

6/21/83

034401
SHAUGHNESSEY NO.

11
REVIEW NO.

EEB BRANCH REVIEW

DATE: IN 4-27-83 OUT 6-21-83

FILE OR REG. NO. 5481-165

PETITION OR EXP. PERMIT NO.

DATE OF SUBMISSION 3-25-83

DATE RECEIVED BY HED 4-26-83

RD REQUESTED COMPLETION DATE 7-7-83

EEB ESTIMATED COMPLETION DATE 6-30-83

RD ACTION CODE/TYPE OF REVIEW 310/Amendment

TYPE PRODUCT(S): I, D, H, F, N, R, S Insecticide

DATA ACCESSION NO(S).

PRODUCT MANAGER NO. W. Miller (16)

PRODUCT NAME(S) Naled 8 Insecticide

COMPANY NAME Amvac Chemical Corporation

SUBMISSION PURPOSE Proposed conditional registration of

various uses and label amendments

SHAUGHNESSEY NO. CHEMICAL, & FORMULATION % A.I.

34401 Naled 58

Naled 8 Insecticide

100.0 Proposed Uses/Label Amendments

- 1) Change label format and precautionary statements to comply with the EPA label improvement program.
- 2) Delete Alfalfa and Alfalfa Seed from the label
- 3) Add Almonds to the label
- 4) Add aerial application to beans
- 5) Add concentrate spraying to certain crops
- 6) Increase rate on cotton and define water rate
- 7) Add airblast application and aerial application and thrips on grapes (California only)
- 8) Add Mushrooms to label
- 9) Add concentrate and aerial application to Oranges, Lemons, and Grapefruit (California only)
- 10) Add Lemon storage room applicatin to label
- 11) Add Safflower to label

(See new label - attached)

100.1 Application Rates/Methods for New Uses or Increased Rates

(A) Almonds

Apply once during dormant or delayed dormant period. Apply 1 pt. (0.9 lbs a.i.) per acre. Aerial application is not proposed.

(B) Cotton

Apply 1 to 1.5 pts (.9-1.35 lbs a.i.) per acre at 7-10 day intervals (no limit) by ground or air equipment. Old rates on cotton were 0.5 to 1 pints per acre.

(C) Mushrooms

Use 1 1/2 fl. oz. per 10,000 cubic feet (indoor).

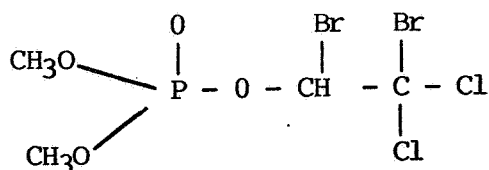
101.0 Chemical and Physical Properties (After Previous Review - Balcomb, 1978)101.1 Chemical Name

1, 2 dibromo - 2, 2 dichloroethyl dimethyl phosphate

101.2 Common Name

Naled Alternate Names: Branchlophos, Bromex, CAS 300-76-5,
Dibrom, ENT-24988, RE-4355

101.3 Structural Formula



101.4 Molecular Weight

C₄ H₇ Br₂ Cl₂ O₄ P = 381

101.5 Physical State

White, crystalline solid

101.6 Solubility (Environmental Chemistry - Mohawk Laboratory, 1972)

Water <0.5% (5000 ppm)

Xylene Completely miscible

Hexane <8.0%

102.0 Behavior in the Environment

102.1 Soil

1/2 Life in Hours (R. Ney, EFB 2/71)

<u>Soil Type</u>	<u>10 ppm Naled</u>	<u>10 ppm DDVP</u>
Loam	4.0	5.8
Sandy Loam ¹	1.4	3.5
Silt	3.1	2.3
Sand	2.6	8.0

102.2 Water

1/2 Life in Hours²

<u>Temp</u>	<u>pH 5</u>	<u>Ph 7</u>	<u>Ph 9</u>
21°C	24.9	15.9	0.27
37°C	6.0	4.4	0.05

R. Ney, EFB, 3/20/75.

¹ A recent carbon-14 study (EAB, W. Garner, 2/16/82) indicated a soil half-life of 3 (aerobic) to 6 days (anerobic).

