

# Safety Data Sheet

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

REF: 740971.10

NucleoSpin miRNA (10)

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Printing date: 12.05.2021

Date of issue: 12.04.2021

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

### 1.1 Product identifier

REF 740971.10  
Product name NucleoSpin miRNA (10)

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 10 mL MDB
- 1 x 5 mL ML
- 1 x 5 mL MP
- 1 x 10 mL MW1
- 1 x 6 mL MW2
- 1 x 13 mL MX
- 1 x 7 mL Reaction Buffer for rDNase
- 1 x 13 mL RNase-free H<sub>2</sub>O
- 1 x 200 U, Size C, rDNase

### 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  
Valenciener Str. 11, 52355 Düren, GERMANY  
Tel.: +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 Giftinformationszentrum (GGIZ) 99089 Erfurt tel. +49 361 730 730

You find our current versions of SDS (22 languages) in Internet: <http://www.mn-net.com/SDS>

## SECTION 2: Hazard identification

### 2.0 Classification of the complete product



Signal word DANGER

Hazard identification	Hazard classes/categories
H225	Flam. Liq. 2
H226	Flam. Liq. 3
H302	Acute Tox. 4 oral
H315	Skin Irrit. 2
H319	Eye Irrit. 2
H334	Resp. Sens. 1
H335	STOT SE 3
H351	Carc. 2
H411	Aquatic Chronic 2
H412	Aquatic Chronic 3

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## 2.1 Classification of the substance or mixture

### 10 mL MDB



GHS02

Signal word

WARNING

**Hazard identification**

**Hazard classes/categories**

H226

Flam. Liq. 3

### 5 mL ML



GHS07

Signal word

WARNING

**Hazard identification**

**Hazard classes/categories**

H302

Acute Tox. 4 oral

H412

Aquatic Chronic 3

### 5 mL MP



GHS07



GHS09

Signal word

WARNING

**Hazard identification**

**Hazard classes/categories**

H315

Skin Irrit. 2

H319

Eye Irrit. 2

H411

Aquatic Chronic 2

### 10 mL MW1



GHS02

Signal word

WARNING

**Hazard identification**

**Hazard classes/categories**

H226

Flam. Liq. 3

### 6 mL MW2

Signal word

Do not need labelling as hazardous

No hazard class

-

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## 13 mL MX



Signal word

DANGER

### Hazard identification

H225  
H319  
H335  
H351

### Hazard classes/categories

Flam. Liq. 2  
Eye Irrit. 2  
STOT SE 3  
Carc. 2

## 7 mL Reaction Buffer for rDNase

Signal word

Do not need labelling as hazardous  
-

No hazard class

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

Signal word

Do not need labelling as hazardous  
-

No hazard class

## 200 U, Size C, rDNase



Signal word

GHS08  
DANGER

### Hazard identification

H334

### Hazard classes/categories

Resp. Sens. 1

## 2.2 Label elements

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). This labelling exemption is NOT valid for sensiblizing substances.

## 10 mL MDB



GHS02

Signal word: WARNING

## 5 mL ML



GHS07

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Signal word: WARNING

H412

Harmful to aquatic life with long lasting effects.

## 5 mL MP



GHS07 GHS09

Signal word: WARNING

## 10 mL MW1



GHS02

Signal word: WARNING

## 6 mL MW2

Do not need labelling as hazardous  
Signal word: -

## 13 mL MX



GHS02 GHS07 GHS08

Signal word: DANGER

H351

Suspected of causing cancer.

P201, P280sh

Obtain special instructions before use. Wear protective gloves/eye protection.

## 7 mL Reaction Buffer for rDNase

Do not need labelling as hazardous  
Signal word: -

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

Do not need labelling as hazardous  
Signal word: -

## 200 U, Size C, rDNase



GHS08

Signal word: DANGER

H334

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

P261sh, P342+311

Avoid breathing dust/vapours. If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

## 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. The property H314 "Causes severe skin burns and eye damage." of some salts is not applicable, because the mixture is buffered to pH >3-4 (see GHS Directive 1272/2008/EC Annex I, chapter 3.2.3.1.2.). 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

Cause after oral intake, inhalation of vapours/dust, impairments of health when ingested in small quantities.

Kit contains small amounts of enzymes: May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of causing cancer. -

### Information pertaining to particular risks to the environment

Harmful to aquatic life with long lasting effects. Avoid contact of substance/mixture to environment.

