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

GB 1886.37-2015

Replacing GB 12488-2008

**National Food Safety Standard -- Food Additives -- Sodium
cyclamate**

食品安全国家标准 食品添加剂 环己基氨基磺酸钠（又名甜蜜素）

(English Translation)

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Foreword

This standard replaces GB 12488-2008 "Food Additives cyclamic sodium (sodium cyclamate)." this standard compared with GB 12488-2008, the main changes are as follows.

--- Standard name was changed to "national food safety standards for food additives cyclohexylamino sodium (also known as sodium cyclamate)." National Food Safety Standard Food additives cyclohexylamino sulfonate (Also known as sodium cyclamate)

1 Scope

This standard applies to glucose as raw materials by fermentation, esterification, conversion, refining prepared food additive cyclohexylamino sodium (aka Cyclamate).

2.1 Chemical Name

Cyclohexylamino sulfonate.

Formula 2.2

$C_6H_{12}NNaO_3S \cdot nH_2O$ (anhydrous product $n = 0$, the crystals of $n = 2$)

2.4 Relative molecular mass

Dry goods 201.22; crystalline product 237.25 (according to 2007 international relative atomic mass)

3.1 Sensory requirements

Sensory requirements shall comply with the requirements of Table 1.

Table 1 Sensory requirements

project

Claim

Anhydrous crystalline products product Testing method Color White State white crystalline powder, needle-like crystal white needles, lamellae Odour odorless Take the right amount of sample is placed in a clean, dry white porcelain dish, natural Light, color and observe the state of its taste and olfactory

3.2 Physical and Chemical Indicators

Physical and chemical indicators should be consistent with the provisions of Table 2.

Table 2. Physical and chemical indicators

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Anhydrous crystalline products product Testing method Cyclohexylamino sodium content (dry basis), w /% $\geq 98.0 \sim 101.0$ Appendix A A.4 Sulfate (SO_4 dollars), w /% ≤ 0.10 Appendix A A.5 pH (100g/L aqueous solution) 5.5 to 7.5 Appendix A A.6 Loss on drying, w /% ≤ 0.5 16.5 Appendix A A.7 Amino acid, w /% ≤ 0.15 Appendix A A.8 Cyclohexylamine, w /% ≤ 0.0025 A.9 in Appendix A Dicyclohexylamine by test A.10 in Appendix A Absorbance (100g/L solution) ≤ 0.10 Appendix A A.11 Transparency (expressed as transmittance 100g/L solution) /% ≥ 95.0 Appendix A A.12 Heavy metals (Pb)/(mg/kg) ≤ 10.0 Appendix A A.13 Arsenic (As)/(mg/kg) ≤ 1.0 GB 5009.76 Appendix A Testing method A.1 Warning Reagents The standard test methods used for toxic or corrosive, care should be taken. As splashed on the skin should stand that is rinsed with water, severe cases should be treated immediately. When using the virulent, should be strictly in accordance with the relevant provisions of the management; should be used to avoid inhalation or skin Skin contact should be necessary in a fume hood.

A.2 General Provisions this standard reagents and water in the absence of other specified requirements, refer to the three water analytical reagent and GB/T 6682 regulations. test Used in the standard solution, standard solution for measuring impurities, formulations and products, did not indicate when the other requirements according to GB/T 601, GB/T 602, GB/T 603 provisions of preparation. Solution was used in the tests did not indicate what is formulated with solvent, it refers to an aqueous solution.

A.3 Identification Test A.3.1 Reagents and materials A.3.1.1 ether.

A.3.1.2 nitrate.

A.3.1.3 silver nitrate solution. 17g/L.

A.3.1.4 sodium nitrite solution. 100g/L.

A.3.1.5 hydrochloric acid solution. 3 -> 10.

A.3.1.6 nitric acid solution. 3 -> 50.

A.3.1.7 barium chloride. 50g/L.

A.3.1.8 sodium hydroxide solution. 50g/L.

