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

1.1 Product identifier
Trade name Ethyl L-lactate

Stock number: A10900, L03062
CAS Number: 687-47-8
EC number: 211-694-1
Index number: 607-129-00-7

1.2 Relevant identified uses of the substance or mixture and uses advised against.
Identified use: SU24 Scientific research and development

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier: Thermo Fisher (Kandel) GmbH
Zeppelinstr. 7b
76185 Karlsruhe / Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300
Email: tech@alfa.com

1.4 Emergency telephone number:
Carechem 24: +44 (o) 1235 239 670 (Multi-language emergency number)
Poison Information Center Mainz
www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

GHS02 flame
Flam. Liq. 3 H226 Flammable liquid and vapour.

GHS05 corrosion
Eye Dam. 1 H318 Causes serious eye damage.

GHS07
STOT SE 3 H335 May cause respiratory irritation.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008 The substance is classified and labelled according to the CLP regulation.

Hazard pictograms
GHS02 GHS05 GHS07

Signal word Danger
Hazard statements
H226 Flammable liquid and vapour.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.

Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P240 Ground/bond container and receiving equipment.
P363+P361+P330 IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water/shower.
P304+P318 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P360+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310 Immediately call a POISON CENTER or doctor/physician.
P405 Store locked up.
P531 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.1 Substances
CAS# Designation: 687-47-8 Ethyl L-lactate
Identification number(s): EC number: 211-694-1
Index number: 607-129-00-7

SECTION 4: First aid measures

4.1 Description of first aid measures
After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. Seek immediate medical advice.

After skin contact
Instantly wash with water and soap and rinse thoroughly. Seek immediate medical advice.

After eye contact
Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing
Seek medical treatment.
Trade name Ethyl L-lactate

4.2 Most important symptoms and effects, both acute and delayed
Causes serious eye damage. May cause respiratory irritation.

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

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

5.2 Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released: Carbon monoxide and carbon dioxide

5.3 Advice for firefighters
Protective equipment:
Wear self-contained breathing apparatus.
Wear full protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation.
Keep away from ignition sources.

6.2 Environmental precautions:
Do not allow product to reach sewage system or water bodies.

6.3 Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
Prevention of secondary hazards: Keep away from ignition sources.

6.4 Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustion at the workplace.
Protect against electrostatic charges.
Fumes can combine with air to form an explosive mixture.
Keep ignition sources away - Do not smoke.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and containers: No special requirements.
Information about storage in one common storage facility: Store away from oxidising agents.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

8.1 Control parameters
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

8.2 Exposure controls
Personal protective equipment
General protective and hygienic measures
The usual precautionary measures should be adhered to in handling the chemicals.
Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes.
Maintain an ergonomically appropriate working environment.
Breathing equipment: Use breathing protection with high concentrations.

Recommended filter device for short term use:
Use a respirator with multi-purpose combination (US) or type ABEK (EN 14387) as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU).

Protection of hands:
Check protective gloves prior to each use for their proper condition.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Material of gloves: Butyl rubber, BR
Penetration time of glove material (in minutes) 480
Glove thickness 0.3 mm
Eye protection: Tightly sealed safety glasses.
Face protection: Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
General Information
Appearance: Liquid
Smell: Not determined.
Odour threshold: Not determined.

pH-value: Not determined.

Change in condition
Melting point/Melting range: -25 °C
Boiling point/Boiling range: 152-155 °C
### Trade Name: Ethyl L-lactate

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<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Sublimation temperature / start:</td>
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<tr>
<td>Flash point:</td>
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<tr>
<td>Inflammability (solid, gaseous):</td>
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<tr>
<td>Ignition temperature:</td>
<td>400 °C</td>
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<tr>
<td>Decomposition temperature:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Self-inflammability:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Danger of explosion:</td>
<td>Product is not explosive. However, formation of explosive air/steam mixtures is possible.</td>
</tr>
<tr>
<td>Critical values for explosion:</td>
<td></td>
</tr>
<tr>
<td>Lower:</td>
<td>1.5 Vol %</td>
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<tr>
<td>Upper:</td>
<td>11.4 Vol %</td>
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<tr>
<td>Steam pressure at 20 °C:</td>
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<tr>
<td>Density at 20 °C:</td>
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<tr>
<td>Vapour density:</td>
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<tr>
<td>Evaporation rate:</td>
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<tr>
<td>Solubility in / Miscibility with Water:</td>
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<tr>
<td>Viscosity:</td>
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<td>kinematic:</td>
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<tr>
<td>9.2 Other Information:</td>
<td>No further relevant information available.</td>
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</tbody>
</table>