**PBT:** not applicable

**vPvB:** not applicable

### Other hazards

---

## SECTION 3: Composition/information on ingredients

### 3.1 Substances or 3.2 Mixtures

#### 10 mL MDB

Chemical:	<i>guanidinium thiocyanate</i>	CAS No.:	593-84-0
Classification:	H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm., H314, Skin Corr. 1B, H332, Acute Tox. 4 inh., H412, Aquatic Chronic 3		
Formula:	C <sub>2</sub> H <sub>6</sub> N <sub>4</sub> S		
Pseudonym:	guanidine rhodanide		
TSCA Inventory:	listed		
REACH Reg. No.:	01-2120735072-65-0001	Indice No.:	615-004-00-3
EC No.:	209-812-1	MFCD:	00013027
RTECS:	XL1225000		
KE No.:	not listed		
Concentration:	5 - <10 %		
acc. CLP (GHS):	The criteria for classification are not fulfilled.		

Chemical:	<i>ethanol</i> (diluted < 20 %) (denatured with 1%IPA/1%MEK, acc.2016/1867/EU)	CAS No.:	64-17-5d
Classification:	H225, Flam. Liq. 2		
Formula:	C <sub>2</sub> H <sub>6</sub> O; C <sub>2</sub> H <sub>5</sub> OH		
Pseudonym:	ethyl alcohol, methylated spirit		
TSCA Inventory:	listed		
REACH Reg. No.:	01-2119457610-43-xxxx	Indice No.:	603-002-00-5
EC No.:	200-578-6	MFCD:	00003568
RTECS:	KQ6300000		
KE No.:	KE-13217		
Concentration:	5 - <20 %		
acc. CLP (GHS):	H226, Flam. Liq. 3		

#### 5 mL ML

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Chemical: *guanidinium thiocyanate* CAS No.: 593-84-0  
 Classification: H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm., H314, Skin Corr. 1B, H332, Acute Tox. 4 inh., H412, Aquatic Chronic 3  
 Formula:  $C_2H_6N_4S$   
 Pseudonym: guanidine rhodanide  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2120735072-65-0001  
 EC No.: 209-812-1  
 RTECS: XL1225000  
 KE No.: not listed  
 Concentration: 45 - <60 %  
 acc. CLP (GHS): H302, Acute Tox. 4 oral, H412, Aquatic Chronic 3

Indice No.: 615-004-00-3  
 MFCD: 00013027

Chemical: *2-mercaptoethanol* CAS No.: 60-24-2  
 Classification: H301, Acute Tox. 3 oral, H310, Acute Tox. 2 derm., H315, Skin Irrit. 2, H317, Skin Sens. 1, H318, Eye Dam. 1, H330, Acute Tox. 2 inh., H410, Aquatic Chronic 1  
 Formula:  $C_2H_6OS$   
 Pseudonym: thioglycol, thioethylene glycol  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2119517582-41-xxxx  
 EC No.: 200-464-6  
 RTECS: KL5600000  
 KE No.: KE-23095  
 Concentration: 0.1 - <1 %  
 acc. CLP (GHS): The criteria for classification are not fulfilled.

## 5 mL MP

Chemical: *zinc chloride* CAS No.: 7646-85-7  
 Classification: H302, Acute Tox. 4 oral, H314, Skin Corr. 1B, H400, Aquatic Acute 1, H410, Aquatic Chronic 1  
 Formula:  $ZnCl_2$   
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2119472431-44-xxxx  
 EC No.: 231-592-0  
 RTECS: ZH1400000  
 KE No.: KE-35535, >25% Toxic 97-1-91  
 Concentration: 5 - <10 %  
 The classification refers to weight percent of the metal (according to CLP Regulation 2008/1272/EC Annex VI, 1.1.3.2 Note 1)  
 acc. CLP (GHS): H315, Skin Irrit. 2, H319, Eye Irrit. 2, H411, Aquatic Chronic 2

Indice No.: 030-003-00-2  
 MFCD: 00011295  
 Correlation factor: x 0.48 (= %Zn)

## 10 mL MW1

Chemical: *guanidinium thiocyanate* CAS No.: 593-84-0  
 Classification: H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm., H314, Skin Corr. 1B, H332, Acute Tox. 4 inh., H412, Aquatic Chronic 3  
 Formula:  $C_2H_6N_4S$   
 Pseudonym: guanidine rhodanide  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2120735072-65-0001  
 EC No.: 209-812-1  
 RTECS: XL1225000  
 KE No.: not listed  
 Concentration: 5 - <10 %  
 acc. CLP (GHS): The criteria for classification are not fulfilled.

