Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 27.10.2023 Version number 39 (replaces version 38) Revision: 27.10.2023

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

· **1.1 Product identifier**

· **Product name: Vario Hexamine F20 ml**

· **Catalog number:** 00531659, 531650, 4531650, 00551659

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

· **Application of the substance / the preparation:** Reagent for water analysis

· **1.3 Details of the supplier of the safety data sheet**

· **Supplier:**
Tintometer GmbH
Schleefstraße 8-12
44287 Dortmund
Made in Germany
www.lovibond.com
phone: +49 (0)231 94510-0
e-mail: sales@lovibond.com

The Tintometer Limited
Lovibond® House
Sun Rise Way
Amesbury
Wiltshire SP4 7GR
United Kingdom
phone : +44 1980 664800
e-mail: SDS@lovibond.uk

· **Informing department:**
e-mail: sds@lovibond.com
Product Safety Department

· **1.4 Emergency telephone number:**
+44 1235 239670
Languages: English

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**


GHS02 flame

Flam. Sol. 2 H228 Flammable solid.


GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the GB CLP regulation.
· **Hazard pictograms**


GHS02 GHS07

· **Signal word** Warning

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Product name: Vario Hexamine F20 ml

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· **Hazard-determining components of labelling:**
methenamine
· **Hazard statements**
H228 Flammable solid.
H317 May cause an allergic skin reaction.
· **Precautionary statements**
P210 Keep away from heat. - No smoking.
P280 Wear protective gloves.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

· **2.3 Other hazards** No further relevant information available.

· **Results of PBT and vPvB assessment**
This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.
· **Determination of endocrine-disrupting properties**
The product does not contain substances with endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** Mixture of organic and inorganic compounds

· **Dangerous components:**

CAS: 100-97-0 EINECS: 202-905-8 Index No: 612-101-00-2 Reg.nr.: 01-2119474895-20-XXXX	methenamine	Flam. Sol. 2, H228; Skin Sens. 1, H317	90–100%

· **Additional information** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information** Instantly remove any clothing soiled by the product.
· **After inhalation** Supply fresh air; consult doctor in case of symptoms.
· **After skin contact**
Instantly rinse with water.
If skin irritation or rash occurs: Get medical advice/attention.
· **After eye contact**
Rinse opened eye for several minutes under running water (at least 15 min). If symptoms persist, consult doctor.
· **After swallowing**
Rinse out mouth and then drink 1-2 glasses of water.
Seek medical treatment in case of complaints.
· **4.2 Most important symptoms and effects, both acute and delayed:**
allergic reactions
after inhalation:
irritations
coughing
breathing difficulty
asthma attacks
after swallowing:
mucous membrane irritation
sickness
vomiting
pain
cramps
· **Danger** risk of skin sensitization
· **4.3 Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

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Product name: Vario Hexamine F20 ml

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SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents** Water, Carbon dioxide (CO_2), Foam, Fire-extinguishing powder
· **For safety reasons unsuitable extinguishing agents**
For this substance / mixture no limitations of extinguishing agents are given.
· **5.2 Special hazards arising from the substance or mixture**
combustible
Risk of dust explosion
Formation of toxic gases is possible during heating or in case of fire.
Can be released in case of fire:
nitrous gases
Hydrogen cyanide (HCN)
Nitrogen oxides (NOx)
Ammonia (NH_3)
hydrogen cyanide (prussic acid HCN)
· **5.3 Advice for firefighters**
· **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
· **Additional information**
Collect contaminated fire fighting water separately. It must not enter drains.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Ambient fire may liberate hazardous vapours.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
· **Advice for non-emergency personnel:**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Avoid causing dust.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
· **Advice for emergency responders:** Protective equipment: see section 8

· **6.2 Environmental precautions:** Do not allow product to reach sewage system or water bodies.
· **6.3 Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Collect mechanically.
Dispose of contaminated material as waste according to item 13.
· **6.4 Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
· **Advice on safe handling:**
Use only in well ventilated areas.
Prevent formation of dust.
Protect from heat.
Thorough dedusting.
Keep ignition sources away - Do not smoke.
Take action to prevent static discharges.
· **Hygiene measures:**
Avoid contact with the skin.
Take off immediately all contaminated clothing.
Wash hands during breaks and at the end of the work.
Do not eat, drink or smoke when using this product.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and containers:** Store in cool location.
· **Information about storage in one common storage facility:**
Store away from oxidising agents.

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Do not store together with acids.
· **Further information about storage conditions:**
Store in cool, dry conditions in well sealed containers.
Protect from heat and direct sunlight.
Protect from the effects of light.
Protect from humidity and keep away from water.
This product is hygroscopic.
· **Recommended storage temperature:** 20°C +/- 5°C

· **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **DNELs**
Derived No Effect Level (DNEL)

CAS: 100-97-0 methenamine		
Dermal	DNEL	8.8 mg/kg (Worker / long-term /systemic effects)
Inhalative	DNEL	31 mg/m³ (Worker / long-term /systemic effects)

· **Recommended monitoring procedures:**
Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms DIN EN 482 and DIN EN 689.

