

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

SN/T 4675.11-2016

**Determination of seven anthocyanins in wine for export--Ultra
high performance liquid chromatography method**

出口葡萄酒中7种花色苷的测定 超高效液相色谱法

(English Translation)

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Foreword

SN/T 4675 "Method for Analysis of the Quality and Safety of Exported Wines" is divided into 30 sections.

- SN/T 4675.1 Determination of glycerol in wine exports Enzymatic;
- SN/T 4675.2 Determination of 2,3-butanediol in exported wines by gas chromatography;
- SN/T 4675.3 Determination of Stable Carbon Isotope Ratio of Ethanol in Export Wines;
- SN/T 4675.4 Determination of Lactic Acid in Export Wines Enzymatic;
- 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 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 wines for liquid chromatography-mass spectrometry/mass spectrometry;
- SN/T 4675.11 Determination of seven anthocyanins in wines exported by ultra-high performance liquid chromatography;
- SN/T 4675.12 Determination of Lysozyme in Export Wines by Liquid Chromatography;
- SN/T 4675.13 Determination of residues of 2,4,6-trichlorotoluene ether in exported wines by gas chromatography-mass spectrometry;
- SN/T 4675.14 Determination of natamycin in wines for export - Liquid

chromatography-mass spectrometry/mass spectrometry;

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

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

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

---SN/T 4675.18 Determination of dithiocarbamate residues in exported wines. Headspace gas chromatography;

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

---SN/T 4675.20 Determination of rare earth elements in wines exported 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 wines by colorimetric method;

---SN/T 4675.23 Determination of ammonia nitrogen in wine and grape juice exported by continuous flow analyzer method;

---SN/T 4675.24 Determination of the export of the Folin-Shaughha index of the wine by spectrophotometry;

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

---SN/T 4675.26 Determination of export turbidity scattered light method;

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

---SN/T 4675.28 Export of wine bacteria, mold and yeast count;

---SN/T 4675.29 Real-time fluorescent PCR assay for wine yeast extraction in wine exports;

---SN/T 4675.30 Bayer splice yeast assay for real-time fluorescence PCR in exported wines.

This section is Part 11 of SN/T 4675.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

This part is proposed and managed by the National Certification and Accreditation

Regulatory Commission.

1 Scope

This part of SN/T 4675 specifies the delphinidin-3-O-glucoside, anthocyanin-3-O-glucoside, and methyl phoridin-3-in wine.

O-glucoside, cyanidin-3-O-glucoside, maltilin-3-O-glucoside, delphinidin-3,5-O-diglucoside and flowers Determination of seven anthocyanins such as 3,5-O-diglucoside by ultra-high performance liquid chromatography.

This section applies to the determination of anthocyanins in red wine, rose wine, and sparkling wines.

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 version (including all amendments) applies to this document.

GB/T 6682 Analysis Laboratory Water Specifications and Test Methods

3 Method summary

The anthocyanins in the samples were directly separated and measured by ultra high performance liquid chromatography. Using formic acid-water solution and formic acid-acetonitrile solution as flow Phase gradient elution was performed and the detection was performed at a wavelength of 518 nm and quantified by external standard method.

4 Reagents and materials

Unless otherwise stated, the reagents used were all chromatographically pure, and the water used was a grade of water specified in GB/T 6682.

4.1

Acetonitrile (CH_3CN).

4.2

Formic acid (HCOOH).

4.3

Methanol (CH_3OH).

4.4 2% formic acid-water solution (by volume). 2 mL of formic acid dissolved in 100 mL of water.

4.5

Anthocyanin reference material. purity $\geq$ 95%, see Appendix A for basic information.

4.6

Anthocyanin standard stock solution. Weigh 10 mg (accurate to 0.1 mg) of anthocyanin standard (4.5) and dissolve it with methanol (4.3).

To a volume of 10 mL, formulated as a standard stock solution at a concentration of 1 mg/mL. After the solution is transferred to a brown glass bottle, avoid it in the refrigerator at -20°C Save light.

4.7

Mixed Standard Intermediate Solution. Take the appropriate amount of standard stock solution (4.6) and mix it with formic acid-water solution (4.4) to make a mixture of 500g/mL Standard intermediate solution, protected from light at 4°C, spare.

4.8

mixed standard working solution. Accurately remove the appropriate amount of anthocyanin mixed standard intermediate solution (4.7) in stoppered volumetric flask, with formic acid-water solution (4.4) Dilute the water to 1g/mL, 2g/mL, 5g/mL, 10g/mL, 25g/mL, 50g/mL and 100g/mL water to volume.

Mix the standard working solution in a flat, shake, and prepare before use.

5 Instruments and Equipment

5.1

Ultra Performance Liquid Chromatograph. equipped with UV or diode array detector.