

US EPA ARCHIVE DOCUMENT

Environmental Fate & Effects Division  
 PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY  
**ACETOCHLOR (ARP)**

Last Update on March 25, 1994

[V] = Validated Study    [S] = Supplemental Study    [U] = USDA Data

LOGOUT	Reviewer:	Section Head:	Date:
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Common Name: ACETOCHLOR (ARP)

Smiles Code:

PC Code # : 121601

CAS #: 34256-82-1

Caswell #:

Chem. Name : 2-CHLORO-N-(ETHOXYMETHYL)-N-(2-ETHYL-6-METHYL-PHENYL)-  
 ACETAMIDE

Action Type: HERBICIDE

Trade Names: HARNESS, TOPHAND, SURPASS

(Formul'tn): 7 EC

Physical State: STRAW-COLORED LIQUID

Use : CORN-100 %  
 Patterns :  
 (% Usage) :  
 :

Empirical Form:  $C_{14}H_{20}NO_2Cl$

Molecular Wgt.: 269.80

Vapor Pressure: 4.40E -5 Torr

Melting Point : °C

Boiling Point: °C

Log Kow : 3.0

pKa: @ °C

Henry's : E Atm. M3/Mol (Measured)

7.00E -8 (calc'd)

Solubility in ...

Comments

Water	2.23E 2	ppm	@20.0 °C
Acetone	E	ppm	@ °C
Acetonitrile	E	ppm	@ °C
Benzene	E	ppm	@ °C
Chloroform	E	ppm	@ °C
Ethanol	E	ppm	@ °C
Methanol	E	ppm	@ °C
Toluene	E	ppm	@ °C
Xylene	E	ppm	@ °C

Hydrolysis (161-1)

[V] pH 5.0: STABLE  
 [ ] pH 7.0: STABLE  
 [ ] pH 9.0: STABLE  
 [ ] pH :  
 [ ] pH :  
 [ ] pH :

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Photolysis (161-2, -3, -4)

[V] Water:STABLE

[ ] :  
[ ] :  
[ ] :

[V] Soil :STABLE

[ ] Air :

Aerobic Soil Metabolism (162-1)

[V] 14 DAYS IN SILTY CLAY LOAM (ICI)

[ ] 110 DAYS FOLLOWED BY 245 DAYS FOR SANDY LOAM (ICI)

[ ] 8-12 DAYS IN RAY, DRUMMER, AND SPINKS SOILS (MON)

[ ]  
[ ]  
[ ]  
[ ]

Anaerobic Soil Metabolism (162-2)

[V] 230 DAYS IN SANDY LOAM SOIL. IDENTIFIED DEGRADATES WERE

[ ] OXANILIC ACID, SULFONIC ACID, AND N-(ETHOXYMETHYL)-N-(2-ETHYL-  
[ ] 6-METHYLPHENYL)ACETAMIDE. (ICI)

[V] 17-21 DAYS IN SANDY LOAM, SILT LOAM, AND SILTY CLAY LOAM.

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Anaerobic Aquatic Metabolism (162-3)

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Aerobic Aquatic Metabolism (162-4)

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Soil Partition Coefficient (Kd) (163-1)

[V]	TEXTURE	OM	pH	Kads	Koc	OX ACID	SULF ACID
[ ]	LILLY FIELD SD	0.77	5.4	1.9	428	0.55	0.30
[ ]	FRENHAM LM SD	1.90	6.3	0.81	74	0.19	0.23
[ ]	EAST JUBILEE SD LM	2.6	6.5	5.9	389	1.20	6.40
[ ]	OLD PADDOCK	5.4	6.8	7.5	239	0.77	1.60
[ ]	FRENCH A (CRS SD)	1.5	5.7	1.9	216	0.27	0.27

Soil Rf Factors (163-1)

[ ]	FRENCH B (SD LM)	8.0	5.3	20	422	0.91	1.10
[V]	MOBILITY INFORMATION FOR THIOACETIC ACID SULFOXIDE						
[ ]	FREUNDLICH Kads VALUES OF 0.1-0.4 FOR ABOVE SOILS.						
[ ]							
[ ]							
[ ]							

Laboratory Volatility (163-2)

[ ]  
[ ]

Field Volatility (163-3)

[ ]  
[ ]

Terrestrial Field Dissipation (164-1)

[V] 8-36 days at 5 sites in U.S. No leaching below 12 inches in  
[ ] 4 of the sites. The degradates oxanilic acid and sulfonic acid  
[ ] leached to 18 inches of depth in silt loam soil in Illinois.  
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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)

[V] CONCENTRATION IN CROPS WERE 0.09 PPM IN LETTUCE, 0.14-0.67 PPM  
[ ] IN RADISH, 0.05-2.88 PPM IN WHEAT.