Indice No.: 615-004-00-3  
 MFCD: 00013027

Chemical: *ethanol* CAS No.: 64-17-5  
 (denatured with 1%IPA/1%MEK, acc.2016/1867/EU)  
 Classification: H225, Flam. Liq. 2  
 Formula:  $C_2H_6O$ ;  $C_2H_5OH$   
 Pseudonym: ethyl alcohol, methylated spirit  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2119457610-43-xxxx  
 EC No.: 200-578-6  
 RTECS: KQ6300000  
 KE No.: KE-13217  
 Concentration: 35 - <55 %  
 acc. CLP (GHS): H226, Flam. Liq. 3

Indice No.: 603-002-00-5  
 MFCD: 00003568

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### 6 mL MW2

Chemical: *chemicals/mixture < 1%* CAS No.: -  
 Classification: No criteria for classification or naming of chemical not required.  
 TSCA Inventory: all listed, <1%  
 KE No.: listed  
 Concentration: 0.1 - <1 %  
 acc. CLP (GHS): The criteria for classification are not fulfilled.

### 13 mL MX

Chemical: *1,4-dioxane* CAS No.: 123-91-1  
 Classification: H225, Flam. Liq. 2, H319, Eye Irrit. 2, H335, STOT SE 3, H351, Carc. 2  
 Formula: C<sub>4</sub> H<sub>8</sub> O<sub>2</sub>  
 Pseudonym: diethylene dioxide; diethylene ether; p-dioxane  
 TSCA Inventory: listed  
 REACH Reg. No.: 01-2119462837-26-0001  
 EC No.: 204-661-8  
 RTECS: JG8225000  
 KE No.: KE-10463  
 Concentration: 90 - <100 %  
 acc. CLP (GHS): H225, Flam. Liq. 2, H319, Eye Irrit. 2, H335, STOT SE 3, H351, Carc. 2

### 7 mL Reaction Buffer for rDNase

Chemical: *chemicals/mixture < 2%* CAS No.: -  
 Classification: No criteria for classification or naming of chemical not required.  
 TSCA Inventory: all listed, <2%  
 KE No.: listed  
 Concentration: 1 - <2 %  
 acc. CLP (GHS): The criteria for classification are not fulfilled.

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

Chemical: *water* CAS No.: 7732-18-5  
 Classification: No criteria for classification or naming of chemical not required.  
 Formula: H<sub>2</sub>O  
 TSCA Inventory: listed  
 REACH Reg. No.: exempt, Annex IV  
 EC No.: 231-791-2  
 RTECS: ZC0110000  
 KE No.: KE-35400  
 Concentration: 90 - <100 %  
 acc. CLP (GHS): The criteria for classification are not fulfilled.

### 200 U, Size C, rDNase

Chemical: *rDNase* CAS No.: 9003-98-9  
 Classification: H334, Resp. Sens. 1  
 Formula: Enzyme Comm. No. 3.1.21.1, origin: cloned  
 Pseudonym: Nuclease, deoxyribo-  
 TSCA Inventory: listed  
 EC No.: 232-667-0  
 RTECS: RF0750000  
 KE No.: KE-09612  
 Concentration: 90 - <100 %  
 acc. CLP (GHS): H334, Resp. Sens. 1

## 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 16.1

## 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. Take to a doctor, in a raised position if there are breathing difficulties.



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- 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. 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 should be drunk after it has been ingested. ---
- 4.2 Most important symptoms and effects, both acute and delayed**  
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.  
CMR Effects: Suspected of causing cancer. ---
- 4.3 Indication of any immediate medical attention and special treatment needed**  
Inform patient respectively further measures and the possibility of long-term damages. ---

## SECTION 5: Firefighting measures

- 5.1 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.
- 5.2 Special hazards arising from the substance or mixture**  
WARNING: Flammable (GHS regulation). May form explosive vapour-air mixtures. DANGER: Highly flammable (GHS regulation). Forms 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. Wear suitable protective gloves (see 8.2.2). 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**  
not necessary, contains only small amounts of these substances
- 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 hazardous chemicals. Clean any contaminated equipment and floors with plenty of water. 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. 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 (VCI): 3  
Water hazard class (DE): 3



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**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.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### 10 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<sub>(fresh water)</sub>: 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.: 64-17-5d

DNEL: [derm] 343 mg/kg; [inh] 950 mg/m<sup>3</sup>  
DNEL = Derived No-Effect Level (for workers)

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

TRGS 900 (DE): 200 ppm / 380 mg/m<sup>3</sup>  
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/m<sup>3</sup>

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>

#### 5 mL ML

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

DNEL: [inh] 1092 µg/m<sup>3</sup>  
DNEL = Derived No-Effect Level (for workers)

PNEC<sub>(fresh water)</sub>: 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: *2-mercaptoethanol* CAS No.: 60-24-2

DNEL: [derm] 0.6 mg/kg  
DNEL = Derived No-Effect Level (for workers)

