FINAL REGISTRATION REPORT

Part B

Section 8

Environmental Fate

Detailed summary of the risk assessment

Product code: SHA 6100 A

Product name: ALIVE

Chemical active substance:

Propaquizafop, 100 g/L

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

Applicant: Sharda Cropchem España S.L.

Submission date: October 2020

MS Finalisation date: 05.2021; 03.2022

Version history

When	What
10.2020	dRR prepared by the Applicant
05.2021	Initial assessment by the zRMS
March 2022	The Final Registration Report

Table of Contents

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: developmental 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 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			Groundwater
Zonal uses (field or outdoor uses, certain types of protected crops)														

1.	PL	**Sugar beet**	F	Common barn-yardgrass *(Echinochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria sanguinalis)* ; Yellow bristlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* BBCH 12-35**	a) 1 1	-	a) 0.6 b) 0.6	a) 0.060 0.060	200-300	28	*weeds grow stage **crop grow stage	
2	PL	**Sugar beet**	F	Silky bentgrass *(Apera spica-venti)*; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 12-35***	a) 1 1	-	a) 0.5-0.7 b) 0.5-0.7	a) 0.050-0.070 0.050-0.070	200-300	28	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	
3	PL	**Sugar beet**	F	Couch grass *(Agropyron repens)*	Broadcast spraying	BBCH 13-16* BBCH 12-35**	a) 1 b) 1 OR a) 1 b) 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 0.120	200-300	28	*weeds grow stage **crop grow stage	

4.	PL	**Winter oilseed rape**	F	Common barn-yardgrass *(Echinochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria sanguinalis)* ; Yellow bristlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* BBCH 12-30**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200-300	42	*weeds grow stage **crop grow stage Proposal mixture against self-seeding of cereals and annual weeds: Agil-S 100 EC 0,5 - 0,7 l/ha + Olejan 85 EC/Olemix 84 EC 1,5 l/ha	
5.	PL	**Winter oilseed rape**	F	Silky bentgrass *(Apera spica-venti)* ; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 12-30***	a) 1 1	-	a) 0.5-0.7 0.5-0.7	a) 0.050-0.070 0.050-0.070	200-300	42	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	
6.	PL	**Winter oilseed rape**	F	Couch grass *(Agropyron repens)*	Broadcast spraying	BBCH 13-16* BBCH 12-30**	a) 1 b) 1 OR a) 1 2	 12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 0.120	200-300	42	*weeds grow stage **crop grow stage	

7.	PL	**Potato**	F	Common barn-yardgrass *(Echinochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria sanguinalis)* ; Yellow bristlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* BBCH 10-35**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200-300	40	*weeds grow stage **crop grow stage	
8.	PL	**Potato**	F	Silky bentgrass *(Apera spica-venti)* ; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 10-35***	a) 1 1	-	a) 0.5-0.7 0.5-0.7	a) 0.050-0.070 0.050-0.070	200-300	40	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	
9.	PL	**Potato**	F	Couch grass *(Agropyron repens)*	Broadcast spraying	BBCH 13-16* BBCH 10-35**	a) 1 b) 1 OR a) 1 2	 12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 0.120	200-300	40	*weeds grow stage **crop grow stage	

10.	PL	**Onion**	F	Common barn-yardgrass *(Echinochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria sanguinalis)* ; Yellow bristlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* BBCH 11-12** BBCH 09-53***	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200-300	30	*weeds grow stage **crop grow stage *** grow stage crop for seeds	
11.	PL	**Onion**	F	Silky bentgrass *(Apera spica-venti)* ; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 11-12*** BBCH 09-53****	a) 1 1	-	a) 0.5-0.7 0.5-0.7	a) 0.050-0.070 0.050-0.070	200-300	30	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage ****grow stage crop for seeds	
12.	PL	**Onion**	F	Couch grass *(Agropyron repens)*	Broadcast spraying	BBCH 13-16* BBCH 11-12** BBCH 09-53***	a) 1 b) 1 OR a) 1 2	 12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 0.120	200-300	30	*weeds grow stage **crop grow stage *** grow stage crop for seeds	

