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APR - 2 1990

Ms. Eunice Quirle
FMC Corporation
2000 Market Street
Philadelphia, PA 19103

Dear Ms. Quirle:

Subject: Amendment: Upgrade Signal Word to DANGER
Thiodan 2 C.O. EC
EPA Registration No. 279-2659
Your submission dated February 7, 1990

The Agency has concluded its review of the product specific toxicity data, MRID Nos. 41400501 through 41400506, which support the change in the signal word. A copy of the review is enclosed (please follow the label revisions specified below in this letter). In summary, the review indicates:

<u>Study Type</u>	<u>EPA No.</u>	<u>MRID No.</u>	<u>Classification</u>	<u>Toxicity Category</u>
Acute Oral	E1-2	41400501	Guideline	I
Acute Dermal	E1-2	41400502	Guideline	II
Acute Inhalation	E1-3	41400503	Guideline	II
Eye Irritation	E1-4	41400504	Guideline	III
Skin Irritation	E1-5	41400505	Guideline	III
Skin Sensitization	E1-6	41400506	Supplementary	—

All studies except the dermal sensitization study are acceptable and support the change in signal word to DANGER POISON based on the acute oral toxicity study. The dermal sensitization study is classified as supplementary because the selected dose concentration may have been too dilute to elicit a response. Dose selection was not discussed in the submission. The study classification will be resubmitted if you can submit additional information to justify the dose selection. If no additional information can be submitted, then the study must be repeated using a higher concentration, which, at a minimum, provokes minimal irritation during the induction phase and the challenge concentration should be the highest non-irritating concentration as specified in the reference cited in your submission.

The amendment referred to above, submitted in connection with a registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable provided the following revisions are made prior to release for shipment:

- 1) Add the subheading "Re-Entry" above the fieldworker protection statements that appear on page 2 of your submission.
- 2) Add "Get medical attention." to the end of the "If on skin" advice in the Statement of Practical Treatment.
- 3) Revise the Hazards to Humans and Domestic Animals to include the applicator and mixer/loader protective clothing statements as they appear on your latest Thiodan 3 E.C. label. Specifically, add the following:

Applicators must wear a long sleeve shirt, trousers, unlined waterproof gloves made of natural rubber or neoprene, full foot covering (such as shoes or boots), head covering (such as a hat), and a pesticide mask or respirator jointly approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11 for protection against endosulfan. Mixers and/or loaders must wear a chemical resistant apron and goggles or face shield in addition to all of the protective equipment specified for applicators.

A stamped copy of the label is enclosed for your records. Please submit five (5) copies of the revised amended labeling prior to release for shipment. Regarding the dermal sensitization study, please let the Agency know within 75 days of the date of this letter whether you intend to submit the missing dose selection information or to repeat the study at another concentration.

The Agency is aware that you have been developing product chemistry data to support this registration and that you will soon be submitting that data.

Sincerely yours,

George T. LaRocca
Product Manager (15)
Insecticide-Rodenticide Branch
Registration Division (H7505C)

Thiodan 2 C.O. EC

Insecticide

For Agricultural or Commercial Use Only

EPA Reg. No. 279-2659

EPA Est. 279-

Active Ingredient:	By Wt.
Endosulfan; Hexachlorohexahydromethano- 2,4,3-benzodioxathiepin 3-oxide	23.1%
*Inert Ingredients:	76.9%
	100.0%

*Thiodan

**Contains Xylene Range Aromatic Solvents

Thiodan 2 C.O. EC contains 2 pounds Endosulfan (Thiodan) per gallon

KEEP OUT OF REACH OF CHILDREN

☠ DANGER-POISON ☠
PELIGRO

See Other Panels for Additional Precautionary Information.

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

STATEMENT OF PRACTICAL TREATMENT

If swallowed: Call a physician or Poison Control Center immediately. If possible, vomiting should be induced under medical supervision. Drink one or two glasses of water and induce vomiting by giving one (1) ounce of syrup of ipecac, if available, or by touching the back of the throat with a finger. Do not induce vomiting or give anything by mouth to a person who is unconscious or convulsing.

In inhaled: Remove victim to fresh air. Apply artificial respiration if indicated.

If on skin: Remove contaminated clothing and wash skin with soap and water.

If in eyes: Flush eyes with plenty of water. Call a physician immediately.

Note to Physicians: Endosulfan is a central nervous system stimulant absorbable by mouth, inhalation or through contact with skin. It may cause convulsions. There is no specific antidote. Diazepam I.V. is the drug of choice. Barbituric acid derivatives such as Phenobarbital may be used additionally. A neuromuscular blocking agent may be used if convulsions persist. This type of drug may be used only if complete control of respiration can be maintained. Epinephrine derivatives are absolutely contraindicated.

