

FINAL REGISTRATION REPORT

Part B

Section 8

Environmental Fate

Detailed summary of the risk assessment

Product code: SIP 41061

Product name: SIP 41061

Chemical active substance:

Prothioconazole 400 g/L SC

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

(authorization of use)

Applicant: Sipcam Oxon S.p.A.

Submission date: April 2022

MS Finalisation date: December 2022; June 2023

Version history

When	What
April 2022	First submission by Applicant
December 2022	Initial zRMS assessment
June 2023	zRMS version after commenting

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8 Fate and behaviour in the environment (KCP 9)

8.1 Critical GAP and overall conclusions

Table 8.1-1: Critical use pattern of the formulated product

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use- No. *	Member state(s)	Crop and/or situation (crop desti- nation / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I **	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safener/ synergist per ha	Conclusion
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between appli- cations (days)	L product/ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min/max			Groundwater
Zonal uses (field or outdoor uses, certain types of protected crops)														
1	CEU (DE, PL, CZ, RO, HU, BE, NL, AT, IE)	Wheat (Soft, Durum), Triticale, Rye	F	<i>Septoria</i> spp. <i>Fusarium</i> spp. <i>Puccinia</i> spp. <i>Erysiphe</i> spp.	Spray	BBCH 29-69	a) 2	14	a) 0.5 b) 1.0	a) 200 b) 400	200-600	21		
2	CEU (DE, PL, CZ, RO, HU, BE, NL, AT, IE)	Barley	F	<i>Rhynchosporium secalis</i> <i>Puccinia hordei</i> <i>Pyrenophora teres</i> (<i>Helminthosporium</i> spp.)	Spray	BBCH 29-61	a) 2	14	a) 0.5 b) 1.0	a) 200 b) 400	200-600	21		
3	CEU (DE, CZ, PL, HU, RO, BE, AT, IE)	Oilseed rape	F	<i>Sclerotinia</i> <i>Phoma</i> <i>Pyrenopeziza</i> <i>Oidium</i>	Spray	BBCH 30-71	a) 2	14	a) 0.45 b) 0.9	a) 180 b) 360	200-600	50		

4	CEU (DE, NL, BE, PL, CZ, AT, IE)	Sugar beet	F	<i>Cercospora beticola</i> <i>Erysiphe betae</i>	Spray	BBCH 39-49	a) 2	14	a) 0.4 b) 0.8	a) 160 b) 320	200-600	28		
5	CEU (NL, DE, AT)	Cucurbits edible peel	G	<i>Oidium (Podosphaera xanthii, Golovinomyces cichoracearum, Sphaerotheca fuliginea)</i> <i>Fusarium spp</i>	Spray	BBCH 11-89	a) 3	10	a) 0.3 b) 0.9	a) 120 b) 360	200-600	10		
6a	CEU (PL, HU, DE, BE, AT, IE)	Pome fruits (Apple, Quince, Medlar)	F	<i>Scab</i> <i>Stemphylium</i> <i>Oidium</i>	Spray	BBCH 39-85	a) 2	7-9	a) 0.3 b) 0.6	a) 120 b) 240	500-1500	14		
6b	CEU (PL, HU, DE, BE, AT, IE)	Pome fruits (Pear)	F	<i>Scab</i> <i>Stemphylium</i> <i>Oidium</i>	Spray	BBCH 39-85	a) 2	7	a) 0.3 b) 0.6	a) 120 b) 240	500-1500	21		
7	CEU (DE, PL, HU, AT)	Stone fruits (Plum, Apricot, Cherry)	F	<i>Oidium</i> <i>Monilia spp.</i>	Spray	BBCH 51-85	a) 2	7	a) 0.4 b) 0.8	a) 160 b) 320	500-1500	3		
8	CEU (PL, RO, NL, BE, AT, IE)	Carrot (other roots and tubers vegetables)	F	<i>Leaf blight (Alternaria dauci)</i> <i>Sclerotinia rot (Sclerotinia sclerotiorum)</i> <i>Powdery mildew (Erysiphe heraclei)</i>	Spray	BBCH 16-46	a) 2	21	a) 0.5 b) 1.0	a) 200 b) 400	500-1000	21		

* Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0 should be given in column 1

** F: professional field use, Fn: non-professional field use, Fpn: professional and non-professional field use, G: professional greenhouse use, Gn: non-professional greenhouse use, Gpn: professional and non-professional greenhouse use, I: indoor application

Explanation for column 15 “Conclusion”

A	Safe use
R	Further refinement and/or risk mitigation measures required

C	To be confirmed by cMS
N	No safe use

Table 8.1-2: Assessed (critical) uses during approval of prothioconazole concerning the Section Environmental Fate

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use- No. *	Member state(s)	Crop and/or situation (crop destination / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I **	Pests or Group of pests controlled (additionally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safener/ synergist per ha
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product/ha a) max. rate per appl. b) max. total rate per crop/season	kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min/max		
1	EU North South	wheat, rye, triticale	F	Rusts, Eyespot, Fusari- um spp., Powd. Mil- dew, Rhynchospor., Septoria	Overall spray	start 26-29 up to BBCH69 (interval 14 - 21 d)#	1-3 #	ref. to growth stage		0.2	200-400	35	# timing, no. of applic. depends on national condi- tions
2	EU North South	barley, oat	F	Rusts, Eyespot, Pyren- teres, Powd. Mildew, Fusarium spp., Rhyn- chospor	Overall spray	start 30 up to BBCH 61 (interval 14 - 21 d)#	1- 3 #	ref. to growth stage		0.2	200-400	35	# timing, no. of applic. depends on national condi- tions
3	EU North	rape	F	Sclerotinia, Botrytis, Alternaria, Lepto- sphaeria	Overall spray	start BBCH 53 (interval 14 - 28 d)#	1-2 #	ref. to growth stage		0.175	200-400	56	# timing, no. of applic. depends on national condi- tions
4	EU North South	wheat, rye, triticale, oat, barley	F	Fusarium spp., Bunt, Smut	Seed treatment	Pre-sowing	1	n.a. (0)		(+) Approx. 9- 18 g as/ha (180 kg seed/ha)	200-400 ml water/dt	n.a.	(+) 5 – 10 g as/dt seed

* Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0 should be given in column 1

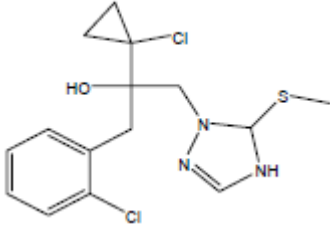
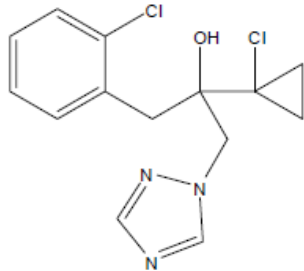
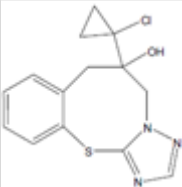
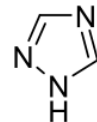
** F: professional field use, Fn: non-professional field use, Fpn: professional and non-professional field use, G: professional greenhouse use, Gn: non-professional greenhouse use, Gpn: professional and non-professional greenhouse use, I: indoor application

zRMS comments:

All comments and conclusions of the zRMS are presented in grey. Minor changes are introduced directly in the text and highlighted in grey. Not agreed or not relevant information is struck through and shaded for transparency.

8.2 Metabolites considered in the assessment

Table 8.2-1: Metabolites of prothioconazole potentially relevant for exposure assessment

Metabolite	Molar mass	Chemical structure	Maximum observed occurrence in compartments	Exposure assessment required due to
M01: JAU 6476-Smethyl	358.37		Soil: 14.6% Water: not observed Sediment: not observed Sediment: 77.0% AR, day 240 soil: 14.6 % water/sediment (anaerobic): 77 % (anaerobic, in sediment, not detected in water) water/sediment (aerobic): 12.7% (whole system); 3.1% (water); 9.6% (sediment)	PEC _{gw} : leaching potential to groundwater PEC _{soil} : major metabolite in soil; PEC _{sw/sed} : not relevant in water and sediment system
M04: JAU 6476-desthio	312.2		Soil: 57.1% Water: 32.3% Sediment: 26.9% Water: 55.7% AR, day 11 Sediment: 26.9% AR, day 14	PEC _{gw} : leaching potential to groundwater PEC _{soil} : major metabolite in soil; PEC _{sw/sed} : major metabolite in water, relevant for risk assessment
M12: Prothioconazole-thiazocine	-		Water: 14.1% AR, day 5 under photolysis conditions	PEC _{sw} Considered not relevant in EFSA (2007)
1,2,4-triazole M13	69.1		Soil: not observed Water: 37.2% Sediment (max. 6.1 % at 121d) Water/sediment system (max. 41.8 % at 121d)	PEC _{gw} : not relevant for groundwater exposure PEC _{soil} : not relevant for groundwater exposure PEC _{sw/sed} : major metabolite in water

zRMS comments: Information on metabolite JAU 6476-thiazocine has been added by the zRMS, as this metabolite was found at >10% in aqueous photolysis study.

8.3 Rate of degradation in soil (KCP 9.1.1)

Studies on degradation in soil with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substance.

8.3.1 Aerobic degradation in soil (KCP 9.1.1.1)

The route and rate of degradation in soil of prothioconazole was evaluated during the Annex I Inclusion. The fate and behaviour of prothioconazole in soil is discussed in detail in the corresponding document of the EU review dossier where the study references can be found (Prothioconazole DAR 2005 and EFSA Scientific Report (2007) 106, 1-98).

8.3.1.1 Prothioconazole and its metabolites

Table 8.3-1: Summary of aerobic degradation rates for prothioconazole - laboratory studies

Protiocanazole, Laboratory studies, aerobic conditions											
Soil name	Soil type	Label	pH H ₂ O	t.oC	MWHC %	DT50 (d)	DT90 (d)	DT50 (d) 20°C pF2/10kPa	Chi2 (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Laacher Hof Rhineland (Germany)	Sandy loam	Phenyl- UI	7.2	20	48	0.07	5.3	-	-	FOMC	Y (DAR 2005)
Stanley Kansas (USA)	Silty Clay Loam	Phenyl- UI	5.9	20	48	0.7	78.2	-	-	FOMC	Y (DAR 2005)
Hofchen Rhineland (Germany)	Silt	Phenyl- UI & 3,5- triazole	7.1	20	50	0.30	0.99	-	-	SFO	Y (DAR 2005)
Byromville Georgia (USA)	Loamy sand	Phenyl- UI & 3,5- triazole	6.8	20	50	1.27	4.22	-	-	SFO	Y (DAR 2005)
Geometric mean/Median (n=4)						0.37/0.5					
pH-dependency: y/n								No			

Table 8.3-2: Summary of aerobic degradation rates for prothioconazole-S-methyl (M01) - laboratory studies

prothioconazole-S-methyl (M01), Laboratory studies, aerobic conditions												
Soil name	Soil type	Label	pH	t.oC	MWHC %	DT50 (d)	DT90 (d)	DT50 (d) 20°C pF2/10kPa	Chi2 (%)	Kinetic model	ff	Evaluated on EU level y/n/Reference
Hofchen Rhineland (Germany)	Loamy silt	Phenyl-UI	7.3	20°C	40	5.9	19.6	-	-	SFO		Y (DAR 2005)
Laacher Hof AIII Rhineland (Germany)	Loamy silt	Phenyl-UI	7.9	20°C	40	27.2	90.2	-	-	SFO		Y (DAR 2005)
Laacher Hof AXXa Rhineland (Germany)	Sandy Loam	Phenyl-UI	7.2	20°C	40	8.2	27.2	-	-	SFO		Y (DAR 2005)
Stanley Kansas (USA)	Silty Clay	Phenyl-UI	6.3	20°C	40	46	153	-	-	SFO		Y (DAR 2005)
Geometric mean/Median DT ₅₀ (n=4)						15.7/17.7						
pH-dependency: y/n								No				

Table 8.3-3: Summary of aerobic degradation rates for prothioconazole-desthio (M04) - laboratory studies

prothioconazole-desthio (M04) Laboratory studies, aerobic conditions												
Soil name	Soil type	Label	pH	t.oC	MWHC %	DT50 (d)	DT90 (d)	DT50 (d) 20°C pF2/10kPa	Chi2 (%)	Kinetic model	ff	Evaluated on EU level y/n/ Reference
Hofchen Rhineland (Germany)	Loamy silt	Phenyl-UI	7.3	20°C	40	34.0	113.0	-	-	SFO		Y (DAR 2005)
Laacher Hof AIII Rhineland (Germany)	Loamy silt	Phenyl-UI	7.9	20°C	40	29.6	59.2 98.3	-	-	SFO		Y (DAR 2005)
Laacher Hof AXXa Rhineland (Germany)	Sandy Loam	Phenyl-UI	7.2	20°C	40	7.0	23.2	-	-	SFO		Y (DAR 2005)
Stanley Kansas (USA)	Silty Clay	Phenyl-UI	6.3	20°C	40	18.6	61.9	-	-	SFO		Y (DAR 2005)
Geometric mean/Median DT ₅₀ (n=4)						19.02/24.1						

prothioconazole-desthio (M04) Laboratory studies, aerobic conditions												
Soil name	Soil type	Label	pH	t.oC	MWHC %	DT50 (d)	DT90 (d)	DT50 (d) 20°C pF2/10kPa	Chi2 (%)	Kinetic model	ff	Evaluated on EU level y/n/ Reference
pH-dependency: y/n								No				

8.3.2 Anaerobic degradation in soil (KCP 9.1.1.1)

According to DAR 2005 and EFSA Scientific Report (2007) 106, 1-98, prothioconazole and its metabolites were investigated in anaerobic conditions. The half-lives for each compound were reported below:

- Prothioconazole (1st order): range from 0.20 to 2.8 d (median 1.1 d);
- Prothioconazole-S-methyl (M01): range from 12.9 to 100.9 d (median 38.8 d);
- Prothioconazole-desthio (M04): range from 15.3 d to 74.5 (median 52.9 d).
-

According information provided in EFSA Scientific Report (2007) 106, prothioconazole might be potentially exposed to anaerobic conditions when applied during the winter, following autumn seed treatment. The application pattern of SIP41061 does not include application as a seed treatment, so anaerobic route of exposure is not considered further, in line with EU conclusion.s

8.4 Field studies (KCP 9.1.1.2)

According to DAR 2005 and EFSA Scientific Report (2007) 106, 1-98, prothioconazole and prothioconazole-desthio (M04) were investigated in field study conditions.
No new filed studies have been performed.

8.4.1 Soil dissipation testing on a range of representative soils (KCP 9.1.1.2.1)

8.4.1.1 Prothioconazole and its metabolites

Table 8.4-1: Summary of aerobic degradation rates for Prothioconazole - field studies

Prothioconazole, Field studies									
Soil type	Location	pH (CaCl ₂)	Depth (cm)	DissT50 (d) actual	DT90 (d) actual	DT50 (d) 20°C	St. (x ²)	Method of calculation	Evaluated on EU level y/n/ Reference
Loamy silt/Silt loam	Burscheid Hofchen (Germany)	6.25	0-10	1.9	6.4	1.2		1 st order	Y (DAR 2005)
Sandy clay loam	Thursto, UK	7.56	0-10	1.6	5.5	0.8		1 st order	Y (DAR 2005)
Weak loamy silt/silt	Fresne l'Archeveque,	6.42	0-10	1.3	4.4	1.6		1 st order	Y (DAR 2005)

Prothioconazole, Field studies									
Soil type	Location	pH (CaCl ₂)	Depth (cm)	DissT50 (d) actual	DT90 (d) actual	DT50 (d) 20°C	St. (σ^2)	Method of calculation	Evaluated on EU level y/n/ Reference
	France								
Sandy clay loam	Thursto, UK	7.56	0-10	2.8	9.3	1.4		1 st order	Y (DAR 2005)
Weak loamy silt/silt	Fresne l'Archeveque, France	6.42	0-10	1.4	4.5	1.6		1 st order	Y (DAR 2005)
Sandy loamy silt/silt loam	St. Etienne du Gres, France	7.61	0-10	1.7	5.6	1.1		1 st order	Y (DAR 2005)
Weak loamy sand/sandy loam	Pradelle Di Nogarole Rocca, Italy	7.56	0-10	1.6	5.4	1.5		1 st order	Y (DAR 2005)
Loamy sand/sandy loam	Monheim, Germany	6.32	0-10	1.5	5.1	0.6		1 st order	Y (DAR 2005)
Maximum (n=8)				2.8*	9.3	1.6			
Geometric mean (n=8)				1.7	5.6	1.2**			
pH-dependency y/n				n	n	n			

*Maximum value of 2.8 d used for PECsoil calculation

**Geomean value of 1.2 d used for PECgw and PECsw calculation

Table 8.4-2: Summary of aerobic degradation rates for prothioconazole-desthio (M04) - field studies

prothioconazole-desthio (M04), Field studies									
Soil type	Location	pH (CaCl ₂)	Depth (cm)	DissT50 (d) actual	DT90 (d) actual	DT50 (d) 20°C	St. (σ^2)	Method of calculation	Evaluated on EU level y/n/ Reference
Loamy silt/Silt loam	Burscheid Hofchen (Germany)	6.25	0-10	16.3	54.1	10.3		1 st order	Y (DAR 2005)
Sandy clay loam	Thursto, UK	7.56	0-10	54.7	182	27		1 st order	Y (DAR 2005)
Weak loamy silt/silt	Fresne l'Archeveque, France	6.42	0-10	47.6	158	27.5		1 st order	Y (DAR 2005)
Sandy clay loam	Thursto, UK	7.56	0-10	50.2	167	23.4		1 st order	Y (DAR 2005)
Weak loamy silt/silt	Fresne l'Archeveque, France	6.42	0-10	36.8	122	20.1		1 st order	Y (DAR 2005)
Sandy loamy silt/silt loam	St. Etienne du Gres, France	7.61	0-10	72.3	240	61.9		1 st order	Y (DAR 2005)

prothioconazole-desthio (M04), Field studies									
Soil type	Location	pH (CaCl₂)	Depth (cm)	DissT50 (d) actual	DT90 (d) actual	DT50 (d) 20°C	St. ($\times 2$)	Method of calculation	Evaluated on EU level y/n/ Reference
Weak loamy sand/sandy loam	Pradelle Di Nogarole Rocca, Italy	7.56	0-10	30.5	101	20.7		1 st order	Y (DAR 2005)
Loamy sand/sandy loam	Monheim, Germany	6.32	0-10	27.9	92.6	15.2		1 st order	Y (DAR 2005)
Maximum (n=8)				72.3*	240.0	61.9			
Geometric mean (n=8)				38.5	127.8	22.7**			
pH-dependency y/n				n	n	n			

*Maximum value of 72.3 d used for PEC_{soil} calculation

**Geomean value of 22.7 d used for PEC_{gw} and PEC_{sw} calculation

Table 8.4-3: Summary of aerobic degradation rates for 1,2,4 - triazole - field studies

1,2,4 - triazole, Field studies								
Soil type	Location	pH (CaCl₂)	Depth (cm)	DT50 (d) Fast Phase	DT50 (d) Slow Phase	St. ($\times 2$)	Method of calculation	Evaluated on EU level y/n/ Reference
Silt loam	Germany	6.4	0-30	2.5	70.7	18.8	DFOP	Y (EFSA,2014)
Silty clay loam	Italy	7.6	0-40	1.4	59.8	10.6	DFOP	Y (EFSA,2014)
Sandy loam	UK	7.4	0-40	0.5	25.1	18.1	DFOP	Y (EFSA,2014)
Loam	Spain	5.8	0-30	4.6	126	12.7	DFOP	Y (EFSA,2014)
Maximum (n=4)				4.6	126			
Geometric mean (n=4)				1.68	60.5			
pH-dependency y/n				n	n			

Slow phase DFOP field DT50 of 126 d used for PEC_{sw} calculation (EFSA Journal 2014;12(1):3485, Tebuconazole).

