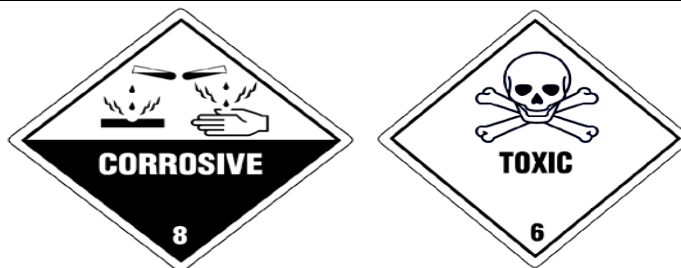


**Section 1: Identification of the Substance/Mixture and of Supplier**

<b>Product name:</b>	<b>OXALIC ACID</b>
<b>Recommended use:</b>	To remove rust stains
<b>Supplier:</b>	Space Industries 1979 Limited
<b>Street Address:</b>	160 Plunket Ave, Wiri, Auckland New Zealand
<b>Telephone Number:</b>	+ 64 9 262 3902
<b>Facsimile:</b>	+ 64 9 262 3948
<b>E-mail:</b>	<a href="mailto:orders@spaceindustries.co.nz">orders@spaceindustries.co.nz</a>
<b>Website:</b>	<a href="http://www.spaceindustries.co.nz">www.spaceindustries.co.nz</a>
<b>Emergency Telephone</b>	0800 764 766 (all hours)
<b>Date of preparation:</b>	11 April 2017

**Section 2: Hazards Identification**


<b>ERMA Approval Code:</b>	HSR002710.
<b>Hazard Classification:</b>	6.1D (oral), 6.1D (dermal), 6.1D (inhalation), 6.8C, 6.9B (dermal), 8.1A, 8.2C, 8.3A, 9.3B

**Section 3: Composition/information on ingredients**

<b>Product Description:</b>	Rust remover
<b>Components / CAS Number</b>	Oxalic acid >99% 144-62-7 R20 R21 R22 R34.

**Section 4: First Aid Measures**

**Show this Safety Data Sheet to a Doctor**

<b>Inhalation:</b>	Remove to fresh air and keep at rest in a position comfortable for breathing
<b>Skin Contact:</b>	Rinse skin with water/shower. Wash contaminated clothing before reuse. If redness, swelling, blistering or irritation develops seek medical assistance.
<b>Eye Contact:</b>	Irrigate eyes with generous quantities of water for 15 minutes. Remove contact lenses, if present and easy to do. Seek immediate medical attention.
<b>Ingestion:</b>	Rinse mouth. DO NOT induce vomiting. Give a glass of water to effectively dilute the product. Seek immediate medical attention.

**Notes for the Doctor:**

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**BASIC TREATMENT**  
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- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Administer oxygen by non-rebreather mask at 10 to 15 l/min.
- Monitor and treat, where necessary, for pulmonary oedema.
- Monitor and treat, where necessary, for shock.
- Anticipate seizures.
- Where eyes have been exposed, flush immediately with water and continue to irrigate with normal saline during transport to hospital.
- DO NOT use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.
- Skin burns should be covered with dry, sterile bandages, following decontamination.
- DO NOT attempt neutralisation as exothermic reaction may occur.

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**ADVANCED TREATMENT**  
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- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- Positive-pressure ventilation using a bag-valve mask might be of use.
- Monitor and treat, where necessary, for arrhythmias.
- Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- Drug therapy should be considered for pulmonary oedema.
- Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- Treat seizures with diazepam.
- Proparacaine hydrochloride should be used to assist eye irrigation.