Accumulation in Rotational Crops, Field (165-2)

[V] TOTAL RESIDUES WERE <DETECTION LIMIT (0.03 PPM). CONCENTRATIONS  
[ ] RANGED FROM 0.128 PPM TO 0.769 PPM IN SOYBEAN PARTS.

Accumulation in Irrigated Crops (165-3)

[ ]  
[ ]

Bioaccumulation in Fish (165-4)

[V] 40X, 780X, AND 150X FOR EDIBLE, NON-EDIBLE, AND WHOLE FISH,  
[ ] RESPECTIVELY. 66-98 % DEPURATION BY 28 DAYS.

Bioaccumulation in Non-Target Organisms (165-5)

[ ]  
[ ]

Ground Water Monitoring, Prospective (166-1)

[ ] 8 PROSPECTIVE STUDIES WILL BE CONDUCTED  
[ ] NO SITES SELECTED, NO PROTOCOLS SUBMITTED 3/21/94  
[ ]  
[ ]

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

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

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[ ]

Ground Water Monitoring, Miscellaneous Data (158.75)

[ ] STATES SPONSORED MONITORING REQUIRED IN 7 STATES,S  
[ ] AT 175 TOTAL SITES  
[ ]

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Field Runoff (167-1)

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Surface Water Monitoring (167-2)

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Spray Drift, Droplet Spectrum (201-1)

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Spray Drift, Field Evaluation (202-1)

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Degradation Products

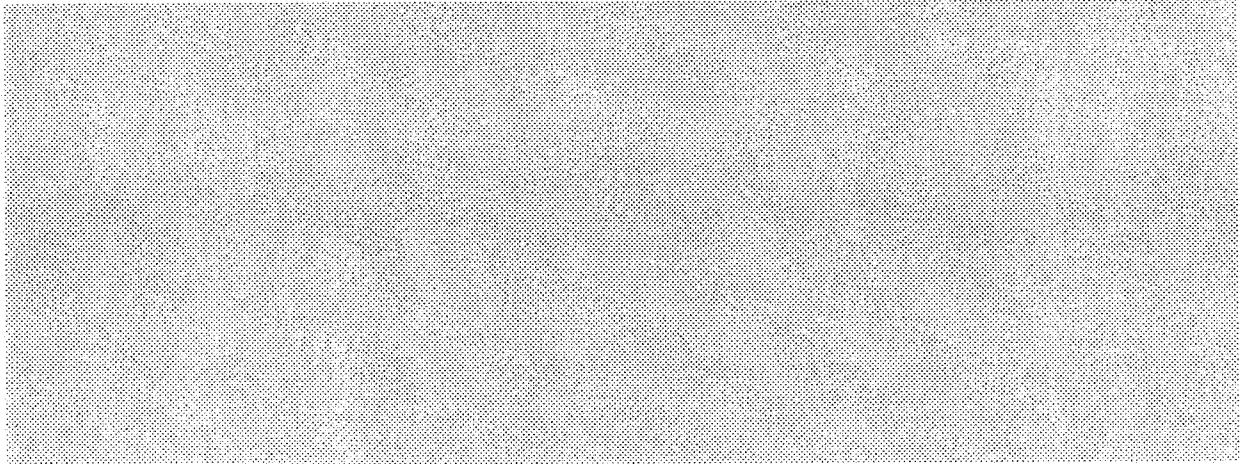
OXANILIC ACID  
SULFONIC ACID  
THIOACETIC ACID SULFOXIDE  
CO2  
OTHER MINOR PRODUCTS

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Comments



References:    EFGWB REVIEWS  
Writer        :    JAB

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**ACETOCHLOR (MON)**

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Common Name: ACETOCHLOR (MON)

Smiles Code:

PC Code # : 121601

CAS #: 34256-82-1

Caswell #:

Chem. Name : 2-CHLORO-N-(ETHOXYMETHYL)-N-(2-ETHYL-6-METHYL-PHENYL)-  
 ACETAMIDE

Action Type: Herbicide

Trade Names: HARNESS; MON-097

(Formul'tn): EC

Physical State:

Use : POSTEMERGENCE BROADLEAVED WEED CONTROL  
 Patterns :  
 (% Usage) :  
 :

Empirical Form:  $C_{14}H_{20}NO_2Cl$   
 Molecular Wgt.: 269.00      Vapor Pressure: E Torr  
 Melting Point : °C      Boiling Point: °C  
 Log Kow : 2.6      pKa: @ °C  
 Henry's : E Atm. M3/Mol (Measured)

Solubility in ...					Comments
Water	2.23E	2	ppm	@20.0 °C	
Acetone	E		ppm	@ °C	
Acetonitrile	E		ppm	@ °C	
Benzene	E		ppm	@ °C	
Chloroform	E		ppm	@ °C	
Ethanol	E		ppm	@ °C	
Methanol	E		ppm	@ °C	
Toluene	E		ppm	@ °C	
Xylene	E		ppm	@ °C	
	E		ppm	@ °C	
	E		ppm	@ °C	

Hydrolysis (161-1)  
 [V] pH 5.0: STABLE  
 [V] pH 7.0: STABLE  
 [V] pH 9.0: STABLE  
 [ ] pH :  
 [ ] pH :  
 [ ] pH :



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Photolysis (161-2, -3, -4)

[S] Water: "  
[ ] :  
[ ] :  
[ ] :

[S] Soil :INSIGNIFICANT  
[ ] Air :

Aerobic Soil Metabolism (162-1)

[V] RAY SOIL: 8 DAYS 22 C  
[V] DRUMMER SOIL: 10 DAYS "  
[V] SPINKS SOIL: 12 DAYS "  
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Anaerobic Soil Metabolism (162-2)

[ ] RAPID MICROBIAL DEGRADATION  
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Anaerobic Aquatic Metabolism (162-3)

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Aerobic Aquatic Metabolism (162-4)

[ ] 8-12 DA (SOIL?)  
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Soil Partition Coefficient (Kd) (163-1)

[V]	SOIL	%OM	Kd
[ ]	LINTONIA	0.7	.4
[ ]	RAY	1.2	1.1
[ ]	SPINKS	2.4	1.6
[ ]	DRUMMER	3.4	2.7
[ ]			

Soil Rf Factors (163-1)

[ ] DRUMMER SOIL RETAINED ABOUT  
[ ] 57% OF APPL. ACETOCHLOR WHILE  
[ ] LINTONIA RETAINED ONLY 4%.  
[ ]  
[ ]  
[ ]

Laboratory Volatility (163-2)

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Field Volatility (163-3)

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[ ]

Terrestrial Field Dissipation (164-1)

[ ]	% ACETOCHL. AND EXTRACT. IN SOIL, AEROBIC CONDITIONS AT 22 C						
[ ]	SOIL	DAYS	ACETOCHL. ORG. SOL.	WAT. SOL.	CO2	SOIL BOUND	
[ ]	RAY	0	91.1	97.1	0.8	0.0	1.5
[ ]	"	21	15.3	24.6	45.0	3.5	62.8
[ ]	DRUMMER	0	93.8	101.5	0.9	0.0	1.1
[ ]	"	21	19.8	33.8	37.5	3.2	41.4
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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)

[ ] DO NOT ROTATE  
[ ]

Accumulation in Rotational Crops, Field (165-2)

[ ]  
[ ]

Accumulation in Irrigated Crops (165-3)

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[ ]

Bioaccumulation in Fish (165-4)

[V] BLUEGILL SUNFISH 35X EDIBLE, 150X VISCERA, 84X WHOLE FISH.  
[ ] DEPURATION AT 14 DAYS =52%, 90%, 85% FOR EDIB., VISC., WHOLE

Bioaccumulation in Non-Target Organisms (165-5)

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Ground Water Monitoring, Prospective (166-1)

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

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

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Ground Water Monitoring, Miscellaneous Data (158.75)

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Field Runoff (167-1)

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Surface Water Monitoring (167-2)

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Spray Drift, Droplet Spectrum (201-1)

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Spray Drift, Field Evaluation (202-1)

