

# Safety Data Sheet

## SDS acc. Hazard Communication Standard

REF: 740201.50	NucleoSpin Dx RNA Blood (50)	Page: 1/18
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### SECTION 1: Identification of the substance/mixture and of the company

#### 1.1 Product Identifier / Product Name

REF	740201.50	
Product Name	NucleoSpin Dx RNA Blood (50)	
2 x 200 U rDNase		UFI: 8SGV-63EY-520U-3WWU
1 x 600 µL Liquid Proteinase K		UFI: TTWV-43C9-R202-NTGN
1 x 13 mL RNase-free H <sub>2</sub> O		
1 x 25 mL MDB		UFI: M48V-530M-W20T-7J23
1 x 13 mL RB2		UFI: Q9TV-D321-520S-HTM0
1 x 12 mL RB3		
1 x 7 mL Reaction Buffer		

#### 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 and of the Safety Data Sheet

##### Manufactured by:

MACHEREY-NAGEL GmbH & Co. KG  
Valenciener Str. 11, 52355 Düren, Germany  
Phone: +49 2421 969 0

E-mail: [sds@mn-net.com](mailto:sds@mn-net.com) ([msds@mn-net.com](mailto:msds@mn-net.com))

#### 1.4 Emergency Telephone Number

Outside Germany (DE): Call your regional Poisons Information Service or call local Life Saving Service.

USA: American Association Of Poison Control Centers

Rockville, MD 20857, tel. 1-800-222-1222, <<https://www.poisonhelp.org>>

DE: Gemeinsames Giftinformationszentrum (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>>

### SECTION 2: Hazard(s) Identification

#### 2.0 Classification of the complete Product



GHS02 GHS05 GHS07 GHS08

Signal Word DANGER

Hazard Identification	Hazard Classes/Categories
H226	Flam. Liq. 3
H302	Acute Tox. 4 oral
H314	Skin Corr. 1 B
H334	Resp. Sens. 1

#### 2.1 Classification of the substance or mixture

600 µL Liquid Proteinase K



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GHS08

Signal Word **DANGER**

Hazard Identification	Hazard Classes/Categories
H334	Resp. Sens. 1

### 13 mL RB2



GHS02



GHS07

Signal Word **WARNING**

Hazard Identification	Hazard Classes/Categories
H226	Flam. Liq. 3
H302	Acute Tox. 4 oral
H315	Skin Irrit. 2
H319	Eye Irrit. 2

### 25 mL MDB



GHS02



GHS05

Signal Word **DANGER**

Hazard Identification	Hazard Classes/Categories
H226	Flam. Liq. 3
H314	Skin Corr. 1 B

### 13 mL RNase-free H<sub>2</sub>O

Signal Word Do not need labelling as hazardous

No Hazard Class

### 200 U rDNase



GHS08

Signal Word **DANGER**

Hazard Identification	Hazard Classes/Categories
H334	Resp. Sens. 1



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### 12 mL RB3

Signal Word Do not need labelling as hazardous  
-

No Hazard Class

### 7 mL Reaction Buffer

Signal Word Do not need labelling as hazardous  
-

No Hazard Class

List of H phrases: see section 16.2

## 2.2 Safety, Health and Environmental Regulations/Legislation specific for the Substance or Mixture

According the implementation of GHS immediate packages only must be labelled with product identifier(s), GHS symbol(s), signal word, manufacturer name and phone number (OSHA's interpretation of HCS 2012). 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) / **until 100 mL** (Canada WHMIS 2015). This labelling exemption does not apply to U.S.A. This labelling exemption is NOT valid for sensibilizing substances.

### 600 µL Liquid Proteinase K



GHS08

Signal Word: DANGER  
H334

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

P261sh, P284, P342+311, P501

Avoid breathing dust/vapors.[In case of inadequate ventilation] wear respiratory protection.If experiencing respiratory symptoms: Call a POISON CENTER/doctor.Dispose of contents/container to regulated waste treatment.

### 13 mL RB2



GHS02



GHS07

Signal Word: WARNING

### 25 mL MDB



GHS02



GHS05

Signal Word: DANGER  
H314

Causes severe skin burns and eye damage.

P260sh, P264, P280sh, P303+361+353, P305+351+338, P310, P405, P501

Do not breathe dust/vapors.Immediately call a POISON CENTER/doctor.Wash hands thoroughly after handling.Wear protective gloves/eye protection.IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.Store locked up.Dispose of contents/container to regulated waste treatment.

