SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
UK REACH Regulations (SI 2019/758 as amended)

Supercedes date 02-Aug-2018 **Revision date** 05-Nov-2025 **Revision Number** 4

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product Code(s)	20566
Safety data sheet number	20566
Product Name	AMMONIUM BICARBONATE
EC Number	213-911-5
CAS No	1066-33-7
Synonyms	AMMONIUM HYDROGEN BICARBONATE, AMMONIUMVÄTEKARBONAT, COATED KVALITET E503(ii) FG, AMMONIUM BICARBONATE (H) FCC ED.7, AMMONIUM BICARBONATE (F) FCC ED.7, AMMONIUM BICARBONATE (SH) FCC ED.7, AMMONIUM BICARBONATE H E503, AMM BICARBONATE COAT FG, AMMONIUM BICARBONATE FFQ, AMM BICARBONATE PURE, AMM BICARBONATE FFQ
Pure substance/mixture	Substance

Contains AMMONIUM BICARBONATE

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use	Food industry Chemical intermediate Professional use Industrial use For further information, see attached Exposure Scenario

1.3. Details of the supplier of the safety data sheet

Supplier
Univar Solutions UK Ltd
Aquarius House
6 Mid Point Business Park
Bradford
GBR

For further information, please contact

E-mail address	SDS.EMEA@univarsolutions.com
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306

1.4. Emergency telephone number

Emergency Telephone	SGS - +32 (0)3 575 55 55 (24h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Acute toxicity - Oral	Category 4 - (H302)

2.2. Label elements

Contains AMMONIUM BICARBONATE

Signal word
Warning

Hazard statements
H302 - Harmful if swallowed

Precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
P330 - Rinse mouth
P501 - Dispose of contents/ container to an approved waste disposal plant

Additional information
This product requires tactile warnings if supplied to the general public.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Weight-%	EC No (EU Index No)	UK REACH registration number	Classification according to GB CLP (SI 2020/1567 as amended)	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
AMMONIUM BICARBONATE 1066-33-7	>=90%	213-911-5	-	Acute Tox. 4 (H302)	-	-	-
MAGNESIUM CARBONATE 12125-28-9	>=0.5 - <1%	235-192-7	-	Acute Tox. 4 (H302)	-	-	-

Full text of H- and EUH-phrases: see section 16

This product does not contain candidate substances of very high concern at a concentration >= 0.1% (UK REACH Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Skin contact	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if symptoms occur.
Ingestion	Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a doctor. Induce vomiting, but only if victim is fully conscious. Do not give anything to eat or drink. Get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Ingestion	Irritating. May cause nausea, stomach pain and vomiting.

4.3. Indication of any immediate medical attention and special treatment needed

Note to doctors	Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Carbon dioxide (CO2). Water spray.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	In the event of fire and/or explosion do not breathe fumes.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Move containers from fire area if you can do it without risk.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Use personal protection recommended in Section 8. Evacuate personnel to safe areas.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions	Do not allow to enter into soil/subsoil. Do not flush into surface water or sanitary sewer system. Prevent entry into drains. Dispose of this material and its container to hazardous or special waste collection point. Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and material for containment and cleaning up

Methods for containment Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up After cleaning, flush away traces with water.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Avoid contact with eyes, skin and clothing. Don't use empty container before they have been cleaned. Before making transfer operations, assure that there aren't any incompatible material residuals in the containers. Use personal protection recommended in Section 8.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice. Remove contaminated clothing and protective equipment before entering eating areas. Do not eat, drink or smoke when using the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs. Store away from incompatible materials. See section 10 for more information.

