

Document Type AGHS - OSHA GHS

Revision date 21-Jul-2016

Version 3

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product name T4 DNA Ligase
Product No M0202

Recommended use of the chemical and restrictions on use

Recommended use This product is for research and development only
Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Address New England BioLabs
240 County Road
Ipswich, MA 01938
USA

Company Phone Number 978-927-5054
800-632-5227 (toll free)

Telefax 978-921-1350

E-mail address info@neb.com

Emergency telephone number

Emergency telephone 978-927-5054
800-632-5227 (toll free)
9:00am - 5:00pm Monday-Friday EST

2. HAZARDS IDENTIFICATION

Classification

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label elements

Emergency Overview

The product contains no substances which at their given concentration, are considered to be hazardous to health.

Appearance Colorless

Physical state Liquid

Odor Mild

Hazards not otherwise classified (HNOC)

Other information

Note: No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

The product contains no substances which at their given concentration, are considered to be hazardous to health.

4. FIRST AID MEASURES

First aid measures

General advice

Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, lie down. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact

Wash skin with soap and water.

Inhalation

Remove to fresh air.

Ingestion

Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

No information available.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment [PPE]

Use personal protection recommended in Section 8.

Environmental precautions

See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up**Methods for containment**

Prevent further leakage or spillage if safe to do so.

Methods for cleaning up

Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. This material and its container must be disposed of as hazardous waste.

7. HANDLING AND STORAGE

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities**Storage temperature**

Refer to www.neb.com for specific information.

Storage Conditions

Keep/store only in original container.

Incompatible materials

None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters**Exposure Guidelines**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Glycerol 56-81-5	-	TWA: 15 mg/m ³ mist, total particulate TWA: 5 mg/m ³ mist, respirable fraction (vacated) TWA: 10 mg/m ³ mist, total particulate (vacated) TWA: 5 mg/m ³ mist, respirable fraction	-

Other information

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Showers. Eyewash stations.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Wear safety glasses with side shields (or goggles).

Skin and body protection

Wear suitable protective clothing and gloves.

Respiratory protection

Use in well ventilated areas.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

Physical state	Liquid
Appearance	Colorless
Odor	Mild

Property

pH

Melting point / freezing point

Boiling point / boiling range

Flash point

Evaporation rate

Flammability (solid, gas)

Flammability Limit in Air

Upper flammability limit

Lower flammability limit

Vapor pressure

Vapor density

Relative density

Specific gravity

Water solubility

Solubility in other solvents

Partition coefficient

Autoignition temperature

Decomposition temperature

Kinematic viscosity

Dynamic viscosity

Explosive properties

Oxidizing properties

Remarks • Method

Refer to www.neb.com for specific information

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

Other information

Softening point

Molecular weight

VOC content (%)

Density

Bulk density

No information available

No information available

No information available

No information available

No information available

10. STABILITY AND REACTIVITY**Reactivity**

No data available.

Chemical stability

Stable under normal conditions.

Possibility of hazardous reactions

Can react briskly with oxidizers - danger of explosion.

Conditions to avoid

Incompatible materials. Ignition sources. Heat.

Incompatible materials

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Specification No No information available

Strong oxidizing agents.

Hazardous decomposition products

Thermal decomposition can lead to release of irritating and toxic gases and vapors. Carbon monoxide. Carbon dioxide (CO₂).

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation

Avoid breathing vapors or mists. May cause irritation of respiratory tract.

Eye contact

Redness. May cause slight irritation.

Skin contact

Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

Ingestion

May cause drowsiness or dizziness. Ingestion causes burns of the upper digestive and respiratory tracts. Symptoms include burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting.

