δ-Valerolactone

NEM Materials Co., Ltd.

According to the UN GHS revision 8

Version	5
Effective Date	10 November 2026
Revision Date	10 November 2026

SECTION 1: Identification

1.1 GHS Product identifier

Product name	δ-Valerolactone

1.2 Other means of identification

Product number	MQ006
Product grade	Qualified Grade (brochure specification: ≥98.0 wt%)
Other names	δ-Valerolactone; 1,5-Valerolactone; Tetrahydro-2H-2-pyranone; Valerolactone
CAS No.	542-28-9
EC No.	208-807-1

1.3 Recommended use of the chemical and restrictions on use

Identified uses	Fragrances and flavours, polyesters, polymer materials, pharmaceutical intermediates, chemical intermediates, inks and coatings. Not for use as a drug, household product or in other unknown applications.
Uses advised against	Not for use as a drug, household product or in other unknown applications.

1.4 Supplier details

Company	NEM Materials Co., Ltd.
Address	No. 34, West Section of Shengli West Road, Puyang, Henan Province, China, 457000
Postal code	457000
Telephone (Emergency)	0393-4412863
National chemical emergency telephone	0532-83889090 / 0532-83889191
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Website	www.nem.com.cn
SDS number / effective date	202304 / 10 November 2026

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification:

1. Flammable liquid: Not classified
2. Acute toxicity (oral): Not classified
3. Acute toxicity (inhalation): Not classified
4. Skin irritation: Not classified
5. Serious eye damage: Category 1
6. Reproductive toxicity: Not classified
7. Specific target organ toxicity — single exposure: Not classified
8. Specific target organ toxicity — repeated exposure: Not classified
9. Physical hazards: Not classified
10. Environmental hazards: Not classified

2.2 GHS label elements, including precautionary statements

Pictogram(s)	
Signal word	Danger
Hazard statement(s)	Combustible liquid. H318 Causes serious eye damage.
Precautionary statement(s)	
Prevention	Keep away from open flames and heat. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash hands thoroughly after handling. Avoid breathing dust/fume/gas/mist/vapours/spray.
Response	Fire: Use water spray, foam, dry chemical or carbon dioxide to extinguish. Skin contact: Wash with soap and plenty of water. If skin irritation occurs, get medical advice/attention. Contaminated clothing: Take off contaminated clothing and wash it before reuse. Eye contact: Rinse cautiously with water immediately. Remove contact lenses if present and easy to do; continue rinsing. Immediately obtain medical attention. Inhalation: Move the person to fresh air and keep comfortable for breathing. If feeling unwell, get medical advice/attention. Ingestion: Do not give anything by mouth to an unconscious person. Rinse mouth with water. Seek medical advice/attention. Spill or leakage: Eliminate ignition sources, evacuate non-essential personnel, isolate the area and absorb with dry sand or an inert absorbent.
Storage	Keep cool at low temperature, in a well-ventilated place. Keep container tightly closed.
Disposal	Dispose of contents/container at a government-approved and qualified waste-treatment facility.

2.3 Other hazards which do not result in classification

No environmental hazard is known based on information currently available. Long-term storage may cause polymerization.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names & synonyms	CAS No.	EC No.	Concentration
δ-Valerolactone	δ-Valerolactone; 1,5-Valerolactone; Tetrahydro-2H-2-pyranone; Valerolactone	542-28-9	208-807-1	>98% (GC)

Molecular formula: C5H8O2

SECTION 4: First-aid measures

General advice

Show this safety data sheet to the attending physician. May cause serious eye damage.

Following skin contact

Immediately remove contaminated clothing. Wash the affected area with plenty of soap and water for at least 15 minutes. Obtain medical attention if pain or other symptoms occur.

Following eye contact

Immediately rinse eyes with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do. Obtain medical attention immediately.

If inhaled

Move the person to fresh air. Keep the airway open and allow rest. If breathing stops, provide artificial respiration. Obtain medical attention immediately.

