**Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT NAME**
Quinidine sulfate dihydrate

**STATEMENT OF HAZARDOUS NATURE**

**SUPPLIER**
Company: Santa Cruz Biotechnology, Inc.
Address: 2145 Delaware Ave
Santa Cruz, CA 95060
Telephone: 800.457.3801 or 831.457.3800
Emergency Tel: CHEMWATCH: From within the US and Canada: 877-715-9305
Emergency Tel: From outside the US and Canada: +800 2436 2255 (1-800-CHEMCALL) or call +613 9573 3112

**PRODUCT USE**
Derivative of alkaloid extracted from the bark of most varieties of Cinchona. Dextrorotatory stereoisomer of quinine sulfate. Used as a cardiac depressant (anti-arrhythmic). Acts on ventricular and supraventricular arrhythmias. Classified as Class I antiarrhythmic because it directly interferes with the depolarisation of the cardiac membrane. Also has local anaesthetic properties.

**SYNONYMS**
(C20-H24-N2-O2)2.H2SO4, "chinidine sulfate", "cinchonan-9-ol, 6'-methoxy-, (9S)-, sulfate (2:1) salt", "cinchonan-9-ol, 6'-methoxy-, (9S)-, sulfate (2:1) salt", "(9S)-6' -methoxycinchonan-9-ol sulfate (2:1) (salt)", "(9S)-6'-methoxycinchonan-9-ol sulfate (2:1) (salt)", "quinidine monosulfate", "quinidine sulphate", Cin-Quin, quinicardine, Quinidate, Quinidex, Quinitex, Quinora, Systodin, "cinchona alkaloid", "anti-arrhythmic/ anti-dysrhythmic/ cardiac depressant"

**Section 2 - HAZARDS IDENTIFICATION**

**EMERGENCY OVERVIEW RISK**
Harmful if swallowed.

**POTENTIAL HEALTH EFFECTS**

**ACUTE HEALTH EFFECTS**
**SWALLOWED**
- 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.
- Large doses of quinine and its derivatives may produce severe poisoning characterized by headache, fever, vomiting, muscle weakness, excitement, confusion, blindness (possibly permanent), deafness and loss of consciousness; blood pressure falls and a feeble pulse results. Occasionally, renal failure ensues; death may occur, usually in coma, from respiratory failure.
- Anti-arrhythmic agents have cardiac depressant properties and may, particularly in excessive dosages, induce cardiac arrhythmias (including ventricular tachycardia), heart failure and hypotension.

**EYE**
- Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. The material may produce foreign body irritation in certain individuals.

**SKIN**
- There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- Entry into the bloodstream, 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.
- This material is a photosensitizer. Certain individuals working with this substance may show allergic reaction of the skin under sunlight. This results in sensitivity to sunburn (may be severe) unless protective covering and 15+PF sunscreen are used. Responses may vary from sunburn-like effects to swelling and blistering lesions.

**INHALED**
- The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified using animal models). Nevertheless, adverse 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.
- 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.

**CHRONIC HEALTH EFFECTS**
- Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
- 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. Repeated exposure to quinines can result in symptoms such as nausea, vomiting, headache, ringing in the ear, deafness, visual disturbance and temporary blindness. Some people are hypersensitive to quinine, and small doses in these persons may cause swelling, asthma and other allergic phenomena. Quinine can also cause hemolytic anemia and loss of platelets.
- Gastrointestinal toxicity (nausea, vomiting, diarrhea and colic) is the most frequent side effect of quinidine therapy. Chronic cumulative overdose may cause cinchonism: headache, tinnitus, vertigo, mydriasis, blurred vision, diplopia, photophobia, deafness, and corneal deposits have been reported in a patient who took quinidine for 2 years.
- Quinidine may cause several immunologic mediated reactions: thrombocytopenia, haemolytic anaemia, angioneurotic oedema, skin rash, fever
- Quinidines are cumulative in action and inappropriately high plasma concentrations may cause heart block, extrasystoles, ventricular tachycardia, ventricular fibrillation and sometimes, death.
- ECG changes with repolarization abnormalities, decreased T wave and increase of QT interval are a common feature during quinidine therapy. Syncope is related to transient torsade de points and occurs in 1 to 8% of patients receiving quinidine. The occurrence of torsade de points is not correlated with plasma quinidine levels but is favoured by an increase in the QT interval.
- Hepatotoxicity has been reported, with an increase in serum concentrations of transaminases, LDH, alkaline phosphatase, and cholestasis
- Quinidine has been implicated as a cause of light cranial nerve damage to the foetus at doses much larger than those needed to treat arrhythmias.
- The usual course of quinidine poisoning is dominated by the cardiovascular disturbances which usually occur within 2 to 4 first hours but may first appear as late as 12 hours after exposure (and perhaps even later after ingestion of a slow- release preparation). Symptoms may last for 24 to 36 hours. Patients who survive 48 hours after acute poisoning are likely to recover. Death may result from cardiac arrest by asystole or electromechanical dissociation and, rarely, by ventricular fibrillation.
IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.

Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:
- For advice, contact a Poisons Information Center or a doctor.
- Urgent hospital treatment is likely to be needed.
- If conscious, give water to drink.
- INDUCE vomiting with fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

NOTE: Wear a protective glove when inducing vomiting by mechanical means.

In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient’s condition.
- If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist.
- If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.

EYE
- If this product comes in contact with the eyes:
  - Wash out immediately with fresh 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.
  - If pain persists or recurs seek medical attention.
  - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN
- If skin contact occurs:
  - Immediately remove all contaminated clothing, including footwear
  - Flush skin and hair with running water (and soap if available).
  - Seek medical attention in event of irritation.

INHALED
- If dust is inhaled, remove from contaminated area.
- Encourage patient to blow nose to ensure clear passage of breathing.
- If irritation or discomfort persists seek medical attention.

NOTES TO PHYSICIAN
- for quinine intoxication: If large doses have been ingested, the stomach should be emptied by aspiration and lavage and a purgative such as sodium sulfate (30 g in 250 ml water) may be given. Elimination form the body may be assisted by acidification of the urine with ammonium chloride and ensuring an adequate fluid balance; this has limited application since quinine is extensively metabolized in the liver with only a small amount excreted unchanged. Blood pressure should be supported. Signs of hemolytic anemia may be indicative of the need to treat acute renal failure. Assisted respiration may be necessary to combat respiratory failure. Cardiac rhythm should be monitored. Vasodilators such as amyl nitrate and nicotinic acid may be given in an attempt to reverse visual impairment; beneficial effects have been achieved with stellate ganglion blocks. MARTINDALE: The Extra Pharmacopoeia, 29th Edition.

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Section 5 - FIRE FIGHTING MEASURES

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

EXTINGUISHING MEDIA
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

FIRE FIGHTING
- Alert Emergency Responders and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS
- 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 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.
- Dry dust can be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport.
- Build-up of electrostatic charge may be prevented by bonding and grounding.
Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting. Combustion products include: carbon monoxide (CO), carbon dioxide (CO2), nitrogen oxides (NOx), sulfur oxides (SOx), other pyrolysis products typical of burning organic material. May emit poisonous fumes. May emit corrosive fumes.

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

**PERSONAL PROTECTION**
- **Glasses:** Chemical goggles.
- **Gloves:**
- **Respirator:** Particulate

**Section 6 - ACCIDENTAL RELEASE MEASURES**

**MINOR SPILLS**
- Clean up waste regularly and abnormal spills immediately.
- Avoid breathing dust and contact with skin and eyes.
- Wear protective clothing, gloves, safety glasses and dust respirator.
- Use dry clean up procedures and avoid generating dust.
- Vacuum up or sweep up. NOTE: Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type) (consider explosion-proof machines designed to be grounded during storage and use).
- Dampen with water to prevent dusting before sweeping.
- Place in suitable containers for disposal.

**MAJOR SPILLS**
- Moderate hazard.
- **CAUTION:** Advise personnel in area.
- Alert Emergency Responders and tell them location and nature of hazard.
- Control personal contact by wearing protective clothing.
- Prevent, by any means available, spillage from entering drains or water courses.
- Recover product wherever possible.
- IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. IF WET: Vacuum/shovel up and place in labelled containers for disposal.
- ALWAYS: Wash area down with large amounts of water and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

**ACUTE EXPOSURE GUIDELINE LEVELS (AEGL) (in ppm)**
- **AEGL 1:** The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.
- **AEGL 2:** The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.
- **AEGL 3:** The airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience life-threatening health effects or death.

**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.
- Prevent concentration in hollows and sumps.
- **DO NOT** enter confined spaces until atmosphere has been checked.
- **DO NOT** allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, **DO NOT** eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer’s storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

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
- Glass container.
- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

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.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

X: Must not be stored together
O: May be stored together with specific preventions
+: May be stored together

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS
The following materials had no OELs on our records
- quinidine sulfate: CAS:50-54-4 CAS:6591-63-5
- hydroquinidine sulfate: CAS:1476-98-8

MATERIAL DATA
HYDROQUINIDINE SULFATE:
QUINIDINE SULFATE:
- It is the goal of the ACGIH (and other Agencies) to recommend TLVs (or their equivalent) for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace.
- At this time no TLV has been established, even though this material may produce adverse health effects (as evidenced in animal experiments or clinical experience). Airborne concentrations must be maintained as low as is practically possible and occupational exposure must be kept to a minimum.
- NOTE: The ACGIH occupational exposure standard for Particles Not Otherwise Specified (P.N.O.S) does NOT apply.

HYDROQUINIDINE SULFATE:
QUINIDINE SULFATE:
- Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers’ responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.
- OSHA (USA) concluded that exposure to sensory irritants can:
  - cause inflammation
  - cause increased susceptibility to other irritants and infectious agents
  - lead to permanent injury or dysfunction
  - permit greater absorption of hazardous substances and
  - acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

HYDROQUINIDINE SULFATE:
QUINIDINE SULFATE:
- Airborne particulate or vapor must be kept to levels as low as is practicably achievable given access to modern engineering controls and monitoring hardware. Biologically active compounds may produce idiosyncratic effects which are entirely unpredictable on the basis of literature searches and prior clinical experience (both recent and past).

PERSONAL PROTECTION
Consult your EHS staff for recommendations

**EYE**
- When handling very small quantities of the material eye protection may not be required.
- For laboratory, larger scale or bulk handling or where regular exposure in an occupational setting occurs:
  - Chemical goggles
  - Face shield. Full face shield may be required for supplementary but never for primary protection of eyes
  - 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]

**HANDS/FEET**
- Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
  - frequency and duration of contact,
  - chemical resistance of glove material,
  - glove thickness and
dexterity
- Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).
- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
- Contaminated gloves should be replaced.
- Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
- Rubber gloves (nitrile or low-protein, powder-free latex). Employees allergic to latex gloves should use nitrile gloves in preference.
- Double gloving should be considered.
- Protective shoe covers.
- Head covering.
- Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.
  - polychloroprene
  - nitrile rubber
  - butyl rubber
  - fluorocaroucchouc
  - polyvinyl chloride
- Gloves should be examined for wear and/or degradation constantly.

**OTHER**
- For quantities up to 500 grams a laboratory coat may be suitable.
- For quantities up to 1 kilogram a disposable laboratory coat or coverall of low permeability is recommended. Coveralls should be buttoned at collar and cuffs.
- For quantities over 1 kilogram and manufacturing operations, wear disposable coverall of low permeability and disposable shoe covers.
- For manufacturing operations, air-supplied full body suits may be required for the provision of advanced respiratory protection.
- Eye wash unit.
- Ensure there is ready access to an emergency shower.
- For Emergencies: Vinyl suit
- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

**RESPIRATOR**

<table>
<thead>
<tr>
<th>Protection Factor</th>
<th>Half-Face Respirator</th>
<th>Full-Face Respirator</th>
<th>Powered Air Respirator</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 x PEL</td>
<td>P1</td>
<td>-</td>
<td>PAPR-P1</td>
</tr>
<tr>
<td>Air-line*</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid. Does not mix with water.

<table>
<thead>
<tr>
<th>State</th>
<th>Divided solid</th>
<th>Molecular Weight</th>
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</tr>
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<tbody>
<tr>
<td>Melting Range (°F)</td>
<td>404.6 (decomp)</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>Partly miscible</td>
</tr>
<tr>
<td>Flash Point (°F)</td>
<td>Not available</td>
<td>pH (1% solution)</td>
<td>6.0-6.8</td>
</tr>
<tr>
<td>Decomposition Temp (°F)</td>
<td>404.6</td>
<td>pH (as supplied)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Autoignition Temp (°F)</td>
<td>Not available</td>
<td>Vapour Pressure (mmHG)</td>
<td>Negligible</td>
</tr>
<tr>
<td>Upper Explosive Limit (%)</td>
<td>Not available.</td>
<td>Specific Gravity (water=1)</td>
<td>Not available</td>
</tr>
<tr>
<td>Lower Explosive Limit (%)</td>
<td>Not available.</td>
<td>Relative Vapor Density (air=1)</td>
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</tr>
<tr>
<td>Circumstances</td>
<td>Description</td>
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<td>--------------</td>
<td>-------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volatile Component (%vol)</td>
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</tr>
<tr>
<td>Evaporation Rate</td>
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</table>

**APPEARANCE**
White powder with very bitter taste; does not mix well with water (1:80). Darkens on exposure to air. Soluble in alcohol, chloroform.

### Section 10 - CHEMICAL STABILITY

**CONDITIONS CONTRIBUTING TO INSTABILITY**
- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerization will not occur.

**STORAGE INCOMPATIBILITY**
- Avoid reaction with oxidizing agents.
For incompatible materials - refer to Section 7 - Handling and Storage.

### Section 11 - TOXICOLOGICAL INFORMATION

**quinidine sulfate**

**TOXICITY AND IRRITATION**
- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

<table>
<thead>
<tr>
<th>Route</th>
<th>Toxicity</th>
<th>Irritation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral (rat) LD50</td>
<td>456 mg/kg</td>
<td>Nil Reported</td>
</tr>
<tr>
<td>Subcutaneous (rat) LD50</td>
<td>610 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Intravenous (rat) LD50</td>
<td>56 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Oral (mouse) LD50</td>
<td>505 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Oral (guinea pig) LD50</td>
<td>362 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

Conjunctival irritation, somnolence, tremor, convulsions, arrhythmias, dyspnae, cyanosis, hepatitis and diffuse hepatic cellular necrosis, endocrine tumours, dermatitis reported.

### Section 12 - ECOLOGICAL INFORMATION

Refer to data for ingredients, which follows:

**HYDROQUINIDINE SULFATE:**
- **QUINIDINE SULFATE:**
  - DO NOT discharge into sewer or waterways.

**QUINIDINE SULFATE:**
- HYDROQUINIDINE SULFATE:

### Section 13 - DISPOSAL CONSIDERATIONS

**Disposal Instructions**
All waste must be handled in accordance with local, state and federal regulations.
- Puncture containers to prevent re-use and bury at an authorized landfill.
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.
DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: Burial in a licensed land-fill or Incineration in a licensed apparatus (after admixture with suitable combustible material)
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

### Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG
Section 15 - REGULATORY INFORMATION

quinidine sulfate (CAS: 50-54-4, 6591-63-5) is found on the following regulatory lists:
- Canada Domestic Substances List (DSL)
- US Toxic Substances Control Act (TSCA) - Inventory

No data for hydroquinidine sulfate (CAS: , 1476-98-8)

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE
- Cumulative effects may result following exposure*.
- May produce skin discomfort*.
* (limited evidence).

Denmark Advisory list for selfclassification of dangerous substances
Substance CAS Suggested codes hydroquinidine sulfate 1476-98-8 Xn Mut3; R68 Repr3; R63 N R50/53

Ingredients with multiple CAS Nos
<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>quinidine sulfate</td>
<td>50-54-4, 6591-63-5</td>
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</table>

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Classification of the mixture 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. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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