



MATERIAL SAFETY DATA SHEET

VITAFLO 280 ®

Version: 1.7
Date of Issue: 01/03/2007
Date printed: 10/30/2008

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : VITAFLO 280 ®

Chemical name: Carboxin / Thiram

Use of substance/preparation: Fungicide

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

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

Prepared by : CHEMTURA Product Safety Department 866-430-2775 Date of Issue: 01/03/2007

Emergency telephone number: 866-744-3060 (Canada)
CANUTEC (24 hours) 613-996-6666
For additional emergency telephone numbers see section 16 of the Safety Data Sheet.

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

2. COMPOSITION / INFORMATION ON INGREDIENTS

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

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.

3. HAZARDS IDENTIFICATION



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EMERGENCY OVERVIEW

CAUTION!

MAY CAUSE EYE AND SKIN IRRITATION.

MAY CAUSE SKIN SENSITIZATION.

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

SEE SECTION 11 FOR INFORMATION ON CHRONIC HEALTH EFFECTS.

CONSUMPTION OF ALCOHOL SHOULD BE AVOIDED BEFORE AND AFTER EXPOSURE.

4. FIRST AID MEASURES

Swallowing

If patient is fully conscious, give two glasses of water. Induce vomiting. 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 nitrogen.

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

Unsuitable:

- water jets



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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>
Thiram	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)

No other exposure limits have been established

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., Use an approved full-face air-purifying respirator. For emergency and other conditions where the exposure limit may be greatly exceeded, use an approved positive-pressure self-contained breathing apparatus., The respirator manufacturer should be consulted to ensure that the air-purifying cartridges utilized will provide adequate protection for the exposure conditions and period of wear concerned.

Hand protection / protective gloves

Chemical resistant protective gloves



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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	-20 °C
pH	~ 7.8
Specific gravity (H2O=1)	~1.117
Vapor pressure	Not available
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.

Incompatible materials:

Oxidizing agents.
 Strong acids.
 Strong bases.

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

Carbon disulfide



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Hydrogen disulfide

Hazardous combustion products:

Irritating fumes.
Oxides of carbon.
Oxides of nitrogen.

Hazardous polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

SWALLOWING

Test results

Acute toxicity: LD50 Rat
Result: 4,400 mg/kg
Remark: Test results are based on analogy with a similar material.

<u>Component data</u> Thiram Acute toxicity - Swallowing:	LD50 - Rat Result: 2,600 mg/kg
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<u>Component data</u> Carboxin Acute toxicity - Swallowing:	LD50 - Rat Result: 2,900 mg/kg
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<u>Component data</u> Ethylene glycol Acute toxicity - Swallowing:	LD50 - Rat (Females) Result: 4,700 mg/kg
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<u>Component data</u> Carboxin Chronic toxicity - Swallowing:	NOEL - Rat Result: 5.5 mg/kg Exposure time: 90 d
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SKIN ABSORPTION

Test results

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

<u>Component data</u> Thiram Acute toxicity - Skin absorption:	LD50 - Rat Result: > 2,000 mg/kg
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<u>Component data</u> Carboxin Acute toxicity - Skin absorption:	LD50 - Rabbit Result: > 4,000 mg/kg
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<u>Component data</u> Ethylene glycol Acute toxicity - Skin absorption:	LD50 - Rabbit Result: 10,670 mg/kg
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<u>Component data</u> Carboxin Chronic toxicity - Skin absorption:	NOEL - Rats Result: 30 mg/kg Exposure time: 28 d
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INHALATION

Test results

Acute toxicity: LC50 - Rat
Remark: Not available

<u>Component data</u> Thiram	LC50 - Rat Result: 3.46 mg/l
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Acute toxicity - Inhalation:	Exposure time: 4 h Remark: Aerosol
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<u>Component data</u> Thiram Acute toxicity - Inhalation:	LC50 - Rabbit Result: 4.42 mg/l Exposure time: 4 h
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<u>Component data</u> Carboxin Acute toxicity - Inhalation:	LC50 - Rat Result: > 4.7 mg/l Exposure time: 4 h
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SKIN CONTACT