13.	PL	**Bean**	F	Common barn-yardgrass *(Echinochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria sanguinalis)* ; Yellow bristlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* min. BBCH 13**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200-300	45	*weeds grow stage **crop grow stage	
14.	PL	**Bean**	F	Silky bentgrass *(Apera spica-venti)* ; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** min. BBCH 13***	a) 1 1	-	a) 0.5-0.7 0.5-0.7	a) 0.050-0.070 0.050-0.070	200-300	45	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	
15.	PL	**Bean**	F	Couch grass *(Agropyron repens)*	Broadcast spraying	BBCH 13-16* min. BBCH 13**	a) 1 b) 1 OR a) 1 2	 12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 0.120	200-300	45	*weeds grow stage **crop grow stage	

16.	PL	**Green peas; Peas for dry seeds**	F	Common barn-yardgrass *(Echinochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria sanguinalis)* ; Yellow bristlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* min. BBCH 12**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200-300	45	*weeds grow stage **crop grow stage	
17.	PL	**Green peas; Peas for dry seeds**	F	Silky bentgrass *(Apera spica-venti)* ; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** min. BBCH 12***	a) 1 1	-	a) 0.5-0.7 0.5-0.7	a) 0.050-0.070 0.050-0.070	200-300	45	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	
18.	PL	**Green peas; Peas for dry seeds**	F	Couch grass *(Agropyron repens)*	Broadcast spraying	BBCH 13-16* min. BBCH 12**	a) 1 b) 1 OR a) 1 2	 12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 0.120	200-300	45	*weeds grow stage **crop grow stage	

19.	PL	**Cabbage**	F	Common barn-yardgrass *(Echinochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria sanguinalis)* ; Yellow bristlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* min. BBCH 13**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200-300	Growth stage restricted	*weeds grow stage **crop grow stage	
20.	PL	**Cabbage**	F	Silky bentgrass *(Apera spica-venti)* ; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** min. BBCH 13***	a) 1 1	-	a) 0.5-0.7 0.5-0.7	a) 0.050-0.070 0.050-0.070	200-300	28	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	
21.	PL	**Cabbage**	F	Couch grass *(Agropyron repens)*	Broadcast spraying	BBCH 13-16* min. BBCH 13**	a) 1 b) 1 OR a) 1 2	 12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 0.120	200-300	28	*weeds grow stage **crop grow stage	

22.	PL	**Carrot; Parsley**	F	Common barn-yardgrass *(Echi-nochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria san-guinalis)* ; Yellow bris-tlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* min. BBCH 12**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200-300	28	*weeds grow stage **crop grow stage	
23.	PL	**Carrot; Parsley**	F	Silky bentgrass *(Apera spica-venti)* ; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** min. BBCH 12***	a) 1 1	-	a) 0.5-0.7 0.5-0.7	a) 0.050-0.070 0.050-0.070	200-300	28	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	
24.	PL	**Carrot; Parsley**	F	Couch grass *(Agropyron repens)*	Broadcast spraying	BBCH 13-16* min. BBCH 12**	a) 1 b) 1 OR a) 1 2	 12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 0.120	200-300	28	*weeds grow stage **crop grow stage	

25.	PL	**Strawberry**	F	Common barn-yardgrass *(Echinochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria sanguinalis)* ; Yellow bristlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* BBCH 91-92**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200-300	N.A.	*weeds grow stage **crop grow stage	
26.	PL	**Strawberry**	F	Silky bentgrass *(Apera spica-venti)* ; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 91-92***	a) 1 1	-	a) 0.5-0.7 0.5-0.7	a) 0.050-0.070 0.050-0.070	200-300	N.A.	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	
27.	PL	**Strawberry**	F	Couch grass *(Agropyron repens)*	Broadcast spraying	BBCH 13-16* BBCH 91-92**	a) 1 b) 1 OR a) 1 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 0.120	200-300	N.A>	*weeds grow stage **crop grow stage	
28.	CEU	**OSR**	F	Annual and perennial grass weeds	Spray	Post emergence BBCH 12-39	a) 1 b) 1	NA	a) 1.2 b) 1.2	a) 0.12 b) 0.12	200-400	90	Weeds max BBCH 20	
Minor uses according to Article 51 (zonal uses)														

