

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

SN/T 4675.4-2016

**Determination of lactic acid in wine for export - Enzymatic
method**

出口葡萄酒中乳酸的测定酶法

(English Translation)

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Foreword

SN/T 4675 "export wine quality and safety analysis method" is divided into 30 parts.

- SN/T 4675.1 Determination of export glycerol in the enzyme method;
- SN/T 4675.2 Export wine 2,3-butanediol Determination of gas chromatography;
- Determination of stable carbon isotope ratio of ethanol in exported wine by SN/T 4675.3;
- SN/T 4675.4 Determination of lactic acid in export wine enzymatic;
- SN/T 4675.5 wine exports - Determination of organic acids by ion chromatography;
- SN/T 4675.6 Determination of glucose, fructose and sucrose in export wines;
- SN/T 4675.7 Determination of acetaldehyde in wine exports - Gas Chromatography - Mass Spectrometry;
- SN/T 4675.8 Export wine 5-hydroxymethyl furfural Determination of liquid chromatography;
- SN/T 4675.9 Exported wine - Determination of diethylene glycol - Gas Chromatography - Mass Spectrometry;
- SN/T 4675.10 Determination of ochratoxin A in export wines - Liquid chromatography - mass spectrometry/mass spectrometry;
- SN/T 4675.11 Determination of 7 kinds of anthocyanins in exported wine by ultra performance liquid chromatography;
- SN/T 4675.12 export wine lysozyme Determination of liquid chromatography;
- SN/T 4675.13 Determination of 2,4,6-trichloro-phenyl ether residues in export wine by gas chromatography-mass spectrometry
- SN/T 4675.14 Determination of natamycin in wine exports by liquid chromatography - mass spectrometry/mass spectrometry;

- SN/T 4675.15 exported wine salicylic acid, dehydroacetic acid and p-chlorobenzoic acid Determination of liquid chromatography;
- SN/T 4675.16 Determination of fumaric acid in exported wine by liquid chromatography - mass spectrometry/mass spectrometry;
- SN/T 4675.17 Determination of butyl tin content in exported wine - Gas Chromatography - Mass Spectrometry/Mass Spectrometry;
- SN/T 4675.18 Determination of dithiocarbamate residues in export wines; headspace gas chromatography;
- 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 wine by inductively coupled plasma mass spectrometry;
- SN/T 4675.21 Determination of soluble inorganic salts exported wine Ion chromatography;
- SN/T 4675.22 Determination of total sulfur dioxide in wine exports colorimetry;
- SN/T 4675.23 Determination of ammonia nitrogen in wine and grape juice exports continuous flow analyzer;
- SN/T 4675.24 Export wine Fulin - Schock Index Determination spectrophotometer;
- SN/T 4675.25 Determination of color of export wine CIE1976 ($L^* a^* b^*$) color space method;
- SN/T 4675.26 Determination of turbidity of exported wine - Scattered light method;
- SN/T 4675.27 Determination of export wine alkaline ash;
- SN/T 4675.28 exports of wine bacteria, mold and yeast count;
- SN/T 4675.29 Export wine wine yeast test real-time fluorescent PCR;
- SN/T 4675.30 Exported wine Bayer engaged yeast test real-time PCR method.

This section is part 4 of the SN/T 4675.

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

This section identical with the International Organization of grapes and wine (OIV) OIV-MA-AS313-07 "lactic acid." This section is in technology the content is consistent with this method.

Please note that some of this document may be patentable. The issuing agencies of this document do not bear the responsibility of identifying these patents.

This part of the national certification and accreditation supervision and management committee proposed and centralized.

This part of the drafting unit. Exit Inspection and Quarantine of People's Republic of China, People's Republic of China Beijing Exit Inspection and Quarantine Bureau, thanks to the analysis of system sales (Beijing) Co., Ltd.

1 Scope

SN/T 4675 provisions of this part of the wine D/L-lactic acid content of enzymatic determination.

This section applies to the determination of D/L-lactic acid content in wine.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies 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

First, the sample diluted with water, and then sequentially added to the cuvette buffer, the reaction solution, the test dilution and enzyme reaction, the use of points Photometric changes in absorbance, the use of quantitative absorbance difference.

Under the condition of nicotinamide adenine dinucleotide (NAD), total lactate (L-lactic acid and D-lactic acid) D-lactate dehydrogenation (D-LDH) catalyzed reaction was oxidized to pyruvate. In general, the reaction proceeds in favor of the lactic acid. Produced from the reaction the removal of pyruvate from the material allows the equilibrium of the reaction towards pyruvate production.

Pyruvate is converted to L-alanine in the glutamate pyruvate transaminase (GPT) catalytic reaction in the presence of L-glutamic acid.

Reaction (1). L-lactic acid NAD L-LDH pyruvate NADH H Reaction (2) .D-lactic acid NAD D-LDH pyruvate NADH H Reaction (3) L-glutamic acid pyruvate GPT L-alanine alpha-ketoglutarate the amount of NADH produced by the reaction was determined by measuring the increase in absorbance at a wavelength of 340 nm, and the amount of NADH corresponded to that of lactic acid the amount is proportional to.

Note: The content of L-lactic acid can be measured separately by reaction (1) and reaction (3), and the content of D-lactic acid can be separately measured by reaction (2) and reaction (3)

4 Reagents and materials

Unless otherwise specified, the reagents used are of analytical grade, water GB/T 6682 provisions of a water.

4.1

Sodium hydroxide (NaOH).

4.2

Glycylglycine (C₄H₈N₂O₃).

4.3

Glutamic acid (C₅H₉NO₄).

4.4

Nicotinamide adenine dinucleotide (NAD).

4.5

Alanine aminotransferase (GPT).

4.6

L-lactate dehydrogenase (L-LDH).

4.7

D-lactate dehydrogenase (D-LDH).

4.8 10mol/L sodium hydroxide solution accurately weighed 40.0g sodium hydroxide, dissolved in water, constant volume to 100mL, transferred to a plastic bottle