



# Material Safety Data Sheet

## Domark® 230 ME Fungicide

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products is regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling. All necessary and appropriate precautionary, use, and storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Domark® 230 ME Fungicide  
**VC NUMBER(S):** None  
**ITEM:** 61110  
**EPA REGISTRATION NUMBER:** 80289-7

Domark is a registered trademark of Isagro S.p.A.

#### MANUFACTURER

Isagro USA, 430 Davis Drive, Suite 240,  
Morrisville, NC 27560

#### DISTRIBUTOR

Valent USA, 1600 Riviera Drive, Suite 200,  
Walnut Creek, CA 94596

#### EMERGENCY TELEPHONE NUMBERS

HEALTH EMERGENCY OR SPILL (24 hr.):  
(800) 892-0099  
TRANSPORTATION (24 hr.): CHEMTREC  
(800) 424-9300 or (202) 483-7616

#### PRODUCT INFORMATION

AGRICULTURAL PRODUCTS: (800) 682-5368  
PROFESSIONAL PRODUCTS: (800) 898-2536

The current MSDS is available through our website or by calling the product information numbers listed above. ([www.valent.com](http://www.valent.com))

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Weight/ Percent	ACGIH Exposure Limits	OSHA Exposure Limits	Manufacturer's Exposure Limits
Tetraconazole [(+/-) 2-(2,4-dichlorophenyl)-3-(1H-1,2,4-triazole-1-yl)propyl-1,1,2,2-tetrafluoroethylether] (112281-77-3)	20-25	None	None	See regulated exposure limits

\* Active Ingredient

\*\* Other ingredients, which are maintained as trade secrets, are any substances other than an active ingredient contained in this product. Some of these may be hazardous, but their identity is withheld because they are considered trade secrets. The hazards associated with the other ingredients are addressed in this document. Specific information on other ingredients for the management of exposures, spills, or safety assessments can be obtained by a treating physician or nurse by calling **(800) 892-0099** at any time.

**Emergency Telephone:** (800) 892-0099  
**REVISION NUMBER:** 3

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### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

- CAUTION**
- Harmful if swallowed.
  - Causes moderate eye irritation.
  - Toxic to fish and aquatic invertebrates.
  - Avoid contact with eyes, skin and clothing.
  - Keep out of reach of children.

#### POTENTIAL HEALTH EFFECTS

##### Acute Toxicity (Primary Routes of Exposure)

**Signs and Symptoms of Systemic Effects:** No Data Available

**Acute Eye Contact:** This product may cause slight to moderate eye irritation. Adverse health effects resulting from an exposure may include redness, swelling and pain which could last for an extended period of time.

**Acute Skin Contact:** This product can cause brief and/or minor irritation. The expected adverse health effects resulting from an exposure may include redness and possibly some minor swelling. This product is minimally toxic when absorbed through the skin. This product is not expected to cause allergic skin reactions.

**Acute Ingestion:** This product is slightly toxic when ingested.

**Acute Inhalation:** This product is minimally toxic when inhaled.

**Chronic Toxicity (including cancer):** See Section 11.

**Developmental Toxicity (birth defects):** Not considered a developmental hazard.

**Potentially Aggravated Medical Conditions:** None known

For complete discussion of the toxicology data from which this evaluation was made, refer to Section 11. For Regulatory Information, refer to Section 15.

### 4. FIRST AID MEASURES

#### EMERGENCY NUMBER (800) 892-0099

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact **1-800-892-0099** for emergency medical treatment information.

#### EYE CONTACT:

Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

#### SKIN CONTACT:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

#### INGESTION:

Call a poison control center or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

**INHALATION:**

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

**NOTES TO PHYSICIAN:**

A suspension of activated charcoal in water, or liquid paraffin may be administered.