PNEC<sub>(fresh water)</sub>: 0.0004 mg/L  
PNEC = Predicted No Effect Concentration

#### 5 mL MP

Chemical: *zinc chloride* CAS No.: 7646-85-7

DNEL: 1.3Z<sub>n</sub>, inh mg/m<sup>3</sup>  
DNEL = Derived No-Effect Level (for workers)

PNEC<sub>(fresh water)</sub>: 0.0206 mg/L  
PNEC = Predicted No Effect Concentration

SUVA(CH) MAK value: 1 a mg/m<sup>3</sup>

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

#### 10 mL MW1

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

DNEL: [inh] 1092 µg/m<sup>3</sup>  
DNEL = Derived No-Effect Level (for workers)

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

NIOSH: not listed

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[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<sub>(fresh water)</sub>: 0.96 mg/L  
PNEC = Predicted No Effect Concentration

TRGS 900 (DE): 200 mL/m<sup>3</sup> / 380 mg/m<sup>3</sup>  
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/m<sup>3</sup>

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: [TWA] 1000 ppm / 1900 mg/m<sup>3</sup>

**6 mL MW2**

Chemical: *chemicals/mixture < 1%* CAS No.: -

**13 mL MX**

Chemical: *1,4-dioxane* CAS No.: 123-91-1

DNEL: 73 mg/m<sup>3</sup>  
DNEL = Derived No-Effect Level (for workers)

PNEC<sub>(fresh water)</sub>: 10 mg/L  
PNEC = Predicted No Effect Concentration

EU value: 20 ppm / 73 mg/m<sup>3</sup>

TRGS 900 (DE): 20 ppm / 73 mg/m<sup>3</sup>  
E/e respirable

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

SUVA(CH) MAK value: 20 ppm / 72 mg/m<sup>3</sup>

TRGS 903 (DE): 2-Hydroxyethoxyessigsäure U/b Kreatinin 400 mg/g  
B blood, U urine, a no limitation, b end of exposition or shift

NIOSH: Occupational Carcinogen List Yes; TWA<sub>30min</sub> 1 ppm / 3.6 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: [skin] TWA 100 ppm / 360 mg/m<sup>3</sup>

**7 mL Reaction Buffer for rDNase**

Chemical: *chemicals/mixture < 2%* CAS No.: -

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

Chemical: *water* CAS No.: 7732-18-5

**200 U, Size C, rDNase**

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

**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 protection filter, class A/AX. No additional recommendations.

**8.2.2 Hand protection**

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 protection**

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

**8.2.4 Skin protection**

Recommended to avoid contamination with these hazards.

**8.2.5 Personal hygiene**

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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.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### 10 mL MDB

Appearance: liquid	Colour: colourless	Odor: alcoholic
pH:	6.7-7.2	
Flash point:	55 °C	
Specific gravity:	1.01 g/cm <sup>3</sup>	

#### 5 mL ML

Appearance: liquid	Colour: colourless	Odor: sulfuric
pH:	6.5-7.5	
Specific gravity:	1.05 g/cm <sup>3</sup>	

#### 5 mL MP

Appearance: liquid	Colour: colourless	Odor: acetic
pH:	4-4.5	
Solubility in water:	0-100 %	

#### 10 mL MW1

Appearance: liquid	Colour: colourless	Odor: alcoholic
pH:	6.5 - 7.5	
Flash point:	23 °C	

#### 6 mL MW2

Appearance: liquid	Colour: colourless	Odor: odorless
pH:	7-8	
Specific gravity:	1.00 g/cm <sup>3</sup>	

#### 13 mL MX

Appearance: liquid	Colour: colourless	Odor: odorless
Odor limit:	10-620 mg/m <sup>3</sup>	
pH:	6-8	
Melting point:	12 °C	
Boiling point:	101.5 °C	
Flash point:	11 °C	
Evaporation rate <sub>(ether=1)</sub> :	7,3	
Explosion limits:	1.9-22.5 Vol%	
Vapour pressure (20°C):	41 hPa	
Vapour density <sub>(air=1)</sub> :	3,04	
Specific gravity:	1.01-1.03 g/cm <sup>3</sup>	
Solubility in water:	< 2 %	
Flashing temperature:	375 °C	
Volatiles by volume:	149 g/m <sup>3</sup>	

#### 7 mL Reaction Buffer for rDNase

Appearance: liquid	Colour: colourless	Odor: odorless
pH:	6.5-7.5	
Specific gravity:	1.01 g/cm <sup>3</sup>	

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

Appearance: liquid	Colour: colourless	Odor: odorless
pH:	6-8	
Specific gravity:	1.0 g/cm <sup>3</sup>	

#### 200 U, Size C, rDNase

Appearance: solid (lyoph.)	Colour: white	Odor: odorless
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## 9.2 Other information

Data for the other parameters of the mixtures are not available, because no registration and no chemical safety report is required.

