

SAFETY DATA SHEET

1. Identification

Product identifier: FORMIC ACID

Other means of identification

Product No.: XL385, 2592, 0129, 0128

Recommended use and restriction on use

Recommended use: Not determined.

Restrictions on use: Not determined.

Details of the supplier of the safety data sheet

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	Customer Service: 855-282-6867
Fax:	610-573-2610
Contact Person:	Environmental Health & Safety
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Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada

2. Hazard(s) identification

Hazard Classification

Physical Hazards

Flammable liquids	Category 3
Corrosive to metal	Category 1

Health Hazards

Acute toxicity (Oral)	Category 4
Skin Corrosion/Irritation	Category 1A
Serious Eye Damage/Eye Irritation	Category 1
Specific Target Organ Toxicity - Single Exposure	Category 3 ¹

Target Organs

1. Respiratory tract irritation.

Unknown toxicity - Health

Acute toxicity, oral	0 %
Acute toxicity, dermal	88 %
Acute toxicity, inhalation, vapor	100 %
Acute toxicity, inhalation, dust or mist	100 %

Label Elements

Hazard Symbol:



Signal Word:

Danger

Hazard Statement:

Flammable liquid and vapor.
May be corrosive to metals.
Harmful if swallowed.
Causes severe skin burns and eye damage.
May cause respiratory irritation.

Precautionary Statements

Prevention:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Keep only in original packaging. Ground and bond container and receiving equipment. Use explosion-proof [electrical/ventilating/lighting] equipment. Use non-sparking tools. Take action to prevent static discharges. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe dust/mist/vapors/spray. Use only outdoors or in a well-ventilated area.

Response:

In case of fire: Use water spray, foam, dry powder or carbon dioxide for extinction. Immediately call a POISON CENTER/doctor. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Wash contaminated clothing before reuse. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Absorb spillage to prevent material damage.

Storage:

Store locked up. Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store in a corrosion-resistant container with a resistant inner liner.

Disposal:

Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification:

None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	Content in percent (%)*
FORMIC ACID		64-18-6	88 - 100%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information:	Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance. Ensure that emergency personnel are aware of the material involved, and take precautions to protect themselves.
Ingestion:	Call a physician or poison control center immediately. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Inhalation:	Move to fresh air. Get medical attention if symptoms persist. Apply artificial respiration if victim is not breathing. If breathing is difficult, give oxygen.
Skin Contact:	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
Eye contact:	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air. Get medical attention immediately.

Most important symptoms/effects, acute and delayed

Symptoms:	Causes severe skin and eye burns. Causes digestive tract burns. Mist or vapor extremely irritating to eyes and respiratory tract.
Hazards:	None known.

Indication of immediate medical attention and special treatment needed

Treatment:	Symptoms may be delayed. Treat symptomatically.
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5. Fire-fighting measures

General Fire Hazards:	Flammable liquid and vapor. Can be ignited easily and burns vigorously.
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Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Water spray, foam, dry powder or carbon dioxide.
Unsuitable extinguishing media:	Avoid water in straight hose stream; will scatter and spread fire.

Specific hazards arising from the chemical:	Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations. Heat may cause the containers to explode.
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Special protective equipment and precautions for firefighters

- Special fire fighting procedures:** Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out. Fight fire from a protected location.
- Special protective equipment for fire-fighters:** Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

- Personal precautions, protective equipment and emergency procedures:** Keep unauthorized personnel away. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep upwind. Ventilate closed spaces before entering them. See Section 8 of the SDS for Personal Protective Equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Methods and material for containment and cleaning up:** In case of leakage, eliminate all ignition sources. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.
- Notification Procedures:** Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved.
- Environmental Precautions:** Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

- Precautions for safe handling:** DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Use personal protective equipment as required. Do not breathe mist or vapor. Do not get in eyes, on skin, on clothing. Do not taste or swallow. Use only with adequate ventilation. Wash hands thoroughly after handling. Use caution when adding this material to water. Always add acid to water while stirring to prevent release of heat, steam and fumes. See Section 8 of the SDS for Personal Protective Equipment.
- Conditions for safe storage, including any incompatibilities:** Keep away from food, drink and animal feeding stuffs. Keep out of reach of children. Do not store in metal containers. Keep container tightly closed in a cool, well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values		Source
FORMIC ACID	STEL	10 ppm	19 mg/m ³	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
	TWA	5 ppm	9,4 mg/m ³	Canada. Alberta OELs (Occupational Health &

			Safety Code, Schedule 1, Table 2) (07 2009)
FORMIC ACID	TWA	5 ppm	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
	STEL	10 ppm	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
FORMIC ACID	TWA	5 ppm	Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2011)
	STEL	10 ppm	Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2011)
FORMIC ACID	TWA	5 ppm	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
	STEL	10 ppm	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
FORMIC ACID	8 HR ACL	5 ppm	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	15 MIN ACL	10 ppm	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
FORMIC ACID	STEL	10 ppm 19 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
	TWA	5 ppm 9,4 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
FORMIC ACID	STEL	10 ppm	US. ACGIH Threshold Limit Values (2011)
	TWA	5 ppm	US. ACGIH Threshold Limit Values (2011)

Appropriate Engineering Controls

No data available.

Individual protection measures, such as personal protective equipment

General information: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.

Eye/face protection: Wear safety glasses with side shields (or goggles) and a face shield.

