

Safety Data Sheet

SDS acc. Hazard Communication Standard

REF: 740933.50	NucleoSpin RNA/Protein (50)	Page: 1/21
Printing Date: 04.04.2023	Date of Issue: 27.02.2023	Version: 2.2.7.6

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

1.1 Product Identifier / Product Name

REF	740933.50	
Product Name	NucleoSpin RNA/Protein (50)	
1 x 200 U rDNase		UFI: 8SGV-63EY-520U-3WWU
1 x 7,5 mL PSB		
1 x 107 mg TCEP		UFI: SUNV-235D-8202-429N
1 x 13 mL RNase-free H ₂ O		
1 x 7 mL DRB		
1 x 25 mL MDB		UFI: M48V-530M-W20T-7J23
1 x 15 mL RA2		UFI: GE6V-136P-S20W-0QDT
1 x 25 mL RP1		UFI: 1A6V-H3H9-G20E-ACTR
1 x 12 mL RA3		
1 x 45 mL PP		UFI: 32GV-43WS-Q20W-T68A

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
 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.

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 GHS07 GHS08

Signal Word DANGER

Hazard Identification	Hazard Classes/Categories
H226	Flam. Liq. 3
H302	Acute Tox. 4 oral
H315	Skin Irrit. 2
H319	Eye Irrit. 2
H334	Resp. Sens. 1
H412	Aquatic Chronic 3



MACHEREY-NAGEL GmbH & Co. KG
 Valencienner Str. 11
 52355 Düren · Germany
www.mn-net.com

DE Tel.: +49 24 21 969-0 info@mn-net.com
 CH Tel.: +41 62 388 55 00 sales-ch@mn-net.com
 FR Tel.: +33 388 68 22 68 sales-fr@mn-net.com
 US Tel.: +1 888 321 62 24 sales-us@mn-net.com

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2.1 Classification of the substance or mixture

7,5 mL PSB

Signal Word Do not need labelling as hazardous
-
No Hazard Class

107 mg TCEP



GHS07

Signal Word WARNING

Hazard Identification	Hazard Classes/Categories
H315	Skin Irrit. 2
H319	Eye Irrit. 2

25 mL RP1



GHS07

Signal Word WARNING

Hazard Identification	Hazard Classes/Categories
H302	Acute Tox. 4 oral
H412	Aquatic Chronic 3

15 mL RA2



GHS02



GHS07

Signal Word WARNING

Hazard Identification	Hazard Classes/Categories
H226	Flam. Liq. 3
H302	Acute Tox. 4 oral
H412	Aquatic Chronic 3

25 mL MDB



GHS02

Signal Word WARNING

Hazard Identification	Hazard Classes/Categories
H226	Flam. Liq. 3



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45 mL PP



GHS07

Signal Word WARNING

Hazard Identification	Hazard Classes/Categories
H315	Skin Irrit. 2
H319	Eye Irrit. 2
H412	Aquatic Chronic 3

13 mL RNase-free H₂O

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

12 mL RA3

Signal Word Do not need labelling as hazardous
-

No Hazard Class

7 mL DRB

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 to 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 sensiblizing substances.

7,5 mL PSB

Do not need labelling as hazardous
Signal Word: -

107 mg TCEP



MACHEREY-NAGEL GmbH & Co. KG
Valencienner Str. 11
52355 Düren · Germany
www.mn-net.com

DE Tel.: +49 24 21 969-0 info@mn-net.com
CH Tel.: +41 62 388 55 00 sales-ch@mn-net.com
FR Tel.: +33 388 68 22 68 sales-fr@mn-net.com
US Tel.: +1 888 321 62 24 sales-us@mn-net.com

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GHS07

Signal Word: WARNING

25 mL RP1



GHS07

Signal Word: WARNING

15 mL RA2



GHS02



GHS07

Signal Word: WARNING

25 mL MDB



GHS02

Signal Word: WARNING

45 mL PP



GHS07

Signal Word: WARNING

13 mL RNase-free H₂O

Do not need labelling as hazardous

Signal Word: -

200 U rDNase



GHS08

Signal Word: DANGER

H334

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

P261sh, P342+311

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

12 mL RA3

Do not need labelling as hazardous

Signal Word: -

7 mL DRB

Do not need labelling as hazardous

Signal Word: -

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Label elements of the complete product



