## 1. Product and Company Identifaction



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|---|---|
| Product Name | **RXSOL-16-1022-040** |
| Product Type | Sulphuric ( Sulfuric ) Acid 40 Kg |

**Company Details:**

RX MARINE INTERNATIONAL
105, A wing , BSEL , TECH PARK.
VASHI ,NEW BOMBAY 400703 INDIA

| | |
|---|---|
| Phone | +91 22 65113333 / 5555 / 9999 / 27611360 |
| Fax | +91 22 2781 1318 :::AOH :0091 9821214367 |
| Email | mail@rxmarine.com |


## 2. Composition / Information on ingredients



| Name | CAS # | % by Weight |
|---|---|---|
| Sulfuric acid | 7664-93-9 | 95 - 98 |

**Toxicological Data on Ingredients:** Sulfuric acid: ORAL (LD50): Acute: 2140 mg/kg [Rat.]. VAPOR (LC50): Acute: 510 mg/m 2 hours [Rat]. 320 mg/m 2 hours [Mouse].

## 3. Hazards Identification



**Potential Acute ealth Effects:**

Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingest
Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory
may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by c
or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redn
itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Classified 1 (Proven for human.) by IARC, + (Proven.) by OSHA. Classified A
human.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DE
TOXICITY: Not available. The substance may be toxic to kidneys, lungs, heart, cardiovascular system, upper respi
teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged
mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray
respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic mat
general deterioration of health by an accumulation in one or many human organs.

## 4. First Aid Measures



**Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least
water may be used. Get medical attention immediately.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated c
Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean sho

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| | Get medical attention immediately. |
| **Serious Skin Contact:** | Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical |
| **Inhalation:** | If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get m immediately. |
| **Serious Inhalation:** | Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If b difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It ma the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosi immediate medical attention. |
| **Ingestion:** | Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an un Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear |
| **Serious Ingestion:** | Not available. |

## 5. Fire-fighting Measures



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| **Flammability of the Product:** | Non-flammable |
| **Auto-Ignition Temperature:** | Not applicable |
| **Flash Points:** | Not applicable |
| **Flammable Limits** | Not applicable |
| **Products of Combustion** | Products of combustion are not available since material is non-flammable. However, products of decompostion oxides of sulfur. Will react with water or steam to produce toxic and corrosive fumes. Reacts with carbonates t dioxide gas. Reacts with cyanides and sulfides to form poisonous hydrogen cyanide and hydrogen sulfide respectively |
| **Fire Hazards in Presence of Various Substances:** | Combustible materials |
| **Explosion Hazards in Presence of Various Substances:** | Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the produ static discharge: Not available. Slightly explosive in presence of oxidizing materials |
| **Fire Fighting Media and Instructions:** | Not applicable |
| **Special Remarks on Fire Hazards:** | Metal acetylides (Monocesium and Monorubidium), and carbides ignite with concentrated sulfuric acid. White Phos Sulfuric acid or its vapor ignites on contact. May ignite other combustible materials. May cause fire when sulfuric a Cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, phorphorous (III) oxide, and oxidiz chlorates, halogens, permanganates |
| **Special Remarks on Explosion Hazards:** | M i x t u r e s o f s u l f u r i c a c i d a n d a n y o f t h e f o l l o w i n g c a n e x p l o d e : p - n i t r o t o l u e n e , trihydroxydiaminophosphate, perchlorates, alcohols with strong hydrogen peroxide, ammonium tetraperoxychromate potassium chlorate, potassium permanganate with potassium chloride, carbides, nitro compounds, nitrates, carbi iodides, picratres, fulminats, dienes, alcohols (when heated) Nitramide decomposes explosively on contact with con acid. 1,3,5-Trinitrosohexahydro-1,3,5-triazine + sulfuric acid causes explosive decompositon |

## 6. Accidental Release Measures



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| **Small Spill** | Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal conta Neutralize the residue with a dilute solution of sodium carbonate |
| **Large Spill** | Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustibl get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use wate vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neu with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above on the MSDS and with local authorities. |

