

FINAL REGISTRATION REPORT

Part B

Section 8

Environmental Fate

Detailed summary of the risk assessment

Product code: BSK-FUN 500 SC

Product name(s): -

Chemical active substance(s):

boscalid, 500 g/L

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

(authorization)

Applicant:

Pestila Sp. z o. o. and ProAgri International Sp. z o. o.

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June 2025

Version history

When	What
09.2024	Assessment by zRMS
02.2025	The final Registration Report.
June 2025	The final Registration Report after RT to Boskalid

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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 destina- tion / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I **	Pests or Group of pests controlled (additionally: devel- opmental 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. inter- val between applications (days)	kg or L product/ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min/max			Ground water
Zonal uses (field or outdoor uses, certain types of protected crops)														
1	Poland	Winter wheat,	F	Septoria leaf blotch (<i>Zymoseptoria tritici</i>) SEPTTR Eyespot of cereals (<i>Oculimacula acuformis</i>) PSDCHA Brown rust of cereals (<i>Puccinia recondita</i>) PUCCRE	broadcast spraying	BBCH 30-49	1 a) 1 b) 1	-	0.7 L/ha a) 0.7 L/ha b) 0.7 L/ha	350 g as/ha a) 350 g as/ha b) 350 g as/ha	100-300 L/ha	56 days	-	A
2	Poland	Spring wheat	F	Septoria leaf blotch (<i>Zymoseptoria tritici</i>) SEPTTR	broadcast spraying	BBCH 30-49	1 a) 1 b) 1	-	0.7 L/ha a) 0.7 L/ha b) 0.7 L/ha	350 g as/ha a) 350 g as/ha b) 350 g as/ha	100-300 L/ha	56 days	-	A
3	Poland	Winter triticale	F	Septoria leaf blotch (<i>Zymoseptoria tritici</i>) SEPTTR	broadcast spraying	BBCH 30-49	1 a) 1 b) 1	-	0.7 L/ha a) 0.7 L/ha b) 0.7 L/ha	350 g as/ha a) 350 g as/ha b) 350 g as/ha	100-300 L/ha	56 days	-	A
4	Poland	Spring triticale	F	Septoria leaf blotch (<i>Zymoseptoria tritici</i>) SEPTTR	broadcast spraying	BBCH 30-49	1 a) 1 b) 1	-	0.7 L/ha a) 0.7 L/ha b) 0.7 L/ha	350 g as/ha a) 350 g as/ha b) 350 g as/ha	100-300 L/ha	56 days	-	A
5	Poland	Winter barley	F	Net blotch of barley (<i>Pyrenophora teres</i>)	broadcast spraying	BBCH 30-49	1 a) 1	-	0.7 L/ha a) 0.7 L/ha	350 g as/ha a) 350 g as/ha	100-300 L/ha	56 days	-	A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
				PYRNTE			b) 1		b) 0.7 L/ha	b) 350 g as/ha				
6	Poland	Spring barley	F	Net blotch of barley (<i>Pyrenophora teres</i>) PYRNTE	broadcast spraying	BBCH 30-49	1 a) 1 b) 1	-	0.7 L/ha a) 0.7 L/ha b) 0.7 L/ha	350 g as/ha a) 350 g as/ha b) 350 g as/ha	100-300 L/ha	56 days	-	A
7	Poland	Winter oilseed rape	F	Black leg of crucifers (<i>Leptosphaeria macu- lans</i>) LEPTMA	broadcast spraying	Autumn BBCH 13-18 Spring BBCH 31-57	2 a) 1 b) 2	-	0.2 - 0.5 L/ha a) 0.5 L/ha b) 1 L/ha	100-250 g as/ha a) 250 g as/ha b) 500 g as/ha	100-400 L/ha	N/A	one in autumn, one in spring or 2 in spring, min. 14 days between applications	A
8	Poland	Winter oilseed rape	F	Black leg of crucifers (<i>Leptosphaeria macu- lans</i>) LEPTMA	broadcast spraying	Spring BBCH 31-57	2 a) 1 b) 2	14 days	0.2 - 0.5 L/ha a) 0.5 L/ha b) 1 L/ha	100-250 g as/ha a) 250 g as/ha b) 500 g as/ha	100-400 L/ha	N/A	one in autumn, one in spring or 2 in spring, min. 14 days between applications	A
9	Poland	Winter oilseed rape	F	Black leg of crucifers (<i>Leptosphaeria macu- lans</i>) LEPTMA Cottony rot <i>Sclerotinia sclerotiorum</i> SCLESC	broadcast spraying	BBCH 57-71	2 a) 1 b) 2	14 days	0.2 - 0.5 L/ha a) 0.5 L/ha b) 1 L/ha	100-250 g as/ha a) 250 g as/ha b) 500 g as/ha	100-400 L/ha	N/A	-	A
10	Poland	Winter rye	F	Leaf blotch of cereals (<i>Rhynchosporium secalis</i>) RHYNSE	broadcast spraying	BBCH 30-49	1 a) 1 b) 1	-	0.7 L/ha a) 0.7 L/ha b) 0.7 L/ha	350 g as/ha a) 350 g as/ha b) 350 g as/ha	100-300 L/ha	56 days	-	A

* 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

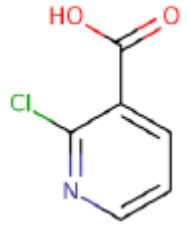
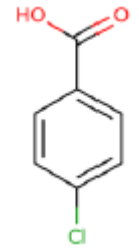
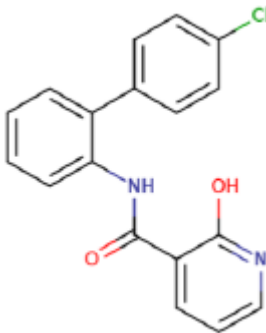
Table 8.1-2: Assessed (critical) uses during approval of boscalid concerning the Section Environmental Fate

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use- No.	Member state(s)	Crop and/or situation (crop destina- tion / pur- pose of crop)	F, G, or I *	Pests or Group of pestscon- trolled (addition- ally: develop- mental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks: e.g. g safener/ syn- ergist perha
					Method /Kind	Timing / Growthstage of crop & season	Max. num- ber a) per use b) per crop/ season	Min. inter- valbetween applications (days)	kg prod- uct/ha a) max. rateper appl. b) max. totalrate per crop/season	kg as/ha a) max. rateper appl. b) max. totalrate per crop/season	Water L/ha min/max		
1	N-EU S-EU	Grape	F	<i>Botrytis</i>	Spraying	BBCH 61 – 81	1	-	0.038 – 0.060	0.600	1000 – 1600	28	-
2	EU	Oilseed rape	F	<i>Sclerotina, Alter- naria, Phoma</i>	Spraying	BBCH 30 BBCH 63-65	2	4 – 6 weeks	0.062 – 0.125	0.250	200 – 400	-	-
3	N-EU S-EU	Peas	F	<i>Botrytis, Sclerotina</i>	Spraying	BBCH 60-69	2	7-10	0.125	0.500	400	7	-
4	N-EU S-EU	Beans	F	<i>Botrytis, Sclerotina</i>	Spraying	BBCH 60-69	2	7-10	0.166	0.500	300	7	-

* F: professional field use, G: professional greenhouse use, I: indoor application

8.2 Metabolites considered in the assessment

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

Metabolite	Molar mass (g/mol)	Chemical structure	Maximum observed occurrence in compartments	Exposure assessment required due to
M510F47	157.6		Soil: anaerobic conditions 2.6 % after 3 d, 6 % after 62 d, 5.9 % after 90 d, 6.7 % after 120 d	-
M510F64	156.56		Sediment: under outdoor conditions 7.3 % after 7 d 9 % after 14 d 9.4 % after 30 d 1.9 % after 120 d	-
M510F49	324.8		Soil: aerobic conditions- 9% after 127d 9% after 181d 12.6% after 273d 14.5% after 371d	-

8.3 Rate of degradation in soil (KCP 9.1.1)

8.3.1 Aerobic degradation in soil (KCP 9.1.1.1)

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

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

Boscalid, Laboratory studies, aerobic conditions										
Soil name	Soil type	pH (CaCl ₂)	t.°C	MWHC %	DT50 (d)	DT90 (d)	DT50 (d) 20°C pF2/10kPa	Chi2 (%)	Kinetic model	Evaluated on EU level y/n/ Reference
Bruch West	Loamy sand	7.4	20	40	108	360	-	-	-	SANCO/3919 /2007-rev. 5 21 January 2008
Li 35 b	Loamy sand	6.6	20	40	322	-	-	-	-	
Lufa 2.2	Loamy sand	5.6	20	40	384	-	-	-	-	
US soil	Sandy loam	7.0	20	40	376	-	-	-	-	
Minto (Canada)	Loam	7.7	20	40	133	442	-	-	-	
Geom. mean (n=5)							232			
pH-dependency: y/n							n			

8.3.2 Anaerobic degradation in soil (KCP 9.1.1.1)

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

Table 8.3-2: Summary of anaerobic degradation rates for boscalid - laboratory studies

Boscalid, Laboratory studies, anaerobic conditions											
Soil name	Soil type	pH (CaCl ₂)	t.°C	MWHC %	DT50 (d)	DT90 (d)	DT50 (d) 20°C pF2/10kPa	Chi2 (%)	Kinetic model	Evaluated on EU level y/n/ Reference	
Bruch West	Loamy sand	7.4	20	Flooded	261	-	-	-	-	SANCO/3919 /2007-rev. 5 21 January 2008	
Bruch West	Loamy sand	7.4	20	Flooded	345	-	-	-	-		
Geom. mean (n=2)							300				
pH-dependency: y/n							n				

8.4 Field studies (KCP 9.1.1.2)

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

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

Triggering endpoints

Table 8.4-1: Summary of aerobic degradation rates for boscalid - field studies: Triggering endpoints

Boscalid, Field studies – Triggering endpoints									
Soil type	Location	pH (CaCl ₂)	Depth (cm)	DissT50 (d) actual	DT90 (d) actual	Kinetic parameters	St. (<i>x</i> ²)	Method of calculation	Evaluated on EU level y/n/ Reference
Silty loam	Germany, Stetten	7.5	-	90 49 28	-	-	-	-	SANCO/3919 /2007-rev. 5 21 January 2008
Silty sand	Germany, Schifferstadt	5.4	-	208 175 147	-	-	-	-	
Sandy loam	Spain, Manzanilla	7.4	-	27	-	-	-	-	
Sandy loam	Spain, Alcala del Rio	7.7	-	78	-	-	-	-	
Loamy sand	Germany, Grossharrie	6.1	-	144	-	-	-	-	
Maximum (n=9)				208	-				

Modelling endpoints

Table 8.4-2: Summary of aerobic degradation rates for boscalid - field studies: Modelling endpoints

Boscalid, Field studies – Modelling endpoints						
Soil type	Location	pH (x)	Depth (cm)	DT50 (d) 20°C	Fit, Kinetic	Evaluated on EU level y/n/ Reference
Silty loam	Germany, Stetten	7.5	-	106	-	SANCO/3919 /2007-rev. 5 21 January 2008
Silty sand	Germany, Schifferstadt	5.4	-	212	-	
Sandy loam	Spain, Manzanilla	7.4	-	-	-	
Sandy loam	Spain, Alcala del Rio	7.7	-	-	-	
Loamy sand	Germany, Grossharrie	6.1	-	98	-	

Boscalid, Field studies – Modelling endpoints						
Soil type	Location	pH (x)	Depth (cm)	DT50 (d) 20°C	Fit, Kinetic	Evaluated on EU level y/n/ Reference
Geom. mean (n=3)				107	-	
Maximum (n=3)				212	-	
pH-dependency y/n				n	-	

8.4.2 Soil accumulation testing (KCP 9.1.1.2.2)

Soil accumulation studies with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substance.

