

ACCEPTED
NOV 13 1987
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 2548-74

DETIAPHOS RUTOX MF LABEL --- FRONT PANEL

RESTRICTED USE PESTICIDE
DUE TO ACUTE INHALATION TOXICITY OF HIGHLY
TOXIC HYDROGEN PHOSPHIDE (PHOSPHINE, PH₃) GAS

For retail sale to and use only by certified applicators for these uses covered by the applicator's certification or persons trained in accordance with the accompanying product manual working under the direct supervision and in the physical presence of the certified applicator. Physical presence means on site or on the premises. Read and follow the label and the Research Products Company product manual which contains complete instructions for the safe use of this pesticide.

Detiaphos(R) RUTOX(R) MF

Active Ingredient: Magnesium Phosphide.....34%
Inert Ingredients!.....66%
TOTAL.....100%

KEEP OUT OF REACH OF CHILDREN

DANGER/PELIGRO-POISON

PRECAUCION AL USUARIO: Si usted no lee ingles, no use este producto hasta que la etiqueta se le haya sido explicado ampliamente.

STATEMENT OF PRACTICAL TREATMENT

Symptoms of overexposure to hydrogen phosphide are headache, dizziness, nausea, difficult breathing, vomiting and diarrhea. In all cases of overexposure get medical attention immediately. Take victim to the doctor or emergency treatment facility.

IF GAS OR DUST FROM PELLETS IS INHALED: Get exposed person to fresh air. Keep warm and make sure person can breathe freely. If breathing has stopped, give artificial respiration by mouth-to-mouth or other means of resuscitation. Do not give anything by mouth to an unconscious person.

IF THE PELLETS OR THEIR DUST ARE SWALLOWED: Drink or administer

02400 one or two glasses of water and induce vomiting by touching back
02500 of throat with finger, or if available, administer syrup of
02600 ipecac. Do not give anything by mouth if victim is unconscious
02700 or not alert.

02750 IF PELLETS OR THEIR DUST GET ON SKIN OR CLOTHING: Brush or
02850 shake material off clothes and shoes in well ventilated area.
02950 Allow clothes to aerate in a ventilated area prior to
03050 laundering. Do not leave contaminated clothing in occupied
03150 and/or confined areas such as automobiles, vans, motel rooms,
03250 homes, etc. Wash contaminated skin thoroughly with soap and
03350 water.

03400 IF DUST FROM THE PELLETS GETS IN EYES: Flush with plenty of
03500 water. Get medical attention.

03600 See side panels for additional precautionary statements.

03700 Manufactured by: Detia Freyberg, GmbH
03800 P. O. Box 10
03900 6947 Laudenbach
04000 F.R. of Germany

04100 Distributed by: Research Products Company
04200 Div. of McShares, Inc.
04300 P. O. Box 1460
04400 Salina, KS 67402-1460

04500 EPA Establishment No. 33982WG01 Net Contents:
04600 EPA Registration No. 2548-74 Net Contents:

04700 LEFT PANEL

04800 HAZARDS TO HUMANS AND DOMESTIC ANIMALS

04900 KEEP OUT OF REACH OF CHILDREN
05000 DANGER/POISON

05100 Magnesium phosphide in pellets or their dust can be fatal if
05200 swallowed. Do not get in eyes, in nose, on skin or on clothing.
05300 Do not eat, drink or smoke while handling magnesium phosphide
05400 fumigants. When the container is opened Dettaphos(R) ROTOX(R)
05500 MP will begin to release hydrogen phosphide (phosphine) which is
05600 an extremely toxic gas. Contact with water, acids and some
05700 other liquids will accelerate this reaction. Pure hydrogen
05800 phosphide gas is odorless; the odor is due to a contaminant.
05900 Since an odor may not be detected under certain circumstances,
06000 the absence of a garlic odor does not mean that hydrogen
06100 phosphide gas is absent. Observe proper application and

05100 disposal procedures specified elsewhere in the labeling to
 05150 prevent overexposure.
 05200
 05250 FREQUENT EXPOSURE TO LOW CONCENTRATIONS ABOVE PERMISSIBLE LEVELS
 05300 OVER A PERIOD OF DAYS OR WEEKS MAY CAUSE POISONING.
 05350

NOTE TO PHYSICIAN

05400
 05450 Magnesium phosphide in pellets or their dust reacts with
 05500 moisture from the air, water, acids, and many other liquids to
 05550 release hydrogen phosphide (phosphine) gas. Mild exposure by
 05600 inhalation causes malaise (indefinite feeling of sickness),
 05650 ringing of ears, fatigue, nausea and pressure in chest which are
 05700 relieved by removal to fresh air. Moderate poisoning causes
 05750 weakness, vomiting, epigastric pain (pain just above the
 05800 stomach), chest pain, diarrhea and dyspnea (difficulty in
 05850 breathing). Symptoms of severe poisoning may occur within a few
 05900 hours or up to several days, resulting in pulmonary edema (fluid
 05950 in lungs) and may lead to dizziness, cyanosis (blue or purple
 06000 skin color), unconsciousness and death.
 06050