### 13 mL RNase-free H<sub>2</sub>O

Do not need labelling as hazardous

Signal Word: -

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### 200 U rDNase



GHS08

Signal Word: DANGER  
H334

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

P261sh, P284, P342+311, P501

Avoid breathing dust/vapors.[In case of inadequate ventilation] wear respiratory protection.If experiencing respiratory symptoms: Call a POISON CENTER/doctor.Dispose of contents/container to regulated waste treatment.

### 12 mL RB3

Do not need labelling as hazardous

Signal Word: -

### 7 mL Reaction Buffer

Do not need labelling as hazardous

Signal Word: -

### Label elements of the complete product



GHS02



GHS05



GHS08

Signal Word: DANGER  
H314, H334

Causes severe skin burns and eye damage.May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
P260sh, P264, P280sh, P284, P303+361+353, P305+351+338, P310, P405, P501

Do not breathe dust/vapors.Immediately call a POISON CENTER/doctor.Wash hands thoroughly after handling.Wear protective gloves/eye protection.[In case of inadequate ventilation] wear respiratory protection.IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.Store locked up.Dispose of contents/container to regulated waste treatment.

## 2.3 Other Hazards

### Possible Hazards from physicochemical Properties

Generally in the case of pH values are less than 2 or higher than 11.5 then it is corrosive. Flammable properties. For guanidine thiocyanate CAS 593-84-0: The properties H314, H332 "Causes severe skin burns and eye damage. Harmful if inhaled." are not relevant, because the mixture solution is buffered to pH 4-9 (see GHS Directive 1272/2008/EC Annex I, chapter 3.2.3.1.2.).

### Information pertaining to particular Risks to Human and possible Symptoms

Causes varying degrees of acid burns on the skin, to the eyes and to the mucous membranes and wounds which do not heal quickly depending on the concentration, temperature and the exposure time. Vapors especially which steam from hot liquids and mist can have a severe irritant effect upon the eyes and the respiratory organs.

Cause after oral intake, impairments of health when ingested in small quantities. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Kit contains small amounts of enzymes, which may cause sensitization by direct and repeated contact.

### Information pertaining to particular Risks to the Environment

Should not be released into the environment.

**PBT:** not applicable

**vPvB:** not applicable

### Possible endocrine disrupting effects

data not available

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### SECTION 3: Composition/Information on Ingredients

#### 3.1 Substances or 3.2 Mixtures

##### 600 µL Liquid Proteinase K

Substance name: *proteinase K, liquid*  
 CAS No.: 39450-01-6

Substance rating: H315, Skin Irrit. 2, H319, Eye Irrit. 2, H334, Resp. Sens. 1  
 Chemical Formula: Enzyme C. No. 3.4.21.64, origin: tritirachium album  
 Synonyms (de): Endopeptidase K  
 EC No.: 254-457-8 Index No.: 647-014-00-9  
 Concentration: 1 - <3 %  
 acc. GHS: H334, Resp. Sens. 1

Substance name: *glycerole*  
 CAS No.: 56-81-5

Substance rating: No criteria for classification or naming of chemical is not required.  
 Chemical Formula: C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>  
 Synonyms (de): 1,2,3-Propantriol  
 REACH Reg. No.: 01-2119471987-18-xxxx  
 EC No.: 200-289-5 Index No.: n/a  
 Concentration: 10 - <50 %  
 acc. GHS: The criteria for classification are not fulfilled.

##### 13 mL RB2

Substance name: *guanidine hydrochloride*  
 CAS No.: 50-01-1

Substance rating: H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2  
 Chemical Formula: CH<sub>6</sub>CIN<sub>3</sub>  
 Synonyms (de): Guanidiniumchlorid  
 REACH Reg. No.: 01-2119977063-35-0005  
 EC No.: 200-002-3 Index No.: 607-148-00-0  
 Concentration: 24 - <36 %  
 acc. GHS: H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2

Substance name: *ethanol*  
 CAS No.: 64-17-5  
 (denatured with 1% 2-butanone)

Substance rating: H225, Flam. Liq. 2  
 Chemical Formula: C<sub>2</sub>H<sub>6</sub>O; C<sub>2</sub>H<sub>5</sub>OH  
 Synonyms (de): Äthylalkohol, vergällter Spiritus  
 REACH Reg. No.: 01-2119457610-43-xxxx  
 EC No.: 200-578-6 Index No.: 603-002-00-5  
 Concentration: 20 - <35 %  
 acc. GHS: H226, Flam. Liq. 3

##### 25 mL MDB

Substance name: *guanidinium thiocyanate*  
 CAS No.: 593-84-0

Substance rating: H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm., H314, Skin Corr. 1 B, H332, Acute Tox. 4 inh., H412, Aquatic Chronic 3  
 Chemical Formula: C<sub>2</sub>H<sub>6</sub>N<sub>4</sub>S  
 Synonyms (de): Guanidiniumrhodanid  
 REACH Reg. No.: 01-2120735072-65-0001  
 EC No.: 209-812-1 Index No.: 615-004-00-3  
 Concentration: 5 - <10 %  
 acc. GHS: H314, Skin Corr. 1 B