² A recent photolysis study suggests a half-life of 42 hours (EAB, S. Creeger, 10/13/82).

102.4 Animal

"Levels of Naled in water declined to zero after 4 days while levels of DDVP increased to 0.0053-0.0250 after one day. No detectable levels of Naled showed up in fish analysis. After 1 hour exposure, DDVP residues showed up in fish at 2X. In mussels Naled accumulated to 1/2 X while DDVP showed no accumulation. Crabs showed no accumulation of Naled or DDVP.

Accumulation of Naled residues in marine organisms is not a problem."

R. Ney 4/22/76.

103.0 Toxic Properties

103.1 Mammals

Rat oral LD₅₀ = 430 mg/kg¹

Rabbit oral LD₅₀ = 1100 mg/kg¹

¹Farm Chemicals Handbook, 1981, Meister Publishing Co., Willoughby, OH

103.2 Birds

<u>Species</u>	<u>LD50/LC50</u>
Mallard LD ₅₀ ¹	52.2 mg/kg
Short-tailed Grouse LD ₅₀ ¹	64.9 mg/kg
Canada Geese LD ₅₀ ¹	36.9 mg/kg
Bobwhite LC ₅₀ ²	2117 ppm
Coturnix LC ₅₀ ²	1327 ppm
Ring-necked Pheasant LC ₅₀ ²	2538 ppm
Mallard LC ₅₀ ²	2724 ppm

¹ Tucker and Crabtree, 1970, USDI Res. Publ. 87

² Hill, E.F. et al., 1975, SSP 191, USDI

103.3' Aquatic Organisms (From USDI Res. Publ. 137)

<u>Species</u>	<u>96-h LC50 (Ug/L)</u>
Simocephalus	1.1 ^a
Daphnia pulex	0.4 ^a
Asellus	41
G. fasciatus	18

Palaemonetes	92 ^b
Pteronarcys	8
Cutthroat trout	127 ^b
Rainbow trout	195
Lake trout	87
Fathead minnow	3,300
Channel catfish	710
Bluegill	2,200 ^b
Largemouth bass	1,900 ^b

^a48-h EC₅₀.

^bTested in hard water, 162-272 ppm CaCO₃.

104.0 Hazard Assessment

104.1 Incremental Exposure

Conditional registrations are sought for Naled on almonds (0.9 lbs a.i./A) and mushrooms (indoor). Label changes permitting aerial applications are requested for existing registrations on beans, citrus and grapes. An increase in the current rate on cotton is also proposed (0.9 to 1.35 lbs a.i./A).

Naled is currently registered on the following crops at the rates (active ingredient) shown:

<u>Crop</u>	<u>lbs.</u> <u>Rate (Maximum)/Acre</u>
Cotton	0.9
Melons	1.8
Citrus	1.8
Peaches (western)	1.8
Rice	0.68

Neither of the two new uses (almonds, mushrooms) are likely to significantly increase wildlife exposure. Mushrooms are an indoor crop essentially precluding immediate wildlife exposure and degradation is so rapid that transport from the site is unlikely. The almond use is not considered to significantly increase wildlife hazards over those currently registered by the Agency as: (1) almonds are a relatively small crop (276,000 acres - U.S. Dept. Comm. 1978) and (2) the use rate (0.9 lbs a.i/a) is not greater than rates presently registered for other crops.

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The proposed rate increase (50%) on cotton is not considered likely to add a significant increment to existing wildlife exposure as current use on cotton is low and regional (24,000 lbs - California: McDowell et al., 1982, Insecticide Use on Cotton in the United States, USDA, NRE Report No. AGES820519) and higher rates are registered on melons, peaches and citrus.

The addition of aerial applications to grapes, citrus and beans may increase the probability of exposure via toxic drift to aquatic areas immediately adjacent to treated sites, however, pesticides as environmentally ephemeral as naled are considered unlikely to pose substantial risks to aquatic resources.

