09/22/2023	Kit Components	
Product code	Description	
V6612	GSH GSSG-Glo [™] Assay	
Components:		
V144	Reconstitution Buffer with Esterase	
V859	Luciferin Detection Reagent	
V690	Glutathione, 5mM	
V689	Glutathione S-Transferase Solution	
V687	Luciferin-NT	
V164	NEM	
P117	DTT	
E194	Passive Lysis Buffer, 5X	
V163A	Glutathione Reaction Buffer	



Printing date 09/22/2023

Reviewed on 09/22/2023

1 Identification

Product identifier Trade name: <u>Reconstitution Buffer with Esterase</u> Article number: V144 Application of the substance / the mixture For Laboratory Use

Details of the supplier of the safety data sheet Manufacturer/Supplier: Promega Corporation 2800 Woods Hollow Road Madison, WI 53711 U.S.A. 1-800-356-9526 or (608)-274-4330

Information department: SDS author: chemicalregulatory@promega.com

Emergency telephone number:

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

2 Hazard(s) identification

Classification of the substance or mixture

The product is not classified as hazardous according to the Globally Harmonized System (GHS).

Label elements GHS label elements Not applicable Hazard pictograms Not applicable Signal word Not applicable Hazard statements Not applicable Classification system: NFPA ratings (scale 0 - 4) Health = 0Fire = 0*Reactivity* = 0HMIS-ratings (scale 0 - 4) Health = *0Fire = 0Reactivity = 0OSHA Hazard Overview (Criteria according to 29CFR1910.1200): Not applicable Target Organ(s): Not applicable or unknown **Other hazards** Results of PBT and vPvB assessment **PBT:** Not applicable. vPvB: Not applicable.

(Contd. on page 2)

Page 1/8

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Reconstitution Buffer with Esterase

(Contd. of page 1)

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description:

The product is made up of a mixture of hazardous and non-hazardous components. The exact concentration percentages and components name may be withheld as a Promega Corp. trade secret.

Dangerous components:

ē	•	
127087-87-0	Nonylphenol Ethoxylate	1-5%
67-56-1	methanol	<1%
7664-93-9	sulphuric acid	<1%
1119-94-4	Dodecyltrimethylammonium bromide	<1%
4 1 1.		

Additional information: For the wording of the listed risk phrases refer to section 15.

4 First-aid measures

Description of first aid measures

General information: No special measures required.

After inhalation: If the patient feels unwell or is concerned, obtain medical advice.

After skin contact: Generally the product does not irritate the skin.

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

After swallowing: If the patient feels unwell or is concerned, obtain medical advice.

Information for doctor:

Most important symptoms and effects, both acute and delayed None

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:

CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. Special hazards arising from the substance or mixture

None known

No further relevant information available. Advice for firefighters No special advice.

Protective equipment: No special measures required.

6 Accidental release measures

 Personal precautions, protective equipment and emergency procedures Not required.

 Environmental precautions:

 Dilute with plenty of water.

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

 Methods and material for containment and cleaning up:

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

 Reference to other sections

 No dangerous substances are released.

(Contd. on page 3)

[•] US

(Contd. of page 2)

Safety Data Sheet acc. to OSHA HCS

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Reconstitution Buffer with Esterase

See Section 7 for information on safe handling. See Section 13 for disposal information.

7 Handling and storage

Handling:

Precautions for safe handling No special measures required. **Information about protection against explosions and fires:** The product is not flammable.

Conditions for safe storage, including any incompatibilities Storage: Requirements to be met by storerooms and receptacles: Do not store below -20°C. Protected from light. Information about storage in one common storage facility: Not required. Further information about storage conditions: None. Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Control parameters

Personal protective equipment:

General protective and hygienic measures:

Components with limit values that require monitoring at the workplace:

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the other constituents have no known exposure limits.

67-5	6-1 methanol
PEL	Long-term value: 260 mg/m ³ , 200 ppm
REL	Short-term value: 325 mg/m³, 250 ppm Long-term value: 260 mg/m³, 200 ppm Skin
TLV	Short-term value: 250 ppm Long-term value: 200 ppm Skin; BEI
Ingr	edients with biological limit values:
67-5	6-1 methanol
BEI	15 mg/L Medium: urine Time: end of shift Parameter: Methanol (background, nonspecific)
Add	tional information: The lists that were valid during the creation were used as basis.

The usual precautionary measures for handling chemicals should be followed. **Breathing equipment:** Not required. **Protection of hands:** Not required. **Material of gloves** Gloves impermeable to the specific chemical substance. Please observe the instructions regarding permeability and breakthrough time which are provided by the manufacturer/supplier of the gloves. Ensure gloves are suitable for the task which includes, but is not limited to, chemical compatibility, dexterity, operational conditions, user susceptibility, e.g., sensitization effects. Consider specific local conditions under which the product is used such as the danger of cuts and abrasion. Remove gloves with care to avoid skin contamination.

(Contd. on page 4)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Reconstitution Buffer with Esterase

(Contd. of page 3)

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:** Not required.

9 Physical and chemical properties

Information on basic physical and	chemical properties
General Information	
Appearance:	
Form:	Fluid
Color:	Colorless
Odor:	Not determined
Odor threshold:	Not determined.
pH-value at 20 °C (68 °F):	6.7
Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
Flash point:	Not applicable.
Flammability (solid, gaseous):	Not applicable.
Decomposition temperature:	Not determined.
Ignition temperature:	Product is not selfigniting.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapor pressure:	Not determined.
Density:	Not determined.
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Fully miscible.
Partition coefficient (n-octanol/wat	er): Not determined.
Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
Solvent separation test	
Organic solvents:	0.4 %
Water:	89.8 %
VOC content:	0.36 %
Other information	No further relevant information available.

10 Stability and reactivity

Reactivity No further relevant information available.

(Contd. on page 5)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

(Contd. of page 4)

Trade name: Reconstitution Buffer with Esterase

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:

7664-93-9 sulphuric acid

Oral LD50 2,140 mg/kg (Rat)

Primary irritant effect:

on the skin: No irritant effect. on the eye: No irritating effect. Sensitization:

In case of skin contact: not sensitising

In case of inhalation: not sensitising

Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

Carcinogenic categories

IARC (International Agency for Research on Cancer)

7664-93-9 sulphuric acid

NTP (National Toxicology Program)

7664-93-9 sulphuric acid

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

12 Ecological information

Toxicity

Aquatic toxicity: Not harmful to the aquatic environment Persistence and degradability Not available No further relevant information available. Bioaccumulative potential Not known No further relevant information available. Mobility in soil No further relevant information available. Ecotoxicological effects: Remark: Not available Additional ecological information: General notes: Not known to be hazardous to water. Results of PBT and vPvB assessment PBT: Not applicable. vPvB: Not applicable.

(Contd. on page 6)

1

Κ

⁻ US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Reconstitution Buffer with Esterase

(Contd. of page 5)

Other adverse effects No further relevant information available.

13 Disposal considerations

Waste treatment methods

Recommendation:

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations. **Recommended cleansing agent:** Water, if necessary with cleansing agents.

UN-Number DOT, ADR, ADN, IMDG, IATA	Not hazardous for transportation Not applicable
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	None Not applicable
Transport hazard class(es)	None
DOT, ADR, ADN, IMDG, IATA Class	Not applicable
Packing group DOT, ADR, IMDG, IATA	None Not applicable
Environmental hazards: Marine pollutant:	No
Special precautions for user	Not applicable.
Transport in bulk according to Annex II MARPOL73/78 and the IBC Code	of Not applicable.
UN "Model Regulation":	Not applicable

15 Regulatory information

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

Section 355 (extremely hazardous substances):

7664-93-9 sulphuric acid

Section 313 (Specific toxic chemical listings):

127087-87-0 Nonylphenol Ethoxylate

67-56-1 methanol

7664-93-9 sulphuric acid

TSCA (Toxic Substances Control Act) Inventory:

127087-87-0 Nonylphenol Ethoxylate

ACTIVE (Contd. on page 7)

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Reconstitution Buffer with Esterase

Iraae name: Kec	onstitution Buffer with Esterase	
		(Contd. of page 6)
67-56-1	methanol	ACTIVE
7664-93-9	sulphuric acid	ACTIVE
1119-94-4	Dodecyltrimethylammonium bromide	ACTIVE
Hazardous A	ir Pollutants	
67-56-1 meth	nanol	
Proposition 6	5	
Chemicals kr	nown to cause cancer:	
None of the ir	ngredients are listed.	
Chemicals kr	nown to cause reproductive toxicity for females:	
None of the in	ngredients are listed.	
Chemicals kr	nown to cause reproductive toxicity for males:	
None of the in	ngredients are listed.	
Chemicals kr	nown to cause developmental toxicity:	
67-56-1 meth	ianol	
New Jersey K	Right-to-Know List:	
67-56-1 m	ethanol	
7664-93-9 sı	Iphuric acid	
Pennsylvania	ı Right-to-Know List:	
7664-93-9 sı	ılphuric acid	
Cancerogeni	ty categories	
EPA (Enviro	nmental Protection Agency)	
None of the ir	ngredients are listed.	
TLV (Thresh	old Limit Value)	
7664-93-9 sı	ılphuric acid	A2
NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the in	ngredients are listed.	
	ements Not applicable	,
Signal word	Not applicable	

Signal word Not applicable Hazard statements Not applicable Chemical safety assessment

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

Promega Corporation Chemical Regulatory Department 2800 Woods Hollow Road Madison, WI Ph:(608)274-4330 chemicalregulatory@promega.com Contact: Date of preparation / last revision 09/22/2023

US

Printing date 09/22/2023

Reviewed on 09/22/2023

(Contd. of page 7)

Trade name: Reconstitution Buffer with Esterase

	Abbreviations	and	acr	onyms:
--	---------------	-----	-----	--------

ADR: Accord relatif au transport international 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 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



Printing date 09/22/2023

Reviewed on 09/22/2023

1 Identification

Product identifier Trade name: Luciferin Detection Reagent Article number: V859 Application of the substance / the mixture For Laboratory Use

Details of the supplier of the safety data sheet Manufacturer/Supplier: Promega Corporation 2800 Woods Hollow Road Madison, WI 53711 U.S.A. 1-800-356-9526 or (608)-274-4330

Information department: SDS author: chemicalregulatory@promega.com

Emergency telephone number:

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

2 Hazard(s) identification

Classification of the substance or mixture

The product is not classified as hazardous according to the Globally Harmonized System (GHS).