· **PNECs**
Predicted No Effect Concentration (PNEC)

CAS: 100-97-0 methenamine	
PNEC	100 mg/l (Sewage treatment plant)
	0.5 mg/l (Marine water)
	2.4 mg/l (Fresh water sediment)
	3 mg/l (Fresh water)

· **Additional information:** The lists that were valid during the compilation were used as basis.

· **8.2 Exposure controls**

· **Engineering measures:**
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
See item 7.

· **Individual protection measures, such as personal protective equipment**
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
· **Eye/face protection**
Safety glasses
use against the effects of fumes / dust
· **Hand protection**
Protective gloves.
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
· **Material of gloves**
nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
· **Penetration time of glove material**
Value for the permeation: Level = 1 (< 10 min)
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Other skin protection (body protection):** Protective work clothing.
· **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
· **Recommended filter device for short term use:** Filter P2

· **Environmental exposure controls**
Do not allow product to reach sewage system or water bodies.

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Risk of explosion.

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **Physical state**	Solid.
· **Form:**	Powder
· **Colour:**	White
· **Odour:**	Amine-like
· **Odour threshold:**	Not determined.
· **Melting point/Freezing point:**	263°C (CAS 100-97-0)
· **Boiling point or initial boiling point and boiling range**	Not applicable. Decomposition
· **Flammability**	Flammable solid.
· **Explosive properties:**	Product is not explosive. Risk of dust explosion if enriched with fine dust in presence of air
· **Lower and upper explosion limit**	
Lower:	20000 g/m³ (CAS: 100-97-0 methenamine)
Upper:	Not applicable.
· **Flash point:**	250°C (CAS: 100-97-0 methenamine)
· **Auto-ignition temperature:**	390°C (CAS: 100-97-0 methenamine) Not applicable (solid).
· **Decomposition temperature:**	263 °C
· **pH (20 g/l) at 20°C**	8.5
· **Kinematic viscosity**	Not applicable (solid).
· **Solubility**	
· **Water at 20°C:**	895 g/l (CAS 100-97-0) Readily soluble
· **Partition coefficient n-octanol/water (log value)**	Not applicable (mixture).
· **Vapour pressure at 20°C:**	<0.01 hPa (CAS: 100-97-0 methenamine)
· **Density and/or relative density**	
· **Density at 20°C:**	1.34 g/cm³
· **Relative density:**	Not determined.
· **Relative gas density**	Not applicable (solid).
· **Particle characteristics**	Not determined.
· **9.2 Other information**	
· **Information with regard to physical hazard classes**	
· **Corrosive to metals**	Void
· **Other safety characteristics**	
· **Oxidising properties:**	none
· **Additional information**	
· **Solids content:**	100 %

SECTION 10: Stability and reactivity

· **10.1 Reactivity** Dust can combine with air to form an explosive mixture.
· **10.2 Chemical stability** Stable at ambient temperature (room temperature).
· **10.3 Possibility of hazardous reactions**
In contact with nitrites, nitrates or nitrous acid possible release of nitrosamines (carcinogenic)!
with nitric acid, acetic anhydride, iodide
---> Explosive
Reacts with peroxides
Reacts with acids
Reacts with oxidizing agents
· **10.4 Conditions to avoid** strong heating
· **10.5 Incompatible materials:** No further relevant information available.
· **10.6 Hazardous decomposition products:**
nitrous gases
formaldehyde
Ammonia (NH_3)

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In case of fire: see section 5.

SECTION 11: Toxicological information

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

· **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values that are relevant for classification:**		
CAS: 100-97-0 methenamine		
Oral	LD50	9200 mg/kg (rat) (IUCLID)
Dermal	LD50.	>2000 mg/kg (rat) (OECD 402)

· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
· **Serious eye damage/irritation** Based on available data, the classification criteria are not met.

· **Information on components:**		
CAS: 100-97-0 methenamine		
Irritation of skin	OECD 404	(rabbit: no irritation)
Irritation of eyes	OECD 405	(rabbit: no irritation)

· **Respiratory or skin sensitisation** May cause an allergic skin reaction.

· **Information on components:**		
CAS: 100-97-0 methenamine		
Sensitisation	OECD 406	(guinea pig: positive)
	Patch test (human)	(positive) (IUCLID)

· **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.

· **Information on components:**
OECD 414: Teratogenicity testing
OECD 473: Mutagenicity testing
OECD 471, 474, 476, 487: Germ cell mutagenicity testing

CAS: 100-97-0 methenamine	
OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test)
OECD 474	(negative) (Mammalian Erythrocyte Micronucleus Test) (IUCLID)

· **STOT (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.
· **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.

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

· **Additional toxicological information:**
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.

· **11.2 Information on other hazards**
· **Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

· **Other information**
According to the information available to us, the chemical, physical and toxicological properties of the substances mentioned in Chapter 3 have not been thoroughly investigated.