104.2 Hypothetical Risk scenarios (almonds, cotton)

Terrestrial

Application of naled to almonds and cotton will result in residues on avian foods (insects, seeds, edible vegetation). Kenaga (1972) summarized residue (immediately after application) data for 22 pesticides. Based on his work I project below the maximum and typical (mean) residues that may occur on avian foods at the rates proposed for almonds, cotton (new rate) and the highest rate currently registered (citrus, melons, peaches).

PPM Naled - Immediately After Spray				
	<u>Small Fruits</u>		<u>Alfalfa</u>	
	<u>Maximum</u>	<u>Typical</u>	<u>Maximum</u>	<u>Typical</u>
Almonds 0.9 lbs a.i./A	6.3	1.35	52.2	29.7
Cotton 1.35 lbs a.i./A	9.45	2.0	78.3	44.5
Citrus etc. 1.8 lbs a.i./A	12.6	2.7	104.4	59.4

Acute toxicity hazards may be estimated by comparing projected residues to the avian 5-day dietary LC₅₀. By EPA regulations when residues are less than 1/5 the LC₅₀ specified uses are candidates for general use classification (i.e. no or minor hazards). The available avian dietary LC₅₀'s range from 1327 to 2724 ppm (coturnix and mallard respectively). As the projected residues (maximum) are roughly 1/13 of the lowest LC₅₀ substantial hazards are not indicated. The short half-life indicates little potential for residue build-up or chronic effects.

This hypothetical exposure/risk analysis does not suggest that existing or proposed uses of naled present an unreasonable risk to birds.

Aquatic

A potential for acute poisoning of aquatic organisms is occasioned by runoff from treated fields carrying pesticide to ponds and streams adjacent to agricultural sites.

6

The Ecological Effects Branch utilizes a simplified watershed runoff model for calculating cotton-related water-pesticide contamination (T. Johnston, EEB Memo, 4-1-80). Using this model and the proposed increased use rate on cotton (1.35 lbs a.i./A) it can be calculated that naled residues in a small lake, vulnerable to pesticide runoff, may reach 13 ppb. Stevens (Ecological Effects Branch, Corn Cluster Project, 1983) used a somewhat more runoff-vulnerable small pond to simulate aquatic residues resulting from corn treatments. Using this model I find that the new proposed cotton maximum rate may result in aquatic residues as high as 31 ppb in small farm ponds. [The existing maximum cotton rate (1.0 lbs a.i./A), by these models, would result in aquatic residues ranging from 9.6 to 23 ppb].

Based on the available fish LC_{50} values (87 - 3300 ppb) and short half-life of naled the aquatic residues projected (13 - 31 ppb) are not considered a significant threat to fish populations. Aquatic invertebrates, however, are highly sensitive to naled (LC_{50} 's range 0.4-8 ppb) and may be reduced in waters adjacent to fields.

104.3 Incremental Risk

Neither registered or proposed/amended uses of naled pose a significant hazard to terrestrial wildlife. Therefore, conditional registration of proposed uses and acceptance of label amendments will not add a significant increment to existing terrestrial hazards.

In my opinion the proposed uses and amendments likewise do not pose a significant increase in risks to aquatic organisms as: (1) almonds, the new use, is not a major crop (2) the increased cotton rate may affect aquatic invertebrates in waters immediately adjacent to treatment sites but existing cotton rates pose a similar hazard (3) several major uses are registered at higher rates (e.g. max. rate citrus, melons and peaches = 1.8 lbs a.i./a) (4) moreover, I feel it is most important to emphasize the apparent short half-life property of naled (soil and water) as a factor mitigating aquatic risks.

105.0 Endangered Species

Effects on endangered species are considered for the amended use requiring an increase in application rate (cotton) and the new use involving outdoor exposure (almonds).

Cotton

Naled was reviewed under the Ecological Effects Branch Cotton Cluster Project. A potential for effects on endangered aquatic species was identified. EEB's Cotton Cluster report (including Naled) was forwarded to the Office of Endangered Species (OES) on January 26, 1983. An official reply is still pending. Use restrictions relative to endangered species are deferred until the receipt of the OES biological opinion.

