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1100-70

1413

19 JUN 1992

Ms. Hope L. Stewart
Nuis America Inc.
P.O. Box 305
Turner Place
Piscataway, NJ 08855-0305

Dear Ms. Stewart:

Subject: fungitrol[®] II
EPA registration no. 1100-70
Your letters of January 31, 1992 and one June 10,
1992, revised labeling in compliance with
EPA registration standard for folpet Pesticide
products, dated June, 1967

The proposed amended labeling submitted in response
to EPA registration standard, of June, 1967 and the revised
confidential statement of formula on EPA Form 6570-27
dated January 31, 1992 are acceptable for registration
under the federal insecticide, fungicide and rodenticide
act as amended provided that you:

1. Revise the chemical expression of folpet in the
ingredient statement of the label and on the Product
Data Bulletin, entitled fungitrol[®] II Industrial
fungicide" to read as stated in the EPA registration
standard for folpet mentioned in the subject line.
The expression must be written as follows:

folpet (N-(Trichloromethylthio) phthalimide)

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

BEST AVAILABLE COPY

If these conditions are not complied with, the registration will be subject to cancellation in accordance with 12 CFR, section 6(c). Your release for shipment of the product constitutes acceptance of these conditions.

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

Sincerely yours,

James A. Miller
Product Manager (25)
Compliance-Regulatory Branch
Registration Division (1-75000)

cc: [unclear]

EW1508:DISKette:7502:00-10-92

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FUNGITROL® 11

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS & DOMESTIC ANIMALS

WARNING!

Causes substantial but temporary eye injury. May cause an allergic skin reaction. Harmful if swallowed or inhaled. Do not get in eyes, on skin or on clothing. Avoid breathing dust or liquid aerosols. Wear goggles or face shield when handling. Wash thoroughly with soap and water after handling. Remove contaminated clothing and separately launder clothing before reuse.

STATEMENT OF PRACTICAL TREATMENT

IF IN EYES: Immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

IF SWALLOWED: Promptly drink a large quantity of milk, egg whites, gelatin solution, or, if these are not available, drink large quantities of water. Do not drink alcohol.

IF INHALED: Remove victim to fresh air. Give artificial respiration or oxygen if needed.

IF ON SKIN: Wash with soap and water. Call a physician if irritation persists.

ENVIRONMENTAL HAZARDS

This product is highly toxic to fish. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or public water unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA

ACCEPTED

with COMMENTS

in EPA Letter Dated

ACTIVE INGREDIENT:

Folpet (N-(trichloromethylthio) phthalimide).....
Inert Ingredients.....

EPA Reg. No. 1100-70
EPA Est. No. 1100-NJ-001

U.S. Pat. No 2,551,111
Canadian Pat. No. 1,111,111
Mexican Pat. No. 1,111,111

KEEP OUT OF REACH OF CHILDREN WARNING!

See side panel for additional precautionary statements.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. For use as a fungicide in non-aqueous paints, coatings and other surface treatments. See Product Data Bulletin for detailed use directions.

STORAGE AND DISPOSAL

STORAGE: Store indoors in a cool dry place. Protect from moisture.

PESTICIDE DISPOSAL: Do not contaminate water, food or feed. Pesticide wastes are toxic. Improper disposal of excess product or rinsate is a violation of Federal Law. If these wastes cannot be disposed of as directed, contact your State Pesticide Control Agency, or the Hazardous Waste representative at the nearest EPA office for guidance.

CONTAINER DISPOSAL: Completely empty drum by shaking and turning bottom to loosen clinging particles. Empty residue into a suitable container. Dispose of drum in sanitary landfill or by incineration if allowed by local authorities.

Net Weight _____ Lot No. _____

Manufactured for

huls

HÜLS AMERICA INC

Turner Place, P.O. Box 365, Piscataway, NJ 08855

U.S. Dept. of Agriculture
Environmental Protection Agency
Registration No. 1100-70

HÜLS AMERICA, INC. MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE AND
disclaims liability for consequential or incidental damages, whether based on warranty or negligence, and will not make a refund or replacement.

GENERAL DESCRIPTION

FUNGITROL 11 is a powdered, non-metallic organic fungicide designed for use in non-aqueous coatings (paints) and caulking compounds. It demonstrates excellent performance in these substrates showing the following principal features:

1. Highly effective against a variety of microorganisms.
2. Suitable for use in both exterior and interior non-aqueous paints and caulking compounds.
3. Does not affect color or other paint and caulking properties.