29.	PL	**Spring oilseed rape**	F	Common barn-yardgrass *(Echi-nochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria san-guinalis)* ; Yellow bris-tlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* BBCH 12-30**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200-300	90	*weeds grow stage **crop grow stage	
30.	PL	**Spring oilseed rape**	F	Silky bentgrass *(Apera spica-venti)* ; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 12-30***	a) 1 1	-	a) 0.5-0.7 0.5-0.7	a) 0.050-0.070 0.050-0.070	200-300	90	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	
31.	PL	**Spring oilseed rape**	F	Couch grass *(Agropyron repens)*	Broadcast spraying	BBCH 13-16* BBCH 12-30**	a) 1 b) 1 OR a) 1 2	 12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 0.120	200-300	90	*weeds grow stage **crop grow stage	

32.	PL	**Opium poppy; Common flax; Linen flax; Broccoli; Brussels sprouts; Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine**	F	Common barn-yardgrass *(Echi-nochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria san-guinalis)* ; Yellow bris-tlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* BBCH 13**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200-300	Poppy, common flax -90. Broccoli; Brussels sprouts-28. Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine - 45.	*weeds grow stage **crop grow stage	
33.	PL	**Opium poppy; Common flax; Linen flax; Broccoli; Brussels sprouts; Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine**	F	Silky bentgrass *(Apera spica-venti)* ; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 13***	a) 1 1	-	a) 0.5-0.7 0.5-0.7	a) 0.050-0.070 0.050-0.070	200-300	Poppy, common flax -90. Broccoli; Brussels sprouts-28. Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine - 45.	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	

34.	PL	**Opium poppy; Common flax; Linen flax; Broccoli; Brussels sprouts; Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine**	F	Couch grass *(Agropyron repens)*	Broadcast spraying	BBCH 13-16* BBCH 13**	a) 1 b) 1 OR a) 1 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 0.120	200-300	Poppy, common flax -90. Broccoli; Brussels sprouts-28. Broad beans; Faba bean; Field peas; White lupine; Yellow lupine; Narrow-leaved lupine - 45.	*weeds grow stage **crop grow stage	
35.	PL	**Root celery; Parsnip; Swede**	F	Common barn-yardgrass *(Echinochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria sanguinalis)* ; Yellow bristlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* BBCH 12**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200-300	28	*weeds grow stage **crop grow stage	

36.	PL	**Root celery; Parsnip; Swede**	F	Silky bentgrass *(Apera spica-venti)* ; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 12***	a) 1 1	-	a) 0.5-0.7 0.5-0.7	a) 0.050-0.070 0.050-0.070	200-300	28	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	
37.	PL	**Root celery; Parsnip; Swede**	F	Couch grass *(Agropyron repens)*	Broadcast spraying	BBCH 13-16* BBCH 12**	a) 1 b) 1 OR a) 1 2	 12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 0.120	200-300	28	*weeds grow stage **crop grow stage	
38.	PL	**Garlic; Shallot**	F	Common barn-yardgrass *(Echi-nochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria san-guinalis)* ; Yellow bris-tlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* BBCH 11-12**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200-300	30	*weeds grow stage **crop grow stage	
39.	PL	**Garlic; Shallot**	F	Silky bentgrass *(Apera spica-venti)* ; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 11-12***	a) 1 1	-	a) 0.5-0.7 0.5-0.7	a) 0.050-0.070 0.050-0.070	200-300	30	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	

40.	PL	**Garlic; Shallot**	F	Couch grass *(Agropyron repens)*	Broadcast spraying	BBCH 13-16* BBCH 11-12**	a) 1 b) 1 OR a) 1 2	12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 0.120	200-300	30	*weeds grow stage **crop grow stage	
41.	PL	**Fodder beet; Beetroot**	F	Common barn-yardgrass *(Echinochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria sanguinalis)* ; Yellow bristlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* BBCH 12-35**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200-300	28	*weeds grow stage **crop grow stage	
42.	PL	**Fodder beet; Beetroot**	F	Silky bentgrass *(Apera spica-venti)* ; self-seeding of cereals	Broadcast spraying	BBCH 13-21* BBCH 25-30** BBCH 12-35***	a) 1 1	-	a) 0.5-0.7 0.5-0.7	a) 0.050-0.070 0.050-0.070	200-300	28	*weeds grow stage for dose rate 0.5 L/ha ** weeds grow stage for dose rate 0.7 L/ha ***crop grow stage	

