

## Safety Data Sheet

# Formic acid in water

Version : V2.0.0.1

Report No. : BWQ9869-2016-MSDS-US

Creation Date : 2025/11/17

Revision Date : -



\*Prepared according to American OSHA HCS-2024 (29 CFR 1910.1200)

## 1 Identification

### Product identifier

Product Name	Formic acid in water
Cat No.	BWQ9869-2016
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

### Recommended use of the product and restrictions on use

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

### Details of the supplier of the Safety Data Sheet

Name of the company	Weiyel Inc
Address of the company	Hedian Light Industrial Park, Chengguan Town, Shangcheng County, Xinyang City, Henan Province, China
Post code	465350
Telephone number	010-58103678
Fax number	010-84840368
E-mail address	info@weiyel.com

### Emergency phone number

Emergency phone number	010-58103678
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## 2 Hazard(s) identification

### Hazard classification according to 29 CFR 1910.1200

Flammable liquids	Category 3
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### Label elements

Hazard pictograms	
Signal word	Warning

### Hazard statements

H226	Flammable liquid and vapour
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## Precautionary statements

### ◆ Prevention

<b>P210</b>	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
<b>P233</b>	Keep container tightly closed.
<b>P240</b>	Ground and bond container and receiving equipment.
<b>P241</b>	Use explosion-proof [electrical/ventilating/lighting] equipment.
<b>P242</b>	Use non-sparking tools.
<b>P243</b>	Take action to prevent static discharges.
<b>P280</b>	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

### ◆ Response

<b>P370+P378</b>	Small fire: dry chemical, CO <sub>2</sub> or water spray; Large fire: dry chemical, CO <sub>2</sub> , alcohol-resistant foam or water spray; Fire involving tanks, rail tank cars or highway tanks: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Do not get water inside containers.
<b>P303+P361+P353</b>	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].

### ◆ Storage

<b>P403+P235</b>	Store in a well-ventilated place. Keep cool.
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### ◆ Disposal

<b>P501</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
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## Other hazards

	Not applicable.
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## Hazard description

### ◆ Physical and chemical hazards

	Flammable liquids, its vapor and air mixture can form explosive mixture.
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### ◆ Health hazards

<b>Inhaled</b>	Inhalation of the product may produce adverse health effects or irritation of the respiratory tract following discomfort.
<b>Ingestion</b>	Accidental ingestion of the product may be harmful to the health of the individual.
<b>Skin Contact</b>	Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
<b>Eye</b>	This product may cause temporary discomfort following direct contact with the eye.

### ◆ Environmental hazards

	Please refer to 12th chapter of SDS.
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## 3 Composition/information on ingredients

### Substance/mixture

	Mixture
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Component	CAS No.	EC No.	Concentration (wt, %)
Water	7732-18-5	231-791-2	99.009901
Formic acid	64-18-6	200-579-1	0.990099

## 4 First-aid measures

### Description of first aid measures

<b>General advice</b>	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
<b>Eye contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
<b>Skin contact</b>	Take off contaminated clothing and shoes immediately. Wash off with plenty of soap and water for at least 15 minutes and consult a physician if feel uncomfortable.
<b>Ingestion</b>	Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
<b>Inhalation</b>	Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.
<b>Protecting of first-aiders</b>	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

### Most important symptoms/effects, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
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### Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

## 5 Fire-fighting measures

### Extinguishing media

<b>Suitable extinguishing media</b>	Small fire: dry chemical, CO <sub>2</sub> or water spray; Large fire: dry chemical, CO <sub>2</sub> , alcohol-resistant foam or water spray; Fire involving tanks, rail tank cars or highway tanks: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Do not get water inside containers.
<b>Unsuitable extinguishing media</b>	No information available.

### Specific hazards arising from the substance or mixture

1	Fire may produce irritating, poisonous or corrosive gases.
2	Development of hazardous combustion gases or vapor possible in the event of fire.
3	May expansion or decompose explosively when heated or involved in fire.

### Special protective equipment and precautions for fire-fighters

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

## 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

1	Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire.
2	Do not touch or walk through spilled material.
3	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
4	Use personal protective equipment, do not breathe gas/mist/vapour/spray.
5	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
6	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

### Methods and materials for containment and cleaning up

1	Do not touch or cross spills.
2	It is recommended that emergency personnel wear a self-contained breathing apparatus with positive pressure and wear anti-corrosion clothing.
3	Transfer to a tank truck or special collector with a corrosion-resistant pump.
4	Do not touch broken containers and spills before putting on appropriate protective clothing.
5	Cut off the source of the leak as much as possible.
6	Keep leaks in a ventilated place.
7	Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
8	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.
9	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container.

## 7 Handling and storage

### Precautions for safe handling

1	Handling is performed in a well ventilated place.
2	Wear suitable protective equipment.
3	Avoid contact with skin and eyes.
4	Keep away from heat/sparks/open flames/ hot surfaces.

### Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

## 8 Exposure controls/personal protection

### Control parameters

- ◆ Occupational exposure limit values

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Formic acid	Japan - JSOH(2024–2025)	5	9.4	-	-
	Permissible exposure standards for workers in the workplace	5	9.4	10	18.8
	Australia	5	9.4	10	19
	Canada - Ontario	5	-	10	-
	European Union	5	9	-	-
	New Zealand	5	9.4	10	19

### Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Use explosion-proof electrical/ventilating/lighting/equipment.
4	Set up emergency exit and necessary risk-elimination area.

### Personal protection equipment

General requirement	    
Eye protection	Must wear appropriate safety goggles.
Hand protection	Must wear anti static chemical protective gloves.
Respiratory protection	Must wear appropriate personal respiratory protective equipment.
Skin and body protection	Must wear anti static chemical protective clothing and anti static shoes.

## 9 Physical and chemical properties and safety characteristics

### Physical and chemical properties

Appearance (physical state, color, etc.)	Clear, colorless liquid
Odor	No information available
Odor threshold	No information available
pH	2.2 ( 20°C , 10g/L,Formic acid )
Melting point/freezing point(°C)	8 ( Formic acid )
Initial boiling point and boiling range(°C)	101 ( Formic acid )
Flash point(Closed cup,°C)	45 ( Formic acid )
Evaporation rate	No information available
Flammability	No information available
Upper/lower explosive limits[%(v/v)]	Upper limit : 51 ( Formic acid ) ; Lower limit : 18 ( Formic acid )
Vapor pressure	4.6kPa ( 20°C,Formic acid )

<b>Vapor density(Air = 1)</b>	1.6 ( Formic acid )
<b>Relative density(Water=1)</b>	1.22 ( 20 °C,Formic acid )
<b>Solubility</b>	Miscible with water ( Formic acid )
<b>n-octanol/water partition coefficient</b>	-0.54 ( Formic acid )
<b>Auto-ignition temperature(°C)</b>	520 ( Formic acid )
<b>Decomposition temperature(°C)</b>	No information available
<b>Kinematic viscosity</b>	No information available

## 10 Stability and reactivity

### | Stability and reactivity

<b>Reactivity</b>	Contact with incompatible substances can cause decomposition or other chemical reactions.
<b>Chemical stability</b>	Stable under proper operation and storage conditions.
<b>Possibility of hazardous reactions</b>	In contact with active metals (alkali metals, Na, Ca etc.) causes a reaction and release hydrogen. Flammable, its gas or powder, if in contact with air, may form explosive mixtures.
<b>Conditions to avoid</b>	Incompatible materials, heat, flame and spark.
<b>Incompatible materials</b>	Alkali, sodium, calcium, and other active metal, halogen, metal oxide, nonmetal oxide, acyl halide and metal phosphide. Metal alkoxides, furfuryl alcohol, acetaldehyde, nitric acid, nitrate, nitrite, oxyacid salt halogen and inorganic peroxide.
<b>Hazardous decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11 Toxicological information

### | Acute toxicity

Component	LD <sub>50</sub> (oral)	LD <sub>50</sub> (dermal)	LC <sub>50</sub> (inhalation,4h)
Formic acid	1100mg/kg(Rat)	No information available	7.85mg/L(Rat)

### | Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP	OSHA Carcinogen List
Water	Not Listed	Not Listed	Not Listed
Formic acid	Not Listed	Not Listed	Not Listed

### | Others

Formic acid in water	
<b>Skin corrosion/irritation</b>	Based on available data, the classification criteria are not met
<b>Serious eye damage/irritation</b>	Based on available data, the classification criteria are not met
<b>Skin sensitization</b>	Based on available data, the classification criteria are not met
<b>Respiratory sensitization</b>	Based on available data, the classification criteria are not met
<b>Reproductive toxicity</b>	Based on available data, the classification criteria are not met
<b>STOT-single exposure</b>	Based on available data, the classification criteria are not met
<b>STOT-repeated exposure</b>	Based on available data, the classification criteria are not met

<b>Aspiration hazard</b>	Based on available data, the classification criteria are not met
<b>Germ cell mutagenicity</b>	Based on available data, the classification criteria are not met

## 12 Ecological information

### | Acute aquatic toxicity

Component	Fish	Crustaceans	Algae or other aquatic plants
Formic acid	LC <sub>50</sub> :130mg/L (96h)(Fish)	EC <sub>50</sub> : 151mg/L (48h)(Crustaceans)	No information available

### | Chronic aquatic toxicity

<b>Chronic aquatic toxicity</b>	No information available
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### | Persistence and degradability

<b>Persistence and degradability</b>	No information available
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### | Bioaccumulative potential

<b>Bioaccumulative potential</b>	No information available
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### | Mobility in soil

Component	log Koc	Remark
Formic acid	1.49	20 °C


## 13 Disposal considerations

### | Disposal considerations

<b>Waste chemicals</b>	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
<b>Contaminated packaging</b>	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
<b>Disposal recommendations</b>	Refer to section waste chemicals and contaminated packaging.

