

Safety data sheet according to Regulation (EC) No 1907/2006, Annex II

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

1.1 Product identifier

ALUDEEN

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

Relevant identified uses of the substance or mixture:

Metal soldering

Uses advised against:

No information available at present.

1.3 Details of the supplier of the safety data sheet

CHEMET GmbH
 Postfach 1209
 56419 Wirges
 Deutschland
 Tel.: +49 (0) 2602 / 9265-0
 Fax: +49 (0) 2602 / 9265-25
 info@chemet.de
 www.chemet.de

Qualified person's e-mail address: info@chemical-check.de, k.schnurbusch@chemical-check.de Please DO NOT use for requesting Safety Data Sheets.

1.4 Emergency telephone number

Emergency information services / official advisory body:

Telephone number of the company in case of emergencies:

+49 (0) 2602 / 9265-0 (Mo. - Fr. 7.00h - 16.00h)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) 1272/2008 (CLP)

Hazard class	Hazard category	Hazard statement
Acute Tox.	4	H302-Harmful if swallowed.
Skin Corr.	1B	H314-Causes severe skin burns and eye damage.
STOT SE	3	H335-May cause respiratory irritation.
Eye Dam.	1	H318-Causes serious eye damage.
Skin Sens.	1	H317-May cause an allergic skin reaction.
Aquatic Chronic	2	H411-Toxic to aquatic life with long lasting effects.
Repr.	1B	H360Df-May damage the unborn child. Suspected of damaging fertility.

2.2 Label elements

Labeling according to Regulation (EC) 1272/2008 (CLP)

**Danger**

H302-Harmful if swallowed. H314-Causes severe skin burns and eye damage. H335-May cause respiratory irritation. H317-May cause an allergic skin reaction. H411-Toxic to aquatic life with long lasting effects. H360Df-May damage the unborn child. Suspected of damaging fertility.

P201-Obtain special instructions before use. P260-Do not breathe vapours or spray. P273-Avoid release to the environment. P280-Wear protective gloves / protective clothing / eye protection / face protection. P301+P330+P331-IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353-IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P305+P351+P338-IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313-IF exposed or concerned: Get medical advice / attention.

Restricted to professional users.

Ammonium tetrafluoroborate

Fluoroboric acid

Zinc bis(tetrafluoroborate)

2-(2-aminoethylamino)ethanol

2.3 Other hazards

The mixture does not contain any vPvB substance (vPvB = very persistent, very bioaccumulative) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).

The mixture does not contain any PBT substance (PBT = persistent, bioaccumulative, toxic) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).

The mixture does not contain any substance with endocrine disrupting properties (< 0,1 %).

In thermal processing, formation of harmful vapors possible

Electric shock can kill.

Danger of burns

Welding fumes can cause lung cancer.

SECTION 3: Composition/information on ingredients

3.1 Substances

n.a.

3.2 Mixtures

2-(2-aminoethylamino)ethanol	
Registration number (REACH)	---
Index	603-194-00-0
EINECS, ELINCS, NLP, REACH-IT List-No.	203-867-5
CAS	111-41-1
content %	20-<50
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Repr. 1B, H360Df
Specific Concentration Limits and ATE	STOT SE 3, H335: >=5 %

Ammonium tetrafluoroborate	
Registration number (REACH)	---
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	237-531-4
CAS	13826-83-0
content %	10-<20

Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Met. Corr. 1, H290 Skin Corr. 1B, H314 Eye Dam. 1, H318
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Zinc oxide	
Registration number (REACH)	01-2119463881-32-XXXX
Index	030-013-00-7
EINECS, ELINCS, NLP, REACH-IT List-No.	215-222-5
CAS	1314-13-2
content %	5-<10
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)

Fluoroboric acid	
Registration number (REACH)	---
Index	009-010-00-X
EINECS, ELINCS, NLP, REACH-IT List-No.	240-898-3
CAS	16872-11-0
content %	5-<10
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Acute Tox. 3, H301 Skin Corr. 1B, H314 Eye Dam. 1, H318
Specific Concentration Limits and ATE	Skin Corr. 1B, H314: >=25 % Skin Irrit. 2, H315: >=10 % Eye Irrit. 2, H319: >=10 %

Zinc bis(tetrafluoroborate)	
Registration number (REACH)	---
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	237-534-0
CAS	13826-88-5
content %	5-<10
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Corr. 1B, H314 Eye Dam. 1, H318