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**EMERGENCY DEPARTMENT**  
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- Laboratory analysis of complete blood count, serum electrolytes, BUN, creatinine, glucose, urinalysis, baseline for serum aminotransferases (ALT and AST), calcium, phosphorus and magnesium, may assist in establishing a treatment regime.
  - Positive end-expiratory pressure (PEEP)-assisted ventilation may be required for acute parenchymal injury or adult respiratory distress syndrome.
  - Consider endoscopy to evaluate oral injury.
  - Consult a toxicologist as necessary.
- BRONSTEIN, A.C. and CURRANCE, P.L. EMERGENCY CARE FOR HAZARDOUS MATERIALS  
EXPOSURE: 2nd Ed. 1994.  
Effective therapy against burns from oxalic acid involves replacement of calcium. Intravenous oxalic acid is substantially excreted (88% - 90%) in the urine within 36 hours

For advice, contact the Poisons Information Centre 0800 764 766 or a doctor

**Section 5: Fire Fighting Measures**

**Specific Hazards:**

- Combustible solid which burns but propagates flame with difficulty.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or

<p><b>Suitable Extinguishing Media:</b></p> <p><b>Fire-fighting advice:</b></p> <p><b>Fire incompatibility:</b></p>	<p>spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.</p> <ul style="list-style-type: none"> <li>• Dry dust can be charged electro statically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.</li> <li>• Build-up of electrostatic charge may be prevented by bonding and grounding.</li> <li>• Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.</li> <li>• All movable parts coming in contact with this material should have a speed of less than 1-meter/sec.</li> </ul> <p>May emit corrosive fumes</p> <p>Extinguish fires with water spray, foam, carbon dioxide or dry chemical powder.</p> <ul style="list-style-type: none"> <li>• Alert Fire Brigade and tell them location and nature of hazard.</li> <li>• Wear full body protective clothing with breathing apparatus.</li> <li>• Prevent, by any means available, spillage from entering drains or water course.</li> <li>• Use fire fighting procedures suitable for surrounding area.</li> <li>• Do not approach containers suspected to be hot.</li> <li>• Cool fire exposed containers with water spray from a protected location.</li> <li>• If safe to do so, remove containers from path of fire.</li> <li>• Equipment should be thoroughly decontaminated after use.</li> </ul> <p>Avoid strong bases.</p> <p>2X</p>
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### Section 6: Accidental Release Measures

<p><b>Emergency Procedures</b></p> <p><b>Minor spills:</b></p> <p><b>Major spills:</b></p>	<p>Keep spectators away – rope off the area. Avoid accidents, clean up immediately. Ensure adequate ventilation. Wear protective equipment to prevent skin and eye contamination.</p> <ul style="list-style-type: none"> <li>• Remove all ignition sources.</li> <li>• Clean up all spills immediately.</li> <li>• Avoid contact with skin and eyes.</li> <li>• Control personal contact by using protective equipment.</li> <li>• Use dry clean up procedures and avoid generating dust.</li> <li>• Place in a suitable labelled container for waste disposal.</li> </ul> <ul style="list-style-type: none"> <li>• Clear area of personnel and move upwind.</li> <li>• Alert Fire Brigade and tell them location and nature of hazard.</li> <li>• Wear full body protective clothing with breathing apparatus.</li> <li>• Prevent, by any means available, spillage from entering drains or water course.</li> <li>• Consider evacuation (or protect in place).</li> <li>• Stop leak if safe to do so.</li> <li>• Contain spill with sand, earth or vermiculite.</li> <li>• Collect recoverable product into labelled containers for recycling.</li> <li>• Neutralise/decontaminate residue.</li> <li>• Collect solid residues and seal in labelled drums for disposal.</li> <li>• Wash area and prevent runoff into drains.</li> <li>• After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.</li> <li>• If contamination of drains or waterways occurs, advise emergency services.</li> </ul>
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### Section 7: Handling and Storage