Label elements GHS label elements Not applicable Hazard pictograms Not applicable Signal word Not applicable Hazard statements Not applicable Classification system: NFPA ratings (scale 0 - 4) Health = 0Fire = 0*Reactivity* = 0HMIS-ratings (scale 0 - 4) *Health* = 0Fire = 0Reactivity = 0OSHA Hazard Overview (Criteria according to 29CFR1910.1200): Not applicable Target Organ(s): Not applicable or unknown **Other hazards** Results of PBT and vPvB assessment **PBT:** Not applicable. vPvB: Not applicable.

(Contd. on page 2)

Page 1/7

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Luciferin Detection Reagent

(Contd. of page 1)

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description:

The product is made up of a mixture of hazardous and non-hazardous components. The exact concentration percentages and components name may be withheld as a Promega Corp. trade secret.

Dangerous components: Not applicable

Additional information: For the wording of the listed risk phrases refer to section 15.

4 First-aid measures

Description of first aid measures

General information: No special measures required.

- After inhalation: If the patient feels unwell or is concerned, obtain medical advice.
- *After skin contact: Generally the product does not irritate the skin.*
- After eye contact: Rinse opened eye for several minutes under running water.
- *After swallowing:* If the patient feels unwell or is concerned, obtain medical advice.
- Information for doctor:

Most important symptoms and effects, both acute and delayed None

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:

CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. Special hazards arising from the substance or mixture

None known

No further relevant information available.

Advice for firefighters No special advice.

Protective equipment: No special measures required.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures Not required.

Environmental precautions:

Dilute with plenty of water.

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

Methods and material for containment and cleaning up:

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

Reference to other sections

No dangerous substances are released.

See Section 7 for information on safe handling.

See Section 13 for disposal information.

(Contd. on page 3)

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Luciferin Detection Reagent

(Contd. of page 2)

7 Handling and storage

Handling:

Precautions for safe handling No special measures required. **Information about protection against explosions and fires:** The product is not flammable.

Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: Do not store below -20°C. Protected from light. **Information about storage in one common storage facility:** Not required. **Further information about storage conditions:** None.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Control parameters

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.

Exposure controls

Personal protective equipment:

General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.

Breathing equipment: Not required.

Protection of hands:

Select the glove material considering penetration time, rate of diffusion and degradation time.

Material of gloves

Gloves impermeable to the specific chemical substance.

Please observe the instructions regarding permeability and breakthrough time which are provided by the manufacturer/supplier of the gloves. Ensure gloves are suitable for the task which includes, but is not limited to, chemical compatibility, dexterity, operational conditions, user susceptibility, e.g., sensitization effects. Consider specific local conditions under which the product is used such as the danger of cuts and abrasion. Remove gloves with care to avoid skin contamination.

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:** Not required.

9 Physical and chemical properties

Information on basic physical and General Information	nd chemical properties	
Appearance:		
Form:	Fluid	
Color:	Colorless	
Odor:	Not determined	
Odor threshold:	Not determined.	
pH-value at 20 °C (68 °F):	7.2	
		(Contd. on page 4

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Luciferin Detection Reagent

		(Contd. of pag
Change in condition		
Melting point/Melting range:	0 °C (32 °F)	
Boiling point/Boiling range:	100 °C (212 °F)	
Flash point:	Not applicable.	
Flammability (solid, gaseous):	Not applicable.	
Decomposition temperature:	Not determined.	
Ignition temperature:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:		
Lower:	Not determined.	
Upper:	Not determined.	
Vapor pressure:	Not determined.	
Density at 20 °C (68 °F):	1 g/cm ³ (8.345 lbs/gal)	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
Partition coefficient (n-octanol/wa	uter): Not determined.	
Viscosity:		
Dynamic at 20 °C (68 °F):	0.0952 mPas	
Kinematic:	Not determined.	
Solvent separation test		
Organic solvents:	0.0 %	
Water:	99.6 %	
VOC content:	0.00 %	
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: No data available Primary irritant effect: on the skin: No irritant effect. on the eye: No irritating effect.

(Contd. on page 5)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Luciferin Detection Reagent

(Contd. of page 4)

Sensitization:

In case of skin contact: not sensitising

In case of inhalation: not sensitising Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients are listed.

NTP (National Toxicology Program)

None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

12 Ecological information

Toxicity

Aquatic toxicity: Not harmful to the aquatic environment Persistence and degradability Not available No further relevant information available. **Bioaccumulative potential** Not known No further relevant information available. Mobility in soil No further relevant information available. Ecotoxicological effects: Remark: Not available Additional ecological information: General notes: Not known to be hazardous to water. 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:

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations. **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

UN-Number

Not hazardous for transportation

(Contd. on page 6)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Luciferin Detection Reagent

		(Contd. of page
DOT, ADR, ADN, IMDG, IATA	Not applicable	
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	None Not applicable	
Transport hazard class(es)	None	
DOT, ADR, ADN, IMDG, IATA Class	Not applicable	
Packing group DOT, ADR, IMDG, IATA	None Not applicable	
Environmental hazards: Marine pollutant:	No	
Special precautions for user	Not applicable.	
Transport in bulk according to Annex MARPOL73/78 and the IBC Code	II of Not applicable.	
UN "Model Regulation":	Not applicable	

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture 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) Inventory:

Hazardous Air Pollutants

None of the 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.

New Jersey Right-to-Know List:

56-81-5 glycerol

Pennsylvania Right-to-Know List:

None of the ingredients are listed.

Cancerogenity categories

EPA (Environmental Protection Agency)

None of the ingredients are listed.

(Contd. on page 7)

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Luciferin Detection Reagent

(Contd. of page 6)

TLV (Threshold Limit Value)

None of the ingredients are listed.

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

None of the ingredients are listed.

GHS label elements Not applicable Signal word Not applicable Hazard statements Not applicable Chemical safety assessment

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

Promega Corporation Chemical Regulatory Department 2800 Woods Hollow Road Madison, WI Ph:(608)274-4330 chemicalregulatory@promega.com Contact: Date of preparation / last revision 09/22/2023 Abbreviations and acronyms: RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) ICAO: Internation Civil Aviation Organization ADR: Accord relatif au transport international 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 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



Printing date 09/22/2023

Reviewed on 09/22/2023

1 Identification

Product identifier Trade name: <u>Glutathione, 5mM</u> Article number: V690 Application of the substance / the mixture For Laboratory Use

Details of the supplier of the safety data sheet Manufacturer/Supplier: Promega Corporation 2800 Woods Hollow Road Madison, WI 53711 U.S.A. 1-800-356-9526 or (608)-274-4330

Information department: SDS author: chemicalregulatory@promega.com

Emergency telephone number:

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

2 Hazard(s) identification

Classification of the substance or mixture

The product is not classified as hazardous according to the Globally Harmonized System (GHS).

Label elements GHS label elements Not applicable Hazard pictograms Not applicable Signal word Not applicable Hazard statements Not applicable Classification system: NFPA ratings (scale 0 - 4) Health = 0Fire = 0*Reactivity* = 0HMIS-ratings (scale 0 - 4) *Health* = 0Fire = 0Reactivity = 0OSHA Hazard Overview (Criteria according to 29CFR1910.1200): Not applicable Target Organ(s): Not applicable or unknown **Other hazards** Results of PBT and vPvB assessment **PBT:** Not applicable. vPvB: Not applicable.

(Contd. on page 2)

Page 1/7

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione, 5mM

(Contd. of page 1)

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description:

The product is made up of a mixture of hazardous and non-hazardous components. The exact concentration percentages and components name may be withheld as a Promega Corp. trade secret.

Dangerous components: Not applicable

Additional information: For the wording of the listed risk phrases refer to section 15.

4 First-aid measures

Description of first aid measures

General information: No special measures required.

After inhalation: If the patient feels unwell or is concerned, obtain medical advice.

After skin contact: Generally the product does not irritate the skin.

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

After swallowing: If the patient feels unwell or is concerned, obtain medical advice.

Information for doctor:

Most important symptoms and effects, both acute and delayed None

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:

CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. Special hazards arising from the substance or mixture

None known

No further relevant information available.

Advice for firefighters No special advice.

Protective equipment: No special measures required.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures Not required.
Environmental precautions: Dilute with plenty of water.
Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Reference to other sections
No dangerous substances are released.
See Section 7 for information on safe handling.
See Section 13 for disposal information.