**5. FIRE FIGHTING MEASURES**

**FLASH POINT:** Not applicable  
**AUTOIGNITION:** No data available  
**EXTINGUISHING MEDIA:** Water fog, carbon dioxide, foam, dry chemical

**FLAMMABLE LIMITS IN AIR - LOWER (%):** Not applicable  
**FLAMMABLE LIMITS IN AIR - UPPER (%):** Not applicable

**NFPA RATING:**

Health: 1  
Flammability: 0  
Reactivity: 0  
Special: None

(Least-0, Slight-1, Moderate-2, High-3, Extreme-4). These values are obtained using professional judgement. Values were not available in the guidelines or published evaluations prepared by the National Fire Protection Association, NFPA.

**FIRE FIGHTING INSTRUCTIONS:** Products of combustion from fires involving this material may be toxic. Avoid breathing smoke and mists. Avoid personnel and equipment contact with fallout and runoff. Minimize the amount of water used for fire fighting. Do not enter any enclosed area without full protective equipment, including self-contained breathing equipment. Contain and isolate runoff and debris for proper disposal. Decontaminate personal protective equipment and fire fighting equipment before reuse. Read the entire document.

**HAZARDOUS COMBUSTION PRODUCTS:** Fumes from combustion may contain toxic compounds such as: Oxides of carbon. Oxides of nitrogen. Hydrogen chloride. Hydrogen fluoride. Hydrogen cyanide. etc.

**6. ACCIDENTAL RELEASE MEASURES**

**VALENT EMERGENCY PHONE NUMBER: (800) 892-0099**  
**CHEMTREC EMERGENCY PHONE NUMBER: (800) 424-9300**  
**OBSERVE PRECAUTIONS IN SECTION 8: PERSONAL PROTECTION**

Stop the source of the spill if safe to do so. Contain the spill to prevent further contamination of the soil, surface water, or ground water. For additional spill response information refer to the North American Emergency Response Guidebook.

**FOR SPILLS ON LAND:**

**CONTAINMENT:** Avoid runoff into storm sewers and ditches which lead to waterways. Contain spilled liquids with dry sorbents.

**CLEANUP:** Clean up spill immediately. Absorb spill with inert material (such as dry sand or earth), then place in a chemical waste container. Wash area with soap and water. Pick up wash liquid with additional absorbent and place in a chemical waste container.

**FOR SPILLS IN WATER:**

**CONTAINMENT:** This material forms an emulsion in water. Stop or reduce contamination of any water. Isolate contaminated water. If the product has escaped into a water course, into the drainage system, or has contaminated the ground vegetation, notify the competent authorities.

**CLEANUP:** Remove contaminated water for treatment or disposal.

## 7. HANDLING AND STORAGE

### END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

Keep pesticide in original container. Do not store or transport near food or feed. Do not contaminate food or feed. Do not put concentrate into food or drink containers. Do not dilute concentrate in food or drink containers. Store in a cool, dry place, out of direct sunlight.

Use only in well ventilated area. Avoid contact with skin and eyes. Do not breath spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

**EYES:** Do not get this material in your eyes. Eye contact can be avoided by wearing protective eyewear.

**RESPIRATORY PROTECTION:** Use this material only in well ventilated areas. If operating conditions result in airborne concentrations of this material, the use of a NIOSH approved air purifying respirator with organic vapor cartridge should be worn.

**SKIN PROTECTION:** Avoid contact with skin or clothing. Skin contact should be minimized by wearing protective clothing including long pants, long-sleeved shirt and shoes plus socks and chemical-resistant gloves. Remove contaminated clothing. Remove soiled clothing immediately and wash before re-use.

**EXPOSURE LIMITS - See Section 2.**

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>PHYSICAL STATE:</b>	Liquid
<b>COLOR:</b>	Light yellow
<b>ODOR:</b>	Characteristic odor
<b>BOILING POINT:</b>	No data available
<b>DENSITY:</b>	approximately 1.12 g mL
<b>VAPOR PRESSURE:</b>	Not applicable
<b>pH:</b>	6 - 8 (1% in demineralized water)
<b>VISCOSITY:</b>	580 cps
<b>OCTANOL/WATER PARTITION COEFFICIENT:</b>	Log P=3.56 (tetraconazole)
<b>SOLUBILITY:</b>	Emulsifiable in water

## 10. STABILITY AND REACTIVITY

<b>CHEMICAL STABILITY:</b>	Stable at normal ambient temperatures.
<b>INCOMPATIBILITY:</b>	Use only HDPE packaging material in contact with product.
<b>OXIDATION/REDUCTION PROPERTIES:</b>	No data available
<b>EXPLODABILITY:</b>	Not expected to be explosive.
<b>HAZARDOUS DECOMPOSITION PRODUCTS:</b>	None expected
<b>MATERIALS TO AVOID:</b>	Avoid strong oxidizing agents and alkaline materials.
<b>CONDITIONS TO AVOID:</b>	Avoid high temperature (T>40 °C), direct sunlight.

