

DEC 15 1995

Mr. Frederick F. Piszkiwicz
Sandoz Agro, Inc.
1300 East Touhy Avenue
Des Plaines, Illinois 60018-3300

Dear Mr. Piszkiwicz:

Subject: Sentinel 40 WG
EPA Reg. No. 55947-132
Your Submission of November 7, 1995

The amendment referred to above, submitted in connection with registration under FIFRA sec. 3(c)(7)(A), is acceptable provided that you:

1. Submit and/or cite all data required for registration and reregistration of your product under FIFRA sec. 3(c)(5) and sec. 4 when the Agency requires all registrants of similar products to submit such data.

2. Make the labeling changes listed below on the label and in the directions for use booklet before you release the product for shipment bearing the amended labeling:

a. Revise the first sentence under WPS Uses in the section on Personal Protective Equipment to "- - - agricultural plant uses (sod farms) are covered" to clarify the labeled uses covered by WPS.

b. Move the statements in the second paragraph in the Agricultural Use Requirements box to the beginning of the directions for use; before the statement beginning "For any requirements specific to your State or Tribe - - -".

3. Submit five (5) copies of your final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Sincerely yours,



Connie B. Welch
Product Manager (21)
Fungicide-Herbicide Branch
Registration Division (7505C)

) Enclosure

7505C:C.Grable:cq:12/6/95

)

BEST COPY AVAILABLE

3 of 14

(Container Label)

DIRECTIONS FOR USE

**SENTINEL® 40WG TURF FUNGICIDE
in Water Soluble Bags**

A broad spectrum systemic turf fungicide for prevention and control of certain diseases on golf courses and sod farms.

ACTIVE INGREDIENT:

Cyproconazole [α -(4-chlorophenyl)- α -(1-cyclopropylethyl)-1H-1,2,4-triazole-1-ethanol 40%

INERT INGREDIENTS: 60%

Total..... 100%

NET CONTENT: 6 x 3.6 oz in water soluble bags - 21.6 oz total.

**KEEP OUT OF REACH OF CHILDREN
CAUTION
STATEMENT OF PRACTICAL TREATMENT**

If swallowed: Call a physician or poison control center. Drink 1 or 2 glasses of water and induce vomiting by touching finger to the back of throat, or if available, by administering syrup of Ipecac. Do not induce vomiting or give anything by mouth to an unconscious person.

If on skin: Wash skin with plenty of water. Get medical attention if irritation persists.

If in eyes: Flush eyes with plenty of water. Get medical attention if irritation persists.

EPA: Reg. No. 55947-132
EPA: Est. No. 33967-NJ-1

ACCEPTED
with COMMENTS
in EPA Letter Dated
DEC 13 1995

**SANDOZ AGRO, INCORPORATED
CORPORATE HEADQUARTERS
1300 EAST TOUHY AVENUE
DES PLAINES, ILLINOIS 60018**

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.
55947-132

BEST COPY AVAILABLE

4 of 14

PRECAUTIONARY STATEMENTS

CAUTION

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Harmful if swallowed, inhaled or absorbed through skin. Avoid breathing dust or spray mist. Wear rubber gloves and a long-sleeved shirt when mixing, handling, and spraying the product. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before use.

Personal Protective Equipment:

WPS USES:

Applicators and other handlers (other than mixers and loaders) who handle this pesticide for any use covered by Worker Protection Standard (40 CFR Part 170) -- in general, agricultural-plant uses are covered -- must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Mixers and loaders must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves
- Shoes plus socks

NON-WPS USES:

Mixers and loaders who handle this pesticide for any use NOT covered by Worker Protection Standard (40 CFR Part 170) -- in general, only agricultural-plant uses are covered by the WPS -- must wear:

- Chemical-resistant gloves

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

Engineering controls statements:

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

BEST COPY AVAILABLE

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

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

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

PHYSICAL AND CHEMICAL HAZARDS

Do not use or store near heat or open flame.

STORAGE AND DISPOSAL

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

STORAGE: Store in a cool, dry place in original container in a well-ventilated area away from fertilizer, feed, or foodstuffs.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Completely empty contents of external container into application equipment. Then dispose of empty external container in sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in an manner inconsistent with its labeling. This label must be in the possession of the user at the time of pesticide application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

BEST COPY AVAILABLE

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 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.

