SAFETY DATA SHEET

according to 1907/2006/EC, Article 3

Revision date: 30/03/2019

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

1.1 Product identifiers

Product name	Ethyl formate
Product Number	PSR28314
Brand	PureSynth research chemicals
CAS No.	109-94-4

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

Identified uses : PurCert.

1.3 Details of the supplier of the safety data sheet

Company **PureSynth Research Chemicals Pvt. Ltd.**

A-27, A.P.I.E, Hyderabad, Telangana-500037

1.4 Emergency telephone number

Worldwide Helpline No.: 1800-120-1234-34

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008.

Flammable liquids, (Category 2)	H225: Highly flammable liquid and vapor.
Acute toxicity, (Category 4)	H302: Harmful if swallowed.
Acute toxicity, (Category 4)	H332: Harmful if inhaled.
Eye irritation, (Category 2)	H319: Causes serious eye irritation

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal word Danger

Hazard statement(s)

H319	Causes serious eye irritation.
H225	Highly flammable liquid and vapor
H302 + H332	Harmful if swallowed or if inhaled.
H335	May cause respiratory irritation.

Precautionary statement(s)

P264	Wash skin thoroughly after handling.
P210	Keep away from heat, hot surfaces, sparks, open flames and

	other ignition sources. No smoking.
P280	Wear eye protection/ face protection
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention
Supplemental Hazard Statements	none

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
Formic acid ethyl ester	C3H6O2	109-94-4

Component	Classification	Concentration
ethyl formate	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2; STOT SE 3; H225, H302, H332, H319, H335	<= 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.
In case of skin contact	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.
In case of eye contact	After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.
If swallowed	After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
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**	Carbon dioxide (CO2) Foam Dry powder
Special hazards arising from the substance or mixture	Carbon oxides Combustible.

	Pay attention to flashback. Vapors are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.
Advice for fire-fighters	In the event of fire, wear self-contained breathing apparatus.
Further information	Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. 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: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.
Environmental precautions	Do not let product enter drains.
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 (e.g. Chemizorb®). 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 vapours/aerosols. Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge. Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance
Conditions for safe storage, including any incompatibilities	Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.
Specific end use(s)	Storage class (TRGS 510): 3: Flammable liquids Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls / Personal protection

Control parameters	Ingredients with workplace control parameters
Exposure controls	Personal protective equipment
Appropriate engineering controls	
Personal protective equipment:	

Eye / face protection	Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses.
Skin protection	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
Body Protection	protective clothing
Respiratory protection	Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
Control of environmental exposure	Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

Appearance	Form: clear, liquid Colour: light yellow
Odour	No data available
pH - Value	1.96 at 25,6 °C
Density	0.921 g/cm3 at 20 °C - lit
Boiling Point	52 - 54 °C
Melting Point	-80 °C
Solubility in water	71.78 g/l at 25 °C
Flash point	-20 °C - closed cup
Vapour pressure	266.64 hPa at 20 °C
Auto -ignition temperature	455 °C
Vapour density	No data available
Flammability (solid, gas)	No data available
Evaporation rate	No data available
Partition coefficient: n- octanol / water	og Pow: 1.5 at 25 °C - Bioaccumulation is not expected.
Viscosity	Viscosity, kinematic: 1116 mm2/s at 20 °C Viscosity, dynamic: 10.21 mPa.s at 20 °C
Explosive properties	No data available
Upper / lower flammability or explosive limits	Upper explosion limit: 16 %(V) Lower explosion limit: 2.8 %(V)
Oxidizing properties	No data available

Other safety information: Surface tension 0.02 N/m at 20 °C
Relative vapor density 2.56 - (Air = 1.0)

SECTION 10: Stability and reactivity

Reactivity	Vapors may form explosive mixture with air.
Chemical stability	The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	Exothermic reaction with: sodium Alkali metals Alkaline earth metals Risk of ignition or formation of inflammable gases or vapours with: Oxidizing agents Strong acids and strong bases
Condition to avoid	Exposure to moisture.
Incompatible materials	No data available
Hazardous decomposition products	No data available

SECTION 11: Toxicological information

Acute toxicity	LD50 Oral - Rat - 1.850 mg/kg Remarks: Behavioral:Somnolence (general depressed activity). Lungs, Thorax, or Respiration:Dyspnea Acute toxicity estimate Oral - 1.850 mg/kg
Skin corrosion/irritation	Skin - Rabbit Result: No skin irritation - 24 h
Serious eye damage/eye irritation	Eyes - Rabbit Result: Irritating to eyes
Respiratory or skin sensitization	Maximization Test - In vitro study Result: negative
Germ cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
Specific target organ toxicity - single exposure	Inhalation - May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	No data available
Aspiration hazard	No data available
Additional Information	No data available

SECTION 12: Ecological information

Toxicity

Toxicity to fish	static test LC50 - Danio rerio (zebra fish) - > 100 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 212,5 mg/l - 48 h
Toxicity to algae	No data available
Toxicity to bacteria	No data available
Persistence and degradability	Result: 77.48 % - Readily biodegradable.
Biodegradability	No data available
Bio accumulative potential	No data available

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.
Endocrine disrupting properties	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Other adverse effects	No data available

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	1190	ETHYL FORMATE	3	II	No
IMDG	1190	ETHYL FORMATE	3	II	No
IATA	1190	Ethyl formate	3	II	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.

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.