# 5,5-Diphenyl Hydantoin

**Material Safety Data Sheet**

**sc-210385**

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME
5,5-Diphenyl Hydantoin

### STATEMENT OF HAZARDOUS NATURE

### NFPA

<table>
<thead>
<tr>
<th>Flammability</th>
<th>Health</th>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

### 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

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

<table>
<thead>
<tr>
<th>Hazard</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>
</tr>
<tr>
<td>Body Contact:</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Reactivity:</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
EMERGENCY OVERVIEW

RISK
Harmful if swallowed.
Irritating to eyes.
May cause CANCER.
May cause SENSITISATION by skin contact.
May cause harm to the unborn child.
Harmful: danger of serious damage to health by prolonged exposure 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.
- Phenytoin is slowly but almost completely absorbed from the gastro-intestinal tract.
Extensive metabolism occurs in the liver with the principal metabolite, 5-(4-hydroxyphenyl)-5-phenylhydantoin.
- Hydantoin derivatives may damage the stem cell which acts as the precursor to components of the blood and, as a result, produce blood dyscrasias.
Most blood cells originate from a single pluripotent stem cell which are present in the circulating blood, but differentiates only in intact bone marrow.

EYE
- This material can cause eye irritation and damage in some persons.

SKIN
- Skin contact is not thought to produce harmful health effects (as classified using animal models).
Systemic harm, however, has been identified following exposure of animals by at least one other route and 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.
- 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 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.
- Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.
- 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
- Harmful: danger of serious damage to health by prolonged exposure if swallowed.
This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects.
Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material.
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.
Rickets, reduced bone density and osteomalacia have been reported in patients receiving phenytoin treatment. This may be due to the induction by phenytoin of liver enzymes involved in the metabolism of Vitamin D. When administered in the diet phenytoin increased the incidence of thymic and generalised lymphomas in female mice. Intraperitoneal injection induced increased incidences of thymic and mesenteric lymphomas and leukemias in mice of both sexes. Cancer, mostly neuroblastoma and tumours of the neural crest origin has been reported in six children, aged 3 years or less, who had been diagnosed as having congenital abnormalities thought to be induced by prenatal exposure to phenytoin. There have been several cases of lymphoma reported in patients undergoing phenytoin therapy.
Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS RN</th>
<th>%</th>
</tr>
</thead>
</table>

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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:

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.

SKIN
- If skin contact occurs: - Immediately remove all contaminated clothing, including footwear. - Flush skin and hair with running water (and soap if available).

INHALED
- If fumes or combustion products are inhaled remove from contaminated area. - Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN
- Treat symptomatically.
- For acute intoxications involving phenytoin:
  - The stomach should be emptied by aspiration and lavage.
  - The use of activated charcoal as an adjunct to gastric lavage has been recommended.
  - Supportive therapy alone may then suffice for patients who are not severely poisoned.

Martindale.

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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
- Foam.
- Dry chemical powder.

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), 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: Particulate
- Gloves: Particulate
- Respirator: Particulate

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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**
- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

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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.

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.
- Packaging as recommended by manufacturer.
- Check that containers are clearly labelled.
- Tamper-proof containers.
- Polyethylene or polypropylene containers.
- Metal drum with sealed plastic liner.

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.

**STORAGE REQUIREMENTS**
- Store in original containers.
- Keep containers securely sealed.

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**Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

**EXPOSURE CONTROLS**
The following materials had no OELs on our records
- phenytoin: CAS:57-41-0

**PERSONAL PROTECTION**

**RESPIRATOR**
- particulate.

**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. 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**
- 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.
· 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.
· PVC gloves.
· Protective shoe covers.
· Head covering.

OTHER
· Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area.
· Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted.
· Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely.
· Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood.
· Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.
· 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.

