

METHOMYL

Task 2: Topical Discussions

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METHOMYL

Task-2

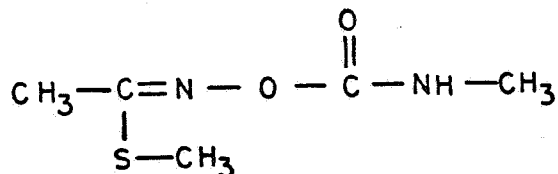
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METHOMYL

TASK 2

METHOMYL, LANNATE, NUDRIN



S-Methyl-N-[(methylcarbamoyl)oxy]thioacetimide

Data requirements are cited from EPA's Proposed Guidelines for Registering Pesticides (July 1978) except as noted.

(1) PHYSICO-CHEMICAL TRANSFORMATION 163.62-7

(A) Hydrolysis 163.62-7(b)

Hydrolysis data are required to support the registration of each manufacturing-use product and of each formulated end-use product intended for terrestrial, forestry, aquatic, and aquatic impact use patterns, including products directly discharged into the aquatic environment, indirectly discharged into wastewater treatment systems, or used as treatments in a wastewater system.

One invalid hydrolysis study was reviewed; therefore, no valid data on the hydrolysis of methomyl are available.

Data Gaps

All data specified in Section 163.62-7(b) of EPA's Proposed Guidelines for Registering Pesticides (July 1978) are needed to assess the hydrolysis properties of manufacturing-use methomyl.

(B) Photolysis 163.62-7(c)

A photodegradation study in water is required to support the registration of each formulated end-use product intended for terrestrial (except greenhouse and domestic outdoor), aquatic, and forestry use and for any

aquatic impact use which results in direct discharges into the aquatic environment. Such a study is also required to support the registration of each manufacturing-use product which legally could be used to make such an end-use product.

Photodegradation studies on soil surfaces are required to support the registration of each formulated end-use product intended for crop uses and forestry uses. Such studies are also required to support the registration of each manufacturing-use product which legally could be used to make such an end-use product. However, uses involving injection of the product into the soil or incorporation of the product into the soil upon application are not subject to the requirements of this section.

Laboratory photodegradation studies in the vapor phase are required to support the registration of each formulated end-use product intended for greenhouse use. Such studies are also required to support the registration of each manufacturing-use product which legally could be used to make such an end-use product. Exempt from these requirements are pesticides which do not contain active ingredients with vapor pressures greater than 1×10^{-7} torr at 25 C (or the equivalent expressed in other conventional units).

One photolysis study was reviewed but was invalid. No valid data are available to determine whether methomyl photodegrades.

Data Gaps

All data specified in Section 163.62-7(c) are needed to determine the effect of light on methomyl.

(2) METABOLISM 163.62-8

Data on metabolism are required to determine the nature and availability of pesticide residues to rotational crops and to help in the assessment of potential disposal and reentry hazards.

(A) Soil 163.62-8(b,c)

An aerobic laboratory soil metabolism study is required to support registration of each formulated end-use product intended for terrestrial or forestry use. Such a study is also required to support the registration of each manufacturing-use product which legally could be used to make such an end-use product.

An anaerobic soil metabolism study is required to support the registration of each formulated end-use product intended for field or vegetable crop use. Such a study is also required to support the registration of each manufacturing-use product which legally could be used to make such an end-use product. However, an anaerobic soil metabolism study shall not be required if an anaerobic aquatic metabolism study has been conducted in accordance with the requirements of Section 163.62-8(d).

Five soil metabolism studies were reviewed and four were found to be valid.