TYPICAL PROPERTIES

Physical Form:	Off-white fine powder
Active Ingredient:	Folpet [N-(trichloromethylthio)phthalimide], 88% (min.)
Odor:	Slight burnt
Melting Point:	177°C
Specific Gravity (25°/25°C):	1.75
Bulk Density:	Loose: 18-20 lbs./cu.ft. Packed: 28-32 lbs./cu.ft.
Solubility:	Practically insoluble in water, very low solubility in aliphatic hydrocarbon solvents, low solubility in aromatic, polar, oxygenated and halocarbon solvents.
Stability:	Thermally stable under normal temperatures of storage. Hydrolyzes slowly in water at low temperatures, rapidly at high temperatures. Rapidly hydrolyzes with strong alkali and high temperatures.

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ANTIMICROBIAL ACTIVITY

The values shown below represent the minimal inhibitory concentration of FUNGITROL 11 in ppm for the following microorganisms in laboratory media:

<u>Bacterial Species</u>	<u>MIC</u>
<u>Bacillus subtilis</u>	25
<u>Staphylococcus aureus</u>	50
<u>Pseudomonas aeruginosa</u>	1000
<u>Aerobacter aerogenes</u>	75
<u>Proteus vulgaris</u>	100
<u>Brevibacterium sp.</u>	25
<u>Streptomyces rubroreticuli</u>	100

<u>Fungal Species</u>	<u>MIC</u>
<u>Aspergillus niger</u>	100
<u>Aspergillus flavus</u>	75
<u>Pencillium funiculosum</u>	50
<u>Penicillium islandicum</u>	50
<u>Chaetonium globosum</u>	100
<u>Trichoderma sp.</u>	500
<u>Aureobasidium pullulans</u>	75
<u>Candida albicans</u>	100

APPLICATIONSA. Non-Aqueous Paint FungicideGeneral

FUNGITROL 11 is highly effective in the control of fungi associated with mildew growth on both interior and exterior paints. Since it is a powder, the optimum performance is obtained when FUNGITROL 11 is uniformly dispersed in the paint. Therefore, it should be incorporated during the pigment dispersion cycle in the paint manufacturing process.

Lead pigments and driers should be avoided in paints containing FUNGITROL 11. It has been found that paints containing significant amounts of moisture due to the use of high moisture content pigments can show a cross staining between the lead compounds and FUNGITROL 11.

Use Levels

FUNGITROL 11 is recommended at levels between 0.5% and 1.0% based on total paint weight. Lower levels are only effective under relatively mild exposure conditions. Specific recommendations are governed by the particular paint formulation and the exposure environment.

Typical Exposure Results

The attached charts represent the mildew responses of several exterior paint formulations after extended exposure at four test fence sites. The data is a condensation of the most representative results from these test fence locations: Cranbury and Piscataway, New Jersey; Pensacola, Florida; and Caguas, Puerto Rico.

The scale of rating on the charts is 0 for no mildew growth to 10 for very heavy mildew growth, per ASTM D3274. The numbers appearing horizontally are the number of months of exposure. The charts show a control paint with no mildewcide and various levels of FUNGITROL 11 for each paint. The formula for each paint is appended.

Paint 624 - This is a non-chalking, zinc-free, stain and blister resistant paint using a long oil linseed alkyd as the vehicle. Exposure was at both our Cranbury, New Jersey and Caguas, Puerto Rico sites.

The control paint at the New Jersey location shows severe mildew after nine months exposure. As is quite apparent, FUNGITROL 11 shows improved performance as the level increases. At the 0.75-1.0% level, excellent control is obtained for about 2 to 2.5 years. Increasing the level to 2.0% gives excellent control for three years.

The control paint at the Puerto Rican location shows extensive mildew after just three months exposure in this severe environment. Again, increasing levels of FUNGITROL 11 impart increased protection, with 2% showing excellent protection for almost two years.

Paint 624A - This is a modification of Paint 624 where one-half of the non-chalking rutile TiO_2 is replaced with anatase TiO_2 to produce a fairly free-chalking system. Exposures in New Jersey and Florida are shown. As with the Puerto Rican exposures, the control paint in Florida shows severe mildew after three to six months exposure. Again, increasing levels of FUNGITROL 11 provide for better protection, with 1.0% showing excellent protection for three years. Similar results are evident in the New Jersey exposures.

Paint 709 - This is a trim and trellis paint which has excellent durability. Once again, FUNGITROL 11 demonstrates excellent mildew protection.

Paint TTP-103 - This is a linseed oil paint with a high zinc oxide content designed for exterior application on highly industrial environments (fume resistant). This paint normally shows some mildew resistance due to the presence of the zinc oxide pigment. FUNGITROL 11 again shows excellent performance.

Paint 666 - This is an interior alkyd gloss enamel used mainly for woodwork. Using the ASTM Environmental Chamber (ASTM D3773), FUNGITROL 11 shows excellent mildew control with increasing concentrations for the duration of the exposure.