Signal Word: DANGER
H334
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
P261sh, P342+311
Avoid breathing dust/vapors. 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, 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

PBT: not applicable
vPvB: not applicable

Possible endocrine disrupting effects

data not available

SECTION 3: Composition/Information on Ingredients

3.1 Substances or 3.2 Mixtures

107 mg TCEP

Substance name: *tris-(2-carboxyethyl)phosphine hydrochloride, TCEP(•HCl)*
CAS No.: 51805-45-9

Substance rating: H315, Skin Irrit. 2, H319, Eye Irrit. 2
Chemical Formula: C₉H₁₆ClO₆P
Synonyms (de): TCEP•HCl
Concentration: 70 - <100 %
acc. GHS: H315, Skin Irrit. 2, H319, Eye Irrit. 2

Substance name: *inorganic salts, declaration not necessary*
CAS No.: -

Substance rating: No criteria for classification or naming of chemical is not required.
Synonyms (de): kein Gefahrstoff
Concentration: 25 - <50 %
acc. GHS: The criteria for classification are not fulfilled.

15 mL RA2

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

Substance rating: H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm., H314, Skin Corr. 1C, H332, Acute Tox. 4 inh., H412, Aquatic Chronic 3
Chemical Formula: C₂H₆N₄S
Synonyms (de): Guanidiniumrhodanid
REACH Reg. No.: 01-2120735072-65-0001
EC No.: 209-812-1
Concentration: 30 - <45 %
acc. GHS: H302, Acute Tox. 4 oral, H412, Aquatic Chronic 3

Indice No.: 615-004-00-3



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Valencienner Str. 11
52355 Düren · Germany
www.mn-net.com

DE Tel.: +49 24 21 969-0 info@mn-net.com
CH Tel.: +41 62 388 55 00 sales-ch@mn-net.com
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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: C₂H₆O; C₂H₅OH
 Synonyms (de): Äthylalkohol, vergällter Spiritus
 REACH Reg. No.: 01-2119457610-43-xxxx
 EC No.: 200-578-6
 Concentration: 20 - <35 %
 acc. GHS: H226, Flam. Liq. 3

Indice No.: 603-002-00-5

200 U rDNase

Substance name: *rDNase*
 CAS No.: 9003-98-9
 Substance rating: H334, Resp. Sens. 1
 Chemical Formula: Enzyme Comm. No. 3.1.21.1, origin: cloned
 Synonyms (de): Deoxyribonucleodepolymerase
 EC No.: 232-667-0
 Concentration: 90 - <100 %
 acc. GHS: H334, Resp. Sens. 1

45 mL PP

Substance name: *zinc chloride*
 CAS No.: 7646-85-7
 Substance rating: H302, Acute Tox. 4 oral, H314, Skin Corr. 1B, H318, Eye Dam. 1, H335, STOT SE 3, H400, Aquatic 1, H410, Aquatic Chronic 1
 Chemical Formula: ZnCl₂
 Synonyms (de): Chlorzink
 REACH Reg. No.: 01-2119472431-44-xxxx
 EC No.: 231-592-0
 Concentration: 1 - <2,09 %
 The classification refers to the weight percentage of the metal (according to CLP regulation 2008/1272/EG Annex VI, 1.1.3.2 Note 1)
 acc. GHS: H315, Skin Irrit. 2, H319, Eye Irrit. 2, H412, Aquatic Chronic 3

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

7,5 mL PSB

Substance name: *indicator dye(s)*
 CAS No.: -
 Substance rating: No criteria for classification or naming of chemical is not required.
 Concentration: 0,01 - <0,1 %
 acc. GHS: The criteria for classification are not fulfilled.

Substance name: *glycerole*
 CAS No.: 56-81-5
 Substance rating: No criteria for classification or naming of chemical is not required.
 Chemical Formula: C₃H₈O₃
 Synonyms (de): 1,2,3-Propantriol
 REACH Reg. No.: 01-2119471987-18-xxxx
 EC No.: 200-289-5
 Concentration: 10 - <50 %
 acc. GHS: The criteria for classification are not fulfilled.

