1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

<table>
<thead>
<tr>
<th>Ashland</th>
<th>Regulatory Information Number</th>
<th>1-800-325-3751</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.O. Box 2219</td>
<td>Telephone</td>
<td>614-790-3333</td>
</tr>
<tr>
<td>Columbus, OH 43216</td>
<td>Emergency telephone number</td>
<td>1-800-ASHLAND (1-800-274-5263)</td>
</tr>
</tbody>
</table>

Product name: Germaben™ II-E preservative™
Trademark, Ashland or its subsidiaries, registered in various countries

Product code: 828419

Product Use Description: Preservative

2. HAZARDS IDENTIFICATION

Emergency Overview
Appearance: liquid

CAUTION! MAY CAUSE EYE IRRITATION.

Potential Health Effects

Exposure routes: Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact
Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin contact
Unlikely to cause skin irritation or injury.

Ingestion
Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful.

Inhalation
It is possible to breathe this material under certain conditions of handling and use (for example, during heating, spraying, or stirring). Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition
Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: lung (for example, asthma-like conditions), Kidney

Symptoms
Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: irritation (nose, throat, airways)

**Target Organs**
Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: kidney damage

**Carcinogenicity**
This material is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA).

**Reproductive hazard**
Propylene glycol was not harmful to the fetus in laboratory animal studies.

**Other information**
Propylene glycol may be absorbed in potentially harmful amounts when applied in large quantities to severe burns (second or third degree) over large areas of the body as part of a cream or other topical application. Absorption under such circumstances can elevate serum osmolality and may result in osmotic shock.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Components</th>
<th>CAS-No. / Trade Secret No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPYLENE GLYCOL</td>
<td>57-55-6</td>
<td>&gt;=60-&lt;70%</td>
</tr>
<tr>
<td>DIAZOLIDINYL UREA</td>
<td>78491-02-8</td>
<td>&gt;=20-&lt;30%</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

**Eyes**
If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

**Skin**
First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water.

**Ingestion**
Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

**Inhalation**
If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician
Hazards: No information available.
Treatment: No information available.

5. FIREFIGHTING MEASURES

Suitable extinguishing media
Dry chemical, Carbon dioxide (CO2), Water spray

Hazardous combustion products
Carbon dioxide (CO2), carbon dioxide and carbon monoxide, organic compounds, phenols, toxic fumes

Precautions for fire-fighting
Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). DO NOT direct a solid stream of water or foam into hot, burning pools of liquid since this may cause frothing and increase fire intensity. Frothing can be violent and possibly endanger any firefighter standing too close to the burning liquid. Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification
Combustible Liquid Class IIIB

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions
Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

Methods for cleaning up
Keep in suitable, closed containers for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Other information
Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE
Handling
Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Storage
Store in a cool, dry, ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines
Contains no substances with occupational exposure limit values.

General advice
These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls
Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection
Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist.

Skin and body protection
Wear resistant gloves (consult your safety equipment supplier).

Respiratory protection
A NIOSH-approved air-purifying respirator with an appropriate cartridge and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits (if applicable) or if overexposure has otherwise been determined. Protection provided by air-purifying respirators is limited. Use a positive pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>369.0 °F / 187.2 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>219.9 °F / 104.4 °C</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>0.292 hPa @ 68 °F / 20 °C</td>
</tr>
<tr>
<td>Density</td>
<td>1.18 g/cm³</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY
Stability
Stable.

Conditions to avoid
Exposure to sunlight., Exposure to moisture., Heating in air.

Incompatible products
isocyanates, Strong acids, strong bases, Strong oxidizing agents, UV light.

Hazardous decomposition products
Alcohols, Aldehydes, carbon dioxide and carbon monoxide, dioxolanes, ethers, Organic acids, phenols, toxic fumes

Hazardous reactions
Product will not undergo hazardous polymerization.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Inhalation
Skin absorption
Skin contact
Eye Contact
Ingestion

Product
Acute oral toxicity : no data available
Acute inhalation toxicity : no data available
Acute dermal toxicity : no data available
Skin corrosion/irritation : no data available
Serious eye damage/eye irritation : no data available
Respiratory or skin sensitisation : no data available

Target Organ Systemic Toxicant
- Repeated exposure : Target Organs: Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals:.; kidney damage
Components:

PROPYLENE GLYCOL:
- Acute oral toxicity: LD 50 Rat: 21.0 - 33.7 g/kg
- Acute dermal toxicity: LD 50 Rabbit: 28 g/kg

DIAZOLIDINYL UREA:
- Acute oral toxicity: LD 50 Rat: > 2,000 mg/kg
- Acute inhalation toxicity: LC 50 Rat: 1.3 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
- Acute dermal toxicity: LD 50 Rabbit: > 2,000 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:
no data available

Components:

PROPYLENE GLYCOL:
- Toxicity to fish: LC 50 (Fathead minnow (Pimephales promelas)): 29,485 - 39,339 mg/l
  Exposure time: 96 h
  Test Method: semi-static test
- Toxicity to daphnia and other aquatic invertebrates: EC 50 (Water flea (Daphnia magna)): > 10,000 mg/l
  Exposure time: 48 h
  Test Method: static test

DIAZOLIDINYL UREA:
- Toxicity to fish: LC 50 (Bluegill (Lepomis macrochirus)): > 100 mg/l
  Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates: EC 50 (Water flea (Daphnia magna)): 34.9 mg/l
aquatic invertebrates Exposure time: 48 h

