

1. Product and Company Identification

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Product Name Pyruvic acid
Part Number RXSOL-60-6601-021

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

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2. Composition / Information on ingredients

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| Chemical Name | Cas No | EC No | Weight | Formula |
|----------------------------|----------|-----------|-------------|--|
| Pyruvic acid for synthesis | 127-17-3 | 204-824-3 | 88,06 g/mol | C ₃ H ₄ O ₃ |

3. Hazards Identification

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| Signal Word | Danger |
| Hazard Statements | H314 Causes severe skin burns and eye damage. |
| Precautionary statements | P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately 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. P363 Wash contaminated clothing before reuse. P405 Store locked up. |
| 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 | 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 |

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| Skin Contact | vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise. |
| Inhalation | In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately. |
| Ingestion | Fresh air. Call in physician. |
| | 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

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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 Combustible. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire. |
| 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 | 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. |
| 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 and neutralising material (e.g. Chemizorb® H?, Merck Art. No. 101595). 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 | Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. |
| 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 | Dry. Tightly closed. Keep locked up or in an area accessible only to qualified or authorized persons. Recommended storage temperature see product label. |
| Storage class | Storage class (TRGS 510): 8A: Combustible, corrosive hazardous materials |
| 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). Tightly fitting safety goggles |
| Body Protection | Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. |
| Skin protection | Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. Full contact Material: butyl-rubber Minimum layer thickness: 0,3 mm Break through time: 480 min Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M) Splash contact Material: Chloroprene Minimum layer thickness: 0,6 mm Break through time: 30 min Material tested: Camapren® (KCL 722 / Aldrich Z677493, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario. |
| Respiratory protection | Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face |

Other Protection Measure
Control of environmental exposure

supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Handle in accordance with good industrial hygiene and safety practice.
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 | Clear, Liquid |
| Colour | Colorless |
| Odour | No data available |
| Odor Threshold | Not Applicable |
| pH | No data available |
| Melting Point | -93 °C - lit. |
| 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 | No data available |
| Viscosity | No data available |
| Density | 0,772 g/mL at 25 °C - lit. |
| Relative Density | No data available |
| Specific Gravity | No data available |
| Partition coefficient | No data available |
| Explosive properties | No data available |
| Solubility | No data available |
| Ignition temperature | No information available. |
| Particle characteristics | No data available |

10. Stability and reactivity

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| Reactivity | No data available |
| Chemical stability | Stable under recommended storage conditions. |
| Possibility of hazardous reactions | No data available |
| Conditions to avoid | Heat, flames and sparks. |
| 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 | 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 | Eyes - Rabbit Result: Moderate eye irritation - 24 h |
| Respiratory or skin sensitization | No data available |

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| Carcinogenicity | No data available |
| Germ cell mutagenicity | No data available |
| 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

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| Persistence and degradability | No data available |
| Toxicity to fish | Static test LC50 - Oncorhynchus mykiss (rainbow trout) - 75 mg/l - 96 h (OECD Test Guideline 203) |
| Toxicity to daphnia and other aquatic invertebrates | Static test EC50 - Daphnia magna (Water flea) - 42,81 mg/l - 48 h (OECD Test Guideline 202) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: maleic acid |
| Toxicity | No data available |
| Toxicity to bacteria | EC10 - Bacteria - 14 mg/l - 72 h Remarks: (Lit.) EC5 - E.coli - 15.000 mg/l Remarks: (Lit.) (maximum permissible toxic concentration) |
| Toxicity to algae | Static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 74,35 mg/l - 72 h (OECD Test Guideline 201) Remarks: (in analogy to similar products) The value is given in analogy to the following substances: maleic acid |
| 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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| Product | See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions. |
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14. Transport information

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| UN number | ADR/RID:3265 IMDG:3265 IATA: 3265 |
| UN proper shipping name | ADR/RID:CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (pyruvic acid) IMDG: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (pyruvic acid) IATA :CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (pyruvic acid) |
| Transport hazard class(es) | ADR/RID: 8 IMDG: 8 IATA:8 |
| Packaging group | ADR/RID: III IMDG: III IATA:III |
| 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

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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 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.