

**FORMIC ACID 94%**

Version 1.0      Revision Date: 09/14/2016      SDS Number: 150000103882      Date of last issue: -  
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**SECTION 1. IDENTIFICATION**

Product name : FORMIC ACID 94%

Product code : 51377-00, N513777S, N513778S, N513779S, P513774A, P513772A

**Manufacturer or supplier's details**

Company name of supplier : Eastman Chemical Company

Address : 200 South Wilcox Drive  
Kingsport TN 37660-5280

Telephone : (423) 229-2000

Emergency telephone : For emergency health, safety, and environmental information,  
call 1-423-229-4511 or 1-423-229-2000.

**Recommended use of the chemical and restrictions on use**

Recommended use : pickling acids  
adjustment of pH value in textile and leather industry

Restrictions on use : No information available.

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**SECTION 2. HAZARDS IDENTIFICATION****GHS Classification**

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 3

Skin corrosion : Category 1

Serious eye damage : Category 1

**GHS label elements**

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : H226 Flammable liquid and vapor.  
H302 Harmful if swallowed.

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H314 Causes severe skin burns and eye damage.  
 H331 Toxic if inhaled.

## Precautionary Statements

: **Prevention:**

P210 Keep away from heat/sparks/open flames/hot surfaces.  
 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.

P261 Avoid breathing vapors.

P264 Wash skin 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.

**Response:**

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 or doctor/ physician.

P363 Wash contaminated clothing before reuse.

P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

**Storage:**

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.

**Disposal:**

P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

**Other hazards**

None known.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Substance

Chemical nature : Organic acids

**Ingredients**

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Chemical name	CAS-No.	Concentration (% w/w)
formic acid	64-18-6	94 - 96

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**SECTION 4. FIRST AID MEASURES**

- General advice : Take off all contaminated clothing immediately.  
Remove victim from exposure and then have him lie down in the recovery position.  
If not breathing, give artificial respiration.
- If inhaled : Remove person to fresh air and keep comfortable for breathing.  
Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.  
Cover wound with sterile dressing.  
Get immediate medical advice/ attention.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  
Immediate medical attention is required.
- If swallowed : Rinse mouth with water.  
Drink plenty of water.  
Do NOT induce vomiting.  
Never give anything by mouth to an unconscious person.  
Get immediate medical advice/ attention.
- Most important symptoms and effects, both acute and delayed : corrosive effects  
Harmful if swallowed.  
Causes serious eye damage.  
Toxic if inhaled.  
Causes severe burns.
- Notes to physician : Treat symptomatically.
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**SECTION 5. FIRE-FIGHTING MEASURES**

- Suitable extinguishing media : Water  
Dry powder  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)
- Hazardous combustion products : In case of fire hazardous decomposition products may be produced such as:  
Carbon monoxide
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
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Special protective equipment for fire-fighters : Wear self-contained breathing apparatus and protective suit.

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**SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures : Keep people away from and upwind of spill/leak.  
Wear respiratory protection.  
Avoid contact with skin, eyes and clothing.

Environmental precautions : Do not empty into drains.

Methods and materials for containment and cleaning up : Large spills should be collected mechanically (remove by pumping) for disposal.  
Residues  
Soak up with inert absorbent material.  
Sand  
Universal binder

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**SECTION 7. HANDLING AND STORAGE**

Advice on protection against fire and explosion : Keep away from sources of ignition - No smoking.

Advice on safe handling : Use only with adequate ventilation.  
The pressure in sealed containers can increase under the influence of heat.  
Keep away from heat.

Ensure that eyewash stations and safety showers are close to the workstation location.