Two soil accumulation studies were peer review (SANCO/3919 /2007-rev. 5, 21 January 2008):

1. Germany, 1999-2003, loamy sand/sandy loam, application to vines (3 x 700 g as/ha = 2100 g as/ha); measured maximum plateau: mean 2900 g as/ha (138% of applied rate)
2. Germany, sandy loam, 1998-2004 and ongoing, 3-year rotation with vegetables (2100 g as/ha), vegetables (1700 g as/ha) and cereals (no application); measured maximum: 2545 g as/ha (150% of applied rate in the preceding year).

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.

Table 8.5-1: Summary of soil adsorption/desorption for boscalid

Boscalid							
Soil name	Soil type*	OC (%)	pH (CaCl ₂)	Kf (mL/g)	Kfoc (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
LUFA 2.2	Sand / loamy sand	2.5	5.8	27.8	1110	0.875	SANCO/3919 /2007-rev. 5 21 January 2008
Bruch West	Loamy sand	1.5	7.5	7.6	507	0.870	
Li 35b	Loamy sand	1.1	6.5	6.5	594	0.839	
USA 538-30-5	Loamy sand	0.4	5.8	3.9	987	0.887	
USA 538-31-2	Silty loamy sand	0.5	5.2	3.3	655	0.860	
Canada 95024	Sandy loam	3.4	7.5	26.4	776	0.851	
Geom. mean (n=6)					742.6	-	
Arythmetic mean (n=6)					-	0.863	

Boscalid							
Soil name	Soil type*	OC (%)	pH (CaCl ₂)	Kf (mL/g)	Kfoc (mL/g)	1/n (-)	Evaluated on EU level y/n/ Reference
pH-dependency y/n				n			

8.5.1 Column leaching (KCP 9.1.2.1)

Table 8.5-2: Summary of soil column leaching for boscalid

Boscalid					
Soil name	Soil type	OC (%)	pH (CaCl ₂)	Leachate (Total)	Evaluated on EU level y/n/ Reference
Lufa 2.1, Speyer, Germany	Sand	0.6	6.0	0.04% AR	SANCO/3919 /2007-rev. 5 21 January 2008

8.5.2 Lysimeter studies (KCP 9.1.2.2)

No lysimeter studies with boscalid and its metabolites were performed as they are not required.

8.5.3 Field leaching studies (KCP 9.1.2.3)

No field leaching studies with boscalid and its metabolites were performed as they are not required.

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.

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

Boscalid Distribution (max. water 17.4 % after 100 days, sediment 79.9 % after 100 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 system	8.5	>100	-	-	9	133	-	-	-	SANCO/3919 /2007-rev. 5 21 January 2008
River system	8.1	>100	-	-	3	43	-	-	-	
Geometric mean (n=2)		>100	-		5.2	75.62		-		-

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

8.7.1 Justification for new endpoints

All endpoints used for PEC soil calculations are EU approved and were evaluated on EU level.

8.7.2 Active substance(s) and relevant metabolite(s)

PECs modeling was performed with ESCAPE v. 2. For further risk assessment worst case PECs values were used. Input parameters related to application and active substance data for PECs calculation are summarized below. ESCAPE outputs are included in Appendix 3 (KCP 9.1.3).

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

Use No.	1, 2, 3, 4, 5, 6, 10	7, 8, 9
Crop	winter cereals spring cereals	winter rape
Application rate (g as/ha)	350	250
Number of applications/interval	1/-	2/14d
Crop interception (%)	20	40
Depth of soil layer (relevant for plateau concentration) (cm)	5 cm	5 cm

Table 8.7-2: Input parameter for active substance for PEC_{soil} calculation

Compound	Molecular weight (g/mol)	Max. occurrence (%)	Formation fraction (%)	DT50 (days)	K _{foc} (mL/g)	Value in accordance with EU endpoint y/n/ Reference
Boscalid	343.21	-		212	742.6	SANCO/3919 /2007-rev. 5 21 January 2008

Table 8.7-3: PEC_{soil} for boscalid on winter and spring cereals (350 g as/ha)

PEC _{soil} (mg/kg)		spring and winter cereals			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.3733	-	-	-
Short term	24h	0.3721	0.3727	-	-
	2d	0.3709	0.3721	-	-
	4d	0.3685	0.3709	-	-
Long term	7d	0.3649	0.3691	-	-
	14d	0.3566	0.3649	-	-
	21d	0.3486	0.3608	-	-
	28d	0.3407	0.3568	-	-
	42d	0.3254	0.3488	-	-

	50d	0.3170	0.3444	-	-
	100d	0.2692	0.3184	-	-
Background concentration		0.1624	-	-	-
Accumulation after many years		0.5358	-	-	-

Table 8.7-4: PEC_{soil} for boscalid on winter rape (2 x 250 g as/ha)

PEC _{soil} (mg/kg)		winter rape			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.2000	-	0.3911	-
Short term	24h	0.1993	0.1997	0.3898	0.3904
	2d	0.1987	0.1993	0.3885	0.3898
	4d	0.1974	0.1987	0.3860	0.3885
Long term	7d	0.1955	0.1977	0.3822	0.3866
	14d	0.1911	0.1955	0.3736	0.3822
	21d	0.1867	0.1933	0.3651	0.3779
	28d	0.1825	0.1911	0.3568	0.3737
	42d	0.1743	0.1869	0.3409	0.3654
	50d	0.1698	0.1845	0.3321	0.3608
	100d	0.1442	0.1706	0.2820	0.3336
Background concentration		0.0870	-	0.1702	-
Accumulation after many years		0.2870	-	0.5612	-

8.7.2.1 PEC_{soil} of BSK-FUN 500 SC

Table 8.7-5: PEC_{soil} for BSK-FUN 500 SC

Crop	Active substance	Application rate (g/ha)	PEC _{act} (mg/kg)	PEC _{twa21 d} (mg/kg)	Tillage depth (cm)	PEC _{soil,background} (mg/kg)	PEC _{accu} = PE-C _{act} + PEC _{soil,background} (mg/kg)
winter cereals spring cereals	boscalid	350	0.3733	0.3608	20	0.1624	0.5358
	BSK-FUN 500 SC	821.8	0.877	NR	NR	NR	NR
winter rape	boscalid	2 x 250	0.3911	0.3779	20	0.1702	0.5612
	BSK-FUN 500 SC	1174	0.939	NR	NR	NR	NR

The application rate of the formulation was calculated based on density of 1.174 g/mL

zRMS comments:

PECs calculations have been accepted. The calculations cover proposed GAP. Soil Parameters used for the calculations were considered at the EU level. Accumulated concentration was calculated for the boscalid by assuming distribution of plateau concentration through either plough layer .

No PEC_{soil} calculations were performed for metabolites of boscalid because metabolites were found in amounts greater than 10% of the applied parent (DAR 2002). The crop interception assumed in calculations is in line with the most recent version of the FOCUS Groundwater Guidance of 2014.

The PECs results are presented in Table 8.7-6 and Table 8.7-4:and Table 8.7-5 for formulation. The exposure for the formulated product was calculated. For this reason PEC_{soil} were considered relevant for the soil risk assessment.

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

8.8.1 Justification for new endpoints

All endpoints used for PEC ground water calculations are EU approved and were evaluated on EU level.

8.8.2 Boscalid and relevant metabolites (KCP 9.2.4.1)

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

Use No.	1, 3, 5, 10	2, 4, 6	7	8	9
Crop	winter cereals	spring cereals	winter rape	winter rape	winter rape
Application rate (g as/ha)	350	350	2 x 250	2 x 250	2 x 250
Number of applications/interval (d)	1/-	1/-	2/30 ¹	2/14	2/14
Crop interception (%)	20	40	40/80	80	80
Frequency of application	annual	annual	annual	annual	annual
Models used for calculation	FOCUS PEARL v5.5.5., FOCUS PELMO v6.6.4.				

¹assumed worst case interval between autumn and spring application

Table 8.8-2: Application dates used for groundwater risk assessment

Crop	Scenario	Application dates (absolute)
winter cereals 1 × 350 g/ha BBCH 30 (use no. 1, 3, 5, 10)	Châteaudun	15/04
	Hamburg	04/05
	Jokioinen	14/05
	Kremsmünster	24/04
	Okehampton	21/04
	Piacenza	19/03
	Porto	30/01

Crop	Scenario	Application dates (absolute)
	Sevilla	06/01
	Thiva	18/01
spring cereals 1 × 350 g/ha BBCH 30 (use no. 2, 4, 6)	Châteaudun	16/04 ¹
	Hamburg	28/04 ¹
	Jokioinen	05/06 ¹
	Kremsmünster	27/04 ¹
	Okehampton	22/04 ¹
	Porto	16/04 ¹
winter rape 2 × 250 g/ha interval: 30 days BBCH 13 / 31 (use no. 7)	Châteaudun	12/09 ¹ & 13/03 ²
	Hamburg	07/09 ¹ & 19/04 ²
	Kremsmünster	07/09 ¹ & 16/04 ²
	Okehampton	19/08 ¹ & 10/04 ²
	Piacenza	10/10 ¹ & 09/03 ²
	Porto	25/09 ¹ & 04/01 ²
winter rape 2 × 250 g/ha BBCH 31 interval: 14 days (use no. 8)	Châteaudun	13/03 ¹ & 27/03 ²
	Hamburg	19/04 ¹ & 03/05 ²
	Kremsmünster	16/04 ¹ & 30/04 ²
	Okehampton	10/04 ¹ & 24/04 ²
	Piacenza	09/03 ¹ & 23/03 ²
	Porto	04/01 ¹ & 28/01 ²
winter rape 2 × 250 g/ha interval: 14 days BBCH 57 (use no. 9)	Châteaudun	14/04 ¹ & 28/04 ²
	Hamburg	02/05 ¹ & 16/05 ²
	Kremsmünster	02/05 ¹ & 16/05 ²
	Okehampton	27/04 ¹ & 11/05 ²
	Piacenza	09/04 ¹ & 23/04 ²
	Porto	03/04 ¹ & 17/04 ²

¹first application date according ²second application rate

Table 8.8-3: Input parameters related to active substance boscalid for PEC_{gw} calculations

