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

GB 29950-2013

Food additive -- Glycerin

食品添加剂 甘油

(English Translation)

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1 Scope

This standard applies to food additive glycerol.

2.1 Chemical Name

Glycerol.

Formula 2.2

$C_3H_8O_3$

2.3 Formula

$CH_2 OH$

$CH OH$

$CH_2 OH$

2.4 Relative molecular mass

92.09 (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 requires test methods Colorless to pale yellow color Transparent viscous liquid state
Take the right amount of sample is placed in a colorimetric tube, in natural light Observe the

color and line state

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

Item Index Test Method Glycerol content (w) /% 95.0 ~ 100.5 GB/T 13216 the relative density (25 °C/25 °C) ≥ 1.249 GB/T 5009.2 Color by test A.3 in Appendix A Fatty acids and esters by experiment A.4 Chloride (based on Cl, w) /% ≤ 0.003 A.5 Easy carbide by test A.6 Residue on ignition (w) /% ≤ 0.01 GB/T 13216 Lead (Pb)/(mg/kg) ≤ 1 GB 5009.12 Appendix A Testing method A.1 General Provisions Unless otherwise specified in this standard, the use of analytical reagent purity should be more than the standard titration solution, standard solution for measuring impurities, Preparations and products, should be GB/T 601, GB/T 602, the provisions of GB/T 603 preparation, test water should be consistent with GB/T 6682-2008 in Three water regulations. Solution was used in the tests did not indicate what is formulated with solvent, it refers to an aqueous solution.

A.2 Identification Test Adding 2 to 3 drops of potassium bisulfate 0.5g sample was heated with acrolein-like odor.

A.3 Determination of color A.3.1 Reagents and materials A.3.1.1 hexahydrate ferric chloride ($\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$).

A.3.1.2 hydrochloric acid.

A.3.1.3 potassium iodide.

A.3.1.4 hydrochloric acid solution. 139.

A.3.1.5 sodium thiosulfate standard titration solution. $c(\text{Na}_2\text{S}_2\text{O}_3) = 0.1\text{mol/L}$.

A.3.1.6 starch indicator solution. 10g/L.

A.3.2 Instruments and Equipment A.3.2.1 Nessler colorimetric tube. 50mL.

A.3.2.2 colorimetric tube frame. usually colorimetric tube pallet is white, it is best to install fluorescent lighting, improve observe the color effect.

A.3.3 Analysis step

A.3.3.1 Preparation of colorimetric ferric chloride stock solution Weigh 55.0g ferric chloride hexahydrate, dissolved in hydrochloric acid solution to prepare a solution of 1000mL. The draw solution 10mL, placed A 250mL iodine bottle, add water 15mL, 5mL hydrochloric acid and 3g of potassium iodide, still shaking after 15min. Join 100mL Diluted with water, add starch indicator solution, titration with sodium thiosulfate standard titration of free iodine. At the same time carry out a blank test, carried out the necessary repair positive. Sodium thiosulfate standard titration solution 0.1mol/L per milliliter is equivalent to 27.03mg

consumption of ferric chloride hexahydrate. by Hydrochloric acid solution was added to adjust the final volume of the solution, so 45.0mg per ml of solution containing ferric chloride hexahydrate, ferric chloride colorimetric give Stock solution.

A.3.3.2 standard colorimetric ferric chloride solution prepared Pipette 0.4mL colorimetric stock solution of ferric chloride, placed Nessler colorimetric tube, diluted with water to 50mL, per milliliter of solution contains 0.36mg Ferric chloride hexahydrate.

A.3.3.3 Determination the sample was injected into the 50mL Nessler colorimetric tube to the mark, and ferric chloride standard colorimetric cuvette was placed along the shelves. Each tube A set of black paper tube, to avoid affecting the side of light. Comparative sample and standard colorimetric ferric chloride solution color. Than facing a white background color, from Observations on down.

A.3.4 results found

Sample color is not darker than the color than the color of a standard solution of ferric chloride, namely through tests.

A.4 Determination of fatty acids and esters A.4.1 Reagents and materials A.4.1.1 sodium hydroxide solution. 0.5mol/L.

A.4.1.2 hydrochloric acid standard titration solution. $c(\text{HCl}) = 0.5\text{mol/L}$.

A.4.1.3 phenolphthalein indicator solution. 10g/L.

A.4.2 Instruments and Equipment A.4.2.1 round bottom flask. 250mL.

A.4.2.2 reflux condenser.

A.4.3 Analysis step

Pipette 40.0mL sample, placed in a round bottom flask was added 50mL freshly boiled water and 5.0mL of sodium hydroxide solution. The mixture containing Flask with reflux condenser connected to a mixed solution, heated to boiling, boiled for 5min, after cooling, a few drops of phenolphthalein indicator solution was added, immediately labeled with hydrochloric acid Quasi titration solution, titration until the solution is the titration end red just disappears.

A.4.4 results found

Hydrochloric acid standard titration solution volume consumed more than 4mL, namely through tests.

A.5 chloride (Cl) Determination A.5.1 Reagents and materials A.5.1.1 morpholine.

A.5.1.2 nitrate.

A.5.1.3 hydrochloric acid solution. 0.01mol/L.

A.5.1.4 silver nitrate solution. 0.1mol/L.

A.5.2 Instruments and Equipment A.5.2.1 Nessler colorimetric tube. 50mL.

A.5.2.2 round bottom flask. 100mL.

A.5.2.3 reflux condenser.

A.5.3 Analysis step

A.5.3.1 Preparation of sample solution Weigh 5.0g sample was placed in a round bottom flask 15mL morpholine. The flask containing the mixture and reflux condenser connected to temperature and reflux 3h. After cooling, the condenser was washed with 10mL water, washing liquid access flask and carefully acidified with nitric acid solution in the flask. will the solution was transferred to a Nessler colorimetric tube, add 0.5mL silver nitrate solution, dilute with water to 50mL and mix.

A.5.3.2 Preparation of control solution with 0.40mL of hydrochloric acid solution instead of the sample, without heating and reflux, additional step of preparing the same sample solution (A.5.3.1).

A.5.3.3 Determination Turbidity comparison sample solution and control solution. Turbidity of the sample solution must not exceed the turbidity of the control solution, the equivalent of chloride (Cl) Content must not exceed 0.003%.

A.6 Determination of carbon compounds Yi A.6.1 Reagents and materials A.6.1.1 cobalt chloride hexahydrate ($\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$).

A.6.1.2 hexahydrate ferric chloride ($\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$).

A.6.1.3 potassium iodide.

A.6.1.4 hydrochloric acid.

A.6.1.5 sulfuric acid.

A.6.1.6 hydrochloric acid solution. 25975.

A.6.1.7 hydrogen peroxide solution. mass fraction of 3%.

A.6.1.8 sodium hydroxide solution. 200g/L.

A.6.1.9 sulfuric acid solution. 14.

A.6.1.10 sodium thiosulfate standard titration solution. $c(\text{Na}_2\text{S}_2\text{O}_3) = 0.1\text{mol/L}$.

A.6.1.11 starch indicator solution. 10g/L.

A.6.2 Instruments and Equipment with a stopper colorimetric tube. 25mL, sulfuric acid cleaned before use.

A.6.3 Analysis step