Harvey (MRID's 00008844, 00009325, 00005867, and 00005868) studied the metabolism of [^{14}C]methomyl in Keyport silt loam, Flanagan silt loam, sandy loam, muck, and a California soil. Methomyl was degraded more rapidly in the sandy loam and California soils than in the silt loam soils, with 21, 31, and 44-48% of the methomyl applied remaining in the respective soils 42-45 days after treatment. The major degradation product in silt loam, California, and muck soils was CO_2 , with 23-47% of the methomyl degraded to $^{14}\text{CO}_2$ in 42-45 days (Table 1). A minor degradation product, S-methyl-N-hydroxythioacetimidate (Harvey, MRID's 00008844, 00008567, and 00008568), was found. The half-lives of methomyl were 15-30 days in the sandy loam soil, less than 42 days in the

Table 1. Degradation of methomyl in soil.

Soil type	Sampling interval (days)	Recovery of radioactivity (% of applied)		
		Methomyl	$^{14}\text{CO}_2$	Unextractable residues
Keyport silt loam ^a	42	44-48	31-39	14-18
California soil ^a	42	31	45	12
Muck soil ^b	45	NR ^c	47	NR
Sandy loam ^d	15	55	NM ^e	14
	30	33	NM	18
	45	21	NM	20
Flanagan silt loam ^f	45	47	23	26
Sterile Flanagan silt loam ^f	45	89	NM	8

^a MRID 00008844.

^b MRID 00009325.

^c NR - Data were not reliable due to inadequate extraction procedure.

^d MRID 00008567.

^e NM - not measured.

^f MRID 00008568.

California soil, and approximately 45 days in the muck and silt loam soils.

In sterile Flanagan silt loam soil treated with [^{14}C]methomyl, 89% of the radioactivity was present as methomyl and 8% was soil bound 45 days after treatment (Harvey, MRID 00008568).

Data from these studies satisfy part of the data requirements in Section 163.62-8(b) by providing a half-life of methomyl in a silt loam soil.

Data Gaps

All data specified in Sections 163.62-8(b,c) are needed to determine the metabolism of methomyl in soil.

References

Harvey, J., Jr. 19?? Decomposition of ^{14}C -methomyl in a high organic matter soil in the laboratory. (Unpublished study received May 5, 1977, under 352-342; submitted by E.I. du Pont de Nemours & Co., Inc., Wilmington, Del.; CDL:229711-E.) (MRID 00009325)

Harvey, J. 1964? Exposure of S-methyl N[(methylcarbamoyl)oxy]thioacetimide in sunlight, water, and soil. (Unpublished study received Dec. 28, 1968, under 8F0671; submitted by E.I. du Pont de Nemours & Co., Inc., Wilmington, Del.; CDL:091179-V.) (MRID 00008844)

Harvey, J., Jr. 1977. Decomposition of ^{14}C -methomyl in a sandy loam soil in the greenhouse. (Unpublished study received Feb. 28, 1977, under 352-342; prepared in cooperation with Univ. of Delaware, Soil Testing Laboratory, submitted by E.I. du Pont de Nemours & Co., Wilmington, Del.; CDL:096026-A) (MRID 00008567)

Harvey, J., Jr. 1977. Degradation of ^{14}C -methomyl in Flanagan silt loam in biometer flasks. (Unpublished study received Feb. 28, 1977, under 352-342; prepared in cooperation with Univ. of Delaware, soil testing laboratory; submitted by E.I. du Pont de Nemours & Co., Inc., Wilmington, Del.; CDL:096026-E.) (MRID 00008568)

(B) Aquatic 163.62-8(d,e)

An aerobic aquatic metabolism study is required to support the registration of each formulated end-use product intended for aquatic use or for any aquatic impact use which results in direct discharges into the aquatic environment. Such a study is also required to support the registration of each manufacturing-use product which legally could be used to make such an end-use product.

An anaerobic aquatic metabolism study is required to support the registration of each formulated end-use product intended for aquatic or forestry use, or for any aquatic impact use which results in direct discharges into the aquatic environment. Such a study is also required to support the registration of each manufacturing-use product which legally could be used to make such an end-use product. The anaerobic soil metabolism study in Section 163.62-8(c) may not be substituted for this study.

No data on the aquatic metabolism of methomyl are available.

