SECTION 1: Identification

1.1. Identification
Product form: Mixtures
Product name: Ethanol-Benzene Mixture, 1:2
Product code: LC14100

1.2. Recommended use and restrictions on use
Use of the substance/mixture: For laboratory and manufacturing use only.
Recommended use: Laboratory chemicals
Restrictions on use: Not for food, drug or household use

1.3. Supplier
LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number
Emergency number: CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification
- Flammable liquids
  - Category 2
  - Acute toxicity (oral)
  - Skin corrosion/irritation
  - Serious eye damage/eye irritation Category 2A
  - Germ cell mutagenicity Category 1B
  - Carcinogenicity Category 1A
- Reproductive toxicity
  - Category 2
- Specific target organ toxicity (single exposure)
  - Category 1
- Specific target organ toxicity (repeated exposure)
  - Category 1
- Hazardous to the aquatic environment - Acute Hazard Category 2

Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labeling
- Hazard pictograms (GHS-US):
  - GHS02
  - GHS07
  - GHS08
- Signal word (GHS-US): Danger
- Hazard statements (GHS-US):
  - H225 - Highly flammable liquid and vapor
  - H302 - Harmful if swallowed
  - H315 - Causes skin irritation
  - H340 - May cause genetic defects
  - H350 - May cause cancer
  - H361 - Suspected of damaging fertility or the unborn child
  - H370 - Causes damage to organs (central nervous system, optic nerve)
  - H372 - Causes damage to organs (liver, kidneys) through prolonged or repeated exposure
  - H401 - Toxic to aquatic life
Ethanol-Benzene Mixture, 1:2
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H319 - Causes serious eye irritation
H340 - May cause genetic defects
H350 - May cause cancer
H361 - Suspected of damaging fertility or the unborn child
H370 - Causes damage to organs (central nervous system, optic nerve)
H372 - Causes damage to organs (liver, kidneys) through prolonged or repeated exposure
H401 - Toxic to aquatic life

Precautionary statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, sparks, open flames, hot surfaces. - No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical, ventilating, lighting equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P260 - Do not breathe mist, vapors, spray
P264 - Wash exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P273 - Avoid release to the environment
P280 - Wear protective gloves, protective clothing, eye protection, face protection

P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P307+P311 - If exposed: Call a poison center/doctor
P308+P313 - IF exposed or concemed: Get medical advice/attention
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P332+P331 - If skin irritation occurs: Get medical advice/attention
P337+P313 - If eye irritation persists: Get medical advice/attention
P362+P364 - Take off contaminated clothing and wash it before reuse
P370+P378 - In case of fire: Use alcohol resistant foam, carbon dioxide (CO2), extinguishing powder to extinguish
P403+P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up
P501 - Dispose of contents/container to comply with local, state and federal regulations

2.3. Other hazards which do not result in classification
Other hazards not contributing to the classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier (CAS-No.)</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>(71-43-2)</td>
<td>66.67</td>
<td>Flam. Liq. 2, H225, Acute Tox. 3 (Oral), H302, Skin Irrit. 2A, H311, Muta. 1B, H340, Carc. 1A, H350, STOT SE 3, H372, Asp. Tox. 1, H304, Aquatic Acute 2, H401</td>
</tr>
<tr>
<td>Ethanol</td>
<td>(64-17-5)</td>
<td>30</td>
<td>Flam. Liq. 2, H225, Carc. 1A, H350, Repr. 2, H361</td>
</tr>
<tr>
<td>Isopropyl Alcohol (2-Propanol)</td>
<td>(67-63-0)</td>
<td>1.665</td>
<td>Flam. Liq. 2, H225, Eye Irrit. 2A, H319, STOT SE 3, H335</td>
</tr>
<tr>
<td>Methanol</td>
<td>(67-56-1)</td>
<td>1.665</td>
<td>Flam. Liq. 2, H225, Acute Tox. 3 (Oral), H301, Acute Tox. 3 (Dermal), H311, Acute Tox. 3 (Inhalation), H331, STOT SE 1, H370</td>
</tr>
</tbody>
</table>
SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general: Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

First-aid measures after skin contact: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a POISON CENTER or doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects: May cause genetic defects. Suspected of damaging fertility or the unborn child. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.

