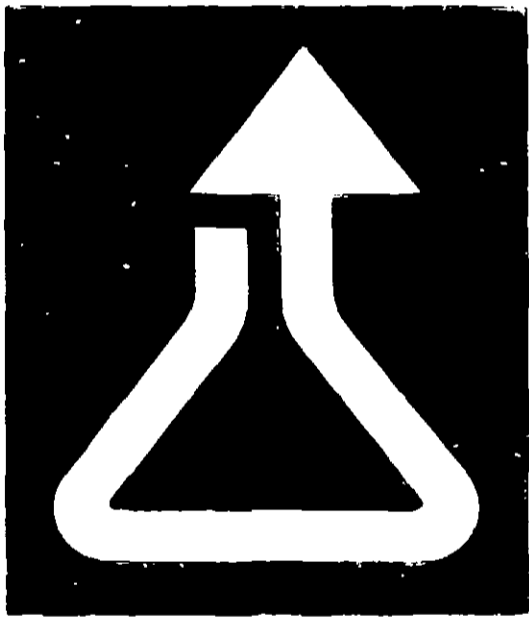


DITHANE[®] M-22 CONCENTRATE



**ROHM
AND
HAAS**

AGRICULTURAL FUNGICIDE	
[Empty space]	
CAUTION KEEP OUT OF REACH OF CHILDREN	ACTIVE INGREDIENT
[Empty space]	[Empty space]
[Empty space]	NET WEIGHT LBS.

ROHM AND HAAS COMPANY

INDEPENDENCE MALL WEST
PHILADELPHIA, PENNSYLVANIA 19101



TECHNICAL BULLETIN

ACCEPTED

JUN 3 1971

UNDER THE FEDERAL INSECTICIDE
FUNGICIDE AND ROFENTICIDE ACT
FOR ECONOMIC POISON REGISTER-
ED UNDER NO. 707-103

DITHANE M-22 CONCENTRATE FORMULATING, MIXING, PACKAGING and LABELING GUIDE

USDA Registration No. 707-103

INTRODUCTION

DITHANE M-22 fungicide concentrate dust base contains 80 percent of the active ingredient, maneb (manganese ethylene bisdithiocarbamate). DITHANE M-22 CONCENTRATE can be combined with various inert diluents and insecticides for application in dust form. Suggestions for formulating, mixing, packaging and labeling DITHANE M-22 dusts are offered here as a guide to manufacturers.

FORMULATION

Stability

The stability of DITHANE M-22 CONCENTRATE has been improved markedly through continuing research on the formulation and manufacture of this pesticide. The use of patented stability additives has now provided a product adequately stable for at least two years when kept in the original containers and formulated according to label recommendations.

Diluents

Stability studies with various carriers for DITHANE M-22 dusts indicate that treated calcium carbonate, pyrophyllite or wettable sulphur are the best diluents for this use. The Attapulgate type clays and Barden clay are not suggested as diluents for DITHANE M-22 when extended storage is anticipated. Diluents containing less than 0.5 percent moisture have been found to be excellent diluents for DITHANE M-22 CONCENTRATE.

Compatibility

DITHANE M-22 CONCENTRATE is compatible with various other pesticides commonly used in dust formulations.

Concentration

The concentration of DITHANE M-22 can be varied to meet particular needs. However, the usual concentration is 6 percent of DITHANE M-22. Concentrations below this level are recommended only for special situations.

MIXING

Dusts containing DITHANE M-22 CONCENTRATE do not require any special processing, and can be mixed satisfactorily in standard dust mixing equipment.

PACKAGING

DITHANE M-22 dusts should be packaged in air-tight, moisture-proof packages, insofar as it is practical to do so, and stored in a cool, dry place.

LABELING

The trade name DITHANE is well established and known to growers throughout the world. Agricultural authorities and published recommendations frequently refer to DITHANE products by trade name. Rohm and Haas Company sponsors considerable advertising for DITHANE products in local and national farm publications as well as in grower literature. It is suggested that dust mixers identify their products as made with DITHANE M-22.