Almonds

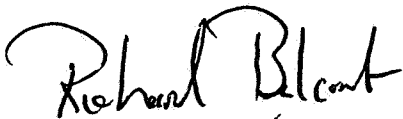
A recent (6-2-83) OES inquiring (J. Williams, OES Sacramento, CA, 8-448-2791, by D. Reider, Bravo [Shaun. No. 081901], 6-10-83) revealed that no endangered fish are in waters, adjacent to almond groves. Due to the short half-life of naled the pesticide is unlikely to transport from the site, therefore, it is concluded that the almond use does not pose an appreciable hazard to endangered fish.

106.0 Data Requirements

No data are required for the proposed amendments and uses.

107.0 Conclusions

The Ecological Effects Branch has completed an incremental risk analysis for the conditional registration of naled on almonds and mushrooms as well as label amendments for grapes, cotton, beans and citrus. Proposed uses and amendments do not substantially increase exposure and risks to non-target fish and wildlife over existing registrations.

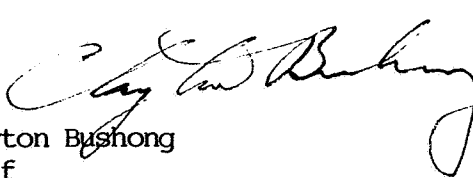


Richard Balcomb
Section 4
Ecological Effects Branch, HED



6/21/83

Harry Craven
Section Head No. 4
Ecological Effects Branch, HED



6/21/83

Clayton Bushong
Chief
Ecological Effects Branch, HED

Naled

Page _____ is not included in this copy.

Pages 9 through 17 are not included in this copy.

The material not included contains the following type of information:

- _____ Identity of product inert ingredients.
- _____ Identity of product inert impurities.
- _____ Description of the product manufacturing process.
- _____ Description of product quality control procedures.
- _____ Identity of the source of product ingredients.
- _____ Sales or other commercial/financial information.
- X A draft product label.
- _____ The product confidential statement of formula.
- _____ Information about a pending registration action
- _____ FIFRA registration data.
- _____ The document is a duplicate of page(s) _____
- _____ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.

ACCEPTED

FEB 9 1979

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 5481-165

NALED 8 INSECTICIDE

Active Ingredients:	By Wt.
*Naled	58.0 %
Aromatic Petroleum Derivative Solvent	27.5 %
Inert Ingredients	14.5 %
*1,2-dibromo-2,2-dichloroethyl dimethyl phosphate.	
Contains 8 pounds technical naled per gallon equivalent to 7.2 pounds naled.	

READ THE LABEL

DANGER: Keep out of reach of children.
See back panel for additional cautions.

NET CONTENTS: ONE GALLON

Helping the World Grow Better®



ORTHO

DIBROM® 8 Emulsive

Naled Insecticide

Active Ingredients	By Wt.
*Naled	58%
Light Aromatic Petroleum Distillate	20%
Inert Ingredients	22%
*1,2-dibromo-2,2-dichloroethyl dimethyl phosphate	

Contains 8 pounds technical naled per gallon equivalent to 7.2 pounds naled.

KEEP OUT OF REACH OF CHILDREN

DANGER

FOR AGRICULTURAL USE ONLY OR FOR SALE TO, USE, AND STORAGE BY SERVICE PERSONS ONLY. DO NOT STORE IN AREAS ACCESSIBLE TO CHILDREN.

DO NOT TAKE INTERNALLY. DO NOT GET IN EYES. DO NOT GET ON SKIN.

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS.

NET CONTENTS 1 GALLON

ACCEPTED

JUL 27 1982

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 239-1281

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS DANGER

Concentrate causes eye and skin damage. Do not get in eyes, on skin or clothing. May be fatal if swallowed or absorbed through skin. Do not breathe spray mist. Use waterproof gloves and face shield or goggles when handling concentrate. Keep children and animals off treated areas.

STATEMENT OF PRACTICAL TREATMENT

In case of contact, immediately remove contaminated clothing and flush skin eyes with plenty of water. For eyes, get medical attention.

Note to Physicians: Emergency Information - call (415) 233-3737. Naled is a cholinesterase inhibitor. Atropine is antidotal. 2-PAM is also antidotal and may be used in conjunction with atropine. Mucosal damage may occur, and if gas lavage is indicated, it should be performed cautiously.

