



MATERIAL SAFETY DATA SHEET

Vitaflo® 280

Version: 2.0
Date of Issue: 02/03/2009
Date printed: 01/25/2010

1. Product and Company identification

Product name : Vitaflo® 280

Chemical name: Carboxin / Thiram (Actives)

Use of substance/preparation: Fungicide

Supplier: Chemtura Canada Co./Cie
25 ERB STREET
Elmira, Ontario N3B 3A3 Canada

Manufacturer: Chemtura Corporation
199 Benson Road
Middlebury, CT 06749 USA

Emergency telephone number: 866-744-3060 (Canada 24 hours)
CANUTEC (24 hours) 613-996-6666 (call collect)

Environmental, Health and Safety Department: 866-430-2775

Prepared by Product Safety Department Date of Issue: 02/03/2009
(US) +1 866-430-2775
(EU) +44 (0) 1753.603.000
Email: MSDSRequest@chemtura.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION!

MAY CAUSE EYE AND SKIN IRRITATION.

EXPOSURE CAN RESULT IN AN ADVERSE REACTION WITH THE CONSUMPTION OF ALCOHOLIC BEVERAGES.

CONSUMPTION OF ALCOHOL SHOULD BE AVOIDED BEFORE AND AFTER EXPOSURE.

3. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT	% BY WEIGHT
Carboxin CAS# 5234-68-4	15.59
Tetramethylthiuram disulfide CAS# 137-26-8	13.25
Ethylene glycol CAS# 107-21-1	10 - 30



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Ingredients not precisely identified are non-hazardous and/or proprietary.

WHMIS CLASSIFICATION

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CPR Compliance

This product has been classified with the hazard criteria of the CPR, and the MSDS contains all the information required by CPR.

4. FIRST AID MEASURES

Swallowing

If patient is fully conscious, give two glasses of water. Do not induce vomiting unless told to do so by the poison control center or doctor. Obtain medical attention immediately. Do not give milk, oily products, fat or alcohol. Do not give anything by mouth to an unconscious person.

Inhalation

Remove to fresh air. Give artificial respiration if not breathing. Obtain medical attention.

Skin contact

Wash skin with soap and water. Remove contaminated clothing. Wash clothing before re-use. Obtain medical attention if irritation persists.

Eye contact

Immediately flush eyes with water and continue washing for at least 15 minutes. Obtain medical attention.

Notes to physician

ROUTES OF ENTRY: Eyes, skin, ingestion, inhalation, mist.

If THIRAM is absorbed into the body it may affect the liver, kidneys, and central nervous system. Symptoms may include headache, insomnia, and nervous disorders. In severe cases symptoms may include kidney pain, dizziness, loss of memory and tremors. Alcohol intolerance may result on exposure; symptoms include flushing of the face and neck, followed by rapid heart beat, nausea, vomiting, headache and low blood pressure.

The principal toxic effects of ethylene glycol, when swallowed, are kidney damage and metabolic acidosis. Ethanol is antidotal, and its early administration may block the formation of nephrotoxic metabolites of ethylene glycol in the liver. Ethanol should be given intravenously, as a 5% solution in sodium bicarbonate, at a rate of about 10 ml ethanol per hour. A desired therapeutic level of ethanol in the blood is 100 mg/dl. Hemodialysis may be required. 4-Methylpyrazole, a potent inhibitor of alcohol dehydrogenase, has been used therapeutically to decrease the metabolic consequences of ethylene glycol poisoning before coma, seizure, and renal failure have occurred (20 mg/kg/day). Pulmonary edema with hypoxemia has been described in a number of patients following poisoning with ethylene glycol. The mechanism of production has not been elucidated, but it appears to be noncardiogenic in origin in several cases. Respiratory support with mechanical ventilation and positive end- expiratory pressure may be required. There may be cranial nerve involvement in the late stages of toxicity from swallowed ethylene glycol. In particular, effects have been reported involving the seventh, eighth and ninth cranial nerves, presenting with bilateral facial paralysis, diminished hearing, and dysphagia.

5. FIRE-FIGHTING MEASURES

Hazardous combustion products

Irritating fumes.
Oxides of carbon.
Oxides of sulfur.