## 7. Handling and Storage



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| **Precautions:** | Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this p insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing ag materials, organic materials, metals, acids, alkalis, moisture. May corrode metallic surfaces. Store in a metallic or |

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| | drum using a strong polyethylene inner package |
| **Storage** | Hygroscopic. Reacts. violently with water. Keep container tightly closed. Keep container in a cool, well-ventilated a above 23°C (73.4°F). |

## 8. Exposure controls and personal protection



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| **Engineering Controls** | Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their re limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location |
| **Personal Protection** | Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots |
| **Personal Protection in Case of a Large Spill** | Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to a the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product |
| **Exposure Limits** | TWA: 1 STEL: 3 (mg/m3) [Australia] Inhalation TWA: 1 (mg/m3) from OSHA (PEL) [United States] Inhalation (mg/m3) from ACGIH (TLV) [United States] [1999] Inhalation TWA: 1 (mg/m3) from NIOSH [United States] In (mg/m3) [United Kingdom (UK)]Consult local authorities for acceptable exposure limits |

## 9. Physical and chemical properties



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| **Physical state and appearance** | Liquid. (Thick oily liquid.) |
| **Odor** | Odorless, but has a choking odor when hot. |
| **Taste** | Marked acid taste. (Strong.) |
| **Molecular Weight** | 98.08 g/mole |
| **Color** | Colorless |
| **pH (1% soln/water)** | Acidic |
| **Boiling Point** | 270°C (518°F) - 340 deg. C Decomposes at 340 deg. C |
| **Melting Point** | 35°C (-31°F) to 10.36 deg. C (93% to 100% purity) |
| **Critical Temperature** | Not available |
| **Specific Gravity** | 1.255 (Water = 1) |
| **Vapor Pressure** | Not available |
| **Vapor Density** | 3.4 (Air = 1) |
| **Volatility** | Not available |
| **Odor Threshold** | Not available |
| **Water/Oil Dist. Coeff** | Not available |
| **Ionicity (in Water)** | Not available |
| **Dispersion Properties** | See solubility in water |
| **Solubility** | Easily soluble in cold water. Sulfuric is soluble in water with liberation of much heat. Soluble in ethyl alcohol |

## 10. Stability and reactivity



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| **Stability** | The product is stable |
| **Instability Temperature** | Not available |
| **Conditions of Instability** | Conditions to Avoid: Incompatible materials, excess heat, combustible material materials, organic materials, exposu water, oxidizers, amines, bases. Always add the acid to water, never the reverse |
| **Incompatibility with various substances** | Reactive with oxidizing agents, reducing agents, combustible materials, organic materials, metals, acids, alkalis, moist |
| **Corrosivity** | Extremely corrosive in presence of aluminum, of copper, of stainless steel(316). Highly corrosive in presence of st Non-corrosive in presence of glass |
| **Special Remarks on Reactivity** | Hygroscopic. Strong oxidizer. Reacts violently with water and alcohol especially when water is added to the product. react explosively or dangerously) with the following: ACETIC ACID, ACRYLIC ACID, AMMONIUM HYDRO CUMENE, DICHLOROETHYL ETHER, ETHYLENE CYANOHYDRIN, ETHYLENEIMINE, N 2-NITROPROPANE, PROPYLENE OXIDE, SULFOLANE, VINYLIDENE CHLORIDE, DIETHYL MONOMETHYL ETHER, ETHYL ACETATE, ETHYLENE CYANOHYDRIN, ETHYLENE GLYCOL MONO ACETATE, GLYOXAL, METHYL ETHYL KETONE, dehydrating agents, organic materials, moisture (water), |