**Persistence and degradability**

**Product:**
no data available

**Components:**

**PROPYLENE GLYCOL:**
Biodegradability: Biodegradation: 81 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

**DIAZOLIDINYL UREA:**
Biodegradability: Biodegradation: 24 %
Exposure time: 28 d
Not readily biodegradable.

**Bioaccumulative potential**

**Product:**
no data available

**Components:**

**PROPYLENE GLYCOL:**
Partition coefficient: n-octanol/water: log Pow: -0.92

**Mobility in soil**

**Product:**
no data available

**Components:**

**PROPYLENE GLYCOL:**
Surface tension: 40.1 mN/m
13. DISPOSAL CONSIDERATIONS

Waste disposal methods
Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>REGULATION</th>
<th>ID NUMBER</th>
<th>PROPER SHIPPING NAME</th>
<th>*HAZARD CLASS</th>
<th>SUBSIDIARY HAZARDS</th>
<th>PACKING GROUP</th>
<th>MARINE POLLUTANT / LTD. QTY.</th>
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</thead>
<tbody>
<tr>
<td>MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES</td>
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<tr>
<td>INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER</td>
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<tr>
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<tr>
<td>INTERNATIONAL MARITIME DANGEROUS GOODS</td>
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<tr>
<td>TRANSPORT CANADA - INLAND WATERWAYS</td>
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<td></td>
<td>Not dangerous goods</td>
</tr>
<tr>
<td>TRANSPORT CANADA - RAIL</td>
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<td>Not dangerous goods</td>
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<tr>
<td>TRANSPORT CANADA - ROAD</td>
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<td>Not dangerous goods</td>
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<tr>
<td>U.S. DOT - INLAND WATERWAYS</td>
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<td>Not dangerous goods</td>
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<tr>
<td>U.S. DOT - RAIL</td>
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<td>Not dangerous goods</td>
</tr>
<tr>
<td>U.S. DOT - ROAD</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Not dangerous goods</td>
</tr>
</tbody>
</table>

*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.
15. REGULATORY INFORMATION

California Prop. 65
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SARA Hazard Classification
SARA 311/312 Classification
Acute Health Hazard

SARA 313 Component(s)
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Notification status

<table>
<thead>
<tr>
<th>Notification Status</th>
<th>Status</th>
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<tbody>
<tr>
<td>US. Toxic Substances Control Act</td>
<td>y (positive listing)</td>
</tr>
<tr>
<td>Australia. Industrial Chemical (Notification and Assessment) Act</td>
<td>y (positive listing)</td>
</tr>
<tr>
<td>New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand</td>
<td>y (positive listing)</td>
</tr>
<tr>
<td>Japan. Kashin-Hou Law List</td>
<td>n (Negative listing)</td>
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<tr>
<td>Korea. Toxic Chemical Control Law (TCCL) List</td>
<td>y (positive listing)</td>
</tr>
<tr>
<td>Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act</td>
<td>y (positive listing)</td>
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<tr>
<td>China. Inventory of Existing Chemical Substances</td>
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</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>NFPA</th>
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<td>Flammability</td>
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<tr>
<td>Instability</td>
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<tr>
<td>Specific Hazard</td>
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</tr>
</tbody>
</table>

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

Page 9 / 10
List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet:

- ACGIH: American Conference of Industrial Hygienists
- BEI: Biological Exposure Index
- CAS: Chemical Abstracts Service (Division of the American Chemical Society).
- CMR: Carcinogenic, Mutagenic or Toxic for Reproduction
- FG: Food grade
- GHS: Globally Harmonized System of Classification and Labeling of Chemicals.
- H-statement: Hazard Statement
- IATA: International Air Transport Association.
- IATA-DGR: Dangerous Goods Regulation by the “International Air Transport Association” (IATA).
- ICAO: International Civil Aviation Organization
- ICAO-TI (ICAO): Technical Instructions by the “International Civil Aviation Organization”
- IMDG: International Maritime Code for Dangerous Goods
- ISO: International Organization for Standardization
- logPow: octanol-water partition coefficient
- LCxx: Lethal Concentration, for xx percent of test population
- LDxx: Lethal Dose, for xx percent of test population
- ICxx: Inhibitory Concentration for xx of a substance
- ECxx: Effective Concentration of xx
- N.O.S.: Not Otherwise Specified
- OECD: Organization for Economic Co-operation and Development
- OEL: Occupational Exposure Limit
- P-Statement: Precautionary Statement
- PBT: Persistent, Bioaccumulative and Toxic
- PPE: Personal Protective Equipment
- STEL: Short-term exposure limit
- STOT: Specific Target Organ Toxicity
- TLV: Threshold Limit Value
- TWA: Time-weighted average
- vPvB: Very Persistent and Very Bioaccumulative
- WEL: Workplace Exposure Level

- CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act
- DOT: Department of Transportation
- FIFRA: Federal Insecticide, Fungicide, and Rodenticide Act
- HMIRC: Hazardous Materials Information Review Commission
- HMIS: Hazardous Materials Identification System
- NFPA: National Fire Protection Association
- NIOSH: National Institute for Occupational Safety and Health
- OSHA: Occupational Safety and Health Administration
- PMRA: Health Canada Pest Management Regulatory Agency
- RTK: Right to Know
- WHMIS: Workplace Hazardous Materials Information System