

cymoxanil (Ref: DPX T3217)

** cymoxanil ** [Translations](#)



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GENERAL INFORMATION

Description: An insecticide used to control Peronosporales on a range of crops including vines, hops and potatoes.

Introduction: 1998, USA

EC Directive 91/414:

Status	Annex 1
Dossier rapporteur/co-rapporteur	Austria
Date inclusion expires	31/08/2019

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
 ✓

Also registered in: USA

General status:




Pesticide Type	Fungicide
Chemical Group	Cyanoacetamide oxime
Mode of Action	Foliar with protective and curative activity.
CAS RN	57966-95-7
EC Number	261-043-0
CIPAC Number	419
US EPA Chemical code	129106
Chemical Formula	C ₇ H ₁₀ N ₄ O ₃
SMILES	N#C/C(=N\OC)C(=O)NC(=O)NCC
International Chemical Identifier (InChI)	InChI=1/C7H10N4O3/c1-3-9-7(13)10-6(12)5(4-8)11-14-2/h3H2,1-2H3,(H2,9,10,12,13)/b11-5+
Structure diagram available?	Yes
Molecular Mass (g mol ⁻¹)	198.18
IUPAC Name	1-[(<i>EZ</i>)-2-cyano-2-methoxyiminoacetyl]-3-ethylurea
CAS Name	2-cyano- <i>N</i> -[(ethylamino)carbonyl]-2-(methoxyimino)acetamide
Other status information	-
Herbicide Resistance (HRAC) Classification	Not applicable
Insecticide Resistance (IRAC) Classification	Not applicable





Fungicide Resistance (FRAC) Classification	27
Physical State	White to pale pink crystals

Formulations:




Property 	Value
Example manufacturers of products using this active	<ul style="list-style-type: none"> • Belchim • DuPont • Headland • Nufarm • Syngenta
Example products using this active	<ul style="list-style-type: none"> • Besiege • Curzate • Matilda WG • Option • Tanos • Wakil XL
Associated substances	<ul style="list-style-type: none"> • famoxadone • metalaxyl-M • mancozeb
UK LERAP status	None
Formulation and application details	Often supplied as wettable granules or powders that are mixed with water and applied as a spray.

ENVIRONMENTAL FATE

Property 	Value	Source/Quality Score/Other Information 	Interpretation 
Solubility - In water at 20°C (mg l ⁻¹)	780	A5	High
Solubility - In organic solvents at 20°C (mg l ⁻¹)	28000	A5 - Ethyl acetate	-
	65300	A5 - Acetone	-
	5290	A5 - Toluene	-
	37	A5 - n-Hexane	-
Melting Point (°C)	161	A5	-
Boiling Point (°C)	Decomposes before boiling	A5	-
Degradation point (°C)	156	A3	-
Flashpoint (°C)	Not highly flammable	A5	-
Octanol-water partition coefficient at pH 7, 20°C	P: 4.68 X 10 ⁰⁰	Calculated	-
	Log P: 0.67	A5	Low
Bulk density (g ml ⁻¹)/Specific gravity	1.31	L3	-

Dissociation constant (pKa) at 25°C	9.3	A5	-
	Note: Weak acid		
Vapour pressure at 25°C (mPa)	0.15	A5	Volatile
Henry's law constant at 25°C (Pa m ³ mol ⁻¹)	3.80 X 10 ⁻⁰⁵	A5	Non-volatile
Henry's law constant at 20°C (dimensionless)	6.40 X 10 ⁻¹²	K3	Non-volatile
Soil degradation (days) (aerobic)	DT50 (typical): 0.7 	K4	Non-persistent
	DT50 (lab at 20°C): 1.4	A5	Non-persistent
	DT50 (field): 3.5	H4	Non-persistent
	DT90 (lab at 20°C): 4.7	A5	-
	DT90 (field): -	-	-
	Note:	EU dossier Lab studies DT50 range 0.1-4.3 days, DT90 range 0.5-33.3 days	
Aqueous photolysis DT50 (days) at pH 7	Value: 1.7 Note: -	A5	Moderately fast
Aqueous hydrolysis DT50 (days) at 20°C and pH 7	Value: 1.1 Note: Stable at pH 4 and pH 5 @20deg C, DT50 0.02 days at pH 9 and 25 degC	A5	Non-persistent
Water-Sediment DT50 (days)	0.3	A5	Fast
Water phase only DT50 (days)	0.3	A5	Fast
 GUS leaching potential index	-0.37	Calculated	Low leachability
SCI-GROW groundwater index (µg l ⁻¹) for a 1 kg ha ⁻¹ or 1 l ha ⁻¹ application rate 	Value: 5.62 X 10 ⁻⁰⁴ Note: -	Calculated	-
 Potential for particle bound transport index	-	Calculated	Low
Koc - Organic-carbon sorption constant (ml g ⁻¹)	43.6 pH sensitivity: None Note: EU dossier Kfoc range 15.1-87.1 mL/g	A5	Mobile
Freundlich isotherm	Kf: 0.580	A5	-
	1/n: 0.86		-
	Note	EU dossier kf range 0.09-0.91, 1/n range 0.81-0.88, n=4	
Maximum UV-vis absorption L mol ⁻¹ cm ⁻¹	[244nm = 9333 & 9297]	A5	-




