



Safety Data Sheet

THIOSTAR - Reg. No: L 10069 (Act No 36 of 1947)

Date of issue: 24/11/2014

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1) IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER.	
Product name:	THIOSTAR
Other means of identification:	Thiodicarb 375 g/L SC
UN number:	2992
Recommended use:	Insecticide
Restrictions on use:	Agriculture
Distributed by:	MERIDIAN AGRITECH P O BOX 436 MODDERFONTEIN TEL 011 8228509 FAX 0866901386 MOBILE: 0834006056 www.agritech.co.za
Emergency Number:	POISON CENTRE (UNITAS HOSPITAL) 012 664 1100 WESTERN CAPE POISONS TELEPHONE SERVICE 0861 555 777 RAPID SPILL RESPONSE 0800 775 3305 GRIFFON POISON CENTRE: 082 446 8946
Chemical Name:	3,7,9,13-tetramethyl-5,11-dioxa-2,8,14-trithia-4,7,9,12-tetra-azapentadeca-3,12-diene-6,10-dione
2) Classification of the substance / mixture:	
Classification of the product:	H400 H302 – H332 H317 H400 P261 P264 P280 P301 + P312 P302 + P352 P501 Harmful to aquatic organisms Full text of symbols and R-phrases: see section 15.
Label elements:	  Signal word: Warning

Health effects: eyes:	May cause irritation.
Health effects: skin:	Toxic by skin absorption
Health effects: ingestion	Toxic if swallowed
Health effects: inhalation	May cause irritation. Technical material: LC50 (4 h) for rats 0.32 mg/l air.
Health effects: Other	No data available

3) COMPOSITION / INFORMATION ON INGREDIENTS:

Mixture:

Chemical name	% composition	CAS No.	EC No.	Classification according to Regulation EC 1272/2008 (CLP)	Classification according to 67/548/EEC
Thiodicarb	37.5%	59669-26-0	261-848-7	Acute Tox. 3: H301 Acute Tox. 3: H331 Aquatic Acute 1: H400 Skin Sens. 1: H317	Danger

Full text of R- and S-phrases: see section 15.

4) First Aid Measures:

Eye contact:	Remove any contact lenses and flush eyes with plenty of clean water or saline solution for at least 20 minutes holding eyelids open if necessary. Seek medical assistance immediately.
Skin contact:	Remove contaminated clothing and footwear immediately. Wash affected areas with soap and water for at least 15 minutes. Do not rub skin. Wash clothing and shoes before re-use Seek medical assistance immediately.
Ingestion:	Do not apply direct mouth-to-mouth respiration. Never give anything by mouth to an unconscious person. If swallowed induce vomiting (under the direction of medical personnel. Prevent respiratory aspiration. Rinse mouth if safe to do so. Seek medical assistance immediately. Take the patient to the hospital immediately. Advise the physician of the poisoning and show this safety data sheet or the product label to the doctor.
Inhalation:	Check the victim's state of consciousness, breathing and pulse; put in the emergency position or revive. Remove patient to fresh air. Lie down and keep warm and at rest. In the case of respiratory arrest, induce breathing with a respiratory device. Seek medical assistance immediately. Administer oxygen or artificial respiration if needed. Call a physician or poison control centre immediately.
Most important symptoms and effects, acute and delayed:	This product causes reversible cholinesterase inhibition without long term effects. Repeated overexposure may cause more severe cholinesterase inhibition with more pronounced symptoms. The symptoms of cholinesterase inhibition include: Miosis, Lacrimation, Respiratory paralysis, Bradycardia, Hypotension, Salivation, Bronchial hypersecretion, Nausea, Vomiting, Diarrhoea, Sweating, Fibrillation, Muscle twitching, Myoclonus, Somnolence, Coma, Respiratory failure, Hypothermia, Convulsions.
Indication of immediate medical attention and special treatment needed: Advice to physician	This product is a cholinesterase inhibitor carbamate. Treatment: Monitor: Respiratory, cardiac and central nervous system. Monitor: blood count. Monitor: red blood cell as well as plasma cholinesterase. ECG – monitoring (Electrocardiogram)

	<p>Oxygen or artificial respiration if needed. Keep respiratory tract clear. In the case of ingestion, gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable.</p> <p>The following antidote is generally accepted: atropine.</p> <p>Before the antidote is administered, either clear symptoms of poisoning have to be present, or the cholinesterase activity is inhibited to below 30% of the normal level.</p> <p>In the case of convulsions, a benzodiazepine (e.g. diazepam) should be given according to standard regimens.</p> <p>Contraindications: Oximes (pralidoxime, obidoxime)</p>
5) Fire-Fighting Measures:	
<p>Suitable extinguishing media:</p> <p>Unsuitable extinguishing media:</p> <p>Special hazards arising from the substance or mixture:</p>	<p>Fine water spray, fog, dry chemical, Carbon dioxide or alcohol-resistant foam. Do not use a high volume water jet, due to contamination risk..</p> <p>Avoid the use of a solid water stream as this may cause spreading.</p> <p>Burning chemicals may produce by-products more toxic than the original material. In the event of fire the following may be released:</p> <ul style="list-style-type: none"> • Carbon dioxide (CO₂) • Carbon monoxide (CO) • Nitrogen oxides (NO_x) • Sulphur oxides • Methyl isocyanate
<p>Fire-fighting:</p> <p>Protective clothing:</p>	<p>Remove spectators from surrounding area. Isolate the fire area and evacuate downwind. Use a recommended extinguishing agent for the type of surrounding fire. Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. If area is heavily exposed to fire and conditions permit, let fire burn itself out. Contain fire control agents for later disposal.</p> <p>Avoid inhaling hazardous vapours and fumes from burning materials. Keep upwind. Remove container from fire area if possible and without risk. Water can be used to cool unaffected containers but must be contained for later disposal. Do not scatter the material. Avoid pollution of waterways.</p> <p>Full protective clothing and self-contained breathing apparatus</p>
6) Accidental Release Measures:	
<p>Personal precautions:</p> <p>Environmental precautions:</p> <p>Cleaning procedure:</p>	<p>Avoid contact with the product, spillage or contaminated surfaces. Do not eat, drink or smoke when dealing with the product or product spillage. Do not breathe in spray or fumes. For personal protection see Section 8. Keep unauthorised people away.</p> <p>Do not contaminate waterways, drains and groundwater. Heavily contaminated soil layers should be removed and disposed of in an approved way. If contamination of waterways, drains, rivers or lakes is unavoidable, warn the local authorities (Police and Department of Water/Environmental affairs) immediately.</p> <p>Do not eat, drink or smoke during the clean-up process. Clear area of unprotected personnel. Wear protective gear: goggles. Control the spill at its source. Contain the spill to prevent</p>

Disposal:

from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions

Waste Disposal:

In accordance with local and national regulations. Do not contaminate water, food or feed by disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. For small spillages: Pick up with a suitable absorbent material (damp earth, sand or other suitable absorbent such as sawdust). Place the material into a clean, dry, correctly labelled container and seal for later disposal. Do not flush the spilled product into drains.

For large spillages: Dike the spillage and pump off the product

Dispose of absorbed materials according to local regulations. Collect waste into suitable containers, which can be labelled and sealed. Clean contaminated floors and objects thoroughly with water and a detergent, while observing environmental regulations.

Contain any contaminated water and fire-fighting water. If the product contaminates rivers and lakes or drains, inform the respective authorities.

Do not dispose of undiluted chemicals on site.

Container Disposal: Refer to the product label for instructions.

Emptied containers retain vapour and product residues, therefore observe all labelled safeguards until the container is destroyed. Combustible containers should be disposed of in pesticide incinerators. Non-combustible containers must first be triple-rinsed with water, then punctured and transported to a scrap metal facility for recycling or disposal.

If the container is to be refilled, do not rinse with any material or introduce any pesticide other than this product. **DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE.**

Do not transport if this container is damaged or leaking.

7) Handling & Storage:

Handling:

Do not breathe vapour or mist. Do not get in eyes, on skin or on clothing. Observe all warnings and precautions listed for the product. Do not contaminate water, fertilizer, food or feed in storage. Wash thoroughly with soap and water after handling. After each days use, wash gloves, face shield / goggles and contaminated clothing. Garments that cannot be cleaned must be destroyed (burnt).

Remove soiled clothing immediately and clean thoroughly before using again. Before removing gloves, clean them with soap and water. Wash hands immediately after work, and take a shower.