Symptoms/effects after inhalation: May cause cancer by inhalation.

Symptoms/effects after skin contact: Causes skin irritation.

Symptoms/effects after eye contact: Causes serious eye irritation.

Symptoms/effects after ingestion: Swallowing a small quantity of this material will result in serious health hazard.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media


Unsuitable extinguishing media: Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard: Highly flammable liquid and vapor.

Explosion hazard: May form flammable/explosive vapor-air mixture.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Remove ignition sources. Use special care to avoid static electric charges. No naked lights. No smoking.

6.1.1. For non-emergency personnel


Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Equip cleanup crew with proper protection. Avoid breathing mist, spray.

Emergency procedures: Ventilate area. If a major spill occurs, all personnel should be immediately evacuated and the area ventilated. Stop leak if safe to do so.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.
6.4. Reference to other sections
See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed
- Handle empty containers with care because residual vapors are flammable.

Precautions for safe handling
- Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No naked lights. No smoking. Use only non-sparking tools. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Eliminate all ignition sources if safe to do so. Do not breathe mist, vapors, spray.

Hygiene measures
- Do not eat, drink or smoke when using this product. Wash exposed skin thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures
- Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/… equipment.

Storage conditions
- Keep only in the original container in a cool, well ventilated place away from : Heat sources, Ignition sources, incompatible materials. Keep in fireproof place. Keep container tightly closed.

Incompatible products
- Strong oxidizers.

Incompatible materials
- Sources of ignition. Direct sunlight. Heat sources.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Ethanol (64-17-5)</th>
<th>ACGIH</th>
<th>ACGIH STEL (ppm)</th>
<th>1000 ppm (Ethanol; USA; Short time value; TLV - Adopted Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>1900 mg/m³</td>
<td></td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
<td>1000 ppm</td>
<td></td>
</tr>
<tr>
<td>IDLH</td>
<td>US IDLH (ppm)</td>
<td>3300 ppm</td>
<td></td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>1900 mg/m³</td>
<td></td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (ppm)</td>
<td>1000 ppm</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Isopropyl Alcohol (2-Propanol) (67-63-0)</th>
<th>ACGIH</th>
<th>ACGIH TWA (ppm)</th>
<th>200 ppm (2-propanol; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>ACGIH STEL (ppm)</td>
<td>400 ppm (2-propanol; USA; Short time value; TLV - Adopted Value)</td>
<td></td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>980 mg/m³</td>
<td></td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
<td>400 ppm</td>
<td></td>
</tr>
<tr>
<td>IDLH</td>
<td>US IDLH (ppm)</td>
<td>2000 ppm</td>
<td></td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>980 mg/m³</td>
<td></td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (ppm)</td>
<td>400 ppm</td>
<td></td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (STEL) (mg/m³)</td>
<td>1225 mg/m³</td>
<td></td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (STEL) (ppm)</td>
<td>500 ppm</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Methanol (67-56-1)</th>
<th>ACGIH</th>
<th>ACGIH TWA (ppm)</th>
<th>200 ppm (Methanol; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>ACGIH STEL (ppm)</td>
<td>250 ppm (Methanol; USA; Short time value; TLV - Adopted Value)</td>
<td></td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>260 mg/m³</td>
<td></td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
<td>200 ppm</td>
<td></td>
</tr>
<tr>
<td>IDLH</td>
<td>US IDLH (ppm)</td>
<td>6000 ppm</td>
<td></td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>250 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>
Ethanol-Benzene Mixture, 1:2
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<table>
<thead>
<tr>
<th>Methanol (67-56-1)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (ppm)</td>
<td>200 ppm</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (STEL) (mg/m³)</td>
<td>325 mg/m³</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (STEL) (ppm)</td>
<td>250 ppm</td>
</tr>
<tr>
<td>NIOSH</td>
<td>Remark (NIOSH)</td>
<td>Skin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Benzene (71-43-2)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>ACGIH TWA (mg/m³)</td>
<td>1.6 mg/m³</td>
</tr>
<tr>
<td>ACGIH</td>
<td>ACGIH TWA (ppm)</td>
<td>0.5 ppm</td>
</tr>
<tr>
<td>ACGIH</td>
<td>ACGIH STEL (mg/m³)</td>
<td>8 mg/m³</td>
</tr>
<tr>
<td>ACGIH</td>
<td>ACGIH STEL (ppm)</td>
<td>2.5 ppm</td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>3 mg/m³</td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
<td>1 ppm</td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (STEL) (ppm)</td>
<td>5 ppm</td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (Ceiling) (mg/m³)</td>
<td>15 mg/m³</td>
</tr>
<tr>
<td>IDLH</td>
<td>US IDLH (ppm)</td>
<td>500 ppm</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (ppm)</td>
<td>0.1 ppm</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (STEL) (ppm)</td>
<td>1 ppm</td>
</tr>
</tbody>
</table>