Indice No.: n/a

Substance name: *dodecyl sulfate, sodium salt*
 CAS No.: 151-21-3
 Substance rating: H228, Flam. Sol. 1, H302, Acute Tox. 4 oral, H315, Skin Irrit. 2, H318, Eye Dam. 1, H332, Acute Tox. 4 inh., H335, STOT SE 3, H412, Aquatic Chronic 3
 Chemical Formula: C₁₂H₂₅NaO₄S
 Synonyms (de): Natriumlaurylsulfat
 REACH Reg. No.: 01-2119489461-32-xxxx
 EC No.: 205-788-1
 Concentration: 1 - <2,5 %
 acc. GHS: The criteria for classification are not fulfilled.



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12 mL RA3

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 DRB

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.

25 mL MDB

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

Substance rating: H225, Flam. Liq. 2
Chemical Formula: C₂H₆O; C₂H₅OH
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

Index No.: 603-002-00-5

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

Substance rating: H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm., H314, Skin Corr. 1C, H332, Acute Tox. 4 inh., H412, Aquatic Chronic 3
Chemical Formula: C₂H₆N₄S
Synonyms (de): Guanidiniumrhodanid
REACH Reg. No.: 01-2120735072-65-0001
EC No.: 209-812-1
Concentration: 5 - <10 %
acc. GHS: The criteria for classification are not fulfilled.

Index No.: 615-004-00-3

25 mL RP1

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

Substance rating: H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm., H314, Skin Corr. 1C, H332, Acute Tox. 4 inh., H412, Aquatic Chronic 3
Chemical Formula: C₂H₆N₄S
Synonyms (de): Guanidiniumrhodanid
REACH Reg. No.: 01-2120735072-65-0001
EC No.: 209-812-1
Concentration: 45 - <60 %
acc. GHS: H302, Acute Tox. 4 oral, H412, Aquatic Chronic 3

Index No.: 615-004-00-3

13 mL RNase-free H₂O

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

Substance rating: No criteria for classification or naming of chemical is not required.
Chemical Formula: H₂O
REACH Reg. No.: exempt, Annex IV
EC No.: 231-791-2
Concentration: 90 - <100 %
acc. GHS: The criteria for classification are not fulfilled.



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

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 Vapors

After inhalation of foam or vapor 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

May cause allergy or asthma symptoms or breathing difficulties if inhaled. Chronic effects: Repeated contact, even in small amounts, can lead to sensitization.

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: 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.

5.4 Additional Information

SECTION 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedure

Do not breathe vapors. 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

PBT: not applicable
vPvB: not applicable



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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.

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 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.

7.3 Specific End Use(s)

Product for analytical use.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

107 mg TCEP

Chemical: *tris-(2-carboxyethyl)phosphine hydrochloride, TCEP(+HCl)* CAS No.: 51805-45-9

Chemical: *inorganic salts, declaration not necessary* CAS No.: -

15 mL RA2

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

DNEL: [inh] 1092 µg/m³
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/m³
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/m³
[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/m³

200 U rDNase

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

45 mL PP

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

DNEL: 1.3 Zn, inh mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 0.0206 mg/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



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7,5 mL PSB

Chemical: *indicator dye(s)* CAS No.: -
 Chemical: *glycerole* CAS No.: 56-81-5
 DNEL: [inh] 56 mg/m³
 DNEL = Derived No-Effect Level (for workers)
 PNEC (fresh water): 0.885 mg/L
 PNEC = Predicted No Effect Concentration
 Chemical: *dodecyl sulfate, sodium salt* CAS No.: 151-21-3
 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

12 mL RA3

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

7 mL DRB

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

25 mL MDB

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
 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: 1000 ppm / 1900 mg/m³

Chemical: *guanidinium thiocyanate* CAS No.: 593-84-0
 DNEL: [inh] 1092 µg/m³
 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

25 mL RP1

Chemical: *guanidinium thiocyanate* CAS No.: 593-84-0
 DNEL: [inh] 1092 µg/m³
 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

13 mL RNase-free H₂O

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.



