Safety Data Sheet

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision date: 12.08.2025	*Version: 6.3*	*Print date: 12.08.2025*

SECTION 1: Identification

Product identifier

Trade name/designation:	Formic acid ACS
Product No.:	BDH4554-500ML
Synonyms:	none
CAS No.:	64-18-6

Relevant identified uses of the substance or mixture and uses advised against

Recommended use	For Further Manufacturing Use Only
Uses advised against	Not for Human or Animal Drug Use

Details of the supplier of the safety data sheet

Supplier

VWR International LLC

Street	100 Matsonford Road Radnor Corporate Center, Building One, Suite 200 P. O. Box 6660
Postal code/City	Radnor, PA 19087, United States
Telephone	+1-800-932-5000 toll-free within US/Canada +1-610-386-1700
Telefax	+1-610-728-2103

Emergency phone number

Telephone +1-800-424-9300 (Chemtrec, 24 hrs/day, 7 days/week, USA)

Preparation Information

VWR International - Product Information Compliance

E-mail SDS@avantorsciences.com

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910.1200 (OSHA HCS)

Hazard classes and hazard categories	Hazard statements
Flammable liquid, category 3	H226
Acute toxicity, category 4, oral	H302
Skin corrosion, category 1A	H314
Acute toxicity, category 3, inhalation	H331

2.2 Label elements

Labelling in accordance with 29 CFR 1910.1200 (OSHA HCS)

Hazard pictograms



Signal word: Danger

Hazard statements	
H226	Flammable liquid and vapor.
H331	Toxic if inhaled.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.

Precautionary statements	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243	Take precautionary measures against static discharge.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position 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.
P308+P310	IF exposed or concerned: Immediately call a POISON CENTER/doctor.
P403+P235	Store in a well-ventilated place. Keep cool.

Hazard(s) not otherwise classified (HNOC)
none

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name	Formic acid
Molecular formula	HCO_2H
Molecular weight	46.03 g/mol
CAS No.	64-18-6

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

Do not leave affected person unattended. If unconscious but breathing normally, place in recovery position and seek medical advice. Take off immediately all contaminated clothing. When in doubt or if symptoms are observed, get medical advice.

In case of inhalation

Remove casualty to fresh air and keep warm and at rest. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If unconscious but breathing normally, place in recovery position and seek medical advice. If breathing is irregular or stopped, administer artificial respiration. Seek medical advice immediately.

In case of skin contact

Remove contaminated, saturated clothing immediately. Wash affected skin for 10-20 minutes with running water, use shower in case of large-scale contamination. Seek medical advice immediately. If extensive skin contact: get medical help immediately and kept under medical surveillance (hospitalization). In case of massive contamination of the body or the workplace, consider inhalation.

After eye contact:

Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. Transport to the ophthalmologist or eye clinic as soon as possible. Continue rinsing with isotonic saline solution during transport, alternatively with water.

In case of ingestion

Never give anything by mouth to an unconscious person or a person with cramps. Rinse mouth thoroughly with water. Spit out all liquid. Let 1 glass of water be drunken in little sips (dilution effect). Observe risk of aspiration if vomiting occurs. Call a doctor to the accident scene.

Self-protection of the first aider

First aider: Pay attention to self-protection! Wear personal protection equipment (refer to section 8). Use mouth to mask ventilation with one way valve to exhaust victim's exhaled air away from rescuer.

4.2 Most important symptoms/effects, acute and delayed

After inhalation: Respiratory complaints. Pulmonary oedema. Pneumonia. Bronchospasms. After skin contact: Formation of deep ulcers. After eye contact: Causes eye irritation. Conjunctivitis. Conjunctival oedema (chemosis). Causes tears. After ingestion: Burning/pain and tumescence in the mouth/throat/oesophagus/stomach. Circulatory collapse. Gastric perforation. After resorption: Depression of central nervous system. Kidney damage.

