

Safety data sheet

Singapore Standard SS 586 - 3: Specification for hazard communication for hazardous chemicals and dangerous goods -preparation of safety data sheets SDS



Ammonium carbonate $\geq 30,5\%$ NH₃, extra pure

article number: **CN94**
Version: **GHS 1.0 en**

date of compilation: 09.12.2019

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

1.1 Product identifier

Identification of the substance	Ammonium carbonate
Article number	CN94
Registration number (REACH)	The substance does not require registration according to Regulation (EC) No 1907/2006 [REACH]
EC number	233-786-0
CAS number	10361-29-2

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

Identified uses: laboratory chemical
laboratory and analytical use

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet : Department Health, Safety and Environment

e-mail (competent person) : sicherheit@carlroth.de

1.4 Emergency telephone number

Emergency information service **Poison Centre Munich: +49/(0)89 19240**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

Classification acc. to GHS			
Section	Hazard class	Hazard class and category	Hazard statement
3.10	acute toxicity (oral)	(Acute Tox. 4)	H302
3.2	skin corrosion/irritation	(Skin Irrit. 2)	H315
3.3	serious eye damage/eye irritation	(Eye Dam. 1)	H318

2.2 Label elements

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Labelling GHS

Signal word

Danger

Pictograms

GHS05, GHS07



Hazard statements

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

Precautionary statements

Precautionary statements - prevention

P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statements - 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.
P321 Specific treatment (see on this label).
P330 Rinse mouth.

Precautionary statements - disposal

P501 Dispose of contents/container to industrial combustion plant.

Hazardous ingredients for labelling: Ammonium carbamate, Ammonium hydrogen carbonate

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



H318 Causes serious eye damage.
P280 Wear protective gloves/protective clothing/eye protection/face 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.
contains: Ammonium carbamate, Ammonium hydrogen carbonate

2.3 Other hazards

There is no additional information.

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SECTION 3: Composition/information on ingredients

3.2 Mixtures

Description of the mixture

Composition/information on ingredients.

Name of substance	Identifier	wt%	Classification acc. to 1272/2008/EC	Pictograms
Ammonium hydrogen carbonate	CAS No 1066-33-7 EC No 213-911-5 REACH Reg. No 01-2119486970-26- xxxx	50	Acute Tox. 4 / H302	
Ammonium carbamate	CAS No 1111-78-0 EC No 214-185-2 REACH Reg. No 01-2119493982-22- xxxx	50	Acute Tox. 4 / H302 Skin Irrit. 2 / H315 Eye Dam. 1 / H318	

Remarks

For full text of Hazard- and EU Hazard-statements: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Rinse skin with water/shower. In case of skin irritation, consult a physician.

Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Following ingestion

Rinse mouth immediately and drink plenty of water. Call a doctor.

4.2 Most important symptoms and effects, both acute and delayed

Irritation, Nausea, Diarrhoea, Vomiting, Spasms, Blood pressure drop, Risk of serious damage to eyes

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4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings
water spray, foam, dry extinguishing powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Non-combustible.

Hazardous combustion products

In case of fire may be liberated: nitrogen oxides (NO_x), carbon monoxide (CO), carbon dioxide (CO₂),
May produce toxic fumes of carbon monoxide if burning.

5.3 Advice for firefighters

Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

Do not breathe dust. Avoid contact with skin and eyes.

6.2 Environmental precautions

Keep away from drains, surface and ground water.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

Take up mechanically. Control of dust.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

When not in use, keep containers tightly closed.

- **Measures to prevent fire as well as aerosol and dust generation**

Removal of dust deposits.

Advice on general occupational hygiene

Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Store in a dry place.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

- **Ventilation requirements**

Use local and general ventilation.

- **Specific designs for storage rooms or vessels**

Recommended storage temperature: 15 – 25 °C.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	Notation	Identifier	TWA [mg/m ³]	STEL [mg/m ³]	Source
SG	Nuisance particulates		PEL	10		G.N. No. S 134/2006

Notation

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs/DMELs/PNECs and other threshold levels

- **human health values**

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	369 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	2.214 mg/m ³	human, inhalatory	worker (industry)	acute - systemic effects
DNEL	4,19 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

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Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	25,12 mg/kg bw/day	human, dermal	worker (industry)	acute - systemic effects