06100 In sufficient quantity, hydrogen phosphide affects the liver,
 06150 kidneys, lungs, nervous system and circulatory system.
 06200 Inhalation can cause lung edema (fluid in lungs) and hyperemia
 06250 (excess of blood in a body part), small perivascular brain
 06300 hemorrhages and brain edema (fluid in brain). Ingestion can
 06350 cause lung and brain symptoms, but damage to the viscera (body
 06400 cavity organs) is more common. Hydrogen phosphide poisoning may
 06450 result in (1) pulmonary edema, (2) liver elevated serum GOT, LDH
 06500 and alkaline phosphatase, reduced prothrombin, hemorrhage and
 06550 jaundice (yellow skin color) and (3) kidney hematuria (blood in
 06600 urine) and anuria (abnormal or lack of urination). Pathology is
 06650 characteristic of hypoxia (oxygen deficiency in body tissue).
 06700 Treatment is symptomatic.
 06750

RIGHT PANEL

DIRECTIONS FOR USE

07100 It is a violation of federal law to use this product in a
 07150 manner inconsistent with its labeling.
 07200
 07250 The "Datiaphos(R) ROTOX(R) MF and Datiaphos(R) ROTOX(R) MF
 07300 Instruction Booklet" is a part of Labeling. Refer to it for
 07350 application procedures and other information necessary to
 07400 properly use Datiaphos(R) ROTOX(R).
 07450
 07500
 07550 THIS PRODUCT IS ACCOMPANIED BY THE LABELING LISTED ABOVE. READ
 07600 AND UNDERSTAND THE ENTIRE LABELING. ALL PARTS OF THE LABELING
 07650 ARE EQUALLY IMPORTANT FOR SAFE AND EFFECTIVE USE OF THIS

02900 PRODUCT. CALL RESEARCH PRODUCTS COMPANY OR EPA IF YOU HAVE ANY
 02950 QUESTIONS OR DO NOT UNDERSTAND ANY PART OF THIS LABELING.
 02990

03050 Refer to product labeling for use restrictions to protect
 03090 ENDANGERED SPECIES.
 03130

03150 STORAGE AND DISPOSAL

03250 STORAGE

03300 Flasks should be stored in a dry, well ventilated area, away
 03350 from heat and under lock and key. Post as a pesticide storage
 03400 area. Do not contaminate water, food or feed by storing
 03450 pesticides in the same areas used to store these commodities.
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03550 Do not store in buildings where humans or domestic animals
 03600 reside. Refer to the "Deltaphos(R) ROTOX(R) MT and
 03650 Deltaphos(R) ROTOX(R) MF Instruction Booklet" for additional
 03700 storage instructions.
 03750

03800 DISPOSAL OF UNREACTED OR PARTIALLY REACTED PELLETS (From spills,
 03850 leaking flasks or other sources)
 03900

03950 Unreacted or partially reacted Deltaphos(R) ROTOX(R) pellets are
 04000 acutely hazardous. Improper disposal of this product is a
 04050 violation of federal law.
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04150 If this product cannot be disposed of by ordinary use or
 04200 according to labeling instructions, contact your state pesticide
 04250 or environmental control agency or the hazardous waste
 04300 representative at the nearest EPA regional office for guidance.
 04350 Do not contaminate water by disposal.
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04450 Reacted pellets are not hazardous. For complete disposal, spill
 04500 and leak procedures refer to the booklet "Deltaphos(R) ROTOX(R)
 04550 MT and Deltaphos(R) ROTOX(R) MF Instruction Booklet."
 04600

04700 DISPOSAL OF EMPTY FLASKS

04750 METHOD ONE: Triple rinse flasks and stoppers with water. Then
 04800 offer for recycling or reconditioning, or puncture and dispose
 04850 of them in a sanitary landfill or other approved site or by
 04900 other procedures approved by state and local authorities.
 04950 Dispose of rinsate in a sanitary landfill or by other approved
 10000 procedures.
 10050

10100 METHOD TWO: Remove lids and place empty flasks outdoors or in
 10150 structure being fumigated until residue in flasks is reacted.
 10200 Puncture and dispose of them in a sanitary landfill or other
 10250 approved site or by other procedures approved by state and local
 10300 authorities.
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GENERAL

Consult federal, state and local disposal authorities for approved procedures other than those given above. Approved procedures vary for different types of generators.

