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A Geno Technology, Inc. (USA) brand name

# Safety Data Sheet

## MES SDS Buffer Kit (for Bis-Tris Gels)

**Cat. # 786-554**



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# Protein Antioxidant [200X]

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations  
Date of issue: 11/16/2016 Revision date: 1/17/2025 Supersedes: 1/14/2025 Version: 9.0

### SECTION 1 Identification

#### 1.1. Product identifier

Product form : Mixture  
Product name : Protein Antioxidant [200X]  
Product code : 448P

#### 1.2. Other means of identification

No additional information available

#### 1.3. Recommended use of the chemical and restrictions on use

No additional information available

#### 1.4. Supplier's details

G-Biosciences/ Geno Technology, Inc.  
9800 Page Avenue  
St. Louis, MO 63132-1429, USA  
Tel.1-800-628-7730  
[www.GBiosciences.com](http://www.GBiosciences.com)

#### 1.5. Emergency phone number

Emergency number : Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

### SECTION 2 Hazard Identification

#### 2.1. Classification of the substance or mixture

##### GHS US classification

|   |      |                                |
|---|------|--------------------------------|
| Flammable liquid, Category 3                  | H226 | Flammable liquid and vapor.    |
| Serious eye damage/eye irritation, Category 2 | H319 | Causes serious eye irritation. |
| Full text of H statements : see section 16    |      |                                |

#### 2.2. Label elements

##### GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) : Warning

Hazard statements (GHS US) : H226 - Flammable liquid and vapor  
H319 - Causes serious eye irritation

Precautionary statements (GHS US) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 - Keep container tightly closed.  
P240 - Ground/Bond container and receiving equipment.  
P241 - Use explosion-proof equipment.  
P242 - Use non-sparking tools.  
P243 - Take action to prevent static discharges.  
P264 - Wash hands, forearms and face thoroughly after handling.  
P280 - Wear protective gloves, protective clothing, eye protection, face protection, and hearing protection.

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P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337+P313 - If eye irritation persists: Get medical advice or attention.  
P370+P378 - In case of fire: Use appropriate media to extinguish.  
P403+P235 - Store in a well-ventilated place. Keep cool.  
P501 - Dispose of contents and/or container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulations.

### 2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

### 2.4. Hazards not otherwise classified

No additional information available

### 2.5. Unknown acute toxicity

No additional information available

## SECTION 3 Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

| Name                  | Common Name (Synonyms)   | Product identifier | %      | GHS US classification  |
|-----------------------|--|--------------------|--------|--|
| N,N-dimethylformamide | dimethyl formamide / DMF / DMFA / formamide, N,N-dimethyl- / formdimethylamide / formic acid dimethylamide / formyldimethylamine / N,N-dimethylmethanamide / N,N-dimethylformamide / N,N-dimethylmethanamide / N-formyldimethylamine / NSC 5356 / U-4224 | CAS-No.: 68-12-2   | 7 – 13 | Flam. Liq. 3, H226<br>Acute Tox. 4 (Dermal), H312<br>Acute Tox. 4 (Inhalation), H332<br>Acute Tox. 4 (Inhalation:vapour), H332<br>Eye Irrit. 2, H319<br>Repr. 1B, H360 |

Full text of hazard classes and H-statements : see section 16

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### SECTION 4 First aid measures

#### 4.1. Description of necessary first-aid measures

|                                       |  |
|---------------------------------------|--|
| First-aid measures general            | : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). IF exposed or concerned: Get medical advice/attention.   |
| First-aid measures after inhalation   | : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.   |
| First-aid measures after skin contact | : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.   |
| First-aid measures after eye contact  | : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. 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. |
| First-aid measures after ingestion    | : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center/doctor/physician if you feel unwell.   |
| Self protection of the first-aider    | : First aid workers will be equipped with suitable personal protective equipment.  |

#### 4.2. Most important symptoms/effects, acute and delayed

|   |  |
|---|--|
| Potential Adverse human health effects and symptoms | : Based on available data, the classification criteria are not met.                        |
| Symptoms/effects                                    | : Not expected to present a significant hazard under anticipated conditions of normal use. |
| Symptoms/effects after inhalation                   | : None under normal conditions.  |
| Symptoms/effects after skin contact                 | : None under normal conditions.  |
| Symptoms/effects after eye contact                  | : Eye irritation.  |
| Symptoms/effects after ingestion                    | : None under normal conditions.  |
| Chronic symptoms                                    | : May damage fertility or the unborn child.  |

#### 4.3. Indication of immediate medical attention and special treatment needed, if necessary

|                                   |                          |
|-----------------------------------|--------------------------|
| Other medical advice or treatment | : Treat symptomatically. |
|-----------------------------------|--------------------------|

### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

|                                |  |
|--------------------------------|--|
| Suitable extinguishing media   | : Foam. Dry powder. Carbon dioxide. Water spray. Sand. |
| Unsuitable extinguishing media | : Do not use a heavy water stream.                     |

#### 5.2. Specific hazards arising from the chemical

|  |   |
|--|---|
| Fire hazard                                      | : Flammable liquid and vapor.                     |
| Explosion hazard                                 | : May form flammable/explosive vapor-air mixture. |
| Hazardous decomposition products in case of fire | : Toxic fumes may be released.                    |

#### 5.3. Special protective equipment and precautions for fire-fighters

|                                |   |
|--------------------------------|---|
| Firefighting instructions      | : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection. |
| Protection during firefighting | : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.                          |

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### SECTION 6 Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking. Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

##### For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.  
Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes. Evacuate unnecessary personnel. No open flames, no sparks, and no smoking. Only qualified personnel equipped with suitable protective equipment may intervene.

##### For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".  
Emergency procedures : Ventilate area. Evacuate unnecessary personnel. Stop leak if safe to do so.  
Environmental precautions : Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Notify authorities if product enters sewers or public waters.

#### 6.2. Methods and materials for containment and cleaning up

For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.  
Methods for cleaning up : Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials. Notify authorities if product enters sewers or public waters.  
Other information : Dispose of materials or solid residues at an authorized site.

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

### SECTION 7 Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No open flames. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Flammable vapors may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid contact with skin and eyes.  
Hygiene measures : Separate working clothes from town clothes. Launder separately. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.  
Additional hazards when processed : Handle empty containers with care because residual vapors are flammable.

#### 7.2. Conditions for safe storage, including incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment.  
Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.  
Incompatible products : Strong bases. Strong acids.

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Incompatible materials : Sources of ignition. Direct sunlight. Heat sources.  
Packaging materials : Store always product in container of same material as original container.

### SECTION 8 Exposure controls/personal protection

#### 8.1. Control parameters

##### N,N-dimethylformamide (68-12-2)

##### USA - ACGIH - Occupational Exposure Limits

|                 |       |
|-----------------|-------|
| ACGIH® TLV® TWA | 5 ppm |
|-----------------|-------|

#### 8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.  
Environmental exposure controls : Avoid release to the environment.

#### 8.3. Individual protection measures, such as personal protective equipment

##### Personal protective equipment:

Avoid all unnecessary exposure.

##### Hand protection:

Protective gloves. Wear protective gloves.

##### Eye protection:

Chemical goggles or safety glasses. Safety glasses

##### Skin and body protection:

Wear suitable protective clothing

##### Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate mask. [In case of inadequate ventilation] wear respiratory protection.

##### Personal protective equipment symbol(s):



##### Other information:

Do not eat, drink or smoke during use.

### SECTION 9 Physical and chemical properties

#### 9.1. Basic physical and chemical properties

Physical state : Liquid  
Color : Colorless  
Odor : characteristic  
Odor threshold : No data available  
pH : No data available  
Melting point : Not applicable  
Freezing point : No data available  
Boiling point : No data available  
Flash point : No data available

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|   |   |
|---|---|
| Flammability (solid, gas)                       | : Not applicable. Flammable liquid and vapor. |
| Vapor pressure                                  | : No data available                           |
| Relative vapor density at 20°C                  | : No data available                           |
| Relative density                                | : No data available                           |
| Solubility                                      | : No data available                           |
| Partition coefficient n-octanol/water (Log Pow) | : No data available                           |
| Auto-ignition temperature                       | : No data available                           |
| Decomposition temperature                       | : No data available                           |
| Viscosity, kinematic                            | : No data available                           |
| Explosion limits                                | : No data available                           |
| Particle characteristics                        | : No data available                           |

### 9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

## SECTION 10 Stability and reactivity

### 10.1. Reactivity

Flammable liquid and vapor.

### 10.2. Chemical stability

Stable under normal conditions. Flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame. Overheating. Heat. Sparks. Avoid contact with hot surfaces. No flames, no sparks. Eliminate all sources of ignition.

### 10.5. Incompatible materials

Strong acids. Strong bases.

### 10.6. Hazardous decomposition products

Hazardous decomposition products. fume. Carbon monoxide. Carbon dioxide. May release flammable gases.

## SECTION 11 Toxicological information

### 11.1. Information on toxicological effects

|                             |                  |
|-----------------------------|------------------|
| Acute toxicity (oral)       | : Not classified |
| Acute toxicity (dermal)     | : Not classified |
| Acute toxicity (inhalation) | : Not classified |

| <b>N,N-dimethylformamide (68-12-2)</b> |   |
|--|---|
| LD50 oral rat                          | 3010 mg/kg body weight (BASF test, Rat, Male / female, Experimental value, Oral, 7 day(s))                                    |
| LD50 dermal rat                        | > 3160 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal, 14 day(s))   |
| LC50 Inhalation - Rat                  | > 5.85 mg/l (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Experimental value, Inhalation (vapours), 14 day(s)) |
| ATE US (oral)                          | 3010 mg/kg body weight  |

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| N,N-dimethylformamide (68-12-2) |                        |
|---------------------------------|------------------------|
| ATE US (dermal)                 | 1100 mg/kg body weight |
| ATE US (gases)                  | 4500 ppmV/4h           |
| ATE US (vapors)                 | 11 mg/l/4h             |
| ATE US (dust, mist)             | 1.5 mg/l/4h            |

Skin corrosion/irritation : Not classified

| N,N-dimethylformamide (68-12-2) |             |
|---------------------------------|-------------|
| pH                              | 6.7 (4.0 %) |

Serious eye damage/irritation : Causes serious eye irritation.

| N,N-dimethylformamide (68-12-2) |             |
|---------------------------------|-------------|
| pH                              | 6.7 (4.0 %) |

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

| N,N-dimethylformamide (68-12-2) |  |
|---------------------------------|--|
| LOAEL (oral,rat,90 days)        | 475 mg/kg body weight Animal: rat, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents) |
| NOAEL (oral,rat,90 days)        | 238 mg/kg body weight Animal: rat, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents) |

Aspiration hazard : Not classified

| N,N-dimethylformamide (68-12-2) |                                     |
|---------------------------------|-------------------------------------|
| Viscosity, kinematic            | No data available in the literature |

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/effects after inhalation : None under normal conditions.

Symptoms/effects after skin contact : None under normal conditions.

Symptoms/effects after eye contact : Eye irritation.

Symptoms/effects after ingestion : None under normal conditions.

Chronic symptoms : May damage fertility or the unborn child.

## SECTION 12 Ecological information

### 12.1. Ecotoxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

| N,N-dimethylformamide (68-12-2) |   |
|---------------------------------|---|
| LC50 - Fish [1]                 | 7100 mg/l (EPA 600/3-75/009, 96 h, Lepomis macrochirus, Flow-through system, Fresh water, Experimental value, Lethal) |

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| <b>N,N-dimethylformamide (68-12-2)</b> |   |
|--|---|
| EC50 - Crustacea [1]                   | 13100 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect) |
| EC50 72h - Algae [1]                   | > 1000 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)  |
| ErC50 algae                            | > 1000 mg/l (DIN 38412-9, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, Nominal concentration)                     |
| LOEC (chronic)                         | 3000 mg/l Test organisms (species): Daphnia magna Duration: '21 d'  |
| NOEC (chronic)                         | 1500 mg/l Test organisms (species): Daphnia magna Duration: '21 d'  |
| NOEC chronic fish                      | > 102 mg/l Test organisms (species): Oryzias latipes Duration: '21 d'   |

### 12.2. Persistence and degradability

| <b>Protein Antioxidant [200X]</b> |                  |
|-----------------------------------|------------------|
| Persistence and degradability     | Not established. |

| <b>N,N-dimethylformamide (68-12-2)</b> |                                      |
|--|--------------------------------------|
| Persistence and degradability          | Not established.                     |
| Biochemical oxygen demand (BOD)        | 0.9 g O <sub>2</sub> /g substance    |
| Chemical oxygen demand (COD)           | 0.3645 g O <sub>2</sub> /g substance |
| ThOD                                   | 1.863 g O <sub>2</sub> /g substance  |

### 12.3. Bioaccumulative potential

| <b>Protein Antioxidant [200X]</b> |                  |
|-----------------------------------|------------------|
| Bioaccumulative potential         | Not established. |

| <b>N,N-dimethylformamide (68-12-2)</b>          |   |
|---|---|
| BCF - Fish [1]                                  | 0.3 – 1.2 l/kg (OECD 305: Bioconcentration: Flow-Through Fish Test, 56 day(s), Cyprinus carpio, Flow-through system, Fresh water, Experimental value, Test duration: 8 weeks) |
| Partition coefficient n-octanol/water (Log Pow) | -1.01 (Experimental value)  |
| Bioaccumulative potential                       | Not established.  |

### 12.4. Mobility in soil

| <b>N,N-dimethylformamide (68-12-2)</b>                     |                                      |
|--|--------------------------------------|
| Surface tension  | 35.5 mN/m (2520 °C)                  |
| Organic Carbon Normalized Adsorption Coefficient (Log Koc) | 0.38 (log Koc, PCKOCWIN v1.66, QSAR) |
| Ecology - soil   | Highly mobile in soil.               |

### 12.5. Other adverse effects

|                              |                                     |
|------------------------------|-------------------------------------|
| Ozone                        | : Not classified                    |
| Fluorinated greenhouse gases | : No                                |
| Other information            | : Avoid release to the environment. |

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### SECTION 13 Disposal considerations

|  |  |
|--|--|
| Regional legislation (waste)               | : Disposal must be done according to official regulations.   |
| Waste treatment methods                    | : Waste treatment methods.   |
| Sewage disposal recommendations            | : Disposal must be done according to official regulations.   |
| Product/Packaging disposal recommendations | : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. Disposal must be done according to official regulations. |
| Additional information                     | : Handle empty containers with care because residual vapors are flammable. Flammable vapors may accumulate in the container. Do not re-use empty containers.   |
| Ecological waste information               | : Avoid release to the environment.  |

### SECTION 14 Transport information

In accordance with DOT / TDG / IATA

#### 14.1. UN number

|               |                  |
|---------------|------------------|
| UN-No. (DOT)  | : Not applicable |
| UN-No. (TDG)  | : Not applicable |
| UN-No. (IATA) | : Not applicable |

#### 14.2. UN Proper Shipping Name

|                             |                  |
|-----------------------------|------------------|
| Proper Shipping Name (DOT)  | : Not applicable |
| Proper Shipping Name (TDG)  | : Not applicable |
| Proper Shipping Name (IATA) | : Not applicable |

#### 14.3. Transport hazard class(es)

**DOT**  
Transport hazard class(es) (DOT) : Not applicable

**TDG**  
Transport hazard class(es) (TDG) : Not applicable

**IATA**  
Transport hazard class(es) (IATA) : Not applicable

#### 14.4. Packing group

|                      |                  |
|----------------------|------------------|
| Packing group (DOT)  | : Not applicable |
| Packing group (TDG)  | : Not applicable |
| Packing group (IATA) | : Not applicable |

#### 14.5. Environmental hazards

Other information : No supplementary information available.

#### 14.6. Transport in bulk

Not applicable

#### 14.7. Special precautions for user

**DOT**  
Not applicable

**TDG**  
Not applicable

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### IATA

Not applicable

## SECTION 15 Regulatory information

### 15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

| Name                  | CAS-No. | Listing | Commercial status | Flags |
|-----------------------|---------|---------|-------------------|-------|
| N,N-dimethylformamide | 68-12-2 | Present |                   |       |

### N,N-dimethylformamide (68-12-2)

Subject to reporting requirements of United States SARA Section 313  
Listed on EPA Hazardous Air Pollutant (HAPS)

|           |        |
|-----------|--------|
| CERCLA RQ | 100 lb |
|-----------|--------|

### 15.2. International regulations

#### CANADA

### N,N-dimethylformamide (68-12-2)

Listed on the Canadian DSL (Domestic Substances List)

### EU-Regulations

No additional information available

### National regulations

### N,N-dimethylformamide (68-12-2)

Listed on IARC (International Agency for Research on Cancer)

### 15.3. State regulations

No additional information available

## SECTION 16 Other information

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Revision date : 1/17/2025  
Date of issue : 11/16/2016  
Other information : None.

| Full text of hazard classes and H-statements |  |
|--|--|
| H226   | Flammable liquid and vapor               |
| H312   | Harmful in contact with skin             |
| H319   | Causes serious eye irritation            |
| H332   | Harmful if inhaled                       |
| H360   | May damage fertility or the unborn child |

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| Abbreviations and acronyms |   |
|----------------------------|---|
| ACGIH                      | American Conference of Government Industrial Hygienists   |
| ADN                        | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR                        | European Agreement concerning the International Carriage of Dangerous Goods by Road             |
| ATE                        | Acute Toxicity Estimate   |
| BCF                        | Bioconcentration factor   |
| BLV                        | Biological limit value  |
| BOD                        | Biochemical oxygen demand (BOD)   |
| CAS-No.                    | Chemical Abstract Service number  |
| CLP                        | Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008                     |
| COD                        | Chemical oxygen demand (COD)  |
| CSA                        | Chemical safety assessment  |
| DMEL                       | Derived Minimal Effect level  |
| DNEL                       | Derived-No Effect Level   |
| EC-No.                     | European Community number   |
| EC50                       | Median effective concentration  |
| ED                         | Endocrine disruptor   |
| EN                         | European Standard   |
| EWC                        | European waste catalogue  |
| IARC                       | International Agency for Research on Cancer   |
| IATA                       | International Air Transport Association   |
| IMDG                       | International Maritime Dangerous Goods  |
| LC50                       | Median lethal concentration   |
| LD50                       | Median lethal dose  |
| LOAEL                      | Lowest Observed Adverse Effect Level  |
| Log Kow                    | Partition coefficient n-octanol/water (Log Kow)   |
| Log Pow                    | Partition coefficient n-octanol/water (Log Pow)   |
| MAK                        | maximum workplace concentration   |
| NOAEC                      | No-Observed Adverse Effect Concentration  |
| NOAEL                      | No-Observed Adverse Effect Level  |
| NOEC                       | No-Observed Effect Concentration  |
| N.O.S.                     | Not Otherwise Specified   |
| OECD                       | Organisation for Economic Co-operation and Development  |
| OEL                        | Occupational Exposure Limit   |
| OSHA                       | Occupational Safety & Health Administration   |
| PBT                        | Persistent Bioaccumulative Toxic  |
| PNEC                       | Predicted No-Effect Concentration   |

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| Abbreviations and acronyms |  |
|----------------------------|--|
| PPE                        | Personal protection equipment  |
| RID                        | Regulations concerning the International Carriage of Dangerous Goods by Rail |
| SDS                        | Safety Data Sheet  |
| STP                        | Sewage treatment plant   |
| TF                         | Technical function   |
| ThOD                       | Theoretical oxygen demand (ThOD)   |
| TLM                        | Median Tolerance Limit   |
| TWA                        | Time Weighted Average  |
| VOC                        | Volatile Organic Compounds   |
| vPvB                       | Very Persistent and Very Bioaccumulative                                     |
| UFI                        | Unique Formula Identifier  |

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.



# 1,4-dithiothreitol, DL-

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Date of issue: 3/10/2016 Revision date: 10/31/2025 Supersedes: 1/17/2025 Version: 11.0

### SECTION 1 Identification

#### 1.1. Product identifier

Product form : Substance  
Substance name : 1,4-dithiothreitol, DL-  
Chemical name : 1,4-dithiothreitol, DL-  
CAS-No. : 27565-41-9  
Product code : 277D\_096O\_D202  
Formula : C4H10O2S2  
BIG No : 31653

#### 1.2. Other means of identification

Synonyms : (R\*,R\*)-(+/-)-1,4-dimercapto-2,3-butanediol / (R\*,R\*)-(+/-)-1,4-dimercaptobutane-2,3-diol / 1,4-dimercapto-2,3-butanediol, (R\*,R\*)-(+/-) / 1,4-dimercaptobutane-2,3-diol, (R\*,R\*)-(+/-) / 2,3-Butanediol, 1,4-dimercapto-, (R\*,R\*)-(±) / 2,3-butanediol, 1,4-dimercapto-, DL-threo- / Cleland's reagent, DL- / dithiothreitol, DL- / DL-1,4-dithiothreitol / DL-Cleland's reagent / DL-dithiothreitol / DL-DTT (=dithiothreitol) / DL-threo-1,4-dimercapto-2,3-butanediol / DTT (=dithiothreitol), DL- / rac-dithiothreitol / threitol, 1,4-dithio-, DL- / threo-1,4-dimercapto-2,3-butanediol, DL-  
EC-No. : 248-531-9

#### 1.3. Recommended use of the chemical and restrictions on use

Use of the substance/mixture : Chemical substance for research

#### 1.4. Supplier's details

G-Biosciences/ Geno Technology, Inc.  
9800 Page Avenue  
St. Louis, MO 63132-1429, USA  
Tel.1-800-628-7730  
[www.GBiosciences.com](http://www.GBiosciences.com)

#### 1.5. Emergency phone number

Emergency number : Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

### SECTION 2 Hazard Identification

#### 2.1. Classification of the substance or mixture

##### GHS US classification

|   |      |                                   |
|---|------|-----------------------------------|
| Acute toxicity (oral), Category 4   | H302 | Harmful if swallowed.             |
| Skin corrosion/irritation, Category 2   | H315 | Causes skin irritation.           |
| Serious eye damage/eye irritation, Category 2   | H319 | Causes serious eye irritation.    |
| Specific target organ toxicity – Single exposure, Category 3,<br>Respiratory tract irritation | H335 | May cause respiratory irritation. |

Full text of H statements : see section 16

#### 2.2. Label elements

##### GHS US labeling

Hazard pictograms (GHS US) :



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|                                   |   |
|-----------------------------------|---|
| Signal word (GHS US)              | : Warning   |
| Hazard statements (GHS US)        | : H302 - Harmful if swallowed<br>H315 - Causes skin irritation<br>H319 - Causes serious eye irritation<br>H335 - May cause respiratory irritation   |
| Precautionary statements (GHS US) | : P261 - Avoid breathing dust, fume, gas, mist, vapors, spray.<br>P264 - Wash hands, forearms and face thoroughly after handling.<br>P270 - Do not eat, drink or smoke when using this product.<br>P271 - Use only outdoors or in a well-ventilated area.<br>P280 - Wear protective gloves.<br>P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell.<br>P302+P352 - If on skin: Wash with plenty of water.<br>P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.<br>P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.<br>P312 - Call a poison center or doctor if you feel unwell.<br>P321 - Specific treatment (see supplemental first aid instruction on this label).<br>P330 - Rinse mouth.<br>P332+P313 - If skin irritation occurs: Get medical advice or attention.<br>P337+P313 - If eye irritation persists: Get medical advice or attention.<br>P362+P364 - Take off contaminated clothing and wash it before reuse.<br>P403+P233 - Store in a well-ventilated place. Keep container tightly closed.<br>P405 - Store locked up.<br>P501 - Dispose of contents and/or container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulations. |

### 2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

### 2.4. Hazards not otherwise classified

No additional information available

### 2.5. Unknown acute toxicity

No additional information available

## SECTION 3 Composition/information on ingredients

### 3.1. Substances

Substance type : Mono-constituent

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| Name  | Common Name (Synonyms)   | Product identifier  | %   | GHS US classification   |
|---|--|---------------------|-----|---|
| 1,4-dithiothreitol, DL-<br>(Main constituent) | (R*,R*)-(+/-)-1,4-dimercapto-2,3-butanediol / (R*,R*)-(+/-)-1,4-dimercaptobutane-2,3-diol / 1,4-dimercapto-2,3-butanediol, (R*,R*)-(+/-)- / 1,4-dimercaptobutane-2,3-diol, (R*,R*)-(+/-)- / 2,3-Butanediol, 1,4-dimercapto-, (R*,R*)-(±)- / 2,3-butanediol, 1,4-dimercapto-, DL-threo- / Cleland's reagent, DL- / dithiothreitol, DL- / DL-1,4-dithiothreitol / DL-Cleland's reagent / DL-dithiothreitol / DL-DTT (=dithiothreitol) / DL-threo-1,4-dimercapto-2,3-butanediol / DTT (=dithiothreitol), DL- / rac-dithiothreitol / threitol, 1,4-dithio-, DL- / threo-1,4-dimercapto-2,3-butanediol, DL- | CAS-No.: 27565-41-9 | 100 | Acute Tox. 4 (Oral), H302<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>STOT SE 3, H335 |

Full text of hazard classes and H-statements : see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4 First aid measures

### 4.1. Description of necessary first-aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). Call a poison center/doctor/physician if you feel unwell.
- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. Call a poison center/doctor/physician if you feel unwell.

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|                                       |   |
|---------------------------------------|---|
| First-aid measures after skin contact | : Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention. Specific treatment (see supplemental first aid instruction on this label). Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention. |
| First-aid measures after eye contact  | : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. 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.  |
| First-aid measures after ingestion    | : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a POISON CENTER or doctor/physician if you feel unwell. Call a poison center/doctor/physician if you feel unwell.   |
| Self protection of the first-aider    | : First aid workers will be equipped with suitable personal protective equipment.   |

### 4.2. Most important symptoms/effects, acute and delayed

|   |  |
|---|--|
| Potential Adverse human health effects and symptoms | : Based on available data, the classification criteria are not met. Harmful if swallowed.                  |
| Symptoms/effects after inhalation                   | : May cause respiratory irritation.  |
| Symptoms/effects after skin contact                 | : Causes skin irritation. Irritation.  |
| Symptoms/effects after eye contact                  | : Eye irritation.  |
| Symptoms/effects after ingestion                    | : Swallowing a small quantity of this material will result in serious health hazard. Harmful if swallowed. |

### 4.3. Indication of immediate medical attention and special treatment needed, if necessary

|                                   |                          |
|-----------------------------------|--------------------------|
| Other medical advice or treatment | : Treat symptomatically. |
|-----------------------------------|--------------------------|

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

|                                |  |
|--------------------------------|--|
| Suitable extinguishing media   | : Foam. Dry powder. Carbon dioxide. Water spray. Sand. |
| Unsuitable extinguishing media | : Do not use a heavy water stream.                     |

### 5.2. Specific hazards arising from the chemical

|  |  |
|--|--|
| Fire hazard                                      | : DIRECT FIRE HAZARD: Not easily combustible. In finely divided state: increased fire hazard. INDIRECT FIRE HAZARD: Heating increases the fire hazard. Reactions involving a fire hazard: see "Reactivity Hazard". |
| Explosion hazard                                 | : DIRECT EXPLOSION HAZARD: May form explosible dust-air mixture if dispersed. INDIRECT EXPLOSION HAZARD: Dust cloud can be ignited by a spark.   |
| Hazardous decomposition products in case of fire | : Toxic fumes may be released.   |

### 5.3. Special protective equipment and precautions for fire-fighters

|                                |   |
|--------------------------------|---|
| Precautionary measures fire    | : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.  |
| Firefighting instructions      | : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection. |
| Protection during firefighting | : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.                          |

## SECTION 6 Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

|                  |   |
|------------------|---|
| General measures | : Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage. |
|------------------|---|

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### For non-emergency personnel

|                                  |  |
|----------------------------------|--|
| Protective equipment             | : Gloves (EN 374). Face shield (EN 166). Protective clothing (EN 14605 or EN 13034). Dust cloud production: self-contained breathing apparatus (EN 136 + EN 137). Dust cloud production: dust-tight suit (EN 13982). |
| Emergency procedures             | : Ventilate spillage area. Evacuate unnecessary personnel. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with skin and eyes.  |
| Measures in case of dust release | : In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.  |

### For emergency responders

|                           |  |
|---------------------------|--|
| Protective equipment      | : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection". |
| Emergency procedures      | : Ventilate area. Evacuate unnecessary personnel.  |
| Environmental precautions | : Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.  |

## 6.2. Methods and materials for containment and cleaning up

|                         |  |
|-------------------------|--|
| For containment         | : Using a clean shovel, put the material in a dry container and cover without compressing it.  |
| Methods for cleaning up | : Mechanically recover the product. On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials. |
| Other information       | : Dispose of materials or solid residues at an authorized site.  |

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

## SECTION 7 Handling and storage

### 7.1. Precautions for safe handling

|                                   |  |
|-----------------------------------|--|
| Precautions for safe handling     | : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes. Wear personal protective equipment. |
| Hygiene measures                  | : Do not eat, drink or smoke when using this product. Wash hands, forearms and face thoroughly after handling. Wash contaminated clothing before reuse. Always wash hands after handling the product.  |
| Additional hazards when processed | : Not expected to present a significant hazard under anticipated conditions of normal use.   |

### 7.2. Conditions for safe storage, including incompatibilities

|                              |   |
|------------------------------|---|
| Technical measures           | : Keep in a cool, well-ventilated place away from heat.   |
| Storage conditions           | : Keep cool. Keep only in the original container in a cool, well ventilated place away from : Keep container tightly closed. Store locked up. Store in a well-ventilated place. |
| Storage area                 | : Store in a cool area. Store in a dry area. Store in a dark area. Provide for a cooling system. May be stored under inert gas. Meet the legal requirements.                    |
| Incompatible products        | : Strong bases. Strong acids.   |
| Incompatible materials       | : Sources of ignition. Direct sunlight.   |
| Information on mixed storage | : KEEP SUBSTANCE AWAY FROM: oxidizing agents. reducing agents. (strong) bases. water/moisture.  |
| Storage temperature          | : < 4 °C  |
| Heat-ignition                | : KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.   |
| Special rules on packaging   | : SPECIAL REQUIREMENTS: hermetical. watertight. dry. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.                            |
| Packaging materials          | : Store always product in container of same material as original container.   |

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### SECTION 8 Exposure controls/personal protection

#### 8.1. Control parameters

No additional information available

#### 8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.  
Environmental exposure controls : Avoid release to the environment.

#### 8.3. Individual protection measures, such as personal protective equipment

##### Personal protective equipment:

Avoid all unnecessary exposure.

##### Materials for protective clothing:

Good resistance: rubber

##### Hand protection:

Wear protective gloves.

##### Eye protection:

Chemical goggles or safety glasses. Safety glasses

##### Skin and body protection:

Wear suitable protective clothing

##### Respiratory protection:

Wear appropriate mask

##### Personal protective equipment symbol(s):



##### Other information:

Do not eat, drink or smoke during use.

### SECTION 9 Physical and chemical properties

#### 9.1. Basic physical and chemical properties

Physical state : Solid  
Appearance : Crystalline solid. Powder.  
Color : White  
Odor : Characteristic odour Unpleasant odour  
Odor threshold : No data available  
pH : 4 – 6 (1.5 %)  
Melting point : 42 °C  
Freezing point : Not applicable  
Boiling point : 130 °C (3 hPa)  
Flash point : Not applicable  
Flammability (solid, gas) : Non flammable.  
Vapor pressure : No data available  
Relative vapor density at 20°C : 5.3  
Relative density : 1

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|   |   |
|---|---|
| Molecular mass                                  | : 154.25 g/mol  |
| Solubility                                      | : Soluble in water. Soluble in chloroform. Soluble in acetone. Soluble in ethanol. Soluble in ether. Soluble in ethylacetate.<br>Water: soluble, Literature |
| Partition coefficient n-octanol/water (Log Pow) | : No data available   |
| Auto-ignition temperature                       | : Not applicable  |
| Decomposition temperature                       | : No data available   |
| Viscosity, kinematic                            | : Not applicable  |
| Explosion limits                                | : Not applicable  |
| Particle characteristics                        | : No data available   |

### 9.2. Data relevant with regard to physical hazard classes (supplemental)

Other properties : Hygroscopic. Acid reaction.

## SECTION 10 Stability and reactivity

### 10.1. Reactivity

Decomposes on exposure to water (moisture).

### 10.2. Chemical stability

Not established.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Direct sunlight. Extremely high or low temperatures.

### 10.5. Incompatible materials

Strong acids. Strong bases.

### 10.6. Hazardous decomposition products

Hazardous decomposition products. fume. Carbon monoxide. Carbon dioxide.

## SECTION 11 Toxicological information

### 11.1. Information on toxicological effects

|                             |                         |
|-----------------------------|-------------------------|
| Acute toxicity (oral)       | : Harmful if swallowed. |
| Acute toxicity (dermal)     | : Not classified        |
| Acute toxicity (inhalation) | : Not classified        |

#### 1,4-dithiothreitol, DL- (27565-41-9)

|               |                       |
|---------------|-----------------------|
| ATE US (oral) | 500 mg/kg body weight |
|---------------|-----------------------|

|                                   |   |
|-----------------------------------|---|
| Skin corrosion/irritation         | : Causes skin irritation.<br>pH: 4 – 6 (1.5 %)        |
| Serious eye damage/irritation     | : Causes serious eye irritation.<br>pH: 4 – 6 (1.5 %) |
| Respiratory or skin sensitization | : Not classified                                      |
| Germ cell mutagenicity            | : Not classified                                      |
| Carcinogenicity                   | : Not classified                                      |
| Reproductive toxicity             | : Not classified                                      |

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STOT-single exposure : May cause respiratory irritation.  
STOT-repeated exposure : Not classified  
Aspiration hazard : Not classified

| 1,4-dithiothreitol, DL- (27565-41-9) |                |
|--------------------------------------|----------------|
| Viscosity, kinematic                 | Not applicable |

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met. Harmful if swallowed.  
Symptoms/effects after inhalation : May cause respiratory irritation.  
Symptoms/effects after skin contact : Causes skin irritation. Irritation.  
Symptoms/effects after eye contact : Eye irritation.  
Symptoms/effects after ingestion : Swallowing a small quantity of this material will result in serious health hazard. Harmful if swallowed.

## SECTION 12 Ecological information

### 12.1. Ecotoxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.  
Ecology - air : Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573). Not classified as dangerous for the ozone layer (Regulation (EC) No 2024/590).  
Ecology - water : Severe water pollutant (surface water). No data available on ecotoxicity.  
Hazardous to the aquatic environment, short-term (acute) : Not classified  
Hazardous to the aquatic environment, long-term (chronic) : Not classified

### 12.2. Persistence and degradability

| 1,4-dithiothreitol, DL- (27565-41-9) |                  |
|--------------------------------------|------------------|
| Persistence and degradability        | Not established. |

### 12.3. Bioaccumulative potential

| 1,4-dithiothreitol, DL- (27565-41-9) |                  |
|--------------------------------------|------------------|
| Bioaccumulative potential            | Not established. |

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

Ozone : Not classified  
Fluorinated greenhouse gases : No  
Other information : Avoid release to the environment.

## SECTION 13 Disposal considerations

Regional legislation (waste) : Disposal must be done according to official regulations.  
Waste treatment methods : Waste treatment methods.  
Sewage disposal recommendations : Disposal must be done according to official regulations.

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|  |  |
|--|--|
| Product/Packaging disposal recommendations | : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. Disposal must be done according to official regulations. |
| Additional information                     | : Do not re-use empty containers.  |
| Ecological waste information               | : Avoid release to the environment.  |

### SECTION 14 Transport information

In accordance with DOT / TDG / IATA

#### 14.1. UN number

|               |                  |
|---------------|------------------|
| UN-No. (DOT)  | : Not applicable |
| UN-No. (TDG)  | : Not applicable |
| UN-No. (IATA) | : Not regulated  |

#### 14.2. UN Proper Shipping Name

|                             |                  |
|-----------------------------|------------------|
| Proper Shipping Name (DOT)  | : Not applicable |
| Proper Shipping Name (TDG)  | : Not applicable |
| Proper Shipping Name (IATA) | : Not regulated  |

#### 14.3. Transport hazard class(es)

**DOT**  
Transport hazard class(es) (DOT) : Not applicable

**TDG**  
Transport hazard class(es) (TDG) : Not applicable

**IATA**  
Transport hazard class(es) (IATA) : Not regulated

#### 14.4. Packing group

|                      |                  |
|----------------------|------------------|
| Packing group (DOT)  | : Not applicable |
| Packing group (TDG)  | : Not applicable |
| Packing group (IATA) | : Not regulated  |

#### 14.5. Environmental hazards

Other information : No supplementary information available.

#### 14.6. Transport in bulk

Not applicable

#### 14.7. Special precautions for user

**DOT**  
Not applicable

**TDG**  
No data available

**IATA**  
Not regulated

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### SECTION 15 Regulatory information

#### 15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

| Name                    | CAS-No.    | Listing     | Commercial status | Flags |
|-------------------------|------------|-------------|-------------------|-------|
| 1,4-dithiothreitol, DL- | 27565-41-9 | Not present | -                 |       |

#### 15.2. International regulations

##### CANADA

No additional information available

##### EU-Regulations

No additional information available

##### National regulations

No additional information available

#### 15.3. State regulations

No additional information available

### SECTION 16 Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 10/31/2025

Date of issue : 3/10/2016

Other information : None.

| Full text of hazard classes and H-statements |                                  |
|--|----------------------------------|
| H302   | Harmful if swallowed             |
| H315   | Causes skin irritation           |
| H319   | Causes serious eye irritation    |
| H335   | May cause respiratory irritation |

#### Abbreviations and acronyms

|         |   |
|---------|---|
| ACGIH   | American Conference of Government Industrial Hygienists   |
| ADN     | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR     | European Agreement concerning the International Carriage of Dangerous Goods by Road             |
| ATE     | Acute Toxicity Estimate   |
| BCF     | Bioconcentration factor   |
| BLV     | Biological limit value  |
| BOD     | Biochemical oxygen demand (BOD)   |
| CAS-No. | Chemical Abstract Service number  |
| CLP     | Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008                     |
| COD     | Chemical oxygen demand (COD)  |

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| Abbreviations and acronyms |  |
|----------------------------|--|
| CSA                        | Chemical safety assessment   |
| DMEL                       | Derived Minimal Effect level   |
| DNEL                       | Derived-No Effect Level  |
| EC-No.                     | European Community number  |
| EC50                       | Median effective concentration   |
| ED                         | Endocrine disruptor  |
| EN                         | European Standard  |
| EWC                        | European waste catalogue   |
| IARC                       | International Agency for Research on Cancer                                  |
| IATA                       | International Air Transport Association                                      |
| IMDG                       | International Maritime Dangerous Goods                                       |
| LC50                       | Median lethal concentration  |
| LD50                       | Median lethal dose   |
| LOAEL                      | Lowest Observed Adverse Effect Level   |
| Log Kow                    | Partition coefficient n-octanol/water (Log Kow)                              |
| Log Pow                    | Partition coefficient n-octanol/water (Log Pow)                              |
| MAK                        | maximum workplace concentration  |
| NOAEC                      | No-Observed Adverse Effect Concentration                                     |
| NOAEL                      | No-Observed Adverse Effect Level   |
| NOEC                       | No-Observed Effect Concentration   |
| N.O.S.                     | Not Otherwise Specified  |
| OECD                       | Organisation for Economic Co-operation and Development                       |
| OEL                        | Occupational Exposure Limit  |
| OSHA                       | Occupational Safety & Health Administration                                  |
| PBT                        | Persistent Bioaccumulative Toxic   |
| PNEC                       | Predicted No-Effect Concentration  |
| PPE                        | Personal protection equipment  |
| RID                        | Regulations concerning the International Carriage of Dangerous Goods by Rail |
| SDS                        | Safety Data Sheet  |
| STP                        | Sewage treatment plant   |
| TF                         | Technical function   |
| ThOD                       | Theoretical oxygen demand (ThOD)   |
| TLM                        | Median Tolerance Limit   |
| TWA                        | Time Weighted Average  |
| VOC                        | Volatile Organic Compounds   |
| vPvB                       | Very Persistent and Very Bioaccumulative                                     |

# 1,4-dithiothreitol, DL-

## Safety Data Sheet

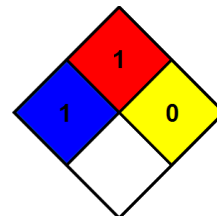
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| Abbreviations and acronyms |                           |
|----------------------------|---------------------------|
| UFI                        | Unique Formula Identifier |

NFPA health hazard : 1 - Materials that, under emergency conditions, can cause significant irritation.

NFPA fire hazard : 1 - Materials that must be preheated before ignition can occur.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.



# MES SDS Running Buffer [20X]

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations  
Date of issue: 8/21/2015 Revision date: 1/17/2025 Supersedes: 1/14/2025 Version: 9.0

### SECTION 1 Identification

#### 1.1. Product identifier

Product form : Mixture  
Product name : MES SDS Running Buffer [20X]  
Product code : 101M

#### 1.2. Other means of identification

No additional information available

#### 1.3. Recommended use of the chemical and restrictions on use

No additional information available

#### 1.4. Supplier's details

G-Biosciences/ Geno Technology, Inc.  
9800 Page Avenue  
St. Louis, MO 63132-1429, USA  
Tel.1-800-628-7730  
[www.GBiosciences.com](http://www.GBiosciences.com)

#### 1.5. Emergency phone number

Emergency number : Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

### SECTION 2 Hazard Identification

#### 2.1. Classification of the substance or mixture

##### GHS US classification

|   |      |                                |
|---|------|--------------------------------|
| Skin corrosion/irritation, Category 2         | H315 | Causes skin irritation.        |
| Serious eye damage/eye irritation, Category 2 | H319 | Causes serious eye irritation. |

Full text of H statements : see section 16

#### 2.2. Label elements

##### GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) : Warning

Hazard statements (GHS US) : H315 - Causes skin irritation  
H319 - Causes serious eye irritation

Precautionary statements (GHS US) : P264 - Wash hands, forearms and face thoroughly after handling.  
P280 - Wear protective gloves.  
P302+P352 - If on skin: Wash with plenty of water.  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P321 - Specific treatment (see supplemental first aid instruction on this label).  
P332+P313 - If skin irritation occurs: Get medical advice or attention.  
P337+P313 - If eye irritation persists: Get medical advice or attention.  
P362+P364 - Take off contaminated clothing and wash it before reuse.

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### 2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

### 2.4. Hazards not otherwise classified

No additional information available

### 2.5. Unknown acute toxicity

No additional information available

## SECTION 3 Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

| Name   | Common Name (Synonyms)  | Product identifier   | %       | GHS US classification  |
|--|---|----------------------|---------|--|
| 2-morpholinoethanesulfonic acid, monohydrate | 2-(N-morpholino)ethanesulfonic acid / 2-morpholinoethanesulfonic acid monohydrate / 4-morpholineethanesulfonic acid monohydrate | CAS-No.: 145224-94-8 | 10 – 50 | Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>STOT SE 3, H335 |

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|   |   |                   |         |   |
|---|---|-------------------|---------|---|
| sodium dodecyl sulphate, bulk density <400g/l | AI3-00356 /<br>akyposal SDS /<br>aquare<400ME /<br>aquare<400methy<br>l / aviol 101 /<br>avirol 118 conc /<br>berol 452 /<br>carsonol SLS /<br>carsonol SLS<br>paste B / carsonol<br>SLS special /<br>casonol SLS<br>pasta B / conco<br>sulfate WA /<br>conco sulfate<br>WA1200 / conco<br>sulfate WA-1200 /<br>conco sulfate<br>WA1245 / conco<br>sulfate WA-1295 /<br>conco sulfate<br>WAG / conco<br>sulfate WAN /<br>conco sulfate<br>WAS / conco<br>sulfate WN /<br>cycloryl 21 /<br>cycloryl 31 /<br>cycloryl 580 /<br>cycloryl 585N /<br>dehydag sulfate<br>GL emulsion /<br>dehydag sulphate<br>GL emulsion /<br>detergent 66 /<br>dodecyl<br>alcohol,hydrogen<br>sulfate, sodium<br>salt / dodecyl<br>sodium sulfate /<br>dodecyl sulfate<br>sodium / dodecyl<br>sulfate sodium<br>salt /<br>dodecylhydrogens<br>ulfate sodium salt<br>/ dreft / duponal /<br>duponal WAQE /<br>duponal / duponal<br>C / duponal ME /<br>duponal METHYL<br>/ duponal QX /<br>duponal WA /<br>duponal WA dry /<br>duponal WAQ /<br>duponal WAQA /<br>duponal WAQE / | CAS-No.: 151-21-3 | 0.5 – 2 | Acute Tox. 4 (Oral), H302<br>Acute Tox. 4 (Dermal), H312<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319 |
|---|---|-------------------|---------|---|

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|  |   |  |  |  |
|--|---|--|--|--|
|  | <p>duponol WAQM /<br/>EMAL 0 / EMAL<br/>10 / emersal 6400<br/>/ empicol LPZ /<br/>empicol LS 30 /<br/>empicol LX /<br/>emulsifier n° 104 /<br/>finasol osr(sub 2)<br/>/ gaedinal /<br/>hexamol SLS /<br/>incronol SLS /<br/>irium / jordanol<br/>SL-300 / lanette<br/>wa&lt;400S / lauryl<br/>sodium sulfate /<br/>lauryl sulfate<br/>sodium / lauryl<br/>sulfate sodium<br/>salt /<br/>maprobi&lt;400neu /<br/>maprofi&lt;400563 /<br/>maprofi&lt;400LK /<br/>maprofi&lt;400WAC<br/>/ maprofi&lt;400wac<br/>LA / melanol CL /<br/>melanol CL 30 /<br/>monododecyl<br/>sodium sulfate /<br/>monogen Y 100 /<br/>montopol la paste<br/>/ n-dodecyl sulfate<br/>sodium /<br/>neutrazyme /<br/>nikkol SLS /<br/>odoripon AL 95 /<br/>orvus WA paste /<br/>P and G<br/>emulsifier 104 /<br/>perklankrol ESD<br/>60 / perlandrol L /<br/>perlankrol L /<br/>product n° 161 /<br/>product n° 75 /<br/>quolac EX-UB /<br/>rewopol NLS 30 /<br/>richonol A /<br/>richonol AF /<br/>richonol C / SDS<br/>(= sodium dodecyl<br/>sulphate) /<br/>silfopon WA 1<br/>special / silfopon<br/>WA 2 / sinnopon<br/>LS 100 / sinnopon<br/>LS 95 / sintapon L<br/>/ sipe&lt;400OP /<br/>sipe&lt;400SB /</p> |  |  |  |
|--|---|--|--|--|

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|  |  |  |  |  |
|--|--|--|--|--|
|  | <p>sipe&lt;400SD /<br/>sipe&lt;400SP /<br/>sipe&lt;400UB /<br/>sipon LS / sipon<br/>LS 100 / sipon<br/>LSB / sipon PD /<br/>sipon WD / SLS<br/>(= sodium lauryl<br/>sulfate) / sodium<br/>dodecyl sulphate /<br/>sodium lauryl<br/>sulfate / sodium<br/>lauryl sulfate,<br/>powder / sodium<br/>lauryl sulphate /<br/>sodium<br/>monododecyl<br/>sulfate / sodium<br/>monolauryl sulfate<br/>/ sodium N-<br/>dodecyl sulfate /<br/>solsol needles /<br/>standapol 112<br/>conc / standapol<br/>NLS 90 /<br/>standapol WA-AC<br/>/ standapol WAQ /<br/>standapol WAQ<br/>special /<br/>standapol<br/>WAS100 /<br/>steinapol NLS 90<br/>/ stepanol ME /<br/>stepanol ME DRY<br/>/ stepanol ME<br/>DRY AW /<br/>stepanol methyl /<br/>stepanol METHYL<br/>DRY AW /<br/>stepanol T28 /<br/>stepanol WA /<br/>stepanol WA<br/>paste / stepanol<br/>WA-100 /<br/>stepanol WAC /<br/>stepanol WAQ /<br/>sterling WA paste<br/>/ sterling WAQ-<br/>CH / sterling waq-<br/>cosmetic / sulfetal<br/>L 95 / sulfopon<br/>WA3 / sulfopon<br/>WAL /<br/>sulfote&lt;400WA /<br/>sulfote&lt;400WALA<br/>/ sulfuric acid<br/>monododecyl</p> |  |  |  |
|--|--|--|--|--|

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| Name | Common Name (Synonyms)  | Product identifier | % | GHS US classification |
|------|---|--------------------|---|-----------------------|
|      | ester, sodium salt / sulfuric acid, monododecyl ester, sodium salt / swascol 1P / swascol 3L / swascol 4L / syntapon L / syntapon L pasta / tarapon K12 / texapon DL conc / texapon K12 / texapon K-1296 / texapon L100 / texapon V HC / texapon V HC powder / texapon Z high conc. needles / texapon ZHC / trepenol WA / TVM 474 / ultra sulfate SL-1 / WAQE (= sodium dodecyl sulfate) / witcolate A / witcolate A powder / witcolate C |                    |   |                       |

Full text of hazard classes and H-statements : see section 16

## SECTION 4 First aid measures

### 4.1. Description of necessary first-aid measures

|                                       |   |
|---------------------------------------|---|
| First-aid measures general            | : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).   |
| First-aid measures after inhalation   | : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.  |
| First-aid measures after skin contact | : Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention. Specific treatment (see supplemental first aid instruction on this label). Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention. |
| First-aid measures after eye contact  | : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. 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.  |
| First-aid measures after ingestion    | : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center/doctor/physician if you feel unwell.  |
| Self protection of the first-aiders   | : First aid workers will be equipped with suitable personal protective equipment.   |

### 4.2. Most important symptoms/effects, acute and delayed

|   |   |
|---|---|
| Potential Adverse human health effects and symptoms | : Based on available data, the classification criteria are not met. |
| Symptoms/effects after inhalation                   | : None under normal conditions.                                     |

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Symptoms/effects after skin contact : Causes skin irritation. Irritation.  
Symptoms/effects after eye contact : Eye irritation.  
Symptoms/effects after ingestion : None under normal conditions.

### 4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Treat symptomatically.

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.  
Unsuitable extinguishing media : Do not use a heavy water stream.

### 5.2. Specific hazards arising from the chemical

Fire hazard : No fire hazard.  
Explosion hazard : No direct explosion hazard.  
Hazardous decomposition products in case of fire : Toxic fumes may be released.

### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection.  
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6 Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

#### For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.  
Emergency procedures : Ventilate spillage area. Evacuate unnecessary personnel. Avoid contact with skin and eyes.

#### For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".  
Emergency procedures : Ventilate area. Evacuate unnecessary personnel. Stop leak if safe to do so.

Environmental precautions : Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.2. Methods and materials for containment and cleaning up

For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.  
Methods for cleaning up : Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.  
Other information : Dispose of materials or solid residues at an authorized site.

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See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

### SECTION 7 Handling and storage

#### 7.1. Precautions for safe handling

|                                   |  |
|-----------------------------------|--|
| Precautions for safe handling     | : Ensure good ventilation of the work station. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Avoid contact with skin and eyes. Wear personal protective equipment. |
| Hygiene measures                  | : Wash hands, forearms and face thoroughly after handling. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.  |
| Additional hazards when processed | : Not expected to present a significant hazard under anticipated conditions of normal use.   |

#### 7.2. Conditions for safe storage, including incompatibilities

|                        |  |
|------------------------|--|
| Technical measures     | : Keep in a cool, well-ventilated place away from heat.  |
| Storage conditions     | : Store in a well-ventilated place. Keep cool. Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use. |
| Incompatible products  | : Strong bases. Strong acids.  |
| Incompatible materials | : Sources of ignition. Direct sunlight.  |
| Storage temperature    | : ambient temperature  |
| Packaging materials    | : Store always product in container of same material as original container.  |

### SECTION 8 Exposure controls/personal protection

#### 8.1. Control parameters

No additional information available

#### 8.2. Appropriate engineering controls

|                                  |  |
|----------------------------------|--|
| Appropriate engineering controls | : Ensure good ventilation of the work station. |
| Environmental exposure controls  | : Avoid release to the environment.            |

#### 8.3. Individual protection measures, such as personal protective equipment

##### Personal protective equipment:

Avoid all unnecessary exposure.

|   |
|---|
| <b>Hand protection:</b>   |
| Protective gloves. Wear protective gloves.  |
| <b>Eye protection:</b>  |
| Chemical goggles or safety glasses. Safety glasses  |
| <b>Skin and body protection:</b>  |
| Wear suitable protective clothing   |
| <b>Respiratory protection:</b>  |
| In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate mask |

##### Personal protective equipment symbol(s):



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### Other information:

Do not eat, drink or smoke during use.

## SECTION 9 Physical and chemical properties

### 9.1. Basic physical and chemical properties

|   |                                  |
|---|----------------------------------|
| Physical state                                  | : Liquid                         |
| Color   | : Clear                          |
| Odor  | : None                           |
| Odor threshold                                  | : No data available              |
| pH  | : No data available              |
| Melting point                                   | : Not applicable                 |
| Freezing point                                  | : No data available              |
| Boiling point                                   | : No data available              |
| Flash point                                     | : No data available              |
| Flammability (solid, gas)                       | : Not applicable. Non flammable. |
| Vapor pressure                                  | : No data available              |
| Relative vapor density at 20°C                  | : No data available              |
| Relative density                                | : No data available              |
| Solubility                                      | : No data available              |
| Partition coefficient n-octanol/water (Log Pow) | : No data available              |
| Auto-ignition temperature                       | : No data available              |
| Decomposition temperature                       | : No data available              |
| Viscosity, kinematic                            | : No data available              |
| Explosion limits                                | : No data available              |
| Particle characteristics                        | : No data available              |

### 9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

## SECTION 10 Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions. Not established.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Direct sunlight. Extremely high or low temperatures.

### 10.5. Incompatible materials

Strong acids. Strong bases.

### 10.6. Hazardous decomposition products

Hazardous decomposition products. fume. Carbon monoxide. Carbon dioxide.

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### SECTION 11 Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified  
Acute toxicity (dermal) : Not classified  
Acute toxicity (inhalation) : Not classified

| <b>sodium dodecyl sulphate, bulk density &lt;400g/l (151-21-3)</b> |   |
|--|---|
| LD50 oral rat  | 1200 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral, 14 day(s))           |
| LD50 dermal rat  | < 2000 mg/kg (Rat; Literature study)  |
| LD50 dermal rabbit   | > 2000 mg/kg body weight (Equivalent or similar to OECD 402, 24 h, Rabbit, Male / female, Read-across, Dermal, 14 day(s)) |
| ATE US (oral)  | 1200 mg/kg body weight  |
| ATE US (dermal)  | 1100 mg/kg body weight  |

Skin corrosion/irritation : Causes skin irritation.

| <b>sodium dodecyl sulphate, bulk density &lt;400g/l (151-21-3)</b> |           |
|--|-----------|
| pH   | 9.1 (1 %) |

| <b>2-morpholinoethanesulfonic acid, monohydrate (145224-94-8)</b> |           |
|---|-----------|
| pH  | 3.6 (1 %) |

Serious eye damage/irritation : Causes serious eye irritation.

| <b>sodium dodecyl sulphate, bulk density &lt;400g/l (151-21-3)</b> |           |
|--|-----------|
| pH   | 9.1 (1 %) |

| <b>2-morpholinoethanesulfonic acid, monohydrate (145224-94-8)</b> |           |
|---|-----------|
| pH  | 3.6 (1 %) |

Respiratory or skin sensitization : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified  
Reproductive toxicity : Not classified  
STOT-single exposure : Not classified

| <b>2-morpholinoethanesulfonic acid, monohydrate (145224-94-8)</b> |                                   |
|---|-----------------------------------|
| STOT-single exposure  | May cause respiratory irritation. |

STOT-repeated exposure : Not classified  
Aspiration hazard : Not classified

| <b>sodium dodecyl sulphate, bulk density &lt;400g/l (151-21-3)</b> |                |
|--|----------------|
| Viscosity, kinematic   | Not applicable |

| <b>2-morpholinoethanesulfonic acid, monohydrate (145224-94-8)</b> |                |
|---|----------------|
| Viscosity, kinematic  | Not applicable |

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects after inhalation : None under normal conditions.  
Symptoms/effects after skin contact : Causes skin irritation. Irritation.  
Symptoms/effects after eye contact : Eye irritation.  
Symptoms/effects after ingestion : None under normal conditions.

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### SECTION 12 Ecological information

#### 12.1. Ecotoxicity

|   |  |
|---|--|
| Ecology - general   | : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment. |
| Hazardous to the aquatic environment, short-term (acute)  | : Not classified   |
| Hazardous to the aquatic environment, long-term (chronic) | : Not classified   |

| sodium dodecyl sulphate, bulk density <400g/l (151-21-3) |  |
|--|--|
| LC50 - Fish [1]  | 29 mg/l (Equivalent or similar to OECD 203, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value, Lethal) |
| EC50 - Crustacea [1]                                     | 6 mg/l Source: ECOTOX  |
| EC50 - Other aquatic organisms [1]                       | 11.1 mg/l Test organisms (species): other aquatic crustacea:Pseudosida ramosa  |
| EC50 72h - Algae [1]                                     | > 120 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)                                |
| EC50 72h - Algae [2]                                     | 53 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)                                   |
| EC50 96h - Algae [1]                                     | 1.2 mg/l Source: ECOTOX  |
| ErC50 algae  | > 120 mg/l (DIN 38412-9, 72 h, Scenedesmus subspicatus, Static system, Fresh water, Experimental value, Nominal concentration)       |
| NOEC chronic fish  | ≥ 1.357 mg/l Test organisms (species): Pimephales promelas Duration: '42 d'  |

#### 12.2. Persistence and degradability

| MES SDS Running Buffer [20X]                               |   |
|--|---|
| Persistence and degradability                              | Not established.                              |
| sodium dodecyl sulphate, bulk density <400g/l (151-21-3)   |   |
| Persistence and degradability                              | Not established.                              |
| 2-morpholinoethanesulfonic acid, monohydrate (145224-94-8) |   |
| Persistence and degradability                              | Biodegradability in water: no data available. |

#### 12.3. Bioaccumulative potential

| MES SDS Running Buffer [20X]                               |  |
|--|--|
| Bioaccumulative potential                                  | Not established.   |
| sodium dodecyl sulphate, bulk density <400g/l (151-21-3)   |  |
| Partition coefficient n-octanol/water (Log Pow)            | ≤ -2.03 (Calculated, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20 °C) |
| Bioaccumulative potential                                  | Not established.   |
| 2-morpholinoethanesulfonic acid, monohydrate (145224-94-8) |  |
| Bioaccumulative potential                                  | No bioaccumulation data available.   |

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### 12.4. Mobility in soil

#### sodium dodecyl sulphate, bulk density <400g/l (151-21-3)

|  |  |
|--|--|
| Surface tension  | 25.2 mN/m (23 °C, 1 g/l, EU Method A.5: Surface tension) |
| Organic Carbon Normalized Adsorption Coefficient (Log Koc) | 2.5 – 2.7 (log Koc, Calculated value)                    |
| Ecology - soil   | Low potential for adsorption in soil.                    |

### 12.5. Other adverse effects

|                              |                                     |
|------------------------------|-------------------------------------|
| Ozone                        | : Not classified                    |
| Fluorinated greenhouse gases | : No                                |
| Other information            | : Avoid release to the environment. |

## SECTION 13 Disposal considerations

|  |  |
|--|--|
| Regional legislation (waste)               | : Disposal must be done according to official regulations.   |
| Waste treatment methods                    | : Waste treatment methods.   |
| Sewage disposal recommendations            | : Disposal must be done according to official regulations.   |
| Product/Packaging disposal recommendations | : Dispose in a safe manner in accordance with local/national regulations. Disposal must be done according to official regulations. |
| Additional information                     | : Do not re-use empty containers.  |
| Ecological waste information               | : Avoid release to the environment.  |

## SECTION 14 Transport information

In accordance with DOT / TDG / IATA

### 14.1. UN number

Not regulated for transport

### 14.2. UN Proper Shipping Name

|                             |                  |
|-----------------------------|------------------|
| Proper Shipping Name (DOT)  | : Not regulated  |
| Proper Shipping Name (TDG)  | : Not applicable |
| Proper Shipping Name (IATA) | : Not regulated  |

### 14.3. Transport hazard class(es)

|                                   |                  |
|-----------------------------------|------------------|
| <b>DOT</b>                        |                  |
| Transport hazard class(es) (DOT)  | : Not regulated  |
| <b>TDG</b>                        |                  |
| Transport hazard class(es) (TDG)  | : Not applicable |
| <b>IATA</b>                       |                  |
| Transport hazard class(es) (IATA) | : Not regulated  |

### 14.4. Packing group

|                      |                  |
|----------------------|------------------|
| Packing group (DOT)  | : Not regulated  |
| Packing group (TDG)  | : Not applicable |
| Packing group (IATA) | : Not regulated  |

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### 14.5. Environmental hazards

Other information : No supplementary information available.

### 14.6. Transport in bulk

Not applicable

### 14.7. Special precautions for user

#### DOT

Not regulated

#### TDG

No data available

#### IATA

Not regulated

## SECTION 15 Regulatory information

### 15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

| Name  | CAS-No.     | Listing     | Commercial status | Flags |
|---|-------------|-------------|-------------------|-------|
| sodium dodecyl sulphate, bulk density <400g/l | 151-21-3    | Not present | -                 |       |
| 2-morpholinoethanesulfonic acid, monohydrate  | 145224-94-8 | Not present | -                 |       |

### 15.2. International regulations

#### CANADA

No additional information available

#### EU-Regulations

No additional information available

#### National regulations

No additional information available

### 15.3. State regulations

No additional information available

## SECTION 16 Other information

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Revision date : 1/17/2025

Date of issue : 8/21/2015

Other information : None.

| Full text of hazard classes and H-statements |                              |
|--|------------------------------|
| H302   | Harmful if swallowed         |
| H312   | Harmful in contact with skin |
| H315   | Causes skin irritation       |

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| Full text of hazard classes and H-statements |                                  |
|--|----------------------------------|
| H319   | Causes serious eye irritation    |
| H335   | May cause respiratory irritation |

| Abbreviations and acronyms |   |
|----------------------------|---|
| ACGIH                      | American Conference of Government Industrial Hygienists   |
| ADN                        | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR                        | European Agreement concerning the International Carriage of Dangerous Goods by Road             |
| ATE                        | Acute Toxicity Estimate   |
| BCF                        | Bioconcentration factor   |
| BLV                        | Biological limit value  |
| BOD                        | Biochemical oxygen demand (BOD)   |
| CAS-No.                    | Chemical Abstract Service number  |
| CLP                        | Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008                     |
| COD                        | Chemical oxygen demand (COD)  |
| CSA                        | Chemical safety assessment  |
| DMEL                       | Derived Minimal Effect level  |
| DNEL                       | Derived-No Effect Level   |
| EC-No.                     | European Community number   |
| EC50                       | Median effective concentration  |
| ED                         | Endocrine disruptor   |
| EN                         | European Standard   |
| EWC                        | European waste catalogue  |
| IARC                       | International Agency for Research on Cancer   |
| IATA                       | International Air Transport Association   |
| IMDG                       | International Maritime Dangerous Goods  |
| LC50                       | Median lethal concentration   |
| LD50                       | Median lethal dose  |
| LOAEL                      | Lowest Observed Adverse Effect Level  |
| Log Kow                    | Partition coefficient n-octanol/water (Log Kow)   |
| Log Pow                    | Partition coefficient n-octanol/water (Log Pow)   |
| MAK                        | maximum workplace concentration   |
| NOAEC                      | No-Observed Adverse Effect Concentration  |
| NOAEL                      | No-Observed Adverse Effect Level  |
| NOEC                       | No-Observed Effect Concentration  |
| N.O.S.                     | Not Otherwise Specified   |
| OECD                       | Organisation for Economic Co-operation and Development  |

# MES SDS Running Buffer [20X]

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| Abbreviations and acronyms |  |
|----------------------------|--|
| OEL                        | Occupational Exposure Limit  |
| OSHA                       | Occupational Safety & Health Administration                                  |
| PBT                        | Persistent Bioaccumulative Toxic   |
| PNEC                       | Predicted No-Effect Concentration  |
| PPE                        | Personal protection equipment  |
| RID                        | Regulations concerning the International Carriage of Dangerous Goods by Rail |
| SDS                        | Safety Data Sheet  |
| STP                        | Sewage treatment plant   |
| TF                         | Technical function   |
| ThOD                       | Theoretical oxygen demand (ThOD)   |
| TLM                        | Median Tolerance Limit   |
| TWA                        | Time Weighted Average  |
| VOC                        | Volatile Organic Compounds   |
| vPvB                       | Very Persistent and Very Bioaccumulative                                     |
| UFI                        | Unique Formula Identifier  |

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.



# LDS Sample Loading Buffer [4X]

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations  
Date of issue: 11/16/2016 Revision date: 1/17/2025 Supersedes: 1/14/2025 Version: 9.0

### SECTION 1 Identification

#### 1.1. Product identifier

Product form : Mixture  
Product name : LDS Sample Loading Buffer [4X]  
Product code : 008L

#### 1.2. Other means of identification

No additional information available

#### 1.3. Recommended use of the chemical and restrictions on use

No additional information available

#### 1.4. Supplier's details

G-Biosciences/ Geno Technology, Inc.  
9800 Page Avenue  
St. Louis, MO 63132-1429, USA  
Tel.1-800-628-7730  
[www.GBiosciences.com](http://www.GBiosciences.com)

#### 1.5. Emergency phone number

Emergency number : Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

### SECTION 2 Hazard Identification

#### 2.1. Classification of the substance or mixture

##### GHS US classification

|   |      |                            |
|---|------|----------------------------|
| Skin corrosion/irritation, Category 2         | H315 | Causes skin irritation.    |
| Serious eye damage/eye irritation, Category 1 | H318 | Causes serious eye damage. |

Full text of H statements : see section 16

#### 2.2. Label elements

##### GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) : Danger

Hazard statements (GHS US) : H315 - Causes skin irritation  
H318 - Causes serious eye damage

Precautionary statements (GHS US) : P264 - Wash hands, forearms and face thoroughly after handling.  
P280 - Wear protective gloves.  
P302+P352 - If on skin: Wash with plenty of water.  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 - Immediately call a poison center or doctor.  
P321 - Specific treatment (see supplemental first aid instruction on this label).  
P332+P313 - If skin irritation occurs: Get medical advice or attention.  
P362+P364 - Take off contaminated clothing and wash it before reuse.

# LDS Sample Loading Buffer [4X]

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### 2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

### 2.4. Hazards not otherwise classified

No additional information available

### 2.5. Unknown acute toxicity

No additional information available

## SECTION 3 Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

| Name     | Common Name (Synonyms)   | Product identifier | %       | GHS US classification |
|----------|--|--------------------|---------|-----------------------|
| glycerol | 1,2,3-propane triol / 1,2,3-propanetriol / 1,2,3-trihydroxypropane / 90 technical glycerine / citifluor AF 2 / E422 / glycerene / glycerin / glycerin mist / glycerin USP / glycerin, anhydrous / glycerin, synthetic / glyceritol / glycerol / glyceryl alcohol / glyrol / grocolene / IFP (=glycerol) / incorporation factor (=glycerol) / MOON (=glycerol) / osmoglyn / star (=glycerol) / superol (=1,2,3-propanetriol) / synthetic glycerin / trihydroxypropane | CAS-No.: 56-81-5   | 15 – 40 | Not classified        |

# LDS Sample Loading Buffer [4X]

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| Name                    | Common Name (Synonyms)  | Product identifier | %      | GHS US classification  |
|-------------------------|---|--------------------|--------|--|
| Lithium Dodecyl Sulfate | dodecyl lithium sulfate / dodecyl sulfate, lithium salt / lauryl sulfate lithium / lithium dodecyl sulphate / lithium lauryl sulfate / sulfuric acid, monododecyl ester, lithium salt | CAS-No.: 2044-56-6 | 7 – 13 | Acute Tox. 4 (Oral), H302<br>Skin Irrit. 2, H315<br>Eye Dam. 1, H318 |

Full text of hazard classes and H-statements : see section 16

### SECTION 4 First aid measures

#### 4.1. Description of necessary first-aid measures

|                                       |  |
|---------------------------------------|--|
| First-aid measures general            | : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).  |
| First-aid measures after inhalation   | : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.   |
| First-aid measures after skin contact | : Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention. Specific treatment (see supplemental first aid instruction on this label). Wash skin with plenty of water. |
| First-aid measures after eye contact  | : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician. If eye irritation persists: Get medical advice/attention.             |
| First-aid measures after ingestion    | : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a poison center/doctor/physician if you feel unwell.   |
| Self protection of the first-aider    | : First aid workers will be equipped with suitable personal protective equipment.  |

#### 4.2. Most important symptoms/effects, acute and delayed

|   |   |
|---|---|
| Potential Adverse human health effects and symptoms | : Based on available data, the classification criteria are not met. |
| Symptoms/effects after inhalation                   | : None under normal conditions.                                     |
| Symptoms/effects after skin contact                 | : Causes skin irritation.   |
| Symptoms/effects after eye contact                  | : Causes serious eye damage. Eye irritation.                        |
| Symptoms/effects after ingestion                    | : None under normal conditions.                                     |

#### 4.3. Indication of immediate medical attention and special treatment needed, if necessary

|                                   |                          |
|-----------------------------------|--------------------------|
| Other medical advice or treatment | : Treat symptomatically. |
|-----------------------------------|--------------------------|

### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

|                                |  |
|--------------------------------|--|
| Suitable extinguishing media   | : Foam. Dry powder. Carbon dioxide. Water spray. Sand. |
| Unsuitable extinguishing media | : Do not use a heavy water stream.                     |

#### 5.2. Specific hazards arising from the chemical

|             |                   |
|-------------|-------------------|
| Fire hazard | : No fire hazard. |
|-------------|-------------------|

# LDS Sample Loading Buffer [4X]

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Explosion hazard : No direct explosion hazard.  
Hazardous decomposition products in case of fire : Toxic fumes may be released.

### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. Do not enter fire area without proper protective equipment, including respiratory protection.  
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

## SECTION 6 Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material-damage.

#### For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.  
Emergency procedures : Ventilate spillage area. Evacuate unnecessary personnel. Avoid contact with skin and eyes.

#### For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".  
Emergency procedures : Ventilate area. Evacuate unnecessary personnel. Stop leak if safe to do so.  
Environmental precautions : Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.2. Methods and materials for containment and cleaning up

For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak, if possible without risk.  
Methods for cleaning up : Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.  
Other information : Dispose of materials or solid residues at an authorized site.

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

## SECTION 7 Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Avoid contact with skin and eyes. Wear personal protective equipment.  
Hygiene measures : Wash hands, forearms and face thoroughly after handling. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.  
Additional hazards when processed : Not expected to present a significant hazard under anticipated conditions of normal use.

### 7.2. Conditions for safe storage, including incompatibilities

Technical measures : Keep in a cool, well-ventilated place away from heat.

# LDS Sample Loading Buffer [4X]

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|                        |  |
|------------------------|--|
| Storage conditions     | : Store in a well-ventilated place. Keep cool. Keep only in the original container in a cool, well ventilated place away from : Keep container closed when not in use. |
| Incompatible products  | : Strong bases. Strong acids.  |
| Incompatible materials | : Sources of ignition. Direct sunlight.  |
| Packaging materials    | : Store always product in container of same material as original container.  |

## SECTION 8 Exposure controls/personal protection

### 8.1. Control parameters

#### glycerol (56-81-5)

#### USA - Cal/OSHA - Occupational Exposure Limits

|                        |  |
|------------------------|--|
| Local name             | Glycerin mist  |
| Cal/OSHA PEL (OEL TWA) | 10 mg/m <sup>3</sup> (Total dust)<br>5 mg/m <sup>3</sup> (Respirable fraction)   |
| Regulatory reference   | California Division of Occupational Safety and Health (Cal/OSHA) - Permissible Exposure Limit for Chemical Contaminants (Table AC-1) |

### 8.2. Appropriate engineering controls

|                                  |  |
|----------------------------------|--|
| Appropriate engineering controls | : Ensure good ventilation of the work station. |
| Environmental exposure controls  | : Avoid release to the environment.            |

### 8.3. Individual protection measures, such as personal protective equipment

#### Personal protective equipment:

Avoid all unnecessary exposure.

#### Hand protection:

Protective gloves. Wear protective gloves.

#### Eye protection:

Chemical goggles or safety glasses. Safety glasses

#### Skin and body protection:

Wear suitable protective clothing

#### Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate mask

#### Personal protective equipment symbol(s):



#### Other information:

Do not eat, drink or smoke during use.

## SECTION 9 Physical and chemical properties

### 9.1. Basic physical and chemical properties

|                |             |
|----------------|-------------|
| Physical state | : Liquid    |
| Color          | : Colorless |

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|   |                                  |
|---|----------------------------------|
| Odor  | : characteristic                 |
| Odor threshold                                  | : No data available              |
| pH  | : No data available              |
| Melting point                                   | : Not applicable                 |
| Freezing point                                  | : No data available              |
| Boiling point                                   | : No data available              |
| Flash point                                     | : No data available              |
| Flammability (solid, gas)                       | : Not applicable. Non flammable. |
| Vapor pressure                                  | : No data available              |
| Relative vapor density at 20°C                  | : No data available              |
| Relative density                                | : No data available              |
| Solubility                                      | : No data available              |
| Partition coefficient n-octanol/water (Log Pow) | : No data available              |
| Auto-ignition temperature                       | : No data available              |
| Decomposition temperature                       | : No data available              |
| Viscosity, kinematic                            | : No data available              |
| Explosion limits                                | : No data available              |
| Particle characteristics                        | : No data available              |

### 9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

## SECTION 10 Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions. Not established.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not established.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Direct sunlight. Extremely high or low temperatures.

### 10.5. Incompatible materials

Strong acids. Strong bases.

### 10.6. Hazardous decomposition products

Hazardous decomposition products. fume. Carbon monoxide. Carbon dioxide.

## SECTION 11 Toxicological information

### 11.1. Information on toxicological effects

|                             |                  |
|-----------------------------|------------------|
| Acute toxicity (oral)       | : Not classified |
| Acute toxicity (dermal)     | : Not classified |
| Acute toxicity (inhalation) | : Not classified |

#### glycerol (56-81-5)

|               |   |
|---------------|---|
| LD50 oral rat | 27200 mg/kg (OECD 401: Acute Oral Toxicity, Rat, Female, Experimental value, Oral, 10 day(s)) |
|---------------|---|

# LDS Sample Loading Buffer [4X]

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| glycerol (56-81-5)             |  |
|--------------------------------|--|
| LD50 dermal                    | 56750 mg/kg (4 day(s), Guinea pig, Male / female, Experimental value, Dermal, 14 day(s))                                   |
| LC50 Inhalation - Rat          | > 5.85 mg/l (Equivalent or similar to OECD 412, 4 h, Rat, Male / female, Experimental value, Inhalation (mist), 14 day(s)) |
| LC50 Inhalation - Rat (Vapors) | > 2.75 mg/l Source: ECHA   |
| ATE US (oral)                  | 27200 mg/kg body weight  |

| Lithium Dodecyl Sulfate (2044-56-6) |   |
|-------------------------------------|---|
| LD50 oral rat                       | 1200 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Read-across, Oral) |
| ATE US (oral)                       | 1200 mg/kg body weight  |

Skin corrosion/irritation : Causes skin irritation.

| glycerol (56-81-5) |         |
|--------------------|---------|
| pH                 | 5.5 – 8 |

Serious eye damage/irritation : Causes serious eye damage.

| glycerol (56-81-5) |         |
|--------------------|---------|
| pH                 | 5.5 – 8 |

Respiratory or skin sensitization : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified  
Reproductive toxicity : Not classified  
STOT-single exposure : Not classified  
STOT-repeated exposure : Not classified  
Aspiration hazard : Not classified

| glycerol (56-81-5)   |   |
|----------------------|---|
| Viscosity, kinematic | 1121 mm <sup>2</sup> /s (20 °C, Calculated) |

| Lithium Dodecyl Sulfate (2044-56-6) |                |
|-------------------------------------|----------------|
| Viscosity, kinematic                | Not applicable |

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects after inhalation : None under normal conditions.  
Symptoms/effects after skin contact : Causes skin irritation.  
Symptoms/effects after eye contact : Causes serious eye damage. Eye irritation.  
Symptoms/effects after ingestion : None under normal conditions.

## SECTION 12 Ecological information

### 12.1. Ecotoxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.  
Hazardous to the aquatic environment, short-term (acute) : Not classified  
Hazardous to the aquatic environment, long-term (chronic) : Not classified

# LDS Sample Loading Buffer [4X]

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| glycerol (56-81-5)                  |   |
|-------------------------------------|---|
| LC50 - Fish [1]                     | 54000 mg/l (96 h, Oncorhynchus mykiss, Static system, Fresh water, Experimental value, Nominal concentration)         |
| EC50 - Crustacea [1]                | > 10000 mg/l (24 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)                  |
| Lithium Dodecyl Sulfate (2044-56-6) |   |
| LC50 - Fish [1]                     | 29 mg/l (Equivalent or similar to OECD 203, 96 h, Pimephales promelas, Flow-through system, Fresh water, Read-across) |

### 12.2. Persistence and degradability

| LDS Sample Loading Buffer [4X]      |                                 |
|-------------------------------------|---------------------------------|
| Persistence and degradability       | Not established.                |
| glycerol (56-81-5)                  |                                 |
| Persistence and degradability       | Not established.                |
| Lithium Dodecyl Sulfate (2044-56-6) |                                 |
| Persistence and degradability       | Readily biodegradable in water. |

### 12.3. Bioaccumulative potential

| LDS Sample Loading Buffer [4X]                  |   |
|---|---|
| Bioaccumulative potential                       | Not established.  |
| glycerol (56-81-5)                              |   |
| Partition coefficient n-octanol/water (Log Pow) | -1.8 (Experimental value, Equivalent or similar to OECD 107, 25 °C) |
| Bioaccumulative potential                       | Not established.  |
| Lithium Dodecyl Sulfate (2044-56-6)             |   |
| Partition coefficient n-octanol/water (Log Pow) | ≤ -1.36 (Calculated, 20 °C)   |
| Bioaccumulative potential                       | Not bioaccumulative.  |

### 12.4. Mobility in soil

| glycerol (56-81-5)   |  |
|--|--|
| Surface tension  | 63.4 mN/m (20 °C, 1000 g/l)                      |
| Organic Carbon Normalized Adsorption Coefficient (Log Koc) | 0 (log Koc, SRC PCKOCWIN v2.0, Calculated value) |
| Ecology - soil   | Highly mobile in soil.                           |
| Lithium Dodecyl Sulfate (2044-56-6)                        |  |
| Organic Carbon Normalized Adsorption Coefficient (Log Koc) | 2.5 – 2.65 (log Koc, Calculated value)           |
| Ecology - soil   | Low potential for adsorption in soil.            |

### 12.5. Other adverse effects

Ozone : Not classified  
Fluorinated greenhouse gases : No

# LDS Sample Loading Buffer [4X]

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Other information : Avoid release to the environment.

### SECTION 13 Disposal considerations

Regional legislation (waste) : Disposal must be done according to official regulations.  
Waste treatment methods : Waste treatment methods.  
Sewage disposal recommendations : Disposal must be done according to official regulations.  
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Disposal must be done according to official regulations.  
Additional information : Do not re-use empty containers.  
Ecological waste information : Avoid release to the environment.

### SECTION 14 Transport information

In accordance with DOT / TDG / IATA

#### 14.1. UN number

UN-No. (DOT) : Not applicable  
UN-No. (TDG) : Not applicable  
UN-No. (IATA) : Not applicable

#### 14.2. UN Proper Shipping Name

Proper Shipping Name (DOT) : Not applicable  
Proper Shipping Name (TDG) : Not applicable  
Proper Shipping Name (IATA) : Not applicable

#### 14.3. Transport hazard class(es)

**DOT**  
Transport hazard class(es) (DOT) : Not applicable

**TDG**  
Transport hazard class(es) (TDG) : Not applicable

**IATA**  
Transport hazard class(es) (IATA) : Not applicable

#### 14.4. Packing group

Packing group (DOT) : Not applicable  
Packing group (TDG) : Not applicable  
Packing group (IATA) : Not applicable

#### 14.5. Environmental hazards

Other information : No supplementary information available.

#### 14.6. Transport in bulk

Not applicable

#### 14.7. Special precautions for user

**DOT**  
Not applicable

**TDG**  
Not applicable

# LDS Sample Loading Buffer [4X]

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### IATA

Not applicable

## SECTION 15 Regulatory information

### 15.1. Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

| Name                    | CAS-No.   | Listing     | Commercial status | Flags |
|-------------------------|-----------|-------------|-------------------|-------|
| glycerol                | 56-81-5   | Present     |                   |       |
| Lithium Dodecyl Sulfate | 2044-56-6 | Not present | -                 |       |

### 15.2. International regulations

#### CANADA

##### glycerol (56-81-5)

Listed on the Canadian DSL (Domestic Substances List)

##### Lithium Dodecyl Sulfate (2044-56-6)

Listed on the Canadian DSL (Domestic Substances List)

#### EU-Regulations

No additional information available

#### National regulations

No additional information available

### 15.3. State regulations

No additional information available

## SECTION 16 Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 1/17/2025  
Date of issue : 11/16/2016  
Other information : None.

### Full text of hazard classes and H-statements

|      |                           |
|------|---------------------------|
| H302 | Harmful if swallowed      |
| H315 | Causes skin irritation    |
| H318 | Causes serious eye damage |

### Abbreviations and acronyms

|       |   |
|-------|---|
| ACGIH | American Conference of Government Industrial Hygienists   |
| ADN   | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR   | European Agreement concerning the International Carriage of Dangerous Goods by Road             |

# LDS Sample Loading Buffer [4X]

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| Abbreviations and acronyms |  |
|----------------------------|--|
| ATE                        | Acute Toxicity Estimate  |
| BCF                        | Bioconcentration factor  |
| BLV                        | Biological limit value   |
| BOD                        | Biochemical oxygen demand (BOD)  |
| CAS-No.                    | Chemical Abstract Service number   |
| CLP                        | Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008  |
| COD                        | Chemical oxygen demand (COD)   |
| CSA                        | Chemical safety assessment   |
| DMEL                       | Derived Minimal Effect level   |
| DNEL                       | Derived-No Effect Level  |
| EC-No.                     | European Community number  |
| EC50                       | Median effective concentration   |
| ED                         | Endocrine disruptor  |
| EN                         | European Standard  |
| EWC                        | European waste catalogue   |
| IARC                       | International Agency for Research on Cancer                                  |
| IATA                       | International Air Transport Association                                      |
| IMDG                       | International Maritime Dangerous Goods                                       |
| LC50                       | Median lethal concentration  |
| LD50                       | Median lethal dose   |
| LOAEL                      | Lowest Observed Adverse Effect Level   |
| Log Kow                    | Partition coefficient n-octanol/water (Log Kow)                              |
| Log Pow                    | Partition coefficient n-octanol/water (Log Pow)                              |
| MAK                        | maximum workplace concentration  |
| NOAEC                      | No-Observed Adverse Effect Concentration                                     |
| NOAEL                      | No-Observed Adverse Effect Level   |
| NOEC                       | No-Observed Effect Concentration   |
| N.O.S.                     | Not Otherwise Specified  |
| OECD                       | Organisation for Economic Co-operation and Development                       |
| OEL                        | Occupational Exposure Limit  |
| OSHA                       | Occupational Safety & Health Administration                                  |
| PBT                        | Persistent Bioaccumulative Toxic   |
| PNEC                       | Predicted No-Effect Concentration  |
| PPE                        | Personal protection equipment  |
| RID                        | Regulations concerning the International Carriage of Dangerous Goods by Rail |
| SDS                        | Safety Data Sheet  |

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| Abbreviations and acronyms |  |
|----------------------------|--|
| STP                        | Sewage treatment plant                   |
| TF                         | Technical function                       |
| ThOD                       | Theoretical oxygen demand (ThOD)         |
| TLM                        | Median Tolerance Limit                   |
| TWA                        | Time Weighted Average                    |
| VOC                        | Volatile Organic Compounds               |
| vPvB                       | Very Persistent and Very Bioaccumulative |
| UFI                        | Unique Formula Identifier                |

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.