Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name • Denatured Ethanol
Synonyms . Ethanol

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified use(s) Laboratory test sample

1.3 Details of the supplier of the safety data sheet

Clark Laboratories
1801 Route 51 South
Jefferson Hills, PA 15025
412-387-1001

1.4. Emergency telephone number

Transportation Emergency Response
Chemtrec (United States Only) - 24 hour emergency response:
(800)424-9300
International Collect: +1 703 741 5970
SDS Assistance Email: sds@clarktesting.com

Section 2: Hazards Identification

2.1 Classification of the substance or mixture

UN GHS 4, Flammable Liquids 2 - H225
       Skin Irritation 2 - H315
       Eye Irritation 2A - H319
       Carcinogenicity 1A - H350
       Germ Cell Mutagenicity 1B - H340
       Hazardous to the aquatic environment Acute 3 - H402
       Hazardous to the aquatic environment Chronic 3 - H412

2.2 Label elements
**Hazard statements**

H225 - Highly flammable liquid and vapour.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H335 – May cause respiratory irritation
H336 – May cause drowsiness or dizziness
H302: Harmful if swallowed.

**Precautionary statements**

**Prevention**
- 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 and/or hot surfaces. - No smoking.
- P241 - Use explosion-proof - electrical, ventilating and/or lighting equipment.
  - P242 - Use only non-sparking tools.
- P243 - Take precautionary measures against static discharge.
- P264 - Wash thoroughly after handling.
- P261 – Avoid breathing fume/gas/mist/vapors/spray.
- P270 – Do not eat, drink or smoke when using this product.

**Response**
- P370+P378 - In case of fire: Use appropriate media Carbon Dioxide, "alcohol -type foam," or dry chemical for extinction.
- P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
- P362 - Take off contaminated clothing and wash before reuse.
- P332+P313 - If skin irritation occurs: Get medical advice/attention.
- P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337+P313 - If eye irritation persists: Get medical advice/attention.
- P321 - Specific treatment, see supplemental first aid information.
- P308+P313 - IF exposed or concerned: Get medical advice/attention.

**Storage/Disposal**
- P405 - Store locked up.
- P403+P235 - Store in a well-ventilated place. Keep cool.
- P410 – Protect from sunlight
- P501- Dispose of contents/container to relevant local and national regulations.

**2.3 Other hazards**

**UN GHS**

According to the Globally Harmonized Standard for Classification and Labeling (GHS) this product is considered hazardous.

**United States (US)**

According to OSHA 29 CFR 1910.1200 HCS

**2.4 Other information**
### Section 3 - Composition/Information on Ingredients

#### 3.2 Mixtures

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS number</th>
<th>EC number</th>
<th>% WT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>200-578-6</td>
<td>95-98</td>
</tr>
<tr>
<td>Natural Gasoline</td>
<td>8006-61-9</td>
<td>232-349-1</td>
<td>2-5</td>
</tr>
<tr>
<td>Gasoline</td>
<td>86290-81-5</td>
<td>289-220-8</td>
<td>2-5</td>
</tr>
<tr>
<td>Benzene</td>
<td>71-43-2</td>
<td>200-753-7</td>
<td>&lt;0.1</td>
</tr>
</tbody>
</table>

*Ethyl Alcohol, Anhydrous, Denatured*

### Section 4 - First Aid Measures

#### 4.1 Description of first aid measures

**Inhalation**

- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing.
Skin
4. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If irritation develops and persists, get medical attention.

Eye
• In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists: Get medical advice/attention.

Ingestion
4. If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Drink (one glass) (two glasses) of water. Call a physician (or poison control center immediately) Never give anything by mouth to an unconscious person. Get medical attention immediately if symptoms occur.

4.2 Most important symptoms and effects, both acute and delayed
• Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician
• Immediate medical attention after exposure to this material not expected to be necessary. No special treatment indicated related to exposure to this material.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media
4. SMALL FIRES: Dry chemical, CO2, water spray or alcohol-resistant foam.
LARGE FIRES: Water spray, fog or alcohol-resistant foam.
CAUTION: For mixtures containing a high percentage of an alcohol or polar solvent, alcohol-resistant foam may be more effective.

Unsuitable Extinguishing Media
• No data available.

5.2 Special hazards arising from the substance or mixture
Unusual Fire and Explosion. HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.

