Material Safety Data Sheet

FORMIC ACID (RXSOL-19-1193-250)

1. Product and Company Identifaction

Product Name	FORMIC ACID 85%
Part Number	RXSOL-11-1193-250

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

Chemical Name	CAS	EC number	Weight	Formula
Formic acid	64-18-6	200-579-1	= 85 %	CH_2O_2

3. Hazards Identification

Signal Word	Danger
Hazard Statements	H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled. H314 Causes severe skin burns and eye damage. H400 Very toxic to aquatic life.H226 Flammable liquid and vapor. H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage. H331 Toxic if inhaled.
Precautionary statements	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301 + P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ 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.
Classification of the substance or mixture	Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.
Supplemental Hazard Statements	EUH071 Corrosive to the respiratory tract.
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.

4. First Aid Measures

General advice	First aiders need to protect themselves. Show this material 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.
Eye Contact	After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

Swallowed	After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Pulmonary failure possible after aspiration of vomit. Call a physician immediately. Do not attempt to neutralise.
Skin Contact	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.
Inhalation	Remove patient to fresh air, keep warm and at rest and get medical assistance in necessary.
Ingestion	Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.
Most important symptoms and effects, both acute and delaye	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

Flammability	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Flash Point	Dry powder Dry sand
Suitable extinguishing media	Water Foam Carbon dioxide (CO2) Dry powder
Unsuitable extinguishing media	For this substance/mixture no limitations of extinguishing agents are given.
Special hazards arising from the substance or mixture	Nature of decomposition products not known. 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 vapours possible in the event of fire.
Further information	Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Hazardous combustion products	Fire may cause the evolution of Sulphur oxides, nitrogen oxides.
Advice for firefighters	Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.
Protective Equipment	Use personal protective equipment.
Specific Hazards Arising from the Chemical	Oxides of phosphorus Sodium oxides Not combustible. Fire may cause evolution of: Oxides of phosphorus Ambient fire may liberate hazardous vapours.

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, consult an expert. For personal protection see section 8.
Spillage	Oxidizing material. Stop leak if without risk. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Prevent entry into sewers, basements or confined areas dike if needed. Eliminate all ignition sources. Call for assistance on disposal.
Enviromental Precaution	Do not let product enter drains.
Methods and materials for containment and cleaning	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.

7. Handling and Storage

Advice on protection against fire and explosion	Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.
Incompatible materials	Keep away from alkalis, strong oxidizing agents and metals. Provide containment walls of adequate capacity to hold any accidental spills.
Hygiene measures	Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.For precautions see section 2.2
Precautions for safe handling	Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.
Storage conditions	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. Vent periodically. Handle and open container with care. Hygroscopic. Refrigerate before opening.
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
Advice on general occupational hygiene	Advice on safe handling Observe label precautions. Change contaminated clothing. Wash hands after working with substance.
Requirements for storage	Keep in cool and store under shade.

8. Exposure controls and personal protection

Derived No Effect Level (DNEL)

Application Area	Routes of exposure	Health effect	Value
Workers	Inhalation	Long-term systemic effects	9,5 mg/m3
Workers	Inhalation	Long-term systemic effects	19 mg/m3
Consumers	Inhalation	Long-term systemic effects	9,5 mg/m3
Consumers	Inhalation	Long-term systemic effects	3 mg/m3

Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	1,5 mg/kg
Sea water	0,22 mg/l
Fresh water	2 mg/l
Sewage treatment plant	1,34 mg/kg
Aquatic intermittent release	13,4 mg/kg
Aquatic intermittent release	1 mg/l

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.
Control parameters	Ingredients with workplace control parameters Contains no substances with occupational exposure limit values.
Engineering Control	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
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
Body Protection	Flame retardant antistatic protective clothing.
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. Full contact Material: Nature latex/chloroprene Minimum layer thickness: 0,6 mm Break through time: 480 min Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M) Splash contact Material: Nature latex/chloroprene Minimum layer thickness: 0,6 mm Break through time: 480 min Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC 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.
Respiratory protection	Recommended Filter type: Filter E-(P3) 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.
Other Protection Measure	Handle in accordance with good industrial hygiene and safety practice.
Control of environmental exposure	Do not let product enter drains. Risk of explosion.



Gloves



Suit

9. Physical and chemical properties

Physical state	Liquid
Colour	Colorless
Odour	Stinging
Odor Threshold	No data available
pH	2,2 at 10 g/l at 20 °C
Melting Point	8,2 - 8,4 °C - lit.
Boiling Point	100 - 101 °C - lit.
Flash Point	No data available
Evaporation Rate	Not Applicable
Flammability (solid, gas)	No data available
Explosive limits	No Data Available
Upper/lower flammability or explosive limits	38 %(V)/18 %(V)
Autoignition temperature	528 °C at 1.008 hPa
Decomposition temperature	350 °C
Vapour pressure	171 hPa at 50 °C
Density	1,22 g/cm3 at 25 °C
Relative Density	1,22 at 20 °C
Relative vapor density	1,59 - (Air = 1.0)
Freezing point	No data available
Viscosity/Kinematic/Dynamic	1,47 mm2/s at 20 °C - OECD Test Guideline 1141,02 mm2/s at 40 °C - OECD Test Guideline 114/1,8 mPa.s at 20 °C - OECD Test Guideline 1141,22 mPa.s at 40 °C - OECD Test Guideline 114
Partition coefficient	Log Pow: -2,1 at 23 °C
Explosive properties	No data available
Solubility	20 °C
Ignition temperature	No information available.
Particle characteristics	No data available

