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National Standard of the People's Republic of China

GB/T 4927-201X

Replace GB/T 4927-2008

Beer

啤酒

(English Translation)

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Foreword

SAC/TC 471 is in charge of this English translation. In case of any doubt about the contents of English translation, the Chinese original shall be considered authoritative.

This standard is drafted in accordance with the rules given in the GB/T 1.1-2009.

This standard replaces the GB/T 4927-2008 Beer in whole. The following deviations have been made with respect to GB/T 4927-2008:

----The definitions of beer, non-pasteurized beer, special beer, dry beer, ice beer, wheat beer, low-alcohol beer, and non-alcohol beer have been revised, and the definitions of ale beer, lager beer, white beer, stout beer, pilsner beer, sour beer, black beer, craft beer, limpid beer, turbid beer, top fermentation beer, bottom fermentation beer, and mixed fermentation beer have been added;

----The product classification has been revised;

----The first grade in the quality classification has been changed to be qualification;

----The indexes and description of the sensory requirements, physical and chemical requirements have been revised;

----The “defective” items in the category of “unqualified items” in the inspection rules have been deleted;

----The sign, packaging, transport and storage have been revised, as appropriate.

This standard was proposed by China National Light Industry Council.

This standard was prepared by National Technical Committee 471 on Brewing of Standardization Administration of China (SAC/TC 471).

The previous editions replaced by this standard are as follows:

----GB 4927-1985, GB 4927-1991, GB 4927-2001 and GB/T 4927-2008.

Beer

1. Scope

This standard specifies the terms and definitions, product classification, requirements, analytical methods, inspection rules, sign, packaging, transport, and storage of beer.

This standard is applicable to production, inspection and sales of 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 191 *Packaging-Pictorial marking for handling of goods*

GB 2758 *National food safety standard - Fermented alcoholic drink and integrated alcoholic beverage*

GB 4544 *Beer bottles*

GB/T 4928 *Method for analysis of beer*

GB/T 5738 *Plastic crates for beverage bottled*

GB/T 6543 *Single and double corrugated boxes for transport packages*

GB 7718 *National food safety standard - General standard for the labeling of prepackaged foods*

GB/T 9106.1 *Packaging containers aluminum easy open and aluminum two-piece can*

GB/T 17714 *Keg*

JJF 1070 *Rules of metrological testing for net quantity of products in prepackages with fixed content*

Measures for the Metrological Supervision and Administration of Quantitatively Packing Commodities (Decree No.75 [2005] of the General Administration of Quality Supervision, Inspection and Quarantine)

3. Terms and definitions

For the purposes of this document, the following terms and definitions shall apply.

3.1

beer

a type of fermented alcoholic drink, which is brewed from malted barley and water with hops (including hop products) through yeast fermentation, containing carbon dioxide and foams

note: including non-alcohol beer

3.2

pasteurized beer

a type of beer, treated through pasteurization or instantaneous high-temperature sterilization

3.3

non-pasteurized beer

a type of beer, reaching biological stability without treatment of pasteurization or instantaneous high-temperature sterilization

note: including fresh beer

3.4

ale beer

a type of beer, fermented with top-fermenting beer yeast

3.5

lager beer

a type of beer, fermented with bottom-fermenting beer yeast

3.6

special beer

a type of beer with special flavor due to changes of raw and auxiliary materials and techniques (or use of microorganisms)

3.6.1

dry beer

a type of beer which tastes dry

note: the actual fermentation degree of dry beer is not lower than 72%

3.6.2

ice beer

a type of beer, treated through ice crystallization

note: turbidity of ice beer is smaller than or equal to 0.8 EBC

3.6.3

white beer

a type of turbid beer, made from wheat malt or wheat through fermentation by top-fermenting beer yeast and having flavors of lilac and ester

3.6.4

stout beer

a type of dark beer, containing high alcohol content and made from one of baked barley malt or baked barley through fermentation by top-fermenting beer yeast

note: its alcohol content is not lower than 4.0%vol, bitterness is not lower than 20 BU, and color scale is between 40 EBC and 150 EBC

3.6.5

pilsner beer

a type of beer, made with special flavor through fermentation by bottom-fermenting beer yeast

note: its alcohol content is not lower than 4.0%vol, bitterness is not lower than 20 BU, and color scale is between 4 EBC and 20 EBC