ENVIRONMENTAL HAZARDS

This product is toxic to fish, shrimp, crab, birds and other wildlife. Keep out of lakes, streams, ponds, tidal marshes and estuaries. Shrimp and crab may be killed at application rates recommended on this label. Do not apply where there are important resources. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from areas treated.

This product is highly toxic to bees exposed to direct treatment or residues on crops. Protective information may be obtained from your Cooperative Agricultural Extension Service.

PHYSICAL OR CHEMICAL HAZARDS

COMBUSTIBLE. KEEP OUT OF REACH OF CHILDREN. DO NOT USE OR STORE near heat, open flame, sparks or hot surfaces. USE ONLY IN WELL VENTILATED AREA. Keep container closed. Clean up spills immediately. Liquid evaporates and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot light, welding equipment and electrical motors and switches. Fire hazard is greater when liquid temperature rises above 85° F.

DO NOT heat this container. Replace cap or bung. Emptied container still contains hazardous or explosive vapor or liquid.

DIRECTIONS FOR USE

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

READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS, AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS.

STORAGE AND DISPOSAL

PROHIBITIONS

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

Open dumping is prohibited. Do not reuse empty container.

STORAGE

Store in cool, dry place.

Keep pesticide in original container.

Do not put concentrate or dilute into food or drink containers.

Not for use or storage in or around the home.

Do not store diluted spray.

PESTICIDE DISPOSAL

Pesticide, spray mixture, or rinsate that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticides or buried in a safe place away from water supplies.

CONTAINER DISPOSAL

Triple rinse (or equivalent) and dispose of in an approved landfill or bury in a safe place.

GENERAL

Consult federal, state or local disposal authorities for approved alternative procedures.

Chevron Chemical Company

Ortho Agricultural Chemicals Division/San Francisco CA 94119 Richmond CA 94601
Product 2738 Made in U.S.A.
R Form 9219-J

EPA Reg. No. 239-1281-AA

GREENHOUSE, VAPOR TREATMENT OF ROSES, OTHER ORNAMENTAL PLANTS, TOMATOES, CUCUMBERS: Spider Mites, Adult Whiteflies, Aphids, Leafrollers, Mealybugs—1 fl. oz. per 10,000 cu. ft. when plants are dry. Apply undiluted on heat pipes (or in open pans on hot plates). Apply continuously or to intermittent sections of pipe on each side and on 1 or more of the pipes through center of each range depending upon width. Application to cold pipes should be followed by immediately heating pipes to 160° F. In steam heated houses, close vents for at least 1 hour after pipes are hot. With hot water systems, close house for at least 3 hours. Houses may remain closed overnight following treatment. When application is made to hot pipes, wear goggles and approved respirator. Ventilate house before workers re-enter. Wear respirator when entering treated houses to ventilate. Protect hives of bees in cucumber and other houses by covering with plastic or rubber sheet during treatment and until house is ventilated. Do not apply to tomatoes or cucumbers closer than 1 day before harvest.

SPIDER MITES (Resistant and Non-resistant)—Make 3 to 4 treatments at 3 or 4 day intervals. Repeat as necessary. **Adult Whiteflies**—Make 2 applications at 7 day intervals. Repeat as necessary. **Aphids**—Apply when aphids appear. Repeat as necessary. **WARNING**—Avoid overtreatment and direct application to plants as injury may result. White Butterfly and Golden Rapture Roses, Pink Champagne Chrysanthemums, Green Wandering Jew, Poinsettias and Dutchman's Pipe may be injured by DIBROM vapor.

FOREST AND SHADE TREES: CONIFERS (Arboreal, Douglas Fir, Fir, Hemlock, Juniper, Pine, Spruce): Suppression of Two-Spot and Red Spider Mites, Aphids, Spittlebugs, Zimmerman Moths, Juniper Webworms, Tussock Moths, Spruce Budworms, Adult Sierra Fir and Western Hemlock Bark Borers. **BROADLEAF TREES (Ash, Birch, Black Walnut, Box Elder, Dogwood, Elm, Evergreen Pear, Flowering Plum and Quince, Locust, Magnolia, Maple, Oak, Sycamore, Willow):** Suppression of Two-Spot and Red Spider Mites, Aphids, Leaf Miners, Thrips, Elm Leaf Beetles, California Oakworms (California only). Spring and Fall Cankerworms, Fall Webworm, Oak Webworm, and Tussock Moths—1 pt. in 100 gals. water. Use when infestation is evident, repeat as necessary.

