**BASF** 

**GROUP** 

11

**FUNGICIDE** 

### ACCEPTED

MAR 2 5 2004

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 1969-124

# Cygnus® fungicide

For use on ornamentals in greenhouses, lath- and shadehouses, outdoor nurseries, retail nurseries and other nonresidential landscape areas

Active ingredient
Kresoxim-methyl (methyl (E)-2-methoxyimino-2-[2-(o-tolyloxymethyl) phenyl] acetate) 50.0%
Inert ingredients 50.0%
Total 100.0%

EPA Reg. No. 7969-124

**EPA Est. No.** 

## KEEP OUT OF REACH OF CHILDREN. CAUTION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.

(If you do not understand this label, find someone to explain it to you in detail.)

See the attached booklet for complete First Aid, Precautionary Statements, Directions For Use and Conditions of Sale and Warranty.

### **Net contents:**

□ Product of Spain

BASF Corporation 26 Davis Drive Research Triangle Park, NC 27709







FIRST AID		
If on skin or clothing	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.	
If in eyes	<ul> <li>Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>Remove contact lenses, if present, after first 5 minutes, then continue rinsing eye.</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>	
If swallowed	<ul> <li>Call a poison control center or doctor immediately for treatment advice.</li> <li>Have person sip a glass of water if able to swallow.</li> <li>Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>Do not give anything by mouth to an unconscious person.</li> </ul>	
If inhaled	<ul> <li>Move person to fresh air.</li> <li>If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.</li> <li>Call a poison control center or doctor for further treatment advice.</li> </ul>	
	HOT LINE NUMBER	

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information: 1-800-832-HELP (4357)

### **Precautionary Statements**

Hazards to Humans and Domestic Animals Harmful if swallowed, inhaled, or absorbed through skin. Causes eye irritation. Do not get on skin, in eyes, or on clothing. Avoid breathing vapor or spray mist.

### Personal Protective Equipment (PPE) Applicators and other handlers must wear:

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on the EPA chemical-resistance category selection chart.

- · Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks

Follow the manufacturer's instructions for cleaning and maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### **User Safety Recommendations**

#### Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### **Environmental Hazards**

This pesticide is toxic to freshwater and estuarine fish and invertebrates. Do not apply directly to water, areas where surface water is present, or intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash waters.

**Surface Water Advisory** 

This chemical can contaminate surface water through spray drift. Under some conditions, it may also have a high potential for runoff into surface water (via both dissolution in runoff water and adsorption to eroding soil), for several days, post-application. These include poorly draining or wet soils with readily visible slopes towards adjacent surface waters, frequently flooded areas, areas over-laying extremely shallow ground water, areas with in-field canals or ditches that drain

to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and highly erodible soils cultivated using poor agricultural practices such as conventional tillage and down the slope plowing, and areas where an intense or sustained rainfall is forecasted to occur within 48 hours

**Ground Water Advisory** 

This chemical has properties and characteristics associated with chemicals detected in ground water. The use of this chemical in alkaline areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

### **Directions for Use**

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

All applicable directions, restrictions, precautions and **Conditions of Sale and Warranty** are to be followed. This labeling must be in the user's possession during application.

### 3/10

### **Agricultural Use Requirements**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of **12** hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

· Long-sleeved shirt and long pants

- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks

Storage and Disposal

Do not contaminate water, food, or feed by storage or disposal.

**Pesticide disposal:** Wastes resulting from using this product may be disposed of on site or at an approved waste disposal facility. If these wastes cannot be disposed of according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**Container Disposal** 

 Plastic Containers: Triple rinse container (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

In Case of Spill

In case of large-scale spillage regarding this product, call:

CHEMTREC BASF Corporation

800-424-9300 800-832-HELP

Steps to be taken in case material is released or spilled:

Wear the personal protective equipment specified on the label. Recover the material for re-use according to label whenever possible. Sweep and/or shovel up the spilled material into an appropriate closed container. Avoid the creation of dusty conditions. Remove and wash clothing and personal protective equipment prior to re-use. Keep the spill out of all sewers and open bodies of water.