For Emergency Assistance Call 716-735-3765.

FMC

FMC Corporation
Agricultural Chemical Group
Philadelphia PA 19103

ACCEPTED
with COMMENTS
in EPA Letter Dated:

APR - 2 1990

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

279-2659

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PRECAUTIONARY STATEMENTS

Hazards to Humans (& Domestic Animals)

Danger

Fatal if swallowed. May be fatal if inhaled or absorbed through skin. Causes moderate eye irritation. Do not breathe vapor or spray mist. Do not get in eyes, on skin, or on clothing. Wear waterproof rubber gloves and a pesticide mask or respirator jointly approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) for pesticide application under the provision of 30 CFR part 11 for protection against endosulfan. Do not apply or allow to drift to areas occupied by unprotected humans or beneficial animals. Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco. Remove contaminated clothing and wash before reuse.

Environmental Hazards

This product is toxic to fish, birds and other wildlife. Birds feeding on treated areas may be killed. Do not apply directly to water or wetlands. Due to risk of runoff and drift, do not apply within a distance of 300 feet of lakes, ponds, streams, and estuaries. Shrimp and crab may be killed at application rates recommended on this label. Do not apply where fish, shrimp, crab and other aquatic life are important resources. This product must not be used in areas where impact on threatened endangered species is likely. Contact your State Fish and Game Agency before applying this product. Apply this product only as specified on this label.

This pesticide is toxic to bees exposed to direct application. Applications should be timed to coincide with periods of minimum bee activity, usually between late evening and early morning.

Physical/Chemical Hazards

Do not use or store near heat or open flame.

DIRECTIONS FOR USE

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

Do not apply this product through any type of irrigation system.

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Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons.

Do not enter treated areas without protective clothing for 24 hours.

Protective clothing means, at least, a hat or other suitable head covering, a long sleeved shirt and long legged trousers or a coverall type garment (all of closely woven fabric covering the body, including the arms and legs), shoes and socks.

Because certain states may require more restrictive reentry intervals for various crops treated with this product, such as the 48 hour reentry interval established by California, consult your State Department of Agriculture for further information.

Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. Inform workers of areas or fields that may not be entered without specific protective clothing, period of time field must be vacated and appropriate actions to take in case of accidental exposure. An example of such information is given under written warnings. When oral warnings are given, warnings shall be given in a language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Written warnings must include the following information:

DANGER

Area treated with endosulfan on (insert date). Do not enter without appropriate protective clothing for 24 hours (insert State Department of Agriculture's reentry interval, if more restrictive).

In case of accidental exposure to pesticide spray, wash the skin thoroughly with soap and water. Remove contaminated clothing and wash before reuse. If in eyes, flush with plenty of water. If inhaled, go to an area where the pesticide has not been applied. Get medical attention if needed.

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STORAGE AND DISPOSAL

Pesticide Storage

Do not store below 0°F. (-18°C)

Do not use or store near heat, open flame or hot surfaces

Keep out of reach of children and animals. Store in original containers only. Store in a cool, dry place and avoid excess heat. Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrate or dilute material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. Call FMC collect (716) 735-3765.

To confine spill: If liquid, dike surrounding area or absorb with sand, cat litter or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

Pesticide Disposal

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal

Triple rinse (or equivalent) then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Do not cut or weld metal containers.

Not For Use Or Storage In Or Around The Home

Apply the listed amount per acre when insects first appear and repeat as required, unless otherwise noted, to maintain effective control. Use in sufficient water for thorough coverage, unless otherwise noted, of listed crops. Coverage of upper and lower leaf surfaces is essential for good control. For ground application, apply recommended amount of pesticide in a minimum of 10 gallons of water per acre on vegetable or row crops. Observe use limitations. If insect control is required beyond the following use patterns, supplement the control program with other suitable pesticides.

When applying this material by aircraft, mix the recommended amount with sufficient water to provide a minimum of 1 gallon finished spray per acre on vegetable and field crops, unless otherwise noted, and a minimum of 20 gallons of finished spray per acre on fruit and nut trees and on vines. Where more than 2 quarts are recommended, mix with sufficient water to provide a minimum of finished spray equal to twice the amount of Thiodan® 2 C O EC insecticide used.

Do not plant root crops other than carrots, potatoes, sweet potatoes, and sugar beets as follow-up crops. Observe days interval between last application and harvest indicated by number in () following the crop name.

Onions: Peach Twig Borer—Use 4 to 5 quarts per acre for control of early season infestation. Apply during popcorn, pink or petal fall in a minimum of 200 gallons dilute or 40 gallons per acre concentrate. For areas less than one acre use 1 quart per 100 gallons. Do not exceed one application per season. Do not graze livestock on orchard crops or grasses in treated areas.