*If in doubt concerning whether the dust is reacted and/or concerning proper disposal techniques contact Research Products Company.

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DETIAPHOS ROTOX MP (small Label) — FRONT PANEL

**RESTRICTED USE PESTICIDE
DUE TO ACUTE INHALATION TOXICITY OF HIGHLY
TOXIC HYDROGEN PHOSPHIDE (PHOSPHINE, PH₃) GAS**

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Detiaphos(R) ROTOX(R) MP

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Inert Ingredients:.....66%
TOTAL.....100%

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STATEMENT OF PRACTICAL TREATMENT

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00450 one or two glasses of water and induce vomiting by touching back
00500 of throat with finger, or if available, administer syrup of
00550 ipecac. Do not give anything by mouth if victim is unconscious
00600 or not alert.

00650 IF PELLETS OR THEIR DUST GET ON SKIN OR CLOTHING: Brush or
00700 shake material off clothes and shoes in well ventilated area.
00750 Allow clothes to aerate in a ventilated area prior to
00800 laundering. Do not leave contaminated clothing in occupied
00850 and/or confined areas such as automobiles, vans, motel rooms,
00900 homes, etc. Wash contaminated skin thoroughly with soap and
00950 water.

01000 IF DUST FROM THE PELLETS GETS IN EYES: Flush with plenty of
01050 water. Get medical attention.

01100 (200 See side panels for additional precautionary statements.

01200 Manufactured by: Detia Freyberg, GMBH
01250 P. O. Box 10
01300 6947 Laudendach
01350 F.R. of Germany

01400 Distributed by: Research Products Company
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01950 swallowed. Do not get in eyes, in nose, on skin or on clothing.
02000 Do not eat, drink or smoke while handling magnesium phosphide
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02100 MP will begin to release hydrogen phosphide (phosphine) which is
02150 an extremely toxic gas. Contact with water, acids and some
02200 other liquids will accelerate this reaction. Pure hydrogen
02250 phosphide gas is odorless; the odor is due to a contaminant.
02300 Since an odor may not be detected under certain circumstances,
02350 the absence of a garlic odor does not mean that hydrogen
02400 phosphide gas is absent. Observe proper application and

05100 Disposal procedures specified elsewhere in the Labeling to
 05150 prevent overexposure.
 05200
 05250 FREQUENT EXPOSURE TO LOW CONCENTRATIONS ABOVE PERMISSIBLE LEVELS
 05300 OVER A PERIOD OF DAYS OR WEEKS MAY CAUSE POISONING.
 05350

05400 NOTE TO PHYSICIAN

05450 Refer to "Detiaphos(R) ROTOX(R) MT and Detiaphos(R) ROTOX(R) MP
 05450 Instruction Booklet" for this section.

05600 RIGHT PANEL

05700 DIRECTIONS FOR USE

05800 It is a violation of federal law to use this product in a
 05850 manner inconsistent with its labeling.

05900 The "Detiaphos(R) ROTOX(R) MT and Detiaphos(R) ROTOX(R) MP
 06000 Instruction Booklet" is a part of Labeling. Refer to it for
 06050 application procedures and other information necessary to
 06100 properly use Detiaphos(R) ROTOX(R).
 06150

06200 THIS PRODUCT IS ACCOMPANIED BY THE LABELING LISTED ABOVE. READ
 06250 AND UNDERSTAND THE ENTIRE LABELING. ALL PARTS OF THE LABELING
 06300 ARE EQUALLY IMPORTANT FOR SAFE AND EFFECTIVE USE OF THIS
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 06400 QUESTIONS OR DO NOT UNDERSTAND ANY PART OF THIS LABELING.
 06450

06500 Refer to product labeling for use restrictions to protect
 06550 ENDANGERED SPECIES.

06700 STORAGE AND DISPOSAL

06800 Refer to "Detiaphos(R) ROTOX(R) MT and Detiaphos(R) ROTOX(R) MP
 06850 Instruction Booklet" for this section.

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EPA Reg. No. 2548-73+74

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RESTRICTED USE
PESTICIDE

DUE TO ACUTE INHALATION TOXICITY OF HIGHLY
TOXIC HYDROGEN PHOSPHIDE (PHOSPHINE, PH₃) GAS

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Detiaphos(R) ROTOX(R) MT
and
Detiaphos(R) ROTOX(R) MP

INSTRUCTION BOOKLET

EPA Registration No. 2548-73
EPA Registration No. 2548-74
EPA Establishment No. 33982WG01

RECEIVED
EPA

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I. INTRODUCTION

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A. HISTORY

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B. PRODUCT DESCRIPTION

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C. PRODUCT PACKAGING

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D. WHAT IS HYDROGEN PHOSPHIDE?