### I. General Information

This package contains **Cygnus**, a 50% water-dispersible granule (WG). **Cygnus** is a foliar fungicide that has protective, and curative activity against powdery mildews, and protective activity against certain leaf spots, rusts, anthracnoses and downy mildews. For best results against powdery mildews, leaf spots, rusts, anthracnoses and downy mildews, a protective barrier of **Cygnus** must be established and maintained on the plant surface (refer to **Table 1**).

Mode of Action

Kresoxim-methyl, the active ingredient in **Cygnus**, belongs to the group of respiration inhibitors classified by the U.S. EPA and Canada PMRA as Quinone Outside Inhibitors (QoI), or Target Site of Action **Group 11** Fungicides.

Crop Tolerance

The phytotoxic potential of **Cygnus** has been assessed on a wide variety of common ornamental plants. Refer to **Table 2** for the list of plants shown to be tolerant to **Cygnus**. Refer to **Table 3** for those plants not tolerant to **Cygnus**.

However, not all plant species and their varieties and cultivars have been tested for tolerance to **Cygnus**. In addition, all possible tank mix combinations, sequential pesticide treatments, and adjuvants or surfactants have not been evaluated. Local conditions can also influence crop tolerance and may not match those under which BASF has conducted testing. Therefore, before using **Cygnus**, test the product on a sample of the crop to be treated to ensure that a phytotoxic response will not occur.

Sensitive Crop Precaution

Cygnus may cause injury to Asian pear of variety "Olympic" and certain sensitive sweet cherry varieties such as Angela, Chelan, Somerset, Sweetheart, Valera, Van, Vandalay, Vista, Cavalier, Coral Champagne, Emperor Francis, Royalton, Schmidt, Summit, and Viva. Consult a BASF representative or local agricultural authorities for more information concerning additional cherry varieties that may be sensitive to Cygnus. Use special care when applying Cygnus to prevent contact with the sensitive plant species and varieties listed in Table 3. Avoid off-target movement.

Cleaning Spray Equipment

Spraying equipment must be cleaned thoroughly before and after applying this product, particularly if a product with the potential to injure crops was used prior to **Cygnus**.

**Resistance Management** 

Cygnus contains Kresoxim-methyl, a group 11 fungicide, and is effective against pathogens resistant to fungicides with modes of action different from those of Qol fungicides (Target site group 11), such as, dicarboximides, sterol inhibitors, benzimidazoles, or phenylamides. Fungal isolates resistant to group 11 fungicides such as, kresoxim-methyl, azoxystrobin, trifloxystrobin, and pyraclostrobin, may eventually dominate the fungal population if group 11 fungicides are used predominantly and repeatedly in the same field in successive years as the primary method of control for the targeted pathogen species. This may result in reduction of disease control by Cygnus or other group 11 fungicides.

To limit the potential for development of resistance to **Cygnus** and other **group 11** fungicides:

 For outdoor use, do not make more than six applications of Cygnus or other strobilurin fungicides per season.

• For use in greenhouses, do not make more than eight applications of **Cygnus** or other strobilurin

fungicides per year.

 For powdery mildew control, alternate each application of Cygnus with two sequential applications of labeled non-strobilurin fungicides with a different mode of action.

 For control of scab, leaf spots and rusts, do not make more than two sequential applications of Cygnus. Then alternate to at least an equal number of sequential applications of labeled nonstrobilurin fungicides with a different mode of action before applying Cygnus again.

The following recommendations may be considered to delay the development of fungicide resistance:

- 1.Tank mixtures: Use tank mixtures with fungicides from different target site of action groups that are registered/permitted for the same use and that are effective against the pathogens of concern. BASF recommends using at least the minimum labeled rates of each fungicide in the tank mix.
- 2. IPM: Cygnus should be integrated into an over all disease and pest management program. Cultural practices known to reduce disease development should be followed. Consult your local extension specialist, certified crop advisor and/or BASF rep-resentative for additional IPM strategies established for your area. Cygnus may be used in Agricultural Extension advisory (disease forecasting) programs, which recommend application timing based on environmental factors favorable for disease development.
- 3. Monitoring: Monitor efficacy of all fungicides used in the disease management program against the targeted pathogen and record other factors that may influence fungicide performance and/or disease development. If a group 11 target site fungicide, such as Cygnus, appears to be less effective against a pathogen that it previously controlled or suppressed, contact a BASF representative, local extension specialist, or certified crop advisor for further investigation.