### Relevant Properties of Substance Group

Substances are very volatile and form flammable vapour-air mixtures. ---

## 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

Note: Can form very reactive substances with oxidizing agents. Possible: Contact with acids liberates toxic gas. No further data available.

### 10.4 Conditions to avoid

Not necessary. ---

### 10.5 Incompatible materials

Avoid contact with strong acids or alkalines.

### 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 substances. Quantitative data on the toxicity of this product are not available.

#### 10 mL MDB

Chemical:	<i>guanidinium thiocyanate</i>	CAS No.:	593-84-0
TSCA Inventory:	listed	California Proposition 65 List:	not listed
Australia NICNAS:	not listed	Canada CEPA 1999:	DSL yes
Japan CSCL/PRTR:	not listed, Japan PDSCL:		not listed
Japan ISHL:	not listed		
South Korea TCCA:	not listed		
Korea Exist.Chem.Inventory:	not listed		
LD50 <sub>orl rat</sub> :	593 mg/kg		
LC50 <sub>drm rbt</sub> :	>2000 mg/m <sup>3</sup>		
LC50 <sub>ihl rat</sub> :	[4h] 5.319 mg/L		
LD50 <sub>ipr mus</sub> :	300 mg/kg		

Chemical:	<i>ethanol</i>	CAS No.:	64-17-5d
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 ≥0,1%/≥0,1%, Article 57-2 (SDS required)		
South Korea TCCA:	not listed		
Korea Exist.Chem.Inventory:	KE-13217		
LD50 <sub>orl rat</sub> :	6200 mg/kg		
LC <sub>LoWihl</sub> gpg :	21.9 g/m <sup>3</sup>		
LC <sub>LoWorl</sub> hmn :	1400 mg/kg		
LC50 <sub>ihl mouse</sub> :	[4h] 39 g/m <sup>3</sup>		
LC50 <sub>ihl rat</sub> :	[10h] 20 g/m <sup>3</sup>		
LD50 <sub>drm rbt</sub> :	20 000 mg/kg		
LD50 <sub>oral mouse</sub> :	3450 mg/kg		
TRGS 905 (DE):	K5, M5, R <sub>F</sub> C		

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## 5 mL ML

Chemical: *guanidinium thiocyanate* CAS No.: 593-84-0  
 TSCA Inventory: listed California Proposition 65 List: not listed  
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes  
 Japan CSCL/PRTR: not listed, Japan PDSCL: not listed  
 Japan ISHL: not listed  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: not listed  
 LD50<sub>orl rat</sub>: 593 mg/kg  
 LC50<sub>drm rbt</sub>: >2000 mg/m<sup>3</sup>  
 LC50<sub>ihl rat</sub>: [4h] 5.319 mg/L  
 LD50<sub>ipr mus</sub>: 300 mg/kg  
 Acute Effects: Cause after oral intake, impairments of health when ingested in small quantities.

Chemical: *2-mercaptoethanol* CAS No.: 60-24-2  
 TSCA Inventory: listed  
 Australia NICNAS: yes Canada CEPA 1999: DSL yes  
 Japan CSCL/PRTR: Deleterious substance  
 Korea Exist.Chem.Inventory: KE-23095  
 LD50<sub>orl rat</sub>: 98-162 mg/kg  
 LC50<sub>ihl rat</sub>: 625<sub>4h</sub> mg/m<sup>3</sup>  
 LD50<sub>drm rbt</sub>: 112-224 mg/kg

## 5 mL MP

Chemical: *zinc chloride* CAS No.: 7646-85-7  
 TSCA Inventory: listed California Proposition 65 List: not listed  
 Australia NICNAS: not listed Canada CEPA 1999: DSL Yes  
 Japan CSCL/PRTR: PRTR: ≥1,0%Zn class I, Japan PDSCL: Deleterious Substance  
 Japan ISHL: listed ≥1,0%/≥0,1%, Article 57-2 (SDS required)  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: KE-35535, >25% Toxic 97-1-91  
 LD50<sub>orl rat</sub>: 350 mg/kg  
 LD50<sub>orl mus</sub>: 329 mg/kg

