

Safety Data Sheet

according to Regulations 1907/2006/EC (REACH) and 2015/830/EU

REF: 931029	VISOCOLOR ECO Total Hardness	Page: 1/12
Printing date: 22.11.2022	Date of issue: 19.04.2022	Version: 2.2.2.2

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

1.1 Product identifier

REF 931029
 no data available VISOCOLOR ECO Total Hardness
 REACH Registration number(s): see SECTION 3.1/3.2 or
 A registration number for the substance(s) does not exist because the annual tonnage does not require registration or the substance or its use is excluded from registration.
 1 x 8 mL GH-1 UFI: XPDU-83EC-K20D-GDK7
 2 x 30 mL GH-2

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

Relevant identified uses
 Product for analytical use.
 Exposure Scenario Classification according REACH, RIP 3.2 Codes: SU 0-2, PC 21, PROC 15, AC 0
 The exposure scenario is integrated into sections 1-16.
Uses advised against
 not described

1.3 Details of the supplier of the safety data sheet

Manufactured by:
 MACHEREY-NAGEL GmbH & Co. KG
 Valencienner Str. 11, 52355 Düren, Germany
 Phone: +49 2421 969 0 E-mail: sds@mn-net.com (msds@mn-net.com)

1.4 Emergency telephone number

Outside Germany (DE): Call your regional Poisons Information Service or call local Life Saving Service
 DE: Gemeinsames Gif tinformat ionszentrum (GGIZ)
 99089 Erfurt tel. +49 361 730 730, <<https://www.ggiz-erfurt.de>>

You find our current versions of SDS in Internet:

<<http://www.mn-net.com/SDS>>

Lieferant / Supplier:
 Carl Roth GmbH + Co KG
 Schoemperlenstr. 3-5
 76105 Karlsruhe, Germany
 +49 721 5606 0
 sicherheit@carlroth.de

SECTION 2: Hazard identification

2.0 Classification of the complete product according to Regulation (EC) 1272/2008



Signal word	WARNING
Hazard identification	Hazard classes/categories
H226	Flam. Liq. 3
H315	Skin Irrit. 2
H319	Eye Irrit. 2

2.1 Classification of the substance or mixture according to Regulation (EC) 1272/2008

8 mL GH-1



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Signal word	WARNING
Hazard identification	Hazard classes/categories
H226	Flam. Liq. 3
H315	Skin Irrit. 2
H319	Eye Irrit. 2

30 mL GH-2

Signal word	Do not need labelling as hazardous
No hazard class	-

List of H phrases: see section 16.2

2.2 Label elements according regulation (EC) 1272/2008

According **CLP directive** inner packages must be only labelled with GHS symbol(s) and product identifier(s) (EU 1272/2008 Annex I - 1.5.1.2). Harmful chemicals/mixtures with signal word: **WARNING** and highly flammable chemicals/mixtures must not be labelled with H and P phrases **until 125 mL** (EU 1272/2008 Annex I - 1.5.2).

8 mL GH-1



Signal word: WARNING

30 mL GH-2

Do not need labelling as hazardous
Signal word: -

Label elements of the complete product



Signal word: WARNING

2.3 Other hazards

Possible hazards from physicochemical properties

In the case of pH values are less than 5 or higher than 9 then it is irritant. Flammable properties.

