

SECTION 1) CHEMICAL PRODUCT AND SUPPLIER'S IDENTIFICATION

CAS Number: 64-18-6
Product Name: Formic Acid 99%
Revision Date: Jun 13, 2018 **Date Printed:** Jul 19, 2021
Version: 1.0 **Supersedes Date:** N.A.
Manufacturer's Name: Thames River Chemical Corp.
Address: 5230 Harvester Road Burlington, ON, CA, L7L 4X4
Emergency Phone: CHEMTREC (800) 424-9300
Information Phone Number: 905-681-5353
Fax: 905-681-5377
Product/Recommended Uses: For laboratory or industrial use only.

SECTION 2) HAZARDS IDENTIFICATION

Classification

Acute toxicity Inhalation - Category 3
Acute toxicity Oral - Category 4
Flammable Liquids - Category 3
Serious Eye Damage - Category 1
Skin Corrosion - Category 1A

Pictograms



Signal Word

Danger

Hazard Statements - Health

Toxic if inhaled
Harmful if swallowed
Causes severe skin burns and eye damage

Hazard Statements - Physical

Flammable liquid and vapor

Precautionary Statements - General

If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.

Precautionary Statements - Prevention

Use only outdoors or in a well-ventilated area.

Wash/Wash hands thoroughly after handling.

Do not eat, drink or smoke when using this product.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical, ventilating, lighting equipment.

Use only non-sparking tools.

Take action to prevent static discharges.

Wear protective gloves/protective clothing/eye protection/face protection.

Do not breathe dust/fume/gas/mist/vapors/spray.

Precautionary Statements - Response

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Specific treatment (see first-aid on the SDS).

IF SWALLOWED: Call a POISON CENTER or doctor, if you feel unwell.

Rinse mouth.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

In case of fire: Use carbon dioxide, alcohol foam, water spray or dry chemical to extinguish.

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 or doctor.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Wash contaminated clothing before reuse.

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Store in a well-ventilated place. Keep cool.

Precautionary Statements - Disposal

Dispose of contents/container in accordance with local/national/international regulation. Waste management should be in full compliance with national, regional and local laws.

Physical Hazards Not Otherwise Classified

No data available.

Health Hazards Not Otherwise Classified

No data available.

SECTION 3) COMPOSITION/INFORMATION ON INGREDIENTS

CAS	Chemical Name	% By Weight
0000064-18-6	FORMIC ACID	99% - 100%

Specific chemical identity and/or exact percentage (concentration) of the composition has been withheld to protect confidentiality or to reflect batch to batch variation.

SECTION 4) FIRST-AID MEASURES

Inhalation

Immediate medical attention is required.

Get medical advice/attention if you feel unwell or are concerned. If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Remove source of exposure or move person to fresh air and keep comfortable for breathing. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by the POISON CENTER/doctor.

Eye Contact

Immediately call a POISON CENTER/doctor. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for a duration of 30 minutes or until medical aid is available. Take care not to rinse contaminated water into the unaffected eye or onto the face.

Skin Contact

Wash contaminated clothing before re-use. Take off immediately all contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Immediately call a POISON CENTER/doctor. Rinse skin with lukewarm, gently flowing water/shower for a duration of 30 minutes or until medical aid is available.

Ingestion

Immediately call a POISON CENTER/doctor. Do NOT induce vomiting.

If vomiting occurs naturally, lie on your side, in the recovery position.

Most Important Symptoms and Effects, Both Acute and Delayed

No data available.

Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5) FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Suitable extinguishing media: water spray, dry powder, foam, carbon dioxide

Unsuitable Extinguishing Media

Do not use straight stream of water.

Specific Hazards in Case of Fire

Containers may explode in fire. Fire will produce irritating and corrosive gases.

Fire-fighting Procedures

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely.

Special Protective Actions

Wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

SECTION 6) ACCIDENTAL RELEASE MEASURES

Emergency Procedure

Isolate hazard area and keep unauthorized personnel away. Stay uphill and/or upstream. Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing. Ventilate closed spaces before entering. Evacuate and isolate hazard area and keep unauthorized personnel away.

Recommended Equipment

Wear chemical protective clothing and positive pressure self-contained breathing apparatus (SCBA).

Personal Precautions

Use personal protective equipment as required.

DO NOT get on skin, eyes or clothing. Avoid breathing vapor or mist.

Environmental Precautions

Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems and natural waterways by using sand, earth, or other appropriate barriers.

Methods and Materials for Containment and Cleaning up

For Large amounts: Pump off product

For Residues: Pick up with suitable absorbent material (e.g. acid binder)

SECTION 7) HANDLING AND STORAGE

General

Avoid all sources of ignition.

