

1. Product and Company Identification

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Product Name TETRAHYDROFURAN
Part Number RXSOL-19-6605-689

Company Details:

RX MARINE INTERNATIONAL
105, A wing , BSEL , TECH PARK.
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2. Composition / Information on ingredients

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Chemical Name	CAS No	EC number	Weight	Formula
Tetrahydrofuran for analysis	109-99-9	5-53	72,11 g/mol	C ₄ H ₈ O

3. Hazards Identification

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Signal Word	Danger
Hazard Statements	H225 Highly flammable liquid and vapor. H302 Harmful if swallowed. H319 Causes serious eye irritation. H335 May cause respiratory irritation. H336 May cause drowsiness or dizziness. H351 Suspected of causing cancer.5
Precautionary statements	P202 Do not handle until all safety precautions have been read and understood. P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 Keep container tightly closed. P301 + P312 IF SWALLOWED: 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. P308 + P313 IF exposed or concerned: Get medical advice/ attention.
Classification of the substance or mixture	No data available
Supplemental Hazard Statements	No data avaialble
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

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General advice	Show this material safety data sheet to the doctor in attendance.
If inhaled	After inhalation fresh air. Call in physician.
Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
Swallowed	After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
Skin Contact	In case of skin contact Take off immediately all contaminated clothing.

Inhalation	Rinse skin with water/ shower. Consult a physician.
Ingestion	No data available
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

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Flammability	May be combustible at high temperature.
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.
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	No data available
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	No data available

6. Accidental Release Measures

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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	No data available
Personal Protection	No data available
Environmental Precaution	Do not let product enter drains. Risk of explosion.
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

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Advice on safe handling	Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols
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	No data available
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	No data available
Storage conditions	Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Protected from light. Keep

container tightly closed in a dry and wellventilated place. Keep away from heat and sources of ignition. 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

No data available

8. Exposure controls and personal protection

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Exposure controls

Personal protective equipment

Engineering Control

No data available

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Body Protection

Flame retardant antistatic 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 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: butyl-rubber Minimum layer thickness: 0,7 mm Break through time: 10 min Material tested: Butoject® (KCL 898)

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.

9. Physical and chemical properties

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Physical state

Liquid

Colour

Colorless

Odour

No data available

Odor Threshold

Not Applicable

pH

ca.7 - 8

Melting Point

-108,44 °C - (ECHA)

Boiling Point

65 °C at 1.013,25 hPa - (ECHA)

Flash Point

-21,2 °C - closed cup - DIN 51755 Part 1

Evaporation Rate

No data available

Flammability (solid, gas)

No data available

Explosive limits

No data available

Upper/lower flammability or explosive limits

Upper explosion limit 12,4 %(V) - (THF) Lower explosion limit 1,5 %(V)

Autoignition temperature

215 °C at 1.013 hPa - DIN 51794

Decomposition temperature

No data available

Viscosity

Dynamic 0,359 mPa.s at 50 °C 0,456 mPa.s at 25 °C

Vapour pressure

170 hPa at 20 °C - (THF)

Density

0,89 g/cm³ at 20 °C

Relative Vapour Density

No data available

Freezing point

No data available

Specific Gravity

No data available

Partition coefficient

Log Pow 0,45 at 25 °C - Bioaccumulation is not expected.

Explosive properties

No data available

Solubility	ca.0,089 g/l at 25 °C
Ignition temperature	No information available.
Particle characteristics	No data available

10. Stability and reactivity

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Reactivity	Formation of peroxides possible. Vapors may form explosive mixture with air.
Stability	Sensitivity to light Sensitive to air. The product is chemically stable under standard ambient conditions (room temperature) . Contains the following stabilizer(s): butyl hydroxytoluene (BHT) (14,7 mg/l - vaporUS-EPA) LD50 Dermal - Rat - male and female - > 2.000 mg/kg (OECD Test Guideline 402)
Skin corrosion/irritation	Skin - Rabbit - 72 h (Draize Test) Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.
Serious eye damage/eye irritation	Eyes - Rabbit Causes serious eye irritation. (IUCALD) Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Respiratory or skin sensitization	Local lymph node assay (LLNA) - Mouse negative (OECD Test Guideline 429)
Carcinogenicity	Suspected of causing cancer.
Germ cell mutagenicity	Test Type Ames test Test system: S. typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 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: Micronucleus test Species: Mouse Cell type: Red blood cells (erythrocytes) Application Route: inhalation (vapor) Method: OECD Test Guideline 474
Reproductive toxicity	No data available
Specific target organ toxicity - single exposure	Inhalation - May cause respiratory irritation. - Central nervous system Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)May cause drowsiness or dizziness.
Additional 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. Repeated dose toxicity - Rat - male and female - Oral - 4 Weeks irritant effects, Cough, Shortness of breath, narcosis, somnolence To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. In high doses: somnolence narcosis Other dangerous properties can not be excluded. This substance should be handled with particular care.

12. Ecological information

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Persistence and degradability	Biodegradability aerobic Biochemical oxygen demand - Exposure time 28 d Result: 39 % - Not readily biodegradable. (OECD Test Guideline 301D)
Toxicity to fish	Flow-through test LC50 - Pimephales promelas (fathead minnow) - 2.160 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	Static test EC50 - Daphnia magna (Water flea) - 3.485 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	No data available
Toxicity to bacteria	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, 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

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Disposal methods	No data available
Contaminated packaging	No data available
Waste treatment Method	No data available

14. Transport information

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UN number	ADR/RID:2056	IMDG:2056	IATA:2056
UN proper shipping name	ADR/RID:TETRAHYDROFURAN	IMDG:TETRAHYDROFURAN	IATA:TETRAHYDROFURAN
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:No	IATA:No
Special precautions for user	Tunnel restriction code (D/E)		
Further information	No data available		

15. Regulatory information

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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 has been carried out.

16. Other information

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Other Information	<p>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 we assume 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 we 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.</p>
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