8.2. Appropriate engineering controls

Appropriate engineering controls : Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Gloves. Safety glasses.

Materials for protective clothing:

GIVE GOOD RESISTANCE: PVA. GIVE POOR RESISTANCE: neoprene. PVC. nitrile rubber. natural rubber

Hand protection:

Wear protective gloves

Eye protection:

Chemical goggles or safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Respiratory protection not required in normal conditions

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
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Color: Colorless
Odor: characteristic
Odor threshold: No data available
pH: No data available
Melting point: No data available
Freezing point: No data available
Boiling point: No data available
Flash point: No data available
Relative evaporation rate (butyl acetate=1): No data available
Flammability (solid, gas): Highly flammable liquid and vapor.
Vapor pressure: No data available
Relative vapor density at 20 °C: No data available
Relative density: No data available
Solubility: Poorly soluble in water. Soluble in alcohols.
Log Pow: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosion limits: No data available
Explosive properties: No data available
Oxidizing properties: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Highly flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

10.3. Possibility of hazardous reactions
Not established.

10.4. Conditions to avoid
Direct sunlight. Extremely high or low temperatures. Open flame.

10.5. Incompatible materials
Strong oxidizers.

10.6. Hazardous decomposition products
Carbon monoxide. Carbon dioxide. May release flammable gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Likely routes of exposure: Inhalation; Skin and eye contact
Acute toxicity: Oral: Harmful if swallowed.

<table>
<thead>
<tr>
<th>Ethanol-Benzene Mixture, 1:2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE US (oral)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ethanol (64-17-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
</tr>
<tr>
<td>ATE US (oral)</td>
</tr>
</tbody>
</table>
Isopropyl Alcohol (2-Propanol) (67-63-0)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 dermal rabbit</td>
<td>12870 mg/kg (Rabbit; Experimental value; Equivalent or similar to OECD 402; 16.4; Rabbit)</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>73 mg/l/4h (Rat)</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>5045 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>12870 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (vapors)</td>
<td>73 mg/l/4h</td>
</tr>
<tr>
<td>ATE US (dust, mist)</td>
<td>73 mg/l/4h</td>
</tr>
</tbody>
</table>

Methanol (67-56-1)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>&gt; 5000 mg/kg (Rat; BASF test; Literature study; 1187-2769 mg/kg bodyweight; Rat; Weight of evidence)</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>15800 mg/kg (Rabbit; Literature study)</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>85 mg/l/4h (Rat; Literature study)</td>
</tr>
<tr>
<td>LC50 inhalation rat (ppm)</td>
<td>64000 ppm/4h (Rat; Literature study)</td>
</tr>
</tbody>
</table>

Benzene (71-43-2)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>1800 mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>&gt; 9400 µl/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>13050 - 14380 mg/l/4h</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>1800 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (vapors)</td>
<td>13050 mg/l/4h</td>
</tr>
<tr>
<td>ATE US (dust, mist)</td>
<td>13050 mg/l/4h</td>
</tr>
</tbody>
</table>

Ethanol (64-17-5)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC group</td>
<td>1 - Carcinogenic to humans</td>
</tr>
</tbody>
</table>

Isopropyl Alcohol (2-Propanol) (67-63-0)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC group</td>
<td>3 - Not classifiable</td>
</tr>
</tbody>
</table>

