

1. Product and Company Identification

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Product Name Dimethyl Disulfide DMDS
Part Number RXSOL-19-3751-220

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 No | Whight | Formula |
|----------------------------------|----------|-----------|-------------|--|
| Dimethyl disulfide for synthesis | 624-92-0 | 210-871-0 | 94,20 g/mol | C ₂ H ₆ S ₂ |

3. Hazards Identification

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| Signal Word | Danger |
| Hazard Statements | H300 + H310 Fatal if swallowed or in contact with skin. |
| Precautionary statements | P262 Do not get in eyes, on skin, or on clothing. P280 Wear protective gloves/ protective clothing. P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth. P302 + P352 + P310 IF ON SKIN: Wash with plenty of water. Immediately call a POISON CENTER/ doctor. |
| 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

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| 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. Call in ophthalmologist. Remove contact lenses. |
| Swallowed | If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a |

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| Skin Contact | 10% slurry) and consult a doctor as quickly as possible. Pulmonary failure possible after aspiration of vomit. Call a physician immediately. |
| Inhalation | In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician. |
| Ingestion | Remove patient to fresh air, keep warm and at rest and get medical assistance in necessary. |
| Most important symptoms and effects, both acute and delaye | 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. |
| Indication of any immediate medical attention and special treatment needed | The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11 No data available |

5. Fire-fighting Measures

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| Flammability | May be combustible at high temperature. |
| 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 | Carbon oxides Sulfur oxides Combustible. Fire may cause evolution of: Sulfur oxides 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. 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

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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 | 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. |
| 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. |
| Reference to other sections | For disposal see section 13. |

7. Handling and Storage

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| 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. |
| Advice on safe handling | Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols |
| 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 | 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. |
| 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

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| 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). 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 EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de). Full contact Material: butyl-rubber Minimum layer thickness: 0,7 mm Break through time: 480 min Material tested: Butoject® (KCL 898) 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). Splash contact Material: Nitrile rubber Minimum layer thickness: 0,4 mm Break through time: 30 min Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M) |
| Respiratory protection | Required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system. Recommended Filter type: Filter type ABEK 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. |
| 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

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| Physical state | Liquid |
| Colour | light yellow |
| Odour | unpleasant |
| Odor Threshold | Not Applicable |
| pH | No data available |
| Melting Point | -85 °C |
| Boiling Point | ca.109 °C at 1.013 hPa |
| Flash Point | 15 °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 | 390 °C |
| Vapour pressure | 30 hPa at 20 °C |
| Viscosity | Viscosity, kinematic: ca.0,594 mm ² /s at ca.20 °C - OECD Test Guideline 114 ca.0,495 mm ² /s at ca.40 °C - OECD Test Guideline 114 |
| Density | 1,06 g/cm ³ at 20 °C |
| Relative Density | No data available |
| Specific Gravity | No data available |
| Partition coefficient | log Pow: 1,91 at 20,6 °C |
| Explosive properties | No data available |
| Solubility | 2,7 g/l at 20 °C |
| Ignition temperature | No information available. |
| Particle characteristics | No data available |

10. Stability and reactivity

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| Reactivity | No data available |
| Chemical stability | The product is chemically stable under standard ambient conditions (room temperature) . |
| Possibility of hazardous reactions | Violent reactions possible with: strong reducing agents strong alkalis strong oxidising agents |
| Conditions to avoid | Warming |
| Incompatible materials | Strong acids, Strong bases, Strong oxidizing agents, Strong reducing agents |
| Hazardous decomposition products | In the event of fire: see section 5 |

11. Toxicological information

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| Acute toxicity | Acute toxicity estimate Oral - 190 mg/kg (Acute toxicity estimate according to Regulation (EC) No. 1272/2008) Acute toxicity estimate Inhalation - 5 mg/l - vapor (Acute toxicity estimate according to Regulation (EC) No. 1272/2008) LD50 Dermal - Rat - male and female - > 5.000 mg/kg (US-EPA) |
| Skin corrosion/irritation | Skin - Rabbit Result: Mild skin irritation - 24 h |
| Serious eye damage/irritation | Eyes - Rabbit Result: Eye irritation (OECD Test Guideline 405) |
| Respiratory or skin sensitization | Local lymph node assay (LLNA) - Mouse Result: positive (OECD Test |

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| Carcinogenicity | Guideline 429 |
| Germ cell mutagenicity | No data available No data available Test Type: Ames test Test system: Escherichia coli/Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: Mutagenicity (mammal cell test): chromosome aberration. |
| Reproductive toxicity | No data available |
| Specific target organ toxicity - single exposure | Inhalation - Causes damage to organs. - Upper respiratory tract May cause drowsiness or dizziness |
| 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

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| Persistence and degradability | No data available |
| Toxicity to fish | semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - 0,97 mg/l - 96 h (US-EPA) |
| Toxicity to daphnia and other aquatic invertebrates | semi-static test EC50 - Daphnia magna (Water flea) - 1,82 mg/l - 48 h (OECD Test Guideline 202) |
| Toxicity | Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 1.520 mg/l - 96 h |
| Toxicity to bacteria | static test EC50 - activated sludge - > 1.000 mg/l - 3 h (OECD Test Guideline 209) |
| Toxicity to algae | static test ErC50 - Anabaena flos-aquae (cyanobacterium) - 6,7 mg/l - 96 h (OECD Test Guideline 201) static test ErC50 - Skeletonema costatum (marine diatom) - 3,9 mg/l - 96 h (OECD Test Guideline 201) |
| 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

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| Waste treatment Method | No data available |
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14. Transport information

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| UN number | ADR/RID:2381 IMDG:2381 IATA: 2381 |
| UN proper shipping name | ADR/RID: DIMETHYL DISULPHIDE IMDG: DIMETHYL DISULPHIDE IATA: DIMETHYL DISULPHIDE |
| Transport hazard class(es) | ADR/RID: 3 (6.1) IMDG: 3 (6.1) IATA: 3 (6.1) |
| Packaging group | ADR/RID: II IMDG: II IATA: II |
| Environmental hazards | ADR/RID: Yes IMDG: Yes IATA: No |
| Special precautions for user | No data available |
| Further information | Not classified as dangerous in the meaning of transport regulations. |

15. Regulatory information

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Safety, health and environmental regulations/legislation specific for the substance or mixture

Other regulations

Chemical Safety Assessment

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

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.

For this product a chemical safety assessment was not carried out

16. Other information

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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 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.

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