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SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**	
CAS: 100-97-0 methenamine	
EC50	36 mg/l/48h (Daphnia magna) (IUCLID)
EC10	5 mg/l (fish)
LC50 (static)	41 mg/l/96h (bluegill) (US-EPA)

· **Bacterial toxicity:**
sulphates toxic > 2.5 g/l

CAS: 100-97-0 methenamine	
EC50 (static)	>5000 mg/l (Bacterial toxicity) (DIN 38412) (Merck, Vibrio fischeri)

· **Other information:**
Toxic for fish:
Magnesium compounds: 100 - 400 mg/l

· **12.2 Persistence and degradability**
CAS 100-97-0: not easily biodegradable

CAS: 100-97-0 methenamine	
OECD 302 C	39–47 % / 28 d (not readily biodegradable) (Modified MITI Test (II))

· **12.3 Bioaccumulative potential**
Pow = n-octanol/wasser partition coefficient
log Pow < 1 = Does not accumulate in organisms.

CAS: 100-97-0 methenamine	
log Pow	-2.84 (.) (experimental) (IUCLID)

· **12.4 Mobility in soil** No further relevant information available.
· **12.5 Results of PBT and vPvB assessment**
This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.
· **12.6 Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.
· **12.7 Other adverse effects** Avoid transfer into the environment.
· **Water hazard:**
Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralised.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Hand over to disposers of hazardous waste.

· **European waste catalogue**	
16 05 06*	laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleaning agent:** Water, if necessary with cleaning agent.

SECTION 14: Transport information

· **14.1 UN number or ID number**	
· **ADR, IMDG, IATA**	UN1328
· **14.2 UN proper shipping name**	
· **ADR**	1328 HEXAMETHYLENETETRAMINE

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· **IMDG, IATA**	HEXAMETHYLENETETRAMINE
· **14.3 Transport hazard class(es)**	
· **ADR**	
	
· **Class**	4.1 (F1) Flammable solids, self-reactive substances, polymerizing substances and solid desensitized explosives
· **Label**	4.1
· **IMDG, IATA**	
	
· **Class**	4.1 Flammable solids, self-reactive substances, polymerizing substances and solid desensitized explosives
· **Label**	4.1
· **14.4 Packing group**	
· **ADR, IMDG, IATA**	III
· **14.5 Environmental hazards:**	Not applicable.
· **14.6 Special precautions for user**	Warning: Flammable solids, self-reactive substances, polymerizing substances and solid desensitized explosives
· **Kemler Number:**	40
· **EMS Number:**	F-A,S-G
· **Stowage Category**	A
· **14.7 Maritime transport in bulk according to IMO instruments**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Limited quantities (LQ)**	5 kg
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· **Transport category**	3
· **Tunnel restriction code**	E
· **IMDG**	
· **Limited quantities (LQ)**	5 kg
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g

*
SECTION 15: Regulatory information

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

· **Poisons Act UK**

· **Regulated explosives precursors**

CAS: 100-97-0	methenamine	Listed

· **Regulated poisons**

None of the ingredients is listed.

· **Reportable explosives precursors**

None of the ingredients is listed.

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· **Reportable poisons**
None of the ingredients is listed.

· **Regulation (EU) 2019/1148 on the marketing and use of explosives precursors**
This product is regulated by Regulation (EU) 2019/1148:
All suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point.
Please see https://ec.europa.eu

· **explosives precursors - ANNEX II**

CAS: 100-97-0	methenamine

· **Regulation (EU) No 649/2012 concerning the export and import of hazardous chemicals (PIC)**
None of the ingredients is listed.

· **Regulation (EC) No 1334/2000 setting up a Community regime for the control of exports of dual-use items and technology:**
None of the ingredients is listed.

· **Regulation (EC) No 273/2004 on drug precursors**
None of the ingredients is listed.

· **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**
None of the ingredients is listed.

· **Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:**
None of the ingredients is listed.

· **REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)**
None of the ingredients is listed.

· **LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)**
None of the ingredients is listed.

· **Substances of very high concern (SVHC) according to REACH, Article 57**
This product does not contain any substances of very high concern above the legal concentration limit of ≥ 0.1% (w / w).
· **Substances of very high concern (SVHC) according to UK REACH**
This product does not contain any substances of very high concern above the legal concentration limit of ≥ 0.1% (w / w).

· **Directive 2012/18/EU (SEVESO III):**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **Information about limitation of use:** Employment restrictions concerning young persons must be observed (94/33/EC).

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
This Safety Data Sheets is in compliance with Regulation (EC) No 1907/2006, Article 31 as amended by Regulation (EU) 2020/878.

· **Training hints** Provide adequate information, instruction and training for operators.

· **Relevant phrases**
H228 Flammable solid.
H317 May cause an allergic skin reaction.