Hazards
Alcohol flames may be difficult to see because they are virtually colorless.
Vaporizes easily at normal temperatures.
Vapors may form explosive mixtures with air.
Vapors may travel to source of ignition and flash back.
Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
Vapor explosion hazard indoors, outdoors or in sewers.
Runoff to sewer may create fire or explosion hazard.
Containers may explode when heated.

Hazardous Combustion Products
May form toxic materials, carbon dioxide and carbon monoxide.

5.3 Advice for firefighters
- Structural firefighters' protective clothing will only provide limited protection.
- Wear positive pressure self-contained breathing apparatus (SCBA).

NFPA HEALTH=1 FLAMMABILITY=3 REACTIVITY=0

HMIS HEALTH=2 FLAMMABILITY=3 PHYSICAL HAZARD=0

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate enclosed areas. Stay upwind.

Emergency Procedures
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area) As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. LARGE SPILL: Consider initial downwind evacuation for at least 300 meters (1000 feet) Keep unauthorized personnel away. Stay upwind. Keep out of low areas.

6.2 Environmental precautions
- Prevent entry into waterways or sewers.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures
- Stop leak if you can do it without risk.
- Absorb or cover with dry earth, sand or other non -combustible material and transfer to containers.
- Use clean non-sparking tools to collect absorbed material.
- A vapor suppressing foam may be used to reduce vapors.
- All equipment used when handling the product must be grounded.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling
- Use good safety and industrial hygiene practices. Keep away from heat and sparks.
- Take precautionary measures against static charges. Do not use sparking tools.
- Ground container when transferring product. Use only with adequate ventilation.

7.2 Conditions for safe storage, including any incompatibilities

Storage
- Store locked up. Store in a cool, dry, well -ventilated place. Keep away from fire. Keep container closed when not in use.
Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Substance</th>
<th>STELs</th>
<th>2.5 ppm STEL</th>
<th>Not established</th>
<th>2.5 ppm STEV (applies to workplaces to which the designated substance regulation does not apply); 2.5 ppm STEV (designated substances regulation)</th>
<th>5 ppm STEV; 15.5 mg/m³ STEV</th>
<th>1 ppm STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene (71-43-2)</td>
<td>STELs</td>
<td>2.5 ppm STEL</td>
<td>Not established</td>
<td>2.5 ppm STEV (applies to workplaces to which the designated substance regulation does not apply); 2.5 ppm STEV (designated substances regulation)</td>
<td>5 ppm STEV; 15.5 mg/m³ STEV</td>
<td>1 ppm STEL</td>
</tr>
<tr>
<td>TWAs</td>
<td>0.5 ppm TWA</td>
<td>Not established</td>
<td>0.5 ppm TWAEV (applies to workplaces to which the designated substance regulation does not apply); 0.5 ppm TWAEV (designated substances regulation)</td>
<td>1 ppm TWAEV; 3 mg/m³ TWAEV</td>
<td>0.1 ppm TWA</td>
<td></td>
</tr>
<tr>
<td>Ethanol (64-17-5)</td>
<td>TWAs</td>
<td>Not established</td>
<td>780 ppm TWA; 1480 mg/m³ TWA</td>
<td>1000 ppm TWAEV; 1900 mg/m³ TWAEV</td>
<td>1000 ppm TWAEV; 1880 mg/m³ TWAEV</td>
<td>1000 ppm TWA; 1900 mg/m³ TWA</td>
</tr>
<tr>
<td>STELs</td>
<td>1000 ppm STEL</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
<td>Not established</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Engineer Measures/Controls

- Local exhaust ventilation. Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable threshold limit values.

Respiratory
- An appropriate NIOSH/MSHA-approved respirator or self-contained breathing apparatus should be worn when any exposure limit is exceeded.

Eye/Face
- Wear safety glasses with splash guards or goggles.

Hands
- Wear appropriate gloves.

Skin/Body
- Wear protective clothing.

Environmental Exposure Controls
- Follow best practice for site management and disposal of waste.

