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Material Safety Data Sheet (MSDS) – Food Grade Lactic Acid

1. Product Identification

Product Name: Food Grade Lactic Acid
Chemical Name: 2-Hydroxypropanoic Acid
Chemical Formula: $C_3H_6O_3$
CAS Number: 50-21-5
Food Additive Code: E270
Common Concentrations: 80% and 88%
Recommended Use: Food and beverage processing, acidity regulation, pH control, flavor adjustment, and food manufacturing.

2. Hazard Identification

Food Grade Lactic Acid is an acidic liquid. Concentrated solutions may cause irritation or burns upon direct contact.

Main Hazards:

- Causes serious eye irritation or damage.
- May cause skin irritation.
- Mist or vapor may irritate the respiratory tract.
- Harmful effects may occur if large quantities are swallowed.

Precautionary Measures:

- Avoid contact with eyes and skin.
- Wear suitable protective gloves and eye protection.
- Use adequate ventilation during handling.

3. Composition / Information on Ingredients

Component	CAS Number	Concentration
Lactic Acid	50-21-5	80–88%
Water	7732-18-5	Balance

Exact composition depends on the supplied product grade and concentration.

4. First Aid Measures

Eye Contact:
Immediately rinse eyes with clean water for at least 15 minutes. Remove contact lenses if easy to do. Seek medical attention if irritation persists.

Skin Contact:
Wash affected skin thoroughly with plenty of water. Remove contaminated clothing.

Inhalation:
Move the affected person to fresh air. Seek medical attention if respiratory discomfort continues.

Ingestion:
Rinse the mouth with water. Do not induce vomiting unless instructed by medical personnel. Seek medical advice if a significant quantity has been swallowed.

5. Fire-Fighting Measures

Lactic Acid is not considered highly flammable under normal storage conditions.

Suitable Extinguishing Media:

- Water spray
- Dry chemical
- Foam
- Carbon dioxide

Fire-Fighting Advice:
Wear suitable protective equipment and self-contained breathing apparatus when necessary.

6. Accidental Release Measures

- Keep unnecessary personnel away from the spill area.
- Wear suitable protective equipment.
- Prevent large quantities from entering drains or waterways.
- Absorb small spills with inert absorbent material such as sand.
- Collect contaminated material in suitable containers.
- Wash the spill area with water after recovery.

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7. Handling and Storage

Handling:

- Avoid direct contact with eyes and skin.
- Avoid inhaling mist.
- Use clean, compatible equipment.
- Follow standard food-industry hygiene procedures.

Storage:

- Store in tightly closed containers.
- Keep in a cool, dry, and well-ventilated location.
- Protect from incompatible alkaline materials.
- Avoid excessive heat.
- Keep packaging protected from physical damage.

8. Exposure Controls / Personal Protection

Eye Protection: Chemical safety goggles or suitable face protection.

Hand Protection: Chemical-resistant gloves.

Skin Protection: Suitable protective work clothing.

Respiratory Protection: Normally not required under adequate ventilation. Use suitable respiratory protection where mist may form.

Hygiene Measures: Wash hands thoroughly after handling.

9. Physical and Chemical Properties

Property	Typical Description
Appearance	Clear, colorless to pale yellow liquid
Odor	Mild to nearly odorless
Molecular Formula	$C_3H_6O_3$
Molecular Weight	90.08 g/mol
Solubility in Water	Completely miscible
pH	Acidic
Physical State	Liquid

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Property	Typical Description
Common Concentration	80% / 88%
Flammability	Not readily flammable

Values may vary according to concentration and manufacturer.

10. Stability and Reactivity

Stability: Stable under normal handling and storage conditions.

Conditions to Avoid:

- Excessive heat
- Contamination
- Contact with incompatible substances

Incompatible Materials:

- Strong alkalis
- Strong oxidizing agents
- Certain reactive metals

Hazardous Decomposition Products:
Thermal decomposition may generate carbon oxides and irritating fumes.

11. Toxicological Information

Possible exposure effects include:

- Eye irritation or serious eye damage
- Skin irritation after prolonged contact
- Respiratory irritation from mist
- Gastrointestinal irritation following significant ingestion

Toxicological effects depend on concentration, exposure time, and route of exposure.

12. Ecological Information

Lactic Acid is generally biodegradable.

However, large uncontrolled releases may lower the pH of water and negatively affect aquatic organisms.

Avoid releasing concentrated material directly into the environment.

13. Disposal Considerations

Dispose of product waste and contaminated packaging according to applicable local regulations.

Do not discharge concentrated product directly into waterways or drainage systems.

14. Transport Information

Transportation classification can depend on concentration, package size, and applicable regulations.

Before shipment, confirm the correct transport status using the supplier-specific SDS and relevant international transport requirements.

15. Regulatory Information

Food Grade Lactic Acid is used as food additive **E270**.

Its permitted use, maximum levels, labeling requirements, and regulatory status depend on the destination country and specific food application.

Food manufacturers should confirm compliance with applicable national and international food regulations.

16. Other Information

This MSDS provides general safety information for Food Grade Lactic Acid.

Actual properties, hazard classification, transport information, and handling requirements may vary according to concentration and manufacturer.

For commercial shipments, always use the **supplier-specific Safety Data Sheet, Technical Data Sheet, and Certificate of Analysis** for the supplied batch.