Information pertaining to particular risks to human and possible symptoms

Information pertaining to particular risks to the environment

Possible endocrine disrupting effects

no data available

SECTION 3: Composition / information on ingredients

3.1 Substances or 3.2 Mixtures

8 mL GH-1



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Substance name:	<i>triethanolamine</i>		
CAS No.:	102-71-6		
Substance rating:	H315, Skin Irrit. 2, H319, Eye Irrit. 2		
Formula:	C ₆ H ₁₅ NO ₃		
Pseudonym (de):	2,2',2"-Nitrilotriethanol, TEA, Tris(2-hydroxyethyl)amin		
REACH Reg. No.:	01-2119486482-31-xxxx		
Dual-use:	The application of this chemical is exempt from the regulation 2017/2268/EU (see IC350 remark 4).		
EC No.:	203-049-8		
Concentration:	20 - <45 %		
acc. CLP (GHS):	H315, Skin Irrit. 2, H319, Eye Irrit. 2		
Substance name:	<i>ethanol</i>		
CAS No.:	64-17-5		
	(denatured with 1% 2-butanone / 1% 2-propanol)		
Substance rating:	H225, Flam. Liq. 2		
Formula:	C ₂ H ₆ O; C ₂ H ₅ OH		
Pseudonym (de):	Äthylalkohol, vergällter Spiritus		
REACH Reg. No.:	01-2119457610-43-xxxx		
EC No.:	200-578-6	Indice No.:	603-002-00-5
Concentration:	20 - <35 %		
acc. CLP (GHS):	H226, Flam. Liq. 3		
Substance name:	<i>indicator dye(s)</i>		
CAS No.:	-		
Substance rating:	No criteria for classification or naming of chemical not required.		
Concentration:	0,1 - <1 %		
acc. CLP (GHS):	The criteria for classification are not fulfilled.		

30 mL GH-2

Substance name:	<i>ammonia solution</i>		
CAS No.:	1336-21-6		
Substance rating:	H314, Skin Corr. 1B, H335, STOT SE 3, H400, Aquatic Acute 1		
Formula:	NH ₃ •H ₂ O		
Pseudonym (de):	Salmiakgeist		
REACH Reg. No.:	01-2119488876-14-xxxx, 01-2119982985-14-XXXX		
EC No.:	215-647-6	Indice No.:	007-001-01-2
Concentration:	0,1 - <1 %		
acc. CLP (GHS):	The criteria for classification are not fulfilled.		
Substance name:	<i>ethylendinitrilo tetraacetic acid, di Na-salt (EDTA-Na)</i>		
CAS No.:	6381-92-6		
Substance rating:	H332, Acute Tox. 4 inh., H373, STOT SE 3		
Formula:	C ₁₀ H ₁₄ N ₂ Na ₂ O ₈ •2H ₂ O		
Pseudonym (de):	Titriplex® III		
EC No.:	205-358-3		
Concentration:	0,1 - <1 %		
acc. CLP (GHS):	The criteria for classification are not fulfilled.		

3.3 Remarks

When not listed, mixtures are added with water [CAS No. 7732-18-5] to 100%. List of H and P phrases: see section 16.2.

SECTION 4: First aid measures

4.1 Description of first aid measures

Place insured person out of danger zone to fresh air immediately. Ensure quiet, warmth, and provide resuscitation if necessary. If necessary contact medical advice.

- 4.1.1 After SKIN Contact**
Remove contaminated clothing. Rinse the affected skin or mucous membrane thoroughly under running water. (If possible) use soap.
- 4.1.2 After EYE Contact**
After contact with the eyes rinse thoroughly under running water with the eyelid wide open with eye washing bottle, eye douche or running water (protect intact eye).
- 4.1.3 After INHALATION of vapours**
After inhalation of foam or vapour fresh air should be inhaled. Keep airways free. ---



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- 4.1.4 **After ORAL Intake**
After oral intake lots of water should be drunk after it has been ingested.
- 4.2 **Most important symptoms and effects, both acute and delayed**
- 4.3 **Indication of any immediate medical attention and special treatment needed**
No additionally recommendations. ---

SECTION 5: Firefighting measures

- 5.1 **Extinguishing media**
 - 5.1.1 **Suitable extinguishing media**
Fire extinguishers appropriate to the fire classification, and, if applicable, a fire blanket must be available in a prominent location in the work area. All extinguishers like FOAM, WATER SPRAY, DRY POWDER, CARBON DIOXIDE can be used. Fire extinguishers appropriate to the fire classification, and, if applicable, a fire blanket must be available in a prominent location in the work area. All extinguishers like FOAM, WATER SPRAY, DRY POWDER, CARBON DIOXIDE can be used.
 - 5.1.2 **Unsuitable extinguishing media**
no data available
- 5.2 **Special hazards arising from the substance or mixture**
WARNING: Flammable (GHS regulation). May form explosive vapour-air mixtures. Formation of hazardous and caustic vapour-air mixtures possible.
- 5.3 **Advice for firefighters**
No, for listed product. Product package burns like paper or plastic.
- 5.4 **Additional information**