Compound	Boscalid	Value in accordance with EU endpoint y/n/ Reference*
Molecular weight (g/mol)	343.21	SANCO/3919 /2007-rev. 5 21 January 2008
Water solubility (mg/mol):	4.6 at 20°C	SANCO/3919 /2007-rev. 5 21 January 2008
Saturated vapour pressure (Pa):	7.2 x 10 ⁻⁷ at 20°C	SANCO/3919 /2007-rev. 5 21 January 2008
DT ₅₀ in soil (d)	232	SANCO/3919 /2007-rev. 5

Compound	Boscalid	Value in accordance with EU endpoint y/n/ Reference*
	(geomean n=5, laboratory studies)	21 January 2008
$K_{foc} (mL/g)/K_{fom}$	742.6 / 430.7 (geomean n=6, laboratory studies)	SANCO/3919 /2007-rev. 5 21 January 2008
1/n	0.863 (arithmetic mean, n = 6)	SANCO/3919 /2007-rev. 5 21 January 2008
Plant uptake factor	0	default
Formation fraction	-	SANCO/3919 /2007-rev. 5 21 January 2008

Table 8.8-4: PEC_{gw} for boscalid on winter oilseed rape with FOCUS PEARL 5.5.5 and PELMO 6.6.4

Crop	Scenario		80 th Percentile PEC _{gw} at 1 m Soil Depth (µg/L)	
		boscalid PEARL 5.5.5	boscalid PE+LMO 6.6.4	
winter cereals 1 × 350 g/ha BBCH 30 (use no. 1, 3, 5, 10)	Châteaudun	0.000000	< 0.001	0.000
	Hamburg	0.009364	< 0.001	0.000
	Jokioinen	0.000000	< 0.001	0.000
	Kremsmünster	0.000574	< 0.001	0.000
	Okehampton	0.014377	< 0.001	0.000
	Piacenza	0.006019	< 0.001	0.000
	Porto	0.001180	< 0.001	0.000
	Sevilla	0.000000	< 0.001	0.000
	Thiva	0.000000	< 0.001	0.000
spring cereals 1 × 350 g/ha BBCH 30 (use no. 2, 4, 6)	Châteaudun	0.000000	< 0.001	0.000
	Hamburg	0.011760	< 0.001	0.000
	Jokioinen	0.000000	< 0.001	0.000
	Kremsmünster	0.000344	< 0.001	0.000
	Okehampton	0.008562	< 0.001	0.000
	Porto	0.000693	< 0.001	0.000
winter rape 2 × 250 g/ha BBCH 13 / 31 (use no. 7)	Châteaudun	0.000000	< 0.001	0.000
	Hamburg	0.004199	< 0.001	0.000
	Kremsmünster	0.000134	< 0.001	0.000
	Okehampton	0.005711	< 0.001	0.000
	Piacenza	0.001755	< 0.001	0.000
	Porto	0.000578	< 0.001	0.000
winter rape 2 × 250 g/ha	Châteaudun	0.000000	< 0.001	0.000
	Hamburg	0.000278	< 0.001	0.000

BBCH 31 (use no. 8)	Kremsmünster	0.000000	< 0.001	0.000
	Okehampton	0.000373	< 0.001	0.000
	Piacenza	0.000168	< 0.001	0.000
	Porto	0.000010	< 0.001	0.000
winter rape 2 × 250 g/ha BBCH 57 (use no. 9)	Châteaudun	0.000000	< 0.001	0.000
	Hamburg	0.000280	< 0.001	0.000
	Kremsmünster	0.000000	< 0.001	0.000
	Okehampton	0.000366	< 0.001	0.000
	Piacenza	0.000156	< 0.001	0.000
	Porto	0.000007	< 0.001	0.000

PEC_{gw} for the active substance boscalid are below the trigger value of 0.1 µg/L. There is no unacceptable risk of groundwater contamination.

zRMS Comments:

PEC_{gw} calculations have been accepted. The calculations cover proposed uses in GAP. The crop interception assumed in calculations is in line with the most recent version of the FOCUS Groundwater Guidance of 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.

According to DAR and EFSA Journal 2011;9(1):1967 in field studies no metabolite was found in amounts greater than 10% of the applied parent, therefore no PEC_{gw} calculations are performed for metabolites of boscalid. No MACRO calculations was required (PEC_{gw} < 0.001 µg/L).

Based on Focus PEARL and PELMO simulations. Calculated PEC_{gw} values are far below the threshold concentration of 0.1 µg/L for all scenarios and crops.

No unacceptable risk for groundwater was identified.

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

8.9.1 Justification for new endpoints

All endpoints used for PEC_{sw} calculations are EU approved and were evaluated on EU level.

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

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

Use No.	1, 3, 5, 10	2, 4, 6	7	8	9
Crop	winter cereals	spring cereals	winter rape	winter rape	winter rape

Application rate (g as/ha)	350	350	2 x 250	2 x 250	2 x 250
Number of applications/ interval (d)	1/-	1/-	2/30	2/14	2/14
BBCH	30-49	30-49	13-57	31-57	57-71
Crop interception	average crop cover 20%	average crop cover 20%	minimal crop cover 40%	minimal crop cover 40%	average crop cover 70%
Application window	March-May	March-May	June-September	March-May	March-May
Application method	Foliar ground spray	Foliar ground spray	Foliar ground spray	Foliar ground spray	Foliar ground spray
CAM (Chemical application method)	2	2	2	2	2
Soil depth (cm)	4	4	4	4	4
Models used for calculation	FOCUS STEP12 v 3.2, FOCUS SWASH v5.3, FOCUS PRZM v4.3.1, FOCUS MACRO v5.5.4, FOCUS TOXSWA v5.5.3.				

The application windows used in SWASH v5.3 for all crops were chosen based on the model AppDate v.3.06. The corresponding earliest (begin of application window) BBCH and latest BBCH (end application window) values were chosen as given in the GAP.

Table 8.9-2: FOCUS Step 3 Scenario related input parameters for PEC_{sw/sed} calculations for the application of BSK-FUN 500 SC

Crop	Scenario	Application window used in modelling
winter cereals 1 × 350 g/ha BBCH 30-49 (use no. 1, 3, 5, 10)	D1	25/03 (84) - 20/06 (171)
	D2	04/04/ (94) - 28/06 (179)
	D3	16/04/ (106) - 18/07 (199)
	D4	18/03 (77) - 16/06 (167)
	D5	15/03 (74) - 23/05 (143)
	D6	16/02 (47) – 14/04 (104)
	R1	24/04/ (114) - 23/06 (174)
	R3	19/03 (78) - 21/05 (141)
	R4	24/01 (24) - 04/05 (124)
spring cereals 1 × 350 g/ha BBCH 30-49 (use no. 2, 4, 6)	D1	27/05 (147) – 16/07 (197)
	D3	28/04 (118) – 21/06 (172)
	D4	18/05 (138) – 07/07 (188)
	D5	09/04 (99) – 01/06 (152)
	R4	09/04 (99) – 01/06 (152)
winter rape 2 × 250 g/ha BBCH 13-57 interval: 30d	D2	20/09 (263) – 30/06 (181)
	D3	07/09 (250) – 10/06 (161)
	D4	08/09 (251) – 21/06 (172)

Crop	Scenario	Application window used in modelling
(use no. 7)	D5	25/09 (268) – 30/05 (150)
	R1	09/09 (252) – 18/06 (169)
	R3	10/10 (283) – 13/05 (133)
winter rape 2 × 250 g/ha BBCH 31-57 interval: 14d (use no. 8)	D2	15/03 (74) – 30/06 (181)
	D3	26/02 (57) – 10/06 (161)
	D4	06/03 (65) – 21/06 (172)
	D5	05/03 (64) – 30/05 (150)
	R1	17/04 (107) – 18/06 (169)
	R3	09/03 (68) – 13/05 (133)
winter rape 2 × 250 g/ha BBCH 57-71 (use no. 9)	D2	31/05 (151) – 26/07 (207)
	D3	11/05 (131) – 15/07 (196)
	D4	22/05 (142) – 29/07 (210)
	D5	30/04 (120) – 30/06 (181)
	R1	19/05 (139) – 11/07 (192)
	R3	13/05 (133) – 25/06 (177)

Table 8.9-2: Input parameters related to active substance boscalid for PEC_{sw/sed} calculations

Compound	Boscalid	Value in accordance with EU endpoint y/n/ Reference
Molecular weight (g/mol)	343.21	SANCO/3919 /2007-rev. 5 21 January 2008
Saturated vapour pressure (Pa)	not required for Step 1+2/ 7.2 x 10 ⁻⁷ at 20°C	SANCO/3919 /2007-rev. 5 21 January 2008
Water solubility (mg/L)	4.6 at 20°C	SANCO/3919 /2007-rev. 5 21 January 2008
Diffusion coefficient in water (m ² /d)	not required for Step 1+2/ 4.3 x 10 ⁻⁵	default
Diffusion coefficient in air (m ² /d)	not required for Step 1+2/ 0.43	default
K _{foc} / K _{fom} (mL/g)	742.6 / 430.7 (geomean n=6, laboratory studies)	SANCO/3919 /2007-rev. 5 21 January 2008
Freundlich Exponent 1/n	not required for Step 1+2/ 0.863 (arithmetic mean, n = 6)	SANCO/3919 /2007-rev. 5 21 January 2008
Plant Uptake	not required for Step 1+2/ 0	default
Wash-Off factor from Crop (1/mm)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)	default
DT _{50,soil} (d)	232 (geomean n=5, laboratory studies)	SANCO/3919 /2007-rev. 5 21 January 2008

Compound	Boscalid	Value in accordance with EU endpoint y/n/ Reference
DT _{50,water} (d)	1000	default
DT _{50,sed} (d)	1000	default
DT _{50,whole system} (d)	1000	default

PEC_{sw/sed}

Table 8.9-3: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for boscalid following application of BSK-FUN 500 SC to winter cereals BBCH 30-49 (1 × 350 g/ha)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)*	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)**	Max PEC _{sed} (µg/kg)*
Step 1	-	61.8414	-	59.8418	435.3310
Step 2					
Northern Europe	March-May	11.2027	-	10.8099	80.7470
Step 3					
D1	ditch	8.079	drainage	7.410	78.91
D1	stream	5.057	drainage	4.576	44.95
D2	ditch	9.565	drainage	4.078	59.54
D2	stream	5.962	drainage	2.491	35.47
D3	ditch	2.215	drainage	0.1091	1.201
D4	pond	0.8997	drainage	0.8699	7.875
D4	stream	1.637	drainage	0.5599	2.655
D5	pond	0.7229	drainage	0.6777	8.415
D5	stream	1.784	drainage	0.2326	1.737
D6	ditch	2.802	drainage	0.7534	3.395
R1	pond	0.3910	runoff/erosion	0.3466	3.534
R1	stream	3.018	runoff/erosion	0.2132	2.078
R3	stream	3.932	runoff/erosion	0.1983	3.782
R4	stream	5.093	runoff/erosion	0.2500	2.895

* single applications should be marked.