No data are required on the aquatic metabolism of methomyl because the use pattern indicates that direct discharge into the aquatic environment is unlikely.

(C) Microbiological 163.62-8(f)

Data on the effects of microbes on pesticide degradation and the effects of pesticides on microbes are required to support the registration of each formulated end-use product intended for terrestrial (except greenhouse and domestic outdoor), aquatic, and forestry uses and for any aquatic impact use which results in direct discharges into the aquatic environment. These data are also required to support the registration of each manufacturing-use product which legally could be used to make such a formulated product.

Microbiological - Effects of Microbes on Pesticides 163.62-8(f)(2)

One study was reviewed and is discussed below.

A study by Harvey (MRID 00008568) using sterile and nonsterile Flanagan silt loam soil treated with [^{14}C]methomyl and aerobically incubated for 45 days at 25 C showed that methomyl is degraded by soil microorganisms. At 45 days after treatment, 23% of the radioactivity in the nonsterile soil was recovered as $^{14}\text{CO}_2$, 47% recovered as methomyl, and 26% was soil bound. In the sterile soil, 89% of the radioactivity was recovered as methomyl and 8% was soil bound.

This study satisfies part of the data requirements in Section 163.62-8 (f)(2) by providing information on the rate of methomyl metabolism by soil microorganisms. However, the requirement for the submission of the above data is currently being reserved. Consequently, the absence of acceptable data within this topic does not constitute a data gap.

Reference

Harvey, J., Jr. 1977. Degradation of ^{14}C -methomyl in Flanagan silt loam in biometer flasks. (Unpublished study received Feb. 28, 1977, under 352-342; prepared in cooperation with Univ. of Delaware, Soil Testing Laboratory; submitted by E.I. du Pont de Nemours & Co., Inc., Wilmington, Del.; CDL:096026-E.) (MRID 00008568)

Microbiological - Effects of Pesticides on Microbes 163.62-8(f)(3)

Four studies were reviewed and are discussed below.

Methomyl did not have a significant effect on the nitrogen-fixing ability of Azotobacter vinelandii (after treatment with 90% analytical grade methomyl at 5, 50, or 250 ppm) or Rhizobium sp. (after treatment with 90 WP methomyl at 5 or 50 ppm) (Rodeil et al., MRID 05008720). When cultures of Anabaena cylindrica were treated with methomyl (formulation unspecified) at 20, 40, 80, or 160 ppm, the population was reduced by as much as 54% and nitrogen fixation was reduced by as much as 85% as compared with controls (Huang, MRID 05010223).

Han (MRID 00009328) investigated the effect of methomyl on nitrification in a silt loam soil. When the soil was treated with methomyl (99% analytical grade) at 0.5 ppm, nitrification was reduced 32% as compared

with controls 4 days after treatment but increased to control levels within 19 days. When the soil was treated with methomyl at 5.0 ppm, nitrification was reduced 82% as compared with controls at 4 days after treatment but increased to control levels within 28 days. The effect of methomyl on soil bacteria and fungi in silt loam and fine sand soils was studied by Peebles (MRID 00008581). Methomyl (90 WD) at 18 ppm had no effect on fungal and bacterial populations in the soils tested and did not inhibit production of CO₂ by the soil microorganisms.

In summary, methomyl does not inhibit nitrogen-fixing bacteria, soil fungal and bacterial populations, or CO₂ evolution by soil microorganisms. Methomyl at 20-160 ppm severely inhibits the nitrogen-fixing ability of the blue-green alga Anabaena cylindrica. At 0.5 ppm (usual field application rate) methomyl inhibited nitrification in soil for less than 19 days, and at 5.0 ppm nitrification was severely inhibited (33-82%) for less than 28 days.

These studies partially satisfy the data requirements in Section 163.62-8 (f)(3) by providing information on the effect of methomyl on nitrogen fixation, nitrification, CO₂ evolution, and soil fungal and bacterial populations. However, the requirement for the submission of the above data is currently being reserved. Consequently, the absence of acceptable data within this topic does not constitute a data gap.

