SAFETY DATA SHEET

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

Product name T4 DNA Ligase
Product No M0202
Registration number(s) Not applicable

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
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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)
For a list of product substances, refer to the specification document found at www.neb.com.

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

50.73% 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 product
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/m³ mist, total particulate TWA: 5 mg/m³ mist, respirable fraction (vacated) TWA: 10 mg/m³ mist, total particulate (vacated) TWA: 5 mg/m³ 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	Remarks • Method
pH	Refer to www.neb.com for specific information
Melting point/freezing point	No information available
Boiling point / boiling range	No information available
Flash point	No information available
Evaporation rate	No information available
Flammability (solid, gas)	No information available
Flammability Limit in Air	No information available
Upper flammability limit	
Lower flammability limit	
Vapor pressure	No information available
Vapor density	No information available
Relative density	No information available

Specific gravity	No information available
Water solubility	No information available
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Kinematic viscosity	No information available
Dynamic viscosity	No information available
Explosive properties	No information available
Oxidizing properties	No information available

Other information

Softening point	No information available
Molecular weight	No information available
VOC content (%)	No information available
Density	No information available
Bulk density	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 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

Unknown acute toxicity 50.73% 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 mg/l

12. ECOLOGICAL INFORMATION

Marine pollutant
No information available

Ecotoxicity
No information available

0.18% of the mixture consists of components(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	-	-
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	34 - 62: 96 h Lepomis macrochirus mg/L LC50 static 44.2 - 76.5: 96 h Pimephales promelas 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** -

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Disclaimer
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End of Safety Data Sheet