** two-time as required by ecotox

Table 8.9-4: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for boscalid following application of BSK-FUN 500 SC to spring cereals BBCH 30-49 (1 × 350 g/ha)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)*	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)**	Max PEC _{sed} (µg/kg)*
Step 1	-	61.8414	-	59.8418	435.3310

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)*	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)**	Max PEC _{sed} (µg/kg)*
Step 2					
Northern Europe	March-May	11.2027	-	10.8099	80.7470
Step 3					
D1	ditch	6.573	drainage	5.933	59.24
D1	stream	4.134	drainage	3.674	32.57
D3	ditch	2.217	drainage	0.1226	1.303
D4	pond	0.8809	drainage	0.8527	7.875
D4	stream	1.816	drainage	0.5507	2.696
D5	pond	0.7333	drainage	0.6883	8.607
D5	stream	1.871	drainage	0.2213	1.716
R4	stream	5.719	runoff/erosion	0.6998	6.468

* single applications should be marked.

** two-time as required by ecotox

Table 8.9-5: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for boscalid following application of BSK-FUN 500 SC to winter rape BBCH 13-57 (2 × 250 g/ha, interval 30 days)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)*	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)**	Max PEC _{sed} (µg/kg)*
Step 1	-	88.3448	-	85.4882	621.9014
Step 2					
Northern Europe	June-Sept	11.9209	-	11.4458	85.4857
Step 3					
D2	ditch	22.37	drainage	11.06	116.8
D2	stream	14.00	drainage	6.016	69.14
D3	ditch	1.389	drainage	0.1238	1.135
D4	pond	2.557	drainage	2.471	20.26
D4	stream	3.977	drainage	1.602	7.364
D5	pond	1.256	drainage	1.168	13.99
D5	stream	1.761	drainage	0.4468	2.978
R1	pond	0.3813	runoff/erosion	0.3276	3.136
R1	stream	3.801	runoff/erosion	0.1217	1.846
R3	stream	3.685	runoff/erosion	0.2233	3.088

* single applications should be marked.

** two-time as required by ecotox

Table 8.9-6: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for boscalid following application of BSK-FUN 500 SC to winter rape BBCH 31-57 (2 × 250 g/ha, interval 14 days)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)*	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)**	Max PEC _{sed} (µg/kg)*
Step 1	-	88.3448	-	85.4882	621.9014
Step 2					
Northern Europe	March-May	12.1565	-	11.6775	87.2177
Step 3					
D2	ditch	13.14	drainage	6.025	77.94
D2	stream	8.207	drainage	3.534	46.99
D3	ditch	1.382	drainage	0.1172	0.9074
D4	pond	1.359	drainage	1.313	11.60
D4	stream	1.966	drainage	0.8600	4.084
D5	pond	0.8733	drainage	0.8205	10.44
D5	stream	1.335	drainage	0.3045	2.047
R1	pond	0.5942	runoff/erosion	0.5147	5.241
R1	stream	3.602	runoff/erosion	0.1570	6.605
R3	stream	5.141	runoff/erosion	0.2414	4.454

* single applications should be marked.

** two-time as required by ecotox

Table 8.9-7: FOCUS Step 1,2 and 3 PEC_{sw} and PEC_{sed} for boscalid following application of BSK-FUN 500 SC to winter rape BBCH 57-71 (2 × 250 g/ha, interval 14 days)

Scenario FOCUS	Waterbody	Max PEC _{sw} (µg/L)*	Dominant entry route	21 d- PEC _{sw, twa} (µg/L)**	Max PEC _{sed} (µg/kg)*
Step 1	-	88.3448	-	85.4882	621.9014
Step 2					
Northern Europe	March-May	7.2931	-	6.8494	51.1271
Step 3					
D2	ditch	2.905	drainage	2.345	19.86
D2	stream	2.387	drainage	1.819	12.83
D3	ditch	1.390	drainage	0.1368	1.423
D4	pond	0.2162	drainage	0.2086	2.381
D4	stream	1.184	drainage	0.1258	0.6804
D5	pond	0.2328	drainage	0.2159	2.672
D5	stream	1.277	drainage	0.07188	0.5536
R1	pond	0.4440	runoff/erosion	0.4163	4.540

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	4.906	runoff/erosion	0.2577	6.307
R3	stream	3.473	runoff/erosion	0.1536	2.487

* single applications should be marked.

** two-time as required by ecotox

PEC_{sw/sed} of BSK-FUN 500 SC

The PEC_{sw} of the formulation BSK-FUN 500 SC were calculated based on the FOCUS spray drift values of the SWASH drift calculator and the density of the formulation of 1.1668 g/mL.

Table 8.9-8: PEC_{sw} for BSK-FUN 500 SC

Crop	Waterbody	Application rate (g formulation/ha)	Buffer zone (m)	PEC _{sw} (µg formulation/L)
Winter/spring cereals, 1 x 0.7 L/ha	ditch	1× 817 g form/ha	NR	5.2489
	pond			0.1790
	stream			3.8953
	ditch		5m	1.4228
	pond			0.1549
	stream			1.4228
	ditch		10m	0.7546
	pond			0.1113
	stream			0.7546
	ditch		20m	0.3921
	pond			0.0743
	stream			0.3921
Winter rape, 2 x 0.5 L/ha	ditch	2× 584 g form/ha	NR	3.2777
	pond			0.1047
	stream			2.4080
	ditch		5m	0.8506
	pond			0.0900
	stream			0.8506
	ditch		10m	0.4418
	pond			0.0638
	stream			0.4418
	ditch		20m	0.2246
	pond			0.0420
	stream			0.2246

Comments zRMS:

The surface water modelling has been performed using parameters for boscalid have been taken from SANCO/3919 /2007-rev. 5 21 January 2008.

PEC_{sw} calculations have been accepted. The calculations cover proposed GAP. Soil Parameters used for the calculations were considered at the EU level. PEC_{sw}/sed calculations have been accepted.

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	Boscalid
Direct photolysis in air	Photolytically stable in water. Photolysis in air not expected. Not stable under influence of radicals.
Quantum yield of direct phototransformation	$<2.45 \times 10^{-4}$
Photochemical oxidative degradation in air	DT ₅₀ : < 1.1d AOPWIN Version 1.88, [OH radicals] = $8 \times 10^5 \text{ cm}^{-3}$
Volatilisation	Vapour pressure (Pa): 7.2×10^{-7} (20°C) Henry's Law Constant (Pa.m ³ /mol): 5.178×10^{-5}
Metabolites	-

The vapour pressure at 20 °C of the active substance boscalid is $< 10^{-5}$ Pa. Hence, the active substance boscalid is regarded as non-volatile. Additionally, it is rapidly degraded in air. Therefore, exposure of adjacent surface waters and terrestrial ecosystems by the active substance boscalid due to volatilization with subsequent deposition does not have to be considered.

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 9.2.4/01	Tabor E.	2024	BSK-FUN 500 SC Calculation of predicted environmental concentrations of boscalid in groundwater after application to maize using the FOCUS groundwater scenarios (PEARL v5.5.5, FOCUS PELMO v6.6.4) Company Report No: EST/7/2024 ESTICON Sp. z o.o. GLP: No Published: No	N	Pestila Sp. z o.o. and ProAgri International Sp. z o.o.
KCP 9.2.5/01	Tabor E.	2024	BSK-FUN 500 SC Calculation of Predicted Environmental Concentrations of boscalid in surface water after application to maize using the FOCUS scenarios (Steps 1, 2, 3 and 4) Company Report No: EST/8/2024 ESTICON Sp. z o.o. GLP: No Published: No	N	Pestila Sp. z o.o. and ProAgri International Sp. z o.o.

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

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

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

Appendix 2 Detailed evaluation of the new Annex II studies

Not relevant.

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

- Winter and spring cereals, 350 g/ha

ESCAPE

Estimation of Soil Concentrations After Pesticide Applications

developed by Michael Klein

Program version: 2.0 (26 November 2019)
Date of this simulation: 05/03/2024, 19:14:17
Calculation problem: Programcheck

PROGRAM SETTINGS

Calculation mode: Residues from different applications are considered separately over one year
Application mode: Single annual application pattern (calculation period 1 year)

SCENARIO DATA USED IN THE CALCULATION

Name of the scenario: BSK-FUN500SC-cereals
Name of the soil: Borstel
Soil density (kg/L): 1.5
Soil depth (cm): 5
Tillage depth (cm)*: 5
Organic carbon content (%): 1.5
Field capacity (Vol%): 29.2
Wilting point (Vol%): 6.4

Climatic conditions: 20 °C constant
(* for calculation of background concentrations)

APPLICATION PATTERN USED IN THE CALCULATION

Crop rotation: every year
Application date: 1 May
Application rate (g/ha): 350
Crop interception (%): 20

COMPOUNDS CONSIDERED IN THE CALCULATION

Metabolism scheme: Parent compound without metabolites

DEGRADATION KINETICS PARAMETERS CONSIDERED FOR THE CALCULATION

Soil study: soil study 1

Metabolism scheme: Parent compound without metabolites

Kinetics for Programcheck: Single First order (SFO)

DT50 (d): 212

Rate constant (1/d): 0.0033

Q10-factor: 2.58

Walker-exponent: 0.7

Ref. temperature (°C): 20

RESULTS OF THE CALCULATION

Metabolism scheme: Parent compound without metabolites

RESULTS FOR: Programcheck

Calculations over one year

Maximum annual total soil concentration for Programcheck over 5 cm(mg/kg): 0.3733 occurring on day 0

Calculated time dependent total soil concentrations over 5 cm for Programcheck after one year (mg/kg)

Time(d)	PECact*	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.3721	0.3727	0	1
2	0.3709	0.3721	0	2
4	0.3685	0.3709	0	4
7	0.3649	0.3691	0	7
14	0.3566	0.3649	0	14
21	0.3486	0.3608	0	21
28	0.3407	0.3568	0	28
42	0.3254	0.3488	0	42
50	0.3170	0.3444	0	50
100	0.2692	0.3184	0	100

(* PECact values are related to the time after the first application)

Calculation of background concentrations after many years

Final Background concentration in total soil for Programcheck over 5 cm(mg/kg):
0.1624**

(** according to the estimation 100% of the final plateau was reached after 10 years without crop rotation)

Reduction factor to account for crop rotation: 1

Final Background concentration in total soil including crop rotation(mg/kg): 0.1624

Calculations of concentrations considering accumulation after many years of application

Maximum total soil concentration for Programcheck over 5 cm considering accumulation* (mg/kg)
0.5358

(* a tillage depth of 5 cm was considered for calculating the background concentration)