8.4.2 Soil accumulation testing (KCP 9.1.1.2.2)

Considering the DT₉₀ of prothioconazole and its metabolites, soil accumulation studies were not necessary.

8.5 Mobility in soil (KCP 9.1.2)

Studies on mobility in soil with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substance.

8.5.1 Prothioconazole and its metabolites

The mobility in soil of Prothioconazole was evaluated during the Annex I Inclusion. No additional studies have been performed.

According to DAR 2005 and EFSA Scientific Report (2007) 106, 1-98, K_d and K_{oc} values of prothioconazole cannot be determined in batch equilibrium due to the instability of the compound in these systems. A **Koc of 1765 mL/g** was derived for the active substance on the basis of an aged soil column leaching study. The corresponding Freundlich exponent was set to $1/n = 1$ for PEC calculation.

In the tables below were reported the summaries of the batch equilibrium results for the metabolites prothioconazole-S-methyl (M01) and prothioconazole desthio (M04)

Table 8.5-1: Summary of soil adsorption/desorption for prothioconazole-S-methyl (M01)

prothioconazole-S-methyl (M01)							
Soil Name	Soil Type	OC (%)	pH (H ₂ O)	Kf (mL/g)	Koc (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
Laacher Hof AXXa Rhineland (Germany)	Sandy loam	2.02	7.2	56.0	2772.4	0.87	Y (DAR 2005)
Hofchen Rhineland (Germany)	Silt	2.14	7.1	64.1	2995.0	0.88	Y (DAR 2005)
Stanley Kansas (USA)	Silty clay loam	1.66	5.9	41.2	2484.0	0.91	Y (DAR 2005)
Byromville, Georgia (USA)	Loamy sand	0.79	6.8	15.6	1973.6	0.85	Y (DAR 2005)
Arithmetic mean (n=4)					2556.3	0.88	
Geometric mean (n=4)					2526		
pH-dependency y/n					No		

Table 8.5-3: Summary of soil adsorption/desorption for Prothioconazole desthio (M04)

Prothioconazole desthio (M04)							
Soil Name	Soil Type	OC (%)	pH (H ₂ O)	Kf (mL/g)	Koc (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
Laacher Hof AXXa Rhineland (Germany)	Sandy loam	2.02	7.2	56.0	616.8	0.79	Y (DAR 2005)
Hofchen Rhineland (Germany)	Silt	2.14	7.1	64.1	625.3	0.83	Y (DAR 2005)
Stanley Kansas (USA)	Silty clay loam	1.66	5.9	41.2	536.4	0.83	Y (DAR 2005)
Byromville, Georgia (USA)	Loamy sand	0.79	6.8	15.6	523.0	0.80	Y (DAR 2005)
Arithmetic mean (n=4)					575.4	0.81	
Geometric mean (n=4)					573.5		
pH-dependency y/n					No		

Table 8.5-4: Summary of soil adsorption/desorption for 1,2,4 Triazole (M13)

Soil Name	Soil Type	OC (%)	pH (-)	Kf (mL/g)	Kfoc (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
Alpaugh, USA	Silty clay	0.70	8.8	0.833	120	0.897	Y (EFSA,2014)*
Hollister, USA	Clay loam	1.74	6.9	0.748	43	0.827	Y (EFSA,2014)*
Lawrenceville, USA	Silty clay loam	0.70	7.0	0.722	104	0.922	Y (EFSA,2014)*
Pachappa, USA	Sandy loam	0.81	6.9	0.720	89	1.016	Y (EFSA,2014)*
Arithmetic mean (n=4)					89		
Geometric mean (n=4)					83		
pH-dependency y/n					No		

Note: EFSA LoEP 2007 Prothioconazole reported Koc value of 89 (Arithmetic mean).

* EFSA Journal 2014;12(1):3485, Tebuconazole.

8.5.2 Column leaching (KCP 9.1.2.1)

Information is available in the DAR of prothioconazole and summarised in the EFSA Scientific Report (2007) 106, 1-98.

8.5.3 Lysimeter studies (KCP 9.1.2.2)

As reported in the EFSA Scientific Report (2007) 106, 1-98, this study is not required for prothioconazole

8.5.4 Field leaching studies (KCP 9.1.2.3)

As reported in the EFSA Scientific Report (2007) 106, 1-98, this study is not required for prothioconazole

8.6 Degradation in the water/sediment systems (KCP 9.2, KCP 9.2.1, KCP 9.2.2, KCP 9.2.3)

Studies on degradation in water/sediment systems with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substance.

8.6.1 Prothioconazole and its metabolites

According to DAR 2005 and EFSA Scientific Report (2007) 106, 1-98, the exposure evaluation is evaluated for prothioconazole and its metabolites prothioconazole desthio (M04) and 1,2,4 triazole (M13).

Table 8.6-1: Summary of degradation in water/sediment of prothioconazole

Prothioconazole Distribution (max. distribution in water not detectable; max in sed . 23.4% sediment after 1 days)										
Water/sediment system	pH water/sed.	DegT50 whole syst. (d)	DegT90 whole syst. (d)	Kinetic, Fit	DissT50 water (d)	DissT90 water (d)	Kinetic, Fit	DissT50 sed. (d)	Kinetic, Fit	Evaluated on EU level y/n/ Reference
Pond	7.84	2.8	76.4	Hockey stick	0.8	2.7	1 st order	-	-	Y, EFSA Scientific Report (2007) 106, 1-98 Y (DAR 2005)
Small lake	7.45	1.6	23.6	Hockey stick	1*	3.4	1 st order	-	-	Y, EFSA Scientific Report (2007) 106, 1-98 Y (DAR 2005)
Geometric mean (n=2)		2.1	-		0.89	-		-		

** DT50 = 1d used for FOCUS PECsw modelling for prothioconazole according to LoEP EFSA Conclusions

LoEP EFSA Scientific Report (2007) doesn't report the DT50 value for prothioconazole desthio (M04). According to the DAR 2005, the derived DT50 values for M04 in two water-sediment system are 39.2 and 49.9 d, respectively. A geomean DT50 value of 44.23 d has been selected for PECsw calculation.

Table 8.6-2: Summary of observed metabolites

prothioconazole desthio (M04) Water/sediment system	prothioconazole desthio (M04): max in water layer 32.3%; max in sediment layer 26.%;	EFSA Scientific Report (2007) 106, 1-98,
1,2,4 triazole (M13) Water/sediment system	1,2,4 triazole (M13): max 37.2% in water layer.	
Substance	Maximum observed	Evaluated on EU level y/n/ Reference
Prothioconazole -desthio (M04)	Max. in water, 55.7 % after 11 d Max. in sediment 26.9 % after 14 d	Yes Gilges and Bornatsch (2001) – DAR, 2005 (Vol. 3, Annex B.8), Addendum (October 2005)
Prothioconazole-thiazocine (M12)	Max. in water, 14.1 % after 5 d	
1,2,4-triazole (M13)	Max. in water, 11.9 % after 18 d	
Prothioconazole-S-methyl (M01)	Max. in sediment 77.0 % after 240 d	Yes Scholz (2001) – DAR, 2005 (Vol. 3, Annex B.8), Addendum (October 2005)

8.7 Predicted Environmental Concentrations in soil (PEC_{soil}) (KCP 9.1.3)

The PEC_{soil} calculation for prothioconazole and its metabolites were performed using ESCAPE tool (Version 2.0 – 26 November 2019).

In order to consider worst case conditions, especially for metabolite prothioconazole-desthio, formed from both prothioconazole and metabolite prothioconazole-S-methyl, the PEC_{soil} for metabolites were calculated considering the metabolite application as parent. The maxima occurrences in soil and the molecular weight ratios were used for the calculation of the metabolites application rates.

As reported in the EFSA Journal (2007) 106, 1-98, considering the short DT50 values, no accumulation is expected for prothioconazole, prothioconazole-desthio and prothioconazole-S-methyl.

8.7.1 Justification for new endpoints

8.7.2 Prothioconazole and relevant metabolite(s)

From the applications of prothioconazole shown in the proposed GAP that the application of 200 g a.s./ha to ~~carrots at BBCH 16 (25% crop interception)~~ 1, 2 uses represents the worst case and thus, covers the application to all other crops. Please refer to table 8.7-1.

For PEC_{soil} calculations an even distribution of the compounds within the top soil layer with a depth of 5.0 cm, a bulk density of 1.5 g/cm³, and a degradation of the active according to first order kinetics were assumed.

In the following tables, the application rate and the input parameters for prothioconazole and its metabolites are reported.

Table 8.7-1: Input parameters related to application for PEC_{soil} calculations

Use No.	1, 2	3	4	5	6
Crop	Wheat (Soft, Durum), Triticale, Rye, Barley	Oilseed rape	Sugar beet	Cucurbits edible peel & Cucurbits inedible peel	Pome fruits (Apple, Pear, Quince, Medlar)
Application rate (g as/ha)	200	180	160	120	120
Number of applications/interval (d)	2/14d	2/14d	2/14d	3/10d	2/7d
Relative application date	BBCH 29	BBCH 30	BBCH 39	BBCH 11	BBCH 39
Crop interception (%)	20% 1 st app 80% 2 nd app	80%	70%	50%	60%
Soil loading (g as/ha)	160/160 40	36/36	48/48	60/60/60	48/48
Depth of soil layer (relevant for plateau concentration) (cm)	5 cm				
Use No.	7	8			
Crop	Stone fruits (Peach, Nectarin, Plum, Apri-cot, Cherry) and Tree Nuts (Almond)	Carrot (other roots and tubers vegetables)			
Application rate (g as/ha)	160	200			
Number of applications/interval (d)	2/7d	2/21d			
Relative application date	BBCH 51	BBCH 16			
Crop interception (%)	60%	25%			
Soil loading (g as/ha)	64/64	150/150			
Depth of soil layer (relevant for plateau concentration) (cm)	5 cm				

Table 8.7-2: Input parameter for active substance(s) and relevant metabolite(s) for PEC_{soil} calculation

Compound	Molecular weight (g/mol)	Max. ff. (%)	DT50 (days)	Value in accordance to EU endpoint y/n/ Reference
prothioconazole	344.26	-	2.8 d (Maximum, filed study)	Y (EFSA,2007)
prothioconazole desthio (M04)	312.2	57.1	72.3 (Maximum, field study)	Y (EFSA,2007)
prothioconazole-S-methyl (M01)	358.3	14.6	46 (Maximum, laboratory study)	Y (EFSA,2007)

8.7.2.1 Prothioconazole and its metabolites

PEC_{soil} are reported below.

Table 8.7-3: PEC_{soil} on cereals for prothioconazole and its metabolites

PEC _{soil} (mg/kg)		Cereals (ESCAPE calculation) - 2 x 200 g a.i./ha (20% + 80% interception)					
		Prothioconazole Single application		prothioconazole-S-methyl (M01)		prothioconazole desthio (M04)	
		Actual	TWA	Actual	TWA	Actual	TWA
Initial		0.213	-	0.033	-	0.125	-
Short term	24h	0.167	0.172	0.032	0.033	0.123	0.124
	2d	0.130	0.134	0.032	0.032	0.122	0.123
	4d	0.079	0.082	0.031	0.032	0.120	0.122
Long term	7d	0.038	0.039	0.030	0.03	0.117	0.120
	14d	0.060	0.007	0.027	0.030	0.109	0.117
	21d	0.011	0.001	0.024	0.029	0.102	0.113
	28d	0.002	0.000	0.022	0.029	0.095	0.111
	50d	< 0.001	0.000	0.018	0.027	0.084	0.108
	100d	< 0.001	0.000	0.007	0.020	0.048	0.088
Plateau concentration		Not necessary	-	Not necessary	-	Not necessary	-
PEC _{accumulation} (PEC _{act} + PEC _{soil plateau})		Not necessary	-	Not necessary	-	Not necessary	-

Table 8.7-4: PEC_{soil} on oilseed rape for prothioconazole and its metabolites

PEC _{soil} (mg/kg)		Oilseed rape (ESCAPE calculation) - 2 x 180 g a.i./ha (80% interception)					
		prothioconazole		prothioconazole- S-methyl (M01)		prothioconazole desthio (M04)	
		Actual	TWA	Actual	TWA	Actual	TWA
Initial		0.050	-	0.019	-	0.047	-
Short term	24h	0.038	0.044	0.019	0.019	0.046	0.047
	2d	0.030	0.039	0.018	0.019	0.046	0.046
	4d	0.018	0.033	0.018	0.018	0.045	0.046
Long term	7d	0.009	0.026	0.017	0.018	0.044	0.045
	14d	0.002	0.016	0.015	0.017	0.041	0.044
	21d	< 0.001	0.018	0.014	0.016	0.038	0.043
	28d	< 0.001	0.015	0.012	0.016	0.036	0.041
	50d	< 0.001	0.010	0.010	0.014	0.031	0.038
	100d	< 0.001	0.004	0.004	0.011	0.018	0.031
Plateau concentration		Not necessary	-	Not necessary	-	Not necessary	-
PEC _{accumulation} (PEC _{act} + PEC _{soil plateau})		Not necessary	-	Not necessary	-	Not necessary	-

Table 8.7-5: PEC_{soil} on sugar beet for prothioconazole and its metabolites

PEC _{soil} (mg/kg)		Sugar beet (ESCAPE calculation) - 2 x 160 g a.i./ha (70% interception)					
		prothioconazole		prothioconazole- S-methyl (M01)		prothioconazole desthio (M04)	
		Actual	TWA	Actual	TWA	Actual	TWA
Initial		0.066	-	0.017	-	0.063	-
Short term	24h	0.052	0.059	0.017	0.017	0.062	0.062
	2d	0.040	0.052	0.016	0.017	0.061	0.062
	4d	0.025	0.044	0.016	0.016	0.060	0.061
Long term	7d	0.012	0.035	0.015	0.016	0.059	0.061
	14d	0.002	0.021	0.014	0.015	0.055	0.059
	21d	< 0.001	0.024	0.012	0.014	0.051	0.057
	28d	< 0.001	0.019	0.011	0.014	0.048	0.055
	50d	< 0.001	0.013	0.009	0.013	0.042	0.052

	100d	< 0.001	0.006	0.004	0.009	0.024	0.041
Plateau concentration		Not necessary	-	Not necessary	-	Not necessary	-
PEC _{accumulation} (PEC _{act} + PEC _{soil plateau})		Not necessary	-	Not necessary	-	Not necessary	-

Table 8.7-6: PEC_{soil} on cucurbits for prothioconazole and its metabolites

PEC _{soil} (mg/kg)		Cucurbit (ESCAPE calculation) - 3 x 120 g a.i./ha (50% interception)					
		prothioconazole		prothioconazole- S-methyl (M01)		prothioconazole desthio (M04)	
		Actual	TWA	Actual	TWA	Actual	TWA
Initial		0.087	-	0.030	-	0.114	-
Short term	24h	0.068	0.078	0.030	0.030	0.113	0.113
	2d	0.053	0.069	0.029	0.030	0.112	0.113
	4d	0.032	0.056	0.029	0.029	0.110	0.112
Long term	7d	0.015	0.046	0.027	0.029	0.107	0.110
	14d	0.003	0.043	0.025	0.027	0.100	0.107
	21d	< 0.001	0.037	0.022	0.026	0.093	0.103
	28d	< 0.001	0.036	0.020	0.025	0.087	0.100
	50d	< 0.001	0.025	0.016	0.023	0.076	0.094
	100d	< 0.001	0.011	0.007	0.017	0.044	0.077
Plateau concentration		Not necessary	-	Not necessary	-	Not necessary	-
PEC _{accumulation} (PEC _{act} + PEC _{soil plateau})		Not necessary	-	Not necessary	-	Not necessary	-

Table 8.7-7: PEC_{soil} on pome/stone fruits for prothioconazole and its metabolites