## 10 mL MW1

Chemical: *guanidinium thiocyanate* CAS No.: 593-84-0  
 TSCA Inventory: listed California Proposition 65 List: not listed  
 Australia NICNAS: not listed Canada CEPA 1999: DSL yes  
 Japan CSCL/PRTR: not listed, Japan PDSCL: not listed  
 Japan ISHL: not listed  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: not listed  
 LD50<sub>orl rat</sub>: 593 mg/kg  
 LC50<sub>drm rbt</sub>: >2000 mg/m<sup>3</sup>  
 LC50<sub>ihl rat</sub>: [4h] 5.319 mg/L  
 LD50<sub>ipr mus</sub>: 300 mg/kg

Chemical: *ethanol* CAS No.: 64-17-5  
 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 ≥0,1%/≥0,1%, Article 57-2 (SDS required)  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: KE-13217  
 LD50<sub>orl rat</sub>: 6200 mg/kg  
 LC<sub>Lowihl gpg</sub>: 21.9 g/m<sup>3</sup>  
 LC<sub>Loworl hmn</sub>: 1400 mg/kg

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LC50<sub>ihl</sub> mouse : [4h] 39 g/m<sup>3</sup>  
 LC50<sub>ihl</sub> rat : [10h] 20 g/m<sup>3</sup>  
 LD50<sub>drm</sub> rbt : 20 000 mg/kg  
 LD50<sub>oral</sub> mouse : 3450 mg/kg

TRGS 905 (DE): K5, M5, R<sub>F</sub> C

## 6 mL MW2

Chemical: *chemicals/mixture < 1%*  
 TSCA Inventory: all listed, <1%  
 Korea Exist.Chem.Inventory: listed

CAS No.: -

## 13 mL MX

Chemical: *1,4-dioxane* CAS No.: 123-91-1  
 TSCA Inventory: listed California Proposition 65 List: listed cancer  
 Exposure Routes: inhalation, skin absorption, ingestion, skin and/or eye contact  
 Target Organs: Eyes, skin, respiratory system, liver, kidneys; [in animals: lung, liver & nasal cavity tumors]  
 Symptoms: irritation eyes, skin, nose, throat; drowsiness, headache; nausea, vomiting; liver damage; kidney failure; [potential occupational carcinogen]  
 Australia NICNAS: Yes (PEC/7) Canada CEPA 1999: DSL Yes  
 Japan CSCL/PRTR: PAC Yes, PRTR - Class I Designated Chemical Substance Yes, Japan PDSCL: PRTR: ≥1,0% class I  
 Japan ISHL: listed ≥1,0%/≥1,0%, Article 57-1+2 (Labelling&SDS required)  
 South Korea TCCA: not listed  
 Korea Exist.Chem.Inventory: KE-10463  
 LD50<sub>orl</sub> rat : 5150 mg/kg  
 LC50<sub>ihl</sub> rat : [LC0, 60min] 155 mg/L  
 Acute Effects: Cause after inhalation of vapours/dust, impairments of health when ingested in small quantities.  
 Carcinogenic Effects: Suspected of causing cancer.  
 EU carcinogen: Carcinogenicity cat. 2  
 TRGS 905 (DE): K4, R<sub>F</sub> C

## 7 mL Reaction Buffer for rDNase

Chemical: *chemicals/mixture < 2%*  
 TSCA Inventory: all listed, <2%  
 Korea Exist.Chem.Inventory: listed

CAS No.: -

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

Chemical: *water*  
 TSCA Inventory: listed  
 Korea Exist.Chem.Inventory: KE-35400

CAS No.: 7732-18-5

## 200 U, Size C, rDNase

Chemical: *rDNase*  
 TSCA Inventory: listed  
 Japan CSCL/PRTR: not listed  
 Japan ISHL: not listed  
 Korea Exist.Chem.Inventory: KE-09612

CAS No.: 9003-98-9

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.

## SECTION 12: Ecological information

### 12.1 Toxicity

Following information is valid for pure substances.

#### 10 mL MDB



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Chemical: *guanidinium thiocyanate* CAS No.: 593-84-0  
 PNEC<sub>(fresh water)</sub>: 42.4 µg/L  
 PNEC = Predicted No Effected Concentration  
 LC50<sub>fish/96h</sub>: [4d] 89.1 mg/L  
 EC50<sub>daphnia/48h</sub>: 42.4 mg/L  
 IC50<sub>scenedesmus quadricauda/72h</sub>: 130 mg/L  
 EC10<sub>pseudomonas putita/16h</sub>: [10d] 200 mg/L  
 Water hazard class (DE): 3  
 Dispersion coefficient<sub>(octanol-water)</sub>: [pH 5.1] -1.11  
 Storage class (VCI): 12

