

Safety Data Sheet

SDS acc. Hazard Communication Standard

REF: 740902.50

NucleoSpin RNA XS (50)

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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	740902.50	
Product Name	NucleoSpin RNA XS (50)	
1 x 80 U rDNase		UFI: 8SGV-63EY-520U-3WWU
1 x 13 mL RNase-free H ₂ O		
1 x 0.09-1.0 mg Carrier RNA		
1 x 25 mL RA1		UFI: 1A6V-H3H9-G20E-ACTR
1 x 12 mL RA3		
1 x 15 mL RA2		UFI: GE6V-136P-S20W-0QDT
1 x 10 mL MDB		UFI: M48V-530M-W20T-7J23
1 x 7 mL Reaction Buffer for rDNase		
3 x 14 mg TCEP		UFI: SUNV-235D-8202-429N

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 (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

H226
H302
H315
H319
H334
H412

Hazard Classes/Categories

Flam. Liq. 3
Acute Tox. 4 oral
Skin Irrit. 2
Eye Irrit. 2
Resp. Sens. 1
Aquatic Chronic 3

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2.1 Classification of the substance or mixture

0.09-1.0 mg Carrier RNA

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

14 mg TCEP



GHS07

Signal Word WARNING

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

25 mL RA1



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

10 mL MDB



GHS02

Signal Word WARNING

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



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13 mL RNase-free H₂O

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

80 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 Reaction Buffer for rDNase

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.

0.09-1.0 mg Carrier RNA

Do not need labelling as hazardous
Signal Word: -

14 mg TCEP



GHS07

Signal Word: WARNING

25 mL RA1



GHS07

Signal Word: WARNING

15 mL RA2



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GHS02



GHS07

Signal Word: WARNING

10 mL MDB



GHS02

Signal Word: WARNING

13 mL RNase-free H₂O

Do not need labelling as hazardous

Signal Word: -

80 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 Reaction Buffer for rDNase

Do not need labelling as hazardous

Signal Word: -

Label elements of the complete product



GHS02



GHS07



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.

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. 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



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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

14 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

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

80 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

12 mL RA3



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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 for rDNase

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.

10 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

Indice 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.

Indice No.: 615-004-00-3

25 mL RA1

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

Indice 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.

0.09-1.0 mg Carrier RNA



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Substance name: *carrier RNA*
 CAS No.: 26763-19-9

Substance rating: No criteria for classification or naming of chemical is not required.
 Synonyms (de): Polyadenylic acid, K salt
 Concentration: 90 - <100 %
 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. 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



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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

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 (VC1): 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

14 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

80 U rDNase

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



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12 mL RA3

Chemical: *chemicals/mixture until 1%*

CAS No.: -

7 mL Reaction Buffer for rDNase

Chemical: *chemicals/mixture until 2%*

CAS No.: -

10 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 RA1

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

0.09-1.0 mg Carrier RNA

Chemical: *carrier RNA*

CAS No.: 26763-19-9

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 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.

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



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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

14 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/cm ³
q) Relative Vapor Density (air=1) :	data not available
r) Particle Size:	data not available

80 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 (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



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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
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 Reaction Buffer for rDNase

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

10 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



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25 mL RA1

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:	1.13 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

0.09-1.0 mg Carrier RNA

a) State of aggregation:	solid (lyophilized)
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:	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

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



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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.

14 mg TCEP

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

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

80 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.

12 mL RA3



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Chemical: *chemicals/mixture until 1%*
 TSCA Inventory: *all listed, <1%*

CAS No.: -

7 mL Reaction Buffer for rDNase

Chemical: *chemicals/mixture until 2%*
 TSCA Inventory: *all listed, <2%*

CAS No.: -

10 mL MDB

Chemical: *ethanol*
 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*

CAS No.: 64-17-5

Chemical: *guanidinium thiocyanate*
 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*

CAS No.: 593-84-0

25 mL RA1

Chemical: *guanidinium thiocyanate*
 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.*

CAS No.: 593-84-0

13 mL RNase-free H₂O

Chemical: *water*
 TSCA Inventory: *listed*
 LD50 orl rat : *> 90000 mg/kg*

CAS No.: 7732-18-5

0.09-1.0 mg Carrier RNA

Chemical: *carrier RNA*
 LD50 orl rat : *11250 mg/kg*
 LD50 orl mus : *13791 mg/kg*
 LD50 scu rat : *1493 mg/kg*

CAS No.: 26763-19-9

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.

14 mg TCEP

Chemical: *tris-(2-carboxyethyl)phosphine hydrochloride, TCEP(•HCl)*

CAS No.: 51805-45-9

Chemical: *inorganic salts, declaration not necessary*

CAS No.: -



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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 Effect 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 Effect 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

80 U rDNase

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

12 mL RA3

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

7 mL Reaction Buffer for rDNase

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

10 mL MDB

Chemical: *ethanol* CAS No.: 64-17-5
 PNEC (fresh water): 0.96 mg/L
 PNEC = Predicted No Effect 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 Effect 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

25 mL RA1

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 Effect 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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13 mL RNase-free H₂O
Chemical: *water*

CAS No.: 7732-18-5

0.09-1.0 mg Carrier RNA
Chemical: *carrier RNA*

CAS No.: 26763-19-9

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

Excepted Quantity: E 1

Tunnel restriction code: D/E

Special instructions: 640E

Air Transportation

Limited Quantity: LQ 7

Excepted Quantity: E 1

PAX: 355

CAO: 366

max. weight PAX: 60 L

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

14.6 Special Precautions for User

not necessary

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

Not applicable.



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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 progress (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)

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



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*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: fisch, rainbow trout
- orl: oral
- OSHA: Occupational Safety and Health Administration
- PAX: transport on passenger planes allowed
- PBT: persistent, bioaccumulating, toxic substance
- pH: pH value
- pimephales promelas: fisch, fathead minnow
- PNEC: Predicted No Effected Concentration
- PROC 15: Process category 'for laboratory use'
- PRTR: Law for PRTR and Promotion of Chemical Management (Jp)
- PVC: polyvinyl chloride
- quail: bird, quail
- rat: rat



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rbt:	rabbit
RD:	rapidly degradable
RE:	repeated
REACH:	Registration, Evaluation, Authorisation and Restriction of Chemicals
REF:	item number, reference number
Reg.No.:	rRegistration number
Repr:	harmful to reproduction
Resp:	respiratory
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.

