

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

SN/T 4675.20-2016

**Determination of rare-earth elements in wine for
export--Inductively coupled plasma mass spectrometric method**

出口葡萄酒中稀土元素的测定 电感耦合等离子体质谱法

(English Translation)

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Table of Contents

Foreword

1 Scope

2 Normative references

3 Method summary

4 Reagents and materials

4.4 Internal standard solution (10µg/mL) (Rh)

5 Instruments and equipment

Foreword

SN/T 4675 "Analysis of Quality, 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 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-trichlorotoluene residue in exported wine;

- 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 amount of 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 wine;
- 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 wine colorimetric method;
- SN/T 4675.23. Determination of ammonia nitrogen in exported wine and grape juice by continuous flow analyzer method;
- SN/T 4675.24. Determination of the export wine Fulin-Shoka index spectrophotometer method;
- SN/T 4675.25. Determination of color of exported wines 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. Real-time fluorescent PCR method for the detection of Bayesian yeast in exported wine.

This part is the 20th part 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 methods for the determination of rare earth elements in wine products by inductively coupled plasma mass spectrometry.

This section applies to rare earth elements lanthanum (La), cerium (Ce), yttrium (Y), strontium (Pr), strontium (Nd), strontium (Sm), strontium in wine products.

(Eu), (Gd), (Tb), (DY), (Ho), (Er), (Tm), (Yb), (Lu), (Ge), ?Determination of (Sc).

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

The sample is evaporated by low temperature to remove alcohol, and after digestion and constant volume, it is injected into an inductively coupled plasma mass spectrometer to establish concentration and quality in a certain range.

The standard curve of the spectral signal is obtained by intensity comparison to obtain the content of rare earth elements in the sample solution.

4 Reagents and materials

Unless otherwise stated, the reagents used in the analysis are all excellent grades, and the experimental water should meet the first grade water specified in GB/T 6682.

4.1

Nitric acid ($\rho = 1.42 \text{ g/mL}$).

4.2

Nitric acid solution (1 9). 1 volume of nitric acid (4.1) mixed with 9 volumes of water.

4.3

Rare earth element mixed standard solution ($10\mu\text{g/mL}$) (La, Ce, Y, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Ge, Sc).

4.4 Internal standard solution (10 μ g/mL) (Rh)

4.5 Rare earth element mixed standard working solution (0.1 μ g/mL). Take rare earth element mixed standard solution (4.3) 1mL in 100mL volumetric flask Diluted to the mark with a nitric acid solution (4.2). The standard solution concentration was 0.1 μ g/mL.

4.6 Internal standard working solution (0.1 μ g/mL). Take the internal standard solution (4.4) 1mL in a 100mL volumetric flask, dilute with nitric acid solution (4.2) Released to the scale. The internal standard solution concentration was 0.1 μ g/mL.

4.7 Argon (Ar). Purity > 99.999%.

5 Instruments and equipment

5.1

Inductively Coupled Plasma Mass Spectrometer (ICP-MS).

5.2

Quantitative pipetting device. 0.5mL, 1mL, 2mL, 5mL, 10mL.

5.3

Beaker or glass digestion tube. 50mL.

5.4

Temperature control heating equipment. 50 ° C ~.200 ° C temperature control.