



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

GB 1886.386-2025

**National food safety standard - Food additive - Ammonium
carbonate**

食品安全国家标准 食品添加剂 碳酸铵

Issued on: September 2, 2025

Implemented on: March 2, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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2.1 Chemical name Ammonium carbamate, ammonium carbonate, ammonium bicarbonate
2.2 Molecular formula Ammonium carbamate. $\text{H}_2\text{NCO}_2\text{NH}$
3 Ammonium bicarbonate. NH_4HCO_3
4 Ammonium carbonate. $(\text{NH}_4)_2\text{CO}$
Appendix A

1 Scope

GB 1886.386-2025 is a mandatory national food safety standard for ammonium carbonate as a food additive. It is one of the oldest chemical raising agents - baker's ammonia, used long before modern baking powder - and it survives because it does something the alternatives cannot: it decomposes completely into ammonia, carbon dioxide and water, leaving no residual salt at all. In thin, dry baked goods such as biscuits and crackers, where the ammonia escapes fully during baking, that gives a crispness and an absence of the aftertaste that sodium or potassium residues leave behind. The same property is its limitation, which is why the specification matters: in a moist or thick product the ammonia does not fully escape, and impurities in the material end up in the food. This standard applies to ammonium carbonate as a food additive, produced from ammonia, carbon dioxide and water by absorption, crystallisation, separation, drying and cooling. As a GB it is compulsory, and it functions as a purity specification governing assay and permitted contaminants. It is written for additive manufacturers, bakery producers and food safety regulators.

This standard applies to ammonium carbonate, a food additive, which is produced from ammonia, carbon dioxide, and water through absorption, crystallization, separation, drying, and cooling. Ammonium carbonate is composed of ammonium carbamate, ammonium carbonate, and ammonium bicarbonate in different proportions.

2 Chemical name, molecular formula, structural formula, and

relative molecular mass

3 Ammonium bicarbonate. NH_4HCO_3

2.3 Structural formula Ammonium carbamate. Ammonium carbonate.

2.4 Relative molecular mass Ammonium carbamate. 78.071 (based on the international relative atomic mass in 2022) Ammonium carbonate. 96.086 (based on the international relative atomic mass in 2022) Ammonium bicarbonate. 79.055 (based on the international relative atomic mass in 2022).

Appendix A

Test methods A.1 Warning Some test procedures specified in the test methods may lead to hazardous situations. Operators shall take appropriate safety and protective measures. A.2 General provisions Unless otherwise specified, the reagents and water used in this standard refer to analytical grade reagents and Grade III water as specified in GB/T 6682. Unless otherwise specified, standard solutions, impurity determination standard solutions, preparations, and products used in the tests shall be prepared in accordance with the provisions of GB/T 601, GB/T 602, and GB/T 603. In the test, the solutions used, unless the solvent for preparation is specified, all refer to aqueous solutions. A.3 Identification test A.3.1 Reagents and materials A.3.1.1 Concentrated hydrochloric acid. A.3.1.2 Calcium hydroxide. A.3.1.3 Hydrochloric acid solution (1+1, volume ratio). Measure 50 mL of hydrochloric acid and dilute to 100 mL with water. A.3.1.4 Calcium hydroxide solution (3 g/L). Weigh 3 g of calcium hydroxide, place it in a reagent bottle, add 1000 mL of water, stopper the bottle, shake vigorously, and let stand for 1 hour. Take the supernatant before use. A.3.1.5 Red litmus paper. A.3.1.6 Evaporating dish. A.3.2 Instruments and equipment A.3.2.1 Heating plate or adjustable closed electric furnace. A.3.2.2 Electronic balance. The sensitivity is

0.01 g. A.3.3 Identification method A.3.3.1 Solubility Weigh approximately 1 g of the sample, accurate to

0.01 g, place it in a beaker, add approximately 7 mL of water, shake for at least 30 seconds, and observe the dissolution of the sample within 5 minutes. The sample is readily soluble in water. A.3.3.2 Identification of carbonates Weigh approximately 10 g of the sample, accurate to

0.01 g, and dissolve it in 10 mL of water. The hydrochloric acid solution (A.3.1.3) is added, then bubbles are produced. After this gas is passed into the calcium hydroxide solution (A.3.1.4), a white precipitate forms first. Continue to pass the gas into the solution, and then the solution shall become clear. A.3.3.3 Thermal test Weigh approximately 1 g of the sample, accurate to

0.01 g, place it in a beaker, and heat it on a heating plate or an adjustable closed electric furnace. The sample decomposes upon heating, and the resulting vapor can turn moist red litmus paper blue. A.4 Determination of content (as NH₃) A.4.1 Method principle The sample is dissolved in water, and the ammonia content is determined by titration with a

standard hydrochloric acid solution using methyl orange as an indicator. A.4.2 Reagents and materials A.4.2.1 Standard hydrochloric acid titration solution. $c(\text{HCl}) = 1 \text{ mol/L}$. A.4.2.2 Methyl orange indicator solution. A.4.3 Instruments and equipment Electronic balance. The sensitivity is 0.0001 g. A.4.4 Analysis Steps Weigh

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