Product Name	Dichloro Ethylene 1 ,2
Part Number	RXSOL-19-1110-025

Company Details:

RX MARINE INTERNATIONAL
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Chemical Name	CAS	EC number	Weight	Formula
Ethylene dichloride	107-06-2	203-458-1		C2H4Cl2

Signal Word Danger Hazard Statements H225 Highly flammable liquid and vapor. H302 Harmful if swallowed. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H319 Causes serious eye irritation. H331 Toxic if inhaled. H335 May cause respiratory irritation. H350 May cause cancer. P280 Wear protective gloves.P305 + P351 + P338 Wear eye protection/ face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Precautionary statements P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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 Classification according to Regulation (EC) No 1272/2008 Skin corrosion (Sub-category 1B), H314 Serious eye damage (Category 1), H318 Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335 Short-term (acute) aquatic hazard (Category 1), H400 Long-term (chronic) aquatic hazard (Category 3), H412 For the full text of the H-Statements mentioned in this Section, see Section 16. 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.

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 After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately. Skin Contact In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician. 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

Flammability May be combustible at high temperature. Flash Point Higher than 93.3°C (200°F). 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 Hydrogen chloride gas 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. 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.

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. Enviromental 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.

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 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 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. Requirements for storage Keep in cool and store under shade.

Exposure controls No specific additional engineering controls are required. Provide good natural or artificial ventilation.

Engineering Control Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. 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 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: Viton® Minimum layer thickness: 0,7 mm Break through time: 480 min Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M) 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: Chloroprene Minimum layer thickness: 0,65 mm Break through time: 10 min Material tested:KCL 720 Camapren® Body Protection Flame retardant antistatic protective clothing. Respiratory protection Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds 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. Thermal hazards No data available

Physical state Viscous Liquid Colour Colorless Odour Of solvents Odor Threshold Not Applicable pH No data available Melting Point 35 °C - lit. Boiling Point 83 °C - lit. Flash Point 13 °C - closed cup Evaporation Rate Not Applicable Flammability (solid, gas) No data available Explosive limits No Data Available Upper/lower flammability or explosive limits 15,9 %(V) / 6 %(V) Autoignition temperature 440 °C at 1.013 hPa - DIN 51794 Decomposition temperature 300 °C Vapour pressure 87 hPa at 20 °C 102 hPa at 25 °C Viscosity /kinematic / dynamic No data available Density 1,256 g/mL at 25 °C - lit Relative Vapour Density 4,1 at 20 °C Freezing point No data available Specific Gravity No data available Partition coefficient log Pow: 1,45 at 20 °C Explosive properties No data available Solubility 7,9 g/l at 25 °C Ignition temperature No information available. Particle characteristics No data available

Reactivity Vapors may form explosive mixture with air. Stability The product is chemically stable under standard ambient conditions (room temperature) . Possibility of hazardous reactions Exothermic reaction with: Alkaline earth metals alkali amides Nitric acid nitrogen oxides Oxidizing agents Chlorine powdered magnesium Zinc Risk of explosion with: Alkali metals powdered aluminium Powdered metals Potassium nitrogen dioxide Conditions to avoid Warming. Incompatible materials Various plastics, Light metals, Iron Hazardous Polymerization In the event of fire: see section 5

