

fenamidone (Ref: RPA 407213)

** Translations



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GENERAL INFORMATION

Description: A fungicide effective against Oomycete diseases such as downy mildew and certain leaf spot diseases

Introduction: 2001

EC Directive 91/414:

Status	Annex 1
Dossier rapporteur/co-rapporteur	France/Netherlands
Date inclusion expires	30/09/2013

Approved for use (✓) or known to be used (#) in the following European countries:




AT BE BG CY CZ DE DK EE ES FI FR GR HU IE IT LT LU LV MT NL PL PT RO SE SI SK UK

General status:




Pesticide Type	Fungicide
Chemical Group	Imidazole
Mode of Action	Protective and curative action. Respiration inhibitor.
CAS RN	161326-34-7
EC Number	-
CIPAC Number	650
US EPA Chemical code	046679
Chemical Formula	C ₁₇ H ₁₇ N ₃ OS
SMILES	O=C2N(Nc1cccc1)C(\SC)=N/[C@]2(c3cccc3)C
International Chemical Identifier (InChI)	InChI=1/C17H17N3OS /c1-17(13-9-5-3-6-10-13)15(21)20(16(18-17)22-2)19-14-11-7-4-8-12-14/h3-12,19H,1-2H3/t17-/m0/s1
Structure diagram available?	Yes
Molecular Mass (g mol ⁻¹)	311.40
IUPAC Name	(S)-1-anilino-4-methyl-2-methylthio-4-phenylimidazolin-5-one
CAS Name	(5S)-3,5-dihydro-5-methyl-2-(methylthio)-5-phenyl-3-(phenylamino)-4H-imidazol-4-one
Other status information	-
Herbicide Resistance (HRAC) Classification	Not applicable
Insecticide Resistance (IRAC) Classification	Not applicable




Fungicide Resistance (FRAC) Classification	11
Physical State	White powder

Formulations:

Property 	Value
Example manufacturers of products using this active	<ul style="list-style-type: none"> • Bayer CropScience
Example products using this active	<ul style="list-style-type: none"> • Consento • Reason
Associated substances	<ul style="list-style-type: none"> • propamocarb hydrochloride
UK LERAP status	LERAP Category B (may vary across mixtures)
Formulation and application details	Often available as a soluble concentrate that is diluted with water and used as a spray.




ENVIRONMENTAL FATE

Property 	Value	Source/Quality Score/Other Information 	Interpretation 
Solubility - In water at 20°C (mg l ⁻¹)	7.8	A5	Low
Solubility - In organic solvents at 20°C (mg l ⁻¹)	250000	A5 - Acetone	-
	105700	A5 - Ethyl acetate	-
	300	A5 - n-Heptane	-
	43100	A5 - Methanol	-
Melting Point (°C)	136.8	A5	-
Boiling Point (°C)	Decomposes before boiling	A5	-
Degradation point (°C)	-	-	-
Flashpoint (°C)	Not highly flammable	A5	-
Octanol-water partition coefficient at pH 7, 20°C	P: 6.31 X 10 ⁰²	Calculated	-
	Log P: 2.8	A5	Moderate
Bulk density (g ml ⁻¹)/Specific gravity	1.29	A5	-
Dissociation constant (pKa) at 25°C	Not applicable	A5	-
	Note: No dissociation		
Vapour pressure at 25°C (mPa)	0.00034	A5	Volatile
Henry's law constant at 25°C (Pa m ³ mol ⁻¹)	5.00 X 10 ⁻⁰⁶	A5	Non-volatile

