SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

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

1.1 Product identifier
Catalogue No. ETHYL ALCOHOL 95%
Product name ETHYL ALCOHOL 95%
CAS-No. 64-17-5

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses Pharmaceutical production, Solvent, Food, Cosmetic raw material
In compliance with the conditions described in the annex to this safety data sheet.

1.3 Details of the supplier of the safety data sheet
Company Bangkok Alcohol Industrial Co., Ltd
88/8 Moo7 Khaochang-Nongpong Rd., Thungluang, Paktor, Ratchaburi, Thailand.

1.4 Emergency telephone number +66 32 228 498-9.

SECTION 2. Hazards identification

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

Classification (67/548/EEC or 1999/45/EC)
F Highly flammable R11
For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements
Labelling (REGULATION (EC) No 1272/2008)
Hazard pictograms

Signal word
Danger

Hazard statements
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Catalogue No. ETHYL ALCOHOL 95%
Product name ETHYL ALCOHOL 95%

Precautionary statements
Prevention
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 Ground/bond container and receiving equipment.
Response
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Storage
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Reduced labelling (≥125 ml)
Hazard pictograms

Signal word
Danger

Precautionary statements
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Index-No. 603-002-00-5

2.3 Other hazards
None known.

SECTION 3. Composition/Information on ingredients

3.1 Substance

<table>
<thead>
<tr>
<th>Formula</th>
<th>C₂H₅OH</th>
<th>C₂H₅O (Hill)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index-No.</td>
<td>603-002-00-5</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>200-578-6</td>
<td></td>
</tr>
<tr>
<td>Molar mass</td>
<td>46.07 g/mol</td>
<td></td>
</tr>
</tbody>
</table>

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical Name (Concentration)

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Registration number</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5</td>
<td>01-2119457610-43-</td>
<td>Flammable liquid, Category 2, H225</td>
</tr>
<tr>
<td>XXXX</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 Mixture
Not applicable
SECTION 4. First aid measures

4.1 Description of first aid measures
   After inhalation: fresh air.
   In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/
   shower.
   After eye contact: rinse out with plenty of water. Call in ophthalmologist.
   After swallowing: immediately make victim drink water (two glasses at most). Consult a
   physician.

4.2 Most important symptoms and effects, both acute and delayed
   Irritant effects, respiratory paralysis, Dizziness, narcosis, inebriation, euphoria, Nausea, Vomiting

4.3 Indication of any immediate medical attention and special treatment needed
   No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media
   Suitable extinguishing media
   Water, Foam, Carbon dioxide (CO2), Dry powder

   Unsuitable extinguishing media
   For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
   Combustible.
   Vapours are heavier than air and may spread along floors.
   Forms explosive mixtures with air at ambient temperatures.
   Pay attention to flashback.
   Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
   Special protective equipment for firefighters
   In the event of fire, wear self-contained breathing apparatus.

   Further information
   Remove container from danger zone and cool with water. Prevent fire extinguishing water from
   contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
   Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance
   contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the
   danger area, observe emergency procedures, consult an expert.

   Advice for emergency responders:
   Protective equipment see section 8.

6.2 Environmental precautions
   Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
SAFETY DATA SHEET  
according to Regulation (EC) No. 1907/2006

<table>
<thead>
<tr>
<th>Catalogue No.</th>
<th>ETHER ALCOHOL 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>ETHER ALCOHOL 95%</td>
</tr>
</tbody>
</table>

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Observe label precautions.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Recommended storage temperature see product label.

7.3 Specific end use(s)

See exposure scenario in the Annex to this MSDS.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Catalogue No. ETHYL ALCOHOL 95%
Product name ETHYL ALCOHOL 95%

**Derived No Effect Level (DNEL)**

| Worker DNEL, acute | Local effects | inhalation | 1900 mg/m³ |
| Worker DNEL, longterm | Systemic effects | dermal | 343 mg/kg Body weight |
| Worker DNEL, longterm | Systemic effects | inhalation | 950 mg/m³ |
| Consumer DNEL, acute | Local effects | inhalation | 950 mg/m³ |
| Consumer DNEL, longterm | Systemic effects | dermal | 206 mg/kg Body weight |
| Consumer DNEL, longterm | Systemic effects | inhalation | 114 mg/m³ |
| Consumer DNEL, longterm | Systemic effects | oral | 87 mg/kg Body weight |

