fresh and Frozen Pork Lean, GB 9961-2001 Fresh and Frozen Mutton Carcass, GB 17238-1998 Fresh and Frozen Beef, Cut, GB 16869-2000 Fresh and Frozen Poultry Product.

This standard is proposed by State Bureau of Internal Trade.

The organizations involved in the drafting of this standard: Meat, Poultry, Egg Food Safety and Quality Supervision & Inspection Center (Beijing) of State Bureau of Internal Trade.

The key personnel involved in the drafting of this standard: Shesheng Jim, Bingqi Ruan, Wenjuan Liu, Aihua Wu, Zhiyun Zhao, Xianqin Cao, Guiji Wang.

Permitted Level of Moisture in Meat of Livestock and Poultry

1. Scope

This standard specifies the requirements on the index limits for the permitted level of moisture in meat of livestock and poultry and the corresponding determination methods.

This standard applies to fresh and frozen pork, beef, mutton and chicken meat.

2. Normative References

Clauses involved in the following documents constitute the ones in this standard through reference in this standard. All listed versions of following references will be valid upon the publication of this standard. However all standards may be amended, thus the study of whether the latest version of these documents can be used by all parties who reach agreement according to this standard is encouraged.

GB/T 9695.15-1988 *Meat and Meat Products – Determination of Moisture Content in Meat of Livestock and Poultry.*

GB/T 9695.19-1988 *Meat and Meat Products – Sampling Method*

3. Indexes for Permitted Level of Moisture in Meat of Livestock and Poultry

See Table 1 for the index limits for moisture content in meat of livestock and poultry.

Table1

Variety	Moisture Content in Meat, %
Pork	≤77
Beef	≤77
Mutton	≤78
Chicken meat	≤77

4. Preparation of Samples

4.1 Sampling

Implemented in accordance to the method specified in GB/T 9695.19.

4.2 Preparations of Samples

4.2.1 Fresh meat: Mince the meat at least twice with a meat grinder (the diameter is less than 4mm) after the removal of fats, tendons and muscle tissues around the tendons. Minced samples should be kept in a sealed container.

4.2.2 Frozen meat: Thaw the frozen meat naturally, and record the mass of sample, m1 and m2 (precision up to 0.01g) before and after the thawing process. Handle the thawed sample according to section 4.2.1.

5. Determination Method

5.1 Oven-drying Method (Arbitration)

Implemented in accordance to the method specified in GB/T 9695.15.

5.2 Infrared-Drying Method (Express Method)

5.2.1 Principle of Method

Remove the moisture content from the sample by the use of infrared heating method and then record the difference between the sample before and after infrared treatment as the moisture content in the sample.

5.2.2 Apparatus

Infrared Moisture Analyzer: Determination range of moisture 0%~100%, reading precision 0.01%, weight range 0~30g, weight reading precision 1mg.

5.2.3 Determination

5.2.3.1 Connect to a power source and turn the apparatus on. Set the drying-heating temperature to 105oC and the heating time as automatic. Present the result of the test in 0%~ 100% formats.

5.2.3.2 Open the compartment cover for samples, extract a single sample and place it on the balance of the infrared moisture analyzer, return reading to zero.

5.2.3.3 Remove the sample from the sample tray, place ~5.00g of samples prepared as in section 4.2.1 uniformly on the sample tray and then return tray back to the compartment.

5.2.3.4 Cover the compartment with its lid and start heating process. Once the drying process is completed, read the numbers off the apparatus' display panel for the moisture content value. If the apparatus comes with a printer, moisture content value can be printed out automatically.

6. Presentation of Results

6.1 Determination results of moisture content in fresh meat are represented in accordance to section 4.3 or 4.4.

6.2 Moisture content in fresh meat, X is calculated by the use of the following formula (1):

$$X (\%) = \frac{(m_1 - m_2) + m_2 \times C}{m_1} \times 100 \dots\dots\dots (1)$$

In the formula:

X – Moisture content in frozen meat;

m1 - Weight of frozen meat before thawed, g;

m2 – Weight of unfrozen meat after thawed, g;

C – Moisture content in thawed frozen meat, %.

GBT 20752-2006 Method for Determination Residues of the Metabolites of Nitrofurans in Pork, Beef, Chicken, Porcine Liver and Aquatic Products-LS-MS-MS Method



National Standards of People's Republic of China

GB/T 20752-2006

**Method for Determination Residues of the Metabolites of Nitrofurans
in Pork, Beef, Chicken, Porcine Liver and Aquatic Products –
LC-MS-MS Method**

Issued on: 2006-12-31

Implemented on: 2007-03-01

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

Foreword

Appendix A and B included in this standard are informative appendices.

This standard was proposed by Qinghuang Island Import and Export Inspection and Quarantine Services of the People's Republic of China.

This standard is placed under the jurisdiction of the General Administration of Quality Supervision, Inspections and Quarantine of the People's Republic of China.

The organization involved in the drafting of this standard: Qinghuang Island Import and Export Inspection and Quarantine Services of the People's Republic of China.

The key personnel involved in the drafting of this standard: Guofang Pang, Jngjie Zhang, Yanzhong Cao, Tongtong Guo, Yaping Cao, Chunlin Fan, Xuemin Lee and Yongming Lou.

This standard will be the first of its series of national standards.

Method for Determination Residues of the Metabolites of Nitrofurantoin in Pork, Beef, Chicken, Porcine Liver and Aquatic Products – LC-MS-MS Method

1. Scope

This standard specifies the details for the LC-MS-MS method for determining amount of residues of metabolite 3-amino-5-morpholinomethyl-2-oxazolidinone (AMOZ) of furaltadone, semicarbazide (SEM) of nitrofurazone, 1-aminohydantoin (AHD) of nitrofurantoin and 3-amino-2-oxazolidinone (AOZ) of furazolidone in pork, beef, chicken, porcine liver and aquatic products.

This standard applies to determination of residues of 3-amino-5-morpholinomethyl-2-oxazolidinone (AMOZ), semicarbazide (SEM), 1-aminohydantoin (AHD) and 3-amino-2-oxazolidinone (AOZ) in pork, beef, chicken, porcine liver and aquatic products.

Determined limit of alkyl ketone content mentioned above should be 0.5 µg/kg.

2. Normative References

Clauses involved in the following documents constitute the ones in this standard through reference in this standard. If any reference is dated, the following amendment or revised versions (excluding errata) are not applicable to this standard. However, the study of whether the latest version of these documents can be used by all parties who reach agreement according to this standard is encouraged. Any latest version of the non-dated reference is applicable to this standard.

GB/T 6379.1 *Accuracy of Determination Methods and Results (Accuracy & Precision) – Part 1: General Provisions and Definitions* (GB/T 6379.1-2004, ISO 5725-2, 1994, IDT)

GB/T 6379.2 *Accuracy of Determination Methods and Results (Accuracy & Precision) – Part 2: Basic Method for Determination of Repeatability and Reproducibility of Determination Methods of Standards* (GB/T 6479.2-2004, ISO 5725-2, 1994, IDT)

GB/T 6682 *Specifications and Testing Methods for Water Used in Analysis Experiments* (GB/T 6682-1992, neq ISO 3696:1987)

3. Principles

Nitrofurantoin metabolite residue in the sample will undergo derivatization using 2-nitrobenzaldehyde under acidic condition. Use Oasis HLB or solid phase extract (SPE) of similar function to purify the derivative from the previous process. Use electric mist sprayer to ionize and then use liquid chromatography-tandem mass spectrometry method for inspection and tests. Use external standard method or isotope internal standard method to quantify the residue content.

4. Reagent and Material

Unless otherwise stated, all reagents use superiorly pure, first grade water that comply with the requirements of GB/T 6682.

4.1 Methanol: Chromatographically pure.

4.2 Acetonitrile: Chromatographically pure.

4.3 Ethyl Acetate: Chromatographically pure.

4.4 Dipotassium Phosphate, K_2HPO_4 .

4.5 Acetic Acid.

4.6 Dimethylsulfoxide.

4.7 Hydrochloric Acid.

4.8 Sodium Hydroxide.

4.9 2-nitrobenzene Formaldehyde (2-NBA), $C_7H_5NO_3$: Content $\geq 99\%$

4.10 Dipotassium Phosphate Solution: 0.1 mol/L. Weigh and extract 17.4 g dipotassium phosphate (prepared as in 4.4), dissolve in water and fill up to 1,000 mL volume.

4.11 Hydrochloric Acid Solution: 0.2 mol/L.. Measure and extract 17 mL concentrated hydrochloric acid (prepared as in 4.7) and fill up to 1,000 mL volume with water.

4.12 Sodium Hydroxide Solution: 1 mol/L. Weigh and extract 40 g sodium hydroxide (prepared as in 4.8), dissolve in water and fill up to 1,000 mL volume.

4.13 Derivatization Reagent: Contains 0.05 mol/L 2-nitrobenzene formaldehyde. Weigh and extract 0.075 g 2-nitrobenzene formaldehyde (prepared as in 4.9) and dissolve in 10 mL dimethylsulfoxide (prepared as in 4.6). Only prepare the reagent when the need to use it arises.

4.14 Sample Volumetric Solution: 10 mL acetonitrile (prepared as in 4.2), 0.3 mL acetic acid (prepared as in 4.5), dilute with water till it reaches 100 mL volume.

4.15 Four Kinds of Nitrofurans Metabolites Standard Substances Include the Following: 3-amino-5-morpholinomethyl-2-oxazolidinone (AMOZ), semicarbazide (SEM), 1-aminohydantoin (AHD) and 3-amino-2-oxazolidinone (AOZ), of which purity of each should maintain $\geq 99\%$.

4.16 Four Kinds of Nitrofurans Metabolites Internal Standard Substances Include the Following: internal substance D5-AMOZ for AMOZ, internal substance 13C15N-SEM for SEM, internal substance 13C3-AHD for AHD, internal substance D4-AOZ for AOZ, of which purity of each internal standard substance should maintain $\geq 99\%$.

4.17 Four Kinds of Nitrofurans Metabolites Standard Stock Solution: 1.0 mg/mL. Weigh and extract appropriate amount of each of the standard substances (prepared as in 4.15) and dilute each with methanol respectively (prepared as in 4.1) to form 1.0 mg/mL standard stock solution. Store in refrigerator at temperature -18°C away from light, the solutions expire in 6 months.

4.18 Four Kinds of Nitrofurans Metabolites Mixture Standard Solution: 0.1 $\mu\text{g/mL}$. Extract appropriate amount of each of the standard stock solution (prepared as in 4.17) and dilute each with methanol respectively to form 0.1 $\mu\text{g/mL}$ mixture standard solution. Store in refrigerator at temperature -18°C away from light, the solutions expire in 3 months.

4.19 Four Kinds of Nitrofurans Metabolites Internal Standard Stock Solution: 1.0 mg/mL, Weigh and extract appropriate amount of each of the internal standard substances (prepared as in 4.16) and dilute with methanol to form 1.0 mg/mL internal standard stock solution. Store in refrigerator at temperature -18°C away from light, the solutions expire in 6 months.

4.20 Four Kinds of Nitrofurans Metabolites Internal Standard Solution: 0.1 $\mu\text{g/mL}$. Measure and extract

appropriate amount of each of the internal standard stock solutions (prepared as in 4.19) and dilute with methanol to form 0.1 µg/mL mixture internal standard solution. Store in refrigerator at temperature -18°C away from light, the solutions expire in 3 months.

4.21 Oasis HLB solid phase extract column (SPE) or its like: 60 mg, 3 mL. Pre-process with the use of 5 mL methanol and 10 mL water, keep SPE moist.

4.22 0.2 µm filter membrane.

5. Apparatus

5.1 Liquid Chromatography-Tandem Quadrupole Mass Spectrometer with Electrospray Ionization Source.

5.2 Balance for Analysis: 2 sets, sensitivity of 0.1 mg and 0.01 g respectively.

5.3 Liquid Mixer

5.4 SPE Vacuum Device.

5.5 Nitrogen Gas Dryer.

5.6 Thermostatic Water Bath-Oscillator.

5.7 Vacuum Pumps: Degree of vacuum up to 80 kPa.

5.8 Microsyringes: 25 µL, 100 µL.

5.9 Brown Centrifuge Tube with Stopper: 25 mL, 50 mL.

5.10 pH Meter: Precision ±0.02 pH unit.

5.11 Reservoir: 50 mL.

5.12 Centrifuge: Rotation speed more than 4000 r/min.

6. Preparation and Storage of Samples

6.1 Preparation of Samples

Lab samples should be grinded with a tissue masher and 0.5 kg of sample powder should be extracted as samples for testing.

6.2 Storage of Samples

Samples should be stored in a refrigerator at temperature -18°C, away from light.

7. Determination Procedure

7.1 Preparation of Mixed Substrate Standard Calibration Solution

7.1.1 Weighing and Fat Removal Procedure for Samples

Weigh and extract 2 g of 5 individual negative samples (precision 0.01 g) and place each into a 50 mL brown centrifuge tube (5.9) respectively. Add 10 mL methanol-water mixture solution (2+1) and mix for 1 min. Thereafter add 5 mL methanol-water mixture solution to wash the head of the homogenizer, combine the two solutions into one solution and set it on a centrifuge for 5 mins at 4,000 r/min, then remove and dispose of the clear liquid at the top layer. Add appropriate amount of four kinds of nitrofurantoin metabolites mixture standard solution (prepared as in 4.18) into each of the 5 centrifuge tubes respectively, so as to ensure the final determined concentration of the four kinds of nitrofurantoin metabolites will be at 0.5 ng/mL, 1.0 ng/mL, 2.0 ng/mL, 4.0 ng/mL and 10.0 ng/mL respectively. Thereafter, add appropriate amount of the mixture internal standard solutions (prepared as in 4.20) into each of the centrifuge tubes respectively, so as to ensure the final determined concentration of the four kinds of nitrofurantoin metabolites will be at 2.0 ng/mL uniformly.

7.1.2 Hydrolysis and Derivatization

Add 10 mL 0.2 mol/L hydrochloric acid solution (4.11) into each of the centrifuge tube respectively and conduct homogenization for 1 min, then use 10 mL 0.2 mol/L hydrochloric acid to wash the head of the homogenizer and combine the 2 solution components into 1 solution. Add 0.3 mL derivatization reagent (4.13) thereafter and use the liquid mixer to mix evenly. Lastly, place it into a 37°C thermostatic water bath (5.6) in place away from light for reaction to happen over the next 16 hours.

7.1.3 Purification

Add 5 mL 0.1 mol/L dipotassium phosphate solutions (prepared as in 4.10) after the abovementioned derivatization solutions return to room temperature. Use 1 mol/L sodium hydroxide solution (prepared as in 4.12) to adjust the pH value of derivatization solutions to ~pH 7.4 and then put the solutions on centrifuge for 10 mins at 4,000 r/min. Pour the clear liquid on the upper layer (if samples prepared for experiment contains too much fats, add 5 mL normalized hexane, shake for 2 mins and put on centrifuge for 10 mins at 4,000 r/min, removing and disposing of the normalized hexane after the process) into the Oasis HLB column, use 10 mL water to wash the SPE column after all of the clear liquid had been channeled through the SPE column, disposing of any overflowing liquid. Use the vacuum pump (5.7) to pressurize and drain the Oasis HLB SPE column at 65 kPa, then air dry the column in a 40°C water bath. Use the sample volumetric solution (prepared as in 4.14) to fill up the volume of the solution to 1.0 mL, mix evenly and then filter through a 0.2 µm filter membrane for determination using liquid chromatography-tandem mass spectrometry method.

7.2 Preparations of Sample Analyte Solution

Weigh and extract 2 g of sample analyte (precision 0.01 g) and place it into 50 mL brown centrifuge tube with stopper (5.9). Add 10 mL methanol-water mixture solution (2+1), homogenize for 1 min then use 5 mL methanol-water mixture solution to wash the head of the homogenizer, combining the 2 solution components into 1 solution. Put the combined solution on a centrifuge for 5 mins at 4,000 r/min, remove and dispose the upper layer clear liquid. Add appropriate amount of mixture internal standard solution into the centrifuge tube, so as to ensure the final determined concentration of the four kinds of nitrofurantoin metabolites will be at 2.0 ng/mL uniformly. Procedure thereafter will be exactly the same as section 7.1.2 and 7.1.3.

7.3 Preparation of Negative Sample Substrate Blank Solution

Weigh and extract 2 g of negative sample (precision 0.01 g) and place it into 50 mL brown centrifuge tube with stopper (5.9). Add 10 mL methanol-water mixture solution (2+1), homogenize for 1 min then use 5 mL methanol-water mixture solution to wash the head of the homogenizer, combining the 2 solution components into 1 solution. Put the combined solution on a centrifuge for 5 mins at 4,000 r/min, remove and dispose the upper layer clear liquid. Procedure thereafter will be exactly the same as section 7.1.2 and 7.1.3.

7.4 Determination

7.4.1 Liquid Chromatography Conditions

- Chromatographic Column: Atlantis-C₁₈, 3.5 μ m, 150 mm \times 2.1 mm (inner diameter) or its likes;
- Column Temperature: 35°C;
- Sample Volume Channeled in: 40 μ L.
- See Table 1 for Mobile Phase and Flow Velocity.

Table 1 LC Gradient Elution Conditions

Time / Min	Flow Velocity / (μ L/min)	0.3% Acetic Acid-water Solution / (%)	0.3% Acetic Acid Acetonitrile Solution / (%)
0.00	200	80	20
3.00	200	50	50
8.00	200	50	50
8.01	200	80	20
16.00	200	80	20

7.4.2 Mass Spectrometry Conditions

- Ionization Source: Electrospray Ionization Source (ESI);
- Scanning Mode: Positive ion scanning;
- Monitoring Mode: Multiple Reaction Monitoring (MRM);
- Electrospray Voltage (IS): 5,000V;
- Flow Velocity of Auxiliary Gas (AUX): 7 L/min;
- Temperature of AUX: 480°C;
- Focus Voltage Pressure (FP): 150 V;
- Collision Chamber Export Voltage Pressure (CXP): 11 V;
- Declustering Potential (DP): 45 V;
- See Table 2 for mass spectrum parameters for the four kinds of nitrofurantoin metabolites and internal derivatization substances, i.e. qualitative ion pairs, quantitative ion pairs, acquisition time and collision gas energy.

Table 2 Mass Spectrum Parameters for Four Kinds of Nitrofuran Metabolites and Internal Derivatization Substances

Name of Metabolites and Derivatization Substances	Qualitative Ion Pair / (m/z)	Quantitative Ion Pair / (m/z)	Acquisition Time / ms	Collision Gas Energy / V
2-NP-AMTZ	335/291 335/128	335/291	100	18 16
A-NP-SEM	209/192 209/166	209/166	150	17 15
2-NP-AHD	249/134 249/178	249/134	200	19 22
2-NP-AOZ	236/134 236/192	236/134	100	19 17
2-NP-D ₅ -AMTZ	340/296	340/296	100	18
2-NP- ¹³ C ¹⁵ N-SEM	212/168	212/168	100	15
2-NP- ¹³ C ₃ -AHD	252/134	252/134	100	32
2-NP-D ₄ -AOZ	240/134	240/134	100	22

7.4.3 Determination by Liquid Chromatography-Tandem Mass Spectrometry

7.4.3.1 Qualitative Determination

For every type of deterministic components, choose 1 parent ion and 2 or more daughter ions, under iterative experiment conditions, relative retention time between mixture substrate standard calibration solution and the analyte as compared to the relative retention time between internal standard substance and the analyte should not deviate more than the $\pm 2.5\%$ range; conduct comparison between the relative abundance of individual component qualitative ions illustrated on the sample's spectrogram and the corresponding relative abundance of component qualitative ions illustrated on the spectrogram of the mixture substrate standard calibration solution with concentration close to that of sample, and if the deviation does not exceed the ranges specified in Table 3, then it is possible to determine the corresponding analytes present in the sample.

Table 3 Maximum Allowable Deviation for Relative Ion Abundance during Qualitative Determination Experiments

Relative Ion Abundance (%)	>50	>20~50	>10~20	≤ 10
Maximum Allowable Deviation (%)	± 20	± 25	± 30	± 50

7.4.3.2 Quantitative Determination

Quantify by Internal Standard Method: Use the internal standard program inbuilt in the software of the apparatus.

Quantify by External Standard Method: Under the apparatus' best working conditions, conduct determination experiment on the four kinds of nitrofuran metabolites mixture substrate standard calibration solution with the concentration of the solution as the horizontal axis and the peak area as the vertical axis, plot the standard working curve. Use the curve as a reference for the quantification of the analytes in the sample, of which the response values of the analytes in the sample solution should all fall within the linear range of the apparatus. See Illustration 1 for the standard multiple reaction monitoring (MRM) chromatography diagrams for the four kinds of nitrofuran metabolites and the internal standard derivatization substances. See Table B.1 for the experiment statistics of added concentration and the average recovery rates for the four kinds of nitrofuran metabolites.

7.5 Parallel Experiments

According to processes abovementioned, run one parallel experiment on the same sample.

7.6 Recovery Rate Experiment

Extract appropriate amount of mixture standard working solution and internal standard working solution, run derivatization on these according to procedures specified in section 7.1.2 and 7.1.3, increase concentration so as to get derivatized solutions of the mixture standard solution and internal standard solution with corresponding concentrations. Use the substrate blank solution (prepared as in 7.3) and dilute it into a standard calibration solution with the required concentration. Add this standard solution into the negative sample and run procedure as specified in section 7.2, then determine the recovery rate of the sample added thereafter.

