

ICS 67.160.20

CCS X50



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

GB/T 12143-2008

Replacing GB/T 12143.2-1989

General analytical methods for beverage

饮料通用分析方法

Issued on: December 31, 2008

Implemented on: May 1, 2009

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

Table of Contents

1 Scope
2 Normative References
3 General Rules
4 Determination Method for Soluble Solids Content in
4.4 Preparation of test solution
4.5 Analytical procedures
5 Determination Method for Amino Nitrogen Content in Fruit (Vegetable) Juice Products (Formol Number)...
5.4 Instrument
5.5 Preparation of sample solution
5.6 Analytical procedures
5.6.1 Turn on the acidometer, after pre-heating for 30min; use pH
6 Determination Method for L-Ascorbic Acid in Fruit and Vegetable Juice Beverages (Ethyl Ether Extraction Method)...
6.3 Reagents
6.4 Instrument
6.5 Preparation of test solution
6.6 Analytical procedures
7 Method for Determination of Carbon Dioxide in Carbonated Soft Drink (Distillation and Titration Method)...
7.3 Reagents
7.4 Instrument and equipment
7.6 Analytical procedures
8 Method for Determination of Ethanol in Concentrated Fruit Juice
8.3 Reagents
8.3.2 Sodium hydroxide solution. 1mol/L; take 40g of sodium hydroxide, dissolve into
8.4 Instrument and equipment
8.5 Preparation of test solution
8.6 Analytical procedures
9.3 Principle of method
9.5 Determination method

1 Scope

GB/T 12143-2008 is the Chinese national standard on general analytical methods for beverage, in the field of food technology. 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 31 December 2008 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 May 2009. Classification: ICS 67.160.20, CCS X50. 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 general rules and specific analytical methods of the general analytical methods for beverage. This Standard is applicable to the analysis of specific components in the beverage.

2 Normative References

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 601 Chemical Reagent - Preparations of Standard Volumetric Solutions

GB/T 6682 Water for Analytical Laboratory Use - Specification and Test Methods (GB/T 6682-2008, ISO 3696.1987, MOD)

GB 10789 General Standard for Beverage

3 General Rules

3.1 The terminologies and measuring units used in this Standard shall conform to the provisions of relevant national standards.

3.2 The "instrument" in this Standard indicates the instrument required for analysis; general laboratory used instrument and equipment are not listed item by item.

3.3 The water used in this Standard shall, if not indicated other requirements, conform to the specification of Class-3 above (including Class-3) water stipulated in GB/T 6682. The reagents used shall, if not indicated other specifications, refer to the analytically pure.

4 Determination Method for Soluble Solids Content in

Soft Drinks (Refractometric)

4.1 Applicable range of method This Method is applicable to the transparent liquid, semi-viscous, suspended-matter- containing beverage products.

4.3 Instrument The generally laboratory used instruments and the following instruments.

4.4 Preparation of test solution

4.4.1 Transparent liquid products Mix the sample thoroughly, then directly measure.

4.5 Analytical procedures

4.5.1 Calibrate the refractometer according to the instructions before measuring; take Abbe refractometer as an example; other refractometers shall be operated as per their instructions.

4.5.2 Separate the two-side prism of the refractometer, wipe with degreasing cotton dipped into the ether or ethanol.

4.6 Allowable difference The difference between two measured values against the same sample shall be no greater than 0.5%. Take the arithmetic average value of the two measurements as the result, which shall be accurate to one digit after the decimal point.

5 Determination Method for Amino Nitrogen Content in Fruit (Vegetable) Juice Products (Formol Number)

5.1 Applicable range of method This Method is applicable to the fruit and vegetable juice beverage.

5.3 Reagents 5.3.1 30% Hydrogen Peroxide.

5.3.2 Neutral formaldehyde solution. take 200mL of formaldehyde solution into 400mL beaker; place onto the electromagnetic stirrer, adjust the pH to be

8.1 with 0.05mol/L sodium hydroxide solution as stir.

5.3.3 Sodium hydroxide standard solution. 0.1mol/L; prepare and calibrate as per GB/T 601.

5.4 Instrument

5.4.1 Acidometer. measuring range of 0~14pH; accuracy of ± 0.1 pH.

5.4.2 Electromagnetic stirrer.

5.4.3 Glass electrode and calomel electrode.

5.6.1 Turn on the acidometer, after pre-heating for 30min; use pH

6.8 buffer solution to correct the acidometer.

5.7 Result calculation The amino nitrogen in the specimen shall be calculated as per Formula (1). Where.

5.8 Allowable difference Take the arithmetic average value of the two measurements against the same sample as the result; which shall be accurate to one digit after the decimal point. The difference between two measurements against the same sample.

6 Determination Method for L-Ascorbic Acid in Fruit and Vegetable Juice Beverages (Ethyl Ether Extraction Method)

6.1 Applicable range of method This Method is applicable to the determination of L-ascorbic acid in fruit and vegetable juice beverages; but not applicable to the determination of dehydroascorbic acid.

6.2 Principle of method This Method abides by the principle of redox reaction; 2,6-dichloroindophenol can be reduced to be colorless by the L-ascorbic acid; the slight excess of 2,6- dichloroindophenol can be extracted by ethyl ether; then the end-point shall be titrated by the rose red in the ether layer.

6.5 Preparation of test solution

6.5.1 Concentrated juice Add the same amount of water into the concentrated juice as the natural water lost during the concentrating process; so that it becomes the normal juice. Then take certain amounts of samples from the same kind of normal juice; dilute, and mix evenly for testing.

6.5.7 Preparation of blank test solution Take the same sample (accurate to 0.001g) as the sampling amount determined during the preparing period of the test solution; place into 250mL conical flask; add 20mL of 10% copper sulfate solution; add water so that the total volume to be 100mL; place onto the electric stove padded with asbestos gauze; carefully heating to boiling, and keep slightly boiling for 15min; then use the flowing water to cool off to the room temperature. Transfer the solution into the 200mL volumetric flask; use water to dilute to the scale; shake evenly for the blank testing.

6.6 Analytical procedures

6.7 Result calculation The L-ascorbic acid content in the sample shall be calculated as per Formula (4).

6.8 Allowable difference Report the result by the arithmetic average value of three measurement results with error in the allowable range; accurate to the one digit after the decimal point. The relative difference of three measurement results against the same