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Mild
Serious eye damage/eye irritation	Mild
Irritation	Mild
Corrosivity	Mild
Sensitization	
Skin	No information available
Respiratory	No information available
Germ cell mutagenicity	No information available
Carcinogenicity	No information available
Reproductive toxicity	No information available
Developmental toxicity	No information available
Teratogenicity	No information available
STOT - single exposure	No information available
STOT - repeated exposure	No information available
Chronic toxicity	No information available
Subchronic toxicity	No information available
Target organ effects	Eyes, Kidneys, Respiratory system, Skin.
Neurological effects	No information available
Other adverse effects	No information available
Aspiration hazard	No information available

Numerical measures of toxicity - Product information

The following values are calculated based on chapter 3.1 of the GHS document . mg/kg mg/l

12. ECOLOGICAL INFORMATION

Marine pollutant

No information available

Ecotoxicity

No information available

0.18 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Glycerol 56-81-5	-	51 - 57: 96 h Oncorhynchus mykiss mL/L LC50 static	-	500: 24 h Daphnia magna mg/L EC50
Potassium Chloride 7447-40-7	2500: 72 h Desmodesmus subspicatus mg/L EC50	1060: 96 h Lepomis macrochirus mg/L LC50 static 750 - 1020: 96 h Pimephales promelas mg/L LC50 static	-	825: 48 h Daphnia magna mg/L EC50 83: 48 h Daphnia magna mg/L EC50 Static
Ethylenediamine tetraacetic acid 60-00-4	1.01: 72 h Desmodesmus subspicatus mg/L EC50	44.2 - 76.5: 96 h Pimephales promelas mg/L LC50 static 34 - 62: 96 h Lepomis macrochirus mg/L LC50 static	-	113: 48 h Daphnia magna mg/L EC50 Static

Persistence and degradability

No information available

Bioaccumulation

No information available

Mobility

No information available

Other adverse effects

Ozone No information available

Ozone depletion potential (ODP) No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Relevant Information

Keep out of drains, sewers, ditches and waterways.

Disposal considerations

Use a licensed professional waste disposal service to dispose of this product. Product may be dissolved in a combustible solvent or absorbed onto a combustible material and burned by a chemical incinerator.

Contaminated packaging

Empty containers must be tripled rinsed prior to disposal.

14. TRANSPORT INFORMATION

DOT

Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

US Federal Regulations

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

NFPA

Health hazards 0

Flammability 0

Instability 0

Special Hazard -

HMIS

Health hazards 0

Flammability 0

Physical hazards 0

Personal protection -

Prepared by

EH&S Manager

978-927-5054

Prepared by

New England Biolabs

Issue date

No data available

Revision note

SDS is valid 3 years from revision date. Contact info@neb.com for latest revision.

Disclaimer

IMPORTANT: The information in this SDS is provided in good faith based on our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties or merchantability or fitness for a particular purpose. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable governmental requirements. Since conditions of use of the product are not under the control of New England Biolabs, it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. New England Biolabs will not be liable for any damages resulting from handling or contact with the product.

End of Safety Data Sheet

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1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product name T4 DNA Ligase Reaction Buffer
Product No B0202

Recommended use of the chemical and restrictions on use

Recommended use This product is for research and development only
Uses advised against No information available

Details of the supplier of the safety data sheet

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2. HAZARDS IDENTIFICATION

Classification

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label elements

Emergency Overview

The product contains no substances which at their given concentration, are considered to be hazardous to health.

Appearance Colorless

Physical state Liquid

Odor Mild

Hazards not otherwise classified (HNOC)

Other information

8.16 % of the mixture consists of ingredient(s) of unknown toxicity *Note: No data available*

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

The product contains no substances which at their given concentration, are considered to be hazardous to health.

4. FIRST AID MEASURES

First aid measures

General advice

Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, lie down. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact

Wash skin with soap and water.

Inhalation

Remove to fresh air.

Ingestion

Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

No information available.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment [PPE]

Use personal protection recommended in Section 8.

Environmental precautions

See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment

Prevent further leakage or spillage if safe to do so.

Methods for cleaning up

Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. This material and its container must be disposed of as hazardous waste.

7. HANDLING AND STORAGE

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage temperature

Refer to www.neb.com for specific information.

Storage Conditions

Keep/store only in original container.

Incompatible materials

None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Exposure Guidelines

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Showers. Eyewash stations.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin and body protection

Wear suitable protective clothing and gloves.