Wash hands after use. Do not get in eyes, on skin or on clothing. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Use good personal hygiene practices. Eating, drinking and smoking in work areas is prohibited. Remove contaminated clothing and protective equipment before entering eating areas. Eyewash stations and showers should be available in areas where this material is used and stored

Ventilation Requirements

Use only with adequate ventilation to control air contaminants to their exposure limits. Report ventilation failures immediately. The use of local ventilation is recommended to control emissions near the source.

Storage Room Requirements

Segregate from alkalies and alkalinizing substances

Suitable materials for containers: Stainless steel 1.4571, Stainless steel 1.4404, High density polyethylene (HDPE), low density polyethylene (LDPE), glass, HDPE fluorinated

Storage temperature: < 30C

Storage duration: <= 24 months

SECTION 8) EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye protection

Wear indirect-vent, impact and splash resistant goggles when working with liquids

Skin Protection

Use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Use an apron and over-boots of chemically impervious materials such as neoprene or nitrile rubber.

Respiratory Protection

Use NIOSH approved air supplier full face piece or head covering respirator suitable for organic vapors/particulates as required.

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker, a respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 should be followed. Check with respiratory protective equipment suppliers.

Appropriate Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Chemical Name	CANsmg	CANspmm	CANtmg	CANtppm	OSHA STEL (mg/m3)	OSHA STEL (ppm)	OSHA TWA (mg/m3)	OSHA TWA (ppm)
FORMIC ACID	18	10	9	5			9	5

Chemical Name	OSHA Carcinogen	OSHA Tables (Z1, Z2, Z3)	OSHA Skin designation	ACGIH STEL (mg/m3)	ACGIH STEL (ppm)	ACGIH TWA (mg/m3)	ACGIH TWA (ppm)	ACGIH TLV Basis
FORMIC ACID		1		19	10		5	URT, eye & skin irr

Chemical Name	ACGIH Carcinogen	ACGIH Notations
FORMIC ACID		

irr - Irritation, URT - Upper respiratory tract

SECTION 9) PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Density	10.18 lb/gal
Specific Gravity	1.22

Appearance	clear, colourless liquid
Odor Description	pungent odour
Odor Threshold	N/A
pH	2.2
Melting Point	4 °C
Low Boiling Point	100.23 °C
High Boiling Point	N/A
Flash Point	49.5 °C
Vapor Pressure	42.71 mbar
Vapor Density	no information available
Evaporation Rate	no information available
Upper Explosion Level	N/A
Lower Explosion Level	The lower explosion point may be 5 -15 C below the flash point
Water Solubility	Miscible (20°C)
Coefficient Water/Oil	-2.1 at 23C
Viscosity	1.72 mPa.s

SECTION 10) STABILITY AND REACTIVITY

Reactivity

No corrosive effect on metal

Forms no flammable gases in the presence of water

Possibility of hazardous reactions

Exothermic reaction. Reacts with alkalis. Reacts with amines. The formation of gaseous decomposition products builds up pressure in tightly closed containers

Stability

Slow decomposition possible

Conditions to Avoid

Avoid all sources of ignition: heat, sparks, open flame.

Temperature: > 30 C

Hazardous Reactions/Polymerization

Hazardous polymerization will not occur.

Incompatible Materials

oxidizing agents, bases

Bases, amines

Hazardous Decomposition Products

Hazardous decomposition products: Carbon Monoxide

Thermal Decomposition: 350C, 2.5 K/min (DSC(DIN 51007))

Thermal decomposition above the indicated temperature is possible. It is not a self-decompositionable substance.

SECTION 11) TOXICOLOGICAL INFORMATION

Likely Route of Exposure

Inhalation, ingestion, skin absorption

Acute Toxicity

Assessment of acute toxicity: Of moderate toxicity after single ingestion. Of pronounced toxicity after short-term inhalation. The toxicity of the product is based on its corrosivity.

Oral:

LD50 (Rat): 730 mg/kg (OECD Guideline 401)

Inhalation

LC50 (Rat) : 7.85 mg/l (Manufacture- Test) / 4 h

Dermal

Study scientifically not justified.

The Overexposure may cause: Vomiting, aspiration pneumonia, circulatory collapse, death, acidosis, abdominal cramps, shortness of breath, hypotension, nausea, diarrhea, salivation.

Toxic if inhaled

Harmful if swallowed

Aspiration Hazard

Based on available data, the classification criteria are not met.

Carcinogenicity

In long term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Based on available data, the classification criteria are not met.

Germ Cell Mutagenicity

Not mutagenic effect was found in various test with bacteria and mammalian cell culture.

Based on available data, the classification criteria are not met.

Reproductive Toxicity

The results of animal studies gave no indication of a fertility impairing effect. The product has not been tested. The statement has been derived from substances / products of a similar structure or composition

Based on available data, the classification criteria are not met.