8. Result Calculation

Results can be calculated according to the following formula (1):

$$X = c \times \frac{V}{m} \times \frac{1000}{1000} \dots\dots\dots (1)$$

In the formula:

X – Component residues in sample analyte, unit in µg/kg;

c – Concentration of each component analyte solution derived from the standard working curve, unit in ng/mL;

V – Final fixed volume of the sample solution, mL;

m – Final weight of sample representative in the sample solution, unit in g.

9. Precision

Accuracy of this section should be in accordance with GB/T 6379.1 and GB/T 6379.2, while repeatability and reproducibility values should be calculated with 95% reliability.

9.1 Repeatability

Under iterative conditions, absolute deviation between results of 2 independent tests obtained should not exceed the repeatability limit r. See Table 4 for the range of content and repeatability limits of four kinds of nitrofurans metabolites.

If deviation exceeds the repeatability limit, should abandon test results and conduct and complete 2 new independent tests.

9.2 Reproducibility

Under iterative conditions, absolute deviation between results of 2 independent tests obtained should not exceed the reproducibility limit R. See Table 4 for the range of content and reproducibility limits of four kinds of nitrofurantoin metabolites.

Table 4 Range of Content and Formula for Repeatability and Reproducibility

Name of Metabolites	Range of Content / (µg/kg)	Repeatability, r	Reproducibility, R
AMTZ	0.2~2.0	$r = 0.0966 m + 0.0048$	$\lg R = 1.1707 \lg m - 0.6600$
SEM	0.2~2.0	$\lg r = 1.0512 \lg m - 0.9801$	$\lg R = 1.0002 \lg m - 0.8848$
AHD	0.5~5.0	$\lg r = 1.0349 \lg m - 0.9565$	$\lg R = 1.0083 \lg m - 0.8949$
AOZ	0.2~2.0	$\lg r = 0.9919 \lg m - 0.9195$	$\lg R = 0.8278 \lg m - 0.8431$
Note: m refers to the arithmetic mean value of two independent results of determination tests.			

Appendix A

(Informative Appendix)

See Illustration A.1 for the multiple reaction monitoring (MRM) chromatograph for the four kinds of nitrofuran metabolites and their internal derivatized substances.

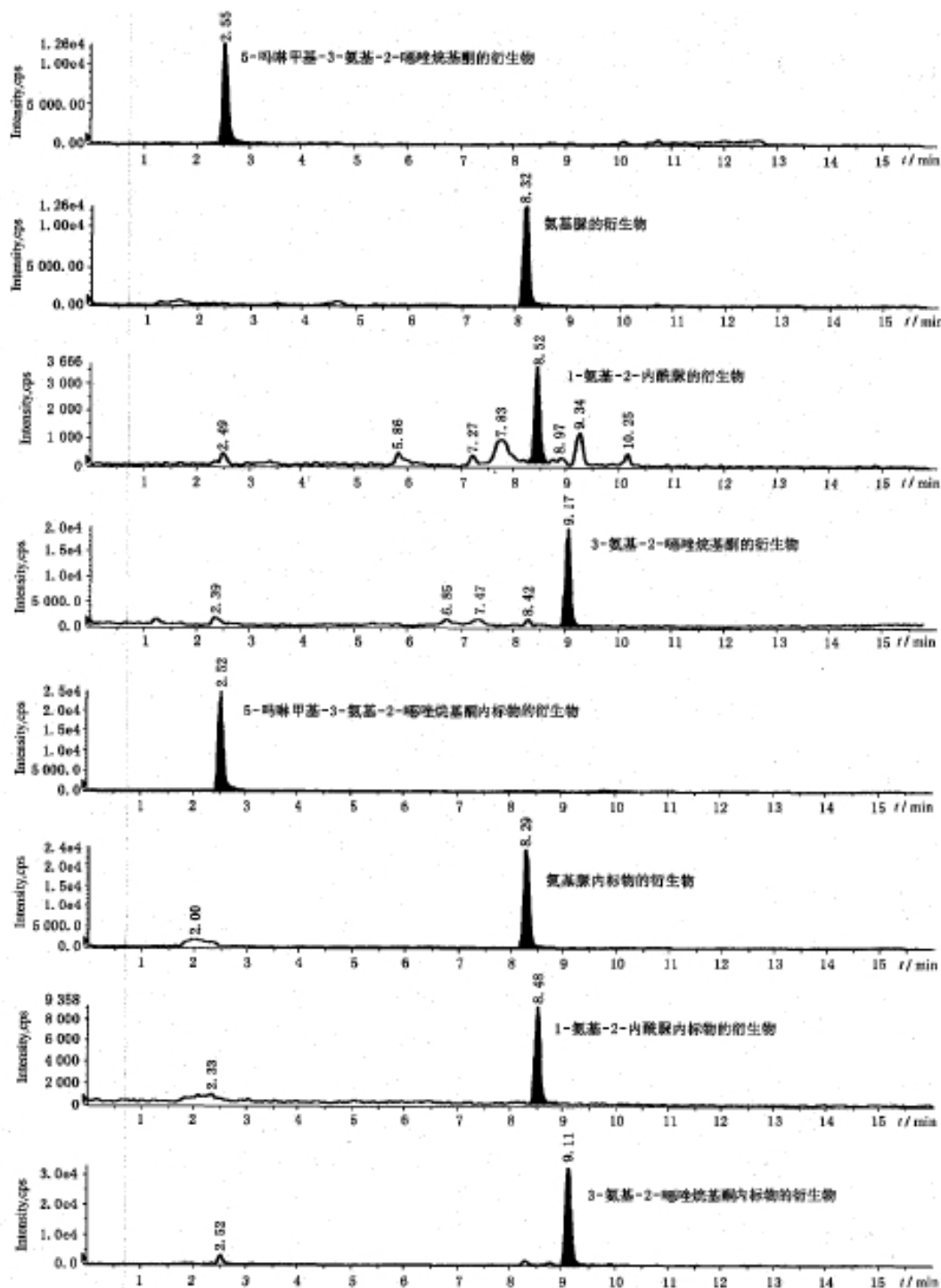


Illustration A.1 MRM Chromatograph for Four Kinds of Nitrofuran Metabolites and Their Internal Standard Derivatized Substances

Appendix B

(Informative Appendix)

Recovery Rate

See Table B.1 for the average added recovery rate (n=10) for the four kinds of nitrofuran metabolites.

Table B.1 Average Added Recovery Rate (n=10) for Four Kinds of Nitrofuran Metabolites

Name of Nitrofuran Metabolites	Added Concentration / (ug/kg)	Average Added Recovery Rate for Four Kinds of Nitrofuran Metabolites in Individual Samples						
		Pork	Beef	Chicken	Pork Liver	Blowfish	Shrimp	Scallop
2-NP-AMTZ	0.2	88.2	90.1	91.2	85.4	89.5	82.3	84.5
	0.5	90.3	88.2	92.3	83.2	87.9	84.1	87.8
	1.0	85.6	85.5	88.6	82.4	90.1	85.2	88.2
	2.0	87.8	90.6	85.9	84.1	85.6	83.1	85.6
2NP-SEM	0.2	89.1	88.9	89.7	82.4	88.9	81.2	82.3
	0.5	87.6	87.5	88.6	86.6	87.8	86.6	84.5
	1.0	86.8	86.8	86.9	82.1	85.6	85.8	86.2
	2.0	85.4	85.4	85.8	83.5	87.2	82.6	82.1
2NP-AHD	0.5	84.2	83.2	88.9	82.3	88.2	82.1	82.1
	1.0	87.8	85.9	89.6	81.6	85.7	83.2	82.8
	2.0	88.1	87.1	87.5	84.6	84.6	84.2	83.6
	5.0	83.6	82.6	86.8	84.7	82.8	81.6	84.2
2NP-AOZ	0.2	91.2	90.2	92.1	88.2	90.2	88.2	88.2
	0.5	90.3	91.0	90.5	87.3	85.3	87.9	89.1
	1.0	88.6	88.9	89.6	85.6	91.2	86.2	85.4
	2.0	86.2	85.6	88.2	84.8	88.6	85.4	83.2

GB 14891.6-1994 Hygienic Standard of Irradiated Hog Carcass



National Standards of People's Republic of China

GB 14891.6-1994

National Food Standard

Hygienic Standard for Irradiated Hog Carcass

Issued on: 1994-02-23

Implemented on: 1994-07-01

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

National Food Standard

Hygienic Standard for Irradiated Hog Carcass

1. Subject Content and Application Scope

The standard specifies the technological factors and test methods for irradiated trichina hog carcass.

The standard is applicable to trichina hog carcass irradiated by Gamma rays or electron beams (trichina parasite density shall be 5 or less trichina unwrapped or calcified in 24 sample slices).

2. Quoted standards

GB 2722 Hygienic standard for fresh hog carcass

3. Technical requirements

3.1 Irradiation dose limit: trichina hog carcass irradiated by the ^{60}Co or ^{137}Cs rays or electron beams below 10 MeV generated by the electron accelerator. The total average adsorbed dose shall be 0.65 kGy.

3.2 Irradiation principle: Even irradiation with reliable and accurate dosage

4. Sensory indexes

It shall be implemented in accordance with GB 2722.

5. Physicochemical indexes

It shall be implemented in accordance with GB 2722.

6. Parasite indexes

Trichina must be killed in irradiated hog carcass and shall not grow into adults which parasitize animal intestines.

7. Test methods

Test of trichina killed in irradiated hog carcass shall be carried out in accordance with Appendix A (Supplement).

Appendix A

Test Method for Trichina Killed in Irradiated Hog Carcass (Supplement)

A.1 Reagents

Pepsase digestive juice (1%): blend 10 g of pepsase powder (activity 3,000:1) with 10 mL of concentrated hydrochloric acid and 990 mL of distilled water.

A.2 Manually collected muscle trichina

Mince 50 g of irradiated hog carcass (diaphragm muscles, psoas or hind leg muscles) and put it in the digestive juice at the ratio of 1g:20 mL. Then place it in the constant temperature oven at 37°C for 1 to 2 hours while constantly stirring it. Then precipitate it for 30 minutes and remove the liquid supernatant to collect the muscle trichina from the sediments.

A.3 Bioassay test on white mice

A.3.1 Give gavages to white mice with the collected muscle trichina. Every mouse shall receive 30 muscle trichina or more.

A.3.2 Kill the white mice 24 hours after the gavages and collect their small intestines which shall be split lengthways and made into glass performs. Then observe whether there exist trichina parasites

Additional remarks:

This standard has been proposed by Health Supervision Department of Ministry of Health.

This standard has been drafted by Henan Food Sanitary Surveillance and Control Station.

This standard has been drafted mainly by Wang Peiren, Wang Zhongzhou, Meng Guang, Li Fasheng and Chen Yurong.

This standard has been put under centralized management of Food Sanitary Surveillance and Control Station commissioned by Ministry of Health.

**GB 14891.7-1997 Hygienic Standard for Irradiated Frozen Packaged Meat of
Livestock and Poultry**



National Standards of People's Republic of China

GB 14891.7-1997

National Food Safety Standard
**Hygienic Standard for Irradiated Frozen Packaged Meat of Livestock
and Poultry**

Issued on: 1997-06-16

Implemented on: 1998-01-01

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

Foreword

This standard is part of Hygienic Standard for Irradiated Foods.

This standard has been proposed by Ministry of Health of the People's Republic of China.

This standard has been drafted by Beijing Sanitation and Antiepidemic Station, West China Medical University, Henan Sanitation and Antiepidemic Station and Nutrition and Food Hygiene Institute of Chinese Academy of Preventive Medicine.

This standard has been drafted mainly by Xu Jikang, Zeng Lingfu, Ma Luocheng, Han Chi and Zhang Zheng.

This standard has been put under centralized management of Chinese Academy of Preventive Medicine commissioned by Ministry of Health.

National Food Safety Standard

Pork Hygienic Standard for Irradiated Frozen Packaged Meat of Livestock and Poultry

1. Scope

This standard specifies the radiation dosage, sanitary requirements and test methods to irradiate the frozen packaged meat of livestock and poultry including pork, beef, lamb, chicken and duck with the ^{60}Co or ^{137}Cs rays or electron beams below 10 MeV generated by the electron accelerator.

This standard is applicable to frozen packaged meat irradiated for the purpose of killing salmonella in livestock and poultry.

2. Quoted standards

Articles of the following standard constitute those of this standard because they are referred to in this standard. All versions shall be effective when this standard is published. All standards may be revised and all parties who use this standard shall discuss the possibility of using the latest version of the following standards.

GB 4789.4—94 Food Sanitation Microbiological Test--Test of Salmonella

GB 5009.17—1996 Determination Methods of Total Mercury in Foods

GB 5009.44—1996 Analytical Methods in the Hygienic Standard for Meat and Meat Products

GB 7718—94 General Standard for Food Labels

GB 12694—90 Hygienic Regulations for Meat-packing Plants

3. Hygiene requirements

3.1 Materials requirements

Raw meat to be irradiated shall be quality frozen packaged meat that is produced in accordance with

3.2 Irradiation dose and requirements

3.2.1 Irradiation dose: Average adsorbed dose of the irradiated frozen packaged livestock and poultry shall be 2.5 kGy or less.

3.2.2 Irradiation requirements: even and accurate with the adsorbed dose unevenness at 2.0 or less.

3.3 Sensory requirements

Sensory indexes of irradiated frozen packaged livestock and poultry including colors, textures, viscosity, odors and the boiled broth shall be in accordance with the hygienic standards for the same type of frozen meat which is not irradiated.

3.4 Physicochemical indexes

Physicochemical indexes shall be in accordance with Table 1

Table 1 Physicochemical indexes

Items		Indexes
Volatile basic nitrogen, mg/kg	≤	20
Mercury (calculated by Hg)	≤	0.05

3.5 Microbiological indicators

Salmonella shall not be detected from the irradiated frozen packaged livestock and poultry.

4 Packages and labels

4.1 Irradiated frozen split livestock and poultry shall be packaged and sealed in composite plastic films before irradiation. Carton seams shall be sealed with waterproof tapes.

4.2 Packages for irradiated frozen split livestock and poultry shall bear the uniformly printed irradiated food marks and be in accordance with GB 7718.

5 Test methods

5.1 Volatile basic nitrogen shall be in accordance with GB 5009.44.

5.2 Mercury shall be in accordance with GB 5009.17.

5.3 Salmonella shall be in accordance with GB 4789.4.

Specific Meat Categories

GB 9959.1-2001 Fresh and Frozen Demi Carcass Pork



National Standards of People's Republic of China

GB 9959.1-2001

National Food Standard

Fresh and Frozen Demi Carcass Pork

Issued on: 2001-07-20

Implemented on: 2001-12-01

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

Foreword

The sections 4.1, 4.4, and 4.5 in this standard are mandatory provisions, while others are voluntary / recommended.

This standard is the revision for GB/T 9959.1-1988 Fresh and Frozen Demi-carcass Pork with Skin and GB/T 9959.2-1988 Fresh and Frozen Demi-carcass Pork without Skin. Considering that the only difference between the two earlier standards is the presence of skin or not, the standards were combined into one entitled Fresh and Frozen Demi-carcass Pork.

Two key amendments in the Physical-chemical Index section were made in the revised version, i.e. Total Volatile Basic Nitrogen (TVB-N) index for the product was revised from “ $\leq 15\text{mg}/100\text{g}$ ” to “ $\leq 20\text{mg}/100\text{g}$ ” and a new index limit for moisture was added.

This standard will replace both GB/T 9959.1-1988 and GB/T 9959.2-1988 from its date of implementation.

This standard is proposed by State Bureau of Domestic Trade.

This standard is under the jurisdiction of the Department for Distribution of Consumer Products, of the State Domestic Trade Bureau.

The standard is drafted by China Research Center for Meat Category Food Products.

The key personnel involved in the drafting of the standards are Qiqing Lee, Yuanlee Xue.

National Food Standard

Fresh and Frozen Demi Carcass Pork

1. Scope

This standard specifies the terms and definition, technical requirements, test methods, test guidelines and labeling, storage, transportation of fresh and frozen demi carcass pork.

This standard is applicable to fresh and frozen demi carcass pork which is produced from slaughtering live pigs.

2. Normative References

Clauses involved in the following documents constitute the ones in this standard through reference in this standard. Any dated reference and the following amendment or revised versions are not applicable to this standard. However, the study of whether the latest version of these documents can be used by all parties who reach agreement according to this standard is encouraged.

GB/T 5009.17-1996 *Testing Method for Mercury in Foods*

GB/t 5009.44-1996 *Analysis Method for Hygienic Standard of Meat and Meat Products*

GB 18394-2001 *Permitted Level of Moisture in Meat of Livestock and Poultry*

Trial Procedure for Hygiene Inspection of Meat Products, with reference to (59) Farming Committee File No.113, (59) Health and Epidemic Prevention File No.556, (59) SAG File No.231 and (59) Industry and Commerce & Health File No.399

3. Terms and Definition

This standard will adopt the following definitions.

3.1 Demi-carcass Pork

Refers to pork that is derived from whole pig longitudinally sawed (or chopped) through its center spinal cord into two halves.

3.2 Fresh Demi-carcass Pork

Refers to demi-carcass pork, which is cooled but not chilled after slaughter.

3.3 Chilled Demi-carcass Pork

Refers to demi-carcass pork that has undergone chilling process, of which the center of the muscle (meat) at the inner layers of its hind legs has a temperature between 0 and 4oC.

3.4 Frozen Demi-carcass Pork

Refers to demi-carcass pork that has undergone freezing process, of which the center of the muscle (meat) at the inner layers of its hind legs has a temperature of not more than -15oC.

3.5 Pig Head

Refers to head of the pig without its calvaria exposed, severed at neck level of a distance 6cm~7cm away from the jawline, from the ears to the mandible in one straight cut.

4. Technical Requirements

4.1 Raw Ingredients

4.1.1 Live pig must come from non-infected areas and should hold inspection and quarantine certification issued by the local epidemic prevention supervisory organization.

4.1.2 Male and female hogs that are castrated at matured age should not be used as raw ingredients for processed fresh and frozen demi carcass pork.

4.2 Processing

4.2.1 Requirements on slaughtering and processing procedure (See Table 1)

Table 1

Item \ Grade	1 st Grade	2 nd Grade	3 rd Grade
Bloodletting	Completely let out blood	Completely let out blood	Completely let out blood
Removing head and pork jowl	Remove head using “flat head” specification. Remove pork jowl from 1 st vertebra through its corresponding perpendicular area	Remove head using “flat head” specification. Remove pork jowl from 1 st vertebra through its corresponding perpendicular area	Remove head using “flat head” specification. Remove pork jowl from 1 st vertebra through its corresponding perpendicular area
Removing innards	Remove all innards, protective oil around heart, diaphragm and its meat, spinal arteries, reproductive organs and then clean any abnormal lymph nodes due to non-infectious diseases from parts to be inspected.	Remove all innards, protective oil around heart, diaphragm and its meat, spinal arteries, reproductive organs and then clean any abnormal lymph nodes due to non-infectious diseases from parts to be inspected.	Remove all innards, protective oil around heart, diaphragm and its meat, spinal arteries, reproductive organs and then clean any abnormal lymph nodes due to non-infectious diseases from parts to be inspected.
Removing 3 glands	Removing thyroid, adrenal and diseased lymph nodes	Removing thyroid, adrenal and diseased lymph nodes	Removing thyroid, adrenal and diseased lymph nodes
Sawing (chopping) into halves	Saw (or chop) through the spine line into 2 portions; each should be neatly chopped and uniform in size	Saw (or chop) through the spine line into 2 portions; whole spine of each piece of meat is not allowed to deviate by more than 2 vertebrae	Saw (or chop) through the spine line into 2 portions; whole spine of each piece of meat is not allowed to deviate by more than 3 vertebrae
Removing trotters	Front trotters cut off from the wrist joints, back trotters cut off from the tarsal joints	Front trotters cut off from the wrist joints, back trotters cut off from the tarsal joints	Front trotters cut off from the wrist joints, back trotters cut off from the tarsal joints
Removing tail	Parallel cut from the root of the pig’s tail	Parallel cut from the root of the pig’s tail	Parallel cut from the root of the pig’s tail
Removing nipple	Remove the nipple and clean the pigment deposit, ensure no yellow juice	Remove the nipple and clean the pigment deposit, ensure no yellow juice	Remove the nipple and clean the pigment deposit, ensure no yellow juice

Table to be continued...

