ICS 97.040.60
CCS Y28

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 18006.3-2020

Replacing GB/T 18006.1-2009

General requirement of degradable disposable tableware

一次性可降解餐饮具通用技术要求

Issued on: November 9, 2020 **Implemented on: December 31, 2020**

Issued by: State Administration for Market Regulation;
Standardization Administration of China

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1 Scope

GB/T 18006.3-2020 is the Chinese national standard on general requirement of degradable disposable tableware, in the field of domestic and commercial equipment, entertainment, sport. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 9 November 2020 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 31 December 2020. Classification: ICS 97.040.60, CCS Y28. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Part specifies the definitions and terms, classification, technical requirements, test methods, inspection rules, and product packaging and marking, packaging, transportation, and storage requirements for degradable disposable tableware. This Part is applicable to the degradable disposable tableware made from various raw materials such as resin, starch, plant fibre, etc., as defined in 3.3; and also, is applicable to other degradable

disposable tableware food contact layers covered or coated with or compounded with biodegradable plastic films or sheets. This Part is not applicable to paper tableware such as paper cups and paper bowls.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this document.

GB/T 462 Paper and Board - Determination of Moisture Content

GB/T 2828.1 Sampling Procedures for Inspection by Attribute - Part1: Sampling Schemes Indexed by Acceptance Quality Limit (AQL) for Lot-by-Lot Inspection

GB/T 9345.1-2008 Plastics - Determination of Ash - Part 1: General Methods

GB/T 15337 General Rules for Atomic Absorption Spectrometric Analysis

GB/T 19276.1 Determination of the Ultimate Aerobic Biodegradability of Plastic Materials in an Aqueous Medium - Method by Measuring the Oxygen Demand in a Closed Respirometer

GB/T 19276.2 Determination of the Ultimate Aerobic Biodegradability of Plastic Materials in an Aqueous Medium - Method by Analysis of Evolved Carbon Dioxide

GB/T 19277.1 Determination of the Ultimate Aerobic Biodegradability of Plastic NOTE: Simple compounds, such as carbon dioxide (CO2) or/and methane (CH4), water (H2O) and so on.

3.2 Disposable tableware Utensils intended for meals or similar purposes, including disposable food boxes, plates, dishes, knives, forks, spoons, chopsticks, bowls, cups, barrels, jars, pots, lids, etc.; and disposable inner-lining tableware with external support; as well as includes food packaging for dining or similar purposes. However, it does not include food packaging materials that are not intended for meals or similar purposes, such as fresh food trays, yogurt cups, jelly cups, etc.; and food packaging materials that are only used for food preservation, display, storage, and sealing, such as biscuit backing, cake boxes, etc.

3.3 Degradable disposable tableware Disposable tableware (3.2) made of biodegradable (3.1) materials.

4 Classification

The degradable disposable tableware specified in this Part can be divided into heat-resistant and heat-labile degradable disposable tableware according to the degree of heat resistance during use.

5 Technical Requirements

5.1 Appearance The appearance shall comply with the following requirements:

a) Normal colour;

b) There shall be no cracks and filling defects;

c) No oil, dust, mildew and other foreign matter on the surface;

d) The surface is flat and clean, with uniform texture, no scratches, no wrinkles, no peeling or delamination, no cracks, no perforations;

e) Coloured tableware must not have obvious discoloration, fading, uneven colour (except for decoration requirements), stains, etc.;

f) If the surface of the tableware is painted, there shall be no sagging, peeling, cracking, blistering, etc. on the painted surface; The half-folding test of the lid only has requirements for degradable disposable tableware with one-piece lid and container; and there are no requirements for those tableware that are two-piece lid and container, or lid-free, such as food boxes, bowls, cups, plates, dishes, knives, forks, spoons, chopsticks, etc.

5.3.5 Heat resistance

5.3.5.1 Hot-water resistance After the hot-water resistance test, it shall not be deformed, peeled, or wrinkled; and the tableware with container function shall not be deformed, infiltrated or leaked. The two tested samples shall be no obvious deformation, infiltration and leakage, either. The hot-water resistance test only has requirements for degradable disposable tableware that may contain hot vegetables, hot foods and hot drinks, such as boxes, cups, bowls, etc.; it has no requirements for the degradable disposable tableware that do not require heat-resistance, such as plates, dishes, knives, forks, spoons, chopsticks, lids, etc.; it also has no requirements for the degradable disposable tableware that are labelled heat-labile. Degradable disposable tableware made of materials that are heat-labile, including foamed and non-foamed tableware, shall be clearly marked with the highest heat- resistant temperature. The hot-water resistance test shall be carried out according to the marked temperature during the test. If there is no mark, it shall be uniformly tested as the heat-resistant degradable disposable tableware.

5.3.5.2 Hot-oil resistance After the hot-oil resistance test, it shall not be deformed, peeled, or wrinkled; and for the tableware with container function, it shall not infiltrate or leak. The two tested samples shall be no obvious deformation, infiltration and leakage, either. The hot-oil resistance test only has requirements for degradable disposable tableware that contains hot vegetables and hot foods, such as boxes and bowls, etc; it has no requirements for the degradable disposable tableware that do not require hot-oil resistance, such as plates, dishes, knives, forks, chopsticks, cups, etc.; it also has no requirements for

the degradable disposable tableware that are labelled heat-labile.

5.3.6 Water leakage For degradable disposable tableware that have the function of containing liquids, such as boxes, bowls, cups, etc., no water shall leak after the test. Test two samples, and there must be no leakage. The volatile solid content shall be >=51%.

5.7 Degradability The degradability shall meet the following requirements at the same time:

a) The relative biodegradation rate shall be >=90%, and the biodegradation rate of organic components with components >=1% in the material shall be >=60%.

b) If the degradable tableware is composed of a mixture or a composite of multiple materials, the organic ingredients with a component content of < 1% shall also be biodegradable, but proof of biodegradability may not be provided, and the total amount of each component shall be < 5 %. NOTE: The biodegradability of organic ingredients with a component content of < 1% can provide corresponding product inspection reports or enterprise self-declaration.

5.8 Compostable degradability

5.8.1 Biodegradation rate The biodegradation rate shall meet the following requirements at the same time:

a) The relative biodegradation rate shall be >=90%, and the biodegradation rate of organic components with components >=1% in the material shall be >=60%.

b) If the degradable tableware is composed of a mixture or a composite of multiple materials, the organic ingredients with a component content of < 1% shall also be biodegradable, but proof of biodegradability may not be provided, and the total amount of each component shall be < 5 %.

5.8.2 Disintegration rate The disintegration rate shall be >=90%.

5.8.3 Ecotoxicity The ratio of plant germination rate to plant biomass shall be >=90%. NOTE: Composability is only required when the degradable disposable tableware is declared to be compostable. Degradability is a manifestation of the degradation ability of degradable tableware under different environmental conditions. The detection method can be compost, water environment, soil and other conditions, but compostable mainly means that degradable tableware can be completely degraded under composting conditions. During the test, take three samples for inspection; and take the average of the three samples' inspection results as the final inspection result.

6.9 Content of heavy metals and specific elements

6.9.1 Heavy metal content The sample is digested by high-pressure system microwave; and then tested by an atomic absorption spectrometer according to GB/T 15337; or tested by a quadrupole inductively coupled plasma mass spectrometer according to GB/T 37837.