Safety Data Sheet

FORMIC ACID, REAGENT GRADE

CAROLINA®
www.carolina.com

Section 1 Product Description

Product Name:	FORMIC ACID, REAGENT GRADE
Recommended Use:	Science education applications
Synonyms:	Methanoic acid, hydrogen carboxylic acid
Distributor:	Carolina Biological Supply Company 2700 York Road, Burlington, NC 27215 1-800-227-1150
Chemical Information:	800-227-1150 (8am-5pm (ET) M-F)
Chemtrec:	800-424-9300 (Transportation Spill Response 24 hours)

Section 2 Hazard Identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200;

DANGER

Flammable liquid and vapor. Harmful if swallowed. Causes severe skin burns and eye damage.

GHS Classification:
Skin Corrosion/Irritation Category 1A, Flammable Liquid Category 3, Acute Toxicity - Oral Category 4

Section 3 Composition / Information on Ingredients

Chemical Name	CAS #	%
Formic Acid	64-18-6	100

Section 4 First Aid Measures

Emergency and First Aid Procedures

Inhalation:	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Eyes:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Skin Contact:	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
Ingestion:	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

Section 5 Firefighting Procedures

Extinguishing Media:	Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
Fire Fighting Methods and Protection:	Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.
Fire and/or Explosion Hazards:	N/A
Hazardous Combustion Products:	Carbon dioxide, Carbon monoxide

Section 6 Spill or Leak Procedures

Steps to Take in Case Material Is Released or Spilled: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits. Ventilate the contaminated area. Evaporation of volatile substances can lead to the displacement of air creating an environment that can cause asphyxiation. Isolate area. Keep unnecessary personnel away. Avoid contact with material. Avoid breathing dust/fume/gas/mist/vapors/spray.

Methods for Clean-up Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation. Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Use appropriate personal protective equipment as stated in Section 8 of this MSDS. Advise the Environmental Protection Agency (EPA) and appropriate state agencies, if required. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Vacuum or sweep up material and place in a disposal container.

Section 7 Handling and Storage

Handling: Keep away from heat/sparks/open flames/hot surfaces. – 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 precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do no eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Keep container tightly closed in a cool, well-ventilated place. Should be handled in 316 stainless steel, glass, ceramic, or similar corrosive resistant materials.

Storage: Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up. Keep container tightly closed in a cool, well-ventilated place.

Storage Code: White - Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Section 8 Protection Information

	ACGIH		OSHA PEL	
Chemical Name	**(TWA)**	**(STEL)**	**(TWA)**	**(STEL)**
Formic Acid	5 ppm TWA	10 ppm STEL	5 ppm TWA; 9 mg/m3 TWA	N/A

Control Parameters

Engineering Measures: Local exhaust ventilation, process enclosures, or other engineering controls are necessary when handling or using this product to avoid overexposure. Vapor concentrations should be monitored and controlled in accordance with 29 CFR 1910.10.

Personal Protective Equipment (PPE): Lab coat, apron, eye wash, safety shower.

Respiratory Protection: No respiratory protection required under normal conditions of use. In the case of vapor formation, use a respirator with an approved filter.

Respirator Type(s): NIOSH approved air purifying respirator with organic vapor/acid gas cartridge and dust/mist filter.

Eye Protection: Wear chemical splash goggles when handling this product. Have an eye wash station available. In addition, wear a full face.

