Material Safety Data Sheet

Ethyl Formate (RXSOL-19-3210-180)

1. Product and Company Identifaction

Product Name	Ethyl Formate
Part Number	RXSOL-19-3210-180

Company Details:....

RX MARINE INTERNATIONAL
105, A wing , BSEL , TECH PARK.
VASHI ,NEW BOMBAY 400703 INDIA

Branch : Kandla, Mumbai , Chennai, Vizag, Kolkata, UAE , OMAN , CANADA and KENYA

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2. Composition / informationon ingredients

Substances

Synonyms	Formic acid ethyl ester
Formula	C3H6O2
Molecular weight	74,08 g/mol
CAS-No.	109-94-4
EC-No.	203-721-0
Index-No.	607-015-00-7

Component	Classification	Concentration
Ethyl formate CAS-No. 109-94-4 EC-No 203-721-0 Index-No. 607-015-00-7	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2; STOT SE 3; H225, H302, H332, H319, H335	= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

3. Hazards Identification

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008	Flammable liquids (Category 2), H225 Acute toxicity, Oral (Category 4), H302 Acute toxicity, Inhalation (Category 4), H332 Eye irritation (Category 2), H319 Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335 For the full text of the H-Statements mentioned in this Section, see Section 16.

Label elements

Signal Word	Danger

Hazard Statements	H225 Highly flammable liquid and vapor. H302 + H332 Harmful if swallowed or if inhaled. H319 Causes serious eye irritation. H335 May cause respiratory irritation.
Precautionary Statements	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 Keep container tightly closed. P240 Ground and bond container and receiving equipment. P301 + P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell. 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	None
Reduced Labeling (= 125 ml)	
Signal Word	Danger
Hazard statement(s)	None
Precautionary statement(s)	None
Supplemental Hazard Statements	None
Other hazards	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher. Ecological information: 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. Toxicological information: 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.

4. First Aid Measures

Description of first aid measures

General advice	Show this material 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

5. Fire-fighting Measures

Extinguishing media

Suitable extinguishing media	Carbon dioxide (CO2) Foam Dry powder
Unsuitable extinguishing media	For this substance/mixture no limitations of extinguishing agents are given.
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 firefighters	In the event of fire, wear self-contained breathing apparatus.
Further information	Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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 dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.
Reference to other sections	For disposal see section 13.

7. Handling and Storage

Precautions for safe handling

Advice on safe handling	Work under hood. Do not inhale substance/mixture.
Hygiene measures	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	
Storage conditions	Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Moisture sensitive.
Storage class	Storage class (TRGS 510): 3: Flammable liquids
Specific end use(s)	Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. Exposure controls and personal protection

Control parameters

Ingredients with workplace control parameters

Exposure controls

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 This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de). Full contact Material: Chloroprene Minimum layer thickness: 0,65 mm Break through time: 480 min Material tested:KCL 720 Camapren®
Skin protection	This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de). Splash contact Material: Latex gloves Minimum layer thickness: 0,6 mm Break through time: 60 min Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M).
Body Protection	Flame retardant antistatic protective clothing.

	Recommended Filter type: Filter A-(P3)
Respiratory protection	The entrepeneur 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.

9. Physical and chemical properties

Physical state	Clear, liquid
Colour	Light yellow
Odor	No data available
Melting point/freezing point	Melting point/range: -80 °C - lit.
Initial boiling point and boiling range	52 - 54 °C - lit.
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit: 16 %(V) Lower explosion limit: 2,8 %(V)
Flash point	-20 °C - closed cup
Autoignition temperature	455 °C
Decomposition temperature	No data available
pH	1,96 at 25,6 °C
Viscosity	Viscosity, kinematic: 11,16 mm2/s at 20 °C - OECD Test Guideline 11410,9 mm2/s at 40 °C - OECD Test Guideline 114 Viscosity, dynamic: 10,21 m Pa. s at 20 °C - OECD Test Guideline 1149,97 m Pa. s at 40 °C - OECD Test Guideline 114
Water solubility	71,78 g/l at 25 °C - OECD Test Guideline 105- completely soluble
Partition coefficient: n-octanol/water	Log Pow: 1,5 at 25 °C - Bioaccumulation is not expected.
Vapor pressure	266,64 hPa at 20 °C
Density	0,921 g/mL at 20 °C - lit.
Relative density	No data available
Relative vapor density	No data available
Particle characteristics	No data available
Explosive properties	No data available
Oxidizing properties	None
Other safety information	
Surface tension	0,02 N/m at 20 °C
Relative vapor density	2,56 - (Air = 1.0)

