

# Thiodicarb

sc-251233



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key:

EXTREME

HIGH

MODERATE

LOW

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

Thiodicarb

### STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

### 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

C10-H18-N4-O4-S3, [CH3C(SCH3)=NCO2N(CH3)]2S, "ethaneimidothioic acid, N, N' -[thiobis(methylimino)carbonyloxy]]bis-, ", "dimethyl ester", "N, N-[thiobis((methylimino)carbonyloxy)]bisethanimidothioic acid dimethyl", ester, "bis-[(1-methylthioethylimino)-N-methylcarbamic acid]-N, N' -sulfide", "3, 7, 9, 13-tetramethyl-5, 11-dioxo-2, 8, 14-trithia-", "4, 7, 9, 12-tetraazapentadeca-3, 12-diene-6, 10-dione", "dimethyl N, N' -[thiobis((methylimino)carbonyloxy)]bisethanimidothioate]", CGA-45156, Dicarbaryl, Larvin, Lepicron, UC-51762, "insecticide/molluscicide"

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	1	
Toxicity:	4	
Body Contact:	2	
Reactivity:	1	
Chronic:	2	

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



### CANADIAN WHMIS SYMBOLS



## EMERGENCY OVERVIEW

### RISK

Toxic if swallowed.  
Very toxic by inhalation.  
Irritating to eyes.  
Very toxic to aquatic organisms.  
Toxic to bees.

## 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.
- Ingestion may produce nausea, vomiting, depressed appetite, abdominal cramps, and diarrhea.

#### EYE

- This material can cause eye irritation and damage in some persons.
- Direct eye contact can produce tears, eyelid twitches, pupil contraction, loss of focus, and blurred or dimmed vision. Dilation of the pupils occasionally occurs.

#### SKIN

- The material is not thought to be a skin irritant (as classified using animal models). Abrasive damage however, may result from prolonged exposures.
- Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
- There may be sweating and muscle twitches at site of contact. Reaction may be delayed by hours.
- 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 severely toxic effects; these may be fatal.
- 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.
- Poisoning due to cholinesterase inhibitors causes symptoms such as increased blood flow to the nose, watery discharge, chest discomfort, shortness of breath and wheezing. Other symptoms include increased production of tears, nausea and vomiting, diarrhea, stomach pain, involuntary passing of urine and stools, chest pain, breathing difficulty, low blood pressure, irregular heartbeat, loss of reflexes, twitching, visual disturbances, altered pupil size, convulsions, lung congestion, coma and heart failure.
- Symptoms of carbamate poisoning are similar to that of organophosphate poisoning, however, recover from carbamate poisoning is quicker and generally less likely to be cause death.
- Inhalation of dusts, generated by the material, during the course of normal handling, may produce toxic effects.

### CHRONIC HEALTH EFFECTS

- Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. Repeated or prolonged exposures to cholinesterase inhibitors produce symptoms similar to acute effects. In addition workers exposed repeatedly to these substances may exhibit impaired memory and loss of concentration, severe depression and acute psychosis, irritability, confusion, apathy, emotional liability, speech difficulties, headache, spatial disorientation, delayed reaction times, sleepwalking, drowsiness or insomnia. 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. Mice fed 346 mg/kg/day (males) and 491 mg/kg/day (females) for 4 weeks showed increased spleen weights. In another study dogs fed 38.3 mg/kg/day (males) and 39.5 mg/kg/day (females) for one-year showed changes in haematology. An increased mortality rate was seen in a two-year study in mice fed 10 mg/kg/day. Decreased body weight was recorded in rats fed 10 mg/kg/day for two-years. Maternal effects were reported in a study of pregnant rats fed 100 mg/kg/day; foetal effects included bilobed vertebral centra, and decreased size. An increased incidence of interstitial cell tumours were seen in the testes of male rats fed 900 ppm for 104 weeks.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
thiodicarb	59669-26-0	>98

## Section 4 - FIRST AID MEASURES

### SWALLOWED

- If swallowed: · Contact a Poisons Information Center or a doctor at once. · If swallowed, activated charcoal may be advised.

### EYE

- If this product comes in contact with the eyes: · Immediately hold 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.

### SKIN

- If product comes in contact with skin: · Contact a Poisons Information Center or a doctor. · DO NOT allow clothing wet with product to remain in contact with skin, strip all contaminated clothing including boots.

