

AMMONIUM BI CARBONATE

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

AMMONIUM BICARBONATE
Ammonium Hydrogen Carbonate
CAS: 1066-33-7

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: leavening agent precursor (food/technical grade), fertilizer raw material, fire-extinguishing powder base, buffering/pH-adjusting agent, dyeing and tanning auxiliary. For industrial/commercial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Not classified	Not classified as hazardous under GHS physical, health or environmental hazard core criteria based on available data
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2.2 GHS label elements, including precautionary statements:

GHS: No signal word (Not classified as hazardous)

Hazard statements:

None.

Precautionary statements:

P261: Avoid breathing dust.
P264: Wash hands thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other hazards which do not result in classification:

Decomposes on gentle heating (onset ~36°C, more rapidly above 60°C, essentially complete by ~107°C) releasing ammonia gas, carbon dioxide and water vapour; ammonia released in a confined, heated space can cause respiratory and eye irritation (see sections 5, 7 and 10).

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Ammonium Bicarbonate (Ammonium Hydrogen Carbonate)
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 1066-33-7	Ammonium Bicarbonate (Ammonium Hydrogen Carbonate) — Not classified under core GHS hazard categories	≥99% (technical/food grade)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Request medical assistance immediately, showing the SDS of this product.

By inhalation:

Remove the person affected from the area of exposure and provide fresh air. If ammonia odour is noticed and irritation occurs, seek medical attention.

By skin contact:

Wash affected skin with plenty of water.

By eye contact:

Rinse eyes thoroughly with plenty of water for several minutes, holding eyelids open. Seek medical attention if irritation persists.

By ingestion/aspiration:

Rinse mouth with water. Not expected to be acutely harmful in small amounts; seek medical attention if a large quantity is swallowed or discomfort occurs.

4.2 Most important symptoms/effects, acute and delayed:

Acute and delayed effects are indicated in sections 2 and 11.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:

Not relevant

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:

Suitable: Product is non-combustible; use extinguishing media appropriate to the surrounding fire (water spray, foam, dry chemical powder, carbon dioxide)
Unsuitable: None known

5.2 Specific hazards arising from the chemical:

Non-flammable, non-combustible solid. Decomposes on heating, releasing ammonia gas and carbon dioxide, which can increase pressure in closed containers/vessels.

5.3 Special protective actions for fire-fighters:

Wear self-contained breathing apparatus where ammonia decomposition gas may be present. Cool fire-exposed containers with water spray from a safe distance to prevent pressure build-up.

Additional provisions:

Use water spray to cool fire-exposed containers. Prevent fire-fighting water from entering drains or watercourses. Approach the fire from upwind where possible.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Isolate leaks provided there is no additional risk for the people performing this task. Personal protection equipment must be used against potential contact with the spilt product (see section 8). Evacuate the area and keep out those who do not have protection.

For emergency responders:

Wear protective equipment. Keep unprotected persons away. See section 8.

6.2 Environmental precautions:

Not classified as an environmental hazard; avoid large-scale discharge to watercourses as good practice (elevated ammonia/nitrogen loading).

6.3 Methods and materials for containment and cleaning up:

Sweep or vacuum up dry material avoiding dust generation; collect in suitable containers for disposal or reuse.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A. General precautions for safe use:

Avoid generating and inhaling dust. Keep containers closed when not in use to prevent slow decomposition/loss of ammonia.

B. Technical recommendations for the prevention of fires and explosions:

Non-flammable; keep away from sustained heat sources which accelerate decomposition and gas evolution.

C. Technical recommendations on general occupational hygiene:

Do not eat, drink or smoke while handling. Wash hands after use.

D. Technical recommendations to prevent environmental risks:

Avoid unnecessary release to drains and watercourses.

7.2 Conditions for safe storage, including any incompatibilities:

A. Specific storage requirements:

Minimum Temp.	5°C
Maximum Temp.	25°C
Maximum time	12 Months (store cool; product slowly decomposes at ambient/elevated temperature)

B. General conditions for storage:

Store in a cool (below 25°C), dry, well-ventilated place in tightly closed containers, away from direct sunlight and heat sources. For additional information see subsection 10.5.

7.3 Specific end use(s):

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

Substances whose occupational exposure limits have to be assessed in the workplace, per the Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987):

Identification	Occupational Exposure Limit Type	Value
Ammonia (decomposition product) CAS: 7664-41-7	Time Weighted average concentration (8 hrs)	25 ppm
	Short-term exposure limit (15 min)	35 ppm

8.2 Appropriate engineering controls:

It is recommended to use localized extraction in the work area as a collective protection measure to avoid exceeding occupational exposure limits, in addition to individual protective equipment (PPE) as needed. Consult the manufacturer's information leaflet for storage, use, cleaning and maintenance of PPE. Ensure adequate ventilation, especially in warm/confined storage areas, to disperse any ammonia released by slow decomposition.

B. Respiratory protection:

Not normally required with adequate ventilation. Use a respirator with ammonia-rated cartridge if decomposition (ammonia odour) is noticeable in a confined space.

C. Specific protection for the hands:

Protective gloves recommended for prolonged/repeated handling.

D. Eye and face protection:

Safety glasses or goggles recommended where dust is generated.

E. Bodily protection:

Standard work clothing.

F. Additional emergency measures:

Emergency shower (ANSI Z358-1, ISO 3864-1:2011, ISO 3864-4:2011) and eyewash stations (DIN 12 899, ISO 3864-1:2011, ISO 3864-4:2011) should be available.

