Kit components

Product Membrane Binding Solution
Product code A930

<table>
<thead>
<tr>
<th>Substance number</th>
<th>Description</th>
<th>Amount</th>
<th>Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>A930</td>
<td>Membrane Binding Solution</td>
<td>1</td>
<td>Xn</td>
</tr>
</tbody>
</table>
1 Identification of the substance/mixture and of the company/undertaking

Product identifier

Trade name: Membrane Binding Solution

Article number: A930

Application of the substance / the preparation
Laboratory chemicals
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: MSDS 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 Composition/information on ingredients

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

Dangerous components:
593-84-0 guanidinium thiocyanate 50-75%

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

3 Hazards identification

Classification of the substance or mixture
Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Harmful

Harmful by inhalation and if swallowed.
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Classification system:
The classification was made according to the latest editions of international substances lists, and is expanded upon by company and technical literature data. (Contd. on page 2)
**Trade name: Membrane Binding Solution**

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**Label elements**

**Labelling according to EU guidelines:**
The product has been classified and marked in accordance with directives on hazardous materials.

**Code letter and hazard designation of product:**
Xn Harmful

**Hazard-determining components of labelling:**
guanidinium thiocyanate

**Risk phrases:**
Harmful by inhalation and if swallowed.
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety phrases:**
Keep container in a well-ventilated place.
Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer).
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Wear suitable protective clothing and gloves.
This material and its container must be disposed of as hazardous waste.
Avoid release to the environment. Refer to special instructions/safety data sheets.

**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:**
Inhalation
Oral

**Target Organ(s):**
May affect Nervous system (Neurotoxin)
May cause Kidney damage (Nephrotoxin)
Risk of damage to eyes
Affects Gastrointestinal System

**Other hazards** Product has been observed to have sensitizing effects.

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**1st aid measures**

**General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
Medical supervision for at least 48 hours.

**After inhalation:**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
Seek medical treatment in case of complaints.
Trade name: Membrane Binding Solution

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: Immediately call a doctor.
Seek immediate medical advice.

5 Firefighting measures

Suitable extinguishing agents:
CO2, 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
Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures:
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.
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).
Dispose contaminated material as waste according to item 13.
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:
Keep receptacles tightly sealed.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Information about protection against explosions and fires: The product is not flammable.
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: Keep receptacle tightly sealed.
Specific end use(s): No further relevant information available.

8 Exposure controls/personal protection

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.
Trade name: Membrane Binding Solution

**Personal protective equipment:**
**General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Do not eat or drink while working.

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

**Eye protection:** Goggles recommended during refilling.

### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>General Information</th>
<th>Fluid</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance:</strong></td>
<td></td>
</tr>
<tr>
<td>Form:</td>
<td>Colorless</td>
</tr>
<tr>
<td>Color:</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Odor:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Odour threshold:</td>
<td></td>
</tr>
<tr>
<td><strong>pH-value at 20°C (68 °F):</strong></td>
<td>4.8</td>
</tr>
<tr>
<td><strong>Change in condition</strong></td>
<td></td>
</tr>
<tr>
<td>Melting point/Melting range:</td>
<td>Undetermined.</td>
</tr>
<tr>
<td>Boiling point/Boiling range:</td>
<td>Undetermined.</td>
</tr>
<tr>
<td><strong>Flash point:</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Flammability (solid, gaseous):</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Ignition temperature:</strong></td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Auto igniting:</td>
<td>Product is not selfigniting.</td>
</tr>
<tr>
<td><strong>Danger of explosion:</strong></td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td><strong>Explosion limits:</strong></td>
<td></td>
</tr>
<tr>
<td>Lower:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Upper:</td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Vapor pressure:</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Density:</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Evaporation rate:</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Solubility in / Miscibility with</strong></td>
<td></td>
</tr>
<tr>
<td>Water:</td>
<td>Fully miscible.</td>
</tr>
</tbody>
</table>
### Segregation coefficient (n-octonol/water)
Not determined.