Tin bis(tetrafluoroborate)	
Registration number (REACH)	---
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	237-487-6
CAS	13814-97-6
content %	5-<10
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Skin Corr. 1B, H314 Eye Dam. 1, H318

Diethanolamine	
Registration number (REACH)	---
Index	603-071-00-1
EINECS, ELINCS, NLP, REACH-IT List-No.	203-868-0
CAS	111-42-2
content %	5-<10
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT RE 2, H373 Aquatic Chronic 3, H412

For the text of the H-phrases and classification codes (GHS/CLP), see Section 16.

The substances named in this section are given with their actual, appropriate classification!

For substances that are listed in appendix VI, table 3.1 of the regulation (EC) no. 1272/2008 (CLP regulation) this means that all notes that may be given here for the named classification have been taken into account.

SECTION 4: First aid measures

4.1 Description of first aid measures

First-aiders should ensure they are protected!

Never pour anything into the mouth of an unconscious person!

For radiation burns due to arc flash, see physician.

Inhalation

Remove person from danger area.

Supply person with fresh air. Call doctor immediately.

If the person is unconscious, place in a stable side position and consult a doctor.

Respiratory arrest - Artificial respiration apparatus necessary.

Skin contact

Wash thoroughly using copious water - remove contaminated clothing immediately and call a doctor. Have Data Sheet available.

May cause sensitisation by skin contact.

Corrosive burns on skin as well as mucous membrane possible.

Cover burns aseptically.

Eye contact

Remove contact lenses.

Immediately rinse the eyes with plenty of water for at least ten minutes, holding the eyelids properly open.

Protect uninjured eye.

Call doctor immediately - have Data Sheet available.

Follow-up examination by an ophthalmologist.

Risk of serious damage to eyes.

Danger of blindness.

Ingestion

Rinse the mouth thoroughly with water.

Do not induce vomiting. Consult doctor immediately.

Harmful if swallowed.

Causes burns.

4.2 Most important symptoms and effects, both acute and delayed

If applicable delayed symptoms and effects can be found in section 11 and the absorption route in section 4.1.

In certain cases, the symptoms of poisoning may only appear after an extended period / after several hours.

The following may occur:

metal fume fever

Dizziness

Nausea

irritation of the respiratory tract

Irritation of the mouth and throat

irritation of the eyes

Irritation of the skin.

Asthmatic symptoms

With long-term contact:

Siderosis (iron deposits in the lungs).

effects/damages the central nervous system

Bronchitis

Lung damage

4.3 Indication of any immediate medical attention and special treatment needed

Symptomatic treatment.

There should be an eyewash station and safety shower located near the area of use.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Adapt to the nature and extent of fire.

Unsuitable extinguishing media

High volume water jet

5.2 Special hazards arising from the substance or mixture

In case of fire the following can develop:

Oxides of carbon

Oxides of nitrogen

Boron oxide

Hydrofluoric acid

Metal oxides

Zinc oxide

Toxic gases
Halogenated compounds
Ammonia
Ozone

5.3 Advice for firefighters

For personal protective equipment see Section 8.
In case of fire and/or explosion do not breathe fumes.
Protective respirator with independent air supply.
Full protection
Dispose of contaminated extinction water according to official regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

In case of spillage or accidental release, wear personal protective equipment as specified in section 8 to prevent contamination.
Ensure sufficient ventilation, remove sources of ignition.
Avoid dust formation with solid or powder products.
Leave the danger zone if possible, use existing emergency plans if necessary.
Keep unprotected persons away.
Ensure sufficient ventilation.
Avoid inhalation, and contact with eyes or skin.

6.1.2 For emergency responders

See section 8 for suitable protective equipment and material specifications.

6.2 Environmental precautions

If leakage occurs, dam up.
Resolve leaks if this possible without risk.
Prevent from entering drainage system.
Prevent surface and ground-water infiltration, as well as ground penetration.
If accidental entry into drainage system occurs, inform responsible authorities.

6.3 Methods and material for containment and cleaning up

Soak up with absorbent material (e.g. universal binding agent) and dispose of according to Section 13.

6.4 Reference to other sections

For personal protective equipment see Section 8 and for disposal instructions see Section 13.

