







Insecticide Resistance (IRAC) Classification	Not applicable
Fungicide Resistance (FRAC) Classification	12
Physical State	Yellow crystals

Formulations:

Property 	Value
Example manufacturers of products using this active	<ul style="list-style-type: none"> • Syngenta
Example products using this active	<ul style="list-style-type: none"> • Austral Plus • Beret Gold • Beret Multi • Switch • Wakil XL • Celest 025FS
Associated substances	<ul style="list-style-type: none"> • cymoxanil • metalaxyl-M • cyprodinil • flutriafol • tefluthrin
UK LERAP status	None
Formulation and application details	Often supplied as a flowable concentrate that is mixed with water and used as a seed treatment.


ENVIRONMENTAL FATE

Property 	Value	Source/Quality Score/Other Information 	Interpretation 
Solubility - In water at 20°C (mg l ⁻¹)	1.8	A5	Low
Solubility - In organic solvents at 20°C (mg l ⁻¹)	20000	A5 - Octanol	-
	190000	A5 - Acetone	-
	2700	A5 - Toluene	-
	42000	A5 - Methanol	-
Melting Point (°C)	199.8	A5	-
Boiling Point (°C)	Decomposes before boiling	A5	-
Degradation point (°C)	306	A5	-
Flashpoint (°C)	Not highly flammable	A5	-
Octanol-water partition coefficient at pH 7, 20°C	P: 1.32 X 10 ⁰⁴	Calculated	-
	Log P: 4.12	A5	High
Bulk density (g ml ⁻¹)/Specific gravity	1.54	B5	-

Dissociation constant (pKa) at 25°C	0	A5 -	-	
	Note: pKa(1) base; pKa(2) 14.1 acid			
Vapour pressure at 25°C (mPa)	3.90 X 10 ⁻⁰⁴	A5	Volatile	
Henry's law constant at 25°C (Pa m ³ mol ⁻¹)	5.40 X 10 ⁻⁰⁵	L3	Non-volatile	
Henry's law constant at 20°C (dimensionless)	2.15 X 10 ⁻⁰⁸	Q2	Non-volatile	
Soil degradation (days) (aerobic)	DT50 (typical):	125	B5	Persistent
	DT50 (lab at 20°C):	239	A5	Persistent
	DT50 (field):	20.5	A5	Non-persistent
	DT90 (lab at 20°C):	-	-	-
	DT90 (field):	-	-	-
	Note:	EU dossier lab studies DT50 range: 119-365 days, field study DT50 range 8-43 days; General literature lab studies DT50 range 100-350 days; field studies DT50 range 10-25 days		
Aqueous photolysis DT50 (days) at pH 7	Value:	10	A5	Moderately fast
	Note:	-		
Aqueous hydrolysis DT50 (days) at 20°C and pH 7	Value:	Stable	A5	Very persistent
	Note:	Stable pH 5 to pH 9		
Water-Sediment DT50 (days)	575	A5	Stable	
Water phase only DT50 (days)	2	A5	Moderately fast	
GUS leaching potential index 	-1.83	Calculated	Low leachability	
SCI-GROW groundwater index (µg l ⁻¹) for a 1 kg ha ⁻¹ or 1 l ha ⁻¹ application rate 	Value:	5.35 X 10 ⁻⁰³	Calculated	-
	Note:	Estimated concentrations of chemicals with Koc values greater than 9995 ml g ⁻¹ are beyond the scope of the regression data used in SCI-GROW development. If there are concerns for such chemicals, a higher tier groundwater exposure assessment should be considered, regardless of the concentration returned by SCI-GROW		
Potential for particle bound transport index 	-	Calculated	High	
Koc - Organic-carbon sorption constant (ml g ⁻¹)		75000	A5	Non-mobile
		pH sensitivity: None		
		Note: EU dossier kfoc range 12000-385000 mL/g; Other sources: Koc 1610 mL/g (DW4)		
Freundlich isotherm	Kf:	14292	A5	-
	1/n:	0.95		-
	Note	EU dossier kf(ads) range 290-61000; 1/n range 0.81-1.19		

Maximum UV-vis absorption L mol⁻¹ cm⁻¹ [Neutral solution: 266nm = 12384], A5 -
 [ACidic solution: 265nm = 12327],
 [Basic solution: 271nm = 11790]

Key metabolites:

Metabolite	Formation Medium	Estimated Maximum Occurrence Fraction	91/414 Relevancy 
3-carbamoyl-2-cyano-3-(2,2-difluoro-benzo[1,3]dioxol-4-yl)-oxirane-2-carbocyclic acid. (Ref: CGA 339833) 	Soil	0.188	Major fraction, Not relevant
(2,2-difluoro-benzo(1,3)dioxol-4-carbocyclic acid (Ref: CGA 192155) 	Soil	0.197	Major fraction, Not relevant

Other known metabolites:

Metabolite name and reference	Aliases	Formation Medium / Rate	Estimated Maximum Occurrence Fraction
2-cyano-3-(2,2-difluorobenzo[d][1,3]dioxol-4-yl)propanoic acid or 3-cyano-2-(2,2-difluorobenzo[d][1,3]dioxol-4-yl)propanoic acid	fludioxonil metabolite A5	Water (Photolysis)	-
4-(2,2-difluoro-benzo[1,3]dioxol-4-yl)-2,5-dioxo-2,5-dihydro-1H-pyrrole-3-carbonitrile (Ref: CGA 265378)	- Note: Highly mobile	Soil (Photolysis)	0.123
2-(2,2-difluoro-benzo[1,3]dioxol-4-yl)-2-hydroxy-acetamide (Ref: CGA 308103)	-	Rat	-
4-(2,2-difluoro-benzo[1,3]dioxol-4-yl)-5-hydroxy-2-oxo-2,5-dihydro-1H-pyrrole-3-carbonitrile (Ref: CGA 308565)	-	Rat	-
2-cyano-3-(2,2-difluoro-benzo[1,3]dioxol-4-yl)-succinamic acid (Ref: CGA 344623)	-	Water (Photolysis)	-