ENGINEERING CONTROLS
· Employees exposed to confirmed human carcinogens should be authorized to do so by the employer, and work in a regulated area.
· Work should be undertaken in an isolated system such as a “glove-box”. Employees should wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.
· Within regulated areas, the carcinogen should be stored in sealed containers, or enclosed in a closed system, including piping systems, with any sample ports or openings closed while the carcinogens are contained within.
· Open-vessel systems are prohibited.
· Each operation should be provided with continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation.
· Exhaust air should not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated. Clean make-up air should be introduced in sufficient volume to maintain correct operation of the local exhaust system.
· For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.
· Except for outdoor systems, regulated areas should be maintained under negative pressure (with respect to non-regulated areas).
· Local exhaust ventilation requires make-up air be supplied in equal volumes to replaced air.
· Laboratory hoods must be designed and maintained so as to draw air inward at an average linear face velocity of 150 feet/ min. with a minimum of 125 feet/ min. Design and construction of the fume hood requires that insertion of any portion of the employees body, other than hands and arms, be disallowed.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES
Solid.
Does not mix with water.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>Divided solid</td>
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<tr>
<td>Melting Range (°F)</td>
<td>561-567 (decomp)</td>
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<tr>
<td>Boiling Range (°F)</td>
<td>Not available</td>
</tr>
<tr>
<td>Flash Point (°F)</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition Temp (°F)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Autoignition Temp (°F)</td>
<td>Not available</td>
</tr>
<tr>
<td>Upper Explosive Limit (%)</td>
<td>Not available</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>252.27</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not Applicable</td>
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<tr>
<td>Solubility in water (g/L)</td>
<td>Immiscible</td>
</tr>
<tr>
<td>pH (1% solution)</td>
<td>Not applicable</td>
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<tr>
<td>pH (as supplied)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour Pressure (mmHG)</td>
<td>Negligible</td>
</tr>
<tr>
<td>Specific Gravity (water=1)</td>
<td>Not available</td>
</tr>
</tbody>
</table>

Not available
APPEARANCE
White, odourless, tasteless, crystalline powder; does not mix with water. Soluble in hot alcohol and solutions of alkali hydroxides.

Section 10 - CHEMICAL STABILITY

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

STORAGE INCOMPATIBILITY
· Avoid strong bases.
· Avoid reaction with oxidizing agents.

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

Section 11 - TOXICOLOGICAL INFORMATION

PHENYTOIN:

TOXICITY AND IRRITATION

TOXICITY

<table>
<thead>
<tr>
<th>Route</th>
<th>LDLo (mg/kg)</th>
<th>LD50 (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral (child)</td>
<td>100</td>
<td>1635</td>
</tr>
<tr>
<td>Oral (rat)</td>
<td>2000</td>
<td>1635</td>
</tr>
<tr>
<td>Intraperitoneal (rat)</td>
<td>&gt;1500</td>
<td>2000</td>
</tr>
<tr>
<td>Subcutaneous (rat)</td>
<td>&gt;1500</td>
<td>2000</td>
</tr>
<tr>
<td>Intravenous (rat)</td>
<td>&gt;1500</td>
<td>2000</td>
</tr>
<tr>
<td>Oral (mouse)</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Oral (mammal)</td>
<td>250</td>
<td>250</td>
</tr>
</tbody>
</table>

IRRITATION

Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's edema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type.

WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans. Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen [National Toxicology Program: U.S. Dep. of Health & Human Services 2002]. Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis). Encephalitis, tumours, altered sleep time, hallucination, convulsion, excitement, changes in motor activity, muscle weakness, ataxia, muscle contraction, irritability, respiratory stimulation, jaundice, kidney tumours, blood changes, lymphoma, dermatitis, skin tumours, menstrual cycle changes, maternal effects, changes on fertility, extra embryonic structures, changes in embryo cytology, foetotoxicity, foetolethality, specific developmental effects (involving central nervous system, eye, craniofacial region, skin and appendages, body wall, musculoskeletal system, cardiovascular system, urogenital system, immune and reticuloendothelial system), transplacental tumorigenesis, effects on new-born recorded.