· **Abbreviations and acronyms:**
OECD: Organisation for Economic Co-operation and Development
STOT: specific target organ toxicity
SE: single exposure
RE: repeated exposure
EC50: half maximal effective concentration
IC50: half maximal inhibitory concentration
NOEL or NOEC: No Observed Effect Level or Concentration
o.c.: open cup
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances

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ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (UK REACH)
PNEC: Predicted No-Effect Concentration (UK REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
Flam. Sol. 2: Flammable solids – Category 2
Skin Sens. 1: Skin sensitisation – Category 1

· **Sources**
Data arise from safety data sheets, reference works and literature.
IUCLID (International Uniform Chemical Information Database)

· *** Data compared to the previous version altered.**

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

· **1.1 Product identifier**

· **Product name: Vario Aluminium ECR F20**

· **Catalog number:** 00531629, 531620, 00531621

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

· **Application of the substance / the preparation:** Reagent for water analysis

· **1.3 Details of the supplier of the safety data sheet**

· **Supplier:**
Tintometer GmbH
Schleefstraße 8-12
44287 Dortmund
Made in Germany
www.lovibond.com
phone: +49 (0)231 94510-0
e-mail: sales@lovibond.com

The Tintometer Limited
Lovibond® House
Sun Rise Way
Amesbury
Wiltshire SP4 7GR
United Kingdom
phone : +44 1980 664800
e-mail: SDS@lovibond.uk

· **Informing department:**
e-mail: sds@lovibond.com
Product Safety Department

· **1.4 Emergency telephone number:**
+44 1235 239670
Languages: English

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**
The product is not classified as hazardous according to the GB CLP regulation.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008** Void
· **Hazard pictograms** Void
· **Signal word** Void
· **Hazard statements** Void
· **Additional information:**
EUH210 Safety data sheet available on request.

· **2.3 Other hazards** The following applies to Mercaptane in general: offensive odour

· **Results of PBT and vPvB assessment**
This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.
· **Determination of endocrine-disrupting properties**
The product does not contain substances with endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** Mixture of organic and inorganic compounds

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· **Dangerous components:**

CAS: 70-49-5 EINECS: 200-736-4	mercaptosuccinic acid Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335	5–<10%

· **Additional information** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information** Instantly remove any clothing soiled by the product.
· **After inhalation** Supply fresh air.
· **After skin contact** Instantly wash with water and soap and rinse thoroughly.
· **After eye contact**
Rinse opened eye for several minutes under running water (at least 15 min). If symptoms persist, consult doctor.
· **After swallowing**
Rinse out mouth and then drink 1-2 glasses of water.
In case of persistent symptoms consult doctor.
· **4.2 Most important symptoms and effects, both acute and delayed:**
after inhalation:
mucosal irritations, cough, shortness of breath
after swallowing:
sickness
vomiting
diarrhoea
after swallowing of large amounts:
drop in blood pressure
CNS disorders
respiratory paralysis
narcotic conditions
cramps
· **4.3 Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
· **5.2 Special hazards arising from the substance or mixture**
The product is not combustible.
Formation of toxic gases is possible during heating or in case of fire.
Can be released in case of fire:
Nitrogen oxides (NOx)
Sulphur oxides (SOx)
· **5.3 Advice for firefighters**
· **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
· **Additional information**
Collect contaminated fire fighting water separately. It must not enter drains.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Ambient fire may liberate hazardous vapours.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
· **Advice for non-emergency personnel:**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
· **Advice for emergency responders:** Protective equipment: see section 8
· **6.2 Environmental precautions:** Do not allow product to reach sewage system or water bodies.
· **6.3 Methods and material for containment and cleaning up:**
Ensure adequate ventilation.

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Collect mechanically.
Dispose of contaminated material as waste according to item 13.

· **6.4 Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
· **Advice on safe handling:** Provide suction extractors if dust is formed.
· **Hygiene measures:**
The usual precautionary measures should be adhered to general rules for handling chemicals.
Do not eat, drink or smoke when using this product.
Wash hands during breaks and at the end of the work.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and containers:** Store in cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Protect from heat and direct sunlight.
Store in cool, dry conditions in well sealed containers.
Protect from the effects of light.
Protect from humidity and keep away from water.
This product is hygroscopic.
· **Recommended storage temperature:** 20°C +/- 5°C

· **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Additional information:** The lists that were valid during the compilation were used as basis.

· **8.2 Exposure controls**

· **Engineering measures:**
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
See item 7.

· **Individual protection measures, such as personal protective equipment**
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
· **Eye/face protection**
Safety glasses
use against the effects of fumes / dust
Use safety glasses that have been tested and approved in accordance with government standards such as EN 166.
· **Hand protection**
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
· **Material of gloves**
nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
· **Penetration time of glove material**
Value for the permeation: Level = 1 (< 10 min)
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Other skin protection (body protection):** Protective work clothing.
· **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
· **Recommended filter device for short term use:** Filter P1

· **Environmental exposure controls** Do not allow product to reach sewage system or water bodies.