References

Han, J.C. 1977. Evaluation of possible effects of methomyl on nitrifying bacteria in soil. (Unpublished study received May 5, 1977, under 352-342; submitted by E.I. du Pont de Nemours & Co., Inc., Wilmington, Del.; CDL: 229711-H.) (MRID 00009328)

Huang, C.Y. 1978. Effects of nitrogen fixing activity of blue-green algae on the yield of rice plants. Botanical Bull. Academia Sinica 19(1):41-52. (MRID 05010223)

Peebles, J.L. 1977. Effect of methomyl on soil microorganisms. (Unpublished study received Mar. 24, 1977, under 352-342; submitted by E.I.

du Pont de Nemours & Co., Inc., Wilmington, Del.; CDL:228749-A.) (MRID 00008581)

Rodell, S., B.R. Funke, and J.T. Schulz. 1977. Effects of insecticides on acetylene reduction by Azotobacter vinelandii and soybean nodules. Plant and Soil 47(2):375-381. (MRID 05008720)

(D) Activated Sludge 163.62-8(g)

A laboratory study of the effects of pesticides on the wastewater treatment process is required to support the registration of all manufacturing-use chemicals and all formulated products that are indirectly discharged into wastewater systems.

One study was reviewed; however, no valid data on the activated sludge metabolism of manufacturing-use methomyl are available.

The requirement for the submission of the above data is currently being reserved. Consequently, the absence of acceptable data within this topic does not constitute a data gap.

(3) MOBILITY 163.62-9

Data on mobility are required to determine pesticide residue movement in the environment.

(A) Leaching 163.62-9(b)

Leaching data are required to support the registration of each formulated end-use product intended for terrestrial (except greenhouse and domestic outdoor), aquatic, or forestry use or for any aquatic impact use resulting in direct discharges into the aquatic environment. Such data are also required to support the registration of each manufacturing-use product which legally could be used to make such an end-use product.

One study was reviewed; however, no valid data on the ability of methomyl to leach are available.

Data Gaps

All data specified in Section 163.62-9(b) are needed to determine the leaching potential of methomyl.

(B) Volatility 163.62-9(c)

Volatility studies are required to support the registration of each formulated end-use product intended for greenhouse use. Volatility studies will also be required to support the registration of each formulated end-use product intended for use in open agricultural sites such as fields and groves where reentry must be considered. Such studies are also required to support the registration of each manufacturing-use product which legally could be used to make any end-use product for which volatility studies are required.

Exempt from these requirements are pesticides which do not contain an active ingredient with a vapor pressure greater than 1×10^{-7} torr at 25 C (or the equivalent expressed in other conventional units). For those pesticides that contain an active ingredient with vapor pressures greater than 1×10^{-7} torr at 25 C, laboratory studies will be conducted

for verification of potential volatilization hazards. Greenhouse and/or field studies will then be required for those pesticides that demonstrate a high potential for volatilization. Alternatively, applicants may omit the laboratory studies and proceed directly to a greenhouse and/or field study.

No data on the volatility of methomyl are available.

Data Gaps

All data specified in Section 163.62-9(c) are needed to determine the rate of methomyl volatilization.

(C) Adsorption/Desorption 163.62-9(d)

A laboratory study using radioisotopic or nonradioisotopic analytical techniques is required to support the registration of all formulated products intended for terrestrial, forestry, and aquatic uses, and for any aquatic impact use which results in direct discharges into the aquatic environment. These data are also required to support the registration of each manufacturing-use product which legally could be used to make such a formulated product.

One study was reviewed; however, no valid data on the adsorption/desorption of methomyl are available.

Data Gaps

All data specified in Section 163.62-9(d) are needed to evaluate the adsorption/desorption of methomyl.

(D) Water Dispersal 163.62-9(e)

A field study tailored to one or more representative sites is required to support the registration of all formulated products intended for aquatic uses and for any aquatic impact use which results in direct discharges into the aquatic environment. These data are also required to support the registration of each manufacturing-use product which legally could be used to make such a formulated product.