7.3. Specific end use(s)

Specific use(s)
See section 1 for more information.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
AMMONIUM BICARBONATE 1066-33-7		57 mg/m³ [4] [6]	62.5 mg/m³ [4] [6] 160.7 mg/m³ [4] [7] 62.5 mg/m³ [5] [6] 160.7 mg/m³ [5] [7]

[4] Systemic health effects.
[6] Long term.
[7] Short term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
AMMONIUM BICARBONATE 1066-33-7	17.1 mg/kg bw/day [4] [6] 34.05 mg/kg bw/day [4] [7]	34.2 mg/m³ [4] [6]	13.33 mg/m³ [4] [6] 143.91 mg/m³ [4] [7] 13.33 mg/m³ [5] [6] 143.91 mg/m³ [5] [7]

[4] Systemic health effects.
[6] Long term.
[7] Short term.

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
AMMONIUM BICARBONATE 1066-33-7	0.37 mg/l	0.63 mg/L	0.037 mg/l		

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
AMMONIUM BICARBONATE 1066-33-7	0.1332 mg/kg	0.01332 mg/kg	1347 mg/l	74.9 mg/kg	

8.2. Exposure controls

Engineering controls Ensure adequate ventilation.

Personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles). Use eye protection according to EN 166.

Hand protection Wear suitable gloves. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Gloves must conform to standard EN 374.

Skin and body protection No special protective equipment required.

Respiratory protection In case of inadequate ventilation wear respiratory protection.
Recommended filter type: Inorganic gases and vapours filter conforming to EN 14387. Ammonia and organic ammonia derivatives filter conforming to EN 14387. ABEK-P3.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice. Remove contaminated clothing and protective equipment before entering eating areas. Do not eat, drink or smoke when using the product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state Solid
Appearance solid
Colour No information available
Odour Characteristic.
Odour threshold 3 ppm Ammonia

Property	Values	Remarks • Method
Melting point / freezing point		No information available.
Initial boiling point and boiling range		No information available.
Flammability		No information available.
Flammability Limit in Air		No information available.
Upper flammability or explosive limits		
Lower flammability or explosive limits		
Flash point		No information available.
Autoignition temperature		No information available.
Decomposition temperature	±60 °C	
pH	8	
pH (as aqueous solution)		No information available.
Kinematic viscosity		No information available.
Dynamic viscosity		No information available.
Water solubility	18% @ 20°C	
Solubility(ies)		No information available.
Partition coefficient	: -2.4	
Vapour pressure	79 mbar	@ 25 °C.
Relative density	1.58	
Bulk density		No information available
Liquid Density	No information available	No information available
Relative vapour density		No information available.
Particle characteristics		No information available.
Particle Size	No information available	
Particle Size Distribution	No information available	
Explosive properties	No information available	
Oxidising properties	No information available	

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity Stable under normal conditions.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data
Sensitivity to mechanical impact None.
Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid None known based on information supplied.

10.5. Incompatible materials

Incompatible materials Alkali. Acids. Nitrates. Nitrites.

10.6. Hazardous decomposition products

Hazardous decomposition products toxic gas.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available. Harmful if swallowed. (based on components).

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity

Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
AMMONIUM BICARBONATE	= 1576 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	> 4.74 mg/l (Rat) 4.5h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Based on available data the classification criteria are not met.

Serious eye damage/eye irritation Based on available data the classification criteria are not met.

Respiratory or skin sensitisation Based on available data the classification criteria are not met.

Germ cell mutagenicity Based on available data the classification criteria are not met.

Carcinogenicity Based on available data the classification criteria are not met.

Reproductive toxicity Based on available data the classification criteria are not met.

STOT - single exposure Based on available data the classification criteria are not met.

STOT - repeated exposure Based on available data the classification criteria are not met.

Aspiration hazard Based on available data the classification criteria are not met.

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Not considered to be harmful to aquatic life.

AMMONIUM BICARBONATE (1066-33-7)

Method	Species	Endpoint type	Effective dose	Exposure time	Results
	Fish	LC50	102 mg/L	96 hours	

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation No information available.

Component Information

Chemical name	Partition coefficient
AMMONIUM BICARBONATE	-2.4

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB.

