

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

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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<sup>2</sup> Log Kow : .27  
Solub.(ppm): 9000 @ 20 C Henry's :

Hydrolysis (161-1) Photolysis (161-2, -3, -4)  
pH 5:[ ] <30d (25 C) Air :[ ]  
pH 7:[ ] <16d (25 C) Soil :[#] >30 DAYS ON LOAM SOIL  
pH 9:[ ] Water:[#] BUTOXYETHANOL ESTER (BEE)  
pH 6:[#] 2-OCTYL ESTER 1500 DAYS :[ ] T1/2= 12 DAYS  
pH 9:[#] 2-OCTYL ESTER 37 HOURS :[ ]  
pH :[ ] :[ ]

**MOBILITY STUDIES (163-1)**

Soil Partition (Kd)	Rf Factors
1.[*] 0.99 Lm pH5.9 10.5%OM	1.[*] SAND 1.00
2.[*] 0.45 Lm pH6.5 6.5%OM	2.[*] SANDY LOAM 0.77
3.[*] 0.19 Cl pH7.7 4.1%OM	3.[*] SILT LOAM 0.60
4.[*] 13.0 Lm pH7.8 4.1%OM	4.[*] LOAM 0.41
5.[*] 0.0 SaLm pH7.5 1.8%OM	5.[ ]
6.[ ]	6.[ ]

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

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

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

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**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

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