Material Safety Data Sheet

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
(+)-Tubocurarine dichloride

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
C37-H41-Cl2-N2-O6, "(+)-7' , 12' -dihydroxy-6, 6-dimethoxy-2, 2', 2' -trimethyltubocuraranium", "chloride hydrochloride", Jexin, Tubadil, Delacurarine, Curarin-HAF, Tubarine, Intocostrin, "curare extract", "muscle relaxant/", "non-depolarising agent"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

<table>
<thead>
<tr>
<th>Flammability:</th>
<th>Toxicity:</th>
<th>Body Contact:</th>
<th>Reactivity:</th>
<th>Chronic:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min</td>
<td>Max</td>
<td>Min</td>
<td>Max</td>
<td>Min</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

CANADIAN WHMIS SYMBOLS

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4
EMERGENCY OVERVIEW

RISK
Irritating to skin.
Risk of serious damage to eyes.
Toxic by inhalation and if swallowed.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
- Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.
- Tubocurarine and its structural analogues rarely produces side-effects at levels employed during anaesthesia but in overdose may cause respiratory failure (by paralysing intercostal muscles and the diaphragm) and hypotension.
- Regurgitation of stomach contents may also occur as a result of relaxation of the oesophageal muscle and sphincters.

EYE
- If applied to the eyes, this material causes severe eye damage.

SKIN
- This material can cause inflammation of the skin on contact in some persons.
- The material may accentuate any pre-existing dermatitis condition.
- Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- 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
- Inhalation of dusts, generated by the material, during the course of normal handling, may produce toxic effects.
- The material is not thought to produce respiratory irritation (as classified using animal models).
- Nevertheless inhalation of dusts, or fume, 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.

CHRONIC HEALTH EFFECTS
- Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
- There is limited evidence that, skin contact with this product is more likely to cause a sensitization reaction in some persons compared to the general population.
- 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.
- The benzylisoquinoline alkaloids (BIAs) are a complex and diverse group of natural products consisting of more than 2500 known structures. The general role of alkaloids in the chemical defense of plants against herbivores and pathogens suggests that BIAs contribute to the reproductive fitness of plants with the ability to produce these compounds.
- Certain benzylisoquinoline compounds used in neuromuscular blockade have a tendency to release histamine, particularly at higher doses.
- Exposure to small quantities may induce hypersensitivity reactions characterized by acute bronchospasm, hives (urticaria), deep dermal wheals (angioneurotic edema), running nose (rhinitis) and blurred vision. Anaphylactic shock and skin rash (non-thrombocytopenic purpura) may occur.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS RN</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-tubocurarine chloride</td>
<td>57-94-3</td>
<td>&gt;98</td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID MEASURES

SWALLOWED
- 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:
GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

When any large container (including road and rail tankers) is involved in a fire,
· Wear full body protective clothing with breathing apparatus.
· Alert Emergency Responders and tell them location and nature of hazard.

FIRE FIGHTING
· Foam.
· Water spray or fog.

EXTINGUISHING MEDIA
· Additional neostigmine may be given but a total dose of 5 mg should not be exceeded.
· Neostigmine methylsulfate should be given intravenously in a dose of 2 to 3 mg over 60 secs with 0.
· In respiratory failure, respiration should be assisted.
· Acid-base and/or serum electrolyte abnormalities may potentiate or antagonize the action of neuromuscular blocking agents in the affected limbs. To avoid inaccurate dosing, neuromuscular monitoring should be performed on a non-paretic limb.
· Acid-base and/or serum electrolyte abnormalities may potentiate or antagonize the action of neuromuscular blocking agents.
· Treatment of overdose or intoxication by tubocurarine and its structural analogues:
  - In respiratory failure, respiration should be assisted.
  - Neostigmine methylsulfate should be given intravenously in a dose of 2 to 3 mg over 60 secs with 0.6 to 1.2 mg of atropine sulfate.
  - Additional neostigmine may be given but a total dose of 5 mg should not be exceeded.

About 50% of an absorbed dose is excreted unchanged in the urine over several hours with the remainder being metabolised. Does not pass the placenta or blood-brain barrier in significant quantities.

NOTES TO PHYSICIAN
- Antagonism of Neuromuscular Block: Antagonists (such as neostigmine and edrophonium) should not be administered when complete neuromuscular block is evident or suspected. The use of a peripheral nerve stimulator to evaluate recovery and antagonism of neuromuscular block is recommended.
- Patients administered antagonists should be evaluated for adequate clinical evidence of antagonism, e.g., 5-second head lift and grip strength. Ventilation must be supported until no longer required.
- Antagonism may be delayed in the presence of debilitation, carcinomatosis, and the concomitant use of certain broad spectrum antibiotics, or anesthetic agents and other drugs which enhance neuromuscular block or separately cause respiratory depression. Under such circumstances the management is the same as that of prolonged neuromuscular block.
- Patients with burns have been shown to develop resistance to nondepolarizing neuromuscular blocking agents, including atracurium.
- The extent of altered response depends upon the size of the burn and the time elapsed since the burn injury.
- Patients with hemiparesis or paraparesis also may demonstrate resistance to nondepolarizing muscle relaxants in the affected limbs.