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Substance name: *ethanol*  
 CAS No.: 64-17-5  
 (denatured with 1% 2-butanone)  
 Substance rating: H225, Flam. Liq. 2  
 Chemical Formula: C<sub>2</sub>H<sub>6</sub>O; C<sub>2</sub>H<sub>5</sub>OH  
 Synonyms (de): Äthylalkohol, vergällter Spiritus  
 REACH Reg. No.: 01-2119457610-43-xxxx  
 EC No.: 200-578-6  
 Concentration: 5 - <20 %  
 acc. GHS: H226, Flam. Liq. 3

Indice No.: 603-002-00-5

### 13 mL RNase-free H<sub>2</sub>O

Substance name: *water*  
 CAS No.: 7732-18-5

Substance rating: No criteria for classification or naming of chemical is not required.  
 Chemical Formula: H<sub>2</sub>O  
 REACH Reg. No.: exempt, Annex IV  
 EC No.: 231-791-2  
 Concentration: 90 - <100 %  
 acc. GHS: The criteria for classification are not fulfilled.

### 200 U rDNase

Substance name: *rDNase*  
 CAS No.: 9003-98-9

Substance rating: H334, Resp. Sens. 1  
 Chemical Formula: Enzyme C. No. 3.1.21.1, origin: cloned  
 Synonyms (de): Deoxyribonucleodepolymerase  
 EC No.: 232-667-0  
 Concentration: 90 - <100 %  
 acc. GHS: H334, Resp. Sens. 1

### 12 mL RB3

Substance name: *chemicals/mixture until 1%*  
 CAS No.: -

Substance rating: No criteria for classification or naming of chemical is not required.  
 Concentration: 0,1 - <1 %  
 acc. GHS: The criteria for classification are not fulfilled.

### 7 mL Reaction Buffer

Substance name: *chemicals/mixture until 2%*  
 CAS No.: -

Substance rating: No criteria for classification or naming of chemical is not required.  
 Concentration: 1 - <2 %  
 acc. 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 Hazard and Precaution 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. Remove contaminated clothing. Show product package, packing insert and this material safety data sheet to the doctor. Take to a doctor, in a raised position if there are breathing difficulties.

#### 4.1.1 After SKIN Contact

Remove contaminated clothing immediately. Rinse the affected skin or mucous membrane thoroughly for min. 15 minutes under running water. (If possible) use soap. Avoid neutralisation. Then apply a loose bandage.



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- 4.1.2 After EYE Contact**  
After contact with the eyes rinse thoroughly under running water with the eyelid wide open for min. 10 minutes with eye washing bottle, eye douche or running water (protect intact eye). Before (if possible) apply eye drops Proxymetacaine 0.5%, if the opening the eyelid convulsion is painful. Further treatment to be carried out by an eye specialist.
- 4.1.3 After INHALATION of Vapors**  
After inhalation of foam or vapor fresh air should be inhaled. Keep airways free. If vomiting and if insensible place patient in recovery position and keep airways free. Administer a Dexamethasone spray as soon as possible. Ensure quiet, warmth, and provide resuscitation if necessary. In the event of respiratory distress ensure that the patient inhales oxygen. Secure the breathing, heart and circulatory function.
- 4.1.4 After ORAL Intake**  
After oral intake lots of water with activated charcoal supplement should be drunk after it has been ingested. Do not induce vomiting under any circumstances. Do not make any efforts to neutralize it. Contact medical advice for possible consequences.
- 4.2 Most important Symptoms and Effects, both acute and delayed**  
May cause allergy or asthma symptoms or breathing difficulties if inhaled. Chronic effects: Repeated contact, even in small amounts, can lead to sensitization. Rapid penetration and destruction of the skin. Especially in the heated form. Causes severe skin burns and eye damage.
- 4.3 Indication of any immediate Medical Attention and Special Treatment needed**  
CORROSIVE DAMAGE: After SKIN CONTACT rinse with water for a long time. Efforts to neutralise the substance can frequently make matters worse. Apply glucocorticosteroides following inflammatory reactions. After EYE CONTACT rinse immediately with plenty of water for a long time. Eyelid convulsion measures. Name the corrosive substance. Further treatment must to be carried out by an eye specialist. After INTAKE administer aluminium oxide drug suspensions. Administer a prophylaxis to counter pulmonary oedema following the INGESTION of corrosive aerosols. In the event of RESPIRATORY DISTRESS ensure that the patient inhales oxygen. Inform patient respectively further measures and the possibility of long-term damages. ---