PEC _{soil} (mg/kg)		Pome/stone fruits (ESCAPE calculation) - 2 x 160 g a.i./ha (60% interception)					
		prothioconazole		prothioconazole- S-methyl (M01)		prothioconazole desthio (M04)	
		Actual	TWA	Actual	TWA	Actual	TWA
Initial		0.100	-	0.025	-	0.085	-
Short term	24h	0.078	0.089	0.024	0.024	0.085	0.085
	2d	0.061	0.080	0.024	0.024	0.084	0.085
	4d	0.037	0.068	0.023	0.024	0.082	0.084

Long term	7d	0.018	0.054	0.022	0.023	0.080	0.083
	14d	0.003	0.047	0.020	0.022	0.075	0.080
	21d	< 0.001	0.034	0.018	0.021	0.070	0.077
	28d	< 0.001	0.026	0.016	0.020	0.065	0.075
	50d	< 0.001	0.015	0.012	0.017	0.053	0.068
	100d	< 0.001	0.007	0.006	0.013	0.033	0.056
Plateau concentration		Not necessary	-	Not necessary	-	Not necessary	-
PEC _{accumulation} (PEC _{act} + PEC _{soil plateau})		Not necessary	-	Not necessary	-	Not necessary	-

Table 8.7-8: PEC_{soil} on carrots (worst case scenario) for prothioconazole and its metabolites

PEC _{soil} (mg/kg)		Carrots (ESCAPE calculation) - 2 x 200 g a.i./ha (25% interception)					
		prothioconazole		prothioconazole- S-methyl (M01)		prothioconazole desthio (M04)	
		Actual	TWA	Actual	TWA	Actual	TWA
Initial		0.201	-	0.052	-	0.188	-
Short term	24h	0.157	0.179	0.052	0.052	0.186	0.187
	2d	0.123	0.159	0.051	0.052	0.184	0.186
	4d	0.075	0.132	0.050	0.051	0.181	0.184
Long term	7d	0.036	0.105	0.047	0.050	0.176	0.182
	14d	0.006	0.063	0.043	0.047	0.164	0.176
	21d	0.001	0.043	0.038	0.045	0.154	0.170
	28d	0.0002	0.056	0.035	0.043	0.144	0.165
	50d	<0.0001	0.035	0.025	0.037	0.116	0.150
	100d	<0.0001	0.017	0.012	0.030	0.072	0.124
Plateau concentration		Not necessary	-	Not necessary	-	Not necessary	-
PEC _{accumulation} (PEC _{act} + PEC _{soil plateau})		Not necessary	-	Not necessary	-	Not necessary	-

8.7.2.2 PEC_{soil} of SIP 41061

The initial PEC in soil has been calculated for the formulation. The time dependent calculations are not required as the formulation is not considered to be maintained over time and will be separated into its individual constituents by transport and dissipation processes immediately after application. Based on a single worst application rate of 0.5 L/ha and an assumed density of the formulation of 1.162 g/cm³, the initial PEC_{soil} of the formulation is 0.581 mg/kg.

Table 8.7-7: PEC_{soil} for SIP 41061 on carrots (risk envelope approach)

Active substance/ preparation	Application rate (g/ha)	PEC _{act} (mg/kg)	PEC _{twa21 d} (mg/kg)	Tillage depth (cm)	PEC _{soil,plateau} (mg/kg)	PEC _{accu} = PEC _{act} + PEC _{soil,plateau} (mg/kg)
prothioconazole/ SIP 41061	581 (single application)	0.581	n.a.	5	-	-
	1162 (multiple applications)	1.162	n.a.	5	-	-

ZRMS comments:

The calculations PEC_{soil} has been accepted for the active substance prothioconazole and its metabolites M01 and M04.

The input parameters used in calculations were taken from the endpoints available in the EFSA conclusion on Scientific Report (2007) 106, 1-98. Interception is appropriate to the proposed BBCH of crops (guidance 2014).

Crop	Active substance/ preparation/metabolites	Application rate (g/ha)	PEC _{act} (mg/kg)
Cereals	SIP 41061	1162	1.162
	prothioconazole	200 (with 20% +80% crop interception)	0.213
	(M04)	103.38* (with 20% +80% crop interception)	0.125
	(M01)	30.39* (with 20% +80% crop interception)	0.033
Oilseed rape	prothioconazole	180 (with 80% crop interception)	0.050
	(M04)	93 (with 80% crop interception)	0.047
	(M01)	26.2 (with 80% crop interception)	0.019
Sugar beet	prothioconazole	160 (with 70% crop interception)	0.066
	(M04)	82.7 (with 70% crop interception)	0.063
	(M01)	23.2 (with 70% crop interception)	0.017
Pome/stone fruits	prothioconazole	160 (with 60% crop interception)	0.100
	(M04)	82.7 (with 60% crop interception)	0.085
	(M01)	23.2 (with 60% crop interception)	0.025
Carrots	SIP 41061	1162	1.162
	prothioconazole	200 (25% crop interception)	0.201
	(M04)	103.38* (25% crop interception)	0.188
	(M01)	30.39 (25% crop interception)	0.052
Cucurbit	SIP 41061	1.162	1.162
	prothioconazole	120 (with 50% crop interception)	0.087
	(M04)	14.4 (with 50% crop interception)	0.114
	(M01)	68.4 (with 50% crop interception)	0.030

The acceptable predicted environmental concentrations of prothioconazole and its metabolites in soil are appropriate to be used for the subsequent risk assessment.

8.8 Predicted Environmental Concentrations in groundwater (PEC_{gw}) (KCP 9.2.4)

8.8.1 Justification for new endpoints

8.8.2 Prothioconazole and relevant metabolite(s) (KCP 9.2.4.1)

According to the residue definition provided in the DAR 2005 and EFSA Scientific Report (2007) 106, 1-98, prothioconazole and its metabolites prothioconazole-S-methyl (M01) and prothioconazole desthio (M04) were considered for environmental exposure assessment in groundwater.

For groundwater modelling the FOCUS programs PEARL 5.5.5 and PELMO 6.6.4 were applied with all the respective scenarios defined for each crop of the GAP. The input parameters related to the assessed (critical) uses are summarized in Table 8.8-1.

The use cucurbit in greenhouse is covered by the same use in field, as worst case conditions. In addition for Netherlands, GEM Model was used (please refer to the Dutch National addendum).

Table 8.8-1: Input parameters related to application for PEC_{gw} calculations

Use No.	1, 2, 13	3	4	5	6
Crop	Wheat (Soft, Durum), Triticale, Rye, Barley	Oilseed rape	Sugar beet	Cucurbits edible peel	Pome fruits (Apple, Pear, Quince, Medlar)
Application rate (g as/ha)	200	180	160	120	120
Number of applications/interval (d)	2/14d	2/14d	2/14d	3/10d	2/7d
Relative application date	BBCH 29	BBCH 30	BBCH 39	BBCH 11	BBCH 39
Crop interception (%)	20%	80%	70%	50%	60%
Soil loading (g as/ha)	160/160	36/36	48/48	60/60/60	48/48
Frequency of application	Annual	Annual	Annual	Annual	Annual
Models used for calculation	FOCUS PEARL v5.5.5, FOCUS PELMO v6.6.4				
Use No.	7	8			
Crop	Stone fruits (Peach, Nectarin, Plum, Apricot, Cherry)	Carrot (other roots and tubers vegetables)			

Application rate (g as/ha)	160	200			
Number of applications/interval (d)	2/7d	2/14d			
Relative application date	BBCH 51	BBCH 16			
Crop interception (%)	60%	25%			
Soil loading (g as/ha)	64/64	150/150			
Frequency of application	Annual	Annual			
Models used for calculation	FOCUS PEARL v5.5.5, FOCUS PELMO v6.6.4				

The application dates provided in the following tables were used as input in FOCUS PEARL v 5.5.5 and FOCUS PELMO v 6.6.4 and they were selected using AppDate program, version 3.06.

Table 8.8-2: Application dates used for groundwater risk assessment – Wheat (Soft, Durum), Triticale, Rye and Barley

Crop	Scenario	Winter Cereals Application dates (absolute)	Spring Cereals* Application dates (absolute)
Winter Cereals & Spring cereals BBCH 29	Châteaudun	14/04 – 28/04	15/04 – 29/04
	Hamburg	03/05 – 17/05	26/04 – 10/05
	Jokionien	13/05 – 27/05	04/06 – 18/06
	Kremsmünster	23/04 – 07/05	26/04 – 10/05
	Okehampton	20/04 – 04/05	21/04 – 05/05
	Piacenza	18/03 – 01/04	n.r.
	Porto	27/01 – 10/02	15/04 – 29/04
	Sevilla	04/01 – 18/01	n.r.
	Thiva	15/01 – 29/01	n.r.

n.r. → nor relevant scenario for the crop

Table 8.8-3: Application dates used for groundwater risk assessment – oilseed rape

Crop	Scenario	Winter oilseed rape Application dates (absolute)	Spring oilseed rape Application dates (absolute)
Oilseed rape BBCH 30	Châteaudun	11/03 – 25/03	n.r.
	Hamburg	18/04 – 02/05	n.r.
	Jokionien	n.r.	13/06 – 27/06
	Kremsmünster	15/04 – 29/04	n.r.
	Okehampton	09/04 – 23/04	23/04 – 07/05
	Piacenza	07/03 – 21/03	n.r.
	Porto	29/12 – 12/01	27/04 – 11/05

n.r. → nor relevant scenario for the crop

Table 8.8-4: Application dates used for groundwater risk assessment – sugar beet

Crop	Scenario	Application dates (absolute)
Sugar beet BBCH 39	Châteaudun	11/07 – 25/07
	Hamburg	23/08 – 06/09
	Jokionien	06/08 – 20/08
	Kremsmünster	23/08 – 06/09
	Okehampton	24/08 – 07/09
	Piacenza	12/07 – 26/07
	Porto	28/04 – 12/05
	Sevilla	07/04 – 21/04
	Thiva	27/06 – 11/07

Table 8.8-5: Application dates used for groundwater risk assessment – Tomatoes

Crop	Scenario	Application dates (absolute)
Tomatoes (as surrogate crop for cucurbits) BBCH 11	Châteaudun	13/05 – 23/05 – 02/06
	Piacenza	13/05 – 23/05 – 02/06
	Porto	19/03 – 29/03 – 08/04
	Sevilla	17/04 – 27/04 – 07/05
	Thiva	13/04 – 23/04 – 03/05

Table 8.8-6: Application dates used for groundwater risk assessment – Apples

Crop	Scenario	Application dates (absolute)	
		Pome Fruit BBCH 39	Stone Fruit BBCH 51
Apples (pome/stone fruit)	Châteaudun	30/04 – 07/05	03/05 – 10/05
	Hamburg	22/05 – 29/05	26/05 – 02/06
	Jokioinen	18/05 – 25/05	18/05 – 25/05
	Kremsmünster	22/05 – 29/05	26/05 -02/06
	Okehampton	03/05 – 10/05	08/05 – 15/05
	Piacenza	30/04 – 07/05	03/05 – 10/05
	Porto	05/05 – 12/05	11/05 – 18/05
	Sevilla	21/04 – 28/04	25/04 – 02/05
	Thiva	05/05 – 12/05	11/05 – 18/05

Table 8.8-7: Application dates used for groundwater risk assessment - carrots

Crop	Scenario	Application dates (absolute)
Carrots (Carrots, other root and tuber vegetables, BBCH 16	Châteaudun (1st season) Châteaudun (2nd season)	04/04 – 18/04 29/07 – 12/08
	Hamburg (1st season) Hamburg (2nd season)	04/04 – 18/04 29/07 – 12/08
	Jokioinen	29/07 – 12/08
	Kremsmünster (1 st season) Kremsmünster (2 nd season)	04/04 – 18/04 29/07 – 12/08
	Porto (1st season) Porto (2nd season)	07/04 – 21/04 24/08 – 07/09
	Thiva (1st season) Thiva (2nd season)	03/04 – 17/04 03/07 – 17/07

8.8.2.1 Prothioconazole and its metabolites

According to the residue definition provided in the DAR 2005 and EFSA Scientific Report (2007) 106, 1-98, prothioconazole and its metabolites prothioconazole-S-methyl (M01) and prothioconazole desthio (M04) were considered for environmental exposure assessment in groundwater.

Table 8.8-8: Input parameters related to active substance prothioconazole and its metabolites for PEC_{gw} calculations

Compound	Prothioconazole	prothioconazole desthio (M04)	prothioconazole-S-methyl (M01)
Molecular weight (g/mol)	344.26	312.2	358.37
Water solubility (mg/L)*	300 at 20°C	50.6	4.6
	600 at 30°C	Not needed	Not needed
Saturated vapour pressure (Pa)*	4 x 10 ⁻⁷ at 20°C	1.0 x 10 ⁻¹⁰ (default value)	1.0 x 10 ⁻¹⁰ (default value)
	1.6 x 10 ⁻⁶ at 30°C	Not needed	Not needed
DT ₅₀ in soil (d)	1.2 (geomean field, n=5)	22.7 (geomean field, n=8)	15.7 (geomean lab, n=4)
Transformation rate: to metabolite to CO ₂	0.080836 (to M01) 0.329118 (to M04) 0.167446 (to CO ₂)	0.0305 (to CO ₂)	0.04415 (to M04)

Compound	Prothioconazole	prothioconazole desthio (M04)	prothioconazole- S-methyl (M01)
$K_{foc} (mL/g)/K_{fom}$	1765/1023.8 (derived from aged soil colum)	573.5/332.7 (geomean, n=4)	2526/1465.2 (geomean, n=4)
1/n	1 (default)	0.81 (arithmetic mean, n=4)	0.88 (arithmetic mean, n=4)
Plant uptake factor	0	0	0
Formation fraction	-	0.57 from parent 1 from M01	0.14 from parent

* Since PELMO model requires vapour pressure and water solubility values at 2 temperatures, the following rule was followed:

Solubility at (T1+10°C) = 2 x Solubility at T1

Vapour pressure at (T1+10°C) = 4 x Vapour pressure at T1

Results of the simulations are reported into the below tables.

Table 8.8-9: PEC_{gw} for prothioconazole and metabolites on cereals

Crop	Model	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)		
			Prothioconazole	Prothioconazole-S-Methyl (M01)	Prothioconazole-Desthio (M04)
Winter cereals	FOCUS PELMO 5.5.3 6.6.4	Châteaudun	< 0.001	< 0.001	< 0.001
		Hamburg	< 0.001	< 0.001	< 0.001
		Jokionien	< 0.001	< 0.001	< 0.001
		Kremsmünster	< 0.001	< 0.001	< 0.001
		Okehampton	< 0.001	< 0.001	< 0.001
		Piacenza	< 0.001	< 0.001	< 0.001
		Porto	< 0.001	< 0.001	< 0.001
		Sevilla	< 0.001	< 0.001	< 0.001
		Thiva	< 0.001	< 0.001	< 0.001
	FOCUS PEARL 4.4.4 5.5.5	Châteaudun	< 0.001	< 0.001	< 0.001
		Hamburg	< 0.001	< 0.001	< 0.001
		Jokionien	< 0.001	< 0.001	< 0.001
		Kremsmünster	< 0.001	< 0.001	< 0.001
		Okehampton	< 0.001	< 0.001	< 0.001
		Piacenza	< 0.001	< 0.001	< 0.001
		Porto	< 0.001	< 0.001	< 0.001
		Sevilla	< 0.001	< 0.001	< 0.001
		Thiva	< 0.001	< 0.001	< 0.001
Spring cereals	FOCUS PELMO 5.5.3 6.6.4	Châteaudun	< 0.001	< 0.001	< 0.001
		Hamburg	< 0.001	< 0.001	< 0.001
		Jokioinen	< 0.001	< 0.001	< 0.001
		Kremsmünster	< 0.001	< 0.001	< 0.001
		Okehampton	< 0.001	< 0.001	< 0.001
		Porto	< 0.001	< 0.001	< 0.001
	FOCUS PEARL 4.4.4 5.5.5	Châteaudun	< 0.001	< 0.001	< 0.001
		Hamburg	< 0.001	< 0.001	< 0.001
		Jokioinen	< 0.001	< 0.001	< 0.001
		Kremsmünster	< 0.001	< 0.001	< 0.001
		Okehampton	< 0.001	< 0.001	< 0.001
		Porto	< 0.001	< 0.001	< 0.001

Table 8.8-10: PEC_{gw} for prothioconazole and metabolites on winter oilseed rape

Crop	Model	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)		
			Prothioconazole	Prothioconazole-S-Methyl (M01)	Prothioconazole-Desthio (M04)
Winter oilseed rape/01 BBCH 20	FOCUS PELMO 5.5.3 6.6.4	Châteaudun	< 0.001	< 0.001	< 0.001
		Hamburg	< 0.001	< 0.001	< 0.001
		Kremsmünster	< 0.001	< 0.001	< 0.001
		Okehampton	< 0.001	< 0.001	< 0.001
		Piacenza	< 0.001	< 0.001	< 0.001
		Porto	< 0.001	< 0.001	< 0.001
	FOCUS PEARL 4.4.4 5.5.5	Châteaudun	< 0.001	< 0.001	< 0.001
		Hamburg	< 0.001	< 0.001	< 0.001
		Kremsmünster	< 0.001	< 0.001	< 0.001
		Okehampton	< 0.001	< 0.001	< 0.001
		Piacenza	< 0.001	< 0.001	< 0.001
		Porto	< 0.001	< 0.001	< 0.001
Winter oilseed rape/02 BBCH 30	FOCUS PELMO 5.5.3 6.6.4	Châteaudun	< 0.001	< 0.001	< 0.001
		Hamburg	< 0.001	< 0.001	< 0.001
		Kremsmünster	< 0.001	< 0.001	< 0.001
		Okehampton	< 0.001	< 0.001	< 0.001
		Piacenza	< 0.001	< 0.001	< 0.001
		Porto	< 0.001	< 0.001	< 0.001
	FOCUS PEARL 4.4.4 5.5.5	Châteaudun	< 0.001	< 0.001	< 0.001
		Hamburg	< 0.001	< 0.001	< 0.001
		Kremsmünster	< 0.001	< 0.001	< 0.001
		Okehampton	< 0.001	< 0.001	< 0.001
		Piacenza	< 0.001	< 0.001	< 0.001
		Porto	< 0.001	< 0.001	< 0.001