SECTION 6: Accidental release measures

- 6.1 **Personal precautions, protective equipment and emergency procedures**
Do not breathe vapours. Regular staff training is necessary.
- 6.2 **Environmental precautions**
not necessary
- 6.3 **Methods and material for containment and cleaning up**
Bind any escaping liquid with inert absorbent.
Collect small amounts of leaked liquid and flush with water into drains.
- 6.4 **Reference to other sections**

SECTION 7: Handling and storage

- 7.1 **Precautions for safe handling**
Handling in accordance with the test instruction, that comes with the product.
- 7.2 **Conditions for safe storage, including any incompatibilities**
Safe storage is guaranteed in the original packaging . Storage class (German chemical industry): see chapter 12.1

Storage class (VC1):	3
Water hazard class (DE):	2
- 7.2.1 **Requirements for stock rooms and containers**
Keep original product packages tightly closed during handling and storage.
- 7.3 **Specific end use(s)**
Product for analytical use.



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SECTION 8: Exposure controls /personal protection

8.1 Control parameters

8 mL GH-1

Chemical: *triethanolamine* CAS No.: 102-71-6

DNEL: [derm] 6.3; [inh] 5 mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 0.32 mg/L
PNEC = Predicted No Effect Concentration

TRGS 900 (DE): - DFG: 5 E mg/m³
E/e respirable

Short-term exposure factor: 1, (2)
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: [MAK] 5 e/[STEL] 10 e mg/m³

NIOSH: not listed
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: not listed

Chemical: *ethanol*

CAS No.: 64-17-5

DNEL: [derm] 343 mg/kg; [inh] 950 mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 0.96 mg/L
PNEC = Predicted No Effect Concentration

TRGS 900 (DE): 200 mL/m³ / 380 mg/m³
E/e respirable

Short-term exposure factor: 4 (II), Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 500 ppm / 960 mg/m³

NIOSH: [TWA] 1000 ppm / 1900 mg/m³
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: [TWA] 1000 ppm / 1900 mg/m³

Chemical: *indicator dye(s)*

CAS No.: -

30 mL GH-2

Chemical: *ammonia solution* CAS No.: 1336-21-6

DNEL: [inh] 14 mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 0.0011 mg/L
PNEC = Predicted No Effect Concentration

EU value: 20 ppm / 14 mg/m³

TRGS 900 (DE): 20 ppm / 14 mg/m³
E/e respirable

Short-term exposure factor: 2 (I), Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 20 ppm / 14 mg/m³

NIOSH: [TWA] 25 ppm / 18 mg/m³
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

NIOSH STEL: 35 ppm / 27 mg/m³

OSHA: Yes (TQ = 15000 lbs) - n/a; [TWA] 50 ppm / 35 mg/m³

Chemical: *ethylendinitrilo tetraacetic acid, di Na-salt (EDTA-Na)*

CAS No.: 6381-92-6

DNEL: [inh] 1.5 mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 2.2 mg/L
PNEC = Predicted No Effect Concentration

8.2 Exposure controls

Good ventilation and extraction system in the room, floor resistant to chemicals with floor drainage and washing facilities. The highest level of cleanliness must be maintained at the workplace.

8.2.1 Respiratory protection

No additional recommendations.

8.2.2 Skin protection / Hand protection



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Yes, gloves according EN 374 (permeation time >30 min - level 2), consist of PVC, natural latex, Neopren, or Nitril (f.ex. from Ansell or KCL). Use for short times chemical resistant latex gloves with code EN 374-3 level 1.

8.2.3 Eye / Face Protection

Yes, safety glasses according EN 166 with integrated side shields or wrap-around protection.

8.2.4 Skin protection

Not necessary.