Key to abbreviations
ACGIH = American Conference of Governmental Industrial Hygiene
MSHA = Mine Safety and Health Administration
NIOSH = National Institute of Occupational Safety and Health
OSHA = Occupational Safety and Health Administration

STEV = Short Term Exposure Value
STEL = Short Term Exposure Limits are based on 15-minute exposures
TWAEV = Time-Weighted Average Exposure Value
TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical Form</th>
<th>Appearance/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid</td>
<td>Clear, colorless, volatile liquid with characteristic alcohol odor.</td>
</tr>
<tr>
<td>Color</td>
<td>Odor</td>
</tr>
<tr>
<td></td>
<td>Alcohol odor.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Value</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Taste</td>
<td>No data available</td>
</tr>
<tr>
<td>Particulate Size</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>General Properties</td>
<td></td>
</tr>
<tr>
<td>Boiling Point</td>
<td>78.3 °C (172.9 °F)</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Soluble</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing Properties:</td>
<td>No data available</td>
</tr>
<tr>
<td>Volatility</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>212 mmHg (torr) @ 32 °C (89.6 °F)</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data available</td>
</tr>
<tr>
<td>VOC (Vol.)</td>
<td>No data available</td>
</tr>
<tr>
<td>Volatiles (Vol.)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability</td>
<td></td>
</tr>
<tr>
<td>Flash Point</td>
<td>&lt; 13 °C (&lt;55.0 °F)</td>
</tr>
<tr>
<td>UEL</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition</td>
<td>No data available</td>
</tr>
<tr>
<td>Heat of Combustion (AHc)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flame Duration</td>
<td>No data available</td>
</tr>
<tr>
<td>Flame Extension</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Environmental</td>
<td></td>
</tr>
<tr>
<td>Half-Life</td>
<td>No data available</td>
</tr>
<tr>
<td>Coefficient of water/oil distribution</td>
<td>No data available</td>
</tr>
<tr>
<td>Bioconcentration Factor</td>
<td>No data available</td>
</tr>
<tr>
<td>Chemical Oxygen Demand</td>
<td>No data available</td>
</tr>
<tr>
<td>Degradation</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2 Other Information

4. No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability
10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Heat, sparks, open flame.

10.5 Incompatible materials

- Avoid contact with strong oxidizing agents and strong inorganic acids.

10.6 Hazardous decomposition products

- Carbon monoxide and carbon dioxide.
# Section 11 - Toxicological Information

## 11.1 Information on toxicological effects

<table>
<thead>
<tr>
<th>Component Name</th>
<th>CAS</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol (95% TO 98%)</td>
<td>64-17-5</td>
<td><strong>Acute Toxicity:</strong> orl-rbt LD50:6300 mg/kg; ihl-rat LC50:5900 mg/m3/6H; <strong>Irritation:</strong> eye-rbt 500 mg SEV; skin-rbt 20 mg/24H MOD; <strong>Reproductive:</strong> orl-rat TDL0:22.5 gm/kg (11-20D preg); <strong>Tumorigen/Carcinogen:</strong> orl-mus TD:400 gm/kg/57W-1</td>
</tr>
<tr>
<td>Benzene (0% TO 0.13%)</td>
<td>71-43-2</td>
<td><strong>Acute Toxicity:</strong> Ingestion/Oral-Rat LD50 • 930 mg/kg; ihl-rat LC50:10000 ppm/7H; skin-rat TDL0:960 uUkg/4D-I; <strong>Irritation:</strong> eye-rbt 2 mg/24H SEV; skin-rbt 20 mg/24H MOD; <strong>Reproductive:</strong> ihl-rat TCL0:670 mg/m3/24H (15D pre/1-22D preg); <strong>Tumorigen/Carcinogen:</strong> ihl-hmn TC:150 ppm/15M/8Y-I</td>
</tr>
</tbody>
</table>

### GHS Properties

<table>
<thead>
<tr>
<th>Classification</th>
<th>UN GHS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>Skin corrosion/Irritation</td>
<td>Skin Irritation 2</td>
</tr>
<tr>
<td>Serious eye damage/Irritation</td>
<td>Eye Irritation 2A</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>Aspiration Hazard</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Carcinogenicity 1A</td>
</tr>
<tr>
<td>Germ Cell Mutagenicity</td>
<td>Germ Cell Mutagenicity 1B</td>
</tr>
<tr>
<td>Toxicity for Reproduction</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>STOT-SE</td>
<td>Classification criteria not met</td>
</tr>
<tr>
<td>STOT-RE</td>
<td>Classification criteria not met</td>
</tr>
</tbody>
</table>

### Potential Health Effects

#### Inhalation

- **Acute (Immediate)**
  - Causes skin irritation.
  - No data available.