SECTION 7: Handling and storage

In addition to information given in this section, relevant information can also be found in section 8 and 6.1.

7.1 Precautions for safe handling

7.1.1 General recommendations

Ensure good ventilation.
Avoid aerosol formation.
Avoid inhalation, and contact with eyes or skin.
There should be an eyewash station and safety shower located near the area of use.
Eating, drinking, smoking, as well as food-storage, is prohibited in work-room.
Observe directions on label and instructions for use.
Only use working methods according to operating instructions.
Pregnant women should avoid contact with this product.
During processing:
Do not breathe dust.
Inhalation of welding fumes and gases can be dangerous to your health.

7.1.2 Notes on general hygiene measures at the workplace

General hygiene measures for the handling of chemicals are applicable.
Wash hands before breaks and at end of work.
Keep away from food, drink and animal feedingstuffs.
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

7.2 Conditions for safe storage, including any incompatibilities

Keep out of access to unauthorised individuals.
Keep locked away.
Not to be stored in gangways or stair wells.
Store product closed and only in original packing.
Store at room temperature.
Observe special storage conditions.

7.3 Specific end use(s)

No information available at present.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Chemical Name	Inorganic tin compound	
WEL-TWA: 2 mg/m ³ (WEL, EU)	WEL-STEL: 4 mg/m ³ (OES)	---
Monitoring procedures:	ISO 15202 (Workplace air - Determination of metals and metalloids in airborne particulate matter by Inductively Coupled Plasma Atomic Emission Spectrometry), Part 1-3 - 2012(Part 1), 2012(Part 2), 2004 (Part 3) - EU project BC/CEN/ENTR/000/2002-16 card 77-1 (2004) - MDHS 91/2 (Metals and metalloids in workplace air by X-ray fluorescence spectrometry) - 2015 - EU project BC/CEN/ENTR/000/2002-16 card 77-2 (2004) - NIOSH 7300 (ELEMENTS by ICP (Nitric/Perchloric Acid Ashing)) - 2003 - NIOSH 7301 (Elements by ICP (aqua regia ashing)) - 2003 - NIOSH 7303 (Elements by ICP (Hot block HCl/HNO ₃ digestion)) - 2003 OSHA ID-121 (Metal and metalloid particulates in workplace atmospheres (Atomic absorption)) - 2002 - EU project BC/CEN/ENTR/000/2002-16 card 77-8 (2004) - OSHA ID-206 (ICP analysis of metal/metalloid particulates from solder operations) - 1991	
BMGV: ---	Other information: ---	

Zinc oxide						
Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	20,6	µg/l	
	Environment - marine		PNEC	6,1	µg/l	
	Environment - sewage treatment plant		PNEC	100	µg/l	
	Environment - sediment, freshwater		PNEC	117,8	mg/kg dw	
	Environment - sediment, marine		PNEC	56,5	mg/kg dw	
	Environment - soil		PNEC	35,6	mg/kg dw	
Consumer	Human - inhalation	Short term, local effects	DNEL	3,1	mg/m ³	
Consumer	Human - inhalation	Long term, local effects	DNEL	1,5	mg/m ³	
Consumer	Human - dermal	Long term, systemic effects	DNEL	83	mg/kg	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	2,5	mg/m ³	
Consumer	Human - oral	Long term, systemic effects	DNEL	0,83	mg/kg bw/day	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	83	mg/kg bw/day	
Workers / employees	Human - dermal	Short term, local effects	DNEL	6223	mg/kg bw/day	
Workers / employees	Human - dermal	Long term, local effects	DNEL	83	mg/kg bw/day	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	0,5	mg/m ³	
Workers / employees	Human - oral	Short term, local effects	DNEL	62,2	mg/kg bw/day	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	6,2	mg/m ³	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	5	mg/m ³	

Diethanolamine						
Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - sewage treatment plant		PNEC	100	mg/l	
	Environment - sediment, freshwater		PNEC	0,0627	mg/kg dry weight	
	Environment - marine		PNEC	0,00022	µg/l	
	Environment - sediment, marine		PNEC	0,00627	mg/kg dry weight	
	Environment - freshwater		PNEC	0,0022	mg/l	
	Environment - soil		PNEC	0,0112	mg/kg dry weight	
Consumer	Human - dermal	Long term, systemic effects	DNEL	0,07	mg/kg body weight/day	
Consumer	Human - oral	Long term, systemic effects	DNEL	0,06	mg/kg body weight/day	
Consumer	Human - inhalation	Long term, local effects	DNEL	0,25	mg/m ³	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	1	mg/m ³	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	0,13	mg/kg body weight/day	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	33	mg/m ³	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	4	mg/m ³	