No data on the water dispersal of methomyl are available.

No data on the water dispersal of methomyl are required because the use pattern indicates that a direct discharge into the aquatic environment would not occur.

(4) FIELD DISSIPATION 163.62-10

A field dissipation study under actual use conditions is required to support the registration of all formulated products intended for terrestrial (except greenhouse) uses, aquatic uses, and terrestrial/aquatic (forest) uses.

(A) Terrestrial 163.62-10(b)

A terrestrial field dissipation study is required to support the registration of each formulated end-use product intended for terrestrial (except greenhouse) use. Such a study is also required to support the registration of each manufacturing-use product which legally could be used to make such an end-use product.

Three studies using an unspecified formulation of methomyl were reviewed and are discussed below.

Harvey (MRID 00008844) and Harvey and Pease (MRID 00009324) studied the dissipation of [^{14}C]methomyl in silt loam, fine sand, and loamy sand soils. One month after treatment, 71% of the radioactivity and 98% of the methomyl had dissipated from the silt loam soil. One year after treatment, methomyl residues could not be detected (Harvey, MRID 00008844). Three months after treatment 90% of the radioactivity had dissipated from the loamy sand. A runoff study using a sandy soil showed that no detectable methomyl residues were found in soil samples collected from an area downhill from treated plots or in water samples collected from gutters located below untreated plots up to 15 days after treatment with methomyl (Harvey and Pease, MRID 00009324). The researchers at E.I. du Pont de Nemours & Co., Inc. (MRID 00009326) could not find detectable methomyl residues (<0.02 ppm) in a muck soil 7-32 days after treatment.

In summary, methomyl appears to dissipate rapidly, with at least 85% of the residues dissipating within 5 months after treatment.

Data Gaps

All data specified in Sections 163.62-10(b)(1,2 and 4) are needed to determine the terrestrial dissipation rate of methomyl:

- Field and vegetable crop uses:
 - Dusts- 2.0 and 2.5% ai
 - Granular- 1.25, 1.5, 2.0, 4.0, and 5.0% ai
 - Soluble concentrate/liquid- 1.8 and 2.4 lb ai/gal
 - Soluble concentrate/solid- 90% ai
- Tree fruit and nut crop uses:
 - Granular- 1.25% ai
 - Soluble concentrate/liquid- 1.8 lb ai/gal
 - Soluble concentrate/solid- 90% ai
- Domestic outdoor, parks, ornamental, and turf uses:
 - Granular- 1.25% ai
 - Soluble concentrate/liquid- 1.8 and 2.4 lb ai/gal
 - Soluble concentrate/solid- 90% ai

References

E.I. du Pont de Nemours & Company. 1971. Methomyl decomposition in muck soil--a field study. (Unpublished study received May 5, 1977, under 352-342; CDL:229711-F.) (MRID 00009326)

Harvey, J. 1964? Exposure of S-methyl N[(methylcarbamoyl)oxy]thioacetimide in sunlight, water, and soil. (Unpublished study received Dec. 28, 1968, under 8F0671; submitted by E.I. du Pont de Nemours & Co., Inc., Wilmington, Del.; CDL:091179-V.) (MRID 00008844)

Harvey, J., Jr., and H.L. Pease. 1971? Decomposition of methomyl in soil. (Unpublished study received May 5, 1977, under 352-342; submitted by E.I. du Pont de Nemours & Co., Inc., Wilmington, Del.; CDL:229711-D.) (MRID 00009324)

(B) Aquatic 163.62-10(c)

An aquatic field dissipation study is required to support the registration of each formulated end-use product intended for aquatic uses (food crop and noncrop), including products intended for application to ditch-banks and shorelines and for unintentional direct aquatic applications, or for any aquatic impact use which results in direct discharges into the

aquatic environment. Such a study is also required to support the registration of each manufacturing-use product which legally could be used to make such an end-use product.

