

SAFETY DATA SHEET

Formic Acid 95%



Revision date: 4/19/2022
Version 1.0

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Trade Name: Formic Acid 95%

Chemical Name: Formic Acid

CAS No: 64-18-6
EC No.: 200-579-1
Index No.: 607-001-00-0

Formula: CH₂O₂

Synonyms: Methanoic acid

Product Form: Substance

Recommended use of the chemical and restrictions on use

Recommended Use: For use in buffering caustic buildup in soil, sludge, and groundwater bioremediation

Restrictions on Use: Use as recommended by the label

Details of the supplier and of the safety data sheet

Supplier: Tersus Environmental, LLC
1116 Colonial Club Rd
Wake Forest, NC 27587
Phone: +1-919-453-5577
Email: info@tersusenv.com

Emergency telephone number

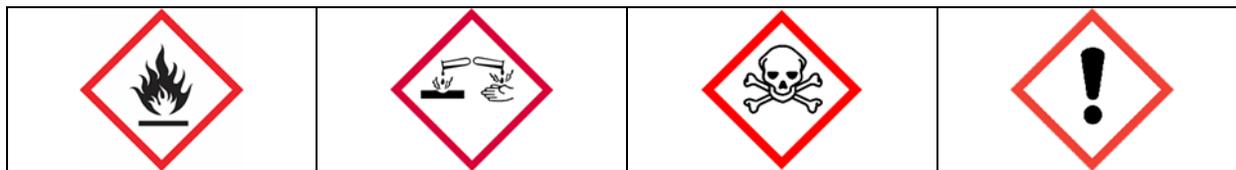
For leak, fire, spill or accident emergencies, call:

+1-919-453-5577 (Tersus Office Hours, 8:00 AM to 5:00 PM Eastern)
+1-919-638-7892 (Tersus Outside office hours)
+1-800-424-9300 (Chemtrec 24 Hour Service – Emergency Only)
+1-703-527-3887 (Chemtrec Outside United States 24 Hour Service – Emergency Only)

2. HAZARD IDENTIFICATION

Classification

Physical hazards	Not classified.
Health hazards	Not classified.
Environmental hazard	Not classified.
OSHA defined hazard	Not classified.

GHS Label elements, including precautionary statements**Pictogram****Signal word**

Danger

Hazard statement

Not classified in accordance with international standards for workplace safety.

Hazard Statements

H226	Flammable liquid and vapor
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H331	Toxic if inhaled

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. 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.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash ... 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.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/.../if you feel unwell,
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	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor/...
P311	Call a POISON CENTER/doctor/...
P321	Specific treatment (see ... on this label).
P330	Rinse mouth.
P363	Wash contaminated clothing before reuse.
P370+P378	In case of fire: Use ... to extinguish.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container to ...

Other Hazards

Corrosive to the respiratory tract.

3. COMPOSITION/INFORMATION ON INGREDIENTS**Chemical Formula** CH₂O₂**Hazardous components**

Chemical Name	CAS Number	Concentration (wt. %)
Formic Acid	64-18-6	95%

Synonyms are provided in Section 1.

Occupational exposure limits, if available, are listed in Section 8.

4. FIRST AID MEASURES

General Information	Be aware of the risk of exposure to material when providing first aid.
Eye Contact	First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.
Skin Contact	IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. IMMEDIATELY call a hospital or poison control center even if no symptoms (such as redness or irritation) develop. IMMEDIATELY transport the victim to a hospital for treatment after washing the affected areas.
Inhalation	IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. If symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop, call a physician, and be prepared to transport the victim to a hospital. Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Respirator Recommendation.
If Swallowed	DO NOT INDUCE VOMITING. Corrosive chemicals will destroy the membranes of the mouth, throat, and esophagus and, in addition, have a high risk of being aspirated into the victim's lungs during vomiting which increases the medical problems. If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. IMMEDIATELY transport the victim to a hospital. If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING. Transport the victim IMMEDIATELY to a hospital.
Personal Protective Equipment for First-Aid Responders	Not available.
Most important symptoms/effects, acute and delayed	Difficulty in breathing. Causes burns by all exposure routes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea, and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is

Indication of any
Immediate Medical
Attention and Special
Treatment Needed

contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.
Not available.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.
Unsuitable Extinguishing Media	Do not use a heavy water stream.
Explosion Data	
General Fire Hazards	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.
Special Protective Equipment and Precautions for Firefighters	
Specific Methods	
Specific Hazards Arising from the Chemical or Mixture	Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Strong reducing agent. Fire and explosion risk in contact with oxidizing agents.
Hazardous Combustion Products	Carbon monoxide (CO). Carbon dioxide (CO ₂). Hydrogen. Thermal decomposition can lead to release of irritating gases and vapors
Special Fire Fighting Procedures	Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Minimize risk of exposure to material. Means: PPE (chemical resistant gloves, respirator with full face shield, etc.), safe handling practices, good industrial hygiene.
Environmental Precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
Methods for Containment and Clean Up	If you should spill this chemical, use absorbent paper to pick up all liquid spill material. Seal the absorbent paper, as well as any of your clothing which may be contaminated, in a vapor-tight plastic bag for eventual disposal. Wash any surfaces you may have contaminated with a soap and water solution. Do not reenter the contaminated area until the Safety Officer (or other responsible person) has verified that the area has been properly cleaned.

Reference to other sections
For disposal, see Section 13.