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Degradation Products

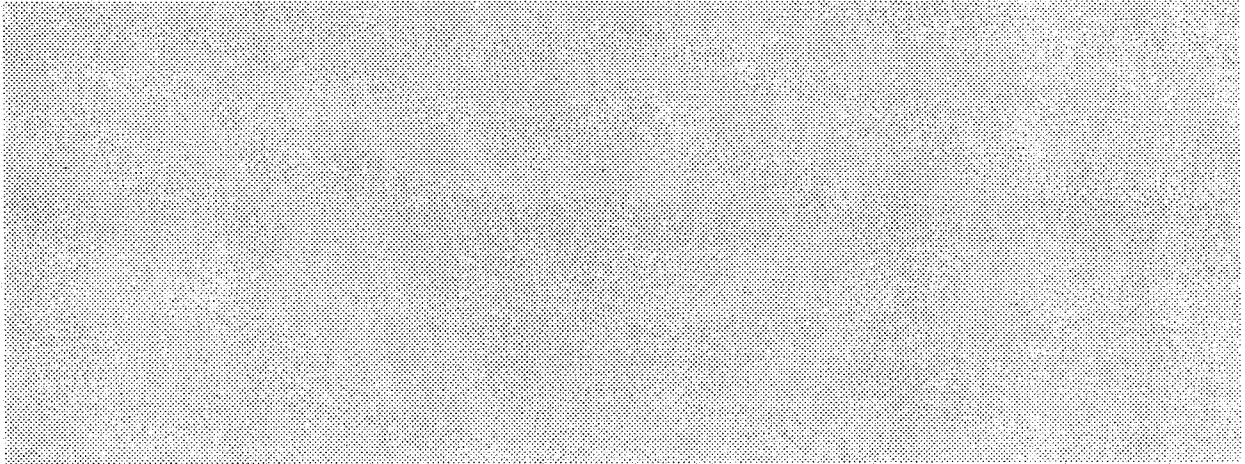
Multiple degradates. Of the three majors (derivatives of methyl oxanilic acid, sulfinylacetic acid, and sulfoacetanilide), none accounted for more than 18% of the Acetochlor applied.

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Comments



References:

Writer : PJH

Environmental Fate & Effects Division  
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY  
**ACETOCHLOR (ICI)**

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Common Name: ACETOCHLOR (ICI)

Smiles Code:

PC Code # : 121601

CAS #: 34256-82-1

Caswell #:

Chem. Name : 2-CHLORO-N-(ETHOXYMETHYL)-N-(2-ETHYL-6-METHYL-PHENYL)-  
                  ACETAMIDE

Action Type: HERBICIDE

Trade Names: ICIA5676

(Formul'tn):

Physical State: STRAW COLOURED LIQUID

Use : POSTEMERGENCE BROADLEAVED WEED CONTROL

Patterns :

(% Usage) :

:

Empirical Form: C<sub>14</sub>H<sub>20</sub>NO<sub>2</sub>Cl

Molecular Wgt.: 269.80

Vapor Pressure: 4.40E -5 Torr

Melting Point : °C

Boiling Point: °C

Log Kow : 3.0

pKa: @ °C

Henry's : E Atm. M3/Mol (Measured)

7.00E -8 (calc'd)

Solubility in ...

Comments

Water	2.23E	2	ppm	@20.0 °C	
Acetone	E		ppm	@ °C	
Acetonitrile	E		ppm	@ °C	
Benzene	E		ppm	@ °C	
Chloroform	E		ppm	@ °C	
Ethanol	E		ppm	@ °C	
Methanol	E		ppm	@ °C	
Toluene	E		ppm	@ °C	
Xylene	E		ppm	@ °C	
	E		ppm	@ °C	
	E		ppm	@ °C	

Hydrolysis (161-1)

[V] pH 5.0: STABLE

[V] pH 7.0: STABLE

[V] pH 9.0: STABLE

[ ] pH :

[ ] pH :

[ ] pH :

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Photolysis (161-2, -3, -4)

[V] Water:INSIGNIFICANT

[ ] :  
[ ] :  
[ ] :

[V] Soil :INSIGNIFICANT

[ ] Air :

Aerobic Soil Metabolism (162-1)

[S] SILTY CLAY LOAM:13.5 DAYS (3.2X rate) 55 DAYS (29X rate)

[ ] SANDY LOAM: 110 then 245 DAYS (7.5X rate)

[ ] SANDY LOAM: 300 DAYS (APPLIED 36X rate)

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Anaerobic Soil Metabolism (162-2)

