SAFETY DATA SHEET
According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
Revision Date Jul 01, 2018

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Product name: ETHANOL
CAS-No.: 64-17-5
Product code: AR1069, BP1069, CG1069, CG1069H, GP1069, RP1069

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Chemical for analysis and production.

1.3 Details of the supplier of the safety data sheet
Company: RCI LABSCAN LIMITED.
Telephone number: (662) 613-7911-4
Fax number: (662) 613-7915

1.4 Emergency Telephone Number
Emergency phone: (662) 613-7911-4

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
- Flammable liquids (Category 2), H225
- Eye irritation (Category 2), H319
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements
Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal word: Danger

Hazard statement(s)
H225: Highly flammable liquid and vapour.
H319: Causes serious eye irritation.

Precautionary statement(s)
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P240: Ground and bond container and receiving equipment.
P242: Use non-sparking tools.
P243: Take action to prevent static discharges.
P264: Wash hand thoroughly after handling.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
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.
P370 + P338  In case of fire: Use carbon dioxide, dry chemical or foam to extinguish.
P403 + P235  Store in a well-ventilated place. Keep cool.

2.3 Other hazards  None

SECTION 3: Composition/information on ingredients

3.1 Substances  Synonyms  Ethyl alcohol Denatured, Denatured alcohol, Ethanol Denatured.

<table>
<thead>
<tr>
<th>CAS-No</th>
<th>EC-No</th>
<th>EC-Index-No</th>
<th>Formula</th>
<th>Molecular Weight</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5</td>
<td>200-578-6</td>
<td>603-002-00-5</td>
<td>C₂H₅OH</td>
<td>46.07 g/mol</td>
<td>&gt;99</td>
</tr>
</tbody>
</table>

Hazardous ingredients according to Regulation (EC) No 1272/2008

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>&gt;99%</td>
<td>Flammable liquids (Category 2), H225</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eye irritation (Category 2), H319</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16

3.2 Stabilized  Denatoniumbenzoate  Synonyms  N,N-diethyl-N-[2-(2,6-dimethylyphenylamino)-2-oxoethyl]-Benzylammonium benzoate

<table>
<thead>
<tr>
<th>CAS-No</th>
<th>EC-No</th>
<th>EC-Index-No</th>
<th>Formula</th>
<th>Molecular Weight</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>3734-33-6</td>
<td>223-095-2</td>
<td>-</td>
<td>C₂₈H₃₄N₂O₃</td>
<td>446.5 g/mol</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

Hazardous ingredients according to Regulation (EC) No 1272/2008

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denatoniumbenzoate</td>
<td>&lt;1%</td>
<td>Acute toxicity, Oral (Category 4), H302</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin irritation (Category 2), H315</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eye irritation (Category 2), H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specific target organ toxicity - single exposure (Category 3), H335</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice  Inhalation  Show this safety data sheet to the doctor in attendance.  Move to fresh air in case of accidental inhalation of vapors. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose.  Use suitable instruments/apparatus.

Skin contact  Remove contaminated clothing and wash affected skin with soap and water. If signs of poisoning appear, treat as for inhalation. Obtain medical attention. Wash contaminated
clothing before reuse. Contaminated combustible material, e.g. clothing ignites more readily and burns fiercely.

**Eye contact**
If the substance has got into the eyes, immediately wash out with plenty of water at least 15 minutes. Obtain medical attention.

**Ingestion**
Rinse mouth. Do not induce vomiting. Immediately make victim drink water (two glasses at the most). Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus. Obtain medical attention. Never give anything by mouth to an unconscious person.

4.2 **Most important symptoms and effects, both acute and delayed**
The most important known symptoms and effects are described in section 2.2 and section 11

4.3 **Indication of any immediate medical attention and special treatment needed**
Not Available

**SECTION 5: Firefighting measures**

5.1 **Extinguishing media**
**Suitable extinguishing media**
Extinguish with carbon dioxide, dry chemical, foam or water. In the event of fire, cool tanks with water spray.

5.2 **Special hazards arising from the substance or mixture**
Vapors may form explosive mixture with air. Flash back possible over considerable distance.

5.3 **Advice for firefighters**
Wear self-contained breathing apparatus and protective suit.

5.4 **Further information**
Standard procedure for chemical fires. Take measures to prevent electrostatic charging. Prevent firefighting water from entering surface water or groundwater.

**SECTION 6: Accidental release measures**

6.1 **Personal precautions, protective equipment and emergency procedures**
Evacuate personnel to safe areas. Do not breathe vapors or spray mist. Wear a positive-pressure supplied-air respirator, flame retardant antistatic protective clothing. Shut off leaks if without risk. Keep people away from and upwind of spill/leak.

6.2 **Environmental precautions**
Contain or absorb leaking liquid with sand or earth, consult an expert. Prevent liquid entering sewers, basements and workpits. If substance has entered a water course or sewer or contaminated soil, advise police.