B. Non-Aqueous Caulking Compound FungicideGeneral

As with non-aqueous paints, FUNGITROL 11 is highly effective in the control of microorganisms associated with mildew growth on caulking compounds. Since it is a powder, it should be treated as a filler and added to the vehicle.

Use Levels

FUNGITROL 11 is recommended in caulking compounds at levels between 0.25 and 1.0% based on total formula weight. Again, specific levels are governed by the particular exposure environments.

Efficacy studies were performed in a typical gun grade caulking described below:

	<u>Wt. %</u>
INDOPOL Polybutene H100 (Amoco Chemicals Corp.)	8.23
Blown Soya Oil, Z4 Viscosity	16.16
Tall Oil Fatty Acids, 3% Rosin	0.49
Calcium Carbonate	46.15-47.15
Talc	23.75
Mineral Spirits	3.93
NuXtra Cobalt 6% (Huls America Inc.)	0.29
FUNGITROL 11	0.25-1.00

Agar Plate Tests

<u>Microbicide</u>	<u>Mildew Rating (Mixed Fungi)⁽¹⁾</u>		
	<u>As-Is</u>	<u>Leached (72 Hours)</u>	<u>Weathered (300 Hours)</u>
Control	4	4	4
FUNGITROL 11 (0.25%)	0	1	2-3
FUNGITROL 11 (0.50%)	0	1	1-2
FUNGITROL 11 (0.75%)	0	0	0
FUNGITROL 11 (1.0%)	0	0	0

Legend:

- (1) 1" x 3" glass slides were coated on both sides with the caulking compound and allowed to air dry for 72 hours. One set of samples was subjected to leaching with water for 72 hours. Another set was subjected to weathering in an Atlas Weather-Ometer (Model XW-2) for 300 hours. Exposure consisted of U.V. light for 102 minutes followed by 18 minutes of U.V. light and water spray. The glass slides were placed on Nutrient Salts Agar surfaces in Petri dishes and spray inoculated with a mixture of fungi. The Petri dishes were covered and incubated for three weeks at 30°C and 85-90% relative humidity. At the end of the incubation period, the samples were monitored for degree of surface fungal resistance. Rating scale was 0 to 4; 0 indicating no surface growth and 4 complete coverage of sample. Mixed fungal inoculum consisted of Aspergillus niger, Penicillium islandicum, Chaetomium globosum, Trichoderma sp. and Aureobasidium pullulans.

Environmental Chamber Exposures (ASTM D3273. Procedure modified - glass panels were substituted for the wood panels).

<u>Microbicide</u>	<u>Mildew Rating</u> ⁽¹⁾				(Weeks Exposed)
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	
Control (None)	6	8	10	10	
FUNGITROL 11 (0.25%)	0	2	4	6	
FUNGITROL 11 (0.50%)	0	2	2	2	
FUNGITROL 11 (0.75%)	0	0	0	1-2	
FUNGITROL 11 (1.0%)	0	0	0	0	

Legend: (1) 0 ---> 10 increasing mildew growth (0 best, 10 worst), per ASTM D3274.

Under a severe agar plate evaluation and the ASTM Environmental Chamber evaluation, FUNGITROL 11 shows excellent mildew control. It shows excellent leach and weather resistance thus providing superior utility in humid environments.

STORAGE AND DISPOSAL

For storage and disposal instructions, see product label.

FIRST AID

In case of contact, flush eyes with plenty of water. If swallowed, promptly drink a large quantity of milk, egg whites, gelatin solution, or, if these are not available, drink large quantities of water. Do not drink alcohol. If inhaled, remove victim to fresh air. Give artificial respiration or oxygen if needed. If on skin, wash with soap and water. Call a physician if irritation persists.

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PCL 624 - STAIN AND BLISTER RESISTANT PAINT

FORMULA (100 Gallons)

Titanox 2061 (Non-chalking) ⁽¹⁾	214.0 lbs.
Nyral 300 ⁽²⁾	383.0
Aroplaz 1271-100 ⁽³⁾	417.0
Mineral Spirits	175.0
8% Zinc NuXtra ⁽⁴⁾	5.2
4% Calcium NuXtra ⁽⁴⁾	13.0
6% Cobalt NuXtra ⁽⁴⁾	1.7
	1,208.9 lbs.

PVC: 30.8%
Viscosity: 78 K.U.
Lbs./gal.: 12.1
Color: White

Substrate: TT-P-25E Primed Cedar

Legend:

- (1) N. L. Industries
- (2) R. T. Vanderbilt Co.
- (3) Ashland Chemical Co.
- (4) Hüls America Inc.
- (5) 0 —> 10 increasing mildew growth
(0 best, 10 worst), per ASTM D3274.