4.3 Indication of any immediate medical attention and special treatment needed

After inhalation: After inhalation, immediate application of glucocorticoids (inhalative), administration of oxygen and immobilization of the affected person are indicated. If necessary, all further measures of pulmonary edema prophylaxis. Supplemental oxygen supply. After skin contact: Repeat decontamination (first aid measures): If necessary, treat skin irritations with a dermatocorticoid foam. After eye contact: Repeat decontamination (first aid measures): Treat symptomatically. After ingestion: Induce vomiting when the affected person is not unconscious. In case of ingestion, after vomiting has probably taken place, careful gastric lavage (if possible under visual control) should only be carried out if perforation can be ruled out with certainty.

SECTION 5: Fire fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.
Dry extinguishing powder.
ABC-powder
Carbon dioxide (CO_2).
Nitrogen

Extinguishing media which must not be used for safety reasons

Full water jet

5.2 Specific hazards arising from the chemical

Combustible substance.
Vapor may form explosive mixtures with air.
In case of fire may be liberated:
Carbon monoxide
Carbon dioxide (CO_2).

5.3 Advice for firefighters

Co-ordinate fire-fighting measures to the fire surroundings.
In case of fire: Evacuate area.
In case of fire and/or explosion do not breathe fumes.
Protective equipment and precautions for firefighters:
Wear a self-contained breathing apparatus and chemical protective clothing.

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Wear personal protection equipment (refer to section 8). Do not breathe gas/fume/vapor/spray. Avoid contact with skin, eyes and clothes. Stop leak if safe to do so. First Aid, decontamination, treatment of symptoms. For emergency responders: This material is combustible and can be ignited by heat, sparks, flames, or other sources of ignition (e.g. static electricity, pilot lights, or mechanical/electrical equipment). Wear fire/flame resistant/retardant clothing. Wear full chemical protective clothing. In case of major fire and release of large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

6.2 Environmental precautions

Cover drains. Do not allow to enter into surface water or drains.

6.3 Methods and material for containment and cleaning up

Small spills: Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Large spills: Dike or dam to contain for later disposal. Take up mechanically, placing in appropriate containers for disposal. Dispose according to legislation.

6.4 Reference to other sections

Personal protection equipment (PPE): see section 8 SECTION 13. Information regarding the disposal of the products

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advices on safe handling
Use personal protective equipment as required.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Avoid contact with skin, eyes and clothes.
Use extractor hood (laboratory).
Use only in well-ventilated areas.
Measures to prevent fire, aerosol and dust generation
Have fire-extinguishers in readiness before opening containers.
Use extractor hood (laboratory).
Use only in well-ventilated areas.
If handled uncovered, arrangements with local exhaust ventilation have to be used.
If local exhaust ventilation is not possible or not sufficient, the entire working area should be ventilated by technical means.
Avoid high temperatures or direct sunlight.
Measures required to protect the environment
Avoid release to the environment.
Do not empty into drains.
Collect spillage.

Wash hands before breaks and after work. Avoid contact with eyes and skin. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

7.2 Conditions for safe storage, including any incompatibilities

Recommended storage temperature: 15°C – 25°C or 30°C depending on climatic conditions.
Storage: Keep locked up. Keep container tightly closed in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep/Store only in original container. Protect from sunlight. Suitable container/equipment material: Glass Steel. Stainless steel Unsuitable container/equipment material: Plastic articles

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredient (Designation)	Source	Country	parameter	Limit value
Formic acid	NIOSH	US	LTV	9 mg/m³ - 5 ppm
Formic acid	OSHA	US	LTV	9 mg/m³ - 5 ppm

8.2 Engineering controls

Appropriate engineering controls
Technical measures and the application of suitable work processes have priority over personal protection equipment. If handled uncovered, arrangements with local exhaust ventilation have to be used.

Personal protection equipment (PPE)
Wear suitable protective clothing. When handling with chemical substances, protective clothing must be worn.

