

# SAFETY DATA SHEET

Conforms to EU Directive 91/155/EEC, as amended by 2001/58/EC - Switzerland  
English

## 1. Identification of the substance/preparation and company/undertaking

**Product name** **Ligate-IT T<sub>4</sub> DNA Ligase; part of 'Ligate-IT Rapid Ligation Kit, 25 reactions'**

**Catalogue Number** US78400



**Component Number** 78401

**Hazard symbol or symbols**



Irritant

**Product type** Liquid.

### Company/undertaking identification

**Supplier** GE Healthcare UK Ltd  
Amersham Place  
Little Chalfont  
Buckinghamshire HP7 9NA  
England  
+44 0870 606 1921

**Emergency telephone number**  
Swedish Poisons Information Centre :  
+46 (0)8 331 231

**Person who prepared the MSDS :** msdslifesciences@ge.com

**Switzerland** GE Healthcare Bio-Sciences GmbH  
Industriestr. 30  
CH-8112 Otelfingen

0848 8028 12

## 2. Hazards identification

The preparation is classified as dangerous according to Directive 1999/45/EC and its amendments.

**Classification** Xi; R36/37/38

**Human health hazards** Irritating to eyes, respiratory system and skin.

See section 11 for more detailed information on health effects and symptoms.

## 3. Composition/information on ingredients

**Substance/preparation** Preparation

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>	<u>EC number</u>	<u>Classification</u>
Glycerol	56-81-5	50	200-289-5	Xi; R36/37/38

See section 16 for the full text of the R-phrases declared above

Occupational exposure limits, if available, are listed in section 8.



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## 4. First-aid measures

### First-aid measures

<b>Inhalation</b>	Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
<b>Ingestion</b>	✓ Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Obtain medical attention if symptoms occur. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
<b>Skin contact</b>	✓ Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Obtain medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
<b>Eye contact</b>	✓ Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention.
<b>Protection of first-aiders</b>	✓ No action shall be taken involving any personal risk or without suitable training.

See section 11 for more detailed information on health effects and symptoms.

## 5. Fire-fighting measures

### Extinguishing media

<b>Suitable</b>	Use an extinguishing agent suitable for the surrounding fire.
<b>Not suitable</b>	None known.
<b>Special exposure hazards</b>	✓ No specific hazard.
<b>Special protective equipment for fire-fighters</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## 6. Accidental release measures

<b>Personal precautions</b>	✓ Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.
<b>Environmental precautions</b>	✓ Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
<b>Large spill</b>	✓ If emergency personnel are unavailable, contain spilt material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dyke spilt material or otherwise contain material to ensure runoff does not reach a waterway. Place spilt material in an appropriate container for disposal.
<b>Small spill</b>	✓ Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

## 7. Handling and storage

<b>Handling</b>	✓ Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapour or mist. Wash thoroughly after handling.
<b>Storage</b>	✓ Keep container tightly closed. Keep container in a cool, well-ventilated area.
<b>Packaging materials</b>	
<b>Recommended</b>	Use original container.

## 8. Exposure controls/personal protection

### Ingredient name

glycerol

### Occupational exposure limits

SUVA (Switzerland, 1/2007).

STEL: 100 mg/m<sup>3</sup> 15 minute(s). Form: inhalable dust

TWA: 50 mg/m<sup>3</sup> 8 hour(s). Form: inhalable dust

### Exposure controls

<b>Occupational exposure controls</b>	Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
<b>Respiratory protection</b>	✓ Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
<b>Hand protection</b>	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
<b>Eye protection</b>	✓ Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.