Section 5 - FIRE FIGHTING MEASURES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapour Pressure (mmHG)</td>
<td>Negligible</td>
</tr>
<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
· Water spray or fog.
· Foam.

FIRE FIGHTING
· Alert Emergency Responders and tell them location and nature of hazard.
· Wear full body protective clothing with breathing apparatus.
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 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. Combustion products include: carbon monoxide (CO), carbon dioxide (CO2), hydrogen chloride, phosgene, nitrogen oxides (NOx), other pyrolysis products typical of burning organic material.
May emit poisonous 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:
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.
- 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
- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE
PROCEDURE FOR HANDLING
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
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.
- Lined metal can, Lined metal pail/drum
- Plastic pail.
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 REQUIREMENTS
- Store in original containers.
- Keep containers securely sealed.
NOTE: Store in the dark.

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>
</tr>
</thead>
</table>

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### US - California
Permissible Exposure Limits for Chemical Contaminants

<table>
<thead>
<tr>
<th>D-tubocurarine chloride</th>
<th>5</th>
<th>(n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Particulates not otherwise regulated Respirable fraction)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### US - Tennessee
Occupational Exposure Limits - Limits For Air Contaminants

<table>
<thead>
<tr>
<th>D-tubocurarine chloride</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Particulates not otherwise regulated Respirable fraction)</td>
<td></td>
</tr>
</tbody>
</table>

### US - Wyoming
Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants

<table>
<thead>
<tr>
<th>D-tubocurarine chloride</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Particulates not otherwise regulated (PNOR)(f)-Respirable fraction)</td>
<td></td>
</tr>
</tbody>
</table>

### US - Michigan
Exposure Limits for Air Contaminants

<table>
<thead>
<tr>
<th>D-tubocurarine chloride</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Particulates not otherwise regulated, Respirable dust)</td>
<td></td>
</tr>
</tbody>
</table>

### Canada - Prince Edward Island
Occupational Exposure Limits

<table>
<thead>
<tr>
<th>D-tubocurarine chloride (Particles Insoluble or Poorly Soluble) [NOS] Inhalable particles</th>
<th>10</th>
</tr>
</thead>
</table>

See Appendix B current TLV/BEI Book

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### PERSONAL PROTECTION

**RESPIRATOR**
Particulate
Consult your EHS staff for recommendations

**EYE**
- Chemical protective goggles with full seal
- Shielded mask (gas-type)
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses 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. Lenses should be removed at the first signs of eye redness or irritation - lenses should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

**HANDS/FEET**

**NOTE:** The material may produce skin sensitization in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.

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.

- Double gloving should be considered.
- PVC gloves.
- Protective shoe covers.
- Head covering.

**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.

**ENGINEERING CONTROLS**

- For Laboratory-scale handling of Substances assessed to be toxic by inhalation. Quantities of up to 25 grams may be handled in Class II biological safety cabinets*; Quantities of 25 grams to 1 kilogram may be handled in Class II biological safety cabinets* or equivalent containment systems; Quantities exceeding 1 kg may be handled either using specific containment, a hood or Class II biological safety cabinet*.

- HEPA terminated local exhaust ventilation should be considered at point of generation of dust, fumes or vapors.

For potent pharmacological agents:

**Powders**

To prevent contamination and overexposure, no open handling of powder should be allowed.

- Powder handling operations are to be done in a powders weighing hood, a glove box, or other equivalent ventilated containment system.

- In situations where these ventilated containment hoods have not been installed, a non-ventilated enclosed containment hood should be used.

- Pending changes resulting from additional air monitoring data, up to 300 mg can be handled outside of an enclosure provided that no grinding, crushing or other dust-generating process occurs.

- An air-purifying respirator should be worn by all personnel in the immediate area in cases where non-ventilated containment is used, where significant amounts of material (e.g., more than 2 grams) are used, or where the material may become airborne (as through grinding, etc.).

- Powder should be put into solution or a closed or covered container after handling.

- If using a ventilated enclosure that has not been validated, wear a half-mask respirator equipped with HEPA cartridges until the enclosure is validated for use.

**Solutions Handling:**

- Solutions can be handled outside a containment system or without local exhaust ventilation during procedures with no potential for aerosolisation. If the procedures have a potential for aerosolisation, an air-purifying respirator is to be worn by all personnel in the immediate area.

- Solutions used for procedures where aerosolisation may occur (e.g., vortexing, pumping) are to be handled within a containment system or with local exhaust ventilation.

- In situations where this is not feasible (may include animal dosing), an air-purifying respirator is to be worn by all personnel in the immediate area. If using a ventilated enclosure that has not been validated, wear a half-mask respirator equipped with HEPA cartridges until the enclosure is validated for use.