Eye/face protection
Eye glasses with side protection

Skin protection
Wear suitable gloves. When handling with chemical substances, protective gloves must be worn. In the case of wanting to use the gloves again, clean them before taking off and air them well. Check leak tightness/impermeability prior to use.

<u>By short-term hand contact</u>

Suitable material:	NR (natural rubber, Natural latex)
Thickness of the glove material:	0,75 mm
Breakthrough time	> 60 min

<u>By long-term hand contact</u>

Suitable material:	CR (polychloroprene, chloroprene rubber)
Thickness of the glove material:	-
Breakthrough time	> 480 min

Respiratory protection
Respiratory protection necessary at: aerosol or mist formation If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

Additional information
Wash hands before breaks and after work. Avoid contact with eyes and skin. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

Environmental exposure controls
no data available

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical state:	liquid
Color:	colorless
Odor:	no data available

Safety relevant basic data

pH:	no data available
Melting point/freezing point:	8.2-8.4 °C
Initial boiling point and boiling range:	100-101 °C (1013 hPa)
Flash point:	48 °C (closed cup)
Flammability:	Flammable liquid and vapor.
Lower and upper explosion limit	
Lower explosion limit:	no data available
Upper explosion limit:	no data available
Vapor pressure:	no data available
Relative vapour density:	no data available
Density and/or relative density	
Density:	1.220 g/cm³ (20 °C)
Solubility(ies)	
Water solubility:	no data available
Partition coefficient: n-octanol/water:	no data available
Auto-ignition temperature:	no data available
Decomposition temperature:	Not applicable
Viscosity	
Kinematic viscosity:	no data available
Dynamic viscosity:	no data available
Particle characteristics:	does not apply to liquids

9.2 Other information

Evaporation rate:	no data available
Explosive properties:	no data available
Oxidising properties:	Not applicable
Bulk density:	no data available
Refraction index:	1.3714 (589 nm; 20 °C)
Dissociation constant:	no data available
Surface tension:	no data available
Henry's Law Constant:	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Reactive substance.
Vapor may form explosive mixtures with air.
Hygroscopic.

10.2 Chemical stability

slow decomposition

10.3 Possibility of hazardous reactions

Violent reaction with:
Hydrogen peroxide.
strong base
Heat
Oxidising agent.

10.4 Conditions to avoid

This material is combustible and can be ignited by heat, sparks, flames, or other sources of ignition (e.g. static electricity, pilot lights, or mechanical/electrical equipment).
Avoid high temperatures or direct sunlight.

10.5 Incompatible materials:

Rubber articles
Plastic articles

10.6 Hazardous decomposition products

Decomposition products in case of fire: see section 5.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute effects
Acute oral toxicity:
Harmful if swallowed.

LD50: 730 mg/kg - Rat - (OECD 401)

Acute dermal toxicity:
Based on available data, the classification criteria are not met.

Acute inhalation toxicity:
Toxic if inhaled.

LC50: 7.85 mg/l (4 h) - Rat - (Gestis)

Irritant and corrosive effects:
Primary irritation to the skin:
Causes severe skin burns and eye damage.

Irritation to eyes:
Causes serious eye damage.

Irritation to respiratory tract:
Not applicable

Respiratory or skin sensitisation
In case of skin contact: not sensitizing
In case of inhalation: not sensitizing

STOT-single exposure
Not applicable

STOT-repeated exposure
Not applicable

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
Carcinogenicity
No indication of human carcinogenicity.

IARC Monographs on the Identification of Carcinogenic Hazards to Humans:

Not listed

Occupational Safety and Health Administration (OSHA, 29 CFR Part 1910.1003):

Not listed

National Toxicology Program (NTP) Report:

Not listed

Germ cell mutagenicity
No indications of human germ cell mutagenicity exist.

Reproductive toxicity
No indications of human reproductive toxicity exist.