Special fire fighting procedures

Do not discharge extinguishing waters into streams, rivers and lakes.

Special protective equipment for firefighters

Body covering protective clothing, full "turn-out" gear.
Self-contained breathing apparatus.

Extinguishing media

Suitable:

- Large fires:
 - alcohol-type foam or universal-type foams
- Small fires:
 - CO₂
 - dry chemical
 - water spray



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Unsuitable: - water jets

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear suitable protective equipment., Avoid contact with eyes and skin.

Environmental precautions

Prevent from entering sewer system, surface water or soil.

Methods for cleaning up

Observe government regulations.

Small spills: Absorb on inert material such as sand, earth, vermiculite.
Collect for disposal.

Large spills Dike to contain spill.
Pump excess material into suitable container (metal drums, metal tank, or such).

7. HANDLING AND STORAGE

HANDLING

Handling precautions

Do not eat, drink or smoke when handling., Avoid contact with eyes, skin and clothing., Avoid breathing vapor, aerosol and mist., Use with adequate ventilation., Wash thoroughly after handling.

Other precautions

Do not store near food, feed or fertilizers., Do not contaminate ponds, lakes, streams, or any source of water.

STORAGE

Storage requirements

Store in a cool, dry place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Consult local authorities for acceptable provincial values.

<u>Component</u>	<u>Country</u>	<u>Type</u>	<u>Value</u>	<u>Remark</u>
Tetramethylthiuram disulfide	USA	TLV-TWA	1 ml/m3	
	Alberta, Canada		1 mg/m3	
	Quebec, Canada		5 mg/m3	
Ethylene glycol	USA	Ceiling, ACGIH	100 mg/m3	(aerosol)

PERSONAL PROTECTION

Respiratory protection

In the absence of engineering controls sufficient to maintain airborne concentrations below recommended occupational exposure limit values, appropriate respiratory protection should be utilized., The determination of appropriate respiratory protection is best performed, on a case by case basis, taking into consideration the exposure conditions of the particular operation. The respirator manufacturer should be consulted to ensure that the air-purifying cartridges utilized



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will provide adequate protection for the exposure conditions and period of wear concerned. For emergency conditions where the exposure limit may be greatly exceeded, use an approved positive-pressure self-contained breathing apparatus.

Hand protection / protective gloves

Chemical resistant protective gloves

Eye protection

Face shield or chemical splash goggles in case of splashing.

Skin protection

Chemical protective clothing.

Other protective equipment

Eye bath, Safety shower

Industrial hygiene measures

Before eating, drinking or smoking, wash hands and face thoroughly with soap and water.

ENGINEERING CONTROLS

Ventilation

General (mechanical) room ventilation is expected to be satisfactory. Special, local ventilation is needed at points where vapors can be expected to escape to the workplace air.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Physical state	Liquid
Color	Pink
Odor	Mild sweet
Odor threshold	Not available

OTHER PROPERTIES

Melting point	Freezing point -20 °C
pH	~ 7.8
Specific gravity (H ₂ O=1)	~1.117
Vapor pressure	
Solubility in water	Not available
Partitioning coefficient	Not available
Flash point	Not available
Autoignition temperature	Not available
Upper explosion limits	Not available
Lower explosion limits	Not available
Kinematic viscosity	No data available.

10. STABILITY AND REACTIVITY

Stability: This product is stable under normal storage and handling conditions.



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Incompatible materials:

Oxidizing agents.
Strong acids.
Strong bases.

Hazardous reactions: Contact with strong acid can produce the following:

Carbon disulfide
Hydrogen disulfide

Hazardous combustion products:

Irritating fumes.
Oxides of carbon.
Oxides of sulfur.

Hazardous polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

GENERAL

The following information is based on analogy with a similar material.

SWALLOWING

Test results

Acute toxicity: LD50 Rat
Result: 4,587 mg/kg
Remark: Test results are based on analogy with a similar material.

SKIN ABSORPTION

Test results

Acute toxicity: LD50 - Rat
Result: > 2,000 mg/kg
Remark: Test results are based on analogy with a similar material.