Henry's law constant at 20°C (dimensionless)		5.47 X 10 ⁻⁰⁹	Q2	Non-volatile
Soil degradation (days) (aerobic)	DT50 (typical):	8.5	A5	Non-persistent
	DT50 (lab at 20°C):	6	A5	Non-persistent
	DT50 (field):	8.5	A5	Non-persistent
	DT90 (lab at 20°C):	20.2	A5	-
	DT90 (field):	28.4	A5	-
	Note:	EU dossier Lab studies DT50 range 0.9-11.7 days, DT90 range 5.1-38.7 days, field studies DT50 range 8.5-14.3 days, DT90 range 12.4-47.4 days		
Aqueous photolysis DT50 (days) at pH 7	Value:	6	A5	Moderately fast
	Note:	-		
Aqueous hydrolysis DT50 (days) at 20°C and pH 7	Value:	411	A5	Very persistent
	Note:	pH sensitive: DT50 221 days at pH 5, 27.6 days at pH 9		
Water-Sediment DT50 (days)		97	A5	Moderately fast
Water phase only DT50 (days)		24	A5	Slow
GUS leaching potential index 		1.31	Calculated	Low leachability
SCI-GROW groundwater index (µg l ⁻¹) for a 1 kg ha ⁻¹ or 1 l ha ⁻¹ application rate 	Value:	1.50 X 10 ⁻⁰²	Calculated	-
	Note:	-		
Potential for particle bound transport index 		-	Calculated	Low
Koc - Organic-carbon sorption constant (ml g ⁻¹)		388	A5	Moderately mobile
		pH sensitivity: None		
		Note: EU dossier Kfoc range 259-494 mL/g		
Freundlich isotherm	Kf:	5.04	A5	-
	1/n:	0.77		-
	Note	Mean of 4 soils. Silt loam, OC=0.5% Kf=2.43; Sandy loam, OC=1.2% Kf=5.93; Loam, OC=2.2% Kf=6.9; Silt loam, OC=1.9% Kf=4.93		
Maximum UV-vis absorption L mol ⁻¹ cm ⁻¹		[202.5nm = 36941, 230 nm = 18297]	A5	-

Key metabolites:




Metabolite	Formation Medium	Estimated Maximum Occurrence Fraction	91/414 Relevancy 

(S)-5-methyl-5-phenylimidazolidine-2,4-dione (Ref: RPA 412636) 	Soil	0.307	Major fraction, Relevant
(S)-5-methyl-2-methylthio-3-(2-nitrophenylamino)-5-phenyl-3,5-dihydroimidazol-4-one (Ref: RPA 413255) 	Soil	0.131	Major fraction, Relevancy unknown
(S)-5-methyl-2-methylthio-5-phenyl-3,5-dihydroimidazol-4-one (Ref: RPA 412708) 	Soil	0.166	Major fraction, Relevant

Other known metabolites:

Metabolite name and reference	Aliases	Formation Medium / Rate	Estimated Maximum Occurrence Fraction
(Ref: RPA 408056)	-	Water (Photolysis)	0.356
(Ref: RPA 409344)	-	Water (Hydrolysis)	0.322
(Ref: RPA 410193)	-	(a) Plant; (b) Water (Photolysis)	b=0.134

ECOTOXICOLOGY




Property 	Value	Source/Quality Score/Other Information 	Interpretation 
Bio-concentration factor	BCF: - CT50 (days): Not available	A5 Low risk	-
Bioaccumulation potential	-	Calculated	Low
Mammals - Acute oral LD50 (mg kg ⁻¹)	2028	A5 Rat	Low
Mammals - Short term dietary NOEL (mg kg ⁻¹):	30	A5 Rat	High
	(ppm diet): 500		-
Birds - Acute LD50 (mg kg ⁻¹)	> 2000	A5 <i>Colinus virginianus</i>	Moderate
Birds - Short term dietary (LC50/LD50)	> 5200 ppm	A5 <i>Colinus virginianus</i>	-
Fish - Acute 96 hour LC50 (mg l ⁻¹)	0.74	A5 <i>Oncorhynchus mykiss</i>	Moderate

Fish - Chronic 21 day NOEC (mg l ⁻¹)	0.31		A5 <i>Oncorhynchus mykiss</i>	-
Aquatic invertebrates - Acute 48 hour EC50 (mg l ⁻¹)	0.19		A5 <i>Daphnia magna</i>	Moderate
Aquatic invertebrates - Chronic 21 day NOEC (mg l ⁻¹)	0.0125		A5 <i>Daphnia magna</i>	-
Aquatic crustaceans - Acute 96 hour LC50 (mg l ⁻¹)	-		-	-
Sediment dwelling organisms - Acute 96 hour LC50 (mg l ⁻¹)	-		-	-
Sediment dwelling organisms - Chronic 28 day NOEC, static, water (mg l ⁻¹)	0.05		A5 <i>Chironomus riparius</i>	Moderate
Sediment dwelling organisms - Chronic 28 day NOEC, sediment (mg kg ⁻¹)	-		-	-
Aquatic plants - Acute 7 day EC50, biomass (mg l ⁻¹)	0.88		F3 <i>Lemna gibba</i>	Moderate
Algae - Acute 72 hour EC50, growth (mg l ⁻¹)	3.84		A4 <i>Raphidocelis subcapitata</i> , 72 hour	Moderate
Algae - Chronic 96 hour NOEC, growth (mg l ⁻¹)	-		-	-
Honeybees - Acute 48 hour LD50 (µg bee ⁻¹)	> 74.8		A5 Contact	Moderate
Earthworms - Acute 14 day LC50 (mg kg ⁻¹)	> 25		A5 <i>Eisenia foetida</i>	Moderate
Earthworms - Chronic 14 day NOEC, reproduction (mg kg ⁻¹)	0.63		A5 <i>Eisenia foetida</i>	Moderate
Other soil macro-organisms - e.g. Collembola	LR50 / EC50 / NOEC / % Effect	-	-	-
Other arthropod (1)	LR50 g ha ⁻¹ : % Effect:	- 50 75	-	- Mortality Reproduction Dose: 0.051 kg ha ⁻¹ A5 <i>Aphidius rhopalosiphii</i> , adult
Other arthropod (2)	LR50 g ha ⁻¹ : % Effect:	- 4.5 16	-	- Mortality Reproduction Dose: 0.051 kg ha ⁻¹ A5 <i>Typhlodromus pyri</i> , protonymph

