

Product PureYield™ RNA Midiprep System, 2 preps

Product code Z3742

Substance number	Description	Amount	Symbols
Z305	RNA Lysis Buffer	1	Xn
Z372	RNA Dilution Buffer (RDB)	1	-
Z373	Clearing Agent	1	-
Z523	β-Mercaptoethanol (48.7%)	1	T N
P119	Nuclease Free Water	4	-
A245	Binding Column, Assembled	1	-
A246	Clearing Column, Assembled	1	-
Z309	RNA Wash Solution (RWA)	1	-

Material Safety Data Sheet acc. to ISO/DIS 11014

Printing date 05/19/2006

Reviewed on 04/12/2006

1 Identification of substance

Trade name: RNA Lysis Buffer

Article number: Z305

Application of the substance / the preparation Laboratory chemicals

Manufacturer/Supplier:

Promega Corporation
2800 Woods Hollow Road
Madison, WI 53711
U.S.A.
1-800-356-9526 or (608)-274-4330

Emergency information:

CHEMTREC 1-800-424-9300

for call originating outside the United States dial 001-703-527-3887

2 Composition/Data on components

Chemical characterization

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

593-84-0	guanidinium thiocyanate	25-50%
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Additional information: For the wording of the listed risk phrases refer to section 15.

3 Hazards identification

Hazard description:



Xn Harmful

Information pertaining to particular dangers for man and environment:

Harmful by inhalation, in contact with skin and if swallowed.

Irritating to eyes and skin.

Classification system:

The classification was made according to the latest editions of international substances lists, and is expanded upon by company and technical literature data.

NFPA ratings (scale 0 - 4)

Health = 2

Fire = 0

Reactivity = 0

HMIS-ratings (scale 0 - 4)

Health = 2

Fire = 0

Reactivity = 0

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Trade name: RNA Lysis Buffer

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OSHA Hazard Overview (Criteria according to 29CFR1910.1200):*Toxic**Irritant***Primary route(s) of entry:***Dermal**Inhalation**Oral***Target Organ(s):***May affect Nervous system (Neurotoxin)**May cause Kidney damage (Nephrotoxin)**Risk of damage to eyes**Affects Gastrointestinal System***Additional information:***Product has been observed to have sensitizing effects.**Product contains a toxic substance in greater than 1% and may exhibit toxicological properties similar to the pure substance.***4 First aid measures****General information:***Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.***After inhalation:***Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.**In case of unconsciousness place patient stably in side position for transportation.***After skin contact:** *Immediately wash with water and soap and rinse thoroughly.***After eye contact:***Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.***After swallowing:** *Immediately call a doctor.***5 Fire fighting measures****Suitable extinguishing agents:***CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.***Protective equipment:** *Mouth respiratory protective device.***6 Accidental release measures****Person-related safety precautions:** *Not required.***Measures for environmental protection:***Dilute with plenty of water.**Do not allow to enter sewers/ surface or ground water.***Measures for cleaning/collecting:***Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).**Dispose contaminated material as waste according to item 13.**Ensure adequate ventilation.*

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Trade name: RNA Lysis Buffer

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7 Handling and storage

Handling:

Information for safe handling:

Keep receptacles tightly sealed.

Ensure good ventilation/exhaustion at the workplace.

No special precautions are necessary if used correctly.

Information about protection against explosions and fires: No special measures required.

Storage:

Requirements to be met by storerooms and receptacles: No special requirements.

Information about storage in one common storage facility: Not required.

Further information about storage conditions: Keep receptacle tightly sealed.

8 Exposure controls and personal protection

Components with limit values that require monitoring at the workplace:

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Additional information: The lists that were valid during the creation were used as basis.

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.

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

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.

Eye protection: Tightly sealed goggles

9 Physical and chemical properties

General Information

Form:	Fluid
Color:	Colorless
Odor:	Characteristic

Change in condition

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 100°C (212°F)

Flash point: Not applicable.

Auto igniting: Product is not selfigniting.

Danger of explosion: Product does not present an explosion hazard.

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Trade name: RNA Lysis Buffer

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Density at 20°C (68°F):	1.10200 g/cm ³
Solubility in / Miscibility with Water:	Fully miscible.
pH-value at 20°C (68°F):	7.5
Solvent content:	
Organic solvents:	0.0 %
Water:	52.0 %
Solids content:	48.0 %

10 Stability and reactivity

Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

Dangerous reactions

Reacts with strong acids.

Reacts with oxidizing agents.

Dangerous products of decomposition:

Nitrogen oxides (NO_x)

Carbon monoxide and carbon dioxide

Sulfur oxides (SO_x)

11 Toxicological information

Acute toxicity:

LD/LC50 values that are relevant for classification:

593-84-0 guanidinium thiocyanate

Oral	LD50	475 mg/kg (Rat) By analogy to guanidine hydrochloride
Dermal	LD50	>2000 mg/kg (Rabbit) By analogy to Guanidine hydrochloride.