Active Ingredient

The active ingredient in DITHANE M-22 is manganese ethylene bisdithiocarbamate, also referred to as maneb. Present Federal registration requires the active ingredient to be declared as "maneb" (manganese ethylene bisdithiocarbamate).

It is common practice in agricultural dusts, to declare slightly less active ingredient than calculated to compensate for loss of activity on mixing or in storage or imperfect blending. It is suggested that at least a 5 percent margin be allowed in declaring the active ingredient for DITHANE M-22 dusts. A dust containing 6 percent DITHANE M-22 would normally be labeled as "4.5 percent maneb (manganese ethylene bisdithiocarbamate)."

A statement of the metallic manganese content is optional under the Federal registration. DITHANE M-22 contains 16.5 percent manganese equivalent. A formulation containing 6 percent DITHANE M-22 would declare 0.98 percent metallic manganese. See specimen label.

CAUTION STATEMENT

Federal registration requires on the front panel of the label the word "CAUTION" in 18 point type (for labels over 30 square inches in size) to be followed by the words "KEEP OUT OF REACH OF CHILDREN" in 12 point type (See USDA regulations for type size requirements for smaller labels). Additional cautions must be made in regard to handling, storage and contamination of foods and waters (See the specimen label for details.)

If insecticides are combined with Dithane M-22 such precautionary labeling as is required for the particular insecticides must be added.

DITHANE M-22 dusts sold in interstate trade are subjected to the Federal Insecticide, Fungicide and Rodenticide Act and must be registered with the Pesticides Regulation Division, Agricultural Research Service, U.S. Department of Agriculture, Washington, D.C. 20250, and the Federal Registration Number must be shown on the label. Federal regulations also require the net contents and name and address of the manufacturer or seller, and the proper use directions to be on the label. Also, most states require annual registration. Information may be obtained by contacting the State Department of Agriculture in each state where the product is to be sold.

SPECIMEN LABEL

We offer the following XYZ specimen label as a general guide and format which should be followed in preparing labels containing DITHANE M-22 CONCENTRATE. While our suggestions follow the present USDA requirements, dust formulators should determine whether local or state regulations require modifications or additions.

ACTIVE IN
Mat

INERT ING

CAUTION
KEEP OUT
May cause
wash with

Toxic to fis

IMPORTANT
Keep away
storage. In
also genera

RECOMMEN
DITHANE M
apricots, its
cauliflower
kale, kohlr
potato (see
tomatoes (g

In preparing
of Register
limitations

Current up-t
may also b

DIRECTION
DITHANE M
DITHANE M
Application
plants. Rep
adjusted to

6% DITHANE M-22 DUST
A Fungicidal Dust

ACTIVE INGREDIENT:

Maneb (Manganese ethylene bisdithiocarbamate) 4.5%
(Metallic manganese content . . . 0.98%)

INERT INGREDIENTS: 95.5%
Total 100.0%

CAUTION

KEEP OUT OF REACH OF CHILDREN

May cause irritation of nose, throat, eyes and skin. Do not breathe dust. In case of skin contact wash with water; for eyes wash copiously with water and get medical attention.

Toxic to fish. Keep out of any body of water. Apply only as specified on this label.

IMPORTANT

Keep away from fire and sparks. Store in a cool, dry place. Do not allow to become wet or overheated during storage. This may bring on chemical changes which will impair the fungicidal effectiveness of maneb and may also generate flammable vapors. Keep container closed when not in use.

RECOMMENDATIONS

DITHANE M-22 CONCENTRATE (maneb) is currently cleared for use on the following crops: Almonds, apples, apricots, asparagus, bananas, beans (dry), beans (succulent), broccoli, brussels sprouts, cabbage, carrots, cauliflower, celery, collards, corn (sweet), cranberries, cucumbers, eggplant, endive, figs, grapes, kale, kohlrabi, lettuce, melons, mustard greens, nectarines, onions, papaya, peaches, peppers, potatoes, potato (seed pieces), pumpkins, rhubarb (greenhouse), spinach, squash (summer and winter), tomatoes (field), tomatoes (greenhouse) and turnips.