3.6.6

sour beer

a type of beer, fermented with lactic acid bacteria or naturally fermented which has undergone acidification to bear obvious sour taste

note: pH value is not larger than 3.8

3.6.7

black beer

a type of beer with color scale at 60 EBC or above

3.6.8

low-alcohol beer

a type of beer, containing the alcohol content between 0.5%vol and 2.5%vol

3.6.9

non-alcohol beer

a type of beer, containing the alcohol content lower than or equal to 0.5%vol

3.6.10

wheat beer

a type of beer, brewed with a ration of wheat malt and (or) wheat

note: the ratio of wheat malt and wheat is not smaller than 30%

3.6.11

fruit and vegetable beer

a type of beer, added with a ration of fruit and vegetable juice to have their physicochemical index and flavor but still keeping its original flavor

3.6.12

fruit and vegetable flavor beer

a type of beer, having fruit and vegetable flavor on the basis of keeping original flavor by adding a small ratio of edible essence

3.7

craft beer

a type of beer, produced on a small beer production line and free of substance non-related to the flavor, and with outstanding flavor

3.8

plato

a general international unit of original wort concentration, indicated by °P, namely, the grammage of extract contained in 100 g of wort

3.9

ice crystallization

a process of freezing beer with dedicated freezing equipment and forming small crystal

4. Product classification**4.1 According to the turbidity of products, beer shall be divided into:**

4.1.1 Limpid beer: with turbidity smaller than or equal to 2.0 EBC.

4.1.2 Turbid beer: with turbidity larger than 2.0 EBC.

4.2 According to the sterilization process of products, beer shall be divided into:

4.2.1 Non-pasteurizing beer: do not undergo pasteurization or instantaneous high-temperature sterilization.

4.2.2 Pasteurizing beer: treated through pasteurization or instantaneous high-temperature sterilization.

4.3 According to the yeast type of products, beer shall be divided into:

4.3.1 Top fermentation beer: brewed with top fermented yeast.

4.3.2 Bottom fermentation beer: brewed with bottom fermented yeast.

4.3.3 Mixed fermentation beer: brewed with more than one microorganism through mixed fermentation.

4.4 According to the color scale of products, beer shall be divided into:

4.4.1 Light beer: with color scale between 2 EBC and 14 EBC.

4.4.2 Strong beer: with color scale between 15 EBC and 60 EBC.

4.4.3 Black beer: color scale larger than or equal to 61 EBC.

4.5 Others

Classified according to other characteristics.

5. Requirements**5.1 Sensory requirements**

Shall comply with the provisions in Table 1.

Table 1 Sensory requirements

Items			Excellent class	Qualified class
Appearance	Turbidity ^a /EBC ≤		1.5	2.0
	Suspension or sediments ^a		Tiny suspension and sediments (non-foreign matters) visible with naked eyes are allowed.	
Foam	Shape		Exquisite	Fine
	Foam retention ^b /s ≥	Bottled	150	110
		Canned	130	100
Aroma and flavor			Distinct aroma, mellow, refreshing, harmonious, soft, with no peculiar smell	

^a Requirements made only for limpid beer with color scale ≤14 EBC.

^b No requirements for barreled beer, non-alcohol beer, low-alcohol beer, fruit and vegetable beer, fruit and vegetable flavor beer, and sour beer, and alcohol content≥7.0%vol.

5.2 Physical and chemical requirements

Shall comply with the provisions in Table 2.

Table 2 Physical and chemical requirements

Items	Excellent class	Qualified class
Alcohol content ^a /(%vol)	2.5	
Original wort concentration ^b /° P	X	
Carbon dioxide (mass percentage) ^c /%	0.65	
Sucrose invertase ^d	Positive	

^a Excluding low-alcohol beer and non-alcohol beer; no negative deviation of alcohol content is allowed between the actual value and the labeled value, and the positive deviation allowed is 1.0%vol.

^b “X” is the original wort concentration on the label, negative deviation allowed when≥10.0 ° P is “-0.3%” ; negative deviation allowed when<10.0 ° P is “-0.2” .

^c No requirements for barreled (pasteurized and non-pasteurized) beer.

^d Requirements for non-pasteurized beer only.

5.3 Net quantity

Shall comply with the provisions in JJF 1070 and *Measures for the Metrological Supervision and Administration of Quantitatively Packing Commodities*.

5.4 Food safety requirements

As specified in GB 2758.

6. Analytical method

The sensory requirements, physical and chemical requirements, and net quantity shall be inspected in accordance with GB/T 4928.

7. Inspection rules**7.1 Batch**

Products that are from the same storage tank and the same packaging line, or continuously produced and delivered (or warehoused) in the same packaging type on the same day, **or are of the same quality** inspection report shall be regarded as the same batch.

