

# Safety Data Sheet

acc. to OSHA HCS

Printing date 10/23/2024

Reviewed on 10/23/2024

## 1 Identification

- **Product identifier**
- **Trade name:** Formic acid 99 % for LC-MS
- **Article number:** 45640
- **CAS Number:**  
64-18-6
- **EC number:**  
200-579-1
- **Index number:**  
607-001-00-0
- **Application of the substance / the mixture:** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
SERVA Electrophoresis GmbH  
Carl-Benz-Str. 7  
D-69115 Heidelberg  
Tel.: +49 6221 13840-0  
FAX: +49 6221 13840-10  
msds.info@serva.de
- **Information department:** Product Safety Department Tel.: +49 6221 13840-35
- **Emergency telephone number:**  
Emergency medical information in case of poisoning  
Poison Information Center Mainz-Tel: +49 (0) 6131 19240  
(Advice in German and English)



## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02

Flammable Liquids 3                      H226 Flammable liquid and vapor.



GHS06

Acute Toxicity - Inhalation 3    H331 Toxic if inhaled.



GHS05

Skin Corrosion 1A                      H314 Causes severe skin burns and eye damage.



GHS07

Acute Toxicity - Oral 4                      H302 Harmful if swallowed.

- **Label elements**

- **GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms:** GHS02, GHS05, GHS06

- **Signal word:** Danger

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- **Hazard statements:**

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

- **Precautionary statements**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Wear protective gloves/protective clothing/eye protection/face protection.  
If swallowed: Call a poison center/doctor if you feel unwell.  
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Store in a well-ventilated place. Keep container tightly closed.  
Store in a well-ventilated place. Keep cool.  
Store locked up.  
Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 3  
Fire = 2  
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = 3  
Fire = 2  
Reactivity = 0

- **Other hazards**

- **Results of PBT and vPvB assessment:**

· **PBT:** PBT - Assessment not available.  
· **vPvB:** vPvB - Assessment not available.

## 3 Composition/information on ingredients

- **Chemical characterization: Substances**

- **CAS No. Description:**

64-18-6 formic acid

- **Identification number(s):**

· **EC number:** 200-579-1

· **Index number:** 607-001-00-0

## 4 First-aid measures

- **Description of first aid measures**

· **General information:** Immediately remove any clothing soiled by the product.

· **After inhalation:** Supply fresh air or oxygen; call for doctor.

- **After skin contact:**

Wash off immediately with plenty of soap and water; rinse thoroughly; seek medical attention.

- **After eye contact:**

Rinse opened eye for several minutes with running water. Remove existing contact lenses, if possible, and continue rinsing. Consult an ophthalmologist immediately.

- **After swallowing:**

Rinse mouth immediately. Drink plenty of water and fresh air. Call a doctor immediately.

Do not induce vomiting!

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- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub> extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
Flammable substance, vapors are heavier than air and spread over the ground.  
Vapors may form flammable and explosive mixtures with air.  
In case of fire, formation of hazardous fire gases or vapors possible.  
In case of fire, the following can be released:  
Carbon monoxide and carbon dioxide
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus.
- **Additional information**  
Collect contaminated fire fighting water separately. It must not enter the sewage system.  
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation  
Do not inhale vapors.  
Avoid contact with eyes and skin.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up**  
Dispose contaminated material as waste according to section 13.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Protective Action Criteria for Chemicals**
- **PAC-1:** 3 ppm
- **PAC-2:** 25 ppm
- **PAC-3:** 250 ppm
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### 7 Handling and storage

- **Precautions for safe handling:**  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle receptacle with care.
- **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:** Store container tightly closed and dry.
- **Specific end use(s):** No further relevant information available.

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## 8 Exposure controls/personal protection

### · Control parameters

#### · Components with limit values that require monitoring at the workplace:

##### 64-18-6 formic acid (80-100%)

PEL	Long-term value: 9 mg/m <sup>3</sup> , 5 ppm
REL	Long-term value: 9 mg/m <sup>3</sup> , 5 ppm
TLV	Long-term value: 5 ppm

#### · Additional information: The lists that were valid during the creation were used as basis.

### · Exposure controls

#### · Additional information about design of technical systems: No further data; see section 7.

#### · Personal protective equipment:

##### · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Store protective clothing separately.

Immediately remove all soiled and contaminated clothing.

Do not inhale gases / fumes / aerosols.

Avoid contact with the eyes and skin.

Wash hands before breaks and at the end of work.

##### · Breathing equipment:

Short term filter device:

Filter E/P3

##### · Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

##### · Material of gloves:

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

##### · Penetration time of glove material:

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

##### · For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:

Chloroprene rubber, CR

Natural rubber, NR

##### · Eye protection: Tightly sealed goggles

##### · Body protection: Protective work clothing

## 9 Physical and chemical properties

### · Information on basic physical and chemical properties

#### · General Information:

##### · Color:

Colorless

##### · Odor:

Pungent

##### · Odor threshold:

not determined.