No data are available on the aquatic dissipation of methomyl.

No data are required on the aquatic dissipation of methomyl because the use pattern indicates that introduction of methomyl into the aquatic environment would not occur.

(C) Forestry 163.62-10(d)

A forestry study is required to support the registration of each formulated end-use product intended for forest use and of each manufacturing-use product which legally could be used to make such an end-use product.

No data are available on the dissipation of methomyl in forests.

Data Gaps

All data specified in Section 163.62-10(d) are needed to determine the dissipation rate of the following formulations of methomyl in forests:

Soluble concentrate/liquid- 1.8 lb ai/gal

Soluble concentrate/solid- 90% ai

(D) Aquatic Impact Uses 163.62-10(e)

Aquatic impact use studies are required to support the registration of all formulated products that will be directly or indirectly discharged into the aquatic environment or are intended for use in wastewater treatment systems, cooling water towers, or pulp and paper mill water treatment.

~~These data are also required to support the registration of each manufacturing-use product which legally could be used to make a formulated product.~~

No data on the aquatic impact of end-use methomyl are available.

No additional data are required. Required data have been noted per Sections 163.62-7(b), 163.62-7(c), 163.62-8(d), 163.62-8(e), 163.62-8(f)(2), 163.62-8(f)(3), 163.62-8(g), 163.62-9(d), 163.62-9(e), and 163.62-10(c), and according to the Draft Guidelines of December 10, 1980, 163.62-10(b).

(E) Combinations and Tank Mixes 163.62-10(f)

A laboratory or field soil dissipation study, using the formulated product or the nonradiolabeled technical grade of each active ingredient, is required to support the registration of all formulated products intended for combinations and/or tank mixtures. This study shall compare the dissipation characteristics of each active ingredient of the mixture when applied to the soil as a mixture with the separate dissipation characteristics of each active ingredient in soil when applied individually.

No data on the dissipation of multiple active ingredient formulations of methomyl are available.

Data requirements for combinations or tank mixes containing methomyl are not cited here because this standard deals only with a single active ingredient.

(5) ACCUMULATION 163.62-11

Data on accumulation are required to determine accumulation in food webs.

(A) Rotational Crops 163.62-11(b)

Accumulation studies on rotational crops are required to support the registration of each formulated end-use product intended for field/vegetable or aquatic food or feed crop use and for use on any site on which it is reasonably foreseeable that any food or feed crop may be produced after application of a pesticide. Such a study is also required to support the registration of each manufacturing-use product which legally could be used to make such an end-use product.

No data on the accumulation of methomyl in rotational crops are available.

Data Gaps

All data specified in Section 163.62-11(b) are needed to determine whether methomyl will accumulate in rotational crops.

(B) Irrigated Crops 163.62-11(c)

A crop residue accumulation study under actual field use conditions is required to support the registration of each formulated end-use product intended for aquatic food crop or aquatic noncrop uses, for uses in and around holding ponds, or for uses that involve effluents and other discharges which in turn are used to irrigate crops. Such a study is also required to support the registration of each manufacturing-use product which legally could be used to make such an end-use product.

No data are available on the accumulation of methomyl in irrigated crops.

No data are required on the accumulation of methomyl in irrigated crops because the use pattern indicates that methomyl would not be used on irrigated crops.

(C) Fish 163.62-11(d)

(1) A fish accumulation study is required to support the registration of

each formulated end-use product intended for outdoor use (except domestic outdoor) or aquatic impact uses resulting in direct discharge into aquatic environments, and for each manufacturing-use product that legally could be used to produce such a product, except when the criteria below are satisfied.