- **Chronic (Delayed)**
  - No data available.

#### Eye

- **Acute (Immediate)**
  - Causes serious eye irritation.
  - No data available.

- **Chronic (Delayed)**
  - High concentration can cause burning and irritation in nose and throat and headaches.

- **Ingestion**
  - No data available.
Acute (Immediate) • This material contains gasoline and is not fit for consumption. May affect the central nervous system. Symptoms may include dizziness, drowsiness, lethargy, coma and death.

Chronic (Delayed) • No data available.

Other
Chronic (Delayed) • Chronic exposure to ethanol can cause damage to liver, kidney, and heart.

Mutagenic Effects • Repeated and prolonged exposure may cause mutagenic effects.

Carcinogenic Effects • Repeated and prolonged exposure may cause cancer.

<table>
<thead>
<tr>
<th>Carcinogenic Effects</th>
<th>CAS</th>
<th>IARC</th>
<th>OSHA</th>
<th>NTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>71-43-2</td>
<td>Group 1-Carcinogenic</td>
<td>Specifically Regulated Carcinogen</td>
<td>Known Human Carcinogen</td>
</tr>
</tbody>
</table>

Reproductive Effects • This material is not fit for consumption. Ingestion of ethanol during pregnancy has been shown to cause birth defects and other reproductive harm.

Key to abbreviations
LD = Lethal Dose

Section 12 - Ecological Information

12.1 Toxicity

<table>
<thead>
<tr>
<th>Ethyl Alcohol, Anhydrous, Denatured</th>
<th>Dosage</th>
<th>Species</th>
<th>Duration</th>
<th>Results</th>
<th>Exposure Conditions</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 1.5 mg/L</td>
<td>Crustacea: Daphnia Magna</td>
<td>48 Hour(s)</td>
<td>EC50</td>
<td>NDA</td>
<td>Data for Gasoline component</td>
<td></td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability • Material data lacking.

12.3 Bioaccumulative potential • Material data lacking.

12.4 Mobility in Soil • Material data lacking.

12.5 Results of PBT and vPvB assessment • PBT and vPvB assessment has not been carried out.

12.6 Other adverse effects

Potential Environmental Effects • Based upon component information and the use of GHS criteria for classification of mixtures this material this material may cause harm to the aquatic environment. May cause long lasting harmful effects to aquatic life.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.
Section 14 - Transport Information

<table>
<thead>
<tr>
<th></th>
<th>14.1 UN number</th>
<th>14.2 UN proper shipping name</th>
<th>14.3 Transport hazard class(es)</th>
<th>14.4 Packing group</th>
<th>14.5 Environmental hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT</td>
<td>*UN1170</td>
<td>Ethanol</td>
<td>3</td>
<td>II</td>
<td>NDA</td>
</tr>
<tr>
<td>TDG</td>
<td>*UN1170</td>
<td>Ethanol</td>
<td>3</td>
<td>II</td>
<td>Potential Marine Pollutant</td>
</tr>
<tr>
<td>IATA/ICAO</td>
<td>*UN1170</td>
<td>Ethanol</td>
<td>3</td>
<td>II</td>
<td>NDA</td>
</tr>
</tbody>
</table>

14.6 Special precautions for user
None known.

14.7 Transport in bulk
• Not relevant.

according to Annex II of MARPOL 73/78 and the IBC Code

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications
• Acute, Chronic, Fire

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>MA</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Benzene</td>
<td>71-43-2</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Section 16 - Other Information

15.2 Chemical Safety Assessment
• No Chemical Safety Assessment has been carried out.
NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Safety Data Sheet. Adequate training and instruction should be given by you to your employees and affected personnel. Appropriate warnings and safe handling procedures should be provided by you to handlers and users. Additionally, the user should review this information, satisfy itself as to its suitability and completeness, and pass on the information to its employees or customers in accordance with the applicable federal, state, provincial or local hazard communication requirements. This SDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the fitness for use of the material, or the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, vendor neither assumes nor retains any responsibility for any damage or injury resulting from abnormal use, from any failure to adhere to appropriate practices, or from any hazards inherent in the nature of the material. Moreover, unless an employee or a customer accesses or receives a SDS directly from the company, there is no assurance that a document obtained from alternate sources is the most currently available SDS. The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Completed by Clark PTP Staff
No Annex