Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
2,4-Dinitrobenzenesulfonyl chloride

STATEMENT OF HAZARDOUS NATURE

NFPA

SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY
ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS
C6-H3-Cl-N2-O6-S, (O2N)2C6H3SO2Cl, "2, 4-dinitrophenylsulfonyl chloride"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

<table>
<thead>
<tr>
<th>Hazard Type</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Toxicity</td>
<td>2</td>
<td></td>
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<tr>
<td>Body Contact</td>
<td>4</td>
<td></td>
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<tr>
<td>Reactivity</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Chronic</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

CANADIAN WHMIS SYMBOLS
EMERGENCY OVERVIEW

RISK
Causes severe burns.
Risk of serious damage to eyes.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
- The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion.
- Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and oesophagus. Immediate pain and difficulties in swallowing and speaking may also be evident.
- Accidental ingestion of the material may be damaging to the health of the individual.
- The substance and/or its metabolites may bind to haemoglobin inhibiting normal uptake of oxygen.
  This condition, known as “methaemoglobinemia”, is a form of oxygen starvation (anoxia).

EYE
- The material can produce severe chemical burns to the eye following direct contact. Vapors or mists may be extremely irritating.
- If applied to the eyes, this material causes severe eye damage.
- Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns.
  Mild burns of the epithelia generally recover rapidly and completely.
- Irritation of the eyes may produce a heavy secretion of tears (lachrymation).

SKIN
- The material can produce severe chemical burns following direct contact with the skin.
- Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue.
- Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- Solution of material in moisture on the skin, or perspiration, may markedly increase skin corrosion and accelerate tissue destruction.
- 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.

INHALED
- The material can cause respiratory irritation in some persons.
  The body's response to such irritation can cause further lung damage.
- Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage.
  There may be dizziness, headache, nausea and weakness.
- 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.
  If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.
- Hydrogen chloride (HCl) vapor or fumes present a hazard from a single acute exposure.
  Exposures of 1300 to 2000 ppm have been lethal to humans in a few minutes.

CHRONIC HEALTH EFFECTS
- 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 respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.
- Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
- 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.
- Chronic minor exposure to hydrogen chloride (HCl) vapor or fume may cause discoloration or erosion of the teeth, bleeding of the nose and gums; and ulceration of the nasal mucous membranes.
- Repeated exposures of animals to concentrations of about 34 ppm HCl produced no immediate toxic effects.
  Workers exposed to hydrochloric acid suffered from gastritis and a number of cases of chronic bronchitis have also been reported.
- Repeated or prolonged exposure to dilute solutions of HCl may cause dermatitis.
2,4-dinitrobenzenesulfonyl chloride

Hydrolysis produces hydrogen chloride

Section 4 - FIRST AID MEASURES

SWALLOWED
- For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

EYE
- If this product comes in contact with the eyes:
  - Immediately hold eyelids apart and flush the eye continuously with running water.
  - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
  - Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
  - Transport to hospital or doctor without delay.

SKIN
- If skin or hair contact occurs:
  - Immediately flush body and clothes with large amounts of water, using safety shower if available.
  - Quickly remove all contaminated clothing, including footwear.
  - Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
  - Transport to hospital, or doctor.

INHALED
- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Inhalation of vapors or aerosols (mists, fumes) may cause lung oedema.
- Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).
- As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.
- Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.

NOTES TO PHYSICIAN
- Treat symptomatically.
- For acute or short term repeated exposures to strong acids:
  - Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
  - Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling.
  - Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise.
  - Strong acids produce a coagulation necrosis characterised by formation of a coagulum (eschar) as a result of the dessicating action of the acid on proteins in specific tissues.
  - Symptoms of vasodilatation and reflex tachycardia may present following organic nitrate overdose; most organic nitrates are extensively metabolised by hydrolysis to inorganic nitrates. Organic nitrates and nitrates are readily absorbed through the skin, lungs, mucosa and gastro-intestinal tract.
  - The toxicity of nitrates and nitrites result from their vasodilating properties and their propensity to form methaemoglobin.
  - Most produce a peak effect within 30 minutes.
  - Clinical signs of cyanosis appear before other symptoms because of the dark pigmentation of methaemoglobin.
  - Initial attention should be directed towards improving oxygen delivery, with assisted ventilation, if necessary. Hyperbaric oxygen has not demonstrated conclusive benefits.
  - Institute cardiac monitoring, especially in patients with coronary artery or pulmonary disease.