...Table continued

Item \ Grade	1 st Grade	2 nd Grade	3 rd Grade
Cleaning	Darkened, wrinkled skins at hip and groin area and anal sphincter, as well as scars, invisible injuries, pustules, skin ringworms, eczema, scabs, cutaneous nodules, intense erythema, epidermal injury spots on the meat surface should be removed and cleaned. For each piece of pork, surface area removed/cleaned should not exceed 1/4, internal injuries area removed/cleaned should not exceed 150cm ²	Darkened, wrinkled skins at hip and groin area and anal sphincter, as well as scars, invisible injuries, pustules, skin ringworms, eczema, scabs, cutaneous nodules, intense erythema, epidermal injury spots on the meat surface should be removed and cleaned. For each piece of pork, surface area removed/cleaned should not exceed 1/3, internal injuries area removed/cleaned should not exceed 200cm ²	Darkened, wrinkled skins at hip and groin area and anal sphincter, as well as scars, invisible injuries, pustules, skin ringworms, eczema, scabs, cutaneous nodules, intense erythema, epidermal injury spots on the meat surface should be removed and cleaned. For each piece of pork, surface area removed/cleaned should not exceed 1/3, internal injuries area removed/cleaned should not exceed 250cm ²
Removing residual hairs	Completely remove residual hairs; hairs of unequal lengths not allowed. Area of dense broken roots of hair (incl. villi, new short hairs) on each piece of pork should not exceed 64cm ² , total area of sparse broken roots of hair should not exceed 80cm ²	Completely remove residual hairs; hairs of unequal lengths not allowed. Area of dense broken roots of hair (incl. villi, new short hairs) on each piece of pork should not exceed 64cm ² , total area of sparse broken roots of hair should not exceed 100cm ²	Completely remove residual hairs; hairs of unequal lengths not allowed. Area of dense broken roots of hair (incl. villi, new short hairs) on each piece of pork should not exceed 64cm ² , total area of sparse broken roots of hair should not exceed 120cm ²
Washing	No floating hairs, blood clots, gall stains, feces stains and other contaminants	No floating hairs, blood clots, gall stains, feces stains and other contaminants	No floating hairs, blood clots, gall stains, feces stains and other contaminants
Others	Raw burns, old burns, machine damages and bruises on whole body are not allowed.	Raw burns, old burns, machine damages and bruises on whole body are not allowed.	Raw burns, old burns, machine damages and bruises on whole body are not allowed.

4.2.2 Chilling/Freezing Processes

4.2.2.1 For chilled demi-carcass pork, temperature at the core area at muscles of the hind leg should be between 0 and 4°C within 24 hours of slaughter.

4.2.2.2 For frozen demi-carcass pork, temperature at the core area at muscles of the hind leg should be exceed -15°C within 20 hours of slaughter.

4.3 Inspection and Quarantine

Slaughtering and processing of live pigs should comply with the requirements of (59) Farming Committee File No.113, (59) Health and Epidemic Prevention File No.556, (59) SAG File No.231 and (59) Industry and Commerce & Health File No.399, performing inspections and processing procedure before and after slaughtering.

4.4 Sensory Index

See Table 2 for the sensory requirements on fresh and frozen demi-carcass pork.

Table 2

Item	Fresh Demi-carcass Pork	Frozen Demi-carcass Pork (Thawed)
Color and Luster	Meat is bright red or dark red, with luster; fats appears milk white or pink-white	Meat is bright red, with luster, fats appears milk white, no mold spots
Elasticity (Tissue Conditions)	After pressed down by finger, depression recovers immediately	Meat texture is tight and firm
Viscosity	Surface is slightly dry or moist, does not feel sticky	Surface and surface of slices of meat feels moist, does not feel sticky
Smell	Has normal smell typical of fresh pork. Soup of boiled meat appears clear, with fats concentrate on liquid surface and it has great smell	Has normal smell typical of fresh pork. Soup of boiled meat appears clear, with fats concentrate on liquid surface and it has no unusual odor

4.5 Physical-Chemical Index

See Table 3 for the physical-chemical index requirements on fresh and frozen demi-carcass pork.

Table 3

Item	Fresh and Frozen Demi-carcass Pork
Volatile TVB-N, mg/100g ≤	20
Mercury, mg/kg ≤	0.05
Moisture, % ≤	77

4.6 Product Grade

4.6.1 Fresh and frozen demi-carcass pork can be graded into 1st class, 2nd class and 3rd class. Thickness of fat layer between the sixth and seventh rib parallel to the frontal underside of the sixth thoracic vertebra will be used as grading criterion. 1st grade pork will has other quality requirements on top of thickness of fat layer.

See Table 4 for grading specifications.

Table 4

Item	1 st grade	2 nd grade	3 rd grade
Thickness of Fat Layer, cm	≤2.0	1.0~2.5	<1.0 >2.5
Quality of demi-carcass Pork	With Skin	Not limited	Not limited
	Without Skin		
	≥23		
	≥21		

4.6.2 See Table 5 on amount of shrinking of fats layers allowed for fresh demi-carcass pork after the chilling/freezing process.

Table 5

Thickness of Fat Layer, cm	Allowable Degree of Shrinkage, %
<1.0	10
1.0~2.5	11
2.5~3.0	12
>3.0	13

5. Test Methods

5.1 Sensory Inspection

5.1.1 Appearance, color and luster: Visual inspection.

5.1.2 Viscosity, elasticity (tissue condition): Sense of touch, visual inspection.

5.1.3 Smell: Inspect using sense of smell.

5.1.4 Soup of meat heated/boiled: According to section 1.2 of GB/T 5009.44-1996.

5.2 Physical-Chemical Index Tests

5.2.1 Volatile TVB-N: According to section 2.1 point of GB/T 5009.44-1996.

5.2.2 Mercury: According to standard GB/T 5009.17.

5.2.3 Moisture: According to section 4 in GB 18394-2001.

5.3 Temperature Measurement

5.3.1 Apparatus

Thermometer: Use normal glass thermometer (non-mercury) of $\pm 50^{\circ}\text{C}$ or other temperature measurement apparatus.

5.2.3 Determination

Use a drill with diameter slightly larger than that of the thermometer (not exceeding 0.1cm) to drill a hole into the core area at the deeper layer of muscles at the hind leg section. Take out the drill once it is done and quickly insert the thermometer into the drilled hole, read off the thermometer horizontally after 3mins.

6. Inspection Guidelines

6.1 Batch

One batch is products of the same shift, variety and specifications.

6.2 Sampling

Draw samples according to Table 5.

Table 5

Range of batch size, no. of pieces	Quantity of samples, no. of pieces	Number of qualified samples	Number of unqualified samples
<1,200	5	0	1
1,201~35,000	8	1	2
≥35,001	13	2	3

Extract 2kg of samples as samples for type inspection, while remaining samples should be sealed for safekeeping for another 3 months for future reference.

6.3 Inspection

6.3.1 Out-factory Inspection

6.3.1.1 Every batch of products that is meant for shipping out from factory should be qualified by inspection and tests, where inspection certificate should be issued before products leave factory.

6.3.1.2 Inspection items include labeling, net content, packaging and sensory aspects.

6.3.1.3 Judgment guidelines should be implemented according to Table 5.

6.3.2 Type Inspection

6.3.2.1 Type inspection should be carried out at least one time a year. Type inspection should also be carried out under any of the following situations:

- After changing equipment or resuming production after a long time without any production activities in factory;
- Large discrepancies between the results of out-factory inspection and the results of the last type inspection;
- During inspection conducted by State quality supervisory authorities.

6.3.2.2 Required inspection items are those required in section 4.5 and 4.6 of this standard.

6.3.2.3 Judgment Guidelines

- Labeling, net content, packaging and sensory aspects should be inspected before products leave factory;
- If any one test item or more (incl. one item) failed, re-test/inspection should be conducted with 2 times the quantity of the initial inspection. Pass or fail will be in accordance to the result of the re-test/inspection.

7. Labeling, Storage and Transportation

7.1 Labeling

7.1.1 Every piece of pork should be stamped on the hip and scapular regions with the veterinary certificate stamp, inspection qualification and grade certificate stamps, of which all should be visibly clear and neat.

7.1.2 Veterinary certificate stamp is circle in shape, of which its diameter is 5.5 cm, engraved with name of

enterprise, word “Certified”, “year, month, day” and “Pig” in Chinese characters and numbers. The grade certificate stamp is ellipse in shape, of which its diameter is 4.5 cm, engraved with word “1”, “2”, “3” in numbers.

7.1.3 Pigment used in these stamps should be edible colorings used in foods.

7.2 Preservation

7.2.1 Chilled demi-carcass pork should be hanged in a chilled room, at 75%~84% humidity and 0°C~1°C temperature, with distance between each at 3cm~5cm.

7.2.2 Frozen demi-carcass pork should be preserved in cold storage, at 95%~100% humidity and -18°C temperature, with overnight temperature fluctuations less than 1°C.

7.3 Transportation

7.3.1 Refrigerated truck (or boat) or insulated truck that meets sanitary requirements should be used when transporting products by highway or waterway.

7.3.2 Transportation of products by railway should be implemented according to the requirements of relevant national regulation(s).

GBT 9959.2-2008 Fresh and Frozen Pork Lean, Cuts



National Standards of People's Republic of China

GB/T 9959.2-2008

Fresh and Frozen Pork Lean, Cuts

Issued on: 2008-08-12

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**Issued by General Administration of Quality Supervision, Inspection and Quarantine of the
People's Republic of China & China National Standardization Management Committee**

Foreword

This standard is a revision of GB 9959.2-2001 Fresh and Frozen Pork Lean, Cuts. As compared with GB 9959.2-2001, key changes are as follows:

- Normative references were added for this standard;
- Section 4.6 Physical-Chemical Indexes was expanded, adding index requirements on heavy metal like cadmium, lead, arsenic and net content, as well as index limits for pesticide and veterinary drug residues;
- Section 4.7 Microorganism Indexes was added.

This standard will replace GB 9959.2-2001 from its date of implementation onwards.

This standard is proposed by the Ministry of Commerce of the People's Republic of China and also under its specific jurisdiction.

The organization involved in the drafting of this standard: Slaughtering Technical Testing Center under the Ministry of Commerce, Xincheng Jinluo Meat Product Company (Linyi).

The key personnel involved in the drafting process: Lifeng Zhang, Jichuan Zhang, Xinling Zhang, Xinying Hu.

This standard replaces the earlier versions of this standard:

- GB/T 9959.4-1998
- GB 9959.2-2001

Fresh and Frozen Pork Lean, Cuts

1. Scope

This standard specifies the relevant terms and definitions, technical requirements, inspection method, inspection guidelines, and requirements on labeling, storage and transportation for fresh and frozen pork lean, cuts.

This standard applies to chilled (fresh) or frozen pork lean meat that are processed after it was segmented by parts from whole pig.

2. Normative References

Clauses involved in the following documents constitute the ones in this standard through reference in this standard. Any dated reference and the following amendment or revised versions (excluding errata) are not applicable to this standard. However, the study of whether the latest version of these documents can be used by all parties who reach agreement according to this standard is encouraged. Any latest version of the non-dated reference is applicable to this standard.

GB/T 191	<i>Illustration and Logo for Packaging, Storage and Transportation</i>
GB/T 4789.17	<i>Food Hygiene Microbiological Tests: Test for Meat and Meat Products</i>
GB/T 5009.11	<i>Testing Method for Total Arsenic in Foods</i>
GB/T 5009.12	<i>Testing Method for Lead in Foods</i>
GB/T 5009.15	<i>Testing Method for Total Cadmium in Foods</i>
GB/T 5009.17	<i>Testing Method for Mercury in Foods</i>
GB/T 5009.19	<i>Testing Method for BHC, DDT Pesticide Residues</i>
GB/T 5009.20	<i>Testing Method for Organophosphorus Pesticide Residues in Foods</i>
GB/T 5009.44	<i>Analysis Method for Hygienic Standard of Meat and Meat Products</i>
GB/T 5009.116	<i>Testing Method for Oxytetracycline, Tetracycline and Aureomycin Residue in Poultry Meat (High Performance Liquid Chromatography)</i>
GB/T 5009.192	<i>Testing Method for Clenbuterol Residues in Animal-based Food Products</i>
GB/T 5737	<i>Plastic Turnover Basket for Foods</i>
GB/T 6388	<i>Transport Packaging and Shipping Mark</i>
GB/T 6543	<i>Corrugated Boxes</i>
GB 7718	<i>General Principle for Prepackaged Food Labels</i>
GB 9683	<i>Hygienic Standard for Packaging Bags of Composite Foods</i>
GB 9687	<i>Hygienic Standard of Polyethylene Mold Products Used for Food Packaging</i>

GB 9688	<i>Hygienic Standard of Polypropylene Mold Products Used for Food Packaging</i>
GB 9659.1	<i>Fresh and Frozen Demi-carcass Pork</i>
GB 10457	<i>Polyethylene Plastic Film for Retaining Freshness</i>
GB 18394	<i>Permitted Level of Moisture in Meat of Livestock and Poultry</i>
GB/T 20799	<i>Transportation Conditions for Fresh and Frozen Meat</i>
JJF 1070	<i>Regulation on the Measurement and Determination of Net Content of Fixed-volume Prepackaged Products</i>
SN 0208	<i>Testing Methods for Ten Different Types of Sulfanilamide Residues in Meat Exports</i>
SN 0215	<i>Testing Method for Chloramphenicol Residues in Meat Exports</i>

Procedures for Measurement, Supervision and Administration of Fixed-volume Prepackaged Foods – 75th Order issued by General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) [2005]

3. Terms and Definition

The following terms and definition will be applicable throughout this standard.

3.1 Pork Lean

Refers to lean muscle meat that has the specific amount of skin, bones and subcutaneous fats removed according to the parts of the pig that the meat is derived from.

3.2 Pork Boneless Boston Shoulder

Refers to lean muscle meat that is cut off from the back of neck area between the 5th and 6th rib (simply referred to as Meat No.1).

3.3 Pork Boneless Picnic Shoulder

Refers to lean muscle meat that is cut off from the fore legs area between the 5th and 6th rib (simply referred to as Meat No.2).

3.4 Pork Loin

Refers to lean muscle meat in the back area that is cut off in a parallel manner approximately 4cm~6cm below the spine (simply referred to as Meat No.3).

3.5 Pork Leg

Refers to lean muscle meat in the hind leg area that is cut off at the joints (additional one and a half section of lumbar vertebrae is allowed) between the lumbar and sacral vertebrae (simply referred to as Meat 4).

4. Technical Requirements

4.1 Varieties

Fresh, frozen pork lean, cuts are classified into: pork boneless boston shoulder (Meat No. 1), pork boneless picnic shoulder (Meat No. 2), pork loin (Meat No. 3), pork leg (Meat No. 4) and other finely segmented (cut) products.

4.2 Raw Ingredients

Comply with the requirements listed in GB 9959.1.

4.3 Processing

4.3.1 Cutting & Segmenting

4.3.1.1 There are two deboning methods – chilled deboning and warm deboning that are allowed in the meat cutting & segmenting processes. Chilled deboning means that pork is segmented and deboned after it is chilled/frozen. Warm deboning means that pork is directed segmented and deboned without being chilled/frozen. When warm deboning is used, strict hygiene requirements should be adhered to, i.e. the time taken for the processes of pig undergoing bloodletting to pork being properly cut and segmented to end products then sent into cold storage should not exceed 90mins. The surrounding temperature of where the process is carried out at should be $\leq 15^{\circ}\text{C}$.

4.3.1.2 Segmented meat should be cleaned from injury spots, points of bleeding, bone fragments, cartilage, blood stains, lymph nodes, pustules, floating hairs and other contaminants. Patches with severely pale colors and surrounding tissues with serous infiltration should also be removed.

4.3.2 Chilling Process

4.3.2.1 Temperature of the core areas within the segmented pork lean should be lowered to 7°C or lower within 24 hours in an environment with temperature $0^{\circ}\text{C}\sim 4^{\circ}\text{C}$.

4.3.2.2 Terminal temperature, i.e. the temperature of the deeper layers of muscles within the segmented frozen pork lean should not higher than -15°C .

4.4 Sensory Aspects

Comply with the requirements listed in Table 1.

Table 1 Sensory Requirements

Items	Requirements
Color and Luster	Meat is bright red in color with luster; fats appears milky-white
Texture/Structure	Meat structure tight with firm texture
Smell	Has the smell that pork should have, without unusual odor

4.5 Physical-Chemical Indexes

Comply with the requirements listed in Table 2.

Table 2 Physical-Chemical Indexes

Items		Index
Moisture Content / %	≤	77
TVB-N / (mg/100g)	≤	15
Total Mercury (Hg) / (mg/100g)	≤	0.05
Cd / (mg/kg)	≤	0.1
Pb (mg/kg)	≤	0.2
As / (mg/kg)	≤	0.05
666 / (mg/kg)	≤	0.2
DDT / (mg/kg)	≤	0.2
DDVP		Should not be detected
Aureomycin	≤	0.1
Tetracycline	≤	0.1
Oxytetracycline	≤	0.1
Sulfonamides	≤	0.1
Chloramphenicol		Should not be detected
Clenbuterol		Should not be detected

4.6 Microorganism Indexes

Comply with the requirements listed in Table 3.

Table 3 Microorganism Indexes

Items		Index
Aerobic Bacterial Count / (CFU/g)	≤	1×10^4
Coliform / (MPN/100g)	≤	1×10^4
Salmonella		Should not be detected

4.7 Net Content

Net content will be based on the values specified on the labels on the product or its external packaging, while the allowable shortfall should comply with the requirements of the Procedures for Measurement, Supervision and Administration of Fixed-volume Prepackaged Foods.

5. Inspection Methods

5.1 Sensory Inspections

5.1.1 Color and Luster: Sense of Sight

5.1.2 Smell: Inspected by sense of smell.

5.1.3 Texture/Structure: Sense of touch and sight.

5.2 Physical-Chemical Inspections

5.2.1 Moisture: According to method specified in GB 18394.

- 5.2.2 TVB-N: According to method specified in GB/T 5009.44.
- 5.2.3 Total mercury: According to method specified in GB/T 5009.17.
- 5.2.4 Total cadmium: According to method specified in GB/T 5009.15.
- 5.2.5 Total lead: According to method specified in GB/T 5009.12.
- 5.2.6 Inorganic Arsenic: According to method specified in GB/T 5009.11.
- 5.2.7 666, DDT: According to method specified in GB/T 5009.19.
- 5.2.8 DDVP: According to method specified in GB/T 5009.20.
- 5.2.9 Oxytetracycline, Tetracycline and Chlortetracycline: According to method specified in GB/T 5009.116.
- 5.2.10 Sulfonamides: According to method specified in SN 0208.
- 5.2.11 Chloramphenicol: According to method specified in SN 0215.
- 5.2.12 Clenbuterol: According to method specified in GB/T 5009.192.
- 5.2.13 Net Content: According to method specified in JJF 1070.

5.3 Microorganism Inspection

According to method specified in GB/T 4789.17.

5.4 Temperature Determination

5.4.1 Apparatus

Thermometer: Use a non-mercury normal glass thermometer of $\pm 50^{\circ}\text{C}$ range or other similar temperature measurement apparatus.

5.4.2 Determination

Use a drill with the diameter of its head slightly larger (difference does not exceed 0.1cm) than the diameter of the thermometer to drill a 4cm~6cm channel deep into the core area of the hind leg. Remove the drill once it is done and immediately insert the thermometer into the channel and leave it for another 3mins. Read off the thermometer for the result.

6. Inspection Guidelines

6.1 Batches

Products produced on the same day, of the same variety and produced in the same specifications are classified together as a single batch.

6.2 Sampling

6.2.1 Sample Quantity: Randomly draw samples from the same batch of products according to guidelines from Table 4, then sealed and stored 1/3 of drawn samples for future references.

6.2.2 Sample Products Quantity: Randomly draw 2kg from the batch of samples drawn as described above as the sample products.

Table 4 Sampling Table

Range of Batch Quantity / No. of Boxes	Quantity of Samples / No. of Boxes	Number of Qualified Samples, Ac	Number of Unqualified Samples, Re
<1200	5	0	1
1201~3500	8	1	2
>3500	13	2	3

6.3 Inspections

6.3.1 Out-factory Inspections

6.3.1.1 Every batch of products meant for shipping out of factory should be qualified by internal tests and inspection, and it should be issued with inspection certificate before leaving the factory.

6.3.1.2 Inspection items include net content and sensory aspects.

6.3.2 Type Inspection

6.3.2.1 Type inspections should be carried out at least one time semi-annually. Type inspection should also be carried out if any of the following situations arises:

- d) After changing equipment or resuming production after a long time without any production activities in factory;
- e) Large discrepancies between the results of out-factory inspection and the results of the last type inspection;
- f) During inspection conducted by State quality supervisory authorities.

6.3.2.2 Required inspection items are those required in section 4.5 and 4.6 of this standard.

6.4 Judging Guidelines

6.4.1 If the results of all the test items met the requirements of this standard, the products will be judged as qualified products. Re-test/inspection can be conducted with double the sample quantity used in the initial inspection if one or more test index results (excl. microorganism indexes) failed to meet the requirements of this standard. If results of re-test/inspection cleared all the requirements, then products will be judged as qualified, however if one or more test index results did not meet the requirements again, then the products will be judged as unqualified.

6.4.2 If any of the results of the microorganism tests/inspection failed to meet the requirements, the batch of products will be deemed unqualified with no chance given for re-test/inspection.

7. Labeling, Packaging, Storage and Transportation

7.1 Labeling

7.1.1 Product label should comply with the requirements listed in GB 7718.

7.1.2 Shipping marks should comply with the requirements listed in GB/T 191 and GB/T 6388.

7.2 Packaging

Corrugated boxes should comply with the requirements listed in GB/T 6543, while plastic packaging materials used should comply with the requirements listed in GB/T 5737, GB 9683, GB 9687, GB 9688, GB 10457 and other relevant regulations and standards.

7.3 Storage

Segmented fresh pork lean, cuts should be stored in cold storage maintained at a temperature of $-1\sim 4^{\circ}\text{C}$, while its frozen counterparts should be stored in the cold storage maintained at a temperature of $\leq -18^{\circ}\text{C}$, of which the range of fluctuation overnight not exceeding 1°C .

7.4 Transportation

Comply with the requirements listed in GB/T 20799.

GBT 17238-2008 Fresh and Frozen Beef, Cuts



National Standards of People's Republic of China

GB/T 17238-2008

Fresh and Frozen Beef, Cuts

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**Issued by General Administration of Quality Supervision, Inspection and Quarantine of the
People's Republic of China & China National Standardization Management Committee**

Foreword

This standard replaces GB/T 17238-1998 Fresh and Frozen Beef, Cuts.

