

MSDS Number: **S6980** \* \* \* \* \* *Effective Date: 11/10/05* \* \* \* \* \* *Supersedes: 02/18/03*



From: Mallinckrodt Baker, Inc.  
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24 Hour Emergency Telephone: 908-859-2151  
CHEMTREC: 1-800-424-9300

National Response in Canada  
CANUTEC: 613-996-6666

Outside U.S. And Canada  
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

# STRYCHNINE SULFATE

## 1. Product Identification

**Synonyms:** Strychnine sulfate pentahydrate; Strychnine sulfate, 5-Hydrate

**CAS No.:** 60-41-3 (Anhydrous) 6101-43-5 (Pentahydrate)

**Molecular Weight:** 856.98

**Chemical Formula:** C<sub>42</sub>H<sub>46</sub>N<sub>4</sub>O<sub>8</sub>S . 5H<sub>2</sub>O

**Product Codes:** 4060

## 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent
Hazardous		
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Strychnine, Sulfate	60-41-3	90 - 100%
Yes		

## 3. Hazards Identification

## Emergency Overview

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**POISON! DANGER! MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM.**

**J.T. Baker SAF-T-DATA<sup>(tm)</sup>** Ratings (Provided here for your convenience)

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Health Rating: 3 - Severe (Poison)

Flammability Rating: 1 - Slight

Reactivity Rating: 0 - None

Contact Rating: 1 - Slight

Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES

Storage Color Code: Blue (Health)

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## Potential Health Effects

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### **Inhalation:**

Strychnine sulfate may be absorbed by inhalation and can result in generalized convulsions with the risk of strychnine poisoning (see ingestion). When heated to decomposition, the fumes and vapors can result in respiratory tract irritation, bronchitis, pneumonitis, or pulmonary edema.

### **Ingestion:**

Extremely toxic. Human lethal dose is estimated at 100-120 mg for an adult. Rapidly absorbed from the gastrointestinal and respiratory tracts. Principal symptom is violent convulsions sometimes beginning within a few minutes of ingestion. Any sound or movement may elicit seizure activity. Other symptoms include: nausea, vomiting, diarrhea, muscular cramps and stiffness.

### **Skin Contact:**

Mild, acidic irritant. Inflammation and soreness can result from contact with this sulfate salt.

### **Eye Contact:**

Irritant to the eyes due to the acid salt characteristics. Absorption through the tissue may occur if eyes are not promptly treated.

### **Chronic Exposure:**

No information found.

### **Aggravation of Pre-existing Conditions:**

No information found.

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## 4. First Aid Measures

### **Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

### **Ingestion:**

DO NOT INDUCE VOMITING! Spontaneous vomiting and convulsions may occur. Activated charcoal should be administered immediately to minimize gastrointestinal absorption.

Administer charcoal in a slurry (aqueous or mixed with saline cathartic or sorbitol). The FDA suggests 240 ml of diluent /30g of charcoal. Usual charcoal dose is 30 to 100 grams in adults. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Skin Contact:**

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

**Note to Physician:**

Oral Exposure:

Emesis and gastric lavage are not recommended since these procedures may precipitate convulsions. Activated charcoal should be administered immediately to minimize gastrointestinal absorption. Gastric lavage may be indicated if performed soon after ingestion, or in patients who are comatose or at risk of convulsing. Death is usually due to interference with pulmonary function. Monitor and maintain adequate respirations and oxygenation.

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## 5. Fire Fighting Measures

**Fire:**

As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.

**Explosion:**

Not considered to be an explosion hazard. Sealed containers may rupture when heated.

**Fire Extinguishing Media:**

Water spray, dry chemical, alcohol foam, or carbon dioxide. Do not allow water runoff to enter sewers or waterways.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National

Response Center is (800) 424-8802.

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## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect from physical damage. Separate from oxidizing materials. Store in the dark. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

For Strychnine:

- OSHA Permissible Exposure Limit (PEL) - 0.15 mg/m<sup>3</sup> (TWA).
- ACGIH Threshold Limit Value (TLV) - 0.15 mg/m<sup>3</sup> (TWA).

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

### **Eye Protection:**

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

**Appearance:**

Transparent crystals, or white powder.

**Odor:**

Odorless.

**Solubility:**

3 grams in 100 grams of water.

**Density:**

ca. 1.4

**pH:**

5.5 (1:100 solution)

**% Volatiles by volume @ 21C (70F):**

0

**Boiling Point:**

Not applicable.