Section 5 - FIRE FIGHTING MEASURES

<table>
<thead>
<tr>
<th>Vapor Pressure (mmHg)</th>
<th>Negligible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Explosive Limit (%)</td>
<td>Not available.</td>
</tr>
</tbody>
</table>
Specific Gravity (water=1)  Not available
Lower Explosive Limit (%)  Not available

**EXTINGUISHING MEDIA**
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

**FIRE FIGHTING**
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

**GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS**
- Combustible.
- Slight fire hazard when exposed to heat or flame.
- Acids may react with metals to produce hydrogen, a highly flammable and explosive gas.
- Heating may cause expansion or decomposition leading to violent rupture of containers.

Combustion products include carbon monoxide (CO), carbon dioxide (CO2), hydrogen chloride, phosgene, nitrogen oxides (NOx), sulfur oxides (SOx), other pyrolysis products typical of burning organic material.

**FIRE INCOMPATIBILITY**
- Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

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**Section 6 - ACCIDENTAL RELEASE MEASURES**

**MINOR SPILLS**
- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.
- Check regularly for spills and leaks.

**MAJOR SPILLS**
- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.

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**Section 7 - HANDLING AND STORAGE**

**PROCEDURE FOR HANDLING**
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- **WARNING** To avoid violent reaction, ALWAYS add material to water and NEVER water to material.

Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.
- Do NOT cut, drill, grind or weld such containers.
- In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

**RECOMMENDED STORAGE METHODS**
- DO NOT use aluminium or galvanised containers
- Check regularly for spills and leaks
- Glass container is suitable for laboratory quantities
- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.

For low viscosity materials
- Drums and jerricans must be of the non-removable head type.
Where a can is to be used as an inner package, the can must have a screwed enclosure.

<. Corrodes steel.

**STORAGE REQUIREMENTS**

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.

### Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

#### EXPOSURE CONTROLS

<table>
<thead>
<tr>
<th>Source</th>
<th>Material</th>
<th>TWA ppm</th>
<th>TWA mg/m³</th>
<th>STEL ppm</th>
<th>STEL mg/m³</th>
<th>Peak ppm</th>
<th>Peak mg/m³</th>
<th>TWA F/CC</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Canada - Alberta Occupational Exposure Limits</td>
<td>2,4-dinitrobenzenesulfonyl chloride (Hydrogen chloride)</td>
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<td>Canada - British Columbia Occupational Exposure Limits</td>
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<td>US ACGIH Threshold Limit Values (TLV)</td>
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<td>TLV® Basis URT irr</td>
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<td>US NIOSH Recommended Exposure Limits (RELs)</td>
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<td>US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants</td>
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<tr>
<td>US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants</td>
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<td>(C)7</td>
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<td>US - California Permissible Exposure Limits for Chemical</td>
<td>2,4-dinitrobenzenesulfonyl chloride (Hydrogen chloride; muriatic acid)</td>
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<td>Location</td>
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<td>US - Michigan Exposure Limits for Air Contaminants</td>
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<tr>
<td>Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances</td>
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<td>Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits</td>
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<td>US - Oregon Permissible Exposure Limits (Z-1)</td>
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<tr>
<td>US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants</td>
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<td>Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)</td>
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<td>US OSHA Permissible Exposure Levels (PELs) - Table Z1</td>
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</table>
### Canada - Northwest Territories