As compared with GB/T 17238-1998, key changes are as follows:

- Retitled the names of products that fall under the category of fresh and frozen beef, cuts in accordance to NY/T 676-2003 Beef Quality Classifications;
- Refined the requirements for the chilling, segmenting, storage or freezing of products;
- Added requirements on visible foreign objects into the sensory requirements section;
- Added sections on physical-chemical index and corresponding inspection methods;
- Added limits on moisture content and corresponding inspection method;
- Added section on pesticide and veterinary drug residues and corresponding inspection method;
- Added section on microorganism index and corresponding inspection method;
- Added section on quality classifications and corresponding judgment methods;
- Added section on net content requirement and corresponding evaluation method.

Appendix A in this standard is an informative appendix.

This standard was proposed by the Ministry of Commerce of the People's Republic of China and also place under its jurisdiction.

The organizations involved in the drafting of this standard: Slaughtering Technology Appraisal Center of the Ministry of Commerce, Jilin Province Changchun Haoyue Islam Meat Product Industry Co., Ltd. and Nanjing Agriculture University.

The key personnel involved in the drafting of this standard: Tiejun Hu, Bing Hou, Yuling Wei, Guanghong Chou, Chunbao Lee, Xinling Zhang and Xinying Hu.

This standard replaces the previous version of this standard:

- GB/T 17238-1998

Fresh and Frozen Beef, Cuts

1. Scope

This standard specifies the details on the terms and definition, product classifications, technical requirements, inspection method, inspection guidelines, labelling, packaging, storage and transportation of fresh and frozen beef, cuts.

This standard applies to chilled (fresh) or frozen beef with bones that are processed after it was segmented by parts from whole cattle.

2. Normative References

Clauses involved in the following documents constitute the ones in this standard through reference in this standard. Any dated reference and the following amendment or revised versions (excluding errata) are not applicable to this standard. However, the study of whether the latest version of these documents can be used by all parties who reach agreement according to this standard is encouraged. Any latest version of the non-dated reference is applicable to this standard.

GB 2707	<i>Hygienic Standard for Fresh (Frozen) Meat of Livestock</i>
GB 2763	<i>Maximum Limits for Pesticide Residues in Foods</i>
GB/T 4456	<i>Polyethylene Blown Film for Packaging</i>
GB/T 4789.2	<i>Food Hygiene Microbiological Tests: Determination for Aerobic Bacteria Count</i>
GB/T 4789.3	<i>Food Hygiene Microbiological Tests: Determination for Coliform</i>
GB/T 4789.4	<i>Food Hygiene Microbiological Tests: Determination for Salmonella</i>
GB/T 4789.6	<i>Food Hygiene Microbiological Tests: Determination for Diarrheogenic Escherichia Coli</i>
GB/T 5009.11	<i>Testing Method for Total Arsenic in Foods</i>
GB/T 5009.12	<i>Testing Method for Lead in Foods</i>
GB/T 5009.15	<i>Testing Method for Total Cadmium in Foods</i>
GB/T 5009.17	<i>Testing Method for Mercury in Foods</i>
GB/T 5009.44	<i>Analysis Method for Hygienic Standard of Meat and Meat Products</i>
GB/T 6388	<i>Transport Packaging and Shipping Mark</i>
GB/T 6543	<i>Corrugated Boxes</i>
GB 7718	<i>General Principle for Prepackaged Food Labels</i>
GB 9681	<i>Hygienic Standard of Mold Products Used for Food Packaging</i>
GB 9687	<i>Hygienic Standard of Polyethylene Mold Products Used for Food Packaging</i>

GB 9688	<i>Hygienic Standard of Polypropylene Mold Products Used for Food Packaging</i>
GB 9689	<i>Hygienic Standard of Polystyrene Mold Products Used for Food Packaging</i>
GB 12694	<i>Hygienic Specifications for Meat Processing Factory</i>
GB 18394	<i>Permitted Level of Moisture in Meat of Livestock and Poultry</i>
GB 18406.3	<i>Safety Qualification for Agricultural Product - Environmental Requirements for Non-environmental Pollution Livestock and Poultry</i>
GB/T 19477	<i>Procedure for Cattle Slaughtering Processes</i>
NY/T 676-2003	<i>Beef Quality Classifications</i>
JJF 1070	<i>Regulation on the Measurement and Determination of Net Content of Fixed-volume Prepackaged Products</i>

Procedures for Measurement, Supervision and Administration of Fixed-volume Prepackaged Foods – 75th Order issued by General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) [2005]

Maximum Limits for Veterinary Drug Residues in Animal-based Foods – 235th Announcement issued by the Ministry of Agriculture of the People's Republic of China [2002]

3. Terms and Definition

3.1 Cut Beef

Refers to meat that is a result of fresh beef with bones getting deboned and then segmented into individual parts and sections.

3.2 Tenderloin

Refers to clean meat cut off in a transverse manner from the inner sides of the waist, along the front lower end of the pubis closely through the lumbar vertebra, i.e. psoas major.

3.3 Striploin

Refers to clean meat cut off from the last first lumbar vertebrae to the 12~13th thoracic vertebra, mainly longissimus dorsi.

3.4 Ribeye

Refers to the clean meat removed from the regions between the transverse region and the interspinous region along the thoracic vertebra, of which the back end connects with the outer vertebra and front end connects to the 5~6th thoracic vertebra. This mainly includes psoas major, longissimus dorsi and intercostals muscles.

3.5 High Rib

Refers to the clean meat removed from the regions between the transverse region and the interspinous region along the thoracic vertebra, of which the back end connects with the ribeye and front end connects to the point of the first thoracic vertebrae. This mainly includes psoas major, intercostals muscles and

trapezius.

3.6 Chuck Tender

Refers to clean meat in the shape of chili removed from tubercle point close to the supraspinatus fossa connecting the head of humerus to the shoulder blade, positioned at the outer regions of the shoulder blade. This mainly includes supraspinatus.

3.7 Briskets

Refers to the costal cartilage positioned at the breast area taken from the thoracic bone handle along the thoracic vertebra to the xiphisternum region after removal of the thoracic vertebra. This mainly includes pectoralis profundus musculus and pectoral superficialis muscles.

3.8 Thin Flank

Refers to clean meat cut off laterally, at the 8~12 cm point from the thoracic vertebra along the outside regions of the abdomen wall that mainly includes the 1~13 rib sections after the removal of the ribs. This mainly includes external intercostals muscles, internal intercostals muscle and musculus obliquus externus abdominis.

3.9 Rumps

Refer to the clean meats removed along the edge of the hip quadriceps, positioned at outer regions of the hind leg near to one end of the femur. This mainly includes in-arm muscle, extensor muscle and tensor fascia.

3.10 Topside

Refers to clean meat removed from edges of the hip biceps and hip quadriceps along the inner regions of the femur. This is positioned in the inner regions of the hind legs and this includes semimembranosus and gracilis.

3.11 Knuckle

Refers to a piece of clean meat that is almost oval in shape removed from regions along the femur to the kneecap, covered by the tensor fascia lata, positioned at the front and two sides of the femur. This mainly includes quadriceps arm muscle.

3.12 Eye Round

Refers to clean meat, tube-shaped removed from the edges of the biceps along the hip, positioned at the hip region. This mainly includes semitendinosus.

3.13 Outside Plat

Refers to clean meat, long and wide removed from the edge of femur along the semitendinosus muscles, positioned at the outer region of the hind leg. This mainly includes hip bicep muscles.

3.14 Shin; Shank

Refers to clean meat removed after deboning the radius and ulna from the tubercle point connecting the humerus and radial bone at the frontal tendon regions of the front calves, mainly includes extensor carpi

radialis muscle and wrist flexor. Refers to clean meat removed after deboning tibia from the tubercle point connecting the tibia and the femur at the back tendon regions of the hind calves, mainly includes peroneus longus, toe deep flexor, musculus gastrocnemius and tibialis anterior muscle.

4. Classifications

Classify according to processing procedure: fresh beef cut and frozen beef cut.

5. Technical Requirements

5.1 Raw Ingredients

Raw ingredients used for fresh and frozen beef, cuts should comply with the requirements of GB/T 19477.

5.2 Processes

5.2.1 Slaughtering Process and Hygiene Requirements

Slaughtering processing specification and hygiene requirements should comply with the requirements of GB 12694.

5.2.2 Chilling, Segmentation, Storage or Freezing Requirements

5.2.2.1 Carcass chilling

Beef carcass should be transferred into a cold storage facility for chilling within 45 mins after the completion of the slaughtering and bloodletting procedure. Distance between each carcass should not be less than 10 cm. Pre-chilling temperature should be in the 0~4°C range, while relative humidity should be at 80~95%. Core temperature at the hind leg and shoulder regions of the carcass should be reach less than 7°C within 36 hours timespan.

5.2.2.2 Quality Classifications

Fresh and frozen beef, cuts quality classification should comply with requirements of NY/T 676.

5.2.2.3 Segmentation

5.2.2.3.1 Temperature where segmentation is carried out should be maintained at below 12°C. See Appendix A for references on pictures of segmented parts.

5.2.2.3.2 Scissoring: Scissoring should be conducted maintaining knife straight, so as to keep the muscular ligaments and meat pieces intact. Beef cuts should not have any injury spots, blood stasis spots, blood stains, diseased tissues, lymph nodes, pustule, floating hair or other impurities.

5.2.2.4 Storage or Freezing

5.2.2.4.1 Storage: Segmented meat loaves should be stored in a storage room of temperature 0~4°C and relative humidity 80~90%.

5.2.2.4.2 Freezing: Segmented meat loaves should be stored at temperature -28°C and lower and within 48 hours, core temperature of meat should reach -18°C and below.

5.3 Sensory

Sensory requirements for fresh and frozen beef, cuts should comply with the requirements listed in Table 1.

5.4 Physical-Chemical Indexes

Physical-chemical indexes for fresh and frozen beef, cuts should comply with the requirements of GB 2707.

Table 1 Sensory Requirement for Fresh and Frozen Beef, Cuts

Items	Fresh Beef	Frozen Beef (Thawed)
Color and Luster	Muscle has luster, bright or dark red; fats appear milky-white or light yellow	Muscle is bright red with luster; fats appear milky-white or slightly yellow
Texture/Structure	Surface is slightly dry or has an air-dried film, does not feel sticky	Surface is slightly dry or has an air-dried film or is moist, does not feel sticky
Viscosity	Depression recovers after being pressed down	Muscle structure is tight and firm, with strong fibers
Smell	Has smell typical of normal fresh beef	Has smell typical of normal beef
Boiled Soup of Meat	Transparent and clear, fats patches concentrated on soup surface, has unique aroma	Transparent and clear, fats patches concentrated on soup surface, has aroma and taste that beef soup should have
Visible Foreign Objects	No injury spots, blood stasis spots, blood stains, bone fragments, diseased tissues, lymph nodes, pustule, floating hair or other impurities	

5.5 Moisture Content Limit

Moisture limit of fresh and frozen beef, cuts should comply with the requirements of GB 18394.

5.6 Limits for Pesticide and Veterinary Drug Residues

5.6.1 Pesticide residues remaining in fresh and frozen beef, cuts should comply with the requirements of GB 2763.

5.6.2 Veterinary drug residues remaining in fresh and frozen beef, cuts should comply with the requirements of *Maximum Limits for Veterinary Drug Residues in Animal-based Foods*.

5.7 Microorganism Indexes

Microorganism indexes of fresh and frozen beef, cuts should comply with the requirements of GB 18406.3.

5.8 Net Content

Product label or label on external packaging will provide the basis for reference for net content value and deviation between measured value and indicated value should comply with the requirements of *Procedures for Measurement, Supervision and Administration of Fixed-volume Prepackaged Foods*.

6. Inspection Methods

6.1 Sensory Inspection

6.1.1 Color and Luster, Texture/Structure, Viscosity, Visible Foreign Objects

Evaluate by sense of sight and touch.

6.1.2 Smell

Evaluate by sense of smell.

6.1.3 Boiled Soup of Meat

Test in accordance to method specified in GB/T 5009.44.

6.2 Physical-Chemical Inspection

6.2.1 TVB-N

Test in accordance to method specified in GB/T 5009.44.

6.2.2 Lead

Test in accordance to method specified in GB/T 5009.12.

6.2.3 Arsenic

Test in accordance to method specified in GB/T 5009.11.

6.2.4 Cadmium

Test in accordance to method specified in GB/T 5009.15.

6.2.5 Mercury

Test in accordance to method specified in GB/T 5009.17.

6.3 Moisture Content Inspection

Test in accordance to method specified in GB 18394.

6.4 Pesticide and Veterinary Drug Residues Inspection

6.4.1 Pesticide Residues: Test in accordance to method specified in GB 2763.

6.4.2 Veterinary Drug Residues: Test in accordance to method specified in corresponding national standards.

6.5 Microorganism Inspection

6.5.1 Aerobic Bacteria Count

Test in accordance to method specified in GB/T 4789.2.

6.5.2 Coliforms

Test in accordance to method specified in GB/T 4789.3.

6.5.3 Salmonella

Test in accordance to method specified in GB/T 4789.4.

6.5.4 Diarrheogenic Escherichia coli

Test in accordance to method specified in GB/T 4789.6.

6.6 Quality Grade Classification

Refer to Appendix E in NY/T 676-2003.

6.7 Net Content

Test in accordance to method specified in JJF 1070.

7. Inspection Guidelines

7.1 Out-factory Inspection

7.1.1 Every batch of products meant for shipping out of factory should be qualified by internal tests and inspection, and it should be issued with inspection certificate before leaving the factory.

7.1.2 Inspection items include sensory, TVB-N, aerobatic bacteria count, coliforms, moisture and net content.

7.2 Type Inspection

7.2.1 Type inspections should be carried out at least one time semi-annually. Type inspection should also be carried out if any of the following situations arises:

- a) When products are first being produced;
- b) Upon resumption of production after stoppage of 3 months or more;
- c) Large discrepancies between the results of out-factory inspection and the results of the last type inspection;
- d) When requested by the State Quality Supervision Authorities.

7.2.2 Type inspection items include items specified in Section 5.3, 5.4, 5.5, 5.6, 5.7, and 5.8.

7.3 Batches

Products of the same production shift, of same specie will be group as a single batch.

7.4 Sampling

7.4.1 Draw samples at a quantity in accordance to the requirements listed in Table 2 from the different parts of the warehouse stacked with the products.

Table 2 Sampling Quantity and Judgment Guidelines

Range of Batch Quantity / No. of Boxes	Quantity of Samples / No. of Boxes	Number of Qualified Samples, Ac	Number of Unqualified Samples, Re
<1200	5	0	1
1201~3500	8	1	2
>3500	13	2	3

Extract 2 kg of samples from the entirety of the samples drawn in a manner described above for inspections on the following items: sensory, moisture, TVB-N, aerobic bacteria count and coliform.

7.4.2 Judging Guidelines: Judge products in accordance to Sections 5.3, 5.4, 5.5, 5.6, 5.7, 5.8 and the requirements listed in Table 2.

7.4.3 Re-inspection Guidelines: If results of any of the inspected items fail to meet requirements of this standard, re-inspection can be conducted albeit with double the sample quantity drawn in the initial round of inspection. If the failure to meet requirements persists, products will be deemed disqualified or unqualified.

8. Labelling, Packaging, Transportation and Storage

8.1 Labelling

8.1.1 Internal packaging label should comply with the requirements of GB 7718. External packaging label should comply with the requirements of GB/T 6388.

8.1.2 If the cattle (cut beef) are slaughtered and processed in accordance to Islamic traditions, this information should be indicated on the packaging boxes.

8.1.3 Product's traceability information label should be clear and obvious.

8.2 Packaging

8.2.1 Internal packaging materials should comply with the requirements of GB/T 4456, GB 9681, GB 9688 and GB 9689.

8.2.2 External packaging materials should comply with the requirements of GB/T 6543, i.e. packaging boxes should be intact, secured, of which bottom of the boxes should be sealed firmly and the boxes should be secured firmly with plastic tapes.

8.2.3 Meat loaves in the boxes should be arranged in a neat manner, of which every piece of meat should have uniform sizes. A small piece of supplementary meat loaf is allowed in each prepackaged boxes.

8.3 Transportation

Refrigerated truck or insulated truck (boat) that complies with hygienic requirements should be used for transportation. Sealed, anti-dust truck will suffice if production transportation is intracity.

8.4 Storage

8.4.1 Fresh cut beef should be stored in conditions of 0~4°C.

8.4.2 Frozen cut beef should be stored in a cold storage with temperature lower than -18°C, where storage period should not exceed 12 months.

Appendix A

(Informative Appendix)

Fresh and Frozen Beef, Cuts Segmented Parts

See Illustration A.1 for individual segmented parts of fresh and frozen beef, cuts.



1 – eye round;

2 – top side;

3 – outside plat;

4 – tenderloin;

5 – striploin;

6 – ribeye;

7 – high rib;

8 – chuck tender;

9 – shin; shank;

10 – brisket;

11 – thin flank;

12 – rump;

13 – knuckle.

Illustration A.1 Fresh and Frozen Beef, Cuts Segmented Parts Illustration

GBT 9960-2008 Fresh and Frozen Beef, Quarters



National Standards of People's Republic of China

GB/T 9960-2008

National Food Standard

Fresh and Frozen Beef, Quarters

Issued on: 2008-06-27

Implemented on: 2008-10-01

**Issued by General Administration of Quality Supervision, Inspection and Quarantine of the
People's Republic of China & China National Standardization Management Committee**

Foreword

This standard will replace GB/T 9960-1988 Fresh and Frozen Beef, Quarters.

As compared with the earlier GB/T 9960-1988 , key changes are as follows:

- Section on product terms and definition was expanded and amended;
- Requirements on the slaughtering and processing procedure were refined;
- Visible foreign objects was added as one of the items classified under sensory requirements on the products;
- Index limit for moisture and its corresponding inspection method were added;
- Section on physical-chemical index and corresponding inspection methods was refined;
- Index limits for pesticide and veterinary drugs residues and their corresponding inspection methods were added;
- Microorganism index limits and their corresponding inspection methods were added;
- Section on quality classification and its corresponding assessment method was added;
- Requirements on net content and its corresponding inspection method were added.

This standard was proposed by the Ministry of Commerce of the People's Republic of China and similarly the standard is also under its jurisdiction.

The organizations involved in the drafting of this standard: Center of Appraisal of Slaughtering Processes under the Ministry of Commerce, Jilin Province Changchun Haoyue Muslim Meat Co.,Ltd, Nanjing Agriculture University.

The key personnel involved in the drafting of this standard: Tiejun Hu, Bing Hou, Yuling Wei, Guanghong Chou, Baochun Lee, Xinling Zhang, Xinying Hu.

This standard will replace all earlier versions:

- GB/T 9960-1988

National Food Standard

Fresh and Frozen Beef, Quarters

1. Scope

This standard specifies the terms and definition, technical requirements, inspection methods, inspection guidelines, as well as the requirements on labeling, storage and transportation for fresh and frozen beef, quarters,

This standard applies to fresh and frozen beef, quarters, products from slaughtering, processing and cold processing of healthy live cattle, for the use for sales into market, or as raw ingredients for meat products and canned food.

2. Normative References

Clauses involved in the following documents constitute the ones in this standard through reference in this standard. If any reference is dated, only the version with the date applies while the following amendment or revised versions (excluding errata) are not applicable to this standard. However, the study of whether the latest version of these documents can be used by all parties who reach agreement according to this standard is encouraged. Any latest version of the non-dated reference is applicable to this standard.

GB 2707	<i>Hygienic Standard for Fresh (Frozen) Meat of Livestock</i>
GB 2763	<i>Maximum Limit for Amount of Pesticide Residues in Foods</i>
GB/T 4789.2	<i>Food Hygiene Microbiological Tests: Test for Aerobic Bacterial Count</i>
GB/T 4789.3	<i>Food Hygiene Microbiological Tests: Test for Coliform</i>
GB/T 4789.4	<i>Food Hygiene Microbiological Tests: Test for Salmonella</i>
GB/T 4789.6	<i>Food Hygiene Microbiological Tests: Test for Diarrheogenic Escherichia coli</i>
GB/T 5009.11	<i>Testing Method for Total Arsenic in Foods</i>
GB/T 5009.12	<i>Testing Method for Lead in Foods</i>
GB/T 5009.15	<i>Testing Method for Total Cadmium in Foods</i>
GB/T 5009.17	<i>Testing Method for Mercury in Foods</i>
GB/T 5009.44	<i>Analysis Method for Hygienic Standard of Meat and Meat Products</i>
GB 12694	<i>Hygienic Specifications for Meat Processing Plant</i>
GB 18393	<i>Quality Inspection Procedural Instruction for Slaughtered Cattle and Sheep Products</i>
GB 18394	<i>Permitted Level of Moisture in Meat of Livestock and Poultry</i>
GB 18406.3	<i>Safety Qualification for Agricultural Product – Safety Requirements for Non-environmental Pollution Meat and Other Animal Products</i>

GB/T 19477	<i>Procedural Instruction for Slaughtering of Cattle</i>
NY/T 676	<i>Quality Classifications of Beef</i>
JJF 1070	<i>Regulation on the Measurement and Determination of Net Content of Fixed-volume Prepackaged Products</i>

Procedures for Measurement, Supervision and Administration of Fixed-volume Prepackaged Foods – 75th Order issued by General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) [2005]

Maximum Permitted Limit of Veterinary Drug Residues in Animal-based Foods – 235th Announcement issued by the Ministry of Agriculture of the People's Republic of China [2002]

3. Terms and Definition

The following terms and definitions will apply to this standard.

