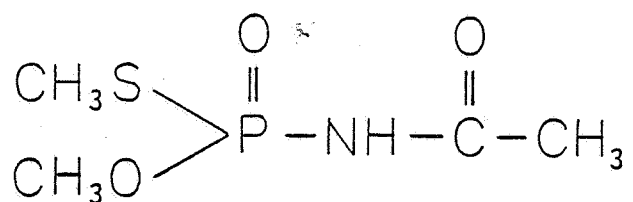


US EPA ARCHIVE DOCUMENT

6-22-89



ENVIRONMENT  
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY

Common Name: **ACEPHATE** Date: 06/22/89  
 Chem. Name O,S-DIMETHYLACETYLPHOSPHOROAMIDOTHIOATE  
 Shaugh. # 103301 CAS Number: 30560-19-1  
 Type Pest. Insecticide  
 Formulation: 75% WP  
 Uses : COTTON/TOBACCO/ORNAMENTALS/FOREST/LAWNS/DOMESTIC

Empir. Form. C<sub>4</sub>H<sub>10</sub>NO<sub>3</sub>PS VP (Torr) 1.7E 6  
 Mol. Weight. 183.16<sup>3</sup> Log Kow  
 Solub. (ppm) 650000 @ 20 C Henry s

Hydrolysis (161 1)	Photolysis (161-2, -3, 4)
pH 5: [*] 55 DAYS 21 C	Air [*] >4 WKS IN UV
pH 7: [*] 46 DAYS 21 C	Soil [ ]
pH 9 [*] 16 DAYS 21 C	Water [*] pH 8 27 C = 55 HRS IN UV
pH : [ ]	[*] pH 5, 40 C = 4.5 WKS IN UV
pH : [ ]	[*] pH 7, 40 C = 2.5 WKS IN UV
pH : [ ]	[ ]

**MOBILITY STUDIES (163-1)**

Soil Partition (Kd)	Rf Factors
1. [ ] MOBILE IN SOILS RANGING FROM	1. [ ] .53 Cl pH7.1 4.3%CM
2. [ ] LmSd TO Cl TO MUCK.	2. [ ] .56 SiCl pH5.6 2.4%CM
3. [ ]	3. [ ] .64 SiCL pH6.2 4.1%CM
4. [ ]	4. [ ] .86 Lo pH5.7 1.3%CM
5. [ ]	5. [ ] 1.0 LmSa pH5.4 2.5%CM
6. [ ]	6. [ ]

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

<b>Aerobic Soil (162-1)</b>	<b>Anaerobic Soil (162-2)</b>
1. [*] 3 DAYS IN CLAY	1. [*] 6 DAYS LmSa
2. [*] 3 DAYS IN LOAM	2. [*] 4 DAYS Lm
3. [*] 3 DAYS IN SANDY CLAY	3. [ ]
4. [ ]	4. [ ]
5. [*] 3 DAYS IN SILTY CLAY	5. [ ]
6. [*] 13 DAYS IN MUCK	6. [ ]
7. [*] 2 DAYS IN LOAM	7 [ ]

<b>Aerobic Aquatic (162 4)</b>	<b>Anaerobic Aquatic (162-3)</b>
1. [*] SdClLm, pH 6.5 48 DAYS	1. [ ]
2. [*] CLAY pH 8.0, 25 DAYS	2. [ ]
3. [*] BUFFER, pH 7 55 DAYS	3. [ ]
4. [ ]	4. [ ]

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

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Common Name: **ACEPHATE**

Date: 06/22/89

**VOLATILITY STUDIES (163-2,3)**

- Laboratory.
- Field:

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

Terrestrial Field (164-1)

1. [\*] T 1/2 IN 3 TESTS IN UPPER 5 CM OF SOIL;
2. [ ] SILT LOAM IN MISSISSIPPI = 1.72 DAYS
3. [ ] SILT LOAM IN CALIFORNIA = 1.65 DAYS
4. [ ] LOAM IN ICWA = 1.96 DAYS
5. [\*] AVERAGE ACEPHATE IN SOIL AT DEPTHS BELOW 10 CM = <.02 PPM
6. [ ]

Aquatic (164-2)

1. [ ] DEGRADATION IN NATURAL WATERS IS SLOW IN THE ABSENCE OF SEDI
2. [ ] MENTS, 80% REMAINED IN POND WATER AFTER 42DAYS (9 C) AND
3. [ ] 45% IN CREEK WATER AFTER 50 DAYS. DEGRADATION RATE IS MORE
4. [ ] THAN DOUBLED IN PRESENCE OF SEDIMENTS. ACEPHATE DEGRADATION
5. [ ] IS MORE RAPID AT NEUTRAL AND ALKALINE pH MAY BE ENHANCED
6. [ ] BY MICROBES AND UV.

Forestry (164-3)

1. [\*] AT 0.5 LB AIA HAD NO EFFECT ON POP.SI#E OR DISTR. OF FOREST
2. [ ] SOIL MICROORGANISMS. LEVELS DECLINE TO <0.02PPM IN <2 MOS.

Other (164-5)

1. [ ]
2. [ ]

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

Confined Rotational Crops (165-1)

1. [\*] CARROTS HAVE <.008 PPM ROTATED IN SdLm SOIL. C14
2. [ ] LEVELS IN SOIL DECLINED TO 20% OF APPL. IN 14 DAYS

Field Rotational Crops (165-2)

1. [ ]
2. [ ]

Irrigated Crops (165-3)

1. [ ]
2. [ ]

Fish (165-4)

1. [ ] BLUEGILL SUNFISH 10x WHOLE FISH
2. [ ] DAPHNIA MAGNA 3X

Non Target Organisms (165-5)

1. [\*] AT 20 PPM DID NOT AFFECT BACTERIA OR FUNGI IN SOIL
2. [\*] DID NOT ACCUMULATE IN MARINE DIATOM CYLINDR.FUSIF.

Common Name. **ACEPHATE**

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**GROUND WATER STUDIES (158.75)**

1. [ ] NONE DETECTED
2. [ ]
3. [ ]

**DEGRADATION PRODUCTS**

1. METHAMIDOPHOS (PRINCIPAL FACTOR T 1/2 = 3 DAYS IN TOP 5 CM)
2. O METHYL-N ACETYLPHOSPHOAMIDATE ANION
3. O,S-DIMETHYLPHOSPHOROAMIDOTHIOATE
4. S METHYL ACETYLPHOSPHOROAMIDOTHIOATE
5. CO2 MAJOR PRODUCT IN BOTH AEROBIC AND ANAEROBIC SOILS.
- 6.
- 7.
- 8.
- 9.
- 10.

**COMMENTS**

BACTERIA IN SOIL AND SEWAGE CAN USE ACEPHATE AS THE SOLE SOURCE OF PHOSPHATE.

ACEPHATE DECLINED RAPIDLY FROM COTTON LEAF SURFACES FOLLOWING A SINGLE FOLIAR APPL ; 2% REMAINED AFTER 96 HOURS.

ACEPHATE IN LEACHATES FROM SdCLm AND CLAY SOILS HAD HALF-LIVES OF 48 AND 25 DAYS IN THE PRESENCE OF SEDIMENTS THE DEGRADATION IS MUCH FASTER.

AGED ACEPHATE RESIDUES ARE NOT MOBILE IN SANDY LOAM SOIL.

References REG-STD-, FARM CHEMICALS HANDBOOK, EAB FILES

Writer . KEW J. HANNAN