Key metabolites:

Metabolite	Formation Medium	Estimated Maximum Occurrence Fraction	91/414 Relevancy 
1-ethyl 5,6-di-2,4(1H,3H)pyridenedione (Ref: IN-U3204) 	Soil	0.247	Major fraction, Relevant
2-cyano-2-methoxyiminoacetic acid (Ref: IN-W3595) 	Soil	0.101	Major fraction, Relevant
3-ethyl-4-(methoxyamino)-2,5-dioximidazolidine-4-carboxamide (Ref: IN-KQ960)	Soil	0.063	Minor fraction, Relevant
3-ethyl-4-(methoxyamino)-2,5-dioximidazolidine-4-carbonitrile (Ref: IN-JX915)	Soil	0.076	Minor fraction, Relevant

Other known metabolites:

Metabolite name and reference	Aliases	Formation Medium / Rate	Estimated Maximum Occurrence Fraction
ethylimidazolidinetrione-5-(o-methyloxime)	-	Soil (Aerobic)	-
{[(ethylamino)carbonyl]}ethylamino)carbonyl]amino}oxoacetic acid (Ref: IN-KP533)	-	-	-
cyano(methoxyimino)acetic acid (Ref: IN-U3595)	-	-	-
1-ethyl-5-(methoxyimino)2,4-imidazolidin-2,4-dione (Ref: R3273)	-	-	-

ECOTOXICOLOGY




Property 	Value	Source/Quality Score/Other Information 	Interpretation 
Bio-concentration factor	BCF: - CT50 (days): -	-	-
Bioaccumulation potential	-	Calculated	Low
Mammals - Acute oral LD50 (mg kg ⁻¹)	960	A5 Rat	Moderate
Mammals - Short term dietary NOEL (mg kg ⁻¹):	47.6	F4 Rat	High
(ppm diet):	-	-	-
Birds - Acute LD50 (mg kg ⁻¹)	> 2000	A5 <i>Colinus virginianus</i>	Moderate