<p><b>Handling:</b></p>	<p>Avoid all personal contact, including inhalation.</p>
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<p><b>Storage:</b></p> <p><b>Suitable containers:</b></p> <p><b>Storage incompatibility:</b></p>	<ul style="list-style-type: none"> <li>• Wear protective clothing when risk of exposure occurs.</li> <li>• Use in a well-ventilated area.</li> <li>• Avoid contact with moisture.</li> <li>• Avoid contact with incompatible materials.</li> <li>• DO NOT eat, drink or smoke.</li> <li>• Keep containers securely sealed when not in use.</li> <li>• Avoid physical damage to containers.</li> <li>• Always wash hands with soap and water after handling.</li> <li>• Work clothes should be laundered separately. Launder contaminated clothing before re-use.</li> <li>• Use good occupational work practice.</li> <li>• Observe manufacturer's storing and handling recommendations.</li> <li>• Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.</li> </ul> <p>Store in original containers.</p> <ul style="list-style-type: none"> <li>• Keep containers securely sealed.</li> <li>• Store in a cool, dry, well-ventilated area.</li> <li>• Store away from incompatible materials and foodstuff containers.</li> <li>• Protect containers against physical damage and check regularly for leaks.</li> <li>• Observe manufacturer's storing and handling recommendations.</li> </ul> <ul style="list-style-type: none"> <li>• Lined metal can, Lined metal pail/ can</li> <li>• Plastic pail</li> <li>• Polyliner drum</li> <li>• Packing as recommended by manufacturer.</li> <li>• Check all containers are clearly labelled and free from leaks.</li> </ul> <p>For low viscosity materials</p> <ul style="list-style-type: none"> <li>• Drums and jerricans must be of the non-removable head type.</li> <li>• Where a can is to be used as an inner package, the can must have a screwed enclosure.</li> </ul> <p>For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):</p> <ul style="list-style-type: none"> <li>• Removable head packaging;</li> <li>• Cans with friction closures and</li> <li>• Low pressure tubes and cartridges may be used.</li> </ul> <p>Where combination packages are used, and the inner packages are of glass, porcelain or stoneware, there must be sufficient inert cushioning material in contact with inner and outer packages unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic. Dangerous goods of other classes. Avoid storage with oxidising agents, strong alkalis and silver compounds.</p>
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### Section 8: Exposure Controls/Personal Protection

<p><b>Occupational Exposure Limits:</b></p> <p><b>Engineering Control</b></p>	<p>There is only scant data regarding the toxicology of industrial exposure to airborne oxalates. There is no data regarding potential systemic toxicity or bioavailability of inhaled oxalates. The TLV-TWA (corresponding to 0.27 ppm on a molecular basis) is comparable to that of sulfuric acid and phosphoric acid and is thought to provide protection against the risk of eye and skin burns and respiratory tract irritation. The recommendation for a STEL is added to prevent irritation of skin and mucous membranes.</p> <p>Use in a well-ventilated area.</p>
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<b>Measures:</b>	<ul style="list-style-type: none"> <li>• Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.</li> <li>• Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.</li> <li>• If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:               <ul style="list-style-type: none"> <li>(a): particle dust respirators, if necessary, combined with an absorption cartridge;</li> <li>(b): filter respirators with absorption cartridge or canister of the right type;</li> <li>(c): fresh-air hoods or masks</li> </ul> </li> <li>• Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.</li> <li>• Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.</li> </ul> <p>Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to efficiently remove the contaminant.</p>
<b>Personal Protective Equipment:</b>	<ul style="list-style-type: none"> <li>• Safety glasses with side shields.</li> <li>• Chemical goggles.</li> <li>• Full face shield may be required for supplementary but never for primary protection of eyes</li> <li>• Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].</li> </ul> <p><b>HANDS/FEET</b>          Wear chemical protective gloves, eg. PVC.          Wear safety footwear or safety gumboots, eg. Rubber.</p> <p><b>OTHER</b></p> <ul style="list-style-type: none"> <li>• Overalls.</li> <li>• PVC Apron.</li> <li>• PVC protective suit may be required if exposure severe.</li> <li>• Eyewash unit.</li> <li>• Ensure there is ready access to a safety shower.</li> </ul>

