

**SECTION 1: Identification of the Substance/Mixture and of the Company/Undertaking**

- 1.1 Product identifier**                      **Luciferase Reagent Buffer**  
(Component A of ONE-Step™ Luciferase Assay System,  
Cat# 60690)
- Catalog Numbers:** 78262-1, 78262-2
- CAS number:** Contains DL-Dithiothreitol (DTT), CAS# 3483-12-3.
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**      Identified Uses: This product is intended for use in a research setting for cell culture work. It is sold only for research use by qualified laboratory personnel.
- Uses Advised Against: It is not for use as a drug, medical device, food additive, cosmetic, or household chemical. It is not intended for use in diagnostic, therapeutic, consumer, or agricultural applications.
- 1.3 Details of the supplier of the safety data sheet**      BPS Bioscience, Inc.  
6405 Mira Mesa Blvd., Suite 100  
San Diego, CA 92121 USA.  
Tel: 1-858-202-1401  
[www.bpsbioscience.com](http://www.bpsbioscience.com)
- For a complete list of components shipped with a product, please review the product datasheet, which is available on our website at [www.bpsbioscience.com](http://www.bpsbioscience.com). A safety datasheet for each component is available upon request.
- 1.4 Emergency Telephone Number**                      1-858-202-1401

## **SECTION 2: HAZARDS IDENTIFICATION**

### **2.1 Classification of the Substance or Mixture**

According to Regulation (EC) No 1272/2008 (CLP) and OSHA HazCom 2012:

- Acute Toxicity, Oral (Category 4) – H302
- Skin Irritation (Category 2) – H315
- Eye Irritation (Category 2A) – H319
- Specific Target Organ Toxicity – Single Exposure (Category 3, respiratory tract irritation) – H335

### **2.2 Label Elements**

Labeling according to Regulation (EC) No 1272/2008 [CLP] and OSHA HazCom 2012 (GHS):

Pictograms:



Signal Word:

Warning

Hazard Statements:

- H302 – Harmful if swallowed
- H315 – Causes skin irritation
- H319 – Causes serious eye irritation
- H335 – May cause respiratory irritation

Precautionary Statements:

- P261 – Avoid breathing mist/vapours/spray
- P280 – Wear protective gloves/protective clothing/eye protection/face protection
- P301 + P312 – IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell
- P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
- P302 + P352 – IF ON SKIN: Wash with plenty of soap and water
- P332 + P313 – If skin irritation occurs: Get medical advice/attention
- P337 + P313 – If eye irritation persists: Get medical advice/attention
- P403 + P233 – Store in a well-ventilated place. Keep container tightly closed

### **2.3 Other Hazards**

- EU: This mixture does not contain substances assessed as PBT or vPvB above 0.1%.
- OSHA: Not known to contain carcinogens or substances with reproductive toxicity at reportable levels.

### **SECTION 3: Composition/Information on Ingredients**

#### **3.1 Substances**

*Not applicable – this product is a mixture.*

#### **3.2 Mixtures**

<b>Component</b>	<b>CAS No.</b>	<b>EINECS-No</b>	<b>Weight-%</b>	<b>Classification (CLP / GHS)</b>
DL-Dithiothreitol (DTT)	3483-12-3	248-531-9	1-3%	Acute Tox. 4 (H302), Skin Irrit. 2 (H315), Eye Irrit. 2 (H319), STOT SE 3 (H335)

Note: The exact percentage of DTT is withheld as a trade secret. It is disclosed here as a range in accordance with regulatory requirements.

This product is intended for research only and is not for direct administration into animals or humans.

### **SECTION 4: First-Aid Measures**

#### **4.1 Description of First-Aid Measures**

- **General Advice:**  
Remove contaminated clothing and shoes immediately. Seek medical attention if symptoms develop or persist.
- **If Inhaled:**  
Move the affected person to fresh air. Keep at rest in a position comfortable for breathing. If breathing difficulties or irritation persist, seek medical attention.
- **If on Skin:**  
Wash skin with plenty of soap and water. If skin irritation occurs, seek medical advice. Wash contaminated clothing before reuse.
- **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.
- **If Swallowed:**  
Rinse mouth with water. Do not induce vomiting unless directed by medical personnel. Call a POISON CENTER or physician if you feel unwell.

