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

GB 25537-2010

**National food safety standards of food additives sodium lactate
(solution)**

(English Translation)

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3.1 Chemical Name

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Foreword

Appendix A of this standard is a normative appendix.

National Food Safety Standard Food additive sodium lactate (solution)

1 Scope

This standard applies to post-production by the fermentation of lactic acid and sodium hydroxide or sodium carbonate and sodium lactate food additives made of (dissolved liquid).

2 Normative references

The standard file referenced in the application of this standard is essential. For cited documents with dates, only the date of Version applies to this standard. For undated references, the latest edition (including any amendments) applies to this standard.

3.2 Formula

Formula 3.3

$C_3H_5NaO_3$

3.4 Relative molecular mass

112.06 (according to 2007 international relative atomic mass)

4 Technical Requirements

4.1

Sensory requirements. comply with Table 1.

Table 1 Sensory requirements

Project requires test methods Colorless or slightly yellow color Take appropriate sample is placed in a clean, dry beaker, in natural light Under observe its color and texture, and smell its flavor. Odour odorless or slight characteristic odor Slightly viscous clear liquid state organization

4.2

Physical indicators. to comply with Table 2.

Table 2. Physical and chemical indicators

project

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Testing method

L- lactate (solution) sodium lactate (solution) the total lactate, w /% ≥ 50.0 a Appendix A A.3 L- lactate total lactate content, w /% ≥ 95 - Appendix A A.4 Chroma/(Hazen) ≤ 150 GB/T 605 pH 6.5 ~ 7.5 in Appendix A A.5 Chloride, w /% ≤ 0.05 A.6 in Appendix A Heavy metals (Pb)/(mg/kg) ≤ 20 GB/T 5009.74 Lead (Pb)/(mg/kg) ≤ 2 GB 5009.12 Sulfate, w /% ≤ 0.005 Appendix A A.7 Citrate, oxalate, phosphate or tartrate A.8 by examining Appendix A Sugar by examining Appendix A, A.9 the actual detection value is a 95% to 110.0% Labeling values.

Appendix A

(Normative)

Testing method

A.1 General Provisions Unless otherwise indicated in the analysis using only recognized as analytical reagents and GB/T 6682-2008 specified in the water. In the analysis Standard titration solution, impurities measured by standard solution, preparations and products, did not indicate when the other requirements, according to GB/T 601, GB/T 602, the provisions of preparation GB/T 603's. This solution was used in the test does not indicate what is formulated with solvent, it refers to an aqueous solution.

A.2 Identification Test A.2.1 Reagents and materials

a) hydrochloric acid solution. 0.1 mol/L.

b) sulfuric acid solution. 1 mL of sulfuric acid added to 19 mL of water formulated into.

c) potassium permanganate test solution. 0.1 mol/L.

d) morpholino solution. 14.

e) sodium nitroprusside test solution. 50g/L.

A.2.2 Analysis step

A.2.2.1 Identification of Sodium. Take platinum wire, with a hydrochloric acid solution wet, dipped into the sample combustion in a colorless flame, the flame was bright yellow.

A.2.2.2 Identification of lactate. Take 5 mL sample was added 2 mL of sulfuric acid solution and mix together 2 mL of potassium permanganate solution, heating, should acetaldehyde gases. Recognition acetaldehyde gas mixture using an equal volume of morpholino solution and sodium nitroprusside test solution wetting Filter paper, filter paper in contact with the gas phase was blue.

A.3 Determination of total sodium lactate A.3.1 Reagents and materials

a) acetic anhydride.

b) glacial acetic acid.

c) perchloric acid standard titration solution. $c(\text{HClO}_4) = 0.1 \text{ mol/L}$.

d) crystal violet indicator solution. 5 g/L.

A.3.2 Analysis step

Weigh the equivalent of liquid sample containing about 300 mg of sodium lactate (accurate to 0.0001 g), was added 10mL of acetic anhydride and 50 mL ice acetic Acid, mixed, allowed to stand for about 20min, add 1 drop of crystal violet indicator solution, titration with perchloric acid standard solution titration, titrated to a solution blue Green, do not fade in the 30s, is the end point of titration, and titration results of blank test correction.

A.3.3 Calculation Results Sodium lactate ($\text{C}_3\text{H}_5\text{NaO}_3$) content according to formula (A.1) Calculated.

() $1001121.0011 \times x - = m \times c \times V \times \% \text{ (A.1) where.}$

X1- sodium lactate ($\text{C}_3\text{H}_5\text{NaO}_3$) content,%;

V1- sample titration consumption of perchloric acid standard titration solution volume in milliliters (mL);

V0- blank titration consumption of perchloric acid standard titration solution volume in milliliters (mL);

The actual concentration c- perchloric acid standard titration solution, expressed in moles per liter (mol/L);

0.1121- consumption of 1 mL 1 mol/L perchloric acid standard titration solution corresponds to 0.1121 g sodium lactate ($C_3H_5NaO_3$);

Quality m- sample in grams (g).

Test results parallel arithmetic mean of the measurement results shall prevail. Parallel determination results is not more than 0.5% absolute difference.

A.4 L- lactate determination of total content of sodium lactate A.4.1 Instruments and Equipment High performance liquid chromatography with UV detection, wavelength was 254 nm.

A.4.2 reference chromatographic conditions

a) Column. stationary phase is silica gel coated 3 μ m novel optically active N, N- dioctyl -L (D) - alanine surface Chiral column, 4.6mm x 50mm; or other equivalent separation performance of the column for optical isomers.

b) Mobile phase. 0.002 mol/L of copper sulfate ($CuSO_4 \cdot 5H_2O$) was added.

c) flow rate. 1.2 mL/min.

d) Column temperature. 40 °C.

e) Injection volume. 20 μ L.

f) separation. D and L-isomer separation in 1.0 above.

A.4.3 Analysis step

A.4.3.1 Preparation of sample solution Weigh 1g sample (accurate to 0.001g), after dilution with the mobile phase and transferred to 100mL volumetric flask, add the mobile phase to the mark.

The resulting solution was filtered with a 0.45 μ m membrane, the filtrate was set aside.

A.4.3.2 Determination High performance liquid chromatography sample was measured to obtain chromatograms, recorded D- L- sodium lactate and sodium lactate peak area AD and AL, come percentage L- lactate content.

A.4.4 Calculation Results L- lactate content of total lactate X2 according to formula (A.2) Calculated.

$1002 \times = DL$

AX% (A.2)

Where.

X2 - L- lactate total lactate content,%;

AL - L- sodium lactate peak area;