43.	PL	**Fodder beet; Beetroot**	F	Couch grass *(Agropyron repens)*	Broadcast spraying	BBCH 13-16* BBCH 12-35**	a) 1 b) 1 OR a) 1 2	 12	a) 1.25-1.5 b) 1.25-1.5 OR a) 0.6 1.2	a) 0.125-0.150 b) 0.125-0.150 OR a) 0.060 0.120	200-300	28	*weeds grow stage **crop grow stage	
44.	PL	**Jerusalem Artichokes; Horseradish; Black radish; Japanese radish (dai-kon); Radish; Salsify; White turnip; Black turnip**	F	Common barn-yardgrass *(Echi-nochloa crus-galli)*; Spring wild-oat *(Avena fatua)* ; Red fingergrass *(Digitaria san-guinalis)* ; Yellow bris-tlegrass *(Setaria pumila)* ; Green bristlegrass *(Setaria viridis)* ; Perennial ryegrass *(Lolium perenne)*	Broadcast spraying	BBCH 13-29* min. BBCH 12**	a) 1 b) 1	-	a) 0.6 b) 0.6	a) 0.060 b) 0.060	200-300	28	*weeds grow stage **crop grow stage	

* 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 Propaquizafop 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: developmental 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	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min/max		
	Northern and Southern Europe	Sugar beet	F	Monocotyl weeds	Foliar spray	Post-em: crop GS: BBCH 12-39 weed GS: BBCH 12-29	1	n/a	2 L/ha	200	200-500	n/a	
	Northern and Southern Europe	Oilseed rape	F	Monocotyl weeds	Foliar spray	Post-em: Spring, crop GS: BBCH 21-39 weed GS: BBCH 13-29 Autumn, crop GS: BBCH 13-29 weed GS: BBCH 12-25	1	n/a	-	200	200-500	n/a	

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

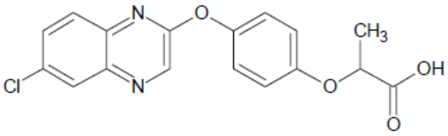
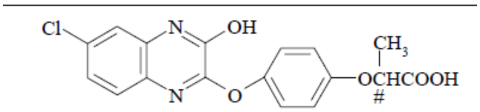
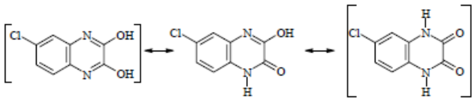
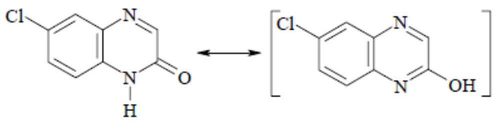
** F: professional field use, Fn: non-professional field use, Fpn: professional and non-professional field use, G: professional greenhouse use, Gn: non-professional greenhouse use, Gpn: professional and non-professional greenhouse use, I: indoor application

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 Propaquizafop potentially relevant for exposure assessment

Metabolite	Molar mass	Chemical structure	Maximum observed occurrence in compartments	Exposure assessment required due to
Quizalofop QUIZ	344.8 g/mol		Soil: 87.9% Water: 90.2% Sediment: 45.4%	PEC_{gw}: leaching potential to groundwater PEC_{soil}: if not covered by EU assessment $PEC_{sw/sed}$: if not covered by EU assessment
Hydroxy-Quizalofop QUIZ-OH Hydroxy-propaquizafop acid CGA 294972	360.8 g/mol	 # chiral centre	Soil: 32.6% Water: 4.1% Sediment: 11.2%	PEC_{gw}: leaching potential to groundwater PEC_{soil}: if not covered by EU assessment $PEC_{sw/sed}$: if not covered by EU assessment
Dihydroxy quinoxaline Dihydroxychloro-quinoxalin CHHQ CGA 294970	196.6 g/mol		Soil: 13.7% Water: 1% Sediment: 10%	PEC_{gw}: leaching potential to groundwater PEC_{soil}: if not covered by EU assessment $PEC_{sw/sed}$: if not covered by EU assessment
Hydroxy quinoxaline CHQ CGA 290291 CQO	180.6 g/mol		Soil: 8.8% Water: 2.3% Sediment: 6.4%	PEC_{gw}: leaching potential to groundwater PEC_{soil}: if not covered by EU assessment $PEC_{sw/sed}$: if not covered by EU assessment

zRMS comments:

Information relating to propaquizafop metabolites are in line with EU agreed endpoints as reported in *EFSA Scientific Report (2008) 204, 1-171 Conclusion on the pesticide peer review of propaquizafop* and have been considered in the exposure assessment presented in this report.