Ⓢ WEL-TWA = Workplace Exposure Limit - Long-term exposure limit (8-hour TWA (= time weighted average) reference period) EH40. AGW = "Arbeitsplatzgrenzwert" (workplace limit value, Germany). (8) = Inhalable fraction (Directive 2017/164/EU, Directive 2004/37/CE). (9) = Respirable fraction (Directive 2017/164/EU, Directive 2004/37/CE). (11) = Inhalable fraction (Directive 2004/37/CE). (12) = Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine (Directive 2004/37/CE). | WEL-STEL = Workplace Exposure Limit - Short-term exposure limit (15-minute reference period). (8) = Inhalable fraction (2017/164/EU, 2017/2398/EU). (9) = Respirable fraction (2017/164/EU, 2017/2398/EU). (10) = Short-term exposure limit value in relation to a reference period of 1 minute (2017/164/EU). | BMGV = Biological monitoring guidance value EH40. BGW = "Biologischer Grenzwert" (biological limit value, Germany) | Other information: Sen = Capable of causing occupational asthma. Sk = Can be absorbed through skin. Carc = Capable of causing cancer and/or heritable genetic damage. ** = The exposure limit for this substance is repealed through the TRGS 900 (Germany) of January 2006 with the goal of revision. (13) = The substance can cause sensitisation of the skin and of the respiratory tract (Directive 2004/37/CE), (14) = The substance can cause sensitisation of the skin (Directive 2004/37/CE).

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Ensure good ventilation. This can be achieved by local suction or general air extraction.

If this is insufficient to maintain the concentration under the WEL or AGW values, suitable breathing protection should be worn.

Applies only if maximum permissible exposure values are listed here.

Suitable assessment methods for reviewing the effectiveness of protection measures adopted include metrological and non-metrological investigative techniques.

These are specified by e.g. EN 14042.

EN 14042 "Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents".

8.2.2 Individual protection measures, such as personal protective equipment

General hygiene measures for the handling of chemicals are applicable.

Wash hands before breaks and at end of work.

Keep away from food, drink and animal feedingstuffs.

Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

Eye/face protection:

Tight fitting protective goggles with side protection (EN 166).

Face protection (EN 166).

Helmet

Wear protective goggles with suitable filter glasses when flame cutting and welding.

Skin protection - Hand protection:

Chemical resistant protective gloves (EN ISO 374).

If applicable:

Protective nitrile gloves (EN ISO 374).

Minimum layer thickness in mm:

0,5

Permeation time (penetration time) in minutes:

120

The breakthrough times determined in accordance with EN 16523-1 were not obtained under practical conditions.

The recommended maximum wearing time is 50% of breakthrough time.

Use welder gloves.

Skin protection - Other:

Protective working garments (e.g. safety shoes EN ISO 20345, long-sleeved protective working garments).

Apron

If applicable:

Boots (EN ISO 20347)

Full length pants, long sleeved overalls, with close fittings at openings.

Respiratory protection:

According to operation.

If air supply is not sufficient, wear protective breathing apparatus.

Observe wearing time limitations for respiratory protection equipment.

Gas mask filter ABEK-P2 (EN 14387), code colour brown, grey, yellow, green, white

Thermal hazards:

For radiation burns due to arc flash, see physician.

Arc rays can severely damage eyes or skin.

Insulating gloves EN 407 (heat).

Additional information on hand protection - No tests have been performed.

In the case of mixtures, the selection has been made according to the knowledge available and the information about the contents.

Selection of materials derived from glove manufacturer's indications.

Final selection of glove material must be made taking the breakthrough times, permeation rates and degradation into account.

Selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer to manufacturer.

In the case of mixtures, the resistance of glove materials cannot be predicted and must therefore be tested before use.

The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.

