

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: Ammonium Bicarbonate (Food Grade)
- English Name: Ammonium Bicarbonate
- CAS Number: 1066-33-7
- Formula: NH_4HCO_3
- Molecular Weight: 79.06 g/mol
- **Product Characteristics:** Food-grade ammonium bicarbonate is a white crystalline powder/granular inorganic salt, a common food leavening agent with high purity ($\geq 99.2\%$). It decomposes at 60°C to release ammonia, carbon dioxide and water vapor, forming uniform pores in food (bakery, pastry) to achieve leavening effect. It is soluble in water, slightly alkaline, non-toxic at food dosage, and approved for food use by FAO/WHO with no ADI limit. It also has the function of acidity regulator, and is widely used in the food industry; it can also be used as feed additive and industrial foaming agent (non-food grade).

2. Technical Specifications (Complies with GB 1888-2021 / FCC / FAO/WHO)

Item	Specification (Food Grade)
Appearance	White crystalline powder/granular, no caking, slight ammonia odor
Assay (NH_4HCO_3)	$\geq 99.2\%$
Moisture Content	$\leq 0.5\%$
Residue on Ignition	$\leq 0.05\%$
Chloride (as Cl)	$\leq 0.005\%$
Sulfate (as SO_4)	$\leq 0.005\%$
Heavy Metals (Pb)	≤ 0.5 ppm
Arsenic (As)	≤ 0.1 ppm
Iron (Fe)	$\leq 0.001\%$
pH Value (25°C , 10% solution)	7.0-8.5
Water Solubility	21.6 g/100mL (20°C)
Decomposition Temperature	$\geq 60^\circ\text{C}$
Hygroscopy	Slightly hygroscopic
Color Reaction	No abnormal color reaction (food grade)

3. Product Advantages

1. **High Purity & Food Safety:** Food-grade purity $\geq 99.2\%$, low impurity content, meets GB 1888-2021/FCC standards; FDA/FAO/WHO certified, no ADI limit, safe for human consumption.
2. **Excellent Leavening Effect:** Decomposes at baking temperature ($60-100^\circ\text{C}$) to release a large amount of gas, forming uniform and fine pores in food; leavening speed is adjustable, suitable for various bakery products.
3. **No Residue & Good Flavor:** Decomposes completely into ammonia, carbon dioxide and water, no solid residue in food; ammonia gas volatilizes completely during baking, no peculiar smell in the final product.
4. **Wide Compatibility:** Compatible with most food additives (baking soda, starch, sugar); can be used alone or in combination with sodium bicarbonate to improve leavening effect.
5. **Low Cost & Easy to Use:** Low production cost, high cost performance; easy to dissolve in water, simple to add in food processing, suitable for large-scale industrial production.
6. **Multi-Functional:** Not only a leavening agent, but also an acidity regulator for food; can adjust the pH of food system, improve food texture and shelf life.

4. Application Fields

Food-grade ammonium bicarbonate is a classic food leavening agent (no dosage limit for food use), suitable for **bakery, pastry, biscuit and other food processing**, with core application in leavening; also used as acidity regulator and feed additive:

- **Bakery Industry:** Steamed bread, bun, cake, bread, muffin; as leavening agent, makes the product soft and fluffy, with uniform pores.
- **Pastry & Biscuit Industry:** Moon cake crust, crispy biscuit, soda cracker; used in combination with baking soda, improves the crispness and taste of products.
- **Snack Food Industry:** Fried dough twist, fried cake, rice cake; leavening agent, makes the product loose and not hard, easy to digest.
- **Food Acidity Regulator:** Dairy products, beverage, jam; adjust the pH of food system, stabilize product quality and extend shelf life.
- **Feed Additive:** Livestock and poultry feed, aquatic feed; adjust the pH of feed, improve feed palatability and animal digestion and absorption.
- **Industrial Use:** Foaming agent for plastic, rubber, building materials; non-food grade, used in industrial production (high purity requirement).

5. Usage Methods

5.1 Recommended Dosage (Food Use, w/w, adjustable according to product type)

Food Type	Recommended Dosage	Usage Notes
Steamed bread/Bun	0.3-0.8%	Use alone, dissolve in water and mix with flour
Cake/Bread	0.2-0.5%	Combined with sodium bicarbonate (1:1), better leavening effect
Biscuit/Crisp Pastry	0.4-0.9%	Low dosage, avoid excessive gas and product cracking
Fried Dough Twist/Fried Cake	0.5-1.0%	Dissolve in water, mix with dough and ferment properly
Feed Additive	0.1-0.3%	Mix evenly with feed raw materials

6. Packaging & Storage

- **Small Batch:** 1kg/5kg/10kg – Food-grade sealed HDPE plastic bags, outer carton; for small-scale food processing and retail.
- **Standard Batch:** 25kg – Food-grade moisture-proof paper bags with plastic inner lining / sealed HDPE plastic drums; for medium/large-scale food production.
- **Bulk Batch:** 500kg/1000kg – Food-grade FIBC bulk bags (moisture-proof PE liner); for large-scale industrial production and export.
- **Custom Packaging:** Available upon request (according to customer's packaging requirements).

7. Safety & Protection

- **Personal Protection:** Wear FFP2 dust mask, chemical protective goggles, nitrile rubber gloves and protective clothing during handling; avoid dust inhalation and direct contact with skin/eyes.
- **Workplace Safety:** Operate in a well-ventilated area with local exhaust ventilation; do not eat, drink or smoke in the workplace; wash hands and face thoroughly after handling.
- **Emergency Treatment:**
 - Skin contact: Rinse with plenty of water for 10-15 minutes; seek medical advice if irritation occurs.
 - Eye contact: Rinse with plenty of water for at least 15 minutes; call a doctor immediately.
 - Inhalation: Move to fresh air; give oxygen if breathing is difficult; call a doctor.
 - Ingestion: Drink plenty of water to dilute; do not induce vomiting; call a poison control center immediately.