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:

- Coveralls
- Waterproof gloves
- Shoes plus socks

LIMITATION OF WARRANTY AND LIMITATION OF LIABILITY

NOTICE: Read this Limitation of Warranty and Limitation of Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded. It is impossible to eliminate all risks inherently associated with the 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 the manner of use or application, all of which are beyond the control of Sandoz or seller. All such risks shall be assumed by buyer or user. Sandoz warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, under normal use conditions, subject to the risks described above. Sandoz makes no other express or implied warranty of fitness or of merchantability or any other express or implied warranty. In no event shall Sandoz or seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. The exclusive remedy of the user or buyer, and the exclusive liability of Sandoz or seller for any and all claims, losses, injuries or damages (including claims based on breach of warranty, contract, negligence, tort, strict liability or otherwise) resulting from the use or handling of this product, shall be the return of the purchase price of the product or, at the election of Sandoz or seller, the replacement of the product. Sandoz and seller offer this product, and buyer and user accept it, subject to the foregoing limitations of warranty and limitation of liability, which may not be modified by any oral or written agreement.

BEST COPY AVAILABLE

1 of 14

(Directions for Use Booklet)

DIRECTIONS FOR USE

**SENTINEL® 40WG TURF FUNGICIDE
in Water Soluble Bags**

A broad spectrum systemic turf fungicide for prevention and control of certain diseases on golf courses and sod farms.

ACTIVE INGREDIENT:

Cyproconazole [α -(4-chlorophenyl)- α -(1-cyclopropylethyl)-
1H-1,2,4-triazole-1-ethanol] 40%

INERT INGREDIENTS: 60%

Total..... 100%

NET CONTENT: 6 x 3.6 oz in water soluble bags - 21.6 oz total.

**KEEP OUT OF REACH OF CHILDREN
CAUTION
STATEMENT OF PRACTICAL TREATMENT**

If swallowed: Call a physician or poison control center. Drink 1 or 2 glasses of water and induce vomiting by touching finger to the back of throat, or if available, by administering syrup of Ipecac. Do not induce vomiting or give anything by mouth to an unconscious person.

If on skin: Wash skin with plenty of water. Get medical attention if irritation persists.

If in eyes: Flush eyes with plenty of water. Get medical attention if irritation persists.

EPA: Reg. No. 55947-132
EPA: Est. No. 33967-NJ-1

**SANDOZ AGRO, INCORPORATED
CORPORATE HEADQUARTERS
1300 EAST TOUHY AVENUE
DES PLAINES, ILLINOIS 60018**

BEST COPY AVAILABLE

8 of 4

PRECAUTIONARY STATEMENTS

CAUTION

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Harmful if swallowed, inhaled or absorbed through skin. Avoid breathing dust or spray mist. Wear rubber gloves and a long-sleeved shirt when mixing, handling, and spraying the product. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before use.

Personal Protective Equipment:

WPS USES:

Applicators and other handlers (other than mixers and loaders) who handle this pesticide for any use covered by Worker Protection Standard (40 CFR Part 170) -- in general, agricultural-plant uses are covered -- must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Mixers and loaders must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves
- Shoes plus socks

NON-WPS USES:

Mixers and loaders who handle this pesticide for any use NOT covered by Worker Protection Standard (40 CFR Part 170) -- in general, only agricultural-plant uses are covered by the WPS -- must wear:

- Chemical-resistant gloves

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

Engineering controls statements:

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

BEST COPY AVAILABLE

70517

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

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of this chemical in 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 an manner inconsistent with its labeling. This label must be in the possession of the user at the time of pesticide application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

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 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.

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:

- Coveralls
- Waterproof gloves
- Shoes plus socks

GENERAL INFORMATION

When used as directed, SENTINEL is effective against:

Brown Patch (*Rhizoctonia solani*)

Dollar Spot

(*Lanzia* or *Moellerodiscus*, historically known as *Sclerotinia homeocarpa*)

Copper Spot (*Gloeocercospora sorghi*)

Gray Leaf Spot (*Pyricularia grisea*, suppression)

Anthraxnose

(*Colletotrichum graminicola*, *Microdochium bolleyi*)

Summer Patch (*Magnaporthe poae*)

Rust (*Puccinia graminis*)

Red Thread (*Laetisaria fuctiformis*)

Southern Blight (*Sclerotium rolfsii*)

Stripe Smut (*Ustilago striiformis*)

Gray Snow Mold (*Typhula incarnata*, *T. ishikariensis*)

Pink Snow Mold (*Microdochium nivale*)

Necrotic Ring Spot

(*Leptosphaeria korrae*)

Powdery Mildew (*Erysiphe graminis*)