In preparing use labels for any of the above listed crops reference must first be made to the USDA Summary of Registered Agricultural Pesticide Chemical Uses noting the dosage allowed on an acre basis as well as the limitations pertaining to specific crops in relation to the dosage rates.

Current up-to-date registration information covering DITHANE M-22 CONCENTRATE for crops and use rates may also be obtained by writing to Rohm and Haas Company in Philadelphia, Pa.

DIRECTIONS FOR USE

DITHANE M-22 dust can be used for the control of many common diseases of vegetables and field crops. DITHANE M-22 dust may be applied to either moist or dry foliage any time dusting conditions are favorable. Applications should begin when the plants are small. Use 15 to 50 pounds per acre depending on the size of plants. Repeat at 5 to 10 day intervals depending on the severity of disease conditions. Dusters should be adjusted to give uniform and thorough coverage.

DITHANE is a trademark of Rohm and Haas Company, Philadelphia, or of its subsidiaries or affiliates. The Company's policy is to register its trademarks where products designated thereby are marketed by the Company, its subsidiaries or affiliates.

NOTICE: Seller warrants that the product conforms to its chemical description and is reasonably fit for the purpose stated on the label when used in accordance with directions under normal conditions of use, but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use, storage or handling of this product contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to seller, and buyer assumes the risk of any such use. These risks include, but are not limited to, damage to plants, crops and animals to which the material is applied, failure to control pests, damage caused by drift to other plants or crops, and personal injury.



DITHANE M-22 SPECIAL Concentrate may also be used to formulate seed treatment fungicides. In seed treatment fungicides it is necessary to add a suitable dye or discoloring chemical which will impart an unnatural color to seeds so treated. This unnatural color must not be readily removed by washing or other physical means.

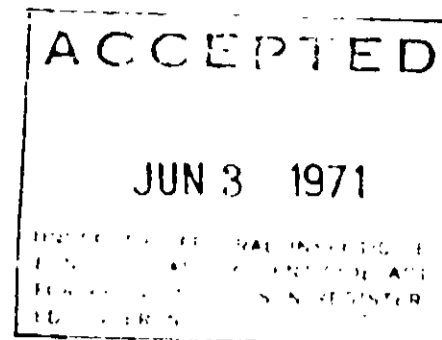
The following is a listing of crop seeds for treatment using DITHANE M-22 SPECIAL CONCENTRATE (maneb) as the active ingredient for a seed dressing compound. This list serves as a guide in preparing labels however, a thorough review must be made of the current USDA Summary of Registered Uses for maneb.

DITHANE M-22 SPECIAL IN OUNCES

<u>CROP</u>	<u>MACHINE APPLICATION</u>	<u>PLANTER BOX APPLICATIONS</u>	<u>DISEASES</u>
Barley	0.93 bu	1.25 bu	covered and false loose smut, damping-off, seed rots, seedling blights.
Beans (field)		1.70 bu	damping-off, seed rots, seedling blights.
Com		1.70 bu	damping-off, seed rots, seedling blights.
Cotton		12.0 bu	damping-off, seed rots, seedling blights.
Flax	0.93 bu	2.50 bu	damping-off, seed rots, seedling blights.
Oats	0.93 bu	1.25 bu	damping-off, seed rots, seedling blights, smuts.
Peas		1.70 bu	damping-off, seed rots, seedling blights.
Rye	0.93 bu	1.25 bu	bunt, damping-off, seed rots, seedling blights.
Sugar Beets	6-10 100 lbs.		damping-off, seed rots, seedling blights.
Soybeans (field)	0.93 bu	1.25 bu	damping-off, seed rots, seedling blights.
Wheat	0.93 bu	1.25 bu	bunt, damping-off, seed rots, seedling blights.