## SECTION 5: Fire-Fighting Measures

- 5.1 Extinguishable 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.
- 5.1.2 Unsuitable extinguishing media**  
data not available
- 5.2 Special Hazards arising from the Substance or Mixture**  
WARNING: Flammable. May form explosive vapor-air mixtures. Formation of hazardous and caustic vapor-air mixtures possible.
- 5.3 Advice for Firefighters**  
No, for listed product. Product package burns like paper or plastic. Spray any vapours released with water. Retent fire water. Use only acid-resistant safety equipment.  
For great amount - if necessary - protective breathing apparatus which is independent of the ambient air (isolated equipment), and sealed protective clothing is necessary in the event of a large-scale formation of toxic substances.
- 5.4 Additional Information**  
Danger for environment **only in the event of a large-scale leakage** or formation of hazardous substances.

## SECTION 6: Accidental Release Measures

- 6.1 Personal Precautions, Protective Equipment and Emergency Procedure**  
Do not breathe vapors. Wear suitable protective gloves (see 8.2.2). Wear eye protection, respectively face protection. Regular staff training is necessary, indicating hazards and precautions on the basis of operating instructions. Restrictions on activity must be observed.
- 6.2 Environmental Precautions**  
Should not be released into the environment.  
PBT: not applicable  
vPvB: not applicable
- 6.3 Methods and Material for Containment and Cleaning up**  
Bind any escaping liquid with inert absorbent.  
And dispose in accordance to local regulations for the disposal of hazards. Clean any contaminated equipment and floors with plenty of water. Collect small amounts of leaked liquid and flush with water into sewer.



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### 6.4 Reference to other Sections

see information in section 5.4,7,8 and 13

## SECTION 7: Handling and Storage

### 7.1 Precautions for Safe Handling

Handling in accordance with the test instruction, that comes with the product. Use only in well-ventilated working areas.

### 7.2 Conditions for Safe Storage, including any Incompatibilities

The original product package of MACHEREY-NAGEL allows a safe storage. Storage class (German chemical industry): see chapter 12.1

Storage class (VCI): 3

Water hazard class (DE): 3

### 7.2.1 Requirements for stock rooms and containers

Keep original product packages tightly closed during handling and storage. Use inbreakable container for transport of glass bottles.

### 7.3 Specific End Use(s)

Product for analytical use.

## SECTION 8: Exposure Controls/Personal Protection

### 8.1 Control Parameters

#### 13 mL RB2

Chemical: *guanidine hydrochloride* CAS No.: 50-01-1

DNEL: [inh] 3.5 mg/m<sup>3</sup>

DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): -  
PNEC = Predicted No Effect Concentration

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/m<sup>3</sup>

DNEL = Derived No-Effect Level (for workers)

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

NIOSH: [TWA] 1000 ppm / 1900 mg/m<sup>3</sup>  
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: 1000 ppm / 1900 mg/m<sup>3</sup>

#### 200 U rDNase

Chemical: *rDNase* CAS No.: 9003-98-9

#### 25 mL MDB

Chemical: *guanidinium thiocyanate* CAS No.: 593-84-0

DNEL: [inh] 1092 µg/m<sup>3</sup>

DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 42.4 µg/L  
PNEC = Predicted No Effect Concentration

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/m<sup>3</sup>

DNEL = Derived No-Effect Level (for workers)

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

NIOSH: [TWA] 1000 ppm / 1900 mg/m<sup>3</sup>  
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: 1000 ppm / 1900 mg/m<sup>3</sup>



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### 12 mL RB3

Chemical: *chemicals/mixture until 1%*

CAS No.: -

### 600 µL Liquid Proteinase K

Chemical: *glycerole*

CAS No.: 56-81-5

DNEL: [inh] 56 mg/m<sup>3</sup>

DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 0.885 mg/L

PNEC = Predicted No Effected Concentration

Chemical: *proteinase K, liquid*

CAS No.: 39450-01-6

### 7 mL Reaction Buffer

Chemical: *chemicals/mixture until 2%*

CAS No.: -

### 13 mL RNase-free H<sub>2</sub>O

Chemical: *water*

CAS No.: 7732-18-5

## 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

Use for open access of these substances for example a vapor/dust respirator, class A/AX. No additional recommendations.

### 8.2.2 Skin protection / Hand protection

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

### 8.2.3 Eye / Face Protection

Yes, Splash Goggles or Face Protection.

### 8.2.4 Skin Protection

Recommended to avoid clothing damage, and to avoid contamination with these hazards.