Table 1. Application Rates and Timings of Cygnus.

Disease	Cygnus rate per 100 gallons	Directions For Use
A. Scab Venturia inaequalis Venturia pirina	1.0-1.6 ounces	Begin at bud break or when environmental conditions are favorable for disease development and continue on a 10-14 day interval.
B. Powdery mildews  Erysiphe sp. Microsphaera sp. Oidium sp. Phyllactinia sp. Podosphaera sp. Sphaerotheca sp. Uncinula sp.	1.6-3.2 ounces	Apply as a protective spray or at the first signs of disease. Continue on a 7-14 day interval. Applications made at the first signs of disease require shorter spray intervals. The addition of up to 0.06% of a non-organosilicone spreader-sticker type adjuvant may improve powdery mildew control.
C. Leaf spots Rose black spot Diplocarpon rosae Leaf spots Alternaria sp. Blumeriella jaapii Didymellina sp. Drepanopeziza sp. Mycosphaerella sp. Phyllosticta sp. Septoria sp.	1.6-3.2 ounces	Apply as a protective spray and continue on a 7-14 day interval.
D. Rusts Carnation rust Puccinia dianthi Chrysanthemum rust Puccinia horiana Quince rust Gymnosporangium sp. Rose rust Phragmidium sp. Snapdragon rust Puccinia antirrhini	3.2-6.4 ounces	Apply strictly as a protective spray and continue on a 7-10 day interval. The addition of up to 0.06% of a non-organosilicone spreader-sticker type adjuvant may improve rust control.
E. Anthracnose Colletotrichum sp.	3.2-6.4 ounces	Apply strictly as a protective spray and continue on a 7-10 day interval.
F. Downy mildews Rose downy mildew Peronospora sparsa Snapdragon downy mildew Peronospora antirrhini	3.2-6.4 ounces	Apply strictly as a protective spray and continue on a 7-10 day interval.

**Table 2.** Plants Tolerant to **Cygnus**. Plants in this table have been found to be tolerant to **Cygnus** when it is applied according to the use recommendations stated in this label. Do not use fruit from ornamental plants for food or feed purposes.

Host common name (disease code letters refer to the 6 groups in Table 1.)	Scientific name
Ageratum (B)	Ageratum houstonianum
Alberta spruce	Picea glauca var. albertiana
Alstroemeria (C)	Alstroemeria sp.
Apple, nonbearing (A, B)	Malus sp.
Artichoke, ornamental (B)	Cynara sp.
Aster (B)	Aster sp.
Asier (b) Azalea (B)	Rhododendron sp.
Carnation (D)	Dianthus sp.
	l '
Cedar, Japanese Celosia (C)	Cryptomaria japonica
· ·	Celosia sp.
Chrysanthemum (B, D)	Chrysanthemum sp.
Cherry, flowering – Kwanzan (B, C)	Prunus serrulata 'Kwanzan'
Cherry, flowering - Mt. Fuji (Shirotae) (B, C)	Prunus serrulata 'Mt. Fuji' (Shirotae)
Cherry, flowering – Shirofugen (B, C)	Prunus serrulata 'Shirofugen
Cherry, flowering - Yoshino (B, C)	Prunus yedoensis
Cherry, flowering – Okame (B, C)	Prunus x 'Okame' (P. incisa x P. campulata)
Cherry laurel, English (B)	Prunus laurocerasus
Cinquefoil (B)	Potentilla fruticosa
Citrus, nonbearing (B)	Citrus sp.
Clematis (B)	Clematis sp.
Columbine (B)	Aquilegia sp.
Crabapple, nonbearing (A,B)	Malus sp.
Currant (B, C)	Ribes sp.
Dahlia (B)	Dahlia sp.
Dogwood (B)	Cornus sp.
Dracaena	Dracaena marginata
Ousty miller (B, E)	Centaurea cineraria
	Euonymus sp.
	Gazania sp.
	Pelargonium sp.
	Gerbera sp.
	Gladiolus sp.
	Crataegus sp.
	Rhaphiolepis sp.
	Lonicera sp.
	Hosta sp.
	Hydrangea sp.
mpatiens (C)	Impatiens sp.
is (C)	<i>Iri</i> s sp.
uniper (C)	Juniperus sp.
	Delphinium sp.
ilac (B)	Syringa sp.
	<i>Lilium</i> sp.
	Limonium sp.
, ,	Hylothelephium (Sedum) sp.
· · ·	Eriobotrya japonica
· · · · · · · · · · · · · · · · · · ·	Magnolia soulangiana
	Acer campestre, A. Platanoides,
, sycamore, southern (B)	, A. pseudoplatanus, A. barbatum
	Tagetes sp.
	Monarda sp.
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Table 2. Plants Tolerant to Cygnus (continued).

