

Printing date 01/07/2019

Reviewed on 01/07/2019

1 Identification

- **Product identifier**
- **Trade name:** RNA-PLUS™
- **Article number:** RNAPLUS2
- **Application of the substance / the mixture** For Research Use Only
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
MP Biomedicals, LLC
29525 Fountain Parkway
Solon, OH 44139
United States
www.mpbio.com
- **Information department:** Quality Control Department
- **Emergency telephone number:** CHEMTREC: 1-800-424-9300 (1-703-527-3887)

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 3 H311 Toxic in contact with skin.

Acute Tox. 3 H331 Toxic if inhaled.



GHS08 Health hazard

Muta. 2 H341 Suspected of causing genetic defects.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

- **Label elements**

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS05



GHS06



GHS07



GHS08

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- **Signal word** *Danger*

- **Hazard-determining components of labeling:**

2-mercaptoethanol

Phenol, ultra pure

Guanidine Thiocyanate, molecular biology reagent

- **Hazard statements**

Toxic if swallowed, in contact with skin or if inhaled.

Causes severe skin burns and eye damage.

May cause an allergic skin reaction.

Suspected of causing genetic defects.

May cause damage to organs through prolonged or repeated exposure.

- **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe dusts or mists.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Immediately call a poison center/doctor.

Specific treatment (see on this label).

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Call a poison center/doctor if you feel unwell.

Get medical advice/attention if you feel unwell.

Take off immediately all contaminated clothing and wash it before reuse.

If skin irritation or rash occurs: Get medical advice/attention.

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 1

Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = *3

Fire = 1

Reactivity = 0

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

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3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture: consisting of the following components.

- **Dangerous components:**

CAS: 60-24-2 EINECS: 200-464-6 RTECS: KL5600000	2-mercaptoethanol	10-50%
CAS: 593-84-0 EINECS: 209-812-1	Guanidine Thiocyanate, molecular biology reagent	10-50%
CAS: 108-95-2 EINECS: 203-632-7 RTECS: SJ3325000	Phenol, ultra pure	10-50%

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Consult your Doctor. Show the safety data sheet to the Doctor. Away from the dangerous area. Remove breathing apparatus only after contaminated clothing have been completely removed. In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:**
Supply fresh air or oxygen; call for doctor.
If breathed in, supply fresh air. If not breathing, give artificial respiration. Consult a Doctor.
- **After skin contact:** Wash off with soap and plenty of water. Consult a Doctor.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
Do not induce vomiting; immediately call for medical help.
Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- **Information for doctor**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

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- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Pick up mechanically, dispose contaminated material as waste according to Section 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

60-24-2	2-mercaptoethanol	0.6 ppm
593-84-0	Guanidine Thiocyanate, molecular biology reagent	0.98 mg/m ³
108-95-2	Phenol, ultra pure	15 ppm

· **PAC-2:**

60-24-2	2-mercaptoethanol	3.5 ppm
593-84-0	Guanidine Thiocyanate, molecular biology reagent	11 mg/m ³
108-95-2	Phenol, ultra pure	23 ppm

· **PAC-3:**

60-24-2	2-mercaptoethanol	29 ppm
593-84-0	Guanidine Thiocyanate, molecular biology reagent	65 mg/m ³
108-95-2	Phenol, ultra pure	200 ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace. Avoid direct contact with skin and eyes.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:** 2-8°C
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Further information about storage conditions:**
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see Section 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the remaining constituent has no known exposure limits.

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60-24-2 2-mercaptoethanol

WEEL	Long-term value: 0.2 ppm Skin
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108-95-2 Phenol, ultra pure

PEL	Long-term value: 19 mg/m ³ , 5 ppm Skin
REL	Long-term value: 19 mg/m ³ , 5 ppm Ceiling limit value: 60* mg/m ³ , 15.6* ppm *15-min; Skin
TLV	Long-term value: 19 mg/m ³ , 5 ppm Skin; BEI

· **Ingredients with biological limit values:****108-95-2 Phenol, ultra pure**

BEI	250 mg/g creatinine urine end of shift Phenol with hydrolysis (background, nonspecific)
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· **Additional information:** The lists that were valid during the creation were used as basis.· **Exposure controls**· **Personal protective equipment:**· **General protective and hygienic measures:**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Avoid contact with the eyes.
- Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

· Form:	Liquid
· Color:	Green
· Odor:	Indeterminate
· Odor threshold:	Not determined.

· pH-value: Not determined.

· Change in condition

· Boiling point/Boiling range: Undetermined.

· Flash point: Not applicable.

· Flammability (solid, gaseous): Not applicable.

· Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

· Danger of explosion: See section 10

· Explosion limits:

· Lower:	Not Applicable
· Upper:	Not Applicable

· Vapor pressure: Not Applicable

· Density:	Not Applicable
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.

· Solubility in / Miscibility with

· Water: Not determined.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

· Dynamic:	Not determined.
· Kinematic:	Not determined.

· Solvent content:

· Organic solvents:	33.3 %
· VOC content:	33.30 %
	333.0 g/l / 2.78 lb/gl

· Solids content: 66.7 %

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· **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

ATE (Acute Toxicity Estimate)

Oral	LD50	58.3-113 mg/kg
Dermal	LD50	262 mg/kg
Inhalative	LC50/4 h	3.24 mg/L

60-24-2 2-mercaptoethanol

Oral	LD50	190 mg/kg (mouse) 162 mg/kg (rat)
Dermal	LD50	112 mg/kg (rabbit)
Inhalative	LC50/4 h	13,200 mg/L (mouse) 2 mg/L (rat)

593-84-0 Guanidine Thiocyanate, molecular biology reagent

Oral	LD50	500 mg/kg (ATE)
Dermal	LD50	1,100 mg/kg (ATE)
Inhalative	LC50/4 h	11 mg/L (ATE)

108-95-2 Phenol, ultra pure

Oral	LD50	317 mg/kg (rat)
Dermal	LD50	630 mg/kg (rabbit)
Inhalative	LC50/4 h	3 mg/L (ATE)

· **Primary irritant effect:**

· **on the skin:** Caustic effect on skin and mucous membranes.