(Contd. on page 3)

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione, 5mM

(Contd. of page 2)

7 Handling and storage

Handling:

Precautions for safe handling No special measures required. **Information about protection against explosions and fires:** The product is not flammable.

Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: Do not store below -20°C. Protected from light. Information about storage in one common storage facility: Not required. Further information about storage conditions: None.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Control parameters

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.

Exposure controls

Personal protective equipment:

General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.

Breathing equipment: Not required.

Protection of hands:

Select the glove material considering penetration time, rate of diffusion and degradation time.

Material of gloves

Gloves impermeable to the specific chemical substance.

Please observe the instructions regarding permeability and breakthrough time which are provided by the manufacturer/supplier of the gloves. Ensure gloves are suitable for the task which includes, but is not limited to, chemical compatibility, dexterity, operational conditions, user susceptibility, e.g., sensitization effects. Consider specific local conditions under which the product is used such as the danger of cuts and abrasion. Remove gloves with care to avoid skin contamination.

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. **Eve protection:** Not required.

9 Physical and chemical properties

Information on basic physical an General Information	1 1 1	
Appearance:		
Form:	Fluid	
Color:	Colorless	
Odor:	Not determined	
Odor threshold:	Not determined.	
pH-value at 20 °C (68 °F):	7	

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione, 5mM

		(Contd. of page
Change in condition		
Melting point/Melting range:	0 °C (32 °F)	
Boiling point/Boiling range:	100 °C (212 °F)	
Flash point:	Not applicable.	
Flammability (solid, gaseous):	Not applicable.	
Decomposition temperature:	Not determined.	
Ignition temperature:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:		
Lower:	Not determined.	
Upper:	Not determined.	
Vapor pressure:	Not determined.	
Density at 20 °C (68 °F):	1 g/cm ³ (8.345 lbs/gal)	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
Partition coefficient (n-octanol/wated Viscosity:	er): Not determined.	
Dynamic at 20 °C (68 °F):	0.0952 mPas	
Kinematic:	Not determined.	
Solvent separation test		
Water:	99.8 %	
VOC content:	0.00 %	
Solids content:	0.2 %	
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: No data available Primary irritant effect: on the skin: No irritant effect. on the eye: No irritating effect.

(Contd. on page 5)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione, 5mM

(Contd. of page 4)

Sensitization:

In case of skin contact: not sensitising In case of inhalation: not sensitising

Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients are listed.

NTP (National Toxicology Program)

None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

12 Ecological information

Toxicity

Aquatic toxicity: Not harmful to the aquatic environment Persistence and degradability *Not available* No further relevant information available. **Bioaccumulative potential** Not known No further relevant information available. Mobility in soil No further relevant information available. Ecotoxicological effects: **Remark:** Not available Additional ecological information: General notes: Not available. Not known to be hazardous to water. **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:

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations. **Recommended cleansing agent:** Water, if necessary with cleansing agents.

(Contd. on page 6)

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione, 5mM

(Contd. of page 5)

14 Transport information	
UN-Number DOT, ADR, ADN, IMDG, IATA	Not hazardous for transportation Not applicable
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	None Not applicable
Transport hazard class(es)	None
DOT, ADR, ADN, IMDG, IATA Class	Not applicable
Packing group DOT, ADR, IMDG, IATA	None Not applicable
Environmental hazards: Marine pollutant:	No
Special precautions for user	Not applicable.
Transport in bulk according to Annex I MARPOL73/78 and the IBC Code	I of Not applicable.
UN "Model Regulation":	Not applicable

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture 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) Inventory:

All components have the value ACTIVE.

Hazardous Air Pollutants

None of the 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.

New Jersey Right-to-Know List:

None of the ingredients are listed.

Pennsylvania Right-to-Know List:

None of the ingredients are listed.

(Contd. on page 7)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione, 5mM

(Contd. of page 6)

Cancerogenity categories

EPA (Environmental Protection Agency)

None of the ingredients are listed.

TLV (Threshold Limit Value)

None of the ingredients are listed.

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

None of the ingredients are listed.

GHS label elements Not applicable Signal word Not applicable Hazard statements Not applicable Chemical safety assessment

Water hazard class: Generally not hazardous for water. *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:

Promega Corporation Chemical Regulatory Department 2800 Woods Hollow Road Madison, WI Ph:(608)274-4330 chemicalregulatory@promega.com Contact: Date of preparation / last revision 09/22/2023 Abbreviations and acronyms: ADR: Accord relatif au transport international 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 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

US



Printing date 09/22/2023

Reviewed on 09/22/2023

1 Identification

Product identifier Trade name: <u>Glutathione S-Transferase Solution</u> **Article number:** V689 **Application of the substance / the mixture** For Laboratory Use

Details of the supplier of the safety data sheet Manufacturer/Supplier: Promega Corporation 2800 Woods Hollow Road Madison, WI 53711 U.S.A. 1-800-356-9526 or (608)-274-4330

Information department: SDS author: chemicalregulatory@promega.com

Emergency telephone number:

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

2 Hazard(s) identification

Classification of the substance or mixture

The product is not classified as hazardous according to the Globally Harmonized System (GHS).

Label elements GHS label elements Not applicable Hazard pictograms Not applicable Signal word Not applicable Hazard statements Not applicable Classification system: NFPA ratings (scale 0 - 4) Health = 0Fire = 1*Reactivity* = 0HMIS-ratings (scale 0 - 4) *Health* = 1Fire = 1 Reactivity = 0OSHA Hazard Overview (Criteria according to 29CFR1910.1200): Not applicable Target Organ(s): May cause Kidney damage (Nephrotoxin) **Other hazards** Results of PBT and vPvB assessment **PBT:** Not applicable. vPvB: Not applicable.

(Contd. on page 2)

Page 1/8

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione S-Transferase Solution

(Contd. of page 1)

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description:

The product is made up of a mixture of hazardous and non-hazardous components. The exact concentration percentages and components name may be withheld as a Promega Corp. trade secret.

Dangerous components:

56-81-5 glycerol

25-50%

Additional information: For the wording of the listed risk phrases refer to section 15.

4 First-aid measures

Description of first aid measures

General information: No special measures required.

After inhalation: If the patient feels unwell or is concerned, obtain medical advice.

After skin contact: Generally the product does not irritate the skin.

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

After swallowing: If the patient feels unwell or is concerned, obtain medical advice.

Information for doctor:

Most important symptoms and effects, both acute and delayed None

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: CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. Special hazards arising from the substance or mixture None known No further relevant information available. Advice for firefighters No special advice. Protective equipment: No special measures required.

6 Accidental release measures

 Personal precautions, protective equipment and emergency procedures Not required.

 Environmental precautions:

 Dilute with plenty of water.

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

 Methods and material for containment and cleaning up:

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

 Reference to other sections

 No dangerous substances are released.

 See Section 7 for information on safe handling.

 See Section 13 for disposal information.

(Contd. on page 3)

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione S-Transferase Solution

(Contd. of page 2)

7 Handling and storage

Handling:

Precautions for safe handling No special measures required. **Information about protection against explosions and fires:** No special measures required.

Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: Do not store below -20°C. Protected from light. Information about storage in one common storage facility: Not required. Further information about storage conditions: None.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Control parameters

Components with limit values that require monitoring at the workplace:

56-81-5 glycerol

PEL Long-term value: 15* 5** mg/m³ mist; *total dust **respirable fraction

TLV TLV withdrawn-insufficient data human occup. exp.

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

Exposure controls

Personal protective equipment:

General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.

Breathing equipment: Not required.

Protection of hands:

Select the glove material considering penetration time, rate of diffusion and degradation time.

Material of gloves

Gloves impermeable to the specific chemical substance.

Please observe the instructions regarding permeability and breakthrough time which are provided by the manufacturer/supplier of the gloves. Ensure gloves are suitable for the task which includes, but is not limited to, chemical compatibility, dexterity, operational conditions, user susceptibility, e.g., sensitization effects. Consider specific local conditions under which the product is used such as the danger of cuts and abrasion. Remove gloves with care to avoid skin contamination.

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:** Not required.

9 Physical and chemical properties

Information on basic ph	ysical and chemical properties
General Information	
Appearance:	
Form:	Fluid
Color:	Colorless
Odor:	Not determined

(Contd. on page 4)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione S-Transferase Solution

	(Cont	d. of page
Odor threshold:	Not determined.	
pH-value at 20 °C (68 °F):	6.8	
Change in condition		
Melting point/Melting range:	Undetermined.	
Boiling point/Boiling range:	Undetermined.	
Flash point:	160 °C (320 °F)	
Flammability (solid, gaseous):	Not applicable.	
Auto igniting:	400 °C (752 °F)	
Decomposition temperature:	Not determined.	
Ignition temperature:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:	· ·	
Lower:	0.9 Vol %	
Upper:	0.0 Vol %	
Vapor pressure at 20 °C (68 °F):	0.1 hPa	
Density:	Not determined.	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
Partition coefficient (n-octanol/water):	: Not determined.	
Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
Solvent separation test		
Organic solvents:	50.0 %	
Water:	48.6 %	
VOC content:	0.00 %	
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.