Skin Protection

Hand Protection: Chemical resistant gloves

Other: Wear suitable protective clothing.

Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Hygiene measures: Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

9. Physical and chemical properties

Appearance

Physical state:	Liquid
Form:	Liquid
Color:	Colorless
Odor:	Characteristic, Pungent
Odor threshold:	No data available.
pH:	No data available.
Melting point/freezing point:	8,4 °C
Initial boiling point and boiling range:	100,8 °C
Flash Point:	50 °C (Closed Cup)
Evaporation rate:	2,1 (butyl acetate=1)
Flammability (solid, gas):	Class II Combustible Liquid
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	57 %(V)
Flammability limit - lower (%):	18 %(V)
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	5,680 kPa (25 °C)
Vapor density:	1,59 (Air=1)
Density:	1,22 g/ml (20 °C)
Relative density:	1,22 (20 °C)
Solubility(ies)	
Solubility in water:	Miscible with water.
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	-0,54
Auto-ignition temperature:	505 °C
Decomposition temperature:	No data available.
Viscosity:	No data available.
Other information	
Bulk density:	217,44 kg/m ³ (20 °C)
Molecular weight:	46,02 g/mol (CH ₂ O ₂)

10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.
Conditions to avoid:	Heat, sparks, flames. Contact with incompatible materials.
Incompatible Materials:	Strong oxidizing agents. Sulfuric acid. Caustics. Hydrogen peroxide (H ₂ O ₂) Strong bases. Metals.
Hazardous Decomposition Products:	Thermal decomposition may release oxides of carbon.

11. Toxicological information

Information on likely routes of exposure

- Inhalation:** Mists or vapors may cause burns to respiratory tract.
- Skin Contact:** Causes severe skin burns.
- Eye contact:** Causes serious eye damage.
- Ingestion:** Harmful if swallowed.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

- Oral**
- Product:** LD 50 (Rat): 730 mg/kg
- Dermal**
- Product:** No data available.
- Inhalation**
- Product:** LC 50 (Mouse): 6,2 mg/l
LC 50 (Rat): 7,85 mg/l

Repeated dose toxicity

- Product:** No data available.

Skin Corrosion/Irritation

- Product:** Causes severe skin burns.

Serious Eye Damage/Eye Irritation

- Product:** Causes severe eye burns.

Respiratory or Skin Sensitization

- Product:** Not a skin sensitizer.

Carcinogenicity

- Product:** This substance has no evidence of carcinogenic properties.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

ACGIH Carcinogen List:

No carcinogenic components identified

Germ Cell Mutagenicity

- In vitro**
- Product:** No mutagenic components identified
- In vivo**
- Product:** No mutagenic components identified

Reproductive toxicity

- Product:** No components toxic to reproduction

Specific Target Organ Toxicity - Single Exposure
Product: Respiratory tract irritation.

Specific Target Organ Toxicity - Repeated Exposure
Product: None known.

Aspiration Hazard
Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Chronic hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Toxicity to Aquatic Plants
Product: No data available.

Persistence and Degradability

Biodegradation
Product: Expected to be readily biodegradable.

BOD/COD Ratio
Product: No data available.

Bioaccumulative potential
Bioconcentration Factor (BCF)
Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)
Product: Log Kow: -0,54

Mobility in soil: The product is water soluble and may spread in water systems.

Other adverse effects: The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

13. Disposal considerations

Disposal instructions:	Discharge, treatment, or disposal may be subject to national, state, or local laws.
Contaminated Packaging:	Since emptied containers retain product residue, follow label warnings even after container is emptied. Residual vapors may explode on ignition; do not cut, drill, grind, or weld on or near this container.

14. Transport information

TDG

UN Number:	UN 1779
UN Proper Shipping Name:	FORMIC ACID
Transport Hazard Class(es)	
Class:	8
Label(s):	8, 3
Packing Group:	II
Marine Pollutant:	No
Special precautions for user:	Not determined.

IMDG

UN Number:	UN 1779
UN Proper Shipping Name:	FORMIC ACID
Transport Hazard Class(es)	
Class:	8
Label(s):	8, 3
EmS No.:	F-E, S-C
Packing Group:	II
Marine Pollutant:	No
Special precautions for user:	Not determined.

IATA

UN Number:	UN 1779
UN Proper Shipping Name:	Formic acid
Transport Hazard Class(es):	
Class:	8
Label(s):	8, 3
Packing Group:	II
Marine Pollutant:	No
Special precautions for user:	Not determined.
Cargo aircraft only:	Allowed.

Transport in bulk according to Annex II of MARPOL and the IBC Code: Not applicable

15. Regulatory information

Canada Federal Regulations

List of Toxic Substances (CEPA, Schedule 1)

Export Control List (CEPA 1999, Schedule 3)

National Pollutant Release Inventory (NPRI)

Greenhouse Gases

Controlled Drugs and Substances Act

Precursor Control Regulations

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

Not applicable

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EU EINECS List:	On or in compliance with the inventory
EU ELINCS List:	Not in compliance with the inventory.
Japan (ENCS) List:	On or in compliance with the inventory
EU No Longer Polymers List:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	Not in compliance with the inventory.
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

16. Other information, including date of preparation or last revision
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Revision Date:	21.05.2018
Version #:	1.2
Further Information:	No data available.

Disclaimer:

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