Test results

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

<u>Component data</u> Thiram Skin irritation - Skin contact:	Species: Rabbit Remark: Not irritant
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<u>Component data</u> Carboxin Skin irritation - Skin contact:	Species: Rabbit Result: Not irritating
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<u>Component data</u> Ethylene glycol Skin irritation - Skin contact:	Species: Rabbit Result: Minor irritation
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EYE CONTACT

Test results

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

<u>Component data</u> Thiram Eye irritation - Eye contact:	Species: Rabbit Classification: Irritant
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<u>Component data</u> Carboxin Eye irritation - Eye contact:	Species: Rabbit Result: Mild irritation
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SENSITIZATION

Test results:

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

<u>Component data</u> Thiram Sensitization:	Species: Human Result: Evidence of sensitization.
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<u>Component data</u> Carboxin Sensitization:	Species: Guinea pigs Result: Non sensitizing. Method: Bühler-Test
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<u>Component data</u> Carboxin Sensitization:	Species: Guinea pigs Result: sensitizing Classification: not sensitizing Method: Magnusson-Kligmann-Test
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MUTAGENICITY:

Component (Thiram): Ames-test: no mutagenic effect

CARCINOGENICITY

Component (Thiram): No evidence of carcinogenic activity

CARCINOGENICITY

Component (Ethylene glycol): IARC Group 3: cannot be classified as carcinogenic to humans.

DEVELOPMENT TOXICITY/TERATOGENICITY

Component data Thiram Development toxicity/Teratogenicity:	Species: Rat NOAEL maternity: 7.5 mg/kg
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12. ECOLOGICAL INFORMATION

Component ecotoxicology Carboxin Acute toxicity fish:	LC50 - Rainbow trout (Oncorhynchus mykiss) Result: 2.3 mg/l Exposure time: 96 h
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Component ecotoxicology Carboxin Acute toxicity fish:	LC50 - Bluegill (Lepomis macrochirus) Result: 3.6 mg/l Exposure time: 96 h
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Component ecotoxicology Thiram Acute toxicity fish:	LC50 - Rainbow trout (Oncorhynchus mykiss) Result: 0.046 mg/l Exposure time: 96 h
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Component ecotoxicology Thiram Acute toxicity fish:	LC50 - Rainbow trout (Oncorhynchus mykiss) Result: 0.128 mg/l Exposure time: 96 h
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Component ecotoxicology Thiram Acute toxicity fish:	LC50 - Bluegill (Lepomis macrochirus) Result: 0.0445 mg/l Exposure time: 96 h
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Component ecotoxicology Ethylene glycol Chronic toxicity fish:	EC50 - Rainbow trout (Oncorhynchus mykiss) Result: 41,000 mg/l Exposure time: 4 d
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Component ecotoxicology Ethylene glycol Chronic toxicity fish:	Static LC50 - Rainbow trout (Oncorhynchus mykiss) Result: 40,761 mg/l Exposure time: 4 d
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Component ecotoxicology Carboxin Aquatic toxicity to plants:	EC50 - Selenastrum capricornutum Result: 0.48 mg/l Exposure time: 120 h
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Component ecotoxicology Ethylene glycol Microorganisms:	EC50 - Selenastrum capricornutum Result: 1,300 - 6,500 mg/l Exposure time: 96 h
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<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> Thiram <u>Acute toxicity to aquatic invertebrates:</u>	EC50 - Water flea (Daphnia magna) Result: 0.011 mg/l Exposure time: 48 h
<u>Component ecotoxicology</u> Thiram <u>Acute toxicity to aquatic invertebrates:</u>	- Water flea (Daphnia magna) Result: 0.021 ppm Exposure time: 48 h

13. DISPOSAL CONSIDERATIONS

General: Dispose of waste material in compliance with all federal, provincial and local regulations., Avoid discharge to sewers and natural waters.

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 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

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CHEMICAL INVENTORY

(M)SDS# 00000027026

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Canada: All substances in this product are exempt from the DSL as this product is registered under the Pest Control Products Act., PCP# 11423

EPA

16. OTHER INFORMATION

FURTHER INFORMATION
MAY BE ON THE INVENTORY LIST BUT NOT NECESSARILY REGISTERED, (Korea, China, New Zealand) CONSULT REGULATORY SPECIALIST.

STP	Standard temperature and pressure
W/W	Weight/Weight

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