**Occupational Exposure Limits (English)**

<table>
<thead>
<tr>
<th>Substance</th>
<th>TLV® Basis</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-dinitrobenzenesulfonyl chloride (Hydrogen chloride)</td>
<td>5 7.5</td>
<td>TLV® Basis upper respiratory tract irritation</td>
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</table>

### Canada - Nova Scotia

**Occupational Exposure Limits**

<table>
<thead>
<tr>
<th>Substance</th>
<th>TLV® Basis</th>
<th>Concentration</th>
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<tbody>
<tr>
<td>2,4-dinitrobenzenesulfonyl chloride (Hydrogen chloride)</td>
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<td>TLV® Basis URT irr</td>
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### Canada - Prince Edward Island

**Occupational Exposure Limits**

<table>
<thead>
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<th>Substance</th>
<th>TLV® Basis</th>
<th>Concentration</th>
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<tr>
<td>2,4-dinitrobenzenesulfonyl chloride (Hydrogen chloride)</td>
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<td>TLV® Basis URT irr</td>
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### Canada - Ontario

**Occupational Exposure Limits**

<table>
<thead>
<tr>
<th>Substance</th>
<th>TLV® Basis</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-dinitrobenzenesulfonyl chloride (Specified (PNOS) / Particules (insolubles ou peu solubles) non précisées par ailleurs)</td>
<td>3 (R)</td>
<td></td>
</tr>
<tr>
<td>2,4-dinitrobenzenesulfonyl chloride (Particles (Insoluble or Poorly Soluble) Not Otherwise)</td>
<td>10 (I)</td>
<td></td>
</tr>
</tbody>
</table>

### PERSONAL PROTECTION

**RESPIRATOR**
- Type AB-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 1432000 & 1492001, ANSI Z88 or national equivalent)

**EYE**
- Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure
- Chemical goggles whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted
- Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.
- Alternatively a gas mask may replace splash goggles and face shields.

**HANDS/FEET**
- Elbow length PVC gloves

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include
- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
dexterity

**OTHER**
- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.

**ENGINEERING CONTROLS**
- Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of
The basic types of engineering controls are
- Process controls which involve changing the way a job activity or process is done to reduce the risk.
- Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

**PHYSICAL PROPERTIES**

<table>
<thead>
<tr>
<th>State</th>
<th>DIVIDED SOLID</th>
<th>Molecular Weight</th>
<th>266.62</th>
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</thead>
<tbody>
<tr>
<td>Melting Range (°F)</td>
<td>216-221</td>
<td>Viscosity</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Boiling Range (°F)</td>
<td>Not available</td>
<td>Solubility in water (g/L)</td>
<td>Reacts</td>
</tr>
<tr>
<td>Flash Point (°F)</td>
<td>Not available</td>
<td>pH (1% solution)</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition Temp (°F)</td>
<td>Not Available</td>
<td>pH (as supplied)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Autoignition Temp (°F)</td>
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<td>Vapor Pressure (mmHg)</td>
<td>Negligible</td>
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<tr>
<td>Upper Explosive Limit (%)</td>
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<td>Specific Gravity (water=1)</td>
<td>Not available</td>
</tr>
<tr>
<td>Lower Explosive Limit (%)</td>
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<td>Relative Vapor Density (air=1)</td>
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<tr>
<td>Volatile Component (%vol)</td>
<td>Negligible</td>
<td>Evaporation Rate</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

**APPEARANCE**

Powder; moisture sensitive.