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)

8.3.1.1 Propaquizafop and its metabolites

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

Propaquizafop, Laboratory studies, aerobic conditions										
Soil name	**Soil type**	**pH**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa**	**St. (r^2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Gartenacker	Loam	7.18#	20	40	<3	<3	-	-	-	y/ EFSA, 2008 y/ DAR, 2006
Pappelacker	Loamy sand	7.43#	20	40	<3	<3	-	-	-	y/ EFSA, 2008 y/ DAR, 2006
Borstel	Sandy loam	5.01#	20	40	<3	<3	-	-	-	y/ EFSA, 2008 y/ DAR, 2006
Dielsdorf	Sandy loam	6.9	20	40	1.4*	56*	-	-	Best-fit linear regression analysis	y/ EFSA, 2008 y/ DAR, 2006
Steinmaur	Loam	7.5	20	40	1.2*	51*	-	-	Best-fit linear regression analysis	y/ EFSA, 2008 y/ DAR, 2006
Steinmaur soil	Loam	7.7	20	40	0.09**	2**	-	-	Best-fit linear regression analysis	y/ EFSA, 2008 y/ DAR, 2006
Geometric mean/Median*** (n=6)					**1.3/2.2**					
pH-dependency:					No					

pH in KCl
* geomean of three values for the same soil (different application rate and radiolabel position) sandy loam DT50/DT90 (d)= 1.1/87, 1.8/149, 1.2/31; loam soil DT50/ DT90 (d) = 1.0/82, 1.8/50, 0.8/22.
** geomean of two values for the same soil (different application rate) DT50/ DT90 (d) = 0.09/2, 0.09/2.
*** a worst case DT50 value of 3 d was considered for the 3 soils of the Mamouni 1999a study

Table 8.3-2: Summary of aerobic degradation rates for Quizalofop - laboratory studies

Quizalofop, Laboratory studies, aerobic conditions										
Soil name	**Soil type**	**pH**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa**	**St. (r^2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Speyer 2.3[1]	Sandy loam	6.3	20	45	55.9	185.6	49.2*	0.993	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Speyer 2.1[1]	Sand	6.2	20	45	18.7	62.0	18.7*	0.984	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Worming ford[1]	Loam	5.9	20	45	42.4	141.0	41.05*	0.969	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Montesqu ieu[1]	Clay loam	7.6	20	45	22.5	74.6	21.04*	0.984	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Neustadt[1]	Sandy loam	6.3	20	40	14.1	47.0	14.0*	0.967	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Charcenn e[1]	Silty clay loam	7.4	20	40	59.4	197.4	45.7*	0.961	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Droitwich[1]	Sandy loam	8.2	20	40	14.5	48.2	14.1*	0.968	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Shelley[2]	Loam	5.0	20	40	10.4	34.5	8.0*	0.951	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Abington[2]	Sandy loam	7.5	10	40	54.5	181	24.8	0.970	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
UK soil[2]	Sandy loam	7.1	20	40	28.0	93.0	28.0	0.976	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
UK soil[2]	Sandy loam	7.1	10	40	74.3	247	33.8	0.961	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
UK	Sandy	6.6	20	49	182	603	181.5	0.966	SFO,	y/ EFSA,

Quizalofop, Laboratory studies, aerobic conditions										
Soil name	**Soil type**	**pH**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa**	**St. (r^2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
soil[2]**	loam								Model Manager	2008 y/ DAR, 2007
UK soil[2]	Silty clay loam	6.7	20	65	23.7	78.7	23.7	0.934	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
UK soil[2]	Clay loam	7.9	20	47	39.6	132	39.6	0.980	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Gartenacker[3]	Loam	7.18#	20	40	7	24	7	0.9985	SFO	y/ EFSA, 2008 y/DAR, 2006
Pappelacker[3]	Loamy sand	7.43#	20	40	10	34	10	0.996	SFO	y/ EFSA, 2008 y/ DAR, 2006
Borstel[3]	Sandy loam	5.01#	20	40	14	45	11.6	0.9894	SFO	y/ EFSA, 2008 y/ DAR, 2006
Dielsdorf[3]	Sandy loam	6.9	22	60	39***	128.4***	46.0	-	FO, Model Maker	y/ EFSA, 2008
Steinmaur[3]	Loam	7.5	22	60	31***	102.6***	36.3	-	FO, Model Maker	y/ EFSA, 2008
Steinmaur soil[3]	Loam	7.7	20	40	14.8****	48.7****	16.0	-	FO, Model Maker	y/ EFSA, 2008
Steinmaur soil[3]	Loam	7.7	Not considered for the risk assessment. Study was not conducted at temperature and soil moisture conditions recommended by current EU guidelines							y/ EFSA, 2008
Geomean (n=21)							**24.26**			
pH-dependency:							No			

[1] study presented in the DAR of quizalofop-P-tefuryl
[2] study presented in the DAR of quizalofop-P-ethyl
[3] study presented in the DAR of propaquizafop
pH in KCl
* Values re-normalised to reference conditions based on the measured moisture content (in the DAR the moisture correction was made using default values)
** Not considered acceptable in the DAR
*** Geomean of three values for the same soil (different application rate and radiolabel position) sandy loam DT50/DT90 (d)= 30/98, 45/148, 44/146; loam soil DT50/ DT90 (d) = 24/81, 38/127, 32/105.
**** Geomean of two values for the same soil (different application rate) DT50/ DT90 (d) = 22/74, 10/32.

Note: *concerning the longest lab soil DT_{50} for quizalofop (182 days) is was agreed during the expert meeting that no accumulation calculation was necessary considering the results from the available field studies (longest DT_{50} around 40 days) and the large number of lab studies with shorter DT_{50}.*

Table 8.3-3: Summary of aerobic degradation rates for hydroxy-quizalofop- laboratory studies

Hydroxy-quizalofop, Laboratory studies, aerobic conditions										
Soil name	**Soil type**	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa**	**St. (r^2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Speyer 2.3[1]	Sandy loam	6.3	20	45	39.8	132.1	35.02*	0.993	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Speyer 2.1[1]	Sand	6.2	20	45	7.0	23.3	7.00*	0.984	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Worming ford[1]	Loam	5.9	20	45	17.3	57.4	16.71*	0.969	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Montesqu ieu[1]	Clay loam	7.6	20	45	15.4	51.2	14.43*	0.984	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Neustadt[1]	Sandy loam	6.3	20	40	11.2	37.2	11.1*	0.967	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Charcenn e[1]	Silty clay loam	7.4	20	40	69.4	230.4	53.3*	0.961	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Droitwich[1]	Sandy loam	8.2	20	40	12.3	40.9	11.9*	0.968	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Shelley[2]	Loam	5.0	20	40	14.2	47.1	11.0*	0.951	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
UK soil[2]	Sandy loam	7.1	20	40	45.8	152	45.8	0.986	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
UK soil[2]	Sandy loam	6.6	20	49	40.7	210	40.7	0.746	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
UK	Sandy	7.1	10	40	47.5	158	21.7	0.967	SFO,	y/ EFSA,

Hydroxy-quizalofop, Laboratory studies, aerobic conditions										
Soil name	**Soil type**	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa**	**St. (r^2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
soil[2]**	loam								Model Manager	2008 y/ DAR, 2007
Gartenacker[3]	Loam	7.18[#]	20	40	21	68	21	0.969	SFO	y/ EFSA, 2008 y/ DAR, 2006
Pappelacker[3]	Loamy sand	7.43[#]	20	40	12	39	12	0.970	SFO	y/ EFSA, 2008 y/ DAR, 2006
Borstel[3]	Sandy loam	5.01[#]	20	40	13	43	10.7	0.984	SFO	y/ EFSA, 2008 y/ DAR, 2006
Geomean (n=14)							**18.37**			
pH-dependency:							No			

[1] study presented in the DAR of quizalofop-P-tefuryl
[2] study presented in the DAR of quizalofop-P-ethyl
[3] study presented in the DAR of propaquizafop
[#] pH in KCl
* Values re-normalised to reference conditions based on the measured moisture content (in the DAR the moisture correction was made using default values)
** The results of study FD9 were erroneously not reported in the LoEP presented in the DAR

