

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

SN/T 4675.7-2016

**Determination of acetaldehyde in wine for
export--Gas-chromatography mass spectrometry method**

出口葡萄酒中乙醛的测定 气相色谱-质谱法

(English Translation)

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Foreword

SN/T 4675 "Methods for Quality and Safety of Exported Wines" is divided into 30 parts.

---SN/T 4675.1 Determination of glycerol in exported wines;

---SN/T 4675.2 Determination of 2,3-butanediol in exported wines by gas chromatography;

---SN/T 4675.3 Determination of the stable carbon isotope ratio of ethanol in exported wines;

---SN/T 4675.4 Determination of lactic acid in exported wines;

--- SN/T 4675.5 Determination of organic acids in exported wines by ion chromatography;

---SN/T 4675.6 Determination of glucose, fructose and sucrose in exported wines;

--- SN/T 4675.7 Determination of acetaldehyde in exported wines by gas chromatography-mass spectrometry;

--- SN/T 4675.8 Determination of 5-hydroxymethylfurfural in exported wines by liquid chromatography;

--- SN/T 4675.9 Determination of diethylene glycol in exported wines by gas chromatography-mass spectrometry;

---SN/T 4675.10 Determination of ochratoxin A in exported wines by liquid chromatography-mass spectrometry/mass spectrometry;

---SN/T 4675.11 Determination of seven anthocyanins in exported wines by ultra performance liquid chromatography;

---SN/T 4675.12 Determination of lysozyme in exported wines by liquid chromatography;

--- SN/T 4675.13 Determination of 2,4,6-trichloroanisole residues in exported wines by gas chromatography-mass spectrometry;

---SN/T 4675.14 Determination of natamycin in exported wines by liquid

chromatography-mass spectrometry/mass spectrometry;

---SN/T 4675.15 Determination of salicylic acid, dehydroacetic acid and p-chlorobenzoic acid in exported wines by liquid chromatography;

---SN/T 4675.16 Determination of fumaric acid in exported wines by liquid chromatography-mass spectrometry/mass spectrometry;

--- SN/T 4675.17 Determination of butyl tin content in exported wines by gas chromatography - mass spectrometry/mass spectrometry;

--- SN/T 4675.18 Determination of residual dithiocarbamate in exported wines.

---SN/T 4675.19 Determination of sodium, magnesium, potassium, calcium, chromium, manganese, iron, copper, zinc, arsenic, selenium, silver, cadmium and lead in exported wines;

---SN/T 4675.20 Determination of rare earth elements in exported wines by inductively coupled plasma mass spectrometry;

--- SN/T 4675.21 Determination of soluble inorganic salts in exported wines by ion chromatography;

---SN/T 4675.22 Determination of total sulfur dioxide in exported wines;

---SN/T 4675.23 Determination of ammonia nitrogen in exported wines and grape juices - Continuous flow analyzer method;

---SN/T 4675.24 Determination of the export wine Fulin-Shoka index spectrophotometer method;

--- SN/T 4675.25 Determination of the color of exported wine CIE1976 ($L^* a^* b^*$) color space method;

---SN/T 4675.26 Determination of turbidity of exported wines by scattered light method;

---SN/T 4675.27 Determination of alkaline ash in exported wines;

---SN/T 4675.28 Counting bacteria, mold and yeast for exporting wine;

---SN/T 4675.29 Real-time fluorescent PCR method for wine yeast test in exported wine;

---SN/T 4675.30 In the wine, the Bayesian yeast test real-time fluorescent PCR method.

This part is part 7 of SN/T 4675.

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

1 Scope

This part of SN/T 4675 specifies the determination of acetaldehyde content in wine.

This section applies to the determination of acetaldehyde content in wine.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 6682 Analytical laboratory water specifications and test methods

3 Method summary

After the acetaldehyde in the sample is derivatized with 2,4-dinitrophenylhydrazine, the acetaldehyde 2,4-dinitrophenylhydrazine (CAS No. 1019-57-4) is extracted with cyclohexane.

Determined by gas chromatography-mass spectrometry and quantified by external standard method.

4 Reagents and materials

Unless otherwise stated, the reagents used were of analytical grade and the water was first-grade water specified in GB/T 6682.

4.1

Sodium hydroxide (NaOH).

4.2 2,4-Dinitrophenylhydrazine (C₆H₆N₄O₄, abbreviated as DNPH, CAS No. 119-26-6), purity ≥99%.

4.3

Concentrated hydrochloric acid (HCl) (37.2% aqueous HCl).

4.4

Concentrated sulfuric acid (H₂SO₄).

4.5

Anhydrous ethanol (C₂H₆O), chromatographically pure.

4.6

Acetonitrile (C₂H₃N), chromatographically pure.

4.7

Cyclohexane (C₆H₁₂), chromatographically pure.

4.8 5g/L 2,4-dinitrophenylhydrazine solution. Accurately measure 0.5g (accurate to 0.001g) 2,4-dinitrophenylhydrazine (4.2), add 30mL Hydrochloric acid (4.3) and 30 mL of acetonitrile (4.6) were dissolved, then transferred to a 100 mL volumetric flask and made up to the mark with acetonitrile. This solution is now available Currently used.

4.9 12% ethanol solution. Measure 12 mL of absolute ethanol (4.5) in a 100 mL volumetric flask and dilute to the mark with water.

4.10 4mol/L sodium hydroxide solution. Accurately weigh 8g sodium hydroxide (4.1) (accurate to 0.001g) in a beaker, add 40mL Dissolve in water, transfer to a 50mL volumetric flask, and bring up to volume with water.

4.11 25% sulfuric acid solution. Accurately measure 12.5mL concentrated sulfuric acid (4.4) in a beaker with 35mL water, cool and transfer to in a 50 mL volumetric flask, dilute to the mark line with water.

4.12

Standard stock solution of acetaldehyde. 1000mg/L acetaldehyde standard. The solution should be stored in a refrigerator at 0 ° C ~ 4 ° C.

4.13 100mg/L acetaldehyde standard intermediate solution. Add 5mL 12% ethanol solution (4.9) to a 10mL volumetric flask, then accurately Measure 1.0 mL of acetaldehyde standard stock solution (4.12) and dilute to the mark with 12% ethanol solution (4.9). The solution should be between 0 ° C and 4 ° C