Chemical name	PBT and vPvB assessment
AMMONIUM BICARBONATE	PBT assessment does not apply
MAGNESIUM CARBONATE	PBT assessment does not apply

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information

IATA

14.1 UN number or ID number Not regulated
14.2 UN proper shipping name Not regulated
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards No
14.6 Special precautions for user
Special Provisions None

IMDG

14.1 UN number or ID number Not regulated

14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None
14.7 Maritime transport in bulk according to IMO instruments	No information available

RID

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None

ADR

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	None

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Authorisations and/or restrictions on use:
This product does not contain substances subject to authorisation (UK REACH - Annex XIV).
This product does not contain substances subject to restriction (UK REACH - Annex XVII).
Product restricted per REACH Annex XVII: 3

Persistent Organic Pollutants
Not applicable

Export Notification requirements
Not applicable

Named dangerous substances per COMAH Regulations 2015 (as amended)
Not applicable

The Ozone-Depleting Substances Regulations 2015
Not applicable

The Biocidal Products Regulations 2001 (as amended)
Not applicable

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)
Not applicable

Poisons Act 1972 (Explosive Precursors) Regulations (as Amended)
Not applicable

International Inventories

TSCA	Contact supplier for inventory compliance status
DSL/NDSL	Contact supplier for inventory compliance status
EINECS/ELINCS	Contact supplier for inventory compliance status

ENCS	Contact supplier for inventory compliance status
IECSC	Contact supplier for inventory compliance status
KECI	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AIIC	Contact supplier for inventory compliance status
NZIoC	Contact supplier for inventory compliance status

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

Chemical Safety Report No information available

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3
H302 - Harmful if swallowed

Legend
SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
+	Sensitisers		

Revision Note ***Indicates updated data since last publication SDS sections updated 1 3 11 12

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)

Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Prepared By	Amy Whitfield
Supercedes date	02-Aug-2018
Revision date	05-Nov-2025

This material safety data sheet complies with the requirements of UK REACH Regulations (SI 2019/758 as amended)
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	Ammonium Bicarbonate
Pure substance/mixture	Substance
REACH registration number	01-2119486970-26-XXXX
CAS No	1066-33-7
EC No (EU Index No)	213-911-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Industrial use
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC1 - Manufacture of substances
Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC1 - Manufacture of substances

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations

Control of worker exposure	
Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Conditions and measures related to personal protection, hygiene and	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes

health evaluation	
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Section 3 - Exposure estimation

Environmental release category(ies) - ERC1 - Manufacture of substances

Predicted No Effect Concentration (PNEC)

Freshwater	0.37 mg/l
Freshwater sediment	0.1332 mg/kg
Marine water	0.037 mg/l
Marine sediment	0.01332 mg/kg
Soil	74.9 mg/kg
Impact on Sewage Treatment	1347 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	57 mg/kg
Worker - inhalative, long-term - local	62.5 mg/m³
Worker - inhalative, long-term - systemic	62.5 mg/m³
Worker - inhalative, short-term - local	160.7 mg/m³
Worker - inhalative, short-term - systemic	160.7 mg/m³
Consumer - dermal, long-term - systemic	34.2 mg/kg
Consumer - inhalative, long-term - systemic	13.33 mg/m³

Calculation method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, long-term - systemic	1.37 mg/kg bw/d	
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - local and systemic	1.00 mg/m³	
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, long-term - systemic	1.51 mg/kg bw/d	
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - dermal, short-term - systemic	1.37 mg/kg bw/d	
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - local and systemic	2.00 mg/m³	
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - combined, short-term - systemic	1.38 mg/kg bw/d	
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	

PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - local and systemic	20.00 mg/m³	
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic	9.71 mg/kg bw/d	
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, short-term - systemic	6.86 mg/kg bw/d	
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - local and systemic	40.00 mg/m³	
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, short-term - systemic	7.04 mg/kg bw/d	