#### **4.2 Most Important Symptoms and Effects, Both Acute and Delayed**

- **Symptoms:**  
May cause irritation to the eyes, skin, and respiratory tract. Harmful if swallowed. Symptoms may include coughing, sore throat, redness, and tearing.

#### **4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed**

- **Notes to Physician:**  
Treat symptomatically. No specific antidote is known. Exposure may aggravate pre-existing conditions involving the skin, eyes, or respiratory system.

## **SECTION 5: Fire-Fighting Measures**

### **5.1 Extinguishing Media**

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

Unsuitable extinguishing media: Do not use high-pressure water jets, as they may spread the fire.

### **5.2 Special Hazards Arising from the Substance or Mixture**

Thermal decomposition may produce irritating or toxic fumes including sulfur oxides and carbon oxides.

The product is an aqueous solution and is not flammable, but dried residues may support combustion.

### **5.3 Advice for Firefighters**

Wear self-contained breathing apparatus and full protective clothing.

Cool exposed containers with water spray to prevent pressure build-up.

Avoid inhalation of combustion products.

## **SECTION 6: Accidental Release Measures**

### **6.1 Personal Precautions, Protective Equipment and Emergency Procedures**

Avoid contact with skin, eyes, and clothing. Use appropriate personal protective equipment (PPE) including gloves and eye protection. Ensure adequate ventilation. Avoid breathing vapors or mist.

### **6.2 Environmental Precautions**

Prevent further leakage or spillage if safe to do so. Do not allow the product to enter drains, surface water, or soil.

### **6.3 Methods and Material for Containment and Cleaning Up**

Contain spill with inert absorbent material (e.g., sand, earth). Collect and place in suitable, labeled containers for disposal. Clean affected area with water and detergent. Dispose of waste according to local regulations.

## **SECTION 7: Handling and Storage**

### **7.1 Precautions for Safe Handling**

Avoid contact with skin, eyes, and clothing. Use appropriate personal protective equipment (PPE). Ensure adequate ventilation. Avoid inhalation of vapors or mist. Wash thoroughly after handling. Do not eat, drink, or smoke in work areas.

### **7.2 Conditions for Safe Storage, Including Any Incompatibilities**

Store in a cool, dry, well-ventilated place away from incompatible substances such as strong oxidizers.

Keep container tightly closed when not in use. Protect from light and moisture to maintain stability.

## **SECTION 8: Exposure Controls/Personal Protection**

### **8.1 Control Parameters**

- **Occupational Exposure Limits (OELs):**

No established OSHA PEL or ACGIH TLV specifically for DTT.

Use general workplace exposure limits for dust and mist where applicable.

### **8.2 Exposure Controls**

#### **Engineering Controls:**

Use adequate ventilation to keep airborne concentrations below exposure limits. Use local exhaust ventilation if mist or vapor is generated.

#### **Personal Protective Equipment (PPE):**

- **Eye Protection:**

Wear safety glasses with side shields or chemical goggles.

- **Skin Protection:**  
Wear suitable protective gloves (e.g., nitrile or neoprene) and protective clothing to prevent skin contact.
- **Respiratory Protection:**  
If ventilation is insufficient and airborne exposure limits are exceeded, use appropriate NIOSH-approved respiratory protection.
- **Hygiene Measures:**  
Wash hands thoroughly after handling. Avoid eating, drinking, or smoking in work areas.

