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

Common Name: **2,4-D** Date: 06/22/89
Chem. Name : (2,4-DICHLOROPHENOXY)ACETIC ACID
:
Synonym : AGROTECT AMOXONE; AQUA-KLEEN; CHLOROXONE
Shaugh. # : 30001 CAS Number: 94-75-7
Type Pest. : Herbicide
Formulation: G; P/T, EC; InEC; SC/L; RTU
Uses : TERRESTRIAL FOOD- AND NON-FOOD CROPS; AQUATIC FOOD- AND NON
: FOOD CROPS; FORESTRY SITES
:

Empir. Form: $C_8H_6Cl_2O_3$ VP (Torr):
Mol. Weight: 211.03 Log Kow : .27
Solub.(ppm): 9000 @ 20 C Henry's :

Hydrolysis (161-1)
pH 5:[ ] <30d (25 C)
pH 7:[ ] <16d (25 C)
pH 9:[ ]
pH 6:[#] 2-OCTYL ESTER 1500 DAYS
pH 9:[#] 2-OCTYL ESTER 37 HOURS
pH :[ ]

Photolysis (161-2, -3, -4)
Air :[ ]
Soil :[#] >30 DAYS ON LOAM SOIL
Water:[#] BUTOXYETHANOL ESTER (BEE)
:[ ] T1/2= 12 DAYS
:[ ]
:[ ]

MOBILITY STUDIES (163-1)

Soil Partition (Kd)
1.[*] 0.99 Lm pH5.9 10.5%OM
2.[*] 0.45 Lm pH6.5 6.5%OM
3.[*] 0.19 Cl pH7.7 4.1%OM
4.[*] 13.0 Lm pH7.8 4.1%OM
5.[*] 0.0 SaLm pH7.5 1.8%OM
6.[ ]

Rf Factors
1.[*] SAND 1.00
2.[*] SANDY LOAM 0.77
3.[*] SILT LOAM 0.60
4.[*] LOAM 0.41
5.[ ]
6.[ ]

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

Aerobic Soil (162-1)
1.[*] <8 DAYS IN 6 SOILS RANGING IN
2.[ ] TEXTURE FROM SANDY LOAM TO
3.[ ] CLAY, AT 25 C AND AT 75% OF
4.[ ] 0.3 BAR MOISTURE; AT DAY 51 IN
5.[ ] LOAM AND SILTY CLAY LOAM, LESS
6.[ ] THAN 2.5% REMAINED.
7.[ ]

Anaerobic Soil (162-2)
1.[ ]
2.[ ]
3.[ ]
4.[ ]
5.[ ]
6.[ ]
7.[ ]

Aerobic Aquatic (162-4)
1.[#] BEE ESTER, ADDED TO LAKES AT
2.[ ] 11-45KG/HA, REACHED MAX WATER
3.[ ] CONC IN 11 DAYS POSTTREATMENT,
4.[ ] THEN T1/2=<3 DAYS

Anaerobic Aquatic (162-3)
1.[ ]
2.[ ]
3.[ ]
4.[ ]

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

Common Name: **2,4-D** Date: 06/22/89

VOLATILITY STUDIES (163-2,3)

[ ] Laboratory.
[ ] Field:

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

Terrestrial Field (164-1)
1.[*] IN AEROBIC SILTY CLAY AND LOAM SOIL SYSTEMS, ONLY 1.9-2.2%
2.[ ] OF APPL. 2,4-D REMAINED AT 51 DAYS POSTTREATMENT.
3.[ ]
4.[ ]
5.[ ]
6.[ ]

Aquatic (164-2)
1.[*] AT ADDNS. OF 2,4,8 LBS DMA SALT/ACRE, DMA RESIDUES IN SEDI-
2.[ ] MENT SAMPLES REACHED MAX ABOUT .01,.02, AND .10 PPM BY 7 DAY
3.[ ] POSTTREATMENT; DECLINED TO < .005PPM BY 14-56 DAYS.
4.[ ]
5.[ ]
6.[ ] (N.B. DMA = DIMETHYLAMINE)

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.[ ]
2.[ ]

Irrigated Crops (165-3)
1.[ ]
2.[ ]

Fish (165-4)
1.[#] AFTER 84 DAYS AT .5PPM DMA SALT, MUSCLE TISSUE HAD 220X FOR
2.[ ] CHANNEL CATFISH AND 1028X FOR BLUEGILL SUNFISH.

Non-Target Organisms (165-5)
1.[ ]
2.[ ]

Common Name: **2,4-D** Date: 06/22/89

GROUND WATER STUDIES (158.75)

1.[ ] DETECTED IN 100 OUT OF AT LEAST 1700 GROUNDWATER SAMPLES;
2.[ ] MOST INSTANCES ASSOCIATED WITH POINT SOURCES. HIGHEST NON-
3.[ ] POINT SOURCE WAS 4.2 PPB.

DEGRADATION PRODUCTS

1. CO2 = MAJOR DEGRADATE
2. IN AQUATIC SYSTEMS: 2,4-DICHLOROPHENOL, PHENOL, AND DIMETHYL-
3. NITROSAMINE.
4.
5.
6.
7.
8.
9.
10.

COMMENTS

30-DAY AGED SOIL DEGRADATES APPEAR BOUND TO ORGANIC FRACTIONS AND REMAIN IN THE UPPER 2" OF A SOIL COLUMN.

IN PONDS AND RESERVOIRS 2,4-D RESIDUES WERE DETECTED (TO .11 PP AS MUCH AS 6 MONTHS POSTTREATMENT.

* Kads RANGES FROM .291 IN SAND SOIL TO 12.7 IN SANDY LOAM SOIL.
* Kdes " " .819 " " " " 13.3 " " " "

References: WSSA 83, EAB FILES
Writer : PBO J. HANNAN