## 11. TOXICOLOGICAL INFORMATION

### ACUTE TOXICITY:

Emergency Telephone: (800) 892-0099  
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Oral Toxicity LD <sub>50</sub> (rats)	> 2000 mg/kg	EPA Tox Category	III
Dermal Toxicity LD <sub>50</sub> (rats)	> 5000 mg/kg	EPA Tox Category	IV
Inhalation Toxicity LC <sub>50</sub> (rats)	> 3.68 mg/L	EPA Tox Category	IV
Eye Irritation (rabbits)	Non-irritating	EPA Tox Category	IV
Skin Irritation (rabbits)	Non-irritating	EPA Tox Category	IV
Skin Sensitization (guinea pigs)	Non-sensitizer	EPA Tox Category	Not applicable

**CHRONIC/CARCINOGENICITY:** In subchronic, chronic, and reproduction studies on rats, and carcinogenicity studies on mice, and a chronic study on dogs, increase liver weight, increases in serum enzymes, or gross and microscopic liver pathology were noted, providing evidence of liver toxicity upon repeated exposure to very high doses of tetraconazole. Dietary administration of tetraconazole to mice throughout their lifetime at very high doses resulted in an increased incidence of liver neoplastic effect in mouse liver and the formation of tumors. The significance of the neoplastic effect in mouse liver is unknown with respect to potential human exposure.

**DEVELOPMENTAL TOXICITY:** Not teratogenic in animals.

**MUTAGENICITY:** No mutagenic effect.

For a summary of the potential for adverse health effects from exposure to this product, refer to Section 3. For information regarding regulations pertaining to this product, refer to Section 15.

## 12. ECOLOGICAL INFORMATION

**AVIAN TOXICITY:** Results of tests with tetraconazole technical: Mallard Duck LC<sub>50</sub> = 422 ppm; NOEC = 10 ppm

**AQUATIC ORGANISM TOXICITY:** May be toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The following are results of tests with Tetraconazole Technical:

Bluegill Sunfish (96 hr LC<sub>50</sub>): 4.3 mg/l  
 Rainbow Trout (96 hr LC<sub>50</sub>): 4.8 mg/l  
 Daphnia magna (48 hr LC<sub>50</sub>): 3 mg/l

Mobility: Koc from 531 to 1922

Bioaccumulation: BCF=35.7 (whole fish)

**OTHER NON-TARGET ORGANISM TOXICITY:** No data available

## 13. DISPOSAL CONSIDERATIONS

**END USERS MUST DISPOSE OF ANY UNUSED PRODUCT AS PER THE LABEL RECOMMENDATIONS.**

**DISPOSAL METHODS:** Check government regulations and local authorities for approved disposal of this material. Dispose in accordance with applicable laws and regulations.

## 14. TRANSPORT INFORMATION

<b>DOT (ground) SHIPPING NAME:</b>	Environmentally hazardous substance, liquid, n.o.s. (tetraconazole)
<b>DOT REPORTABLE QUANTITY (RQ):</b>	Not applicable
<b>UN/NA NUMBER:</b>	UN 3082
<b>HAZARD CLASS:</b>	9
<b>PACKING GROUP:</b>	III
<b>REMARKS:</b>	Marine pollutant when shipped in bulk or non-bulk by water.

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**14. TRANSPORT INFORMATION**

EXEMPTION REQUIREMENT: 49 CFR 173.155

**15. REGULATORY INFORMATION**

**PESTICIDE REGULATIONS:** All pesticides are governed under FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act). Therefore, the regulations presented below are pertinent only when handled outside of the normal use and applications of pesticides. This includes waste streams resulting from manufacturing/formulation facilities, spills or misuse of products, and storage of large quantities of products containing hazardous or extremely hazardous substances.