### 8.2.5 Hygiene Measures

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

data not 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

#### 13 mL RB2

a) State of aggregation:	liquid
b) Color:	colorless
c) Odor:	alcoholic
d) Melting Point:	data not available
e) Boiling Point:	data not available
f) Flammability:	data not available
g) Explosive Limits (lower / upper):	data not available
h) Flash Point:	28 °C
i) Autoignition Temperature:	data not available
j) Decomposition Temperature:	data not available
k) pH Value:	6.5-7.5
l) Kinematic Viscosity:	data not available
m) Soluble in Water:	data not available
n) Partition Coefficient (K <sub>o/w</sub> ):	data not available
o) Vapor Pressure (68°F):	data not available
p) Specific Gravity:	1.03-1.06 g/cm <sup>3</sup>
q) Relative Vapor Density (air=1):	data not available
r) Particle Size:	data not available



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### 200 U rDNase

a) State of aggregation:	solid (lyophilized)
b) Color:	white
c) Odor:	odorless
d) Melting Point:	data not available
e) Boiling Point:	data not available
f) Flammability:	data not available
g) Explosive Limits (lower / upper):	data not available
h) Flash Point:	data not available
i) Autoignition Temperature:	data not available
j) Decomposition Temperature:	data not available
k) pH Value:	data not available
l) Kinematic Viscosity:	data not available
m) Soluble in Water:	data not available
n) Partition Coefficient (K <sub>o/w</sub> ):	data not available
o) Vapor Pressure (68°F):	data not available
p) Specific Gravity:	data not available
q) Relative Vapor Density (air=1):	data not available
r) Particle Size:	data not available

### 25 mL MDB

a) State of aggregation:	liquid
b) Color:	colorless
c) Odor:	alcoholic
d) Melting Point:	data not available
e) Boiling Point:	data not available
f) Flammability:	data not available
g) Explosive Limits (lower / upper):	data not available
h) Flash Point:	55 °C
i) Autoignition Temperature:	data not available
j) Decomposition Temperature:	data not available
k) pH Value:	6.7-7.2
l) Kinematic Viscosity:	data not available
m) Soluble in Water:	data not available
n) Partition Coefficient (K <sub>o/w</sub> ):	data not available
o) Vapor Pressure (68°F):	data not available
p) Specific Gravity:	1.01 g/cm <sup>3</sup>
q) Relative Vapor Density (air=1):	data not available
r) Particle Size:	data not available

### 12 mL RB3

a) State of aggregation:	liquid
b) Color:	colorless
c) Odor:	odorless
d) Melting Point:	data not available
e) Boiling Point:	data not available
f) Flammability:	data not available
g) Explosive Limits (lower / upper):	data not available
h) Flash Point:	data not available
i) Autoignition Temperature:	data not available
j) Decomposition Temperature:	data not available
k) pH Value:	7-8
l) Kinematic Viscosity:	data not available
m) Soluble in Water:	data not available
n) Partition Coefficient (K <sub>o/w</sub> ):	data not available
o) Vapor Pressure (68°F):	data not available
p) Specific Gravity:	1.00 g/cm <sup>3</sup>
q) Relative Vapor Density (air=1):	data not available
r) Particle Size:	data not available



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### 600 µL Liquid Proteinase K

a) State of aggregation:	liquid
b) Color:	colorless
c) Odor:	odorless
d) Melting Point:	data not available
e) Boiling Point:	data not available
f) Flammability:	data not available
g) Explosive Limits (lower / upper):	data not available
h) Flash Point:	data not available
i) Autoignition Temperature:	data not available
j) Decomposition Temperature:	data not available
k) pH Value:	7-8
l) Kinematic Viscosity:	data not available
m) Soluble in Water:	0-100 %
n) Partition Coefficient (K <sub>o/w</sub> ):	data not available
o) Vapor Pressure (68°F):	data not available
p) Specific Gravity:	1.1 g/cm <sup>3</sup>
q) Relative Vapor Density (air=1):	data not available
r) Particle Size:	data not available

### 7 mL Reaction Buffer

a) State of aggregation:	liquid
b) Color:	colorless
c) Odor:	odorless
d) Melting Point:	data not available
e) Boiling Point:	data not available
f) Flammability:	data not available
g) Explosive Limits (lower / upper):	data not available
h) Flash Point:	data not available
i) Autoignition Temperature:	data not available
j) Decomposition Temperature:	data not available
k) pH Value:	6.5-7.5
l) Kinematic Viscosity:	data not available
m) Soluble in Water:	data not available
n) Partition Coefficient (K <sub>o/w</sub> ):	data not available
o) Vapor Pressure (68°F):	data not available
p) Specific Gravity:	1.01 g/cm <sup>3</sup>
q) Relative Vapor Density (air=1):	data not available
r) Particle Size:	data not available