Soil micro-organisms	Nitrogen mineralisation: No significant effect Carbon mineralisation: No significant effect	A5 [Dose: 1.6 kg ha ⁻¹]	-
Mesocosm study data	NOEAEC mg l ⁻¹ : -	-	-
	NOEAEC mg l ⁻¹ : -	-	-

HUMAN HEALTH AND PROTECTION

General:

Property 	Value	Source/Quality Score/Other Information 	Interpretation 
Mammals - Acute oral LD50 (mg kg ⁻¹)	2028	A5 Rat	Low
Mammals - Dermal LD50 (mg kg ⁻¹ body weight)	> 2000	A5 Rat	-
Mammals - Inhalation LC50 (mg l ⁻¹)	2.1	A5 Rat	-
ADI - Acceptable Daily Intake (mg kg ⁻¹ bw day ⁻¹)	0.03	A5	-
ARfD - Acute Reference Dose (mg kg ⁻¹ bw day ⁻¹)	None allocated	A5	-
AOEL - Acceptable Operator Exposure Level - Systemic (mg kg ⁻¹ bw day ⁻¹)	0.3	A5 Rat, 90 day, SF=100	-
Dermal penetration studies (%)	1.75-4.3	A5 (Diluted spray-Conc)	-
Dangerous Substances Directive 76/464	-	-	-
Exposure Limits	-	-	-
Exposure Routes	Public: [Minimal risk of dietary exposure] Occupational: -		
Examples of European MRLs (mg kg ⁻¹)	Value: Lettuce: 2.0; Tomatoes and grapes: 0.5; Melons (not watermelons): 0.1; Other vegetables, other fruit and cereal grains: 0.02 Note: [Current May 2007.] For the EU pesticides database click here		
Drinking Water MAC (µg l ⁻¹)	-	-	-

Health issues:

Carcinogen	Endocrine disrupter	Reproduction / development effects	Acetyl cholinesterase inhibitor	Neurotoxicant	Respiratory tract irritant	Skin irritant	Eye irritant
✗	-	✗	✗	✗	-	✓	✓
General human health issues	[Possible liver and thyroid toxicant]						

- ✓ : Yes, known to cause a problem
 X : No, known not to cause a problem
 ? : Possibly, status not identified
 - : No data

Handling issues:

Property	Value	Source/Quality Score/Other Information	Interpretation
General	[Prevent generation of mists], [Not explosive or oxidising], [IMDG Transport Code is usually 9]		
EC Risk Classification	[N - Dangerous for the environment: R50, R53]		
EC Safety Classification	S60, S61		
WHO Classification	NL	-	Not listed
US EPA Classification (formulation)	No consensus across products or no products available	-	-
UN Number	-		
Waste disposal & packaging	[Usually Packaging Group III (minor danger)]		

TRANSLATIONS

Language	Name
English	fenamidone
French	fenamidone
German	Fenamidon
Danish	fenamidon
Italian	fenamidone
Spanish	fenamidona
Greek	fenamidone
Slovenian	fenamidon
Polish	fenamidon
Swedish	-
Hungarian	fenamidon
Dutch	fenamidon

Site last updated: Monday 17 January 2011

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Acknowledgements: The PPDB website has been compiled from the EMA/EMA On-line pesticide properties database, with additional input from the EU-funded FOOTPRINT project and others. Special thanks are due to Don Wauchope, Nick Jarvis (SLU Sweden), Stefan Reichenberger (University of Giessen, Germany) and Benoit Riäl (ARVALIS-Institut du Végétal, France) for their assistance in sourcing additional data. The funding of FOOTPRINT by the European Commission as part of its Framework Programme for Research and Development is also gratefully acknowledged.