### Section 9: Physical and Chemical Properties

<b>Physical state:</b> <b>Colour:</b> <b>Odour:</b> <b>Boiling Point:</b> <b>Melting Point:</b> <b>Specific Gravity/Bulk Density:</b> <b>Percent Volatilise:</b> <b>Vapour Pressure:</b> <b>Flash Point (°C):</b>	Crystals White Odourless 157°C 101°C 1.65 Nil 17.5mm Hg at 20°C Not pertinent
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<b>Flammability Limits:</b>	Non flammable
<b>Autoignition Temperature:</b>	Nil

**Section 10: Stability and Reactivity**

<b>Stability:</b>	Product is stable under normal conditions of use, storage and temperature.
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**Section 11: Toxicological Information**

<b>Ingestion:</b>	<p>Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.</p> <p>The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.</p>
<b>Eye contact:</b>	<p>The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.</p>
<b>Skin contact:</b>	<p>Skin contact with the material may be harmful; systemic effects may result following absorption.</p> <p>The material can produce chemical burns following direct contact with the skin. Solution of material in moisture on the skin, or perspiration, may increase irritant effects. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. Not hazardous when vapours are inhaled</p>
<b>Inhalation:</b>	<p>The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.</p> <p>Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea and weakness. Swelling of the lungs can occur, either immediately or after a delay; symptoms of this include chest tightness, shortness of breath, frothy phlegm and cyanosis. Lack of oxygen can cause death hours after onset.</p> <p>Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.</p> <p>The material is not thought to produce adverse health effects following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.</p>
<b>Chronic health effects:</b>	<p>Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs. Chronic exposure may inflame the skin or conjunctiva. Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung. Prime symptom is breathlessness; lung shadows show on X-ray. Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to</p>

	<p>the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance.</p> <p>Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucous production.</p>
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### Section 12: Ecological Information

<b>Environmental fate, persistence and degradation:</b>	<p>Marine Pollutant: Not Determined          "Daphnia magna EC50 (48hr.) (mg/l):" 25          "Algae IC50 (72hr.) (mg/l):" 80-790          "log Pow (Verschueren 1983):" 1.88372093          BOD5: 0.1          BOD20: 0.115          COD: 0.18          ThOD: 0.18</p> <p>Prevent, by any means available, spillage from entering drains or watercourses.          DO NOT discharge into sewer or waterways.</p> <p>log Kow: -0.81- -0.43          BOD 5 if unstated: 0.086-0.14          COD: 0.126-0.18          ThOD: 0.18          Toxicity Fish: TLm(24)4000mg/L</p> <p>Biodegradable</p>
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### Section 13: Disposal Considerations

<ul style="list-style-type: none"> <li>• Recycle wherever possible. Special hazard may exist - specialist advice may be required.</li> <li>• Consult approved Waste Management Company for disposal options.</li> <li>• Treat and neutralise residue at an approved site.</li> <li>• Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.</li> <li>• Puncture containers to prevent re-use and bury at an authorised landfill.</li> </ul> <p>Do not incinerate.</p>
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### Section 14: Transport Information

<b>Road and Rail Transport:</b>	Classified as a Dangerous Good according to NZS 5433:1999 Transport of Dangerous Goods on Land.
<b>UN No:</b>	3261
<b>Class-primary</b>	8 Corrosive
<b>Packing Group:</b>	III
<b>Proper Shipping Name:</b>	CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.
<b>Hazchem Code:</b>	2X
<b>Marine Transport:</b>	Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS
<b>UN No:</b>	3261

<b>Class-primary Packing Group: Proper Shipping Name</b>	8 Corrosive III CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.
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**Section 15: Regulatory Information**

<b>Classification:</b>	6.1D (oral), 6.1D (dermal), 6.1D (inhalation), 6.8C, 6.9B (dermal), 8.1A, 8.2C, 8.3A, 9.3B
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**Section 16: Other Information**

.Issue Date: 11 April 2017

Note: All information given by Space Industries Ltd is offered in good faith and is, to the best of our knowledge, true and accurate. However, since conditions of use are beyond our control, all information relevant to usage is offered without warranty or guarantee and should not be construed as a representation that the product is suitable for any particular purpose or application.