**Predicted No Effect Concentration (PNEC)**

- PNEC Fresh water 0.96 mg/l
- PNEC Marine water 0.79 mg/l
- PNEC Fresh water sediment 3.6 mg/kg
- PNEC Soil 0.63 mg/kg
- PNEC Aquatic intermittent release 2.75 mg/l
- PNEC Sewage treatment plant 580 mg/l
- PNEC oral 720 mg/kg

### 8.2 Exposure controls

**Engineering measures**
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

**Individual protection measures**
Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

**Eye/face protection**
Safety glasses

**Hand protection**

- full contact:
  - Glove material: butyl-rubber
  - Glove thickness: 0.7 mm
  - Break through time: > 480 min

- splash contact:
  - Glove material: Nitrile rubber
  - Glove thickness: 0.40 mm
  - Break through time: > 120 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 898 Butoject® (full contact), KCL 730 Camatril® - Velours (splash contact).
SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

Catalogue No. ETHYL ALCOHOL 95%
Product name ETHYL ALCOHOL 95%

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.
This recommendation applies only to the product stated in the safety data sheet<> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment
Flame retardant antistatic protective clothing.

Respiratory protection
required when vapours/aerosols are generated.
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds
The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls
Do not let product enter drains. Risk of explosion.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form liquid

Colour colourless

Odour alcohol-like

Odour Threshold 0,1 - 5058,5 ppm

pH 7,0
at 10 g/l
20 °C

Melting point -117 °C

Boiling point/boiling range 78 °C
at 1.013 hPa

Flash point 17 °C

Evaporation rate No information available.

Flammability (solid, gas) Not applicable

Lower explosion limit 3,5 % (V)

Upper explosion limit 15 % (V)

Vapour pressure ca.59 hPa
at 20 °C
Relative vapour density: No information available.

Density: 0.805 - 0.812 g/cm³ at 20 °C

Relative density: No information available.

Water solubility: at 20 °C soluble

Partition coefficient: n-octanol/water

Log Pow: -0.31 (Experimental)

(Lit.) Bioaccumulation is not expected.

Auto-ignition temperature: No information available.

Decomposition temperature: Distillable in an undecomposed state at normal pressure.

Viscosity, dynamic: 1.2 mPa.s at 20 °C

Explosive properties: Not classified as explosive.

Oxidizing properties: none

9.2 Other data

Ignition temperature: 425 °C

SECTION 10. Stability and reactivity

10.1 Reactivity

Vapours may form explosive mixture with air.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions

Risk of explosion/exothermic reaction with:

- Hydrogen peroxide, perchlorates, perchloric acid, Nitric acid, mercury(II) nitrate, permanganic acid, Nitriles, peroxi compounds, Strong oxidizing agents, nitrosyl compounds, Peroxides, sodium, Potassium, halogen oxides, calcium hypochlorite, nitrogen dioxide, metallic oxides, uranium hexafluoride, iodides, Chlorine, Alkali metals, Alkaline earth metals, alkali oxides, Ethylene oxide
- Silver, with, Nitric acid
- Silver compounds, with, Ammonia
- Potassium permanganate, with, conc. sulfuric acid

Risk of ignition or formation of inflammable gases or vapours with:

- Halogen-halogen compounds, chromium(VI) oxide, chromyl chloride, Fluorine, hydrides, Oxides of phosphorus, platinum
- Nitric acid, with, potassium permanganate

10.4 Conditions to avoid

Warming.
10.5 **Incompatible materials**
rubber, various plastics

10.6 **Hazardous decomposition products**
no information available

### SECTION 11. Toxicological information

#### 11.1 Information on toxicological effects

**Acute oral toxicity**
LD50 Rat: 10.470 mg/kg
OECD Test Guideline 401

Symptoms: Nausea, Vomiting

**Acute inhalation toxicity**
LC50 Rat: 124.7 mg/l; 4 h; vapour
OECD Test Guideline 403

Symptoms: Possible damages; mucosal irritations
absorption

**Acute dermal toxicity**
This information is not available.

**Skin irritation**
Rabbit
Result: No skin irritation
OECD Test Guideline 404

Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing
properties of the product.

**Eye irritation**
Rabbit
Result: Eye irritation
OECD Test Guideline 405
Causes serious eye irritation.

**Sensitisation**
Sensitisation test (Magnusson and Kligman):
Result: negative

(IUCLID)

**Germ cell mutagenicity**
**Genotoxicity in vitro**
Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471
In vitro mammalian cell gene mutation test
Mouse lymphoma test
Result: negative
Method: OECD Test Guideline 476

**Carcinogenicity**
This information is not available.
Reproductive toxicity
This information is not available.

Teratogenicity
This information is not available.

Specific target organ toxicity - single exposure
This information is not available.

Specific target organ toxicity - repeated exposure
This information is not available.

Aspiration hazard
This information is not available.

11.2 Further information
Systemic effects:
euphoria
After absorption of large quantities:
dizziness, inebriation, narcosis, respiratory paralysis
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

12.1 Toxicity
Toxicity to fish
LC50 Leuciscus idus (Golden orfe): 8.140 mg/l; 48 h (IUCLID)

Toxicity to daphnia and other aquatic invertebrates
EC5 E.sulcatum: 65 mg/l; 72 h (Lit.)
EC50 Daphnia magna (Water flea): 9.268 - 14.221 mg/l; 48 h (IUCLID)

Toxicity to algae
IC5 Scenedesmus quadricauda (Green algae): 5.000 mg/l; 7 d (Lit.)

Toxicity to bacteria
EC5 Pseudomonas putida: 6.500 mg/l; 16 h (IUCLID)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
semi-static test NOEC Daphnia magna (Water flea): 9,6 mg/l; 9 d (ECHA)

12.2 Persistence and degradability
Biodegradability
94 %
OECD Test Guideline 301E
Readily biodegradable

Biochemical Oxygen Demand (BOD)
930 - 1.670 mg/g (5 d)

(Lit.)

Theoretical oxygen demand (ThOD)
2.100 mg/g

(Lit.)
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Catalogue No. ETHYL ALCOHOL 95%
Product name ETHYL ALCOHOL 95%

Ratio COD/ThBOD
90 %
(Lit.)

12.3 Bioaccumulative potential
Partition coefficient: n-octanol/water
log Pow: -0.31
(experimental)

(Lit.) Bioaccumulation is not expected.

12.4 Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment
Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

12.6 Other adverse effects
Additional ecological information
No interference with wastewater treatment plants are to be expected when used properly. Discharge into the environment must be avoided.

SECTION 13. Disposal considerations
Waste treatment methods
See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information
Land transport (ADR/RID)
14.1 UN number UN 1170
14.2 Proper shipping name ETHANOL
14.3 Class 3
14.4 Packing group II
14.5 Environmentally hazardous --
14.6 Special precautions for user yes
Tunnel restriction code D/E

Inland waterway transport (ADN)
Not relevant

Air transport (IATA)
14.1 UN number UN 1170
14.2 Proper shipping name ETHANOL
14.3 Class 3
14.4 Packing group II
14.5 Environmentally hazardous --
14.6 Special precautions for user no

Sea transport (IMDG)
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Catalogue No. ETHYL ALCOHOL 95%
Product name ETHYL ALCOHOL 95%

14.1 UN number UN 1170
14.2 Proper shipping name ETHANOL
14.3 Class 3
14.4 Packing group II
14.5 Environmentally hazardous --
14.6 Special precautions for user yes
EmS F-E S-D

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not relevant

SECTION 15. Regulatory information

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

EU regulations
Major Accident Hazard SEVESO III
Legislation FLAMMABLE LIQUIDS
P5c
Quantity 1: 5,000 t
Quantity 2: 50,000 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work.

National legislation
Storage class 3

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.
H319 Causes serious eye irritation.

Full text of R-phrases referred to under sections 2 and 3
R11 Highly flammable.

Training advice
Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms

Signal word Danger
Hazard statements
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.

Precautionary statements
Prevention
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P240 Ground/bond container and receiving equipment.
Response
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Storage
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Labelling (67/548/EEC or 1999/45/EC)

Symbol(s)  F        Highly flammable
R-phrase(s) 11    Highly flammable.
S-phrase(s) 7-16  Keep container tightly closed. Keep away from sources of ignition - No smoking.

EC-No. 200-578-6  EC Label

Reduced labelling (<125 ml)
Symbol(s)  F        Highly flammable

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.