Apples: Apple Aphid, Rosy Apple Aphid—Use 1 quart per 100 gallons of water or 4 to 5 quarts per acre. Do not make more than 3 applications during the fruiting period nor apply within 21 days of harvest, or do not apply within 30 days of harvest with no limit on the number of applications. Apple Rust Mite—Use 1½ to 2 pints per 100 gallons of water or 6 to 8 quarts per acre. Woolly Apple Aphid—Use 1 quart per 100 gallons (8 quarts per acre). If 5 quarts or less are applied per acre may be applied within 30 days of harvest with no limit on number of applications, or if no more than 3 applications are made during the fruiting period do not apply within 21 days of harvest. Do not apply more than twice during the fruiting period. Do not feed pomace to livestock. Do not apply within 30 days of harvest. Do not feed cull fruits to animals nor allow livestock to graze treated orchards.

Apricots, Nectarines: Catfacing Insects, Green Peach Aphid, Peach Twig Borer—Use 1 quart per 100 gallons of water or 4 to 5 quarts per acre. Peach Silver Mite—Use 1 pint per 100 gallons of water or 4 to 5 quarts per acre. Do not make more than 2 applications during the fruiting period. Do not apply within 30 days of harvest. Peachtree Borer—Use 1½ quarts per 100 gallons of water (1 quart per 100 gallons of water in Western Areas). Spray all bark areas from ground level to scaffold limbs. Do not apply within 21 days of harvest. Do not feed cull fruits to animals nor allow livestock to graze treated orchards.

Artichokes (7): Artichoke Aphid, Green Peach Aphid—Use 1½ quarts per acre. Artichoke Plume Moth—Use 2 quarts per acre.

Barley, Oats, Rye, Wheat: Army Cutworms—Use 1 quart per acre. Do not apply after heads begin to form. Do not feed treated forage to dairy animals or animals being finished for slaughter. For airplane application use 2 quarts in 2 gallons diesel fuel oil per acre.

Beans, Dry and Succulent (3): Bean Leaf-skeletonizer, Black Bean Aphid, Cucumber Beetles, Green Stink Bug, Mexican Bean Beetle—Use 1 to 2 quarts per acre. Do not make more than 3 applications per season. Do not feed treated threshings to livestock or allow to graze in treated fields. Do not use on lima beans that are to be removed from the field for processing.

Blueberries: Blueberry Bud Mite—Use 3 quarts per acre in 300 gallons of water. Apply immediately after harvest, and repeat 6 to 8 weeks later. Do not apply after buds are well formed.

Broccoli (7), Brussels Sprouts (14), Cabbage (7), Cauliflower (14): Cabbage Aphid, Cabbage Looper, Cross-Striped Cabbageworm, Diamondback Moth Larvae, Flea Beetle, Harlequin Bug, Imported Cabbageworm, Stink Bug—Use 3 to 4 pints per acre.

Carrots (7): Green Peach Aphid—Use 1 to 2 quarts per acre. Do not make more than 2 applications. Do not use tops for food or feed.

Celery, Whole Plant (7): Green Peach Aphid—Use 1 quart per acre. **(4):** Green Peach Aphid, Cabbage Looper—Use 1 to 2 quarts per acre. Do not make more than 3 applications.

Cherries (21): Eyespotted Bud Moth (Pacific Northwest Only)—Use 1 quart per 100 gallons of water. Apply during 'popcorn' stage of growth. Fruit-tree Leafroller (Pacific Northwest Only)—Use 1 quart per 100 gallons of water. Apply during pre-pink stage of growth. Black Cherry Aphid, Plum Nursery Mite—Use 1 quart per 100 gallons of water (4 to 5 quarts per acre). Mineola Moth (Michigan Only)—Use 2 quarts per 100 gallons. Apply in delayed dormant period. Do not feed cull fruits to animals nor allow livestock to graze treated orchards.

Do not make more than 2 applications after shuck split.

Cherry, Plum, and Peach Nursery Stock: Peachtree Borer—Use 1 gallon per 40 gallons of water. Mix thoroughly. Immerse the bundles of trees so that the roots and crowns are covered well above the grafting bud scar. If trees are not planted immediately, allow to dry before returning them to storage. Wear rubber gloves during the dipping operation.

Citrus—Non-Bearing Trees and Nursery Stock: Citrus Aphid—Use 1 pint per 100 gallons of water or 5 quarts per acre. Do not apply to bearing trees or trees that will bear fruit within 12 months. NOTE: Shrimp and crab may be killed at application rates recommended on this label. Do not apply where these are important resources.

Collards (21): Cabbage Looper, Diamondback Moth Larvae, Harlequin Bug, Imported Cabbageworm—Use 3 pints per acre. Do not make more than 1 application.

