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Dr. Schmidt 14

090301

ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

Date: May 29, 1973

Reply to Attn of:

Subject: Lannate(R) WP Methomyl - Request for registration for use as an insecticide on apples with a residue tolerance of 1 ppm.

To: Mr. Lee TerBush, Acting Chief
Coordination Branch
Registration Division

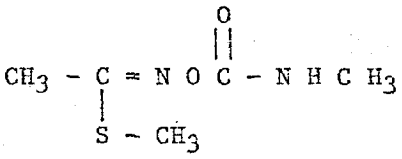
Registration No.: 352-GAE

E.I. DuPont De Nemours & Co.
6054 DuPont Building
Wilmington, Delware 19898

Related Petitions: 8F0671, 8F0677, 8F0681, 9F0814, 0F0882, 0F0886, 1F1021, 1G1144, 1F1158, 1F1159, 1F1162, 2G1241, 2F1245, 2F1246, 2F1247, 2F1254, 3E1303, 3F1307, and 3E1308.

Use Pattern: Apply to apple trees at ratios of 1/4 to 1/2 pound per 100 gal water at varying intervals depending on the type of insect with amounts not to exceed 400 gallons per acre per spraying.

Chemical Structure:



S-methyl -N-[(methylcarbamoyl)oxy] thioacetimidate (methomyl)

Formulation: Active Ingredient

Methomyl (95%)	97.5%

Inert Ingredients

[redacted]

Inert ingredient information not included.

TOXICOLOGY

Obtained from Dr. William E. Parkin review of 9/21/72.

No new toxicology data was submitted with this petition. Evaluation of the safety of the proposed tolerances must be based upon data submitted in previous petitions.

I. PP #8F0671 acute data not previously reviewed.

Acute Studies:

Oral Rat (M) - LD_{50} 14-20 mg/kg
Rat (F) - LD_{50} 22-25 mg/kg
Inhalation Rat - LC_{50} 0.30 mg/L methomyl mist. Fatty changes found in livers of these animals, pulmonary irritant.
Inhalation Rat - Concentrations of 0.036-0.044 mg/L methomyl vapor produced only mild pulmonary irritation.
Inhalation Rat - Aqueous respirable droplets of Lennate formulation (90% active) at concentrations from 0.099 to 0.95 mg/L LC_{50} 0.45 mg/L.
Dermal Toxicity Rabbit ALD's for 24 hour single dose.
5% aqueous methomyl >1000 mg/kg
26% aqueous methomyl >1500 mg/kg
5% aqueous formulation >1000 mg/kg
26% methomyl in cellosolve >1500 mg/kg
All animals showed slight weight loss and effects consistant with ChE depression.

Subacute Studies:

Dermal Rabbits - Slight, transient edema no effect on blood ChE activity at 200 mg/kg.
Eye Irritation Rabbits - Powdered methomyl produced mild conjunctivitis and iritis on day of treatment. No corneal effects seen. Marked pupillary constriction. Marked ChE depression noted in first hour but disappeared by 4 hours.
Skin Irritation Guinea Pigs - 5% solution in water and propylene glycol and a 60% paste in propylene glycol applied to intact skin produced no sensitization but primary skin irritation.

Methomyl can be considered a mild skin and eye irritant capable of producing depressed ChE activity from absorption through skin, eyes or lungs.

II. PP #8F0671, 8F0677, and 8F0681 reviewed by Mr. H.R. Gittes, February 9, 1968.

Mr. Gittes found the proposed tolerances of 10 ppm on corn fodder, 0.1 ppm on corn in grain or ear form (negligible), and 0.2 ppm on leafy vegetables (negligible) to be safe based upon the following data:

90-day feeding study (rat)	NEL 125 ppm
90-day feeding study (dog)	NEL 400 ppm
2-year feeding study (rat) (1-year results)	NEL 100 ppm
2-year feeding study (dog) (1-year results)	NEL 400 ppm
3-generation rat reproduction study (through F_{3a})	NEL 50 ppm
LD_{50} - rat, male	17 mg/kg
female	24 mg/kg
LD_{50} - rat, male-Lennate (90% a.i.)	37 mg/kg
LD_{50} - chicken	28 mg/kg

III. PP #9F0814 reviewed by Dr. G.E. Whitmore, June 17, 1969. Dr. Whitmore found that the toxicity data supported the proposed tolerances of 0.2 ppm on fruiting vegetables (negligible).