8.2.5 Personal hygiene

Eating, drinking, smoking, taking snuff and storage of food in work areas and at outdoor workplaces is prohibited. Avoid contact with the skin, eyes and clothing. Rinse any clothing on which the substance has been spilled, and soak it in water. Wash hands thoroughly with soap and water when stopping work and before eating, and then apply protective skin cream.

8.2.6 Thermal hazards

no data available

8.3 Limitation and monitoring of environmental exposure

Do not release product into environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

8 mL GH-1

- a) State of aggregation:
- b) Colour: colourless
- c) Odor: red
- d) Melting point: no data available
- e) Boiling point: no data available
- f) Flammability: no data available
- g) Explosive limits (lower / upper): no data available
- h) Flash point: 27 °C
- i) Flashing temperature: no data available
- j) Decomposition temperature: no data available
- k) pH value: 10
- l) Kinematic viscosity: no data available
- m) Solubility in water: no data available
- n) Dispersion coefficient (o/w) : no data available
- o) Vapour pressure (20°C): no data available
- p) Specific gravity: no data available
- q) Relative vapour density (air=1) : no data available
- r) Particle size: no data available

30 mL GH-2

- a) State of aggregation:
- b) Colour: colourless
- c) Odor: red
- d) Melting point: no data available
- e) Boiling point: no data available
- f) Flammability: no data available
- g) Explosive limits (lower / upper): no data available
- h) Flash point: no data available
- i) Flashing temperature: no data available
- j) Decomposition temperature: no data available
- k) pH value: 10,5
- l) Kinematic viscosity: no data available
- m) Solubility in water: no data available
- n) Dispersion coefficient (o/w) : no data available
- o) Vapour pressure (20°C): no data available
- p) Specific gravity: no data available
- q) Relative vapour density (air=1) : no data available
- r) Particle size: no data available



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9.2 Other information

No data is available for the other parameters for the mixtures, since no registration and no chemical safety report is required.
Properties relevant to substance groups

SECTION 10: Stability and reactivity

10.1 Reactivity

no further data available.

10.2 Chemical stability

no known instability.

10.3 Possibility of hazardous reactions

No further data available.

10.4 Conditions to avoid

10.5 Incompatible materials

no additional data available

10.6 Hazardous decomposition products

In the original package all parts/all reagents are safety and separated stored. Decompositions are not observed during the expiration period under recommended conditions.

SECTION 11: Toxicological information

11.1 Information on the hazard classes according regulation (EC) 1272/2008

Following information is valid for pure substances. Quantitative data on the toxicity of this product are not available.

8 mL GH-1

Chemical:	<i>triethanolamine</i>	CAS No.:	102-71-6
TSCA Inventory:	listed	California Proposition 65 List:	not listed
Australia NICNAS:	not listed	Canada CEPA 1999:	DSL Yes
Japan CSCL/PRTR:	PAC Yes, Japan PDSCL:		not listed
Japan ISHL:	listed $\geq 0,1\%$ / $\geq 0,1\%$, Article 57-2 (SDS required)		
South Korea TCCA:	not listed		
Korea Exist.Chem.Inventory:	KE-25940		
LD50 orl rat :	> 5000 mg/kg		

Chemical: *ethanol*

TSCA Inventory:	listed	California Proposition 65 List:	not listed
ACGIH:	1000 ppm		
Exposure Routes:	inhalation, ingestion, skin and/or eye contact		
Target Organs:	Eyes, skin, respiratory system, central nervous system, liver, blood, reproductive system		
Symptoms:	irritation eyes, skin, nose; headache, drowsiness, lassitude (weakness, exhaustion), narcosis; cough; liver damage; anemia; reproductive, teratogenic		
Australia NICNAS:	not listed	Canada CEPA 1999:	DSL yes
Japan CSCL/PRTR:	not listed, Japan PDSCL:		not listed
Japan ISHL:	listed $\geq 0,1\%$ / $\geq 0,1\%$, Article 57-2 (SDS required)		
South Korea TCCA:	not listed		
Korea Exist.Chem.Inventory:	KE-13217		
LD50 orl rat :	6200 mg/kg		
LC ₅₀ ihl gpg :	21,900 mg/L		
LC ₅₀ orl hmn :	1400 mg/kg		
LC50 ihl mus :	123,4 mg/L/4H		
LC50 ihl rat :	115,9-133,8 mg/L/4H		
LD50 orl mus :	3450 mg/kg		

TRGS 905 (DE): K5, M5, R F C

Chemical:	<i>indicator dye(s)</i>	CAS No.:	-
TSCA Inventory:	all listed, <1%		



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30 mL GH-2

Chemical: *ammonia solution* CAS No.: 1336-21-6
 TSCA Inventory: listed California Proposition 65 List: not listed
 Exposure Routes: inhalation, ingestion (solution), skin and/or eye contact (solution/liquid)
 Target Organs: Eyes, skin, respiratory system
 Symptoms: irritation eyes, nose, throat; dyspnea (breathing difficulty), wheezing, chest pain; pulmonary edema; pink frothy sputum; skin burns, vesiculation; I
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes, Toxic Substances (Schedule 1) Yes (Item 53.)
 Japan CSCL/PRTR: not listed, Japan PDSCL: Deleterious Substance
 Japan ISHL: listed ≥0,2%/≥0,1%, Article 57-2 (SDS required)
 South Korea TCCA: not listed
 Korea Exist.Chem.Inventory: KE-01688, >10% Toxic 97-1-184
 LD50 orl rat : 350 mg/kg
 LC₅₀ ihl hmn : 5,000 mg/L
 LC50 ihl rat : 2000 ppm/4H

Chemical: *ethylendinitrilo tetraacetic acid, di Na-salt (EDTA-Na)* CAS No.: 6381-92-6
 TSCA Inventory: listed (CAS 139-33-3)
 LD50 orl rat : 2800 mg/kg

11.2 Other hazards

Possible endocrine disrupting effects
 no data available
Other information
 no additional data available

SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

8 mL GH-1

Chemical: *triethanolamine* CAS No.: 102-71-6
 PNEC (fresh water) : 0.32 mg/L
 PNEC = Predicted No Effect Concentration
 LC50 fish/96h : >1000 mg/L
 EC50 daphnia/48h : >1000_{24h} mg/L
 Water hazard class (DE): 1 WGK No.: 0201
 Dispersion coefficient (o/w) : -2,3
 Storage class (VCI): 12

Chemical: *ethanol* CAS No.: 64-17-5
 PNEC (fresh water) : 0.96 mg/L
 PNEC = Predicted No Effect Concentration
 LC50 daphnia magna/48h : >100 mg/L
 LC50 pimephales promelas/96h : 13400 - 15100 mg/L
 LC50 leuciscus idus/96h : [48h] 8140 mg/L
 LC50 fish/96h : 13 g/L
 EC50 daphnia/48h : 9.3-14.2 g/L
 IC50 scenedesmus quadricauda/72h : [7d] 5000 mg/L
 EC10 pseudomonas putita/16h : [EC5] 6500 mg/L
 Water hazard class (DE): 1 WGK No.: 0096
 Dispersion coefficient (o/w) : -0,31
 Storage class (VCI): 3

Chemical: *indicator dye(s)* CAS No.: -
 Storage class (VCI): 12-13

30 mL GH-2

Chemical: *ammonia solution* CAS No.: 1336-21-6
 PNEC (fresh water) : 0.0011 mg/L
 PNEC = Predicted No Effect Concentration
 LC50 fish/96h : 0,89 mg/L
 EC50 daphnia/48h : 101 mg/L



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Water hazard class (DE):	2	WGK No.: 0211	
Storage class (VCI):	8 B		
Chemical:	<i>ethylendinitrilo tetraacetic acid, di Na-salt (EDTA-Na)</i>		CAS No.: 6381-92-6
PNEC (fresh water):	2.2 mg/L		
PNEC = Predicted No Effect Concentration			
LC50 fish/96h:	[4d] 41-1592 mg/L		
EC50 daphnia/48h:	140 mg/L		
IC50 <i>scenedesmus quadricauda</i> /72h:	[72h] 2.77-1000 mg/L		
EC10 <i>pseudomonas putida</i> /16h:	[EC10, 30h] 500 mg/L		
Water hazard class (DE):	2		
Dispersion coefficient (o/w):	-4,3		
Storage class (VCI):	12-13		

12.2 Persistence and degradability

not necessary

12.3 Bioaccumulative potential

not necessary

12.4 Mobility in soil

not necessary

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher

12.6 Endocrine disrupting properties

no data available

12.7 Other adverse effects

no additional data available

SECTION 13: Disposal considerations

Please observe local regulations for collection and disposal of hazardous waste and contact waste disposal company, where you will obtain information on laboratory waste disposal (waste code number 16 05 06).