### 13 mL RNase-free H<sub>2</sub>O

a) State of aggregation:	liquid
b) Color:	colorless
c) Odor:	odorless
d) Melting Point:	data not available
e) Boiling Point:	data not available
f) Flammability:	data not available
g) Explosive Limits (lower / upper):	data not available
h) Flash Point:	data not available
i) Autoignition Temperature:	data not available
j) Decomposition Temperature:	data not available
k) pH Value:	6-8
l) Kinematic Viscosity:	data not available
m) Soluble in Water:	data not available
n) Partition Coefficient (K <sub>o/w</sub> ):	data not available
o) Vapor Pressure (68°F):	data not available
p) Specific Gravity:	1.0 g/cm <sup>3</sup>
q) Relative Vapor Density (air=1):	data not available
r) Particle Size:	data not available

## 9.2 Further Information



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### 9.2.1 Information on physical hazard classes

data not available

### 9.2.2 Other safety-related parameters

No data is available for the other parameters for the mixtures, since no registration and no chemical safety report is required.

□□

Substances are highly corrosive.

## 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

Can react violently with organic material. Can form very reactive substances with oxidizing agents. Possibility: &amp;H:EUH031&amp; No further data available.

### 10.4 Conditions to avoid

No more required.

### 10.5 Incompatible Materials

---

### 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 Toxicological Effects

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

#### 13 mL RB2

Chemical: *guanidine hydrochloride* CAS No.: 50-01-1

TSCA Inventory: listed California Prop. 65 List: not listed

Canada CEPA 1999: DSL yes

LD50 orl rat : 475-907 mg/kg

LC50 ihl rat : 3181-7655 µg/m³/4H

Acute Effects: Cause after oral intake, impairments of health when ingested in small quantities.

Chemical: *ethanol* CAS No.: 64-17-5

TSCA Inventory: listed California Prop. 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

Canada CEPA 1999: DSL yes

LD50 orl rat : 6200 mg/kg

LC\_Low ihl gpg : 21,900 mg/L

LC\_Low 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

#### 200 U rDNase

Chemical: *rDNase* CAS No.: 9003-98-9

TSCA Inventory: listed

Acute Effects: Cause after impairments of health when ingested in small quantities.

Chronic Effects: May cause sensitization by skin contact, also in repeated contact of small amounts. May cause allergy or asthma symptoms or breathing difficulties if inhaled.



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### 25 mL MDB

Chemical: *guanidinium thiocyanate* CAS No.: 593-84-0  
 TSCA Inventory: listed California Prop. 65 List: not listed  
 Canada CEPA 1999: DSL yes  
 LD50 orl rat : 593 mg/kg  
 LC50 ihl rat : 5,319 mg/L/4H

### Chemical: *ethanol* CAS No.: 64-17-5

TSCA Inventory: listed California Prop. 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  
 Canada CEPA 1999: DSL yes  
 LD50 orl rat : 6200 mg/kg  
 LC<sub>Low</sub> ihl gpg : 21,900 mg/L  
 LC<sub>Low</sub> 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

### 12 mL RB3

Chemical: *chemicals/mixture until 1%* CAS No.: -  
 TSCA Inventory: all listed, <1%

### 600 µL Liquid Proteinase K

Chemical: *glycerole* CAS No.: 56-81-5  
 TSCA Inventory: listed (1,2,3-Propanetriol)  
 Exposure Routes: inhalation, skin and/or eye contact  
 Target Organs: Eyes, skin, respiratory system, kidneys  
 Symptoms: irritation eyes, skin, respiratory system; headache, nausea, vomiting; kidney injury  
 LD50 orl rat : 12600 mg/kg

### Chemical: *proteinase K, liquid* CAS No.: 39450-01-6

TSCA Inventory: listed (CAS 102925-54-2)  
 Acute Effects: Cause after impairments of health when ingested in small quantities.  
 Chronic Effects: May cause sensitization by skin contact, also in repeated contact of small amounts. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

### 7 mL Reaction Buffer

Chemical: *chemicals/mixture until 2%* CAS No.: -  
 TSCA Inventory: all listed, <2%

### 13 mL RNase-free H<sub>2</sub>O

Chemical: *water* CAS No.: 7732-18-5  
 TSCA Inventory: listed  
 LD50 orl rat : > 90000 mg/kg

## 11.2 Other Hazards

### Possible endocrine disrupting effects

data not available

### Other Information

no additional data available

## SECTION 12: Ecological Information

### 12.1 Toxicity

Following information is valid for pure chemicals.