Host common name (disease code)	Scientific name	
Pansy (B)	Viola sp.	
Peach/nectarine, nonbearing (B)	Prunus persica	
Pear, nonbearing (A, B)	Prunus sp.	
Petunia (C)	Petunia sp.	
Phlox (B)	Phlox sp.	
Plum, ornamental (B, C)	Prunus sp.	
Poinsettia (B)	Euphorbia pulcherrima	
Portulaca (C)	Portulaca sp.	
Rose (B, C, D, F)	Rosa sp.	
Rosemary, ornamental (B)	Rosmarinus officinalis 'prostratus'	
Serviceberry (B)	Amelanchier ovalis, A. lamarckii	
Snapdragon (B, D, F)	Antirrhinum sp.	
Sprenger asparagus (C)	Asparagus densiflorus	
Spiderwort (C)	Tradescantia sp.	
Spirea (B)	Spiraea sp.	
Tick seed (B)	Coreopsis sp.	
Tulip	<i>Tulipa</i> sp.	
Verbena (B)	Verbena sp.	
Veronica (B)	Veronica sp.	
Viburnum (B)	Viburnum sp.	
Vinca (C)	Vinca sp.	
Yew (C)	Taxus sp	
Zinnia (B)	Zinnia sp.	

**Table 3.** Plants **Not Tolerant** to **Cygnus**. (do not expose these species or varieties to **Cygnus**):

Common name	Scientific name
Sweet cherry	Prunus avium
Sensitive varieties: Angela, Chelan,	
Somerset, Sweetheart, Valera, Van,	
Vandalay, Cavalier, Coral	
Champagne, Emperor Francis,	
Royalton, Schmidt, Summit, Vista, Viva	0
Asian pear	Prunus sp.
Variety: Olympic	

### II. Application Instructions

For the control of **scab**, apply 1.0–1.6 ounces of **Cygnus** per 100 gallons of water at 10-14 day intervals as a preventative treatment. Start applications at bud break or when environmental conditions are favorable for disease development. Use the higher rate of Cygnus when heavy infection pressure exists or is anticipated

For the control of rose black spot and ornamental leaf spots, apply 1.6-3.2 ounces of Cygnus per 100 gallons of water at 7-14 day intervals as a preventative

For the control of **powdery mildew**, apply 1.6-3.2 ounces of **Cygnus** per 100 gallons of water as a preventative treatment or at the first signs of disease. Applications made at the first signs of powdery mildew will require higher rates and shorter spray intervals. The addition of up to 0.06% of a non-organosilicone spreader-sticker type adjuvant may improve powdery mildew control. Do not use organosilicone-based adjuvants with Cygnus.

For the control of rusts, anthracnose and downy mildew, apply Cygnus only as a preventative treatment at 3.2-6.4 oz per 100 gallons of water at 7-10 day intervals. The addition of up to 0.06% of a non-organosilicone spreader-sticker type adjuvant may improve rust control. Do not use organosilicone-based adjuvants with Cygnus. Spray to the point of drip for all applications, making sure not to exceed the maximum seasonal use rate.

Refer to Table 1 for specific recommendations for

disease control.

### Coverage

Apply the appropriate amount of spray solution to cover the foliage to the point of drip. Thorough coverage of all plant surfaces is required for optimum disease control

#### III. Additives

Additives or spray adjuvants are usually not necessary for use with Cygnus. The addition of up to 0.06% of a non-organosilicone spreader-sticker type adjuvant may improve spray coverage and control of certain diséases. Do not use organositicon-based adjuvants with Cygnus, as crop phytotoxicity may result on certain ornamental species. Consult a BASE representative or local agricultural authorities for more information concerning additives.