In bold values requiring further refinement

Table 8.8-11: PEC_{gw} for prothioconazole and metabolites on spring oilseed rape

Crop	Model	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)		
			Prothioconazole	Prothioconazole-S-Methyl (M01)	Prothioconazole-Desthio (M04)
Spring oilseed rape/01	FOCUS PELMO 5.5.3 6.6.4	Okehampton	<0.001	<0.001	<0.001
		Jokioinen	<0.001	<0.001	<0.001
		Porto	<0.001	<0.001	<0.001
	FOCUS PEARL 4.4.4 5.5.5	Okehampton	<0.001	<0.001	<0.001
		Jokioinen	<0.001	<0.001	<0.001
		Porto	<0.001	<0.001	<0.001

Spring oilseed rape/02	FOCUS PELMO 5.5.3 6.6.4	Okehampton	<0.001	<0.001	<0.001
		Jokioinen	<0.001	<0.001	<0.001
		Porto	<0.001	<0.001	<0.001
	FOCUS PEARL 4.4.4 5.5.5	Okehampton	<0.001	<0.001	<0.001
		Jokioinen	<0.001	<0.001	<0.001
		Porto	<0.001	<0.001	<0.001

Table 8.8-12: PEC_{gw} for prothioconazole and metabolites on sugarbeet

Crop	Model	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)		
			Prothioconazole	Prothioconazole-S-Methyl (M01)	Prothioconazole-Desthio (M04)
Sugarbeet	FOCUS PELMO 5.5.3 6.6.4	Châteaudun	<0.001	<0.001	<0.001
		Hamburg	<0.001	<0.001	<0.001
		Jokionien	<0.001	<0.001	<0.001
		Kremsmünster	<0.001	<0.001	<0.001
		Okehampton	<0.001	<0.001	<0.001
		Piacenza	0.001	<0.001	<0.001
		Porto	<0.001	<0.001	<0.001
		Sevilla	<0.001	<0.001	<0.001
		Thiva	<0.001	<0.001	<0.001
	FOCUS PEARL 4.4.4 5.5.5	Châteaudun	<0.001	<0.001	<0.001
		Hamburg	<0.001	<0.001	<0.001
		Jokionien	<0.001	<0.001	<0.001
		Kremsmünster	<0.001	<0.001	<0.001
		Okehampton	<0.001	<0.001	<0.001
		Piacenza	<0.001	<0.001	<0.001
		Porto	<0.001	<0.001	<0.001
		Sevilla	<0.001	<0.001	<0.001
		Thiva	<0.001	<0.001	<0.001

Table 8.8-13: PEC_{gw} for prothioconazole and metabolites on tomatoes

Crop	Model	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)		
			Prothioconazole	Prothioconazole-S-Methyl (M01)	Prothioconazole-Desthio (M04)
Tomatoes	FOCUS PELMO 5.5.3 6.6.4	Châteaudun	<0.001	<0.001	<0.001
		Piacenza	<0.001	<0.001	<0.001
		Porto	<0.001	<0.001	<0.001
		Sevilla	<0.001	<0.001	<0.001
		Thiva	<0.001	<0.001	<0.001
	FOCUS PEARL	Châteaudun	<0.001	<0.001	<0.001

	4.4.4 5.5.5	Piacenza	<0.001	<0.001	<0.001
		Porto	<0.001	<0.001	<0.001
		Sevilla	<0.001	<0.001	<0.001
		Thiva	<0.001	<0.001	<0.001

Table 8.8-14: PEC_{gw} for Prothioconazole and metabolites on Apples (Early appln. BBCH 39)

Crop	Model	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)		
			Prothioconazole	Prothioconazole-S-Methyl (M01)	Prothioconazole-Desthio (M04)
Apples Early appln. BBCH 39	FOCUS PELMO 5.5.3 6.6.4	Châteaudun	< 0.001	< 0.001	< 0.001
		Hamburg	< 0.001	< 0.001	< 0.001
		Jokioinen	< 0.001	< 0.001	< 0.001
		Kremsmünster	< 0.001	< 0.001	< 0.001
		Okehampton	< 0.001	< 0.001	< 0.001
		Piacenza	< 0.001	< 0.001	< 0.001
		Porto	< 0.001	< 0.001	< 0.001
		Sevilla	< 0.001	< 0.001	< 0.001
		Thiva	< 0.001	< 0.001	< 0.001
	FOCUS PEARL 4.4.4 5.5.5	Châteaudun	< 0.001	< 0.001	< 0.001
		Hamburg	< 0.001	< 0.001	< 0.001
		Jokioinen	< 0.001	< 0.001	< 0.001
		Kremsmünster	< 0.001	< 0.001	< 0.001
		Okehampton	< 0.001	< 0.001	< 0.001
		Piacenza	< 0.001	< 0.001	< 0.001
		Porto	< 0.001	< 0.001	< 0.001
		Sevilla	< 0.001	< 0.001	< 0.001
		Thiva	< 0.001	< 0.001	< 0.001

Table 8.8-15: P EC_{gw} for Prothioconazole and metabolites on Apples (Early appln. BBCH 51)

Crop	Model	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)		
			Prothioconazole	Prothioconazole-S-Methyl (M01)	Prothioconazole-Desthio (M04)
Apples Early appln. BBCH 51	FOCUS PELMO 5.5.3 6.6.4	Châteaudun	< 0.001	< 0.001	< 0.001
		Hamburg	< 0.001	< 0.001	< 0.001
		Jokioinen	< 0.001	< 0.001	< 0.001
		Kremsmünster	< 0.001	< 0.001	< 0.001
		Okehampton	< 0.001	< 0.001	< 0.001
		Piacenza	< 0.001	< 0.001	< 0.001
		Porto	< 0.001	< 0.001	< 0.001
		Sevilla	< 0.001	< 0.001	< 0.001

	FOCUS PEARL 4.4.4 5.5.5	Thiva	< 0.001	< 0.001	< 0.001
		Châteaudun	< 0.001	< 0.001	< 0.001
		Hamburg	< 0.001	< 0.001	< 0.001
		Jokioinen	< 0.001	< 0.001	< 0.001
		Kremsmünster	< 0.001	< 0.001	< 0.001
		Okehampton	< 0.001	< 0.001	< 0.001
		Piacenza	< 0.001	< 0.001	< 0.001
		Porto	< 0.001	< 0.001	< 0.001
		Sevilla	< 0.001	< 0.001	< 0.001
		Thiva	< 0.001	< 0.001	< 0.001

Table 8.8-16: PEC_{gw} for prothioconazole and metabolites on carrots

Crop	Model	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)		
			Prothioconazole	Prothioconazole-S-Methyl (M01)	Prothioconazole-Desthio (M04)
Carrots 1 st season	FOCUS PELMO 5.5.3 6.6.4	Châteaudun	<0.001	<0.001	<0.001
		Hamburg	<0.001	<0.001	<0.001
		Jokioinen	<0.001	<0.001	<0.001
		Kremsmünster	<0.001	<0.001	<0.001
		Porto	<0.001	<0.001	<0.001
		Thiva	<0.001	<0.001	<0.001
	FOCUS PEARL 4.4.4 5.5.5	Châteaudun	<0.001	<0.001	<0.001
		Hamburg	<0.001	<0.001	<0.001
		Jokioinen	<0.001	<0.001	<0.001
		Kremsmünster	<0.001	<0.001	<0.001
		Porto	<0.001	<0.001	<0.001
		Thiva	<0.001	<0.001	<0.001
Crop	Model	Scenario	80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)		
			Prothioconazole	Prothioconazole-S-Methyl (M01)	Prothioconazole-Desthio (M04)
Carrots 2 nd season	FOCUS PELMO 5.5.3 6.6.4	Châteaudun	<0.001	<0.001	<0.001
		Hamburg	<0.001	<0.001	<0.001
		Kremsmünster	<0.001	<0.001	<0.001
		Porto	<0.001	<0.001	<0.001
		Thiva	<0.001	<0.001	<0.001
	FOCUS PEARL 4.4.4 5.5.5	Châteaudun	<0.001	<0.001	<0.001
		Hamburg	<0.001	<0.001	<0.001
		Kremsmünster	<0.001	<0.001	<0.001
		Porto	<0.001	<0.001	<0.001
		Thiva	<0.001	<0.001	<0.001

In agreement with the Working document on harmonization for CEU¹, no MACRO simulations are necessary if the PEC_{GW} values calculated with FOCUS PEARL and FOCUS PELMO are <0.001 µg/L for all substances which trigger groundwater assessment.

All FOCUS Models provided prothioconazole and its metabolites PEC_{gw} well below 0.1 µg/L.

Considering the results of FOCUS PELMO and PEARL models, it can be concluded that SIP 41061 does not pose any risk to groundwater.

ZRMS comments:

The calculations PEC_{gw} has been accepted for the active substance prothioconazole and its metabolites M01 and M04. For active substance and its relevant metabolites PEC_{GW} calculations were performed with FOCUS new versions of models: FOCUS PEARL 5.5.5 and FOCUS PELMO 6.6.4. The input parameters used in calculations were taken from the endpoints available in the EFSA conclusion on Scientific Report (2007) 106, 1-98. Geometric mean K_{foc} and K_{fom} (instead of an arithmetic mean K_{foc} and K_{fom}) for all compounds were derived from the datasets presented in the EFSA Scientific Report (2007) 106, 1-98 for consistency with current EU Guidance. The interception is appropriate to the proposed BBCH of crops (guidance 2014). In simulations PUF value of 0 was assumed for all compounds, in line with recommendations of the most recent version of the FOCUS Groundwater Guidance.

The PEC_{gw} values for active substance prothioconazole and its metabolites are below the trigger value 0.1 µg/L in all existing scenarios.

The use cucurbit in greenhouse is covered by the same use in field, as worst case conditions.

The the results indicate safely uses for the recommended use patterns SIP 41061 for proposed GAP.

Nevertheless, additional simulations may be required by the SMS that do not accept calculations performed using FOCUS models.

8.9 Predicted Environmental Concentrations in surface water (PEC_{sw}) (KCP 9.2.5)

8.9.1 Justification for new endpoints

PEC_{sw} calculations for active substance prothioconazole and its metabolites were performed according to input data listed into Prothioconazole DAR 2005 and EFSA Scientific Report (2007) 106, 1-98.

In agreement with the document on Harmonization in Central EU², scenarios D1 and D2 are not considered representative for Central EU conditions and therefore are not here reported.

¹ WORKING DOCUMENT OF THE CENTRAL ZONE IN THE AUTHORISATION OF PLANT PROTECTION PRODUCTS, Section 8 – Environmental fate and behaviour (June 2018)

² WORKING DOCUMENT OF THE CENTRAL ZONE IN THE AUTHORISATION OF PLANT PROTECTION PRODUCTS, Section 8 – Environmental fate and behaviour (June 2018)

8.9.2 Active substance, relevant metabolites and the formulation (KCP 9.2.5)

Table 8.9-1: Input parameters related to application for PEC_{SW/SED} calculations

Plant protection product	SIP 41061	SIP 41061	SIP 41061	SIP 41061	SIP 41061
Use No.	1, 2	3	4	5	6
Crop	Wheat* (Soft, Durum), Triticale, Rye, Barley	Oilseed rape	Sugar beet	Cucurbits edible peel	Pome fruits (Apple, Pear, Quince, Medlar)
Application rate (g as/ha)	200	180	160	120	120
Number of applications/interval (d)	2/14	2/14	2/14	3/10	2/7
Application window	Please see tables below.	Please see tables below	Please see tables below	Please see tables below.	Please see tables below
Application method	Spray	Spray	Spray	Spray	Spray
CAM (Chemical application method)	Ground spray (CAM=2)	Ground spray (CAM=2)	Ground spray (CAM=2)	Ground spray (CAM=2)	Ground spray (CAM=2)
Soil depth (cm)	4 cm	4 cm	4 cm	4 cm	4 cm
Last Models used for calculation	FOCUS Step 1/2 v 3.2 FOCUS SWASH v5.3, FOCUS MACRO v5.5.4 FOCUS PRZM v4.3.1 FOCUS TOXSWA v. 5.5.3				
Plant protection product	SIP 41061	SIP 41061			
Use No.	7	8			
Crop	Stone fruits (Peach, Nectarin, Plum, Apri-cot, Cherry) and Tree Nuts (Almond)	Carrot (other roots and tubers vegetables)			
Application rate (g as/ha)	160	200			
Number of applications/interval (d)	2/7	2/21			
Application window	Please see tables below	Please see tables below			
Application method	Spray	Spray			
CAM (Chemical application method)	Ground spray (CAM=2)	Ground spray (CAM=2)			
Soil depth (cm)	4 cm	4 cm			
Last Models used for calculation	FOCUS Step 1/2 v 3.2 FOCUS SWASH v5.3, FOCUS MACRO v5.5.4 FOCUS PRZM v4.3.1 FOCUS TOXSWA v. 5.5.3				

Table 8.9-2: FOCUS Step 1&2 application related input parameters for PEC_{sw/SED} calculations for the application of SIP 41061

FOCUS_{sw} crop	Crop interception	Application period	Region
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Winter cereals	Average Crop cover	Oct-Feb Mar-May Jun-Sep	North and South Europe
Spring cereals	Average Crop cover	Oct-Feb Mar-May Jun-Sep	North and South Europe
Winter oilseed rape	Average Crop cover	Mar-May Jun-Sep	North and South Europe
Spring oilseed rape	Average Crop cover	Mar-May	North and South Europe
Sugar beet	Average Crop cover	Jun-Sep	North and South Europe
Fruiting Veg	Minimal Crop Cover Full Canopy	Mar-May Jun-Sep	North and South Europe
Pome/Stone Fruit (BBCH39)	Average Crop cover	Mar-May Jun-Sep	North and South Europe
Pome/Stone Fruit (BBCH 51 & 85)	Full Crop cover	Mar-May Jun-Sep	North and South Europe
Root Veg	Minimal Crop cover	Mar-May Jun-Sep	North and South Europe

Table 8.9-3: FOCUS Step 3 Scenario related input parameters for PEC_{sw/sed} calculations for the application of SIP 41061

Crop	Scenario	Application window used in modelling
Winter cereals (BBCH 29)	D3	105 – 149 (105 – 135)
	D4	76 – 120 (76 – 106)
	D5	73 – 117 (73 – 103)
	D6	41 – 85 (41-71)
	R1	113 – 157 (113 – 143)
	R3	77 – 121 (77 – 107)
	R4	20 – 64 (20 – 50)
	D2	148 – 192 (162 – 192)
Winter cereals (BBCH 69)	D3	168 – 212 (182 – 212)
	D4	146 – 190 (160 – 190)
	D5	109 – 153 (123 – 153)
	D6	73 – 117 (87 – 117)
	R1	132 – 176 (146 – 176)
	R3	102 – 146 (116 – 146)
	R4	109 – 153 (113 – 153)
Spring cereals (BBCH 29)	D3	115 – 159 (115 – 145)
	D4	136 – 180 (136 – 176)
	D5	97 – 141 (97 – 127)
	R4	97 – 141 (97 – 127)
Spring cereals (BBCH 69)	D3	135 – 179 (149 – 179)
	D4	146 – 190 (160 – 190)

Crop	Scenario	Application window used in modelling
	D5	111 – 155 (125 – 155)
	R4	111 – 155 (125 – 155)
Winter oilseed rape (BBCH 30)	D3	52 – 96 (52 – 82)
	D4	60 – 104 (60 – 90)
	D5	60 – 104 (60 – 90)
	R1	105 – 149 (105 – 135)
	R3	66 – 110 (66 – 96)
Winter oilseed rape (BBCH 71)	D3	122 – 166 (122 – 152)
	D4	136 – 180 (136 – 166)
	D5	107 – 151 (107 – 137)
	R1	118 – 162 (118 – 148)
	R3	83 – 127 (83 – 113)
Spring oilseed rape (BBCH 30)	D3	52 – 96 (52 – 82)
	D4	60 – 104 (60 – 90)
	D5	60 – 104 (60 – 90)
	R1	105 – 149 (105 – 135)
	R3	66 – 110 (66 – 96)
Sugar beet (BBCH 39)	D3	202 – 246 (202 – 232)
	D4	205 – 249 (205 – 235)
	R1	192 – 236 (192 – 222)
	R3	171 – 215 (171 – 201)
Cucurbits (BBCH 11)	D6	103 – 153 (103 – 133)
	R2	78 – 128 (78 – 108)
	R3	133 – 183 (133 – 163)
	R4	113 – 163 (113 – 143)
Cucurbits (BBCH 89)	D6	170 – 220 (190 – 220)
	R2	190 – 240 (210 – 240)
	R3	185 – 235 (205 – 235)
	R4	145 – 195 (165 – 195)
Pome / Stone Fruit (BBCH 39)	D3	142 – 179 (142 – 172)
	D4	147 – 184 (147 – 177)
	D5	120 – 157 (120 – 150)
	R1	142 – 179 (142 – 172)
	R2	140 – 177 (140 – 170)
	R3	120 – 157 (120 – 150)
	R4	111 – 148 (111 – 141)
Pome / Stone Fruit (BBCH 51)	D3	146 – 183 (146 – 176)
	D4	150 – 187 (150 – 180)
	D5	123 – 160 (123 – 153)

Crop	Scenario	Application window used in modelling
	R1	146 – 183 (146 – 176)
	R2	147 – 184 (147 – 177)
	R3	123 – 160 (123 – 153)
	R4	115 – 152 (115 – 145)
Pome / Stone Fruit (BBCH 85)	D3	236 – 273 (243 – 273)
	D4	237 – 274 (244 – 274)
	D5	213 – 250 (220 – 250)
	R1	236 – 273 (243 – 273)
	R2	221 – 258 (228 – 258)
	R3	217 – 254 (224 – 254)
	R4	217 – 254 (224 – 254)
Vegetable Root (BBCH 16)	D3	155 – 199 (155 – 185)
	D6	86 – 130 (86 – 116)
	R1	150 – 201 (150 – 180)
	R2 (1 st)	97 – 141 (97 – 127)
	R2 (2 nd)	236 – 280 (236 – 266)
	R3	86 – 130 (86 – 116)
	R4	86 – 130 (86 – 116)

Note: single application dates on the brackets

8.9.2.1 Prothioconazole and its metabolites

In the FOCUS model STEPS1&2 concentrations were calculated for all regions and seasons for the uses as defined in Table 8.9 2.