Acute toxicity LD50 Oral - Rat - male - 770 mg/kg (OECD Test Guideline 401) LC50 Inhalation - Rat - male and female - 4 h - 7,8 mg/l - vapor (OECD Test Guideline 403) LD50 Dermal - Rabbit - male - 4.890 mg/kg (OECD Test Guideline 402) Skin corrosion/irritation Skin - Rabbit Result: irritating (OECD Test Guideline 404) Serious eye damage/eye irritation Eyes - Rabbit Result: Eye irritation (OECD Test Guideline 405) Respiratory or skin sensitization Local lymph node assay (LLNA) - Mouse Result: negative (OECD Test Guideline 429) Toxicity to Animal WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE Acute oral toxicity (LD50): 689 mg/kg [Rat]. 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 Presumed to have carcinogenic potential for humans Germ cell mutagenicity Test Type: Ames test Test system: S. typhimurium Metabolic activation: with and without metabolic activation Result: positive Remarks: (ECHA) Test Type: Ames test Test system: Escherichia coli Metabolic activation: without metabolic activation Method: OECD Test Guideline 471 Result: positive Test Type: In vitro mammalian cell gene mutation test Test system: human lymphoblastoid cells Metabolic activation: without metabolic activation Method: OECD Test Guideline 476 Result: positive Test Type: In vitro mammalian cell gene mutation test Test system: human lymphoblastoid cells Metabolic activation: without metabolic activation Result: positive Remarks: (ECHA) Test Type: Mutagenicity (mammal cell test): chromosome aberration. Test system: Chinese hamster lung cells Metabolic activation: with and without metabolic activation Result: positive Remarks: (ECHA) Test Type: unscheduled DNA synthesis assay Test system: rat hepatocytes Metabolic activation: without metabolic activation Method: OECD Test Guideline 482 Result: positive Test Type: Micronucleus test Species: Mouse Application Route: Intraperitoneal Method: OECD Test Guideline 474 Result: negative Test Type: Mutagenicity (mammal cell test): micronucleus. Species: Mouse Cell type: Red blood cells (erythrocytes) Application Route: Oral Method: OECD Test Guideline 474 Result: negative Test Type: sister chromatid exchange assay Species: Rat Cell type: mammary gland Application Route: inhalation (vapor) Result: negative Remarks: (ECHA) Species: Drosophila melanogaster Cell type: sperm Application Route: Inhalation Method: OECD Test Guideline 477 Result: positive Test Type: Transgenic rodent somatic cell gene mutation assay Species: Mouse Application Route: Intraperitoneal Result: negative Remarks: (ECHA) Reproductive

toxicity No data available Specific target organ toxicity - single exposure May cause respiratory irritation. 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 - 90 d - NOAEL (No observed adverse effect level) - 37,5 mg/kg Remarks: Subchronic toxicity Repeated dose toxicity - Mouse - male and female - Inhalation - 104 Weeks RTECS: KI0525000 Acts as a simple asphyxiant by displacing air., anesthetic effects, Difficulty in breathing, Headache, Dizziness, Prolonged or repeated contact with skin may cause:, defatting, Dermatitis, Contact with eyes can cause:, Redness, Blurred vision, Provokes tears., Effects due to ingestion may include:, Gastrointestinal discomfort, Central nervous system depression, Paresthesia., Drowsiness, Convulsions, Conjunctivitis., Pulmonary edema. Effects may be delayed., Irregular breathing., Stomach/intestinal disorders, Nausea, Vomiting, Increased liver enzymes., Weakness, Heavy or prolonged skin exposure may result in the absorption of harmful amounts of material. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Pancreas .

Persistence and degradability Biodegradability aerobic - Exposure time 20 d Result: > 90 % - Inherently biodegradable. Remarks: (ECHA) Bioaccumulative potentia Bioaccumulation Lepomis macrochirus - 14 d at 16 °C - 0,957 mg/l(1,2-Dichloroethane) Bioconcentration factor (BCF): 2 Toxicity to fish Flow-through test LC50 - Pimephales promelas (fathead minnow) - 136 mg/l - 96 h (OECD Test Guideline 203) Toxicity to daphnia and other aquatic invertebrates Static test EC50 - Daphnia magna (Water flea) - 160 mg/l - 48 h Remarks: (in soft water) (IUCLID) Toxicity to algae Static test EC50 - Desmodesmus subspicatus (green algae) - 166 mg/l - 72 h (OECD Test Guideline 201) Toxicity to bacteria Static test EC50 - activated sludge - 35.500 mg/l - 3 h (OECD Test Guideline 209) 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

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.

UN number ADR/RID: 1184 IMDG: 1184 IATA: 1184 UN proper shipping name ADR/RID:Ethylene dichloride IMDG:Ethylene dichloride IATA:Ethylene dichloride 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: No IMDG: No IATA: No Special precautions for user Tunnel restriction code : (C/E) Further information Not classified as dangerous in the meaning of transport regulations. Transport in bulk according to IMOinstruments No data available

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). : 1,2-Dichloroethane This product contains a substance listed on Annex XIV of the REACH Regulation (EC) Nr. 1907/2006. Listed substance / Sunset Date : 1,2-Dichloroethane / 22.11.2017 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) : 1,2-Dichloroethane 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 : 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 For this product a chemical safety assessment was not carried out

Other Information

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