A.3.2 Analysis step

A.3.2.1 Take a platinum wire dipped little of this product, a colorless combustion flame, the flame that was yellow.

A.3.2.2 3g samples weighed to the nearest 0.1g, was dissolved in 20mL water, remove 1mL, silver nitrate solution was added 2mL, 30s after generating Cyclohexylamino white precipitate of silver nitrate.

A.3.2.3 Weigh 0.3g sample, accurate to 0.1g, dissolved in 20mL water, hydrochloric acid and sodium nitrite solution 5mL solution 3mL, Was heated on a water bath for about 15min, removed after cooling, add ether 20mL shaking extraction, the ether layer into the evaporating dish, evaporated on a water bath Removal of the ether, add water 1mL, plus 0.5mL nitric acid on a water bath heated 20min later, evaporated to dryness on a sand bath, no charring. After cooling the residue was dissolved 3mL water was added to a solution of nitric acid and sodium hydroxide solution adjusted pH4.5 ~ 7.0, was added silver nitrate 1mL, a white sink precipitate. Nitric acid was added, a white precipitate was dissolved.

A.3.2.4 A.3.2.3 take aqueous layer was extracted after addition of barium chloride solution 1mL, a white precipitate formed.

Determination A.4 cyclohexylamino sodium content (dry basis) of A.4.1 Method summary After drying the sample in glacial acetic acid as the solvent, 1-naphthol in the presence of benzene indicator solution, titration with perchloric acid standard solution titration, according to consumption the volume of perchloric acid standard titration solution content was calculated cyclohexylamino sodium.

A.4.2 Reagents and materials A.4.2.1 glacial acetic acid.

A.4.2.2 perchloric acid standard titration solution. $c(\text{HClO}_4) = 0.1\text{mol/L}$.

A.4.2.3 1- naphthol benzyl indicator solution. 2g/L. 1-naphthol benzene weighed 0.2g, dissolved in glacial acetic acid, diluted to 100mL with glacial acetic acid.

A.4.3 Analysis step

A.4.3.1 said 0.3g sample taken after drying, accurate to 0.0002g, ice acetic acid 30mL, heated to dissolve, cooled to room temperature, 1-naphthol benzene indicator solution 5 drops to 6 drops of perchloric acid titration standard solution titration solution from yellow to green as the end point.

A.4.3.2 measured at the same time, according to the same procedure and the determination of the sample without using the same amount of reagent blank test solution.

A.4.4 Calculation Results Cyclohexylamino sodium content (dry basis) of the mass fraction w_1 , according to equation (A.1) Calculated.

$$(V_1 - V_2) \times c \times M$$

$$m \times 1000 \times$$

$$100\% \text{ (A.1)}$$

Where.

V_1 --- sample consumed perchloric acid standard titration solution volume in milliliters (mL);

V_2 --- blank perchloric acid standard titration solution consumption volume in milliliters (mL);

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

--- Cyclohexylamino the M sodium molar mass in grams per mole (g/mol), ($M = 201.22$);

M --- the quality of the sample, in grams (g);

1000 --- volume conversion factor.

The results parallel arithmetic mean of the measurement results shall prevail. Twice under the same condition of independent determination results obtained absolute difference not more than 0.3%.

A.5 Sulfate (SO_4 meter) measurement A.5.1 Reagents and materials A.5.1.1 hydrochloric acid solution. 3 -> 10.

A.5.1.2 barium chloride solution. 250g/L.

A.5.1.3 sulphate (SO_4) standard solution. 0.1mg/mL.

A.5.2 Analysis step

Weigh 10.0g sample accurate to 0.01g, dissolved in about 60mL of water, placed in 100mL flask (filtered if necessary), diluted with water Release to the mark. Pipette 5mL ± 0.05 mL The solution was placed in 50mL colorimetric tube, add 1mL hydrochloric acid solution under shaking Dropping 3mL barium chloride solution, dilute with water to 50mL, shake, place 10min, the turbidity was not greater than the standard turbidity solution.