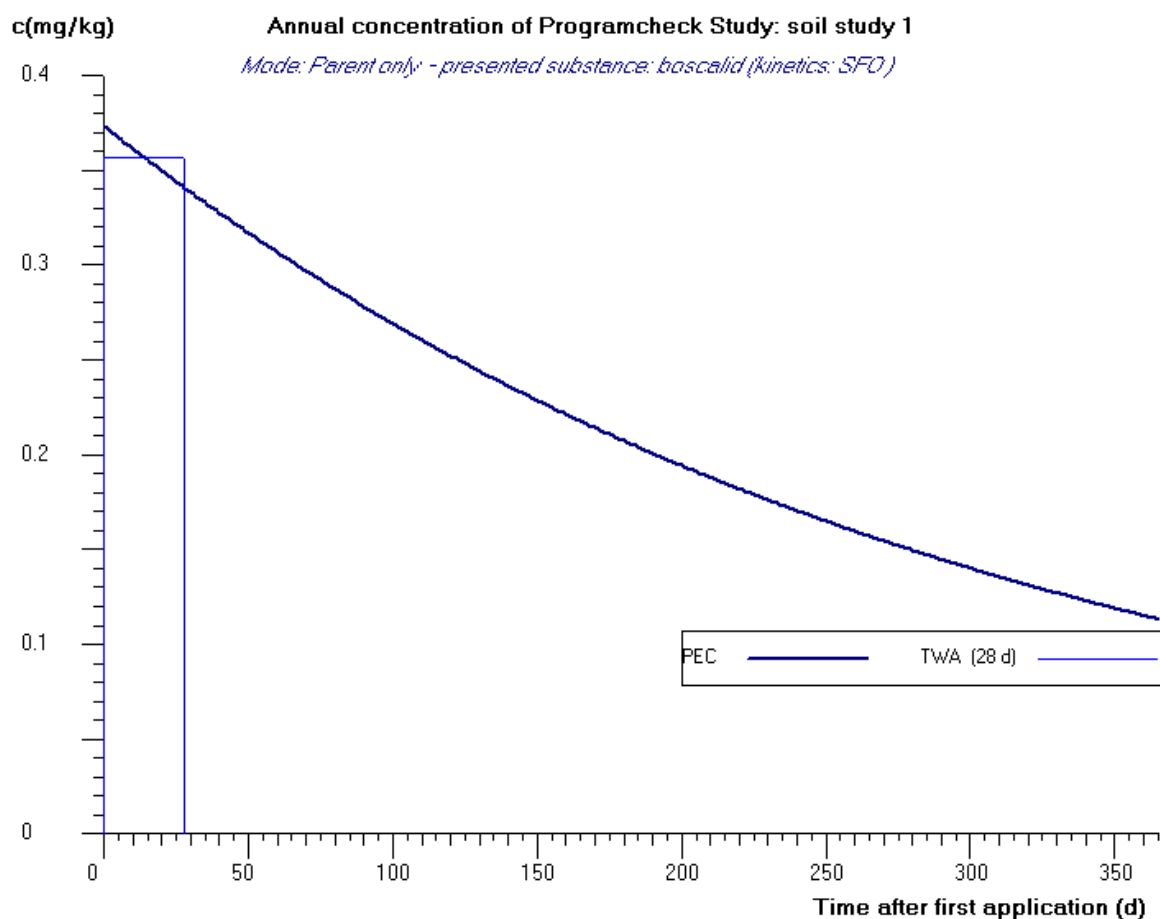
Calculated time dependent total soil concentrations over 5 cm for Programcheck(mg/kg) considering accumulation*

Time(d)	PECact**	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.5346	0.5352	0	1
2	0.5333	0.5346	0	2
4	0.5309	0.5333	0	4
7	0.5273	0.5315	0	7
14	0.5191	0.5274	0	14
21	0.5110	0.5232	0	21
28	0.5031	0.5192	0	28
42	0.4879	0.5113	0	42
50	0.4795	0.5069	0	50
100	0.4317	0.4809	0	100

(* a tillage depth of 5 cm was considered for calculating the background concentration)

(** PECact values are related to the time after the first application)

GRAPHIC REPRESENTATION OF THE CALCULATION



- Winter rape, 1 x 250 g/ha

ESCAPE **Estimation of Soil Concentrations After Pesticide Applications**

developed by Michael Klein

Program version: 2.0 (26 November 2019)
Date of this simulation: 05/03/2024, 19:26:43
Calculation problem: Programcheck

PROGRAM SETTINGS

Calculation mode: Residues from different applications are considered separately over one year
Application mode: Single annual application pattern (calculation period 1 year)

SCENARIO DATA USED IN THE CALCULATION

Name of the scenario: BSK-FUN500SC-rape
Name of the soil: Borstel
Soil density (kg/L): 1.5
Soil depth (cm): 5
Tillage depth (cm)*: 5
Organic carbon content (%): 1.5
Field capacity (Vol%): 29.2
Wilting point (Vol%): 6.4

Climatic conditions: 20 °C constant
(* for calculation of background concentrations)

APPLICATION PATTERN USED IN THE CALCULATION

Crop rotation: every year

Application date: 1 May
Application rate (g/ha): 250
Crop interception (%): 40

COMPOUNDS CONSIDERED IN THE CALCULATION

Metabolism scheme: Parent compound without metabolites

DEGRADATION KINETICS PARAMETERS CONSIDERED FOR THE CALCULATION

Soil study: soil study 1

Metabolism scheme: Parent compound without metabolites

Kinetics for Programcheck: Single First order (SFO)
DT50 (d): 212

Rate constant (1/d): 0.0033
Q10-factor: 2.58
Walker-exponent: 0.7
Ref. temperature (°C): 20

RESULTS OF THE CALCULATION

Metabolism scheme: Parent compound without metabolites

RESULTS FOR: Programcheck

Calculations over one year

Maximum annual total soil concentration for Programcheck over 5 cm(mg/kg): 0.2000 occurring on day 0

Calculated time dependent total soil concentrations over 5 cm for Programcheck after one year (mg/kg)

Time(d)	PECact*	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.1993	0.1997	0	1
2	0.1987	0.1993	0	2
4	0.1974	0.1987	0	4
7	0.1955	0.1977	0	7
14	0.1911	0.1955	0	14
21	0.1867	0.1933	0	21
28	0.1825	0.1911	0	28
42	0.1743	0.1869	0	42
50	0.1698	0.1845	0	50
100	0.1442	0.1706	0	100

(* PECact values are related to the time after the first application)

Calculation of background concentrations after many years

Final Background concentration in total soil for Programcheck over 5 cm(mg/kg):
0.0870**

(** according to the estimation 100% of the final plateau was reached after 10 years without crop rotation)

Reduction factor to account for crop rotation: 1

Final Background concentration in total soil including crop rotation(mg/kg): 0.0870

Calculations of concentrations considering accumulation after many years of application

Maximum total soil concentration for Programcheck over 5 cm considering accumulation* (mg/kg)
0.2870

(* a tillage depth of 5 cm was considered for calculating the background concentration)

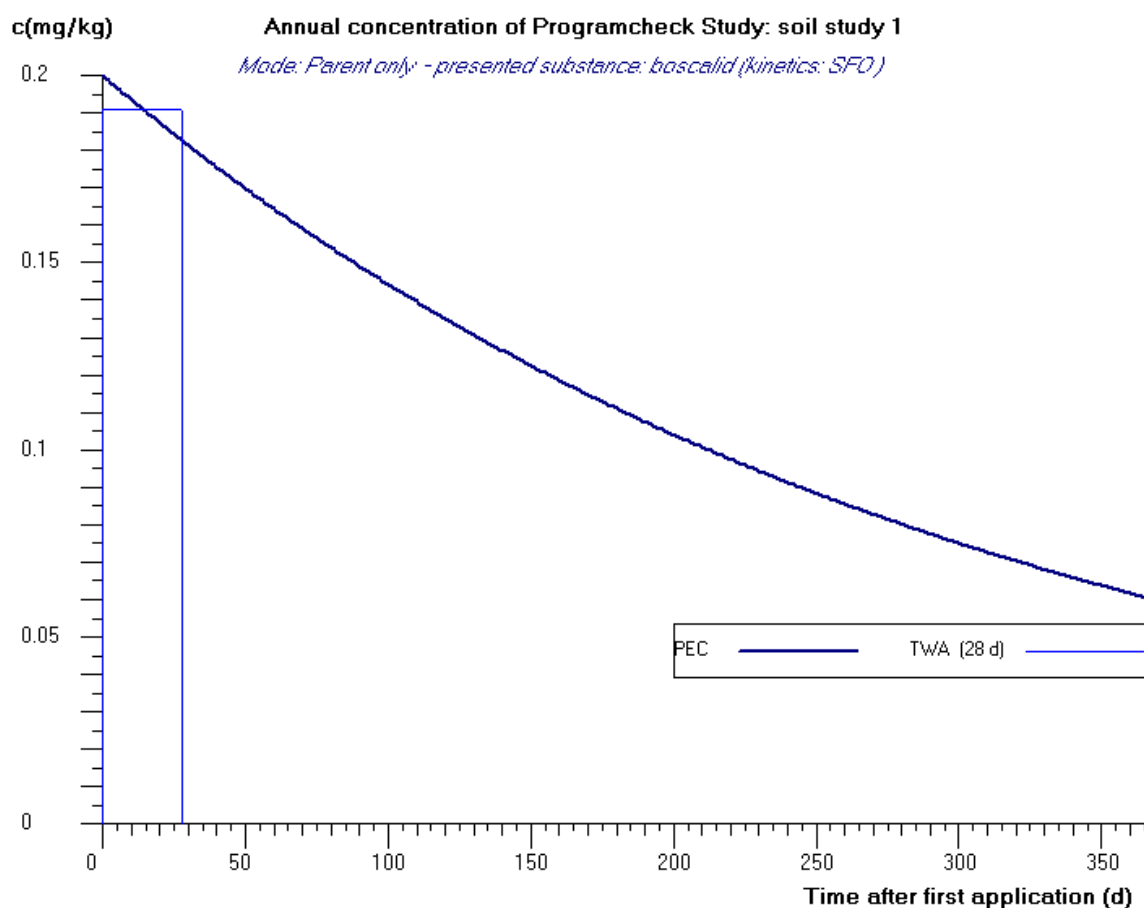
Calculated time dependent total soil concentrations over 5 cm for Programcheck(mg/kg) considering accumulation*

Time(d)	PECact**	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.2864	0.2867	0	1
2	0.2857	0.2864	0	2
4	0.2844	0.2857	0	4
7	0.2825	0.2848	0	7
14	0.2781	0.2825	0	14
21	0.2738	0.2803	0	21
28	0.2695	0.2781	0	28
42	0.2614	0.2739	0	42
50	0.2569	0.2715	0	50
100	0.2312	0.2576	0	100

(* a tillage depth of 5 cm was considered for calculating the background concentration)

(** PECact values are related to the time after the first application)

GRAPHIC REPRESENTATION OF THE CALCULATION



- Winter rape, 2 x 250 g/ha

ESCAPE Estimation of Soil Concentrations After Pesticide Applications

developed by Michael Klein

Program version: 2.0 (26 November 2019)
Date of this simulation: 05/03/2024, 19:22:15
Calculation problem: Programcheck

PROGRAM SETTINGS

Calculation mode: Residues from different applications are considered separately over one year
Application mode: Single annual application pattern (calculation period 1 year)

SCENARIO DATA USED IN THE CALCULATION

Name of the scenario: BSK-FUN500SC-rape
Name of the soil: Borstel
Soil density (kg/L): 1.5
Soil depth (cm): 5
Tillage depth (cm)*: 5
Organic carbon content (%): 1.5
Field capacity (Vol%): 29.2
Wilting point (Vol%): 6.4

