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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 4544-2020

Replacing GB 4544-1996

Beer bottles

啤酒瓶

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Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and definitions
- 4 Product classification
- 5 Requirements
- 6 Test methods
 - 6.1 Physical and chemical properties
 - 6.2 Specifications and sizes
 - 6.2.5 Thickness of bottle body and bottom
- 7 Inspection rules for recycle new bottles and non-recycle bottles...
- 8 Inspection rules for recycle used bottles

1 Scope

GB 4544-2020 is the Chinese national standard on beer bottles, in the field of packaging and distribution of goods. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 23 July 2020 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 August 2021. Classification: ICS 55.100, CCS Y22. 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 Standard specifies the terms and definitions, product classification, requirements, test methods, inspection rules as well as marks, packaging, transportation and storage for glass beer bottles. This Standard applies to glass bottles for beer.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 2828.1, Sampling procedures for inspection by attributes - Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

GB/T 4545, Test methods for stress examination of glass containers

GB/T 4546, Glass containers - Internal pressure resistance - Test methods

GB/T 4547, Glass containers - Test methods of the thermal shock resistance and thermal shock endurance

GB/T 4548, Test method and classification for hydrolytic resistance of the interior surfaces of glass containers

GB/T 6552, Glass containers - Test method for impact resistance

GB/T 8452, Test method for verticality of glass bottles

GB/T 9987, Glass contains - Manufacture - Vocabulary

GB/T 20858, Glass containers - Determination of capacity by gravimetric method - Test method

GB/T 22934, Glass containers - Resistance to vertical load - Test method

GB/T 37855, Glass containers - Dimensions for 26H126 crown finish

GB/T 37856, Glass containers - Dimensions for 26H180 crown finish

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in GB/T 9987 as well as the followings apply.

3.1 recycle beer bottle Beer bottles that are designed to be refilled with beer multiple times.

3.2 recycle new bottle Recycle beer bottles that have not yet been filled with beer, and can be handed over and accepted.

3.3 recycle used bottle Recycle beer bottles that have already been filled with beer and can be refilled with beer.

3.4 non-recycle bottle Beer bottles that are designed to be non-refillable.

4 Product classification

4.1 Beer bottles are classified into recycle beer bottles and non-recycle bottles according to the way they are used.

4.2 Recycle beer bottles can be divided into recycle new bottles and recycle used bottles according to the state of use.

5 Requirements

5.1 Physical and chemical properties The physical and chemical properties shall meet the

requirements in Table 1. There shall be no calculus on the sealing surface. There shall be no calculus with a diameter greater than

1.5 mm in the remaining parts. There are no more than 2 calculus with a diameter of

0.3 mm ~

1.5 mm and no cracks around each bottle.

5.3.2 Cracks There shall be none.

5.3.3 Air bubbles There shall be no broken air bubbles and surface bubbles. There shall be no air bubbles of which the diameter is greater than 3 mm. No more than 3 bubbles of which the diameter is 1 mm ~ 3 mm per bottle. For air bubbles below 1 mm, there are no more than 5 per square centimeter.

5.3.4 Defects of bottle mouth There shall be no defects affecting the sealing and safe use on the sealing surface of the bottle mouth. There shall be no flying thorns, poor forming and misalignment at the bottle mouth.

5.3.5 Inner wall defects There shall be no sticky material, spikes, glass wires, and glass fragments on the inner wall of the bottle.

5.3.6 Sutures and surface defects There shall be no sharp and prickly sutures and obvious initial sutures. There shall be no severe and obvious streaks, cold spots, stains and other defects that seriously affect the appearance. When necessary, it can also be subject to the sealed sample confirmed by both the supplier and the buyer.

5.3.7 Bottom knurling There shall be knurling on the support surface of the bottom of the bottle.

6.1 Physical and chemical properties

6.1.1 Vertical load strength According to the provisions of GB/T 22934. Pressurize at a propulsion speed of 2 mm/min.

6.1.2 Resistance to internal pressure According to the provisions of GB/T 4546.

6.1.3 Thermal shock resistance According to the provisions of the passing test in GB/T 4547.

6.1.4 Shock resistance According to the provisions of the passing test in GB/T 6552. During the impact test, the impact point is located in the middle of the bottle body, and the suture shall be avoided.

6.1.5 Internal stress According to the provisions of GB/T 4545.

6.1.6 Water resistance of inner surface According to the provisions of GB/T 4548.

6.2 Specifications and sizes

6.2.1 Mouthful capacity According to the provisions of GB/T 20858.

6.2.2 Bottle height Measure with a height vernier caliper or a height measuring device with a graduation value of

0.02 mm.

6.2.3 Bottle outer diameter Measure the maximum outer diameter of the bottle with a vernier caliper, gauge or other outer diameter measuring device of which the division value is

0.02 mm. Any point on the same cross-section shall meet the requirements.

6.2.4 Vertical axis deviation According to the provisions of GB/T 8452.

6.2.5 Thickness of bottle body and bottom

7.3 Each item in each batch of inspection table 4 must be qualified. If there is an unqualified item, the responsible department shall decide to discard the batch or resubmit it for inspection after analyzing the specific unqualified situation. If the products resubmitted for inspection still do not meet the requirements, the batch shall be deemed as unqualified.

8 Inspection rules for recycle used bottles

8.1 Beer production enterprises shall ensure that the recycled bottles are all recycle used bottles. Carry out quality control inspection. Unqualified recycle used bottles cannot be used.

8.2 When the brewery recycles used bottles, it shall first conduct a preliminary appearance inspection of the recycle beer bottles.

8.3 Recycle used bottles that pass the initial inspection can be used in batches when filling. Batches can be determined by recycle used bottles of the same specification that are recycled on the same day or recycle used bottles of similar quality sorted into stacks.

8.4 When recycle used bottles enter the filling process after initial inspection, cleaning, and online inspection, quality control shall be carried out for some physical and chemical properties and serious defects in appearance of this batch of products. Quality control shall be carried out in accordance with the primary sampling plan for normal inspection stipulated in GB/T 2828.1. The test method shall be carried out according to the regulations in Chapter 6.