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FUNGITROL® 11 Fungicide

PCL 624A - STAIN AND BLISTER RESISTANT PAINT

FORMULA (100 Gallons)

Titanox 1070 (Chalking) ⁽¹⁾	107.0 lbs.
Titanox 2061 (Non-chalking) ⁽¹⁾	107.0
Nyral 300 ⁽²⁾	383.0
Aroplaz 1271-100 ⁽³⁾	417.0
Mineral Spirits	175.0
8% Zinc NuXtra ⁽⁴⁾	5.2
4% Calcium NuXtra ⁽⁴⁾	13.0
6% Cobalt NuXtra ⁽⁴⁾	<u>1.7</u>
	1,208.9 lbs.

PVC: 30.8%
 Viscosity: 78 K.U.
 Lbs./gal.: 12.1
 Color: White

Substrate: TT-P-25E Primed Cedar

Legend:

- (1) N. L. Industries
- (2) R. T. Vanderbilt Co.
- (3) Ashland Chemical Co.
- (4) Huls America Inc.
- (5) 0 —> 10 increasing mildew growth
 (0 best, 10 worst), per ASTM D3274.

PCL 709 - TRIM AND TRELIS PAINT

FORMULA (100 Gallons)

Titanox 2061 ⁽¹⁾	300.0 lbs.
Nyral 300 ⁽²⁾	50.0
Bentone 38 ⁽³⁾	3.0
Ethyl Alcohol	1.5
Reichhold P470-70 ⁽⁴⁾	455.0
Raw Linseed Oil	25.0
Q Bodied Linseed Oil	65.0
Mineral Spirits	96.0
18% Zirconium NuXtra ⁽⁵⁾	4.0
4% Calcium NuXtra ⁽⁵⁾	5.0
6% Cobalt NuXtra ⁽⁵⁾	2.1
	1,208.9 lbs.

Legend:

- (1) N. L. Industries
- (2) R. T. Vanderbilt Co.
- (3) Reichhold Chemicals Inc.
- (4) Hüls America Inc.
- (5) 0 —> 10 increasing mildew growth
(0 best, 10 worst), per ASTM D3274.

PVC: 18.7%
Viscosity: 87 K.U.
Lbs./gal.: 10.4
Color: White

Substrate: TT-P-25E Primed Cedar

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FUNGITROL® 11 Fungicide

PAINT TTP-103

FORMULA (100 Gallons)

Zinc Oxide XX601 ⁽¹⁾	308.0 lbs.
Titanox 1070 ⁽²⁾	77.0
Titanox 2032 ⁽²⁾	77.0
Nyral 300 ⁽³⁾	347.0
OKO-S-70 ⁽⁴⁾	140.0
Superior Linseed Oil	270.0
Mineral Spirits	<u>129.0</u>
	1,208.9 lbs.

Legend:

- (1) New Jersey Zinc Co.
- (2) N. L. Industries
- (3) R. T. Vanderbilt Co.
- (4) ADM Industrial Oils Corp.
- (5) 0 —> 10 increasing mildew growth
(0 best, 10 worst), per ASTM D3274.

PVC: 32.5%
Viscosity: 81 K.U.
Lbs./gal.: 13.4
Color: White

Substrate: TT-P-25E Primed Cedar

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PCL 666 - GLOSS WHITE OR TINT BASE INTERIOR ENAMEL

FORMULA (100 Gallons)

Titanox 2032 ⁽¹⁾	200.0 lbs.
Nuvis HS ⁽²⁾	5.0
Aroplaz 1241-70 ⁽³⁾	523.0
Mineral Spirits	175.5
12% Zirconium NuXtra ⁽²⁾	2.0
6% Cobalt NuXtra ⁽²⁾	3.0
Exkin #2 ⁽²⁾	<u>1.5</u>
	910.0 lbs.

PVC: 12.6%
 Viscosity: 72 K.U.
 Lbs./gal.: 9.1
 Color: White

Test Procedure: ASTM D3273 - Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

Substrate: Unprimed Ponderosa Pine (per ASTM D3273).

PERFORMANCE OF FUNGITROL 11 IN PCL 666

<u>Microbicide</u>	<u>Mildew Rating⁽⁴⁾</u>				(Weeks Exposed)
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	
Control (None)	4	6	8	10	
FUNGITROL 11 (0.25%)	0	2	4	5	
FUNGITROL 11 (0.50%)	0	0	2	2	
FUNGITROL 11 (0.75%)	0	0	0	2	
FUNGITROL 11 (1.0%)	0	0	0	0	

Legend:

- (1) N. L. Industries
- (2) Hüls America Inc.
- (3) Ashland Chemical Co.
- (4) 0 ---> 10 increasing mildew growth (0 best, 10 worst), per ASTM D3274.