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Strychnine Hydrochloride

Hazard Alert Code: EXTREME

Material Safety Data Sheet

Issue Date 22 February 2013

Section 1 – Chemical Product and Company Identification

Product Name
strychnine hydrochloride

Proper Shipping Name
STRYCHNINE or STRYCHNINE SALTS

Product Use
Dangerous POISON
Shall NOT be available in packs for domestic use
Previously used as a tonic and stimulant
Reagent

Supplier
Nashcorp Pty Ltd
PO Box 157, Pacific Fair, Broadbeach, QLD 4101
Phone 07 5538 6444
Fax 07 5592 1256
Email: enquiries@nashcorp.com.au

Section 2 – Hazards Identification

Statement of Hazardous Nature

HAZARDOUS SUBSTANCE. DANGEROUS GOODS.
According to the Criteria of NOHSC and the ADG Code.

Hazard Ratings

Flammability:	LOW
Toxicity:	EXTREME
Body Contact:	EXTREME
Reactivity:	LOW
Chronic:	MODERATE

Risk

Risk Codes	Risk Phrases
R26/27/28	- Very toxic by inhalation, in contact with skin and if swallowed.
R50/53	- Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.

Safety

Safety Codes	Safety Phrases
S01	- Keep locked up.
S22	- Do not breathe dust.
S24	- Avoid contact with skin.
S36	- Wear suitable protective clothing.
S38	- In case of insufficient ventilation, wear suitable respiratory equipment.
S37	- Wear suitable gloves.
S39	- Wear eye/face protection.
S51	- Use only in well ventilated areas.
S09	- Keep container in a well ventilated place.
S29	- Do not empty into drains.
S40	- To clean the floor and all objects contaminated by this material, use water.
S35	- This material and its container must be disposed of in a safe way.
S13	- Keep away from food, drink and animal feeding stuffs.
S27	- Take off immediately all contaminated clothing.
S45	- In case of accident or if you feel unwell IMMEDIATELY contact Doctor or Poisons Information Centre (show label if possible).
S57	- Use appropriate container to avoid environmental contamination.
S61	- Avoid release to the environment. Refer to special instructions/Safety Data sheets.
S60	- This material and its container must be disposed of as hazardous waste.
S63	- In case of accident by inhalation: remove casualty to fresh air and keep at rest.

Section 3 – Hazards Identification

Name	CAS RN	%
Strychnine Hydrochloride	1421-86-9	>98%

Section 4 – First Aid Measures

Swallowed

- IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
- For advice, contact a Poisons Information Centre or a Doctor.
- Urgent hospital treatment is likely to be needed.

- 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.

Eye

If this product comes in contact with the eyes:

- Immediately hold the 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, 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.

Notes to Physician

The main object of strychnine therapy is to control or prevent convulsions and asphyxia; immediate treatment involves the intravenous administration of diazepam (10mg – less for children), repeated as required. Muscle relaxants.

Section 5 – Fire Fighting Measures

Extinguishing Media

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).

Fire Fighting

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

Fire/Explosion Hazard

- Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) – according to the circumstances under which the combustion process occurs, such materials may cause fires and/or dust explosions.
- Organic powders when finely divided over a range of concentrations regardless of particular size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).
- 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 (420 micron or less) may burn rapidly and fiercely if ignited – particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.

- In the same way as gases and vapours, dusts in the form of a cloud are only ignitable over a range of concentrations; in principle, the concepts of lower explosive limit (LEL) and upper explosive limit (UEL) are applicable to dust clouds but only the LEL is of practical use; - this is because of the inherent difficulty of achieving homogenous dust clouds at high temperatures (for dusts the LEL is often called the 'Minimum Explosible Concentration' (MEC)).
  Combustion products include: carbon monoxide (CO), carbon dioxide (CO_2), hydrogen chloride, phosgene, nitrogen oxides (NO_x), 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.

Hazchem

2X

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.

Major Spills

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

Personal Protective Equipment advice is contained in Section 8 of the MSDS

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.
- Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidising medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).
- Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame.
- Establish good housekeeping practices.
- Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds.

Suitable Container

- 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. <</>

All inner and sole packagings for substances that have been assigned to Packaging Groups I or II on the basis of inhalation toxicity criteria, must be hermetically sealed.

Storage Incompatibility

- Avoid reaction with oxidising agents, bases and strong reducing agents.

Incompatible with alkali hydroxides and carboates, aromatic ammonia, spirit, bromides and iodates.

Packaging Material Incompatibles

Chemical Name	Container Type
strychnine hydrochloride	“Acetal (Delrinr)”, “Cast iron”, Neoprene.

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

The following materials had no OELs on our records

- Strychnine Hydrochloride CAS: 1421- 86- 9 CAS:6101- 04- 8

Material Data

STRYCHNINE HYDROCHLORIDE

Strychnine is an acute convulsant poison acting at the level of the spinal cord in animals and man. The daily 8-hour TWA exposure to strychnine in air corresponds to a total dose of 0.02 mg/kg/day.

Personal Protection:

Respirator

- Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, 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 when 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 wherever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted.
- Full face shield (20cm, 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.
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality, which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.
  The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.
  Suitability and durability of glove type is dependent on usage.

Other

- Overalls
- Eyewash unit.
- Barrier cream.
- Skin cleansing cream.

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 protection.
  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

Appearance

Colourless crystals or white crystalline crystals; mixes with water (1gm dissolves in 40ml water).

Physical Properties

Solid.

Mixes with water.

