

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 23.07.2019

Version 13.1

SECTION 1. Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Catalogue No.	159504
Product name	Ammonium carbonate for analysis EMSURE® ACS, Reag. Ph Eur
REACH Registration Number	This product is a mixture. REACH Registration Number see section 3.
CAS-No.	10361-29-2

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

Identified uses	Reagent for analysis For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).
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1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone: +49 6151 72-0
Responsible Department	LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number **Please contact the regional company representation in your country.****SECTION 2. Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Acute toxicity, Category 4, Oral, H302
Skin irritation, Category 2, H315
Serious eye damage, Category 1, H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

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Catalogue No.
Product name

159504
Ammonium carbonate for analysis EMSURE® ACS, Reag. Ph Eur

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word

Danger

Hazard statements

H302 Harmful if swallowed.

H315 Causes skin irritation.

H318 Causes serious eye damage.

Precautionary statements

Prevention

P280 Wear eye protection.

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P313 Get medical advice/ attention.

Reduced labelling (≤ 125 ml)

Hazard pictograms



Signal word

Danger

Hazard statements

H318 Causes serious eye damage.

Precautionary statements

P280 Wear eye protection.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P313 Get medical advice/ attention.

Contains: ammonium carbamate

CAS-No. 10361-29-2

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

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The life science business of Merck operates as MilliporeSigma in the US and Canada

MERCK

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Chemical nature Mixture of inorganic and organic compounds

3.1 Substance

Not applicable

3.2 Mixture

EC-No. 233-786-0

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical name (Concentration)

CAS-No.	Registration number	Classification
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ammonium hydrogen carbonate ($\geq 50\%$ - $\leq 100\%$)

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

1066-33-7	01-2119486970-26-XXXX	Acute toxicity, Category 4, H302
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ammonium carbamate ($\geq 50\%$ - $\leq 100\%$)

1111-78-0	*)	Acute toxicity, Category 4, H302 Skin irritation, Category 2, H315 Serious eye damage, Category 1, H318
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*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

Nausea, Vomiting

The following applies to ammonium salts in general: after swallowing: local irritation symptoms, nausea, vomiting, diarrhoea. Systemic effect: after the uptake of very large quantities: drop in blood pressure, collapse, CNS disorders, spasms, narcotic conditions, respiratory paralysis, haemolysis.

Irritation and corrosion

Risk of serious damage to eyes.

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4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:
nitrogen oxides, Ammonia

5.3 Advice for firefighters

Special protective equipment for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

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Advice on safe handling
Observe label precautions.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry.

Recommended storage temperature see product label.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

ammonium hydrogen carbonate (1066-33-7)

Worker DNEL, acute	Systemic effects	inhalation	160,7 mg/m ³
Worker DNEL, acute	Local effects	inhalation	160,7 mg/m ³
Worker DNEL, longterm	Systemic effects	inhalation	62,5 mg/m ³
Worker DNEL, longterm	Local effects	inhalation	62,5 mg/m ³
Worker DNEL, longterm	Systemic effects	dermal	57 mg/kg Body weight
Consumer DNEL, acute	Systemic effects	inhalation	143,91 mg/m ³
Consumer DNEL, acute	Systemic effects	oral	34,05 mg/kg Body weight
Consumer DNEL, acute	Local effects	inhalation	143,91 mg/m ³
Consumer DNEL, longterm	Systemic effects	dermal	34,2 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	inhalation	13,33 mg/m ³
Consumer DNEL, longterm	Systemic effects	oral	17,1 mg/kg Body weight
Consumer DNEL, longterm	Local effects	inhalation	13,33 mg/m ³

ammonium carbamate (1111-78-0)

Worker DNEL, longterm	Systemic effects	inhalation	49,8 mg/m ³
Worker DNEL, longterm	Systemic effects	dermal	14,1 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	inhalation	12,3 mg/m ³
Consumer DNEL, longterm	Systemic effects	dermal	7,1 mg/kg Body weight

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Consumer DNEL, Systemic effects oral 7,1 mg/kg Body weight
longterm

Predicted No Effect Concentration (PNEC)

ammonium hydrogen carbonate (1066-33-7)

PNEC Fresh water	0,37 mg/l
PNEC Fresh water sediment	0,1332 mg/kg
PNEC Marine water	0,037 mg/l
PNEC Marine sediment	0,01332 mg/kg
PNEC Aquatic intermittent release	0,63 mg/l
PNEC Soil	74,9 mg/kg
PNEC Sewage treatment plant	1347 mg/l

ammonium carbamate (1111-78-0)

PNEC Fresh water	0,037 mg/l
PNEC Fresh water sediment	0,167 mg/kg
PNEC Marine water	0,0037 mg/l
PNEC Marine sediment	0,0167 mg/kg
PNEC Aquatic intermittent release	0,37 mg/l
PNEC Sewage treatment plant	10 mg/l
PNEC Soil	0,0117 mg/kg

8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection

Tightly fitting safety goggles

Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

splash contact:

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Product name Ammonium carbonate for analysis EMSURE® ACS, Reag. Ph Eur

Glove material: Nitrile rubber
Glove thickness: 0,11 mm
Break through time: > 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment
protective clothing

Respiratory protection

required when dusts are generated.

Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

Environmental exposure controls

Do not let product enter drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	solid
Colour	colourless
Odour	ammoniacal
Odour Threshold	No information available.
pH	9,4 at 100 g/l 20 °C
Melting point	No information available.
Boiling point/boiling range	Not applicable
Flash point	does not flash
Evaporation rate	No information available.

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Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapour pressure	69 hPa at 20 °C
Relative vapour density	No information available.
Density	No information available.
Relative density	No information available.
Water solubility	320 g/l at 20 °C
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	> 59 °C
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Ignition temperature	Not applicable
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SECTION 10. Stability and reactivity

10.1 Reactivity

See section 10.3

10.2 Chemical stability

heat-sensitive

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Exothermic reaction with:

nitrites, acids, alkalines, Bases

Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitrosamines!

10.4 Conditions to avoid

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Heating (decomposition).

10.5 Incompatible materials

no information available

10.6 Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Mixture

Acute oral toxicity

LD50 Rat: > 1.800 - < 2.150 mg/kg

(External MSDS)

Symptoms: Nausea, Vomiting

Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute inhalation toxicity

Symptoms: Possible symptoms: , mucosal irritations

Acute dermal toxicity

LD50 Rat: > 2.000 mg/kg

(External MSDS)

Skin irritation

In vitro study

Result: non-corrosive

OECD Test Guideline 431

In vitro study

Result: irritating

OECD Test Guideline 439

Mixture causes skin irritation.

Eye irritation

Rabbit

Result: Severe irritations

OECD Test Guideline 405

Mixture causes serious eye damage.

Sensitisation

This information is not available.

Germ cell mutagenicity

This information is not available.

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

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Teratogenicity

This information is not available.

Specific target organ toxicity - single exposure

This information is not available.

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

11.2 Further information

The following applies to ammonium salts in general: after swallowing: local irritation symptoms, nausea, vomiting, diarrhoea. Systemic effect: after the uptake of very large quantities: drop in blood pressure, collapse, CNS disorders, spasms, narcotic conditions, respiratory paralysis, haemolysis.

Under given conditions, contact with nitrites or nitric acid can lead to the formation of nitrosamines, which have shown themselves to be carcinogenic in animal experiments.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Components

ammonium hydrogen carbonate

Acute oral toxicity

LD50 Rat: 1.576 mg/kg

OECD Test Guideline 401

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

Mutagenicity (mammal cell test):

Result: negative

(External MSDS)

ammonium carbamate

Acute oral toxicity

LD50 Rat: 681 - 1.470 mg/kg

OECD Test Guideline 401

Skin irritation

In vitro study

Result: non-corrosive

OECD Test Guideline 431

In vitro study

Result: irritating

OECD Test Guideline 439

Eye irritation

In vitro study

Result: Causes serious eye damage.

Hen's egg-membrane test for irritation (HET-CAM)

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In vitro study
Result: Causes serious eye damage.
OECD Test Guideline 437

Germ cell mutagenicity
Genotoxicity in vitro
Mutagenicity (mammal cell test):
Result: negative
Method: OECD Test Guideline 476

SECTION 12. Ecological information

Mixture

12.1 Toxicity

No information available.

12.2 Persistence and degradability

No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Substance(s) in the mixture do(es) not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII, or a PBT/vPvB assessment was not conducted.

12.6 Other adverse effects

Discharge into the environment must be avoided.

Components

ammonium hydrogen carbonate

Toxicity to fish
LC50 *Oncorhynchus mykiss* (rainbow trout): 173 mg/l; 96 h
(ECOTOX Database)

Toxicity to bacteria
EC50 *Pseudomonas putida*: 1.895 mg/l; 16 h
OECD Test Guideline 209

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

ammonium carbamate

Toxicity to fish
LC50 *Pimephales promelas* (fathead minnow): 37 mg/l; 96 h
(External MSDS)

Toxicity to daphnia and other aquatic invertebrates
EC50 *Daphnia magna* (Water flea): 63,7 mg/l; 48 h
OECD Test Guideline 202

Toxicity to algae
IC50 *Desmodesmus subspicatus* (green algae): 129,1 mg/l; 72 h
(External MSDS)

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Toxicity to bacteria

Respiration inhibition EC20 activated sludge: 1.000 mg/l; 30 min
OECD Test Guideline 209

SECTION 13. Disposal considerations

Waste treatment methods

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 - 14.6

Not classified as dangerous in the meaning of transport regulations.

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 - 14.6

Not classified as dangerous in the meaning of transport regulations.

Sea transport (IMDG)

14.1 - 14.6

Not classified as dangerous in the meaning of transport regulations.

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

Not relevant

SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard Legislation	SEVESO III Not applicable
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Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.
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Regulation (EC) No 1005/2009 on substances not regulated that deplete the ozone layer

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Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of $\geq 0.1\%$ (w/w).

National legislation

Storage class 10 - 13

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H302 Harmful if swallowed.
H315 Causes skin irritation.
H318 Causes serious eye damage.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

Danger

Hazard statements

H302 Harmful if swallowed.
H315 Causes skin irritation.
H318 Causes serious eye damage.

Precautionary statements

Prevention

P280 Wear eye protection.

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

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P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
P313 Get medical advice/ attention.

Contains: ammonium carbamate

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

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation

This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

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