

Material Safety Data Sheet (MSDS)

Product Name: Ammonium Carbonate

MSDS Generate Date: 20-05-2017

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Supplier:

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1. Identification of the Substance and Company

Product Name: Ammonium Carbonate

Chemical Name: Ammonium Carbonate

Synonyms: Baker's Ammonia, Hartshorn, Ammonium Sesquicarbonate

CAS Number: 506-87-6

Molecular Formula: $(\text{NH}_4)_2\text{CO}_3$

Molecular Weight: 96.09 g/mol

Recommended Use:

Leavening agent in food processing, pharmaceutical intermediate, laboratory reagent, chemical manufacturing, textile processing, and industrial applications.

2. Hazard Identification

GHS Classification:

- Acute Toxicity (Oral) – Category 4
- Skin Irritation – Category 2

- Eye Irritation – Category 2A
- Specific Target Organ Toxicity (Single Exposure) – Category 3 (Respiratory Irritation)

Hazard Statements

- Harmful if swallowed.
- Causes skin irritation.
- Causes serious eye irritation.
- May cause respiratory irritation.
- Decomposes to release ammonia gas, especially when heated or exposed to moisture.

Precautionary Statements

- Avoid breathing dust or vapors.
- Use only in well-ventilated areas.
- Wear protective gloves and eye protection.
- Wash thoroughly after handling.
- Keep container tightly closed.

3. Composition / Information on Ingredients

Chemical Name: Ammonium Carbonate

CAS Number: 506-87-6

Molecular Formula: $(\text{NH}_4)_2\text{CO}_3$

Chemical Family: Inorganic Ammonium Salt

Purity: Typically 99.0% minimum (depending on grade)

The product consists primarily of ammonium carbonate and may contain small amounts of ammonium bicarbonate and ammonium carbamate formed during manufacture or storage within acceptable specification limits.

4. First Aid Measures

Inhalation: Move the affected person to fresh air immediately. If breathing is difficult, administer oxygen by qualified personnel. Seek medical attention if symptoms persist.

Skin Contact: Wash affected skin thoroughly with soap and plenty of water. Remove contaminated clothing and wash before reuse.

Eye Contact: Flush eyes immediately with plenty of water for at least 15 minutes while holding eyelids open. Remove contact lenses if present and easy to do. Obtain immediate medical attention.

Ingestion: Rinse mouth with water. Do not induce vomiting unless directed by medical personnel. Give water if the person is conscious. Seek immediate medical attention.

Most Important Symptoms:

- Respiratory irritation
- Burning sensation in eyes
- Skin redness and irritation
- Nausea and vomiting
- Gastrointestinal discomfort

5. Fire Fighting Measures

Suitable Extinguishing Media: Use extinguishing media appropriate for the surrounding fire.

Fire Hazards: The product itself is not combustible but decomposes upon heating, releasing ammonia and carbon dioxide.

Hazardous Combustion/Decomposition Products: Ammonia, Carbon dioxide, Nitrogen oxides (under extreme fire conditions).

Protective Equipment: Firefighters should wear self-contained breathing apparatus (SCBA) and full protective clothing.

6. Accidental Release Measures

Personal Precautions:

- Evacuate unnecessary personnel.
- Avoid breathing dust and vapors.
- Ensure adequate ventilation.
- Wear suitable personal protective equipment.

Environmental Precautions: Prevent entry into drains, surface water, and soil.

Cleanup Methods: Carefully sweep or vacuum spilled material into suitable containers while minimizing dust formation. Wash contaminated area with water after collection.

7. Handling and Storage

Handling

- Avoid inhalation of dust and ammonia vapors.
- Use adequate ventilation.
- Avoid contact with skin and eyes.
- Do not eat, drink, or smoke while handling.

Storage

Store in tightly closed containers in a cool, dry, and well-ventilated place.

Protect from heat, moisture, acids, and direct sunlight. Store away from incompatible materials.

8. Exposure Controls / Personal Protection

- **Engineering Controls:** Use local exhaust ventilation to maintain airborne concentrations below occupational exposure limits.

Personal Protective Equipment

- **Respiratory Protection:** NIOSH-approved respirator where ventilation is inadequate.
- **Eye Protection:** Chemical safety goggles or face shield.
- **Hand Protection:** Chemical-resistant gloves.
- **Skin Protection:** Protective clothing and safety footwear.