##### · Melting point/Melting range:

4 °C (39.2 °F)

##### · Boiling point/Boiling range:

100.2 °C (212.4 °F)

##### · Flammability (solid, gaseous):

Flammable liquid and vapor according to CLP Regulation (EU) No. 1272/2008: Flam. Liq. 3 H226

##### · Explosion limits:

##### · Lower:

14 Vol %

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· <b>Upper:</b>	33 Vol %
· <b>Flash point:</b>	48 °C (118.4 °F)
· <b>Auto igniting:</b>	520 °C (968 °F)
· <b>Decomposition temperature:</b>	No information available
· <b>pH-value:</b>	2.2
· <b>Viscosity:</b>	
· <b>Kinematic viscosity:</b>	No information available
· <b>Dynamic viscosity at 20 °C (68 °F):</b>	1.8 mPas
· <b>Solubility in / Miscibility with:</b>	
· <b>Water:</b>	Not determined.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Vapor pressure at 20 °C (68 °F):</b>	42.71 hPa (32 mm Hg)
· <b>Vapor pressure at 50 °C (122 °F):</b>	170 hPa (127.5 mm Hg)
· <b>Density at 20 °C (68 °F):</b>	1.27 g/cm <sup>3</sup> (10.59815 lbs/gal)
· <b>Relative density:</b>	No information available
· <b>Other information</b>	
· <b>Appearance:</b>	
· <b>Form:</b>	Fluid
· <b>Important information on protection of health and environment, and on safety:</b>	
· <b>Danger of explosion:</b>	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· <b>Molecular weight</b>	46.03 g/mol

## 10 Stability and reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions:** Vapors may form flammable and explosive mixtures with air.
- **Conditions to avoid:** Avoid high temperatures, flames and sparks
- **Incompatible materials:**  
Avoid contact with:  
metals  
Oxidizing agents, acids, bases
- **Hazardous decomposition products:** In case of fire: see section 5

## 11 Toxicological information

### · Information on toxicological effects

- **Acute toxicity:**  
Harmful if swallowed.  
Toxic if inhaled.

### · LD/LC50 values that are relevant for classification:

Oral	LD50	1,100 mg/kg (rat)
Inhalative	LC50/4h	7.85 mg/l (rat)

- **on the skin:** Causes severe skin burns and eye damage.
- **Additional toxicological information:**
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)** Substance is not listed.
- **NTP (National Toxicology Program)** Substance is not listed.

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· OSHA-Ca (Occupational Safety &amp; Health Administration) Substance is not listed.




## 12 Ecological information

- **Toxicity:**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability:** No further relevant information available.
- **Bioaccumulative potential:** No further relevant information available.
- **Mobility in soil:** No further relevant information available.
- **Results of PBT and vPvB assessment:**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects:**
- **Additional ecological information:**
- **General notes:**  
Do not allow product to reach ground water, water course or sewage system.  
Water hazard class 1 (Assessment by list): slightly hazardous for water

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Dispose of in accordance with official regulations.  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**  
Uncleaned packaging must be disposed of in the same way as the product in accordance with official regulations.

## 14 Transport information

- |   |                        |
|---|------------------------|
| · <b>UN-Number</b>  | UN1779                 |
| · <b>DOT, ADR, IMDG, IATA</b>   |                        |
| · <b>UN proper shipping name</b>  | Formic acid            |
| · <b>DOT</b>  | 1779 FORMIC ACID       |
| · <b>ADR</b>  | FORMIC ACID            |
| · <b>IMDG, IATA</b>   |                        |
| · <b>Transport hazard class(es)</b>   |                        |
| · <b>DOT</b>  |                        |
|    |                        |
| · <b>Class</b>  | 8 Corrosive substances |
| · <b>Label</b>  | 8                      |
| · <b>ADR</b>  |                        |
|   |                        |
| · <b>Class:</b>   | 8 Corrosive substances |

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· <b>Label:</b>	8+3
· <b>IMDG, IATA</b>	
	
· <b>Class</b>	8 Corrosive substances
· <b>Label</b>	8
· <b>Packing group</b>	
· <b>DOT, ADR, IMDG, IATA</b>	II
· <b>Environmental hazards</b>	Not applicable.
· <b>Special precautions for user</b>	Warning: Corrosive substances
· <b>Hazard identification number (Kemler code):</b>	83
· <b>EMS Number:</b>	F-E,S-C
· <b>Segregation groups</b>	(SGG1) Acids
· <b>Stowage Category</b>	A
· <b>Stowage Code</b>	SW2 Clear of living quarters.
· <b>Segregation Code</b>	SG36 Stow "separated from" SGG18-alkalis. SG49 Stow "separated from" SGG6-cyanides
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADR</b>	
· <b>Excepted quantities (EQ)</b>	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	IL
· <b>Excepted quantities (EQ)</b>	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· <b>UN "Model Regulation":</b>	UN 1779 FORMIC ACID, 8 (3), II

## 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
No further relevant information available.
- **Section 355 (extremely hazardous substances):** Substance is not listed.
- **Section 313 (Specific toxic chemical listings):** Substance is listed.
- **TSCA (Toxic Substances Control Act):** ACTIVE
- **Hazardous Air Pollutants** Substance is not listed.
- **Proposition 65** Substance is not listed.
- **Chemicals known to cause cancer:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.
- **Chemicals known to cause developmental toxicity:** Substance is not listed.
- **Carcinogenicity categories**
- **EPA (Environmental Protection Agency)** Substance is not listed.
- **TLV (Threshold Limit Value)** Substance is not listed.
- **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.

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- **GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms** GHS02, GHS05, GHS06

- **Signal word** Danger

- **Hazard statements**

Flammable liquid and vapor.

Harmful if swallowed.

Toxic if inhaled.

Causes severe skin burns and eye damage.

- **Precautionary statements**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

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

If swallowed: Call a poison center/doctor if you feel unwell.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Product Safety Department

- **Contact:** +49 6221 13840-35

- **Date of preparation / last revision** 10/23/2024 / -

- **Abbreviations and acronyms:**

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

CLP: Regulation on classification, labelling and packaging of substances and mixtures

bw: body weight

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Flammable Liquids 3: Flammable liquids – Category 3

Acute Toxicity - Oral 4: Acute toxicity – Category 4

Acute Toxicity - Inhalation 3: Acute toxicity – Category 3

Skin Corrosion 1A: Skin corrosion/irritation – Category 1A