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

1.1 Product identifier
Product Name: ETHANOL
Product Description: V4004a- ANHYDROUS ETHANOL-ETHANOL
Trade name: ANHYDROUS ETHANOL
Product Code: BIOETHAN
CAS No.: 64-17-5
EC No.: 200-578-6

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified use(s): Fuel for engines.
Blend component.

1.3 Details of the supplier of the safety data sheet
Company Identification: Vitol SA
Boulevard du Pont d'Arve 28
P.O. Box 384
1211 Geneva 4
Switzerland
Telephone: +31 10 498 7200
Fax: +31 10 452 9545
E-Mail (competent person): xreach@vitol.com

1.4 Emergency telephone number
Emergency Phone No. (24 h): +44 (0) 1235 239 670 (24 hours, 7 days)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
According to Regulation (EC) No. 1272/2008 (CLP)
Flam. Liq. 2; H225
F; R11

2.2.1 Label elements
Hazard pictogram(s):

Signal word(s):
Danger
Hazard statement(s):
H225: Highly flammable liquid and vapour.
Precautionary statement(s):
P210: Keep away from heat, sparks, open flame, hot surfaces - No smoking.
P243: Take precautionary measures against static discharge.
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...
2.2.2 Label elements


Hazard pictogram(s):

- **Risk Symbol:** Highly flammable.
- **Risk Phrases:** R11: Highly flammable.
- **Safety Phrases:**
  - S2: Keep out of the reach of children.
  - S7: Keep container tightly closed.
  - S16: Keep away from sources of ignition - No smoking.

2.3 Other hazards

Vapour may create explosive atmosphere. The vapour is heavier than air; beware of pits and confined spaces. May cause irritation to eyes, skin and air passages. Vapours may cause drowsiness and dizziness.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>Hazardous ingredient(s)</th>
<th>% W/W</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>Hazard symbol(s) and hazard statement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>100</td>
<td>64-17-5</td>
<td>200-578-6</td>
<td>Flam. Liq. 2; H225</td>
</tr>
</tbody>
</table>

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<th>Hazardous ingredient(s)</th>
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<td>100</td>
<td>64-17-5</td>
<td>200-578-6</td>
<td>F; R11</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 Description of first aid measures

- **Inhalation:** Remove patient from exposure, keep warm and at rest. If symptoms persist, obtain medical attention.
- **Skin Contact:** Remove contaminated clothing immediately and drench affected skin with plenty of water, then wash with soap and water. Contaminated clothing should be thoroughly cleaned. If symptoms persist, obtain medical attention.
- **Eye Contact:** If substance has got into the eyes, immediately wash out with plenty of water for at least 15 minutes. If symptoms persist, obtain medical attention.
- **Ingestion:** Do not induce vomiting. Provided the patient is conscious, wash out mouth with water and give 200-300 ml (half a pint) of water to drink. If symptoms persist, obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

May cause irritation to eyes, skin and air passages. Vapours may cause drowsiness and dizziness.

4.3 Indication of the immediate medical attention and special treatment needed

If breathing is laboured, oxygen should be administered by qualified personnel. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing Media:
Foam, CO2 or dry powder.
For large fire use: Water.

Unsuitable Extinguishing Media:
Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Vapour may create explosive atmosphere. The vapour is heavier than air; beware of pits and confined spaces.

May give off toxic fumes in a fire. Carbon monoxide, Carbon dioxide.

5.3 Advice for fire-fighters

A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions. Keep fire exposed containers cool by spraying with water.

Flash Point (°C): 12-13
Flammable Limits (Lower) (%v/v): 3.3
Flammable Limits (Upper) (%v/v): 19
Auto Ignition Temperature (°C): 363

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Eliminate sources of ignition. Vapour may create explosive atmosphere. The vapour is heavier than air; beware of pits and confined spaces. Ensure adequate ventilation. Use non-sparking hand tools and explosion proof electrical equipment. Take precautionary measures against static discharges.

Avoid inhalation of vapours. Avoid contact with skin and eyes. Wear suitable protective clothing and gloves. (See Section: 8). Contaminated clothing should be thoroughly cleaned.

6.2 Environmental precautions

Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.