**Section 10 - CHEMICAL STABILITY**

**CONDITIONS CONTRIBUTING TO INSTABILITY**

- Contact with alkaline material liberates heat
- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

**STORAGE INCOMPATIBILITY**

- Hydrogen chloride
  - reacts strongly with strong oxidisers (releasing chlorine gas), acetic anhydride, caesium cyanotridecahydrodecaborate(2-), ethylidene difluoride, hexaluminium disilicide, metal acetylides, sodium, silicon dioxide, tetraselenium tetratitanide, and many organic materials
  - is incompatible with alkaline materials, acetic anhydride, acetylides, aliphatic amines, alkanolamines, alkylene oxides, aluminium, aluminium-titanium alloys, aromatic amines, amines, amides, 2-aminoethanol, ammonia, ammonium hydroxide, borides, calcium phosphate, carbides, carbonates, cyanides, chlorosulfonic acid, ethylenediamine, ethyleneimine, epichlorhydrin, formaldehyde, isocyanates, metals, metal oxides, metal hydrides, metal acetylides, metal carbides, oleum, organic anhydrides, potassium permanganate, perchloric acid, phosphides, 3-propiolactone, silicides, sulfides, sulfites, sulfuric acid, uranium phosphide, vinyl acetate, vinyldiene fluoride
  - attacks most metals forming flammable hydrogen gas, and some plastics, rubbers and coatings
  - reacts with zinc, brass, galvanised iron, aluminium, copper and copper alloys
  - Polynitro derivatives of mono- and poly- cyclic systems are often explosives liable to detonate on grinding or impact.
  - The presence of two or more nitro groups (each with 2 oxygen atoms) on an aromatic nucleus often increase the reactivity of other substituents and the tendency towards explosive instability as oxygen balance is approached.
  - Aromatic nitro compounds range from slight to strong oxidizing agents. If mixed with reducing agents, including hydrides, sulfides and nitrides, they may begin a vigorous reaction that culminates in a detonation. The explosive tendencies of aromatic nitro compounds are increased by the presence of multiple nitro groups.
  - In view of the reports of previous violent or explosive reactions, heating of polynitroaryl (particularly di- and tri-nitroaryl) compounds with amines, ammonia, or O-ethylsulfuric acid salts, in autoclaves should be avoided.
  - Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air.
  - Segregate from alcohol, water.
  - Segregate from amines, oxidising agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates.
  - Avoid strong bases.
  - NOTE May develop pressure in containers; open carefully. Vent periodically.

Sulfonyl halides are reactive sulfonic acid derivatives similar in properties and reactivities to acid chlorides of carboxylates. The attack of a nucleophile on a sulfonyl halide involves temporary formation of a pentavalent intermediate which is highly crowded and unstable.
For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

2,4-dinitrobenzenesulfonyl chloride

TOXICITY AND IRRITATION

- Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.
- The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
- The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.
- The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

No significant acute toxicological data identified in literature search.

CARCINOGEN

<table>
<thead>
<tr>
<th>Hydrochloric acid</th>
<th>International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs</th>
<th>Group 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid mists, strong inorganic</td>
<td>International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs</td>
<td>Group 1</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>US ACGIH Threshold Limit Values (TLV) - Carcinogens</td>
<td>Carcinogen Category A4</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>US - Rhode Island Hazardous Substance List</td>
<td>IARC</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>US - Maine Chemicals of High Concern List</td>
<td>Carcinogen A4</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens</td>
<td>Notes</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens</td>
<td>TLV® Basis upper respiratory tract irritation</td>
</tr>
</tbody>
</table>

Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

Ecotoxicity

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
<th>Bioaccumulation</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen chloride</td>
<td>LOW</td>
<td>No Data Available</td>
<td>LOW</td>
<td>HIGH</td>
</tr>
</tbody>
</table>

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information
Corrosivity characteristic: use EPA hazardous waste number D002 (waste code C)

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.
Legislation addressing waste disposal requirements may differ by country, state and/or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:
- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and...
recycling or reuse may not always be appropriate. In most instances the supplier of the material should be consulted.

- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.

Recycle wherever possible.

- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Treat and neutralise at an approved treatment plant. Treatment should involve: mixing or slurrying in water; neutralisation with soda-lime or soda-ash followed by: burial in a land-fill specifically licensed to accept chemical and/or pharmaceutical wastes or incineration in a licenced apparatus (after admixture with suitable combustible material)
- Decontaminate empty containers with 5% aqueous sodium hydroxide or soda ash, followed by water. Observe all label safeguards until containers are cleaned and destroyed.

### Section 14 - TRANSPORTATION INFORMATION

<table>
<thead>
<tr>
<th>DOT:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Symbols:</td>
<td>None</td>
</tr>
<tr>
<td>Hazard class or Division:</td>
<td>8</td>
</tr>
<tr>
<td>Identification Numbers:</td>
<td>UN3261</td>
</tr>
<tr>
<td>PG:</td>
<td>II</td>
</tr>
<tr>
<td>Label Codes:</td>
<td>8</td>
</tr>
<tr>
<td>Special provisions:</td>
<td>IB8, IP2, IP4, T3, TP33</td>
</tr>
<tr>
<td>Packaging: Exceptions:</td>
<td>154</td>
</tr>
<tr>
<td>Packaging: Non-bulk:</td>
<td>212</td>
</tr>
<tr>
<td>Quantity limitations:</td>
<td></td>
</tr>
<tr>
<td>Passenger aircraft/rail:</td>
<td>15 kg</td>
</tr>
<tr>
<td>Quantity Limitations: Cargo aircraft only:</td>
<td>50 kg</td>
</tr>
<tr>
<td>Vessel stowage: Location:</td>
<td>B</td>
</tr>
<tr>
<td>Vessel stowage: Other:</td>
<td>None</td>
</tr>
</tbody>
</table>

Hazardous materials descriptions and proper shipping names:

**Corrosive solid, acidic, organic, n.o.s.**

**Air Transport IATA:**

| ICAO/IATA Class: | 8 |
| ICAO/IATA Subrisk: | None |
| UN/ID Number: | 3261 |
| Packing Group: | II |
| Special provisions: | A3 |

**Cargo Only**

| Packing Instructions: | 863 |
| Maximum Qty/Pack: | 50 kg |

**Passenger and Cargo**

| Packing Instructions: | 859 |
| Maximum Qty/Pack: | 15 kg |

**Passenger and Cargo Limited Quantity**

| Packing Instructions: | Y844 |
| Maximum Qty/Pack: | 5 kg |

**Shipping name:** CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (contains 2,4-dinitrobenzenesulfonyl chloride)

**Maritime Transport IMDG:**

| IMDG Class: | 8 |
| IMDG Subrisk: | None |
| UN Number: | 3261 |
| Packing Group: | II |
| EMS Number: | F-A,S-B |
| Special provisions: | 274 |

**Limited Quantities:**

| 1 kg |

**Shipping name:** CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (contains 2,4-dinitrobenzenesulfonyl chloride)

### Section 15 - REGULATORY INFORMATION

2,4-dinitrobenzenesulfonyl chloride (CAS: 1656-44-6) is found on the following regulatory lists:

- Canada Non-Domestic Substances List (NDSL)
- US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
Regulations for ingredients
hydrogen chloride (CAS: 7647-01-0) is found on the following regulatory lists;

LIMITED EVIDENCE
- Ingestion may produce health damage*.
- Cumulative effects may result following exposure*.
- * (limited evidence).

Danmark Advisory list for selfclassification of dangerous substances

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS</th>
<th>Suggested codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2, 4- dinitrobenzenesulfonyl chloride</td>
<td>1656-44-6</td>
<td>Xi; R38 RS5/53</td>
</tr>
<tr>
<td>hydrogen chloride</td>
<td>7647-01-0</td>
<td>Xi; R38 RS5/53</td>
</tr>
</tbody>
</table>

- Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
- A list of reference resources used to assist the committee may be found at: www.chemwatch.net/references.
- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether
the reported Hazards are Risks in the workplace or other settings.

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www.Chemwatch.net

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