(Contd. on page 5)

US

Printing date 09/22/2023

*

*

Reviewed on 09/22/2023

Trade name: Glutathione S-Transferase Solution

(Contd. of page 4)

	Information on toxicological effects
	Acute toxicity:
	LD/LC50 values that are relevant for classification:
	56-81-5 glycerol
	Oral LD50 1,200 mg/kg (Rat)
-	Primary irritant effect:
	on the skin: No irritant effect.
	on the eye: No irritating effect.
	Sensitization:
	In case of skin contact: not sensitising
	In case of inhalation: not sensitising
	Additional toxicological information:
	The product is not subject to classification according to internally approved calculation methods f preparations:
	Carcinogenic categories
	IARC (International Agency for Research on Cancer)
	None of the ingredients are listed.
	NTP (National Toxicology Program)
	None of the ingredients are listed.
	OSHA-Ca (Occupational Safety & Health Administration)
	None of the ingredients are listed.
_	
2	
2	Ecological information
	Toxicity
	Aquatic toxicity: Not harmful to the aquatic environment
	Persistence and degradability
	Not available
	No further relevant information available.
	Bioaccumulative potential
	Not known
	No further relevant information available.
	Mobility in soil No further relevant information available.

Additional ecological information: General notes: Not known to be hazardous to water.

Results of PBT and vPvB assessment

PBT: Not applicable. **vPvB:** Not applicable.

Other adverse effects No further relevant information available.

(Contd. on page 6)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione S-Transferase Solution

(Contd. of page 5)

13 Disposal considerations

Waste treatment methods

Recommendation:

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations. **Recommended cleansing agent:** Water, if necessary with cleansing agents.

UN-Number DOT, ADR, ADN, IMDG, IATA	Not hazardous for transportation Not applicable	
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	None Not applicable	
Transport hazard class(es)	None	
DOT, ADR, ADN, IMDG, IATA Class	Not applicable	
Packing group DOT, ADR, IMDG, IATA	None Not applicable	
Environmental hazards: Marine pollutant:	No	
Special precautions for user	Not applicable.	
Transport in bulk according to Annex MARPOL 73/78 and the IBC Code	II of Not applicable.	
UN "Model Regulation":	Not applicable	

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture 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) Inventory:

56-81-5 glycerol

Hazardous Air Pollutants

None of the ingredients are listed.

(Contd. on page 7)

ACTIVE

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione S-Transferase Solution

.		ntd. of page 6)
Propositio		
Chemical	ls known to cause cancer:	
None of th	he ingredients are listed.	
Chemical	ls known to cause reproductive toxicity for females:	
None of th	he ingredients are listed.	
Chemical	ls known to cause reproductive toxicity for males:	
None of th	he ingredients are listed.	
Chemical	ls known to cause developmental toxicity:	
None of th	he ingredients are listed.	
New Jerse	sey Right-to-Know List:	
56-81-5	5 glycerol	
7558-79-4	4 disodium hydrogenorthophosphate	
Pennsylva	vania Right-to-Know List:	
56-81-5	5 glycerol	
7558-79-4	4 disodium hydrogenorthophosphate	
Cancerog	genity categories	
EPA (Env	vironmental Protection Agency)	
None of th	he ingredients are listed.	
TIV (The	nal ald Limit Value)	

TLV (Threshold Limit Value)

None of the ingredients are listed.

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

None of the ingredients are listed.

GHS label elements Not applicable Signal word Not applicable Hazard statements Not applicable Chemical safety assessment

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

Promega Corporation Chemical Regulatory Department 2800 Woods Hollow Road Madison, WI Ph:(608)274-4330 chemicalregulatory@promega.com Contact: Date of preparation / last revision 09/22/2023 Abbreviations and acronyms: RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods

(Contd. on page 8)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione S-Transferase Solution

	(Contd. of page 7)
DOT: US Department of Transportation	· · · · ·
IATA: International Air Transport Association	
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	
-	US



Printing date 09/22/2023

Reviewed on 09/22/2023

Page 1/8

1 Identification

Product identifier Trade name: <u>Luciferin-NT</u> **Article number:** V687 **Application of the substance / the mixture** For Laboratory Use

Details of the supplier of the safety data sheet Manufacturer/Supplier: Promega Corporation 2800 Woods Hollow Road Madison, WI 53711 U.S.A. 1-800-356-9526 or (608)-274-4330

Information department: SDS author: chemicalregulatory@promega.com

Emergency telephone number:

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

2 Hazard(s) identification

Classification of the substance or mixture



Eye Irritation 2A H319 Causes serious eye irritation.

Flammable Liquids 4 H227 Combustible liquid.

Label elements

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



Signal word Warning Hazard statements Combustible liquid. Causes serious eye irritation. Precautionary statements Keep away from flames and hot surfaces. – No smoking. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

(Contd. on page 2)

:∠) -US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Luciferin-NT

	Contd. of page 1)
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present an	a easy to ao.
Continue rinsing. If eye irritation persists: Get medical advice/attention.	
In case of fire: Use CO2, powder or water spray to extinguish.	
Store in a well-ventilated place. Keep cool.	
Dispose of contents/container in accordance with local/regional/national/international regulations.	
Classification system:	
NFPA ratings (scale 0 - 4)	
Health = 2	
Fire = 2	
Reactivity = 0	
HMIS-ratings (scale 0 - 4)	
Health $= *2$	
Fire = 2	
Reactivity = 0	
OSHA Hazard Overview (Criteria according to 29CFR1910.1200):	
Irritant	
Combustible	
Primary route(s) of entry: Dermal	
Target Organ(s):	
Dermal hazard (Cutaneous hazard)	
Risk of damage to eyes	
Other hazards	
Results of PBT and vPvB assessment	
PBT: Not applicable.	
vPvB : Not applicable.	

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description:

The product is made up of a mixture of hazardous and non-hazardous components. The exact concentration percentages and components name may be withheld as a Promega Corp. trade secret.

Dangerous components:				
67-68-5	dimethyl sulfoxide	75-100%		
9036-19-5	Polyethylene glycol tert-octylphenyl ether	1-5%		
Additional	<i>information:</i> For the wording of the listed risk phrases refer to section 15.			

4 First-aid measures

Description of first aid measures

After inhalation: If the patient feels unwell or is concerned, obtain medical advice. *After skin contact:* Generally the product does not irritate the skin.

After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor. *After swallowing:* Immediately call a doctor.

- Information for doctor:
- Most important symptoms and effects, both acute and delayed
- None

No further relevant information available.

(Contd. on page 3)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Luciferin-NT

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 None known

No further relevant information available.

Advice for firefighters In the case of fire, wear respiratory protective equipment and chemical protective suit.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
Remove persons from danger area.
Wear protective equipment. Keep unprotected persons away.
Wear protective clothing.
Environmental precautions:
Prevent seepage into sewage system, workpits and cellars.
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
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 13 for disposal information.

7 Handling and storage

Handling:

Precautions for safe handling No special precautions are necessary if used correctly. **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.

Conditions for safe storage, including any incompatibilities Storage:

Requirements to be met by storerooms and receptacles: Do not store below -20°C. Protected from light. **Information about storage in one common storage facility:** Not required. **Further information about storage conditions:** Keep receptacle tightly sealed. **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

Control parameters

Components with limit values that require monitoring at the workplace:

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

(Contd. on page 4)

(Contd. of page 2)

US

Safety Data Sheet acc. to OSHA HCS

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Luciferin-NT

67-68	-5 dimethyl sulfoxide
WEEI	Long-term value: 250 ppm
Additi	onal information: The lists that were valid during the creation were used as basis.
Expos	ure controls
Perso	nal protective equipment:
Gener	al protective and hygienic measures:
Keep	away from foodstuffs, beverages and feed.
	liately remove all soiled and contaminated clothing.
Wash	hands before breaks and at the end of work.
Avoid	contact with the eyes.
Avoid	contact with the eyes and skin.
Do no	t eat or drink while working.
Breat	hing equipment: Not required.
Prote	ction of hands: Not required.
Mater	ial of gloves
Glove	s impermeable to the specific chemical substance.
manuj chemi specif	e observe the instructions regarding permeability and breakthrough time which are provided by t facturer/supplier of the gloves. Ensure gloves are suitable for the task which includes, but is not limited cal compatibility, dexterity, operational conditions, user susceptibility, e.g., sensitization effects. Consia ic local conditions under which the product is used such as the danger of cuts and abrasion. Remove glov are to avoid skin contamination.
varies	election of the suitable gloves does not only depend on the material, but also on further marks of quality a from manufacturer to manufacturer. As the product is a preparation of several substances, the resistant glove material can not be calculated in advance and has therefore to be checked prior to the application.
Eye p	rotection:
	glasses
Use e	quipment for eye protection tested and approved under government NIOSH standards.