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	Ammonium Bicarbonate
Pure substance/mixture	Substance
REACH registration number	01-2119486970-26-XXXX
CAS No	1066-33-7
EC No (EU Index No)	213-911-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Formulation & (re)packing of substances and mixtures
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC2 - Formulation of preparations (mixtures) ERC5 - Industrial use resulting in inclusion into or onto a matrix ERC7 - Industrial use of substances in closed systems ERC8a - Wide dispersive indoor use of processing aids in open systems
Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15 - Use as laboratory reagent PROC19 - Hand-mixing with intimate contact and only PPE available
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)
- ERC5 - Industrial use resulting in inclusion into or onto a matrix
- ERC7 - Industrial use of substances in closed systems
- ERC8a - Wide dispersive indoor use of processing aids in open systems

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations

Control of worker exposure	
Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes

Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes
Covers skin contact area up to	480 cm2

Indoor/Outdoor use	Indoor use

Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)
- ERC5 - Industrial use resulting in inclusion into or onto a matrix
- ERC7 - Industrial use of substances in closed systems
- ERC8a - Wide dispersive indoor use of processing aids in open systems

Predicted No Effect Concentration (PNEC)

Freshwater	0.37 mg/l
Freshwater sediment	0.1332 mg/kg
Marine water	0.037 mg/l
Marine sediment	0.01332 mg/kg
Soil	74.9 mg/kg
Impact on Sewage Treatment	1347 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	57 mg/kg
Worker - inhalative, long-term - local	62.5 mg/m³
Worker - inhalative, long-term - systemic	62.5 mg/m³
Worker - inhalative, short-term - local	160.7 mg/m³
Worker - inhalative, short-term - systemic	160.7 mg/m³
Consumer - dermal, long-term - systemic	34.2 mg/kg
Consumer - inhalative, long-term - systemic	13.33 mg/m³

Calculation method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - local and systemic	25.00 mg/m³	
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic	10.43 mg/kg bw/d	
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, short-term - systemic	6.86 mg/kg bw/d	
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - local and systemic	50.00 mg/m³	
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, short-term - systemic	7.08 mg/kg bw/d	
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	
PROC5 - Mixing or blending in batch	Worker - inhalative, long-term	25.00 mg/m³	

processes for formulation of preparations and articles (multi-stage and/or significant contact)	- local and systemic		
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic	17.29 mg/kg bw/d	
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, short-term - systemic	13.71 mg/kg bw/d	
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - local and systemic	50.00 mg/m³	
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, short-term - systemic	13.94 mg/kg bw/d	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - local and systemic	25.00 mg/m³	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic	10.43 mg/kg bw/d	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, short-term - systemic	6.86 mg/kg bw/d	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - local and systemic	50.00 mg/m³	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, short-term - systemic	7.08 mg/kg bw/d	
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - local and systemic	20.00 mg/m³	
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic	9.71 mg/kg bw/d	
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, short-term - systemic	6.86 mg/kg bw/d	
PROC9 - Transfer of substance or	Worker - inhalative, short-term	40.00 mg/m³	

preparation into small containers (dedicated filling line, including weighing)	- local and systemic		
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, short-term - systemic	7.04 mg/kg bw/d	
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - local and systemic	5.00 mg/m³	
PROC15 - Use as laboratory reagent	Worker - combined, long-term - systemic	1.06 mg/kg bw/d	
PROC15 - Use as laboratory reagent	Worker - dermal, short-term - systemic	0.34 mg/kg bw/d	
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - local and systemic	10.00 mg/m³	
PROC15 - Use as laboratory reagent	Worker - combined, short-term - systemic	0.39 mg/kg bw/d	
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - dermal, long-term - systemic	14.14 mg/kg bw/d	
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - local and systemic	25.00 mg/m³	
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - combined, long-term - systemic	17.71 mg/kg bw/d	
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - dermal, short-term - systemic	14.14 mg/kg bw/d	
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, short-term - local and systemic	50.00 mg/m³	
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - combined, short-term - systemic	14.37 mg/kg bw/d	

