1 Identification

Product identifier

Trade name: Dual-Glo® Stop and Glo® Substrate

Article number: E313

Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.

Application of the substance / the preparation 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
Classification according to Regulation (EC) No 1272/2008

GHS02 Flame

H225 Highly flammable liquid and vapour.

Label elements
Labelling according to Regulation (EC) No 1272/2008
The product is classified and labeled according to the CLP regulation.

Hazard pictograms GHS02

Signal word Danger:

Hazard statements
H225 Highly flammable liquid and vapour.

Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P240 Store/bond container and receiving equipment.
P303 + P361 + P333 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
Trade name: Dual-Glo® Stop and Glo® Substrate

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: Keep away from sources of ignition.
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures
Description: Mixture of the substances listed below with nonhazardous additions.

<table>
<thead>
<tr>
<th>Dangerous components:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5 ethanol</td>
<td>☐ H225 75-100%</td>
</tr>
<tr>
<td>56-81-5 glycerol</td>
<td>15-20%</td>
</tr>
</tbody>
</table>

4 First-aid measures

Description of first aid measures
After inhalation: Supply fresh air; consult doctor in case of complaints.
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 symptoms persist consult doctor.

Information for doctor:
Most important symptoms and effects, both acute and delayed
Headache
Dizziness
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

(Contd. on page 3)
6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
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 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>Substance</th>
<th>PEL Long-term value</th>
<th>REL Long-term value</th>
<th>TLV Short-term value</th>
</tr>
</thead>
<tbody>
<tr>
<td>64 17 5 ethanol</td>
<td>1900 mg/m³, 1000 ppm</td>
<td>1900 mg/m³, 1000 ppm</td>
<td>1880 mg/m³, 1000 ppm</td>
</tr>
<tr>
<td>56-81-5 glycerol</td>
<td><em>PEL Long-term value: 15</em> mg/m³ *respirable fraction</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TLV withdrawal-insufficient data human occup. exp.</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional information: The lists that were valid during the creation were used as basis.
Safety Data Sheet
acc. to OSHA HCS

Printing date 07/03/2013  Reviewed on 07/02/2013

Trade name: Dual-Glo® Stop and Glo® Substrate

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
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
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: Tightly sealed goggles

9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Information</td>
</tr>
<tr>
<td>Appearance:</td>
</tr>
<tr>
<td>Form: Fluid</td>
</tr>
<tr>
<td>Color: Colorless</td>
</tr>
<tr>
<td>Odor: Characteristic</td>
</tr>
<tr>
<td>Odour threshold: Not determined.</td>
</tr>
<tr>
<td>Change in condition</td>
</tr>
<tr>
<td>Melting point/Melting range: Undetermined.</td>
</tr>
<tr>
<td>Boiling point/Boiling range: 78 °C (172 °F)</td>
</tr>
<tr>
<td>Flash point: ≤ 21 °C (≤ 70 °F)</td>
</tr>
<tr>
<td>Flammability (solid, gaseous): Not applicable.</td>
</tr>
<tr>
<td>Ignition temperature: 400 °C (752 °F)</td>
</tr>
<tr>
<td>Decomposition temperature: Not determined.</td>
</tr>
<tr>
<td>Auto igniting: Product is not selfigniting.</td>
</tr>
<tr>
<td>Danger of explosion: Product does not present an explosion hazard. Product is not explosive. However, formation of explosive air/vapor mixtures are possible.</td>
</tr>
<tr>
<td>Explosion limits:</td>
</tr>
<tr>
<td>Lower: 0.9 Vol %</td>
</tr>
<tr>
<td>Upper: 15.0 Vol %</td>
</tr>
<tr>
<td>Vapor pressure at 20 °C (68 °F): 59 hPa (44 mm Hg)</td>
</tr>
<tr>
<td>Density at 20 °C (68 °F): 0.853 g/cm³ (7.118 lbs/gal)</td>
</tr>
<tr>
<td>Relative density: Not determined.</td>
</tr>
<tr>
<td>Vapour density: Not determined.</td>
</tr>
<tr>
<td>Evaporation rate: Not determined.</td>
</tr>
<tr>
<td>Solubility in / Miscibility with Water: Fully miscible.</td>
</tr>
<tr>
<td>Partition coefficient ‘n-octanol/water’: Not determined.</td>
</tr>
</tbody>
</table>
**Trade name: Dual-Glo® Stop and Glo® Substrate**

<table>
<thead>
<tr>
<th>Viscosity:</th>
<th>Not determined.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Kinematic:</td>
<td></td>
</tr>
</tbody>
</table>

**Solvent content:**
- **Organic solvents:** 99.9%
- **VOC content:** 81.0%

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

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**10 Stability and reactivity**

**Reactivity**
- 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.
- **Additional toxicological information:**

**Carcinogenic categories**

<table>
<thead>
<tr>
<th>IARC (International Agency for Research on Cancer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5  ethanol</td>
</tr>
<tr>
<td>7664-93-9  sulphuric acid</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NTP (National Toxicology Program)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7664-93-9  sulphuric acid</td>
</tr>
</tbody>
</table>

---

**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
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

<table>
<thead>
<tr>
<th>UN-Number</th>
<th>DOT, ADR, IMDG, IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UN1170</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UN proper shipping name</th>
<th>DOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol solutions</td>
<td></td>
</tr>
<tr>
<td>1170 Ethanol solutions</td>
<td></td>
</tr>
<tr>
<td>(Ethyl alcohol solutions)</td>
<td></td>
</tr>
<tr>
<td>ETHANOL SOLUTION</td>
<td></td>
</tr>
<tr>
<td>(ETHYL ALCOHOL SOLUTION)</td>
<td></td>
</tr>
<tr>
<td>ETHANOL SOLUTION</td>
<td></td>
</tr>
</tbody>
</table>

Transport hazard class(es)

<table>
<thead>
<tr>
<th>DOT</th>
<th>3 Flammable liquids.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ADR</th>
<th>3 (F1) Flammable liquids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
Safety Data Sheet
acc. to OSHA HCS

Trade name: Dual-Glo® Stop and Glo® Substrate

Label
IMDG, IATA

Class 3 Flammable liquids.
Label 3

Packing group II
DOT, ADR, IMDG, IATA

Environmental hazards: No
Marine pollutant:

Special precautions for user
Warning: Flammable liquids
Danger code (KeMe): 33
EMS Number: F-E,S-D

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.
UN "Model Regulation": UN1170, Ethanol solutions (Ethyl alcohol solutions), 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):
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:
64-17-5 ethanol

Cancerogenity categories
EPA (Environmental Protection Agency)
None of the ingredients are listed.
Trade name: Dual-Glo® Stop and Glo® Substrate

TLV (Threshold Limit Value established by ACGIH)

- 64-17-5 ethanol
- 7664-93-9 sulphuric acid

MAK (German Maximum Workplace Concentration)

- 64-17-5 ethanol
- 7664-93-9 sulphuric acid

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

None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

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

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
- GHS: Globally Harmonized System of Classification and Labeling of Chemicals
- ACGIH: American Conference of Governmental Industrial Hygienists
- 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

* Data compared to the previous version altered.