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SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **Physical state**	Solid.
· **Form:**	Powder
· **Colour:**	Orange
· **Odour:**	Sulphurous
· **Odour threshold:**	Not determined.
· **Melting point/Freezing point:**	Not determined.
· **Boiling point or initial boiling point and boiling range**	Not determined.
· **Flammability**	The product is not combustible.
· **Explosive properties:**	Product is not explosive.
· **Lower and upper explosion limit**	
Lower:	Not applicable.
Upper:	Not applicable.
· **Flash point:**	Not applicable.
· **Auto-ignition temperature:**	Not applicable (solid).
· **Decomposition temperature:**	Not determined.
· **pH (22 g/l) at 20°C**	2.8
· **Kinematic viscosity**	Not applicable (solid).
· **Solubility**	
· **Water:**	Soluble
· **Partition coefficient n-octanol/water (log value)**	Not applicable (mixture).
· **Vapour pressure:**	Not applicable.
· **Density and/or relative density**	
· **Density at 20°C:**	1.7 g/cm³
· **Relative density:**	Not determined.
· **Relative gas density**	Not applicable (solid).
· **Particle characteristics**	Not determined.

· **9.2 Other information**

· **Information with regard to physical hazard classes**	
· **Corrosive to metals**	Void
· **Other safety characteristics**	
· **Oxidising properties:**	none
· **Additional information**	
· **Solids content:**	100 %

SECTION 10: Stability and reactivity

· **10.1 Reactivity** see section 10.3
· **10.2 Chemical stability**
Stable at ambient temperature (room temperature).
sensitive to moisture
sensitivity to light
sensitive to air
· **10.3 Possibility of hazardous reactions**
Reacts with alkalis releasing ammonia
Reacts with strong oxidizing agents
· **10.4 Conditions to avoid** Strong heating (decomposition)
· **10.5 Incompatible materials:** No further relevant information available.
· **10.6 Hazardous decomposition products:** see section 5

SECTION 11: Toxicological information

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

· **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values that are relevant for classification:**		
CAS: 70-49-5 mercaptosuccinic acid		
Oral	LD50	800 mg/kg (rat)

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	LD50 IVN	>1 mg/kg (rabbit)
	LD50 IPR	200 mg/kg (mouse)

· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
· **Serious eye damage/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 (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.
· **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.

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

· **11.2 Information on other hazards**
· **Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

· **Other information**
According to the information available to us, the chemical, physical and toxicological properties of the substances mentioned in Chapter 3 have not been thoroughly investigated.

SECTION 12: Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Bacterial toxicity:** sulphates toxic > 2.5 g/l
· **Other information:**
Toxic for fish:
Sulphates > 7 g/l
NH_4^+ > 0.3 mg/l
· **12.2 Persistence and degradability** No further relevant information available.
· **12.3 Bioaccumulative potential**
Pow = n-octanol/wasser partition coefficient
log Pow < 1 = Does not accumulate in organisms.

CAS: 70-49-5 mercaptosuccinic acid	
log Pow	-0.88 (.) (calculated)

· **12.4 Mobility in soil** No further relevant information available.
· **12.5 Results of PBT and vPvB assessment**
This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.
· **12.6 Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.
· **12.7 Other adverse effects**
Depending on the concentration, phosphorus and/or nitrogen compounds may contribute to the eutrophication of water supplies.
Avoid transfer into the environment.
· **Water hazard:**
Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into soil.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Disposal must be made according to official regulations.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **European waste catalogue**	
16 05 09	discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.

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· **Recommended cleaning agent:** Water, if necessary with cleaning agent.

SECTION 14: Transport information

· **14.1 UN number or ID number** · **ADR, IMDG, IATA**	Void
· **14.2 UN proper shipping name** · **ADR, IMDG, IATA**	Void
· **14.3 Transport hazard class(es)** · **ADR, IMDG, IATA** · **Class**	Void
· **14.4 Packing group** · **ADR, IMDG, IATA**	Void
· **14.5 Environmental hazards:**	Not applicable.
· **14.6 Special precautions for user**	Not applicable.
· **14.7 Maritime transport in bulk according to IMO instruments**	Not applicable.
· **Transport/Additional information:**	Not dangerous according to the above specifications.

*
SECTION 15: Regulatory information

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

· **Poisons Act UK**

· **Regulated explosives precursors**
None of the ingredients is listed.

· **Regulated poisons**
None of the ingredients is listed.

· **Reportable explosives precursors**
None of the ingredients is listed.

· **Reportable poisons**
None of the ingredients is listed.

· **Regulation (EU) 2019/1148 on the marketing and use of explosives precursors** not regulated

· **Regulation (EU) No 649/2012 concerning the export and import of hazardous chemicals (PIC)**
None of the ingredients is listed.

· **Regulation (EC) No 1334/2000 setting up a Community regime for the control of exports of dual-use items and technology:**
None of the ingredients is listed.

· **Regulation (EC) No 273/2004 on drug precursors**
None of the ingredients is listed.

· **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**
None of the ingredients is listed.

· **Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:**
None of the ingredients is listed.

· **REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)**
None of the ingredients is listed.

· **LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)**
None of the ingredients is listed.