9 Physica	al and	ck	emical	nro	nerties
JInysici	u unu		emicai	μυ	pernes

Information on basic physical and General Information		
Appearance:		
Form:	Fluid	
Color:	Colorless	
Odor:	Not determined	
Odor threshold:	Not determined.	
Change in condition Melting point/Melting range: Boiling point/Boiling range: Flash point:	18.45 °C (65.2 °F) 189 °C (372.2 °F) 87 °C (188.6 °F)	
Flammability (solid, gaseous):	Not applicable.	
Auto igniting:	270 °C (518 °F)	
Decomposition temperature:	Not determined.	
Ignition temperature:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits: Lower:	1.8 Vol %	

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Luciferin-NT

		(Contd. of page
Upper:	Zers Vol %	
Vapor pressure at 20 °C (68 °F):	2.5 hPa (1.9 mm Hg)	
Density at 20 °C (68 °F):	1.1 g/cm ³ (9.1795 lbs/gal)	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
Partition coefficient (n-octanol/wate	er): Not determined.	
Viscosity:	, ,	
Dynamic at 20 °C (68 °F):	198 mPas	
Kinematic:	Not determined.	
Solvent separation test		
Organic solvents:	98.6 %	
VOC content:	98.61 %	
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: Oxidizing agents Strong acids Strong reducing agents 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: No data available Primary irritant effect: on the skin: Causes skin irritation. on the eye: Irritating effect. Sensitization: In case of skin contact: not sensitising In case of inhalation: not sensitising In case of inhalation: not sensitising Additional toxicological information: The product shows the following dangers according to internally approved calculation methods for preparations: OECD test guideline 471, Ames test. Irritant

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients are listed.

(Contd. on page 6)

[•] US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Luciferin-NT

(Contd. of page 5)

NTP (National Toxicology Program)

None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

12 Ecological information

Toxicity

Aquatic toxicity: Not harmful to the aquatic environment Persistence and degradability *Not available* No further relevant information available. **Bioaccumulative potential** Not known No further relevant information available. Mobility in soil No further relevant information available. Ecotoxicological effects: **Remark:** Not available Additional ecological information: General notes: No data available. 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:

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations. **Recommended cleansing agent:** Water, if necessary with cleansing agents.

UN-Number DOT, ADR, ADN, IMDG, IATA	Not hazardous for transportation Not applicable
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	None Not applicable
Transport hazard class(es)	None
DOT, ADR, ADN, IMDG, IATA Class	Not applicable
Packing group	None

ACTIVE

ACTIVE

Safety Data Sheet acc. to OSHA HCS

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Luciferin-NT

		(Contd. of page 6)
DOT, ADR, IMDG, IATA	Not applicable	
Environmental hazards: Marine pollutant:	No	
Special precautions for user	Not applicable.	
Transport in bulk according to Anne MARPOL73/78 and the IBC Code	x II of Not applicable.	
UN "Model Regulation":	Not applicable	

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture 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) Inventory:

67-68-5 dimethyl sulfoxide

9036-19-5 Polyethylene glycol tert-octylphenyl ether

Hazardous Air Pollutants

None of the 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.

New Jersey Right-to-Know List:

67-68-5 dimethyl sulfoxide

76-05-1 trifluoroacetic acid

Pennsylvania Right-to-Know List:

None of the ingredients are listed.

Cancerogenity categories

EPA (Environmental Protection Agency)

None of the ingredients are listed.

TLV (Threshold Limit Value)

None of the ingredients are listed.

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

None of the ingredients are listed.

(Contd. on page 8)

US -

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Luciferin-NT

(Contd. of page 7) GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS). Signal word Warning Hazard statements Combustible liquid. Causes serious eve irritation. **Precautionary statements** *Keep away from flames and hot surfaces. – No smoking.* Wash thoroughly after handling. *Wear protective gloves/protective clothing/eve protection/face protection.* If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. In case of fire: Use CO2, powder or water spray to extinguish. Store in a well-ventilated place. Keep cool. Dispose of contents/container in accordance with local/regional/national/international regulations. Chemical safety assessment

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

Promega Corporation Chemical Regulatory Department 2800 Woods Hollow Road Madison. WI Ph:(608)274-4330 chemicalregulatory@promega.com Contact: Date of preparation / last revision 09/22/2023 Abbreviations and acronyms: RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) ICAO: Internation Civil Aviation Organization ADR: Accord relatif au transport international 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 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 Flammable Liquids 4: Flammable liquids – Category 4 Eye Irritation 2A: Serious eye damage/eye irritation - Category 2A



Printing date 09/22/2023

Reviewed on 09/22/2023

Page 1/9

1 Identification

Product identifier Trade name: <u>NEM</u> **Article number:** V164 **Application of the substance / the mixture** For Laboratory Use

Details of the supplier of the safety data sheet Manufacturer/Supplier: Promega Corporation 2800 Woods Hollow Road Madison, WI 53711 U.S.A. 1-800-356-9526 or (608)-274-4330

Information department: SDS author: chemicalregulatory@promega.com

Emergency telephone number:

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

2 Hazard(s) identification

Classification of the substance or mixture



Acute Toxicity - Oral 4H302 Harmful if swallowed.Sensitization - Skin 1H317 May cause an allergic skin reaction.Flammable Liquids 4H227 Combustible liquid.

Label elements

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



Signal word Warning

Hazard-determining components of labeling: N-ethylmaleimide Hazard statements Combustible liquid. Harmful if swallowed. May cause an allergic skin reaction.

(Contd. on page 2)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: NEM

(Contd. of page 1) **Precautionary statements** *Keep away from flames and hot surfaces. – No smoking.* Avoid breathing dust/fume/gas/mist/vapors/spray Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth. If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. In case of fire: Use CO2, powder or water spray to extinguish. Store in a well-ventilated place. Keep cool. Dispose of contents/container in accordance with local/regional/national/international regulations. Classification system: NFPA ratings (scale 0 - 4) Health = 1Fire = 2*Reactivity* = 0HMIS-ratings (scale 0 - 4) *Health* = 1Fire = 2 Reactivity = 0OSHA Hazard Overview (Criteria according to 29CFR1910.1200): Irritant Sensitizer Combustible **Primary route(s) of entry:** Dermal Oral Target Organ(s): Dermal hazard (Cutaneous hazard) Risk of damage to eyes **Other hazards** Results of PBT and vPvB assessment **PBT:** Not applicable. vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description:

The product is made up of a mixture of hazardous and non-hazardous components. The exact concentration percentages and components name may be withheld as a Promega Corp. trade secret.

Dangero	ous components:	
67-68-5	dimethyl sulfoxide	75-100%
	N-ethylmaleimide	<1%
Addition	al information: For the wording of the listed risk phrases refer to section 15.	

(Contd. on page 3)

(Contd. of page 2)

Safety Data Sheet acc. to OSHA HCS

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: NEM

4 First-aid measures

Description of 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: If the patient feels unwell or is concerned, obtain medical advice.

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.

Seek immediate medical advice.

Information for doctor:

Most important symptoms and effects, both acute and delayed Allergic reactions 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 None known

No further relevant information available. Advice for firefighters In the case of fire, wear respiratory protective equipment and chemical protective suit.

6 Accidental release measures

Personal precautions, protective equipment and emergency proceduresRemove persons from danger area.Wear protective equipment. Keep unprotected persons away.Wear protective clothing.Environmental precautions:Prevent seepage into sewage system, workpits and cellars.Dilute with plenty of water.Do not allow to enter sewers/ surface or ground water.Methods and material for containment and cleaning up:Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).Dispose contaminated material as waste according to Section 13.Ensure adequate ventilation.Reference to other sectionsSee Section 7 for information on safe handling.See Section 13 for disposal information.

7 Handling and storage

Handling:

Precautions for safe handling Ensure good ventilation/exhaustion at the workplace. Prevent formation of aerosols.

(Contd. on page 4)

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: NEM

(Contd. of page 3)

Information about protection against explosions and fires: Keep ignition sources away - Do not smoke.

Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: Do not store below -20°C. Protected from light. Information about storage in one common storage facility: Not required. Further information about storage conditions: Keep receptacle tightly sealed. Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Control parameters

Components with limit values that require monitoring at the workplace:

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

67-68-5 dimethyl sulfoxide

WEEL Long-term value: 250 ppm

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.

Do not eat or drink while working.

Clean skin thoroughly immediately after handling the product.

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: Not required.

Material of gloves

Gloves impermeable to the specific chemical substance.

Please observe the instructions regarding permeability and breakthrough time which are provided by the manufacturer/supplier of the gloves. Ensure gloves are suitable for the task which includes, but is not limited to, chemical compatibility, dexterity, operational conditions, user susceptibility, e.g., sensitization effects. Consider specific local conditions under which the product is used such as the danger of cuts and abrasion. Remove gloves with care to avoid skin contamination.

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. **Eve protection:**

Safety glasses

Use equipment for eye protection tested and approved under government NIOSH standards.

9 Physical and chemical properties

Information on basic physical and chemical properties General Information Appearance: Form: Fluid

(Contd. on page 5)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: NEM

		(Contd. of page
Color:	Colorless	
Odor:	Not determined	
Odor threshold:	Not determined.	
Change in condition		
Melting point/Melting range:	18.45 °C (65.2 °F)	
Boiling point/Boiling range:	189 °C (372.2 °F)	
Flash point:	87 °C (188.6 °F)	
Flammability (solid, gaseous):	Not applicable.	
Auto igniting:	270 °C (518 °F)	
Decomposition temperature:	Not determined.	
Ignition temperature:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:		
Lower:	1.8 Vol %	
Upper:	Zers Vol %	
Vapor pressure at 20 °C (68 °F):	2.5 hPa (1.9 mm Hg)	
Density at 20 °C (68 °F):	1.09759 g/cm ³ (9.15939 lbs/gal)	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
Partition coefficient (n-octanol/water):	Not determined.	
Viscosity:		
Dynamic at 20 °C (68 °F):	198 mPas	
Kinematic:	Not determined.	
Solvent separation test		
Organic solvents:	99.7 %	
VÕC content:	99.69 %	
Solids content:	0.3 %	
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: Oxidizing agents Strong acids Strong reducing agents Hazardous decomposition products: No dangerous decomposition products known.

(Contd. on page 6)

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: NEM

(Contd. of page 5)

11 Toxicological information

Information on toxicological effects Acute toxicity: LD/LC50 values that are relevant for classification: No data available Primary irritant effect: on the skin: Causes skin irritation. on the eye: No data available. Sensitization: In case of skin contact: not sensitising In case of inhalation: not sensitising In case of inhalation: not sensitising Additional toxicological information: The product shows the following dangers according to internally approved calculation methods for preparations: OECD test guideline 471, Ames test. Harmful Irritant

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients are listed.

NTP (National Toxicology Program)

None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

12 Ecological information

Toxicity

Aquatic toxicity: Not harmful to the aquatic environment Persistence and degradability Not available No further relevant information available. **Bioaccumulative potential** Not known No further relevant information available. Mobility in soil No further relevant information available. Ecotoxicological effects: **Remark:** Not available Additional ecological information: General notes: No data available. **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:

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

(Contd. on page 7)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: NEM

(Contd. of page 6)

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations. **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

UN-Number DOT, ADR, ADN, IMDG, IATA	Not hazardous for transportation Not applicable
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	None Not applicable
Transport hazard class(es)	None
DOT, ADR, ADN, IMDG, IATA Class	Not applicable
Packing group DOT, ADR, IMDG, IATA	None Not applicable
Environmental hazards: Marine pollutant:	No
Special precautions for user	Not applicable.
Transport in bulk according to Annex II o MARPOL73/78 and the IBC Code	o f Not applicable.
UN "Model Regulation":	Not applicable

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture 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) Inventory:

All components have the value ACTIVE.

Hazardous Air Pollutants

None of the 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.

(Contd. on page 8)

⁻ U

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: NEM

(Contd. of page 7)

Chemicals known to cause developmental toxicity:

None of the ingredients are listed. New Jersey Right-to-Know List:

67-68-5 dimethyl sulfoxide

Pennsylvania Right-to-Know List:

None of the ingredients are listed.

Cancerogenity categories

EPA (Environmental Protection Agency)

None of the ingredients are listed.

TLV (Threshold Limit Value)

None of the ingredients are listed.

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

None of the ingredients are listed.

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

Hazard-determining components of labeling:

N-ethylmaleimide Hazard statements *Combustible liquid.* Harmful if swallowed. May cause an allergic skin reaction. **Precautionary statements** *Keep away from flames and hot surfaces. – No smoking.* Avoid breathing dust/fume/gas/mist/vapors/spray Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth. If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. In case of fire: Use CO2, powder or water spray to extinguish. Store in a well-ventilated place. Keep cool. Dispose of contents/container in accordance with local/regional/national/international regulations. Chemical safety assessment

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

Promega Corporation Chemical Regulatory Department 2800 Woods Hollow Road Madison, WI

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: NEM

	(Contd. of page 8)
Ph:(608)274-4330	
chemicalregulatory@promega.com	
Contact:	
Date of preparation / last revision 09/22/2023	
Abbreviations and acronyms:	
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulation	ns Concerning the
International Transport of Dangerous Goods by Rail)	is concerning the
ICAO: Internation Civil Aviation Organization	
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concernin	e the International
Carriage of Dangerous Goods by Road)	8
IMDG: International Maritime Code for Dangerous Goods	
DOT: US Department of Transportation	
IATA: International Air Transport Association	
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	
Flammable Liquids 4: Flammable liquids – Category 4	
Acute Toxicity - Oral 4: Acute toxicity – Category 4	
Sensitization - Skin 1: Skin sensitisation – Category 1	
	US



Printing date 09/22/2023

Reviewed on 09/22/2023

Page 1/8

1 Identification

Product identifier Trade name: <u>DTT</u> **Article number:** P117 **Application of the substance / the mixture** For Laboratory Use

Details of the supplier of the safety data sheet Manufacturer/Supplier: Promega Corporation 2800 Woods Hollow Road Madison, WI 53711 U.S.A. 1-800-356-9526 or (608)-274-4330

Information department: SDS author: chemicalregulatory@promega.com

Emergency telephone number:

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

2 Hazard(s) identification

Classification of the substance or mixture



Eye Irritation 2A H319 Causes serious eye irritation.

Label elements

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



Signal word Warning Hazard statements Causes serious eye irritation. Precautionary statements Wash thoroughly after handling. Wear eye protection / face protection. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

(Contd. on page 2)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: DTT

(Contd. of page 1)

1-5%

Classification system: NFPA ratings (scale 0 - 4) Health = 2Fire = 0*Reactivity* = 0HMIS-ratings (scale 0 - 4) *Health* = 2= 0Fire *Reactivity* = 0OSHA Hazard Overview (Criteria according to 29CFR1910.1200): Irritant **Primary route(s) of entry:** Dermal Target Organ(s): Not applicable or unknown **Other hazards** Results of PBT and vPvB assessment **PBT:** Not applicable. vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description:

The product is made up of a mixture of hazardous and non-hazardous components. The exact concentration percentages and components name may be withheld as a Promega Corp. trade secret.

Dangerous components:

3483-12-3 DL-Dithiothreitol

Additional information: For the wording of the listed risk phrases refer to section 15.

4 First-aid measures

Description of first aid measures

After inhalation: If the patient feels unwell or is concerned, obtain medical advice. After skin contact: Generally the product does not irritate the skin.

After eve contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor. After swallowing: If the patient feels unwell or is concerned, obtain medical advice.

Information for doctor:

Most important symptoms and effects, both acute and delayed None

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: CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. Special hazards arising from the substance or mixture None known No further relevant information available.

(Contd. on page 3)

Printing date 09/22/2023

Reviewed on 09/22/2023

(Contd. of page 2)

Trade name: DTT

Advice for firefighters No special advice.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
Remove persons from danger area.
Wear protective clothing.
Environmental precautions:
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Reference to other sections
No dangerous substances are released.
See Section 7 for information on safe handling.
See Section 13 for disposal information.

7 Handling and storage

Handling:

Precautions for safe handling No special precautions are necessary if used correctly. **Information about protection against explosions and fires:** The product is not flammable.

Conditions for safe storage, including any incompatibilities Storage:

Requirements to be met by storerooms and receptacles: Do not store below -20°C. Protected from light. Information about storage in one common storage facility: Not required. Further information about storage conditions: Keep receptacle tightly sealed. Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Control parameters

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.

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.

 Avoid contact with the eyes.

 Avoid contact with the eyes and skin.

 Do not eat or drink while working.

 Breathing equipment: Not required.

 Protection of hands:

 Select the glove material considering penetration time, rate of diffusion and degradation time.

 Material of gloves

 Gloves impermeable to the specific chemical substance.

 Please observe the instructions regarding permeability and breakthrough time which are provided by the

(Contd. on page 4)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: DTT

(Contd. of page 3)

manufacturer/supplier of the gloves. Ensure gloves are suitable for the task which includes, but is not limited to, chemical compatibility, dexterity, operational conditions, user susceptibility, e.g., sensitization effects. Consider specific local conditions under which the product is used such as the danger of cuts and abrasion. Remove gloves with care to avoid skin contamination.

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:**

Safety glasses

*

Use equipment for eye protection tested and approved under government NIOSH standards.

Information on basic physical and	chemical properties	
General Information		
Appearance:		
Form:	Fluid	
Color:	Colorless	
Odor:	Not determined	
Odor threshold:	Not determined.	
pH-value at 20 °C (68 °F):	7	
Change in condition		
Melting point/Melting range:	0 °C (32 °F)	
Boiling point/Boiling range:	100 °C (212 °F)	
Flash point:	Not applicable.	
Flammability (solid, gaseous):	Not applicable.	
Decomposition temperature:	Not determined.	
Ignition temperature:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:		
Lower:	Not determined.	
Upper:	Not determined.	
Vapor pressure:	Not determined.	
Density at 20 °C (68 °F):	1 g/cm³ (8.345 lbs/gal)	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
Partition coefficient (n-octanol/wat	er): Not determined.	
Viscosity:		
Dynamic at 20 °C (68 °F):	0.0952 mPas	
Kinematic:	Not determined.	
Solvent separation test		
Water:	98.5 %	
VOC content:	0.00 %	
Solids content:	1.5 %	

US

Printing date 09/22/2023

Reviewed on 09/22/2023

(Contd. of page 4)

Trade name: DTT

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: No data available Primary irritant effect: on the skin: Causes skin irritation. on the eye: Irritating effect. Sensitization: In case of skin contact: not sensitising In case of inhalation: not sensitising Additional toxicological information: The product shows the following dangers according to internally approved calculation methods for

The product shows the following dangers according to internally approved calculation methods for preparations: OECD test guideline 471, Ames test. Irritant

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients are listed.

NTP (National Toxicology Program)

None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

12 Ecological information

Toxicity

Aquatic toxicity: Not harmful to the aquatic environment Persistence and degradability Not available No further relevant information available. Bioaccumulative potential Not known No further relevant information available. Mobility in soil No further relevant information available. Ecotoxicological effects: Remark: Not available

(Contd. on page 6)

⁻ US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: DTT

(Contd. of page 5)

Additional ecological information: General notes: No data available. 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:

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations. **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

UN-Number DOT, ADR, ADN, IMDG, IATA	Not hazardous for transportation Not applicable
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	None Not applicable
Transport hazard class(es)	None
DOT, ADR, ADN, IMDG, IATA Class	Not applicable
Packing group DOT, ADR, IMDG, IATA	None Not applicable
Environmental hazards: Marine pollutant:	No
Special precautions for user	Not applicable.
Transport in bulk according to Annex II o MARPOL73/78 and the IBC Code	f Not applicable.
UN "Model Regulation":	Not applicable

15 Regulatory information

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

Section 355 (extremely hazardous substances):

None of the ingredients are listed.