FRUIT FLIES (Drosophila sp.) in and around Food Processing Plants, Loading Docks, Cull Piles and Refuse Areas, Cider Mills—Use 2 oz. in 2½ gals. water (5 pints to 100 gals.) as a coarse spray to walls, floors, doorways, windows, refuse and cull piles where insects congregate. Apply every 5 to 7 days as necessary. Do not apply to cull fruit or refuse piles to be fed to livestock. Avoid contamination of feeds, foodstuffs and food processing machinery. Do not apply when plants are in operation or when foods are present or exposed. Do not spray surfaces which will come into contact with foods. Cover food containers during spraying.

GNAT, STABLE FLY (Dog Flies), AND HOUSE FLY CONTROL—RESIDENTIAL AREAS. CROPS LISTED ON LABEL, SWAMPS, WOODLAND: Consult your State Fish and Game Agency before applying this product. It is not necessary to avoid farm buildings. Make applications during peak of infestation and repeat as necessary. See crop recommendations for use limitations near harvest. This rate of application will kill shrimp. Do not apply to tidal or marsh waters which are important shrimp producing areas. **AIRCRAFT: East**—Apply 0.8 to 4 fl. oz. per acre diluted with water. Apply 2 to 8 qts. of diluted spray per acre. **West**—Apply 1.6 to 4 fl. oz. per acre diluted with water. Apply 2 to 8 qts. of diluted spray per acre. **MIST OR COLD FOG:** Use 3 to 5 qts. per 100 gals. water. Calibrate equipment (rate of travel and output) to apply 0.1 to 0.25 lb. technical naled per acre.

ADULT MOSQUITO CONTROL—RESIDENTIAL AREAS, CROPS LISTED ON LABEL, SWAMPS, WOODLAND AND LIVESTOCK PASTURES INCLUDING DAIRY CATTLE: Consult your State Fish and Game Agency before applying this product. Make applications during peak of infestation and repeat as necessary. See crop recommendations for use limitations near harvest. Treat shrubbery and vegetation where mosquitoes may rest. Shrubby and vegetation around stagnant pools, marshy areas, ponds and shore lines may be treated. Direct application to water is prohibited. This rate of application will kill shrimp. Do not apply to tidal or marsh waters which are important shrimp producing areas. **AIRCRAFT: East**—Apply 0.8 to 1.6 fl. oz. per acre diluted with water. Apply 2 to 8 qts. of diluted spray per acre. **WEST**—Apply 1.6 fl. oz. per acre diluted with water. Apply 2 to 8 qts. of diluted spray per acre. **MIST OR COLD FOG:** Use 3 to 5 qts. per 100 gals. water. Calibrate equipment (rate of travel and output) to apply 0.1 lb. technical naled per acre. Do not make more than one application every 10 days to pastures or other areas where lactating dairy animals are being held.

REDUCTION OF LIVESTOCK PESTS—Gnat, Stable Fly (Dog Fly), Housefly, Mosquito; Horn Fly (Central and North Central U.S.) IN CORRALS, HOLDING PENS, FEEDLOTS AND RANGELAND CONTAINING DAIRY AND BEEF CATTLE, HOGS, SHEEP AND HORSES: AERIAL APPLICATION: Apply 4 fl. oz. diluted with 8 fl. oz. of water (total of 12 fl. oz.) per acre (0.25 lb. technical naled per acre). **GROUND APPLICATION:** Use 5 pts. per 100 gals. water. Apply with a mist blower or similar equipment as a space treatment. Calibrate equipment (rate of travel and output) to apply 0.25 lb. technical naled per acre (approximately 5 gals. of diluted spray).