<b>Skin protection</b>	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
<b>Environmental exposure controls</b>	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## 9. Physical and chemical properties

### General information

#### Appearance

Physical state	Liquid.
Colour	Colourless.
Odour	Odourless.
Odour threshold	Lowest known value: 4400 ppm (Glycerol)

### Important health, safety and environmental information

Boiling point	Lowest known value: 100°C (212°F) (water). Weighted average: 195.96°C (384.7°F)
Melting point	May start to solidify at the following temperature: 20°C (68°F) This is based on data for the following ingredient: Glycerol. Weighted average: 10.1°C (50.2°F)
Explosive properties	Not considered to be a product presenting a risk of explosion.
Vapour pressure	Highest known value: 3.2 kPa (23.8 mm Hg) (at 20°C) (water). Weighted average: 1.58 kPa (11.85 mm Hg) (at 20°C)
Relative density	Only known value: 1.261 (Water = 1) (Glycerol).
Solubility	Easily soluble in the following materials: cold water and hot water.
Viscosity	Kinematic: Highest known value: 1412 cSt (Glycerol)
Vapour density	Highest known value: 3.1 (Air = 1) (Glycerol).
Evaporation rate (butyl acetate = 1)	0.36 (water) compared with Butyl acetate.

## 10. Stability and reactivity

Stability	The product is stable.
Materials to avoid	No specific data.

## 11. Toxicological information

### Potential acute health effects

Inhalation	Irritating to respiratory system.
Ingestion	No known significant effects or critical hazards.
Skin contact	Irritating to skin.
Eye contact	Irritating to eyes.

### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Glycerol	LD50 Dermal	Rabbit	>10 g/kg	-
	LD50 Intraperitoneal	Rat	4420 mg/kg	-
	LD50 Intravenous	Rat	5566 mg/kg	-
	LD50 Oral	Rat	12600 mg/kg	-
	LD50 Subcutaneous	Rat	100 mg/kg	-
	LDLo Intramuscular	Rat	10 mg/kg	-
	TDLo Intramuscular	Rat	8 mL/kg	-
	TDLo Intramuscular	Rat	5000 mg/kg	-

Conclusion/Summary Not available.

### Potential chronic health effects

Chronic effects	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Reproductive toxicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.

### Over-exposure signs/symptoms

Inhalation	Adverse symptoms may include the following: respiratory tract irritation coughing
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<b>Ingestion</b>	<input checked="" type="checkbox"/> No specific data.
<b>Skin</b>	<input checked="" type="checkbox"/> Adverse symptoms may include the following: irritation redness
<b>Eyes</b>	<input checked="" type="checkbox"/> Adverse symptoms may include the following: irritation watering redness
<b>Target organs</b>	<input checked="" type="checkbox"/> Contains material which causes damage to the following organs: kidneys, upper respiratory tract, skin, eye, lens or cornea.

## 12. Ecological information

**Environmental effects** No known significant effects or critical hazards.

### Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
<input checked="" type="checkbox"/> glycerol	-	Acute LC50 54 to 57 ml/L Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss - 0.9 g	96 hours

**Conclusion/Summary** ☒ Not available.

### Other ecological information

#### Biodegradability

**Conclusion/Summary** Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
<input checked="" type="checkbox"/> Glycerol	-	>60%; 28 day(s).	Readily

**Other adverse effects** ☒ No known significant effects or critical hazards.

## 13. Disposal considerations

**Methods of disposal** ☒ The generation of waste should be avoided or minimised wherever possible. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

**Hazardous waste** The classification of the product may meet the criteria for a hazardous waste.

## 14. Transport information

### International transport regulations

Not classified.

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## 15. Regulatory information

### EU regulations

Classification and labeling have been determined according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use.

**Hazard symbol or symbols**



☒ Irritant

**Risk phrases** R36/37/38- Irritating to eyes, respiratory system and skin.

**Product use** ☒ Classification and labeling have been determined according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use.  
- Industrial applications.

**Europe inventory** ☒ All components are listed or exempted.

### Other EU regulations

#### National regulations

**VOC content** Liberated.



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## 16. Other information

**Full text of R-phrases referred to in sections 2 and 3 - Switzerland** R36/37/38- Irritating to eyes, respiratory system and skin.

**Full text of classifications referred to in sections 2 and 3 - Switzerland** Xi - Irritant



Indicates information that has changed from previously issued version.

### History

<b>Date of printing</b>	04 September 2009	<b>Date of previous issue</b>	20 July 2006
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### Notice to reader

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