Section 313 (Specific toxic chemical listings):

None of the ingredients are listed.

(Contd. on page 7)

⁻ US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: DTT

	(Contd. of page 6)
TSCA (Toxic Substances Control Act) Inventory:	
All components have the value ACTIVE.	
Hazardous Air Pollutants	
None of the 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.	
New Jersey Right-to-Know List:	
None of the ingredients are listed.	
Pennsylvania Right-to-Know List:	
None of the ingredients are listed.	
Cancerogenity categories	
EDA (Environmental Ductostion Agamm)	

EPA (Environmental Protection Agency)

None of the ingredients are listed.

TLV (Threshold Limit Value)

None of the ingredients are listed.

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

None of the ingredients are listed.

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

Hazard statements

Causes serious eye irritation.

Precautionary statements

Wash thoroughly after handling.

Wear eye protection / face protection.

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

If eye irritation persists: Get medical advice/attention.

Chemical safety assessment

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

Promega Corporation Chemical Regulatory Department 2800 Woods Hollow Road Madison, WI

(Contd. on page 8)

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: DTT

	(Contd. of page 7)
Ph:(608)274-4330	
chemicalregulatory@promega.com	
Contact:	
Date of preparation / last revision 09/22/2023	
Abbreviations and acronyms:	
RID: Règlement international concernant le transport des marchandises dangereuses par International Transport of Dangerous Goods by Rail)	r chemin de fer (Regulations Concerning the
ICAO: Internation Civil Aviation Organization	
ADR: Accord relatif au transport international des marchandises dangereuses par route (Euro Carriage of Dangerous Goods by Road)	opean Agreement Concerning the International
IMDG: International Maritime Code for Dangerous Goods	
DOT: US Department of Transportation	
IATA: International Air Transport Association	
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	
<i>Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A</i>	US



Printing date 09/22/2023

Reviewed on 09/22/2023

Page 1/9

1 Identification

Product identifier Trade name: <u>Passive Lysis Buffer, 5X</u> Article number: E194 Application of the substance / the mixture For Laboratory Use

Details of the supplier of the safety data sheet Manufacturer/Supplier: Promega Corporation 2800 Woods Hollow Road Madison, WI 53711 U.S.A. 1-800-356-9526 or (608)-274-4330

Information department: SDS author: chemicalregulatory@promega.com

Emergency telephone number:

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

2 Hazard(s) identification

Classification of the substance or mixture

GHS08 Health hazard

Toxic to Reproduction 1A H360 May damage fertility or the unborn child.

Label elements

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



Signal word Danger

Hazard-determining components of labeling: N,N-Bis(3-D-gluconamidopropyl)cholamide Hazard statements May damage fertility or the unborn child. Precautionary statements Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. IF exposed or concerned: Get medical advice/attention.

(Contd. on page 2)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Passive Lysis Buffer, 5X

(Contd. of page 1)

Store locked up. Dispose of contents/container in accordance with local/regional/national/international regulations. Classification system: NFPA ratings (scale 0 - 4) Health = 1Fire = 1*Reactivity* = 0HMIS-ratings (scale 0 - 4) *Health* = 0Fire = 1 *Reactivity* = 0OSHA Hazard Overview (Criteria according to 29CFR1910.1200): Reproductive Hazard *Target Organ(s):* May cause Kidney damage (Nephrotoxin) **Other hazards** Results of PBT and vPvB assessment **PBT:** Not applicable. vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description:

The product is made up of a mixture of hazardous and non-hazardous components. The exact concentration percentages and components name may be withheld as a Promega Corp. trade secret.

Dangerous components:		
56-81-5	glycerol	25-50%
75621-03-3	3-[(3-Choalamidopropryl)dimethylammonio]propanesulfonic acid	1-5%
86303-22-2	N,N-Bis(3-D-gluconamidopropyl)cholamide	<1%
Additional information: For the wording of the listed risk phrases refer to section 15.		

4 First-aid measures

Description of first aid measures

After inhalation: If the patient feels unwell or is concerned, obtain medical advice. After skin contact: Generally the product does not irritate the skin.

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

After swallowing: If the patient feels unwell or is concerned, obtain medical advice. *Information for doctor:*

Information for ad

Most important symptoms and effects, both acute and delayed

None

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:

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

(Contd. on page 3)

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Passive Lysis Buffer, 5X

Special hazards arising from the substance or mixture None known No further relevant information available. Advice for firefighters No special advice.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
Remove persons from danger area.
Wear protective clothing.
Environmental precautions:
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to Section 13.
Reference to other sections
See Section 7 for information on safe handling.
See Section 13 for disposal information.

7 Handling and storage

Handling:

Precautions for safe handling Keep receptacles tightly sealed. Open and handle receptacle with care. **Information about protection against explosions and fires:** Keep respiratory protective device available.

Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: Do not store below -20°C. Protected from light. **Information about storage in one common storage facility:** Not required. **Further information about storage conditions:** Keep receptacle tightly sealed. **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

Control parameters

Components with limit values that require monitoring at the workplace:

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the other constituents have no known exposure limits.

56-81-5 glycerol

PEL Long-term value: 15* 5** mg/m³

mist; *total dust **respirable fraction

TLV TLV withdrawn-insufficient data human occup. exp.

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

(Contd. on page 4)

(Contd. of page 2)

*

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Passive Lysis Buffer, 5X

(Contd. of page 3)

Exposure controls Personal protective equipment: General protective and hygienic measures: *Ensure that washing facilities are available at the work place.* 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. Pregnant women should strictly avoid inhalation or skin contact. Do not eat or drink while working. Breathing equipment: Not required. **Protection of hands:** Not required. Material of gloves Chemical: sodium hydroxide, CAS number 1310-73-2 Glove Material: Nitrile Glove thickness: 0.56 mm Approx. Breakthrough Time: > 480 min. Gloves impermeable to the specific chemical substance.

Please observe the instructions regarding permeability and breakthrough time which are provided by the manufacturer/supplier of the gloves. Ensure gloves are suitable for the task which includes, but is not limited to, chemical compatibility, dexterity, operational conditions, user susceptibility, e.g., sensitization effects. Consider specific local conditions under which the product is used such as the danger of cuts and abrasion. Remove gloves with care to avoid skin contamination.

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:**

Safety glasses

Use equipment for eye protection tested and approved under government NIOSH standards.

9 Physical and chemical properties

Information on basic physical and General Information	chemical properties	
Appearance:		
Form:	Fluid	
Color:	According to product specification	
Odor:	Not determined	
Odor threshold:	Not determined.	
pH-value at 20 °C (68 °F):	8	
Change in condition Melting point/Melting range: Boiling point/Boiling range: Flash point:	Undetermined. 100 °C (212 °F) 160 °C (320 °F)	
Flammability (solid, gaseous):	Not applicable.	
Auto igniting: Decomposition temperature:	400 °C (752 °F) Not determined.	
Ignition temperature:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
	(Contd. on	page 5)

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Passive Lysis Buffer, 5X

		(Contd. of page
Explosion limits:		
Lower:	0.9 Vol %	
Upper:	0.0 Vol %	
Vapor pressure at 20 °C (68 °F):	<0.1 hPa	
Vapor pressure at 50 °C (122 °F):	$\sim 0 hPa$	
Density at 20 °C (68 °F):	1.13 g/cm ³ (9.42985 lbs/gal)	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
Partition coefficient (n-octanol/wate	r): Not determined.	
Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
Solvent separation test		
Organic solvents:	50.0 %	
Water:	43.9 %	
VOC content:	0.00 %	
Solids content:	6.1 %	
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:

56-81-5 glycerol

Oral LD50 1,200 mg/kg (Rat)

Primary irritant effect: on the skin: Causes skin irritation. on the eye: No data available. Sensitization: In case of skin contact: not sensitising

In case of inhalation: not sensitising

(Contd. on page 6)

US –

Printing date 09/22/2023

Reviewed on 09/22/2023

(Contd. of page 5)

Trade name: Passive Lysis Buffer, 5X

Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: OECD test guideline 471, Ames test.

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients are listed.

NTP (National Toxicology Program)

None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

12 Ecological information

Toxicity

Aquatic toxicity: Not harmful to the aquatic environment Persistence and degradability Not available No further relevant information available. **Bioaccumulative potential** Not known No further relevant information available. Mobility in soil No further relevant information available. Ecotoxicological effects: **Remark:** Not available Additional ecological information: General notes: No data available. 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:

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations. **Recommended cleansing agent:** Water, if necessary with cleansing agents.