- (2) Fish accumulation data will normally not be required in situations in which the registrant can offer evidence acceptable to the Agency showing that the applied pesticide and/or its principal degradation product(s):
 - (i) Will not reach water, or will not persist in water (i.e., a nominal half-life of 4 days or less); and
 - (ii) Has physical properties suggesting a relatively low potential for accumulation (i.e., a nominal octanol/water partition coefficient less than 1,000); or
 - (iii) Does not accumulate in the organs and tissues of mammals or avian species.
- (3) The Agency may consider the particular use pattern and the rate and frequency of application in making a decision to waive or maintain the data requirement (such as in cases where movement to water is obviously negligible or where frequent application counteracts a fast dissipation rate).

No data on the accumulation of methomyl in fish are available.

Data Gaps

All data specified in Section 163.62-11(d) are needed to determine if methomyl will accumulate in fish.

REENTRY 163.62-12

Reentry intervals are required to support the registration of all manufacturing-use and formulated end-use products intended for use where exposure of persons reentering treated sites may be expected.

Three studies concerning reentry intervals for methomyl were reviewed and all were considered valid.

A dust formulation is far more persistent on leaf surfaces than an aqueous solution of methomyl as shown on cotton leaves by Bull (MRID 05009351). An application of 50 µg/leaf of an aqueous solution of methomyl quickly penetrated cotton leaves; surface methomyl levels were less than 7% of the applied amount after 1 day and less than 2% after 2 days. However, after an application of a dust, methomyl levels on leaf surfaces were 86 and 81% of the applied after 1 and 2 days, respectively.

In another study, foliar applications of water soluble formulations at 0.5 lb ai/A were sprayed on bean, corn, and cabbage. Surface methomyl levels decreased 71-93% in 12 hours (Pease, MRID 00007684).

Peppermint fields were sampled after aerial applications of methomyl in Oregon. Kiigemagi and Deinzer (MRID 05018583) found that dislodgeable methomyl declined from 1.52 to 0.33 µg/cm² between 4 and 48 hours after an application at 0.9 lb ai/A. At 1.8 lb ai/A, dislodgeable methomyl declined from 2.30 to 0.63 µg/cm² over the same time interval.

Data Requirements

General

For each crop the registrant must propose an acceptable reentry interval; this proposed interval may be based on any of the following: (a) the longest (most restrictive) existing reentry intervals; (b) data on dissipation of foliar residues (decline curve), on human exposure to those residues, and on

the inherent toxicity of the chemical; (c) determination of that time beyond which there are no detectable foliar residues (under appropriate climatic conditions) in the area where the chemical will be applied.

Specific

- Either the longest (most restrictive) reentry interval is acceptable, or the exposure data and a dislodgeable residue curve, together with the inherent toxicity of the chemical, may be used to establish an appropriate interval for activities that result in foliar contact.

[The longest (most restrictive) reentry intervals will be listed by crop.].

Citrus, grapes, peaches, and nectarines. Either the 2-day reentry interval established (California, 1979) is acceptable, or exposure data and a dislodgeable residue decline curve may be used to establish an appropriate interval for activities that result in foliar contact with these crops.

Data Gaps

See general data requirements for the following crops: alfalfa, apples, asparagus, beans, broccoli, brussel sprouts, cabbage, carrots, cauliflower, celery, collards, corn, cotton, cucumbers, lettuce, melons, mint, onions, peanuts, peas, peppers, potatoes, sorghum, soybeans, summer squash, spinach, sugar beets, tobacco, tomatoes, forest trees, and ornamentals.

References

Bull, D.L. 1974. Fate of methomyl on cotton. Environ. Entomol. 3(4):723-724. (MRID 05009351)

California Administrative Code. January 4, 1979. Article 23, 2479(H).
Field Worker Safety. (No MRID)

Kiigemagi, U., and M.L. Deinzer. 1979 Dislodgeable and total residues of methomyl on mint foliage. Bull. Environ. Contam. Toxicol. 22(4/5): 517-521. (MRID 05018583)

Pease, H.L. 1971? Rapid loss of surface residues on methomyl on treated plants. Unpublished study received Sept. 2, 1972 under 2F1247, submitted by E.I. du Pont de Nemours & Company, Inc. Wilmington, DE. CDL:091771-E. (MRID 00007684)