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- 8.2.4 Skin Protection**
Recommended 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

107 mg TCEP

- | | |
|--------------------------------------|---------------------|
| a) State of aggregation: | solid (lyophilized) |
| b) Color: | colorless |
| c) Odor: | penetrative |
| 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 |
| l) Kinematic Viscosity: | data not available |
| m) Soluble in Water: | data not available |
| n) Partition Coefficient (o/w) : | 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 |

15 mL RA2

- | | |
|--------------------------------------|--------------------|
| 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: | 7.0-7.5 |
| l) Kinematic Viscosity: | data not available |
| m) Soluble in Water: | data not available |
| n) Partition Coefficient (o/w) : | data not available |
| o) Vapor Pressure (68°F): | data not available |
| p) Specific Gravity: | 1.03 g/cm³ |
| q) Relative Vapor Density (air=1) : | data not available |
| r) Particle Size: | data not available |

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 |



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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 (o/w) :	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

45 mL PP

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:	3.5-4.5
l) Kinematic Viscosity:	data not available
m) Soluble in Water:	data not available
n) Partition Coefficient (o/w) :	data not available
o) Vapor Pressure (68°F):	data not available
p) Specific Gravity:	1.01 g/cm ³
q) Relative Vapor Density (air=1) :	data not available
r) Particle Size:	data not available

7,5 mL PSB

a) State of aggregation:	liquid
b) Color:	green
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
l) Kinematic Viscosity:	data not available
m) Soluble in Water:	data not available
n) Partition Coefficient (o/w) :	data not available
o) Vapor Pressure (68°F):	data not available
p) Specific Gravity:	1.06 g/cm ³
q) Relative Vapor Density (air=1) :	data not available
r) Particle Size:	data not available

12 mL RA3

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



MACHEREY-NAGEL GmbH & Co. KG
 Valenciener Str. 11
 52355 Düren · Germany
www.mn-net.com

DE Tel.: +49 24 21 969-0 info@mn-net.com
 CH Tel.: +41 62 388 55 00 sales-ch@mn-net.com
 FR Tel.: +33 388 68 22 68 sales-fr@mn-net.com
 US Tel.: +1 888 321 62 24 sales-us@mn-net.com

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l) Kinematic Viscosity:	data not available
m) Soluble in Water:	data not available
n) Partition Coefficient (o/w) :	data not available
o) Vapor Pressure (68°F):	data not available
p) Specific Gravity:	1.00 g/cm ³
q) Relative Vapor Density (air=1) :	data not available
r) Particle Size:	data not available

7 mL DRB

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 (o/w) :	data not available
o) Vapor Pressure (68°F):	data not available
p) Specific Gravity:	1.01 g/cm ³
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 (o/w) :	data not available
o) Vapor Pressure (68°F):	data not available
p) Specific Gravity:	1.01 g/cm ³
q) Relative Vapor Density (air=1) :	data not available
r) Particle Size:	data not available

25 mL RP1

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 (o/w) :	data not available
o) Vapor Pressure (68°F):	data not available



MACHEREY-NAGEL GmbH & Co. KG
 Valenciener Str. 11
 52355 Düren · Germany
www.mn-net.com

DE Tel.: +49 24 21 969-0 info@mn-net.com
 CH Tel.: +41 62 388 55 00 sales-ch@mn-net.com
 FR Tel.: +33 388 68 22 68 sales-fr@mn-net.com
 US Tel.: +1 888 321 62 24 sales-us@mn-net.com

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p) Specific Gravity:	1.13 g/cm ³
q) Relative Vapor Density (air=1):	data not available
r) Particle Size:	data not available

13 mL RNase-free H₂O

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 (o/w):	data not available
o) Vapor Pressure (68°F):	data not available
p) Specific Gravity:	1.0 g/cm ³
q) Relative Vapor Density (air=1):	data not available
r) Particle Size:	data not available

9.2 Further 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

Can form very reactive substances with oxidizing agents. Possibility: &H:EUH031& 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.