## 14 Transport information

### | Label and Mark

<b>Transporting Label</b>	
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### | IMDG-CODE

<b>UN number</b>	3412
<b>UN proper shipping name</b>	FORMIC ACID with not less than 5% but less than 10% acid by mass
<b>Transport hazard class</b>	8
<b>Transport subsidiary hazard class</b>	None
<b>Packing group</b>	III

<b>Marine pollutant ( Yes or no )</b>	No
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### IATA-DGR

<b>UN number</b>	3412
<b>UN proper shipping name</b>	FORMIC ACID with not less than 5% but less than 10% acid by mass
<b>Transport hazard class</b>	8
<b>Transport subsidiary hazard class</b>	None
<b>Packing group</b>	III

### UN-ADR

<b>UN number</b>	3412
<b>UN proper shipping name</b>	FORMIC ACID with not less than 5% but less than 10% acid by mass
<b>Transport hazard class</b>	8
<b>Transport subsidiary hazard class</b>	None
<b>Packing group</b>	III

### Transport in bulk according to IMO instruments

◆ Transport in bulk according to Annex II of MARPOL and the IBC code

	Not Available
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◆ Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

	Not Available
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◆ Transport in bulk in accordance with the IGC Code

	Not Available
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### Others

<b>Precautions for transport</b>	Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements.
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## 15 Regulatory information

### International chemical inventory

Component	A	B	C	D	E	F	G	H	I	J	K	L	M
<b>Water</b>	√	√	√	√	√	√	√	√	√	√	√	√	√
<b>Formic acid</b>	√	√	√	√	√	√	√	√	√	√	√	√	√

- [A]** China Inventory of Existing Chemical Substances(IECSC)  
**[B]** European Inventory of Existing Commercial Chemical Substances(EC inventory)  
**[C]** United States Toxic Substances Control Act Inventory(TSCA)  
**[D]** Canadian Domestic Substances List(DSL)  
**[E]** New Zealand Inventory of Chemicals(NZIoC)  
**[F]** Philippines Inventory of Chemicals and Chemical Substances(PICCS)  
**[G]** Korea Existing Chemicals Inventory(KECL)  
**[H]** Australian. Inventory of Industrial Chemical (AIICS)  
**[I]** Japan Inventory of Existing & New Chemical Substances(ENCS)



- [J]** Thailand Existing Chemicals Inventory (TECI)  
**[K]** Mexico National Inventory of Chemical Substances (INSQ)  
**[L]** Russia Inventory of Existing Substances (DRAFT)  
**[M]** Inventory of Existing Chemical Substances in Taiwan, China (TCSI)

## List of Chemical Substances under International Conventions

Component	A	B	C
Water	×	×	×
Formic acid	×	×	×

- [A]** The Montreal Protocol on Substances that Deplete the Ozone Layer  
**[B]** Stockholm Convention on Persistent Organic Pollutants (POPs)  
**[C]** Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade

## US chemical inventory

Component	A	B	C	D	E	F	G	H
Water	×	×	×	×	×	×	×	×
Formic acid	×	×	✓	✓	✓	✓	✓	×

- [A]** US Clean Air Act (CAA)- Section 112, Hazardous Air Pollutants  
**[B]** US SARA 302- Extremely Hazardous Substance List  
**[C]** US CERCLA- Hazardous Substances List  
**[D]** US Massachusetts Right-to-Know Substance List  
**[E]** US New Jersey Right to Know Hazardous Substance List  
**[F]** US Pennsylvania Right to Know Hazardous Substance List  
**[G]** US New York City Right-to-Know Hazardous Substance List  
**[H]** US California Proposition 65 List

Note:

- “✓” Indicates that the substance included in the regulations.  
 “×” No data or not included in the regulations.

## 16 Other information

### Information on revision

Creation Date	2025/11/17
Revision Date	-
Reason for revision	-

### Reference

- [1]** IPCS: The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>.  
**[2]** IARC, website: <http://www.iarc.fr/>.  
**[3]** OECD: The Global Portal to Information on Chemical Substances, website: <https://www.echemportal.org/echemportal/>.  
**[4]** CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.  
**[5]** NLM: ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.  
**[6]** EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.  
**[7]** U.S. Department of Transportation: ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.  
**[8]** Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

### Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG-	International Maritime Dangerous Goods CODE

		CODE	
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC <sub>50</sub>	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD <sub>50</sub>	Lethal Dose 50%	NTP	National Toxicology Program
EC <sub>50</sub>	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC <sub>x</sub>	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P <sub>OW</sub>	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor	HCS	Hazard Communication Standard

## Disclaimer

This Safety Data Sheet (SDS) was prepared according to OSHA HCS-2024. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.