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Report Name: China Notifies Draft National Food Safety Standard - Metal Materials and Products for Food Contact

Country: China - Peoples Republic of

Post: Beijing

Report Category: Sanitary/Phytosanitary/Food Safety

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Report Highlights:

On September 14, 2020 China notified a draft revised National Food Safety Standard for Metal Materials and Articles for Food Contact to the World Trade Organization as G/SPS/N/CHN/1170. Once finalized, the revised standard will replace the current National Food Safety Standard GB4806.9-2016. Compared to the current standard, the revised standard modifies certain terms and definitions, the raw material requirements, and the label identification requirements, among other changes. China has not announced a proposed date of entry into force of the revised standard. Comments can be sent to China's SPS Enquiry Point at sps@customs.gov.cn by November 13, 2020. This report contains an unofficial translation of the draft standard.

General Information

BEGIN TRANSLATION

National Food Safety Standard

Metal Materials and Products for Food Contact

(Draft for Comments)

Foreword

This standard replaces GB 4806.9-2016 "National Food Safety Standard: Metal Materials and Products for Food Contact"

Compared with GB 4806.9-2016, the main changes in this standard are as follows:

-Modified terms and definitions;

-Modified the raw material requirements;

-Modified the physical and chemical indicators, and increased the alloy element migration limit indicators;

-Deleted the "requirements for special use";

-Modified special requirements for migration test;

-Modified the label identification requirements.

National Food Safety Standard

Metal Materials and Products for Food Contact

1. Scope

This standard applies to metal materials and products for food contact.

2. Terms and definitions

2.1 Metal materials and products for food contact

Under normal conditions of use, materials and products of various metals (including various metal coatings and alloys) that are expected or have been in contact with food will be hereinafter referred to as "metal materials and products".

2.2 Metal bond layer

A metal coating formed on the food contact surface of solid materials or products through various plating techniques.

2.3 Substrate

The materials that constitute the base of metal materials and products, not including surface coatings and metal plating layer.

2.4 Alloying elements

When smelting metals, one or more metal or non-metal elements that are deliberately added to meet certain performance (such as tensile strength, hardness, wear resistance, corrosion resistance, electrical conductivity, etc.).

Metal alloying elements including aluminum, copper, chromium, manganese, molybdenum, nickel, zinc, tin, cobalt, etc.; non-metal alloying elements including carbon, silicon, etc.

2.5 Impurity elements

Element that is unintentionally added and remaining in the metal.

3 Basic requirements

Metal materials and products shall meet the requirements of GB 4806.1.

4. Technical Requirements

4.1 Requirements on raw materials

4.1.1 The metal substrate, metal coating and welding materials used in metal materials and products shall not do harm to human health.

4.1.2 Manufacturers of metal materials and products shall control the substances used and remaining in the process of metal surface treatment (such as pickling, oxidation, phosphating, polishing, anti-rust oiling, etc.) so that the amount of migration into the food is consistent with Requirements 3.1 and 3.2 of GB 4806.1.

4.1.3 Metal substrates used on food contact surfaces shall not use lead, cadmium, arsenic, mercury, antimony, beryllium and lithium as alloying elements. The impurity element content of the metal material used in the metal substrate and the coating shall meet the requirements of Table 1.

Table 1 Requirements for the content of impurity elements in metal substrates and coating materials

Metal substrates and coating materials	Impurity element	Content /% (mass fraction)
Stainless steel	Arsenic (As)	≤ 0.01
	Cadmium (Cd)	≤ 0.01
	Lead (Pb)	≤ 0.01
Thin steel plate for food packaging	Arsenic (As)	≤ 0.03
	Cadmium (Cd) + Lead (Pb)	≤ 0.01
Aluminum and aluminum alloy materials	Arsenic (As)	≤ 0.01
	Cadmium (Cd) + Lead (Pb) + Mercury (Hg)	≤ 0.01
Metal substrates and coating materials other than stainless steel, thin steel plates for food packaging, aluminum and aluminum alloy materials	Arsenic (As)	≤ 0.03
	Cadmium (Cd)	≤ 0.01
	Lead (Pb)	≤ 0.01

4.1.4 The composition of the material such as the metal substrates and the coating materials shall be consistent with the marked composition or the corresponding composition of the product grades.

4 1.5 If it is necessary to determine the content of the above-mentioned metal components through testing or perform grade identification, it shall be determined in accordance with the requirements of 6.2 in GB 4806.1 using corresponding methods.

4.2 Sensory Requirements

Sensory requirements shall conform to the provisions in Table 2.

Table 2 Sensory Requirements

Items	Requirement
Sensory	The food contact surface shall be properly cleaned, the coating shall not be cracked or peeled off, and the welded part shall be smooth and clean, free of pores, cracks, and burrs
Soaking liquid	The soaking liquid obtained from the migration test shall not have any odor

4.3 Physical and Chemical Indicators

4.3.1 The migration index of impurity elements

The migration amount of impurity elements shall meet the requirements of Table 3.

Table 3 Migration index of impurity elements

Items	Index	Testing Method
Arsenic (As) / (mg/kg) ≤	0.002[a]	GB 31604.49-2016 Part Two
Cadmium (Cd) / (mg/kg) ≤	0.002	GB 31604.49-2016 Part Two
Lead (Pb) / (mg/kg) ≤	0.01	GB 31604.49-2016 Part Two
Stibium (Sb) / (mg/kg) ≤	0.04	GB 31604.49-2016 Part Two
[a] Uncoated iron frying pan, this index is 0.018mg/kg.		

4.3.2 Migration index of alloying elements

The migration amount of alloying elements shall meet the requirements of Table 4.