3.1 Aging or Conditioning

Refers to the process where the tenderness and flavor of the meat improves, while the pH of the meat gradually rises to a higher level when stored in an environment between 0°C~4°C after the slaughtering processes.

3.2 Chilling

Refers to the technical process where the core temperature of the meat is lowered to 7°C and below within a 36 hour timeframe in an environment with temperature between 0°C and 4°C.

3.3 Freezing

Refers to the technical process where the core temperature of the meat is lowered to –18°C and below within a 48 hour timeframe in an environment with temperature –28°C and below, after the chilling process described above.

3.4 Beef Side

Refers to beef that is derived from whole cattle longitudinally sawed (or chopped) through its center spinal cord into two halves.

3.5 Beef Quarters

Refers to beef that is derived from whole cattle longitudinally sawed (or chopped) through its center spinal cord into two halves, then further segmented laterally into four portions.

4. Technical Requirements

4.1 Hygiene Requirements on Processing Procedure

Processing procedure of meat category products should comply with the requirements listed in the standard GB 12694.

4.2 Raw Ingredients

Raw materials used and the process of slaughtering and process should comply with the requirements listed in the standard GB/T 19477.

4.3 Quality Classifications

Grading of fresh and frozen beef, quarters should reference the qualification classification criteria listed in NY/T 676.

4.4 Cold Processing

4.4.1 Chilling: Whole cattle should be transferred into cold storage within 45mins after the slaughtering process, to carry out the chilling process. Cold storage should maintain a temperature 0°C~4°C with relative humidity 80%~95%. Core temperature measured at the deep layers of the meat of the hind leg or scapular region should not exceed 7°C between the 24th and 36th hour of the chilling process.

4.4.2 Freezing: Quick-freeze in a quick-freeze cold storage of -28°C for 36 hours, so as to lower the core temperate of meat to -18°C and below.

4.5 Sensory Requirements

Sensory aspects of the fresh and frozen beef, quarters should comply with the requirements listed in Table 1.

Table 1 Sensory Requirement on Fresh and Frozen Beef, Quarters

Items	Fresh Beef	Frozen Beef (Thawed)
Color and Luster	Meat is bright red or dark red in color with luster; fats appears milky-white or pale yellow	Meat is bright red with luster; fats appears milky-white or pale yellow
Viscosity	Meat surface is slightly dry with has air-dried membranes, non-sticky	Meat surface is slightly dry with has air-dried membranes, or moist, non-sticky
Elasticity (Tissue Structure)	Sunken region pressed down by finger recovers immediately	Muscle structure tight, with firm texture, muscle fibers has high degree of toughness
Smell	Has the typical smell of fresh beef	Has the typical smell of beef
Boiled Soup of Meat	Soup is transparent and clear, fats concentrate on the surface of soup, has unique aroma	Soup is transparent and clear, fats concentrate on the surface of soup, has aroma and flavor typical of beef soup
Visible Foreign Objects	Do not have injury spots, blood spots, blood stains, bone fragments, diseased tissues, lymph nodes, pustules, floating hairs or other contaminants	

4.6 Physical-Chemical Indexes

Should comply with the requirements listed in GB 2707.

4.7 Permitted Limit of Moisture

Should comply with the requirements listed in GB 2763.

4.8 Permitted Limit of Pesticide and Veterinary Drug Residues

4.8.1 Should comply with the requirements listed in GB 2763.

4.8.2 Should comply with the requirements of the announcement *Maximum Permitted Limit of Veterinary Drug Residues in Animal-based Foods*.

4.9 Microorganism Indexes

Should comply with the requirements listed in GB 18406.3.

4.10 Net Content

Net content value will be referenced from the labels on the product or its external packaging. Discrepancy between the actual content and the net content value indicated on the labels should fall within the range in accordance with the *Procedures for Measurement, Supervision and Administration of Fixed-volume Prepackaged Foods*.

5. Inspection Methods

5.1 Sensory Inspections

5.1.1 Color and Luster, Viscosity, Elasticity (Tissue Structure), Visible Foreign Objects

Inspect by sense of sight and touch.

5.1.2 Smell

Inspect by sense of smell.

5.1.3 Boiled Soup of Meat

Use test method as required in GB/T 5009.33.

5.2 Physical-Chemical Inspection

5.2.1 TVB-N

Use test method as required in GB/T 5009.44.

5.2.2 Lead

Use test method as required in GB/T 5009.12.

5.2.3 Arsenic

Use test method as required in GB/T 5009.11.

5.2.4 Cadmium

Use test method as required in GB/T 5009.15.

5.2.5 Mercury

Use test method as required in GB/T 5009.17.

5.3 Moisture Content Inspection

Use test method as required in GB 18394.

5.4 Inspection for Pesticide and Veterinary Drug Residues

5.4.1 Pesticide residues: Use test method as required in GB 2763

5.4.2 Veterinary residues: Use test method as required corresponding national standards and regulations.

5.5 Microorganism Inspection

5.5.1 Aerobic Bacteria Count

Use test method as required in GB/T 4789.2.

5.5.2 Coliform

Use test method as required in GB/T 4789.3.

5.5.3 Salmonella

Use test method as required in GB/T 4789.4.

5.5.4 Diarrheogenic Escherichia coli

Use test method as required in GB/T 4789.6.

5.6 Quality Classifications

Quality classifications should comply with the requirements listed in NY/T 676.

5.7 Net Content

Use test method as required in JJF 1070.

5.8 Temperature Determination

5.8.1 Apparatus

Thermometer: Use normal glass thermometer (non-mercury) or other temperature measurement apparatus.

5.8.2 Determination

Use a drill with diameter slightly larger than that of the thermometer (not exceeding 0.1cm) to drill a hole into the core area at the deeper layer of muscles at the hind leg section. Take out the drill once it is done and

quickly insert the thermometer into the drilled hole, read off the thermometer horizontally after 3mins.

6. Inspection Specifications

6.1 Out-factory Inspection

6.1.1 Products that are scheduled for shipping out of factory should be inspected batch-by-batch by the factory's in-house technical inspection department in accordance to this standard. On top of that, only when quality certification is issued, then the products can be released into the market.

6.1.2 Inspection items include tests for sensory aspects, TVB-N, total aerobic bacterial count, coliform, moisture and net content.

6.2 Type Inspection

Under normal circumstances, type inspection should be carried out at least one time semiannually. Type inspection should also be carried out if any of the following situations arises:

- a) When a new product is first put into production;
- b) When restoring production operation after stoppage for a period of 3 months or more;
- c) When there is relatively large discrepancy between the results of the out-factory inspection and those of the last type inspection;
- d) When it is required by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ). Type inspection items in this case are those specified in 4.1, 4.2, 4.3, 4.4, 4.5, and 4.7.

6.3 Batches

Products manufactured on the same day, of the same variety and the same production specifications will be classified as a single batch.

6.4 Sampling

Sampling should be implemented in accordance with Table 2.

Table 2 Guidelines on Sampling Quantity and Judgment

Range of Batch Quantity / No. of Boxes	Sample Quantity / No. of Boxes	Number of Qualified Samples, Ac	Number of Unqualified Samples, Re
<1,200	5	0	1
1,201~35,000	8	1	2
>35,000	13	2	3

Extract 2kg of samples across the entire range of products open for sampling for tests for sensory aspects, moisture content, TVB-N, total aerobic bacterial count and coliform.

6.5 Judgment Principle

6.5.1 The products will be judged qualified if results of all the inspection items fulfill the requirements specified in this standard. A second round of inspection can be conducted, but with double the amount of samples required in the initial inspection, if the results of one or more inspection items (excl. microorganism indexes) fail to meet the requirements in this standard. If the subsequent inspection passes, the products will be judge qualified, otherwise this entire production batch will be judged unqualified.

6.5.2 Entire production batch will be judged unqualified and no second round of inspection is allowed if the results of any of the microorganism index inspection failed to meet the stipulated requirements of this standard.

7. Labeling, Storage and Transportation

7.1 Labeling

7.1.1 Products should be stamped with veterinary certificate stamp and grade certificate stamps according to GB 18393, of which all wording should be visibly clear and neat.

7.1.2 If cattle is slaughtered and processed in compliance with the Islam religion, i.e. Halal, then veterinary certificate stamp should include a Halal wording/symbol to indicate that.

7.1.3 Product traceability logo should be presented in a clear manner.

7.2 Storage

7.2.1 Chilled beef should be stored in temperature condition of 0°C~4°C.

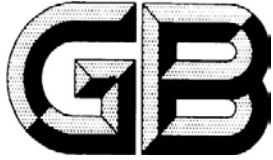
7.2.2 Frozen beef, quarters should be stored in a cold storage with temperature at -18°C or lower and it cannot be stored for more than 12 months.

7.3 Transportation

7.3.1 Refrigerated truck (boat) or insulated truck that is compliant with hygiene requirements should be used for any product transportation over land or water. Sealed and dust tight truck should be used for intra-city product transportation.

7.3.2 Railway transportation of products should comply with relevant railway transport regulations.

**GBT 29392-2012 Beef Cuts Grading for High Rib, Ribeye, Striploin, Tenderloin
of Normal Beef**



National Standards of People's Republic of China

GB/T 29392-2012

National Food Standard

**Beef Cuts Grading for High Rib, Ribeye, Striploin, Tenderloin of
Normal Beef**

Issued on: 2012-12-31

Implemented on: 2013-06-01

**Issued by General Administration of Quality Supervision, Inspection and Quarantine of the
People's Republic of China & China National Standardization Management Committee**

Foreword

This standard was drafted according to the requirements in GB/T 1.1-2009.

The standard is place under the jurisdiction of the Ministry of Commerce of the People's Republic of China.

The organization involved in the drafting of this standard: Nanjing Agricultural University, Distribution Industry Development Center of the Ministry of Commerce, China Academy of Agricultural Sciences, Shanxi Qinbao Animal Husbandry Co.,Ltd, Beijing Yuxiangyuan Group.

The key personnel involved in the drafting of this standard: Zengqi Peng, Baozhong Sun, Shesheng Jin, Xinying Hu, Huan Lee, Qiliang Sheng, Fang Fang, Zhanggui Wang, Jie Shi, Wenli Shi and Jianhua Wang.

National Food Standard

Beef Cuts Grading for High Rib, Ribeye, Striploin, Tenderloin of Normal Beef

1. Scope

This standard specified the details on the terms and definition, technical requirements, grade specification division methods, evaluation results and labelling for high rib, ribeye, striploin and tenderloin of normal beef.

This standard applies to grading of normal beef and thus it is not applicable to the grading processes for veal, white veal and snow beef meat.

2. Normative References

Clauses involved in the following documents constitute the ones in this standard through reference in this standard. If any reference is dated, only the version with the date applies while the following amendment or revised versions (excluding errata) are not applicable to this standard. Any latest version of the non-dated reference is applicable to this standard.

GB 7718	<i>General Principle for Prepackaged Food Labels</i>
GB 12694	<i>Hygienic Specifications for Meat Processing Plant</i>
GB/T 17238	<i>Fresh and Frozen Beef, Cuts</i>
GB/T 19477	<i>Cattle Slaughtering Procedural Guidelines</i>
SBJ/T 08-2007	<i>Design Specifications for Cattle and Sheep Slaughtering and Segmentation Facilities</i>

3. Terms and Definition

The following terms and definitions will apply for this standard.

3.1 Normal Beef

Refers to beef of cattle that is 18~48 months old and being fattened for at least 3 months.

3.2 High Rib

Refers to the clean meat taken from regions between the last cervical vertebrae and the 5th thoracic vertebrae of the cattle carcass. Front end starts from the rear edge of the back of the neck while the back end connects with the ribeye. This will include longissimus dorsi and trapezius parts.

3.3 Ribeye

Refers to the clean meat taken from the regions between the 6th thoracic vertebrae and 12th~13th thoracic vertebra of the cattle carcass. Front end connects to the high rib, while the back end connects to the external spine. This will include latissimus dorsi, longissimus dorsi and intercostals muscles.

3.4 Striploin

Refers to clean meat taken from the regions between the 6th lumbar vertebrae and 12th~13th thoracic vertebra, segmented vertically and cut along the lower edges of the longissimus dorsi margo. This is mainly referring to longissimus dorsi.

3.5 Tenderloin

Refers to clean meat taken from the inner sides of the waist area of the cattle carcass, which comes with complete tenderloin top attached.

3.6 Marbling

Refers to the content and distribution of fats on the horizontal cross sections of the longissimus muscles. It reflects the index values of the fats content and fats distribution on muscles within the regions of the longissimus dorsi.

3.7 Meat Color

Refers to the color and luster of cut beef that has naturally taken form after being exposed to surrounding air for 30 mins at 10°C, i.e. beef color index.

3.8 Fat Color

Refers to the color of fats distributed across the cross sections of the beef muscles as well as under the beef skin surfaces, i.e. index reflecting the color of beef fats.

4. Technical Requirements

4.1 Slaughtering Requirements

Cattle slaughtering procedure should comply with the requirements in GB/T 19477.

4.2 Hygiene Requirements

Beef processing and hygiene standards should comply with the requirements in GB 12694.

4.3 Chilling, Storage or Freezing Requirements

Chilling, storage and freezing should comply with the requirements in SBJ/T 08-2007.

4.4 Beef Segmentation Requirements

Segmented (Cut) beef should comply with the requirements in GB/T 17238.

5. Grading Methods

5.1 Grading Criteria

For grading based on other criteria besides weight, it should be conducted as follows: Conduct grading on cut cross-sections of beef under 600 lx light condition after the cut beef has been exposed to surrounding air for 30 mins.

5.2 Weight

Weigh the cut beef meat with a weighing apparatus to determine its weight, unit in kg

5.3 Marbling Grade

Visually inspect the fats content and distribution situation on the longissimus dorsi cross section with reference to the marbling grading picture (see Appendix A) and evaluate accordingly.

5.4 Muscle Color Grading

According to the color and luster of the muscles at the longissimus dorsi cross section. Visually inspect and then compare what is observed with the muscle color grading pictures (see Appendix B).

5.5 Fat Color Grading

Visually inspect the color and luster of fats distributed on the muscles of the longissimus dorsi cross section and the fats distributed under the skin of meat, and then compare what is observed to the fat color grading picture (see Appendix C) and evaluate accordingly.

6. Evaluation Results

6.1 High Rib, Ribeye, Striploin

High rib, ribeye, striploin and tenderloin can be graded as S grade (premium grade), A grade (superior grade), B grade (good grade) and C grade (normal grade) according to 4 different indexes – marbling, muscle color, fat color and weight. See Appendix D, E and F for examples of the different grade of beef cuts.

6.2 Tenderloin

See Table 1 for the grading requirements for tenderloin, segmented into S grade, A grade, B grade and C grade.

Table 1 Tenderloin Grading Table

Grade	Grade Requirement
S Grade	Weight > 1.8kg
A Grade	Weight 1.5kg~1.8kg
B Grade	Weight 1.3kg~1.8kg
C Grade	Weight <1.3kg

7. Labelling

Product labelling should comply with the requirements of GB 7718.

GBT 13214-2006 Canned Corned Beef and Mutton



National Standards of People's Republic of China

GB/T 13214-2006

National Food Standard
Canned Corned Beef and Mutton

Issued on: 2006-07-18

Implemented on: 2006-12-01

**Issued by General Administration of Quality Supervision, Inspection and Quarantine of the
People's Republic of China & China National Standardization Management Committee**

Foreword

This standard is the consolidation of GB/T 13214-1991 Canned Corned Beef and GB/T 13215-1991 Canned Corned Mutton.

Key changes are as follows:

- Requirement on net content was removed;
- Qualified product grade classifications included in GB/T 13214-1991 and GB/T 13215-1991 were removed;
- Hygiene standard is implemented in accordance with the latest hygienic standards issued.

This standard replaces GB/T 13214-1991 Canned Corned Beef and GB/T 13215-1991 Canned Corned Mutton.

This standard was proposed by China National Light Industry Union.

This standard is put under the jurisdiction of the Canned Product Technical Committee Branch of the National Food Industry Standardization Technical Committee of the People's Republic of China.

The organizations involved in the drafting of this standard: China Food Fermentation Industry Research Institute and China Canned Products Industry Association.

The key personnel involved in the drafting of this standard: Boqin Wang and Shuming Guo.

The standard replaces all the earlier versions:

- GB/T 13214-1991.
- GB/T 13215-1991.

National Food Standard

Canned Corned Beef and Mutton

1. Scope

This standard specified the details on the product classifications and codes, technical requirements, test methods, inspection guidelines as well as basic requirements on labelling, packaging, transportation and storage for canned corned beef and mutton products.

This standard applies to market supervision and regulation of canned corned beef and mutton.

2. Normative References

Clauses involved in the following documents constitute the ones in this standard through reference in this standard. If any reference is dated, following amendment or revised versions (excluding errata) are not applicable to this standard. However, the study of whether the latest version of these documents can be used by all parties who reach agreement according to this standard is encouraged. Any latest version of the non-dated reference is applicable to this standard.

GB 317	<i>White Granulated Sugar</i>
GB 1907	<i>Food Additives – Nitrites</i>
GB 2760	<i>Hygienic Standard for Food Additives</i>
GB/T 5009.33	<i>Nitrite in Food and Inspection Method for Nitrite</i>
GB 5461	<i>Edible Salt</i>
GB/T 8884	<i>Edible Potato Starch</i>
GB/T 8885	<i>Edible Corn Starch</i>
GB/T 9695.7	<i>Meat and Meat Products – Test for Total Fats Content (GB/T 9695.7-1988, eqv ISO 1443:1973)</i>
GB/T 9695.8	<i>Meat and Meat Products – Test for Chloride Content (GB/T 9695.8-1988, eqv ISO 1841:1981)</i>
GB/T 9695.11	<i>Meat and Meat Products – Test for Chlorine Content (GB/T 9695.8-1988, eqv ISO 1841:1981)</i>
GB/T 9695.11	<i>Meat and Meat Products – Test for Nitrogen Content (GB/T 9695.11-1988, idt ISO 937:1978)</i>
GB/T 9695.14	<i>Meat Products – Test for Starch Content (GB/T 9695.14-1988, idt ISO 5554:1978)</i>
GB/T 9695.15	<i>Meat Products – Test for Moisture Content (GB/T 9695.15-1988, eqv ISO 1442:1973)</i>
GB/T 9960	<i>Fresh and Frozen Beef, Quarters</i>

GB 9961	<i>Fresh and Frozen Mutton Carcass</i>
GB/T 10786	<i>Testing Method for Canned Foods</i>
GB 13100-2005	<i>Hygienic Standard for Meat Canned Foods</i>
QB 1006	<i>Inspection Guidelines for Canned Foods</i>
QB/T 3600	<i>Packaging, Labelling, Transportation and Storage of Canned Foods</i>

3. Product Classifications and Codes

3.1 Canned corned beef can be divided into with starch or without starch.

3.1.1 Product added with starch has code 155.

3.1.2 Product added without starch has code 155 W.

3.2 Canned corned mutton can be divided into with starch or without starch.

3.2.1 Product added with starch has code 156.

3.2.2 Product added without starch has code 156 W.

4. Technical Requirements

4.1 Raw Ingredients

4.1.1 Beef

Should comply with the requirements in GB/T 9960.

4.1.2 Mutton

Should comply with the requirements in GB 9961.

4.1.3 Starch

Should comply with the requirements in GB/T 8884 or GB/T 8885.

4.1.4 Edible Salt

Should comply with the requirements in GB 5461.

4.1.5 Nitrites

Should comply with the requirements in GB 1907.

4.1.6 White Granulated Sugar

Should comply with the requirements in GB 317.

4.2 Sensory Requirements

Canned corned beef and mutton should comply with the requirements listed in Table 1.

Table 1 Sensory Requirements

Items	Canned Corned Beef		Canned Corned Mutton	
	Excellent	Normal	Excellent	Normal
Color and Luster	Meat color normal, appears pale red in color	Meat color normal, surface appears pale red with a stint of dark red	Meat color normal, appears pale red in color	Meat color normal, surface appears dark red
Taste, Smell	Has taste and smell typical of canned corned beef products, no unusual odor		Has taste and smell typical of canned corned mutton products, no unusual odor	
Texture / Form	One can of meat can cut into 5 slices, meat cross sections has small loose meat pieces, w/o rough block of tissue, whereby the no. of tissue blocks smaller than 1 cm ² should not exceed 2. Form complete, no obvious gel or liquid discharge. Allow one end of content to have minute amount of fats discharge but average thickness should not exceed 2 mm.	One can of meat can cut into 5 slices, meat cross sections has obvious small meat pieces, w/o rough block of tissue, whereby the no. of tissue blocks smaller than 1 cm ² should not exceed 3. Form complete, with some obvious gel or liquid discharge. Allow one end of content to have minute amount of fats discharge but average thickness should not exceed 3 mm.	One can of meat can cut into 5 slices, meat cross sections has small loose meat pieces, w/o rough block of tissue, whereby the no. of tissue blocks smaller than 1 cm ² should not exceed 2. Form complete, no obvious gel or liquid discharge. Allow one end of content to have minute amount of fats discharge but average thickness should not exceed 2 mm.	One can of meat can cut into 5 slices, meat cross sections has obvious small meat pieces, w/o rough block of tissue, whereby the no. of tissue blocks smaller than 1 cm ² should not exceed 3. Form complete, with some obvious gel or liquid discharge. Allow one end of content to have minute amount of fats discharge but average thickness should not exceed 3 mm.