13.1 Waste treatment methods

Normally it is possible to empty small amounts (diluted!) into drains.

SECTION 14: Transport information

14.1. UN number: 3316

14.2. UN proper shipping name: Chemical Kit

14.3. Class: 9 14.4. Packing group: II

Road transport ADR

Classification code: M11 Tunnel restriction code: E

Limited Quantity: acc. ADR 3.3.1/251: see LQ in Alternative declaration for transportation

Air transport ICAO

PAX: 960 max. weight PAX: 10 KG

CAO: 960 max. weight CAO: 10 KG

Maritime transport IMDG

EmS: F-A, S-P Storage category: A

Or use **Alternative declaration for transportation:**

UN 1993 class 3 III, **Excepted Quantities** ($\leq 30 \text{ mL} / \sum \leq 1 \text{ L}$) = ADR/ IATA E1

or

14.1 UN number: 1993 14.2 UN proper shipping name: Flammable liquid, n.o.s. (ethanol mixture)

14.3 Class: 3 14.4 Packing group: III

Road transport ADR

Classification code: F1 Tunnel restriction code: D/E

Limited Quantity: 5 L Special instructions: 640E

Excepted Quantity: E 1

Air transport ICAO

Limited Quantity: LQ 7

Excepted Quantity: E 1



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PAX:	355	max. weight PAX:	60 L
CAO:	366	max. weight CAO:	220 L
Maritime transport IMDG			
EmS:	F-E, S-E	Storage category:	A

14.5 Environmental hazards

none, contains only small quantities of hazardous substances

14.6 Special precautions for user

not necessary

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

Not applicable.

SECTION 15: Regulatory information

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

Dangerous Substances Protection Act (DE: Chemikaliengesetz - ChemG), Aug 2013, Stand: Okt 2020
 Ordinance on protection against dangerous substances (E: Gefahrstoffverordnung - GefStoffV), Nov 2010, Stand: Mrz 2017
 TRGS 201, Classification and labeling of activities involving hazardous substances, Feb 2017
 TRGS 220, National aspects when preparing safety data sheets, Jan 2017
 TRGS 400, Risk assessment for activities involving hazardous substances, Jul 2017
 BekGS 408, Application of the GefStoffV and the TRGS with the entry into force of the CLP regulation, December 2009, status: Jan 2012
 MN leaflet/instructions for use, also at www.mn-net.com
 If necessary, observe other country-specific regulations.

15.2 Chemical safety assessment

not necessary for these small amounts

SECTION 16: Other information

16.1 Changes compared to the last version

in preparation

16.2 List of H and P phrases

16.2.1 List of relevant H phrases

H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H319	Causes serious eye irritation.

16.2.2 List of relevant P phrases

P280sh	Wear protective gloves/eye protection.
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16.3 Recommended restriction on use

Only for professional user.

An individual package of this product or test kit has a moderate hazardous potential.