Storage:

Keep in the original, tightly closed container in a shaded, well-ventilated area, away from heat and direct sunlight. Keep out of reach of children, uninformed persons and animals.

Monitoring workers for blood cholinesterase levels is recommended.

8) Exposure Control / Personal Protection:

<p>It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.</p> <p><u>PERSONAL PROTECTIVE EQUIPMENT:</u></p> <p>Clothing:</p> <p>Gloves:</p> <p>Eye protection:</p> <p>Respiratory protection:</p> <p>Emergency eye wash:</p>	<p>Consult supplier to confirm that the equipment is suitable.</p> <p>Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance. Cotton overall buttoned to the neck and wrist, washable hat and impervious footwear.</p> <p>Employee must wear appropriate chemical-resistant gloves to prevent contact with this substance. Elbow-length PVC or nitrile gloves.</p> <p>Use chemical safety goggles and/or full face shield. Maintain eye wash fountain and quick-drench facilities in work area.</p> <p>Approved respirator with a combined dust and gas cartridge.</p> <p>Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.</p>
<p>9) Physical & Chemical Properties:</p>	
<p>Form:</p> <p>Colour:</p> <p>Odour:</p> <p>Odour threshold:</p> <p>pH:</p> <p>Melting point / Freezing point</p> <p>Initial boiling point and boiling range</p> <p>Flash point:</p> <p>Evaporation rate:</p> <p>Flammability (solid, gas)</p> <p>Upper/ lower flammability or explosive limits:</p> <p>Vapour pressure:</p> <p>Vapour density:</p> <p>Relative density:</p> <p>Solubility(ies)</p> <p>Partition coefficient: n-octanol/water</p> <p>Auto-ignition temperature:</p> <p>Viscosity:</p>	<p>Liquid</p> <p>Off-white</p> <p>Characteristic</p> <p>No data available</p> <p>5.0 – 8.5</p> <p>No data available</p> <p>No data available</p> <p>Not flammable</p> <p>No data available</p> <p>Not flammable</p> <p>No data available</p> <p>No data available</p> <p>No data available</p> <p>No data available</p> <p>1.12 g/L</p> <p>Miscible in water</p> <p>No data available</p> <p>No data available</p> <p>No data available</p>
<p>10) Stability & Reactivity:</p>	
<p>Reactivity:</p> <p>Chemical stability:</p>	<p>No data available.</p> <p>When stored appropriately this product should show no significant degradation for 2 years from the date of manufacture. Avoid: Strong acids, strong bases, Alkali metals, Heavy metals, Rust, Aluminium, Iron and Copper.</p>

Hazardous decomposition product(s):	Carbon oxides, nitrogen oxides, sulphur oxides, methomyl, Dimethyl sulphide, Methyl isocyanate. No hazardous reactions when stored and handled according to the prescribed instructions. Exothermic reaction with oxygen.
Conditions to avoid:	No data available
Incompatible materials:	No data available

11) Toxicological Information:

Acute:

Oral LD50	> 300 mg/kg, rat
Dermal LD50	> 2 000mg/kg, rabbit
Inhalation LC50 (4h):	0.32 mg/L air, rat
Skin irritation	: Not an irritant, rabbit
Eye irritation	: Mild irritant, rabbit
Sensitisation	: Sensitising (guinea pig).
Other	: No data available.

Chronic toxicity: Thiodicarb caused reversible cholinesterase inhibition without long term effects in animal studies.

Mutagenicity: Thiodicarb was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

Assessment Carcinogenicity: Thiodicarb, at high dose levels, caused an increase in the incidence of tumours in the liver and testes of tested animals. The mechanism that triggers tumours in rodents, and the type of tumours observed are not relevant to humans.

Assessment toxicity to reproduction: Thiodicarb caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Thiodicarb is related to the parental toxicity.

Assessment development toxicity: Thiodicarb caused developmental toxicity only at dose levels toxic to the dams. Thiodicarb caused a reduced pup survival. The developmental effects seen with Thiodicarb are related to maternal toxicity.

12) Ecological Information:

Information below based on active ingredient:

Bees: Toxic to bees exposed to direct spray. No hazard to honeybees after spray residues have dried..