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	Ammonium Bicarbonate
Pure substance/mixture	Substance
REACH registration number	01-2119486970-26-XXXX
CAS No	1066-33-7
EC No (EU Index No)	213-911-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Formulation & (re)packing of substances and mixtures
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC2 - Formulation of preparations (mixtures) ERC5 - Industrial use resulting in inclusion into or onto a matrix ERC7 - Industrial use of substances in closed systems ERC8a - Wide dispersive indoor use of processing aids in open systems
Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15 - Use as laboratory reagent PROC19 - Hand-mixing with intimate contact and only PPE available
Sector(s) of use	SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)
- ERC5 - Industrial use resulting in inclusion into or onto a matrix
- ERC7 - Industrial use of substances in closed systems
- ERC8a - Wide dispersive indoor use of processing aids in open systems

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations

Control of worker exposure	
Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 80%

Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes

Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Technical conditions and measures to control dispersion from source towards the worker	Local exhaust ventilation - efficiency of at least 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)
- ERC5 - Industrial use resulting in inclusion into or onto a matrix
- ERC7 - Industrial use of substances in closed systems
- ERC8a - Wide dispersive indoor use of processing aids in open systems

Predicted No Effect Concentration (PNEC)

Freshwater	0.37 mg/l
Freshwater sediment	0.1332 mg/kg
Marine water	0.037 mg/l
Marine sediment	0.01332 mg/kg
Soil	74.9 mg/kg
Impact on Sewage Treatment	1347 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	57 mg/kg
Worker - inhalative, long-term - local	62.5 mg/m³
Worker - inhalative, long-term - systemic	62.5 mg/m³
Worker - inhalative, short-term - local	160.7 mg/m³
Worker - inhalative, short-term - systemic	160.7 mg/m³
Consumer - dermal, long-term - systemic	34.2 mg/kg
Consumer - inhalative, long-term - systemic	13.33 mg/m³

Calculation method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - local and systemic	10.00 mg/m³	
PROC4 - Use in batch and other	Worker - combined, long-term	8.29 mg/kg bw/d	

process (synthesis) where opportunity for exposure arises	- systemic		
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, short-term - systemic	6.86 mg/kg bw/d	
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - local and systemic	20.00 mg/m³	
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, short-term - systemic	6.95 mg/kg bw/d	
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, long-term - systemic	13.71 mg/kg bw/d	
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - local and systemic	10.00 mg/m³	
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, long-term - systemic	15.14 mg/kg bw/d	
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - dermal, short-term - systemic	13.71 mg/kg bw/d	
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - local and systemic	20.00 mg/m³	
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - combined, short-term - systemic	13.80 mg/kg bw/d	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - local and systemic	10.00 mg/m³	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic	8.29 mg/kg bw/d	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, short-term - systemic	6.86 mg/kg bw/d	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - local and systemic	20.00 mg/m³	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, short-term - systemic	6.95 mg/kg bw/d	
PROC9 - Transfer of substance or	Worker - dermal, long-term -	6.86 mg/kg bw/d	

preparation into small containers (dedicated filling line, including weighing)	systemic		
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, long-term - local and systemic	20.00 mg/m³	
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, long-term - systemic	9.71 mg/kg bw/d	
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - dermal, short-term - systemic	6.86 mg/kg bw/d	
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative, short-term - local and systemic	40.00 mg/m³	
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - combined, short-term - systemic	7.04 mg/kg bw/d	
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - local and systemic	5.00 mg/m³	
PROC15 - Use as laboratory reagent	Worker - combined, long-term - systemic	1.06 mg/kg bw/d	
PROC15 - Use as laboratory reagent	Worker - dermal, short-term - systemic	0.34 mg/kg bw/d	
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - local and systemic	10.00 mg/m³	
PROC15 - Use as laboratory reagent	Worker - combined, short-term - systemic	0.39 mg/kg bw/d	
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - dermal, long-term - systemic	14.14 mg/kg bw/d	
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - local and systemic	10.00 mg/m³	
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - combined, long-term - systemic	15.57 mg/kg bw/d	
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - dermal, short-term - systemic	14.14 mg/kg bw/d	
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, short-term - local and systemic	20.00 mg/m³	
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - combined, short-term - systemic	14.23 mg/kg bw/d	

