

CA06900

Material Safety Data Sheet

Material Name: Ammonium Bicarbonate

ID: C1-204

*** Section 1 - Chemical Product and Company Identification ***

Chemical Name: Ammonium Bicarbonate, Technical and Food Grades

Product Use: For Commercial Use

Synonyms: Ammonium Acid Carbonate; Ammonium Hydrogen Carbonate; Carbonic Acid Monoammonium Salt.

Manufacturer Information

Chem One Ltd. (Importer of record)

Phone: (713) 896-9966

8017 Pinemont Drive, Suite 100

Fax: (713) 896-7540

Houston, Texas 77040-6519

Emergency # (800) 424-9300 or (703) 527-3887

General Comments: FOR COMMERCIAL USE ONLY; NOT TO BE USED AS A PESTICIDE.

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

*** Section 2 - Composition / Information on Ingredients ***

CAS #	Component	Percent
1066-33-7	Ammonium Bicarbonate	99-100

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

*** Section 3 - Hazards Identification ***

Emergency Overview

Colorless to white crystals with a faint ammonia odor. May cause irritation to eye, skin, and respiratory system. Forms toxic ammonia gas during fire conditions. When heated to decomposition, Ammonium Bicarbonate may emit toxic fumes of ammonia, and nitrogen oxides.

Hazard Statements

Caution! May be harmful if inhaled or ingested. May cause eye, skin and respiratory irritation. Avoid breathing dusts or fumes. Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Do not take internally. Wash thoroughly after handling.

Potential Health Effects: Eyes

Exposure to particulates or solution of Ammonium Bicarbonate may cause mild irritation of the eyes with symptoms such as stinging, tearing and redness.

Potential Health Effects: Skin

Ammonium Bicarbonate can cause slight irritation of the skin, especially after prolonged exposures. Repeated skin contact may lead to dermatitis (red, cracked skin). Symptoms are generally alleviated when exposure ends.

Potential Health Effects: Ingestion

Ingestion of Ammonium Bicarbonate (especially in large volumes) can irritate the tissues of the mouth, esophagus, and other tissues of the digestive system. Symptoms of exposure can include vomiting, diarrhea, and nausea.

Potential Health Effects: Inhalation

Breathing dusts or particulates generated by Ammonium Bicarbonate can lead to irritation of the nose, throat or respiratory system. Symptoms of such exposure could include coughing and sneezing. Inhalation of ammonia fumes (as may occur if Ammonium Bicarbonate is heated) can cause coughing, vomiting, reddening of the lips, mouth, nose throat and conjunctiva.

HMIS Ratings: Health: 1 Fire: 0 Reactivity: 0 Personal Protective Equipment: B chemical goggles, impervious gloves

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 4 - First Aid Measures ***

First Aid: Eyes

If product contacts eyes, get immediate medical attention. Immediately rinse affected eye with plenty of water for at least 15 minutes.

First Aid: Skin

Remove all contaminated clothing. For skin contact, wash the exposed area extremely thoroughly with soap and water. Seek medical attention if irritation persists. Wash all contaminated clothing before reuse.

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*** Section 4 - First Aid Measures (Continued) ***

First Aid: Inhalation

Remove source of contamination or move victim to fresh air. If breathing has stopped, apply artificial respiration. Get immediate medical attention.

First Aid: Ingestion

DO NOT INDUCE VOMITING, unless directed by medical personnel. Have victim rinse mouth thoroughly with water, if conscious. Never give anything by mouth to a victim who is unconscious or having convulsions. Contact a physician or poison control center immediately.

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically. In cases of oral ingestion, measures should be taken to prevent absorption. Monitor patient for ammonia-induced encephalopathy.