Birds: Acute oral LD50 for Japanese quail 2023 mg/kg. Dietary LC50 for mallard ducks 5620 mg/kg diet.

Fish : LC50 (96 h) for bluegill sunfish 1.4, rainbow trout >3.3 mg/l.

Algae :No data available.

Worms: No data available.

Other aquatic species: *Daphnia magna*, LC50 (48 h) 0.027 mg/l.

Persistence and Degradability:

Animals: In rats, rapidly degraded to methomyl, which was rapidly converted to methomyl methylol, oxime, sulfoxide and sulfoxide oxime. These unstable intermediates were converted to acetonitrile and CO₂, which were eliminated primarily by respiration and in the urine; a small fraction of acetonitrile was further degraded to acetamide, acetic acid and CO₂ (K. Huhtanen & H. W. Dorough, Pestic. Biochem. Physiol., 1976, 6, 571–583). Plants Major metabolites include thiodicarb methomyl, acetonitrile and CO₂.

Soil/Environment: Rapidly degraded in soils of various types, under both aerobic and anaerobic conditions, by hydrolysis and photolysis. The primary degradation products are methomyl and methomyl oxime. DT50 of thiodicarb in soil is 3–8 d, depending upon the soil type.

13) Disposal Considerations:

Waste Disposal: Triple, or preferably pressure, rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to an approved recycler or designated collection point. If not recycling, break, crush or puncture and bury the empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this

purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

Container Disposal: If containers cannot be recycled, they should be disposed of together with the waste chemical. Do not reuse empty containers. Empty containers retain product residue. Triple rinse, or equivalent, empty container, return rinse water to dilution mixture, and dispose of dilution mixture as a hazardous waste if it cannot be disposed of by use according to label instructions. Dispose of empty containers in accordance with local regulations. Consult provincial environment ministry for advice on waste disposal. Industrial/commercial waste may be handled at licensed facilities only. Waste shipments must be securely packaged and properly labelled. Only licensed carriers may be used for transport. Combustible containers should be disposed of in approved pesticide incinerators. Non-combustible containers must first be triple-rinsed with water.

14) Transportation Information:

UN Number: 2992

Road transport ADR/RID

Class: 6.1

Packaging group: III

Shipping name: Carbamate pesticide, liquid, toxic N.O.S (Thiodicarb).

Air transport: ICAO / IATA

Class: 6.1

Packaging group: III

Shipping name: Carbamate pesticide, liquid, toxic N.O.S (Thiodicarb).

Maritime transport: IMDG

Class: 6.1

Packaging group: III

Shipping name: Carbamate pesticide, liquid, toxic N.O.S (Thiodicarb).

15) Regulatory Information:

Symbols: Xn - Harmful

Risk – Phrase:

R23/25 - Toxic by inhalation and if swallowed.

R36 - Irritating to eyes.

R43 - May cause sensitisation by skin contact.

Safety – Phrase:

S1/2 - Keep locked up and out of the reach of children.

S13 - Keep away from food, drink and animal feeding stuffs.

S20/21 - When using do not eat, drink or smoke.

S28 - after contact with skin, wash immediately with plenty of water.

S36/37 - wear suitable protective clothing and gloves.

S45 - in case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

S63 - in case of accident by inhalation: remove casualty to fresh air and keep at rest.

Hazard Statements

H400 - Harmful if swallowed or if inhaled.

H301 - Toxic if swallowed.

H302 + H332 - May cause an allergic skin reaction

H317 - May cause an allergic skin reaction

H331 - Toxic if inhaled.

H400 - Very toxic to aquatic life

Precautionary Statements

P261 - Avoid breathing dust / fume / gas / mist / vapours / spray.

P264 - Wash face, hands and any exposed skin thoroughly after handling.

P280 - Wear protective gloves / protective clothing / eye protection / face protection.

P301 + P312 - If SWALLOWED: Call a POISON CENTER / doctor / physician if you feel unwell.

P302 + P352 - If ON SKIN: Wash with plenty of water.

P501 - Dispose contents / container in accordance with local regulation.

16. Other Information

All information and instructions provided in this Safety Data Sheet (SDS) are based on the current state of scientific and technical knowledge at the date indicated on the present SDS and are presented in good faith and believed to be correct. This information applies to the product as such. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear.

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