· **Substances of very high concern (SVHC) according to REACH, Article 57**
This product does not contain any substances of very high concern above the legal concentration limit of ≥ 0.1% (w / w).

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· **Substances of very high concern (SVHC) according to UK REACH**
This product does not contain any substances of very high concern above the legal concentration limit of ≥ 0.1% (w / w).

· **Directive 2012/18/EU (SEVESO III):**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 65

· **Information about limitation of use:** Not required.

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
This Safety Data Sheets is in compliance with Regulation (EC) No 1907/2006, Article 31 as amended by Regulation (EU) 2020/878.

· **Training hints** Provide adequate information, instruction and training for operators.

· **Relevant phrases**
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

· **Abbreviations and acronyms:**
STOT: specific target organ toxicity
SE: single exposure
RE: repeated exposure
EC50: half maximal effective concentration
IC50: half maximal inhibitory concentration
NOEL or NOEC: No Observed Effect Level or Concentration
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· **Sources** Data arise from safety data sheets, reference works and literature.

· *** Data compared to the previous version altered.**

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

· **1.1 Product identifier**

· **Product name: Vario ECR-Masking RGT**

· **Catalog number:** 531625, 4531625, 424453, 531625-0

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

· **Application of the substance / the preparation:** Reagent for water analysis

· **1.3 Details of the supplier of the safety data sheet**

· **Supplier:**
Tintometer GmbH
Schleefstraße 8-12
44287 Dortmund
Made in Germany
www.lovibond.com
phone: +49 (0)231 94510-0
e-mail: sales@lovibond.com

The Tintometer Limited
Lovibond® House
Sun Rise Way
Amesbury
Wiltshire SP4 7GR
United Kingdom
phone : +44 1980 664800
e-mail: SDS@lovibond.uk

· **Informing department:**
e-mail: sds@lovibond.com
Product Safety Department

· **1.4 Emergency telephone number:**
+44 1235 239670
Languages: English

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H312 Harmful in contact with skin.
Acute Tox. 4 H332 Harmful if inhaled.
Eye Irrit. 2 H319 Causes serious eye irritation.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the GB CLP regulation.
· **Hazard pictograms**



GHS07

· **Signal word** Warning
· **Hazard-determining components of labelling:**
ammonium fluoride

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· **Hazard statements**
H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.
H319 Causes serious eye irritation.
· **Precautionary statements**
P261 Avoid breathing mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302+P352 IF ON SKIN: Wash with plenty of water.
P308+P311 IF exposed or concerned: Call a POISON CENTER/doctor.

· **2.3 Other hazards** CAS 12125-01-8: Danger by skin resorption.

· **Results of PBT and vPvB assessment**
This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.
· **Determination of endocrine-disrupting properties**
The product does not contain substances with endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** aqueous solution

· **Dangerous components:**		
CAS: 3012-65-5 EINECS: 221-146-3	diammonium hydrogen 2-hydroxypropane-1,2,3-tricarboxylate Eye Irrit. 2, H319	10–20%
CAS: 12125-01-8 EINECS: 235-185-9 Index No: 009-006-00-8	ammonium fluoride Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331	10–20%

· **Additional information** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information** Instantly remove any clothing soiled by the product.
· **After inhalation** Supply fresh air or oxygen; call for doctor.
· **After skin contact**
Instantly rinse with water.
Seek immediate medical advice.
· **After eye contact** Rinse opened eye for several minutes (at least 15 min) under running water. Then consult doctor.
· **After swallowing**
Rinse out mouth and then drink 1-2 glasses of water.
Seek medical treatment.
· **4.2 Most important symptoms and effects, both acute and delayed:**
irritations
after swallowing:
sickness
vomiting
diarrhoea
after absorption of large amounts:
drop in blood pressure
narcotic conditions
CNS disorders
respiratory paralysis
cramps
· **Danger**
Danger of pulmonary oedema.
Danger of disturbed cardiac rhythm.

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· **4.3 Indication of any immediate medical attention and special treatment needed:**
Antidotes: Calcium gluconate gel (dermal) / 1% calcium gluconate solution (oral)

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
· **5.2 Special hazards arising from the substance or mixture**
The product is not combustible.
Formation of toxic gases is possible during heating or in case of fire.
Can be released in case of fire:
Hydrogen fluoride (HF)
Nitrogen oxides (NOx)
NH_3
· **5.3 Advice for firefighters**
· **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
· **Additional information**
Collect contaminated fire fighting water separately. It must not enter drains.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Ambient fire may liberate hazardous vapours.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
· **Advice for non-emergency personnel:**
Wear protective equipment. Keep unprotected persons away.
Avoid substance contact.
Ensure adequate ventilation
Use breathing protection against the effects of fumes/dust/aerosol.
· **Advice for emergency responders:** Protective equipment: see section 8

· **6.2 Environmental precautions:** Do not allow product to reach sewage system or water bodies.
· **6.3 Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Neutralize with lime sand, lime or sodium bicarbonate.
Absorb with liquid-binding material (sand, diatomite, universal binders).
Dispose of contaminated material as waste according to item 13.
· **6.4 Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
· **Advice on safe handling:**
Open and handle container with care.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
· **Hygiene measures:**
Do not get in eyes, on skin, or on clothing.
Take off immediately all contaminated clothing.
Wash hands during breaks and at the end of the work.
Do not eat, drink or smoke when using this product.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Requirements to be met by storerooms and containers:**
Store in cool location.
Store only in the original container.
Unsuitable material for container: glass
Unsuitable material for container: metals, metal alloys
· **Information about storage in one common storage facility:** Do not store together with acids.

