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

Product name  Lactic Acid 50/88%

Use of the Substance  Food additive, Specialty chemical
Distributed by:
Univar USA Inc.
6100 Carillon Point
Kirkland, WA 98033
425-889-3400

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name of the substance  Lactic Acid aqueous solution
Synonyms  Lactic Acid aqueous solution: S(+)-2-hydroxy propionic acid.
EC-No.  201-196-2          CAS-No. 79-33-4

3. HAZARDS IDENTIFICATION

Classification  Xi, R38-41
# Most important hazards  Irritating to skin. Risk of serious damage to eyes.
Inhalation causes burns of the upper digestive and respiratory tracts.

4. FIRST AID MEASURES

General advice
Show this safety data sheet to the doctor in attendance.
Inhalation
Immediate medical attention is not required. Move to fresh air.
Skin contact
Immediate medical attention is not required. Wash off immediately with soap
and plenty of water removing all contaminated clothes and shoes.
Eye contact
Immediate medical attention is not required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, consult a specialist.
Ingestion
Immediate medical attention is required. Drink plenty of water. Do not induce vomiting. Call a physician immediately.
Protection of first-aiders
Wear personal protective equipment.

5. FIRE-FIGHTING MEASURES
Suitable extinguishing media
Water, carbon dioxide (CO2), foam.
Extinguishing media which must not be used for safety reasons
None.
Specific hazards
Thermal decomposition can lead to release of irritating gases and vapours.
Special protective equipment for firefighters
Use personal protective equipment.
Specific methods
Standard procedure for chemical fires.

6. ACCIDENTAL RELEASE MEASURES
Personal precautions
Use personal protective equipment.
Avoid contact with skin and eyes.
Environmental precautions
Prevent further leakage or spillage. No special environmental precautions required.
Methods for cleaning up
Neutralize with soda or sodium carbonate and flush with plenty of water.
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Pick up and transfer to properly labelled containers.
After cleaning, flush away traces with water.

7. HANDLING AND STORAGE
Handling
Technical measures/Precautions
Avoid temperatures above 200 deg C.
Safe handling advice
Wear personal protective equipment.
Storage
Technical measures/Storage conditions
Keep container tightly closed. Keep in properly labelled containers.
Incompatible products
No data available.
Packaging material
Plastic or stainless steel 316 L containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION
Engineering measures to reduce exposure
Ensure adequate ventilation, especially in confined areas.
Control parameters
None.
Personal protection equipment
# Respiratory protection
Use respirator when performing operations involving potential exposure to vapour of the product.
Hand protection
Rubber gloves. Break through time > 8 hours.
Eye protection
Face-shield.
Skin and body protection
Lightweight protective clothing.
Hygiene measures
Avoid contact with skin. When using, do not eat, drink or smoke.
Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES
Form aqueous solution
Colour colourless/yellow/ light brown
Odour characteristic
pH <20@25 deg C
Boiling point/range  110 deg C (40% solution) 125 deg C (90% solution)
Decomposition temperature > 200 deg C
Flash point not applicable
Autoignition temperature none
Explosion limits not applicable
Density 1.19 - 1.25 g/ml
Solubility Water solubility: completely soluble
Partition coefficient (n-octanol/water) log Pow = -0.62
Viscosity 5 - 60 mPa.s @ 25 deg C (50 - 90% solution)

10. STABILITY AND REACTIVITY
Stability
Stable at normal conditions. Hazardous polymerization does not occur.
Conditions to avoid
Avoid temperatures above 200 deg C.
Materials to avoid
Oxidizing agents.
Hazardous decomposition products
Thermal decomposition can lead to release of irritating gases and vapours.

11. TOXICOLOGICAL INFORMATION
Acute toxicity
LD50/oral/rat = 3730 mg/kg  LD50/oral/mouse = 4875 mg/kg
LD50/dermal/rabbit > 2000mg/kg
Local effects
Irritating to eyes and skin.
Risk of serious damage to eyes.
Inhalation may provoke the following symptoms: severe irritation.
Inhalation may effect the following organs: nasal inner lining, upper respiratory tract.
Specific effects
Did not show carcinogenic effects in animal experiments.
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Further information
As an important metabolite in man, animals and plants, it is naturally formed and metabolized.

12. ECOLOGICAL INFORMATION
Mobility
Completely soluble.
Surface Tension: 50 - 44 mN/m (50 - 90% solution)
Persistence / degradability
Readily biodegradable, according to appropriate OECD test.
Biochemical oxygen demand (BOD)5 = 0.45 mg O2/mg
Biochemical oxygen demand (BOD)20= 0.60 mg O2/mg
Chemical oxygen demand (COD) = 0.90 mg O₂/mg

Bioaccumulation
None.

Ecotoxicity
EC₅₀/48h/Daphnia = 240 mg/l  LC₅₀/48h/Fish = 320 mg/l
EC₅₀/Algae = 3500 mg/l (neutral)
Further information
Natural product.

13. DISPOSAL CONSIDERATIONS
Waste from residues / unused products
Can be disposed as waste water, when in compliance with local regulations.
Can be landfilled or incinerated, when in compliance with local regulations.
Contaminated packaging
Clean container with water.
Empty containers should be taken for local recycling, recovery or waste disposal.
Further information
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

14. TRANSPORT INFORMATION
Not classified as dangerous in the meaning of transport regulations.

15. REGULATORY INFORMATION
The product is classified in accordance with Annex VI to Directive 67/548/EEC.

Symbols
Xi - Irritant
R- Phrases
  R41 - Risk of serious damage to eyes.
  R38 - Irritating to skin.
S-Phrases
  S24 - Avoid contact with skin.
  S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
  S37 - Wear suitable gloves and eye/face protection.

EC Food additive: E 270  USA FDA/GRAS Status.
German Water Hazard Class (WGK): 1

16. OTHER INFORMATION
Further information on the safety assessment of lactic acid and its salts can be obtained in a CFTA Report of June 6th 1997.

Additional data on the calculated ecotoxicity of lactic acid and its salts and esters can be obtained in a report entitled 'The ecotoxicity and biodegradability of lactic acid, alkyl lactate esters and lactic acid salts' by Bowmer et al. (Reference: Chemosphere 37: 1317-1333 (1998))

# Indicates updated section.

For Additional Information:
Contact: MSDS Coordinator - Univar USA
During business hours, Pacific Time - (425) 889-3400

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