CARCINOGEN

Phenytoin

<table>
<thead>
<tr>
<th>Substance</th>
<th>International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>phenytoin</td>
<td>US - Rhode Island Hazardous Substance List</td>
<td>C</td>
</tr>
<tr>
<td>PHENYTOIN</td>
<td>US Environmental Defense Scorecard Recognized Carcinogens</td>
<td>P65</td>
</tr>
<tr>
<td>PHENYTOIN</td>
<td>US Environmental Defense Scorecard Suspected Carcinogens</td>
<td>P65</td>
</tr>
<tr>
<td>VPVB_(VERY~)</td>
<td>US - Maine Chemicals of High Concern List</td>
<td>Carcinogen</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>phenytoin</td>
<td>HIGH</td>
<td>No Data Available</td>
<td>LOW</td>
<td>MED</td>
</tr>
</tbody>
</table>

**Section 13 - DISPOSAL CONSIDERATIONS**

**Disposal Instructions**

All waste must be handled in accordance with local, state and federal regulations.

1. Puncture containers to prevent re-use and bury at an authorized landfill.
2. 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.
3. A Hierarchy of Controls seems to be common - the user should investigate:
   - Reduction
   - Reuse
   - Recycling
   - Disposal (if all else fails)
4. 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.
5. DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.
6. 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: UN3249 PG: III
- Label Codes: 6.1 Special provisions: T1, TP33
- Packaging: Exceptions: 153 Packaging: Non-bulk: 213
- Packaging: Exceptions: 153 Quantity limitations: 5 kg
- Passenger aircraft/rail:
  - Quantity Limitations: Cargo 5 kg Vessel stowage: Location: C
  - Vessel stowage: Other: 40
- Hazardous materials descriptions and proper shipping names:
  - Medicine, solid, toxic, n.o.s.

**Air Transport IATA:**
- UN/ID Number: 3249
- Packing Group: III
- Special provisions: A3
- Cargo Only
- Packing Instructions: 200 kg Maximum Qty/Pack: 677
- Passenger and Cargo Passenger and Cargo
- Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity
- Packing Instructions: 5 kg Maximum Qty/Pack: 670
- Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity
- Packing Instructions: 5 kg Maximum Qty/Pack: Y645
- Shipping Name: MEDICINE, SOLID, TOXIC, N.O.S.(CONTAINS PHENYTOIN)

**Maritime Transport IMDG:**
- IMDG Class: 6.1
- IMDG Subrisk: None
- UN Number: 3249
- Packing Group: III
- Special provisions: A3
- EMS Number: F-A, S-A Special provisions: 221 223
- Limited Quantities: 5 kg
- Shipping Name: MEDICINE, SOLID, TOXIC, N.O.S.(contains phenytoin)

**Section 15 - REGULATORY INFORMATION**

phenytoin (CAS: 57-41-0) is found on the following regulatory lists;
- Canada Domestic Substances List (DSL);
- International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs;
- OECD Representative List of High Production Volume (HPV) Chemicals;
- US - California Air Toxics "Hot Spots" List (Assembly Bill 2588) Substances for which emissions must be quantified;
- US - California Air Toxics "Hot Spots" List (Assembly Bill 2588) Substances for which production, use or other presence must be reported;
- US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List;
- US - California Proposition 65 - Carcinogens;
- US - California Proposition 65 - Priority List for the Development of MADLs for Chemicals Causing Reproductive Toxicity;
- US - California Proposition 65 - Priority List for the Development of NSRLs for Carcinogens;
- US - California Proposition 65 - Reproductive Toxicity;
- US - Connecticut Hazardous Air Pollutants;
- US - Maine Chemicals of High Concern List;
- US - Minnesota Hazardous Substance List;
- US - New Jersey Right to Know
Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

- Inhalation may produce health damage*.
  * (limited evidence).

Denmark Advisory list for selfclassification of dangerous substances
Substance CAS Suggested codes phenytoin 57- 41- 0 Mu3; R68 Rep3; R63 Xn; R22

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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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