Chemical: *ethanol* CAS No.: 64-17-5d  
 PNEC<sub>(fresh water)</sub>: 0.96 mg/L  
 PNEC = Predicted No Effected Concentration  
 LC50<sub>daphnia magna/48h</sub>: >100 g/L  
 LC50<sub>pimephales promelas/96h</sub>: 13.4-15.1 g/L  
 LC50<sub>leuciscus idus/96h</sub>: [48h] 8.14 g/L  
 LC50<sub>fish/96h</sub>: 13 g/L  
 EC50<sub>daphnia/48h</sub>: 9.3-14.2 g/L  
 IC50<sub>scenedesmus quadricauda/72h</sub>: [7d] 5000 mg/L  
 EC10<sub>pseudomonas putita/16h</sub>: [EC5] 6500 mg/L  
 Water hazard class (DE): 1 WGK No.: 0096  
 Dispersion coefficient<sub>(octanol-water)</sub>: -0.31  
 Storage class (VCI): 3

## 5 mL ML

Chemical: *guanidinium thiocyanate* CAS No.: 593-84-0  
 Harmful to aquatic life with long lasting effects. Avoid contact of substance/mixture to environment.  
 Environmental hazards must not be labelled with P phrases until 125 mL (EU 1272/2008 Annex I - 1.5.2).  
 PNEC<sub>(fresh water)</sub>: 42.4 µg/L  
 PNEC = Predicted No Effected Concentration  
 LC50<sub>fish/96h</sub>: [4d] 89.1 mg/L  
 EC50<sub>daphnia/48h</sub>: 42.4 mg/L  
 IC50<sub>scenedesmus quadricauda/72h</sub>: 130 mg/L  
 EC10<sub>pseudomonas putita/16h</sub>: [10d] 200 mg/L  
 Water hazard class (DE): 3  
 Dispersion coefficient<sub>(octanol-water)</sub>: [pH 5.1] -1.11  
 Storage class (VCI): 12

Chemical: *2-mercaptoethanol* CAS No.: 60-24-2  
 PNEC<sub>(fresh water)</sub>: 0.0004 mg/L  
 PNEC = Predicted No Effected Concentration  
 LC50<sub>leuciscus idus/96h</sub>: 46-100 mg/L  
 EC50<sub>daphnia/48h</sub>: 1.52 mg/L  
 Water hazard class (DE): 3  
 Storage class (VCI): 3

## 5 mL MP

Chemical: *zinc chloride* CAS No.: 7646-85-7  
 Toxic to aquatic life with long lasting effects. Avoid contact of substance/mixture to environment.  
 Environmental hazards must not be labelled with H and P phrases until 125 mL (EU 1272/2008 Annex I - 1.5.2).  
 PNEC<sub>(fresh water)</sub>: 0.0206 mg/L  
 PNEC = Predicted No Effected Concentration  
 LC50<sub>fish/96h</sub>: 38 mg/L  
 EC50<sub>daphnia/48h</sub>: 1.24 mg/L  
 EC50<sub>pseudokirchneriella subcapitata/72h</sub>: 0.05 mg/L  
 Water hazard class (DE): 3 WGK No.: 0207  
 Storage class (VCI): 11

## 10 mL MW1

Chemical: *guanidinium thiocyanate* CAS No.: 593-84-0  
 PNEC<sub>(fresh water)</sub>: 42.4 µg/L  
 PNEC = Predicted No Effected Concentration  
 LC50<sub>fish/96h</sub>: [4d] 89.1 mg/L  
 EC50<sub>daphnia/48h</sub>: 42.4 mg/L  
 IC50<sub>scenedesmus quadricauda/72h</sub>: 130 mg/L  
 EC10<sub>pseudomonas putita/16h</sub>: [10d] 200 mg/L  
 Water hazard class (DE): 3



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Dispersion coefficient(octanol-water) : [pH 5.1] -1.11  
Storage class (VCI): 12

Chemical: *ethanol* CAS No.: 64-17-5  
PNEC(fresh water) : 0.96 mg/L  
PNEC = Predicted No Effect Concentration  
LC50daphnia magna/48h : >100 mg/L  
LC50pimephales promelas/96h : 13400 - 15100 mg/L  
LC50leuciscus idus/96h : [48h] 8140 mg/L  
LC50fish/96h : 13 g/L  
EC50daphnia/48h : 9.3-14.2 g/L  
IC50scenedesmus quadricauda/72h : [7d] 5000 mg/L  
EC10pseudomonas putita/16h : [EC5] 6500 mg/L  
Water hazard class (DE): 1 WGK No.: 0096  
Dispersion coefficient(octanol-water) : -0.31  
Storage class (VCI): 3

**6 mL MW2**

Chemical: *chemicals/mixture < 1%* CAS No.: -  
Water hazard class (DE): 1  
Storage class (VCI): 12-13