Respiratory/Skin Sensitization

Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

Buehler test

Species: guinea pig

Result: Non-sensitizing

Method: OECD Guideline 406

Based on available data, the classification criteria are not met.

Serious Eye Damage/Irritation

Causes serious eye damage

Skin Corrosion/Irritation

Species: Rabbit

Result: Corrosive

Method: OECD Guideline 404

Literature data

Causes severe skin burns and eye damage

Specific Target Organ Toxicity - Repeated Exposure

Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity - Single Exposure

Based on available data, the classification criteria are not met.

Likely Routes of Exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Inhalation, Ingestion, Skin contact, Eye contact

000064-18-6 FORMIC ACID

LC50 (inhalation, rat): 2000 ppm (4-hour exposure); cited as 15000 mg/m3 (15-minute exposure) (12, unconfirmed)

LC50 (inhalation, mouse): 825 ppm (4-hour exposure); cited as 6200 mg/m3 (15-minute exposure) (12, unconfirmed)

LD50 (oral, rat): 1100 mg/kg (12, unconfirmed)

LD50 (oral, mouse): 700 mg/kg (12, unconfirmed)

SECTION 12) ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity: There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations. The product gives rise to PH shifts.

Toxicity to fish:

LC50 (96h): 130 mg/l, Brachydanio rerio (OECD 203) The product has not been tested. The statement has been derived from substance/products of a similar structure or composition

Aquatic Invertebrates:

EC50 (48h): 365 mg/l, Daphnia magna(OECD 202) The product has not been tested. The statement has been derived from substance/products of a similar structure or composition. The statement of the toxic effect relates to the analytically determined concentration.

Aquatic plants

EC50(72h): 1240 mg/l (growth rate), Selenastrum capricornutum (OECD 201) The product has not been tested. The statement has been derived from substance/products of a similar structure or composition

Chronic toxicity to aquatic invertebrates:

No observed effect concentration (21d) \geq 100 mg/l, Daphnia magna(OECD Guideline 211).

The statement of the toxic effects relates to the analytically determined concentration. The product will cause changes in the PH value of the test system. The result refers to a neutralized sample. No effects at the highest test concentration.

Based on available data, the classification criteria are not met.

Mobility in Soil

The substance will not evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.

Bioaccumulative Potential

This material is not expected to bioaccumulate.

Persistence and Degradability

Readily biodegradable

Other Adverse Effects

No data available.

SECTION 13) DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Waste management should be in full compliance with federal, state and local laws.

Waste Disposal

Empty Containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld or use for any other purposes. It is the responsibility of the user of the product to determine at the time of disposal whether the product meets local criteria for hazardous waste. Waste management should be in full compliance with national, provincial and local laws.

SECTION 14) TRANSPORT INFORMATION

Transport Canada Information

Proper shipping name: FORMIC ACID with more than 85% acid by mass

UN number: UN 1779

Hazard class: 8, 3

Packaging group: II

U.S. DOT Information

Proper shipping name: FORMIC ACID with more than 85% acid by mass

UN number: UN 1779

SECTION 15) REGULATORY INFORMATION

CAS	Chemical Name	% By Weight	Regulation List
0000064-18-6	FORMIC ACID	99% - 100%	DSL,TSCA,EU_EC_Inventory - European_EC_Inventory

SECTION 16) OTHER INFORMATION

Glossary

ACGIH- American Conference of Governmental Industrial Hygienists; ANSI- American National Standards Institute; Canadian TDG- Canadian Transportation of Dangerous Goods; CANsmg or CANspmm - Canadian Short Term Exposure Level in mg/L or in ppm; CANtmg or CANtppm - Canadian Time Weighted Average in mg/L or in ppm; CAS- Chemical Abstract Service; Chemtrec- Chemical Transportation Emergency Center(US); CHIP- Chemical Hazard Information and Packaging; DSL- Domestic Substances List; EC- Equivalent Concentration; EH40 (UK)- HSE Guidance Note EH40 Occupational Exposure Limits; EPCRA- Emergency Planning and Community Right-To-Know Act; ESL Effects screening levels; HMIS- Hazardous Material Information Service; LC- Lethal Concentration; LD- Lethal Dose; NFPA- National Fire Protection Association; OEL- Occupational Exposure Limits; OSHA- Occupational Safety and Health Administration, US Department of Labor; PEL- Permissible Exposure Limit; SARA (Title III)- Superfund Amendments and Reauthorization Act; SARA 313- Superfund Amendments and Reauthorization Act, Section 313; SCBA- Self Contained Breathing Apparatus; STEL-Short Term Exposure Limit; TCEQ Texas Commission on Environmental Quality; TLV- Threshold Limit Value; TSCA- Toxic Substances Control Act Public Law 94-469; TWA Time Weighted Value; US DOT- US Department of Transportation; WHMIS- Workplace Hazardous Materials Information System.

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