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

### Solvent content
- **Organic solvents:** 0.0%
- **Water:** 41.9%
- **Solids content:** 58.1%

### Other information
No further relevant information available.

### 10 Stability and reactivity

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

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

**Hazardous decomposition products:** Carbon monoxide and carbon dioxide, Nitrogen oxides, Sulfuric acid.

### 11 Toxicological information

**Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**
  - 593-84-0 guanidinium thiocyanate
    - **Oral**
      - LD50: 475 mg/kg (Rat)
      - By analogy to guanidine hydrochloride
    - **Dermal**
      - LD50: >2000 mg/kg (Rabbit)
      - By analogy to Guanidine hydrochloride.

**Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Irritating effect.

**Sensitization:** Sensitization possible through inhalation.

**Additional toxicological information:**
- The product shows the following dangers according to internally approved calculation methods for preparations:
  - Harmful

### 12 Ecological information

**Aquatic toxicity:** Harmful to aquatic life with long lasting effects.

**Persistence and degradability:** Not available

**Behavior in environmental systems:**

**Bioaccumulative potential:** Not known

**Ecotoxicological effects:**

**Remark:** Harmful to fish

**Additional ecological information:**

**General notes:**
- Water hazard class 1 (Self-assessment): slightly hazardous for water
34.0.2
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Harmful to aquatic organisms

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>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT, ADR, ADN, IMDG, IATA</td>
<td>Void</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>None</td>
</tr>
<tr>
<td>DOT, ADR, ADN, IMDG, IATA</td>
<td>Void</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>None</td>
</tr>
<tr>
<td>DOT, ADR, ADN, IMDG, IATA</td>
<td>Void</td>
</tr>
<tr>
<td>Class</td>
<td>None</td>
</tr>
<tr>
<td>Packing group</td>
<td>None</td>
</tr>
<tr>
<td>DOT, ADR, IMDG, IATA</td>
<td>Void</td>
</tr>
<tr>
<td>Environmental hazards: Marine pollutant:</td>
<td>No</td>
</tr>
<tr>
<td>Special precautions for user</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

15 Regulatory information

*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.
Trade name: Membrane Binding Solution

### 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.

#### Cancerogenity categories

<table>
<thead>
<tr>
<th>Agency</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EPA (Environmental Protection Agency)</strong></td>
<td>None of the ingredients are listed.</td>
</tr>
<tr>
<td><strong>IARC (International Agency for Research on Cancer)</strong></td>
<td>None of the ingredients are listed.</td>
</tr>
<tr>
<td><strong>NTP (National Toxicology Program)</strong></td>
<td>None of the ingredients are listed.</td>
</tr>
<tr>
<td><strong>TLV (Threshold Limit Value established by ACGIH)</strong></td>
<td>None of the ingredients are listed.</td>
</tr>
<tr>
<td><strong>MAK (German Maximum Workplace Concentration)</strong></td>
<td>None of the ingredients are listed.</td>
</tr>
<tr>
<td><strong>NIOSH-Ca (National Institute for Occupational Safety and Health)</strong></td>
<td>None of the ingredients are listed.</td>
</tr>
<tr>
<td><strong>OSHA-Ca (Occupational Safety &amp; Health Administration)</strong></td>
<td>None of the ingredients are listed.</td>
</tr>
</tbody>
</table>

### Product related hazard informations:
The product has been classified and marked in accordance with directives on hazardous materials.

#### Hazard symbols:
Xn Harmful

#### Hazard-determining components of labelling:
guanidinium thiocyanate

#### Risk phrases:
Harmful by inhalation and if swallowed.
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

#### Safety phrases:
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Avoid release to the environment. Refer to special instructions/safety data sheets.

#### National regulations:

<table>
<thead>
<tr>
<th>Water hazard class</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water hazard class 1 (Self-assessment)</td>
<td>Slightly hazardous for water.</td>
</tr>
</tbody>
</table>

### 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.
Trade name: Membrane Binding Solution

Department issuing MSDS:
Promega Corporation
Environmental Health and Safety Department
2800 Woods Hollow Road
Madison, WI
Ph:(608)274-4330
* Data compared to the previous version altered.