

Safety Data Sheet

SDS acc. Hazard Communication Standard

REF: 740948.250	NucleoSpin RNA Clean-up (250)	Page: 1/12
Printing Date: 04.04.2023	Date of Issue: 27.02.2023	Version: 2.2.5.4

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

1.1 Product Identifier / Product Name

REF	740948.250	
Product Name	NucleoSpin RNA Clean-up (250)	
1 x 60 mL RNase-free H ₂ O		
1 x 125 mL RA1		UFI: 1A6V-H3H9-G20E-ACTR
3 x 25 mL RA3		
1 x 80 mL RA2		UFI: GE6V-136P-S20W-0QDT

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

Signal Word WARNING

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

2.1 Classification of the substance or mixture

125 mL RA1



GHS07



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NucleoSpin RNA Clean-up (250)
 Date of Issue: 27.02.2023

Page: 2/12
 Version: 2.2.5.4

Signal Word **WARNING**

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

80 mL RA2



Signal Word **WARNING**

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

60 mL RNase-free H₂O

Signal Word Do not need labelling as hazardous
-

No Hazard Class

25 mL RA3

Signal Word Do not need labelling as hazardous
-

No Hazard Class

List of H phrases: see section 16.2

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

According the implementation of GHS immediate packages only must be labelled with product identifier(s), GHS symbol(s), signal word, manufacturer name and phone number (OSHA's interpretation of HCS 2012). Harmful chemicals/mixtures with signal word: **WARNING** and highly flammable chemicals/mixtures must not be labelled with H and P phrases **until 125 mL** (EU 1272/2008 Annex I - 1.5.2) / **until 100 mL** (Canada WHMIS 2015). This labelling exemption does not apply to U.S.A.

125 mL RA1



Signal Word: **WARNING**

80 mL RA2



Signal Word: **WARNING**

60 mL RNase-free H₂O

Do not need labelling as hazardous
 Signal Word: -

25 mL RA3

Do not need labelling as hazardous



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NucleoSpin RNA Clean-up (250)
 Date of Issue: 27.02.2023

Page: 3/12
 Version: 2.2.5.4

Signal Word: -

Label elements of the complete product



Signal Word: WARNING

2.3 Other Hazards

Possible Hazards from physicochemical Properties

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.

Information pertaining to particular Risks to the Environment

Possible endocrine disrupting effects

data not available

SECTION 3: Composition/Information on Ingredients

3.1 Substances or 3.2 Mixtures

80 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

Indice No.: 615-004-00-3

Concentration: 30 - <45 %

acc. GHS: H302, Acute Tox. 4 oral, H412, Aquatic Chronic 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

Indice No.: 603-002-00-5

Concentration: 20 - <35 %

acc. GHS: H226, Flam. Liq. 3

25 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.

125 mL RA1



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NucleoSpin RNA Clean-up (250)
Date of Issue: 27.02.2023

Page: 4/12
Version: 2.2.5.4

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: $C_2H_6N_4S$
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

60 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.

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.

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.

4.1.4 After ORAL Intake

After oral intake lots of water should be drunk after it has been ingested.

4.2 Most important Symptoms and Effects, both acute and delayed

4.3 Indication of any immediate Medical Attention and Special Treatment needed

No additionally recommendations. ---

SECTION 5: 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. 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



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SDS acc. Hazard Communication Standard

REF: 740948.250	NucleoSpin RNA Clean-up (250)	Page: 5/12
Printing Date: 04.04.2023	Date of Issue: 27.02.2023	Version: 2.2.5.4

- 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.
- 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.
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.
- 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

80 mL RA2		
Chemical:	<i>guanidinium thiocyanate</i>	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:	<i>ethanol</i>	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	



Safety Data Sheet

SDS acc. Hazard Communication Standard

REF: 740948.250	NucleoSpin RNA Clean-up (250)	Page: 6/12
Printing Date: 04.04.2023	Date of Issue: 27.02.2023	Version: 2.2.5.4

25 mL RA3

Chemical: *chemicals/mixture until 1%*

CAS No.: -

125 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 Effected 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

60 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

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

Not necessary.