### INHALED

- If spray mist, vapor are inhaled, remove from contaminated area. · Contact a Poisons Information Center or a doctor at once.

### NOTES TO PHYSICIAN

- Following acute or short term repeated exposures to carbamates:
  - Carbamylation of acetylcholinesterase produces symptoms of muscarinic and nicotinic poisoning. Clinical effects disappear within 24 hours following spontaneous, in vivo, hydrolysis of the complex. Symptoms develop within 15 minutes to 2 hours.
  - Access the adequacy of the airway and ventilation and use oxygen, suction, intubation, artificial ventilation, intravenous lines and cardiac monitors as needed.

In rats, thiodicarb is rapidly metabolised to methomyl which in turn is rapidly converted to methomyl methylol, oxime, sulfoxide, and sulfoxide oxime. These are unstable and are converted to acetonitrile and carbon dioxide and are eliminated by respiration and in the urine; a small fraction of acetonitrile is further converted to acetamide, acetic acid, and carbon dioxide.

## Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg): 42.754 mPa (20 C)

Upper Explosive Limit (%): Not available

Specific Gravity (water=1): 1.4

Lower Explosive Limit (%): Not available

### 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.
  - If containment of runoff is not possible, consider allowing fire to burn-out. Use of water may present a significant pollution hazard.
- 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 (CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), 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:  
Chemical goggles.  
Gloves:  
Respirator:  
Particulate dust filter.

## Section 6 - ACCIDENTAL RELEASE MEASURES

### MINOR SPILLS

- Environmental hazard - contain spillage.
- 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**
- Environmental hazard - contain spillage.
  - 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

- Lined metal can, Lined metal pail/drum
  - Plastic pail.
  - Glass container.
- 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.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

The following materials had no OELs on our records

- thiodicarb: CAS:59669-26-0

### PERSONAL PROTECTION



### RESPIRATOR

- Particulate dust filter.
- Consult your EHS staff for recommendations

### EYE

- Safety glasses with side shields.
- Chemical goggles.

### HANDS/FEET

- Wear chemical protective gloves, eg. PVC.

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.

### OTHER

- Overalls.
- Eyewash unit.

- Ensure that there is a supply of atropine tablets on hand
- Ensure all employees have been informed of symptoms of cholinesterase poisoning and that the use of atropine in first aid is understood .

### ENGINEERING CONTROLS

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### PHYSICAL PROPERTIES

Does not mix with water.

Sinks in water.

Toxic or noxious vapours/gas.

State	DIVIDED SOLID	Molecular Weight	354.46
Melting Range (°F)	343- 345	Viscosity	Not Applicable
Boiling Range (°F)	Not available	Solubility in water (g/L)	Partly miscible
Flash Point (°F)	Not available	pH (1% solution)	Not applicable
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapor Pressure (mmHg)	42.754 mPa (20 C)
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	1.4
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	Not applicable
Volatile Component (%vol)	Negligible	Evaporation Rate	Not applicable

### APPEARANCE

White to brown crystalline powder with odour of rotten eggs; does not mix well with water (35 mg/l, 25 C). Solubilities (g/kg, 25 C): acetone 8, methanol 5, xylene 3. Not miscible with vegetable oil diluents. Stable at pH 6, rapidly hydrolysed at pH 9, and slowly at pH 3 (DT50, 9 days). Aqueous suspensions are decompose by sunlight. Stable at up to 60 deg. C.

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

### STORAGE INCOMPATIBILITY

- Carbamates are incompatible with strong acids and bases, and especially incompatible with strong reducing agents such as hydrides.
- Flammable gaseous hydrogen is produced by the combination of active metals or nitrides with carbamates.
- Incompatible with certain heavy-metal oxides and salts of certain fungicides such as maneb, mancozeb , cuprammonium carbonate or Bordeaux mixtures.