Climatic conditions: 20 °C constant
(* for calculation of background concentrations)

APPLICATION PATTERN USED IN THE CALCULATION

Crop rotation: every year
Number of Applications : 2
1st Application date: 1 May
Application rate (g/ha): 250
Time between two applications (d): 14
Crop interception (%): 40

COMPOUNDS CONSIDERED IN THE CALCULATION

Metabolism scheme: Parent compound without metabolites

DEGRADATION KINETICS PARAMETERS CONSIDERED FOR THE CALCULATION

Soil study: soil study 1
Metabolism scheme: Parent compound without metabolites
Kinetics for Programcheck: Single First order (SFO)
DT50 (d): 212
Rate constant (1/d): 0.0033
Q10-factor: 2.58
Walker-exponent: 0.7
Ref. temperature (°C): 20

RESULTS OF THE CALCULATION

Metabolism scheme: Parent compound without metabolites

RESULTS FOR: Programcheck

Calculations over one year

Maximum annual total soil concentration for Programcheck over 5 cm(mg/kg): 0.3911 occurring on day 14

Calculated time dependent total soil concentrations over 5 cm for Programcheck after one year (mg/kg)

Time(d)	PECact*	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.3898	0.3904	14	15
2	0.3885	0.3898	14	16
4	0.3860	0.3885	14	18
7	0.3822	0.3866	14	21
14	0.3736	0.3822	14	28
21	0.3651	0.3779	14	35
28	0.3568	0.3737	14	42
42	0.3409	0.3654	14	56
50	0.3321	0.3608	14	64
100	0.2820	0.3336	13	113

(* PECact values are related to the time after the maximum concentration)

Calculation of background concentrations after many years

Final Background concentration in total soil for Programcheck over 5 cm(mg/kg):
0.1702**

(** according to the estimation 100% of the final plateau was reached after 10 years without crop rotation)

Reduction factor to account for crop rotation: 1

Final Background concentration in total soil including crop rotation(mg/kg): 0.1702

Calculations of concentrations considering accumulation after many years of application

Maximum total soil concentration for Programcheck over 5 cm considering accumulation* (mg/kg)
0.5612

(* a tillage depth of 5 cm was considered for calculating the background concentration)

Calculated time dependent total soil concentrations over 5 cm for Programcheck(mg/kg) considering accumulation*

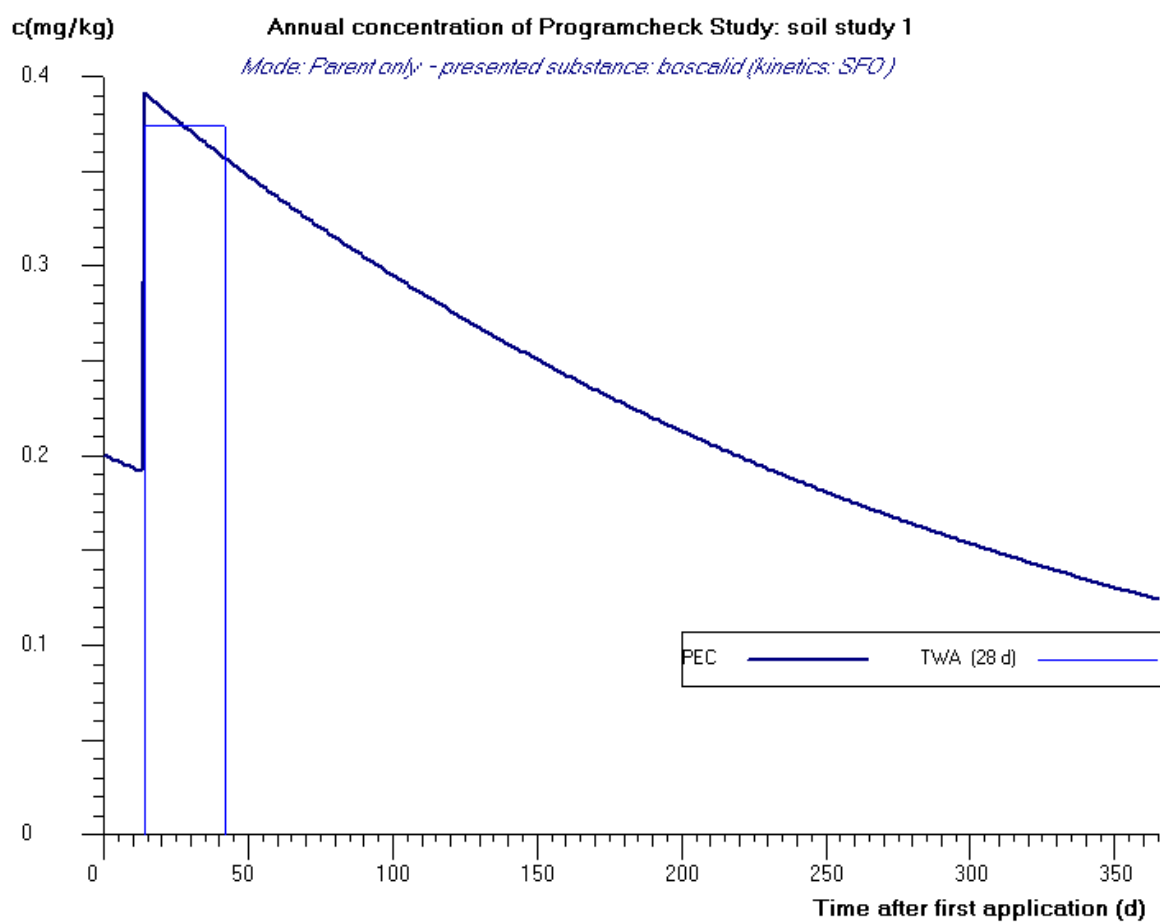
Time(d)	PECact**	PECtwa	Begin TWAframe(d)	End TWAframe(d)
1	0.5599	0.5606	14	15
2	0.5587	0.5599	14	16

4	0.5561	0.5587	14	18
7	0.5524	0.5568	14	21
14	0.5437	0.5524	14	28
21	0.5353	0.5481	14	35
28	0.5270	0.5438	14	42
42	0.5110	0.5355	14	56
50	0.5022	0.5309	14	64
100	0.4521	0.5038	13	113

(* a tillage depth of 5 cm was considered for calculating the background concentration)

(** PECact values are related to the time after the maximum concentration)'

GRAPHIC REPRESENTATION OF THE CALCULATION



STEPS 1-2 in FOCUS

FOCUS Surface water Tool for Exposure Predictions Step 1

developed by Michael Klein

Program version: Version 3.2
Date of this simulation: 06.03.2024, 08:08:16

OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION

Comments: boscalid, winter cereals BBCH 30-49 350 g/ha

Active substance:	BSK-FUN500SC -
boscalid - winter cereals	
Application rate (g/ha) of a.i.:	350.00
Application/crop type:	cereals, winter
Number of applications per season:	1.00
Water solubility (mg/L):	4.60
KOC compound(L/kg):	742.60
DT50 water/sediment (d):	1000.00

SCENARIO DATA USED IN THE CALCULATION

Distance to the water body (m):	1.00
Spraydrift (% of application):	2.7590
Runoff + drainage(% of application):	10.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

RESULTS OF THE CALCULATION

Equivalent app. rate for drift (g/ha):	350.00
Equivalent app. rate for runoff/drainage(g/ha):	350.00
Equivalent app. rate for runoff/drainage(g/ha) of parent:	0.00E+00
Loading to water body via drift (mg/m2):	0.9657
Loading to water body via runoff/drainage(mg/m2):	35.0000
fraction of substance entering water body in water phase:	0.5025
fraction of substance entering water body in sediment phase:	0.4975

Table: Calculated Concentrations in the water body

Time (d)	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg dry sediment)	
	Actual	TWA	Actual	TWA
0	61.8414		435.3310	
1	60.1982	61.0198	447.0318	441.1814
2	60.1565	60.5986	446.7220	444.0291
4	60.0731	60.3567	446.1032	445.2208
7	59.9484	60.2084	445.1765	445.4003
14	59.6582	60.0058	443.0217	444.7493

21	59.3694	59.8418	440.8774	443.8157
28	59.0821	59.6877	438.7434	442.8142
42	58.5115	59.3906	434.5064	440.7499
50	58.1879	59.2240	432.1036	439.5586
100	56.2058	58.2076	417.3846	432.1301

Maximum PEC_{sw} values in water and sediment are calculated from single application.

Compare with ecotox endpoints. If TER values are less than regulatory triggers, then go to Step 2

STEPS 1-2 in FOCUS

FOCUS Surface water Tool for Exposure Predictions Step 2

developed by Michael Klein

Program version: Version 3.2
Date of this simulation: 06.03.2024, 08:10:30

OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION

Comments: boscalid, winter cereals BBCH 30-49 350 g/ha

Active substance:	BSK-FUN500SC - boscalid - winter cereals
Application rate (g/ha) of a.i.:	350.00
Crop Interception:	average crop cover (20 %)
Application/crop type:	cereals, winter
Number of applications per season:	1
Region and season of application:	North Europe, Mar. - May
Water solubility (mg/L):	4.60
KOC assessed compound(L/kg):	742.60
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	232.00

SCENARIO DATA USED IN THE CALCULATION

Distance to the water body (m):	1.00
Spraydrift (% of application):	2.7590
Runoff + drainage(% of application):	2.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

RESULTS OF THE CALCULATION

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	350.00
Equivalent application rate for runoff/drainage(g/ha):	280.00
Loading to water body per drift event(mg/m2):	0.9657
Loading to water body via runoff/drainage (mg/m2):	5.5335
fraction of substance entering water body in water phase:	0.5025
fraction of substance entering water body in sediment:	0.4975
Total Loading to water body via drift (mg/m2):	0.9657 (14.8582%)
Total Loading to water body via water phase(mg/m2):	2.7805 (42.7820%)
Total Loading to water body via sediment phase (mg/m2):	2.7530 (42.3599%)

Maximum PECSW (µg/L):	11.2027
Maximum PECSW occurring on day:	4
Maximum PECsed (µg/kg dry sediment):	80.7470
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	
			TWA	Actual
0	11.2027	---	80.7470	---
1	10.8736	11.0381	80.6911	80.7191
2	10.8660	10.9540	80.6352	80.6911
4	10.8510	10.9062	80.5235	80.6352
7	10.8284	10.8777	80.3562	80.5515
14	10.7760	10.8400	79.9673	80.3565
21	10.7239	10.8099	79.5802	80.1622
28	10.6720	10.7819	79.1950	79.9685
42	10.5689	10.7281	78.4302	79.5830
50	10.5104	10.6979	77.9965	79.3638
100	10.1524	10.5142	75.3396	78.0121

STEPS 1-2 in FOCUS

FOCUS Surface water Tool for Exposure Predictions Step 1

developed by Michael Klein

Program version: Version 3.2
Date of this simulation: 06.03.2024, 08:11:38

OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION

Comments: boscalid, spring cereals BBCH 30-49 350 g/ha

Active substance:	BSK-FUN500SC -
boscalid - spring cereals	
Application rate (g/ha) of a.i.:	350.00
Application/crop type:	cereals, spring
Number of applications per season:	1.00
Water solubility (mg/L):	4.60
KOC compound(L/kg):	742.60
DT50 water/sediment (d):	1000.00

SCENARIO DATA USED IN THE CALCULATION

Distance to the water body (m):	1.00
Spraydrift (% of application):	2.7590
Runoff + drainage(% of application):	10.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

RESULTS OF THE CALCULATION

Equivalent app. rate for drift (g/ha):	350.00
Equivalent app. rate for runoff/drainage(g/ha):	350.00
Equivalent app. rate for runoff/drainage(g/ha) of parent:	0.00E+00
Loading to water body via drift (mg/m2):	0.9657
Loading to water body via runoff/drainage(mg/m2):	35.0000
fraction of substance entering water body in water phase:	0.5025
fraction of substance entering water body in sediment phase:	0.4975

Table: Calculated Concentrations in the water body

Time (d)	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg dry sediment)	
	Actual	TWA	Actual	TWA
0	61.8414		435.3310	
1	60.1982	61.0198	447.0318	441.1814
2	60.1565	60.5986	446.7220	444.0291
4	60.0731	60.3567	446.1032	445.2208
7	59.9484	60.2084	445.1765	445.4003
14	59.6582	60.0058	443.0217	444.7493

21	59.3694	59.8418	440.8774	443.8157
28	59.0821	59.6877	438.7434	442.8142
42	58.5115	59.3906	434.5064	440.7499
50	58.1879	59.2240	432.1036	439.5586
100	56.2058	58.2076	417.3846	432.1301

Maximum PEC_{sw} values in water and sediment are calculated from single application.