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The history of Detia(R) metal phosphide pesticides is long, dating back to the mid-1930's. In 1970 Detia(R) GAS EX-B was introduced into the United States. Detiaphos(R), which has recently been introduced into the U.S.A., contains magnesium phosphide as the active ingredient. The manufacturer, Detia Freyberg GMBH, West Germany was the early pioneer in the development of hydrogen phosphide as a fumigant gas.

Both Detiaphos(R) ROTOX(R) MF and Detiaphos(R) ROTOX(R) MT are a mixture of magnesium phosphide (34% by weight), ammonium carbamate and other inerts which are pressed into tablet and/or pellet form. The nearly spherical pellets are about 3/8" in diameter and weigh 0.6 grams each. The tablets are either disc shaped (4/5" in diameter and 1/5" thick) or spherical in shape (5/8" in diameter) and weigh 3.0 grams each. A pellet will produce about 0.1 gram hydrogen phosphide, the tablet about 0.5 gram. Both react with atmospheric moisture to produce hydrogen phosphide (PH3) in the following way:



Warm, humid air accelerates the reaction while cool, dry air has the opposite effect.

Detiaphos(R) ROTOX(R) also contains ammonium carbamate which liberates ammonia and carbon dioxide as follows:



These gases are essentially nonflammable and act as inerting agents to reduce fire hazards. The ammonia gas also serves as a warning agent.

The tablets are packaged 500 and 100 to a flask. The pellets are packaged 1660 and 500 to a flask. The aluminum flasks in which they are packaged are resealable and seamless. Their shelf life is almost unlimited as long as the packaging remains well sealed and intact. Once opened, the flasks may be tightly resealed and stored for future use.

Hydrogen phosphide, more commonly referred to as phosphine, is a colorless gas which is toxic to rodents, humans, and other forms of animal life. It is very mobile with a high

05750 vapor pressure. Thus, the penetrating capability of hydrogen
05800 phosphide is great. The combination of high molecular
05850 activity, vapor pressure and toxicity at low dosages
05900 accounts for its wide acceptance as a fumigant.
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06000 E. SAFETY RECOMMENDATIONS

- 06050 1. Carefully read the labeling and follow instructions
06100 explicitly.
06150 2. Never allow uninstructed persons to handle
06200 Detiaphos(R).
06250 3. Wear dry gloves made of cotton or other material when
06300 contact with tablets, pellets or their dust is likely.
06350 4. Open fumigant containers in open air. Never open in a
06400 flammable atmosphere.
06450 5. Do not allow Detia(R) to contact liquid water or to
06500 pile up.
06550 6. Dispose of empty containers in a proper manner
06600 consistent with the label instructions.
06650 7. Aerate contaminated clothing in well ventilated area
06700 prior to washing.
06750 8. Keep containers tightly closed except when removing
06800 product.
06850 9. Do not re-use magnesium phosphide containers for any
06900 purpose other than recycling or reconditioning.
06950 10. OSHA recommends that the exposure screening of
07000 employees be conducted to detect impaired pulmonary
07050 function. OSHA recommends that any employees developing
07100 the above condition be referred for medical attention.
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07250 II. PRECAUTIONARY STATEMENTS
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07350 A. HAZARDS TO HUMANS AND DOMESTIC ANIMALS
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07450 Keep Out of Reach of Children
07500 DANGER-POISON
07550

07600 Magnesium phosphide in pellets, tablets or their dust can be
07650 fatal if swallowed. Do not get in eyes, in nose, on skin or
07700 on clothing. Do not eat, drink or smoke while handling
07750 magnesium phosphide fumigants. When the container is
07800 opened, Detiaphos(R) ROTOX(R) will begin to release hydrogen
07850 phosphide (phosphine) which is an extremely toxic gas.
07900 Contact with water, acids and some other liquids will
07950 accelerate this reaction. Pure hydrogen phosphide gas is
08000 odorless; the odor is due to a contaminant. Since an odor
08050 may not be detected under certain circumstances, the absence
08100 of a garlic odor does not mean that hydrogen phosphide gas
08150 is absent. Observe proper application and disposal
08200 procedures specified elsewhere in the labeling to prevent
08250 overexposure.
08300

08350 FREQUENT EXPOSURE TO CONCENTRATIONS ABOVE PERMISSIBLE LEVELS

08450 OVER A PERIOD OF DAYS OR WEEKS MAY CAUSE POISONING.

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08550 B. STATEMENT OF PRACTICAL TREATMENT

08600 Symptoms of overexposure to hydrogen phosphide are headache,
08650 dizziness, nausea, difficult breathing, vomiting and
08700 diarrhea. In all cases of overexposure get medical
08750 attention immediately. Take victim to a doctor or emergency
08800 treatment facility.
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08900 U

1. If gas or dust from tablets or pellets is inhaled: Get exposed person to fresh air. Keep warm and make sure person can breathe freely. If breathing has stopped, give artificial respiration by mouth-to-mouth or other means of resuscitation. Do not give anything by mouth to an unconscious person.

