SAFETY DATA SHEET

according to 1907/2006/EC, Article 3

Revision date: 12/08/2025

SECTION 1: Identification of the substance/mixture and of the company/undertaking.

1.1 Product identifiers

Product name	Formic Acid
Product Number	PSR36652 / PSR43411
Brand	PureSynth research chemicals
CAS No.	64-18-6

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

Identified uses : PurSolv

1.3 Details of the supplier of the safety data sheet

Company **PureSynth Research Chemicals GmbH.**

64683 Einhausen Marie-Curie-StraBe. 3, Germany

1.4 Emergency telephone number

Worldwide Helpline No.: 1800-8908-260

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 3), H226
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 3), H331
Skin corrosion (Sub-category 1A), H314
Serious eye damage (Category 1), H318

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal word Danger

Hazard statement(s)

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

Precautionary statement(s)

P280	Wear protective gloves, protective clothing, face protection.
P303+P361+P353	IF ON SKIN (on hair) Take off immediately all contaminated clothing

	.rinse skin with water/shower.
P304+P340+P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing.Immediately call a POISON CENTER or doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements	
EUH071	Corrosive to the respiratory tract.

2.3 **Other hazards:**

This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or

Very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition / information on ingredients

3.1 Substances

Common names & Synonyms	**Mol. formula**	**CAS number**
-	CH_2O_2	64-18-6

Component	**Classification**	**Concentration**
Formic acid	Flam. Liq. 3; Acute Tox. 4; Acute Tox. 3; Skin Corr. 1A; Eye Dam. 1; H226, H302, H331, H314, H318 Concentration limits:>= 90 %: Skin Corr. 1A, H314; 10 - < 90 %: Skin Corr. 1B, H314; 2 - < 10 %: Skin Irrit. 2, H315; 2 - < 10 %: Eye Irrit. 2, H319; > 78,5 %: Acute Tox. 3, H331; 75 - 78,5 %: Acute Tox. 4, H332; > 75 %: , EUH071	<= 100 %

SECTION 4: First aid measures

Description of first aid measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled	After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.
In case of skin contact	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.
In case of eye contact	After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.
If swallowed	After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

Most important symptoms and effects, both acute and delayed	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Indication of any immediate medical attention and special treatment needed	No data available

SECTION 5: Fire fighting measures

Extinguishing media **Suitable extinguishing media**	Foam Carbon dioxide (CO2) Dry powder
Special hazards arising from the substance or mixture	Combustible. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air at elevated temperatures. Development of hazardous combustion gases or vapors possible in the event of fire.
Advice for fire-fighters	Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.
Further information	Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures	Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, and consult an expert. For personal protection see section 8.
Environmental precautions	Do not let product enter drains. Risk of explosion.
Methods and materials for containment and cleaning up	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material. Dispose of properly. Clean up affected area.
Reference to other sections	For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling	Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge. Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.
Conditions for safe storage, including any incompatibilities	No metal containers. May decompose forming gaseous products, especially when stored over long periods. Close containers in such a way to enable internal pressure to escape (E.g. excess pressure valve). Protected from light. Keep container tightly closed in a dry and well-ventilated place. Keep Away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

	Recommended storage temperature see product label.
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

Control parameters	Components with workplace control parameters.
Exposure controls	
Appropriate engineering controls	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Personal protective equipment:	
Eye / face protection	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles.
Skin protection	Required
Body Protection	Flame retardant antistatic protective clothing
Respiratory protection	Required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system. Recommended Filter type: Filter type ABEK
Control of environmental exposure	Do not let product enter drains. Risk of explosion

SECTION 9: Physical and chemical properties

Appearance	Form: Liquid Colour: Colorless
Odour	Stinging
pH - Value	2,2 at 10 g/l at 20 °C
Density	No data available
Boiling Point	100,80 °C at 1.013 hPa
Melting Point	8.5 °C
Solubility in water	at 20 °C miscible in all proportions, (experimental)
Flash point	No data available
Vapour pressure	171 hPa at 50 °C - OECD Test Guideline 104
Auto -ignition temperature	528 °C at 1.008 hPa - Tested according to Directive 92/69/EEC**.**
Vapour density	1,59 - (Air = 1.0)
Flammability (solid, gas)	No data available
Evaporation rate	No data available
Partition coefficient: n- octanol / water	log Pow: -2,1 at 23 °C - OECD Test Guideline 107 - Bioaccumulation is not expected.
Viscosity	Viscosity, kinematic: 1,47 mm2/s at 20 °C - OECD Test Guideline 1141,02 mm2/s at 40 °C - OECD Test Guideline 114 Viscosity, dynamic: 1,8 mPa.s at 20 °C - OECD Test Guideline 1141,22 mPa.s at 40 °C - OECD Test Guideline 114
Explosive properties	No data available
Upper / lower flammability or explosive limits	Upper explosion limit: 38 %(V) Lower explosion limit: 18 %(V)
Oxidizing properties	No data available