7. HANDLING AND STORAGE

Precautions for Safe Handling	Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Keep away from sources of ignition. Take measures to prevent buildup of electrostatic charge. No smoking.
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Conditions for Safe Storage, including any Incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Vent periodically. Handle and open container with care. Hygroscopic. Storage class (TRGS 510): Flammable liquids

8. EXPOSURE CONTROL / PERSONAL PROTECTION**Control Parameters****Formic acid (CAS: 64-18-6)**

REL (Inhalation): 5 ppm (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

Formic acid (CAS: 64-18-6)

PEL (Inhalation): 5 ppm, (ST) 10 ppm (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

Formic acid (CAS: 64-18-6)

PEL (Inhalation): 9 mg/m³ (OSHA)
OSHA Annotated Table Z-1, www.osha.gov

Formic acid (CAS: 64-18-6)

PEL (Inhalation): 5 ppm (OSHA)
OSHA Annotated Table Z-1, www.osha.gov

Appropriate Engineering Controls

Avoid contact with skin, eyes, and clothing. Washing hands before breaks and immediately after handling the product. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical equipment. Ensure adequate ventilation, especially in confined areas.

Individual Protection Measures, Such as Personal Protective Equipment (PPE)**Eye/face protection**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Tight sealing safety goggles. Face protection shield.

Skin and body protection

Chemical resistant apron. Boots. Chemical protection suit (EN 14605).

Respiratory protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Thermal hazards

Not available

Environmental exposure controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Appearance/form (physical state, color, etc.)	Liquid
Odor	Pungent
Odor threshold	Not available
pH	2.2 at 2.2 g/l at 20 °C
Melting point/freezing point	8.4 °C
Initial boiling point and boiling range	100.7 °C
Flash point	56 °C
Evaporation rate	Not available
Flammability (solid, gas)	Not available
Upper/lower flammability limits	Not available
Upper/lower explosive limits	Upper explosion limit: 57%(V) Lower explosion limit: 18%(V)
Vapor pressure	42.00 hPa (31.50 mmHg) at 20 °C 169.99 hPa (127.50 mmHg) at 50°C
Vapor density	1.59 - (Air = 1.0)
Relative density	1.220 @ 20 °C [017,042,274,421]
Solubility(ies)	completely miscible (Water)
Partition coefficient: n-octanol/water	log Pow: -0.54
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not available
Explosive properties	Not available
Oxidizing properties	Not available

Other safety information

None

10. STABILITY AND REACTIVITY

Reactivity	Not available
Chemical Stability	Stable under recommended storage conditions.
Conditions to Avoid	Heat, flames, sparks.
Incompatible Materials	Strong oxidizing agents, Strong bases, Powdered metals.
Hazardous Decomposition Products	Not available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Formic Acid
LD50 Oral - Rat - 730 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Rat - 7.4 mg/l - 4 h

Skin corrosion/irritation

Skin - Rabbit

Result: Severe skin irritation
(Draize test)

Serious eye damage/irritation

Eyes - Rabbit

Result: Severe eye irritation

Respiratory or skin sensitization

Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

Buehler Test - Guinea pig

Result: Did not cause sensitization on laboratory animals.

(OECD Test Guideline 406)

Germ cell mutagenicity

Not available

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible, or confirmed human carcinogen by IARC.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Not available

Summary of evaluation of the CMR properties

Not available

STOT-single exposure

Not available

STOT-repeated exposure

Not available

Aspiration hazard

Not available

Additional information

RTECS: LQ4900000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

May cause spasm, inflammation, and edema of the larynx; spasm, inflammation and edema of the bronchi; pneumonitis, pulmonary edema, burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting. The full properties - chemical, physical, and toxicological, have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION**Toxicity**

Toxicity to fish: LC50 - *Leuciscus idus* (Golden orfe) - 46 - 100 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* (Water flea) - 34.2 mg/l - 48 h

Toxicity to bacteria: EC50 - *Pseudomonas putida* - 46.7 mg/l - 17 h

Persistence and degradability

Biodegradability - Result: >90% - Readily biodegradable (OECD Test Guideline 301C)
 Biochemical Oxygen Demand (BOD) - 86 mg/g
 Chemical Oxygen Demand (COD) - 348 mg/g
 Ratio BOD/ThBOD - 8.60%

Bioaccumulative potential

Bioaccumulation is unlikely.

Mobility in soil

Not Available

Results of PBT and vPvB assessment

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

Other adverse effects

Harmful to aquatic life.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

**Local Disposal Regulations
Hazardous Waste Code**

Dispose in accordance with all applicable regulations. The waste code should be assigned in discussion between the user, the producer, and the waste disposal company. (RCRA – U Series Waste: U123)

**Waste from Residues/ unused
Products**

Contact waste disposal services. If recycling is not practicable, dispose of in compliance with local regulations. Dilute with plenty of water. Neutralize with base. In accordance with local and national regulations

Contaminated Packaging

To avoid treatments, as far as possible, use dedicated containers. Clean container with water. Dispose of rinse water in accordance with local and national regulations. The empty and clean containers are to be reused in conformity with regulations.

**Other Disposal
Recommendations**

Contact a licensed professional waste disposal service to dispose of this material.

14. TRANSPORTATION INFORMATION

DOT (US)

UN Number: UN1779

Class: 8

Packing Group: II

Proper Shipping Name: Formic Acid

15. REGULATORY INFORMATION

Safety, health, and environmental regulations specific for the product in question**Pennsylvania Right to Know Components**

Chemical name: Formic acid

CAS number: 64-18-6

New Jersey Right to Know Components

Common name: Formic acid

CAS number: 64-18-6

Massachusetts Right to Know Components

Chemical name: Formic acid

CAS number: 64-18-6

Chemical Safety Assessment

Not available

16. OTHER INFORMATION**NFPA (National Fire Protection Association) - Classification**

- Health 3
- Flammability 3
- Instability or Reactivity 0

HMS (Hazardous Materials Identification System (Paint & Coating)) - Classification

- Health 3 minimal
- Flammability 3 minimal
- Reactivity 0 minimal

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End of Safety Data Sheet