FILED - 1976

U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20250

**DITHANE M-22
FORMULA
PACKAGING &
USDA Regis****INTRODUCTION**

DITHANE M-22 fungicide concentrate dust base contains ethylene bisdithiocarbamate). DITHANE M-22 CONCENTRATE is also used as an insecticide for application in dust form. Suggestions for use of DITHANE M-22 dusts are offered here as a guide to manufacturers.

FORMULATION**Stability**

The stability of DITHANE M-22 CONCENTRATE has been the subject of extensive research on the formulation and manufacture of dusts. This research has now provided a product adequately stable for use in dust form and formulated according to label recommendations.

Diluents

Stability studies with various carriers for DITHANE M-22 CONCENTRATE, pyrophyllite or wettable sulphur are the best. Bentonite and Barden clay are not suggested as diluents. Diluents containing less than 0.5 percent moisture are recommended for use with DITHANE M-22 CONCENTRATE.

Compatibility

DITHANE M-22 CONCENTRATE is compatible with most other dust formulations.

Concentration

The concentration of DITHANE M-22 can be varied. The recommended concentration is 6 percent of DITHANE M-22. Consult the label for special situations.

MIXING

Dusts containing DITHANE M-22 CONCENTRATE should be mixed satisfactorily in standard dust mixing equipment.

PACKAGING

DITHANE M-22 dusts should be packaged in air-tight, moisture-proof containers, do so, and stored in a cool, dry place.

LABELING

The trade name DITHANE is well established and known. Labels and published recommendations frequently refer to DITHANE. Dust sponsors should be advised to use the DITHANE trade name on their grower literature. It is suggested that dust mixers identify

Active Ingredient

The active ingredient in DITHANE M-22 is manganese ethylene bisdithiocarbamate, also referred to as maneb. Present Federal registration requires the active ingredient to be declared as "Maneb" (manganese ethylene bisdithiocarbamate).

It is common practice in agricultural dusts, to declare slightly less active ingredient than is used to compensate for loss of activity on mixing or in storage or imperfect blending. It is required that at least a 5 percent margin be allowed in declaring the active ingredient for DITHANE M-22. Thus, a dust containing 6 percent DITHANE M-22 would normally be labeled as "5 percent (manganese ethylene bisdithiocarbamate)."

A statement of the metallic manganese content is optional under the Federal registration. DITHANE M-22 contains 16.5 percent manganese equivalent. A formulation containing 6 percent DITHANE M-22 would declare 0.98 percent metallic manganese. See specimen label.

CAUTION STATEMENT

Federal registration requires on the front panel of the label the word "CAUTION" in 18 point type (for labels over 30 square inches in size) to be followed by the words "KEEP OUT OF REACH OF CHILDREN" in 12 point type (See USDA regulations for type size requirements for smaller labels). Additional cautions must be made in regard to handling, storage and contamination of foods and waters (See the specimen label for details.)

If insecticides are combined with Dithane M-22 such precautionary labeling as is required for the particular insecticides must be added.

DITHANE M-22 dusts sold in interstate trade are subjected to the Federal Insecticide, Fungicide and Rodenticide Act and must be registered with the Pesticides Regulation Division, Agricultural Research Service, U.S. Department of Agriculture, Washington, D.C. 20250, and the Federal Registration Number must be shown on the label. Federal regulations also require the net contents and name and address of the manufacturer or seller, and the proper use directions to be on the label. Also, most states require annual registration. Information may be obtained by contacting the State Department of Agriculture in each state where the product is to be sold.

SPECIMEN LABEL

We offer the following XYZ specimen label as a general guide and format which should be followed in preparing labels containing DITHANE M-22 CONCENTRATE. While our suggestions follow the present USDA requirements, dust formulators should determine whether local or state regulations require modifications or additions.