107 mg TCEP

Chemical:	<i>tris</i> -(2-carboxyethyl)phosphine hydrochloride, TCEP(•HCl)	CAS No.: 51805-45-9
TSCA Inventory:	LVE	
LD50 orl rat :	3500 mg/kg	
LD50 scu rat :	> 3000 mg/kg	



MACHEREY-NAGEL GmbH & Co. KG
Valenciener Str. 11
52355 Düren · Germany
www.mn-net.com

DE Tel.: +49 24 21 969-0 info@mn-net.com
CH Tel.: +41 62 388 55 00 sales-ch@mn-net.com
FR Tel.: +33 388 68 22 68 sales-fr@mn-net.com
US Tel.: +1 888 321 62 24 sales-us@mn-net.com

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Chemical:	<i>inorganic salts, declaration not necessary</i>	CAS No.: -
TSCA Inventory:	all listed	
15 mL RA2		
Chemical:	<i>guanidinium thiocyanate</i>	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	
Acute Effects: Cause after oral intake, impairments of health when ingested in small quantities.		
Chemical:	<i>ethanol</i>	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:	<i>rDNase</i>	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.		
45 mL PP		
Chemical:	<i>zinc chloride</i>	CAS No.: 7646-85-7
TSCA Inventory:	listed	California Prop. 65 List: not listed
Canada CEPA 1999:	DSL Yes	
LD50 orl rat :	350 mg/kg	
LD50 orl mus :	329 mg/kg	
7,5 mL PSB		
Chemical:	<i>indicator dye(s)</i>	CAS No.: -
TSCA Inventory:	all listed, <1%	
Chemical:	<i>glycerole</i>	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:	<i>dodecyl sulfate, sodium salt</i>	CAS No.: 151-21-3
TSCA Inventory:	listed	California Prop. 65 List: not listed
Canada CEPA 1999:	DSL yes	
LD50 orl rat :	1288 mg/kg	
LC50 ihl rat :	3,900 mg/L/1H	
12 mL RA3		
Chemical:	<i>chemicals/mixture until 1%</i>	CAS No.: -
TSCA Inventory:	all listed, <1%	
7 mL DRB		
Chemical:	<i>chemicals/mixture until 2%</i>	CAS No.: -
TSCA Inventory:	all listed, <2%	



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25 mL MDB

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
 LC₅₀ ihl gpg : 21,900 mg/L
 LC₅₀ 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

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

25 mL RP1

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

13 mL RNase-free H₂O

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.

107 mg TCEP

Chemical: *tris-(2-carboxyethyl)phosphine hydrochloride, TCEP(+HCl)* CAS No.: 51805-45-9

Chemical: *inorganic salts, declaration not necessary* CAS No.: -

15 mL RA2

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

Harmful to aquatic life with long lasting effects. Avoid contact of chemical/mixture to environment.
 Environmental hazards must not be labelled with P phrases until 125 mL (EU-CLP 1272/2008 Annex I - 1.5.2).

PNEC (fresh water) : 42.4 µg/L

PNEC = Predicted No Effected Concentration

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

Partition Coefficient (o/w) : -1,11 pH 5.1

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

PNEC (fresh water) : 0.96 mg/L

PNEC = Predicted No Effected Concentration

LC50 daphnia magna/48h : >100 g/L



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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
Partition Coefficient (o/w) :	-0,31

200 U rDNase

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

45 mL PP

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

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

Environmental hazards must not be labelled with P phrases until 125 mL (EU-CLP 1272/2008 Annex I - 1.5.2).

PNEC (fresh water) : 0.0206 mg/L

PNEC = Predicted No Effected Concentration

LC50 fish/96h :	38 mg/L
EC50 daphnia/48h :	1.24 mg/L
EC50 pseudokirchneriella subcapitata/72h :	0.05 mg/L

7,5 mL PSB

Chemical: *indicator dye(s)* CAS No.: -

Chemical: *glycerole* CAS No.: 56-81-5

PNEC (fresh water) : 0.885 mg/L

PNEC = Predicted No Effected Concentration

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
Partition Coefficient (o/w) :	-1,76

