Material Safety Data Sheet

Trifluoroacetic Anhydride (RXSOL-19-1347-026)

1. Product and Company Identifaction

Porduct Name	Trifluoroacetic anhydride
Part Number	RXSOL-19-1347-026

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

Phone	+91 22 20871200 - 1400
Fax	+91 22 27612100 :::AOH :0091 9821214367
Email	mail@rxmarine.com
Website	www.rxmraine.com

2. Composition / informationon ingredients

Chemical Name	Cas No	EC No	Whight	Formula
Trifluoroacetic Anhydride for synthesis	407-25-0	206-982-9	210,03 g/mol	$C_4F_6O_3$

3. Hazards Identification

Signal Word	Danger
Hazard Statements	H314 Causes severe skin burns and eye damage.H412 Harmful to aquatic life with long lasting effects.
Precautionary statements	
Classification of the substance or mixture	Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.
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.

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	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
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). 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	Fresh air. Call in physician.
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	May be combustible at high temperature.
Suitable extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	Water Foam
Special hazards arising from the substance or mixture	Carbon oxides Hydrogen fluoride Not combustible. Fire may cause evolution of: Hydrogen fluoride Caution! in contact with water product releases: Organic acids May not get in touch with: Water Ambient fire may liberate hazardous vapours.
Further information	Suppress (knock down) gases/vapors/mists with a water spray jet. 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	Has a fire-promoting effect due to the release of oxygen. 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. 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.
Personal Protection	Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: Protective equipment see section 8.
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 with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.
Reference to other sections	For disposal see section 13.

7. Handling and Storage

Advice on protection against fire and explosion	Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
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.
Advice on safe handling	Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols. Keep workplace dry. Do not allow product to come into contact with water.
Conditions for safe storage, including any incompatibilities	Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons. Moisture sensitive.
Storage conditions	Tightly closed Never allow product to get in contact with water during storage.Recommended storage temperature see product label.
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.

8. Exposure controls and personal protection

Exposure controls	No specific additional engineering controls are required. Provide good natural or artificial ventilation.
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	protective clothing
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 EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Respiratory protection	Recommended Filter type: Filter B-(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	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. Physical and chemical properties

Physical state	Liquid
Colour	Colorless
Odour	pungent
Odor Threshold	Not Applicable
pH	No data available
Melting Point	-63,5 °C
Boiling Point	97 °C - lit.
Flash Point	6 °C - closed cup
Evaporation Rate	Not Applicable
Flammability (solid, gas)	No data available
Explosive limits	No Data Available
Upper/lower flammability or explosive limits	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Vapour pressure	433 hPa at 20 °C
Viscosity	No data available
Density	1,49 g/cm3 at 25 °C
Relative Density	No data available
Specific Gravity	No data available
Partition coefficient	No data available
Explosive properties	No data available
Solubility	10.000 g/l -
Ignition temperature	No information available.
Particle characteristics	No data available

10. Stability and reactivity

Reactivity	Reacts violently with water.
Chemical stability	sensitive to moisture
Possibility of hazardous reactions	No data available
Conditions to avoid	Do not allow water to enter container. Moisture
Incompatible materials	Strong oxidizing agents, Strong acids, Strong bases, Alcohols
Hazardous decomposition products	In the event of fire: see section 5

11. Toxicological information

Acute toxicity	LD50 Oral - Rat - 39 mg/kg LC50 Inhalation - 4 h - 11 mg/l LD50 Dermal - 51 mg/kg
Skin corrosion/irritation	Skin - Rabbit Result: Mild skin irritation - 24 h
Serious eye damage/irritation	Causes serious eye damage.
Respiratory or skin sensitization	Local lymph node assay (LLNA) - Mouse Result: negative (OECD Test Guideline 429) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: Ethyl trifluoroacetate
Carcinogenicity	No data available
Germ cell mutagenicity	Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476
Reproductive toxicity	No data available
Specific target organ toxicity - single exposure	No data available
Additional Information	RTECS: UF9625000 Lung irritation, Cyanosis, Central nervous system depression 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 - Danio rerio (zebra fish) - > 999 mg/l - 96 h (OECD Test Guideline 203) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: Sodium trifluoroacetate
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - > 999 mg/l - 48 h (OECD Test Guideline 202) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: Sodium trifluoroacetate
Toxicity	Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 1.520 mg/l - 96 h
Toxicity to bacteria	NOEC - activated sludge - > 1.000 mg/l - 3 h (OECD Test Guideline 209) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: Sodium trifluoroacetate
Toxicity to algae	static test NOEC - Phaeodactylum tricornutum - 97 mg/l - 72 h (OECD Test Guideline 201) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: Sodium trifluoroacetate
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

Product	See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.
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:3265 IMDG:3265 IATA: 3265
UN proper shipping name	ADR/RID:ADR/RID: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (trifluoroacetic anhydride) IMDG:ADR/RID: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (trifluoroacetic anhydride) IATA:ADR/RID: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (trifluoroacetic anhydride)
Transport hazard class(es)	ADR/RID: 8 IMDG: 8 IATA:8
Packaging group	ADR/RID: I IMDG: I IATA: I

Environmental hazards	ADR/RID: No	IMDG: No	IATA: No
Special precautions for user	No data available		
Further information	Not classified as dangerous in the meaning of transport regulations.		

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.