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· **Further information about storage conditions:**
Keep container tightly sealed.
Protect from heat and direct sunlight.
Protect from the effects of light.
Protect from humidity and keep away from water.
· **Recommended storage temperature:** 20°C +/- 5°C

· **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
CAS: 12125-01-8 ammonium fluoride	
WEL (Great Britain)	Long-term value: 2.5 mg/m³ as F
IOELV (European Union)	Long-term value: 2.5 mg/m³ as F

· **Regulatory information**
WEL (Great Britain): EH40/2020
IOELV (European Union): (EU) 2019/1831
· **Recommended monitoring procedures:**
Methods for measurement of the workplace atmosphere have to correspond to the requirements of norms DIN EN 482 and DIN EN 689.

· **Additional information:** The lists that were valid during the compilation were used as basis.

· **8.2 Exposure controls**

· **Engineering measures:**
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
See item 7.

· **Individual protection measures, such as personal protective equipment**
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
· **Eye/face protection** Safety glasses
· **Hand protection**
Protective gloves.
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
· **Material of gloves**
nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
· **Penetration time of glove material**
Value for the permeation: Level = 1 (< 10 min)
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Other skin protection (body protection):** Protective work clothing.
· **Breathing equipment:** Use breathing protection against the effects of fumes/dust/aerosol.
· **Recommended filter device for short term use:** Combination filter B-P3

· **Environmental exposure controls** Do not allow product to reach sewage system or water bodies.

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **Physical state**	Fluid
· **Form:**	Solution
· **Colour:**	Colourless
· **Odour:**	Odourless
· **Odour threshold:**	Not applicable.
· **Melting point/Freezing point:**	Not determined.
· **Boiling point or initial boiling point and boiling range**	Not determined.

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· **Flammability**	The product is not combustible.
· **Explosive properties:**	Product is not explosive.
· **Lower and upper explosion limit**	
Lower:	Not applicable.
Upper:	Not applicable.
· **Flash point:**	Not applicable.
· **Auto-ignition temperature:**	Not applicable.
· **Decomposition temperature:**	~100°C (CAS 12125-01-8)
· **pH at 20°C**	5.1
· **Kinematic viscosity**	Not determined.
· **Solubility**	
· **Water:**	Fully miscible
· **Partition coefficient n-octanol/water (log value)**	Not applicable (mixture).
· **Vapour pressure:**	Not determined.
· **Density and/or relative density**	
· **Density at 20°C:**	1.09 g/cm³
· **Relative density:**	Not determined.
· **Relative gas density**	Not determined.
· **Particle characteristics**	Not applicable (liquid).

· **9.2 Other information**

· **Information with regard to physical hazard classes**	
· **Corrosive to metals**	Void
· **Other safety characteristics**	
· **Oxidising properties:**	none
· **Additional information**	
· **Solids content:**	< 40 %
· **Solvent content:**	
· **Water:**	> 60 %

SECTION 10: Stability and reactivity

· **10.1 Reactivity** see section 10.3
· **10.2 Chemical stability** Stable at ambient temperature (room temperature).
· **10.3 Possibility of hazardous reactions**
Forms hydrogen in aqueous solution with metals
Reacts with halogenated compounds
Reacts with strong oxidizing agents
Contact with strong acids releases hydrogen fluoride
Attacks materials containing glass and silicate
· **10.4 Conditions to avoid** To avoid thermal decomposition do not overheat.
· **10.5 Incompatible materials:**
metals
glass
· **10.6 Hazardous decomposition products:**
Hydrogen fluoride
Poisonous gases/vapours
Corrosive gases/vapours
Ammonia (NH_3)
In case of fire: see section 5.

SECTION 11: Toxicological information

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

· **Acute toxicity**
Classification according to calculation procedure:
Harmful if swallowed, in contact with skin or if inhaled.

· **Acute toxicity estimate ($ATE_{(MIX)}$) - Calculation method:**

Oral	CLP $ATE_{(MIX)}$	554 mg/kg (.)
Dermal	CLP $ATE_{(MIX)}$	1663 mg/kg (.)

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Inhalative	CLP $ATE_{(MIX)}$	2.8 mg/l/4h (aerosol (dust, mist))

· **LD/LC50 values that are relevant for classification:**

CAS: 12125-01-8 ammonium fluoride		
Oral	LD50	100 mg/kg (ATE)
Dermal	LD50	300 mg/kg (ATE)
Inhalative	LC50/4h	0.5 mg/l (ATE)
	LD50 IPR	32 mg/kg (rat)

· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
· **Serious eye damage/irritation** Causes serious eye irritation.

