



## MATERIAL SAFETY DATA SHEET

### Legend

#### IDENTIFICATION OF THE SUPPLIER:

**AGRO CHEMICALS INDUSTRIES LTD**

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#### PRODUCT IDENTIFICATION :

**Common Name:** difenoconazole + cyprodinil

**Trade Name:** legend

**Chemical Name:**

**Difenoconazole:** cis, trans-3-chloro-4-[4-methyl-2-(1H-1, 2, 4-triazol-1-ylmethyl)-1, 3-dioxolan-2- yl] phenyl 4-chlorophenyl ether

**Cyprodinil :** 4-cyclopropyl-6-methyl-N-phenylpyrimidin-2-amine

**Chemical Formula:**

**Difenoconazole:** C<sub>19</sub>H<sub>17</sub>C<sub>12</sub>N<sub>3</sub>O<sub>3</sub>

**Cyprodinil :** C<sub>14</sub>H<sub>15</sub>N<sub>3</sub>

**Molecular Weight:**

**Difenoconazole:** 406.3

**Cyprodinil :** 225.3

#### PRODUCT COMPOSITION:

<b>Active Ingredient:</b>	<b>CAS #</b>	<b>% w/v</b>
Difenoconazole	[119446-68-3]	8.7
Cyprodinil	[121552-61-2]	25

**Inert ingredient: Up to 1 Liter**



## FIRST AID MEASURES:

Have the product container, label or Safety Data Sheet with you when calling a poison control center or doctor, or going for treatment

<b>Eye contact</b>	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 doctor for treatment advice.
<b>Skin contact</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call doctor for treatment advice.
<b>Ingestion</b>	Do not give any liquid to the person. Do not induce vomiting unless told to do so after calling doctor. Do not give anything by mouth to an unconscious person.
<b>Inhalation</b>	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 doctor for further treatment advice.

**Most important symptoms/effects:** Not Applicable

**Indication of immediate medical attention and special treatment needed:**

There is no specific antidote if this product is ingested. Treat symptomatically.

## FIRE FLGHTING MESURES:

Suitable (and unsuitable) extinguishing media:

Use dry chemical, foam or CO<sub>2</sub> extinguishing media. If water is used to fight fire, dike and collect runoff.

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

**Special protective equipment and precautions for firefighters:**

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.

## ACCIDENTAL RELEASE MEASURES:

**Methods and materials for containment and cleaning up:**

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, 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.

**EXPOSURE CONTROLS/ PERSONAL PROTECTION:**

The following recommendations for exposure controls/personal protection are intended for the manufacture, formulation and packaging of this product.

For commercial applications and/or on-farm applications consult the product label.

Occupational Exposure Limits:

Chemical Name	OSHA PEL	ACGIH TLV	Other	Source
Difenoconazole	Not Established	Not Established	5 mg/m <sup>3</sup> TWA	Manufacturer
Cyprodinil	Not Established	Not Established	5 mg/m <sup>3</sup> TWA	Manufacturer

**Appropriate engineering controls:**

Use effective engineering controls to comply with occupational exposure limits (if applicable).

**Individual protection measures:**

**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.

**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.

**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.



## HANDLING AND STORAGE :

Precautions for safe handling: 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.

Conditions for safe storage, including any incompatibilities: Store locked up.

## STABILITY AND REACTIVITY:

**Reactivity:** Not reactive.

**Chemical stability:** Stable under normal use and storage conditions.

**Possibility of hazardous reactions:** Will not occur.

**Conditions to Avoid:** Not Available

**Incompatible materials:** None known.

**Hazardous Decomposition Products:** Not Available

## PHYSICAL AND CHEMICAL PROPERTIES:

**Appearance:** Off-white liquid

**Odor:** Musty

**Odor Threshold:** Not Available

**pH:** 5.5 - 7.5 (as is)

**Melting point/freezing point:** Not Available

**Initial boiling point and boiling range:** Not Available

**Flash Point (Test Method):** > 214°F

**Flammable Limits (% in Air):** Not Available

**Flammability:** Not Applicable

**Vapor Pressure:**

Cyprodinil  $3.8 \times 10^{-6}$  mmHg @ 77°F (25°C)

Difenoconazole  $2.5 \times 10^{-10}$  mmHg @ 77°F (25°C)

**Vapor Density:** Not Available

**Relative Density:** 1.01 - 1.03 g/ml

**Solubility (ies):**

Cyprodinil 12 mg/l @ 68°F (20°C)

Difenoconazole 15 mg/l @ 77°F (25°C)

**Partition coefficient:** n-octanol/water: Not Available

**Autoignition Temperature:** 869°F

**Decomposition Temperature:** Not Available

**Viscosity:** Not Available



## TOXICOLOGICAL INFORMATION:

Health effects information:

Likely routes of exposure: Dermal, Inhalation

Symptoms of exposure: Not Applicable

Delayed, immediate and chronic effects of exposure: Not Applicable

Numerical measures of toxicity (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 Rat) :	> 2.53 mg/l air - 4 hours
Eye Contact:	Mildly Irritating (Rabbit)	
Skin Contact:	Slightly Irritating (Rabbit)	
Skin Sensitization:	Not a Sensitizer (Guinea Pig)	

### Reproductive/Developmental Effects:

Cyprodinil: No teratogenic potential was detected in tests with rats and rabbits. No effects on the reproductive performance of rats were detected.

Difenoconazole: None observed.

### Chronic/Subchronic Toxicity Studies:

Cyprodinil: Liver, kidneys and thyroid effects at high doses.

Difenoconazole: Kidney and liver effects at high doses (>5000 ppm; rats); Eye effects in dogs at high dose levels.

### Carcinogenicity:

Cyprodinil: Found to be not carcinogenic in studies with rats and mice. Designated as class E "not likely" for human carcinogenicity (1998 USEPA "Pesticide Fact Sheet").

Difenoconazole: Did not show carcinogenic effects in animal experiments.

Target Organs:

Cyprodinil: Liver, kidney, thyroid

Difenoconazole: Brain, liver, kidney, gastrointestinal tract



## ECOLOGICAL INFORMATION:

### Eco-Acute Toxicity:

#### Difenoconazole:

Fish (Rainbow Trout) 96-hour LC50 1.1 mg/l

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 0.77 mg/l

Green Algae 72-hour EbC50 0.032 mg/

#### Cyprodinil:

Fish (Bluegill Sunfish) 96-hour LC50 2.18 ppm

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 32 ppb

Bird (Mallard Duck) 14-day LD50 > 500 mg/kg

### Environmental Fate:

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

Difenoconazole: Stable in soil and water. Low to moderate mobility in soil. Sinks in water (after 24 h).

## DISPOSAL CONSIDERATION:

**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