6.3 Methods and material for containment and cleaning up

Adsorb spillages onto sand, earth or any suitable adsorbent material. Sweep up carefully with non-sparking tools. Transfer to a container for disposal. Wash spill area with soapy water. Contaminated adsorbent must be removed in sealed, plastic lined drums and disposed of via an authorised waste disposal contractor.

6.4 Reference to other sections

Personal Protection: See Section: 8.

Other advice
Caution - spillages may be slippery.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Eliminate sources of ignition. Vapour may create explosive atmosphere. The vapour is heavier than air; beware of pits and confined spaces. Provide adequate ventilation, including appropriate local extraction, to ensure that the occupational exposure limit is not exceeded. Use non-sparking hand tools and explosion proof electrical equipment. Take precautionary
measures against static discharges.

Avoid inhalation of vapours. Avoid contact with skin and eyes. Wear suitable protective clothing and gloves. (See Section: 8).

Do not eat, drink or smoke at the work place. Wash hands and exposed skin after use. Contaminated clothing should be thoroughly cleaned.

7.2 Conditions for safe storage, including any incompatibilities
Keep away from heat and sources of ignition. Keep from direct sunlight. Keep only in the original container in a cool, well-ventilated place. Keep/store away from: Oxidising agents.

7.3 Specific end use(s)
Industrial use only.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>CAS No.</th>
<th>LTEL (8 hr TWA ppm)</th>
<th>LTEL (8 hr TWA mg/m³)</th>
<th>STEL (ppm)</th>
<th>STEL (mg/m³)</th>
<th>Note:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>1000</td>
<td>1920</td>
<td>-</td>
<td>-</td>
<td>(EH40)</td>
</tr>
</tbody>
</table>

Sk - Can be absorbed through skin.

Spain : 1000 ppm ; 1910 mg/m³ (VLA-ED)
France : 1000 ppm, 1900 mg/m³ (VME) ; 5000 ppm, 9500 mg/m³ (VLCT, ou VLE)

8.2 Exposure controls

8.2.1 Appropriate engineering controls
Provide adequate ventilation, including appropriate local extraction, to ensure that the occupational exposure limit is not exceeded.

8.2.2 Personal Protection

Eye/face protection
Goggles giving complete protection to eyes. (EN 166)

Skin protection
Protective gloves. (EN 374)

Respiratory protection
In case of insufficient ventilation, wear suitable respiratory equipment. (BS EN 14387:2004+A1)

Other:
Apron or other light protective clothing, boots and plastic or rubber gloves.

8.2.3 Environmental Exposure Controls
Avoid release to the environment.
9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- **Appearance:** Liquid.
- **Colour:** Colourless.
- **Odour:** Characteristic.
- **Boiling Point (°C):** 78
- **Melting Point (°C):** -114
- **Flash Point (°C):** 12-13
- **Flammable Limits (Lower) (%v/v):** 3.3
- **Flammable Limits (Upper) (%v/v):** 19
- **Vapour Pressure (Pascal):** 5900 (@ 20° C)
- **Specific Gravity:** 0.789(@ 20° C)
- **Partition Coefficient: (n-Octanol/water) log Pow:** -0.32
- **Auto Ignition Temperature (° C):** 363
- **Vapour Density (Air=1):** 1.59

9.2 Other information

No information available.

10. STABILITY AND REACTIVITY

10.1 Reactivity

Reacts with - Acids.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

No information available.

10.4 Conditions to avoid

Keep away from heat, sources of ignition and direct sunlight.

10.5 Incompatible materials

- Oxidising agents.
- Acids.
- Reducing agents.
- Alkali metals.
- Acid anhydrides.

10.6 Hazardous Decomposition Product(s)

May give off toxic fumes in a fire. Carbon monoxide, Carbon dioxide.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

**Acute toxicity:**

- **Ingestion:** LD50 (oral/rat): 7060 mg/kg
- **Inhalation:** LC50 (inhalation/rat): 20,000 ppm/10 h
- **Skin Contact:** LDL0 (dermal/rabbit): 20 mg/kg
- **Eye Contact:** No information available.

**Skin corrosion/irritation**

Repeated and/or prolonged skin contact may cause irritation.