State	Divided Solid	Molecular Weight	370.91
Melting Range (°C)	Not available	Viscosity	Not Applicable
Boiling Range (°C)	Not applicable	Solubility in water (g/L)	Miscible
Flash Point (°C)	Not available	pH (1% solution)	7
Decomposition Temp (°C)	Not available	pH (as supplied)	Not applicable
Autoignition Temp (°C)	Not available	Vapour Pressure (kPa)	Negligible
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not available	Relative Vapour Density (air=1)	
Volatile Component (%vol)	Negligible	Evaporations Rate	Not applicable

Section 10 – Stability and Reactivity

Conditions contributing to instability

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerization will not occur.

For incompatible materials refer to Section 7 – Handling and Storage

Section 11 – Toxicological Information

Potential Health Effects

Acute Health Effects:
Swallowed

- Severely toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 5 gram my be fatal or produce serious damage to the health of the individual.
- The toxicity of strychnine is due to its strong excitatory effect on the central nervous system. Initially there may be tremors, stiffness and twitching of the face and legs; this progresses to apprehension, fear, nausea and a feeling of identity loss. Painful convulsions then occur after very minor stimuli. The body assumes a characteristic spastic posture with an arched back, extended limbs and the feet turned inwards. The jaw is rigidly shut and face muscles are contracted in a characteristic smile. The contradiction of the muscles of breathing and spasms of trunk muscles causes breathing to stop, leading to death. Strychnine is absorbed and distributed to various parts of the body within a very short period of time.

Eye

- Although the material is not thought to be an irritant (as classified by EC Directives), 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

- Skin contact with the material may produce severely toxic effects; systemic effects may result following absorption and these may be fatal.
- The material is not thought to be a skin irritant (as classified by EC Directives using animal models). Abrasive damage however, may result from prolonged exposures. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
- Entry into the blood stream, though, 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

- Inhalation of dusts, generated by the material, during the course of normal handling, may produce severely toxic effects; these may be fatal.
- The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress. 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 my be exposed to further risk if handling and use of the material result in excessive exposures.

Be Aware: Repeated minor exposures with only mild symptoms may have serious cumulative poisoning effect.

Chronic Health Effects

- 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.

Be Aware: Repeated minor exposure with only mild symptoms may have serious cumulative poisoning effect.

Toxicity and Irritation
No data for this material.

Section 12 – Ecological Information

Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.
This material and its container must be disposed of as hazardous waste.
Avoid release to the environment.
Refer to special instructions/safety data sheets.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistance:Air	Bioaccumulation	Mobility
Strychnine Hydrochloride	No Data Available	No Data Available	No Data Available	No Data Available

Section 13 – Disposal Considerations

- Containers may still present a chemical hazard/danger when empty.
- Return to supplier for reuse/recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorized landfill.
- Where possible retain the label warnings and MSDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/or territory. Each user must refer to laws operating in their area.

A Hierarchy of Controls seems to be common – the user should investigate:

- Reduction.
- 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.
- Dispose of by: burial in a landfill specifically licensed to accept chemical and/or pharmaceutical wastes or incineration in a licensed apparatus (after adding mixture with suitable combustible material).
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

Section 14 – Transportation Information

Labels Required: TOXIC
HAZCHEM:
2X (ADG7)

Air Transport IATA

ICAO/IATA Class:	6.1	ICAO/IATA Subrisk:	None
UN/ID Number:	1692	Packing Group:	I
Special Provisions:	A5		

Cargo Only

Packing Instructions:	673	Maximum Qty/Pack:	50kg

Passenger and Cargo

Packing Instructions:	666	Maximum Qty/Pack:	5kg

Passenger and Cargo Limited Quantity

Packing Instructions:	Forbidden	Maximum Qty/Pack:	Forbidden

Shipping name: STRYCHNINE or STRYCHNINE SALTS

Maritime Transport IMDG

IMDG Class	6.1	IMDG Subrisk:	P
UN Number:	1692	Packing Group:	I
EMS Number:	F-A,S-A	Special Provisions:	43
Limited Quantities:	0	Marine Pollutant:	Yes

Shipping name: STRYCHNINE or STRYCHNINE SALTS

Section 15 – Regulatory Information

Indications of Danger

N	Dangerous for the environment
T+	Very toxic

Poisons Schedule
S7,S4

Regulations

Strychnine hydrochloride (CAS: 1421-86-9, 6101-04-8 is found on the following regulatory lists:

"Australia – Australian Capital Territory – Environmental Protection Regulation: Ambient environmental standards (Domestic water supply – inorganic chemicals)", "Australia – Australian Capital Territory – Environment Protection Regulation: Ambient environmental standards (STOCK – inorganic chemicals)", "Australia – Australian Capital Territory – Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm – Domestic water supply quality", "Australia – Australian Capital Territory – Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (IRRIG)", "Australia – Australian Capital Territory – Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (STOCK)", "Australia Drinking Water Guideline Values for Physical and Chemical Characteristics", "Australia Hazardous Substances", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", 'Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) – Appendix E (Part 2)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) – Appendix G", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) – Appendix J (Part 2)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) – Schedule 4", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) – Schedule 7", "International Maritime Dangerous Goods Requirements (IMDG Code) – Marine Pollutants", "International Maritime Dangerous Goods Requirements (IMDG Code) – Substance Index", "Sigma-Aldrich Transport Information", "United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments", "WHO Guidelines for Drinking-water Quality – Chemicals for which guideline values have not been established".

Section 16 – Other Information

Ingredients with Multiple CAS Numbers

Ingredient Name	CAS
Strychnine hydrochloride	1421-86-9, 6101-04-8

- The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Users should make their own investigations to determine the suitability of the information for their particular purposes. Nashcorp Pty Ltd shall not be held liable for any damage resulting from handling or contact with the above product.