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2. If the pellets, tablets or their dust are swallowed: Drink or administer one or two glasses of water and induce vomiting by touching back of throat with finger, or if available, administer syrup of ipecac. Do not give anything by mouth if victim is unconscious or not alert.

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3. If pellets, tablets or their dust gets on skin or clothing: Brush or shake material off clothes and shoes in well ventilated area. Allow clothes to aerate in a ventilated area prior to laundering. Do not leave contaminated clothing in occupied and/or confined area such as automobiles, vans, motel rooms, homes, etc. Wash contaminated skin thoroughly with soap and water.

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4. If dust from the pellets or tablets gets in eyes: Flush with plenty of water. Get medical attention.

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C. NOTE TO PHYSICIAN

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In sufficient quantity hydrogen phosphide affects the liver, kidneys, lungs, nervous system, and circulatory system. Inhalation can cause lung edema (fluid in lungs) and hyperemia (excess of blood in a body part), small perivascular brain hemorrhages and brain edema (fluid in

14/21

11400 brain). Ingestion can cause lung and brain symptoms, but
 11450 damage to the viscera (body cavity organs) is more common.
 11500 Hydrogen phosphide poisoning may result in (1) pulmonary
 11550 edema, (2) liver elevated serum GOT, LDH and alkaline
 11600 phosphatase, reduced prothrombin, hemorrhage and jaundice
 11650 (yellow skin color) and (3) kidney hematuria (blood in
 11700 urine) and anuria (abnormal or lack of urination).
 11750 Pathology is characteristic of hypoxia (oxygen deficiency in
 11800 body tissue). Frequent exposure over a period of days or
 11850 weeks may cause poisoning. Treatment is symptomatic.

11900
 11950 The following measures are suggested for use by the
 12000 physician in accordance with his own judgment:
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1. In its milder to moderate forms (symptoms of
 poisoning may take up to 24 hours to make their
 appearance), the following is suggested:

- a. Complete rest 1-2 days during which the patient must be kept quiet and warm.
- b. If the patient suffers from vomiting or increased blood sugar, appropriate solutions should be administered. Treatment with oxygen is recommended as is the administration of cardiac and circulatory stimulants.

2. In cases of severe poisoning (intensive care unit recommended):

- a. Where pulmonary edema is observed, steroid therapy should be considered and close medical supervision is recommended. Blood transfusions may be necessary.
- b. In case of manifest pulmonary edema, venesection should be performed under vein pressure control. Heart glycosides (I.V.) can be used in case of hemoconcentration. Venesection may result in shock. In the case of progressive edema of the lungs, immediately intubate and remove edema fluid and administer oxygen over-pressure respiration, as well as any measures required for shock treatment. In case of kidney failure, extracorporeal hemodialysis is necessary. There is no specific antidote known for thi poisoning.
- c. If pellets or tablets are ingested, induce vomiting. Flush the stomach with a diluted potassium permanganate solution or a solution of magnesium peroxide until flushing liquid ceases to smell of carbide. Thereafter, apply carbomedicinalis.

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14100 D. PHYSICAL AND CHEMICAL HAZARDS
 14150 Magnesium phosphide in tablets, pellets or partially spent
 14200 dust will release hydrogen phosphide gas if exposed to
 14250 moisture from the air or if it comes into contact with
 14300 water, acids or many other liquids. Piling of tablets,
 14350 pellets or dust from their fragmentation may cause a
 14400 temperature increase and confine the release of gas so that
 14450 ignition could occur.
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 14550 Always open flasks of Detiaphos(R) ROTOX(R) in open air.
 14600 Never open in a flammable atmosphere because on rare
 14650 occasions they may flash. When opening, point the container
 14700 away from the face and body and slowly loosen the cap.
 14750 These precautions will also reduce the applicator's exposure
 14800 to hydrogen phosphide gas.
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 14900 Pure hydrogen phosphide gas is practically insoluble in
 14950 water and oils and is stable at normal fumigation
 15000 temperatures. However, it may react with certain metals and
 15050 cause corrosion, especially at higher temperatures and
 15100 relative humidities. Metals such as copper, brass and other
 15150 copper alloys, and precious metals such as gold and silver
 15200 are susceptible to corrosion by hydrogen phosphide.
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III. DIRECTIONS FOR USE

A. GENERAL

1. It is a violation of federal law to use this product in a manner inconsistent with its labeling. Detiaphos(R) ROTOX(R) MT and MF are Restricted Use Pesticides due to the acute inhalation toxicity of hydrogen phosphide (phosphine, PH₃) gas. These products are for retail sale to and use only by certified applicators for those uses covered by the applicator's certification or persons trained in accordance with this product manual working under the direct supervision and in the physical presence of the certified applicator. Physical presence means on site or on the premises.
2. Detiaphos(R) is a highly hazardous material and may be used only by individuals trained in its proper use. Before using, read and follow the label precautions and directions on the label and in labeling.