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	Ammonium Bicarbonate
Pure substance/mixture	Substance
REACH registration number	01-2119486970-26-XXXX
CAS No	1066-33-7
EC No (EU Index No)	213-911-5
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Industrial use
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC1 - Manufacture of substances ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) ERC7 - Industrial use of substances in closed systems
Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation) PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC15 - Use as laboratory reagent
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC1 - Manufacture of substances
- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC7 - Industrial use of substances in closed systems

Conditions and measures related to external treatment of waste for disposal

Disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations

Control of worker exposure	
Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes

Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Physical form of product	Solid (dust)
Use frequency	Covers daily exposures up to 8 hours (unless stated differently). Covers use up to 240 days per year
Conditions and measures related to personal protection, hygiene and health evaluation	Wear suitable gloves (tested to EN 374), coverall and eye protection Wear suitable working clothes
Covers skin contact area up to	480 cm2
Indoor/Outdoor use	Indoor use

Section 3 - Exposure estimation

Environmental release category(ies) - ERC1 - Manufacture of substances
- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC7 - Industrial use of substances in closed systems

Predicted No Effect Concentration (PNEC)

Freshwater	0.37 mg/l
Freshwater sediment	0.1332 mg/kg
Marine water	0.037 mg/l
Marine sediment	0.01332 mg/kg
Soil	74.9 mg/kg
Impact on Sewage Treatment	1347 mg/l

Remarks Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - dermal, long-term - systemic	57 mg/kg
Worker - inhalative, long-term - local	62.5 mg/m^3

Worker - inhalative, long-term - systemic	62.5 mg/m³
Worker - inhalative, short-term - local	160.7 mg/m³
Worker - inhalative, short-term - systemic	160.7 mg/m³
Consumer - dermal, long-term - systemic	34.2 mg/kg
Consumer - inhalative, long-term - systemic	13.33 mg/m³

Calculation method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - local and systemic	1.00 mg/m³	
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, long-term - systemic	0.49 mg/kg bw/d	
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - dermal, short-term - systemic	0.34 mg/kg bw/d	
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - local and systemic	2.00 mg/m³	
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - combined, short-term - systemic	0.35 mg/kg bw/d	
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - local and systemic	25.00 mg/m³	
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, long-term - systemic	10.43 mg/kg bw/d	
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - dermal, short-term - systemic	6.86 mg/kg bw/d	
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - local and systemic	50.00 mg/m³	
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - combined, short-term - systemic	7.08 mg/kg bw/d	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, long-term - systemic	6.86 mg/kg bw/d	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, long-term - local and systemic	25.00 mg/m³	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - combined, long-term - systemic	10.43 mg/kg bw/d	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - dermal, short-term - systemic	6.86 mg/kg bw/d	
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative, short-term - local and systemic	50.00 mg/m³	
PROC8b - Transfer of substance or	Worker - combined, short-term	7.08 mg/kg bw/d	

preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	- systemic		
PROC15 - Use as laboratory reagent	Worker - dermal, long-term - systemic	0.34 mg/kg bw/d	
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - local and systemic	5.00 mg/m^3	
PROC15 - Use as laboratory reagent	Worker - combined, long-term - systemic	1.06 mg/kg bw/d	
PROC15 - Use as laboratory reagent	Worker - dermal, short-term - systemic	0.34 mg/kg bw/d	
PROC15 - Use as laboratory reagent	Worker - inhalative, short-term - local and systemic	10.00 mg/m^3	
PROC15 - Use as laboratory reagent	Worker - combined, short-term - systemic	0.39 mg/kg bw/d	

Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.