ECOTOXICOLOGY



Property 	Value	Source/Quality Score/Other Information 	Interpretation 
Bio-concentration factor	BCF: 366	A5 Whole fish	Threshold for concern

	CT50 (days):	0.6		-
Bioaccumulation potential		-	Calculated	Moderate
Mammals - Acute oral LD50 (mg kg ⁻¹)		> 5000	A5 Rat	Low
Mammals - Short term dietary NOEL (mg kg ⁻¹):		> 10	B5 Rat	High
	(ppm diet):	> 100		-
Birds - Acute LD50 (mg kg ⁻¹)		> 2000	A5 <i>Colinus virginianus</i>	Moderate
Birds - Short term dietary (LC50/LD50)		> 833 mg/kg bw/day	A4 <i>Colinus virginianus</i>	-
Fish - Acute 96 hour LC50 (mg l ⁻¹)		0.23	A5 <i>Oncorhynchus mykiss</i>	Moderate
Fish - Chronic 21 day NOEC (mg l ⁻¹)		0.04	A5 <i>Oncorhynchus mykiss</i>	-
Aquatic invertebrates - Acute 48 hour EC50 (mg l ⁻¹)		0.4	A5 <i>Daphnia magna</i>	Moderate
Aquatic invertebrates - Chronic 21 day NOEC (mg l ⁻¹)		0.005	A5 <i>Daphnia magna</i>	-
Aquatic crustaceans - Acute 96 hour LC50 (mg l ⁻¹)		0.27	A5 <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)		0.2	A5 <i>Chironomus riparius</i> , emergence	Moderate
Sediment dwelling organisms - Chronic 28 day NOEC, sediment (mg kg ⁻¹)		40.0	A5 <i>Chironomus riparius</i> , emergence	Moderate
Aquatic plants - Acute 7 day EC50, biomass (mg l ⁻¹)		1	F3 <i>Lemna gibba</i>	Moderate
Algae - Acute 72 hour EC50, growth (mg l ⁻¹)		0.024	A5 <i>Pseudokirchneriella subcapitata</i> , 120 hour	Moderate
Algae - Chronic 96 hour NOEC, growth (mg l ⁻¹)		-	-	-
Honeybees - Acute 48 hour LD50 (µg bee ⁻¹)		> 100	A5 Contact	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)		20	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:	14	Mortality Dose: 0.112 kg ha ⁻¹ A5 <i>Aphidius rhopalosiphi</i>	Harmless
Other arthropod (2)	LR50 g ha ⁻¹ :	-	-	-
	% Effect:	2	Mortality Dose: 1 kg ha ⁻¹ A5 <i>Typhlodromus pyri</i>	Harmless
Soil micro-organisms		Nitrogen mineralisation: No adverse effect Carbon mineralisation: No adverse effect	A5 [Dose: 0.333 mg/kg soil]	-
Mesocosm study data	NOEAEC mg l ⁻¹ :	0.0164	A3 Aquatic invertebrates, based on product with cyprodinil	-
	NOEAEC mg l ⁻¹ :	-	-	-

HUMAN HEALTH AND PROTECTION

General:

Property 	Value	Source/Quality Score/Other Information 	Interpretation 
Mammals - Acute oral LD50 (mg kg ⁻¹)	> 5000	A5 Rat	Low
Mammals - Dermal LD50 (mg kg ⁻¹ body weight)	> 2000	A5 Rat	-
Mammals - Inhalation LC50 (mg l ⁻¹)	> 2.6	A5 Rat (nose only)	-
ADI - Acceptable Daily Intake (mg kg ⁻¹ bw day ⁻¹)	0.37	A5 Rat, SF=100	-
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)	0.59	A5 Dog, SF=100	-
Dermal penetration studies (%)	0.3-1.7	A5	-
Dangerous Substances Directive 76/464	List II	-	-
Exposure Limits	-	-	-
Exposure Routes	Public: [Negligible risk to bystanders] Occupational: [No unacceptable risk to operators and other workers identified]		
Examples of	Value: Grapes for wine: 3; Grapes for table: 2; Wheat grain 0.05		

European MRLs (mg kg⁻¹) Note: [A5 EU dossier proposals] 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
?	-	?	X	X	X	✓	✓
General human health issues		[Liver and kidney 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	[Not explosive or oxidising], [IMDG Transport Code is usually 9]		
EC Risk Classification	-		
EC Safety Classification	-		
WHO Classification	U - company classification	-	Unlikely to present acute hazard in normal use
US EPA Classification (formulation)	III	-	Caution - Slightly toxic
UN Number	Usually 3082		
Waste disposal & packaging	[Usually Packaging Group III (minor danger)]		

TRANSLATIONS

Language	Name
English	fludioxonil
French	fludioxonyl
German	Fludioxonil
Danish	fludioxonil
Italian	fludioxonil
Spanish	fludioxonil
Greek	-
Slovenian	fludioksonil

Polish	fludioksonil
Swedish	fludioxonil
Hungarian	fludioxonil
Dutch	-

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