Additional copies of this manual are available from:

Research Products Company
 Div. of McShares, Inc.
 P. O. Box 1460
 Salina, Kansas 67402-1460
 913-825-2181

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3. Do not fumigate with this product when burrow temperature is below 40 degrees F (5 degrees C).
- B. PROTECTIVE CLOTHING
Wear dry gloves made of cotton or other material when contact with tablets, pellets, or their dust is likely. Wash hands after use.
- C. RESPIRATORY PROTECTION
Respiratory protection need not be available for outdoor applications.
- D. HYDROGEN PHOSPHIDE EXPOSURE LIMITS
Exposure to hydrogen phosphide must not exceed the 8 hour TWA of 0.3 ppm.
- E. INDUSTRIAL HYGIENE MONITORING
Monitoring is not required outdoors.
- F. LIST OF BURROWING PESTS
Detiaphos(R) ROTOX(R) may be used out of doors only for the control of the following burrowing rodents and moles: marmot sp. -- woodchucks and yellow-belly marmots (rockchucks), prairie dogs (except Utah prairie dog), Norway and roof rats, mice, ground squirrels, moles (except in Indiana), voles, gophers and chipmunks (except in California).
- G. APPLICATION INSTRUCTIONS
Add from 2 to 8 Detiaphos(R) ROTOX(R) MT tablets or 10 to 40 Detiaphos(R) ROTOX(R) MF pellets to each burrow opening. Seal tightly by shoveling soil over the entrance. Place the pellets or tablets far enough down the burrow that the soil used to plug the burrow doesn't cover the pellets or tablets, slowing down their action. Where possible, subsurface tunnels or runways should be treated every 5 to 10 feet with a dose of 4 to 8 tablets or 20 to 40 pellets. Use lower rates in smaller burrows, in tight soils, under moist soil conditions and higher rates in larger burrows, in porous soils and/or when soil moisture is low. In extremely dry or porous soil, it is sometimes not possible to obtain satisfactory results. This is particularly true in instances where the burrow systems are extensive such as moles or gophers. It is always better not to fumigate during extended periods of dry weather. Treat reopened burrows and fresh runways a second time 1 to 3 days after the initial treatment.
- Detiaphos(R) may be used out of doors only, for control of burrowing pests. Do not use within 15 feet (5 meters) of inhabited structures. Do not apply to burrows which may open under or into occupied buildings.

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19500 H. ENVIRONMENTAL HAZARDS
 19550 This product is highly toxic to wildlife. Non-target
 19600 organisms exposed to hydrogen phosphide gas in burrows will
 19650 be killed. Do not apply directly to water or wetlands
 19700 (swamps, bogs, marshes, and potholes). Do not contaminate
 19750 water by cleaning of equipment or disposal of wastes.
 19800

19850 I. ENDANGERED SPECIES RESTRICTIONS
 19900 The use of Detia(R) ROTOX(R) in a manner that may kill or
 19950 otherwise harm an endangered or threatened species or
 20000 adversely modify their habitat is a violation of federal
 20050 laws. Before using this pesticide on range and/or
 20100 pastureland in the counties listed below, you must obtain
 20150 the PESTICIDE USE BULLETIN FOR PROTECTION OF ENDANGERED
 20200 SPECIES for the county in which the product is to be used.
 20250 The bulletin is available from your county extension agent,
 20300 state fish and game office, or your pesticide dealer. Use
 20350 of this product in a manner inconsistent with the PESTICIDE
 20400 USE BULLETIN FOR PROTECTION OF ENDANGERED SPECIES is a
 20450 violation of federal laws.
 20500

20550 Even if applicable county bulletins do not prohibit the use
 20600 of this product at the intended site of application, you may
 20650 not use this product for control of prairie dogs in the
 20700 states of Arizona, Colorado, Kansas, Montana, Nebraska, New
 20750 Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah or
 20800 Wyoming unless a pre-control survey has been conducted.
 20850 Contact the nearest U.S. Fish and Wildlife Service
 20900 endangered species specialist to determine survey
 20950 requirements in your area. This survey must be in
 21000 compliance with the black-footed ferret survey guidelines,
 21050 developed by the U.S. Fish and Wildlife Service, and a
 21100 determination must be made in accordance with the guidelines
 21150 that black-footed ferrets are not present in the treatment
 21200 area.