[S] SANDY LOAM: RELATIVELY STABLE-230 DAYS

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Anaerobic Aquatic Metabolism (162-3)

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Aerobic Aquatic Metabolism (162-4)

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Soil Partition Coefficient (Kd) (163-1)

[V]	SOIL	%OM	Kd
[ ]	COARSE SAND	0.77	0.05 TO 0.026
[ ]	LOAMY SAND	1.9	0.53 TO 3.34
[ ]	SANDY LOAM	2.6	1.14 TO 3.02
[ ]	CLAY	5.4	3.77 TO 4.93
[ ]	SAND	1.5	0.93 TO 5.48

Soil Rf Factors (163-1)

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Laboratory Volatility (163-2)

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Field Volatility (163-3)

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[ ]

Terrestrial Field Dissipation (164-1)

[S] SILT LOAM SOIL: 36 DAYS FROM UPPER 3.5"  
[S] CLAY LOAM SOIL: 26 DAYS FROM UPPER 3.5"  
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Aquatic Dissipation (164-2)

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Forestry Dissipation (164-3)

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[ ]



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Long-Term Soil Dissipation (164-5)

[ ]  
[ ]

Accumulation in Rotational Crops, Confined (165-1)

[ ]  
[ ]

Accumulation in Rotational Crops, Field (165-2)

[ ]  
[ ]

Accumulation in Irrigated Crops (165-3)

[ ]  
[ ]

Bioaccumulation in Fish (165-4)

[S] BIOCONCENTRATION FACTORS: 40 FOR EDIBLE; 780X FOR NONEDIBLE  
[ ] 150X FOR WHOLE FISH - 2 TO 33% AT 28 DAY DEPURATION REMAINED

Bioaccumulation in Non-Target Organisms (165-5)

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

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

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

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Ground Water Monitoring, Miscellaneous Data (158.75)

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[ ]  
[ ]  
[ ]  
[ ]

Surface Water Monitoring (167-2)

[ ]  
[ ]  
[ ]  
[ ]

Spray Drift, Droplet Spectrum (201-1)

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Spray Drift, Field Evaluation (202-1)

[ ]  
[ ]  
[ ]  
[ ]

Degradation Products

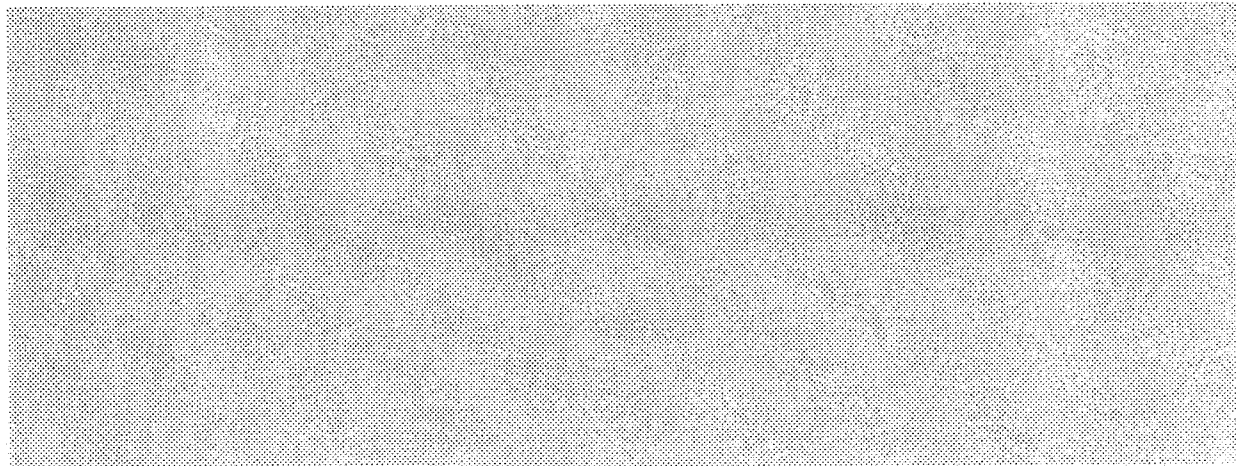
MULTIPLE DEGRADATES. MAJOR DEGRADATES WERE METHYL OXANILIC ACID,  
SULFINYLACETIC ACID, AND SULFOACETANILIDE

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Comments



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Writer : WGM