Conditions for safe storage : Keep away from sources of ignition - No smoking.  
Protect from sunlight.  
Keep away from combustible material.  
The product may form CO (carbon monoxide) under prolonged storage.  
Before entering storage tanks, the CO (carbon monoxide) level should be checked.  
Materials to avoid  
Bases  
Amines  
Strong acids and oxidizing agents  
Copper  
Aluminum

Recommended storage temperature : < 30 °C

Storage period : <= 24 Months

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
formic acid	64-18-6	TWA	5 ppm	ACGIH
		STEL	10 ppm	ACGIH
		TWA	5 ppm 9 mg/m <sup>3</sup>	NIOSH REL
		TWA	5 ppm 9 mg/m <sup>3</sup>	OSHA Z-1
		TWA	5 ppm 9 mg/m <sup>3</sup>	OSHA P0

**Engineering measures** : 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.

**Personal protective equipment**

**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.  
 Use NIOSH approved respiratory protection.

**Hand protection**

**Material** : Acid-resistant protective gloves.

**Material** : Chloroprene

**Material** : butyl-rubber

**Remarks**

: Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

**Eye protection**

: Tightly fitting safety goggles  
 Face-shield

**Skin and body protection**

: Body protection suitability and breakthrough time will differ depending on the specific use conditions.  
 acid-resistant protective clothing  
 Chemical resistant apron  
 Footwear protecting against chemicals

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Protective measures : Avoid contact with skin, eyes and clothing.  
Avoid inhalation of vapor or mist.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : liquid

Color : colorless, clear

Odor : pungent

Odor Threshold : not determined

pH : < 1

Melting point/freezing point : 1.6 °C

Boiling point/boiling range : 100 °C

Flash point : 55 °C  
Method: Pensky-Martens closed cup

Evaporation rate : No data available

Flammability (solid, gas) : Not applicable

Upper explosion limit : upper flammability limit  
51 %(V)  
formic acid

Lower explosion limit : lower flammability limit  
18 %(V)  
formic acid

Vapor pressure : ca. 4.4 kPa (20 °C)

Relative vapor density : No data available

Relative density : 1.2133

Density : 1.2133 g/cm<sup>3</sup> (20 °C)

Solubility(ies)  
Water solubility : completely soluble

Partition coefficient: n-octanol/water : SECTION 12: Ecological information

Autoignition temperature : ca. 520 °C

Decomposition temperature : 350 °C  
formic acid

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Viscosity  
  Viscosity, dynamic           : 2.1 mPa,s (20 °C)  
  
  Viscosity, kinematic        : No data available  
  
Explosive properties         : Not explosive  
  
Oxidizing properties         : The substance or mixture is not classified as oxidizing.  
  
Surface tension               : 71.5 mN/m, 20 °C, formic acid

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**SECTION 10. STABILITY AND REACTIVITY**

Reactivity                    : Reacts with the following substances:  
                                  Bases  
                                  Amines  
  
Chemical stability            : Stable under normal conditions.  
                                  The product may form CO (carbon monoxide) under pro-  
                                  longed storage.  
  
Possibility of hazardous reac- : Reacts with the following substances:  
tions                            Bases  
                                  Amines  
                                  Exothermic reaction  
  
Conditions to avoid           : Do not expose to temperatures above: 30 °C  
  
                                  To avoid thermal decomposition, do not overheat.  
  
Incompatible materials       : Bases  
                                  Amines  
                                  Strong oxidizing agents  
                                  Strong acids  
                                  Copper  
                                  Aluminum  
                                  Combustible material  
  
Hazardous decomposition     : Thermal decomposition  
products                        Carbon monoxide  
  
                                  The product may form CO (carbon monoxide) under pro-  
                                  longed storage.

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**SECTION 11. TOXICOLOGICAL INFORMATION****Acute toxicity**

Harmful if swallowed.  
Toxic if inhaled.

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**Product:**

Acute oral toxicity : Acute toxicity estimate: 776.6 mg/kg  
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 8.35 mg/l  
Exposure time: 4 h  
Test atmosphere: vapor  
Method: Calculation method

Assessment: Corrosive to the respiratory tract.

Acute dermal toxicity : Assessment: Not classified

**Ingredients:****formic acid:**

Acute oral toxicity : LD50 Oral (Rat): 730 mg/kg

Acute inhalation toxicity : LC50 (Rat): 7.85 mg/l  
Exposure time: 4 h

**Skin corrosion/irritation**

Causes severe burns.