- Ensure gloves are protective against solvents in use.

### Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

#### PHYSICAL PROPERTIES

**Solid.**

Mixes with water.

<table>
<thead>
<tr>
<th>State</th>
<th>Divided solid</th>
<th>Molecular Weight</th>
<th>Viscosity</th>
<th>Solubility in water (g/L)</th>
<th>pH (1% solution)</th>
<th>pH (as supplied)</th>
<th>Decomposition Temp (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting Range (°F)</td>
<td>514.4 (decomposes)</td>
<td>Molecular Weight</td>
<td>681.66</td>
<td>Miscible</td>
<td>4-6</td>
<td>Not applicable</td>
<td>Not Available</td>
</tr>
<tr>
<td>Boiling Range (°F)</td>
<td>Not applicable</td>
<td>Solubility in water (g/L)</td>
<td>Miscible</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flash Point (°F)</td>
<td>Not available</td>
<td>pH (1% solution)</td>
<td>4-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decomposition Temp (°F)</td>
<td>Not Available</td>
<td>pH (as supplied)</td>
<td>Not applicable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Autoignition Temp (°F) Not available  Vapour Pressure (mmHG) Negligible
Upper Explosive Limit (%) Not available. Specific Gravity (water=1) Not available
Lower Explosive Limit (%) Not available Relative Vapor Density (air=1) >1
Volatile Component (%vol) Negligible Evaporation Rate Not applicable

**APPEARANCE**
White or slightly yellow-white, odourless, crystalline powder; mixes with water (1:20), alcohol (1:30).

**Section 10 - CHEMICAL STABILITY**

**CONDITIONS CONTRIBUTING TO INSTABILITY**
- Presence of incompatible materials.
- Product is considered stable.

**STORAGE INCOMPATIBILITY**
- Avoid reaction with oxidizing agents.

For incompatible materials - refer to Section 7 - Handling and Storage.

**Section 11 - TOXICOLOGICAL INFORMATION**

D-tubocurarine chloride

**TOXICITY AND IRRITATION**

D-TUBOCURARINE CHLORIDE:
- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

<table>
<thead>
<tr>
<th>TOXICITY</th>
<th>IRRITATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intraperitoneal (rat) LD50: 0.27 mg/kg</td>
<td>Nil Reported</td>
</tr>
<tr>
<td>Oral (mouse) LD50: 150 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Intraperitoneal (mouse) LD50: 0.4221 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Subcutaneous (mouse) LD50: 0.6 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Intravenous (mouse) LD50: 0.13 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Oral (cat) LD50: 18 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Intravenous (cat) LD50: 0.4 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Intravenous (rabbit) LD50: 0.146 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

Ptosis, lowering of blood pressure, dyspnea recorded.

**Section 12 - ECOLOGICAL INFORMATION**

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

**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.
Section 14 - TRANSPORTATION INFORMATION

DOT:
Symbols: None Hazard class or Division: 6.1
Identification Numbers: UN1544 PG: II
Label Codes: 6.1 Special provisions: IB8, IP2, IP4, T3, TP33
Packaging: Exceptions: 153 Packaging: Non-bulk: 212
Packaging: Exceptions: 153 Quantity limitations: 25 kg
Passenger aircraft/rail:
Quantity Limitations: Cargo 100 kg Vessel stowage: Location: A aircraft only:
Vessel stowage: Other: None
Hazardous materials descriptions and proper shipping names:
Alkaloids, solid, n.o.s. or Alkaloid salts, solid, n.o.s. poisonous

Air Transport IATA:
ICAO/IATA Class: 6.1 ICAO/IATA Subrisk: None
UN/ID Number: 1544 Packing Group: II
Special provisions: A3
Cargo Only
Packing Instructions: 615 Maximum Qty/Pack: 100 kg
Passenger and Cargo Passenger and Cargo
Packing Instructions: 613 Maximum Qty/Pack: 25 kg
Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity
Packing Instructions: Y613 Maximum Qty/Pack: 1 kg
Shipping Name: ALKALOID SALTS, SOLID, N.O.S. *(CONTAINS D-TUBOCURARINE CHLORIDE)

Maritime Transport IMDG:
IMDG Class: 6.1 IMDG Subrisk: None
UN Number: 1544 Packing Group: II
EMS Number: F-A, S-A Special provisions: 43 274
Limited Quantities: 500 g
Shipping Name: ALKALOIDS, SOLID, N.O.S. or ALKALOIDS SALTS, SOLID, N.O.S.

Section 15 - REGULATORY INFORMATION

D-tubocurarine chloride (CAS: 57-94-3,6989-98-6) is found on the following regulatory lists;
“Canada Domestic Substances List (DSL)”

Section 16 - OTHER INFORMATION

Ingredients with multiple CAS Nos
Ingredient Name CAS D-tubocurarine chloride 57-94-3, 6989-98-6

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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. 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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