### SECTION 10: Stability and reactivity

#### 10.1 Reactivity
No information known.

#### 10.2 Chemical stability
Stable under recommended storage conditions.

#### 10.3 Possibility of hazardous reactions
Reacts with strong oxidising agents.

#### 10.4 Conditions to avoid
No further relevant information available.

#### 10.5 Incompatible materials:
- Oxidising agents

#### 10.6 Hazardous decomposition products:
- Carbon monoxide and carbon dioxide

### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects
- Acute toxicity: No effects known.
- LD/LC50 values that are relevant for classification: No data.
- Skin irritation or corrosion: May cause irritation.
- Eye irritation or corrosion: Causes serious eye damage.
- Sensitization: No sensitizing effect known.
- Germ cell mutagenicity: No effects known.
- Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.
- Reproductive toxicity: No effects known.
- Specific target organ system toxicity - repeated exposure: No effects known.
- Specific target organ system toxicity - single exposure: May cause respiratory irritation.
- Aspiration hazard: No effects known.
- Subacute to chronic toxicity: No effects known.
- Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

### SECTION 12: Ecological information

#### 12.1 Toxicity
- Aquatic toxicity: No further relevant information available.
- Bioaccumulative potential: No further relevant information available.
- Mobility in soil: No further relevant information available.
- Additional ecological information:
  - General notes: Water hazard class 1 (Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities to reach ground water, water course or sewage system. Avoid transfer into the environment.
  - 12.4 Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.

#### 12.6 Other adverse effects
No further relevant information available.

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods
- Recommendation: Hand over to disposers of hazardous waste. Must be specially treated under adherence to official regulations. Consult state, local or national regulations for proper disposal.
- Uncleaned packagings: Recommendation: Disposal must be made according to official regulations.

### SECTION 14: Transport information

#### UN-Number
- ADR, IMDG, IATA: UN1192
- UN1192 ETHYL LACTATE
- ETHYL LACTATE

#### 14.3 Transport hazard class(es)
- ADR
  - Class: 3 (F1) Flammable liquids.
- Label: 3

(Contd. on page 4) DE
Trade name Ethyl L-lactate

(Contd. of page 3)

38.0.35

IMDG, IATA
Class 3 Flammable liquids.

Label 3

Packing group ADR, IMDG, IATA III

14.5 Environmental hazards:
Not applicable.

14.6 Special precautions for user
Warning: Flammable liquids.
Kemler Number: 30 F.E.S-D
EMS Number:

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC
Code Not applicable.

Transport/Additional information:

ADR Excepted quantities (EQ): E1
Limited quantities (LQ): 5L
Transport category 3
Tunnel restriction code D/E

UN "Model Regulation": UN1192, ETHYL LACTATE, 3, III

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Standard for the Uniform Scheduling of Medicines and Poisons Substance is not listed.

National regulations
Information about limitation of use:
Employment restrictions concerning young persons must be observed.
For use only by technically qualified individuals.

Classification according to VbF: A II

Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.

Other regulations, limitations and prohibitive regulations

ELINCS (European List of Notified Chemical Substances) Substance is not listed.
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Global Marketing Department

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IATA: International Air Transport Association
IMDG: International Maritime Code for Dangerous Goods
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
OSHA: Occupational Safety and Health Administration (USA)
VvPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)
Flam. Liq. 3: Flammable liquids, Hazard Category 3
Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1
STOT SE 3: Specific target organic toxicity - Single exposure, Hazard Category 3