

SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0

Creation Date: Aug 12, 2017

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1. Identification

1.1 GHS Product identifier

Product name Ammonium bicarbonate

1.2 Other means of identification

Product number -

Other names Ammonium Bicarbonate

1.3 Recommended use of the chemical and restrictions on use

Identified uses For industry use only. Specialized Industrial Chemicals

Uses advised against no data available

2. Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Oral, Category 4

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

Hazard statement(s)

H302 Harmful if swallowed

Precautionary

statement(s)

Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

Response

P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/...if you feel unwell.

P330 Rinse mouth.

Storage

none

Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Ammonium bicarbonate	Ammonium bicarbonate	1066-33-7	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest.

In case of skin contact

Rinse skin with plenty of water or shower.

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Rinse mouth.

4.2 Most important symptoms/effects, acute and delayed

Inhalation may cause respiratory irritation. Ingestion could be harmful. Contact with eyes or skin causes irritation. (USCG, 1999)

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

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Ammonia and related compounds/

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

If material involved in fire: Extinguish fire using agent suitable for type of surrounding fire (material itself does not burn or burns with difficulty).

5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Irritating and toxic ammonia gas may form in fires. Behavior in Fire: Decomposes, but reaction is not explosive. Ammonia gas is formed. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Personal protection: filter respirator for ammonia and organic ammonia derivatives in conjunction with particulate filter adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Wash away remainder with plenty of water.

6.3 Methods and materials for containment and cleaning up

Environmental considerations: Water spill: Neutralize with dilute acid.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Separated from strong oxidants, strong bases and acids. Cool. Store below 33°C

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash

hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state	white crystalline powder
Colour	Colorless or white crystals
Odour	Faint odor of ammonia
Melting point/ freezing point	105°C
Boiling point or initial boiling point and boiling range	169.8°C
Flammability	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit / flammability limit	no data available

Flash point	no data available
Auto-ignition temperature	no data available
Decomposition temperature	35-60°C
pH	About 8,0 (5 % solution)
Kinematic viscosity	no data available
Solubility	In water:220 g/L (20 °C)
Partition coefficient n-octanol/water (log value)	no data available
Vapour pressure	2.58E-05mmHg at 25°C
Density and/or relative density	1.58
Relative vapour density	2.7 (vs air)
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Comparatively stable at room temp; ... the white fumes given off consist of ammonium 21.5%, carbon dioxide 55.7%, water vapor 22.8%; rate of decomposition increases as temperature rises.

10.3 Possibility of hazardous reactions

Ammonium bicarbonate may burn, but does not readily ignite. AMMONIUM BICARBONATE decomposes when heated above 36°C, releasing ammonia and carbon dioxide gases; it can also be decomposed into ammonia and carbon dioxide by strong acids and strong bases [Handling Chemicals Safely 1980 p. 141].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

Decomposes above 34°C with formation of ammonia gas.

11. Toxicological information

Acute toxicity

- Oral: no data available
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

- Toxicity to fish: LC50; Species: *Oncorhynchus mykiss* (Rainbow Trout, weight 1.8 g, length 5.8 cm); Conditions: freshwater, flow through, 13.6°C (13.2-13.8°C), pH 8.12 (7.92-8.24), hardness 184 mg/L CaCO₃ (178-190 mg/L CaCO₃), alkalinity 172 mg/L CaCO₃ (159-262 mg/L CaCO₃), dissolved oxygen 9.0 mg/L (8.4-9.5 mg/L); Concentration: 17300 ug/L for 96 hr (95% confidence interval: 16100-18700 ug/L) /technical
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or

reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: UN9081

IMDG: UN9081

IATA: UN9081

14.2 UN Proper Shipping Name

ADR/RID: unknown

IMDG: unknown

IATA: unknown

14.3 Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA: 6.1

14.4 Packing group, if applicable

ADR/RID: unknown

IMDG: unknown

IATA: unknown

14.5 Environmental hazards

ADR/RID: no

IMDG: no

IATA: no

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15. Regulatory information

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

Chemical name	Common names and synonyms	CAS number	EC number
Ammonium	Ammonium bicarbonate	1066-33-7	none

bicarbonate		
European Inventory of Existing Commercial Chemical Substances (EINECS)		Listed.
EC Inventory		Listed.
United States Toxic Substances Control Act (TSCA) Inventory		Listed.
China Catalog of Hazardous chemicals 2015		Not Listed.
New Zealand Inventory of Chemicals (NZIoC)		Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)		Listed.
Vietnam National Chemical Inventory		Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)		Listed.

16. Other information

Information on revision

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Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website:
<http://www.ilo.org/dyn/icsc/showcard.home>

- HSDB - Hazardous Substances Data Bank, website:
<https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website:
<http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:
http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website:
<http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website:
<http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website:
<http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.