Compare with ecotox endpoints. If TER values are less than regulatory triggers, then go to Step 2

STEPS 1-2 in FOCUS

FOCUS Surface water Tool for Exposure Predictions Step 2

developed by Michael Klein

Program version: Version 3.2
Date of this simulation: 06.03.2024, 08:11:59

OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION

Comments: boscalid, spring cereals BBCH 30-49 350 g/ha

Active substance:	BSK-FUN500SC - boscalid - spring
cereals	
Application rate (g/ha) of a.i.:	350.00
Crop Interception:	average crop cover (20 %)
Application/crop type:	cereals, spring
Number of applications per season:	1
Region and season of application:	North Europe, Mar. - May
Water solubility (mg/L):	4.60
KOC assessed compound(L/kg):	742.60
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	232.00

SCENARIO DATA USED IN THE CALCULATION

Distance to the water body (m):	1.00
Spraydrift (% of application):	2.7590
Runoff + drainage(% of application):	2.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

RESULTS OF THE CALCULATION

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	350.00
Equivalent application rate for runoff/drainage(g/ha):	280.00
Loading to water body per drift event(mg/m2):	0.9657
Loading to water body via runoff/drainage (mg/m2):	5.5335
fraction of substance entering water body in water phase:	0.5025
fraction of substance entering water body in sediment:	0.4975
Total Loading to water body via drift (mg/m2):	0.9657 (14.8582%)
Total Loading to water body via water phase(mg/m2):	2.7805 (42.7820%)
Total Loading to water body via sediment phase (mg/m2):	2.7530 (42.3599%)

Maximum PECSW (µg/L):	11.2027
Maximum PECSW occurring on day:	4
Maximum PECsed (µg/kg dry sediment):	80.7470
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	
			TWA	Actual
0	11.2027	---	80.7470	---
1	10.8736	11.0381	80.6911	80.7191
2	10.8660	10.9540	80.6352	80.6911
4	10.8510	10.9062	80.5235	80.6352
7	10.8284	10.8777	80.3562	80.5515
14	10.7760	10.8400	79.9673	80.3565
21	10.7239	10.8099	79.5802	80.1622
28	10.6720	10.7819	79.1950	79.9685
42	10.5689	10.7281	78.4302	79.5830
50	10.5104	10.6979	77.9965	79.3638
100	10.1524	10.5142	75.3396	78.0121

STEPS 1-2 in FOCUS

FOCUS Surface water Tool for Exposure Predictions Step 1

developed by Michael Klein

Program version: Version 3.2
Date of this simulation: 06.03.2024, 08:23:05

OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION

Comments: boscalid, winter rape BBCH 13-57 2x250 g/ha interval 30d

Active substance:	BSK-FUN500SC -
boscalid - winter rape 1	
Application rate (g/ha) of a.i.:	250.00
Application/crop type:	oil seed rape, winter
Number of applications per season:	2.00
Application interval (d):	30.00
Water solubility (mg/L):	4.60
KOC compound(L/kg):	742.60
DT50 water/sediment (d):	1000.00

SCENARIO DATA USED IN THE CALCULATION

Distance to the water body (m):	1.00
Spraydrift (% of application):	2.7590
Runoff + drainage(% of application):	10.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

RESULTS OF THE CALCULATION

Equivalent app. rate for drift (g/ha):	250.00
Equivalent app. rate for runoff/drainage(g/ha):	250.00
Equivalent app. rate for runoff/drainage(g/ha) of parent:	0.00E+00
Loading to water body via drift (mg/m2):	1.3795
Loading to water body via runoff/drainage(mg/m2):	50.0000
fraction of substance entering water body in water phase:	0.5025
fraction of substance entering water body in sediment phase:	0.4975

Table: Calculated Concentrations in the water body

Time (d)	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg dry sediment)	
	Actual	TWA	Actual	TWA
0	88.3448		621.9014	
1	85.9974	87.1711	638.6168	630.2591
2	85.9378	86.5694	638.1743	634.3273
4	85.8188	86.2238	637.2902	636.0298
7	85.6405	86.0120	635.9664	636.2862

14	85.2260	85.7226	632.8882	635.3561
21	84.8135	85.4882	629.8248	634.0225
28	84.4029	85.2682	626.7763	632.5917
42	83.5879	84.8437	620.7234	629.6428
50	83.1256	84.6058	617.2909	627.9408
100	80.2941	83.1537	596.2637	617.3287

Maximum PEC_{sw} values in water and sediment are calculated from sum of individual applications.
Compare with ecotox endpoints. If TER values are less than regulatory triggers, then go to Step 2

STEPS 1-2 in FOCUS

FOCUS Surface water Tool for Exposure Predictions Step 2

developed by Michael Klein

Program version: Version 3.2
Date of this simulation: 06.03.2024, 08:24:03

OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION

Comments: boscalid, winter rape BBCH 13-57 2x250 g/ha interval 30d

Active substance:	BSK-FUN500SC - boscalid - winter
rape 1	
Application rate (g/ha) of a.i.:	250.00
Crop Interception:	minimal crop cover (40 %)
Application/crop type:	oil seed rape, winter
Number of applications per season:	2
Application interval (d):	30.00
Region and season of application:	North Europe, June - Sep.
Water solubility (mg/L):	4.60
KOC assessed compound(L/kg):	742.60
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	232.00

SCENARIO DATA USED IN THE CALCULATION

Distance to the water body (m):	1.00
Spraydrift for multiple applications (% of application):	2.4380
Spraydrift for single application (% of application):	2.7590
Runoff + drainage(% of application):	2.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

RESULTS OF THE CALCULATION

Number of application per season considered for this run:	2
Equivalent application rate for drift (g/ha):	250.00
Equivalent application rate for runoff/drainage(g/ha):	150.00
Loading to water body per drift event(mg/m2):	0.6095
Loading to water body via runoff/drainage (mg/m2):	5.6746
fraction of substance entering water body in water phase:	0.5025
fraction of substance entering water body in sediment:	0.4975
Total Loading to water body via drift (mg/m2):	1.2190 (17.6831%)

Total Loading to water body via water phase(mg/m2):	2.8514 (41.3625%)
Total Loading to water body via sediment phase (mg/m2):	2.8232 (40.9544%)
Maximum PECSW (µg/L):	11.9209
Maximum PECSW occurring on day:	34
Maximum PECsed (µg/kg dry sediment):	85.4857
Maximum PECsed occurring on day:	35

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	
			TWA	Actual
0	11.9209	---	85.4857	---
1	11.5117	11.7163	85.4265	85.4561
2	11.5037	11.6120	85.3673	85.4265
4	11.4878	11.5539	85.2490	85.3673
7	11.4639	11.5204	85.0720	85.2787
14	11.4084	11.4783	84.6602	85.0723
21	11.3532	11.4458	84.2504	84.8666
28	11.2982	11.4158	83.8426	84.6615
42	11.1891	11.3584	83.0329	84.2534
50	11.1273	11.3263	82.5738	84.0213
100	10.7482	11.1315	79.7610	82.5903

RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	250.00
Equivalent application rate for runoff/drainage(g/ha):	150.00
Loading to water body per drift event(mg/m2):	0.6898
Loading to water body via runoff(mg/m2):	2.9644
fraction of substance entering water body in water phase:	0.5025
fraction of substance entering water body in sediment phase:	0.4975

Total Loading to water body via drift (mg/m2):	0.6898 (18.8760%)
Total Loading to water body via water phase(mg/m2):	1.4895 (40.7631%)
Total Loading to water body via sediment phase (mg/m2):	1.4748 (40.3609%)

Maximum PECSW (µg/L):	6.3469
Maximum PECSW occurring on day:	4
Maximum PECsed (µg/kg dry sediment):	45.3947
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	
			TWA	Actual
0	6.3469	---	45.3947	---
1	6.1129	6.2299	45.3632	45.3790
2	6.1087	6.1704	45.3318	45.3633
4	6.1002	6.1374	45.2690	45.3318
7	6.0876	6.1188	45.1750	45.2848
14	6.0581	6.0958	44.9563	45.1752

21	6.0288	6.0783	44.7387	45.0659
28	5.9996	6.0623	44.5222	44.9570
42	5.9417	6.0317	44.0922	44.7403
50	5.9088	6.0147	43.8484	44.6171
100	5.7075	5.9111	42.3548	43.8572

STEPS 1-2 in FOCUS

FOCUS Surface water Tool for Exposure Predictions Step 1

developed by Michael Klein

Program version: Version 3.2
Date of this simulation: 06.03.2024, 08:29:44

OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION

Comments: boscalid, winter rape BBCH 31-57 2x250 g/ha interval 14d

Active substance:	BSK-FUN500SC -
boscalid - winter rape 2	
Application rate (g/ha) of a.i.:	250.00
Application/crop type:	oil seed rape, winter
Number of applications per season:	2.00
Application interval (d):	14.00
Water solubility (mg/L):	4.60
KOC compound(L/kg):	742.60
DT50 water/sediment (d):	1000.00

SCENARIO DATA USED IN THE CALCULATION

Distance to the water body (m):	1.00
Spraydrift (% of application):	2.7590
Runoff + drainage(% of application):	10.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

RESULTS OF THE CALCULATION

Equivalent app. rate for drift (g/ha):	250.00
Equivalent app. rate for runoff/drainage(g/ha):	250.00
Equivalent app. rate for runoff/drainage(g/ha) of parent:	0.00E+00
Loading to water body via drift (mg/m2):	1.3795
Loading to water body via runoff/drainage(mg/m2):	50.0000
fraction of substance entering water body in water phase:	0.5025
fraction of substance entering water body in sediment phase:	0.4975

