Material Safety Data Sheet

Formic Acid

Version: 2.0 EN

Revision Date: 2024-12

SECTION 1: IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

1.1 Product identifiers

Product Name	Formic Acid
CAS No	64-18-6
Synonyms	Methane acid, Methanoic acid

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use	Chemical intermediate,For research and industrial use only

1.3 Details of the supplier of the safety data sheet

Company	China lithium Products technology Company Limited
	9 HG, No.99 LuJiang Road, Xiamen city, China
Telephone	+86 592 2687860
Email	info@lithium-chemical.com

1.4 Emergency telephone number

Emergency phone #	+86 592 2687860

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

This substance does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC

2.2 GHS Label elements, including precautionary statements

Hazard pictograms

Signal Word	Danger
Hazard Statements	
H226	Flammable liquid and vapor
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H331	Toxic if inhaled
Precautionary Statements	
Prevention	
P210	Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking
P233	Keep container tightly closed

P240	Ground/bond container and receiving equipment
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment
P242	Use only non-sparking tools
P243	Take precautionary measures against static discharge
P261	Avoid breathing mist or vapors
P264	Wash skin thoroughly after handling
P270	Do not eat, drink or smoke when using this product
P271	Use only outdoors or in a well-ventilated area
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection

Response

P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor
P363	Wash contaminated clothing before reuse
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

Storage

P403 + P233 Keep cool.	Store in a well-ventilated place. Keep container tightly closed
P403 + P235	Store in a well-ventilated place
P405	Store locked up

Disposal

P501	Dispose of contents/ container to an approved waste disposal plant

Hazard Statements

H226	Flammable liquid and vapor
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H331	Toxic if inhaled

Precautionary Statements

No data available

Supplemental Hazard Statements

None

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

No data available

2.4 Other hazards

Corrosive to the respiratory tract

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Substance name	Formic Acid
Formula	CH_2O_2
CAS No	64-18-6
EC No	200-579-1

Hazardous ingredients: Formic acid, Concentration (% w/w):<= 100

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance

If inhaled

After inhalation: fresh air. Immediately call in physician

If breathing stops: immediately apply artificial respiration, if necessary also oxygen

In case of skin contact

Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately

In case of eye contact

rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses

If swallowed

Rinse mouth with water. Do not induce vomiting, Never give anything by mouth to an unconscious person, Call a doctor or Poison Control Center immediately

4.2 Most important symptoms and effects, both acute and delayed

No data available

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Water

Foam

Carbon dioxide (CO2)

Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given

5.2 Special hazards arising from the substance or mixture

Combustible

Vapors are heavier than air and may spread along floors

Forms explosive mixtures with air at elevated temperatures

Development of hazardous combustion gases or vapours possible in the event of fire

5.3 Advice for firefighters www.lithium-chemical.com

Wear self-contained breathing apparatus for firefighting if necessary

5.4 Further information

None

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert

For personal protection see section 8

6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so, Do not let the chemical enter drains, Discharge into the environment must be avoided

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts

6.4 Reference to other sections

For disposal see section 13

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling

Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge

Hygiene measures

Change contaminated clothing. Wash hands after working with substance

For precautions see section 2.2

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly closed in a dry and well ventilated place

Storage class

3, Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Formic acid	64-18-6	PC-TWA	10 mg/m3	GBZ 2.1 2007
		PC-STEL	20 mg/m3	GBZ 2.1 2007
		TWA	5 ppm	ACGIH

8.2 Exposure controls

Appropriate engineering controls:	Change contaminated clothing. Wash hands after working with substance

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Respiratory protection

required when dusts are generated

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system

Control of environmental exposure

Do not let product enter drains

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Form: liquid Colour: colorless
Odour	Stinging
Odour Threshold	0.02 ppm
pH	2.2 (20 °C) Concentration: 10 g/l
Melting point/freezing point	8.2 - 8.4 °C
Initial boiling point and boiling range	100 - 101 °C
Flash point	49.5 °C
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	38 %(V)

Vapour pressure	171 hPa (50 °C)
Vapour density	1.22 g/cm3 (25 °C)
Relative density	1.22 (20 °C)
Water solubility	20 °C
Partition coefficient: n-octanol/water	-2.1 (23 °C) pH: 7
Auto-ignition temperature	540 °C
Decomposition temperature	350 °C
Viscosity	20 °C
Explosive properties	No data available
Oxidizing properties	No data available