## **SECTION 9. Physical and Chemical Properties**

### **Physical and chemical properties**

<b>Physical state</b>	Frozen liquid
<b>Odor</b>	Slight sulfur-like odor (typical of DTT)
<b>Odor threshold</b>	No data available
<b>pH</b>	6-8
<b>Molecular weight</b>	No data available
<b>Melting Point / melting range</b>	-10°C to 2°C
<b>Boiling point / boiling range</b>	Approximately 100 °C (water-based)
<b>Flash point</b>	No data available
<b>Autoignition temperature</b>	No data available
<b>Decomposition temperature</b>	No data available
<b>Evaporation rate</b>	No data available
<b>Flammability (solid, gas)</b>	No data available
<b>Upper explosion limit</b>	No data available
<b>Lower explosion limit</b>	No data available
<b>Vapor Pressure</b>	No data available
<b>Vapor density</b>	No data available
<b>Relative density</b>	No data available
<b>Specific gravity</b>	No data available
<b>Solubility</b>	No data available
<b>Partition coefficient: n-octanol/water</b>	No data available

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<b>Viscosity</b>	No data available
<b>Explosive properties</b>	No data available
<b>Oxidizing properties</b>	No data available
<b>Other information</b>	No data available

## **SECTION 10: Stability and Reactivity**

### **10.1 Reactivity**

The product is stable under normal ambient conditions.

### **10.2 Chemical Stability**

Stable under recommended storage and handling conditions.

### **10.3 Possibility of Hazardous Reactions**

No hazardous polymerization known under normal conditions.

May react with strong oxidizing agents.

### **10.4 Conditions to Avoid**

Avoid excessive heat, light exposure, and moisture loss.

### **10.5 Incompatible Materials**

Strong oxidizers, strong acids, and strong bases.

### **10.6 Hazardous Decomposition Products**

Thermal decomposition may produce toxic gases including sulfur oxides and carbon oxides.

## **SECTION 11: Toxicological Information**

### **11.1 Information on Toxicological Effects**

- **Acute Toxicity:**  
Oral toxicity: Harmful if swallowed (based on DTT data).  
No specific data available for dermal or inhalation toxicity; presumed low toxicity via these routes at typical exposure levels.
- **Skin Corrosion/Irritation:**  
Causes skin irritation.
- **Serious Eye Damage/Irritation:**  
Causes serious eye irritation.
- **Respiratory or Skin Sensitization:**  
Not classified as a sensitizer.
- **Germ Cell Mutagenicity:**  
No data available. Not classified.
- **Carcinogenicity:**  
Not classified by IARC, NTP, OSHA, or EU as a carcinogen.
- **Reproductive Toxicity:**  
No evidence of reproductive or developmental toxicity.
- **Specific Target Organ Toxicity - Single Exposure (STOT-SE):**  
May cause respiratory irritation.
- **Specific Target Organ Toxicity - Repeated Exposure (STOT-RE):**  
Not classified.
- **Aspiration Hazard:**  
Not applicable.

## **SECTION 12: Ecological Information**

### **12.1 Toxicity**

Limited data available for DTT. Based on its chemical properties, it may be harmful to aquatic organisms at higher concentrations. Avoid release into the environment.

### **12.2 Persistence and Degradability**

DTT is expected to be biodegradable under aerobic conditions.

### **12.3 Bioaccumulative Potential**

No significant bioaccumulation expected due to water solubility and low log Kow.

### **12.4 Mobility in Soil**

Expected to have high mobility in soil due to water solubility.

### **12.5 Results of PBT and vPvB Assessment**

This substance is not classified as Persistent, Bioaccumulative, and Toxic (PBT) or very Persistent and very Bioaccumulative (vPvB) according to REACH criteria.

### **12.6 Other Adverse Effects**

No known significant effects or critical hazards.

## **SECTION 13: Disposal Considerations**

### **13.1 Waste Treatment Methods**

Dispose of contents and container in accordance with local, regional, national, and international regulations. Avoid release to the environment.

### **13.2 Methods of Disposal**

- Do not dispose of into drains or waterways.
- Collect waste material in suitable, labeled containers for disposal by a licensed waste contractor.
- Incineration or chemical treatment may be appropriate depending on local regulations.

### **13.3 Packaging Disposal**

Empty containers should be rinsed thoroughly and disposed of in accordance with local regulations or recycled if possible.

## **SECTION 14: Transport Information**

### **14.1 UN Number**

Not classified as hazardous for transport.

### **14.2 UN Proper Shipping Name**

Not applicable.

### **14.3 Transport Hazard Class(es)**

Not applicable.

### **14.4 Packing Group**

Not applicable.

### **14.5 Environmental Hazards**

No known environmental hazards.

### **14.6 Special Precautions for User**

No special precautions required during transport.

### **14.7 Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable.

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**SECTION 15: Regulatory Information**

**Chemical Name:** DL-Dithiothreitol (DTT)

**CAS No.:** 3483-12-3 / 27565-41-9

**U.S. Federal Regulations**

- **TSCA Inventory Status:**  
DL-Dithiothreitol - *Not Listed* (Inactive)
- **TSCA 12(b) - Export Notification:**  
Not applicable
- **SARA 302 Components:**  
Not applicable
- **SARA 313 Components:**  
Not applicable
- **SARA 311/312 Hazard Categories:**  
Not applicable
- **Clean Air Act Section 112 Hazardous Air Pollutants (HAPs):**  
Product does not contain any HAPs.
- **CERCLA Reportable Quantity (RQ):**  
Not applicable
- **U.S. Department of Transportation:**  
Reportable Quantity (RQ): Not applicable  
DOT Marine Pollutant: Not applicable  
DOT Severe Marine Pollutant: Not applicable
- **U.S. Department of Homeland Security:**  
This product does not contain any DHS chemicals of interest.

**U.S. State Regulations**

- **California Proposition 65:**  
Product does not contain any chemicals listed under Proposition 65.
- **State Right-to-Know Lists:**

State	Chemical Name	CAS No.	Listed?
Massachusetts	Dithiothreitol (DTT)	3483-12-3	Yes
New Jersey	Dithiothreitol (DTT)	3483-12-3	Yes
Pennsylvania	Dithiothreitol (DTT)	3483-12-3	Yes
Illinois	Dithiothreitol (DTT)	3483-12-3	Yes
Rhode Island	Dithiothreitol (DTT)	3483-12-3	Yes

**International Inventories**

Inventory	Status for DL-Dithiothreitol (CAS# 3483-12-3)
Canada DSL	Listed
Canada NDSL	Not Listed
Europe EINECS	248-531-9
Philippines PICCS	Not Listed

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<b>Inventory</b>	<b>Status for DL-Dithiothreitol (CAS# 3483-12-3)</b>
Japan ENCS	Listed
Japan ISHL	Listed
Australia AICS	Listed
China IECSC	Listed
Korea KECL	Not Listed

### **SECTION 16: Other Information**

**Revision date:** December 1, 2025

**Contact information:**

**Phone:** 1-858-202-1401

**Email:** [support@bpsbioscience.com](mailto:support@bpsbioscience.com)

**References**

- ECHA:<http://echa.europa.eu/>
- TOXNET:<http://toxnet.nlm.nih.gov/>
- eChemPortal:<http://www.echemportal.org/>
- LOLIdatabase:<https://www.chemadvisor.com/loli-database>

**Abbreviations and acronyms**

TWA - Time-Weighted Average

OELs - Occupational Exposure Limits

STEL - Short Term Exposure Limit

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

KECL - Korean Existing and Evaluated Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

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

CEPA - Canadian Environmental Protection Act

EPA - Environmental Protection Agency

OSHA - Occupational Safety and Health Administration of the US Department of Labor

IATA - International Air Transport Association

DOT - Department of Transportation

IMDG - International Maritime Dangerous Goods

ACGIH - American Conference of Governmental Industrial Hygienists

NIOSH - National Institute for Occupational Safety and Health

AIHA - American Industrial Hygiene Association

HMIS - Department of Defense Hazardous Materials Information System

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NTP - National Toxicology Program

IARC - International Agency for Research on Cancer

This product is for research use only and is not intended for human or animal diagnostic or therapeutic uses. The recipient is responsible for ensuring that, where applicable, existing laws and guidelines are observed. All materials and mixtures may present unknown hazards and should be used with caution.

BPS Bioscience provides this information in good faith and is based on our present knowledge. This information shall not be taken as being all inclusive and is to be used only as a guide. This SDS does not constitute a warranty of any kind.

**End of Safety Data Sheet**