Table: Calculated Concentrations in the water body

Time (d)	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg dry sediment)	
	Actual	TWA	Actual	TWA
0	88.3448		621.9014	
1	85.9974	87.1711	638.6168	630.2591
2	85.9378	86.5694	638.1743	634.3273

4	85.8188	86.2238	637.2902	636.0298
7	85.6405	86.0120	635.9664	636.2862
14	85.2260	85.7226	632.8882	635.3561
21	84.8135	85.4882	629.8248	634.0225
28	84.4029	85.2682	626.7763	632.5917
42	83.5879	84.8437	620.7234	629.6428
50	83.1256	84.6058	617.2909	627.9408
100	80.2941	83.1537	596.2637	617.3287

Maximum PEC_{sw} values in water and sediment are calculated from sum of individual applications.
Compare with ecotox endpoints. If TER values are less than regulatory triggers, then go to Step 2

STEPS 1-2 in FOCUS

FOCUS Surface water Tool for Exposure Predictions Step 2

developed by Michael Klein

Program version: Version 3.2
Date of this simulation: 06.03.2024, 08:30:41

OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION

Comments: boscalid, winter rape BBCH 31-57 2x250 g/ha interval 14d

Active substance:	BSK-FUN500SC - boscalid - winter
rape 2	
Application rate (g/ha) of a.i.:	250.00
Crop Interception:	minimal crop cover (40 %)
Application/crop type:	oil seed rape, winter
Number of applications per season:	2
Application interval (d):	14.00
Region and season of application:	North Europe, Mar. - May
Water solubility (mg/L):	4.60
KOC assessed compound(L/kg):	742.60
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	232.00

SCENARIO DATA USED IN THE CALCULATION

Distance to the water body (m):	1.00
Spraydrift for multiple applications (% of application):	2.4380
Spraydrift for single application (% of application):	2.7590
Runoff + drainage(% of application):	2.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

RESULTS OF THE CALCULATION

Number of application per season considered for this run:	2
Equivalent application rate for drift (g/ha):	250.00
Equivalent application rate for runoff/drainage(g/ha):	150.00
Loading to water body per drift event(mg/m2):	0.6095
Loading to water body via runoff/drainage (mg/m2):	5.8073
fraction of substance entering water body in water phase:	0.5025
fraction of substance entering water body in sediment:	0.4975
Total Loading to water body via drift (mg/m2):	1.2190 (17.3491%)

Total Loading to water body via water phase(mg/m2):	2.9180 (41.5303%)
Total Loading to water body via sediment phase (mg/m2):	2.8892 (41.1205%)
Maximum PECSW (µg/L):	12.1565
Maximum PECSW occurring on day:	18
Maximum PECsed (µg/kg dry sediment):	87.2177
Maximum PECsed occurring on day:	19

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PECsw (µg/L)	Actual		PECsed(µg/kg dry sediment)	Actual	
				TWA		
0	12.1565	---		87.2177	---	
1	11.7449	11.9507		87.1572	87.1875	
2	11.7368	11.8458		87.0969	87.1573	
4	11.7205	11.7872		86.9762	87.0969	
7	11.6962	11.7534		86.7955	87.0064	
14	11.6396	11.7106		86.3754	86.7959	
21	11.5832	11.6775		85.9573	86.5860	
28	11.5271	11.6469		85.5413	86.3768	
42	11.4158	11.5884		84.7152	85.9604	
50	11.3527	11.5558		84.2467	85.7236	
100	10.9660	11.3570		81.3770	84.2636	

RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	250.00
Equivalent application rate for runoff/drainage(g/ha):	150.00
Loading to water body per drift event(mg/m2):	0.6898
Loading to water body via runoff(mg/m2):	2.9644
fraction of substance entering water body in water phase:	0.5025
fraction of substance entering water body in sediment phase:	0.4975

Total Loading to water body via drift (mg/m2):	0.6898 (18.8760%)
Total Loading to water body via water phase(mg/m2):	1.4895 (40.7631%)
Total Loading to water body via sediment phase (mg/m2):	1.4748 (40.3609%)

Maximum PECSW (µg/L):	6.3469
Maximum PECSW occurring on day:	4
Maximum PECsed (µg/kg dry sediment):	45.3947
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

Time after max. peak(d)	PECsw (µg/L)	Actual		PECsed(µg/kg dry sediment)	Actual	
				TWA		
0	6.3469	---		45.3947	---	
1	6.1129	6.2299		45.3632	45.3790	
2	6.1087	6.1704		45.3318	45.3633	
4	6.1002	6.1374		45.2690	45.3318	
7	6.0876	6.1188		45.1750	45.2848	
14	6.0581	6.0958		44.9563	45.1752	

21	6.0288	6.0783	44.7387	45.0659
28	5.9996	6.0623	44.5222	44.9570
42	5.9417	6.0317	44.0922	44.7403
50	5.9088	6.0147	43.8484	44.6171
100	5.7075	5.9111	42.3548	43.8572

STEPS 1-2 in FOCUS

FOCUS Surface water Tool for Exposure Predictions Step 1

developed by Michael Klein

Program version: Version 3.2
Date of this simulation: 06.03.2024, 08:35:58

OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION

Comments: boscalid, winter rape BBCH 57-71 2x250 g/ha interval 14d

Active substance:	BSK-FUN500SC -
boscalid - winter rape 3	
Application rate (g/ha) of a.i.:	250.00
Application/crop type:	oil seed rape, winter
Number of applications per season:	2.00
Application interval (d):	14.00
Water solubility (mg/L):	4.60
KOC compound(L/kg):	742.60
DT50 water/sediment (d):	1000.00

SCENARIO DATA USED IN THE CALCULATION

Distance to the water body (m):	1.00
Spraydrift (% of application):	2.7590
Runoff + drainage(% of application):	10.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

RESULTS OF THE CALCULATION

Equivalent app. rate for drift (g/ha):	250.00
Equivalent app. rate for runoff/drainage(g/ha):	250.00
Equivalent app. rate for runoff/drainage(g/ha) of parent:	0.00E+00
Loading to water body via drift (mg/m2):	1.3795
Loading to water body via runoff/drainage(mg/m2):	50.0000
fraction of substance entering water body in water phase:	0.5025
fraction of substance entering water body in sediment phase:	0.4975

Table: Calculated Concentrations in the water body

Time (d)	PEC _{sw} (µg/L)		PEC _{sed} (µg/kg dry sediment)	
	Actual	TWA	Actual	TWA
0	88.3448		621.9014	
1	85.9974	87.1711	638.6168	630.2591
2	85.9378	86.5694	638.1743	634.3273
4	85.8188	86.2238	637.2902	636.0298
7	85.6405	86.0120	635.9664	636.2862

14	85.2260	85.7226	632.8882	635.3561
21	84.8135	85.4882	629.8248	634.0225
28	84.4029	85.2682	626.7763	632.5917
42	83.5879	84.8437	620.7234	629.6428
50	83.1256	84.6058	617.2909	627.9408
100	80.2941	83.1537	596.2637	617.3287

Maximum PEC_{sw} values in water and sediment are calculated from sum of individual applications.
Compare with ecotox endpoints. If TER values are less than regulatory triggers, then go to Step 2

STEPS 1-2 in FOCUS

FOCUS Surface water Tool for Exposure Predictions Step 2

developed by Michael Klein

Program version: Version 3.2
Date of this simulation: 06.03.2024, 08:36:14

OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION

Comments: boscalid, winter rape BBCH 57-71 2x250 g/ha interval 14d

Active substance:	BSK-FUN500SC - boscalid - winter rape 3
Application rate (g/ha) of a.i.:	250.00
Crop Interception:	average crop cover (70 %)
Application/crop type:	oil seed rape, winter
Number of applications per season:	2
Application interval (d):	14.00
Region and season of application:	North Europe, Mar. - May
Water solubility (mg/L):	4.60
KOC assessed compound(L/kg):	742.60
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	232.00

SCENARIO DATA USED IN THE CALCULATION

Distance to the water body (m):	1.00
Spraydrift for multiple applications (% of application):	2.4380
Spraydrift for single application (% of application):	2.7590
Runoff + drainage(% of application):	2.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

RESULTS OF THE CALCULATION

Number of application per season considered for this run:	2
Equivalent application rate for drift (g/ha):	250.00
Equivalent application rate for runoff/drainage(g/ha):	75.00
Loading to water body per drift event(mg/m2):	0.6095
Loading to water body via runoff/drainage (mg/m2):	2.9036
fraction of substance entering water body in water phase:	0.5025
fraction of substance entering water body in sediment:	0.4975
Total Loading to water body via drift (mg/m2):	1.2190 (29.5684%)

Total Loading to water body via water phase(mg/m2):	1.4590 (35.3904%)
Total Loading to water body via sediment phase (mg/m2):	1.4446 (35.0412%)
Maximum PECSW (µg/L):	7.2931
Maximum PECSW occurring on day:	18
Maximum PECsed (µg/kg dry sediment):	51.1271
Maximum PECsed occurring on day:	19

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	Actual
			TWA	
0	7.2931	---	51.1271	---
1	6.8849	7.0890	51.0917	51.1094
2	6.8801	6.9857	51.0563	51.0917
4	6.8706	6.9305	50.9856	51.0563
7	6.8563	6.9018	50.8796	51.0033
14	6.8231	6.8707	50.6334	50.8798
21	6.7901	6.8494	50.3883	50.7568
28	6.7572	6.8304	50.1444	50.6342
42	6.6920	6.7951	49.6601	50.3901
50	6.6550	6.7757	49.3855	50.2513
100	6.4283	6.6583	47.7033	49.3954

RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	250.00
Equivalent application rate for runoff/drainage(g/ha):	75.00
Loading to water body per drift event(mg/m2):	0.6898
Loading to water body via runoff(mg/m2):	1.4822
fraction of substance entering water body in water phase:	0.5025
fraction of substance entering water body in sediment phase:	0.4975

Total Loading to water body via drift (mg/m2):	0.6898 (31.7575%)
Total Loading to water body via water phase(mg/m2):	0.7448 (34.2904%)
Total Loading to water body via sediment phase (mg/m2):	0.7374 (33.9521%)

Maximum PECSW (µg/L):	3.8644
Maximum PECSW occurring on day:	4
Maximum PECsed (µg/kg dry sediment):	26.9721
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	Actual
			TWA	
0	3.8644	---	26.9721	---
1	3.6321	3.7482	26.9534	26.9627
2	3.6296	3.6895	26.9347	26.9534
4	3.6246	3.6583	26.8974	26.9347
7	3.6170	3.6422	26.8415	26.9067
14	3.5995	3.6253	26.7116	26.8416

21	3.5821	3.6138	26.5823	26.7767
28	3.5648	3.6037	26.4536	26.7120
42	3.5303	3.5850	26.1982	26.5833
50	3.5108	3.5747	26.0533	26.5100
100	3.3912	3.5127	25.1658	26.0585