Respiratory protection

Use in well ventilated areas.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state

Liquid

Appearance

Colorless

Odor

Mild

Product name T4 DNA Ligase
Reaction Buffer

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Product No B0202

Specification No No information available

Property

pH

Melting point / freezing point

Boiling point / boiling range

Flash point

Evaporation rate

Flammability (solid, gas)

Flammability Limit in Air

Upper flammability limit

Lower flammability limit

Vapor pressure

Vapor density

Relative density

Specific gravity

Water solubility

Solubility in other solvents

Partition coefficient

Autoignition temperature

Decomposition temperature

Kinematic viscosity

Dynamic viscosity

Explosive properties

Oxidizing properties

Remarks • MethodRefer to www.neb.com for specific information

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

No information available

Other information

Softening point

Molecular weight

VOC content (%)

Density

Bulk density

No information available

No information available

No information available

No information available

No information available

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical stability

Stable under normal conditions.

Possibility of hazardous reactions

Can react briskly with oxidizers - danger of explosion.

Conditions to avoid

Incompatible materials. Ignition sources. Heat.

Incompatible materials

Strong oxidizing agents.

Hazardous decomposition productsThermal decomposition can lead to release of irritating and toxic gases and vapors. Carbon monoxide. Carbon dioxide (CO₂).

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure**Inhalation**

Avoid breathing vapors or mists. May cause irritation of respiratory tract.

Product name T4 DNA Ligase
Reaction Buffer**Page** 4 / 7**Product No** B0202**Specification No** No information available

Eye contact

Redness. May cause slight irritation.

Skin contact

Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

Ingestion

May cause drowsiness or dizziness. Ingestion causes burns of the upper digestive and respiratory tracts. Symptoms include burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting.

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Mild
Serious eye damage/eye irritation	Mild
Irritation	Mild
Corrosivity	Mild
Sensitization	
Skin	No information available
Respiratory	No information available
Germ cell mutagenicity	No information available
Carcinogenicity	No information available

Reproductive toxicity	No information available
Developmental toxicity	No information available
Teratogenicity	No information available
STOT - single exposure	No information available
STOT - repeated exposure	No information available
Chronic toxicity	No information available
Subchronic toxicity	No information available
Target organ effects	Kidneys, Eyes, Skin, Respiratory system.
Neurological effects	No information available
Other adverse effects	No information available
Aspiration hazard	No information available

Numerical measures of toxicity - Product information

Unknown acute toxicity 8.16 % of the mixture consists of ingredient(s) of unknown toxicity
The following values are calculated based on chapter 3.1 of the GHS document . mg/kg

12. ECOLOGICAL INFORMATION**Marine pollutant**

No information available

Ecotoxicity

No information available

8.16 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Magnesium Chloride 7786-30-3	2200: 72 h Desmodemus subspicatus mg/L EC50	4210: 96 h Gambusia affinis mg/L LC50 static 1970 - 3880: 96 h Pimephales promelas mg/L LC50 static	-	140: 48 h Daphnia magna mg/L EC50 Static 1400: 24 h Daphnia magna mg/L EC50

Product name T4 DNA Ligase
Reaction Buffer

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Specification No No information available

Persistence and degradability

No information available

Bioaccumulation

No information available

Mobility

No information available

Other adverse effects**Ozone**

No information available

Ozone depletion potential (ODP)

No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods**Relevant Information**

Keep out of drains, sewers, ditches and waterways.

Disposal considerations

Use a licensed professional waste disposal service to dispose of this product. Product may be dissolved in a combustible solvent or absorbed onto a combustible material and burned by a chemical incinerator.

Contaminated packaging

Empty containers must be tripled rinsed prior to disposal.

14. TRANSPORT INFORMATION

DOT

Not regulated

15. REGULATORY INFORMATION

International Inventories**TSCA**

Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

US Federal Regulations**CWA (Clean Water Act)**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level

Product name T4 DNA Ligase
Reaction Buffer

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Product No B0202

Specification No No information available

pertaining to releases of this material.

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

NFPA
HMIS

Health hazards 0
Health hazards 0

Flammability 0
Flammability 0

Instability 0
Physical hazards 0

Special Hazard -
Personal protection -

Prepared by

EH&S Manager
978-927-5054

Prepared by

New England Biolabs

Issue date

No data available

Revision note

SDS is valid 3 years from revision date. Contact info@neb.com for latest revision.

Disclaimer

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End of Safety Data Sheet