Aspiration hazard
Not applicable

Other adverse effects
no data available

Additional information
no data available

SECTION 12: Ecological information

12.1 Toxicity

Fish toxicity:
no data available

Daphnia toxicity:
EC50: 151 mg/l (48 h) - Randall, T.L., and P.V. Knopp 1980. Detoxification of Specific Organic Substances by Wet Oxidation. J.Water Pollut.Control Fed. 52(8):2117-2130

Algae toxicity:
no data available

Bacteria toxicity:
no data available

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
Partition coefficient: n-octanol/water: no data available

12.4 Mobility in soil:
no data available

12.5 Results of PBT/vPvB assessment
This substance does not meet the PBT criteria.

This substance does not meet the vPvB criteria.

12.6 Endocrine disrupting properties
This substance does not have endocrine disrupting properties with respect to the environment.

12.7 Other adverse effects
no data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Appropriate disposal / Product
Dispose according to legislation. Consult the appropriate local waste disposal expert about waste disposal. Product is an acid. Before disposal it needs to be neutralised.

Waste code product: no data available

Appropriate disposal / Package

Dispose according to legislation. Handle contaminated packages in the same way as the substance itself.

Additional information

none

No further relevant information available.

SECTION 14: Transport information

Land transport (DOT)

UN number or ID number:	UN1779
UN proper shipping name:	FORMIC ACID
Transport hazard class(es):	8 (3)
Hazard label(s):	8+3
Packing group:	II
Environmental hazards:	No
Marine pollutant:	No
Special precautions for user:	

Sea transport (IMDG)

UN number or ID number:	1779
UN proper shipping name:	FORMIC ACID
Transport hazard class(es):	8 (3)
Hazard label(s):	8+3
Packing group:	II
Environmental hazards:	No
Marine pollutant:	No
Special precautions for user:	
Segregation group:	1
EmS-No.	F-E S-C

Maritime transport in bulk according to IMO instruments
not relevant

Air transport (ICAO-TI/IATA-DGR)

UN number or ID number:	1779
UN proper shipping name:	FORMIC ACID
Transport hazard class(es):	8 (3)
Classification code:	
Hazard label(s):	8+3
Packing group:	II
Special precautions for user:	

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Toxic Substances Control Act (TSCA)
Listed

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

SARA 313 Components
Listed

US State Regulations

Massachusetts Right To Know Components
Listed

Pennsylvania Right To Know Components
Listed

New Jersey Right To Know Components
Listed

California Prop. 65 Components

Not listed.

SECTION 16: Other information

Abbreviations and acronyms

ACGIH - American Conference of Governmental Industrial Hygiensts
DOT - Department of Transportation
IARC - International Agency for Research on Cancer
IATA-DGR - International Air Transport Association-Dangerous Goods Regulations
ICAO-TI - International Civil Aviation Organization-Technical Instructions
IMDG - International Maritime Code for Dangerous Goods
LTV - Long Term Value
NIOSH - National Institute for Occupational Safety and Health
NTP - National Toxicology Program
OSHA - Occupational Safety & Health Administration
PBT - Persistent, Bioaccumulative and Toxic
PEL - Permissible Exposure Limit
STV - Short Term Value
SVHC - Substances of Very High Concern
TDG - Transport of Dangerous Goods
TLV - Threshold Limit Value
vPvB - very Persistent, very Bioaccumulative

Key literature references and sources for data

This Safety Data Sheet has been prepared based on information available for public as TOXNET information, European Chemicals Agency (ECHA) substance dossier, papers from international cancer research institutes (IARC Monographs), U.S. National Toxicology Program data, U.S. Agency for Toxic Substances and Disease Control (ATSDR), PubChem websites and SDS from our raw material manufacturers.

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12.08.2025	6.3	12.08.2025

Additional information

Indication of changes	general update If you need an explanation of the change, contact the supplier (SDS@avantorsciences.com).

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guidance. The information in this document is based on the present state knowledge and is applicable to the product with regard to appropriate safty precautions. It does not represent any guarantee of the properties of the product. VWR International and his Affiliates shall not be held liable for any damage resulting from handling.