**Melting Point:**

Loses water @ 100C (212F); melts, decomposes @ 200C (392F)

**Vapor Density (Air=1):**

No information found.

**Vapor Pressure (mm Hg):**

No information found.

**Evaporation Rate (BuAc=1):**

No information found.

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## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage. Effloresces in dry air.

**Hazardous Decomposition Products:**

Emits highly toxic fumes when heated to decomposition. Burning may produce carbon monoxide, carbon dioxide, nitrogen oxides.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Alkalis, alkali carbonates and bicarbonates, benzoates, bromides, iodides, dichromates, salicylates, tannic and picric acids, borax, gold chloride and other alkaloid precipitants, piperazine, and potassium-mercuric iodide (not if acacia is present).

**Conditions to Avoid:**

Heat, flame, sources of ignition, light and incompatibles.

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## 11. Toxicological Information

Oral Rat LD50: 2.6 mg/kg (anhydrous strychnine sulfate).

-----\Cancer Lists\-----			
Ingredient Category	---NTP Carcinogen---		IARC
	Known	Anticipated	
Strychnine, Sulfate (60-41-3)	No	No	None

## 12. Ecological Information

### Environmental Fate:

For Strychnine:

When released into the soil, this material has the potential to photolyze on soil surfaces. Volatilization and chemical hydrolysis are not expected to be important fate processes. When released into water, this material has the potential to photolyze. Volatilization, chemical hydrolysis and bioaccumulation in aquatic organisms are not expected to be important fate processes. When released into the atmosphere, this material has the potential to be removed by direct photolysis or dry deposition.

### Environmental Toxicity:

For Strychnine:

This material is expected to be toxic to terrestrial life. This material is expected to be very toxic to aquatic life. The LC50/96-hour values for fish are less than 1 mg/l.

## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. Transport Information

### Domestic (Land, D.O.T.)

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**Proper Shipping Name:** STRYCHNINE SALTS

**Hazard Class:** 6.1

**UN/NA:** UN1692

**Packing Group:** I

**Information reported for product/size: 5G**

**International (Water, I.M.O.)**

**Proper Shipping Name:** STRYCHNINE

**Hazard Class:** 6.1

**UN/NA:** UN1692

**Packing Group:** I

**Information reported for product/size: 5G**

**International (Air, I.C.A.O.)**

**Proper Shipping Name:** STRYCHNINE

**Hazard Class:** 6.1

**UN/NA:** UN1692

**Packing Group:** I

**Information reported for product/size: 5G**

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## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----  
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Ingredient TSCA EC Japan  
Australia  
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-  
Strychnine, Sulfate (60-41-3) Exempt Yes No No

-----\Chemical Inventory Status - Part 2\-----  
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Ingredient Korea --Canada-- DSL NDSL Phil.  
Strychnine, Sulfate (60-41-3) No No No Yes

-----\Federal, State & International Regulations - Part 1\-----  
--  
-SARA 302- -SARA 313-  
--  
Ingredient RQ TPQ List Chemical  
Catg.  
-----  
--  
Strychnine, Sulfate (60-41-3) 10 100\* No Strychnine s

-----\Federal, State & International Regulations - Part 2\-----  
--  
Ingredient CERCLA -RCRA- -TSCA-  
261.33 8 (d)  
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Strychnine, Sulfate (60-41-3)

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No

No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No  
SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No  
Reactivity: No (Pure / Solid)

**Australian Hazchem Code:** 2X

**Poison Schedule:** None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: 3 Flammability: 0 Reactivity: 0

**Label Hazard Warning:**

POISON! DANGER! MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED.  
CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS  
CENTRAL NERVOUS SYSTEM.

**Label Precautions:**

Do not get in eyes, on skin, or on clothing.

Wash thoroughly after handling.

Do not breathe dust.

Keep container closed.

Use only with adequate ventilation.

INTENDED FOR R & D USE ONLY.

NOT ON THE TSCA INVENTORY.

**Label First Aid:**

If swallowed, DO NOT INDUCE VOMITING! Spontaneous vomiting and convulsions may occur. Activated charcoal should be administered immediately. Never give anything by mouth to an unconscious person. Get medical attention immediately. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.

**Product Use:**

For Food and Drug or Research and Development use

**Revision Information:**

No Changes.

**Disclaimer:**

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