**13 mL MX**

Chemical: *1,4-dioxane* CAS No.: 123-91-1  
PNEC(fresh water) : 10 mg/L  
PNEC = Predicted No Effect Concentration  
Bio Toxicity: 1/2.1/2.6  
LC50fish/96h : [21d] 100 mg/L  
EC50daphnia/48h : 1 g/L  
IC50scenedesmus quadricauda/72h : [72h] 1 g/L  
Water hazard class (DE): 2 WGK No.: 0086  
Dispersion coefficient(octanol-water) : -0.42  
Storage class (VCI): 3

**7 mL Reaction Buffer for rDNase**

Chemical: *chemicals/mixture < 2%* CAS No.: -  
Water hazard class (DE): 1  
Storage class (VCI): 12-13

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

Chemical: *water* CAS No.: 7732-18-5

**200 U, Size C, rDNase**

Chemical: *rDNase* CAS No.: 9003-98-9  
Water hazard class (DE): 1 WGK No.: n.n.  
Storage class (VCI): 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**  
no data available
- 12.6 Other adverse effects**  
no additional data available

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## 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 (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

UN 1993 class 3 II, **Excepted Quantities** ( $\leq 30$  mL/ $\Sigma \leq 500$  mL) = ADR/ IATA E2

or

**14.1 UN number:** 1993 **14.2 UN proper shipping name:** Flammable liquid, n.o.s. (1,4-dioxane, ethanol mixture)

**14.3 Class:** 3 **14.4 Packing group:** II

*Road transport*

Classification code: F1

Limited Quantity: 1 L

Excepted Quantity: E 2

*Air transport*

PAX: 353

CAO: 364

*Maritime transport*

EmS: F-E, S-E

Tunnel restriction code: E

Special instructions: 640C

max. weight PAX: 5 L

max. weight CAO: 60 L

Storage category: B

### 14.5 Environmental hazards

none, contains only small quantities of hazardous substances, contains only small amounts of these 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

German act governing protection from hazardous substances (Chemicals Act / Chemikaliengesetz- ChemG), revised on August 2013

German order governing protection from hazardous substances (Ordinance on Hazardous Substances / Gefahrstoffverordnung - GefStoffV), revised on November 2010, according to Directive 98/24/EC

TRGS 200, German engineering rules governing the classification and labelling of hazardous substances, preparations and products, updated October 2011

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

Look for your country-specific regulations.

### 15.2 Chemical safety assessment

not necessary for these small amounts ---

## SECTION 16: Other information

### 16.1 List of H and P phrases

#### 16.1.1 List of relevant H phrases

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

#### 16.1.2 List of relevant P phrases

P201	Obtain special instructions before use.
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P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P261sh	Avoid breathing dust/vapours.
P264W	Wash with water thoroughly after handling.
P273	Avoid release to the environment.
P280sh	Wear protective gloves/eye protection.
P301+312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P304+340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P330	Rinse mouth.
P342+311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P403+233	Store in a well-ventilated place. Keep container tightly closed.

## 16.2 Training advice

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.

## 16.3 Recommended restriction on use

Only for professional user.

Look about employee restrictions for young people (f. ex. 94/33/EC or DE § 22 JArbSchG)!

Look about employee restrictions for pregnant women and nursing women (f.ex. 92/85/EEC or for DE §§ 11-13 MuSchG 2017)!

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

## 16.4 Further information

MACHEREY-NAGEL GmbH & Co. KG provides the information contained herein in good faith being up-to-date of own realizations at revision time. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgement in determining its appropriateness for a particular purpose.

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## 16.5 Sources of key data

Regulation 453/2010/EU REACH - REQUIREMENTS FOR THE COMPILATION OF SAFETY DATA SHEETS

Regulation 487/2013/EU, 4<sup>th</sup> adaptation of CLP regulation to technical and scientific progress

Regulation 669/2018/EU, 4<sup>th</sup> adaptation of CLP regulation to technical and scientific progress

Regulation 1480/2018/EU, 4<sup>th</sup> adaptation of CLP regulation to technical and scientific progress

TRGS 900, German engineering rules governing limits in air at work, updated 03/2019

SUVA .CH, Limits in air at work 2009, revised on 01.2009

TRGS 907, German engineering rules governing listing of substances and causes of sensitizations, updated November 2011

KÜHN, BIRETT Merkblätter Gefährliche Arbeitsstoffe (Data Sheets of Hazardous Substances)

### Revisions/Updates

Reason for Revision: 2016-03 Adaptation of regulation 1221/2015/EU

2017-08 Adaption of new ethanol denaturation 2016/1867/EU

2017-11 Adaption of ECHA Registration dossier