8.2.3 Environmental exposure controls

No information available at present.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	Amber
Odour:	Odourless
Melting point/freezing point:	There is no information available on this parameter.
Boiling point or initial boiling point and boiling range:	There is no information available on this parameter.
Flammability:	There is no information available on this parameter.
Lower explosion limit:	There is no information available on this parameter.
Upper explosion limit:	There is no information available on this parameter.
Flash point:	There is no information available on this parameter.
Auto-ignition temperature:	There is no information available on this parameter.
Decomposition temperature:	There is no information available on this parameter.
pH:	10,5
Kinematic viscosity:	There is no information available on this parameter.
Solubility:	There is no information available on this parameter.
Partition coefficient n-octanol/water (log value):	Does not apply to mixtures.
Vapour pressure:	There is no information available on this parameter.
Density and/or relative density:	1,3 g/cm ³

Relative vapour density:
 Particle characteristics:

There is no information available on this parameter.
 Does not apply to liquids.

9.2 Other information

Explosives:
 Oxidising liquids:

Product is not explosive.
 No

SECTION 10: Stability and reactivity

10.1 Reactivity

The product has not been tested.

10.2 Chemical stability

Stable with proper storage and handling.

10.3 Possibility of hazardous reactions

No dangerous reactions are known.

10.4 Conditions to avoid

See also section 7.

Heating

10.5 Incompatible materials

See also section 7.

Avoid contact with strong alkalis.

Avoid contact with strong acids.

Avoid contact with strong oxidizing agents.

Oxidizable materials

10.6 Hazardous decomposition products

See also section 5.2

Do not breathe fume.

Welding fumes can cause lung cancer.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Possibly more information on health effects, see Section 2.1 (classification).

ALUDEEN						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	ATE	1584,15	mg/kg			calculated value
Acute toxicity, by dermal route:	ATE	22000	mg/kg			calculated value
Acute toxicity, by inhalation:	ATE	30	mg/l/4h			calculated value
Skin corrosion/irritation:						n.d.a.
Serious eye damage/irritation:						n.d.a.
Respiratory or skin sensitisation:						n.d.a.
Germ cell mutagenicity:						n.d.a.
Carcinogenicity:						n.d.a.
Reproductive toxicity:						n.d.a.
Specific target organ toxicity - single exposure (STOT-SE):						n.d.a.
Specific target organ toxicity - repeated exposure (STOT-RE):						n.d.a.
Aspiration hazard:						n.d.a.
Symptoms:						n.d.a.

2-(2-aminoethylamino)ethanol						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	3000	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	>2000	mg/kg	Rabbit		
Skin corrosion/irritation:						Skin Corr. 1B
Serious eye damage/irritation:						Eye Dam. 1
Respiratory or skin sensitisation:						Sensitising (skin contact)

Germ cell mutagenicity:					OECD 471 (Bacterial Reverse Mutation Test)	Negative
Reproductive toxicity:						Repr. 1B
Symptoms:						respiratory distress, coughing, mucous membrane irritation

Ammonium tetrafluoroborate

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Skin corrosion/irritation:						Skin Corr. 1B
Serious eye damage/irritation:						Eye Dam. 1
Respiratory or skin sensitisation:						Not sensitising

Zinc oxide

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	>15000	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	
Acute toxicity, by dermal route:	LD50	> 2000	mg/kg	Rat	OECD 402 (Acute Dermal Toxicity)	
Acute toxicity, by inhalation:	LC50	>5,7	mg/l/4h	Rat	OECD 403 (Acute Inhalation Toxicity)	
Skin corrosion/irritation:				Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Not irritant
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Not irritant
Respiratory or skin sensitisation:				Guinea pig	OECD 406 (Skin Sensitisation)	Not sensitising
Germ cell mutagenicity:					(Ames-Test)	Negative
Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Reproductive toxicity:				Rat	OECD 416 (Two-generation Reproduction Toxicity Study)	Negative, Analogous conclusion
Symptoms:						breathing difficulties, chest pain (thorax pain), diarrhoea, fever, joint pain, coughing, headaches, circulatory disorders, metal fume fever, muscle pains, mucous membrane irritation, nausea and vomiting.

Fluoroboric acid

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	100	mg/kg	Rat		
Skin corrosion/irritation:						Skin Corr. 1B
Serious eye damage/irritation:						Eye Dam. 1

12.5. Results of PBT and vPvB assessment							n.d.a.
12.6. Endocrine disrupting properties:							Does not apply to mixtures.
12.7. Other adverse effects:							No information available on other adverse effects on the environment.