Skin Protection: Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work. Butyl rubber Natural latex,

Gloves: No information available

Section 9 Physical Data

Formula: HCOOH
Molecular Weight: 46.03
Appearance: Colorless Liquid

Vapor Pressure: 40 mmHg at 24 °C
Evaporation Rate (BuAc=1): 2.1
Vapor Density (Air=1): 1.6

Odor: No data available
Odor Threshold: No data available
pH: No data available
Melting Point: No data available 7 C
Boiling Point: No data available 100 C
Flash Point: 50 C
Flammable Limits in Air: (Pure Formic Acid) LEL: 18% UEL: 57%

Specific Gravity: 1.2
Solubility in Water: Soluble
Log Pow (calculated): No data available
Autoignition Temperature: >= 434 C
Decomposition Temperature: No data available
Viscosity: No data available
Percent Volatile by Volume: N/A

Section 10 Reactivity Data

Reactivity: No data available
Chemical Stability: Stable under normal conditions.
Conditions to Avoid: Sparks, open flame, other ignition sources, and elevated temperatures.
Incompatible Materials: Strong oxidizing agents, Caustics (bases), Metals (powdered)
Hazardous Polymerization: Will not occur

Section 11 Toxicity Data

Routes of Entry N/A
Symptoms (Acute): N/A
Delayed Effects: No data available

Acute Toxicity:

Chemical Name	CAS Number	Oral LD50	Dermal LD50	Inhalation LC50
Formic Acid	64-18-6	Oral LD50 Rat = 1100 mg/kg	Not determined	Inhalation LC50 (4h) Rat = 7.4 MG/L

Carcinogenicity:

Chemical Name	CAS Number	IARC	NTP	OSHA
No data available				

Chronic Effects:
Mutagenicity: No evidence of a mutagenic effect.
Teratogenicity: No evidence of a teratogenic effect (birth defect).
Sensitization: No evidence of a sensitization effect.
Reproductive: No evidence of negative reproductive effects.
Target Organ Effects:
Acute: See Section 2
Chronic: Mutation data cited., Not listed as a carcinogen by IARC, NTP or OSHA.

Section 12 Ecological Data

Overview: Moderate ecological hazard. This product may be dangerous to plants and/or wildlife. Highly/very toxic to fish and other water organisms.
Mobility: No data
Persistence: Biodegradation, adsorption to sediment, and bioconcentration to aquatic organisms should not be significant.
Bioaccumulation: Bioconcentration is not expected to occur.
Degradability: Biodegrades very quickly.
Other Adverse Effects: No data

Chemical Name	CAS Number	Eco Toxicity
Formic Acid	64-18-6	24 HR LC50 LEPOMIS MACROCHIRUS 175 MG/L [STATIC] 48 HR EC50 DAPHNIA MAGNA 120 MG/L 48 HR EC50 DAPHNIA MAGNA 138 - 165.6 MG/L [STATIC] 96 HR EC50 DESMODESMUS SUBSPICATUS 25 MG/L 72 HR EC50 DESMODESMUS SUBSPICATUS 26.9 MG/L

Safety Data Sheet

Section 13 Disposal Information

Disposal Methods: Dispose in accordance with all applicable Federal, State and Local regulations. Always contact a permitted waste disposer (TSD) to assure compliance.

Waste Disposal Code(s): If discarded, this product is considered a RCRA toxic waste.

Section 14 Transport Information

Ground - DOT Proper Shipping Name:
UN1779, Formic acid, 8, II

Air - IATA Proper Shipping Name:
UN number: 1779 Class: 8 (3) Packing group: II EMS-No: F-E, S-C Proper shipping name: FORMIC ACID

Section 15 Regulatory Information

TSCA Status: All components in this product are on the TSCA Inventory.

Chemical Name	CAS Number	§ 313 Name	§ 304 RQ	CERCLA RQ	§ 302 TPQ	CAA 112(2) TQ
Formic Acid	64-18-6	Formic acid	5000 lb RQ	5000 lb final RQ; 2270 kg final RQ	No	No

California Prop 65: No California Proposition 65 ingredients

Section 16 Additional Information

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The information provided in this (Material) Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the (Material) Safety Data Sheet.

Glossary

ACGIH	American Conference of Governmental Industrial Hygienists
CAS	Chemical Abstract Service Number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation
IARC	International Agency for Research on Cancer
N/A	Not Available
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
ppm	Parts per million
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
IDLH	Immediately dangerous to life and health