SAFETY DATA SHEET

1. Chemical Product and Company Identification

Product Name : L-Methyl Lactate
Other Name : L-Methyl 2-Hydroxypropanoate
Manufacturer : Musashino Chemical Laboratory, Ltd.
Address : Tekko Bldg., 8-2, Marunouchi 1-Chome,
Chiyoda-Ku, Tokyo 100-0005
TEL : +81-3-6810-0242
FAX : +81-3-6810-0148

2. Hazards identification :

Flammable Liquids, Category 3
Hazard Label :

Signal Word : Warning
Hazard Statement
Flammable liquid and vapor
Precautionary Statement
Safety measures
Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Keep container tightly closed.
Ground/Bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/protective clothing/eye protection/face protection.
Emergency measures
IF ON SKIN (or hair):
Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
Storage
Store in a well-ventilated place. Keep cool.
In case of fire: Use suitable extinguishing method for extinction.
Disposal
Dispose of contents/container in accordance with local/national regulations.
Other Hazard
No information available.

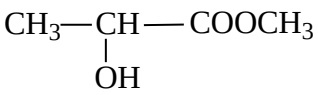
3. Composition/Information on Ingredients

It is single substance of L-Methyl Lactate

Contents : 98.0% up

Chemical Name : L-Methyl-2-Hydroxypropanoate

Formula :



MITI No. : (2)-1371

CAS No. : 27871-49-4

EINECS : 248-704-9

TSCA : On Inventory

Hazardous Component : Methyl Lactate

4. First Aid Measures

SKIN CONTACT : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

EYE CONTACT : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON Center or doctor/physician.

INHALATION : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If victim does not breathe, practice artificial respiration. Call a POISON CENTER or doctor/physician if victim feels unwell.

INGESTION : Rinse mouth. Never give anything through mouth to an unconscious person. Call a doctor/physician if victim feels unwell.

5. Fire Fighting Measures

Suitable extinguishing media

: Such as dry chemicals, foam

Special hazards arising from the product

: Flammable liquid burning may produce irritant gas/fume: carbon monoxide, carbon dioxide.

Special fire-fighting methods

: Cut off the combustion source and use the fire extinguishing agent to extinguish. In addition, cool tanks and building by water spray for reduction of fire spread. Fire-fighting should be done from the windward side.

Protection for fire-fighters

: Fire fighters should wear appropriate breathing apparatus and protective equipment.

6. Accidental Release Measures

Personal precautions

: Wear personal protective equipment.

Environmental precautions

: Do not allow to get into sewer or waterways, if this occurs, inform the relevant water authority at once.

Method and materials for contaminant and cleaning up

: For small spill, absorb spills with inert material, then place them into container.
For large spill, flush spills into container after leading to suitable retaining areas stopping the fluid by sand and the like.
Clean up the leaked place with large quantity of water.
Disposal must be in accordance with applicable regulation.

7. Handling and Storage

Handling : Handle in accordance with good industrial hygiene and safety practice. Use this material with adequate ventilation. Avoid breathing dust/fume/gas/mist/vapors/spray. Use personal protective equipment as required. Keep away from heat, sparks, open flame, and hot surfaces - No smoking. Take precautionary measures against static discharge.

Storage : Store in cool, dry and well-ventilated place. Keep container tightly closed. Keep away from heat/sparks/open flames/hot surfaces. Store away from incompatible materials.

8. Exposure Controls/Personal Protection

Exposure limits : No information available.

Equipment measures : Provide local exhaust or process enclosure ventilation system. Setup safety shower, eye washer and hand washer. And display those positions clearly.

Personal protective equipment

Respiratory protection : Wear gas mask or self-contained breathing apparatus in case of inadequate ventilation.

Hand protection : Wear protective gloves.

Eye protection : If the eyes may potentially come in contact with the

product, then chemical safety goggles are necessary.
Skin and body protection : Wear appropriate protective working clothing and apron.
Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Wash thoroughly after handing.

9. Physical and Chemical Properties

Appearance	: Transparent, clear, liquid.
Color	: Colorless
Odor	: Having a characteristic odor.
pH	: No data
Boiling Point	: 143.8℃ (101.3kPa)
Melting Point	: -66℃
Decomposition Point	: No data
Flash Point	: 54.5℃ (Tag closed test)
Ignition Point	: 385℃
Explosion limits	: Upper 21.0vol% Lower 2.2vol%
Vapor Pressure	: 0.393 kPa (20℃) 0.746 kPa (30℃)
Vapor Density	: 3.6 g/L
Evaporation Rate	: 0.165 (Butyl Acetate=1)
Heat of combustion	: 19,900 J/g
Specific Gravity	: 1.080～1.100 (d_{20}^{20})
Solubility	: Soluble in water, alcohol and acetone.

10. Stability and Reactivity

Stability : Stable under normal conditions of handling, storage use.
Possibility of hazardous reactions : No information available.
Conditions to avoid : Flames, strong heating and other sources of ignition, incompatible materials.
Incompatible materials : Strong acids, Strong bases.
Hazardous decomposition Products : Oxides of carbon

11. Toxicological Information

Exposure routes : Inhalation, skin, ingestion, eye.
Symptom : Not available.
Acute toxicity : LD_{50} >5,000mg/kg (Rat, Oral)
LC_{50} >5.73g/m^3 (Rat, No –fatal cases)
LDL0 1,000mg/kg (Rat, Peritoneum)
Local effect : No data

Mutagenicity : Negative, not a bacterial mutagen by the Ames test.

12. Ecological Information

COD : 0.45g/g ($KMnO_4$)
BOD : 0.94g/g

13. Disposal Information

Waste disposal methods
: Incinerate in suitable combustion chamber. Dispose of waste and residues in accordance with local authority requirements.

14. Transport information

UN Classifications : Class 3 Flammable Liquids
UN Number : 1993
Packaging Group : Ⅲ

15. Regulatory Information

Applicable regulations (Japan)

1. Labor Safety and Health Act.
   Hazardous Material (Flammable Liquid)
2. Fire Service Act.
   Hazard Class 4 Petroleum 2 (Soluble in Water)
3. Ship Safety Act.
   Hazardous Notification, Attached Table 5 (Flammable liquid : Packaging Group Ⅲ)
4. Civil Aeronautics Act.
   Enforcement Regulation Article 194 : Hazardous Material (Flammable Liquid)
5. Act on Port Regulations
   Enforcement Regulation Article 12 : Hazardous material (Flammable Liquid)
6. Regulation of Labeling and Hazard Communication of Dangerous and Harmful Materials

16. Other Information

References

1) The Sigma-Aldrich Library of Chemical Safety Data
   Edition Ⅱ; Robert E. Lenga
2) "The Handbook of Prevention for Dangerous Substances Accidents and Emergencies"
   KOUBEKAINAN BOUSHIKENKYUUKAI published by SEIZANDO

(Japanese)
3) "The Guide to Prevention of Chemical Accidents I "
Japan Chemicals Association published by MARUZEN (Japanese)
4) "The Handbook of Organic Solvents"
Matsuda et al. published by SANGYO TOSYO (Japanese)
5) Reports of Authorized Public Laboratory (Japanese)
6) Unpublished data (for Company use: Japanese)

Disclaimer :

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