**OTHER U.S. FEDERAL REGULATIONS:**

Chemical Name	RCRA - U Series Wastes	Clean Water Act - Hazardous Substances	Clean Water Act Section 307
Tetraconazole [(+/-) 2-(2,4-dichlorophenyl)-3-(1H-1,2,4-triazole-1-yl)propyl-1,1,2,2-tetrafluoroethylether] (112281-77-3)	None	Not listed	Not listed

CWA Section 311: No data

Chemical Name	SARA 313 Chemicals	SARA Section 302	CERCLA Reportable Quantity (RQ):
Tetraconazole [(+/-) 2-(2,4-dichlorophenyl)-3-(1H-1,2,4-triazole-1-yl)propyl-1,1,2,2-tetrafluoroethylether] (112281-77-3)	Not listed	Not listed	None

**SARA (311, 312):**

Immediate Health: Yes  
 Chronic Health: Yes  
 Fire: No  
 Sudden Pressure: No  
 Reactivity: No

Chemical Name	IARC - Group 1 (carcinogenic to humans)	IARC - Group 2A (Probably carcinogenic)	IARC - Group 2B (Possibly carcinogenic)	NTP Carcinogen List
Tetraconazole [(+/-) 2-(2,4-dichlorophenyl)-3-(1H-1,2,4-triazole-1-yl)propyl-1,1,2,2-tetrafluoroethylether] (112281-77-3)	No	No	No	Not listed

**STATE REGULATIONS:**

Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list of all state regulations. Therefore, the user should consult state or local authorities. The state regulations reviewed include: California Proposition 65, California Directors List of Hazardous Substances, Massachusetts Right to Know, Michigan Critical Materials List, New Jersey Right to Know, Pennsylvania Right to Know, Rhode Island Right to Know and the Minnesota Hazardous Substance list. For Washington State Right to Know, see Section 2 for Exposure Limit information. For Louisiana Right to Know refer to SARA information listed under U.S. Regulations above.

Chemical Name	California Proposition 65	California - Directors List of Hazardous Substances
Tetraconazole [(+/-) 2-(2,4-dichlorophenyl)-3-(1H-1,2,4-triazole-1-yl)propyl-1,1,2,2-tetrafluoroethylether] (112281-77-3)	Not listed	Not listed

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Chemical Name	MI - Critical Materials List	MA Right To Know	NJ Right To Know
Tetraconazole [(+/-) 2-(2,4-dichlorophenyl)-3-(1H-1,2,4-triazole-1-yl)propyl-1,1,2,2-tetrafluoroethylether] (112281-77-3)	Not listed	Not listed	Listed

Chemical Name	PA Right To Know	RI Right To Know	MN Hazardous Substance
Tetraconazole [(+/-) 2-(2,4-dichlorophenyl)-3-(1H-1,2,4-triazole-1-yl)propyl-1,1,2,2-tetrafluoroethylether] (112281-77-3)	Not listed	Not listed	Not listed

**California Proposition 65:** Not listed

**CANADIAN REGULATIONS:**

**WHMIS Hazard Class:** Not determined

For information regarding potential adverse health effects from exposure to this product, refer to Sections 3 and 11.

## 16. OTHER INFORMATION

**REASON FOR ISSUE:** Added the EPA registration number. EPA approved label edits throughout.  
**MSDS NO.:** 0265  
**EPA REGISTRATION NUMBER:** 80289-7  
**REVISION NUMBER:** 3  
**REVISION DATE:** 04/05/2007  
**SUPERCEDES DATE:** 06/17/2005

THE INFORMATION IN THIS MSDS IS BASED ON DATA AVAILABLE TO US AS OF THE REVISION DATE GIVEN HEREIN, AND BELIEVED TO BE CORRECT. CONTACT VALENT USA CORPORATON TO CONFIRM IF YOU HAVE THE MOST CURRENT MSDS.

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