Other safety information:

Surface tension: 71.5 mN/m at 1g/l at 20 °C
Dissociation constant: 3.7 at 20 °C
Relative vapour density: 1.59 - (Air = 1.0)

SECTION 10: Stability and reactivity

Reactivity	Vapor/air-mixtures are explosive at intense warming.
Chemical stability	The product is chemically stable under standard ambient conditions (room temperature).
Possibility of hazardous reactions	No data available
Condition to avoid	Heating
Incompatible materials	Strong oxidizing agents, Strong bases, Powdered metals
Hazardous decomposition products	In the event of fire: see section 5

SECTION 11: Toxicological information

Acute toxicity	Acute toxicity estimate Oral – 737.37 mg/kg LD50 Oral - Rat - male and female - 730 mg/kg (Formic acid) Acute toxicity estimate Inhalation - 4 h – 7.93 mg/l LC50 Inhalation - Rat - male and female - 4 h – 7.85 mg/l (Formic acid)
Skin corrosion/irritation	Skin - Rabbit (Formic acid) Result: Severe skin irritation (Draize Test)
Serious eye damage/eye irritation	Causes serious eye damage. Conjunctivitis Lacrimal irritation due to vapours. (Formic acid)
Respiratory or skin sensitization	Buehler Test - Guinea pig (Formic acid) Result: negative Prolonged or repeated exposure may cause allergic reactions in certain sensitive Individuals. (Formic acid)
Germ cell mutagenicity	Test Type: Ames test (Formic acid) Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Result: negative Test Type: sister chromatid exchange assay (Formic acid) Test system: Chinese hamster lung cells Metabolic activation: with and without metabolic activation Result: negative Test Type: sister chromatid exchange assay (Formic acid) Test system: Human lymphocytes Metabolic activation: without metabolic activation Result: negative Test Type: In vitro mammalian cell gene mutation test (Formic acid) Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Result: negative Test Type: Chromosome aberration test in vitro (Formic acid) Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Result: negative (Formic acid) Test Type: gene mutation test Species: Drosophila melanogaster Application Route: Oral Result: negative
Carcinogenicity	No data available
Reproductive toxicity	No data available
Specific target organ toxicity - single exposure	No data available
Specific target organ toxicity - repeated exposure Aspiration hazard	No data available
Additional Information	Repeated dose toxicity - Rat - male and female - Oral - 52 Weeks - NOAEL (No observed adverse effect level) - 400 mg/kg - LOAEL (Lowest observed adverse effect level) - 2.000 mg/kg Remarks: (in analogy to similar products) (Formic acid)

	Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting (Formic acid) To the best of our knowledge, the chemical, physical, and toxicological properties have not Been thoroughly investigated. (Formic acid) Kidney - Irregularities - Based on Human Evidence (Formic acid)

SECTION 12: Ecological information

Toxicity

Toxicity to fish	static test LC50 - Danio rerio (zebra fish) - 130 mg/l - 96 h (Formic acid) The value is given in analogy to the following substances: ammonium formate
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 365 mg/l - 48 h (Formic acid) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: ammonium format
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata - 1.240 mg/l - 72 h (Formic acid) The value is given in analogy to the following substances: ammonium formate
Toxicity to bacteria	static test NOEC - activated sludge - 72 mg/l - 13 d (Formic acid) Remarks: (ECHA)
Persistence and degradability	
Biodegradability	aerobic - Exposure time 14 d (Formic acid) Result: 100 % - Readily biodegradable.
Biochemical Oxygen Demand (BOD)	86 mg/g (Formic acid) Remarks: (External MSDS)
Ratio BOD/ThBOD	8.60 % (Formic acid)
Bio accumulative potential	Bioaccumulation is unlikely. Does not significantly accumulate in organisms
Mobility in soil	No data available
Results of PBT and vPvB assessment	This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.
Other adverse effects	Forms corrosive mixtures with water even if diluted. Harmful effect due to pH shift. Neutralisation possible in waste water treatment plants. No interference with wastewater treatment plants are to be expected when used properly. into the environment must be avoided

SECTION 13: Disposal considerations

Waste treatment methods Products	Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleansed containers like the product itself.
Contaminated packaging	Dispose of as unused product.

SECTION 14: Transport information

	UN no.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant
ADR / RID	1779	FORMIC ACID	8 (3)	II	No
IMDG	1779	FORMIC ACID	8 (3)	II	No
IATA	1779	Formic acid	8 (3)	III	No

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

National legislation
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous Substances**.** : ACUTE TOXIC

: FLAMMABLE LIQUIDS

Other regulations
Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or Stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

Chemical safety assessment
For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

The information in this SDS is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. The user must be determined suitability of this information for his application.