Table 4 Migration index of alloying elements

Item [a]		Index	Inspection method
Aluminum (Al) / (mg/kg)	≤	1[b]	GB XXXX (under development)
Chromium (Cr mg/kg)	≤	0.25	GB 31604.49-2016 Part Two
Cobalt (Co) / (mg/kg)	≤	0.02	GB XXXX (under development)
Copper (Cu) / (mg/kg)	≤	4	GB XXXX (under development)
Manganese (Mn) / (mg/kg)	≤	2.0	GB XXXX (under development)
Molybdenum (Mo) / (mg/kg)	≤	0.12	GB XXXX (under development)
Nickel (Ni) / (mg/kg)	≤	0.14	GB 31604.49-2016 Part Two
Tin (Sn) / (mg/kg)	≤	100[c]	GB XXXX (under development)
Zinc (Zn) / (mg/kg)	≤	5	GB 31604.49-2016 Part Two
a The element to be measured can be determined according to the material composition (for example, manganese, chromium, nickel, and molybdenum shall be measured for martensitic stainless steel of grade 32Cr13Mo; for metal coating, the element to be measured is determined according to the metal composition of the coating). b Uncoated aluminum and aluminum alloy materials and products, this indicator is 5 mg/kg. c Not applicable to tinned thin sheet containers.			

4.4 Other technical requirements

4.4.1 The coatings, inks and adhesives used in food contact metal materials and products shall comply with the requirements of the corresponding national food safety standards. Food contact metal materials and products that use coatings, inks and adhesives shall also comply with the physical and chemical indicators in the corresponding national food safety standards such as for coatings, inks and adhesives; when there are the same items, the index limit shall be determined according to the provisions of GB 4806.1.

4.4.2 The amount of tin migrated from the tinned sheet container to the food shall meet the requirements of GB 2762 and other relevant national food safety standards.

5.Others

5.1 Migration test

5.1.1 The migration test shall be carried out in accordance with the provisions of GB 31604.1 and GB 5009.156, unless there are special provisions in Appendix A.

5.1.2 The metal materials and products that are expected to be reused shall undergo three migration tests in accordance with the requirements of GB 31604.1. Among them, stainless steel materials and products are judged for compliance based on the measurement results of the third test. If the migration measured in the first test does not exceed the limit, and there is evidence that can prove that the migration measured in subsequent tests will not increase, no follow-up test is required; if any one of the results of the three migration tests of other materials and products exceeds the limit, it shall be judged as unqualified.

5.2 Label identification

5.2.1 The label identification shall meet the requirements of GB 4806.1.

5.2.2 The metal substrate shall also clearly indicate its material type and material composition. If its composition is consistent with that of the standard grade of our country, it can also be represented by the standard grades of our country or the unified digital codes, such as "stainless steel 06Cr19Ni10" or "stainless steel S30408", "aluminum alloy 3004" and so on.

5.2.3 If the food contact surface is covered with metal coating, the coating material, such as "chrome plating", "zinc-nickel alloy plating", etc. shall also be marked. If there is more than one layer of metal plating, mark the metal components of each layer in the order of bottom plating-middle plating-top plating (the coating on the food contact surface), and separate them with slashes, such as "copper/nickel/chromium plating".

Appendix A

Special Requirements for Migration Test

A.1 Food simulants

According to the type of food that metal materials and products are expected to contact, food stimulants shall be selected in accordance with Table A.1.

Table A.1 Food categories and corresponding food simulants

Food category	Food simulants
Non-alcoholic water-based food (pH>5)	Artificial tap water
Acidic food (pH<5)	5 g/L citric acid solution [a]
Alcoholic food	Artificial tap water
Fat and oily food on its surface	Artificial tap water
[a] Uncoated iron frying pan uses 1 g/L citric acid solution as the food simulant.	

A.2 Migration test conditions

According to the expected use of metal materials and products, select the migration test conditions in accordance with Table A.2.

Table A.2 Migration test conditions of metal materials and products

Expected usage	Migration test conditions
Contact with food at or below room temperature for more than 3 days (including high temperature sterilization treatment not exceeding 2h, storage at or below room temperature for more than 30 days)	40 °C, 10 d
Contact with food at or below room temperature for 3d or less	40°C, the test duration is selected according to the specific migration test conditions (time) specified in GB 31604.1
Contact with food at or below room temperature for 3d or less, and occasionally contact with hot food	70 °C, the test duration is selected according to the specific migration test conditions (time) specified in GB 31604.1
Hot-filled, and then stored at room temperature for 24 hours or less	70°C, 2h, then 40°C, 24h

Steaming, frying, baking and other high-temperature contact (except for uncoated iron frying pans and high-temperature aluminum box products)	Boiling temperature, 2h
Uncoated iron frying pan	Boiling temperature, 1h
Aluminum box products for high temperature	Boiling temperature and test duration are selected according to the specific migration test conditions (time) specified in GB 31604.1
Food processing equipment and appliances	The test time and temperature are selected according to the maximum time and temperature indicated in the product manual or the expected use in production and operation, and the test time and temperature are selected according to the specific migration test conditions in GB31604.1, but the maximum test temperature shall not exceed 100℃

A.3 Other requirements

A.3.1 If the product label stipulates that the amount of food/water is not lower than the minimum liquid level or minimum volume when the product is used, the migration test result and judgment shall be calculated based on the ratio of the contact area and volume corresponding to the minimum liquid level or minimum volume.

A.3.2 If the product itself has a suitable cover, it can be tested according to the cover condition during normal use.

END TRANSLATION

Attachments:

No Attachments.