

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

Last Update on August 5, 1991

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

Common Name: TRIFLURALIN

PC Code # : 36101

CAS #: 1582-09-8

Caswell #:

Chem. Name :  $\alpha, \alpha, \alpha$ -TRIFLUORO-2,6-DINITRO-N,N-DIPROPYL-p-TOLUIDINE

Action Type: Herbicide

Trade Names: TREFLAN

(Formul'tn): WP; EC; PrD

Physical State:

Use : IN ALFALFA, CONTROL BARNYARDGRASS, CRABGRASS, FOXTAIL;  
Patterns : TERRESTRIAL NONFOOD; TERR. NONCROP  
(% Usage) :  
:

Empirical Form:  $C_{13}H_{16}F_3N_3O_4$

Molecular Wgt.: 335.28

Vapor Pressure:  $1.10E-4$  Torr

Melting Point : °C

Boiling Point: °C

Log Kow : 5.07

pKa: @ °C

Henry's :  $1.62E-4$  Atm. M3/Mol (Measured)  $1.62E-4$  (calc'd)

Solubility in ...

Comments

Water	0.30E	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

[V] pH 3.0: STABLE

[ ] pH :

[ ] pH :

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

[V] Water:8.9 HOURS IN pH 7 BUFFERED SOLUTION

[ ] :  
[ ] :  
[ ] :

[V] Soil :41 DAYS ON SANDY LOAM

[S] Air :8-12 HRS IN ARTIF. SUN

Aerobic Soil Metabolism (162-1)

[S] 115 DAYS ON LOAM SOIL

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Anaerobic Soil Metabolism (162-2)

[S] 25-29 DAYS ON SANDY LOAM, LOAM, AND 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] Kads = 18 TO 19 FOR SAND SOIL  
[V] Kads = 52.5 TO 56.3 FOR SANDY LOAM SOIL  
[V] Kads = 81.8 TO 98.8 FOR LOAM SOIL  
[V] Kads = 124.7 TO 155.6 FOR CLAY LOAM SOIL  
[ ]  
[ ]

Soil Rf Factors (163-1)

[S] IN Sd, SdLm, Si, Lm, AND CLIM  
[ ] TREATED WITH 1.1 KG/HA, ELUTED  
[ ] WITH 60 CM WATER, >90% STAYED  
[ ] IN TOP 0-10 CM SEGMENT.  
[S] RELATIVELY IMMOBILE IN FINE  
[ ] SAND, SILT LOAM, AND MUCK.

Laboratory Volatility (163-2)

[S] TRIFLURALIN WILL VOLATILIZE; INCREASES IN MOIST CONDITIONS  
[ ]

Field Volatility (163-3)

[S]  
[ ]

Terrestrial Field Dissipation (164-1)

[V] EC FORMULATION--T1/2 = 149 TO 93 DAYS IN TOP 6 INCHES  
[V] GRANULAR FORMULATION--T1/2 = 49 DAYS IN TOP 6 INCHES  
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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)

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[ ]

Accumulation in Rotational Crops, Confined (165-1)

[S] RESIDUES DID ACCUM. IN ROTATIONAL CROPS GROWN AT 30 DAYS  
[ ]

Accumulation in Rotational Crops, Field (165-2)

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Accumulation in Irrigated Crops (165-3)

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Bioaccumulation in Fish (165-4)

[S] BLUEGILL EDIB.2014X;VISC.9586X;WHOLE FISH.5674X  
[ ]

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)

[ ] IN A PRESENTLY UNVALIDATED 1987 STUDY, TRIFLURALIN WAS  
[ ] FOUND IN CONCS. THAT EITHER EQUALLED OR FELL BELOW THE  
[ ] DETECTION LIMIT (.2 PP2) AT ALL TESTED LOC. OF SURF. WATER

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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

Major degradate:  $\alpha,\alpha,\alpha$ -trifluoro-2,6-dinitro-p-toluidine

Anaerobic metabolism:

$\alpha,\alpha,\alpha$ -trifluoro-N,N-dipropyltoluene-3,4,5-triamine

$\alpha,\alpha,\alpha$ -trifluoro-N,N-depropyl-5-nitrotoluene-3,4-diamine

Photodegradates:

$\alpha,\alpha,\alpha$ -trifluoro-2,6-dinitro-n-propyl-p-toluidine

$\alpha,\alpha,\alpha$ -trifluoro-2,6-dinitro-p-toluidine

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Comments

Trifluralin is not likely to reach to gw; it is immobile, with a Kd of around 80, and oct./water coefficient of 118,000. Trifluralin residues detected in soil after 73 weeks ranged from 10.9 to 19.6% of applied radioactivity. LC50 for rainbow trout = 12-40 ppb (highly toxic)

Koc = 8000 (U)

References:    EPA REVIEWS  
Writer        :    PJH/WGM