*** Section 5 - Fire Fighting Measures ***

Flash Point: Not combustible

Method Used: Not applicable

Upper Flammable Limit (UEL): Not applicable

Lower Flammable Limit (LEL): Not applicable

Auto Ignition: Not applicable

Flammability Classification: Nonflammable

Rate of Burning: Not applicable

General Fire Hazards

Ammonium Bicarbonate will decompose when exposed to high temperatures, forming toxic ammonia gas.

Hazardous Combustion Products

When heated to decomposition, this product may emit toxic fumes of ammonia, carbon dioxide, carbon monoxide and nitrogen oxides.

Extinguishing Media

Fight fires with water. Water spray will effectively reduce fume and irritant gases. Extinguish fire using agent suitable for the type of surrounding fire and surrounding materials (material itself does not burn or burns with difficulty).

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self-contained breathing apparatus.

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0 Other:

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

*** Section 6 - Accidental Release Measures ***

Containment Procedures

Stop the flow of material, if this can be done without risk. Contain the discharged material. If sweeping of a contaminated area is necessary use a dust suppressant agent, which does not react with product (see Section 10 for incompatibility information).

Clean-Up Procedures

Wear appropriate protective equipment and clothing during clean-up. Shovel the material into waste container. Thoroughly wash the area after a spill or leak clean-up. Avoid contamination of soil, and prevent spill residue from running to groundwater or storm drains.

Evacuation Procedures

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. Keep materials that burn away from spilled material. In case of large spills, follow all facility emergency response procedures.

Special Procedures

Remove soiled clothing and launder before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

*** Section 7 - Handling and Storage ***

Handling Procedures

All employees who handle this material should be trained to handle it safely. Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling.

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*** Section 7 - Handling and Storage (Continued) ***

Storage Procedures

Keep container tightly closed when not in use. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Storage areas should be made of fire-resistant materials. Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers). Empty containers may contain residual particulates; therefore, empty containers should be handled with care. Do not cut, grind, weld, or drill near this container. Never store food, feed, or drinking water in containers that held this product. Keep this material away from food, drink and animal feed. Do not store this material in open or unlabeled containers. Limit quantity of material stored.

*** Section 8 - Exposure Controls / Personal Protection ***

Exposure Guidelines

A: General Product Information

B: Component Exposure Limits

The exposure limits given are for Ammonia:

ACGIH: 25 ppm TWA

35 ppm STEL

OSHA PELs: 50 ppm TWA

DFG MAKs: 20 ppm (Ceiling, Peak 2 MAK, 5 minute, momentary value)

NIOSH: 25 ppm TWA

35 ppm STEL

Engineering Controls

Use mechanical ventilation such as dilution and local exhaust. Use a corrosion-resistant ventilation system and exhaust directly to the outside. Supply ample air replacement. Provide dust collectors with explosion vents.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear safety glasses with side shields (or goggles) and a face shield.

Personal Protective Equipment: Skin

Where contact is likely, wear chemical resistant gloves, rubber boots, and coveralls. Butyl rubber, natural rubber, or neoprene gloves are recommended. Gloves should be tested to determine their suitability for prolonged contact with this material.

Personal Protective Equipment: Respiratory

None required where adequate ventilation conditions exist. If airborne concentrations are above the applicable exposure limits, use NIOSH-approved respiratory protection.

Personal Protective Equipment: General

Wash hands thoroughly after handling material. Do not eat, drink or smoke in work areas. Have a safety shower or eye-wash fountain available.

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*** Section 9 - Physical & Chemical Properties ***

Physical Properties: Additional Information

The data provided in this section are to be used for product safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

Appearance:	Colorless/white solid	Odor:	Faint ammonia odor
Physical State:	Crystals	pH:	7.0-8.0 (1% solution)
Vapor Pressure:	3.3 lbs/m2 @ 100 deg F	Vapor Density:	2.7
Boiling Point:	Not available	Freezing Point/Melting Point:	Decomposes 34-60 deg C (91-140 deg F)
Solubility (H2O):	17.4% @ 20 deg C	Specific Gravity:	1.59 @ 20 deg C (H2O = 1)
Octanol/H2O Coefficient:	Not available	Particle Size:	Not determined
Softening Point:	Not available	Bulk Density:	Not available
Molecular Weight:	79.0399	Chemical Formula:	NH4HCO3
Saturated Vapor Concentration:	Not available	Volatile Organic Carbons:	Not determined
		Heat Value:	Not available

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Under normal conditions of temperature and pressure, Ammonium Bicarbonate is stable.