2-(2-aminoethylamino)ethanol							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	>100	mg/l	Oncorhynchus mykiss		
12.1. Toxicity to daphnia:	EC50	48h	190	mg/l	Daphnia magna		
12.2. Persistence and degradability:		14d	0	%			Not readily biodegradable
12.1. Toxicity to algae:	IC50	72h	210	mg/l	Desmodesmus subspicatus		
Toxicity to bacteria:	EC50	17h	135	mg/l	Pseudomonas putida		

Zinc oxide							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.2. Persistence and degradability:							Not relevant for inorganic substances.
12.3. Bioaccumulative potential:							Not relevant for inorganic substances.
12.4. Mobility in soil:	Log Koc		2,2				
12.1. Toxicity to fish:	LC50	96h	1,1-2,5	ppm	Oncorhynchus mykiss		
12.1. Toxicity to fish:	LC50	96h	3,31-8,062	mg/l	Brachydanio rerio		
12.1. Toxicity to fish:	LC50	96h	>320	mg/l	Lepomis macrochirus		
12.1. Toxicity to daphnia:	EC50	48h	1	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to daphnia:	EC50	48h	0,413-0,83	mg/l	Ceriodaphnia spec.	U.S. EPA ECOTOX Database	
12.1. Toxicity to daphnia:	NOEC/NOEL	21d	0,058	mg/l	Daphnia magna	OECD 211 (Daphnia magna Reproduction Test)	
12.1. Toxicity to algae:	EC50	72h	0,17	mg/l	Selenastrum capricornutum		
12.1. Toxicity to algae:	NOEC/NOEL	72h	0,017	mg/l	Pseudokirchnerie lla subcapitata		
12.1. Toxicity to algae:	EC50	72h	0,136	mg/l	Scenedesmus quadricauda	OECD 201 (Alga, Growth Inhibition Test)	
12.4. Mobility in soil:			158,5	L/kg			
12.5. Results of PBT and vPvB assessment							Not relevant for inorganic substances.

Fluoroboric acid							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	2600	mg/l	Brachydanio rerio	OECD 203 (Fish, Acute Toxicity Test)	

12.1. Toxicity to daphnia:	NOEC/NOEL	21d	188	mg/l	Daphnia magna	U.S. EPA ECOTOX Database	
12.1. Toxicity to daphnia:	LC50	48h	4766	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	EC50	72h	>100	mg/l	Pseudokirchneriella subcapitata	OECD 201 (Alga, Growth Inhibition Test)	

Diethanolamine							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.3. Bioaccumulative potential:							Low
12.1. Toxicity to fish:	LC50	96h	1460	mg/l	Pimephales promelas	OECD 203 (Fish, Acute Toxicity Test)	
12.2. Persistence and degradability:		28d	93	%		OECD 301 F (Ready Biodegradability - Manometric Respirometry Test)	Readily biodegradable
12.1. Toxicity to daphnia:	NOEC/NOEL	21d	0,78	mg/l	Daphnia magna		
12.1. Toxicity to daphnia:	EC50	48h	55	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	ErC50	96h	2,2	mg/l	Pseudokirchneriella subcapitata	OECD 201 (Alga, Growth Inhibition Test)	

SECTION 13: Disposal considerations

13.1 Waste treatment methods

For the substance / mixture / residual amounts

EC disposal code no.:

The waste codes are recommendations based on the scheduled use of this product. Owing to the user's specific conditions for use and disposal, other waste codes may be allocated under certain circumstances. (2014/955/EU)

Recommendation:

Sewage disposal shall be discouraged.
 Pay attention to local and national official regulations.
 E.g. dispose at suitable refuse site.
 E.g. suitable incineration plant.
 Do not dispose of with household waste.

For contaminated packing material

Pay attention to local and national official regulations.
 Empty container completely.
 Untampered packaging can be recycled.
 Dispose of packaging that cannot be cleaned in the same manner as the substance.