Birds - Short term dietary (LC50/LD50)	-	-	-	-
Fish - Acute 96 hour LC50 (mg l ⁻¹)	29		A5 <i>Lepomis macrochirus</i>	Moderate
Fish - Chronic 21 day NOEC (mg l ⁻¹)	0.22		F4 <i>Oncorhynchus mykiss</i> , LOEC	-
Aquatic invertebrates - Acute 48 hour EC50 (mg l ⁻¹)	27		A5 <i>Daphnia magna</i>	Moderate
Aquatic invertebrates - Chronic 21 day NOEC (mg l ⁻¹)	0.067		F4 <i>Daphnia magna</i>	-
Aquatic crustaceans - Acute 96 hour LC50 (mg l ⁻¹)	44.4		F3 <i>Americamysis bahia</i>	Moderate
Sediment dwelling organisms - Acute 96 hour LC50 (mg l ⁻¹)	-		-	-
Sediment dwelling organisms - Chronic 28 day NOEC, static, water (mg l ⁻¹)	-		-	-
Sediment dwelling organisms - Chronic 28 day NOEC, sediment (mg kg ⁻¹)	-		-	-
Aquatic plants - Acute 7 day EC50, biomass (mg l ⁻¹)	> 0.7		A5 <i>Lemna gibba</i>	Moderate
Algae - Acute 72 hour EC50, growth (mg l ⁻¹)	0.254		A5 <i>Anabaena flos-aquae</i>	Moderate
Algae - Chronic 96 hour NOEC, growth (mg l ⁻¹)	-		-	-
Honeybees - Acute 48 hour LD50 (µg bee ⁻¹)	> 85.3		A5 Oral	Moderate
Earthworms - Acute 14 day LC50 (mg kg ⁻¹)	> 1000		A5 <i>Eisenia foetida</i>	Moderate
Earthworms - Chronic 14 day NOEC, reproduction (mg kg ⁻¹)	6.6		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:	480 0 34	A5 <i>Aphidius rhopalosiphi</i> , adult Mortality Fecundity Dose: 0.26 kg ha ⁻¹ A5 <i>Aphidius rhopalosiphi</i> , adult	Moderately harmful at 1 kg ha ⁻¹ Moderately harmful
Other arthropod (2)	LR50 g ha ⁻¹ : % Effect:	480 98.9 100	A5 <i>Typhlodromus pyri</i> Mortality Reproduction	Moderately harmful at 1 kg ha ⁻¹ Harmful

				Dose: 0.13 kg ha ⁻¹ A5 <i>Typhlodromus pyri</i>
Soil micro-organisms		Nitrogen mineralisation: No significant effect Carbon mineralisation: No significant effect	A5 [Dose: 1.44 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)	960	A5 Rat	Moderate
Mammals - Dermal LD50 (mg kg ⁻¹ body weight)	> 2000	A5 Rat	-
Mammals - Inhalation LC50 (mg l ⁻¹)	> 5.6	A5 Rat 4hr (nose only)	-
ADI - Acceptable Daily Intake (mg kg ⁻¹ bw day ⁻¹)	0.013	A5 Dog, SF=100	-
ARfD - Acute Reference Dose (mg kg ⁻¹ bw day ⁻¹)	0.08	A5 Rabbit, SF=100	-
AOEL - Acceptable Operator Exposure Level - Systemic (mg kg ⁻¹ bw day ⁻¹)	0.01	A5 Dog, SF=100	-
Dermal penetration studies (%)	1.0-75.0	A5 (Diluted spray-Conc)	-
Dangerous Substances Directive 76/464	-	-	-
Exposure Limits	-	-	-
Exposure Routes	Public: [Acceptable risk to bystanders for intended uses] Occupational: [Acceptable risk to operators wearing protective clothing]		
Examples of European MRLs (mg kg ⁻¹)	Value: Lettuce, Potatoes: 0.05 Note: [A5 EU dossier proposals] For the EU pesticides database click here		
Drinking Water MAC (µg l ⁻¹)	0.1	EU Dir 89/778/EC limit; A5	-

Health issues:

Carcinogen	Endocrine disrupter	Reproduction /	Acetyl cholinesterase	Neurotoxicant	Respiratory tract	Skin irritant	Eye irritant
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	development effects	inhibitor	irritant
General human health issues	✓	✗	✗

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

Handling issues:

Property	Value	Source/Quality Score/Other Information	Interpretation
General	[Not explosive or oxidising], [IMDG Transport Code is usually 9]		
EC Risk Classification	[Xn - Harmful: R22], [Xi - Irritant: R43], [N - Dangerous for the environment: R50, R53]		
EC Safety Classification	S2, S36/37, S60, S61		
WHO Classification	III	-	Slightly hazardous
US EPA Classification (formulation)	III	-	Caution - Slightly toxic
UN Number	Usually 3077		
Waste disposal & packaging	[Usually Packaging Group III (minor danger)]		

TRANSLATIONS

Language	Name
English	cymoxanil
French	cymoxanil
German	Cymoxanil
Danish	cymoxanil
Italian	cimoxanil
Spanish	cimoxanilo
Greek	-
Slovenian	cimoksasil
Polish	cymoksasil
Swedish	cymoxanil
Hungarian	cymoxanil
Dutch	cymoxanil

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 Contact: aeru@herts.ac.uk

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