Following ingestion

If the person is conscious, rinse the mouth with water. Do not give anything by mouth to an unconscious person. Obtain medical attention immediately.

Advice to physicians

No specific recommendations; treat symptomatically.

Protection of first-aid responders

Rescuers should wear personal protective equipment, such as rubber gloves and sealed safety goggles.

Delayed effects

No relevant information available.

Special instructions for first aid

No specific data available.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media / methods

Fight fire from upwind and select an extinguishing method suitable for the surrounding environment. Non-essential personnel should immediately move to a safe area.

5.2 Suitable extinguishing media

Dry chemical, foam, water spray or carbon dioxide. Water spray may be used to cool unopened containers.

5.3 Specific hazards arising from the chemical

When heated or on fire, this substance may undergo explosive polymerization or deflagration. Heated containers may explode.

Hazardous combustion products

Thermal decomposition may produce carbon monoxide and carbon dioxide.

5.4 Special protective equipment for fire-fighters

Wear protective clothing and respiratory protective equipment.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear personal protective equipment. Stay upwind and away from the spill. Avoid breathing vapour, mist or gas. Ensure adequate ventilation.

Emergency measures

Eliminate ignition sources, take precautions against static discharge, isolate the area and evacuate non-essential personnel to a safe area.

6.2 Environmental precautions

Prevent entry into sewers. Notify the relevant authorities if the product contaminates rivers or enters drains.

6.3 Methods and materials for containment and cleaning up

Absorb with dry sand or an inert absorbent and place in a chemical-waste container. For large spills, build a dike. Dispose of adhering or collected material in accordance with applicable laws and regulations.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handle in a well-ventilated area. Wear suitable protective equipment. Prevent mist generation. Thoroughly wash hands and face after handling.

If vapour or aerosol is generated, use ventilation and local exhaust.

Avoid contact with skin, eyes and clothing. Do not smoke or eat in the work area.

7.2 Conditions for safe storage, including any incompatibilities

Keep tightly closed. Store at 2–8 °C; storage at −20 °C is recommended. Keep away from incompatible materials such as strong oxidizers.

Packaging material: Galvanized iron drums or plastic drums.

Shelf life: 6 months under unopened, low-temperature and normal storage conditions.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

No data available.

8.2 Appropriate engineering controls

Operate in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation and prevent direct contact.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Respiratory protection	If inhalation of vapour or aerosol is possible, use respiratory protective equipment.
Eye/face protection	Wear safety goggles or a face shield.
Hand protection	Wear polyethylene or silicone-rubber gloves to prevent direct contact.
Skin and body protection	Wear work clothing to prevent skin contact.
Other protection	Maintain good personal hygiene. Wash hands before eating, drinking, smoking or using the toilet. Remove contaminated clothing and wash before reuse.

SECTION 9: Physical and chemical properties

Physical state / appearance	Colourless, transparent, oily liquid (20 °C)
Colour	Colourless
Odour	No data available
Odour threshold	No data available
pH	No data available
Melting point/freezing point	−13 °C
Boiling point/range	218–220 °C
Flash point	107 °C (closed cup)
Flammability	Combustible liquid
Upper explosion limit	No data available
Lower explosion limit	No data available
Relative density (water=1)	1.08 (water = 1)
Relative vapour density (air=1)	3.45 (air = 1)
Vapour pressure	0.04 kPa (25 °C)
Heat of combustion	No data available
Critical temperature	No data available
Critical pressure	No data available
Ignition temperature	No data available
Auto-ignition temperature	No data available
Partition coefficient n-octanol/water	No data available
Viscosity	No data available
Water solubility	Soluble in water, ethanol and ether
Surface tension	No data available
Other physical properties	Long-term storage may cause self-polymerization.

SECTION 10: Stability and reactivity

10.1 Chemical stability

Stable under normal storage and use conditions.

10.2 Reactivity

No data available.

10.3 Incompatible materials

Strong oxidizers.