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
Conditions to avoid	Heat. Avoid moisture. Warming.
Incompatible materials	No data available
Hazardous decomposition products	In the event of fire: see section 5

11. Toxicological information

Information on toxicological effects

Acute toxicity	LD50 Oral - Rat - 1.850 mg/kg Remarks: Behavioral:Somnolence (general depressed activity). Lungs, Thorax, or Respiration:Dyspnea. (RTECS) Acute toxicity estimate Oral - 1.850 mg/kg (ATE value derived from LD50/LC50 value) Acute toxicity estimate Inhalation - 4 h - 11 mg/l - vapor (Expert judgment) Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) LD50 Dermal - Rabbit - male - > 20.000 mg/kg Remarks: (ECHA)
Skin corrosion/irritation	Skin - Rabbit Result: No skin irritation - 24 h Remarks: (ECHA)
Serious eye damage/eye irritation	Eyes - Rabbit Result: Eye irritation Remarks: (ECHA) Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Respiratory or skin sensitization	Maximization Test - In vitro study Result: negative Remarks: (ECHA)
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. Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Specific target organ toxicity - repeated exposure	No data available
Aspiration hazard	No data available
Additional Information	
Endocrine disrupting properties Product	
Assessment	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. Repeated dose toxicity - Rat - male and female - Oral - 17 Weeks - NOAEL (No observed adverse effect level) - 500 mg/kg Remarks: (ECHA) RTECS: LQ8400000 Cough, Shortness of breath, Headache, Nausea, Vomiting, narcosis To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. Ecological information

Persistence and degradability	No data available
Toxicity to fish	Static test LC50 - Oncorhynchus mykiss (rainbow trout) - 75 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	Static test EC50 - Daphnia magna (Water flea) - 42,81 mg/l - 48 h (OECD Test Guideline 202) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: maleic acid
Toxicity	Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 1.520 mg/l - 96 h
Toxicity to bacteria	EC10 - Bacteria - 14 mg/l - 72 h Remarks: (Lit.) EC5 - E.coli - 15.000 mg/l Remarks: (Lit.) (maximum permissible toxic concentration)
Toxicity to algae	Static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 74,35 mg/l - 72 h (OECD Test Guideline 201) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: maleic acid
Products Biodegradation	The methods for determining the biological degradability are not applicable to inorganic substances.
Mobility in soil	No data available
Results of PBT and vPvB assessment	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Endocrine disrupting properties	No data available

Other adverse effects	No data available .

13. Disposal considerations

Waste treatment Method	No data available

14. Transport information

UN number	ADR/RID:1190 IMDG:1190 IATA: 1190
UN proper shipping name	ADR/RID: ETHYL FORMATE IMDG: ETHYL FORMATE IATA: Ethyl formate
Transport hazard class(es)	ADR/RID: 3 IMDG: 3 IATA:3
Packaging group	ADR/RID: II IMDG: II IATA:II
Environmental hazards	ADR/RID: no IMDG Marine pollutant: no IATA: no
Special precautions for user	
Tunnel restriction code	(D/E)
Further information	No data available

15. Regulatory information

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

16. Other information

Other Information	The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and weassume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Rx Marine International has been advised of the possibility of such damages. DISCLAIMER OF LIABILITY :The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable.