

ENVIRONMENTAL FATE & GROUND WATER BRANCH
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY

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Common Name: **THIODICARB**

Date: 11/08/89

Chem. Name: N,N' [THIOBIS[(METHYLIMINO)CARBONLOXY]]-BIS-DIMETHYL ESTER

Shaugh. # 114501

CAS Number: 59669-26-0

Type Pest: Insecticide / ovicide

Formulation: FLOWABLE, WP

Uses: SWEET CORN

Empir. Form: $\text{C}_{10}\text{H}_{18}\text{N}_4\text{S}_2\text{O}_4$

Mol. Weight: 354.46

Solub.(ppm): 35 @ 20 C

VP (Torr): 4.3E 5

Log Kow: 0.22

Henry's:

Hydrolysis (161-1)

pH 5: []

pH 7: []

pH 9: [*] 22 HR

pH 3: [*] 206 HR

pH 6: [*] STABLE

pH: []

Photolysis (161-2 -3, -4)

Air: []

Soil: [*] 8 HRS LmSd; 21 DA TX SdLm

Water: [#] 81 DAYS, ARTIFICIAL LIGHT

: []

: []

: []

MOBILITY STUDIES (163-1)

Soil Partition (Kd)

1. [*] 1.34 CLAY LOAM = Kads

2. [*] 0.58 LOAMY SAND = "

3. [*] 1.22 SANDY LOAM = "

4. []

5. []

6. []

Rf Factors

1. [] SEE COMMENTS

2. []

3. []

4. []

5. []

6. []

METABOLISM STUDIES (162-1,2,3,4)

Aerobic Soil (162-1)

1. [*] 1 WEEK

2. []

3. []

4. []

5. []

6. []

7. []

Anaerobic Soil (162-2)

1. [*] 1 WEEK

2. []

3. []

4. []

5. []

6. []

7. []

Aerobic Aquatic (162-4)

1. []

2. []

3. []

4. []

Anaerobic Aquatic (162-3)

1. []

2. []

3. []

4. []

[*] Acceptable Study. [#] = Supplemental Study

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VOLATILITY STUDIES (163-2,3)

- ☐ Laboratory:
☐ Field:

DISSIPATION STUDIES (164-1,2,3,5)

Terrestrial Field (164-1)

- 1.[*] IN FINE SANDY LOAM (CA) WITH 204 MM RAINFALL, $T_{1/2}$ =6 DAYS.
- 2.[*] IN SANDY LOAM (NC) WITH 475 MM RAINFALL, $T_{1/2}$ = 3 DAYS.
- 3.[*] IN SILTYCLAY LOAM (MISS) WITH 469 MM RAINFALL, $T_{1/2}$ = 8 DAYS
- 4.[]
- 5.[]
- 6.[]

Aquatic (164-2)

- 1.[]
- 2.[]
- 3.[]
- 4.[]
- 5.[]
- 6.[]

Forestry (164-3)

- 1.[]
- 2.[]

Other (164-5)

- 1.[]
- 2.[]

ACCUMULATION STUDIES (165-1,2,3,4,5)

Confined Rotational Crops (165-1)

- 1.[]
- 2.[]

Field Rotational Crops (165-2)

- 1.[*] RESIDUES WOULD NOT BE EXPECTED IN FOLLOW CROPS
- 2.[] EVEN IF PLANTED 30 DAYS AFTER LAST TREATMENT.

Irrigated Crops (165-3)

- 1.[]
- 2.[]

Fish (165-4)

- 1.[#] CATFISH BCF= 13.7 X; BLUEGILL BCF = 5 X
- 2.[]

Non Target Organisms (165-5)

- 1.[]
- 2.[]

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GROUND WATER STUDIES (158.75)

1. [*] THIODICARB=NONE. METHOMYL = TRACE UP TO 20 PPB
2. []
3. []

DEGRADATION PRODUCTS

1. METHOMYL IS PRINCIPAL DEGRADATE IN PHOTO., SOIL, AND HYDROLYSIS.
2. UNDER AEROBIC CONDITIONS METHOMYL GIVES CO₂; ANAEROBICALLY, IT
3. PRODUCES ACETONITRILE.
4. OTHER DEGRADATES: METHOMYL SULFOXIDE, METHOMYL OXIME, MONO
5. SULFOXIDE METHOMYL SULFOXIDE OXIME, METHOMYL METHYLOL
- 6.
7. SOIL DEGRADATES HAVE HIGH POTENTIAL TO LEACH.
- 8.
- 9.
- 10.

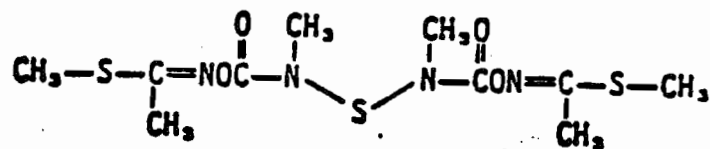
COMMENTS

LEACHING DATA:						Rf		
Sd	Si	Cl	pH	%OM	STATE THIODI.	METH.	OXIME	METHOMYL
25	42	33	8.1	1.3	CA .12	.86		.64
83	15	2	5.8	0.8	NC .21	.89		.77
65	17	18	7.8	1.0	TX .12	.93		.79
38	42	20	5.4	1.3	OH .08	.88		.73

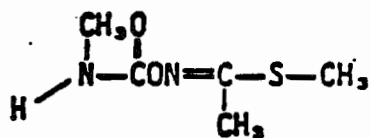
SOIL Koc = 300 (ESTIMATE)

References FARM CHEMICALS HANDBOOK; EPA REVIEWS

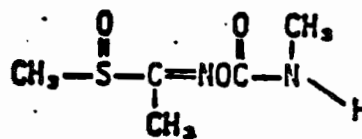
Writer : J. HANNAN



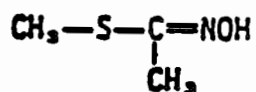
Thiodicarb



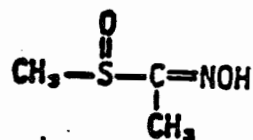
Methomyl



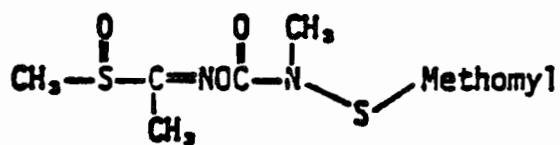
Methomyl Sulfoxide



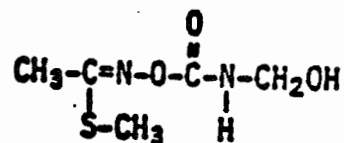
Methomyl oxime



Methomyl Sulfoxide Oxime



Monosulfoxide



Methomyl methylol

FIG. 2 Thiodicarb and its major degradation products.

where oxime
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