SECTION 14: Transport information

General statements

14.1. UN number or ID number: 1760

Transport by road/by rail (ADR/RID)

14.2. UN proper shipping name:
 UN 1760 CORROSIVE LIQUID, N.O.S. (AMINO ETHYL ETHANOL AMINE, AMMONIUM TETRAFLUOROBORATE)

14.3. Transport hazard class(es):

8



14.4. Packing group: II
 Classification code: C9
 LQ: 1 L
 14.5. Environmental hazards: environmentally hazardous
 Tunnel restriction code: E

Transport by sea (IMDG-code)

14.2. UN proper shipping name:
 CORROSIVE LIQUID, N.O.S. (AMINO ETHYL ETHANOL AMINE, AMMONIUM TETRAFLUOROBORATE)
 14.3. Transport hazard class(es): 8
 14.4. Packing group: II
 EmS: F-A, S-B
 Marine Pollutant: Yes
 14.5. Environmental hazards: environmentally hazardous



14.6. Special precautions for user

Persons employed in transporting dangerous goods must be trained.
 All persons involved in transporting must observe safety regulations.
 Precautions must be taken to prevent damage.

14.7. Maritime transport in bulk according to IMO instruments

Freighted as packaged goods rather than in bulk, therefore not applicable.
 Minimum amount regulations have not been taken into account.
 Danger code and packing code on request.
 Comply with special provisions.

SECTION 15: Regulatory information

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

Observe restrictions:

Comply with national regulations/laws governing the protection of young people at work (national implementation of the Directive 94/33/EC)!

Regulation (EC) No 1907/2006, Annex XVII

2-(2-aminoethylamino)ethanol

Comply with national regulations/laws governing maternity protection (national implementation of the Directive 92/85/EEC)!

Comply with trade association/occupational health regulations.

Directive 2012/18/EU ("Seveso III"), Annex I, Part 1 - The following categories apply to this product (others may also need to be considered according to storage, handling etc.):

Hazard categories	Notes to Annex I	Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of - Lower-tier requirements	Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of - Upper-tier requirements
E2		200	500

The Notes to Annex 1 of Directive 2012/18/EU, in particular those named in the tables here and notes 1-6, must be taken into account when assigning categories and qualifying quantities.

Observe incident regulations.

15.2 Chemical safety assessment

A chemical safety assessment is not provided for mixtures.

SECTION 16: Other information

Revised sections: 1-16
 Employee training in handling dangerous goods is required.
 These details refer to the product as it is delivered.
 Employee instruction/training in handling hazardous materials is required.

Classification and processes used to derive the classification of the mixture in accordance with the ordinance (EG) 1272/2008 (CLP):

Classification in accordance with regulation (EC) No. 1272/2008 (CLP)	Evaluation method used
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Acute Tox. 4, H302	Classification according to calculation procedure.
Skin Corr. 1B, H314	Classification according to calculation procedure.
STOT SE 3, H335	Classification according to calculation procedure.
Eye Dam. 1, H318	Classification according to calculation procedure.
Skin Sens. 1, H317	Classification according to calculation procedure.
Aquatic Chronic 2, H411	Classification according to calculation procedure.
Repr. 1B, H360Df	Classification according to calculation procedure.

The following phrases represent the posted Hazard Class and Risk Category Code (GHS/CLP) of the product and the constituents (specified in Section 2 and 3).

H360Df May damage the unborn child. Suspected of damaging fertility.

H290 May be corrosive to metals.

H301 Toxic if swallowed.

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H332 Harmful if inhaled.

H373 May cause damage to organs through prolonged or repeated exposure.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

H412 Harmful to aquatic life with long lasting effects.

Acute Tox. — Acute toxicity - oral

Skin Corr. — Skin corrosion

STOT SE — Specific target organ toxicity - single exposure - respiratory tract irritation

Eye Dam. — Serious eye damage

Skin Sens. — Skin sensitization

Aquatic Chronic — Hazardous to the aquatic environment - chronic

Repr. — Reproductive toxicity

Met. Corr. — Substance or mixture corrosive to metals

Aquatic Acute — Hazardous to the aquatic environment - acute

Acute Tox. — Acute toxicity - dermal

Acute Tox. — Acute toxicity - inhalation

Skin Irrit. — Skin irritation

STOT RE — Specific target organ toxicity - repeated exposure

Key literature references and sources for data:

Regulation (EC) No 1907/2006 (REACH) and Regulation (EC) No 1272/2008 (CLP) as amended.

Guidelines for the preparation of safety data sheets as amended (ECHA).

Guidelines on labelling and packaging according to the Regulation (EG) Nr. 1272/2008 (CLP) as amended (ECHA).

Safety data sheets for the constituent substances.

ECHA Homepage - Information about chemicals.