**Serious eye damage/irritation:**

May cause eye irritation.

**Respiratory or skin sensitization:**

- Negative.
- **Mutagenicity:**

There is no evidence of mutagenic potential.

**Carcinogenicity:**

No evidence of carcinogenicity.

**Reproductive toxicity:**

Negative.

**STOT-single exposure:**

May cause drowsiness and dizziness.

**STOT-repeated exposure:**

Negative.

**Aspiration hazard:**

Negative.

**Other information:**

No information available.
12. ECOLOGICAL INFORMATION

12.1 Toxicity
LC50 (Rainbow trout): > 10,000 mg/l/96h
LC50 (Fathead minnow (Pimephales promelas)): > 15,300 mg/l/96h
EC50 (Daphnia magna): > 9,000 mg/l/48h
Chemical Oxygen Demand (COD): 1700 mg/g
WGK: 1.

12.2 Persistence and degradability
Readily biodegradable. May evaporate quickly.

12.3 Bioaccumulative potential
The product has low potential for bioaccumulation.

12.4 Mobility in soil
The product has low mobility in soil.

12.5 Results of PBT and vPvB assessment
Readily biodegradable.

12.6 Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Do not empty into drains; dispose of this material and its container in a safe way. To be disposed of as hazardous waste. Disposal should be in accordance with local, state or national legislation.

14. TRANSPORT INFORMATION

14.1 UN number
1170

14.2 Proper Shipping Name
ETHANOL

14.3 Transport hazard class(es)
3

14.4 Packing Group
II

14.5 Environmental hazards
Not classified as a Marine Pollutant.

14.6 Special precautions for user
Vapour may create explosive atmosphere. The vapour is heavier than air; beware of pits and confined spaces.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
-

15. REGULATORY INFORMATION

According to Regulation (EC) No. 1272/2008 (CLP)

Hazard pictogram(s):

Signal word(s): Danger

Hazard statement(s): H225: Highly flammable liquid and vapour.

Precautionary statement(s): P210: Keep away from heat, sparks, open flame, hot surfaces - No smoking.
P243: Take precautionary measures against static discharge.
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.
P403 + P235: Store in a well-ventilated place. Keep cool.
Hazard pictogram(s):

- Hazard Symbol: Highly flammable.
- Safety Phrases: S2: Keep out of the reach of children. S7: Keep container tightly closed. S16: Keep away from sources of ignition - No smoking.

16. OTHER INFORMATION

Full text of Hazard statements and Risk phrases for pure substances listed in section 3.

**Hazard Symbol:** H225: Highly flammable liquid and vapour.

**Risk Phrases:** R11: Highly flammable.

The following sections contain revisions or new statements: 1-16.

**Abbreviations:**
- CAS = Chemical Abstracts Service;
- CNS = Central Nervous System;
- EINECS = European Inventory of Existing Commercial Chemical Substances;
- EC50 = Effective Concentration 50%;
- IARC = International Agency for Research on Cancer;
- IC50 = Inhibitory Concentration 50%;
- LC50 = Lethal Concentration 50%;
- LD50 = Lethal Dose 50%;
- LTEL = Long Term Exposure Limit;
- STEL = Short Term Exposure Limit;
- TWA = Time Weighted Average;
- EH40 = UK Occupational Exposure Limits
- VLA-ED = Exposure limit value- Daily exposure (Valor Limite Ambiental-Exposición Diaria)
- VLB = Biological Limit Values (Valores Limite Biológicos)
- VLI= Indicative limit values

**References:**
- The Merck Index, 12th Ed., 641-642, entry 3806
- RTECS (www.ccinfoweb2.ccohs.ca/rtecs)

**Disclaimer:**
The information and recommendations contained herein are based upon data believed to be up-to-date and correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information and recommendations contained herein. We accept no responsibility and disclaim all liability for any harmful effects that may be caused by (incorrect) use, handling, purchase, resale, or exposure to our product. Customers and users of our product must comply with all applicable health and safety laws, regulations, and orders. In particular, they are under an obligation to carry out a risk assessment for the particular work places and to take adequate risk management measures in accordance with the national implementation legislation of EU Directives 89/391 and 98/24.

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