Primary irritant effect:

on the skin: Irritant to skin and mucous membranes.

on the eye: Irritating effect.

Sensitization: Sensitization possible through inhalation.

Additional toxicological information:

Harmful

Irritant

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

12 Ecological information

General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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Trade name: RNA Lysis Buffer

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13 Disposal considerations

Product:**Recommendation:**

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

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

Contact Promega Safety Department for additional transportation information

DOT regulations:

Hazard class: -

Land transport ADR/RID (cross-border):

ADR/RID class: -

Maritime transport IMDG:

IMDG Class: -

Marine pollutant: No

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: -

15 Regulations

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

None of the ingredients are listed.

Section 313 (Specific toxic chemical listings):

None of the ingredients are listed.

TSCA (Toxic Substances Control Act):

All ingredients are listed.

Proposition 65**Chemicals known to cause cancer:**

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

Carcinogenicity categories**EPA (Environmental Protection Agency)**

None of the ingredients are listed.

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Trade name: RNA Lysis Buffer

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IARC (International Agency for Research on Cancer)

None of the ingredients are listed.

NTP (National Toxicology Program)

None of the ingredients are listed.

TLV (Threshold Limit Value established by ACGIH)

None of the ingredients are listed.

MAK (German Maximum Workplace Concentration)

None of the ingredients are listed.

NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

Product related hazard informations:

The product has been classified and marked in accordance with directives on hazardous materials.

Hazard symbols:

Xn Harmful

Hazard-determining components of labelling:

guanidinium thiocyanate

Risk phrases:

Harmful by inhalation, in contact with skin and if swallowed.

Irritating to eyes and skin.

Safety phrases:

Keep container in a well-ventilated place.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

This material and its container must be disposed of in a safe way.

Wear suitable protective clothing and gloves.

If swallowed, seek medical advice immediately and show this container or label.

National regulations:**Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.**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 MSDS:

Promega Corporation

Environmental Health and Safety Department

2800 Woods Hollow Road

Madison, WI

Ph: (608) 274-4330

*** Data compared to the previous version altered.**

Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 05/19/2006

Reviewed on 04/12/2006

1 Identification of substance

Trade name: β -Mercaptoethanol (48.7%)

Article number: Z523

Application of the substance / the preparation Laboratory chemicals

Manufacturer/Supplier:

Promega Corporation
2800 Woods Hollow Road
Madison, WI 53711
U.S.A.
1-800-356-9526 or (608)-274-4330

Emergency information:

CHEMTREC 1-800-424-9300

for call originating outside the United States dial 001-703-527-3887

2 Composition/Data on components

Chemical characterization

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

60-24-2	2-mercaptoethanol	25-50%
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Additional information: For the wording of the listed risk phrases refer to section 15.

3 Hazards identification

Hazard description:



T Toxic

N Dangerous for the environment

Information pertaining to particular dangers for man and environment:

Harmful if swallowed.

Toxic in contact with skin.

Causes burns.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Classification system:

The classification was made according to the latest editions of international substances lists, and is expanded upon by company and technical literature data.

NFPA ratings (scale 0 - 4)

Health = 3

Fire = 2

Reactivity = 0

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Reviewed on 04/12/2006

Trade name: β -Mercaptoethanol (48.7%)

(Contd. of page 1)

HMIS-ratings (scale 0 - 4)

Health = 3

Fire = 2

Reactivity = 0

OSHA Hazard Overview (Criteria according to 29CFR1910.1200):

Highly Toxic

Corrosive

Combustible

Environmental Toxin

Environmental Hazard

Primary route(s) of entry:

Dermal

Inhalation

Oral

Target Organ(s):

Affects Pulmonary system (Lungs)

Affects Gastrointestinal System

May cause behavioral changes

Additional information:

Product contains a toxic substance in greater than 1% and may exhibit toxicological properties similar to the pure substance.

4 First aid measures

General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation: In case of unconsciousness place patient stably in side position for transportation.

After skin contact: Immediately wash with water and soap and rinse thoroughly.

After eye contact: Rinse opened eye for several minutes under running water.

After swallowing:

Immediately call a doctor.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

5 Fire fighting measures

Suitable extinguishing agents:

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

6 Accidental release measures

Person-related safety precautions: Wear protective equipment. Keep unprotected persons away.

Measures for environmental protection:

Inform respective authorities in case of seepage into water course or sewage system.

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

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Trade name: β -Mercaptoethanol (48.7%)

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Ensure adequate ventilation.

7 Handling and storage

Handling:

Information for safe handling:

Keep receptacles tightly sealed.

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

Information about protection against explosions and fires: No special measures required.

Storage:

Requirements to be met by storerooms and receptacles: No special requirements.**Information about storage in one common storage facility:** Not required.**Further information about storage conditions:** Keep receptacle tightly sealed.

8 Exposure controls and personal protection

Components with limit values that require monitoring at the workplace:

60-24-2 2-mercaptoethanol

WEEL 0.2 ppm

Additional information: The lists that were valid during the creation were used as basis.

