



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

**GB 1886.108-2015**

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**National Food Safety Standard -- Food Additives --  
Azodicarbonamide**

食品安全国家标准 食品添加剂 偶氮甲酰胺

**(English Translation)**

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### 1 Scope

This standard applies to food additive azodicarbonamide.

#### 2.1 Chemical Name

Azodicarbonamide, Formula 2.2  $C_2H_4N_4O_2$

#### 2.3 Formula

$H_2N$  C

NN C

$NH_2$

#### 2.4 Relative molecular mass

116.08 (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 Color yellow to orange Status crystalline powder Take the right amount of sample is placed in a clean, dry white porcelain dish, natural Color and light to observe the 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 Azodicarbonamide ( $C_2H_4N_4O_2$ ) content (dry basis), w /% 98.6 ~ 100.5 Appendix A A.3 Nitrogen, w /% 47.2 ~ 48.7 Appendix A A.4 pH  $\geq 5$  Appendix A A.5 Loss on drying, w /%  $\leq 0.5$  GB 5009.3 in a vacuum drying method Residue on ignition, w /%  $\leq 0.15$  GB/T 9741 Lead (Pb)/(mg/kg)  $\leq 2.0$  GB 5009.12 a drying temperature of 50 °C  $\pm 2$  °C, drying time is 2h.

#### Appendix A

##### Testing method

A.1 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 in the standard titration solution, impurity measurement standard solution, preparations and products, did not indicate when the other requirements, according to GB/T 601, GB/T 602 and GB/T 603 provisions prepared. Solution was used in the tests did not indicate what is formulated with solvent, it refers to an aqueous solution.

A.2 Identification Test A.2.1 maximum absorption Formulated at a concentration of 35 $\mu$ g/mL of sample solution, the sample solution has a maximum absorption at a wavelength of about 245nm.

A.2.2 solubility and melting Almost insoluble in water and most organic solvents, slightly soluble in dimethyl sulfoxide. Above 180 °C melted with decomposition.

Determination A.3 azodicarbonamide ( $C_2H_4N_4O_2$ ) content (dry basis) of A.3.1 Reagents and materials A.3.1.1 potassium iodide.

A.3.1.2 dimethyl sulfoxide.

A.3.1.3 hydrochloric acid solution. 0.5mol/L.

A.3.1.4 sodium thiosulfate standard titration solution.  $c(Na_2S_2O_3) = 0.1mol/L$ .

##### A.3.2 Analysis step

Weigh at 50 °C vacuum dried samples after 2h about 225mg, accurate to 0.01mg, into the 250mL bottle with glass stopper iodine.

Adding about 23mL dimethyl sulfoxide, under washing may be attached to the wall of the sample, stopper, the stopper around the Sheng on 2mL solvent. Turning occasionally Click to sample is completely dissolved. Remove the stopper, so that the remaining solvent may be dissolved together with the sample flows into the flask. With 15mL water 5.0g KI washed into the flask, followed immediately draw 10mL hydrochloric acid solution at a concentration

of 0.5mol/L, and transferred into a flask, quickly segue. Shake the bottle to potassium iodide is completely dissolved, then allowed to stand in the dark conditions 20min ~ 25min, was added dropwise with 0.1mol/L sodium thiosulfate standard titration Given to the separated iodine yellow color disappeared, such as the re-emergence of yellow in 15min, then sodium thiosulfate standard titration solution and then titrated to no color. Another 25mL dimethylsulfoxide, 5.0g of potassium iodide, 15mL water and 5mL hydrochloric acid solution blank test.

A.3.3 Calculation Results Azodicarbonamide (C<sub>2</sub>H<sub>4</sub>N<sub>4</sub>O<sub>2</sub>) content (dry basis) w<sub>1</sub>, according to formula (A.1) Calculated.

V<sub>1</sub>-V<sub>2</sub>

1000 x c<sub>1</sub> x M<sub>1</sub>

x 100% (A.1)

Where.

Volume V<sub>1</sub> --- sample consumption of sodium thiosulfate standard titration solution, in milliliters (mL);

V<sub>2</sub> --- blank test volume consumption of sodium thiosulfate standard titration solution, in milliliters (mL);

1000 --- conversion factor;

Concentration c<sub>1</sub> --- sodium thiosulfate standard titration solution, expressed in moles per liter (mol/L);

--- M<sub>1</sub> molar mass of azodicarbonamide, units of grams per mole (g/mol), [M<sub>1</sub> ( 2C<sub>2</sub>H<sub>4</sub>N<sub>4</sub>O<sub>2</sub> ) = 58.04];

m<sub>1</sub> --- sample mass, in grams (g).

A.4 Determination of nitrogen A.4.1 Reagents and materials A.4.1.1 potassium sulfate.

A.4.1.2 mercuric oxide.

A.4.1.3 concentrated hydrochloric acid.

A.4.1.4 sulfuric acid.

A.4.1.5 ammonia-free water.

A.4.1.6 sodium hydroxide solution. 50%.

A.4.1.7 sodium thiosulfate solution. 44%.

A.4.1.8 boric acid solution. 4%.

A.4.1.9 sulfuric acid standard titration solution. c ( 2H<sub>2</sub>SO<sub>4</sub> ) = 0.05mol/L. Before use with

water 0.5mg/mL of sulfuric acid standard titration the solution was diluted from.

A.4.1.10 methyl red - methylene blue mixed indicator solution.

#### A.4.2 Analysis step

Weigh about 50mg samples, accurate to 0.01mg, into 100mL Kjeldahl flask, add 3mL of concentrated hydrochloric acid was heated digester 1.25h, Add water periodically to maintain the original volume. Increase the heat when the digester to the end, concentrated to half the original volume. Cooled to room temperature, 1.5g of sulfuric acid Potassium, 3mL water and 4.5mL of sulfuric acid, iodine and heated to fog no longer isolated. The mixture was cooled, washed with water to rinse the edge of the flask was heated to Charring occurs, then cooled to room temperature. In carbide added 40mg of mercury oxide, heated to pale yellow solution was cooled and rinsed with a few ml of water burn Bottle wall, cook Solutions 3h, cooling, 20mL ammonia-free water, 16mL50% sodium hydroxide solution and 5mL44% sodium thiosulfate Solution. The flask was immediately connected to the distillation apparatus, according to the general nitrogen determination distillation, the distillate is collected in a solution containing boric acid receiving 10mL4% Vessel. A few drops of methyl red - methylene blue mixed indicator solution with 0.05mol/L sulfuric acid standard titration solution titration. At the same time a blank test.

A.4.3 Calculation Results Nitrogen mass fraction  $w_2$ , according to equation (A.2)

Calculated.

$V_3-V_4$

$1000 \times c_2 \times M_2$

$\times 100\%$  (A.2)

Where.

$V_3$  --- sample consumption volume of sulfuric acid standard titration solution, in milliliters (mL);

$V_4$  --- blank test consumption volume of sulfuric acid standard titration solution, in milliliters (mL);

1000 --- conversion factor;

$C_2$  --- concentration of sulfuric acid standard titration solution, expressed in moles per liter (mol/L);

The  $M_2$  --- molar mass of nitrogen in grams per mole (g/mol), [ $M_2(N) = 14.0$ ];

$m_2$  --- sample mass, in grams (g).

#### A.5 pH measurement

Weigh 2g sample, add 100mL water, stirred vigorously for 5min, measured by the method