Environmental Fate & Effects Division
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY
METHAMIDOPHOS
Last Update on October 30, 1998
[V] = Validated Study [S] = Supplemental Study [U] = USDA Data

LOGOUT	Reviewer: SKS	Section Head:	Date:

Common Name:METHAMIDOPHOS
Smiles Code:S(P(=O)(N)OC)C
PC Code # :101201 CAS #:10265-92-6 Caswell #:

Chem. Name :O,S-DIMETHYLPHOSPHORAMIDOTHIOATE

Action Type:Insecticide

Trade Names:MONITOR
(Formul'tn):4EC
Physical State: Clear, colorless liquid (MRID 43661003)

Use :POTATOES; COTTON; TOMATOES (24 C's only)
Patterns :Restricted Use chemical
(% Usage) :
:

Empirical Form: $C_2H_8NPO_2S$
Molecular Wgt.: 141.12 Vapor Pressure: 1.75E -5 Torr
Melting Point : N/A °C Boiling Point: 150 (dec°C
Log Kow : -0.796 pKa: @ °C
Henry's : E Atm. M3/Mol (Measured) 1.62E-11 (calc'd)

Solubility in ...						Comments
Water	2.00E	5	ppm	@	°C	MRID 43661003
Acetone	2.00E	5	ppm	@	°C	" "
Acetonitrile	E		ppm	@	°C	
Benzene	E		ppm	@	°C	
Chloroform	E		ppm	@	°C	
Ethanol	E		ppm	@	°C	
Methanol	E		ppm	@	°C	?
Toluene	2.00E	3	ppm	@	°C	MRID 43661003
Xylene	E		ppm	@	°C	
2-Propanol	2.00E	5	ppm	@	°C	MRID 43661003
n-Hexane	1.00E	3	ppm	@	°C	" "

Hydrolysis (161-1)
[V] pH 5.0:309 DAYS (<10% in 30 days) - MRID 00150609
[V] pH 7.0: 27 DAYS - " "
[V] pH 9.0:3.2 DAYS - " "
[ ] pH :
[ ] pH :
[ ] pH :

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Photolysis (161-2, -3, -4)
[V] Water:90 days at pH 5 in natural sunlight (dark-control-corrected
[ ] : T1/2 200.5 days) - MRID 00150610
[ ] :
[ ] :

[S] Soil :40 hours/ Hg lamp (MRID 00150611)
[S] Air :<.007 MCG/M3 (not acceptable)

Aerobic Soil Metabolism (162-1)
[S] 1.9 DAYS IN SILT
[S] 4.8 DAYS IN LOAM
[S] 6.1 DAYS IN SAND
[S] 10-12 DAYS IN SANDY LOAM
[S] 14 hours in sandy loam soil (MRID 41372201)
[ ]
[ ]

Anaerobic Soil Metabolism (162-2)
[ ] 8% OF C14 APPLIED TO SOIL
[ ] @37 C DISSIPATED IN VOLATILE
[ ] FORM IN 3 DA
[ ]
[ ]
[ ]
[ ]

Anaerobic Aquatic Metabolism (162-3)
[S] DT50 41 days - MRID 43541202
[ ]
[ ]
[ ]
[ ]
[ ]
[ ]

Aerobic Aquatic Metabolism (162-4)
[ ]
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Soil Partition Coefficient (Kd) (163-1)

	Sd	Si	Cl	%OM	pH	Kd	1/n	r2	
[S]	38	30	32	3.3	5.8	0.029	0.64	0.93	(MRID 40504811)

[ ]
[ ]
[ ]
[ ]

Soil Rf Factors (163-1)
[ ] All Rfs in 6 soils >0.9 (00029887)
[ ]
[ ]
[ ]
[ ]
[ ]

Laboratory Volatility (163-2)
[V] AVG RATE = 1.8E-3 MCG/CM2/HR AND AVG AIR CONC WAS 58 MCG/M3
[ ]

Field Volatility (163-3)
[ ]
[ ]

Terrestrial Field Dissipation (164-1)
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Aquatic Dissipation (164-2)
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Forestry Dissipation (164-3)
[ ]
[ ]

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Long-Term Soil Dissipation (164-5)
[ ]
[ ]

Accumulation in Rotational Crops, Confined (165-1)
[S] MONITOR IS NOT TAKEN UP BY A ROTATIONAL CROP
[ ] PLANTED 30 DAYS AFTER LAST APPLICATION

Accumulation in Rotational Crops, Field (165-2)
[ ] REGARDLESS OF APPL. OR PLANTING DATE, LEVELS IN
[ ] CROPS <0.03 PPM 32 DAYS AFTER APPL. SOIL =0.7 PPM

Accumulation in Irrigated Crops (165-3)
[ ]
[ ]

Bioaccumulation in Fish (165-4)
[V] MAX BIOACCUM FACTOR IN 28 DA STUDY = 0.09 X; ALSO THERE IS
[ ] RAPID DEPURATION (MRID 00014015)

Bioaccumulation in Non-Target Organisms (165-5)
[S] BIOACCUM. IN DIATOM (MRID 00014496) AND IN DAPHNIA (MRID 00015242
[ ] < 2 X

Ground Water Monitoring, Prospective (166-1)
[ ]
[ ]
[ ]
[ ]

Ground Water Monitoring, Small Scale Retrospective (166-2)
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[ ]
[ ]
[ ]

Ground Water Monitoring, Large Scale Retrospective (166-3)
[ ]
[ ]
[ ]
[ ]

Ground Water Monitoring, Miscellaneous Data (158.75)
[ ]
[ ]
[ ]

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Field Runoff (167-1)
[ ]
[ ]
[ ]
[ ]

Surface Water Monitoring (167-2)
[ ]
[ ]
[ ]
[ ]

Spray Drift, Droplet Spectrum (201-1)
[ ] Registrant is member of SDTF
[ ]
[ ]
[ ]

Spray Drift, Field Evaluation (202-1)
[ ]
[ ]
[ ]
[ ]

Degradation Products

Methanol (NB. *designates major degradates)
Methylmercaptan
O-Methylphosphoric acid
S-methyl phosphorothioate
Ammonia
Dimethyl disulfide (hydrolysis at pH 7)
*Desmethylmethamidophos (hydrolysis at pH 9, photolysis)
Deaminated methamidophos (photolysis, <3% in hydrol. @pH5,7,9
*O,S-Dimethylphosphorothioate and S-methyl Phosphoroamidothioate
O-methyl phosphoroamidate and O-methyl phosphoric ac. (aer. soil)

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Comments

Methamidophos appl to soil at max recommend. rates would not be expected to be detected in grain, pod veg, or root crops planted 30 or more days after the application.
High mobility in soil tends to be offset by rapid degradation.
No long term adverse effects on soil organisms, incl N2 fixers.

Soil Koc = 3.

Solubility in dichloromethane and dimethylformamide both > 200 g/L

References: FARM CHEMICALS HANDBOOK; EPA REVIEWS
Writer : PJH, SKS