· **on the eye:**

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

· **Sensitization:** Sensitization possible through skin contact.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Toxic

Corrosive

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Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· **Carcinogenic categories**· **IARC (International Agency for Research on Cancer)**

108-95-2	Phenol, ultra pure	3
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· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information

· **Toxicity**· **Aquatic toxicity:****60-24-2 2-mercaptoethanol**

Oral	LC50 / 96 h	46-100 mg/L (<i>Leuciscus idus</i>)
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108-95-2 Phenol, ultra pure

Oral	LC50 / 96 h	36.1-68.8 mg/L (<i>Carassius auratus</i>)
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· **Persistence and degradability** No further relevant information available.· **Behavior in environmental systems:**· **Bioaccumulative potential** No further relevant information available.· **Mobility in soil** No further relevant information available.· **Additional ecological information:**· **General notes:**

Water hazard class 3 (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

Danger to drinking water if even extremely small quantities leak into the ground.

· **Results of PBT and vPvB assessment**· **PBT:** Not applicable.· **vPvB:** Not applicable.· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**· **Recommendation:**

Can not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**· **Recommendation:** Discard must be made according to official regulations.

14 Transport information

· **UN-Number**· **DOT, ADR, IMDG, IATA**

UN2922

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· UN proper shipping name	
· DOT	Corrosive liquids, toxic, n.o.s. (Guanidine Thiocyanate, molecular biology reagent, Thioglycol)
· ADR	2922 Corrosive liquids, toxic, n.o.s. (Guanidine Thiocyanate, molecular biology reagent, Thioglycol), ENVIRONMENTALLY HAZARDOUS
· IMDG	CORROSIVE LIQUID, TOXIC, N.O.S. (Guanidine Thiocyanate, molecular biology reagent, THIOGLYCOL), MARINE POLLUTANT
· IATA	CORROSIVE LIQUID, TOXIC, N.O.S. (Guanidine Thiocyanate, molecular biology reagent, THIOGLYCOL)

· **Transport hazard class(es)**· **DOT**· **Class**

8 Corrosive substances

· **Label**

8, 6.1

· **ADR**· **Class**

8 Corrosive substances

· **Label**

8+6.1

· **IMDG**· **Class**

8 Corrosive substances

· **Label**

8/6.1

· **IATA**· **Class**

8 Corrosive substances

· **Label**

8 (6.1)

· **Packing group**· **DOT, ADR, IMDG, IATA**

II

· **Environmental hazards:**

Product contains environmentally hazardous substances: 2-mercaptoethanol, Phenol, ultra pure

· **Marine pollutant:**

Yes (DOT)

· **Special marking (ADR):**

Symbol (fish and tree)

Symbol (fish and tree)

· **Special precautions for user**

Warning: Corrosive substances

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· Danger code (Kemler):	86
· EMS Number:	F-A,S-B
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· Remarks:	Special marking with the symbol (fish and tree).
· ADR	
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 2922 CORROSIVE LIQUIDS, TOXIC, N.O.S. (GUANIDINE THIOCYANATE, MOLECULAR BIOLOGY REAGENT, THIOGLYCOL), 8 (6.1), II, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

· Sara

· **Section 355 (extremely hazardous substances):**

108-95-2 Phenol, ultra pure

· **Section 313 (Specific toxic chemical listings):**

108-95-2 Phenol, ultra pure

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

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· **Carcinogenic categories**· **EPA (Environmental Protection Agency)**

108-95-2	Phenol, ultra pure	D, I
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· **TLV (Threshold Limit Value established by ACGIH)**

108-95-2	Phenol, ultra pure	A4
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· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).· **Hazard pictograms**

GHS05 GHS06 GHS07 GHS08

· **Signal word** *Danger*· **Hazard-determining components of labeling:***2-mercaptoethanol**Phenol, ultra pure**Guanidine Thiocyanate, molecular biology reagent*· **Hazard statements***Toxic if swallowed, in contact with skin or if inhaled.**Causes severe skin burns and eye damage.**May cause an allergic skin reaction.**Suspected of causing genetic defects.**May cause damage to organs through prolonged or repeated exposure.*· **Precautionary statements***Obtain special instructions before use.**Do not handle until all safety precautions have been read and understood.**Do not breathe dusts or mists.**Wash thoroughly after handling.**Do not eat, drink or smoke when using this product.**Use only outdoors or in a well-ventilated area.**Contaminated work clothing must not be allowed out of the workplace.**Wear protective gloves/protective clothing/eye protection/face protection.**If swallowed: Immediately call a poison center/doctor.**Specific treatment (see on this label).**If swallowed: Rinse mouth. Do NOT induce vomiting.**If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.**IF INHALED: Remove person to fresh air and keep comfortable for breathing.**If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**IF exposed or concerned: Get medical advice/attention.**Call a poison center/doctor if you feel unwell.**Get medical advice/attention if you feel unwell.**Take off immediately all contaminated clothing and wash it before reuse.**If skin irritation or rash occurs: Get medical advice/attention.**Store in a well-ventilated place. Keep container tightly closed.**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.*

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· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Quality Control Dept.

· **Date of preparation / last revision** 01/07/2019 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Acute Tox. 3: Acute toxicity – Category 3

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Muta. 2: Germ cell mutagenicity – Category 2

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2