1 Identification

Product identifier
Trade name: Endotoxin Removal Wash (ERW)

Article number: A158
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

flammable liquid and vapor.

Acute Tox. 4 H302 Harmful if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

Label elements
GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS)
Hazard pictograms GHS02, GHS07
Signal word Danger
Hazard-determining components of labeling:
guanidinium chloride
propan-2-ol
Hazard statements
Highly flammable liquid and vapor.

(Contd. on page 2)
### Trade name: Endotoxin Removal Wash (ERB)

**Harmful if swallowed.**
Causes skin irritation.
Causes serious eye irritation.
May cause drowsiness or dizziness.

**Precautionary statements**
Take precautionary measures against static discharge.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use explosion-proof electrical/ventilating/lighting/equipment.
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves / eye protection / face protection.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Ground/bond container and receiving equipment.
Use only non-sparking tools.
Use only outdoors or in a well-ventilated area.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Rinse mouth.
In case of fire: Use for extinction: CO2, powder or water spray.
Take off contaminated clothing and wash it before reuse.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

**Classification system:**
**NFPA ratings (scale 0 - 4)**
Health  = 1
Fire  = 3
Reactivity = 0

**HMIS-ratings (scale 0 - 4)**
Health  = 1
Fire  = 3
Reactivity = 0

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

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

**Target Organ(s):**
May affect Nervous system (Neurotoxin)
May cause Kidney damage (Nephrotoxin)
May affect Bones

Other hazards Keep away from sources of ignition.

**Results of PBT and vPvB assessment**
PBT: Not applicable.
Safety Data Sheet
acc. to OSHA HCS

Printing date 09/20/2016
Reviewed on 08/29/2016

Trade name: Endotoxin Removal Wash (ERB)

vPvB: Not applicable.

(Cond. of page 2)

* 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>50-01-1 guanidinium chloride</td>
<td>37.0%</td>
</tr>
<tr>
<td>67-63-0 propan-2-ol</td>
<td>25-50%</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:
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
Take affected persons out into the fresh air.
Take affected persons out of danger area and lay down.

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.
Take affected persons into fresh air and keep quiet.

After skin contact:
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.

After eye contact:
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After swallowing: Seek immediate medical advice.
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.

(Cond. on page 4)

* 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
Safety Data Sheet
acc. to OSHA HCS

Printing date 09/20/2016
Reviewed on 08/29/2016

Trade name: Endotoxin Removal Wash (ERB)

In the case of fire, wear respiratory protective equipment and chemical protective suit.

(Contd. of page 3)

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).
Dispose contaminated material as waste according to Section 13.
Ensure adequate ventilation.

Reference to other sections
See Section 7 for information on safe handling.
See Section 13 for disposal information.

(Contd. on page 5)

7 Handling and storage

Handling:
Precautions for safe handling
Keep receptacles tightly sealed.
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:
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.
Trade name: Endotoxin Removal Wash (ERB)

67-63-0 propan-2-ol

PEL
Long-term value: 980 mg/m³, 400 ppm
REL Short-term value: 1225 mg/m³, 500 ppm
Long-term value: 980 mg/m³, 400 ppm
TLV Short-term value: 994 mg/m³, 400 ppm
Long-term value: 492 mg/m³, 200 ppm
BEI

Ingredients with biological limit values:

67-63-0 propan-2-ol
BEI 40 mg/L
Medium: urine
Time: end of shift at end of workweek
Parameter: Acetone (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:
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Do not eat or drink while working.
Clean skin thoroughly immediately after handling the product.

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 can not 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: Alcohol-like
Odor threshold: Not determined.

(Contd. of page 6)
### pH-value at 20 °C (68 °F):
| **5.2** |

### Change in condition
| **Melting point/Melting range:** | Undetermined. |
| **Boiling point/Boiling range:** | 82 °C (180 °F) |
| **Flash point:** | < 23 °C (< 73 °F) |

### Flammability (solid, gaseous):
| Not applicable. |

### Ignition temperature:
| 425 °C (797 °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:** | 2.0 Vol % |
| **Upper:** | 12.0 Vol % |
| **Vapor pressure at 20 °C (68 °F):** | 43 hPa (32 mm Hg) |

### Density at 20 °C (68 °F):
| 1.05035 g/cm³ (8.767 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:
| 35.0 % |

### Water:
| 28.0 % |

### VOC content:
| 35.0 % |

### Solids content:
| 37.0 % |

### Other information:
| No further relevant information available. |

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### 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:** Reacts with strong acids and oxidizing agents.

**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:

<table>
<thead>
<tr>
<th>LD/LC50 values that are relevant for classification:</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-01-1 guanidinium chloride</td>
</tr>
<tr>
<td>Oral LD50</td>
</tr>
<tr>
<td>Irritation of eyes acute LD50</td>
</tr>
<tr>
<td>Severe Irritation</td>
</tr>
</tbody>
</table>

Primary irritant effect:
on the skin: Irritant to skin and mucous membranes.
on the eye: irritating effect.
Sensitization: No sensitizing effects known.

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

Carcinogenic categories

IARC (International Agency for Research on Cancer)
67-63-0 | propan-2-ol | 3

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:
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.
15 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>
<th>UN1219</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>Isopropanol solution</td>
<td></td>
</tr>
<tr>
<td>DOT</td>
<td>Isopropanol solution</td>
<td></td>
</tr>
<tr>
<td>ADR</td>
<td>1219 Isopropanol solution</td>
<td></td>
</tr>
<tr>
<td>IMDG, IATA</td>
<td>ISOPROPANOL (ISOPROPYL ALCOHOL) solution</td>
<td></td>
</tr>
</tbody>
</table>

Transport hazard class(es)

**DOT**

Class: 3 Flammable liquids
Label: 3

**ADR**

Class: 3 (F1) Flammable liquids
Label: 3

**IMDG, IATA**

Class: 3 Flammable liquids
Label: 3

Packing group

**DOT, ADR, IMDG, IATA** II
Safety Data Sheet
acc. to OSHA HCS

Trade name: Endotoxin Removal Wash (ERB)

Environmental hazards: No
Marine pollutant: No

Special precautions for user
Warning: Flammable liquids
Danger code (Kemler): 33
EMS Number: F-E-S-E
StORAGE Category B

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) 1L
Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

Exceptional quantities (EQ) UN "Model Regulation": UN 1219 ISOPROPANOL SOLUTION, 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):
67-63-0propan-2-ol

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.

Cancerogenicity categories

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

(Contd. on page 10)
Safety Data Sheet
acc. to OSHA HCS

Printing date 09/20/2016
Reviewed on 08/29/2016

Trade name: Endotoxin Removal Wash (ERB)

TLV (Threshold Limit Value established by ACGIH)
67-63-0 | propan-2-ol | \( \text{L} \) 44

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:
guanidinium chloride
propan-2-ol

Hazard statements
Highly flammable liquid and vapor.
Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause drowsiness or dizziness.

Precautionary statements
Take precautionary measures against static discharge.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use explosion-proof electrical/ventilating/lighting/equipment.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Wear protective gloves / eye protection / face protection.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Ground/bond container and receiving equipment.
Use only non-sparking tools.
Use only outdoors or in a well-ventilated area.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Rinse mouth.
In case of fire: Use for extinction: CO2, powder or water spray.
Take off contaminated clothing and wash it before reuse.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
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.

(Contd. on page 11)
Trade name: Endotoxin Removal Wash (ERB)

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

Date of preparation / last revision 09/20/2016 /

Abbreviations and acronyms:
RID: Règlement International concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organization
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
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

* Data compared to the previous version altered.