According to EFSA Conclusions³, prothioconazole and its metabolites prothioconazole desthio (M04) and 1,2,4-triazole were assessed for surface water exposure.

The substance specific input parameters used for the modelling are summarised in Table 8.9-4.

³ EFSA Scientific Report (2007) 106, 1-98

Table 8.9-4: Input parameters related to active substance prothioconazole and metabolites for $PEC_{sw/sed}$ calculations STEP 1/2 – 3 – 4

Compound	Prothioconazole	Value in accordance to EU end-point y/n/ Reference	M1	Prothioconazole-desthio(M04)	Value in accordance to EU end-point y/n/ Reference	1,2,4-triazole	Value in accordance to EU end-point y/n/ Reference
Molecular weight (g/mol)	334.26	Y (LoEP EFSA, 2007)	358.3	312.2		69.1	Y (LoEP EFSA, 2007)
Saturated vapour pressure (Pa)	4×10^{-7}	Y (LoEP EFSA, 2007)	0 at 20°C (default)	1×10^{-10}	default value	not required for Step 1+2	-
Water solubility (mg/L)	300	Y (LoEP EFSA, 2007)	0.3 (pH = 8)	50.6	Prothioconazole RAR,2018	730000	Y (EFSA,2014, tebuconazole)
Diffusion coefficient in water (m ² /d)	4.3×10^{-5}	default	not required for Step 1-2	4.3×10^{-5}	default	not required for Step 1+2	default
Diffusion coefficient in air (m ² /d)	0.43	default	not required for Step 1-2	0.43	default	not required for Step 1+2	default
K _{foc} (mL/g)	1765	Y (derived from aged soil colum, LoEP EFSA, 2007)	2556.3 (geometric)	573.5	Y (geomean, n = 4, LoEP EFSA, 2007)	83	Y (Prothioconazole LoEP EFSA, 2007 and EFSA,2014, tebuconazole)
Freundlich Exponent 1/n	1	default value	0.88 (arithmetic mean value)	0.81		not required for Step 1+2	-
Plant Uptake	0	default value	0	not required for Step 1+2	-	not required for Step 1+2	-
Wash-Off factor from Crop (1/mm)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)	default value	-	not required for Step 1+2	-	not required for Step 1+2	-
DT _{50,soil} (d)	1.2	Y (geomean field, 20°C, n=8, LoEP EFSA, 2007)	15.7 (geometric mean lab study, n=4)	22.7	Y (geomean field, 20°C, n=8, LoEP EFSA, 2007)	126	Slow phase DFOP field DT50 (EFSA Journal 2014;12(1):3485,

Compound	Prothioconazole	Value in accordance to EU end-point y/n/ Reference	M1	Prothioconazole-desthio(M04)	Value in accordance to EU end-point y/n/ Reference	1,2,4-triazole	Value in accordance to EU end-point y/n/ Reference
							tebuconazole).
DT _{50,water} (d)	Step1-2: 1 Step3-4: 1000 (Parent only) Step3-4: 1 (Parent + Met)	Y (LoEP EFSA, 2007)	1000 (FOCUS default)	Step1-2: 44.23 Step3-4: 1000	Y (DAR, 2005)	1000	default value
DT _{50,sed} (d)	Step1-2: 1 Step3-4: 1(Parent only) Step3-4: 1000 (Parent + Met)	Y (LoEP EFSA, 2007)	1000 (FOCUS default)	Step1-2: 44.23 Step3-4: 44.23	Y (DAR, 2005)	1000	default value
DT _{50,whole system} (d)	Step1-2:1 (worst case)	Y (LoEP EFSA, 2007)	1000 (FOCUS default)	44.23	Y (DAR, 2005)	1000	default value
Maximum occurrence observed	-		14.6	Soil: 57 Water: 32.3 Sediment: 26.9 Total system: -	Y (DAR, 2005)	Soil: 0.0001 (not detected in soil) Water, Sediment: 37.2 Total system: -	Y (LoEP EFSA, 2007)
Formation fraction	-		1	Water: 0.5; Sediment: 0.5		not required for Step 1+2	

Results are reported in tables below.

For prothioconazole Steps 3/4 results coming from simulation with only the parent are reported (worst case).

In **bold** were reported the values exceeding the RAC (13 µg/L for parent and 0.334 µg/L for metabolite prothioconazole-desthio).

PEC_{sw/sed}

Table 8.9-5: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for prothioconazole following single/ multiple application(s) of SIP41061 to winter cereal (BBCH 29)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	21.720	-	1.421	350.895
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	1.839/1.839/1.839	-	0.115/0.115/0.160	6.095/6.095/14.450
Southern Europe	March-May/June-Sept/Oct-Feb	1.839/1.839/1.839	-	0.135/0.130/0.145	11.608/8.801/11.665
<i>Step 3</i>					
D3	ditch	1.265	drift	0.061	0.552
D4	pond	0.044	drift	0.035	0.068
D4	stream	0.935	drift	0.002	0.027
D5	pond	0.044	drift	0.035	0.055
D5	stream	1.010	drift	0.002	0.028
D6	ditch	1.251	drift	0.027	0.304
R1	pond	0.044	drift	0.034	0.052
R1	stream	0.834	drift	0.009	0.104
R3	stream	1.171	drift	0.016	0.205
R4	stream	0.826	drift	0.006	0.083
<i>Multiple applications</i>					
Step 1	---	21.720	-	1.462	350.895
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	1.625/1.625/1.625	-	0.105/0.105/0.150	6.036/6.036/14.394
Southern Europe	March-May/June-Sept/Oct-Feb	1.625/1.625/1.625	-	0.135/0.120/0.135	11.608/8.813/11.608
<i>Step 3</i>					
D3	ditch	1.107	drift	0.112	0.482
D4	pond	0.055	drift	0.045	0.088
D4	stream	0.837	drift	0.002	0.029
D5	pond	0.062	drift	0.051	0.083
D5	stream	0.965	drift	0.006	0.067
D6	ditch	1.112	drift	0.138	0.700
R1	pond	0.062	drift	0.054	0.076

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
R1	stream	0.721	drift	0.018	0.235
R3	stream	1.019	drift	0.039	0.701
R4	stream	0.724	drift	0.012	0.102

Table 8.9-6: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for prothioconazole following single/ multiple application(s) of SIP41061 to winter cereal (BBCH 69)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	21.720	-	1.462	350.895
Step 2					
Northern Europe	March-May/Oct-Feb	1.839/1.839/1.839	-	0.096/0.096/0.113	3.2273.227/5.747
Southern Europe	March-May/Oct-Feb	1.839/1.839/1.839	-	0.107/0.101/0.107	4.703/3.658/4.703
<i>Step 3</i>					
D3	ditch	1.269	drift	0.086	0.528
D4	pond	0.044	drift	0.034	0.036
D4	stream	1.095	drift	0.015	0.187
D5	pond	0.044	drift	0.035	0.043
D5	stream	1.181	drift	0.021	0.257
D6	ditch	1.272	drift	0.187	0.764
R1	pond	0.069	runoff	0.054	0.073
R1	stream	0.836	drift	0.022	0.878
R3	stream	1.178	drift	0.021	0.242
R4	stream	0.837	drift	0.055	0.473
<i>Multiple applications</i>					
Step 1	---	21.720	-	1.462	350.895
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	1.625/1.625/1.625		0.086/0.086/0.103	2.582/2.852/5.688
Southern Europe	March-May/June-Sept/Oct-Feb	1.625/1.625/1.625	-	0.097/0.092/0.097	4.643/3.398/4.643
<i>Step 3</i>					
D3	ditch	1.109	drift	0.142	0.463

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
D4	pond	0.052	drift	0.041	0.044
D4	stream	0.947	drift	0.013	0.161
D5	pond	0.060	drift	0.049	0.060
D5	stream	1.022	drift	0.023	0.222
D6	ditch	1.112	drift	0.164	0.700
R1	pond	0.081	drift	0.063	0.078
R1	stream	0.718	drift	0.029	0.530
R3	stream	1.019	drift	0.055	0.680
R4	stream	0.724	drift	0.054	0.473

Table 8.9-7: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for prothioconazole following single/ multiple application(s) of SIP41061 to spring cereal (BBCH 29)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	21.720	-	1.462	350.894
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	1.839/1.839/1.839	-	0.115/0.115/0.160	6.095/6.095/14.450
Southern Europe	March-May/June-Sept/Oct-Feb	1.839/1.839	-	0.145/0.130	11.665/8.801
<i>Step 3</i>					
D3	ditch	1.267	drift	0.068	0.516
D4	pond	0.044	drift	0.034	0.041
D4	stream	1.036	drift	0.004	0.067
D5	pond	0.044	drift	0.035	0.055
D5	stream	1.006	drift	0.002	0.027
R4	stream	0.837	drift	0.051	0.432
<i>Multiple applications</i>					
Step 1	---	21.720	-	1.462	350.894
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	1.625/1.625/1.625	-	0.105/0.105/0.150	6.036/6.036/14.394
Southern Europe	March-May/June-Sept/Oct-Feb	1.625/1.625/1.625	-	0.135/0.120/0.135	11.608/8.813/11.608

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
Step 3					
D3	ditch	1.107	drift	0.120	0.459
D4	pond	0.060	drift	0.048	0.058
D4	stream	0.925	drift	0.011	0.095
D5	pond	0.062	drift	0.051	0.083
D5	stream	0.952	drift	0.005	0.055
R4	stream	0.925	drift	0.094	0.514

Table 8.9-8: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for prothioconazole following single/ multiple application(s) of SIP41061 to winter OSR (BBCH 30)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	19.548	-	1.316	315.805
Step 2					
Northern Europe	March-May/June-Sept	1.655/1.655/	-	0.086/0.086	2.904/2.904/
Southern Europe	March-May/June-Sept	1.655/1.655	-	0.096/0.091	4.232/3.292
Step 3					
D3	ditch	1.136	drift	0.044	0.444
D4	pond	0.039	drift	0.032	0.062
D4	stream	0.903	drift	0.003	0.042
D5	pond	0.039	drift	0.032	0.050
D5	stream	0.907	drift	0.002	0.025
R1	pond	0.039	drift	0.031	0.047
R1	stream	0.749	drift	0.009	0.090
R3	stream	1.053	drift	0.019	0.179
<i>Multiple application</i>					
Step 1	---	19.548	-	1.316	315.805
Step 2					
Northern Europe	March-May/June-Sept	1.463/1.463	-	0.077/0.077	2.567/2.567
Southern Europe	March-May/June-Sept	1.463/1.463	-	0.088/0.082	4.179/3.283
Step 3					

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
D3	ditch	0.995	drift	0.084	0.430
D4	pond	0.055	drift	0.044	0.092
D4	stream	0.781	drift	0.004	0.037
D5	pond	0.049	drift	0.040	0.064
D5	stream	0.798	drift	0.002	0.025
R1	pond	0.056	drift	0.050	0.070
R1	stream	0.648	drift	0.019	0.235
R3	stream	0.911	drift	0.022	0.163

Table 8.9-9: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for prothioconazole following single/ multiple application(s) of SIP41061 to winter OSR (BBCH 71)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	19.548	-	1.316	315.805
Step 2					
Northern Europe	March-May/June-Sept	1.655/1.655	-	0.085/0.085	2.904/2.094
Southern Europe	March-May/June-Sept	1.655/1.655	-	0.093/0.089	3.606/2.904
<i>Step 3</i>					
D3	ditch	1.142	drift	0.076	0.518
D4	pond	0.039	drift	0.031	0.037
D4	stream	0.960	drift	0.007	0.096
D5	pond	0.039	drift	0.032	0.038
D5	stream	1.063	drift	0.019	0.231
R1	pond	0.056	drift	0.047	0.069
R1	stream	0.744	drift	0.020	0.520
R3	stream	1.059	drift	0.038	0.654
<i>Multiple application</i>					
		19.548	-	1.316	315.805
Step 1	---		-		
Step 2					
Northern Europe	March-May/June-Sept	1.463/1.463	-	0.076/0.076	2.567/2.567
Southern	March-May/June-	1.463/1.463	-	0.084/0.080	3.552/2.768

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
Europe	Sept				
Step 3					
D3	ditch	0.998	drift	0.125	0.453
D4	pond	0.054	drift	0.043	0.052
D4	stream	0.852	drift	0.018	0.149
D5	pond	0.054	drift	0.044	0.054
D5	stream	0.919	drift	0.021	0.200
R1	pond	0.071	drift	0.059	0.088
R1	stream	0.648	drift	0.021	0.552
R3	stream	0.916	drift	0.039	0.745

Table 8.9-10: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for prothioconazole following single/ multiple application(s) of SIP41061 to summer OSR (BBCH 30)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	19.548	-	1.316	315.805
Step 2					
Northern Europe	March-May	1.655	-	0.086	2.904
Southern Europe	March-May	1.655	-	0.096	4.232
Step 3					
D3	ditch	1.141	drift	0.667	0.485
D4	pond	0.039	drift	0.031	0.037
D4	stream	0.933	drift	0.004	0.061
D5	pond	0.039	drift	0.032	0.050
D5	stream	0.992	drift	0.004	0.058
R1	pond	0.039	drift	0.033	0.046
R1	stream	0.749	drift	0.011	0.125
<i>Multiple application</i>					
Step 1	---	19.548	-	1.316	315.805
Step 2					
Northern Europe	March-May	1.463	-	0.077	2.567
Southern	March-May	1.463	-	0.088	4.179

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
Europe					
Step 3					
D3	ditch	0.999	drift	0.075	0.459
D4	pond	0.047	drift	0.040	0.039
D4	stream	0.852	drift	0.012	0.145
D5	pond	0.054	drift	0.043	0.054
D5	stream	0.861	drift	0.007	0.052
R1	pond	0.057	drift	0.044	0.053
R1	stream	0.648	drift	0.011	0.125

Table 8.9-11: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for prothioconazole following single/ multiple application(s) of SIP41061 to sugarbeet (BBCH 39)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	17.376	-	1.170	280.716
Step 2					
Northern Europe	June-Sept	1.472	-	0.077	2.582
Southern Europe	June-Sept	1.472	-	0.081	2.927
Step 3					
D3	ditch	0.839	drift	0.045	0.316
D4	pond	0.034	drift	0.026	0.027
D4	stream	0.697	drift	0.002	0.031
R1	pond	0.044	runoff	0.033	0.037
R1	stream	0.577	drift	0.011	0.294
R3	stream	0.820	drift	0.022	0.224
<i>Multiple application</i>					
Step 1	---	17.376	-	1.170	280.716
Step 2					
Northern Europe	June-Sept	1.300	-	0.069	2.282
Southern Europe	June-Sept	1.300	-	0.073	2.879

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
Step 3					
D3	ditch	0.729	drift	0.047	0.297
D4	pond	0.039	drift	0.003	0.038
D4	stream	0.600	drift	0.002	0.027
R1	pond	0.055	drift	0.042	0.046
R1	stream	0.497	drift	0.014	0.294
R3	stream	0.706	drift	0.034	0.223

Table 8.9-12: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for prothioconazole following single/ multiple application(s) of SIP41061 to fruiting veg (BBCH 11)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	13.032	-	0.877	210.537
Step 2					
Northern Europe	March-May/ June-Sept	1.104/1.104	-	0.068/0.068	3.448/3.448
Southern Europe	March-May/ June-Sept	1.104/1.104	-	0.085/0.076	6.581/5.015
Step 3					
D6	ditch	0.748	drift	0.013	0.147
R2	stream	0.663	drift	0.004	0.052
R3	stream	0.705	drift	0.014	0.131
R4	stream	0.501	drift	0.012	0.124
<i>Multiple application</i>					
Step 1	---	13.032	-	0.877	210.537
Step 2					
Northern Europe	March-May/ June-Sept	0.810/0.810	-	0.054/0.054	3.374/3.374
Southern Europe	March-May/ June-Sept	0.810/0.810	-	0.071/0.063	6.517/4.946
Step 3					
D6	ditch	0.550	drift	0.025	0.139
R2	stream	0.488	drift	0.006	0.052
R3	stream	0.514	drift	0.022	0.160
R4	stream	0.364	runoff	0.026	0.238

Table 8.9-13: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for prothioconazole following single/ multiple application(s) of SIP41061 to fruiting veg (BBCH 89)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	13.032	-	0.877	210.537
Step 2					
Northern Europe	March-May/ June-Sept	1.104/1.104	-	0.057/0.086	1.936/1.936
Southern Europe	March-May/ June-Sept	1.104/1.104	-	0.064/0.061	2.822/2.195
Step 3					
D6	ditch	0.751	drift	0.016	0.148
R2	stream	0.674	drift	0.003	0.048
R3	stream	0.708	drift	0.020	0.333
R4	stream	0.502	drift	0.021	0.232
<i>Multiple application</i>					
Step 1	---	13.032	-	0.877	210.537
Step 2					
Northern Europe	March-May/ June-Sept	0.810/0.810	-	0.044/0.044	1.489/1.489
Southern Europe	March-May/ June-Sept	0.810/0.810	-	0.051/0.047	2.746/2.117
Step 3					
D6	ditch	0.550	drift	0.028	0.125
R2	stream	0.489	drift	0.007	0.035
R3	stream	0.514	drift	0.029	0.339
R4	stream	0.365	runoff	0.034	0.247