4.3 Physical-Chemical Indexes

4.3.1 Sodium chloride content should be lower or equal to 2.5%.

4.3.2 Other indicators should comply with the requirements listed in Table 2.

Table 2 Other Physical-Chemical Index Requirements

Items		Requirements for Canned Corned Beef and Mutton	
		Excellent	Normal
Fat / (%) ≤	Without Starch	18.0	20
	With Starch	10.0	11.0
Moisture / (%) ≤	Without Starch	62.0	63
	With Starch	65.0	66.0

Protein / (%)	≤	Without Starch	20.0	18
		With Starch	15.0	13.0
Starch / (%)	≤	5		

4.4 Hygiene Requirements

Should comply with the requirements of sections 3.3 and 3.4 in GB 13100-2005.

4.5 Requirements on Food Additives

Use of food additives should comply with the requirements in GB 2760.

4.6 Defects

If the sensory and physical index(es) of the sample do not meet the requirements of the standard, they should be identified as defect(s) and then should be classified according to Table 3.

Table 3 Sample Defect Classifications

Classification	Defects
Serious Defects	Has obvious odor; With obvious contamination of ferric sulfide; Contains harmful substances such as glass, hair, insects and metal chips/shavings.
Typical Defects	Has typical impurities such as cotton threads, synthetic fiber of yarn fabrics, cattle hair or wool; Sensory performance obviously do not meet technical requirements, has multiple indexes exceed limits; Net content deviation exceeds allowable range of deviations.

5. Test Methods

5.1 Sensory

5.1.1 Cut Slices: Pour content after opening the can and then horizontally slice with a stainless steel knife.

5.1.2 Other sensory items can be inspected in accordance with GB/T 10786.

5.2 Net Content

Refer to GB/T 10786.

5.3 Sodium Chloride

Refer to GB/T 9695.8.

5.4 Fats

Refer to GB/T 9695.7.

5.5 Moisture

Refer to GB/T 9695.15.

5.6 Protein

Refer to GB/T 9695.11.

5.7 Starch

Refer to GB/T 9695.14.

5.8 Nitrites

Refer to GB/T 5009.33.

5.9 Hygiene Index

Refer to GB 13100.

6. Inspection Guidelines

Refer to GB/T 1006.

7. Labelling, Packaging, Transportation and Storage

Refer to QB/T 3600.

GBT 9961-2008 Fresh and Frozen Mutton Carcass



National Standards of People's Republic of China

GB/T 9961-2008

National Food Standard
Fresh and Frozen Mutton Carcass

Issued on: 2008-08-12

Implemented on: 2008-12-01

**Issued by General Administration of Quality Supervision, Inspection and Quarantine of the
People's Republic of China & China National Standardization Management Committee**

Foreword

This standard is an amendment of the GB 9961-2001 Fresh and Frozen Mutton Carcass, and as compared with GB 9961-2001, key changes are as follows:

- Product classification clarified on the aspects of mutton carcass with skin or without skin; added production classifications, mutton, lamb and fat lamb;
- Refined the requirements for the classification of product grades;
- Added the requirements for chilled mutton carcass in the section on sensory requirements;
- Refined the product's physical-chemical indexes and corresponding inspection methods;
- Added section on microorganism indexes and corresponding inspection method.

This standard will replace GB 9961-2001 from the date that the standard is implemented.

Appendix A included in this standard is an informative appendix.

This standard is proposed by the Ministry of Commerce of the People's Republic of China and also under its jurisdiction.

The organizations involved in the drafting of this standard: Center of Appraisal of Slaughtering Processes under the Ministry of Commerce of the People's Republic of China, Jiangsu Province Yunrun Food Co.,Ltd.

The key personnel involved in the drafting of this standard: Chengjun Min, Xinying Hu and Xinling Zhang.

This standard will replace all earlier versions:

- GB/T 9961-1988
- GB 9961-2001

National Food Standard

Fresh and Frozen Mutton Carcass

1. Scope

This standard specifies the terms and definition, technical requirements, inspection methods, inspection guidelines, as well as the requirements on labeling & logo, storage and transportation for fresh and frozen mutton carcass.

This standard applies to fresh and frozen mutton carcass, products from slaughtering, processing, inspection and quarantine of healthy live sheep.

2. Normative References

Clauses involved in the following documents constitute the ones in this standard through reference in this standard. Any dated reference and the following amendment or revised versions (excluding errata) are not applicable to this standard. However, the study of whether the latest version of these documents can be used by all parties who reach agreement according to this standard is encouraged. Any latest version of the non-dated reference is applicable to this standard.

GB/T 191	<i>Illustration and Logo for Packaging, Storage and Transportation</i>
GB/T 4789.2	<i>Food Hygiene Microbiological Tests: Test for Aerobic Bacterial Count</i>
GB/T 4789.3	<i>Food Hygiene Microbiological Tests: Test for Coliform</i>
GB/T 4789.4	<i>Food Hygiene Microbiological Tests: Test for Salmonella</i>
GB/T 4789.5	<i>Food Hygiene Microbiological Tests: Test for Shigella</i>
GB/T 4789.6	<i>Food Hygiene Microbiological Tests: Test for Diarrheogenic Escherichia coli</i>
GB/T 4789.10	<i>Food Hygiene Microbiological Tests: Test for Staphylococcus Aureus</i>
GB/T 5009.11	<i>Testing Method for Total Arsenic in Foods</i>
GB/T 5009.12	<i>Testing Method for Lead in Foods</i>
GB/T 5009.15	<i>Testing Method for Total Cadmium in Foods</i>
GB/T 5009.17	<i>Testing Method for Mercury in Foods</i>
GB/T 5009.19	<i>Testing Method for 666 and DDT Residues in Foods</i>
GB/T 5009.20	<i>Testing Method for Residues of Organophosphorus Pesticides in Foods</i>
GB/T 5009.33	<i>Testing Method for Nitrite and Nitrate in Foods</i>
GB/T 5009.44	<i>Analysis Method for Hygienic Standard of Meat and Meat Products</i>
GB/T 5009.108	<i>Determination of Diethylstilbestrol in Meat of Livestock and Poultry</i>

GB/T 5009.123	<i>Determination of Chromium in Foods</i>
GB/T 5009.192	<i>Testing Method for Clenbuterol Residues in Animal-based Food Products</i>
GB 7718	<i>General Principle for Prepackaged Food Labels</i>
GB 12694	<i>Hygienic Specifications for Meat Processing Plant</i>
GB/T 17237	<i>Standardized Technical Specifications of Slaughtering and Processing of Livestock and Poultry</i>
GB 16548	<i>Specifications on the Safe Disposal of Sick Animals and Animal Products</i>
GB 18393	<i>Quality Inspection Procedural Instruction for Slaughtered Cattle and Sheep Products</i>
GB 18394	<i>Permitted Level of Moisture in Meat of Livestock and Poultry</i>
GB/T 20575	<i>Specifications of Good Production Practices for Fresh and Frozen Meat</i>
GB/T 20755-2006	<i>Determination of Nine Different Types of Penicillin Residues in Livestock and Poultry – Liquid Chromatography-Tandem Mass Spectrometry</i>
GB/T 20799	<i>Transportation Conditions for Fresh and Frozen Meat</i>
JJF 1070	<i>Regulation on the Measurement and Determination of Net Content of Fixed-volume Prepackaged Products</i>
SN 0208	<i>Testing Method for Ten Different Kinds of Sulfanilamides Residues in Meat Exports</i>
SN 0341	<i>Testing Method of Chloramphenicol Residues in Meat Exports</i>
SN 0343	<i>Testing Method of Deltamethrin Residues in Exports of Livestock and Poultry Meat</i>
SN 0349	<i>Testing Method of Levamisole Residues in Meat Exports – Gas Chromatography</i>

Procedures for Measurement, Supervision and Administration of Fixed-volume Prepackaged Foods – 75th Order issued by General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) [2005]

Administrative Measures for the Hygiene of Meat and Meat Products – 5th Order issued by the Ministry of Health

3. Terms and Definition

The following terms and definitions will apply to this standard.

3.1 Lamb

Refers to a live sheep between the age of 4 and 12 months, which has not grown any permanent set tooth.

3.2 Fat Lamb

Refers to a live sheep between the age 4 and 12 months, which was rapidly fattened.

3.3 Mutton

Refers to a live sheep over 12 months old, which had changed more than one set of primary teeth.

3.4 Carcass Weight

Refers to the weight of the whole sheep with its hair (skin), head, rumex, tail, innards and all fats within the body removed, left in an environment at 0°C~4°C, 80%~90% humidity for 30mins after the slaughtering process.

3.5 Fatness

Refers to the degree of deposition of the fats distributed on the surface of carcass and within the cross section of the muscle (meat).

3.6 Fat Thickness

Refers to the thickness of the fats at the midpoint of the horizontal axis of the perpendicular loin eye between the 12th and 13th rib of the carcass.

3.7 Rib Thickness

Refers to the thickness of the meat of the carcass at the region 11cm (natural length) away from the central spine line, between the 12th and 13th rib.

3.8 Muscle Development

Refers to the degree of fullness of muscles at each part of the carcass.

3.9 Maturity

Refers to the maturity level of physiological development of the bones, cartilages and muscles of the carcass.

3.10 Muscle and Fat Color

Refers to the color and luster conditions of the external region and cross section of lean meat, as well as color and luster conditions of the surface of the carcass and the internal fat depositions.

3.11 Muscle and Fat Firmness

Refers to the firmness of muscles and fats located at the regions of the leg, back, and side of the abdomen.

3.12 Mutton Carcass

Refers to the body of a live sheep that had been slaughtered and had its hair (skin), head, rumex, tail and innards removed.

3.13 Fresh Mutton Carcass

Refers to mutton carcass that is not chilled.

3.14 Chilled Mutton Carcass

Refers to mutton carcass that had undergone chilling, of which the core temperature at the deep layers of its hind leg does not exceed 4°C.

3.15 Frozen Mutton Carcass

Refers to mutton carcass that had undergone freezing – stored at a temperature of –18°C and below, of which the core temperature at the deep layers of its hind leg does not exceed –15°C.

4. Technical Requirements

4.1 Raw Ingredients

Live sheep must come from non-infected areas and should hold inspection and quarantine certification issued by the local epidemic prevention supervisory organization. Disease prevention procedure, feeds, drinking water, veterinary drugs and immunization items used in the breeding environment and breeding process of live sheep should comply with relevant national regulations, i.e. veterinary drugs and such compounds forbidden by the State should not be used.

4.2 Processing

4.2.1 Production & Processing Conditions

Comply with the requirements listed in GB 12694, GB/T 17237 and GB/T 20575.

4.2.2 Slaughtering Preparation

Comply with the requirements listed in GB/T 20575.

4.2.3 Slaughtering Process

4.2.3.1 Blood should be let out completely and edible blood should be collected in a safe and hygienic manner.

4.2.3.2 Skin should be removed (or hair should be removed by using hot water). Head, rumex, innards (excl. kidneys), aorta, breast and genitals should be removed as well.

4.2.3.3 Subcutaneous fats and muscle membrane should be kept intact.

4.2.3.4 The three glands (thyroid, adrenal, diseased lymph gland) should be removed.

4.2.3.5 Should be trim, cleanly washed, without diseased tissue, injury spot, residual hair, floated hair, excrement, muddiness, bile dirty, coagula

4.2.4 Chilling, Freezing Process

4.2.4.1 Chilled Carcass Mutton: Temperature of chilling room should be at 0°C~4°C. Core temperature of the deeper layers of hind leg should not exceed 7°C after 10 hours of chilling.

4.2.4.2 Frozen Carcass Mutton: Temperature of freezing room should not exceed –28°C. Core temperature of the deeper layers of hind leg should not exceed –15°C after 24 hours of freezing.

4.2.5 Special Slaughtering Process

Slaughter house that provide slaughtered livestock and poultry meat for ethnic minorities' consumption, with the priority of ensuring the hygienic standards of these products, should also respect the ethnic minorities' individual customs and cultures; facilities that can secure the livestock or poultry in a "lying down" position should be installed when processing livestock or poultry meant for sacrificial ceremonies or purposes.

4.3 Sensory Aspects

See Table 1 for the sensory requirements for fresh and frozen mutton carcass.

Table 1 Sensory Requirement for Fresh and Frozen Mutton Carcass

Items	Fresh Carcass Mutton	Chilled Carcass Mutton	Frozen Carcass Mutton (Thawed)
Color and Luster	Meat is pink, bright red or dark red with luster; fats appear milky-white, pale yellow or yellow.	Meat has an even red hue with luster; fats appear milky-white, pale yellow or yellow.	Meat has a vivid hue with luster; fats appear milky-white, pale yellow or yellow.
Texture/Structure	Tight muscle fibers that is tough and elastic.	Tight muscle fibers that is firm and elastic. Depression recovers immediately after being pressed down.	Tight meat texture, feels firm, muscle fibers is tough.
Viscosity	Surface either slightly dry or has an air dried film; cross section cut is moist, not sticky.	Surface either slightly dry or has an air dried film; cross section cut is moist, not sticky.	Surface slightly moist, not sticky.
Smell	Has smell typical of fresh mutton, no unusual odor.	Has smell typical of fresh mutton, no unusual odor.	Has smell typical of mutton, no unusual odor.
Boiled Soup of Meat	Transparent and clear, fats patches concentrated on soup surface, has unique aroma.	Transparent and clear, fats patches concentrated on soup surface, has unique aroma.	Transparent and clear, fats patches concentrated on soup surface, no unusual odor.
Visible Foreign Objects	Should not be detected.	Should not be detected.	Should not be detected.

4.4 Physical-Chemical Indexes

See Table 2 for physical-chemical index requirements for fresh and frozen mutton carcass.

Table 2 Physical-Chemical Index Requirements for Fresh and Frozen Mutton Carcass

Items	Index
Moisture / %	≤ 78
TVB-N / (mg/100g)	≤ 15
Total Mercury (Hg) / (mg/100g)	≤ Should not be detected
Inorganic Arsenic / (mg/100g)	≤ 0.05
Cadmium (Cd) / (mg/kg)	≤ 0.1
Lead (Pb) (mg/kg)	≤ 0.2
Chrome (Gr) / (mg/kg)	≤ 0.1
Nitrite / (mg/kg)	≤ 1
DDVP / (mg/kg)	≤ 0.05

666 / (mg/kg)	≤	0.2
DDT / (mg/kg)	≤	0.2
Deltamethrin / (mg/kg)	≤	0.03
Penicillin / (mg/kg)	≤	0.05
Levamisole / (mg/kg)	≤	0.10
Sulfonamides (Total Amount of Sulfonamides) / (mg/kg)	≤	0.10
Chloramphenicol		Should not be detected
Clenbuterol		Should not be detected
Diethylstilbestrol		Should not be detected

4.5 Microorganism Indexes

See Table 3 for microorganism index requirements for fresh and frozen mutton carcass.

Table 3 Microorganism Index Requirements for Fresh and Frozen Mutton Carcass

Items		Index
Total aerobic bacterial count / (CFU/g)	≤	5×10^4
Coliform / (MPN/100g)	≤	1×10^4
Pathogenic Bacterium	Salmonella	Should not be detected
	Shigella	Should not be detected
	Staphylococcus	Should not be detected
	Diarrheogenic Escherichia coli	Should not be detected

4.6 Net Content

Net content value indicated on the product label or external packaging will be used as a basis for evaluation, i.e. the allowed amount of deviation between actual and indicated net content should comply with the requirements of *Procedures for Measurement, Supervision and Administration of Fixed-volume Prepackaged Foods*.

4.7 Hygienic Requirements on Production & Processing Procedure

Should comply with the requirements of GB 12694, *Administrative Measures for the Hygiene of Meat and Meat Products* and GB/T 20575.

4.8 Product Varieties, Specifications

4.8.1 Fresh and frozen carcass mutton can be classified as either sheep or goat mutton.

4.8.2 Fresh and frozen carcass mutton can be also be classified, based on the presence of skin with the meat, into carcass mutton with skin and carcass mutton without skin.

4.8.3 Fresh and frozen carcass mutton can be classified, based on the age of when the live sheep/goat is slaughtered, into mutton, lamb mutton and fat lamb mutton.

4.8.4 Fresh and frozen carcass mutton can be classified into different grades based on the sensory related

qualities. For more information, refer to Appendix A.

5. Inspection Methods

5.1 Sensory Inspections

5.1.1 Color and Luster: By sense of sight.

5.1.2 Texture/Structure and Viscosity: By sense of touch and sight.

5.1.3 Smell: By sense of smell.

5.1.4 Boiled Soup of Meat: Tested according to the requirements in GB/T 5009.44.

5.1.5 Visible Foreign Objects: By sense of sight.

5.2 Moisture: Determined according to the requirements in GB 18294.

5.3 TVB-N: Determined according to the requirements in GB/T 5009.44.

5.4 Total Mercury: Determined according to the requirements in GB/T 5009.17.

5.5 Inorganic Arsenic: Determined according to the requirements in GB/T 5009.11.

5.6 Cadmium: Determined according to the requirements in GB/T 5009.15.

5.7 Lead: Determined according to the requirements in GB/T 5009.12.

5.8 Chromium: Determined according to the requirements in GB/T 5009.123.

5.9 Nitrite: Determined according to the requirements in GB/T 5009.33.

5.10 DDVP: Determined according to the requirements in GB/T 5009.20.

5.11 666, DDT: Determined according to the requirements in GB/T 5009.19.

5.12 Deltamethrin: Determined according to the requirements in SN 0343.

5.13 Penicillin: Determined according to the requirements in GB/T 20755.

5.14 Levamisole: Determined according to the requirements in SN 0349.

5.15 Sulfonamides: Determined according to the requirements in SN 0208.

5.16 Chloramphenicol: Determined according to the requirements in SN 0341.

5.17 Clenbuterol: Determined according to the requirements in GB/T 5009.192.

5.18 Diethylstilbestrol: Determined according to the requirements in GB/T 5009.108.

5.19 Aerobic Bacteria Count: Determined according to the requirements in GB/T 4789.2.

5.20 Coliform: Determined according to the requirements in GB/T 4789.3.

5.21 Salmonella: Determined according to the requirements in GB/T 4789.4.

5.22 Shigella: Determined according to the requirements in GB/T 4789.5.

5.23 Staphylococcus aureus: Determined according to the requirements in GB/T 4789.10.

5.24 Diarrheogenic Escherichia coli: Determined according to the requirements in GB/T 4789.6.

5.25 Net Content: Determined according to the requirements in JJF 1070.

5.26 Temperature Determination

Use a non-mercury glass thermometer or other measurement apparatus with a measurement range of $\pm 50^{\circ}\text{C}$ for this test. Use a drill with a head diameter slightly larger than that of the thermometer (not more than 0.1 cm difference) and drill a hole into the core of the deep layer muscle (depth 4 cm~6 cm). Remove the drill and swiftly insert the thermometer through the hole, wait for ~3 mins then read off the scale of the thermometer.

6. Inspection Guidelines

6.1 Products should be inspected by the manufacturing facility's in-house inspection department according to this standard before they are released from the factory. Only upon receiving the qualification certification after the inspection, then the products are qualified for release from the factory for sales and distribution.

6.2 Batches

Products made in during the shift, of the same variety and product specifications will be classified under the same batch.

6.3 Sampling

Sampling should be conducted in accordance to Table 4.

Table 4 Guidelines on Sampling Quantity and Judgment

Range of Batch Quantity / No. of Boxes	Sample Quantity / No. of Boxes	Acceptance Quantity, Ac	Rejection Quantity, Re
<1,200	5	0	1
1,201~35,000	8	1	2
>35,000	13	2	3

From total samples drawn, extract 2 kg as the samples designated for tests and inspection, seal the remainder intact and safe keep for another 3 months for future references.

6.4 Inspections for this product category can be classified into either out-factory inspections or type inspections.

6.4.1 Out-factory Inspection

6.4.1.1 Every batch of products meant to be shipped out of factory for distribution should be qualified through a series of inspections before release, and the batch should be issued with inspection qualification certificate before release.

6.4.1.2 Inspection items: Labelling, sensory aspects, net content (prepackaged products) and moisture.

6.4.2 Type Inspection

6.4.2.1 Under normal circumstances, type inspection for the same product category need only to be conducted semiannually. Yet, type inspection should also be conducted if any of the following situations arises:

- a) When the product is first put into production;
- b) When production resumes after 3 or more months of stoppage;
- c) When material discrepancies are observed between the results of the last type inspection and those of the out-factory inspection.
- d) When it is specifically required by the State quality supervision and inspection institutions.

6.4.2.2 Type inspection items include the test items as required in section 4.4, 4.5, 4.6 and 4.7 in this standard.

6.5 Judging Principle

6.5.1 If results of all inspection items meet the corresponding requirements of this standard, the products will be deemed qualified. If there is one or more index (excl. microorganism indexes) that failed to meet the requirements, second of inspection can be conducted, albeit with double the quantity of samples required in the initial inspection. If the result of second round meets requirements, then products will be deemed qualified, otherwise, the products will be deemed as disqualified products.

6.5.2 If result of any of the microorganism index fails to meet requirements, this entire production batch will be deemed disqualified and second round of inspection is not allowed.

7. Labeling and Logo

7.1 Logos and labels for fresh, frozen mutton carcass should comply with the requirements of GB/T 191, GB 7718 and any other relevant national standards.

7.2 At the hip area of every mutton carcass, an inspection and quarantine certification stamp should be added, of which the fonts must be clear and neat.