GESTIS Substance Database (Germany).

German Environment Agency "Rigoletto" information site on substances that are hazardous to water (Germany).

EU Occupation Exposure Limits Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164, (EU) 2019/1831, each as amended.

National Lists of Occupational Exposure Limits for each country as amended.

Regulations on the transport of hazardous goods by road, rail, sea and air (ADR, RID, IMDG, IATA) as amended.

Any abbreviations and acronyms used in this document:

acc., acc. to according, according to

ADR Accord européen relatif au transport international des marchandises Dangereuses par Route (= European Agreement concerning the International Carriage of Dangerous Goods by Road)

AOX Adsorbable organic halogen compounds

approx. approximately

Art., Art. no. Article number

ASTM ASTM International (American Society for Testing and Materials)

ATE Acute Toxicity Estimate

BAM Bundesanstalt für Materialforschung und -prüfung (Federal Institute for Materials Research and Testing, Germany)

BAuA	Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (= Federal Institute for Occupational Health and Safety, Germany)
BCF	Bioconcentration factor
BSEF	The International Bromine Council
bw	body weight
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging (REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures)
CMR	carcinogenic, mutagenic, reproductive toxic
DMEL	Derived Minimum Effect Level
DNEL	Derived No Effect Level
DOC	Dissolved organic carbon
dw	dry weight
e.g.	for example (abbreviation of Latin 'exempli gratia'), for instance
EbCx, EyCx, EbLx (x = 10, 50)	Effect Concentration/Level of x % on reduction of the biomass (algae, plants)
EC	European Community
ECHA	European Chemicals Agency
ECx, ELx (x = 0, 3, 5, 10, 20, 50, 80, 100)	Effect Concentration/Level for x % effect
EEC	European Economic Community
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EN	European Norms
EPA	United States Environmental Protection Agency (United States of America)
ErCx, EµCx, ErLx (x = 10, 50)	Effect Concentration/Level of x % on inhibition of the growth rate (algae, plants)
etc.	et cetera
EU	European Union
EVAL	Ethylene-vinyl alcohol copolymer
Fax.	Fax number
gen.	general
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
GWP	Global warming potential
Koc	Adsorption coefficient of organic carbon in the soil
Kow	octanol-water partition coefficient
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC (Code)	International Bulk Chemical (Code)
IMDG-code	International Maritime Code for Dangerous Goods
incl.	including, inclusive
IUCLID	International Uniform Chemical Information Database
IUPAC	International Union for Pure Applied Chemistry
LC50	Lethal Concentration to 50 % of a test population
LD50	Lethal Dose to 50% of a test population (Median Lethal Dose)
Log Koc	Logarithm of adsorption coefficient of organic carbon in the soil
Log Kow, Log Pow	Logarithm of octanol-water partition coefficient
LQ	Limited Quantities
MARPOL	International Convention for the Prevention of Marine Pollution from Ships
n.a.	not applicable
n.av.	not available
n.c.	not checked
n.d.a.	no data available
NIOSH	National Institute for Occupational Safety and Health (USA)
NLP	No-longer-Polymer
NOEC, NOEL	No Observed Effect Concentration/Level
OECD	Organisation for Economic Co-operation and Development
org.	organic
OSHA	Occupational Safety and Health Administration (USA)
PBT	persistent, bioaccumulative and toxic
PE	Polyethylene
PNEC	Predicted No Effect Concentration
ppm	parts per million
PVC	Polyvinylchloride
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (REGULATION (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals)
REACH-IT List-No.	9xx-xxx-x No. is automatically assigned, e.g. to pre-registrations without a CAS No. or other numerical identifier. List Numbers do not have any legal significance, rather they are purely technical identifiers for processing a submission via REACH-IT.
RID	Règlement concernant le transport International ferroviaire de marchandises Dangereuses (= Regulation concerning the International Carriage of Dangerous Goods by Rail)

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ALUDEEN

SVHC Substances of Very High Concern
Tel. Telephone
TOC Total organic carbon
UN RTDG United Nations Recommendations on the Transport of Dangerous Goods
VOC Volatile organic compounds
vPvB very persistent and very bioaccumulative
wwt wet weight

The statements made here should describe the product with regard to the necessary safety precautions - they are not meant to guarantee definite characteristics - but they are based on our present up-to-date knowledge. No responsibility.

These statements were made by:

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