Table 8.3-4: Summary of aerobic degradation rates for Dihydroxy Quinoxaline - laboratory studies

Dihydroxy quinoxaline, Laboratory studies, aerobic conditions										
Soil name	**Soil type**	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa**	**St. (r^2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Speyer 2.3[1]	Sandy loam	6.3	20	40	106.7	354.4	105.9*	0.967	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Droitwich[1]	Sandy loam	8.2	20	40	68.9	228.8	66.7*	0.968	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
Shelley[2]	Loam	5.0	20	40	258.1	857.5	199.9*	0.951	SFO, Model Manager	y/ EFSA, 2008 y/ DAR, 2007
UK soil[2]	Sandy	6.6	20	49	55.5	184	55.5	0.587	SFO,	y/ EFSA,

Dihydroxy quinoxaline, Laboratory studies, aerobic conditions										
Soil name	**Soil type**	**pH (water)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa**	**St. (r^2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
	loam								Model Manager	2008 y/ DAR, 2007
UK soil[2]	Clay	7.9	20	44	102	337	102	0.996	SFO	y/ EFSA, 2008 y/ DAR, 2007
UK soil[2]	Sandy loam	6.5	20	46	53	175	53	0.997	SFO	y/ EFSA, 2008 y/ DAR, 2007
UK soil[2]	Silty clay loam	6.6	20	70	42	139	42	0.998	SFO	y/ EFSA, 2008 y/ DAR, 2007
Gartenacker[3]	Loam	7.18[#]	20	40	54	180	36	0.874	SFO	y/ EFSA, 2008 y/ DAR, 2006
Pappelacker[3]	Loamy sand	7.43[#]	20	40	58	190	37	0.95	SFO	y/ EFSA, 2008 y/ DAR, 2006
Borstel[3]	Sandy loam	5.01[#]	20	40	63	209	40.6	0.935	SFO	y/ EFSA, 2008 y/ DAR, 2006
Geomean (n=10)							**62.85**			
pH-dependency:							No			

[1] study presented in the DAR of quizalofop-P-tefuryl
[2] study presented in the DAR of quizalofop-P-ethyl
[3] study presented in the DAR of propaquizafop
[#] pH in KCl
* Values re-normalised to reference conditions based on the measured moisture content (in the DAR the moisture correction was made using default values)

Table 8.3-5: Summary of aerobic degradation rates for Hydroxy quinoxaline - laboratory studies

Hydroxy quinoxaline, Laboratory studies, aerobic conditions										
Soil name	**Soil type**	**pH (KCl)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa**	**St. (r^2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Gartenacker	Loam	7.18	20	40	46	154	46	0.832	SFO	y/ EFSA, 2008 y/ DAR, 2006
Pappelack	Loamy	7.43	20	40	65	217	65	0.967	SFO	y/ EFSA, 2008

Hydroxy quinoxaline, Laboratory studies, aerobic conditions										
Soil name	**Soil type**	**pH (KCl)**	**t.oC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa**	**St. (r^2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
er	sand									y/ DAR, 2006
Borstel	Sandy loam	5.01	20	40	71	235	59	0.947	SFO	y/ EFSA, 2008 y/ DAR, 2006
Geomean (n=3)							**56**			
pH-dependency:							No			

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)

8.4.1.1 Propaquizafop and its metabolites

Triggering endpoints

Aerobic degradation rates for Propaquizafop - field studies:

No reliable data available for Propaquizafop.

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

Quizalofop, Field studies – Triggering endpoints										
Soil type	**Location**	**pH**	**Depth (cm)**	**DissT50 (d) actual**	**DT90 (d) actual**	**f.f.**	**Kinetic parameters**	**St. (x^2)**	**Method of calc.**	**Evaluated on EU level y/n/ Reference**
Sandy loam, oil seed rape	Switzerland	7.9	10	31	103	-	-	n.a	1st order Timme and Frehse bestfit	y/ EFSA, 2008
Loamy sand, bare soil	Germany	6.3	30	39.8	132	-	-	0.932	SFO, ModelManager	y/ EFSA, 2008
Silty clay loam, bare soil	France	7.8	30	33.6	112	-	-	0.953	SFO, ModelManager	y/ EFSA, 2008
Silty loam sand, bare soil	Spain	5.6	30	37.6	125	-	-	0.899	SFO, ModelManager	y/ EFSA, 2008
Maximum (n=4)				**39.8**						