• relevant DNELs of components of the mixture

Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Ammonium hydrogen carbonate	1066-33-7	DNEL	62,5 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
Ammonium hydrogen carbonate	1066-33-7	DNEL	160,7 mg/m ³	human, inhalatory	worker (industry)	acute - systemic effects
Ammonium hydrogen carbonate	1066-33-7	DNEL	62,5 mg/m ³	human, inhalatory	worker (industry)	chronic - local effects
Ammonium hydrogen carbonate	1066-33-7	DNEL	160,7 mg/m ³	human, inhalatory	worker (industry)	acute - local effects
Ammonium hydrogen carbonate	1066-33-7	DNEL	57 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Ammonium carbamate	1111-78-0	DNEL	49,8 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
Ammonium carbamate	1111-78-0	DNEL	14,1 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

• environmental values

Endpoint	Threshold level	Environmental compartment
PNEC	2,38 mg/l	freshwater
PNEC	0,238 mg/l	marine water
PNEC	2,5 mg/kg	freshwater sediment
PNEC	0,25 mg/kg	marine sediment
PNEC	0,7 mg/kg	soil

• relevant PNECs of components of the mixture

Name of substance	CAS No	Endpoint	Threshold level	Environmental compartment
Ammonium hydrogen carbonate	1066-33-7	PNEC	0,37 mg/l	freshwater
Ammonium hydrogen carbonate	1066-33-7	PNEC	0,037 mg/l	marine water
Ammonium hydrogen carbonate	1066-33-7	PNEC	1.347 mg/l	sewage treatment plant (STP)
Ammonium hydrogen carbonate	1066-33-7	PNEC	0,133 mg/kg	freshwater sediment
Ammonium hydrogen carbonate	1066-33-7	PNEC	0,013 mg/kg	marine sediment
Ammonium hydrogen carbonate	1066-33-7	PNEC	74,9 mg/kg	soil
Ammonium carbamate	1111-78-0	PNEC	0,37 mg/l	water

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Name of substance	CAS No	Endpoint	Threshold level	Environmental compartment
Ammonium carbamate	1111-78-0	PNEC	0,418 mg/l	freshwater
Ammonium carbamate	1111-78-0	PNEC	0,042 mg/l	marine water
Ammonium carbamate	1111-78-0	PNEC	10 mg/l	sewage treatment plant (STP)
Ammonium carbamate	1111-78-0	PNEC	1,89 mg/kg	freshwater sediment
Ammonium carbamate	1111-78-0	PNEC	0,189 mg/kg	marine sediment
Ammonium carbamate	1111-78-0	PNEC	0,133 mg/kg	soil

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection.

Skin protection



• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

NBR (Nitrile rubber)

• material thickness

>0,11 mm

• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

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Respiratory protection



Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P2 (filters at least 94 % of airborne particles, colour code: White).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	solid (crystalline)
Colour	colourless
Odour	like ammonia
Odour threshold	No data available

Other physical and chemical parameters

pH (value)	9 – 10 (water: 100 g/l, 20 °C)
Melting point/freezing point	Information on this property is not available.
Initial boiling point and boiling range	This information is not available.
Flash point	not applicable
Evaporation rate	no data available
Flammability (solid, gas)	No information available
<u>Explosive limits</u>	
• lower explosion limit (LEL)	this information is not available
• upper explosion limit (UEL)	this information is not available
Explosion limits of dust clouds	these information are not available
Vapour pressure	>60 hPa at 20 °C
Density	This information is not available.
Vapour density	This information is not available.
Relative density	Information on this property is not available.
<u>Solubility(ies)</u>	
Water solubility	>300 g/l at 20 °C
<u>Partition coefficient</u>	
n-octanol/water (log KOW)	-2,4
Auto-ignition temperature	Information on this property is not available.
Decomposition temperature	>57 °C

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Viscosity	not relevant (solid matter)
Explosive properties	Shall not be classified as explosive
Oxidising properties	none

9.2 Other information

There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Violent reaction with: Alkali (lye), Strong acid, Nitrites, Nitrate, Hypochlorite, Hydrogen peroxide, => Explosive properties

10.4 Conditions to avoid

Keep away from heat. Decomposition takes place from temperatures above: >57 °C.

10.5 Incompatible materials

There is no additional information.

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Exposure route	Endpoint	Value	Species	Source
dermal	LD50	>2.000 mg/kg	rat	ECHA
oral	LD50	1.800 mg/kg	rat	ECHA

• Acute toxicity estimate (ATE)

oral 1.800 mg/kg

• Acute toxicity of components of the mixture

Name of substance	CAS No	Exposure route	ATE
Ammonium hydrogen carbonate	1066-33-7	oral	1.576 mg/kg
Ammonium carbamate	1111-78-0	oral	681 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye damage.