ACTIVE INGREDIENTS

NET CONTENTS

CAUTION

KEEP OUT OF REACH OF CHILDREN

USE

IMPORTANT

Keep away from children. Do not use in or near buildings, houses, schools, or other places where people live. Do not store in places where people live. Do not use on food crops unless specifically directed. Do not use on lawns, gardens, or other places where people walk. Do not use on crops unless specifically directed. Do not use on crops unless specifically directed. Do not use on crops unless specifically directed.

RECOMMENDATIONS

DITHANE M-22 CONCENTRATE is registered for use on the following crops: Almonds, apples, apricots, asparagus, bananas, beans (dwarf), beans (snap), beets, broccoli, Brussels sprouts, cabbage, carrots, cauliflower, celery, collards, corn (sweet), radishes, cucumbers, eggplant, endive, figs, grapes, kale, kohlrabi, lettuce, melons, mustard greens, nectarines, onions, papaya, peaches, peppers, potatoes, potato (seed pieces), pumpkins, rhubarb (greenhouse), spinach, squash (summer and winter), tomatoes (field), tomatoes (greenhouse) and turnips.

In preparing use labels for any of the above listed crops reference must first be made to the USDA Summary of Registered Agricultural Pesticide Chemical Uses noting the dosage allowed on an acre basis as well as the limitations pertaining to specific crops in relation to the dosage rates.

Current up-to-date registration information covering DITHANE M-22 CONCENTRATE for crops and use rates may also be obtained by writing to Rohm and Haas Company in Philadelphia, Pa.

DIRECTIONS FOR USE

DITHANE M-22 dust can be used for the control of many common diseases of vegetables and field crops. DITHANE M-22 dust may be applied to either moist or dry foliage any time dusting conditions are favorable. Applications should begin when the plants are small. Use 15 to 50 pounds per acre depending on the size of plants. Repeat at 5 to 10 day intervals depending on the severity of disease conditions. Dusters should be adjusted to give uniform and thorough coverage.

DITHANE is a trademark of Rohm and Haas Company, Philadelphia, or of its subsidiaries or affiliates. The Company's policy is to register its trademarks where products designated thereby are marketed by the Company, its subsidiaries or affiliates.

This label is a general guide and format which should be followed in preparing labels containing DITHANE M-22 CONCENTRATE. While our suggestions follow the present USDA requirements, dust formulators should determine whether local or state regulations require modifications or additions.

DITHANE M-22 SPECIAL concentrate may also be used to formulate seed treatment fungicides. In seed treatment applications, it is recommended to add a suitable dye or discoloring chemical which will impart an unnatural color to the seed. This color should not be readily removed by washing or other physical means.

For use on stored crop seeds for treatment using DITHANE M-22 SPECIAL CONCENTRATE (maneb) the following are suggested seed dressing compounds. This list serves as a guide in preparing labels however, the user should refer to the current USDA Summary of Registered Uses for maneb.

DITHANE M-22 SPECIAL IN OUNCES

<u>CROP</u>	<u>MACHINE APPLICATION</u>	<u>PLANTER BOX APPLICATIONS</u>	<u>DISEASES</u>
Barley	0.93/bu	1.25/bu	covered and false loose smuts, damping-off, seed rots, seedling blights.
Beans (field)		1.70/bu	damping-off, seed rots, seedling blights.
Com		1.70/bu	damping-off, seed rots, seedling blights.
Cotton		12.0 /bu	damping-off, seed rots, seedling blights.
Flax	0.93/bu	2.50/bu	damping-off, seed rots, seedling blights.
Oats	0.93/bu	1.25/bu	damping-off, seed rots, seedling blights, smuts.
Peas		1.70/bu	damping-off, seed rots, seedling blights.
Rye	0.93/bu	1.25/bu	bunt, damping-off, seed rots, seedling blights.
Sugar Beets	6-10/100 lbs.		damping-off, seed rots, seedling blights.
Soybeans (field)	0.93/bu	1.25/bu	damping-off, seed rots, seedling blights.
Wheat	0.93/bu	1.25/bu	bunt, damping-off, seed rots, seedling blights.