2-year feeding study (rat) (final)	NEL 100 ppm
2-year feeding study (dog) (final)	NEL 100 ppm
3-generation rat reproduction study (final)	NEL 100 ppm

IV. PP #0F0882 reviewed by Dr. J.L. Svirbely, October 1, 1970. Dr. Svirbely concluded that the data supported a tolerance of 5 ppm on cabbages.

79-day feeding study (rat)	ChE NEL 400 ppm
2-year feeding study (rat) (estimated)	ChE NEL 400 ppm

V. PP #0F0886 reviewed by Mr. H.R. Gittes, November 23, 1970. Mr. Gittes approved the proposed tolerance of 0.2 ppm on root crop vegetables (negligible). No new data was submitted.

VI. PP #1G1144 reviewed by Dr. G.E. Whitmore, June 9, 1971. Based on the previously submitted toxicity data, Dr. Whitmore approved the temporary tolerance of 5 ppm on cottonseed.

VII. PP #1F1021 reviewed by Dr. G.E. Whitmore, July 7, 1971. Based on previous reviews of the submitted data, Dr. Whitmore found the proposed tolerances of 5 ppm on lettuce and endive, 2 ppm on succulent beans, 0.2 ppm on soybeans (negligible), and 10 ppm on bean and soybean vines to be safe.

VIII. PP #1F1158, 1F1159, and 1F1162 reviewed by Mr. D.L. Ritter, September 27, 1971.

Mr. Ritter found the proposed tolerances of 0.2 ppm on peanuts and cottonseed to be safe but not negligible and 10 ppm on alfalfa to be safe.

IX. PP #1F1162 reviewed by Dr. R. Engler, October 6, 1971. Dr. Engler found the proposed tolerance of 0.2 ppm on cottonseed (negligible) to be safe.

X. PP #2G1241 reviewed by Dr. R. Engler, March 24, 1972. Dr. Engler found the proposed temporary tolerance of 0.2 ppm on pineapples and 1 ppm on pineapple forage to be safe.

XI. PP #2F1245 and 2F1247 reviewed by Dr. R. Engler, May 23, 1972. The toxicity data on file was adjudged to support the requested tolerances of 0.2 on cucurbits (negligible), 10 ppm on pea vines, and 5 ppm on peas with pods.

XII. PP #2F1246 and 2F1254 reviewed by Dr. W.E. Parkin, May 17, 1972. Tolerances of 5 ppm on peaches and nectarines and 2 ppm on oranges, lemons, grapefruits, and tangelos were found to be safe based on previously submitted data.

XIII. PP #3E1303 reviewed by Dr. W.E. Parkin, September 11, 1972. The toxicity data on file was sufficient to support a residue tolerance of 2 ppm in or on mint hay (peppermint and spearmint).

CONCLUSION

Dr. Parkin concluded that based on the 2-year studies man could tolerate a total intake residue of 3 mg/day and therefore recommended the requested tolerances be established. CB recommended that a label restriction against grazing cover crops in orchards be put on the label. TB concurs.

RECOMMENDATIONS

TB recommends, pending the requirements of the other branches, that a no grazing restriction be put on label before registering this product.

Robert P. Schmidt 5/31/73

Robert P. Schmidt, D.V.M.
Toxicology Branch
Registration Division

cc:
DB
EEB
IRB
HFB
PCCritchlow
GEWhitmore
Division Reading File
Branch Reading File

RPS/km 05-31-73

13544

R051350

Chemical:	**Methomyl**
PC Code:	**090301**
HED File Code	**13000 Tox Reviews**
Memo Date:	**05/29/73 12:00:00 AM**
File ID:	**00000000**
Accession Number:	***000-00-0049***

HED Records Reference Center
10/07/2003