INHALATION

Test results

Acute toxicity: LC50 - Rat
Result: > 1.0 mg/l
Exposure time: 4 h
Remark: Not available

SKIN CONTACT

Test results

Skin irritation: Species: Rabbit
Result: Moderate irritation
Remark: Test results are based on analogy with a similar material.

EYE CONTACT

Test results

Eye irritation: Species: Rabbit
Result: Moderate irritation
Remark: Test results are based on analogy with a similar material.

SENSITIZATION

Test results:

Species: - Guinea pigs
Classification: not sensitizing
Method: Bühler-Test
Remark: Test results are based on analogy with a similar material.



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12. ECOLOGICAL INFORMATION

<u>Component ecotoxicology</u> Carboxin <u>Acute toxicity fish:</u>	LC50 - Rainbow trout (Oncorhynchus mykiss) Result: 2.3 mg/l Exposure time: 96 h
<u>Component ecotoxicology</u> Carboxin <u>Acute toxicity fish:</u>	LC50 - Bluegill (Lepomis macrochirus) Result: 3.6 mg/l Exposure time: 96 h
<u>Component ecotoxicology</u> Tetramethylthiuram disulfide <u>Acute toxicity fish:</u>	LC50 - Rainbow trout (Oncorhynchus mykiss) Result: 0.128 mg/l Exposure time: 96 h
<u>Component ecotoxicology</u> Tetramethylthiuram disulfide <u>Acute toxicity fish:</u>	LC50 - Bluegill (Lepomis macrochirus) Result: 0.0445 mg/l Exposure time: 96 h
<u>Component ecotoxicology</u> Ethylene glycol <u>Chronic toxicity fish:</u>	EC50 - Rainbow trout (Oncorhynchus mykiss) Result: 41,000 mg/l Exposure time: 4 d
<u>Component ecotoxicology</u> Ethylene glycol <u>Chronic toxicity fish:</u>	Static LC50 - Rainbow trout (Oncorhynchus mykiss) Result: 40,761 mg/l Exposure time: 4 d
<u>Component ecotoxicology</u> Carboxin <u>Aquatic toxicity to plants:</u>	EC50 - Selastrum capricornutum Result: 0.48 mg/l Exposure time: 120 h
<u>Component ecotoxicology</u> Ethylene glycol <u>Microorganisms:</u>	EC50 - Selastrum capricornutum Result: 1,300 - 6,500 mg/l Exposure time: 96 h
<u>Component ecotoxicology</u> Ethylene glycol <u>Microorganisms:</u>	EC50 - Photobacterium phosphoreum: Result: 620 mg/l Exposure time: 0.5 h
<u>Component ecotoxicology</u> Carboxin <u>Acute toxicity to aquatic invertebrates:</u>	EC50 - Water flea (Daphnia magna) Result: > 57 mg/l Exposure time: 48 h
<u>Component ecotoxicology</u> Tetramethylthiuram disulfide <u>Acute toxicity to aquatic invertebrates:</u>	LC50 - Water flea (Daphnia magna) Result: 0.21 ppm Exposure time: 48 h

13. DISPOSAL CONSIDERATIONS

General: Dispose of waste material in compliance with all federal, provincial and local regulations., Do not discharge to sewers and natural waters.



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14. TRANSPORT INFORMATION

TDG - Canada

Not regulated by ground or rail.

IMDG Classification

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s.
Class: 9
UN ID #: UN 3082
Packing group: III
Technical description (Carboxin / Thiram)

ICAO/IATA Classification

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s.
Class: 9
UN ID #: UN 3082
Packing group: III
Technical description (Carboxin / Thiram)

Only regulated by air Into, Out of or Within the United States in containers 65 lbs (29.5 kg) or greater.

15. REGULATORY INFORMATION

WHMIS CLASSIFICATION

This product is registered under the Pest Control Products Act and is therefore exempt from WHMIS supplier labeling and MSDS requirements. Please read entire MSDS and product label for safety precautions.

CPR Compliance

This product has been classified with the hazard criteria of the CPR, and the MSDS contains all the information required by CPR.

CHEMICAL INVENTORY

United States: This product is subject to regulation under the US Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and is therefore exempt from TSCA Inventory listing requirements.

16. OTHER INFORMATION

STP	Standard temperature and pressure
W/W	Weight/Weight



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