CLOVER MITES, ROACHES, EARWIGS AND LEAFHOPPERS—Outside Dwellings and In Lawns: Use 1 fl. oz. in 3 gals. water. Apply to turf and to soil surfaces around flowers, shrubs, and trees for general pest cleanup.

GRASSHOPPERS, RANGE CATERPILLARS: Rangeland—½ to ¾ pt. per acre by air or ground. Young Grasshoppers—½ pt. per acre by air or ground. Armyworms—1 pt. per acre by air or ground. By Air—Use in 1 to 5 gals. water per acre. Apply when hoppers hatch is completed. Repeat as necessary. Animals may be present during treatment. Do not graze lactating dairy animals on treated areas.

CONDITIONS OF SALE: 1. Chevron Chemical Company (Chevron) warrants that the material conforms to the chemical description on the label and is reasonably fit for use as directed hereon. Chevron neither makes, nor authorizes any agent or representative to make, any other warranty of FITNESS or of MERCHANTABILITY, guarantee or representation, express or implied, concerning this material.

2. Critical and unforeseeable factors beyond Chevron's control prevent it from eliminating all risks in connection with the use of chemicals. Such risks include, but are not limited to, damage to plants and crops to which the material is applied, lack of complete control, and damage caused by drift to other plants or crops. Such risks occur even though the product is reasonably fit for the uses stated hereon and even though label directions are followed. Buyer and user acknowledge and assume all risks of liability (except those assumed by Chevron under 1 above) resulting from handling, storage, and use of this material.

GREENHOUSE, VAPOR TREATMENT OF ROSES, OTHER ORNAMENTAL PLANTS, TOMATOES, CUCUMBERS: Spider Mites, Adult Whiteflies, Aphids, Leafrollers, Mealybugs—1 fl. oz. per 10,000 cu. ft. when plants are dry. Apply undiluted on heat pipes (or in open pans on hot plates). Apply continuously or to intermittent sections of pipe on each side and on 1 or more of the pipes through center of each range depending upon width. Application to cold pipes should be followed by immediately heating pipes to 160° F. In steam heated houses, close vents for at least 1 hour after pipes are hot. With hot water systems, close house for at least 3 hours. Houses may remain closed overnight following treatment. When application is made to hot pipes, wear goggles and approved respirator. Ventilate house before workers re-enter. Wear respirator when entering treated houses to ventilate. Protect hives of bees in cucumber and other houses by covering with plastic or rubber sheet during treatment and until house is ventilated. Do not apply to tomatoes or cucumbers closer than 1 day before harvest.

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ADULT MOSQUITO CONTROL—RESIDENTIAL AREAS, CROPS LISTED ON LABEL, SWAMPS, WOODLAND AND LIVESTOCK PASTURES INCLUDING DAIRY CATTLE: Consult your State Fish and Game Agency before applying this product. Make applications during peak of infestation and repeat as necessary. See crop recommendations for use limitations near harvest. Treat shrubbery and vegetation where mosquitoes may rest. Shrubby and vegetation around stagnant pools, marshy areas, ponds and shore lines may be treated. Direct application to water is prohibited. This rate of application will kill shrimp. Do not apply to tidal or marsh waters which are important shrimp producing areas. **AIRCRAFT: East**—Apply 0.8 to 1.6 fl. oz. per acre diluted with water. Apply 2 to 8 qts. of diluted spray per acre. **WEST**—Apply 1.6 fl. oz. per acre diluted with water. Apply 2 to 8 qts. of diluted spray per acre. **MIST OR COLD FOG:** Use 3 to 5 qts. per 100 gals. water. Calibrate equipment (rate of travel and output) to apply 0.1 lb. technical naled per acre. Do not make more than one application every 10 days to pastures or other areas where lactating dairy animals are being held.

REDUCTION OF LIVESTOCK PESTS—Gnat, Stable Fly (Dog Fly), Housefly, Mosquito; Horn Fly (Central and North Central U.S.) IN CORRALS, HOLDING PENS, FEEDLOTS AND RANGELAND CONTAINING DAIRY AND BEEF CATTLE, HOGS, SHEEP AND HORSES: AERIAL APPLICATION: Apply 4 fl. oz. diluted with 8 fl. oz. of water (total of 12 fl. oz.) per acre (0.25 lb. technical naled per acre). **GROUND APPLICATION:** Use 5 pts. per 100 gals. water. Apply with a mist blower or similar equipment as a space treatment. Calibrate equipment (rate of travel and output) to apply 0.25 lb. technical naled per acre (approximately 5 gals. of diluted spray).