UN-Number	Not hazardous for transportation	
DOT, ADR, ADN, IMDG, IATA	Not applicable	
UN proper shipping name	None	

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Passive Lysis Buffer, 5X

		(Contd. of page
DOT, ADR, ADN, IMDG, IATA	Not applicable	
Transport hazard class(es)	None	
DOT, ADR, ADN, IMDG, IATA Class	Not applicable	
Packing group DOT, ADR, IMDG, IATA	None Not applicable	
Environmental hazards: Marine pollutant:	No	
Special precautions for user	Not applicable.	
Transport in bulk according to Annex MARPOL73/78 and the IBC Code	II of Not applicable.	
UN "Model Regulation":	Not applicable	

15 Regulatory information

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

Section 35.	5 (extremely hazardous substances):
None of the	e ingredients are listed.
Section 31.	3 (Specific toxic chemical listings):
None of the	e ingredients are listed.
TSCA (Tox	xic Substances Control Act) Inventory:
56-81-5 gl	lycerol ACTIVE
Hazardous	s Air Pollutants
None of the	e ingredients are listed.
Proposition	
Chemicals	known to cause cancer:
None of the	e ingredients are listed.
Chemicals	known to cause reproductive toxicity for females:
None of the	e ingredients are listed.
Chemicals	known to cause reproductive toxicity for males:
None of the	e ingredients are listed.
Chemicals	known to cause developmental toxicity:
None of the	e ingredients are listed.
New Jerse	y Right-to-Know List:
56-81-5	glycerol
1310-73-2	sodium hydroxide
Pennsylva	nia Right-to-Know List:
56-81-5	glycerol
1310-73-2	sodium hydroxide
	(Contd. on page 8)
	- US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Passive Lysis Buffer, 5X

(Contd. of page 7)

Cancerogenity categories

EPA (Environmental Protection Agency)

None of the ingredients are listed.

TLV (Threshold Limit Value)

None of the ingredients are listed.

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

None of the ingredients are listed.

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

Hazard-determining components of labeling:

N,N-Bis(3-D-gluconamidopropyl)cholamide Hazard statements May damage fertility or the unborn child. Precautionary statements Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. IF exposed or concerned: Get medical advice/attention. Store locked up. Dispose of contents/container in accordance with local/regional/national/international regulations. Chemical safety assessment

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

Promega Corporation Chemical Regulatory Department 2800 Woods Hollow Road Madison, WI Ph:(608)274-4330 chemicalregulatory@promega.com Contact: Date of preparation / last revision 09/22/2023 Abbreviations and acronyms: RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) ICAO: Internation Civil Aviation Organization ADR: Accord relatif au transport international 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 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

(Contd. on page 9)

⁻ U

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Passive Lysis Buffer, 5X

(Contd. of page 8)

US

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 Toxic to Reproduction 1A: Reproductive toxicity – Category 1A



Printing date 09/22/2023

Reviewed on 09/22/2023

1 Identification

Product identifier Trade name: <u>Glutathione Reaction Buffer</u> Article number: V163A Application of the substance / the mixture For Laboratory Use

Details of the supplier of the safety data sheet Manufacturer/Supplier: Promega Corporation 2800 Woods Hollow Road Madison, WI 53711 U.S.A. 1-800-356-9526 or (608)-274-4330

Information department: SDS author: chemicalregulatory@promega.com

Emergency telephone number:

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

2 Hazard(s) identification

Classification of the substance or mixture

The product is not classified as hazardous according to the Globally Harmonized System (GHS).

Label elements GHS label elements Not applicable Hazard pictograms Not applicable Signal word Not applicable Hazard statements Not applicable Classification system: NFPA ratings (scale 0 - 4) Health = 0Fire = 0*Reactivity* = 0HMIS-ratings (scale 0 - 4) *Health* = 0Fire = 0Reactivity = 0OSHA Hazard Overview (Criteria according to 29CFR1910.1200): Not applicable Target Organ(s): Not applicable or unknown **Other hazards** Results of PBT and vPvB assessment **PBT:** Not applicable. vPvB: Not applicable.

(Contd. on page 2)

Page 1/7

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione Reaction Buffer

(Contd. of page 1)

3 Composition/information on ingredients

Chemical characterization: Mixtures

Description:

The product is made up of a mixture of hazardous and non-hazardous components. The exact concentration percentages and components name may be withheld as a Promega Corp. trade secret.

Dangerous components: Not applicable

Additional information: For the wording of the listed risk phrases refer to section 15.

4 First-aid measures

Description of first aid measures

General information: No special measures required.

- After inhalation: If the patient feels unwell or is concerned, obtain medical advice.
- *After skin contact: Generally the product does not irritate the skin.*
- After eye contact: Rinse opened eye for several minutes under running water.
- *After swallowing:* If the patient feels unwell or is concerned, obtain medical advice.
- Information for doctor:

Most important symptoms and effects, both acute and delayed None

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:

CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. Special hazards arising from the substance or mixture

None known

No further relevant information available.

Advice for firefighters No special advice.

Protective equipment: No special measures required.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures Not required.

Environmental precautions:

Dilute with plenty of water.

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

Methods and material for containment and cleaning up:

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

Reference to other sections

No dangerous substances are released.

See Section 7 for information on safe handling.

See Section 13 for disposal information.

(Contd. on page 3)

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione Reaction Buffer

(Contd. of page 2)

7 Handling and storage

Handling:

Precautions for safe handling No special measures required. **Information about protection against explosions and fires:** The product is not flammable.

Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: Do not store below -20°C. Protected from light. **Information about storage in one common storage facility:** Not required. **Further information about storage conditions:** None.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Control parameters

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.

Exposure controls

Personal protective equipment:

General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.

Breathing equipment: Not required.

Protection of hands:

Select the glove material considering penetration time, rate of diffusion and degradation time.

Material of gloves

Gloves impermeable to the specific chemical substance.

Please observe the instructions regarding permeability and breakthrough time which are provided by the manufacturer/supplier of the gloves. Ensure gloves are suitable for the task which includes, but is not limited to, chemical compatibility, dexterity, operational conditions, user susceptibility, e.g., sensitization effects. Consider specific local conditions under which the product is used such as the danger of cuts and abrasion. Remove gloves with care to avoid skin contamination.

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:** Not required.

9 Physical and chemical properties Information on basic physical and chemical properties **General Information** Appearance: Form: Liquid Color: Colorless **Odorless** Odor: **Odor threshold:** Not determined. 7.9 *pH-value at 20 °C (68 °F):* (Contd. on page 4) 1 IS

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione Reaction Buffer

		(Contd. of page
Change in condition		
Melting point/Melting range:	0 °C (32 °F)	
Boiling point/Boiling range:	100 °C (212 °F)	
Flash point:	Not applicable.	
Flammability (solid, gaseous):	Not applicable.	
Decomposition temperature:	Not determined.	
Ignition temperature:	Product is not selfigniting.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:		
Lower:	Not determined.	
Upper:	Not determined.	
Vapor pressure:	Not determined.	
Density at 20 °C (68 °F):	1.00381 g/cm³ (8.37679 lbs/gal)	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Fully miscible.	
Partition coefficient (n-octanol/wate	r): Not determined.	
Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
Solvent separation test		
Water:	99.1 %	
VOC content:	0.00 %	
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: No data available Primary irritant effect: on the skin: No irritant effect. on the eye: No irritating effect. Sensitization: In case of skin contact: not sensitising In case of inhalation: not sensitising

(Contd. on page 5)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

(Contd. of page 4)

Trade name: Glutathione Reaction Buffer

Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients are listed.

NTP (National Toxicology Program)

None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

12 Ecological information

Toxicity

Aquatic toxicity: Not harmful to the aquatic environment Persistence and degradability *Not available* No further relevant information available. **Bioaccumulative potential** Not known No further relevant information available. Mobility in soil No further relevant information available. Ecotoxicological effects: **Remark:** Not available Additional ecological information: General notes: Not known to be hazardous to water. 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:

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations. **Recommended cleansing agent:** Water, if necessary with cleansing agents.

UN-Number	Not hazardous for transportation	
DOT, ADR, ADN, IMDG, IATA	Not applicable	
UN proper shipping name	None	

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione Reaction Buffer

		(Contd. of page
DOT, ADR, ADN, IMDG, IATA	Not applicable	
Transport hazard class(es)	None	
DOT, ADR, ADN, IMDG, IATA Class	Not applicable	
Packing group DOT, ADR, IMDG, IATA	None Not applicable	
Environmental hazards: Marine pollutant:	No	
Special precautions for user	Not applicable.	
Transport in bulk according to Annex I MARPOL73/78 and the IBC Code	I of Not applicable.	
UN "Model Regulation":	Not applicable	

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture 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) Inventory:

All components have the value ACTIVE.

Hazardous Air Pollutants

None of the 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.

New Jersey Right-to-Know List:

None of the ingredients are listed.

Pennsylvania Right-to-Know List:

None of the ingredients are listed.

Cancerogenity categories

EPA (Environmental Protection Agency)

None of the ingredients are listed.

(Contd. on page 7)

US

Printing date 09/22/2023

Reviewed on 09/22/2023

Trade name: Glutathione Reaction Buffer

(Contd. of page 6)

TLV (Threshold Limit Value)

None of the ingredients are listed.

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

None of the ingredients are listed.

GHS label elements Not applicable Signal word Not applicable Hazard statements Not applicable Chemical safety assessment

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

Promega Corporation Chemical Regulatory Department 2800 Woods Hollow Road Madison, WI Ph:(608)274-4330 chemicalregulatory@promega.com Contact: Date of preparation / last revision 09/22/2023 Abbreviations and acronyms: RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail) ICAO: Internation Civil Aviation Organization ADR: Accord relatif au transport international 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 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