#### 13 mL RB2

Substance name: *guanidine hydrochloride* CAS-Nr.: 50-01-1  
 PNEC (fresh water) : -  
 PNEC = Predicted No Effect Concentration = concentration at which no effect on the environment is expected  
 LC50 leuciscus idus/96h : 1759 mg/L  
 LC50 fish/96h : [4d] 690-1850; [48h] 1758-2420 mg/L



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EC50 daphnia/48h : 70.2 mg/L  
 EC10 pseudomonas putita/16h : [72h] 11.8-33.5 mg/L  
 Water hazard class (DE): 1 WGK No.: 0788  
 Storage class (VCI): 12

Substance name: *ethanol* CAS-Nr.: 64-17-5

PNEC (fresh water) : 0.96 mg/L  
 PNEC = Predicted No Effect Concentration = concentration at which no effect on the environment is expected

LC50 daphnia magna/48h : >100 g/L  
 LC50 pimephales promelas/96h : 13.4-15.1 g/L  
 LC50 leuciscus idus/96h : [48h] 8.14 g/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  
 Storage class (VCI): 3

### 200 U rDNase

Substance name: *rDNase* CAS-Nr.: 9003-98-9

Water hazard class (DE): 1 WGK No.: n.n.  
 Storage class (VCI): 13

### 25 mL MDB

Substance name: *guanidinium thiocyanate* CAS-Nr.: 593-84-0

Do not release into the environment.  
 PNEC (fresh water) : 42.4 µg/L  
 PNEC = Predicted No Effect Concentration = concentration at which no effect on the environment is expected

LC50 fish/96h : [4d] 89.1 mg/L  
 EC50 daphnia/48h : 42.4 mg/L  
 IC50 scenedesmus quadricauda/72h : 130 mg/L  
 EC10 pseudomonas putita/16h : [10d] 200 mg/L  
 Water hazard class (DE): 3  
 Storage class (VCI): 12

Substance name: *ethanol* CAS-Nr.: 64-17-5

PNEC (fresh water) : 0.96 mg/L  
 PNEC = Predicted No Effect Concentration = concentration at which no effect on the environment is expected

LC50 daphnia magna/48h : >100 g/L  
 LC50 pimephales promelas/96h : 13.4-15.1 g/L  
 LC50 leuciscus idus/96h : [48h] 8.14 g/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  
 Storage class (VCI): 3

### 12 mL RB3

Substance name: *chemicals/mixture until 1%* CAS-Nr.: -

Water hazard class (DE): 1  
 Storage class (VCI): 12-13

### 600 µL Liquid Proteinase K

Substance name: *glycerole* CAS-Nr.: 56-81-5

PNEC (fresh water) : 0.885 mg/L  
 PNEC = Predicted No Effect Concentration = concentration at which no effect on the environment is expected

LC50 fish/96h : >5000 24h mg/L  
 EC50 daphnia/48h : >10 24h g/L  
 IC50 scenedesmus quadricauda/72h : IC5 7d >10 g/L  
 EC10 pseudomonas putita/16h : EC5: >10 g/L  
 Water hazard class (DE): 0  
 Storage class (VCI): 10



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Substance name: *proteinase K, liquid* CAS-Nr.: 39450-01-6  
 Water hazard class (DE): 1  
 Storage class (VCI): 13

**7 mL Reaction Buffer**  
 Substance name: *chemicals/mixture until 2%* CAS-Nr.: -  
 Water hazard class (DE): 1  
 Storage class (VCI): 12-13

**13 mL RNase-free H<sub>2</sub>O**  
 Substance name: *water* CAS-Nr.: 7732-18-5

### 12.2 Persistence and Degradability

### 12.3 Bioaccumulative Potential

Substance name: *ethanol* CAS-Nr.: 64-17-5  
 Partition Coefficient (K<sub>o/w</sub>): -0,31

**25 mL MDB**  
 Substance name: *guanidinium thiocyanate* CAS-Nr.: 593-84-0  
 Partition Coefficient (K<sub>o/w</sub>): -1,11 pH 5.1

Substance name: *ethanol* CAS-Nr.: 64-17-5  
 Partition Coefficient (K<sub>o/w</sub>): -0,31

**600 µL Liquid Proteinase K**  
 Substance name: *glycerole* CAS-Nr.: 56-81-5  
 Partition Coefficient (K<sub>o/w</sub>): -1,76

### 12.4 Mobility in Soil

### 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

data not available

### 12.7 Other Adverse Effects

no additional data available

## SECTION 13: Disposal Considerations

Do not collect in acidic waste. May form toxic gases.  
 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 (RCRA Code D002/D003, EU waste code number 16 05 06).