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| | Acetone, cyanohydrin, Acetone+nitric acid, Acetone + potassium dichromate, Acetonitrile, Acrolein, Acrylonit +water, Alcohols + hydrogen peroxide, ally compounds such as Allyl alcohol, and Allyl Chloride, 2-Aminoeth hydroxide, Ammonium triperchromate, Aniline, Bromate + metals, Bromine pentafluoride, n-Butyraldehyde, acetylene carbide, Chlorates, Cyclopentanone oxime, chlorinates, Chlorates + metals, Chlorine trifluoride, Ch 2-cyano-4-nitrobenzenediazonium hydrogen sulfate, Cuprous nitride, p-chloronitrobenzene, 1,5-Dinitronaphthlene + sulfur, Diisobutylene, p-dimethylaminobenzaldehyde, 1,3-Diazidobenzene, Dimethylbenzylcarbinol + hyd Epichlorohydrin, Ethyl alcohol + hydrogen peroxide, Ethylene diamine, Ethylene glycol and other glycols, , Ethyleni hydrogen peroxide, Hydrochloric acid, Hydrofluoric acid, Iodine heptafluoride, Indane + nitric acid, Iron, Isoprene Mercuric nitride, Mesityl oxide, Mercury nitride, Metals (powdered), Nitromethane, Nitric acid + glyceride Pentasilver trihydroxydiaminophosphate, Perchlorates, Perchloric acid, Permanganates + benzene, 1- Phenyl-2-meth hydrogen peroxide, Phosphorus, Phosphorus isocyanate, Picrates, Potassium tert-butoxide, Potassium chl Permanganate and other permanganates, halogens, amines, Potassium Permanganate + Potassium chloride, Potassiun water, Propiolactone (beta)-, Pyridine, Rubidium aceteylene carbide, Silver permanganate, Sodium, Sodium c hydroxide, Steel, styrene monomer, toluene + nitric acid, Vinyl acetate, Thalium (I) azidodithiocarbonate, Zinc chlo azides, carbonates, cyanides, sulfides, sulfites, alkali hydrides, carboxylic acid anhydrides, nitriles, olefinic organi cyclopentadiene, cyano-alcohols, metal acetylides, Hydrogen gas is generated by the action of the acid on most metals tin, zinc, aluminum, etc.). Concentrated sulfuric acid oxidizes, dehydrates, or sulfonates most organic compounds |
| **Special Remarks on Corrosivity** | Non-corrosive to lead and mild steel, but dillute acid attacks most metals. Attacks many metals releasing hydrogen effect on bronze. No corrosion data on brass or zinc |
| **Polymerization** | Will not occur |

## 11. Toxicological information



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| **Routes of Entry** | through skin. Dermal contact. Eye contact. Inhalation. Ingestion. |
| **Toxicity to Animals** | WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOS toxicity (LD50): 2140 mg/kg [Rat.]. Acute toxicity of the vapor (LC50): 320 mg/m3 2 hours [Mouse] |
| **Chronic Effects on Humans:** | CARCINOGENIC EFFECTS: Classified 1 (Proven for human.) by IARC, + (Proven.) by OSHA. Classified A human.) by ACGIH. May cause damage to the following organs: kidneys, lungs, heart, cardiovascular system, upper eyes, teeth |
| **Other Toxic Effects on Humans** | Extremely hazardous in case of inhalation (lung corrosive). Very hazardous in case of skin contact (corrosive, irrita eye contact (corrosive), of ingestion |
| **pecial Remarks on Toxicity to Animals** | Not available. |
| **Special Remarks on Chronic Effects on Humans** | Mutagenicity: Cytogenetic Analysis: Hamster, ovary = 4mmol/L Reproductive effects: May cause adverse reproduc on animal data. Developmental abnormalities (musculoskeletal) in rabbits at a dose of 20 mg/m3 for 7 hrs.(RTECS neither embryotoxic, fetoxic, nor teratogenetic in mice or rabbits at inhaled doses producing some maternal toxicity. |
| **Special Remarks on other Toxic Effects on Humans** | Acute Potential Health Effects: Skin: Causes severe skin irritation and burns. Continued contact can cause tissue nec severe eye irritation and burns. May cause irreversible eye injury. Ingestion: Harmful if swallowed. May cause perr the digestive tract. Causes gastrointestial tract burns. May cause perforation of the stomach, GI bleeding, edema of th and scarring, and sudden circulatory collapse(similar to acute inhalation). It may also cause systemic toxicity with ac May cause severe irritation of the respiratory tract and mucous membranes with sore throat, coughing, shortness of b lung edema. Causes chemical burns to the repiratory tract. Inhalation may be fatal as a result of spasm, inflammat larynx and bronchi, chemical pneumonitis, and pulmonary edema. Cause corrosive action on mucous membr cardiovascular system (hypotension, depressed cardiac output, bradycardia). Circulatory collapse with clammy skin pulse, shallow respiration, and scanty urine may follow. Circulatory shock is often the immediate cause of death teeth(changes in teeth and supporting structures - erosion, discoloration). Chronic Potential Health Effects: Inhalat repeated inhalation may affect behavior (muscle contraction or spasticity), urinary system (kidney damage), and card heart (ischemic heart leisons), and respiratory system/lungs(pulmonary edema, lung damage), teeth (dental discoloratio Prolonged or repeated skin contact may cause dermatitis, an allergic skin reaction |