10.4 Conditions to avoid

Heat sources, high temperatures, electric sparks, ignition sources, incompatible materials and direct sunlight.

10.5 Possibility of hazardous reactions / polymerization hazard

May self-polymerize during long-term storage.

10.6 Hazardous decomposition products

Thermal decomposition may produce toxic gases such as carbon monoxide and carbon dioxide.

SECTION 11: Toxicological information

11.1 Acute toxicity

No data available.

Chronic toxicity

No data available.

Skin corrosion/irritation

No data available.

Serious eye damage/irritation

No data available.

Respiratory irritation

No data available.

Respiratory or skin sensitization

No data available.

Germ cell mutagenicity

No data available.

Carcinogenicity

No data available.

Reproductive toxicity

No data available.

STOT — single exposure and repeated exposure

Specific target organ toxicity — single exposure: no data available. Repeated exposure: no data available.

Aspiration hazard

No data available.

SECTION 12: Ecological information

12.1 Ecotoxicity

No data available.

12.2 Biodegradability

No data available.

12.3 Abiotic degradation

No data available.

12.4 Bioaccumulative potential

No data available.

12.5 Mobility in soil

No data available.

Toxicity to aquatic organisms

No data available.

12.6 Other adverse effects

No data available. Does not contain organic halogens and is not harmful to the ozone layer.

SECTION 13: Disposal considerations

13.1 Disposal methods

Waste characteristics: non-hazardous waste. Do not discharge into sewers, water or soil. Recycle if possible; consult local authorities. Incineration should be performed in a chemical incinerator equipped with afterburner and scrubber. Dispose of waste in accordance with national or local environmental protection laws. Contaminated packaging: Empty residual contents and handle as unused product. Do not reuse empty containers. Do not burn or cut uncleaned drums with a torch.

SECTION 14: Transport information

14.1 Transport hazard classification	Not classified as dangerous goods.
UN number	Not listed.
14.2 UN proper shipping name	Not applicable.
14.3 Transport hazard class	Not applicable.
14.4 Packing group	Not applicable.
Packaging	Galvanized iron drums or plastic drums.
14.5 Environmental hazards	No special environmental transport hazard specified.
14.6 Special precautions for user	Protect from direct sunlight. Do not transport in passenger vehicles. Do not load together with strong oxidizers.
14.7 Transport in bulk	No data available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product

Environmental Protection Law of the People’s Republic of China; Law on the Prevention and Control of Occupational Diseases; Provisions on the Supervision and Administration of Occupational Health at Workplaces (former State Administration of Work Safety Order No. 47); Regulations on the Safety Management of Hazardous Chemicals (State Council Decree No. 344); Regulations on the Transport of Dangerous Goods; Catalogue of Hazardous Chemicals (2015 Edition); Rules for Road Transport of Dangerous Goods (JT 617-2018); National Catalogue of Hazardous Wastes (former Ministry of Environmental Protection Order No. 39).

SECTION 16: Other information

Company and document information

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Other information

This safety data sheet is compiled from information available to us that we believe to be reliable. It is not a product specification, and the data shown should not be construed as technical specifications. No warranty is made regarding the accuracy of the hazard or toxicity assessment presented herein. Before use, obtain the latest hazard and toxicity information and give priority to the requirements of the relevant industry organizations and the laws and regulations of the applicable region and country. NEM Materials Co., Ltd. accepts no liability for any loss or damage arising from use of this document. For safety reasons, use the product promptly after purchase. New information or revisions may be added later. The warnings, precautions and recommendations apply only under normal conditions of use. Special uses require additional care beyond ordinary safety measures. All chemicals may have unknown hazards and toxicity, which can vary greatly under different conditions of use and storage. From opening through disposal, the product must be handled by trained personnel familiar with the relevant expertise or under expert guidance. Each user is responsible for establishing safe conditions of use.

GLOBAL EXPORT DESK

For batch-specific COA, commercial packaging (200kg drums / IBC / ISO Tank), or custom spec inquiries, contact our Global Export Desk:

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