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NC-12478

SAFETY DATA SHEET

Revision Date 15-Jul-2015

Version 1

1. IDENTIFICATION

Product Name Formic Acid, 88%
Product Code 4465
CAS No. 64-18-6
Chemical Formula HCOOH
Recommended Use For laboratory, scientific, R&D or manufacturing use.
Company E K Industries, Inc.
1403 Herkimer St.
Joliet, IL 60432
Tel. (800) 283-4244
Emergency Telephone Call CHEMTREC 1-800-424-9300 (EKI CCN 7453)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 3
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Flammable liquids	Category 3

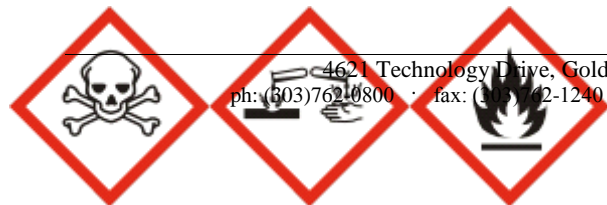
Label elements

Signal word

Danger

Hazard statements

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



4621 Technology Drive, Golden, CO 80403
ph: (303)762-0800 · fax: (303)762-1240 · www.rmreagents.com

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective

clothing/eye protection/face protection. 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. Keep cool.

Precautionary Statements - Response

Immediately call a POISON CENTER or doctor/physician.

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/physician.

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

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. Do NOT induce vomiting.

In case of fire: Use CO₂, dry chemical, or foam for extinction.

Precautionary Statements - Storage

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

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Weight-%
Formic acid	64-18-6	75-90

4. FIRST AID MEASURES

Description of first aid measures

Eye contact	Immediately flush with plenty of water for at least 15 minutes, separating eyelids occasionally. Remove contact lenses if present. Get immediate medical attention.
Skin contact	Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Seek immediate medical attention/advice.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.
Ingestion	Do NOT induce vomiting unless instructed to do so by medical personnel. If conscious, rinse mouth and give several glasses of water to drink. Never give anything by mouth to an unconscious person. Get immediate medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms	Causes severe skin burns and eye damage. If inhaled, may cause breathing difficulties.
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5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Water spray (fog) Carbon dioxide (CO₂) Dry chemical Foam

Specific hazards arising from the chemical

No information available.

Hazardous combustion products Carbon monoxide. Carbon dioxide (CO₂).

Protective equipment and precautions for firefighters

Firefighters should wear self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive

pressure mode.

NFPA **Health hazards** 3 **Flammability** 2 **Instability** 0 **Physical and Chemical Properties** -

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation, especially in confined areas. Remove all sources of ignition.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Absorb spill with inert material, scoop up and containerize for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling Handle in accordance with good industrial hygiene and safety practice. Use personal protective equipment as required

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible materials Strong acids. Strong oxidizing agents. Metals and metal oxides.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Formic acid 64-18-6	STEL: 10 ppm TWA: 5 ppm	TWA: 5 ppm TWA: 9 mg/m ³ (vacated) TWA: 5 ppm (vacated) TWA: 9 mg/m ³	IDLH: 30 ppm TWA: 5 ppm TWA: 9 mg/m ³

Appropriate engineering controls

Engineering Controls Emergency showers, eyewash stations, ventilation systems.

Individual protection measures, such as personal protective equipment

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

Skin and body protection Wear protective gloves and protective clothing.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state Liquid
Appearance Clear, colorless
Odor Pungent
Odor threshold No information available

pH	No information available
Melting point / freezing point	No information available
Boiling point / boiling range	100 C
Flash point	48 C
Evaporation rate	No information available
Flammability (solid, gas)	No information available
Flammability Limit in Air	
Upper flammability limit:	57%
Lower flammability limit:	18%
Vapor pressure	No information available
Vapor density	No information available
Relative density	No information available
Water solubility	Miscible with water
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	520 C
Decomposition temperature	No information available
Kinematic viscosity	No information available

10. STABILITY AND REACTIVITY

Stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	None under normal processing.
Conditions to avoid	Extremes of temperature and direct sunlight
Incompatible materials	Strong acids. Strong oxidizing agents. Metals and metal oxides.
Hazardous Decomposition Products	Carbon monoxide. Carbon dioxide (CO ₂).

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation	Toxic by inhalation. Causes burns.
Eye contact	Corrosive to the eyes and may cause severe damage including blindness.
Skin contact	Contact causes severe skin irritation and burns.
Ingestion	Harmful if swallowed. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Formic acid 64-18-6	= 730 mg/kg (Rat)	-	= 15 g/m ³ (Rat) 15 min

Information on toxicological effects

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	This chemical does not contain any carcinogens or potential carcinogens as listed by ACGIH, OSHA, IARC or NTP

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Formic acid 64-18-6	25: 96 h <i>Desmodesmus subspicatus</i> mg/L EC50 26.9: 72 h <i>Desmodesmus subspicatus</i> mg/L EC50	175: 24 h <i>Lepomis macrochirus</i> mg/L LC50 static	120: 48 h <i>Daphnia magna</i> mg/L EC50 138 - 165.6: 48 h <i>Daphnia</i> <i>magna</i> mg/L EC50 Static

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Chemical Name	Partition coefficient
Formic acid 64-18-6	-0.54

Other adverse effects

No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging

Do not reuse container. Emptied containers may contain residue. Continue to follow label warnings after container is emptied.

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Formic acid 64-18-6	U123	Included in waste streams: K009, K010	-	U123

Chemical Name	California Hazardous Waste Status
Formic acid 64-18-6	Toxic Corrosive

14. TRANSPORT INFORMATION

Transportation information is provided as a general reference only and may not be applicable in all situations. This information applies to non-bulk shipments only. Per 49 CFR §173.22, it is the shipper's responsibility to ensure that all materials are properly packaged, classified and labeled prior to shipment.

DOT

UN/ID no.	UN 1779
Proper shipping name	Formic acid
Hazard Class	8
Subsidiary class	3
Packing Group	II

IATA

UN/ID no.	UN 1779
Proper shipping name	Formic acid
Hazard Class	8
Subsidiary hazard class	3
Packing Group	II

15. REGULATORY INFORMATION

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	SARA 313 - Threshold Values %
Formic acid - 64-18-6	1.0

SARA 311/312 Hazard Categories

Acute health hazard	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Formic acid 64-18-6	5000 lb	-	-	X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Formic acid 64-18-6	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Formic acid 64-18-6	X	X	X

16. OTHER INFORMATION

Prepared By

EKI Regulatory Affairs (Email: reg@eki-chem.com)

Revision Date

15-Jul-2015

Disclaimer

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End of Safety Data Sheet