6.3 **Methods and materials for containment and cleaning up**
Spillage: May react with combustible substances creating fire or explosion hazard and formation of toxic fumes. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Soak up with inert absorbent material (e.g. sand, silica gel). Prevent liquid entering sewers, basements and workpits; vapor may create explosive atmosphere. Transfer to covered steel drums. Dispose of promptly.

6.4 **Reference to other sections**
For disposal see Section 13.
SECTION 7: Handling and storage

7.1 Precautions for safe handling
Keep container tightly closed. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only in area provided with appropriate exhaust ventilation. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing. Do not empty into drains.

7.2 Conditions for safe storage, including any incompatibilities
Keep tightly closed in a dry, cool and well ventilated place. Keep away from heat and sources of ignition. Keep out of direct sunlight and away from incompatible materials. Store in original container. Electrical equipment should be protected to the appropriate standard.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Derived No Effect Level (DNEL)

<table>
<thead>
<tr>
<th>Application Area</th>
<th>Health Effects</th>
<th>Exposure</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker</td>
<td>Acute Local effects</td>
<td>Inhalation</td>
<td>1900 mg/m³</td>
</tr>
<tr>
<td>Worker</td>
<td>Long-term Systemic effects</td>
<td>Inhalation</td>
<td>950 mg/m³</td>
</tr>
<tr>
<td>Worker</td>
<td>Long-term Systemic effects</td>
<td>Skin contact</td>
<td>343 mg/kg Body weight</td>
</tr>
<tr>
<td>Consumer</td>
<td>Acute Local effects</td>
<td>Inhalation</td>
<td>950 mg/m³</td>
</tr>
<tr>
<td>Consumer</td>
<td>Long-term Systemic effects</td>
<td>Ingestion</td>
<td>87 mg/kg Body weight</td>
</tr>
<tr>
<td>Consumer</td>
<td>Long-term Systemic effects</td>
<td>Inhalation</td>
<td>114 mg/m³</td>
</tr>
<tr>
<td>Consumer</td>
<td>Long-term Systemic effects</td>
<td>Skin contact</td>
<td>206 mg/kg Body weight</td>
</tr>
</tbody>
</table>

Predicted No Effect Concentration (PNEC)

<table>
<thead>
<tr>
<th>Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic intermittent release</td>
<td>2.75 mg/l</td>
</tr>
<tr>
<td>Fresh water</td>
<td>0.96 mg/l</td>
</tr>
<tr>
<td>Fresh water sediment</td>
<td>3.6 mg/kg</td>
</tr>
<tr>
<td>Marine water</td>
<td>0.79 mg/l</td>
</tr>
<tr>
<td>Oral</td>
<td>720 mg/kg</td>
</tr>
<tr>
<td>Sewage treatment plant</td>
<td>580 mg/l</td>
</tr>
<tr>
<td>Soil</td>
<td>0.63 mg/kg</td>
</tr>
</tbody>
</table>

8.2 Exposure controls
Appropriate engineering controls
The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Ventilation hoods and fans required when working with organic solvents or in hot melt applications.

Individual protection measures (Personal protective equipment, PPE)

Eye/face protection
Goggles giving complete protection to eyes.

Skin protection
Chemical resistant apron / flame retardant antistatic protective clothing, heavy duty work shoes.
Handle with gloves
- Full contact wears gloves from butyl rubber material.
- Splash contact wears gloves from nitrile rubber material.
The select protective gloves have to satisfy the specifications of EU Directive 89/686 EEC and standard EN 374 derived from it.

Respiratory protection
In case of insufficient ventilation, wear suitable respiratory equipment. Required when vapor/aerosols are
generated filter A (EN 141 or EN 14387).

Environmental exposure controls
Prevent liquid entering sewers, basements and workpits.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance: Form</td>
<td>Liquid</td>
</tr>
<tr>
<td>: Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odour</td>
<td>Alcohol-like</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>Not Available</td>
</tr>
<tr>
<td>pH</td>
<td>7.0 at 20°C</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>-114.5 °C</td>
</tr>
<tr>
<td>Boiling point/range</td>
<td>78.3 °C at 1013 hPa</td>
</tr>
<tr>
<td>Flash point</td>
<td>12 °C (closed cup)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not Available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Explosion limits: lower</td>
<td>3.5 % (V)</td>
</tr>
<tr>
<td>upper</td>
<td>15 % (V)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>59 hPa at 20°C</td>
</tr>
<tr>
<td>Relative Vapor Density</td>
<td>1.6</td>
</tr>
<tr>
<td>Density</td>
<td>0.790 g/ml at 20°C</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Soluble at 20°C</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>log Pow: -0.32</td>
</tr>
<tr>
<td>Auto-Ignition temperature</td>
<td>425 °C</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>Not Available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>1.2 mPa.s at 20°C</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not Explosive</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>The substance or mixture is not classified as oxidizing.</td>
</tr>
</tbody>
</table>