Chemical Stability: Conditions to Avoid

Avoid high temperatures, excessive heat and incompatible materials.

Incompatibility

Avoid strong acids, strong bases, and metals such as copper, nickel, and zinc. Incompatible with hypochlorite bleaches.

Hazardous Decomposition

When heated to decomposition, this product may emit toxic fumes of ammonia, carbon monoxide, carbon dioxide and nitrogen oxides.

Hazardous Polymerization

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Toxicity

A: General Product Information

May cause eye, skin, nose, throat and respiratory tract irritation.

Chronic: Long term skin overexposure to this product may lead to dermatitis (red, itchy skin).

B: Component Analysis - LD50/LC50

Ammonium Bicarbonate (1066-33-7)

LD₅₀ (Intravenous-Mouse) 245 mg/kg

B: Component Analysis - TDLo/LDLo

No information available.

Carcinogenicity

A: General Product Information

No information available.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Epidemiology

No information available.

Neurotoxicity

No information available.

Mutagenicity

No information available.

Teratogenicity

No information available.

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*** Section 11 - Toxicological Information (Continued) ***

Other Toxicological Information

None.

*** Section 12 - Ecological Information ***

Ecotoxicity

TLM (mosquitofish) 96 hours = 233 ppm

Environmental Fate

Water solubility: 11.9 g/100 cc (0°C)

Ammonium compounds are biodegradable and will not accumulate in the foodchain.

Persistence: Ammonium will be attacked by bacteria and converted to nitrate.

Major Species Threatened: Micro-aquatic life.

Food Chain Concentration Potential: None.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

As shipped, product is not considered a hazardous waste by the EPA. You must test your waste using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Dispose of in accordance with all applicable Federal, State or provincial, and local regulations.

*** Section 14 - Transportation Information ***

NOTE: The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size. Consult shipper requirements under I.M.O., I.C.A.O. (I.A.T.A.) and 49 CFR to assure regulatory compliance.

US DOT Information

Shipping Name: Not Regulated

Hazard Class: Not Classified

UN/NA #: Not Classified

Packing Group: None

Required Label(s): None

Additional Info.: For packagings equal to or greater than 5,000 pounds, this material is REGULATED as a U.S. DOT hazardous material as the following: RQ, Environmentally Hazardous Substance, Solid, n.o.s. (Ammonium Bicarbonate), 9, UN 3077, III, Class 9

Shipments by Air

We classify this product as hazardous (Class 9) when shipped by air because 49 CFR 173.140 (a). "For the purposes of this subchapter, miscellaneous hazardous material (Class 9) means a material which presents a hazard during transportation, but which does not meet the definition of any other hazard class. This class includes: (a) Any material which has an anesthetic, noxious, or other similar property which could cause extreme annoyance or discomfort to a flight crew member so as to prevent the correct performance of assigned duties."

United Parcel Service Shipping Information

Shipping Name: Not Applicable

Hazard Class: Not Applicable

UN/NA #: Not Applicable

Packing Group: Not Applicable

Ground Shipment Maximum Unit Quantity: Not Applicable

Required Label (s) Ground Shipments: Not Applicable

Air Shipment Maximum Net Quantity: Not Applicable

Required Label (s) Air Shipments: Not Applicable

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***** Section 14 - Transportation Information (Continued) *****

International Transportation Regulations

Canadian Transport Canada Classification:

Shipping Name: Ammonium Bicarbonate
Hazard Class: 9.2 (material hazardous to the environment) [secondary hazard]
UN/NA #: NA 9081
Packing Group: III
Required Label(s): Class 9 (material hazardous to the environment)
Regulated Limit: 230 kg (506 lbs)

I.M.O. Classification: Ammonium Bicarbonate is not regulated under I.M.O.