9.2 Other safety information

No data available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Vapor/air-mixtures are explosive at intense warming

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature)

10.3 Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapours with:

Aluminum

Risk of explosion with:

Organic nitro compounds

Sodium hypochlorite

Hydrogen peroxide

Furfuryl alcohol

Generates dangerous gases or fumes in contact with:

Alkalines

Strong oxidizing agents

Sulfuric acid

Nonmetallic oxides

Metal catalysts

Oxides of phosphorus

Nitric acid

Nitrates

Exothermic reaction with:

Alkaline earth hydroxides

Alkali hydroxides

Bases

Amines

10.4 Conditions to avoid

Heating

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:	LD50 Oral - Rat - male and female - 730 mg/kg (OECD Test Guideline 401) LC50 Inhalation - Rat - male and female - 4 h - 7.85 mg/l - vapor (OECD Test Guideline 403) Dermal: No data available
Skin corrosion/irritation:	Skin - Rabbit Result: Causes severe burns. (OECD Test Guideline 404) Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) Remarks: Causes serious eye damage
Serious eye damage/eye irritation:	Conjunctivitis Lacrimal irritation due to vapours
Respiratory or skin sensitization:	Buehler Test - Guinea pig Result: negative (OECD Test Guideline 406) Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals
Germ cell mutagenicity:	Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: sister chromatid exchange assay Test system: Chinese hamster lung cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 479 Result: negative

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

Corrosive to the respiratory tract

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish:	LC50 (Danio rerio (zebra fish)): 130 mg/l End point: mortality Exposure time: 96 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 203 GLP: yes Remarks: The value is given in analogy to the follow ing substances: The value is given in analogy to the following sub stances: ammonium formate
Toxicity to daphnia and other aquatic invertebrates:	EC50 (Daphnia magna (Water flea)): 365 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes Remarks: The value is given in analogy to the follow ing substances: The value is given in analogy to the following sub stances: ammonium formate
Toxicity to algae/aquatic plants:	ErC50 (Pseudokirchneriella subcapitata): 1,240 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes Remarks: The value is given in analogy to the follow ing substances: The value is given in analogy to the following sub stances: ammonium formate

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):	NOEC (Daphnia magna (Water flea)): >= 100 mg/l End point: reproduction rate Exposure time: 21 d Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 211 GLP: yes
Toxicity to microorganisms:	NOEC (activated sludge): 72 mg/l Exposure time: 13 d Test Type: static test Remarks: (ECHA)

12.2 Persistence and degradability

Biodegradability:	Aerobic Inoculum: activated sludge Concentration: 100 mg/l Result: Readily biodegradable. Biodegradation: 100 % Exposure time: 14 d Method: OECD Test Guideline 301C 86 mg/g
Biochemical Oxygen Demand (BOD):	Incubation time: 5 d Remarks: (External MSDS)
BOD/ThOD:	8.60 %

12.3 Bioaccumulative potential

Bioaccumulation:	Remarks: Bioaccumulation is unlikely Remarks: Does not significantly accumulate in organ isms log Pow: -2.1 (23 °C) pH: 7
Partition coefficient: noctanol/water:	Method: OECD Test Guideline 107 GLP: yes Remarks: Bioaccumulation is not expected

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

Results of PBT and vPvB assessment:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities

SECTION 14: TRANSPORT INFORMATION

ADR/RID

UN number： UN 1779	Packing group: II	Subsidiary risk： 3
Proper shipping name： Formic acid	Transport hazard class(es)： 8	

IMDG

IMDG UN number： UN 1779	Packing group: II	Subsidiary risk： 3
Proper shipping name： Formic acid	Transport hazard class(es):8	

IATA

UN number： UN 1779	Packing group: II	Subsidiary risk： 3
Proper shipping name: Formic acid	Transport hazard class(es)： 8	

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulatory information

No data available

15.2 Other regulations

Please pay attention on the waste treatment should also comply with local regulations requirement

SECTION 16: OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. China Lithium Product Technology Co., Ltd.(CLPC) and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.lithium-chemical.com for additional terms and conditions of sale.