- SENTINEL is a systemic fungicide MOST EFFECTIVE WHEN APPLIED PREVENTIVELY.
- Best results are achieved by using SENTINEL as the foundation fungicide in an overall turf management program utilizing sound cultural and pest control practices.
- Disease organism identification is important to determine the best control measures and should be done prior to application.
- If disease is already active, SENTINEL may be tank mixed with appropriate contact fungicides (see Tank Mixes and Compatibility Test below).
- Calibrate sprayer for accuracy prior to use.
- Apply SENTINEL with sufficient water to ensure thorough coverage. Application in concentrations from 2 to 5 gallons of water per 1000 sq.ft. will provide the best performance of SENTINEL.
- After application, allow area to dry before mowing.
- For foliar disease control, allow sprayed areas to dry completely prior to irrigation.
- Do not apply this product through any type of irrigation system.
- Do not graze animals on treated turf areas, or use grass clippings for food or feed.
- Do not exceed 1.33 oz/1000 sq ft. (16 water soluble bags/acre) per growing season.
- Tankmixtures with nitrogen fertilizer sources are not recommended.
- SENTINEL is safe for turf if used as directed. Under certain environmental conditions, SENTINEL may cause thickening or color shifts of some turf species, or growth reduction of *Poa annua*. If plant growth regulator (PGR) effects from SENTINEL use are observed, do not reapply SENTINEL until turf has outgrown PGR effects.
- Use of turf growth regulators on greens may result in turf injury in management programs containing SENTINEL.

BEST COPY AVAILABLE

- Failure of performance and/or turf injury may occur if directions for use are not followed as indicated on this label.

The following information is recommended by The North American Fungicide Resistance Action Committee for inclusion on all demethylation inhibitor (DMI) / sterol inhibitor (SI) fungicide labels including SENTINEL, Bayleton[®], Banner[®], Eagle[®], Rubigan[®], and others that are in development:

In rare cases, the repeated and exclusive use of certain classes of fungicides in solo applications may select fungal strains with reduced sensitivity. The North American Fungicide Resistance Action Committee advises that a spray program which alternates and/or tank mixes DMI/SI fungicides with fungicides having a different mode of action may prevent or delay this process. Consult your local Sandoz representative if you are unsure of the appropriate alternation or mixing partners.

MIXING INSTRUCTIONS

Fill the tank 1/3 - 1/4 with water, add the desired number of water soluble bags of SENTINEL into the tank (do not remove the SENTINEL from the water soluble bag since the bag will dissolve in the tank), maintain sufficient agitation to completely dissolve the bags and suspend the contents, then complete filling the tank. Maintain agitation until the content of the tank has been completely sprayed. Do not prepare more solution than needed.

If SENTINEL is tank mixed with other products, use the following recommendations:

1. Check the compatibility of the tank mix using a small container with the proper proportions of SENTINEL with the other chemical, water, or fertilizers as described in **COMPATIBILITY TEST** below.
2. The desired number of water soluble bags of SENTINEL should be added to a partially filled tank first and mixed until bags are dissolved and the SENTINEL is suspended completely.
3. Wettable powders and other water dispersible granules should be added next, mixing until suspended completely.
4. Flowables and suspensions next.
5. Emulsifiable concentrates last.

Do not leave in spray tank for prolonged period without agitation. Prepared solution should be used the same day.

Immediately after use, clean by flushing water through the system containing a detergent and rinse with clean water.

BEST COPY AVAILABLE

TANK MIXES

- For control of additional diseases and/or if disease is already present, SENTINEL may be tank mixed with appropriately labeled fungicides.
- Tank mixes with other pesticides and fertilizers may be made after a compatibility test has shown that no problem exists (see COMPATIBILITY TEST).
- Observe all directions, precautions, limitations on the label of the tank mix partner. Follow the directions under "Mixing Instructions".

COMPATIBILITY TEST

Before mixing in the spray tank, it is advisable to test compatibility by mixing all components in a small container in proportionate quantities.

If pesticides do not ball-up or form flakes, sludge, gels, oily films or layers, or other precipitates, then the tested spray mix is compatible. Usually incompatibility in any of the above described forms will occur within 5 minutes after mixing.

SENTINEL APPLICATION RATES: FOR DISEASE CONTROL ON FAIRWAYS, ROUGHS, TEES (cut higher than 1/4") AND SOD FARMS

DISEASE	SENTINEL 40WG IN WATER SOLUBLE BAGS		ANTICIPATED LENGTH OF CONTROL IN DAYS*	APPLICATION DIRECTIONS
	OUNCES / 1000 SQFT	BAGS / ACRE		
BROWN PATCH DOLLAR SPOT COPPER SPOT RUST SOUTHERN BLIGHT RED THREAD ANTHRACNOSE POWDERY MILDEW	0.25 - 0.33	3 - 4	21 - 28	For best results, apply PREVENTIVELY. Tankmixing with a contact fungicide is recommended when applying curatively. Repeat treatment when environmental conditions favor disease development. Do not apply more than 1.33 oz. / 1000 sq ft. / year.
GRAY LEAF SPOT (Suppression)	0.33	4	21 - 28	For best results, apply PREVENTIVELY when conditions are favorable for disease development. Do not apply more than 1.33 oz. / 1000 sq ft. / year
SUMMER PATCH	0.25 - 0.33	3 - 4	28	Begin applications in early spring when soil temperatures reach 60-65°F at a 2" soil depth, apply 2 or 3 times on a 28-day interval.
NECROTIC RING SPOT	0.33	4	28	Begin applications in early spring, apply 2 or 3 times on a 28-day interval.
STRIPE SMUT	0.33	4	-	Apply a single application in late fall or early spring.
GRAY SNOW MOLD PINK SNOW MOLD	0.33	4	-	Apply in late fall before snow cover. Repeat application in early spring. May be tankmixed with fungicides having a different mode of action (non ST) that are labeled for Snow Mold control.