16.4 Sources of key data

KÜHN, BIRETT leaflets on dangerous working materials
 Directive 1999/92/EG Minimum requirements to improve the safety and health protection of workers at risk from potentially explosive atmospheres
 SUVA .CH, limit values in the air at work 2009, revised on 01/2009
 Regulation 790/2009/EU Adaptation of the CLP Regulation 1272/2008/EU to technical and scientific progress
 Regulation 453/2010/EU REACH – REQUIREMENTS FOR THE PREPARATION OF SAFETY DATA SHEET
 Regulation 487/2013/EU, 4. Adaptation of the CLP regulation to technical and scientific progress
 Regulation 669/2018/EU, 4. Adaptation of the CLP regulation to technical and scientific progress
 Regulation 1480/2018/EU, 4. Adaptation of the CLP regulation to technical and scientific progress
 TRGS 900, German engineering rules on limit values in the air at work, as of 03/2019
 Regulation 878/2020/EU
 Regulation 849/2021/EU, 4. Adaptation of the CLP regulation to technical and scientific progress

Revisions/Updates

Reason for revision: 2014-02 Corrected structure of the sections according to Regulation 453/2010/EU, if necessary



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Safety Data Sheet

according to Regulations 1907/2006/EC (REACH) and 2015/830/EU

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*2014-04 Adjustment of Regulation 487/2013/EU
 2016-03 Adjustment of Regulation 1221/2015/EU
 2017-08 Adaptation of the new ethanol denaturation 2016/1867/EU
 2017-11 adaptation of the ECHA registration dossier
 2022-11 Adjustment of Regulation 878/2020/EU*

16.5 Further information

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16.6 Legend / Abbreviations

- acc: according
- ADR: Convention concerning the International Carriage of Dangerous Goods by Road
- Act: acute
- BAT: biological workplace tolerance value
- CAO: Cargo Aircraft Only
- Carc: carcinogen
- CAS: Chemical Abstracts Service
- CLP: Classification, Labelling and Packaging regulation
- CMR: carcinogen, mutagen, reproduction toxic
- Corr: corrosive
- COD: chemical oxygen demand
- CSCL: Chemical Substance Control Law (Jp)
- Dam: damage
- DNEL: Derived No-Effect Level (for workers)
- derm: dermal
- dog: dog
- EC10: Concentration causing a toxic effect in 10% of the test organisms
- EC: European Community
- EC-Nr: Substance number of the EC substance inventory
- EmS: Guide to accident management measures on ships
- EU: European Union
- fish: fish (not specified)
- GHS: Global Harmonized System of Classification and Labeling of Chemicals
- gpg: guinea pig
- ICAO: International Civil Aviation Organization
- ihl: inhaled
- IMDG: International Maritime Dangerous Goods Code
- intrav: intravenous
- ipt: intraperitoneal
- ISHL: Industrial Safety and Health Law (Jp)
- LC50: letale concentration 50%
- LD50: letale dosis 50%
- leuciscus idus: fisch, ide, orfe
- MAK: maximum workplace concentration
- Met: Metall
- mus: mouse
- Muta: mutagen
- NIOSH: National Institute for Occupational Safety and Health (US)
- NRD: Non-rapidly degradable
- onchorhynchus mykiss: fisch, rainbow trout
- orl: oral
- OSHA: Occupational Safety and Health Administration
- PAX: transport on passenger planes allowed
- PBT: persistent, bioaccumulating, toxic substance
- pH: pH value
- pimephales promelas: fisch, fathead minnow
- PNEC: Predicted No Effect Concentration
- PROC 15: Process category 'for laboratory use'
- PRTR: Law for PRTR and Promotion of Chemical Management (Jp)
- PVC: polyvinyl chloride
- quail: bird, quail
- rat: rat



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- rbt: rabbit
- RD: rapidly degradable
- RE: repeated
- REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
- REF: item number, reference number
- Reg.No.: rRegistration number
- Repr: harmful to reproduction
- Resp: respiratory
- RIP: REACH Implementations Projects
- scu: sub cutan
- SDS: safety data sheet
- Sens: sensitisation
- STEL: short term exposure limit
- STOT: Specific Target Organ Toxicity
- SVHC: Substance of Very High Concern
- t/a: tons per year
- TCCA: Toxic Chemicals Control Act (S. Korea)
- Tox: toxic
- TSCA: The Toxic Substances Control Act (US)
- TWA: time weighted average
- TRGS: technical regulations (DE)
- vPvB: very persistent, very bioaccumulating substance

16.7 Training advice

Regular safety training. Multiple safety training of staffs about danger and protection by using hazards in working area. Additionally training and introduction of staffs for using these products.



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