

US EPA ARCHIVE DOCUMENT

Environmental Fate & Effects Division  
PESTICIDE ENVIRONMENTAL FATE ONE LINE SUMMARY  
DIFENZOQUAT

Last Update on September 7, 1993

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

LOGOUT	Reviewer:	Section Head:	Date:
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Common Name: DIFENZOQUAT

Smiles Code:

PC Code # :106401

CAS #:43222-48-6

Caswell #:

Chem. Name :1,2-DIMETHYL-3,5-DIPHENYL-1H-PYRAZOLIUM METHYLSULFATE

Action Type:Herbicide

Trade Names:AVENGE

(Formul'tn): LIQUID; SOLUBLE POWDER

Physical State:

Use : POSTEMERGENCE; FOR CONTROL OF WILD OATS IN BARLEY AND WHEAT  
Patterns :  
(% Usage) :  
:

Empirical Form: C<sub>17</sub>H<sub>17</sub>N<sub>2</sub> (C<sub>18</sub>H<sub>20</sub>N<sub>2</sub>O<sub>4</sub>S)  
Molecular Wgt.: 249.00 Vapor Pressure: 9.06E -8 Torr  
Melting Point : 156.5-158 °C Boiling Point: °C  
Log Kow : -0.32 to .64 pKa: @ °C  
Henry's : E Atm. M3/Mol (Measured) 3.88E-14 (calc'd)

Solubility in ...

Solvent	Value	Units	Temp
Water	7.65E 5	ppm	@20.0 °C
Acetone	9.75E 3	ppm	@20.0 °C
Acetonitrile	E	ppm	@ °C
Benzene	E	ppm	@ °C
Chloroform	E	ppm	@ °C
Ethanol	E	ppm	@ °C
Methanol	5.88E 5	ppm	@20.0 °C
Toluene	E	ppm	@ °C
Xylene	E	ppm	@ °C
	E	ppm	@ °C
	E	ppm	@ °C

Comments

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:STABLE  
[ ] :  
[ ] :  
[ ] :

[V] Soil :STABLE  
[ ] Air :

Aerobic Soil Metabolism (162-1)

[V] STABLE  
[ ]  
[ ]  
[ ]  
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[ ]

Anaerobic Soil Metabolism (162-2)

[V] STABLE  
[ ]  
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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] IMMOBILE
- [V] IMMOBILE. ADSORPT.PORZION IS
- [ ] ACCEPTABLE;DESORPT.UNACCEPT.
- [ ] Kd: 124, 123, 471, 685 FOR SaLo,
- [ ] SaClLo, SiLo, ClLo
- [S] IN COLUMNS, 96% OF APPLIED RADIOACTIVITY REMAINED IN TOP 3.5".

Soil Rf Factors (163-1)

- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

Laboratory Volatility (163-2)

- [S] PARENT COMPD IS NOT VOLATILE, BUT DEMETHYLATED DEGRADATE IS.
- [ ]

Field Volatility (163-3)

- [ ]
- [ ]

Terrestrial Field Dissipation (164-1)

- [S] SaLo 7-28d (California)
- [S] SaClLo 78-110d (Oregon)
- [S] ClLo 7-14d (Montana)
- [S] SaLo 14-18d (Montana) bare ground
- [S] SiLo 14-30d (South Dakota)
- [S] SaLo 14-28d (Minnesota)
- [S] SaLo 86-180d (Minnesota)
- [ ] All the field dissipation studies were not sampled deep enough
- [ ] to define the extent of leaching.
- [ ]

Aquatic Dissipation (164-2)

- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

Forestry Dissipation (164-3)

- [ ]
- [ ]

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Long-Term Soil Dissipation (164-5)

[ ]  
[ ]

Accumulation in Rotational Crops, Confined (165-1)

[S] LITTLE DIFENZOQUAT TAKEN UP BY BARLEY OR RED BEETS  
[ ] AS FOLLOW CROPS AFTER FIELD WEATHERING 1 YEAR.

Accumulation in Rotational Crops, Field (165-2)

[ ]  
[ ]

Accumulation in Irrigated Crops (165-3)

[ ]  
[ ]

Bioaccumulation in Fish (165-4)

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[ ]

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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[ ]  
[ ]  
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Degradation Products

N-methyl-3,5-diphenyl pyrazole (formed by photolysis)  
Azomethane  
1,2-diphenyl cyclopropene

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Comments

Attempts to isolate bacteria of fungi that could use difenzoquat as a source of carbon were negative.  
Conflicting data on photolysis; in pond water under artificial light for 19 days, 70% of parent compd remained but another reference cites rapid degradation in pond water under natural sunlight, less than 3 days.

References: EFGWB screen  
Writer : PJH, RJM