Table 8.9-14: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for prothioconazole following single/ multiple application(s) of SIP41061 to pome/stone fruit (BBCH 39, 120 g a.i./ha)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	23.607	-	1.275	210.537
Step 2					

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
Northern Europe	March-May/June-Sept	11.679/11.679	-	0.550/0.550	20.490/20.490
Southern Europe	March-May/June-Sept	11.679/11.679	-	0.563/0.557	20.490/20.490
Step 3					
D3	ditch	9.323	drift	0.599	4.155
D4	pond	0.566	drift	0.448	0.534
D4	stream	9.490	drift	0.048	0.716
D5	pond	0.566	drift	0.452	0.549
D5	stream	10.12	drift	0.047	0.692
R1	pond	0.566	drift	0.435	0.497
R1	stream	7.572	drift	0.076	0.980
R2	stream	10.14	drift	0.050	0.733
R3	stream	10.61	drift	0.144	1.819
R4	stream	7.571	drift	0.076	0.995
<i>Multiple application</i>					
Step 1	---	23.607	-	1.275	210.537
Step 2					
Northern Europe	March-May/June-Sept	10.244/10.244	-	0.485/0.485	18.100/18.100
Southern Europe	March-May/June-Sept	10.244/10.244	-	0.499/0.492	18.100/18.100
Step 3					
D3	ditch	8.028	drift	0.064	3.769
D4	pond	0.913	drift	0.727	0.886
D4	stream	8.201	drift	0.093	0.747
D5	pond	0.845	drift	0.680	0.849
D5	stream	9.125	drift	0.202	1.944
R1	pond	1.142	drift	0.883	1.036
R1	stream	8.619	drift	0.136	1.116
R2	stream	11.55	drift	0.115	0.849
R3	stream	12.17	drift	0.379	2.443
R4	stream	8.617	drift	0.173	1.186

Table 8.9-15: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for prothioconazole following single/ multiple application(s) of SIP41061 to pome/stone fruit (BBCH 51, 160 g a.i./ha)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	31.476	-	1.700	280.716
Step 2					
Northern Europe	March-May/June-Sept	15.572/15.572	-	0.726/0.726	27.320/27.320
Southern Europe	March-May/June-Sept	15.572/15.572	-	0.736/0.731	27.320/27.320
Step 3					
D3	ditch	12.45	drift	0.992	5.845
D4	pond	0.755	drift	0.597	0.712
D4	stream	12.65	drift	0.065	0.954
D5	pond	0.755	drift	0.603	0.732
D5	stream	13.49	drift	0.063	0.923
R1	pond	0.754	drift	0.581	0.063
R1	stream	10.10	drift	0.101	1.307
R2	stream	13.53	drift	0.068	0.977
R3	stream	14.15	drift	0.192	2.425
R4	stream	10.09	drift	0.101	1.327
<i>Multiple application</i>					
Step 1	---	31.476	-	1.700	280.716
Step 2					
Northern Europe	March-May/June-Sept	13.658/13.658	-	0.639/0.639	24.134/24.134
Southern Europe	March-May/June-Sept	13.658/13.658	-	0.650/0.644	24.134/24.134
Step 3					
D3	ditch	10.71	drift	1.748	5.025
D4	pond	0.963	drift	0.759	0.801
D4	stream	11.27	drift	0.146	1.831
D5	pond	1.126	drift	0.907	1.131
D5	stream	12.7	drift	0.269	2.592
R1	pond	1.142	drift	0.883	1.036
R1	stream	8.619	drift	0.136	1.116
R2	stream	11.55	drift	0.119	0.840
R3	stream	12.17	drift	0.380	2.443

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
R4	stream	8.617	drift	0.147	1.133

Table 8.9-16: FOCUS Step 4 PEC_{sw} and PEC_{sed} for prothioconazole following single application of SIP41061 to pome/stone fruit (BBCH 51, 160 g a.i./ha)

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
<i>Single applications</i>				
None	D5 stream	11.590	-	-
50 %		-	-	-
90 %		-	-	-
None	R2 stream	11.620	-	-
50 %		-	-	-
90 %		-	-	-
None	R3 stream	12.160	-	-
50 %		-	-	-
90 %		-	-	-

Table 8.9-17: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for prothioconazole following single/ multiple application(s) of SIP41061 to pome/stone fruit (BBCH 85, 160 g a.i./ha)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	31.476	-	1.700	280.716
Step 2					
Northern Europe	March-May/June-Sept	15.572/15.572	-	0.726/0.726	27.320/27.320
Southern Europe	March-May/June-Sept	15.572/15.572	-	0.736/0.731	27.320/27.320
Step 3					
D3	ditch	5.876	drift	0.528	3.058
D4	pond	0.263	drift	0.209	0.270
D4	stream	5.680	drift	0.032	0.468
D5	pond	0.263	drift	0.209	0.220

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
D5	stream	6.361	drift	0.116	1.333
R1	pond	0.263	drift	0.204	0.250
R1	stream	4.510	drift	0.045	0.615
R2	stream	6.045	drift	0.031	0.431
R3	stream	6.357	drift	0.125	1.182
R4	stream	4.509	drift	0.054	0.575
Multiple application					
Step 1	---	31.476	-	1.700	280.716
Step 2					
Northern Europe	March-May/June-Sept	13.658/13.658	-	0.639/0.639	24.134/24.134
Southern Europe	March-May/June-Sept	13.658/13.658	-	0.650/0.644	24.134/24.134
Step 3					
D3	ditch	4.675	drift	1.050	2.665
D4	pond	0.380	drift	0.304	0.404
D4	stream	4.607	drift	0.058	0.453
D5	pond	0.352	drift	0.281	0.297
D5	stream	5.093	drift	0.093	1.067
R1	pond	0.341	drift	0.266	0.333
R1	stream	3.611	drift	0.036	0.493
R2	stream	4.841	drift	0.025	0.351
R3	stream	5.090	drift	0.196	0.947
R4	stream	3.611	drift	0.095	0.461

Table 8.9-18: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for prothioconazole following single/ multiple application(s) of SIP41061 to carrots

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
Single application					
Step 1	---	21.720	-	1.462	350.895
Step 2					
Northern Europe	March-May/June-Sept	1.839/1.839	-	0.113/0.113	5.747/5.747
Southern Europe	March-May/June-Sept	1.839/1.839	-	0.141/0.127	10.969/8.358

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
Step 3					
D3	ditch	1.266	drift	0.064	0.485
D6	ditch	1.249	drift	0.024	0.267
R1	pond	0.049	runoff	0.041	0.050
R1	stream	0.837	drift	0.018	0.345
R2 – 1 st	stream	1.105	drift	0.006	0.066
R2 – 2 nd	stream	1.123	drift	0.006	0.081
R3	stream	1.173	drift	0.016	0.212
R4	stream	0.944	drift	0.050	0.614
<i>Multiple application</i>					
Step 1	---	21.720	-	1.462	350.895
Step 2					
Northern Europe	March-May/June-Sept	1.625/1.625	-	0.103/0.103	5.686/5.686
Southern Europe	March-May/June-Sept	1.625/1.625	-	0.131/0.117	10.908/8.297
Step 3					
D3	ditch	1.107	drift	0.059	0.424
D6	ditch	1.091	drift	0.021	0.233
R1	pond	0.067	runoff	0.059	0.060
R1	stream	0.724	drift	0.020	0.345
R2 – 1 st	stream	0.971	drift	0.007	0.073
R2 – 2 nd	stream	0.971	drift	0.006	0.309
R3	stream	1.020	drift	0.020	0.247
R4	stream	1.008	runoff	0.086	0.668

Metabolites of prothioconazole

Prothioconazole desthio (M04)

Table 8.9-19: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple applications to winter cereals (BBCH 29)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	62.267	-	52.671	350.913
Step 2					

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
Northern Europe	March-May/June- Sept/Oct-Feb	3.276/3.276/7.688		2.752/2.752/6.511	18.223/18.223/43.447
Southern Europe	March-May/June- Sept/Oct-Feb	6.217/4.474/6.217		5.258/4.005/5.258	35.014/26.581/35.014
Step 3					
D3	ditch	0.062	-	0.004	0.052
D4	pond	0.012	-	0.012	0.115
D4	stream	0.056	-	< 0.001	0.003
D5	pond	0.014	-	0.014	0.122
D5	stream	0.072	-	< 0.001	0.002
D6	ditch	0.034	-	0.001	0.014
R1	pond	0.044	-	0.038	0.336
R1	stream	0.360	-	0.025	0.350
R3	stream	0.455	-	0.021	0.556
R4	stream	0.564	-	0.028	0.334
<i>Multiple applications</i>					
Step 1	---	62.267	-	52.671	350.913
Step 2					
Northern Europe	March-May/June- Sept/Oct-Feb	5.279/5.279/12.395		4.434/4.434/10.498	29.365/29.365/70.064
Southern Europe	March-May/June- Sept/Oct-Feb	10.023/7.651/10.023		8.477/6.455/8.477	56.459/42.855/56.459
Step 3					
D3	ditch	0.104		0.011	0.108
D4	pond	0.019	-	0.019	0.181
D4	stream	0.050	-	< 0.001	0.007
D5	pond	0.023	-	0.022	0.193
D5	stream	0.071	-	< 0.001	0.006
D6	ditch	0.136	-	0.019	0.192
R1	pond	0.121	-	0.106	0.832
R1	stream	1.053	-	0.739	0.979
R3	stream	1.015	-	0.049	1.133
R4	stream	1.340	-	0.065	0.751

Table 8.9-20: FOCUS Step 4 PEC_{sw} and PEC_{sed} for prothioconazole-desthio following single and multiple application of SIP 41061 to winter cereals (BBCH 29)

PEC _{sw} [µg/L]	Scenario	STEP 4
--------------------------	----------	--------

Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
Single applications				
None	R1 stream	0.360	0.164	0.086
50 %		0.360	-	-
90 %		0.360	-	-
None	R3 stream	0.455	0.208	0.109
50 %		0.455	-	-
90 %		0.455	-	-
None	R4 stream	0.564	0.257	0.134
50 %		0.564	-	-
90 %		0.564	-	-
Multiple applications				
None	R1 stream	1.053	0.478	0.250
50 %		1.053	0.478	-
90 %		1.053	0.478	-
None	R3 stream	1.015	0.463	0.243
50 %		1.015	0.463	-
90 %		1.015	0.463	-
None	R4 stream	1.340	0.609	0.319
50 %		1.340	0.609	-
90 %		1.340	0.609	-

Table 8.9-21: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to winter cereals (BBCH 69)

Scenario	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
FOCUS					
<i>Single application</i>					
Step 1	---	62.267	-	52.671	350.919
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	1.438/1.438/3.092	-	1.185/1.185/2.125	7.846/7.846/14.072
Southern Europe	March-May/June-Sept/Oct-Feb	2.541/1.990/2.541	-	2.125/1.655/3.423	14.072/10.959/22.669
<i>Step 3</i>					
D3	ditch	0.180	-	0.017	0.183
D4	pond	0.016	-	0.015	0.118
D4	stream	0.094	-	0.001	0.022
D5	pond	0.016	-	0.015	0.122

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
D5	stream	0.113	-	0.002	0.035
D6	ditch	0.201	-	0.054	0.353
R1	pond	0.043	-	0.040	0.297
R1	stream	0.304	-	0.013	0.565
R3	stream	0.436	-	0.032	0.266
R4	stream	0.581	-	0.080	0.864
<i>Multiple applications</i>					
Step 1	---	62.267	-	52.671	350.919
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	2.313/2.313/4.982	-	1.907/1.907/4.181	12.624/12.624/27.691
Southern Europe	March-May/June-Sept/Oct-Feb	4.092/3.203/4.092	-	3.423/2.665/2.595	22.669/17.647/17.185
Step 3					
D3	ditch	0.158	-	0.024	0.200
D4	pond	0.023	-	0.021	0.180
D4	stream	0.081	-	0.001	0.021
D5	pond	0.024	-	0.023	0.194
D5	stream	0.097	-	0.002	0.032
D6	ditch	0.176	-	0.048	0.363
R1	pond	0.135	-	0.117	0.820
R1	stream	0.765	-	0.043	1.250
R3	stream	0.825	-	0.058	0.707
R4	stream	0.581	-	0.081	0.863

Table 8.9-21: FOCUS Step 4 PEC_{sw} and PEC_{sed} for prothioconazole-desthio following single and multiple application of SIP 41061 to winter cereals (BBCH 69)

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
<i>Single applications</i>				
None	R3 stream	0.436	0.196	0.102
50 %		0.436	-	-
90 %		0.436	-	-
None	R4 stream	0.581	0.264	0.138
50 %		0.581	-	-

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
90 %		0.581	-	-
<i>Multiple applications</i>				
None	R1 stream	0.765	0.348	0.182
50 %		0.765	0.348	-
90 %		0.765	0.348	-
None	R3 stream	0.825	0.371	0.194
50 %		0.825	0.371	-
90 %		0.825	0.371	-
None	R4 stream	0.581	0.264	0.138
50 %		0.581	0.264	-
90 %		0.581	0.264	-

Table 8.9-22: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to spring cereals (BBCH 29)

Scenario	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
FOCUS					
<i>Single application</i>					
Step 1	---	62.267	-	56.651	359.919
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	3.276/3.276/7.866	-	2.752/2.752/6.511	18.223/18.223/43.447
Southern Europe	March-May/June-Sept/Oct-Feb	6.217/4.747/6.217	-	5.258/4.005/5.258	35.014/26.581/35.014
Step 3					
D3	ditch	0.121	drift	0.009	0.105
D4	pond	0.016	drift	0.015	0.115
D4	stream	0.065	drift	< 0.001	0.005
D5	pond	0.014	drift	0.014	0.120
D5	stream	0.071	drift	< 0.001	0.002
R4	stream	0.632	drift	0.087	0.933
<i>Multiple applications</i>					
Step 1	---	62.267	-	56.651	359.919
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	5.279/5.279/12.395	-	4.434/4.434/10.498	29.365/29.365/70.064
Southern	March-May/June-	10.023/7.651/10.023	-	8.477/6.455/8.477	56.459/42.855/56.459

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
Europe	Sept/Oct-Feb				
Step 3					
D3	ditch	0.108	drift	0.016	0.136
D4	pond	0.024	drift	0.020	0.181
D4	stream	0.063	drift	0.001	0.010
D5	pond	0.023	drift	0.022	0.190
D5	stream	0.068	drift	< 0.001	0.005
R4	stream	1.211	drift	0.126	1.351

Table 8.9-23: FOCUS Step 4 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to spring cereals (BBCH 29)

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
Single applications				
None	R4 stream	0.632	0.288	0.151
50 %		0.632	0.288	-
90 %		0.632	0.288	-
Multiple applications				
None	R4 stream	1.211	0.545	0.284
50 %		1.211	0.545	-
90 %		1.211	0.545	-

Table 8.9-24: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application to winter OSR (BBCH 30)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	56.040	-	47.404	315.827
Step 2					
Northern Europe	March-May/June- Sept	1.294/1.294	-	1.067/1.067	7.061/7.061
Southern Europe	March-May/June- Sept	2.287/1.791	-	1.913/1.490	12.665/9.863

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
Step 3					
D3	ditch	0.036		0.002	0.026
D4	pond	0.012		0.011	0.110
D4	stream	0.054		< 0.001	0.003
D5	pond	0.013		0.012	0.112
D5	stream	0.065		< 0.001	0.002
R1	pond	0.038		0.032	0.297
R1	stream	0.294		0.021	0.304
R3	stream	0.519		0.015	0.327
<i>Multiple application</i>					
Step 1	---	56.040	-	47.404	315.827
Step 2					
Northern Europe	March-May/June-Sept	2.082/2.082	-	1.717/1.717	11.362/11.362
Southern Europe	March-May/June-Sept	3.683/2.883	-	3.081/2.399	20.402/15.882
Step 3					
D3	ditch	0.040		0.004	0.041
D4	pond	0.018		0.017	0.169
D4	stream	0.047		< 0.001	0.037
D5	pond	0.019		0.018	0.175
D5	stream	0.057		< 0.001	0.002
R1	pond	0.033		0.094	0.748
R1	stream	0.874		0.062	0.862
R3	stream	0.775		0.036	0.802

Table 8.9-25: FOCUS Step 4 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to winter OSR (BBCH 30)

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
<i>Single applications</i>				
None	R3 stream	0.519	0.234	0.122
50 %		0.519	0.234	-
90 %		0.519	0.234	-

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
<i>Multiple applications</i>				
None	R1 stream	0.874	0.396	0.208
50 %		0.874	0.396	-
90 %		0.874	0.396	-
None	R3 stream	0.775	0.353	0.185
50 %		0.775	0.353	-
90 %		0.775	0.353	-

Table 8.9-26: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to winter OSR (BBCH 71)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1		56.040	-	47.404	315.827
Step 2					
Northern Europe	March-May/June-Sept	1.815/1.815		0.926/1.489	6.127/9.855
Southern Europe	March-May/June-Sept	1.956/1.524	-	1.631/1.278	10.9798.472
Step 3					
D3	ditch	0.128		0.012	0.133
D4	pond	0.014		0.013	0.105
D4	stream	0.062		< 0.001	0.008
D5	pond	0.014		0.013	0.110
D5	stream	0.101		0.002	0.031
R1	pond	0.071		0.061	0.488
R1	stream	0.466		0.034	0.622
R3	stream	0.366		0.019	0.417
<i>Multiple application</i>					
Step 1	---	56.040	-	47.404	315.827
Step 2					
Northern Europe	March-May/June-Sept	1.815/1.815		1.489/1.489	9.855/9.855
Southern Europe	March-May/June-Sept	3.149/2.482		2.626/2.058	17.389/13.622