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.

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.

Eye protection: Tightly sealed goggles

9 Physical and chemical properties

General Information

Form:	Fluid
Color:	Colorless
Odor:	Characteristic

(Contd. on page 4)

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Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 05/19/2006

Reviewed on 04/12/2006

Trade name: β -Mercaptoethanol (48.7%)

(Contd. of page 3)

Change in condition**Melting point/Melting range:** Undetermined.**Boiling point/Boiling range:** 100°C (212°F)**Flash point:** > 55°C (> 131°F)**Auto igniting:** Product is not selfigniting.**Danger of explosion:** Product does not present an explosion hazard.**Vapor pressure at 20°C (68°F):** 3.6 hPa (3 mm Hg)**Density at 20°C (68°F):** 1.05600 g/cm³**Solubility in / Miscibility with****Water:** Fully miscible.**Solvent content:****Organic solvents:** 48.7 %**Water:** 51.3 %

10 Stability and reactivity

Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.**Dangerous reactions**

Reacts with oxidizing agents.

Reacts with certain metals.

Dangerous products of decomposition:Sulfur oxides (SO_x)

Carbon monoxide and carbon dioxide

11 Toxicological information

Acute toxicity:**LD/LC50 values that are relevant for classification:****60-24-2 2-mercaptoethanol**

Oral	LD50	244 mg/kg (Rat)
Dermal	LD50	150 mg/kg (Rabbit)
Irritation of eyes	acute	2 mg (Rabbit)
		Severe

Primary irritant effect:**on the skin:** Caustic effect on skin and mucous membranes.**on the eye:**

Strong caustic effect.

Irritating effect.

Sensitization: No sensitizing effects known.**Additional toxicological information:**

Toxic

Harmful

Corrosive

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

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Trade name: β -Mercaptoethanol (48.7%)

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

12 Ecological information

Ecotoxicological effects:

Remark: Toxic for fish

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.

Also poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

13 Disposal considerations

Product:

Recommendation:

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

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

Contact Promega Safety Department for additional transportation information

DOT regulations:



Hazard class:

6.1

Identification number:

UN2810

Packing group:

III

Proper shipping name (technical name): TOXIC LIQUID, ORGANIC, N.O.S. (THIOGLYCOL)

Label

6.1

Land transport ADR/RID (cross-border):



ADR/RID class:

6.1 (T1) Toxic substances

Danger code (Kemler):

60

UN-Number:

2810

Packaging group:

III

Label:

6.1

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Material Safety Data Sheet

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Reviewed on 04/12/2006

Trade name: β -Mercaptoethanol (48.7%)

(Contd. of page 5)

Description of goods: 2810 TOXIC LIQUID, ORGANIC, N.O.S. (THIOGLYCOL)

Maritime transport IMDG:



IMDG Class: 6.1
UN Number: 2810
Label 6.1
Packaging group: III
EMS Number: F-A,S-A
Marine pollutant: No
Proper shipping name: TOXIC LIQUID, ORGANIC, N.O.S. (THIOGLYCOL)

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class: 6.1
UN/ID Number: 2810
Label 6.1
Packaging group: III
Proper shipping name: TOXIC LIQUID, ORGANIC, N.O.S. (THIOGLYCOL)

15 Regulations

Sara

Section 355 (extremely hazardous substances):

None of the ingredients are listed.

Section 313 (Specific toxic chemical listings):

None of the ingredients are listed.

TSCA (Toxic Substances Control Act):

All ingredients are listed.

Proposition 65

Chemicals known to cause cancer:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

Cancerogenity categories

EPA (Environmental Protection Agency)

None of the ingredients are listed.

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Material Safety Data Sheet

acc. to ISO/DIS 11014

Printing date 05/19/2006

Reviewed on 04/12/2006

Trade name: β -Mercaptoethanol (48.7%)

(Contd. of page 6)

IARC (International Agency for Research on Cancer)

None of the ingredients are listed.

NTP (National Toxicology Program)

None of the ingredients are listed.

TLV (Threshold Limit Value established by ACGIH)

None of the ingredients are listed.

MAK (German Maximum Workplace Concentration)

None of the ingredients are listed.

NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

Product related hazard informations:

The product has been classified and marked in accordance with directives on hazardous materials.

Hazard symbols:

T Toxic

N Dangerous for the environment

Hazard-determining components of labelling:

2-mercaptoethanol

Risk phrases:

Harmful if swallowed.

Toxic in contact with skin.

Causes burns.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases:

Keep locked up.

When using do not eat or drink.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Wear suitable protective clothing, gloves and eye/face protection.

In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Use appropriate container to avoid environmental contamination.

National regulations:**Water hazard class:** Water hazard class 3 (Self-assessment): extremely hazardous for water.

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 MSDS:

Promega Corporation

Environmental Health and Safety Department

2800 Woods Hollow Road

Madison, WI

Ph: (608) 274-4330

* Data compared to the previous version altered.