· **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 (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.
· **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.

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

· **Additional toxicological information:**
CAS 12125-01-8: Danger by skin resorption.
chronic ingestion: contains fluoride which may affect behaviour / central nervous system, respiration, cardiovascular system, liver, urinary system, brain, metabolism
chronic toxic effect: fluorosis

· **11.2 Information on other hazards**
· **Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.

· **Other information**
Other dangerous properties can not be excluded.
According to the information available to us, the chemical, physical and toxicological properties of the substances mentioned in Chapter 3 have not been thoroughly investigated.

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**

CAS: 12125-01-8 ammonium fluoride	
LC50	364 mg/l/96h (fathhead minnow)

· **Other information:**
Toxic for fish:
NH_4^+ > 0.3 mg/l
· **12.2 Persistence and degradability** No further relevant information available.
· **12.3 Bioaccumulative potential**
Pow = n-octanol/wasser partition coefficient
log Pow < 1 = Does not accumulate in organisms.

CAS: 3012-65-5 diammonium hydrogen 2-hydroxypropane-1,2,3-tricarboxylate	
log Pow	-2.84 (.)
CAS: 12125-01-8 ammonium fluoride	
log Pow	-4.37 (.)

· **12.4 Mobility in soil** No further relevant information available.
· **12.5 Results of PBT and vPvB assessment**
This mixture does not contain any substances that are assessed to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB), according to the criteria given in Annex XIII of Regulation (EC) No. 1907/2006.
· **12.6 Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.
· **12.7 Other adverse effects** Avoid transfer into the environment.
· **Water hazard:**
Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

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Must not reach sewage water or drainage ditch undiluted or unneutralised.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Hand over to disposers of hazardous waste.

· **European waste catalogue**	
16 05 06*	laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleaning agent:** Water, if necessary with cleaning agent.

SECTION 14: Transport information

· **14.1 UN number or ID number**	
· **ADR, IMDG, IATA**	Void
· **14.2 UN proper shipping name**	
· **ADR, IMDG, IATA**	Void
· **14.3 Transport hazard class(es)**	
· **ADR, IMDG, IATA**	
· **Class**	Void
· **14.4 Packing group**	
· **ADR, IMDG, IATA**	Void
· **14.5 Environmental hazards:**	Not applicable.
· **14.6 Special precautions for user**	Not applicable.
· **14.7 Maritime transport in bulk according to IMO instruments**	Not applicable.
· **Transport/Additional information:**	Not dangerous according to the above specifications.

*
SECTION 15: Regulatory information

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

· **Poisons Act UK**

· **Regulated explosives precursors**
None of the ingredients is listed.

· **Regulated poisons**
None of the ingredients is listed.

· **Reportable explosives precursors**
None of the ingredients is listed.

· **Reportable poisons**		
CAS: 12125-01-8	ammonium fluoride	Listed

· **Regulation (EU) 2019/1148 on the marketing and use of explosives precursors** not regulated

· **Regulation (EU) No 649/2012 concerning the export and import of hazardous chemicals (PIC)**
None of the ingredients is listed.

· **Regulation (EC) No 1334/2000 setting up a Community regime for the control of exports of dual-use items and technology:**
None of the ingredients is listed.

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· **Regulation (EC) No 273/2004 on drug precursors**
None of the ingredients is listed.

· **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**
None of the ingredients is listed.

· **Regulation (EC) No 1005/2009 on substances that deplete the ozone layer:**
None of the ingredients is listed.

· **REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)**
None of the ingredients is listed.

· **LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)**
None of the ingredients is listed.

· **Substances of very high concern (SVHC) according to REACH, Article 57**
This product does not contain any substances of very high concern above the legal concentration limit of ≥ 0.1% (w / w).
· **Substances of very high concern (SVHC) according to UK REACH**
This product does not contain any substances of very high concern above the legal concentration limit of ≥ 0.1% (w / w).

· **Directive 2012/18/EU (SEVESO III):**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 65

· **Information about limitation of use:**
Employment restrictions concerning pregnant and lactating women must be observed (92/85/EEC).

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
This Safety Data Sheets is in compliance with Regulation (EC) No 1907/2006, Article 31 as amended by Regulation (EU) 2020/878.

· **Training hints** Provide adequate information, instruction and training for operators.

· **Relevant phrases**
H301 Toxic if swallowed.
H311 Toxic in contact with skin.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.

· **Abbreviations and acronyms:**
STOT: specific target organ toxicity
SE: single exposure
RE: repeated exposure
EC50: half maximal effective concentration
IC50: half maximal inhibitory concentration
NOEL or NOEC: No Observed Effect Level or Concentration
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

· **Sources** Data arise from safety data sheets, reference works and literature.

· *** Data compared to the previous version altered.**