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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 12902-2026

Replacing GB/T 12902-2006

Analytical methods for turpentine

松节油分析方法

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Standardization Administration of the PRC

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1 Scope

GB/T 12902-2026 is the Chinese national standard covering analysing turpentine - the density, refractive index and optical rotation, the distillation range, the acid value and the chromatographic composition that says how much alpha-pinene, beta-pinene and delta-3-carene the oil contains. It replaces GB/T 12902-2006 and has been in force since 1 September 2026, with the gum turpentine product standard GB/T 12901-2026. It was issued on 27 February 2026 and has been in force since 1 September 2026, replacing

GB/T 12902-2006. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document describes the appearance, color, relative density, refractive index, optical rotation, acid value, component content, initial boiling point, and distillation volume of turpentine oil. Methods for detecting percentages. This document applies to the inspection of turpentine products.

4.Reagents and Materials Unless otherwise specified, all reagents used in this document are analytical grade reagents, and the water used meets the requirements for Grade III water in GB/T 6682.

4.1 Platinum-Cobalt Standard Colorimetric Solution Prepared according to the provisions of Chapter 7 of GB/T 9282.1-2008.

4.2 Gardner Color Standard Solution Prepare according to Appendix B of GB/T 9281.1-2008. 4.3 10 g/L phenolphthalein indicator Weigh 1g of phenolphthalein, dissolve it in 95% (volume fraction) ethanol and dilute it to 100mL.

4.4 Neutral ethanol Add 2-3 drops of 10 g/L phenolphthalein indicator to 95% (volume fraction) ethanol, and then add

0.02 mol/L potassium hydroxide solution dropwise until... It has a slightly reddish tint and will not fade for 30 seconds. 4.5

0.1 mol/L potassium hydroxide-ethanol standard solution Prepared and calibrated according to GB/T 601, with results accurate to

0.001 mol/L. 4.6

0.02 mol/L potassium hydroxide-ethanol standard solution Dilute the

0.1 mol/L potassium hydroxide-ethanol standard solution (4.5) with neutral ethanol (4.4) by 5 times.

4.7 Carrier Gas for Gas Chromatograph Nitrogen or helium (purity >= 99.99%).

4.8 Auxiliary gases for gas chromatographs Hydrogen (purity >= 99.99%), air (requires filtration, purification and drying). 4.9 5% Tetramethylammonium hydroxide-methanol solution Dilute a commercially available 25% tetramethylammonium hydroxide-methanol solution 5 times with methanol, or dilute other concentrations of tetramethylammonium hydroxide-methanol solution... Dilute the liquid with methanol according to the specified ratio.

5 Instruments and Equipment

5.1 Hydrometer and density bottle It meets the requirements of GB/T 4472.

5.2 Refractometer It meets the requirements of GB/T 6488.

5.3 Polarimeter It meets the requirements of GB/T 14454.5.

5.4 Gas Chromatograph Gas chromatographs suitable for turpentine oil analysis should meet the following conditions.

a) It has a traffic splitting function;

b) It has a programmed temperature rise function;

c) Equipped with a flame ionization detector (FID);

d) Equipped with a capillary column;

e) Equipped with a data processing system capable of performing area normalization calculations.

5.5 Apparatus for determining initial boiling point and distillate volume fraction

5.5.1 Manual Distillation Range Measurement Apparatus It conforms to the requirements of SH/T 0121.A schematic diagram of the device is shown in Figure 1, and the reducing cylinder is shown in Figure

2.The main components meet the following requirements. Require.

a) Engler distillation flask. capacity 100mL, total height 215mm, outer diameter 70mm, inner diameter of neck 16mm.

b) Thermometer. Rod-type partial immersion mercury thermometer with an expansion chamber, immersion depth 100mm, distance between the bottom of the mercury bulb and the top of the expansion chamber. The graduation should be less than 30mm from the bottom of the mercury bulb, starting at 140mm from the bottom. The graduation range is 140°C to.200°C. 0.5°C, maximum error ±0.5°C, scale length 140mm±10mm, thermometer total length 300mm±10mm, mercury bulb Diameter 4.5mm~6.0mm, height 10mm, rod diameter 6.5mm (maximum not exceeding 7.5mm).

c) Graduated cylinders with varying diameters. 100mL capacity, graduations from 5mL to 84mL in 1mL increments, and graduations from 84mL to 100mL in... The graduation value is

0.2 mL. The distance from the 100 mL mark to the edge of the graduated cylinder mouth is approximately 60 mm.

d) Heat source. Heating rate is adjustable.

5.5.2 Fully Automated Distillation Range Analyzer It meets the requirements of SH/T 0121.

5.6 Other Instruments

5.6.1 Colorimeter. The technical requirements for artificial daylight colorimeters and corresponding lighting sources shall comply with the provisions of GB/T 9761.

5.6.2 Colorimetric tubes. flat-bottomed, 100mL capacity, fitted with optically clear ground glass stoppers. All colorimetric tubes should have consistent color and thickness. The 275mm~295mm range should be marked with graduation lines. The graduation lines of the colorimetric tubes used in the same measurement should not differ by more than ±3mm.

5.6.3 Glass test tube. transparent, colorless, cylindrical, with an inner diameter of

10.65 mm and a length of 114 mm.

5.6.4 Alkaline burette. 10 mL capacity,

0.05 mL graduation.

5.6.5 Erlenmeyer flask. 250mL capacity.

5.6.6 Analytical balance. accuracy not less than 0.0001g.

5.6.7 Barometer. accuracy not less than

0.1 kPa.

According to the sampling rules specified in GB/T 12901, at least 1000 mL of sample shall be taken from the same batch of products, mixed thoroughly, and divided equally. Divide into two portions. one for testing, and the other in a dark glass bottle or other container with equivalent storage conditions, sealed and stored as a sample. for future reference.

7.1 Appearance Measurement

7.1.1 Test Procedure Inject the turpentine sample into a clean, dry colorimetric tube (5.6.2), shake it, and observe it under diffused light in a horizontal visual manner.

7.1.2 Results Observe whether the sample is transparent, water-free, and free of impurities and suspended matter.

7.2.1 Visual inspection method

7.2.1.1 Scope of Application Applicable to color determination of premium, first-grade and second-grade turpentine oil products.

7.2.1.2 Test Procedure Same as 7.1.1.

7.2.1.3 Results Observe whether the sample is colorless.