Corn—Seed Crop Only: Corn Earworm—Use 2 to 3 quarts per acre. Direct spray to area of cornsilk. Corn Leaf Aphid—Use 2 quarts per acre. Do not apply more than 5 times. Do not feed treated forage or ensilage to livestock or allow livestock to graze in treated fields. Do not use seed for food, feed, or oil purposes.

Corn—Sweet (0): For Fresh Vegetable Use Only: Corn Leaf Aphid—Use 2 to 3 quarts per acre. Corn Earworm—Use 3 quarts per acre. For Corn Earworm, apply at 2 to 3 day intervals beginning when silks first appear and continuing until they begin to dry. Do not apply more than 5 times. Do not apply to sweet corn to be processed. Do not feed treated forage or ensilage to livestock or allow livestock to graze in treated fields.

Cotton: Boll Weevil—Use 1 to 2½ quarts per acre. Bollworm, Cabbage Looper, Lygus Bugs, Stink Bugs, Cotton Leafperforator—Use 2 quarts per acre. Thrips—Use 3 quarts per acre. Do not apply after bolls open. Do not graze meat or dairy animals in treated fields. Do not feed treated plant parts to meat or dairy animals.

Eggplants (1): Blister Beetle, Colorado Potato Beetle, Flea Beetle, Green Peach Aphid, Green Stink Bug, Whitefly—Use 1 quart per acre. Do not exceed 0.5 lbs. active ingredient endosulfan per acre.

Grapes (7): Grape Leafhopper—Use 1 quart per 100 gallons of water or 2 to 3 quarts per acre. Rose Chafer—Use 1 quart per 100 gallons of water. Do not apply to Concord variety as severe injury is likely to occur. Ground application equipment preferred.

Kale (21): Cabbage Flea Beetle, Imported Cabbageworm, Harlequin Bug—Use 1½ quarts per acre. Apply only once during growing season.

Lettuce (14): Cabbage Looper, Diamondback Moth Larvae, Green Peach Aphid, Imported Cabbageworm—Use 2 quarts per acre. On Head Lettuce do not make more than 3 applications after thinning. Remove outside leaves at harvest. Do not feed crop refuse to livestock. On Leaf Lettuce do not make more than 2 applications per season.

Macadamia Nuts (0): Southern Green Stink Bug—Use 2 quarts per 100 gallons. Do not graze livestock on orchard crops or grasses in treated areas.

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Douglas Fir (Grown for Ornamentals) Pacific Northwest Only: Cooley Spruce Gall Aphid, Douglas Fir Needle Midge—Use 1 quart per 100 gallons or 2 teaspoonfuls per gallon. To control Gall Aphid—Apply when white cottony tufts appear. To control Needle Midge—Apply in late April or early May just before buds open.

Elm: Aphids—Use 1 quart per 100 gallons. **Elm Leaf Beetle (New England Area Only)**—Use 2 quarts per 100 gallons. Apply when about 50% of eggs have hatched. Repeat as needed.

Pines (Austrian, Jack, Red, Scotch, White): Zimmerman Pine Moth—Use 3 pints per 100 gallons. Applications should be made in mid-April and, if necessary, in late fall. Spray with enough pressure to thoroughly wet bark and main stem, especially where branches join main stem.

Spruce (New England Area Only): Spruce Gall Aphid—Use 1 quart per 100 gallons. Apply in late April or early May when aphids are present but before galls are formed.

Taxus: Taxus Bud Mite—Use 1 quart per 100 gallons. Make 3 to 5 applications as required beginning in mid-May. A thorough treatment of foliage, twigs and bark is essential. **Black Vine Weevil**—Use 2 quarts per 100 gallons. Spray thoroughly and drench surface of soil under plants. Apply when weevils first appear, repeat in 14 days.

Dealers Should Sell in Original Packages Only.

Terms of Sale or Use: On purchase of this product buyer and user agree to the following conditions:

Warranty: FMC makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Except as so warranted, the product is sold as is. Buyer and user assume all risk of use and/or handling and/or storage of this material when such use and/or handling and/or storage is contrary to label instructions.

Directions and Recommendations: Follow directions carefully. Timing and method of application, weather and crop conditions, mixture with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller and are assumed by buyer at his own risk.

Use of Product: FMC's recommendations for the use of this product are based upon tests believed to be reliable. The use of this product being beyond the control of the manufacturer, no guarantee, expressed or implied, is made as to the effects of such or the results to be obtained if not used in accordance with directions or established safe practice.

Damages: Buyer's or user's exclusive remedy for damages for breach of warranty or negligence shall be limited to direct damages not exceeding the purchase price paid and shall not include incidental or consequential damages.