7.2 Sampling

7.2.1 Take samples as specified in Table 3. Draw and seal samples from barreled beer with sterile devices under the sterile condition. For beer (bottles and cans) in boxes, take samples as specified in Table 3, and randomly select a unit volume from the samples. If the total amount of samples is smaller than 4.0 L, the sampling volume should be increased proportionally.

Table 3 Sampling

Sampling batch range/box/barrel	Sample quantity/box or barrel	Sample quantity/bottle or can
≤ 50	3	3
51 to 1 200	5	2
1 201 to 35 000	8	1
$\geq 35\ 001$	13	1

7.2.2 Once taken, the samples shall be immediately attached with labels indicating their name, category and specifications, quantity, name of the manufacturer, sampling time and place, and sampler. One third of the sample shall be sealed and stored for 10 days for future use. Other samples shall be immediately sent to laboratories for the inspection of the sensory, physical and chemical indexes and net quantity.

7.3 Inspection classification

7.3.1 Delivery inspection

7.3.1.1 Before the product leaves the factory, the quality supervision and inspection department of the manufacturer shall inspect products batch by batch as specified by this standard. Products shall not be delivered until being qualified inspection and issued with quality certificate. The product quality inspection certificate shall be either enclosed in the packaging box or “qualified” shall be printed on the label or packaging box, except for the non-prepackaged craft beer.

7.3.1.2 Inspection items: sensory requirements, physical and chemical requirements, and net quantity.

7.3.2 Type inspection

7.3.2.1 Inspection items: all items as specified in 5.1 to 5.4.

7.3.2.2 The type inspection shall be carried out at least once every half a year. However, in any of following cases, the type inspection shall be carried out.

- Any major change in raw and auxiliary materials;
- Any replacement of equipment or resumed production after suspended;
- Significant difference between the delivery inspection and the last type inspection results;
- Sampling inspection required by the national food and drug administration authority.

7.4 Classification of unqualified items

7.4.1 Seriously defective items: food safety requirements, net quantity, label, characteristic indexes of special beer (e.g., actual fermentation degree of dry beer, turbidity of ice beer, etc.), and activity of sucrose invertase of non-pasteurized beer.

7.4.2 Common defective items: other items excluding the seriously defective items.

7.5 Judgment rules

7.5.1 If any inspection item has two or less items which do not comply with the requirements,

double-size sample shall be taken from the same batch of products for re-inspection, and the re-inspection result shall prevail.

7.5.2 If one item still fails to comply with the requirements, the whole batch shall be judged as unqualified.

7.5.3 If there is one common defective item in the re-inspection result, but not lower than the next quality grade index, this batch shall be judged as qualified; if the common defective item is lower than the next quality grade index or this batch has more than one common defective item, this batch shall be judged as unqualified.

8 Sign, packaging, transport and storage

8.1 Sign

8.1.1 Labels for prepackaged food shall comply with the requirements in GB 2758 and GB 7718.

8.1.2 Packaging-pictorial marking for handling of goods shall comply with the requirements in GB/T 191.

8.2 Packaging

8.2.1 Beer in glass bottles shall comply with the related requirements in GB 4544.

8.2.2 Canned beer shall be packaged with pressure-resistant packaging containers. For example, aluminum easy open and aluminum two-piece can. Packaging shall also comply with the related requirements in GB/T 9106.1.

8.2.3 Stainless-steel barrel beer shall comply with the related requirements in GB/T 17714.

8.2.4 Products packaged in other forms shall be sealed without air and beer leak and shall comply with the related standard requirements.

8.2.5 The bottled beer shall be packaged with corrugated boxes as specified in GB/T 6543 and plastic turnover boxes as specified in GB/T 5738, or integrally packaged with soft plastic. Bottled beer cannot be sold only being bundled with ropes.

Note: when packing beer with the automatic packaging machine, inside corrugated boxes are allowed no spacing materials.

8.3 Transport and storage

8.3.1 Beer shall be handled with care and protected from throwing over, impact and extrusion.

8.3.2 Beer is not allowed to be mixed packed, stored, and transported with poisonous, toxic, corrosive, volatile or peculiar-smell goods.

8.3.3 Beer shall be transported and stored between 5 °C and 25 °C; at the temperature lower or higher than this range, anti-freezing or heat-proof measures should be taken.

8.3.4 Beer shall be stored in a cool, dry and well-ventilated warehouse. The finished products shall not be stored in the open air, exposed to sunlight and rain, and directly contact with the humid ground.