**Ingredients:****formic acid:**

Assessment: Corrosive

**Serious eye damage/eye irritation**

Causes serious eye damage.

**Ingredients:****formic acid:**

Assessment: Corrosive

**Respiratory or skin sensitization**

Skin sensitization: Not classified based on available information.

Respiratory sensitization: Not classified based on available information.

**Germ cell mutagenicity**

Not classified based on available information.

**Carcinogenicity**

Not classified based on available information.

**IARC**

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

**OSHA**

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



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

**Reproductive toxicity**

Not classified based on available information.

**STOT-single exposure**

Not classified based on available information.

**STOT-repeated exposure**

Not classified based on available information.

**Aspiration toxicity**

Not classified based on available information.

**Experience with human exposure****Product:**

Inhalation      : Symptoms: Inhalation of vapors is irritating to the respiratory system, may cause throat pain and cough., Breathing difficulties

Skin contact      : Symptoms: Causes severe skin burns., May cause skin irritation and/or dermatitis.

Eye contact      : Symptoms: Causes serious eye damage.

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**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Ingredients:****formic acid:**

Toxicity to fish      : LC50 (Danio rerio (zebra fish)): 130 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates      : EC50 (Daphnia magna (Water flea)): 365 mg/l  
Exposure time: 48 h

Toxicity to algae      : EC50 (Chlorella pyrenoidosa): 1,240 mg/l  
Exposure time: 72 h

**Persistence and degradability****Product:**

Biodegradability      : Remarks: Readily biodegradable

**Ingredients:****formic acid:**

Biodegradability      : Result: Readily biodegradable.

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**Bioaccumulative potential****Ingredients:****formic acid:**

Bioaccumulation : Bioconcentration factor (BCF): 3.2  
Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: -2.1

**Mobility in soil****Product:**

Mobility : Medium: Water  
Remarks: completely soluble

**Other adverse effects****Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances  
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

**Ingredients:****formic acid:**

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

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**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : Dispose of as hazardous waste in compliance with local and national regulations.  
Do not dispose of waste into sewer.  
Can be incinerated, when in compliance with local regulations.

Contaminated packaging : In accordance with local and national regulations.  
The hazard and precautionary statements displayed on the label also apply to any residues left in the container.



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**SARA 302** : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

formic acid	64-18-6	94 %
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**Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

formic acid	64-18-6	94 %
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**Clean Water Act**

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

formic acid	64-18-6	94 %
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The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

formic acid	64-18-6	94 %
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This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

**US State Regulations****Massachusetts Right To Know**

formic acid	64-18-6	90 - 100 %
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**Pennsylvania Right To Know**

formic acid	64-18-6	90 - 100 %
Water	7732-18-5	5 - 10 %

**New Jersey Right To Know**

formic acid	64-18-6	90 - 100 %
Water	7732-18-5	5 - 10 %

**The ingredients of this product are reported in the following inventories:**

CH INV : On the inventory, or in compliance with the inventory

DSL : On the inventory, or in compliance with the inventory

AICS : On the inventory, or in compliance with the inventory

NZloC : On the inventory, or in compliance with the inventory

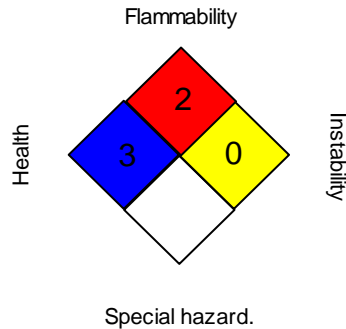
ENCS : On the inventory, or in compliance with the inventory



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UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

**Further information****NFPA:****HMIS III:**

<b>HEALTH</b>	<b>3</b>
<b>FLAMMABILITY</b>	<b>2</b>
<b>PHYSICAL HAZARD</b>	<b>0</b>

0 = not significant, 1 = Slight,  
2 = Moderate, 3 = High  
4 = Extreme, \* = Chronic

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The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and re-release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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