* Expected length of control when used in a preventative disease control program. Actual length of disease control will vary depending on weather conditions, disease pressure and turf management practices.

13 of 14

SENTINEL APPLICATION RATES: FOR DISEASE CONTROL ON GREENS HEIGHT TURF AND CLOSELY MAINTAINED TEES (less than or equal to 1/4")

DISEASE	SENTINEL 40WG IN WATER SOLUBLE BAGS		ANTICIPATED LENGTH OF CONTROL IN DAYS*	MINIMUM APPLICATION INTERVAL**	APPLICATION DIRECTIONS
	OUNCES / 1000 SQFT	BAGS / ACRE			
BROWN PATCH DOLLAR SPOT COPPER SPOT RUST SOUTHERN BLIGHT RED THREAD ANTHRACNOSE POWDERY MILDEW	0.16 or 0.25	2 3	14 - 21 21 - 28	21 28	For best results, apply PREVENTIVELY. When daytime highs exceed 85° F use the 0.16 oz. rate in alternation with an appropriate contact fungicide. Tankmixing with a contact fungicide is recommended when applying curatively. Repeat treatment when environmental conditions favor disease development. Do not apply more than 1.33 oz. / 1000 sq.ft. / year.
SUMMER PATCH	0.25	3	21 - 28	28	Begin applications in early spring when soil temperatures reach 60-65°F at a 2" soil depth, apply 2 times on a 28-day interval. Do not apply 0.25 oz. rate when greens are stressed due to temperature or PGR effects or after June 1, whichever ever comes first.
NECROTIC RING SPOT	0.25	3	28	28	Begin applications in early spring, apply 2 or 3 times on a 28-day interval. Do not apply 0.25 oz. rate when greens are stressed due to temperature or PGR effects or after June 1, whichever ever comes first.
STRIPE SMUT	0.33	4	-		Apply a single application in late fall or early spring.
GRAY SNOW MOLD PINK SNOW MOLD	0.33	4	-		Apply in late fall before snow cover. Repeat application in early spring. May be tankmixed with fungicides having a different mode of action (non SI) that are labeled for Snow Mold control.

- * Expected length of control when used in a preventive disease control program. Actual length of disease control will vary depending on weather conditions, disease pressure and turf management practices.
- ** Alternation with a fungicide having a different mode of action (non SI) is recommended if fungicide application is necessary to accommodate the minimum spray interval.

APPLICATION COMMENTS

- SENTINEL is a systemic fungicide MOST EFFECTIVE WHEN APPLIED PREVENTIVELY.
- Actual length of disease control will vary depending on weather conditions, disease pressure and turf management practices. Under conditions with high disease pressure use higher recommended application rate and/or anticipate a shorter period of control.
- Apply SENTINEL with sufficient water to ensure thorough coverage. Application in concentrations from 2 to 5 gallons of water per 1000 sq.ft. with properly calibrated equipment will provide the best performance of SENTINEL.
- Use of spreader stickers, extenders, or wetting agents is not needed with SENTINEL.

LIMITATION OF WARRANTY AND LIMITATION OF LIABILITY

NOTICE: Read this Limitation of Warranty and Limitation of Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded. It is impossible to eliminate all risks inherently associated with the 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 the manner of use or application, all of which are beyond the control of Sandoz or seller. All such risks shall be assumed by buyer or user. Sandoz warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, under normal use conditions, subject to the risks described above. Sandoz makes no other express or implied warranty of fitness or of merchantability or any other express or implied warranty. In no event shall Sandoz or seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. The exclusive remedy of the user or buyer, and the exclusive liability of Sandoz or seller for any and all claims, losses, injuries or damages (including claims based on breach of warranty, contract, negligence, tort, strict liability or otherwise) resulting from the use or handling of this product, shall be the return of the purchase price of the product or, at the election of Sandoz or seller, the replacement of the product. Sandoz and seller offer this product, and buyer and user accept it, subject to the foregoing limitations of warranty and limitation of liability, which may not be modified by any oral or written agreement.

SENTINEL® is the Registered Trademark of Sandoz Ltd., Basel, Switzerland.
Bayleton® is the Registered Trademark of Bayer Corp.
Banner® is the Registered Trademark of CIBA.
Rubigan® is the Registered Trademark of DowElanco.
Eagle® is the Registered Trademark of Rohm & Haas.

BEST COPY AVAILABLE