9. Physical and Chemical Properties

Appearance: White crystalline powder or lumps

Odor: Strong ammonia odor

Physical State: Solid

pH (5% Solution): Approximately 8.5–9.5

Melting Point: Decomposes before melting

Boiling Point: Not applicable (decomposes)

Specific Gravity: Approximately 1.50

Bulk Density: Varies according to grade

Solubility: Freely soluble in water; insoluble in most organic solvents

Flash Point: Not applicable

Auto-Ignition Temperature: Not applicable

Explosive Properties: None

Oxidizing Properties: None

Vapor Pressure: Releases ammonia vapor during decomposition

Vapor Density: Not applicable

10. Stability and Reactivity

Reactivity: Reacts with acids to release carbon dioxide and ammonia.

Chemical Stability: Stable under recommended storage conditions but gradually decomposes upon exposure to heat, moisture, or prolonged storage.

Conditions to Avoid: Heat, Moisture, Direct sunlight, Humid environments.

Incompatible Materials: Strong acids, Strong oxidizing agents, Strong alkalis, Chlorine-containing compounds.

Hazardous Decomposition Products: Ammonia, carbon dioxide, nitrogen oxides (under fire conditions).

11. Toxicological Information

Acute Toxicity: Harmful if swallowed in significant quantities.

Skin Irritation: Causes skin irritation.

Eye Irritation: Causes serious eye irritation.

Respiratory Effects: Dust and ammonia vapors may cause irritation of the respiratory tract.

Carcinogenicity: Not classified as carcinogenic.

Mutagenicity: No known mutagenic effects.

Reproductive Toxicity: No known reproductive hazards under normal industrial use.

12. Ecological Information

Ecotoxicity: Large releases may adversely affect aquatic organisms due to changes in water pH and ammonia concentration.

Persistence and Degradability: Readily dissociates into naturally occurring ions.

Bioaccumulative Potential: Not expected to bioaccumulate.

Mobility: Highly soluble in water and readily mobile in soil.

13. Disposal Considerations

Dispose of unused product and contaminated packaging according to local, regional, and national regulations.

Do not discharge concentrated product into drains, watercourses, or soil.

14. Transport Information

Ammonium Carbonate is generally not regulated as dangerous goods under ADR/RID, IMDG, or IATA when transported in commercial quantities and appropriate packaging. However, because the material gradually decomposes to release ammonia gas, it should be transported in tightly sealed containers under cool and dry conditions. Packages should be protected from excessive heat, moisture, and physical damage throughout transportation.

UN Number: Not regulated.

UN Proper Shipping Name: Not regulated.

Transport Hazard Class: Not regulated.

Packing Group: Not regulated.

Environmental Hazard: Not classified as environmentally hazardous for transport.

Marine Pollutant: No.

Road Transport (ADR/RID): Transport in clean, dry, tightly sealed HDPE containers, fiber drums, or laminated bags. Protect from heat, humidity, rain, and incompatible chemicals. Ensure packages remain upright and undamaged during transportation.

Sea Transport (IMDG): The product is not regulated under the IMDG Code. Containers should be protected from seawater, excessive humidity, and elevated temperatures. Ensure adequate ventilation inside cargo spaces if large quantities are transported due to the possibility of slow ammonia release.

Air Transport (IATA): Ammonium Carbonate is not regulated as dangerous goods under IATA regulations. Use strong, moisture-resistant packaging to prevent decomposition and maintain product quality during transit.

Special Transport Precautions:

- Keep containers tightly closed.
- Protect from moisture, rain, and high temperatures.
- Store and transport in well-ventilated conditions.
- Keep away from acids, oxidizers, and food incompatible with ammonia odors.
- Prevent package damage during loading and unloading.
- Secure cargo properly to avoid shifting during transport.

- Inspect containers periodically during long-distance transport for signs of decomposition or pressure build-up.

Transport in Bulk According to MARPOL Annex II and IBC Code: Not applicable.

Emergency Transport Information: If accidental spillage occurs during transportation, isolate the area and ensure adequate ventilation. Avoid inhalation of dust and ammonia vapors. Sweep or vacuum spilled material into suitable containers while minimizing dust generation. Personnel involved in cleanup should wear appropriate respiratory protection, gloves, eye protection, and protective clothing. Prevent the material from entering drains, sewers, and waterways. Dispose of recovered material in accordance with applicable environmental regulations.

15. Regulatory Information

- Handle this product in accordance with applicable occupational safety, environmental protection, food, pharmaceutical, and chemical regulations.
- Users should comply with all applicable local and national regulations concerning storage, handling, transport, and disposal.

16. Other Information

The information contained in this Material Safety Data Sheet is based on current scientific knowledge and industrial experience. It is intended solely as guidance for the safe handling, storage, transportation, and disposal of the product. It should not be interpreted as a guarantee of product properties or suitability for any specific application. Users are responsible for complying with all applicable laws and regulations.

- **MSDS Generate Date:** 20-05-2017
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- **Website:** www.rawpharmabiz.com
- MSDS are based on the manufacturer's provided information.