7.3 Veterinarian certification stamp should be round with a diameter of 5.5 cm, carved with the name of the enterprise and these phrases in mandarin, “veterinarian certified”, “year, month, date”, “mutton” or “lamb” or “fat lamb”.

7.4 Stamps should use edible food pigments.

8. Storage

8.1 Chilled (Fresh) mutton should be hanged in a chilling room with temperature at 0°C~4°C, with relative humidity 75%~80%, maintaining a distance of 3 cm~5 cm between each carcass.

8.2 Frozen mutton should be hanged in a cold storage with temperature at -18°C, with relative humidity 95%~100%, where the temperature fluctuation in the cold storage not exceeding 1°C overnight.

8.3 Storage room should be kept clean, neat and well-ventilated with measures taken to prevent or clean the products of molds or frost. It should comply with requirements of relevant national hygiene standards, i.e. rooms should have anti-mold, anti-pest, facilities and it should also be regularly sterilized.

8.4 Storage room should not be stocked with items that have material impact on the hygiene level of the environment; within the room, food that may result in cross-contamination or cross-transfer of smell is also prohibited.

9. Transportation

Should be implemented in line with GB/T 20799.

Appendix A

(Informative Appendix)

Mutton Carcass Grading & Requirements for Each Grade

A.1 See Table A.1 for mutton carcass grading and corresponding requirements for each grade.

Table A.1 Mutton Carcass Grading & Requirements for Each Grade

Items	Mutton				Lamb				Fat Lamb			
	Superior	Excellent	Good	Edible	Superior	Excellent	Good	Edible	Superior	Excellent	Good	Edible
Carcass Weight / kg	>25	22~25	19~22	16~19	>18	15~18	12~15	9~12	>16	13~16	10~13	7~10
Carcass Fatness	Backfat is 0.8~1.2 cm thick; fats at leg shoulder rich; muscle not revealed; rich marble patterns	Backfat is 0.5~0.8 cm thick; some fats at leg shoulder; leg muscle slightly revealed; obvious marble patterns	Backfat is 0.3~0.5 cm thick; some thin-layer fats at leg shoulder with its muscle slightly revealed; slightly obvious marble patterns	Backfat ≤0.3 cm thick; little fats at leg shoulder with muscle revealed; no marble patterns	Backfat >0.5 cm thick; some fats at leg shoulder; leg muscle slightly revealed; obvious marble patterns	Backfat 0.3~0.5 cm; some thin-layer fats at leg shoulder with its muscle slightly revealed; slightly obvious marble patterns	Backfat ≤0.3 cm thick; little fats at leg shoulder with muscle revealed; no marble patterns	Backfat ≤0.3 cm thick; little fats at leg shoulder with muscle revealed; no marble patterns	Eye of loin has slightly obvious marble patterns	No marble patterns	No marble patterns	No marble patterns
Rib Meat Thickness / mm	>14	9~14	4~9	<4	>14	9~14	4~9	<4	>14	9~14	4~9	<4
Firmness of Meat and Fats	Fats and muscle firm	Fats and muscle quite firm	Fats and muscle slightly firm	Fat and muscle soft	Fats and muscle firm	Fats and muscle quite firm	Fats and muscle slightly firm	Fat and muscle soft	Fats and muscle firm	Fats and muscle quite firm	Fats and muscle slightly firm	Fat and muscle soft
Meat Muscle Quality	Full-body skeletal structure not	Full-body skeletal structure not	Shoulder bulge area and neck	Shoulder bulge area and neck	Full-body skeletal structure not	Full-body skeletal structure not	Shoulder bulge area and neck	Shoulder bulge area and neck	Full-body skeletal structure not	Full-body skeletal structure not	Shoulder bulge area and neck	Shoulder bulge area and neck

	revealed; leg area plump and full; muscle bulge obvious; back wide and flat; shoulder thick and full	revealed; leg area quite plump and full; muscle bulge obvious; back quite obvious; back and shoulder quite thick and full	area spine tip protrude s slightly; leg area not plump; no muscle bulge; back and shoulder quite narrow and thin	area spine tip protrude s slightly; leg area skinny with hollows; back and shoulder narrow and thin	revealed; leg area plump and full; muscle bulge obvious; back flat; shoulder thick and full	revealed; leg area quite plump and full; muscle bulge quite obvious; back and shoulder quite thick and full	area spine tip protrude s slightly; leg area not plump; no muscle bulge; back and shoulder quite narrow and thin	area spine tip protrude s slightly; leg area skinny with hollows; back and shoulder narrow and thin	revealed; leg area plump and full; muscle bulge obvious; back flat; shoulder thick and full	revealed; leg area quite plump and full; muscle bulge obvious; back and shoulder quite thick and full	area spine tip protrude s slightly; leg area not plump; no muscle bulge; back and shoulder quite narrow and thin	area spine tip protrude s slightly; leg area skinny with hollows; back and shoulder narrow and thin
Physiologic al Maturity	At least one joint of control at front calf, ribs broad and flat	At least one joint of control at front calf, ribs broad and flat	At least one joint of control at front calf, ribs broad and flat	At least one joint of control at front calf, ribs broad and flat	Fractured joints at front calf; fractured joints moist with bright red color; rib quite round	Front calf may have joints of control or fractured joints; ribs slightly broad and flat	Front calf may have joints of control or fracture d joints; ribs slightly broad and flat	Front calf may have joints of control or fracture d joints; ribs slightly broad and flat	Fractured joints at front calf; fractured joints moist with bright red color; rib quite round	Fractured joints at front calf; fractured joints moist with bright red color; rib quite round	Fracture d joints at front calf; fractured joints moist with bright red color; rib quite round	Fracture d joints at front calf; fractured joints moist with bright red color; rib quite round
Color and Luster of Meat and Fats	Muscle dark red; Fats milky white	Muscle dark red; Fats white	Muscle dark red; Fats pale yellow	Muscle dark red; Fats yellow	Muscle dark red; Fats milky white	Muscle dark red; Fats white	Muscle dark red; Fats pale yellow	Muscle dark red; Fats yellow	Muscle dark red; Fats milky white	Muscle dark red; Fats white	Muscle dark red; Fats pale yellow	Muscle dark red; Fats yellow

A.2 Inspections

A.2.1 Carcass Weight: By weighing.

A2.2 Carcass Fatness: Use sense of sight to determine the fats distribution on the carcass as well as fats deposition in the muscle layers, while thickness of backfats should be determined with apparatus.

A2.3 Rib Meat Thickness: Measurement method.

A 2.4 Firmness of Meat and Fats, Muscle Plumpness, Physiological Maturity, Color and Luster of Meat and Fats: Sensory deterministic methods.

GBT 16869-2005 Fresh and Frozen Poultry Products



National Standards of People's Republic of China

GB/T 16869-2005

National Food Standard
Fresh and Frozen Poultry Products

Issued on: 2008-08-12

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**Issued by General Administration of Quality Supervision, Inspection and Quarantine of the
People's Republic of China & China National Standardization Management Committee**

Foreword

Chapter 6 of this standard is voluntary while the rest of the standard is mandatory.

This standard replaces GB 16869-2000 Fresh and Frozen Poultry Products.

As compared to GB 16869-2000, key changes are as follows:

- Detection limits on amount of methamidophos and lenbuterol hydrochloride were removed as part of the requirements;
- Added the criteria that if the surface area of the extravasated blood patch does not exceed 0.5cm², then it can ignored entirely, also the calculation methods and testing guidelines for the number of extravasated blood patches and bristles were added as well;
- Some of the technical requirements were modified;
- Maximum temperature allowed for frozen core portion of frozen poultry products was adjusted to -18oC;
- Maximum loss of moisture allowed during thawing was adjusted to 6%;
- Limits on lead was adjusted to amount not exceeding 0.2mg/kg;
- Residue limits on pesticide beta-Hexachlorocyclohexane (BHC) was adjusted to amount not exceeding 0.1mg/kg (as fraction of total sample mass), 1mg/kg (as fraction of fats);
- Limits on coliform in frozen poultry products was adjusted to amount not exceeding 5×10³ MPN/100g;
- Detection limits on salmonella was adjusted to “0/25g”;
- Detection limits on diarrhea-inducing Escherichia coli was renamed to those for Enterohemorrhagic Escherichia coli (EHEC) (O157:H7), of which limit is 0/25g;
- Determination of diethylstilbestrol was modified to be “in accordance with determination method as required by SN 0672.”

Details in Chapter 6, such as routine tests, settlement inspection, sampling plans and number of general defects allowed, are equivalent to adopting the inspection standards I and inspection standards II of the CAC/RM 42-1969 Sampling Plans for Prepackaged Food Products.

Appendix A is a normative appendix.

This standard was proposed by the National Technical Committee of Food Industry Standardization, Ministry of Health Technical Committee of Food Industry Standardization.

This standard is under the jurisdiction of the National Technical Committee of Food Industry Standardization.

The organizations involved in the drafting of this standard: Food Hygiene Supervision and Inspection Authority of the Ministry of Health, Secretarial Department of the National Technical Committee of Food Industry Standardization, Shanghai City Food Hygiene Supervision and Inspection Authority of the Ministry of Health, Center of Inspection of Slaughtering Process of the State Trade Bureau, Inspection Center for Poultry Products of the Ministry of Agriculture, China Meat Trade Association, Beijing CIQ and Shenzhen CIQ.

Key personnel involved in the drafting of this standard: Yu Hao, Yulian Han, Jingyu Gu, Bingqi Ruan, Linan Lan, Xiaoming Yang, Hong Liu, Suying Liu, Chunfeng Lee, Guoying Tan.

The organizations involved in the drafting of Appendix A of this standard: Institute of Nutrition and Food Hygiene of Chinese Academy of Preventive Medicine and Food Hygiene Supervision and Inspection Authority of the Ministry of Health.

Key personnel involved in the drafting of Appendix A of this standard: Huijing Chan, Xuqin Wang, Dajin Yeung, Guohua Wu.

The standard will replace the previous versions:

- GB 2710-1966, GB 16869-1997, GB 16869-2000

National Food Standard

Fresh and Frozen Poultry Products

1. Scope

This standard specifies the technical requirements, testing methods, inspection guidelines, and the requirements on logo, labeling, packaging and storage of fresh and frozen poultry products.

2. Normative References

Clauses involved in the following documents constitute the ones in this standard through reference in this standard. Any dated reference and the following amendment or revised versions (excluding errata) are not applicable to this standard. However, the study of whether the latest version of these documents can be used by all parties who reach agreement according to this standard is encouraged. Any latest version of the non-dated reference is applicable to this standard.

GB/T 191	<i>Illustration and Logo for Packaging, Storage and Transportation</i>
GB/T 4789.2-2003	<i>Food Hygiene Microbiological Tests: Test for Aerobic Bacterial Count</i>
GB/T 4789.3-2003	<i>Food Hygiene Microbiological Tests: Test for Coliform</i>
GB/T 4789.4-2003	<i>Food Hygiene Microbiological Tests: Test for Salmonella</i>
GB/T 5009.11-2003	<i>Testing Method for Total Arsenic in Foods</i>
GB/T 5009.12-2003	<i>Testing Method for Lead in Foods</i>
GB/T 5009.17-2003	<i>Testing Method for Mercury in Foods</i>
GB/T 5009.19-2003	<i>Testing Method for BHC, DDT Pesticide Residues</i>
GB/T 5009.44-2003	<i>Analysis Method for Hygienic Standard of Meat and Meat Products</i>
GB/T 6388	<i>Transport Packaging and Shipping Mark</i>
GB 7718	<i>General Principle for Prepackaged Food Labels</i>
GB/T 14931.1-1994	<i>Determination Methods for Residues of Oxytetracycline, Tetracycline Aureomycin in Poultry Meat (HPLC-MS/MS)</i>
SN 0208-1993	<i>Determination Methods for Residues of Ten Different Types of Sulfanilamide in Pork Exports</i>
SN/T 0212.3-1993	<i>Determination Methods for Residues of Clopidol in Poultry Exports – Propionylation-Gas Chromatography</i>
SN 0672-1997	<i>Determination Methods for Residues of Diethylstilbestrol in Meat and Meat Products – Radioimmunoassay</i>
SN/T 0973-2000	<i>Test Method of Enterohemorrhagic Escherichia coli (EHEC) in Import and Export Meat</i>

and Meat Products (O157:H7)

3. Terms and Definition

The terms and definition will apply to this standard.

3.1 Fresh Poultry Product

Refers to chilled product that is a result of slaughtering, processing and precooling procedure of live poultry; including whole and eviscerated poultry, segmented portions of whole poultry (poultry meat, poultry wings, poultry drumsticks, etc.), poultry by-products (poultry head, neck, innards, feet (claws), etc.)

3.2 Frozen Poultry Product

Refers to product that is a result of slaughtering, processing and freezing procedure of live poultry; including whole and eviscerated poultry, segmented portions of whole poultry (poultry meat, poultry wings, poultry drumsticks, etc.), poultry by-products (poultry head, neck, innards, feet (claws), etc.)

3.3 Impurity

Refers to visible substances or contaminants, e.g. yellowish skin surface on poultry, poultry excrement taints, bile, other foreign bodies (plastics, metals, feed residues, etc.)

4. Technique Requirements

4.1 Raw Materials

Live poultry should originate from disease-free zones, and should pass the inspection and quarantine standard procedures before being slaughtered.

4.2 Processing

Slaughtered poultry should pass the corresponding inspection and quarantine standard procedures before being processed.

4.2.1 Cleaning

Individual parts of the poultry with external injuries, blood spots, blood taints, roots of feather and their likes should be removed or cut off.

4.2.2 Segmenting (Cutting)

Whole poultry should be precooled before segmenting (cutting into pieces); from bloodletting to packaging, time in the cold storage should not exceed 2 hours.

4.3 Freezing

Products that need to be frozen should ensure that the temperature of its core reaches -18°C or lower within a 12-hour timespan.

4.4 Sensory Conditions

Should comply with the requirements listed in Table 1.

Table 1

Items	Fresh Poultry Products	Frozen Poultry Products (Thawed)
Texture/Structure	Lean meat has elastic texture, part of meat immediately recovered to its original state after being pressed down with a finger	Part of meat recovered at a relatively slower rate after being pressed down with a finger, not likely to recover completely to its original state
Color and luster	Skin surface and lean meat slices possess lustrous appearance, possesses the color that such poultry specie should have	
Smell	Possesses the smell that such poultry specie should have, no unusual odor	
Soup of meat after heating/boiling	Transparent and clear in appearance, fats concentrate on the liquid's surface layer, possesses the taste/flavor that such poultry specie should have	
Extravasated blood [measured by its surface area, (S)] / cm^2 S>1 0.5<S≤1 S≤0.5	Should be detected Number of blood patches ≤2% of total sample quantity Disregarded	
Bristle (feather length >12mm or root of feather diameter >2mm) / (each feather/10kg) ≤	1	
Foreign bodies	Should not be detected	
Note: Surface area of extravasated blood patches refers to area of a single extravasated blood patch found on a single whole poultry or a single segmented portion of poultry.		

4.5 Physical-chemical Indexes

Fresh and frozen poultry products should comply with requirements listed in Table 2.

Table 2

Items		Index
Moisture loss of frozen poultry products during thawing / (%)		6
TNB-N / (mg/100g)		15
Mercury (Hg) / (mg/kg)		0.05
Lead (Pb) / (mg/kg)		0.2
Arsenic (As) / (mg/kg)		0.5
BHC / (mg/kg)	Fats composition <10%, BHC as fraction of total sample	0.1
	Fats composition ≥10%, BHC as fraction of total fats	1
DDT / (mg/kg)	Fats composition <10%, DDT as fraction of total sample	0.2
	Fats composition ≥10%, DDT as fraction of total fats	2
DICHLORVOS / (mg/kg)		0.05
Tetracycline / (mg/kg)	Meat	0.25
	Liver	0.3
	Kidney	0.6
Aureomycin / (mg/kg)		1
Oxytetracycline / (mg/kg)	Meat	0.1
	Liver	0.3
	Kidney	0.6
Sulfadimidine / (mg/kg)		0.1
Clopidol / (mg/kg)		0.01
Diethylstilbestrol / (mg/kg)		Should not be detected

4.6 Microbiological Index

Comply with requirements listed in Table 3.

Table 3

Items		Index	
		Fresh Poultry Products	Frozen Poultry Products
Aerobic Bacterial Count / (cfu/g)	≤	1×10 ⁴	5×10 ⁵
Coliform / (MPN/100g)	≤	1×10 ⁴	5×10 ⁵
Salmonella		0/25 g ^a	
EHEC (O157: H7)		0/25 g ^a	
^a 5 samples should be taken.			

5. Testing Methods

5.1 Sensory Conditions

Frozen poultry product should be thawed before inspection.

5.1.1 Texture/Structure, Color and Luster, Smell

Place all the samples that had been used for microbiological tests and inspection under natural light or its equivalent in a room dedicated for sensory inspection. Use sense of touch to evaluate the samples' texture/structure; use sense of sight to observe the color and luster; use sense of smell to identify the smell of the samples.

5.1.2 Soup of meat after heating/boiling

Shred the sample (prepared as in 6.5.2), weigh and take 20g of sample and place them into 200mL beaker. Add 100mL water and cover beaker with a piece of glass, heat up to 50~60°C. Remove the glass lid, use sense of smell to identify the smell of the heated soup. Continue heating till it boils, observe the condition of the soup, and the distribution of the fats within the liquid. Cool the soup back to room temperature, then taste the soup.

5.1.3 Extravasated Blood

Use appropriate means to measure the surface area of extravasated blood patches after completing the tests for texture/structure, color and luster and smell.

The proportion of extravasated blood patches (of surface area $0.5\text{cm}^2 < S \leq 1\text{cm}^2$) of the total quantity of products within a basic box of products can be calculated with formula (1) below:

$$X = \frac{A_1}{A} \times 100 \dots\dots\dots (1)$$

In the formula:

X – Proportion of extravasated blood patches (of surface area $0.5\text{cm}^2 < S \leq 1\text{cm}^2$) of the total quantity of products within a basic box of products (whole poultry measured by each whole poultry, poultry meat measure by each piece of meat, poultry drumstick or wing measure by each piece of drumstick or wing, and as such), %;

A – Total quantity of products in one basic box;

A_1 – Number of extravasated blood patches (of surface area $0.5\text{cm}^2 < S \leq 1\text{cm}^2$).

5.1.4 Bristles

Conduct test concurrently with those for texture/structure, color and luster and smell. Number of bristles in 10kg of products in a basic box can be computed according to formula (2) below, with the help of a pair of Vernier calipers:

$$X_1 = \frac{A_2}{m} \times 10 \dots\dots\dots (2)$$

In the formula:

X_1 – Number of bristles in 10kg of products in a basic box;

A_2 – Actual number of bristles in one basic box;

m – Actual weight of one basic box, unit as kg.

5.1.5 Foreign Bodies

Observe for foreign bodies by the sense of sight, concurrently with tests for texture/structure, color and luster and smell.

5.2 Moisture Loss during Thawing

5.2.1 Apparatus and Tools

Electric Balance: Precision of 1g;

Thermometer: Range of $-10\sim 50^{\circ}\text{C}$, division value of 0.5°C ;

Ceramic Plate/Dish, Metal Mesh.

5.2.2 Test Procedure

Place the metal mesh in the ceramic dish, maintaining a distance of 2cm between the mesh and the bottom of the ceramic dish. Extract 1,000~2,000g of the sample (prepared as in 6.5.2), weigh it with the electric balance and then place them on the metal mesh. Cover the extracted sample with a film of plastic and allow sample to naturally thaw at $15\sim 25^{\circ}\text{C}$. Once the core temperature of the sample increases to $2\sim 3^{\circ}\text{C}$, weigh it again with the electric balance. Place the sample again on the mesh for another 30mins, weigh again. Repeat the 30mins operation mentioned formerly until the difference between 2 consecutive measurements is not more than 2.0g.

5.2.3 Presentation of Test Results

The formula for computing moisture loss during thawing:

$$X_2 = \frac{m - m_1}{m} \times 100 \dots\dots\dots (3)$$

In the formula:

X_2 – Percentage of moisture lost during the thawing process, %;

m – Weight of frozen product before thawing, g;

m_1 – Weight of frozen product after thawing, g.

Result of calculation presented in the nearest whole number.

5.3 TVB-N

Refer to test method specified in 4.1 of GB/T 5009.44-2003.

5.4 Mercury

Refer to test method specified in GB/T 5009.17-2003.

5.5 Arsenic

Refer to test method specified in GB/T 5009.11-2003.

5.6 Lead

Refer to test method specified in GB/5009.12-2003.

5.7 BHC & DDT

Refer to test method specified in GB/5009.19-2003.

5.8 DICHLORVOS

Refer to test method specified in Appendix A of this standard.

5.9 Tetracycline, Chlortetracycline and Terramycin

Refer to test method specified in GB/T 14931.1-1994.

5.10 Sulfadimidine

Refer to test method specified in SN 0208-1003.

5.11 Clopidol

Refer to test method specified in SN/T 02012.3-103.

5.12 Diethylstilbestrol

Refer to test method specified in SN 0672-1997.

5.13 Total Aerobic Bacterial Count

Refer to test method specified in GB/T 4789.2-2003.

5.14 Coliform

Refer to test method specified in GB/T 4789.4-2003.

5.15 Salmonella

Refer to test method specified in GB/T 4789.4-2003.

5.16 EHEC

Refer to test method specified in SN/T 0973-2000.

5.17 Core Temperature of Product

5.17.1 Thermometer

Non-mercury glass thermometer or other apparatus for temperature measurement with a range of -20~50°C.

