<table>
<thead>
<tr>
<th>Product code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N2572</td>
<td><strong>Nano-Glo® Endurazine™ Live Cell Substrate</strong></td>
</tr>
<tr>
<td>N257</td>
<td><strong>Nano-Glo® Endurazime</strong></td>
</tr>
</tbody>
</table>
1 Identification

Product identifier
Trade name: Nano-Glo® Endurazyme

Article number: N257
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
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

GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

Label elements
GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
Hazard pictograms GHS02
Signal word Danger
Hazard statements
Highly flammable liquid and vapor.

Precautionary statements
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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.

(Contd. on page 2)
Trade name: Nano-Glo® Endurazyme

Classification system:
NFPA ratings (scale 0 - 4)
Health = 0
Fire = 3
Reactivity = 0
HMIS-ratings (scale 0 - 4)
Health = 0
Fire = 3
Reactivity = 0
OSHA Hazard Overview (Criteria according to 29CFR1910.1200): Flammable

Primary route(s) of entry:
Inhalation
Oral

Target Organ(s):
May cause Liver damage (Hepatotoxin)
May affect Nervous system (Neurotoxin)

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:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5 ethanol</td>
<td>Trade Secret%</td>
</tr>
<tr>
<td>57-55-6 Propylene glycol</td>
<td>Trade Secret%</td>
</tr>
<tr>
<td>67-68-5 dimethyl sulfoxide</td>
<td>Trade Secret%</td>
</tr>
</tbody>
</table>

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: Immediately remove any clothing soiled by the product.
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
Headache
Dizziness
Nausea

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:** 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 equipment. Keep unprotected persons away.
- Keep away from ignition sources.
- Wear protective clothing.

**Environmental precautions:**

- Prevent seepage into sewage system, workpits and cellars.
- Dilute with plenty of water.
- 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).
- Ensure adequate ventilation.

**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**

- Ensure good ventilation/exhaustion at the workplace.
- Prevent formation of aerosols.
- Use only in well ventilated areas.

**Information about protection against explosions and fires:**

- Keep ignition sources away - Do not smoke.
- Protect against electrostatic charges.

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

**Storage:**

**Requirements to be met by storerooms and receptacles:** Store in a cool location.

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

**Further information about storage conditions:**

- Keep receptacle tightly sealed.
- Store in cool, dry conditions in well sealed receptacles.

**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:

<table>
<thead>
<tr>
<th>Component</th>
<th>Limit Values (Long-term)</th>
<th>Limit Values (Short-term)</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5 ethanol</td>
<td>PEL: 1900 mg/m³, 1000 ppm</td>
<td>TLV: 1880 mg/m³, 1000 ppm</td>
</tr>
<tr>
<td>67-68-5 dimethyl sulfoxide</td>
<td>WEEL: 250 ppm</td>
<td></td>
</tr>
<tr>
<td>57-55-6 Propylene glycol</td>
<td>WEEL: 10 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

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

### Exposure controls

**Personal protective equipment:**
- **General protective and hygienic measures:**
  - Immediately remove all soiled and contaminated clothing.
  - Wash hands before breaks and at the end of work.

**Breathing equipment:**
- In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

**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 cannot be calculated in advance and has therefore to be checked prior to the application.

**Eye protection:**
- Safety glasses
  - 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:**
- **Form:** Fluid
- **Color:** Colorless
- **Odor:** Not determined
- **Odor threshold:** Not determined.

**Change in condition**
- **Melting point/Melting range:** Undetermined.
- **Boiling point/Boiling range:** 78 °C (172.4 °F)
- **Flash point:** < 23 °C (<73.4 °F)
### Flammability (solid, gaseous):
Not applicable.

### Ignition temperature:
270 °C (518 °F)

### Decomposition temperature:
Not determined.

### Auto igniting:
Product is not selfigniting.

### Danger of explosion:
Product does not present an explosion hazard.
Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

### Explosion limits:
- Lower: 2.6 Vol %
- Upper: 15 Vol %

### Vapor pressure at 20 °C (68 °F):
59 hPa (44.3 mm Hg)

### Density at 20 °C (68 °F):
0.93179 g/cm³ (7.77579 lbs/gal)

### Relative density:
Not determined.

### Vapor density:
Not determined.

### Evaporation rate:
Not determined.

### Solubility in / Miscibility with Water:
Fully miscible.

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

### Viscosity:
- Dynamic: Not determined.
- Kinematic: Not determined.

### Organic solvents:
97.6 %

### VOC content:
97.59 %

### Solids content:
0.0 %

### 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:
Oxidizing agents

### 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.
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:
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
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
DOT, ADR, IMDG, IATA: UN1170

UN proper shipping name
DOT: Ethanol
ADR: 1170 Ethanol
IMDG: ETHANOL (ETHYL ALCOHOL)

(Contd. on page 7)
<table>
<thead>
<tr>
<th><strong>IATA</strong></th>
<th><strong>ETHANOL</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transport hazard class(es)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DOT</strong></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Flammable class" /></td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td>3 Flammable liquids</td>
</tr>
<tr>
<td>Label</td>
<td>3</td>
</tr>
<tr>
<td><strong>ADR</strong></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Flammable class" /></td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td>3 (Fl1) Flammable liquids</td>
</tr>
<tr>
<td>Label</td>
<td>3</td>
</tr>
<tr>
<td><strong>IMDG, IATA</strong></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Flammable class" /></td>
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</tr>
<tr>
<td>Class</td>
<td>3 Flammable liquids</td>
</tr>
<tr>
<td>Label</td>
<td>3</td>
</tr>
</tbody>
</table>

**Packing group**  
**DOT, ADR, IMDG, IATA**  
II

**Environmental hazards:**  
Not applicable.

**Special precautions for user**  
Warning: Flammable liquids  
**Danger code (Kemler):** 33  
**EMS Number:** F-E,S-D  
**Stowage Category** A

**Transport in bulk according to Annex II of**  
**MARPOL73/78 and the IBC Code**  
Not applicable.

**Transport/Additional information:**

**ADR**

**Excepted quantities (EQ)**  
Code: E2  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 500 ml

**IMDG**

**Limited quantities (LQ)**  
IL  
**Code:** E2  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 500 ml
Trade name: Nano-Glo® Endurazime

UN "Model Regulation":  UN 1170 ETHANOL, 3, II

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):
64-17-5 ethanol
57-55-6 Propylene glycol
67-68-5 dimethyl sulfoxide

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:
64-17-5 ethanol

Cancerogenity categories

EPA (Environmental Protection Agency)
None of the ingredients are listed.

TLV (Threshold Limit Value established by ACGIH)
64-17-5 ethanol A3

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 statements
Highly flammable liquid and vapor.

Precautionary statements
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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.

**National regulations:**

**Water hazard class:** Water hazard class 1 (Self-assessment): slightly 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** 08/23/2018 / -

**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
- sPvB: 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. 2: Flammable liquids – Category 2

* Data compared to the previous version altered.