## 12. Ecological information



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| **Ecotoxicity** | Ecotoxicity in water (LC50): 49 mg/l 48 hours [bluegill/sunfish]. |
| **BOD5 and COD** | Not available |
| **Products of Biodegradation** | Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise |
| **Toxicity of the Products of** | The products of degradation are less toxic than the product itself. |

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| **Biodegradation** | |
| **Special Remarks on the Products of Biodegradation** | Not available |

## 13. Disposal considerations



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| **Waste Disposal** | Sulfuric acid may be placed in sealed container or absorbed in vermiculite, dry sand, earth, or a similar material. It m and neutralized. Be sure to consult with local or regional authorities (waste regulators) prior to any disposal. Waste m in accordance with federal, state and local environmental control regulations. |

## 14. Transport information



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| **DOT Classification** | Class 8: Corrosive material |
| **Identification** | Sulfuric acid UNNA: 1830 PG: II |
| **Special Provisions for Transport** | Not available |

## 15. Regulatory information



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| **Federal and State Regulations** | Illinois toxic substances disclosure to employee act: Sulfuric acid New York release reporting list: Sulfuric acid R hazardous substances: Sulfuric acid Pennsylvania RTK: Sulfuric acid Minnesota: Sulfuric acid Massachusetts RTK: Jersey: Sulfuric acid California Director's List of Hazardous Substances (8 CCR 339): Sulfuric acid Tennessee R TSCA 8(b) inventory: Sulfuric acid SARA 302/304/311/312 extremely hazardous substances: Sulfuric acid SARA 3 notification and release reporting: Sulfuric acid CERCLA: Hazardous substances.: Sulfuric acid: 1000 lbs. (453.6 kg In case of contact with eyes, rinse immediately with plenty of water and seek medical advice (S26) After wash immediately with plenty of soap and water (S28) Wear suitable gloves and eye/face protection (S37/39) Av environment. Refer to special instructions/Safety data sheets (S61) |
| **Other Regulations** | OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is Inventory of Existing Commercial Chemical Substances |
| **Other Classifications** | |
| **WHMIS (Canada):** | CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS E: Corrosive liquid |
| **DSCL (EEC)** | R35- Causes severe burns. S2- Keep out of the reach of children. S26- In case of contact with eyes, rinse immediately water and seek medical advice. S30- Never add water to this product. S45- In case of accident or if you feel unwell, s advice immediately (show the label where possible) |
| **HMIS (U.S.A.):** | |
| **Health Hazard:** | 3 |
| **Fire Hazard** | 0 |
| **Reactivity** | 2 |
| **Personal Protection:** | |
| **National Fire Protection Association (U.S.A.):** | |
| **Health** | |
| **Flammability** | |
| **Reactivity** | |
| **Specific hazard** | |
| **Protective Equipment:** | Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate res ventilation is inadequate. Face shield |

## 16. Other information

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| **References** | Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec. -The Sigm of Chemical Safety Data, Edition II. -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N. Reinold, 1987 |
| **Other Special Considerations** | Not available |

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