




MSDS Number: **T3107** \* \* \* \* \* *Effective Date: 08/17/06* \* \* \* \* \* *Supersedes: 10/10/03*

	<b>24 Hour Emergency Telephone: 908-859-2151</b> <b>CHEMTREC: 1-800-424-9300</b>
	<b>National Response in Canada</b> <b>CANUTEC: 613-996-6666</b>
<b>From: Mallinckrodt Baker, Inc.</b> <b>222 Red School Lane</b> <b>Phillipsburg, NJ 08865</b>	 
<b>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.</b>	
All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.	

# THIOUREA

## 1. Product Identification

**Synonyms:** Thiocarbamide; 2-Thiourea; Pseudothiourea; Isothiourea

**CAS No.:** 62-56-6

**Molecular Weight:** 76.12

**Chemical Formula:** (NH<sub>2</sub>)<sub>2</sub>.CS

**Product Codes:**

J.T. Baker: 4123

Mallinckrodt: 8518

## 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Thiourea	62-56-6	99 - 100%	Yes

## 3. Hazards Identification

### Emergency Overview

**WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY CAUSE ALLERGIC SKIN REACTION. POSSIBLE CANCER HAZARD. MAY CAUSE CANCER BASED ON ANIMAL DATA. Risk of cancer depends on duration and level of exposure.**

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

Health Rating: 2 - Moderate (Poison)

Flammability Rating: 1 - Slight

Reactivity Rating: 1 - Slight

Contact Rating: 3 - Severe (Life)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES  
Storage Color Code: Blue (Health)

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### Potential Health Effects

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**Inhalation:**

Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath.

**Ingestion:**

Harmful if swallowed. May affect bone marrow and consequently white blood cell, red blood cell, and platelet counts.

**Skin Contact:**

Causes irritation, redness and pain. May also cause allergic skin eruptions. Sunlight may aggravate skin allergy.

**Eye Contact:**

Causes irritation, redness, and pain.

**Chronic Exposure:**

Chronic exposure can cause liver damage and goiter (an enlarged thyroid gland). May affect bone marrow which could cause damage to blood. Material is a possible human carcinogen.

**Aggravation of Pre-existing Conditions:**

Persons with preexisting skin disorders may be more susceptible to these substances.

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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:**

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

**Skin Contact:**

Immediately flush skin with plenty of soap and water. 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.

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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:**

Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

**Fire Extinguishing Media:**

Water spray, dry chemical, alcohol foam, or carbon dioxide.

**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. Keep unnecessary and unprotected people away

from area of spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. 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 against physical damage. Isolate from oxidizing materials. Wear special protective equipment (Sec. 8) for maintenance break-in or where exposures may exceed established exposure levels. Wash hands, face, forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or smoke in workplace. 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:**

None established.

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. 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):**

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. 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-face 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. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

### **Appearance:**

White crystals.

### **Odor:**

Odorless.

### **Solubility:**

Soluble in 11 parts water.

### **Density:**

1.41

### **pH:**

No information found.

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

0

### **Boiling Point:**

150 - 160C (302 - 320F) Sublimes in vacuum

**Melting Point:**

175 - 177C (347 - 351F)

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

No information found.

**Vapor Pressure (mm Hg):**

No information found.

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

No information found.

## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**

May emit oxides of carbon, sulfur and nitrogen when heated to decomposition.

**Hazardous Polymerization:**

May occur when in contact with acrylaldehyde.

**Incompatibilities:**

Acrolein, acrylaldehyde, hydrogen peroxide, nitric acid, and oxidizing agents.

**Conditions to Avoid:**

Incompatibles.

## 11. Toxicological Information

Oral rat LD50: 125 mg/kg. Investigated as a tumorigen, mutagen, reproductive effector.

-----\Cancer Lists\-----			
Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Thiourea (62-56-6)	No	Yes	3

## 12. Ecological Information

**Environmental Fate:**

When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material may leach into groundwater. When released into water, this material is not expected to biodegrade. This material has an experimentally-determined bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet deposition. When released into the air, this material may be removed from the atmosphere to a moderate extent by dry deposition.

**Environmental Toxicity:**

Dangerous to the environment. Toxic to aquatic organisms; may cause long term adverse effects in the aquatic environment.

48 Hr EC50 Daphnia magna: 35 mg/L

## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA

approved incinerator or disposed in a RCRA approved waste 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.)

**Proper Shipping Name:** RQ, TOXIC SOLID, ORGANIC, N.O.S. (THIOUREA)

**Hazard Class:** 6.1

**UN/NA:** UN2811

**Packing Group:** III

**Information reported for product/size:** 12KG

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

**Proper Shipping Name:** TOXIC SOLID, ORGANIC, N.O.S. (THIOUREA)

**Hazard Class:** 6.1

**UN/NA:** UN2811

**Packing Group:** III

**Information reported for product/size:** 12KG

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

**Proper Shipping Name:** TOXIC SOLID, ORGANIC, N.O.S. (THIOUREA)

**Hazard Class:** 6.1

**UN/NA:** UN2811

**Packing Group:** III

**Information reported for product/size:** 12KG

## 15. Regulatory Information

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-----\Chemical Inventory Status - Part 1\-----
Ingredient                                     TSCA  EC   Japan  Australia
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Thiourea (62-56-6)                            Yes   Yes   Yes    Yes
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-----\Chemical Inventory Status - Part 2\-----
Ingredient                                     Korea  --Canada--
                                     Korea  DSL   NDSL   Phil.
-----
Thiourea (62-56-6)                            Yes   Yes   No     Yes
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-----\Federal, State & International Regulations - Part 1\-----
Ingredient                                     -SARA 302-  -SARA 313-
                                     RQ   TPQ   List  Chemical Catg.
-----
Thiourea (62-56-6)                            No   No    Yes   No
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-----\Federal, State & International Regulations - Part 2\-----
Ingredient                                     CERCLA  -RCRA-  -TSCA-
                                     CERCLA  261.33  8(d)
-----
Thiourea (62-56-6)                            10     U219    No
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Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: No  
 SARA 311/312: Acute: Yes      Chronic: Yes      Fire: No      Pressure: No  
 Reactivity: No      (Pure / Solid)

**WARNING:**

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

**Australian Hazchem Code:** 2(Z)

**Poison Schedule:** S6

**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.

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## 16. Other Information

**NFPA Ratings:** Health: **2** Flammability: **1** Reactivity: **0**

**Label Hazard Warning:**

WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY CAUSE ALLERGIC SKIN REACTION. POSSIBLE CANCER HAZARD. MAY CAUSE CANCER BASED ON ANIMAL DATA. Risk of cancer depends on duration and level of exposure.

**Label Precautions:**

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

Do not breathe dust.

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

**Label First Aid:**

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. In case of skin contact, immediately flush skin with plenty of soap and water. Remove contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases, get medical attention.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

MSDS Section(s) changed since last revision of document include: 3, 14, 15.

**Disclaimer:**

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