### 13.1 Waste Treatment Methods

Normally it is possible to empty small amounts (diluted!) into drains. Empty containers of corrosive reagents prior to disposal, rinse with water.

## SECTION 14: Transport Information

14.1 UN number: 1993

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

14.3 Hazard Class: 3

14.4 Packing group: III

Road transport ADR

Classification code:	F1		
Limited Quantity:	5 L	Tunnel restriction code:	D/E
Excepted Quantity:	E 1		
Special instructions:	274, 601		

Air transport IATA DGR

Limited Quantity: PAX: 355 max. quantity PAX: 60 L



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Excepted Quantity:	CAO: 366 E 1	max. quantity CAO: 220 L
<i>Maritime transport IMDG</i>		
EmS:	F-E, S-E	Staukategorie: A
Special instructions:	223, 274, 955	

### 14.5 Environmental Hazards

none, contains only small quantities of hazardous substances

### 14.6 Special Precautions for User

not necessary

### 14.7 Carriage of bulk cargo by sea in accordance with IMO instruments

Not applicable.

## SECTION 15: Regulatory Information

### 15.1 Safety, Health and Environmental Regulations/Legislation specific for the Substance or Mixture

#### U.S. Federal Regulations

OSHA "A Guide to The Globally Harmonized System of Classification and Labelling of Chemicals (GHS)"

<https://www.osha.gov/dsg/hazcom/ghs.html>

29 CFR 1910.1200 Hazard communication.

NIOSH Pocket Guide to Chemical Hazards

NIOSH Workplace Safety & Health Topics

TSCA Inventory

#### U.S. State Regulations

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986

#### Canada

Canada CEPA 1999 - Domestic Substances List (DSL), List of Toxic Substances (Schedule 1)

MN Leaflet/User manual, also see [www.mn-net.com](http://www.mn-net.com)

### 15.2 Chemical Safety Assessment

data not available

## SECTION 16: Other Information

### 16.1 Changes compared to the last version

Between versions 2.38.3.13 and 2.2.2.2 following changes were applied: - 36 product component data corrected - 1 composition data corrected - 11 substance data corrected

### 16.2 List of Hazard and Precaution Phrases

#### 16.2.1 List of relevant H Phrases

H	Between versions 2.38.3.13 and 2.2.2.2 following changes were applied: - 36 product component data corrected - 1 composition data corrected - 11 substance data corrected
H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

#### 16.2.2 List of relevant P Phrases

P260sh	Do not breathe dust/vapors.
P264	Wash hands thoroughly after handling.
P280sh	Wear protective gloves/eye protection.
P284	[In case of inadequate ventilation] wear respiratory protection.
P303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P405	Store locked up.



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P501 Dispose of contents/container to regulated waste treatment.

### 16.3 Recommended Restriction on Use

Only for Professional User.  
 Look about employee restrictions for young people!  
 Look about employee restrictions for pregnant women and nursing women!  
 An individual package of this product or test kit has a moderate hazardous potential.

### 16.4 Sources of Key Data

KÜHN, BIRETT, Leaflets on hazardous materials, 2021  
 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 Regulation 1272/2008/EU to technical and scientific progress (1st ATP)  
 Regulation 453/2010/EU, adaptation of the REACH regulation 1907/2006/EG  
 TRGS 907, German technical rules for listing substances and causes of sensitization, updated November 2011 Regulation 487/2013/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (4th ATP)  
 Regulation 1221/2015/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (7th ATP)  
 Regulation 776/2017/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (10th ATP)

Regulation 669/2018/EU, adaptation of Regulation 1272/2008/EC to technical and scientific progressText (11th ATP)  
 Regulation 1480/2018/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (13th ATP)  
 Regulation 521/2019/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (12th ATP)  
 TRGS 900, German rules of technology on limit values in the air at work, as of 03/2019  
 Regulation 217/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (14th ATP)  
 Regulation 878/2020/EU, adaptation of Annex II of the REACH regulation 1907/2006/EG  
 Regulation 1182/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (15th ATP)  
 Regulation 643/2021/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (16th ATP)  
 Regulation 849/2021/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (17th ATP)  
 Regulation 692/2022/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (18th ATP)

#### revisions/updates

*Reason for revision:* 2014-02 Corrected structure of the sections according to Regulation 453/2010/EU, if necessary  
 2014-04 adjustment according Regulation 487/2013/EU  
 2016-03 adjustment according Regulation 1221/2015/EU  
 2017-08 adjustment according the Ordinance on Ethanol Denaturation 2016/1867/EU  
 2017-11 adjustment according the ECHA registration dossier  
 2022-11 adjustment according 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



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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:	fish, 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:	fish, 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
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
scu:	sub cutan
RIP:	REACH Implementations Projects
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.