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

80 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



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NucleoSpin RNA Clean-up (250)
 Date of Issue: 27.02.2023

Page: 7/12
 Version: 2.2.5.4

25 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

125 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

60 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



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NucleoSpin RNA Clean-up (250)
 Date of Issue: 27.02.2023

Page: 8/12
 Version: 2.2.5.4

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

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.

80 mL RA2

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.

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

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

ACGIH: 1000 ppm

Exposure Routes: inhalation, ingestion, skin and/or eye contact

Target Organs: Eyes, skin, respiratory system, central nervous system, liver, blood, reproductive system

Symptoms: irritation eyes, skin, nose; headache, drowsiness, lassitude (weakness, exhaustion), narcosis; cough; liver damage; anemia; reproductive, teratogenic

Canada CEPA 1999: DSL yes
 LD50 orl rat : 6200 mg/kg
 LC_Low ihl gpg : 21,900 mg/L
 LC_Low orl hmn : 1400 mg/kg
 LC50 ihl mus : 123,4 mg/L/4H
 LC50 ihl rat : 115,9-133,8 mg/L/4H
 LD50 orl mus : 3450 mg/kg

25 mL RA3

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

TSCA Inventory: all listed, <1%

125 mL RA1

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.

60 mL RNase-free H₂O

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

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



Safety Data Sheet

SDS acc. Hazard Communication Standard

REF: 740948.250
 Printing Date: 04.04.2023

NucleoSpin RNA Clean-up (250)
 Date of Issue: 27.02.2023

Page: 9/12
 Version: 2.2.5.4

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.

80 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
 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

25 mL RA3

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

125 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 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

60 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



Safety Data Sheet

SDS acc. Hazard Communication Standard

REF: 740948.250	NucleoSpin RNA Clean-up (250)	Page: 10/12
Printing Date: 04.04.2023	Date of Issue: 27.02.2023	Version: 2.2.5.4

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

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
<i>Transportation by Road</i>	
Classification code: F1	Tunnel restriction code: D/E
Limited Quantity: 5 L	Special instructions: 640E
Excepted Quantity: E 1	
<i>Air Transportation</i>	
Limited Quantity: LQ 7	
Excepted Quantity: E 1	
PAX: 355	max. weight PAX: 60 L
CAO: 366	max. weight CAO: 220 L
<i>Maritime Transport</i>	
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.

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



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Safety Data Sheet

SDS acc. Hazard Communication Standard

REF: 740948.250	NucleoSpin RNA Clean-up (250)	Page: 11/12
Printing Date: 04.04.2023	Date of Issue: 27.02.2023	Version: 2.2.5.4

SECTION 16: Other Information

16.1 Changes compared to the last version

Between versions 2.2.5.4 and 2.2.2.2 following changes were applied: - 3 composition data corrected - 2 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.
H412	Harmful to aquatic life with long lasting effects.

16.2.2 List of relevant P Phrases

16.3 Recommended Restriction on Use

Only for Professional User.
An individual package of this product or test kit has a moderate hazardous potential.

16.4 Sources of Key Data

KÜHN, BIRETT, Leaflets on 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
Regulation 487/2013/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (4th ATP)
Regulation 1221/2015/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (7th ATP)
Regulation 776/2017/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (10th ATP)

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

revisions/updates

Reason for revision: 2014-02 Corrected structure of the sections according to Regulation 453/2010/EU, if necessary
2014-04 adjustment according Regulation 487/2013/EU
2016-03 adjustment according Regulation 1221/2015/EU
2017-08 adjustment according the Ordinance on Ethanol Denaturation 2016/1867/EU
2017-11 adjustment according the ECHA registration dossier
2022-11 adjustment according Regulation 878/2020/EU

16.5 Further Information

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16.6 Legend / Abbreviations

acc:	according
ADR:	Convention concerning the International Carriage of Dangerous Goods by Road
Act:	acute
BAT:	biological workplace tolerance value
CAO:	Cargo Aircraft Only
Carc:	carcinogen
CAS:	Chemical Abstracts Service
CLP:	Classification, Labelling and Packaging regulation
CMR:	carcinogen, mutagen, reproduction toxic
Corr:	corrosive
COD:	chemical oxygen demand
CSSL:	Chemical Substance Control Law (Jp)



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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
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.