CLOVER MITES, ROACHES, EARWIGS AND LEAFHOPPERS—Outside Dwellings and In Lawns: Use 1 fl. oz. in 3 gals. water. Apply to turf and to soil surfaces around flowers, shrubs, and trees for general pest cleanup.

GRASSHOPPERS, RANGE CATERPILLARS: Rangeland—½ to ¾ pt. per acre by air or ground. Young Grasshoppers—½ pt. per acre by air or ground. Armyworms—1 pt. per acre by air or ground. By Air—Use in 1 to 5 gals. water per acre. Apply when hoppers hatch is completed. Repeat as necessary. Animals may be present during treatment. Do not graze lactating dairy animals on treated areas.

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2. Critical and unforeseeable factors beyond Chevron's control prevent it from eliminating all risks in connection with the use of chemicals. Such risks include, but are not limited to, damage to plants and crops to which the material is applied, lack of complete control, and damage caused by drift to other plants or crops. Such risks occur even though the product is reasonably fit for the uses stated hereon and even though label directions are followed. Buyer and user acknowledge and assume all risks of liability (except those assumed by Chevron under 1 above) resulting from handling, storage, and use of this material.

GREENHOUSE, VAPOR TREATMENT OF ROSES, OTHER ORNAMENTAL PLANTS, TOMATOES, CUCUMBERS: Spider Mites, Adult Whiteflies, Aphids, Leafrollers, Mealybugs—1 fl. oz. per 10,000 cu. ft. when plants are dry. Apply undiluted on heat pipes (or in open pans on hot plates). Apply continuously or to intermittent sections of pipe on each side and on 1 or more of the pipes through center of each range depending upon width. Application to cold pipes should be followed by immediately heating pipes to 160° F. In steam heated houses, close vents for at least 1 hour after pipes are hot. With hot water systems, close house for at least 3 hours. Houses may remain closed overnight following treatment. When application is made to hot pipes, wear goggles and approved respirator. Ventilate house before workers re-enter. Wear respirator when entering treated houses to ventilate. Protect hives of bees in cucumber and other houses by covering with plastic or rubber sheet during treatment and until house is ventilated. Do not apply to tomatoes or cucumbers closer than 1 day before harvest.

SPIDER MITES (Resistant and Non-resistant)—Make 3 to 4 treatments at 3 or 4 day intervals. Repeat as necessary. **Adult Whiteflies**—Make 2 applications at 7 day intervals. Repeat as necessary. **Aphids**—Apply when aphids appear. Repeat as necessary. **WARNING**—Avoid overtreatment and direct application to plants as injury may result. White Butterfly and Golden Rapture Roses, Pink Champagne Chrysanthemums, Green Wandering Jew, Poinsettias and Dutchman's Pipe may be injured by DIBROM vapor.

FOREST AND SHADE TREES: CONIFERS (Arboreal, Douglas Fir, Fir, Hemlock, Juniper, Pine, Spruce): Suppression of Two-Spot and Red Spider Mites, Aphids, Spittlebugs, Zimmerman Moths, Juniper Webworms, Tussock Moths, Spruce Budworms, Adult Sierra Fir and Western Hemlock Bark Borers. **BROADLEAF TREES (Ash, Birch, Black Walnut, Box Elder, Dogwood, Elm, Evergreen Pear, Flowering Plum and Quince, Locust, Magnolia, Maple, Oak, Sycamore, Willow):** Suppression of Two-Spot and Red Spider Mites, Aphids, Leaf Miners, Thrips, Elm Leaf Beetles, California Oakworms (California only). Spring and Fall Cankerworms, Fall Webworm, Oak Webworm, and Tussock Moths—1 pt. in 100 gals. water. Use when infestation is evident, repeat as necessary.

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