***** Section 15 - Regulatory Information *****

US Federal Regulations

A: General Product Information

None.

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4):

Ammonium Bicarbonate (1066-33-7)

CERCLA: Final RQ = 5000 pounds (2270 kg)

SARA 302 (EHS TPQ) There are no specific Threshold Planning Quantities for Ammonium Bicarbonate. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs. (4,540 kg) therefore applies, per 40 CFR 370.20.

C: Sara 311/312 Tier II Hazard Ratings:

Component	CAS #	Fire Hazard	Reactivity Hazard	Pressure Hazard	Immediate Health Hazard	Chronic Health Hazard
Ammonium Bicarbonate	1066-33-7	No	No	No	Yes	No

State Regulations

A: General Product Information

Other state regulations may apply.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substance lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Ammonium Bicarbonate	1066-33-7	No	No	No	No	Yes	Yes

Other Regulations

A: General Product Information

Not determined.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Ammonium Bicarbonate	1066-33-7	Yes	Yes	Yes

C: Component Analysis - WHMIS IDL

Component	CAS #	Minimum Concentration
Ammonium Bicarbonate	1066-33-7	No disclosure limit

ANSI Labeling (Z129.1):

CAUTION! MAY BE CAUSE SKIN AND EYE IRRITATION. HARMFUL IF INGESTED OR INHALED. Avoid contact with skin, eyes, or clothing. Do not taste or swallow. Avoid breathing dusts and particulates. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves, goggles, faceshields, suitable body protection, and NIOSH/MSHA-approved respiratory protection, as appropriate. **FIRST-AID:** In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. **IN CASE OF FIRE:** Use water fog, dry chemical, CO₂, or "alcohol" foam. **IN CASE OF SPILL:** Absorb spill with inert material. Place residue in suitable container. Consult Material Safety Data Sheet for additional information.

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*** Section 16 - Other Information ***

Other Information

Chem One Ltd. ("Chem One") shall not be responsible for the use of any information, product, method, or apparatus herein presented ("Information"), and you must make your own determination as to its suitability and completeness for your own use, for the protection of the environment, and for health and safety purposes. You assume the entire risk of relying on this Information. In no event shall Chem One be responsible for damages of any nature whatsoever resulting from the use of this product or products, or reliance upon this Information. By providing this Information, Chem One neither can nor intends to control the method or manner by which you use, handle, store, or transport Chem One products. If any materials are mentioned that are not Chem One products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed. Chem One makes no representations or warranties, either express or implied of merchantability, fitness for a particular purpose or of any other nature regarding this information, and nothing herein waives any of Chem One's conditions of sale. This information could include technical inaccuracies or typographical errors. Chem One may make improvements and/or changes in the product (s) and/or the program (s) described in this information at any time. If you have any questions, please contact us at Tel. 713-896-9966 or E-mail us at Safety@chemone.com. Revision date 05/14/01.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; WHMIS = Workplace Hazardous Materials Information System

Contact: Sue Palmer-Koleman, PhD

Contact Phone: (713) 896-9966

Revision Log

07/21/00 3:34 PM SEP Changed company name, Sect 1 and 16, from Corporation to Ltd.
05/14/01 9:31 AM HDF Checked exposure limits; made changes to Sect 9; overall review, add SARA 311/312 Haz Ratings.
07/24/01 2:11 PM CLJ Add Shipments by Air information to Section 14, Changed contact to Sue, non-800 Chemtrec Num.
2/18/02: 10:35 AM HDF Up-date of SARA Hazard Ratings.

This is the end of MSDS # C1-204