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

## Section 11 - TOXICOLOGICAL INFORMATION

thiodicarb

### TOXICITY AND IRRITATION

THIODICARB:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Dermal (rat) LD50: >1600 mg/kg	Skin rabbit): slight *
Inhalation (rat) LC50: 520 mg/m <sup>3</sup> /4h	
Oral (rabbit) LD50: 556 mg/kg	
Dermal (rabbit) LD50: 6310 mg/kg	
Oral (dog) LD50: >800 mg/kg *	
Oral (bird) LD50: 2023 mg/kg	

Oral (rat) LD50: 66 mg/kg (in water)\*

■ [ \* The Pesticides Manual, Incorporating The Agrochemicals Handbook, 10th Edition, Editor Clive Tomlin, 1994, British Crop Protection Council].

Oral (rat) LD50: 120 mg/kg (in corn oil)\* Eye (rabbit): slight \*

Inhalation (rat) LC50: 0.0015-0.0022 mg/l/4h\*

ADI 0.03 mg/kg b.w. \*

Toxicity Class WHO II; EPA II \*

NOEL (2 y) for rats and mice 3 mg/kg diet \*

### CARCINOGEN

THIODICARB	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65
THIODICARB	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	CA Prop 65

## Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms.  
Toxic to bees.  
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	Persistence: Air	Bioaccumulation	Mobility
thiodicarb	No Data Available	No Data Available		

## Section 13 - DISPOSAL CONSIDERATIONS

### US EPA Waste Number & Descriptions

#### B. Component Waste Numbers

When thiodicarb is present as a solid waste as a discarded commercial chemical product, off-specification species, as a container residue, or a spill residue, use EPA waste number U410 (waste code T).

### 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.

- Consult manufacturer for recycling options.
- Consult Waste Management Authority for disposal options.

## Section 14 - TRANSPORTATION INFORMATION



DOT:

Symbols: None Hazard class or Division: 6.1

Identification Numbers: UN2757 PG: I

Label Codes: 6.1 Special provisions: IB7, IP1, T6, TP33

Packaging: Exceptions: None Packaging: Non- bulk: 211

Packaging: Exceptions: None Quantity limitations: 5 kg

Passenger aircraft/rail:

Quantity Limitations: Cargo 50 kg Vessel stowage: Location: A aircraft only:

Vessel stowage: Other: 40

Hazardous materials descriptions and proper shipping names:

Carbamate pesticides, solid, toxic

### Air Transport IATA:

ICAO/IATA Class: 6.1 ICAO/IATA Subrisk: None

UN/ID Number: 2757 Packing Group: I  
Special provisions: A3  
Cargo Only  
Packing Instructions: 50 kg Maximum Qty/Pack: 673  
Passenger and Cargo Passenger and Cargo  
Packing Instructions: 5 kg Maximum Qty/Pack: 666  
Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity  
Packing Instructions: Forbidden Maximum Qty/Pack: Forbidden  
Shipping Name: CARBAMATE PESTICIDE, SOLID, TOXIC  
\*(CONTAINS THIODICARB)

**Maritime Transport IMDG:**

IMDG Class: 6.1 IMDG Subrisk: None  
UN Number: 2757 Packing Group: I  
EMS Number: F-A , S-A Special provisions: 61 274  
Limited Quantities: 0 Marine Pollutant: Yes  
Shipping Name: CARBAMATE PESTICIDE, SOLID, TOXIC(contains thiodicarb)

## Section 15 - REGULATORY INFORMATION

**thiodicarb (CAS: 59669-26-0) is found on the following regulatory lists;**

"US - California Proposition 65 - Carcinogens", "US - California Proposition 65 - Priority List for the Development of NSRLs for Carcinogens", "US - Maine Chemicals of High Concern List", "US - Vermont Hazardous Constituents", "US - Vermont Hazardous wastes which are Discarded Commercial Chemical Products or Off-Specification Batches of Commercial Chemical Products or Spill Residues of Either", "US - Washington Dangerous waste constituents list", "US - Washington Discarded Chemical Products List - ""U"" Chemical Products", "US Department of Transportation (DOT) List of Hazardous Substances and Reportable Quantities - Hazardous Substances Other Than Radionuclides", "US EPCRA Section 313 Chemical List", "US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act", "US RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261", "US RCRA (Resource Conservation & Recovery Act) - List of Hazardous Wastes", "US RCRA (Resource Conservation & Recovery Act) - Phase 4 LDR Rule - Universal Treatment Standards"

## Section 16 - OTHER INFORMATION

**ND**

Substance CAS Suggested codes thiodicarb 59669- 26- 0 T; R25 N; R50/53

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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](http://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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