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
Step 3					
D3	ditch	0.112		0.018	0.148
D4	pond	0.022		0.020	0.166
D4	stream	0.068		0.001	0.019
D5	pond	0.022		0.021	0.176
D5	stream	0.088		0.002	0.029
R1	pond	0.119		0.103	0.966
R1	stream	0.790		0.063	0.938
R3	stream	0.821		0.040	0.881

Table 8.9-27: FOCUS Step 4 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to winter OSR (BBCH 71)

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
Single applications				
None	R1 stream	0.466	0.211	0.111
50 %		0.466	-	-
90 %		0.466	-	-
None	R3 stream	0.366	0.214	0.088
50 %		0.366	-	-
90 %		0.366	-	-
Multiple applications				
None	R1 stream	0.790	0.354	0.185
50 %		0.790	0.354	-
90 %		0.790	0.354	-
None	R3 stream	0.821	0.375	0.197
50 %		0.821	0.375	-
90 %		0.821	0.375	-

Table 8.9-28: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to summer OSR (BBCH 30)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---		-		
Step 2		56.040	-	47.404	315.827
Northern Europe	March-May	1.294	-	1.067	7.062
Southern Europe	March-May	2.287	-	1.913	12.665
Step 3					
D3	ditch	0.116		0.009	0.108
D4	pond	0.014		0.013	0.104
D4	stream	0.059		< 0.001	0.062
D5	pond	0.013		0.013	0.109
D5	stream	0.071		< 0.001	0.005
R1	pond	0.060		0.052	0.437
R1	stream	0.549		0.037	0.557
<i>Multiple application</i>					
Step 1	---	56.040	-	47.404	315.827
Step 2					
Northern Europe	March-May	2.082	-	1.717	11.362
Southern Europe	March-May	3.683	-	3.081	20.402
Step 3					
D3	ditch	0.135		0.014	0.172
D4	pond	0.020		0.019	0.163
D4	stream	0.073		0.011	0.158
D5	pond	0.021		0.020	0.173
D5	stream	0.064		< 0.001	0.006
R1	pond	0.106		0.092	0.665
R1	stream	0.645		0.039	0.965

Table 8.9-29: FOCUS Step 4 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to summer OSR (BBCH 30)

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
Single applications				
None	R1 stream	0.549	0.249	0.130
50 %		0.549	-	-
90 %		0.549	-	-
Multiple applications				
None	R1 stream	0.645	0.293	0.154
50 %		0.645	-	-
90 %		0.645	-	-

Table 8.9-30: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to sugarbeet (BBCH 39)

Scenario	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
FOCUS					
<i>Single application</i>					
Step 1	---	49.813	-	42.137	280.734
Step 2					
Northern Europe	June-Sept	1.151	-	0.948	6.277
Southern Europe	June-Sept	1.592	-	1.324	8.767
<i>Step 3</i>					
D3	ditch	0.102		0.007	0.088
D4	pond	0.034	-	0.005	0.022
D4	stream	0.042	-	0.001	0.012
R1	pond	0.025	-	0.023	0.211
R1	stream	0.274	-	0.008	0.270
R3	stream	0.328	-	0.033	0.726
<i>Multiple application</i>					
Step 1	---	49.813	-	42.137	280.734
Step 2					
Northern Europe	June-Sept	1.851	-	1.526	10.099
Southern Europe	June-Sept	2.562	-	2.132	14.117
<i>Step 3</i>					
D3	ditch	0.099		0.009	0.116

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
D4	pond	0.028		0.015	0.163
D4	stream	0.040		0.002	0.024
R1	pond	0.037		0.032	0.035
R1	stream	0.275		0.008	0.270
R3	stream	0.525		0.052	1.220

Table 8.9-31: FOCUS Step 4 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to sugarbeet (BBCH 39)

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
<i>Multiple applications</i>				
None	R3 stream	0.525	0.240	0.126
50 %		0.525	-	-
90 %		0.525	-	-

Table 8.9-32: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to fruiting veg (BBCH 11)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	56.040	-	47.404	315.827
Step 2					
Northern Europe	March-May/ June-Sept	1.855/1.855	-	1.557/1.557	10.311/10.311
Southern Europe	March-May/ June-Sept	3.510/2.683	-	2.967/2.262	19.743/15.000
<i>Step 3</i>					
D6	ditch	0.024		< 0.001	0.008
R2	stream	0.117		0.011	0.896
R3	stream	0.432		0.019	0.136
R4	stream	0.700		0.060	0.595
<i>Multiple application</i>					
Step 1	---	56.040	-	47.404	315.827

Scenario	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
FOCUS					
Step 2					
Northern Europe	March-May/ June-Sept	4.027/4.027	-	3.386/3.386	22.424/22.424
Southern Europe	March-May/ June-Sept	7.672/5.850	-	6.492/4.939	43.271/32.818
Step 3					
D6	ditch	0.038		0.002	0.024
R2	stream	0.226		0.011	1.081
R3	stream	0.655		< 0.001	0.813
R4	stream	1.185		0.132	1.330

Table 8.9-33: FOCUS Step 4 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to fruiting veg BBCH 11)

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
Single applications				
None	R3 stream	0.432	0.195	0.102
50 %		0.432	-	-
90 %		0.432	-	-
None	R4 stream	0.700	0.318	0.167
50 %		0.700	-	-
90 %		0.700	-	-
Multiple applications				
None	R3 stream	0.655	0.298	0.157
50 %		0.655	-	-
90 %		0.655	-	-
None	R4 stream	1.185	0.536	0.280
50 %		1.185	0.536	-
90 %		1.185	0.536	-

Table 8.9-34: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to fruiting veg (BBCH 89)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	56.040	-	47.404	315.827
Step 2					
Northern Europe	March-May/ June-Sept	0.863/0.863	-	0.711/0.711	4.707/4.707
Southern Europe	March-May/ June-Sept	1.525/1.194	-	1.275/0.993	8.443/6.575
Step 3					
D6	ditch	0.064		0.002	0.025
R2	stream	0.046		0.001	0.911
R3	stream	0.277		0.025	0.694
R4	stream	0.420		0.031	0.394
<i>Multiple application</i>					
Step 1	---	56.040	-	47.404	315.827
Step 2					
Northern Europe	March-May/ June-Sept	1.840/1.840	-	1.522/1.522	10.075/10.075
Southern Europe	March-May/ June-Sept	3.298/2.569	-	2.764/2.143	18.308/14.191
Step 3					
D6	ditch	0.056		0.035	0.035
R2	stream	0.034		0.003	1.851
R3	stream	0.468		0.057	1.749
R4	stream	1.251		0.148	1.209

Table 8.9-35: FOCUS Step 4 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to fruiting veg (BBCH 89)

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
<i>Single applications</i>				
None	R4 stream	0.420	0.191	0.100
50 %		0.420	-	-
90 %		0.420	-	-

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
<i>Multiple applications</i>				
None	R3 stream	0.468	0.214	0.112
50 %		0.468	-	-
90 %		0.468	-	-
None	R4 stream	1.251	0.569	0.298
50 %		1.251	0.569	-
90 %		1.251	0.569	-

Table 8.9-36 FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to pome/stone fruit (BBCH 39, 120 g a.i./ha)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	43.555	-	34.658	210.552
Step 2					
Northern Europe	March-May/ June-Sept	3.452/3.452	-	2.687/2.687	17.752/17.752
Southern Europe	March-May/ June-Sept	4.776/4.114	-	3.814/3.251	25.224/21.488
Step 3					
D3	ditch	1.021		0.091	0.927
D4	pond	0.207		0.196	1.256
D4	stream	0.611		0.003	0.052
D5	pond	0.209		0.199	1.310
D5	stream	0.774		0.004	0.061
R1	pond	0.208		0.193	1.138
R1	stream	0.541		0.011	0.129
R2	stream	0.619		0.007	0.142
R3	stream	0.997		0.015	0.226
R4	stream	0.573		0.021	0.273
<i>Multiple application</i>					
Step 1	---	43.555	-	34.658	210.552
Step 2					

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
Northern Europe	March-May/ June-Sept	5.859/5.859	-	4.570/4.570	30.198/30.198
Southern Europe	March-May/ June-Sept	8.189/7.024	-	6.555/5.563	43.351/36.774
Step 3					
D3	ditch	1.135		0.126	1.343
D4	pond	0.359		0.340	2.112
D4	stream	0.550		0.007	0.082
D5	pond	0.351		0.335	2.175
D5	stream	0.867		0.021	0.268
R1	pond	0.343		0.322	1.914
R1	stream	0.462		0.018	0.247
R2	stream	0.528		0.015	0.310
R3	stream	1.039		0.034	0.359
R4	stream	0.511		0.051	0.597

Table 8.9-37: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to pome/stone fruit (BBCH 39, 120 g a.i./ha)

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
<i>Single applications</i>				
None	D3 ditch	0.802	0.492	0.112
50 %		0.401	0.246	-
90 %		0.080	-	-
None	D4 stream	0.525	0.322	0.074
50 %		0.262	0.161	-
90 %		0.052	-	-
None	D5 stream	0.665	0.408	0.093
50 %		0.332	0.204	-
90 %		0.066	-	-
None	R1 stream	0.465	0.286	0.065
50 %		0.232	0.143	-
90 %		0.152	-	-
None	R2 stream	0.532	0.327	0.075
50 %		0.266	0.163	-

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
90 %		0.068	-	-
None	R3 stream	0.857	0.526	0.120
50 %		0.428	0.263	-
90 %		0.085	-	-
None	R4 stream	0.492	0.302	0.069
50 %		0.246	0.151	-
90 %		0.086	-	-
Multiple applications				
None	D3 ditch	0.875	0.516	0.133
50 %		0.437	0.258	-
90 %		0.087	-	-
None	D4 pond	0.402	0.227	0.068
50 %		0.200	0.113	-
90 %		0.039	-	-
None	D4 stream	0.467	0.276	0.071
50 %		0.233	0.138	-
90 %		0.047	-	-
None	D5 pond	0.394	0.222	0.066
50 %		0.195	0.110	-
90 %		0.038	-	-
None	D5 stream	0.736	0.435	0.112
50 %		0.368	0.217	-
90 %		0.073	-	-
None	R1 pond	0.385	0.218	0.065
50 %		0.191	0.108	-
90 %		0.039	-	-
None	R1 stream	0.392	0.232	0.079
50 %		0.355	0.153	-
90 %		0.355	-	-
None	R2 stream	0.449	0.265	0.069
50 %		0.224	0.132	-
90 %		0.177	-	-
None	R3 stream	0.882	0.521	0.135
50 %		0.441	0.261	-
90 %		0.088	-	-
None	R4 stream	0.511	0.245	0.110
50 %		0.511	0.216	-
90 %		0.511	-	-

Table 8.9-38 FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to pome/stone fruit (BBCH 51, 160 g a.i./ha)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	43.555	-	34.658	210.552
Step 2					
Northern Europe	March-May/June-Sept	3.421/3.421	-	2.323/2.323	14.639/14.639
Southern Europe	March-May/June-Sept	3.673/3.421	-	2.875/2.607	18.997/16.818
Step 3					
D3	ditch	1.760		0.195	1.789
D4	pond	0.277		0.262	1.641
D4	stream	0.815		< 0.001	0.069
D5	pond	0.279		0.267	1.712
D5	stream	1.032		< 0.001	0.081
R1	pond	0.278		0.259	1.487
R1	stream	0.722		0.015	0.175
R2	stream	0.825		0.011	0.229
R3	stream	1.330		0.020	0.300
R4	stream	0.764		0.038	0.451
<i>Multiple application</i>					
Step 1	---	43.555	-	34.658	210.552
Step 2					
Northern Europe	March-May/June-Sept	4.888/4.888	-	3.743/3.743	24.717/24.717
Southern Europe	March-May/June-Sept	6.247/5.568	-	4.901/4.322	32.390/28.553
Step 3					
D3	ditch	1.514		0.168	1.766
D4	pond	0.436		0.413	2.731
D4	stream	0.955		0.014	0.219
D5	pond	0.470		0.146	2.842
D5	stream	1.155		0.028	0.355
R1	pond	0.459		0.431	2.499
R1	stream	0.616		0.025	0.339

Scenario	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
FOCUS					
R2	stream	0.725		0.021	0.457
R3	stream	1.386		0.046	0.474
R4	stream	0.938		0.087	1.065

Table 8.9-39: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to pome/stone fruit (BBCH 51, 160 g a.i./ha)

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
Single applications				
None	D3 ditch	1.383	0.848	0.194
50 %		0.691	0.424	-
90 %		0.138	0.085	-
None	D4 stream	0.700	0.430	0.098
50 %		0.395	0.215	-
90 %		0.070	-	-
None	D5 stream	0.887	0.545	0.124
50 %		0.443	0.272	-
90 %		0.089	-	-
None	R1 stream	0.620	0.381	0.231
50 %		0.310	0.190	-
90 %		0.212	-	-
None	R2 stream	0.709	0.435	0.165
50 %		0.354	0.218	-
90 %		0.122	-	-
None	R3 stream	1.142	0.701	0.160
50 %		0.571	0.351	-
90 %		0.114	0.070	-
None	R4 stream	0.656	0.403	0.092
50 %		0.352	0.201	-
90 %		0.352	0.154	-
Multiple applications				
None	D3 ditch	1.167	0.689	0.178
50 %		0.582	0.344	-
90 %		0.116	0.069	-
None	D4 pond	0.490	0.276	0.082
50 %		0.242	0.137	-
90 %		0.047	0.027	-
None	D4 stream	0.811	0.479	0.124

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
50 %		0.405	0.239	-
90 %		0.239	0.048	-
None		0.528	0.298	0.088
50 %	D5 pond	0.262	0.148	-
90 %		0.051	0.029	-
None		0.981	0.579	0.150
50 %	D5 stream	0.490	0.290	-
90 %		0.098	0.058	-
None		0.515	0.291	0.087
50 %	R1 pond	0.256	0.144	-
90 %		0.053	0.029	-
None		0.523	0.309	0.110
50 %	R1 stream	0.498	0.215	-
90 %		0.498	0.215	-
None		0.616	0.364	0.094
50 %	R2 stream	0.308	0.182	-
90 %		0.270	0.121	-
None		1.176	0.695	0.180
50 %	R3 stream	0.588	0.347	-
90 %		0.118	0.069	-
None		0.938	0.420	0.220
50 %	R4 stream	0.938	0.420	-
90 %		0.938	0.420	-

Table 8.9-40 FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to pome/stone fruit (BBCH 85, 160 g a.i./ha)

Scenario	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
FOCUS					
<i>Single application</i>					
Step 1	---	43.555	-	34.658	210.552
Step 2					
Northern Europe	March-May/June-Sept	3.421/3.421	-	2.323/2.323	14.639/14.639
Southern Europe	March-May/June-Sept	3.673/3.421	-	2.875/2.607	18.997/16.818
Step 3					

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
D3	ditch	0.792		0.099	0.924
D4	pond	0.094		0.078	0.726
D4	stream	0.374		0.002	0.036
D5	pond	0.100		0.094	0.727
D5	stream	0.673		0.014	0.202
R1	pond	0.094		0.088	0.671
R1	stream	0.317		0.003	0.054
R2	stream	0.399		0.002	0.092
R3	stream	0.872		0.045	0.345
R4	stream	0.434		0.030	0.393
Multiple application					
Step 1	---	43.555	-	34.658	210.552
Step 2					
Northern Europe	March-May/June-Sept	4.888/4.888	-	3.743/3.743	24.717/24.717
Southern Europe	March-May/June-Sept	6.247/5.568	-	4.901/4.322	32.390/28.553
Step 3					
D3	ditch	1.192	-	0.408	2.356
D4	pond	0.150	-	0.143	1.163
D4	stream	0.326	-	0.004	0.043
D5	pond	0.153	-	0.130	1.142
D5	stream	0.539	-	0.011	0.198
R1	pond	0.140	-	0.131	1.054
R1	stream	0.273	-	0.004	0.069
R2	stream	0.332	-	0.003	0.122
R3	stream	0.699	-	0.065	0.592
R4	stream	1.155	-	0.076	0.974

Table 8.9-41: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to pome/stone fruit (BBCH 85, 160 g a.i./ha)

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
Single applications				
None	D3 ditch	0.534	0.239	0.073
50 %		0.267	0.119	-
90 %		0.053	-	-
None	D4 stream	0.292	0.130	0.040
50 %		0.146	0.065	-
90 %		0.032	-	-
None	D5 stream	0.525	0.235	0.072
50 %		0.263	0.117	-
90 %		0.052	-	-
None	R2 stream	0.311	0.139	0.043
50 %		0.156	0.067	-
90 %		0.038	-	-
None	R3 stream	0.681	0.304	0.094
50 %		0.340	0.152	-
90 %		0.267	-	-
None	R4 stream	0.434	0.197	0.103
50 %		0.434	0.197	-
90 %		0.434	-	-
Multiple applications				
None	D3 ditch	0.827	0.395	0.111
50 %		0.412	0.197	-
90 %		0.082	-	-
None	D4 stream	0.259	-	-
50 %		-	-	-
90 %		-	-	-
None	D5 stream	0.429	0.206	-
50 %		0.214	-	-
90 %		-	-	-
None	R3 stream	0.560	0.267	-
50 %		0.491	-	-
90 %		0.491	-	-
None	R4 stream	1.155	0.525	0.275
50 %		1.155	0.525	-
90 %		1.155	0.525	-