Environmental exposure controls:

Avoid environmental spillage of both the product and its container. See subsection 7.1.D.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Solid (crystalline powder)
Appearance	Crystalline powder
Color	White
Odor	Slight ammoniacal odour

Odour threshold	Not established
Volatility	
Boiling point at atmospheric pressure	Decomposes before boiling
Vapour pressure at 20°C	Not relevant *
Evaporation rate at 20°C	Not relevant (solid)
Product Description	
Density / Relative density at 20°C	1.586 g/cm³ (literature)
Dynamic / Kinematic viscosity	Not applicable (solid)
Concentration	See section 3
pH	~7.8–8.2 (1% aqueous solution, literature)
Vapour density at 20°C	Not relevant (solid)
Partition coefficient n-octanol/water 20°C	Not applicable (inorganic salt)
Solubility in water at 20°C	Soluble, ~200 g/L (literature)
Decomposition temperature	Onset ~36°C; essentially complete by ~107°C
Melting point/freezing point	Decomposes on heating (no true melting point)
Flammability	
Flash Point	Non-applicable (non-combustible solid)
Flammability (solid, gas)	Non-flammable
Autoignition temperature	Non-applicable
Lower / Upper flammability limit	Non-applicable
Particle Characteristics	
Median equivalent diameter	Available on request (grade dependent)

* Not relevant due to the low volatility of the solid at ambient temperature (decomposition, not vaporisation, governs vapour phase behaviour above ~36°C).

9.2 Other information:

Explosive properties	Not relevant (non-explosive)
Oxidising properties	Non-oxidising
Corrosive to metals	Not corrosive
Heat of combustion	Not relevant (non-combustible)
Surface tension at 20°C	Not relevant (solid)
Refraction index	Not relevant (solid)

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

Decomposes on heating (see section 9) releasing ammonia and carbon dioxide gas; reacts with acids releasing carbon dioxide, and with strong bases releasing ammonia gas.

10.2 Chemical stability:

Stable at normal ambient temperature; slowly decomposes on prolonged storage at elevated temperature or in direct sunlight/heat.

10.3 Possibility of hazardous reactions:

Reaction with acids or alkalis releases gas (CO2 or NH3 respectively) which can pressurise closed containers. No other hazardous reactions expected under normal conditions.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Accelerates decomposition/gas release	Avoid direct/prolonged exposure	Avoid contact with moisture in bulk storage (caking)

10.5 Incompatible materials:

Acids	Strong Bases	Heat Sources
Releases CO2; avoid contact	Releases NH3; avoid contact	Accelerates decomposition

10.6 Hazardous decomposition products:

Ammonia gas, carbon dioxide and water vapour on heating.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect):

Low acute oral toxicity; large doses may cause gastrointestinal discomfort due to alkalinity/ammonia release.

B. Inhalation (acute effect):

Dust or ammonia gas released on decomposition may cause irritation of the nose, throat and respiratory tract.

C. Contact with skin and eyes (acute effect):

May cause mild irritation to skin and eyes as a particulate/mildly alkaline dust.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):

Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data.

E. Sensitizing effects:

Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure:

Not classified based on available data; ammonia released on decomposition is a known respiratory irritant (see section 10).

G. Specific target organ toxicity (STOT) – repeated exposure:

Classification criteria are not met based on available data.

H. Aspiration hazard:

Not relevant (solid).

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Ammonium Bicarbonate CAS: 1066-33-7	Practically non-toxic; specific LD50 not established/standardized for this food/technical-grade material (widely used as a food leavening precursor)	–

SECTION 12: ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment.

12.1 Toxicity:

Identification	Acute Toxicity	Genus
Ammonium Bicarbonate CAS: 1066-33-7	Not established for this grade; large releases can locally elevate ammoniacal-nitrogen levels and aquatic pH/ammonia toxicity	Fish / Crustacean

12.2 Persistence and degradability:

Readily dissociates/degrades in the environment to naturally occurring ammonium, bicarbonate and carbon dioxide species.

12.3 Bioaccumulative potential:

Not expected to bioaccumulate (highly soluble inorganic salt).

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Not relevant	Not relevant	Mobile (highly soluble)	Mobile

12.5 Results of PBT and vPvB assessment:

Non-applicable (inorganic substance; PBT criteria apply to organic substances).

12.6 Other adverse effects:

Large releases may locally raise un-ionised ammonia levels in receiving water, which is toxic to aquatic life; avoid bulk discharge.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Dispose of as general/technical waste in accordance with local regulations, or recover for reuse where practicable. Avoid heating waste material in enclosed spaces (ammonia release). Do not discharge large quantities directly to drains or watercourses.
Refer to national and local regulations on waste management (Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016, as amended).

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023):

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not classified as dangerous goods for transport
14.3 Transport hazard class(es)	–
14.4 Packing group	–
14.5 Environmental hazard	No
14.6 Special precautions for user	Keep cool during transport to limit decomposition; physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22):

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not classified as dangerous goods for transport
14.3 Transport hazard class(es)	–
14.4 Packing group	–
14.5 Environmental hazard	No
14.6 Special precautions for user	Keep cool during transport to limit decomposition; physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024):

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not classified as dangerous goods for transport
14.3 Transport hazard class(es)	–
14.4 Packing group	–
14.5 Environmental hazard	No
14.6 Special precautions for user	Keep cool during transport to limit decomposition; physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation:

Manufacture, Storage and Import of Hazardous Chemicals Rules 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996
Public Liability Insurance Act, 1991

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:

Not applicable – product not classified as hazardous; see section 2.3 for the thermal-decomposition (ammonia release) note.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

United Nations GHS (Rev. 8); ECHA Classification & Labelling Inventory; publicly available peer-reviewed and regulatory toxicological/ecotoxicological literature for this CAS number.

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | COD: Chemical Oxygen Demand | BOD5: 5-day biochemical oxygen demand | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET