

07/23/2018

### Kit Components

| Product code | Description                            |
|--------------|--|
| <b>J2381</b> | <b>LDH-Glo (TM) Cytotoxicity Assay</b> |

Components:

|       |                          |
|-------|--------------------------|
| J238  | LDH Detection Enzyme Mix |
| G885  | Reductase Substrate      |
| J195A | Lactate Dehydrogenase    |



**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 07/23/2018

Reviewed on 07/23/2018

## 1 Identification

**Product identifier**

**Trade name:** LDH Detection Enzyme Mix

**Article number:** J238

**Application of the substance / the mixture** Laboratory chemicals

**Details of the supplier of the safety data sheet**

**Manufacturer/Supplier:**

Promega Corporation  
2800 Woods Hollow Road  
Madison, WI 53711  
U.S.A.

1-800-356-9526 or (608)-274-4330

**Information department:** SDS author: [Regulatory.Affairs@promega.com](mailto:Regulatory.Affairs@promega.com)

**Emergency telephone number:**

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300

Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

## 2 Hazard(s) identification

**Classification of the substance or mixture**



GHS08 Health hazard

STOT SE 1 H370 Causes damage to organs.



GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.

**Label elements**

**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

**Hazard pictograms** GHS07, GHS08

**Signal word** Danger

**Hazard-determining components of labeling:**

methanol

**Hazard statements**

Causes serious eye irritation.

Causes damage to organs.

**Precautionary statements**

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

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*Wear eye protection / face protection.*

*If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*

*If eye irritation persists: Get medical advice/attention.*

*Store locked up.*

*Dispose of contents/container in accordance with local/regional/national/international regulations.*

**Classification system:**

**NFPA ratings (scale 0 - 4)**

Health = 2

Fire = 0

Reactivity = 0

**HMIS-ratings (scale 0 - 4)**

Health = \*2

Fire = 0

Reactivity = 0

**OSHA Hazard Overview (Criteria according to 29CFR1910.1200):**

Toxic

Environmental Hazard

**Primary route(s) of entry:** Oral

**Target Organ(s):** Not applicable or unknown

**Other hazards**

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

### 3 Composition/information on ingredients

**Chemical characterization: Mixtures**

**Description:**

*The product is a mixture of the hazardous substances listed below along with unlisted nonhazardous substances. The exact concentration percentages of the hazardous substances may be withheld as a Promega Corp. trade secret.*

**Dangerous components:**

|             |                        |       |
|-------------|------------------------|-------|
| 67-56-1     | methanol               | <2.5% |
| 127087-87-0 | Nonylphenol Ethoxylate | <2%   |

**Additional information:** For the wording of the listed risk phrases refer to section 15.

### 4 First-aid measures

**Description of first aid measures**

**After inhalation:** *If the patient feels unwell or is concerned, obtain medical advice.*

**After skin contact:** *Generally the product does not irritate the skin.*

**After eye contact:** *Rinse opened eye for several minutes under running water.*

**After swallowing:** *If the patient feels unwell or is concerned, obtain medical advice.*

**Information for doctor:**

**Most important symptoms and effects, both acute and delayed** *Dizziness*

**Indication of any immediate medical attention and special treatment needed**

*No further relevant information available.*

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Trade name: **LDH Detection Enzyme Mix**

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## 5 Fire-fighting measures

### Extinguishing media

#### Suitable extinguishing agents:

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**Special hazards arising from the substance or mixture** None known

**Advice for firefighters** In the case of fire, wear respiratory protective equipment and chemical protective suit.

## 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Remove persons from danger area.

Wear protective clothing.

### Environmental precautions:

Do not allow product to reach sewage system or any water course.

Inform respective authorities in case of seepage into water course or sewage system.

Do not allow to enter sewers/ surface or ground water.

### Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

### Reference to other sections

See Section 7 for information on safe handling.

See Section 13 for disposal information.

## 7 Handling and storage

### Handling:

**Precautions for safe handling** No special precautions are necessary if used correctly.

**Information about protection against explosions and fires:** The product is not flammable.

### Conditions for safe storage, including any incompatibilities

#### Storage:

**Requirements to be met by storerooms and receptacles:** No special requirements.

**Information about storage in one common storage facility:** Not required.

**Further information about storage conditions:** None.

**Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

### Control parameters

#### Components with limit values that require monitoring at the workplace:

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

#### 67-56-1 methanol

PEL Long-term value: 260 mg/m<sup>3</sup>, 200 ppm

REL Short-term value: 325 mg/m<sup>3</sup>, 250 ppm

Long-term value: 260 mg/m<sup>3</sup>, 200 ppm

Skin

TLV Short-term value: 328 mg/m<sup>3</sup>, 250 ppm

Long-term value: 262 mg/m<sup>3</sup>, 200 ppm

Skin; BEI

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**Trade name: LDH Detection Enzyme Mix**

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### Ingredients with biological limit values:

#### 67-56-1 methanol

**BEI** 15 mg/L  
 Medium: urine  
 Time: end of shift  
 Parameter: Methanol (background, nonspecific)

**Additional information:** The lists that were valid during the creation were used as basis.

#### Exposure controls

##### Personal protective equipment:

**General protective and hygienic measures:** Wash hands before breaks and at the end of work.

**Breathing equipment:** Not required.

##### Protection of hands:

Protective gloves

Select the glove material considering penetration time, rate of diffusion and degradation time.

It is recommended that the selected protective gloves be tested and approved under NIOSH or EU Directive 89/686/EEC and the standard EN 374 derived from it.

##### Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

**Eye protection:** Use equipment for eye protection tested and approved under government NIOSH standards.

## 9 Physical and chemical properties

### Information on basic physical and chemical properties

#### General Information

##### Appearance:

|                        |                 |
|------------------------|-----------------|
| <b>Form:</b>           | Fluid           |
| <b>Color:</b>          | Colorless       |
| <b>Odor:</b>           | Not determined  |
| <b>Odor threshold:</b> | Not determined. |

##### Change in condition

|                                     |                 |
|-------------------------------------|-----------------|
| <b>Melting point/Melting range:</b> | Undetermined.   |
| <b>Boiling point/Boiling range:</b> | 100 °C (212 °F) |
| <b>Flash point:</b>                 | Not applicable. |

|                                       |                 |
|---------------------------------------|-----------------|
| <b>Flammability (solid, gaseous):</b> | Not applicable. |
| <b>Decomposition temperature:</b>     | Not determined. |

|                       |                              |
|-----------------------|------------------------------|
| <b>Auto igniting:</b> | Product is not selfigniting. |
|-----------------------|------------------------------|

|                             |   |
|-----------------------------|---|
| <b>Danger of explosion:</b> | Product does not present an explosion hazard. |
|-----------------------------|---|

|                          |                 |
|--------------------------|-----------------|
| <b>Explosion limits:</b> |                 |
| <b>Lower:</b>            | Not determined. |
| <b>Upper:</b>            | Not determined. |
| <b>Vapor pressure:</b>   | Not determined. |

|                         |                 |
|-------------------------|-----------------|
| <b>Density:</b>         | Not determined. |
| <b>Relative density</b> | Not determined. |
| <b>Vapor density</b>    | Not determined. |
| <b>Evaporation rate</b> | Not determined. |

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**Trade name: LDH Detection Enzyme Mix**

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**Solubility in / Miscibility with**

**Water:** Not miscible or difficult to mix.

**Partition coefficient (n-octanol/water):** Not determined.

**Viscosity:**

**Dynamic:** Not determined.

**Kinematic:** Not determined.

**Organic solvents:** 2.1 %

**Water:** 94.1 %

**VOC content:** 2.00 %

**Solids content:** 0.6 %

**Other information** No further relevant information available.

## 10 Stability and reactivity

**Reactivity** No further relevant information available.

**Chemical stability**

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Possibility of hazardous reactions** No dangerous reactions known.

**Conditions to avoid** No further relevant information available.

**Incompatible materials:** No further relevant information available.

**Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

**Information on toxicological effects**
**Acute toxicity:**

**LD/LC50 values that are relevant for classification:** No data available

**Primary irritant effect:**

**on the skin:** No irritant effect.

**on the eye:** Irritating effect.

**Sensitization:** No sensitizing effects known.

**Additional toxicological information:**
**Carcinogenic categories**
**IARC (International Agency for Research on Cancer)**

None of the ingredients are listed.

**NTP (National Toxicology Program)**

None of the ingredients are listed.

**OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients are listed.

## 12 Ecological information

**Toxicity**

**Aquatic toxicity:** Not harmful to the aquatic environment

**Persistence and degradability** Not available

**Behavior in environmental systems:**

**Bioaccumulative potential** Not known

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**Trade name: LDH Detection Enzyme Mix**

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**Mobility in soil** No further relevant information available.

**Ecotoxicological effects:**

**Remark:** Harmful to fish

**Additional ecological information:**

**General notes:**

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

Harmful to aquatic organisms

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**Other adverse effects** No further relevant information available.

## 13 Disposal considerations

**Waste treatment methods**

**Recommendation:**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

**Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

|                                  |                                  |
|----------------------------------|----------------------------------|
| <b>UN-Number</b>                 | Not hazardous for transportation |
| <b>DOT, ADR, ADN, IMDG, IATA</b> | Void                             |

|                                  |      |
|----------------------------------|------|
| <b>UN proper shipping name</b>   | None |
| <b>DOT, ADR, ADN, IMDG, IATA</b> | Void |

|                                   |      |
|-----------------------------------|------|
| <b>Transport hazard class(es)</b> | None |
| <b>DOT, ADR, ADN, IMDG, IATA</b>  |      |
| <b>Class</b>                      | Void |

|                             |      |
|-----------------------------|------|
| <b>Packing group</b>        | None |
| <b>DOT, ADR, IMDG, IATA</b> | Void |

|                               |                 |
|-------------------------------|-----------------|
| <b>Environmental hazards:</b> | Not applicable. |
|-------------------------------|-----------------|

|                                     |                 |
|-------------------------------------|-----------------|
| <b>Special precautions for user</b> | Not applicable. |
|-------------------------------------|-----------------|

|  |                 |
|--|-----------------|
| <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable. |
|--|-----------------|

|                               |      |
|-------------------------------|------|
| <b>UN "Model Regulation":</b> | Void |
|-------------------------------|------|

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Trade name: **LDH Detection Enzyme Mix**

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## 15 Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

Sara

**Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

**Section 313 (Specific toxic chemical listings):**

67-56-1 | methanol

**TSCA (Toxic Substances Control Act):**

This product contains a substance not listed on the TSCA inventory. This product may be used for R&amp;D use only.

All ingredients are listed.

**Proposition 65**

**Chemicals known to cause cancer:**

None of the ingredients are listed.

**Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

**Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

**Chemicals known to cause developmental toxicity:**

67-56-1 | methanol

**Carcinogenicity categories**

**EPA (Environmental Protection Agency)**

None of the ingredients are listed.

**TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients are listed.

**NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

**Signal word** Danger

**Hazard-determining components of labeling:**

methanol

**Hazard statements**

Causes serious eye irritation.

Causes damage to organs.

**Precautionary statements**

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Wear eye protection / face protection.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

If eye irritation persists: Get medical advice/attention.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

**National regulations:**

**Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

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**Trade name: LDH Detection Enzyme Mix**

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**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

### **Department issuing SDS:**

Promega Corporation  
Environmental Health and Safety Department  
2800 Woods Hollow Road  
Madison, WI  
Ph: (608)274-4330

**Date of preparation / last revision** 07/23/2018 / -

### **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
DOT: US Department of Transportation  
IATA: International Air Transport Association  
ACGIH: American Conference of Governmental Industrial Hygienists  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
NFPA: National Fire Protection Association (USA)  
HMIS: Hazardous Materials Identification System (USA)  
VOC: Volatile Organic Compounds (USA, EU)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative  
NIOSH: National Institute for Occupational Safety  
OSHA: Occupational Safety & Health  
TLV: Threshold Limit Value  
PEL: Permissible Exposure Limit  
REL: Recommended Exposure Limit  
BEI: Biological Exposure Limit  
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A  
STOT SE 1: Specific target organ toxicity (single exposure) – Category 1  
**\* Data compared to the previous version altered.**

US

**Safety Data Sheet**  
*acc. to OSHA HCS*

Printing date 07/23/2018

Reviewed on 07/23/2018

**1 Identification****Product identifier****Trade name:** Reductase Substrate**Article number:** G885**Application of the substance / the mixture** Laboratory chemicals**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Promega Corporation  
2800 Woods Hollow Road  
Madison, WI 53711  
U.S.A.  
1-800-356-9526 or (608)-274-4330

**Information department:** SDS author: [Regulatory.Affairs@promega.com](mailto:Regulatory.Affairs@promega.com)**Emergency telephone number:**

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300  
Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

**2 Hazard(s) identification****Classification of the substance or mixture**

Flam. Liq. 4 H227 Combustible liquid.

**Label elements****GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).**Hazard pictograms** Void**Signal word** Warning**Hazard statements**

Combustible liquid.

**Precautionary statements**

Keep away from flames and hot surfaces. – No smoking.

Wear protective gloves/protective clothing/eye protection/face protection.

In case of fire: Use for extinction: CO2, powder or water spray.

Store in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with local/regional/national/international regulations.

**Classification system:****NFPA ratings (scale 0 - 4)**

Health = 0

Fire = 2

Reactivity = 0

**HMIS-ratings (scale 0 - 4)**

Health = 0

Fire = 2

Reactivity = 0

**OSHA Hazard Overview (Criteria according to 29CFR1910.1200):** Combustible**Primary route(s) of entry:** Oral

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**Trade name: Reductase Substrate**

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**Target Organ(s):**

Dermal hazard (Cutaneous hazard)

Risk of damage to eyes

**Other hazards****Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.

### 3 Composition/information on ingredients

**Chemical characterization: Mixtures****Description:**

The product is a mixture of the hazardous substances listed below along with unlisted nonhazardous substances. The exact concentration percentages of the hazardous substances may be withheld as a Promega Corp. trade secret.

**Dangerous components:**

67-68-5 dimethyl sulfoxide

15-20%

**Additional information:** For the wording of the listed risk phrases refer to section 15.

### 4 First-aid measures

**Description of first aid measures**

**After inhalation:** If the patient feels unwell or is concerned, obtain medical advice.

**After skin contact:** Generally the product does not irritate the skin.

**After eye contact:** Rinse opened eye for several minutes under running water.

**After swallowing:** If the patient feels unwell or is concerned, obtain medical advice.

**Information for doctor:**

**Most important symptoms and effects, both acute and delayed** Dizziness

**Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

### 5 Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

**Special hazards arising from the substance or mixture** None known

**Advice for firefighters** No special advice

### 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

Remove persons from danger area.

Wear protective clothing.

**Environmental precautions:** Dilute with plenty of water.

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

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

**Reference to other sections**

See Section 7 for information on safe handling.

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Trade name: **Reductase Substrate**

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See Section 13 for disposal information.

## 7 Handling and storage

**Handling:***Precautions for safe handling* No special precautions are necessary if used correctly.*Information about protection against explosions and fires:* No special measures required.**Conditions for safe storage, including any incompatibilities****Storage:***Requirements to be met by storerooms and receptacles:* No special requirements.*Information about storage in one common storage facility:* Not required.*Further information about storage conditions:* None.*Specific end use(s)* No further relevant information available.

## 8 Exposure controls/personal protection

**Control parameters****Components with limit values that require monitoring at the workplace:**

67-68-5 dimethyl sulfoxide

WEEL Long-term value: 250 ppm

*Additional information:* The lists that were valid during the creation were used as basis.**Exposure controls****Personal protective equipment:***General protective and hygienic measures:* Wash hands before breaks and at the end of work.*Breathing equipment:* Not required.**Protection of hands:**

Protective gloves

*Select the glove material considering penetration time, rate of diffusion and degradation time.**It is recommended that the selected protective gloves be tested and approved under NIOSH or EU Directive 89/686/EEC and the standard EN 374 derived from it.***Material of gloves***The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.**Eye protection:* Use equipment for eye protection tested and approved under government NIOSH standards.

## 9 Physical and chemical properties

**Information on basic physical and chemical properties****General Information****Appearance:**

|                        |                 |
|------------------------|-----------------|
| <b>Form:</b>           | Fluid           |
| <b>Color:</b>          | Colorless       |
| <b>Odor:</b>           | Not determined  |
| <b>Odor threshold:</b> | Not determined. |

**Change in condition**

|                                     |                    |
|-------------------------------------|--------------------|
| <b>Melting point/Melting range:</b> | 18.45 °C (65.2 °F) |
| <b>Boiling point/Boiling range:</b> | Undetermined.      |

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Trade name: **Reductase Substrate**

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|   |   |
|---|---|
| <b>Flash point:</b>                             | > 60 °C (>140 °F)                             |
| <b>Flammability (solid, gaseous):</b>           | Not applicable.                               |
| <b>Ignition temperature:</b>                    | 270 °C (518 °F)                               |
| <b>Decomposition temperature:</b>               | Not determined.                               |
| <b>Auto igniting:</b>                           | Product is not selfigniting.                  |
| <b>Danger of explosion:</b>                     | Product does not present an explosion hazard. |
| <b>Explosion limits:</b>                        |   |
| <b>Lower:</b>                                   | 1.8 Vol %                                     |
| <b>Upper:</b>                                   | Zers Vol %                                    |
| <b>Vapor pressure at 20 °C (68 °F):</b>         | 2.5 hPa (1.9 mm Hg)                           |
| <b>Density:</b>                                 | Not determined.                               |
| <b>Relative density</b>                         | Not determined.                               |
| <b>Vapor density</b>                            | Not determined.                               |
| <b>Evaporation rate</b>                         | Not determined.                               |
| <b>Solubility in / Miscibility with</b>         |   |
| <b>Water:</b>                                   | Fully miscible.                               |
| <b>Partition coefficient (n-octanol/water):</b> | Not determined.                               |
| <b>Viscosity:</b>                               |   |
| <b>Dynamic:</b>                                 | Not determined.                               |
| <b>Kinematic:</b>                               | Not determined.                               |
| <b>Organic solvents:</b>                        | 20.0 %  |
| <b>Water:</b>                                   | 58.8 %  |
| <b>VOC content:</b>                             | 20.00 %                                       |
| <b>Other information</b>                        | No further relevant information available.    |

## 10 Stability and reactivity

**Reactivity** No further relevant information available.

**Chemical stability**

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Possibility of hazardous reactions** No dangerous reactions known.

**Conditions to avoid** No further relevant information available.

**Incompatible materials:** No further relevant information available.

**Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

**Information on toxicological effects**

**Acute toxicity:**

**LD/LC50 values that are relevant for classification:**

**67-68-5 dimethyl sulfoxide**

|                    |       |                                    |
|--------------------|-------|------------------------------------|
| Oral               | LD50  | 14,500 mg/kg (Rat)                 |
| Dermal             | LD50  | 1,800 mg/kg (Mouse)                |
| Irritation of eyes | acute | 500 mg (Rabbit)<br>mild irritation |

**Primary irritant effect:**

**on the skin:** No irritant effect.

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**Trade name: Reductase Substrate**

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**on the eye:** Irritating effect.  
**Sensitization:** No sensitizing effects known.  
**Additional toxicological information:**

**Carcinogenic categories**

**IARC (International Agency for Research on Cancer)**

None of the ingredients are listed.

**NTP (National Toxicology Program)**

None of the ingredients are listed.

**OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients are listed.

## 12 Ecological information

**Toxicity**

**Aquatic toxicity:** Not harmful to the aquatic environment

**Persistence and degradability** Not available

**Behavior in environmental systems:**

**Bioaccumulative potential** Not known

**Mobility in soil** No further relevant information available.

**Ecotoxicological effects:**

**Remark:** Not available

**Additional ecological information:**

**General notes:** Not known to be hazardous to water.

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**Other adverse effects** No further relevant information available.

## 13 Disposal considerations

**Waste treatment methods**

**Recommendation:**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

**Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

**Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

**UN-Number** Not hazardous for transportation

**DOT, ADR, ADN, IMDG, IATA** Void

**UN proper shipping name** None

**DOT, ADR, ADN, IMDG, IATA** Void

**Transport hazard class(es)** None

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# Safety Data Sheet

acc. to OSHA HCS

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Reviewed on 07/23/2018

Trade name: **Reductase Substrate**

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**DOT, ADR, ADN, IMDG, IATA**

Class Void

**Packing group**

None

**DOT, ADR, IMDG, IATA**

Void

**Environmental hazards:****Marine pollutant:** No**Special precautions for user**

Not applicable.

**Transport in bulk according to Annex II of****MARPOL73/78 and the IBC Code** Not applicable.**UN "Model Regulation":**

Void

**15 Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture**

Sara

**Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

**Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

**TSCA (Toxic Substances Control Act):**

75277-39-3 4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid sodium salt

67-68-5 dimethyl sulfoxide

7732-18-5 water

**Proposition 65****Chemicals known to cause cancer:**

None of the ingredients are listed.

**Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

**Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

**Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

**Carcinogenicity categories****EPA (Environmental Protection Agency)**

None of the ingredients are listed.

**TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients are listed.

**NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).**Signal word** Warning**Hazard statements**

Combustible liquid.

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**Trade name: Reductase Substrate**

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**Precautionary statements**

Keep away from flames and hot surfaces. – No smoking.

Wear protective gloves/protective clothing/eye protection/face protection.

In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.

Store in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with local/regional/national/international regulations.

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Department issuing SDS:**

Promega Corporation

Environmental Health and Safety Department

2800 Woods Hollow Road

Madison, WI

Ph: (608)274-4330

**Date of preparation / last revision** 07/23/2018 / -

**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Flam. Liq. 4: Flammable liquids – Category 4

**\* Data compared to the previous version altered.**

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 07/23/2018

Reviewed on 07/23/2018

## 1 Identification

**Product identifier**

**Trade name:** Lactate Dehydrogenase

**Article number:** J195A

**Application of the substance / the mixture** Laboratory chemicals

**Details of the supplier of the safety data sheet**

**Manufacturer/Supplier:**

Promega Corporation  
2800 Woods Hollow Road  
Madison, WI 53711  
U.S.A.

1-800-356-9526 or (608)-274-4330

**Information department:** SDS author: [Regulatory.Affairs@promega.com](mailto:Regulatory.Affairs@promega.com)

**Emergency telephone number:**

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300

Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

## 2 Hazard(s) identification

**Classification of the substance or mixture**

The product is not classified as hazardous according to the Globally Harmonized System (GHS).

**Label elements**

**GHS label elements** Void

**Hazard pictograms** Void

**Signal word** Void

**Hazard statements** Void

**Classification system:**

**NFPA ratings (scale 0 - 4)**

Health = 0

Fire = 0

Reactivity = 0

**HMIS-ratings (scale 0 - 4)**

Health = 0

Fire = 0

Reactivity = 0

**OSHA Hazard Overview (Criteria according to 29CFR1910.1200):** Not applicable

**Target Organ(s):** Not applicable or unknown

**Other hazards**

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

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**Trade name: Lactate Dehydrogenase**

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### 3 Composition/information on ingredients

**Chemical characterization: Mixtures**

**Description:**

The product is a mixture of the hazardous substances listed below along with unlisted nonhazardous substances. The exact concentration percentages of the hazardous substances may be withheld as a Promega Corp. trade secret.

**Dangerous components: Void**

**Additional information: For the wording of the listed risk phrases refer to section 15.**

### 4 First-aid measures

**Description of first aid measures**

**General information: No special measures required.**

**After inhalation: If the patient feels unwell or is concerned, obtain medical advice.**

**After skin contact: Generally the product does not irritate the skin.**

**After eye contact: Rinse opened eye for several minutes under running water.**

**After swallowing: If the patient feels unwell or is concerned, obtain medical advice.**

**Information for doctor:**

**Most important symptoms and effects, both acute and delayed Dizziness**

**Indication of any immediate medical attention and special treatment needed**

**No further relevant information available.**

### 5 Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing agents:**

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**Special hazards arising from the substance or mixture None known**

**Advice for firefighters No special advice**

**Protective equipment: No special measures required.**

### 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures Not required.**

**Environmental precautions: No special measures required.**

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

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

**Reference to other sections**

See Section 7 for information on safe handling.

See Section 13 for disposal information.

### 7 Handling and storage

**Handling:**

**Precautions for safe handling No special measures required.**

**Information about protection against explosions and fires: The product is not flammable.**

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**Trade name: Lactate Dehydrogenase**

(Contd. of page 2)

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

**Storage:**

**Requirements to be met by storerooms and receptacles:** No special requirements.

**Information about storage in one common storage facility:** Not required.

**Further information about storage conditions:** None.

**Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

**Control parameters**

**Components with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

**Additional information:** The lists that were valid during the creation were used as basis.

**Exposure controls**

**Personal protective equipment:**

**General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.

**Breathing equipment:** Not required.

**Protection of hands:** Not required.

**Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

**Eye protection:** Not required.

## 9 Physical and chemical properties

**Information on basic physical and chemical properties**

**General Information**

**Appearance:**

|                        |                 |
|------------------------|-----------------|
| <b>Form:</b>           | Fluid           |
| <b>Color:</b>          | Colorless       |
| <b>Odor:</b>           | Not determined  |
| <b>Odor threshold:</b> | Not determined. |

**Change in condition**

|                                     |                 |
|-------------------------------------|-----------------|
| <b>Melting point/Melting range:</b> | Undetermined.   |
| <b>Boiling point/Boiling range:</b> | 100 °C (212 °F) |
| <b>Flash point:</b>                 | Not applicable. |

**Flammability (solid, gaseous):** Not applicable.

**Decomposition temperature:** Not determined.

**Auto igniting:** Product is not selfigniting.

**Danger of explosion:** Product does not present an explosion hazard.

**Explosion limits:**

**Lower:** Not determined.

**Upper:** Not determined.

**Vapor pressure:** Not determined.

**Density at 20 °C (68 °F):** 1.0011 g/cm<sup>3</sup> (8.35418 lbs/gal)

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|   |  |
|---|--|
| <b>Relative density</b>                         | Not determined.                            |
| <b>Vapor density</b>                            | Not determined.                            |
| <b>Evaporation rate</b>                         | Not determined.                            |
| <b>Solubility in / Miscibility with</b>         |  |
| <b>Water:</b>                                   | Not miscible or difficult to mix.          |
| <b>Partition coefficient (n-octanol/water):</b> | Not determined.                            |
| <b>Viscosity:</b>                               |  |
| <b>Dynamic:</b>                                 | Not determined.                            |
| <b>Kinematic:</b>                               | Not determined.                            |
| <b>Water:</b>                                   | 99.0 %                                     |
| <b>VOC content:</b>                             | 0.00 %                                     |
| <b>Other information</b>                        | No further relevant information available. |

## 10 Stability and reactivity

**Reactivity** No further relevant information available.

**Chemical stability**

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Possibility of hazardous reactions** No dangerous reactions known.

**Conditions to avoid** No further relevant information available.

**Incompatible materials:** No further relevant information available.

**Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

### Information on toxicological effects

#### Acute toxicity:

**LD/LC50 values that are relevant for classification:** No data available

#### Primary irritant effect:

**on the skin:** No irritant effect.

**on the eye:** Irritating effect.

**Sensitization:** No sensitizing effects known.

#### Additional toxicological information:

The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

#### Carcinogenic categories

##### IARC (International Agency for Research on Cancer)

None of the ingredients are listed.

##### NTP (National Toxicology Program)

None of the ingredients are listed.

##### OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

US  
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Reviewed on 07/23/2018

Trade name: *Lactate Dehydrogenase*

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## 12 Ecological information

**Toxicity***Aquatic toxicity: Not harmful to the aquatic environment**Persistence and degradability Not available***Behavior in environmental systems:***Bioaccumulative potential Not known**Mobility in soil No further relevant information available.***Ecotoxicological effects:***Remark: Not available***Additional ecological information:***General notes: Generally not hazardous for water.***Results of PBT and vPvB assessment***PBT: Not applicable.**vPvB: Not applicable.**Other adverse effects No further relevant information available.*

## 13 Disposal considerations

**Waste treatment methods****Recommendation:***Disposal should be in accordance with applicable regional, national and local laws and regulations.**Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.***Uncleaned packagings:***Recommendation: Disposal must be made according to official regulations.*

## 14 Transport information

|  |  |
|--|--|
| <b>UN-Number</b><br>DOT, ADR, ADN, IMDG, IATA                                  | <i>Not hazardous for transportation</i><br><i>Void</i> |
| <b>UN proper shipping name</b><br>DOT, ADR, ADN, IMDG, IATA                    | <i>None</i><br><i>Void</i>                             |
| <b>Transport hazard class(es)</b><br>DOT, ADR, ADN, IMDG, IATA<br>Class        | <i>None</i><br><i>Void</i>                             |
| <b>Packing group</b><br>DOT, ADR, IMDG, IATA                                   | <i>None</i><br><i>Void</i>                             |
| <b>Environmental hazards:</b>  | <i>Not applicable.</i>                                 |
| <b>Special precautions for user</b>  | <i>Not applicable.</i>                                 |
| <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | <i>Not applicable.</i>                                 |
| <b>UN "Model Regulation":</b>  | <i>Void</i>  |

(Contd. on page 6)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/23/2018

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Trade name: *Lactate Dehydrogenase*

(Contd. of page 5)

## 15 Regulatory information

*Safety, health and environmental regulations/legislation specific for the substance or mixture*

*Sara*

**Section 355 (extremely hazardous substances):**

*None of the ingredients are listed.*

**Section 313 (Specific toxic chemical listings):**

*None of the ingredients are listed.*

**TSCA (Toxic Substances Control Act):**

*All ingredients are listed.*

**Proposition 65**

**Chemicals known to cause cancer:**

*None of the ingredients are listed.*

**Chemicals known to cause reproductive toxicity for females:**

*None of the ingredients are listed.*

**Chemicals known to cause reproductive toxicity for males:**

*None of the ingredients are listed.*

**Chemicals known to cause developmental toxicity:**

*None of the ingredients are listed.*

**Carcinogenicity categories**

**EPA (Environmental Protection Agency)**

*None of the ingredients are listed.*

**TLV (Threshold Limit Value established by ACGIH)**

*None of the ingredients are listed.*

**NIOSH-Ca (National Institute for Occupational Safety and Health)**

*None of the ingredients are listed.*

**GHS label elements** Void

**Signal word** Void

**Hazard statements** Void

**National regulations:**

**Water hazard class:** *Generally not hazardous for water.*

**Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

## 16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

**Department issuing SDS:**

*Promega Corporation*

*Environmental Health and Safety Department*

*2800 Woods Hollow Road*

*Madison, WI*

*Ph: (608) 274-4330*

**Date of preparation / last revision** *07/23/2018 / -*

(Contd. on page 7)

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**Trade name: Lactate Dehydrogenase**

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**\* Data compared to the previous version altered.**

US