SECTION 10: Stability and reactivity

10.1 Reactivity
Heat sensitive/decomposition. Explosible with air in a vaporous/ gaseous state.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Risk of explosion in contact with chlorine, strong oxidizing agents, nitric acid, calcium hypochlorite, halogen oxides, disulphur difluoride, acetic anhydride + salts + acids, isocyanates, potassium, potassium dioxide, potassium permanganate/sulfuric acid, sodium, sodium hypochloride, sodium peroxide, perchlorates, peracids, perchloro nitrile, mercury nitrate, oxygen (liquid), sulfuric acid + hydrogen peroxide, silver/nitric acid, silver nitrate, silver nitrate/ammonia, silver oxide/ammonia, nitrogen dioxide, conc. hydrogen peroxide.
The substance can react dangerously with alkali/alkaline earth metals, fluorine, reducing agents, acetylene bromide, acetylene chloride, barium perchlorate, bromine trifluoride, chromium trioxide, chromyl chloride, oxiran, iodine heptafluoride, potassium tert.-butoxide, lithium hydride, phosphorus trioxide, platinum black, nitric acid/potassium permanganate, acid anhydrides, acids, uranium hexafluoride, zirconium(IV)-chloride, zirconium(IV)-iodide.
The substance forms an explosive mixture with air.

10.4 Conditions to avoid
Moisture, heat, flames and sparks.
10.5 Incompatible materials

Alkali metals, alkaline earth metals, alkali oxides, strong oxidizing agents, halogen-halogen compound, chromyl chloride, ethylene oxide, fluorine, perchlorates, potassium permanganate, sulfuric acid, perchloric acid, permanganic acid, oxides of phosphorus, nitric acid, nitrogen dioxide, uranium hexafluoride, hydrogen peroxide, chromium(VI) oxide.

Unsuitable working materials: various plastics, rubber.

10.6 Hazardous decomposition products

Carbon monoxides, Carbon dioxides (Hazardous decomposition products from under fire condition).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LC\textsubscript{50} (inhalation, rat): > 95.6 mg/l /4h
LD\textsubscript{50} (oral, rat): 6200 mg/kg

Acute oral toxicity

Symptoms: nausea and vomiting

Acute inhalation toxicity

Slight mucosal irritations.

Skin corrosion/irritation

Slight irritant

Serious eye damage/eye irritation

Slight irritant

Respiratory or skin sensitization

Sensitisation test: Magnusson and Kligman is negative.

Germ cell mutagenicity

Bacterial mutagenicity; Salmonella typhimurium is negative.

Carcinogenicity

Not Available

Reproductive toxicity

Not Available

Teratogenicity

Not Available

Specific target organ toxicity (STOT) - single exposure

Not Available

Specific target organ toxicity (STOT) - repeated exposure

Not Available

Aspiration hazard

Not Available

Further information

After absorption of large quantities; dizziness, inebriation, narcosis, respiratory paralysis.

The product should be handled with the care usual when dealing with chemicals.
SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC_{50} L. idus: 8140 mg/l /48h.
- Toxicity to daphnia: EC_{50} Daphnia magna: 9268-14221 mg/l/48h
- and other aquatic invertebrates
- Toxicity to algae: IC_{50} Sc. quadricauda: 5000 mg/l /7d
- Toxicity to bacteria: EC_{5} Ps. Putida: 6500 mg/l /16d.

12.2 Persistence and degradability

Biodegradability: 94% Readily biodegradable

12.3 Bioaccumulative potential

Partition coefficient (n-octanol/water) log Pow: -0.32 (experimental).
No Bioaccumulation (log P o/w <1).

12.4 Mobility in soil

Not Available

12.5 Other adverse effects

Biological effects: In high concentrations; Harmful effect on aquatic organisms. When used properly, no impairments in the function of waste water treatment plant are to be expected.
Do not allow to enter waters, waste water or soil.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding law and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste or burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Contaminated packaging
Disposal in compliance with official regulations. Handle contaminated packaging as hazardous waste in the same way of the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

SECTION 14: Transport information

Land Transport (ADR/RID)
UN Number: 1170
UN proper shipping name: ETHANOL
Transport hazard class(es): 3
Packing group: II
Environmental hazards: No
Special precautions for user: Yes

Sea transport (IMDG)
UN Number: 1170
UN proper shipping name: ETHANOL
Transport hazard class(es): 3
Packing group: II
Marine pollutant: No
Special precautions for user: Yes
EmS: F-E S-D

Air transport (IATA)
UN Number: 1170
UN proper shipping name: ETHANOL
Transport hazard class(es): 3
Packing group: II
Environmental hazards: No
Special precautions for user: No

River transport (AND/ADNR)
(Not examined)

SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Not Available

15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3
H225: Highly flammable liquid and vapour.
H302: Harmful if swallowed.
H315: Causes skin irritation.
H319: Causes eye irritation.
H335: May cause respiratory irritation

Recommended restrictions
Take notice of labels and safety data sheets for the working. Chemicals. Take necessary action to avoid static electricity discharge.

Reference
Globally Harmonized System of Classification and Labelling of Chemicals (GHS).
Institute for Occupational Safety and Health of the German Social Accident Insurance in Sankt Augustin/Germany,
Source: IFA for Databases on hazardous substances (GESTIS).

Further information
Contact to RCI Labscan Limited.

Revision Date
01/07/2018

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.