

**Syngenta Crop Protection, Inc.**  
**Post Office Box 18300**  
**Greensboro, NC 27419**

**In Case of Emergency, Call**  
**1-800-888-8372**

**1. PRODUCT IDENTIFICATION**

Product Name:	<b>INSTRATA</b>	Product No.:	A14036B
EPA Signal Word:	Caution		
Active Ingredient(%):	Chlorothalonil (29.9%)	CAS No.:	1897-45-6
Chemical Name:	Tetrachloroisophthalonitrile		
Chemical Class:	Chlorinated Benzonitrile Fungicide		
Active Ingredient(%):	Fludioxonil (1.2%)	CAS No.:	131341-86-1
Chemical Name:	4-(2,2-difluoro-1,3-benzodioxol-4-yl)-1H-pyrrole-3-carbonitrile		
Chemical Class:	Substituted Benzodioxalcarbonitrile Fungicide		
Active Ingredient(%):	Propiconazole (4.7%)	CAS No.:	60207-90-1
Chemical Name:	1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole		
Chemical Class:	Triazole Derivative Fungicide		
EPA Registration Number(s):	100-1231	Section(s) Revised:	<b>2, 8</b>

**2. HAZARDS IDENTIFICATION**
Health and Environmental

Irritating to eyes and skin. Toxic if inhaled. May be harmful if swallowed. May cause sensitization by skin contact.

Hazardous Decomposition Products

May decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Gray liquid  
 Odor: Aromatic

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Propylene Glycol	Not Established	Not Established	50 ppm TWA AIHA WEEL ****	No
Chlorothalonil (29.9%)	Not Established	Not Established	0.1 mg/m <sup>3</sup> TWA ***	IARC Group 2B
Propiconazole (4.7%)	Not Established	Not Established	10 mg/m <sup>3</sup> TWA ***	No
Fludioxonil (1.2%)	Not Established	Not Established	10 mg/m <sup>3</sup> TWA ***	No

\*\*\* Syngenta Occupational Exposure Limit (OEL)

\*\*\*\* Recommended by AIHA (American Industrial Hygiene Association)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.  
Syngenta Hazard Category: C, S

#### 4. FIRST AID MEASURES

Have the product container, label or Material Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

- Ingestion: If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
- Eye Contact: If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Skin Contact: If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Inhalation: If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

##### Notes to Physician

There is no specific antidote if this product is ingested.

Treat symptomatically.

Persons suffering with temporary allergic skin reactions may respond to treatment with oral antihistamines and topical or oral steroids.

##### Medical Condition Likely to be Aggravated by Exposure

None known.

#### 5. FIRE FIGHTING MEASURES

##### Fire and Explosion

- Flash Point (Test Method): > 212°F
- Flammable Limits (% in Air): Lower: Not Applicable Upper: Not Applicable
- Autoignition Temperature: > 1202°F
- Flammability: Not Applicable

##### Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

##### In Case of Fire

Use dry chemical, foam or CO2 extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

#### 6. ACCIDENTAL RELEASE MEASURES

##### In Case of Spill or Leak

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

#### 7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.**

**FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.**

- Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.
- Eye Contact: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
- Skin Contact: Where contact is likely, wear chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.
- Inhalation: A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits.

In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance: Gray liquid
- Odor: Aromatic
- Melting Point: Not Available
- Boiling Point: Not Applicable
- Specific Gravity/Density: 1.21 g/ml
- pH: 5.5 @ 77°F (25°C)

### Solubility in H<sub>2</sub>O

- Chlorothalonil: 0.81mg/l @ 77°F (25°C)
- Fludioxonil: 1.8mg/l @ 77°F (25°C)
- Propiconazole: 0.1g/l @ 68°F (20°C)

### Vapor Pressure

- Chlorothalonil: 5.7 x 10<sup>(-7)</sup> mmHg @ 77°F (25°C)
- Fludioxonil: 2.9 x 10<sup>(-9)</sup> mmHg @ 77°F (25°C)
- Propiconazole: 4.2 x 10<sup>(-7)</sup> mmHg @ 77°F (25°C)

## 10. STABILITY AND REACTIVITY

- Stability: Stable under normal use and storage conditions.
- Hazardous Polymerization: Will not occur.
- Conditions to Avoid: None known.
- Materials to Avoid: None known.
- Hazardous Decomposition Products: May decompose at high temperatures forming toxic gases.

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity/Irritation Studies (Finished Product)

- Ingestion: Oral (LD50 Female Rat) : 5000 mg/kg body weight
- Dermal:

	Dermal (LD50 Rat) :	> 5000 mg/kg body weight
Inhalation:		
	Inhalation (LC50 Male Rat) :	0.52 - 2.01 mg/l air - 4 hours
Eye Contact:	Moderately Irritating (Rabbit)	
Skin Contact:	Moderately Irritating (Rabbit)	
Skin Sensitization:	Sensitizing (Guinea Pig)	

#### Reproductive/Developmental Effects

Chlorothalonil: No evidence of adverse developmental effects in rabbit and rat studies.

Fludioxonil: Delayed development at doses causing maternal toxicity.

Propiconazole: None observed.

#### Chronic/Subchronic Toxicity Studies

Chlorothalonil: In dogs, 1 years administration caused a significant decrease in body weight gain and increases in absolute liver and kidney weights.

Neurotoxicity: No evidence in regulatory studies.

Fludioxonil: Liver and kidney toxicity at high dose levels.

Propiconazole: None observed.

#### Carcinogenicity

Chlorothalonil: No evidence of carcinogenicity in dogs after administration for up to one year. Treatment related increases in the incidence of renal tubular adenoma and carcinoma were observed in rats and male mice. Squamous cell adenomas and carcinomas were also observed in the forestomach of both species. The forestomach tumors seen in rodent studies are not relevant to human health, as humans do not possess an anatomical equivalent of the rodent forestomach. The relevance of renal tumors to human health is unclear, although metabolism data suggest that the dog, a species that is resistant to chlorothalonil-induced renal injury, may be more representative of humans than the rat. IARC identifies chlorothalonil as a 2B carcinogen (possibly carcinogenic to humans).

Fludioxonil: Marginal increase (7%) of liver tumors (female, rats: 3,000 ppm); Within historical control range (1 to 10%).

Propiconazole: Increased incidence of liver tumors at extremely high doses (male mice).

#### Other Toxicity Information

Studies on rats and mice have suggested that technical chlorothalonil (97%), when fed at high levels in the diet, may have oncogenic potential to these laboratory animals. However, neither chlorothalonil nor its metabolites interact with DNA and thus are not mutagenic. Tumor formation has been related to a non-genotoxic mechanism of action for which threshold levels have been established in rats and mice. Comprehensive dietary and worker exposure studies have shown exposure levels for humans to be well below these threshold levels. In addition, surveillance of chlorothalonil plant workers for over twenty years has not demonstrated any increase in oncogenic potential to humans.

#### Toxicity of Other Components

##### Propylene Glycol

Test results reported in Section 11 for the final product take into account any acute hazards related to the propylene glycol in the formulation.

Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea.

Chronic dietary exposure caused kidney and liver injury in experimental animals.

#### Target Organs

##### Active Ingredients

Chlorothalonil: Lung, eye, kidney

Fludioxonil: Liver, kidney

Propiconazole: Liver

##### Inert Ingredients

Propylene Glycol: CNS, kidney, liver

## **12. ECOLOGICAL INFORMATION**

## Summary of Effects

### Chlorothalonil:

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

### Fludioxonil:

Practically nontoxic to birds and bees, but highly toxic to aquatic invertebrates and fish.

### Propiconazole:

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

## Eco-Acute Toxicity

### Chlorothalonil:

Green Algae 5-day EC50 190 ppb

Bird (Mallard Duck) LD50 Oral > 4640 mgk

Invertebrate (Water Flea) 48-hour EC50 70 ppb

Fish (Rainbow Trout) 96-hour LC50 47 ppb

Fish (Bluegill Sunfish) 96-hour LC50 26.3 ppb

Bird (Bobwhite Quail) 8-day dietary LC50 5200 ppm

Bird (Mallard Duck) 8-day dietary LC50 > 10000 ppm

Bee 48-hour LD50 > 181 ug/bee

### Propiconazole:

Fish (Rainbow Trout) 96-hour LC50 0.83 ppm

Fish (Bluegill Sunfish) 96-hour LC50 1.3 ppm

Bird (Bobwhite Quail) LD50 Oral 2825 mg/kg

Bird (Mallard Duck) 8-day dietary LC50 > 5620

Bee (Contact) LD50 > 25 ug/bee

Invertebrate (Water Flea) 48-hour EC50 3.2 ppm

Bird (Bobwhite Quail) 8-day dietary LC50 > 5620 ppm

Green Algae 9-day EC50 0.72 ppm

### Fludioxonil:

Bees LC50/EC50 > 25 ug/bee

Invertebrate (Water Flea) LC50/EC50 0.90 ppm

Fish (Trout) LC50/EC50 0.47 ppm

Fish (Bluegill) LC50/EC50 0.74 ppm

Bird (Bobwhite Quail) 8-day dietary LC50/EC50 > 5,200 ppm

Bird (Mallard Duck) 8-day dietary LC50/EC50 > 5,200 ppm

## Eco-Chronic Toxicity

### Chlorothalonil:

Bird (Bobwhite Quail) Reproduction 21-week LOEL 250 ppm

Bird (Mallard Duck) Reproduction 19-week LOEL 100 ppm

Fish (Fathead Minnow) 168-day LOEC 6.5 ppb

### Propiconazole:

Invertebrate (Water Flea) 21-day LOEC 0.69 ppm

Fish (Fathead Minnow) LOEC 0.21 ppm

Bird (Mallard Duck) Reproduction 28-week LOEL > 1000 ppm

### Fludioxonil:

Fish (Fathead minnow) Early Life Stage MATC 0.028 mg/l

Invertebrate (Daphnia Magna) Life Cycle MATC 0.025 mg/l

Bird (Mallard Duck) Reproduction NOEC 700 ppm

Bird (Bobwhite Quail) Reproduction NOEC 125 ppm

### Environmental Fate

#### Chlorothalonil:

The information presented here is for the active ingredient, chlorothalonil.

Low bioaccumulation potential. Not persistent in soil or water. Low mobility in soil. Sinks in water (after 24 h).

#### Fludioxonil:

The information presented here is for the active ingredient, fludioxonil.

Does not bioaccumulate. Persistent in soil. Stable in water. Low mobility in soil. Sinks in water (after 24 h).

#### Propiconazole:

The information presented here is for the active ingredient, propiconazole.

Low bioaccumulation potential. Not persistent in soil. Stable in water. Low mobility in soil. Sinks in water (after 24 h).

## **13. DISPOSAL CONSIDERATIONS**

### Disposal

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

## **14. TRANSPORT INFORMATION**

### DOT Classification

Ground Transport - NAFTA

Not regulated.

### B/L Freight Classification

Fungicides, NOI, O/T Poison

### Comments

None

## **15. REGULATORY INFORMATION**

### EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard  
Chronic Health Hazard

Section 313 Toxic Chemicals: Chlorothalonil (29.9%) (CAS No. 1897-45-6)  
Propiconazole (4.7%) (CAS No. 60207-90-1)

### California Proposition 65

WARNING: This product contains a chemical (chlorothalonil) known to the State of California to cause cancer.

### CERCLA/SARA 302 Reportable Quantity (RQ)

None

### RCRA Hazardous Waste Classification (40 CFR 261)

Not Applicable

### TSCA Status

Exempt from TSCA, subject to FIFRA

## **16. OTHER INFORMATION**

NFPA Hazard Ratings

Health: 2  
Flammability: 1  
Instability: 0

HMIS Hazard Ratings

Health: 2  
Flammability: 1  
Reactivity: 0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 11/10/2004

Revision Date: 1/14/2008

Replaces: 5/11/2006

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

End of MSDS