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Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

• Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

• Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

diarrhoea, vomiting, nausea

• If in eyes

Causes serious eye damage, risk of blindness

• If inhaled

Inhalation of dust may cause irritation of the respiratory system

• If on skin

causes skin irritation

Other information

Other adverse effects: Spasms, Blood pressure drop, Circulatory collapse, Narcosis

SECTION 12: Ecological information

12.1 Toxicity

acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

Endpoint	Value	Species	Source	Exposure time
ErC50	252,9 mg/l	algae	ECHA	72 h
EC50	122,5 mg/l	algae	ECHA	72 h

Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Ammonium hydrogen carbonate	1066-33-7	LC50	63,4 mg/l	fish	96 h
Ammonium hydrogen carbonate	1066-33-7	EC50	145,6 mg/l	aquatic invertebrates	48 h
Ammonium carbonate	1111-78-0	LC50	37 mg/l	fish	96 h

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Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Ammonium carbamate	1111-78-0	EC50	63,7 mg/l	aquatic invertebrates	48 h
Ammonium carbamate	1111-78-0	ErC50	129,1 mg/l	algae	72 h

Aquatic toxicity (chronic)

Endpoint	Value	Species	Source	Exposure time
EC50	530 mg/l	microorganisms	ECHA	3 h

Aquatic toxicity (chronic) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Ammonium hydrogen carbonate	1066-33-7	ErC50	1.921 mg/l	algae	5 d
Ammonium hydrogen carbonate	1066-33-7	EC50	3.231 mg/l	algae	18 d

12.2 Process of degradability

The methods for determining the biological degradability are not applicable to inorganic substances.
Theoretical Oxygen Demand with nitrification: Theoretical Oxygen Demand: 0 mg/mg
Theoretical Carbon Dioxide:

Degradability of components of the mixture

Name of substance	CAS No	Process	Degradation rate	Time
Ammonium carbamate	1111-78-0	carbon dioxide generation	>80 %	28 d

12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

n-octanol/water (log KOW) -2,4

Bioaccumulative potential of components of the mixture

Name of substance	CAS No	Log KOW
Ammonium hydrogen carbonate	1066-33-7	-2,4 (25 °C)
Ammonium carbamate	1111-78-0	-0,47 (25 °C)

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Other adverse effects

Data are not available.

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SECTION 13: Disposal considerations

13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

- | | | |
|------|---|--|
| 14.1 | UN number | (not subject to transport regulations) |
| 14.2 | UN proper shipping name | not relevant |
| 14.3 | Transport hazard class(es) | not relevant |
| | Class | - |
| 14.4 | Packing group | not relevant not assigned to a packing group |
| 14.5 | Environmental hazards | NONE (non-environmentally hazardous acc. to the dangerous goods regulations) |
| 14.6 | Special precautions for user | There is no additional information. |
| 14.7 | Transport in bulk according to Annex II of MARPOL and the IBC Code | The cargo is not intended to be carried in bulk. |
| 14.8 | Information for each of the UN Model Regulations | |
| | • Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) | Not subject to ADR, RID and ADN. |
| | • International Maritime Dangerous Goods Code (IMDG) | Not subject to IMDG. |
| | • International Civil Aviation Organization (ICAO-IATA/DGR) | Not subject to ICAO-IATA. |

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SECTION 15: Regulatory information

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

National inventories

Country	National inventories	Status
AU	AICS	all ingredients are listed
CA	DSL	all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
JP	ISHA-ENCS	not all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed

Legend

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Abbreviations and acronyms

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Abbr.	Descriptions of used abbreviations
Acute Tox.	acute toxicity
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE	Acute Toxicity Estimate
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
Eye Dam.	seriously damaging to the eye
Eye Irrit.	irritant to the eye
G.N. No. S 134/2006	Workplace Safety and Health (General Provisions) Regulations
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
log KOW	n-octanol/water
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PEL	workplace exposure limit
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals

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Abbr.	Descriptions of used abbreviations
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
Skin Corr.	corrosive to skin
Skin Irrit.	irritant to skin
STEL	short-term exposure limit
TWA	time-weighted average
vPvB	very Persistent and very Bioaccumulative

Key literature references and sources for data

- UN Recommendations on the Transport of Dangerous Good
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H302	harmful if swallowed
H315	causes skin irritation
H318	causes serious eye damage

Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.