Benzene (71-43-2)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC group</td>
<td>1 - Carcinogenic to humans</td>
</tr>
<tr>
<td>National Toxicology Program (NTP) Status</td>
<td>2 - Known Human Carcinogens</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproductive toxicity</td>
<td>: Suspected of damaging fertility or the unborn child.</td>
</tr>
<tr>
<td>Specific target organ toxicity – single exposure</td>
<td>: Causes damage to organs (central nervous system, optic nerve).</td>
</tr>
<tr>
<td>Specific target organ toxicity – repeated exposure</td>
<td>: Causes damage to organs (liver, kidneys) through prolonged or repeated exposure.</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>: Not classified</td>
</tr>
<tr>
<td>Potential Adverse human health effects and symptoms</td>
<td>: Based on available data, the classification criteria are not met. Harmful if swallowed.</td>
</tr>
<tr>
<td>Symptoms/effects after inhalation</td>
<td>: May cause cancer by inhalation.</td>
</tr>
<tr>
<td>Symptoms/effects after skin contact</td>
<td>: Causes skin irritation.</td>
</tr>
<tr>
<td>Symptoms/effects after eye contact</td>
<td>: Causes serious eye irritation.</td>
</tr>
<tr>
<td>Symptoms/effects after ingestion</td>
<td>: Swallowing a small quantity of this material will result in serious health hazard.</td>
</tr>
</tbody>
</table>

SECTION 12: Ecological information

12.1 Toxicity

Ecology - water : Toxic to aquatic life.

Ethanol-Benzene Mixture, 1:2

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>8.8 mg/l</td>
</tr>
</tbody>
</table>
### Ethanol-Benzene Mixture, 1:2

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#### Ethanol (64-17-5)

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>14200 mg/l (LC50; US EPA; 96 h; Pimephales promelas; Flow-through system; Fresh water; Experimental value)</td>
</tr>
</tbody>
</table>

#### Isopropyl Alcohol (2-Propanol) (67-63-0)

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 2</td>
<td>9640 mg/l (LC50; OECD 203: Fish, Acute Toxicity Test; 96 h; Pimephales promelas; Flow-through system; Fresh water; Experimental value)</td>
</tr>
<tr>
<td>EC50 Daphnia 2</td>
<td>13299 mg/l (EC50; Other; 48 h; Daphnia magna)</td>
</tr>
<tr>
<td>Threshold limit algae 1</td>
<td>&gt; 1000 mg/l (EC50; UBA; 72 h; Scenedesmus subspicatus)</td>
</tr>
</tbody>
</table>

#### Methanol (67-56-1)

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>15400 mg/l (LC50; EPA 660/3 - 75/009; 96 h; Lepomis macrochirus; Flow-through system; Fresh water; Experimental value)</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>&gt; 10000 mg/l (EC50; DIN 38412-11; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)</td>
</tr>
<tr>
<td>LC50 fish 2</td>
<td>10800 mg/l (LC50; 96 h; Salmo gairdneri)</td>
</tr>
</tbody>
</table>

#### Benzene (71-43-2)

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>5.3 mg/l 96 hr., Oncorhynchus mykiss, flow-through</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>8.76 - 15.6 mg/l 48 hr., Daphnia magna</td>
</tr>
<tr>
<td>EC50 Daphnia 2</td>
<td>10 mg/l 48 hr., Daphnia magna</td>
</tr>
<tr>
<td>EC50 other aquatic organisms 2</td>
<td>29 mg/l 72 hr., Pseudokirchneriella subcapitata</td>
</tr>
</tbody>
</table>

#### 12.2. Persistence and degradability

**Ethanol-Benzene Mixture, 1:2**

Persistence and degradability  
Not established.

**Ethanol (64-17-5)**

Persistence and degradability  

Biodegradability (BOD)  
0.8 - 0.967 g O₂/g substance

Chemical oxygen demand (COD)  
1.7 g O₂/g substance

ThOD  
2.1 g O₂/g substance

BOD (% of ThOD)  
0.43

**Isopropyl Alcohol (2-Propanol) (67-63-0)**

Persistence and degradability  
Readily biodegradable in water. Biodegradable in the soil. Biodegradable in the soil under anaerobic conditions. No test data on mobility of the substance available.

