

# SAFETY DATA SHEET

according to 1907/2006/EC, Article 3

Version no. : 2.1  
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## SECTION 1: Identification of the substance/mixture and of the company/undertaking.

### 1.1 Product identifiers

**Product name** Formic Acid  
**Product Number** PSR36652  
**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** : Laboratory chemicals

### 1.3 Details of the supplier of the safety data sheet

**Company** PureSynth Research Chemicals Pvt. Ltd.  
64683 Einhausen Marie-Curie-Straße. 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 <sub>2</sub> O <sub>2</sub>	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

<b>General advice</b>	Consult a physician. Show this safety data sheet to the doctor in attendance.
<b>If inhaled</b>	After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.
<b>In case of skin contact</b>	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.
<b>In case of eye contact</b>	After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

<b>If swallowed</b>	After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.
<b>Most important symptoms and effects, both acute and delayed</b>	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
<b>Indication of any immediate medical attention and special treatment needed</b>	No data available

## SECTION 5: Fire fighting measures

<b>Extinguishing media</b>	Foam Carbon dioxide (CO2) Dry powder
<b>Suitable extinguishing media</b>	Combustible.
<b>Special hazards arising from the substance or mixture</b>	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.
<b>Advice for fire-fighters</b>	Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.
<b>Further information</b>	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

<b>Personal precautions, protective equipment and emergency procedures</b>	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.
<b>Environmental precautions</b>	Do not let product enter drains. Risk of explosion.
<b>Methods and materials for containment and cleaning up</b>	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.
<b>Reference to other sections</b>	For disposal see section 13.

## SECTION 7: Handling and storage

<b>Precautions for safe handling</b>	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.
<b>Conditions for safe storage, including any incompatibilities</b>	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.

**Specific end use(s)**

Recommended storage temperature see product label.

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

Required when vapours/aerosols are generated.

**Respiratory protection**

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**

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

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

## SECTION 11: Toxicological information

<b>Acute toxicity</b>	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)
<b>Skin corrosion/irritation</b>	Skin - Rabbit (Formic acid) Result: Severe skin irritation (Draize Test)
<b>Serious eye damage/eye irritation</b>	Causes serious eye damage. Conjunctivitis Lacrimal irritation due to vapours. (Formic acid) Buehler Test - Guinea pig (Formic acid) Result: negative
<b>Respiratory or skin sensitization</b>	Prolonged or repeated exposure may cause allergic reactions in certain sensitive Individuals. (Formic acid) 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
<b>Germ cell mutagenicity</b>	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

<b>Carcinogenicity</b>	No data available
<b>Reproductive toxicity</b>	No data available
<b>Specific target organ toxicity - single exposure</b>	No data available
<b>Specific target organ toxicity - repeated exposure</b>	No data available
<b>Aspiration hazard</b>	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
<b>Additional Information</b>	<p>Remarks: (in analogy to similar products) (Formic acid)</p> <p>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)</p> <p>To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (Formic acid)</p> <p>Kidney - Irregularities - Based on Human Evidence (Formic acid)</p>

## SECTION 12: Ecological information

<b>Toxicity</b>	static test LC50 - Danio rerio (zebra fish) - 130 mg/l - 96 h (Formic acid)
Toxicity to fish	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)
Toxicity to algae	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)
<b>Persistence and degradability</b>	
<b>Biodegradability</b>	aerobic - Exposure time 14 d (Formic acid) Result: 100 % - Readily biodegradable.
<b>Biochemical Oxygen Demand (BOD)</b>	86 mg/g (Formic acid)
<b>Ratio BOD/ThBOD</b>	Remarks: (External MSDS) 8.60 % (Formic acid)
<b>Bio accumulative potential</b>	Bioaccumulation is unlikely. Does not significantly accumulate in organisms
<b>Mobility in soil</b>	No data available
<b>Results of PBT and vPvB assessment</b>	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 uncleaned 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
<b>ADR / RID</b>	1779	FORMIC ACID	8 (3)	II	No
<b>IMDG</b>	1779	FORMIC ACID	8 (3)	II	No
<b>IATA</b>	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 : ACUTE TOXIC

Parliament and of the Council on the control of

major-accident hazards involving dangerous

Substances.

: 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.

