

ICS 67.220.20
CCS X 40



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

GB 29227-2012

Food additives acetone

食品添加剂 丙酮

(English Translation)

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1 Scope

This standard applies to the cumene process and fermentation method of the food additive acetone.

2.1 Molecular formula

C₃H₆O

2.2 Structural formula

CCH₃

CH₃

2.3 Relative molecular mass

58.08 (according to the 2007 International Relative Atomic Quality)

3.1 Sensory requirements

Shall comply with the provisions of Table 1.

Table 1 sensory requirements

The project requires a test method Color and colorless State transparent liquid; no precipitate and suspended matter Take appropriate sample, placed in a clean, dry colorimetric tube, in the natural light, observe the color and status

3.2 Physical and chemical indicators

Shall comply with the provisions of Table 2.

Table 2 Physical and chemical indicators

Item Index Test Method Acetone content, w /% ≥ 99.5 GB/T 6026 Distillation range/ $^{\circ}\text{C}$
55.5 ~ 57.0 GB/T 7534

Table 2 (continued)

Item Index Test Method Evaporation residue, w /% ≤ 0.001 GB/T 6324.2 Acid (in acetic acid), w /% ≤ 0.002 Appendix A A.4 Phenol, w /% ≤ 0.001 A.5 in Appendix A.

The readily oxidized product is tested in Appendix A, A.6 Appendix A Testing method A.1 Warning Some of the test procedures specified in the test method may result in a hazardous situation. Operators should take appropriate safety and protective measures.

A.2 General provisions Unless otherwise stated, only the reagents identified as analytical reagents and the tertiary water specified in GB/T 6682-2008 are used in the analysis. test Method used in the standard titration solution, impurity determination standard solution, preparation and products, without any other requirements, according to GB/T 601, GB/T 602 and GB/T 603; the solution used in the absence of specified solvent, refers to the aqueous solution.

A.3 Identification test A.3.1 Solubility Take appropriate sample, add water or ethanol, made of sample solution (1 10), the sample should be fully clear in 5min transparent.

A.3.2 Density

According to the provisions of GB/T 4472 to determine. The density (ρ_{20}) should be 0.789 g/cm³ to 0.792 g/cm³.

A.3.3 Refractive index According to the provisions of GB/T 614 determination. Refractive index (20, D) should be 1.358 ~ 1.360.

A.4 Determination of acid (in acetic acid) A.4.1 Reagents and materials A.4.1.1 sodium hydroxide standard titration solution. c (NaOH) = 0.1mol/L.

A.4.1.2 phenolphthalein indicator solution. 10g/L.

A.4.1.3 Water without carbon dioxide.

A.4.2 Analysis steps Take 100mL without carbon dioxide water, placed in a conical flask, add 4 to 5 drops of phenolphthalein indicator solution, titration with sodium hydroxide titration solution titration to the solution was pink, with the cylinder to add 100mL sample, and then titration solution of sodium hydroxide titration solution to pink, keep 30s not Fade is the end point.

A.4.3 Calculation of results the mass fraction w of the acid [calculated as acetic acid (CH_3COOH)] is calculated according to formula (A.1) $w = (V_1/1000) \times c_M \times V_{\text{rhot}} \times 100\%$ (A.1) where.

V_1 --- sodium hydroxide standard titration solution volume of the value in milliliters (mL);

c - the exact value of sodium hydroxide standard titration solution concentration in moles per liter (mol/L);

M - the molar mass of acetic acid in grams per mole (g/mol) ($M = 60.1$);

ρ --- The density of the sample at the measured temperature, in grams per cubic centimeter (g/cm³);

1000 --- conversion factor;

V - the volume of the sample ($V = 50$) in milliliters (mL).

The arithmetic mean of the results of two parallel measurements is the result of the report. The absolute difference between the two parallel determinations is not greater than the two measurements Value of the arithmetic mean of 20%.

A.5 Determination of phenol A.5.1 Reagents and materials A.5.1.1 Sodium nitrite solution. 20 g/L. Weigh 0.1g sodium nitrite dissolved in 5mL sulfuric acid.

A.5.1.2 Sodium hydroxide solution. $c(\text{NaOH}) = 2 \text{ mol/L}$.

A.5.2 Analysis steps in the crucible by adding 3mL sample, evaporated to dry at 60 °C, add 3 drops of sodium nitrite solution, keep 2min ~ 3min.

Carefully add 3 mL of sodium hydroxide solution. No color generation is required to meet the requirements.

A.6 Easy Oxidation Test A.6.1 Reagents and materials Preparation of potassium permanganate solution with water. take a certain amount of water by adding the right amount of potassium permanganate solution (about 0.3g/L) to pale pink, boiled 30min. Such as pale pink disappear, add potassium permanganate solution and then pale pink. Cool to room temperature, spare.

Potassium permanganate solution (0.3g/L). weighed 0.3g potassium permanganate, accurate to 0.001g, with pre-treated water dissolved, placed in 1000mL brown volumetric flask, and diluted to the mark, shake. The solution is stored at room temperature in the dark, valid for two weeks.

A.6.2 Analysis steps Take 30mL sample, add 0.1mL potassium permanganate solution, shake, the solution at 20 °C for 15min to keep fading is through test.