

Technical Data Sheet (TDS)

Lactic Acid (Food Grade, 80% Liquid)

1. Product Overview

- Product Name: Lactic Acid (Food Grade, 80% Liquid)
- English Name: Lactic Acid
- CAS Number: 50-21-5
- Formula: $C_3H_6O_3$ ($CH_3CH(OH)COOH$)
- Molecular Weight: 90.08 g/mol
- **Product Characteristics:** Food-grade lactic acid (80% aqueous solution) is a colorless clear viscous liquid, a natural alpha-hydroxy acid widely existing in fruits, dairy products and human body. It is a multifunctional food additive with excellent acidity regulation, antiseptic, flavor enhancement and humectant properties. It inhibits microbial growth by reducing food pH, enhances the sour taste and flavor of food, and improves food texture and shelf life. Fully biodegradable, FDA/FAO/WHO certified, compliant with GB 2760-2021 standards, and is one of the most widely used natural food acidulants in the global food industry.

2. Technical Specifications (Complies with GB 1886.173-2016 / FCC / FAO/WHO)

Item	Specification (Food Grade, 80% Liquid)
Appearance	Colorless to pale yellow clear viscous liquid, no turbidity/sediment
Assay ($C_3H_6O_3$)	78.0-82.0%
pH Value (25°C, 10% solution)	1.0-2.0
Optical Rotation (25°C)	-2.0° ~ -12.0°
Heavy Metals (Pb)	≤ 0.5 ppm
Arsenic (As)	≤ 0.1 ppm
Sulfate (as SO_4)	≤ 0.005%
Chloride (as Cl)	≤ 0.005%
Iron (Fe)	≤ 0.001%
Residue on Ignition	≤ 0.1%
Total Bacterial Count	≤ 100 CFU/mL
E. coli	Negative
Viscosity (25°C)	200-300 mPa·s
Density (25°C)	1.20-1.22 g/cm ³
Melting Point (80% aq.)	-20°C
Boiling Point (80% aq.)	100-105°C
Water Solubility	Miscible with water in all proportions

3. Product Advantages

1. **Natural & Safe:** A natural metabolite in human body, no toxic side effects at food dosage; FAO/WHO ADI not specified, no intake limitation; compliant with global food safety standards.
2. **Multifunctional:** Integrates acidity regulation, preservative, flavor enhancement and humectant functions; one product for multiple uses, reducing the use of other food additives.
3. **Excellent Acidity Regulation:** Mild and lasting sour taste, no harsh sourness; can adjust food pH stably, and the sour taste is compatible with various food flavors.
4. **Broad-Spectrum Preservative:** Inhibits the growth of mold, yeast and most harmful bacteria by reducing food pH; synergistic effect with other preservatives (potassium sorbate, sodium benzoate) to improve antiseptic effect.
5. **Flavor Enhancement:** Enhances the natural flavor of food, masks off-flavors, and improves the taste and palatability of dairy, beverage and meat products.
6. **Environmentally Friendly:** Fully biodegradable in natural environment; no persistent pollution; no adverse effects on aquatic/terrestrial organisms; meets global environmental protection requirements.



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7. **Good Processability:** Miscible with water in all proportions, stable in food processing (pasteurization, boiling, freezing); no effect on food color and texture.

4. Application Fields

Food-grade lactic acid is a multifunctional food additive (no dosage limit for most food categories in GB 2760-2021), suitable for **all types of food and beverage** processing; also used in cosmetics and pharmaceuticals:

- **Beverage Industry:** Fruit juice, carbonated beverage, lactic acid bacteria beverage, fruit vinegar, wine; acidity regulator, flavor enhancer, stabilizer; improves sour taste and shelf life.
- **Dairy Industry:** Yogurt, cheese, milk beverage, ice cream; acidity regulator, flavor enhancer, humectant; enhances the unique sour taste of dairy products and improves texture.
- **Meat & Seafood Industry:** Ham, sausage, bacon, frozen seafood; preservative, acidity regulator, color fixative; inhibits microbial growth, maintains meat color and improves tenderness.
- **Pastry & Bakery Industry:** Cake, bread, biscuit, pastry filling; acidity regulator, leavening agent assistant; adjusts the pH of dough, improves leavening effect and shelf life.
- **Pickled Food Industry:** Pickled vegetables, pickled meat, soy sauce, vinegar; acidity regulator, preservative; prevents mildew and deterioration, enhances sour taste.
- **Confectionery & Snack Industry:** Candy, jelly, dried fruit, instant food; acidity regulator, flavor enhancer; adjusts sour-sweet ratio, improves taste.

5. Usage Methods

Food Type	Recommended Dosage	Function
Fruit Juice/Beverage	0.1-0.5%	Acidity regulator, flavor enhancer
Yogurt/Dairy Beverage	0.2-0.8%	Acidity regulator, flavor enhancer
Meat/Seafood Products	0.3-1.0%	Preservative, acidity regulator, color fixative
Cake/Bread/Pastry	0.1-0.3%	Acidity regulator, leavening assistant
Pickled Vegetables/Soy Sauce	0.5-1.5%	Acidity regulator, preservative
Candy/Jelly	0.2-0.6%	Acidity regulator, flavor enhancer

6. Packaging & Storage

- **Small Batch:** 500 mL HDPE plastic bottles, 1 L/5 L glass bottles; for small-scale food processing and retail.
- **Standard Batch:** 25 kg HDPE plastic drums (acid-resistant); for medium/large-scale food production.
- **Bulk Batch:** 200 kg HDPE plastic drums, 1000 kg IBC totes (acid-resistant inner liner); for large-scale industrial production and export.
- **Custom Packaging:** Available upon request (according to customer's processing and packaging requirements).

7. Safety & Protection

- **Personal Protection:** Wear acid-resistant nitrile rubber gloves, chemical protective goggles, face shield and acid-resistant protective clothing during all handling operations; wear FFP2 respirator when mist is generated.
- **Workplace Safety:** Operate in a well-ventilated area with local exhaust ventilation; set up emergency shower and eye wash equipment in the workplace; post corrosion warning signs.
- **Emergency Treatment:**
 - Skin contact: Rinse with plenty of running water for 10-15 minutes; seek medical treatment immediately if burns occur.
 - Eye contact: Rinse with plenty of water for at least 15 minutes; call an ophthalmologist immediately.
 - Inhalation: Move to fresh air; give oxygen if necessary; call a doctor immediately.
 - Ingestion: Rinse mouth with water, drink milk/water to dilute; do not induce vomiting; call a doctor immediately.