Chemical: *dodecyl sulfate, sodium salt* CAS No.: 151-21-3

LC50 daphnia magna/48h :	6.3 mg/L
LC50 fish/96h :	1.31-22.5 mg/L
Partition Coefficient (o/w) :	1,6

12 mL RA3

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

7 mL DRB

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

25 mL MDB

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

PNEC (fresh water) : 0.96 mg/L

PNEC = Predicted No Effected Concentration

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
Partition Coefficient (o/w) :	-0,31

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

PNEC (fresh water) : 42.4 µg/L

PNEC = Predicted No Effected Concentration

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
Partition Coefficient (o/w) :	-1,11 pH 5.1



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25 mL RP1

Chemical: *guanidinium thiocyanate* CAS No.: 593-84-0
 Harmful to aquatic life with long lasting effects. Avoid contact of chemical/mixture to environment.
 Environmental hazards must not be labelled with P phrases until 125 mL (EU-CLP 1272/2008 Annex I - 1.5.2).
 PNEC (fresh water): 42.4 µg/L
 PNEC = Predicted No Effected Concentration
 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
 Partition Coefficient (o/w): -1,11 pH 5.1

13 mL RNase-free H₂O

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

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

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.

SECTION 14: Transport Information

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

or

14.1. UN/NA: 1993 14.2. Proper Shipping Name: **Flammable liquid, n.o.s. (ethanol mixture)**

14.3. Hazard Class: 3 14.4. Packing Group: III

Transportation by Road

Classification code: F1
 Limited Quantity: 5 L Tunnel restriction code: D/E
 Excepted Quantity: E 1 Special instructions: 640E

Air Transportation

Limited Quantity: LQ 7
 Excepted Quantity: E 1
 PAX: 355 max. weight PAX: 60 L
 CAO: 366 max. weight CAO: 220 L

Maritime Transport

EmS: F-E, S-E Storage Category: A

14.5 Environmental Hazards

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



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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

15.2 Chemical Safety Assessment

not necessary for these small amounts

SECTION 16: Other Information

16.1 Changes compared to the last version

Between versions 2.2.7.6 and 2.2.2.2 following changes were applied: - 5 composition data corrected - 4 substance data corrected

16.2 List of Hazard and Precaution Phrases

16.2.1 List of relevant H Phrases

H226	Flammable liquid and vapor.
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.
H412	Harmful to aquatic life with long lasting effects.

16.2.2 List of relevant P Phrases

P261sh	Avoid breathing dust/vapors.
P342+311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

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



MACHEREY-NAGEL GmbH & Co. KG
 Valenciennes Str. 11
 52355 Düren · Germany
www.mn-net.com

DE Tel.: +49 24 21 969-0 info@mn-net.com
 CH Tel.: +41 62 388 55 00 sales-ch@mn-net.com
 FR Tel.: +33 388 68 22 68 sales-fr@mn-net.com
 US Tel.: +1 888 321 62 24 sales-us@mn-net.com

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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)

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 oxigen 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:	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



MACHEREY-NAGEL GmbH & Co. KG
 Valenciener Str. 11
 52355 Düren · Germany
www.mn-net.com

DE Tel.: +49 24 21 969-0 info@mn-net.com
 CH Tel.: +41 62 388 55 00 sales-ch@mn-net.com
 FR Tel.: +33 388 68 22 68 sales-fr@mn-net.com
 US Tel.: +1 888 321 62 24 sales-us@mn-net.com

Safety Data Sheet

SDS acc. Hazard Communication Standard

REF: 740933.50	NucleoSpin RNA/Protein (50)	Page: 21/21
Printing Date: 04.04.2023	Date of Issue: 27.02.2023	Version: 2.2.7.6

- 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.



MACHEREY-NAGEL GmbH & Co. KG
 Valencienner Str. 11
 52355 Düren · Germany
www.mn-net.com

DE Tel.: +49 24 21 969-0 info@mn-net.com
 CH Tel.: +41 62 388 55 00 sales-ch@mn-net.com
 FR Tel.: +33 388 68 22 68 sales-fr@mn-net.com
 US Tel.: +1 888 321 62 24 sales-us@mn-net.com