Biodegradability (BOD)  
1.19 g O₂/g substance

Chemical oxygen demand (COD)  
2.23 g O₂/g substance

ThOD  
2.4 g O₂/g substance

**Methanol (67-56-1)**

Persistence and degradability  

Biodegradability (BOD)  
0.6 - 1.12 g O₂/g substance

Chemical oxygen demand (COD)  
1.42 g O₂/g substance

ThOD  
1.5 g O₂/g substance

BOD (% of ThOD)  
0.8 (Literature study)

#### 12.3. Bioaccumulative potential

**Ethanol-Benzene Mixture, 1:2**

Bioaccumulative potential  
Not established.

**Ethanol (64-17-5)**

Bioaccumulative potential  
Not established.

BCF fish 1  
1 (BCF; Other; 72 h; Cyprinus carpio; Static system; Fresh water; Read-across)

Log Pow  
-0.31 (Experimental value)

Bioaccumulative potential  
Low potential for bioaccumulation (Log Kow < 4).

**Isopropyl Alcohol (2-Propanol) (67-63-0)**

Log Pow  
0.05 (Weight of evidence approach; Other; 25 °C)

Bioaccumulative potential  
Low potential for bioaccumulation (Log Kow < 4).
Ethanol-Benzene Mixture, 1:2
Safety Data Sheet

Methanol (67-56-1)
- BCF fish: 1 < 10 (BCF: 72 h; Leuciscus idus)
- Log Pow: -0.77 (Experimental value; Other)
- Bioaccumulative potential: Low potential for bioaccumulation (BCF < 500).

Benzene (71-43-2)
- Log Pow: 2.1

12.4. Mobility in soil

Ethanol (64-17-5)
- Surface tension: 0.022 N/m (20 °C)
- Log Koc: Koc,PCKOCWIN v1.66; 1; Read-across

Isopropyl Alcohol (2-Propanol) (67-63-0)
- Surface tension: 0.021 N/m (25 °C)
- Log Koc: Koc,PCKOCWIN v1.66; 1; Calculated value

12.5. Other adverse effects

Effect on the global warming: No known effects from this product.
GWPmix comment: No known effects from this product.
Other information: Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods
- Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.
- Additional information: Handle empty containers with care because residual vapors are flammable.
- Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)
- In accordance with DOT
- Transport document description: UN1993 Flammable liquids, n.o.s., 3, II
- UN-No.(DOT): UN1993
- Proper Shipping Name (DOT): Flammable liquids, n.o.s.
- Transport hazard class(es) (DOT): 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
- Packing group (DOT): II - Medium Danger
- Hazard labels (DOT): 3 - Flammable liquid
- DOT Packaging Bulk (49 CFR 173.xxx): 242
- DOT Symbols: G - Identifies PSN requiring a technical name
**Ethanol-Benzene Mixture, 1:2**  
Safety Data Sheet  
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

**DOT Special Provisions (49 CFR 172.102):**  
IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.  
T7 - 4 178.274(d)(2) Normal............ 178.275(d)(3)  
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.  
TP7 - A portable tank having a minimum test pressure of 1.5 bar (150 kPa) may be used when the flash point of the hazardous material transported is greater than 0 C (32 F).  
TP8 - A portable tank having a minimum test pressure of 2.65 bar (265 kPa) may be used provided the calculated test pressure is 2.65 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.

**DOT Packaging Exceptions (49 CFR 173.xxx):**  
150

**DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27):**  
5 L

**DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75):**  
60 L

**DOT Vessel Stowage Location:**  
B - (i) The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) “On deck only” on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

**Other information:**  
No supplementary information available.

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

<table>
<thead>
<tr>
<th>Ethanol-Benzene Mixture, 1:2</th>
<th>Fire hazard</th>
<th>Immediate (acute) health hazard</th>
<th>Delayed (chronic) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARA Section 311/312 Hazard Classes</td>
<td>Fire hazard</td>
<td>Immediate (acute) health hazard</td>
<td>Delayed (chronic) health hazard</td>
</tr>
</tbody>
</table>