21250 CALIFORNIA
 21300 Fresno, Inyo, Kern, Kings, Madera, Merced, Monterey, San
 21350 Benito, San Luis Obispo, Santa Barbara, Stanislaus and
 21400 Tulare
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21500 FLORIDA
 21550 Statewide
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21700 GEORGIA
 21750 Appling, Atkinson, Bacon, Baker, Ben Hill, Bleckley,
 21800 Berrien, Brantley, Brooks, Bryan, Bullock, Calhoun, Camden,
 21850 Candler, Charlton, Chatham, Clinch, Coffee, Colquitt, Cook,
 21900 Crisp, Decatur, Dodge, Dooly, Daugherty, Early, Echols,
 21950 Effingham, Emanuel, Evans, Glynn, Grady, Irwin, Jeff Davis,
 22000 Jenkins, Johnson, Lanier, Laurens, Lee, Liberty, Long,
 22050 Lowndes, Macon, McCintosh, Miller, Mitchell, Montgomery,
 22100 Pierce, Pulaski, Screven, Seminole, Telfair, Tattnall,

22200 Thomas, Tift, Toombs, Treutlen, Turner, Ware, Wayne,
22250 Wheeler, Wilcox and Worth
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22350 NEW MEXICO
22400 Hidalgo
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22500 UTAH
22550 Beaver, Garfield, Iron, Kane, Piute, Sevier, Washington and
22600 Wayne
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22700 WYOMING
22750 Albany
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22850 J. SPECIAL LOCAL RESTRICTIONS
22900
22950 (1) NORTH CAROLINA
23000 Deltaphos(R) ROTOX(R) may only be used for control of
23050 rats and mice in the state of North Carolina. Use
23100 against other pests is not permitted.
23150
23200 (2) OKLAHOMA
23250 A special permit for black-tailed prairie dog control
23300 by poisoning is required in Oklahoma. Contact the
23350 Oklahoma State Department of Wildlife Conservation to
23400 obtain this permit.
23450
23500 (3) WISCONSIN
23550 A state permit is required for use of pesticides in
23600 Wisconsin to control small mammals, except rats or
23650 mice. Please contact your local Department of Natural
23700 Resources office for information.
23750
23800 (4) INDIANA
23850 Use of Deltaphos(R) ROTOX(R) for mole control is not
23900 legal in the state of Indiana.
23950
24000 (5) MISSOURI
24050 A state permit is required for use of pesticides in
24100 Missouri to control small mammals, except rats and
24150 mice. Please contact the Missouri Department of
24200 Conservation office for information.
24250
24300 (6) KANSAS
24350 A special permit for black-tailed prairie dog control
24400 by poisoning is required in Kansas. Contact the Kansas
24450 Fish and Game Commission to obtain this permit.
24500
24550 (7) CALIFORNIA
24600 Use of Deltaphos(R) ROTOX(R) for chipmunk control is not
24650 legal in the state of California.
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24800 K. STORAGE AND DISPOSAL

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1. STORAGE

Flasks should be stored in a dry, well ventilated area, away from heat and under lock and key. Post as a pesticide storage area. Do not contaminate water, food or feed by storing pesticides in the same areas used to store these commodities. Do not store in buildings where humans or domestic animals reside. Keep out of reach of children.

Detiaphos(R) ROTOX(R) is supplied in gas tight resealable, aluminum flasks. Do not expose the product inside flasks to atmospheric moisture any longer than is necessary. Seal tightly before returning opened flasks to storage. The shelf life of Detiaphos(R) is virtually unlimited if the containers are tightly sealed.

2. DISPOSAL OF UNREACTED OR PARTIALLY REACTED TABLETS OR PELLETS

(From spills, leaking flasks or other sources) Unreacted or partially reacted Detiaphos(R) ROTOX(R) MP or Detiaphos(R) ROTOX(R) MT are acutely hazardous. Improper disposal of these products is a violation of federal law. If these products cannot be disposed of by ordinary use or according to the instructions that follow, contact your state pesticide or environmental control agency or the hazardous waste representative at the nearest EPA regional office for guidance. Do not contaminate water by disposal.

Some local and state waste disposal regulations may vary from the following recommendations. Disposal procedures should be reviewed with appropriate authorities to ensure compliance with local regulations.

FOR SPECIFIC INSTRUCTIONS SEE "SPILL AND LEAK PROCEDURES" BELOW.