Table 8.9-42: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to carrots

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	62.267	-	52.671	350.919
Step 2					
Northern Europe	March-May/June-Sept	3.092/3.092	-	2.595/2.595	17.185/17.185
Southern Europe	March-May/June-Sept	5.850/4.471	-	4.944/3.770	32.906/24.999
Step 3					
D3	ditch	0.130		< 0.001	0.106
D6	ditch	0.045		0.001	0.280
R1	pond	0.050		0.043	0.341
R1	stream	0.415		0.021	0.510
R2 – 1 st	stream	0.106		0.005	0.690
R2 – 2 nd	stream	0.074		0.007	3.611
R3	stream	0.506		0.024	0.513
R4	stream	0.879		0.100	0.779
<i>Multiple application</i>					
Step 1	---	62.267	-	52.671	350.919
Step 2					
Northern Europe	March-May/June-Sept	4.632/4.632	-	3.886/3.886	25.735/25.735
Southern Europe	March-May/June-Sept	8.754/6.693	-	7.400/5.642	49.231/37.410
Step 3					
D3	ditch	0.134		0.010	0.138
D6	ditch	0.039		0.001	0.016
R1	pond	0.103		0.091	0.716
R1	stream	0.806		0.065	1.192
R2 – 1 st	stream	0.186		0.010	3.570
R2 – 2 nd	stream	0.254		0.035	9.605
R3	stream	0.550		0.048	0.652
R4	stream	1.302		0.146	1.977

Table 8.9-43: FOCUS Step 4 PEC_{sw} and PEC_{sed} for Prothioconazole desthio (M04) following single/multiple application(s) to carrots

PEC _{sw} [µg/L]	Scenario	STEP 4		
Nozzle reduction	Vegetative strip [m]	None	10	20
	No spray buffer [m]	5	10	20
Single applications				
None	R1 stream	0.415	0.189	0.099
50 %		0.415	0.189	-
90 %		0.415	0.189	-
None	R3 stream	0.506	0.231	0.121
50 %		0.506	0.231	-
90 %		0.506	0.231	-
None	R4 stream	0.879	0.399	0.209
50 %		0.879	0.399	-
90 %		0.879	0.399	-
Multiple applications				
None	R1 stream	0.806	0.366	0.192
50 %		0.806	0.366	-
90 %		0.806	0.366	-
None	R3 stream	0.550	0.251	0.131
50 %		0.550	0.251	-
90 %		0.550	0.251	-
None	R4 stream	1.302	0.592	0.310
50 %		1.302	0.592	-
90 %		1.302	0.592	-

1,2,4-Triazole

Table 8.9-44: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for 1,2,4-triazole following single/ multiple application(s) of SIP41061 to winter cereal (BBCH 29)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant en- try route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	9.237	-	9.144	7.448
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	0.199/0.199/0.305	-	0.193/0.193/0.299	0.162/0.162/0.250
Southern Europe	March-May/June-Sept/Oct-Feb	0.270/0.234/0.270	-	0.264/0.228/0.264	0.221/0.191/0.221
<i>Multiple application</i>					
Step 1	---	9.237	-	9.144	7.448
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	0.296/0.296/0.402	-	0.286/0.286/0.392	0.239/0.239/0.328
Southern Europe	March-May/June-Sept/Oct-Feb	0.367/0.331/0.367	-	0.357/0.321/0.357	0.298/0.269/0.298

Table 8.9-45: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for 1,2,4-triazole following single/ multiple application(s) of SIP41061 to winter cereal (BBCH 69)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant en- try route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	9.237	-	9.144	7.448
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	0.154/0.154/0.194	-	0.149/0.149/0.189	0.125/0.125/0.158
Southern Europe	March-May/June-Sept/Oct-Feb	0.181/0.168/0.181	-	0.176/0.162/0.176	0.147/0.136/0.147
<i>Multiple application</i>					
Step 1	---	9.237	-	9.144	7.448
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	0.251/0.251/0.291	-	0.242/0.242/0.282	0.202/0.202/0.236
Southern Europe	March-May/June-Sept/Oct-Feb	0.278/0.264/0.278	-	0.268/0.255/0.268	0.224/0.213/0.224

Table 8.9-46: FOCUS Step 1, 2 PEC_{sw} and PEC_{sed} for 1,2,4-triazole following single/multiple application(s) to spring cereals (BBCH 29)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	9.237	-	9.144	7.448
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	0.199/0.199/0.305	-	0.193/0.193/0.299	0.162/0.162/0.250
Southern Europe	March-May/June-Sept/Oct-Feb	0.270/0.234/0.270	-	0.264/0.228/0.264	0.221/0.191/0.221
<i>Multiple application</i>					
Step 1	---	9.237	-	9.144	7.448
Step 2					
Northern Europe	March-May/June-Sept/Oct-Feb	0.296/0.296/0.402	-	0.286/0.286/0.391	0.239/0.239/0.328
Southern Europe	March-May/June-Sept/Oct-Feb	0.367/0.331/0.367	-	0.357/0.321/0.357	0.298/0.269/0.298

Table 8.9-47: FOCUS Step 1, 2 PEC_{sw} and PEC_{sed} for 1,2,4-triazole following single/multiple application(s) to winter OSR (BBCH 30)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	8.314	-	8.230	6.703
Step 2					
Northern Europe	March-May/June-Sept	0.139/0.139	-	0.134/0.134	0.112/0.112
Southern Europe	March-May/June-Sept	0.163/0.151	-	0.161/0.146	0.132/0.122
<i>Multiple application</i>					
Step 1	---	8.314	-	8.230	6.703
Step 2					
Northern Europe	March-May/June-Sept	0.226/0.226	-	0.218/0.218	0.182/0.182
Southern Europe	March-May/June-Sept	0.249/0.238	-	0.242/0.230	0.202/0.192

Table 8.9-48: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for 1,2,4-triazole following single/multiple application(s) to winter OSR (BBCH 71)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	8.314	-	8.230	6.703
Step 2					
Northern Europe	March-May/June-Sept	0.135/0.135	-	0.130/0.130	0.109/0.109
Southern Europe	March-May/June-Sept	0.155/0.145	-	0.150/0.140	0.125/0.117
<i>Multiple application</i>					
Step 1	---	8.314	-	8.230	6.703
Step 2					
Northern Europe	March-May/June-Sept	0.222/0.222	-	0.214/0.214	0.179/0.179/0.135
Southern Europe	March-May/June-Sept	0.242/0.232	-	0.234/0.224	0.195/0.187

Table 8.9-49: FOCUS Step 1, 2 PEC_{sw} and PEC_{sed} for 1,2,4-triazole following single/multiple application(s) to summer OSR (BBCH 30)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	8.314	-	8.230	6.703
Step 2					
Northern Europe	March-May	0.139	-	0.134	0.112
Southern Europe	March-May	0.163	-	0.158	0.132
<i>Multiple application</i>					
Step 1	---	8.314	-	8.230	6.703
Step 2					
Northern Europe	March-May/June-Sept	0.226	-	0.218	0.182
Southern Europe	March-May/June-Sept	0.250	-	0.242	0.202

Table 8.9-50: FOCUS Step 1, 2 PEC_{sw} and PEC_{sed} for 1,2,4-triazole following single/multiple application(s) to sugarbeet (BBCH 39)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	8.314	-	8.230	6.703
Step 2					
Northern Europe	June-Sept	0.134	-	0.130	0.109
Southern Europe	June-Sept	0.112	-	0.119	0.100
<i>Multiple application</i>					
Step 1	---	8.314	-	8.230	6.703
Step 2					
Northern Europe	June-Sept	0.212	-	0.204	0.171
Southern Europe	June-Sept	0.201	-	0.194	0.162

Table 8.9-51: FOCUS Step 1, 2 PEC_{sw} and PEC_{sed} for 1,2,4-triazole following single/multiple application(s) to fruiting veg (BBCH 11)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	8.314	-	8.230	6.703
Step 2					
Northern Europe	March-May/ June-Sept	0.117/0.117	-	0.113/0.113	0.095/0.095
Southern Europe	March-May/ June-Sept	0.157/0.137	-	0.153/0.133	0.128/0.111
<i>Multiple application</i>					
Step 1	---	8.314	-	8.230	6.703
Step 2					
Northern Europe	March-May/ June-Sept	0.207/0.207	-	0.201/0.201	0.168/0.168
Southern Europe	March-May/ June-Sept	0.248/0.228	-	0.240/0.220	0.201/0.184

Table 8.9-51: FOCUS Step 1, 2 PEC_{sw} and PEC_{sed} for 1,2,4-triazole following single/multiple application(s) to fruiting veg (BBCH 89)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
Single application					
Step 1	---	8.314	-	0.300	6.703
Step 2					
Northern Europe	March-May/ June-Sept	0.093/0.093	-	0.089/0.089	0.075/0.075
Southern Europe	March-May/ June-Sept	0.109/0.101	-	0.105/0.097	0.088/0.081
Multiple application					
Step 1	---	8.314	-	0.300	6.703
Step 2					
Northern Europe	March-May/ June-Sept	0.183/0.183	-	0.177/0.177	0.148/0.148
Southern Europe	March-May/ June-Sept	0.199/0.191	-	0.193/0.185	0.161/0.154

Table 8.9-52: FOCUS Step 1, 2 PEC_{sw} and PEC_{sed} for 1,2,4-triazole following single/multiple application(s) to pome/stone fruit (BBCH 39, 120 g a.i./ha)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
Single application					
Step 1	---	7.122	-	6.902	4.469
Step 2					
Northern Europe	March-May/ June-Sept	0.872/0.872	-	0.813/0.813	0.677/0.677
Southern Europe	March-May/ June-Sept	0.874/0.872	-	0.841/0.827	0.703/0.690
Multiple application					
Step 1	---	7.122	-	6.902	4.469
Step 2					
Northern Europe	March-May/ June-Sept	1.469/1.469	-	1.393/1.393	1.161/1.161
Southern Europe	March-May/ June-Sept	1.478/1.469	-	1.422/1.412	1.188/1.175

Table 8.9-53: FOCUS Step 1, 2 PEC_{sw} and PEC_{sed} for 1,2,4-triazole following single/multiple application(s) to pome/stone fruit (BBCH 51-85, 160 g a.i./ha)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	7.122	-	6.902	4.469
Step 2					
Northern Europe	March-May/ June-Sept	1.163/0.872	-	1.070/0.802	0.888/0.666
Southern Europe	March-May/ June-Sept	1.163/1.163	-	1.090/1.080	0.908/0.898
<i>Multiple application</i>					
Step 1	---	7.122	-	6.902	4.469
Step 2					
Northern Europe	March-May/ June-Sept	1.959/1.959	-	1.850/1.849	1.533/1.533
Southern Europe	March-May/ June-Sept	1.959/1.959	-	1.870/1.860	1.554/1.544

Table 8.9-4: FOCUS Step 1, 2 PEC_{sw} and PEC_{sed} for 1,2,4-triazole following single/multiple application(s) to carrots

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)	Dominant en- try route	21 d- PEC _{sw, twa} (µg/L)	Max PEC _{sed} (µg/kg)*
<i>Single application</i>					
Step 1	---	9.237	-	9.144	7.448
Step 2					
Northern Europe	March-May/ June- Sept	0.194/0.194	-	0.188/0.188	0.158/0.158
Southern Europe	March-May/ June- Sept	0.261/0.228	-	0.255/0.222	0.213/0.186
<i>Multiple application</i>					
Step 1	---	9.237	-	9.144	7.448
Step 2					
Northern Europe	March-May/ June- Sept	0.291/0.291	-	0.281/0.281	0.235/0.235
Southern Europe	March-May/ June- Sept	0.357/0.324	-	0.347/0.314	0.290/0.263

ZRMS comments:

The calculations $PEC_{sw/sed}$ has been accepted for the active substance prothioconazole and its metabolites M04 and 1,2,4-triazole.

The input parameters used in calculations were taken from the endpoints available in the EFSA conclusion on Scientific Report (2007) 106, 1-98. Interception is appropriate to the proposed BBCH of crops (guidance 2014).

$PEC_{sw/sed}$ calculations performed at Step 1-2 and Step 3 and Step 4 for the active substance $PEC_{sw/sed}$ have been accepted. Input parameters and $PEC_{sw/sed}$ calculations can be considered acceptable.

The PEC_{sw} calculations have been approved for applications proposed in GAP. PEC_{sw} and PEC_{sed} calculations were carried out according to the FOCUS guidance recommendations.

Nevertheless, additional simulations may be required by the cMS that do not accept calculations performed using FOCUS models.

The mitigations measure will be recommended in ecotoxicological assessment.

The acceptable predicted environmental concentrations of prothioconazole and its metabolites are appropriate to be used for the subsequent risk assessment.

8.9.2.2 $PEC_{sw/sed}$ of SIP 41061

For foliar applied crop protection products, spray drift is the most important route of contamination of surface waters. As formulations consist of a mixture of components the PEC cannot be estimated by the FOCUS models, therefore spray drift is considered here according to published spray drift data⁴.

The initial exposure concentrations in surface water are instantaneous, worst-case concentrations used to assess potential risk to aquatic organisms. The initial PEC_{sw} for a single application is calculated as follows:

$$PEC_{sw} (\mu\text{g/L}) = \frac{\% \text{ drift} \times \text{application rate (g formulation/ha)}}{\text{water depth (30 cm)} \times 10}$$

The worst case PEC_{sw} for SIP 41061 formulation was calculated.

Table 8.9-26: Global maximum PEC_{sw} values for SIP 41061

Rate (g formulation/ha)	Distance downwind	% Drift	Initial PEC_{sw} ($\mu\text{g/L}$)
1 application (90 th percentile drift) – field crops. worst case GAP in cereals and carrots with application rate of 0.5 L/ha			
581	1 m	2.77	5.365
1 application (90 th percentile drift) – fruit crops. worst case GAP in stone fruit with application rate of 0.4 L/ha			
464.8	3 m	29.20	45.241

² D. Rautmann, M. Streloke, M. Winkler (2001): New basic drift values in the authorisation procedure for plant protection products. In: R. Forster, M. Streloke: Workshop on Risk Assessment and Risk Mitigation Measures in the Context of the Authorization of Plant Protection Products (WORMM). Mitt. Biol. Bundesanst. Land-Forstwirtschaft, Berlin-Dahlem, Heft 381 Bekanntmachung über die Abtrifteckwerte, die bei der Prüfung und Zulassung von Pflanzenschutzmitteln herangezogen werden (8. Mai 2000). Bundesanzeiger Jg 52 (Official Gazette) Nr. 100, amtlicher Teil, vom 26. Mai 2000, S. 9879-9880

Rate (g formulation/ha)	Distance downwind	% Drift	Initial PEC _{sw} (µg/L)
Multiple application (82nd percentile drift) – field crops. worst case GAP in cereals and carrots with application rate of 0.5 L/ha			
1162	1 m	2.38	9.219
Multiple application (82nd percentile drift) – fruit crops. worst case GAP in stone fruit with application rate of 0.4 L/ha			
929.6	3 m	25.53	79.109

*The rate of formulation (g/ha) was calculated based on a specific density of 1.162 g/mL

8.10 Fate and behaviour in air (KCP 9.3, KCP 9.3.1)

Table 8.10-1 Summary of atmospheric degradation and behaviour

Compound	Prothioconazole; Prothioconazole-desthio
Direct photolysis in air	No Data requested
Quantum yield of direct phototransformation	No Data requested
Photochemical oxidative degradation in air	<p><u>Prothioconazole:</u> Half life: 1.1 hours Chemical lifetime: 1.6 hours Calculated according to the Atkinson model (AOPWIN v.1.87, OH (12h) concentration assumed = 1.5×10^6 OH/cm³);</p> <p><u>Prothioconazole-desthio:</u> Half life: 14.2 hours Chemical lifetime: 20.5 hours Calculated according to the Atkinson model (AOPWIN v.1.87, OH (12h) concentration assumed = 1.5×10^6 OH/cm³).</p>
Volatilisation	<p>Laboratory route and rate soil studies indicated that volatilisation of prothioconazole and prothioconazole-desthio is unlikely to take place because no volatiles were detected at level above 0.1%</p> <p>Vapour pressure (Pa): $< 4.0 \times 10^{-7}$ Pa at 20°C (extrapolated), Henry's Law Constant (Pa.m³/mol): 3×10^{-5} (Pa.m³/mol).</p>

The vapour pressure at 20 °C of the active substance prothioconazole is $< 10^{-5}$ Pa. Hence the active substance prothioconazole and prothioconazole-desthio are regarded as non-volatile.

ZRMS comments:

The data on atmospheric degradation and behaviour in air for Prothioconazole provided by the Applicant are considered acceptable. The prothioconazole is regarded as non-volatile and, consequently, exposure of adjacent surface waters and terrestrial ecosystems by prothioconazole due to volatilization with subsequent deposition is not expected.

Appendix 1 Lists of data considered in support of the evaluation

Tables considered not relevant can be deleted as appropriate.

MS to blacken authors of vertebrate studies in the version made available to third parties/public.

List of data submitted by the applicant and relied on

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP XX	Author	YYYY	Title Company Report No Source GLP/non GLP/GEP/non GEP Published/Unpublished	Y/N	Owner
K-CP 9.2.4/01	-	2022	Prothioconazole: Predicted Environmental Concentrations in Using FOCUS-PEARL, FOCUS-PELMO and FOCUS-MACRO – summary Non-GLP Unpublished		
K-CP 9.2.5/01	-	2022	Prothioconazole: Predicted Environmental Concentrations in Surface, Using FOCUS STEPS 1-4 - summary Non-GLP Unpublished		

List of data submitted or referred to by the applicant and relied on, but already evaluated at EU peer review

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP XX	Author	YYYY	Title Company Report N Source GLP/non GLP/GEP/non GEP Published/Unpublished	Y/N	Owner

The following tables are to be completed by MS

List of data submitted by the applicant and not relied on

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP XX	Author	YYYY	Title Company Report N Source GLP/non GLP/GEP/non GEP Published/Unpublished	Y/N	Owner

List of data relied on not submitted by the applicant but necessary for evaluation

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP XX	Author	YYYY	Title Company Report N Source GLP/non GLP/GEP/non GEP Published/Unpublished	Y/N	Owner

Appendix 2 Detailed evaluation of the new Annex II studies

No new Annex II studies were submitted.

Appendix 3 Additional information provided by the applicant (e.g. detailed modelling data)

Modelling data are provided in a CD attached to the present application.