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

- **Isopropyl Alcohol (2-Propanol)**  
  CAS-No. 67-63-0  
  1.665%  

- **Methanol**  
  CAS-No. 67-56-1  
  1.665%  

- **Benzene**  
  CAS-No. 71-43-2  
  66.67%

#### Methanol (67-56-1)

- **RQ (Reportable quantity, section 304 of EPA’s List of Lists):**  
  5000 lb  

- **SARA Section 311/312 Hazard Classes:**  
  Immediate (acute) health hazard  
  Fire hazard

#### Benzene (71-43-2)

- **RQ (Reportable quantity, section 304 of EPA’s List of Lists):**  
  10 lb  

- **SARA Section 311/312 Hazard Classes:**  
  Fire hazard  
  Immediate (acute) health hazard  
  Delayed (chronic) health hazard

#### 15.2. International regulations

**CANADA**  
No additional information available

**Methanol (67-56-1)**  
Listed on the Canadian DSL (Domestic Substances List)
Ethanol-Benzene Mixture, 1:2
Safety Data Sheet

<table>
<thead>
<tr>
<th>Benzene (71-43-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed on the Canadian DSL (Domestic Substances List)</td>
</tr>
</tbody>
</table>

**EU-Regulations**
No additional information available

**National regulations**

<table>
<thead>
<tr>
<th>Ethanol (64-17-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed on IARC (International Agency for Research on Cancer)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Benzene (71-43-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed on IARC (International Agency for Research on Cancer)</td>
</tr>
<tr>
<td>Listed as carcinogen on NTP (National Toxicology Program)</td>
</tr>
<tr>
<td>Listed on the Canadian IDL (Ingredient Disclosure List)</td>
</tr>
</tbody>
</table>

**15.3. US State regulations**
California Proposition 65 - This product contains, or may contain, trace quantities of a substance(s) known to the state of California to cause cancer, developmental and/or reproductive harm

<table>
<thead>
<tr>
<th>Methanol (67-56-1)</th>
<th>U.S. - California - Proposition 65 - Carcinogens List</th>
<th>U.S. - California - Proposition 65 - Developmental Toxicity</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</th>
<th>No significant risk level (NSRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Benzene (71-43-2)</th>
<th>U.S. - California - Proposition 65 - Carcinogens List</th>
<th>U.S. - California - Proposition 65 - Developmental Toxicity</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</th>
<th>No significant risk level (NSRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

**SECTION 16: Other information**

<table>
<thead>
<tr>
<th>Revision date</th>
<th>06/13/2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other information</td>
<td>None.</td>
</tr>
</tbody>
</table>
Ethanol-Benzene Mixture, 1:2
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Full text of H-phrases: see section 16:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H225</td>
<td>Highly flammable liquid and vapor</td>
</tr>
<tr>
<td>H301</td>
<td>Toxic if swallowed</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H304</td>
<td>May be fatal if swallowed and enters airways</td>
</tr>
<tr>
<td>H311</td>
<td>Toxic in contact with skin</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H331</td>
<td>Toxic if inhaled</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation</td>
</tr>
<tr>
<td>H340</td>
<td>May cause genetic defects</td>
</tr>
<tr>
<td>H350</td>
<td>May cause cancer</td>
</tr>
<tr>
<td>H361</td>
<td>Suspected of damaging fertility or the unborn child</td>
</tr>
<tr>
<td>H370</td>
<td>Causes damage to organs</td>
</tr>
<tr>
<td>H372</td>
<td>Causes damage to organs through prolonged or repeated exposure</td>
</tr>
<tr>
<td>H401</td>
<td>Toxic to aquatic life</td>
</tr>
</tbody>
</table>

NFPA health hazard: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard: 3 - Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions.

NFPA reactivity: 0 - Material that in themselves are normally stable, even under fire conditions.

Hazard Rating

Health: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given.

Flammability: 3 Serious Hazard - Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 F and boiling points above 100 F. as well as liquids with flash points between 73 F and 100 F. (Classes IB & IC)

Physical: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection: H

H - Splash goggles, Gloves, Synthetic apron, Vapor respirator

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