3. DISPOSAL OF EMPTY FLASKS

a. Method_One: Triple rinse flasks and stoppers with water. Then offer for recycling or reconditioning, or puncture and dispose of them in a sanitary landfill or other approved site or by other procedures approved by state and local authorities. Dispose of rinsate in a sanitary landfill or by other approved procedures. Small quantities can be poured out on the ground.

b. Method_Two: Remove lids and place empty flasks outdoors until residue in flasks is reacted. Puncture and dispose of them in a sanitary landfill or other approved site or by other procedures approved by state and local authorities.

27750 L. SPILL AND LEAK PROCEDURES

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1. GENERAL

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2. DAMAGE TO FIBERBOARD CASE

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A spill, other than incidental to application or normal handling or punctured flasks can produce high levels of gas, and therefore, attending personnel must wear a SCBA or its equivalent when the concentration of hydrogen phosphide gas is unknown. If the concentration is known, other NIOSH/MSHA approved respiratory protection can be worn. Wear dry cotton or other gloves when handling spilled material.

Check aluminum flasks. If they are damaged handle as described below. If they are undamaged return them to cardboard cartons or other suitable packaging which complies with DOT regulations.

3. LEAKING FLASK PROCEDURES

If aluminum flasks have been punctured or damaged causing a leak, the product may be immediately used, the container may be temporarily repaired with aluminum tape or the Detiaphos(R) may be transferred from the damaged flask to a sound metal container which should be sealed and properly labeled as magnesium phosphide. Transport the damaged containers to an area suitable for pesticide storage for inspection. Further instructions and recommendations may be obtained, if required, from Research Products Company.

Handle empty damaged containers as described under "DISPOSAL OF EMPTY FLASKS" above.

4. SPILL PROCEDURES

Do not flush spillage down drain with water. DO NOT use water at anytime to clean up a spill. Water in contact with unreacted tablets or pellets will rapidly accelerate the production of hydrogen phosphide gas and could cause spontaneous ignition of the gas. If the spill is only a few minutes old and is not contaminated by other materials, collect the spillage and place it back into the original flask or other sound metal container and tighten the cap. If possible use immediately. CAUTION: AN IGNITION MAY OCCUR WHEN THESE CONTAINERS ARE REOPENED.

If the spilled material is contaminated or has begun to visibly decompose, gather it up and place it into open top, perforated gallon cans and process it immediately.

Do not add more than about one flask (2 to 3 lbs.) of spilled material to the bucket. If on-site deactivation is not feasible, these open containers should be transported in open vehicles to a suitable

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30450 area away from occupied buildings. Wet or dry
 30500 deactivation must then be carried out as described in the
 30550 section immediately below.
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30700 U 5. DEACTIVATION AND DISPOSAL OF UNREACTED OR PARTIALLY REACTED
 30750 TABLETS OR PELLETS
 30800 U a. Wet Method
 30900 Transport material by hand or in open vehicles to
 30950 open air away from occupied structures. Fill a drum
 31000 2/3 full with water.
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31100 Add 1/4 cup of low sudsing detergent or surfactant
 31150 in each gallon of water. Each flask of tablets or
 31200 pellets should be mixed with no less than 1 gallon
 31250 of water/detergent solution. Slowly pour the
 31300 material into the water as it is stirred. Stir
 31350 occasionally thereafter for at least 6 hours.
 400 Appropriate respiratory protection must be worn. DO
 1450 NOT COVER THE CONTAINER. IF THE CONTAINER IS
 31500 COVERED THE HYDROGEN PHOSPHIDE BEING GENERATED WILL
 31550 BE CONFINED AND WILL DECOMPOSE EXPLOSIVELY. The wet
 31600 method of deactivation is the method of choice for
 31650 quantities in excess of 5 flasks (10 to 15 pounds).
 31700 It is safe to dispose of this slurry.
 31750

31800 Dispose of the resulting deactivated slurry, with or
 31850 without preliminary pouring out of excess water, at
 31900 a sanitary landfill or other suitable burial site
 31950 approved by local authorities. Where permissible
 32000 this slurry may be poured into a storm sewer or out
 32050 onto the ground.
 32100

32200 U b. Dry Method
 32250 As an alternative to the wet method, when
 32300 permissible small amounts (up to 5 flasks) of
 32350 partially reacted or unreacted material may be
 32400 spread out in an open, secure area away from
 32450 occupied buildings to be deactivated by atmospheric
 32500 moisture.
 32550

32600 NOTE: Never place pellets, tablets, their dust or
 32650 the dust/water slurry in a confined container such
 32700 as a closed drum or plastic bags. Any hydrogen
 32750 phosphide generated will be confined and may
 32800 decompose explosively.