10. Stability and reactivity

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

11. Toxicological information

Acute toxicity	LD50 Oral - Rat - male and female - 730 mg/kg (OECD Test Guideline 401) Acute toxicity estimate Oral - 730 mg/kg (ATE value derived from LD50/LC50 value) LC50 Inhalation - Rat - male and female - 4 h - 7,85 mg/l - vapor (OECD Test Guideline 403) Acute toxicity estimate Inhalation - 7,85 mg/l - vapor (ATE value derived from LD50/LC50 value) Dermal: No data available
Skin corrosion/irritation	Skin - Rabbit Result: Severe skin irritation (Draize Test)
Serious eye damage/eye irritation	Remarks: Causes serious eye damage. conjunctivitis Lacrimal irritation due to vapours.

Respiratory or skin sensitization	Buehler Test - Guinea pig Result: negative (OECD Test Guideline 406) Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.
Toxic Effects on Human	May cause damage to the following organs: upper respiratory tract. Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant, sensitizer), of ingestion, of inhalation (lung irritant, lung sensitizer).
Carcinogenicity	No data available
Germ cell mutagenicity	Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 47 1 Result: negative Test Type: sister chromatid exchange assay Test system: Chinese hamster lung cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 479 Result: negative Test Type: sister chromatid exchange assay Test system: Human lymphocytes Metabolic activation: without metabolic activation Method: OECD Test Guideline 479 Result: negative Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 473 Result: negative Test Type: gene mutation test Species: Drosophila melanogaster Application Route: Oral Method: OECD Test Guideline 477 Result: negative
Reproductive toxicity	No data available
Specific target organ toxicity - single exposure	No data available
Special Remarks on other Toxi Effects on Humans	Acute Potential Health Effects: Skin: Causes skin irritation. May cause skin sensitization, an allergic reation, which becomes evident upon re-exposure to this material. Eyes: Causes eye irritation. Ingestion: Causes gastrointestinal (digestive) tract irritation with nausea, vomiting, and diarrhea. May be harmful if swallowed. Inhalation: Causes respiratory tract irritation. May cause chemical pneumonitis and pulmonary edema, inflammation, edema of bronchi and larynx. Chronic Potential Health Effects: Repeated or prolonged skin exposure may cause allergic reactions in sensitive individuals. Repeated or prolonged exposure by inhalation may affect respiration and metabolism.
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. 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) RTECS: LQ4900000 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 To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Kidney - Irregularities - Based on Human Evidence

12. Ecological information

Bioaccumulative potential	Bioaccumulation is unlikely.Does not significantly accumulate in organisms.
Persistence and degradability	Biodegradability aerobic - Exposure time 14 d Result: 100 % - Readily biodegradable. (OECD Test Guideline 301C) Biochemical Oxygen Demand (BOD) 86 mg/g Remarks: (External MSDS) Ratio BOD/ThBOD 8,60 %
Toxicity to fish	Static test LC50 - Danio rerio (zebra fish) - 130 mg/l - 96 h (OECD Test Guideline 203) Remarks: (in analogy to similar products) 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 (OECD Test Guideline 202) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: ammonium formate
Toxicity to algae	Static test ErC50 - Pseudokirchneriella subcapitata - 1.240 mg/l - 72 h (OECD Test Guideline 201) Remarks: (in analogy to similar products) 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 Remarks: (ECHA)
Mobility in soil	No Information 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	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

13. Disposal considerations

Disposal methods	The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.
Contaminated packaging	Dispose of as unused product.

Waste treatment Method	See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

14. Transport information

UN number	ADR/RID: 1779	IMDG: 1779	IATA: 1779
UN proper shipping name	ADR/RID: FORMIC ACID	IMDG: FORMIC ACID	IATA:FORMIC ACID
Transport hazard class(es)	ADR/RID: 8 (3)	IMDG: 8 (3)	IATA: 8 (3)
Packaging group	ADR/RID: II	IMDG: II	IATA: II
Environmental hazards	ADR/RID: NO	IMDG: NO	IATA: NO
Further information	No data available		

15. Regulatory information

Inventory status	Components are on the following inventories: Polymaleic acid: - US TSCA, Canadian DSL, EU EINECS, Australian AICS, Korean, Philippine PICCS and Chinese Xi irritant R 36/38 Irritant to eyes & skin R 41 Risk of serious damage to eyes S24/25 Avoid contact with skin and eyes S26/28 In case of contact eyes & skin, rinse with plenty water and seek medical advice Section 312/313: Not listed. Not listed under California proposition 65.
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.
Authorisations and/or restrictions on use	REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : potassium chromate This product contains a substance listed on Annex XIV of the REACH Regulation (EC) Nr. 1907/2006. Listed substance / Sunset Date : potassium chromate / 21.09.2017 After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : potassium chromate
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	A Chemical Safety Assessment has been carried out for this substance.

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.