### IV. General Tank Mixing Information

Cygnus may be tank mixed with most registered fungicides and insecticides. However, all varieties and cultivars have not been tested with possible tank mix combinations. Local conditions can influence crop tolerance and may not match those under which BASF has conducted testing. Before using any tank mix (fungicides, insecticides, plant growth regulators, additives or spray adjuvants), test the combination on a small portion of the crop to be treated to ensure that a phytotoxic response will not occur as a result of applications.

Compatibility Test for Mix Components

Before mixing components, always perform a

compatibility jar test.

For 20 gallons per acre spray volume, use 3.3 cups (800 ml) of water. For other spray volumes, adjust rates accordingly. Only use water from the intended source at the source temperature.

Add components in the sequence indicated in the Mixing **Order using 2 teaspoons for each pound or 1 teaspoon** for each pint of recommended label rate per acre. Always cap the jar and invert 10 cycles between

component additions

When the components have all been added to the jar. let the solution stand for 15 minutes. Evaluate the solution for uniformity and stability. The spray solution should not have free oil on the surface, nor fine particles that precipitate to the bottom, nor thick (clabbered) texture. If the spray solution is not compatible, repeat the compatibility test with the addition of a suitable compatibility agent. If the solution is then compatible, use the compatibility agent as directed on its label. If the solution is still incompatible, do not mix the ingredients in the same tank.

Mixing Order

1) Water. Begin by agitating a thoroughly clean sprayer tank three-quarters full of clean water

2) Agitation. Maintain constant agitation throughout

mixing and application.

Inductor. If an inductor is used, rinse it thoroughly after each component has been added.

Products in PVA bags. Place any product contained in water-soluble PVA bags into the mixing tank. Wait until all water-soluble PVA bags have fully dissolved and the product is evenly mixed in the spray tank before continuing

Water-dispersible products (such as Cygnus, dry flowables, wettable powders, suspension concentrates, or suspo-emulsions)

Water-soluble products.

Emulsifiable concentrates (oil concentrate when applicable)

Water-soluble additives (such as AMS or UAN when applicable)

Remaining quantity of water.

Maintain constant agitation during application

### VI. General Restrictions and limitations - Greenhouse Use

- Do not make more than 8 applications of Cygnus per year.
- · Restricted Entry Interval (REI): 12 hours.
- Do not apply to crops subjected to stress conditions such as excessive heat, as crop injury may result.
- Do not apply to crops that show injury (leaf phytotoxicity or plant stunting) produced by prior pesticide applications, because this injury may be enhanced or prolonged.
- Do not apply this product as a smoke, mist, fog or aerosol.
- · Do not apply through any type of irrigation equipment.
- Do not use fruit from ornamental plants for food or feed purposes.
- Cygnus is not for sale, distribution, or use in Nassau and Suffolk Counties in New York State.

### VII. General Restrictions and limitations - Outdoor Use

- Do not apply more than a total of 25.6 ounces (1.6 pounds) of Cygnus per acre per season.
- Restricted Entry Interval (REI): 12 hours.
- Do not apply to crops subjected to **stress** conditions such as drought or widely fluctuating temperatures or excessive heat, as crop injury may result.
- Do not apply to crops that show **injury** (leaf phytotoxicity or plant stunting) produced by prior pesticide applications, because this injury may be enhanced or prolonged.
- Do not apply through any type of irrigation equipment.
- Do not use fruit from ornamental plants for food or feed purposes.
- Cygnus is not for sale, distribution, or use in Nassau and Suffolk Counties in New York State.

### Conditions of Sale and Warranty

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result, because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION ("BASF") or the Seller.
All such risks shall be assumed by the Buyer. BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the Directions For **Use**, subject to the inherent risks, referred to above. BASF MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRAN-TY. IN NO CASE SHALL BASE OR THE SELLER BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDI-RECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT. BASE and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing Conditions of Sale and Warranty which may be varied only by agreement in writing signed by a duly authorized representative of BASF.

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