5.17.2 Procedure

Use a drill with diameter slightly longer than that of the thermometer to drill a hole to the center (core area) of the lean meat. Remove the drill, then immediately insert the non-mercury glass thermometer (or any other appropriate apparatus for temperature measurement) into the center of the meat, wait for readings to stabilize and then record the core temperature reading off the thermometer used.

6. Inspection Guidelines

6.1 Inspection Classification

6.1.1 Routine Inspection

6.1.1.1 Routine inspection should be carried out in any of following situation:

- a) Once-off submission of an isolated batch of products for inspection;
- b) Origin of production of live poultry changes;
- c) First batch of products processed at newly established plant/factory;
- d) Continuous processing operation for 6 months, or resume processing operations after operations had been shut down previously;
- e) Obvious discrepancies between inspection for delivery and the last routine inspection;
- f) As required by the relevant quality and hygiene supervisory organizations.

6.1.1.2 Routine inspection test items should include those test items specified in Table 1, Table 2 and Table 3.

6.1.2 Inspection for Delivery

6.1.2.1 All the product should undergo inspections for delivery before being shipped out from the factory of production.

6.1.2.2 Test items in inspection for delivery should include all test items listed in Table 1, as well as tests for moisture lost during thawing of frozen poultry products, TVB-N, the total aerobic bacterial count and coliform.

6.2 Batch

6.2.1 Continuous Batches

Products that are manufactured under the same processing conditions, derived from the same part of the poultry's body (e.g. whole poultry, poultry meat, wings, drumsticks, head, feet, innards), with the same

packaging and delivered together in a single occurrence will be classified as a single batch. Batch quantity will be measured by number of basic packaging boxes (thereinafter simply referred to as basic boxes.)

6.2.2 Isolated Batches

Products that are derived from the same part of the poultry's body (e.g. whole poultry, poultry meat, wings, drumsticks, head, feet, innards), with the same packaging and sent together for tests and inspection in a single occurrence will be classified as a single batch. Batch quantity will be measured by number basic boxes.

6.3 Sampling

6.3.1 Routine Inspection Sampling

Samples should be randomly drawn according to the batch quantity with reference to Table 4.

Table 4

Batch Quantity (in basic boxes)	Samples Quantity (in basic boxes)	Defect Quantity Allowed (in basic boxes)
600 or below	13	2
601~2,000	21	3
2,001~7,200	29	4
7,201~15,000	48	6
15,001~24,000	84	9
24,001~42,000	126	13
Above 42,000	200	19

6.3.2 Inspection for Delivery Sampling

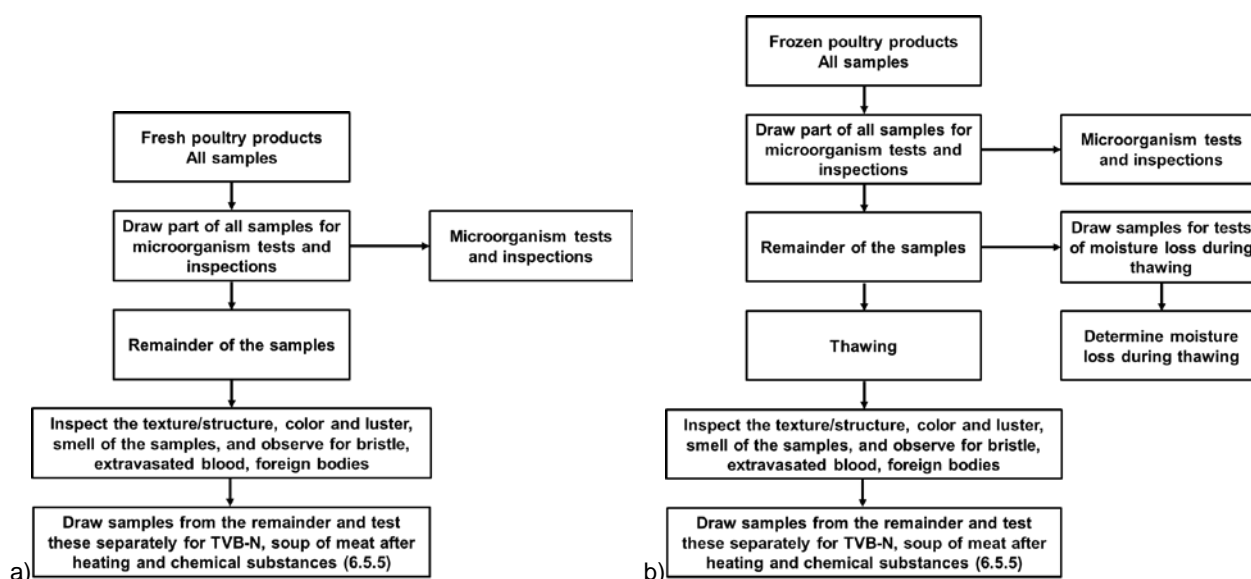
Samples should be randomly drawn according to the batch quantity with reference to Table 5.

Table 5

Batch Quantity (in basic boxes)	Samples Quantity (in basic boxes)	Defect Quantity Allowed (in basic boxes)
600 or below	6	1
601~2,000	13	2
2,001~7,200	21	3
7,201~15,000	29	4
15,001~24,000	48	6
24,001~42,000	84	9
Above 42,000	126	13

6.4 Sampling and Test Procedures

Fresh and frozen poultry products should be sampled and tested according to the process flow illustrated in Picture 1 below.



Picture 1 Fresh and Frozen Poultry Products Sampling and Inspection Procedures

6.5 Sampling Methods

The samples described in the following sections should not come with extravasated blood patches, bristles and foreign bodies.

6.5.1 Samples Drawn for Microorganism Tests

Randomly draw (3~5) basic boxes of products from all the samples drawn, extract approximately 100g of samples from each basic box under sterile conditions. Mix the extracted samples.

Note: Extract 5 portions (25g per portion) from the sample mixture for salmonella test samples; similarly extract another 5 portions (25g per portion) for EHEC test samples.

6.5.2 Samples for Tests of Moisture Loss during Thawing

Randomly draw (3~5) basic boxes of products from all the samples drawn, extract approximately 500g of samples from each basic box. Mix the extracted samples and then place the mixture in an insulated container.

6.5.3 Samples for TVB-N Tests

Randomly draw 3 basic boxes of products from all the samples drawn, extract approximately 100g of fatless and boneless samples from each basic box. Mix the extracted samples.

6.5.4 Samples for Preparation of Soup of Meat

Randomly draw 3 basic boxes of products from all the samples of whole poultry, poultry meat, wings or drumsticks drawn, extract 100g of meat from each basic box. Mix the extracted samples.

6.5.5 Test Samples for Chemical Substances (incl. 12 types of chemical listed in Table 2)

Randomly draw 3 basic boxes of products from all the samples drawn, extract approximately 200g of edible parts of the poultry from each basic box. Mix the extracted samples.

6.6 Decision Guidelines and Re-test/inspection

6.6.1 Defect Classifications

6.6.1.1 Typical Defects: Refer to number of extravasated blood patches and bristles did not fulfill the requirements in this standard.

6.6.1.2 Serious Defects: Refer to situations where results of the tests on texture/structure, color and luster, smell, soup of meat heated and individual items specified in Table 2 and Table 3 did not fulfill the requirements in this standard, and there are visible foreign objects observed.

6.6.2 Judgment of Individual Test Results

6.6.2.1 Judgment of test results of extravasated blood patches and bristles inspection: Base unit for the result of the extravasated blood patches and bristles inspection will be measured in units of single basic boxes.

Illustration 1:

Total samples are equivalent to 6 basic boxes of products, each numbered according to their respective order.

Inspection Results: Number of extravasated blood patches in Box No.1 and number of bristles in Box No.3 did not meet the requirements of the standard.

Judgment: Typical defects are found in 2 basic boxes of products.

Illustration 2:

Total samples are equivalent to 13 basic boxes of products, each numbered according to their respective order.

Inspection Results: Number of extravasated blood patches in all of the boxes, Box No.1~13 and the number of bristles in Box No.8 did not meet the requirements of the standards.

Judgment: Typical defects are found in 13 basic boxes of products.

6.6.2.2 Judgment of test results of texture/structure, color and luster, smell, soup of meat heated and the test items listed in Table 2 and 3: If any of the test results did not meet the requirements of this standard, all the samples drawn will be judged as having serious defects.

6.6.3 Judgment for Routine Inspection and Re-test/inspection

6.6.3.1 If test results of all the routine inspection items (6.1.1.2) all meet the requirements of this standard, then the whole batch of products will be judged as qualified.

6.6.3.2 If test results of routine inspection items (6.6.1.2) found to have one serious defect, then the whole batch of products will be judged as unqualified and re-test/inspection are not allowed.

6.6.3.3 If test results of routine inspection items (6.6.1.1) found to have general defects but number did not exceed the number allowed in Table 4, then the whole batch of products will be judged as qualified; however if number exceed the number allowed in Table 4, re-test/inspection can be conducted according to Table 4, then the re-test/inspection results can be compared again with Table 4 (Defect Quantity Allowed) to judge if

the whole batch of products qualify or do not qualify in each case.

6.6.4 Judgment for Inspection for Delivery and Re-test/inspection

6.6.4.1 If test results of all the inspection for delivery items (6.1.1.2) all meet the requirements of this standard, then the whole batch of products will be judged as qualified.

6.6.4.2 If test results of inspection for delivery items (6.6.1.2) found to have one serious defect, then the whole batch of products will be judged as unqualified and re-test/inspection are not allowed.

6.6.4.3 If test results of inspection for delivery items (6.6.1.1) found to have general defects but number did not exceed the number allowed in Table 4, then the whole batch of products will be judged as qualified; however if number exceed the number allowed in Table 4, re-test/inspection can be conducted according to Table 4, then the re-test/inspection results can be compared again with Table 4 (Defect Quantity Allowed) to judge if the whole batch of products qualify or do not qualify in each case.

7. Labeling, Logo, Packaging and Storage

7.1.1 Labeling

Label provided directly to consumers should comply with the requirements listed in GB/7718.

7.1.2 Transport Packaging Logo

Transport packaging logo and shipping marks should comply with the requirements listed in GB/T 191 and GB/T 6388.

7.2 Packaging

Fresh and frozen poultry product should be packaged with new packaging materials that comply with relevant hygienic standards.

7.3 Storage

Frozen poultry products should be stored in frozen room of -18°C or lower in temperature, where temperature should not fluctuate above the range of 1°C overnight.

Appendix A

(Normative Appendix)

Determination of Amount of Multicomponent Residues of Organophosphorus Pesticides in Animal Food Products

The appendix applies to the determination of amount of residues of organophosphorus pesticides (methamidophos, dichlorvos, acephate, monocrotophos, dimethoate, disulfaton, parathion-methyl, fenitrothion, pirimiphos methyl, malathion, fenthion, parathion, ethion) in poultry, dairy and dairy products, egg and egg products.

The respective limits on amount of residues of each type of organophosphorus pesticides are as follows: methamidophos 5.7, dichlorvos 3.5, acephate 10.0, monocrotophos 12.0, dimethoate 2.6, disulfaton 1.2, parathion-methyl 2.6, fenitrothion 2.9, pirimiphos methyl 2.5, malathion 2.8, fenthion 2.1, parathion 2.6, ethion 1.7.

A.1 Summary of Method

Samples will undergo extraction, purification, enrichment, volume fixing, separation (separation using capillary chromatographic column) and then they will be tested using a flame photometric detector, so as to ensure that the results are time-consistent and standardized externally.

Order of peaks on diagram of test results: methamidophos, dichlorvos, acephate, monocrotophos, dimethoate, disulfaton, parathion-methyl, fenitrothion, pirimiphos methyl, malathion, fenthion, parathion, ethion

A.2 Reagent

Reagents used throughout this test are all analytically pure reagents unless otherwise regulated; water used in the experiments should comply with the requirements on grade 2 water listed in the standard GB/T 6682.

A.2.1 Acetone: Double distillation.

A.2.2 Dichloromethane: Double distillation.

A.2.3 Ethyl Acetate: Double distillation.

A.2.4 Cyclohexane: Double distillation.

A.2.5 Sodium chloride.

A.2.6 Anhydrous sodium sulfate.

A.2.7 Gel: Bio-Beads S-X3 (or gel equivalent to Bio-Beads S-X3); 200~400 pieces.

A.2.8 Standard organophosphorus pesticide: Purity of methamidophos, dichlorvos, acephate, monocrotophos, dimethoate, disulfaton, parathion-methyl, fenitrothion, pirimiphos methyl, malathion, fenthion, parathion, ethion should be no less than 90%.

A.2.9 Solution of organophosphorus pesticide

A.2.9.1 Standard stock solution of monomer organophosphorus pesticides: Accurately weigh and extract 0.0100g of each of the organophosphorus pesticides, place each extract into 25ml volumetric flask, and dissolve the extracts with ethyl acetate to a constant volume (maintaining that solution concentration is 400ug/ml).

A.2.9.2 Mixture solution of organophosphorus pesticides for standard application: Before the determination tests, weigh and extract each standard stock solution of monomer organophosphorus pesticides of different volume (A.2.9.1) into 10ml volumetric flask, channel nitrogen gas into the solutions. Perform extraction according to methods in A.5.1.3 and A.5.2, then dilute with purified fresh milk extracts and fixed to certain volume. The concentration ($\mu\text{g/ml}$) of mixture solutions of individual organophosphorus pesticides should be as follows: methamidophos 16, dichlorvos 80, acephate 24, monocrotophos 80, dimethoate 16, disulfaton 24, parathion-methyl 16, fenitrothion 16, pirimiphos methyl 16, malathion 16, fenthion 24, parathion 16, ethion 8.

Note: Standard stock solution and mixture solution for standard application are only need to be prepared for dichlorvos if it was only meant to test for dichlorvos.

A3 Apparatus

A.3.1 Gas Chromatograph: Come with a flame photometric detector and capillary chromatographic columns

A.3.2 Rotatory Evaporator

A.3.3 Gel purification column: the height is 30cm, inner diameter is 2.5cm, has piston glass layer column, glass wool at the bottom of column, soak the gel with ethyl acetate and cyclohexane eluent (1:1), pour them into column with wet process, the height of column is about 26cm, the gel should be always in the eluent.

A.4 Preparation of Samples

A.4.1 Egg and egg products: Deshelled and then prepared as homogenates.

A.4.2 Meat and meat products: Remove the tendons and bones, cut into small pieces (chunks), and then prepared as meat paste.

A.4.3 Milk and milk products: Mix uniformly.

A.5 Analysis Procedure

A.5.1 Extraction, Distribution and Enrichment

A5.1.1 Egg and egg products: Weigh and extract 20g (0.01g precision) and place extract into 100mL conical flask with a stopper. Add 5mL water (add water correspondingly to the water content of each extract, ensuring total water within solution maintains at ~20g; typically water content in egg ~75%, thus adding 5mL should suffice), 40mL acetone and then shake for 30 mins. Add 6g sodium chloride, mix uniformly then add 30mL dichloromethane and shake for another 30mins. Extract 35mL supernatant, filter anhydrous sodium sulfate into a rotary evaporation bottle, and enrich the content till it reaches 1mL. Add 2mL solution of ethyl acetate cyclohexane (1:1) and repeat enrichment process. Repeat this process 3 times until it reaches 1mL.

A.5.1.2 Meat and meat products: Weigh and extract 20g (0.01g precision) and place extract into 100mL conical flask with a stopper. Add 5mL water (add water correspondingly to the water content of each extract, ensuring total water within solution maintains at ~20g; typically water content in meat ~70%, thus adding 6mL should suffice). Thereafter, process similar to A.5.1.1.

A.5.1.3 Milk and milk products: Weigh and extract 20g (0.01g precision) and place extract into 100mL conical flask with a stopper (adding water is not required for fresh milk, extract directly with acetone will suffice). Thereafter, process similar to A.5.1.1.

A.5.2 Purification

Elute the prepared solution concentrate (A.5.1) with solution of ethyl acetate cyclohexane (1:1) through the use of gel purification columns. Collect 35mL~70mL of distillates and enrich the distillates with the rotatory evaporator till it reaches 1mL. Purify again with the gel purification columns, collect another 35mL~70mL of distillates and enrich the distillates with the rotatory evaporator till it reaches 1mL. Transfer it into test tube with 5mL graduation markings and then elute with solution of ethyl acetate cyclohexane multiple times through the use of gel purification columns, transferring the result of the process into the same test tube. Channel nitrogen gas into the solution till it reaches below 1mL in volume, add solution of ethyl acetate cyclohexane till it reaches 1mL and set it aside for chromatography analysis.

A.5.3 Conditions of Chromatographic Analysis

A.5.3.1 Chromatographic columns: Elastic capillary columns made of quartz, with inner column diameter is 0.32mm, the length is 30m; coated with SE-54, with thickness at 0.25µm

A.5.3.2 Column temperature: Programmed temperature changes

60°C / 1 min $\xrightarrow{40^{\circ}\text{C/min}}$ 110°C $\xrightarrow{5^{\circ}\text{C/min}}$ 235°C $\xrightarrow{40^{\circ}\text{C/min}}$ 265°C

A.5.3.3 Temperature at Sample's Entry Point: 270°C.

A.5.3.4 Detector: Flame Photometric Detector (FPD-P), temperature at 270°C.

A.5.3.5 Carrier gas: Nitrogen gas, rate of flow at 1mL/min, make-up gas at 50mL/min.

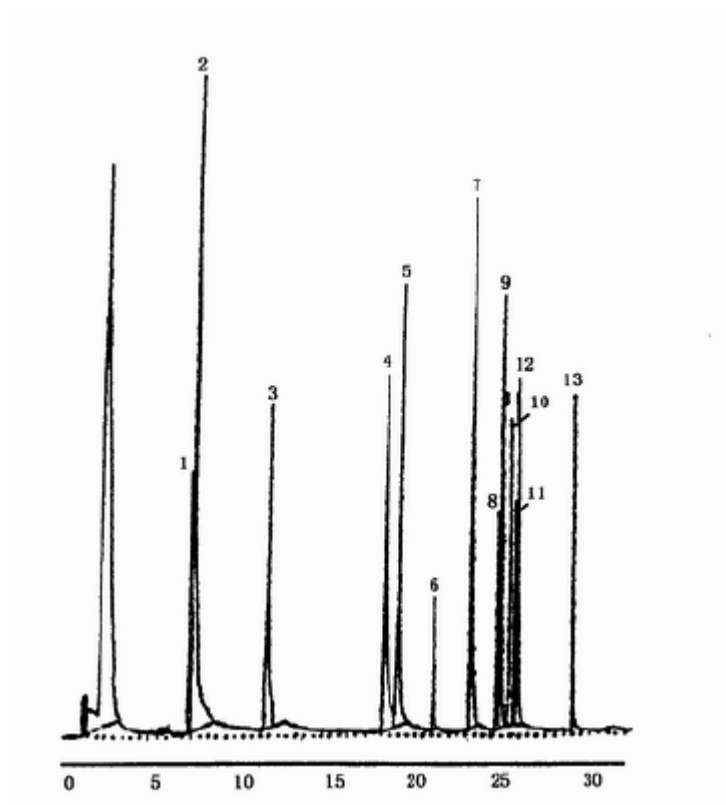
A.5.3.6 Rate of flow of hydrogen and air: Hydrogen at 50mL/min, air at 500mL/min.

A.5.4 Determination

Measure and extract 1µL of mixture solution of organophosphorus pesticides for standard application (A.2.9.2) and purified sample solution (A.5.2) respectively into the chromatographic instrument. To ensure time-consistency, perform quantitative comparisons of both the peak and peak area between the sample solution and standard application solution.

A.5.5 Chromatogram of 13 Types of Organophosphorus Pesticides

See Picture A.1 below for the chromatography diagram for 13 different types of organophosphorus pesticides.



- 1 – methamidophos;
- 2 – dichlorvos;
- 3 – acephate;
- 4 – monocrotophos;
- 5 – dimethoate;
- 6 – disulfaton;
- 7 – parathion-methyl;
- 8 – fenitrothion;
- 9 – pirimiphos methyl,
- 10 – malathion;
- 11 – fenthion;
- 12 – parathion;
- 13 – ethion.

Picture A.1 Chromatography Diagram for 13 Different Types of Organophosphorus Pesticides

A.6 Representation of Analysis Results

Amount of residual of organophosphorus pesticides within sample can be calculated by the following formula (A.1):

$$X = \frac{m_1 \times V_2 \times 1,000}{m \times V_1 \times 1,000} = \frac{m_1 \times V_2}{m \times V_1} \dots\dots\dots (A.1)$$

In the formula:

X – Amount of residual of organophosphorus pesticides within sample, unit in mg/kg;

M – Weight of sample, unit in g;

m₁ – Content of organophosphorus pesticide in test solution, unit in ng;

V₁ – Volume of samples introduced, unit in µL;

V₂ – Final fixed volume of test solution, mL.

A.7 Tolerance for Errors

Determination error during two test iterations should not exceed 20% of the average value of the results of the two iterations.

A.8 Precision

Precision is presented with recovery rate.

If required, add standard application solution (A.2.9.2) into poultry (livestock), egg or milk for tests on recovery rate, range of results should lie within 70%~100%.

Recovery rate can be calculated by the following formula (A.2):

$$Y = \frac{m_1 - m_2}{m} \times 100 \dots\dots\dots (A.2)$$

In the formula:

Y – Recovery rate, %;

m₁ – Detectable amount after adding standard application solution in sample;

m₂ – Content of certain component in sample;

m – Amount of certain component added.