Table 8.4-2: Summary of aerobic degradation rates for Hydroxy-quizalofop - field studies: Triggering endpoints

Hydroxy-quizalofop, Field studies – Triggering endpoints										
Soil type	**Location**	**pH**	**Depth (cm)**	**DissT50 (d) actual**	**DT90 (d) actual**	**f.f.**	**Kinetic parameters**	**St. (x^2)**	**Method of calc.**	**Evaluated on EU level y/n/ Reference**
Loamy sand, bare soil	Germany	6.3	30	32.2	107	-	-	0.861	SFO, Model Man ager	y/ EFSA, 2008

8.4.2 Soil accumulation testing (KCP 9.1.1.2.2)

From the following conclusion from EFSA 2008, the testing of soil accumulation is not relevant due to the short half-lives of Propaquizafop and its metabolites:
Concerning the longest lab soil DT50 for quizalofop (182days) is was agreed during the expert meeting that no accumulation calculation was necessary considering the results from the available field studies (longest DT50 around 40 days) and the large number of lab studies with shorter DT50.

zRMS comments:

Soil degradation data of propaquizafop and its metabolites are in line with EU agreed endpoints.

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 Propaquizafop and its metabolites

Soil adsorption/desorption for Propaquizafop

As Propaquizafop is highly unstable in soil, its adsorption and desorption characteristics could not be determined. Estimated value based on log Kow, according to Briggs 1989, was 2220 mL/g. (EFSA, 2008)

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

Quizalofop							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Mississippi[1]	Clay	4.8	5.9	3.99	141	0.88	y/ EFSA, 2008 y/ DAR, 2007
Maryland[1]	Sand	0.1	6.2	0.19	321	0.89	y/ EFSA, 2008 y/ DAR, 2007
Connecticut[1]	Sandy loam	3.1	6.3	8.69	477	0.78	y/ EFSA, 2008 y/ DAR, 2007
California[1]	Loam	0.8	6.7	0.62	133	0.85	y/ EFSA, 2008 y/ DAR, 2007
Minto, Manitoba[1]	Clay loam	5.1	8.1	4.9	332	0.71	y/ EFSA, 2008 y/ DAR, 2007
Ontario[1]	Loam	0.1	6.1	10.6	356	0.69	y/ EFSA, 2008 y/ DAR, 2007
Minto, Manitoba[1]	Silty clay loam (pond sediment)	0.8	6.7	9.5*	1254*	0.72*	y/ EFSA, 2008 y/ DAR, 2007
Aichi[2]	Sandy clay loam	0.5	6.4	1.73	346	0.79	y/ EFSA, 2008 y/ DAR, 2007
Gunma[2]	Sand	2.0	5.3	4.23	212	0.79	y/ EFSA, 2008 y/ DAR, 2007
Chiba[2]	Silty loam	5.1	6.0	40.0	783	0.86	y/ EFSA, 2008 y/ DAR, 2007
Nagano[2]	Light clay	5.9	5.3	33.3	564	0.87	y/ EFSA, 2008 y/ DAR, 2007
UK soil[2]	Loamy sand	0.5	4.3	125	1782	0.8	y/ EFSA, 2008 y/ DAR, 2007
UK soil[2]	Loamy sand	7.0	3.1	9	1791	0.8	y/ EFSA, 2008 y/ DAR, 2007
UK soil[2]	Clay	3.9	6.0	8	214	0.8	y/ EFSA, 2008 y/ DAR, 2007
UK soil[2]	Clay loam	3.2	7.4	9	275	0.7	y/ EFSA, 2008 y/ DAR, 2007
LUFA[3]	Sand	0.5	6.0	2.36	472	0.88	y/ EFSA, 2008 y/ DAR, 2006
Les Evouettes[3]	Silt loam	1.8	5.6	6.24	347	0.842	y/ EFSA, 2008 y/ DAR, 2006
Itingen/ BL (CH) [3]	Clay-clay loam	2.4	7.3	9.29	387	0.822	y/ EFSA, 2008 y/ DAR, 2006
Dielsdorf (CH) [3]	Loam	1.2	6.9	5.27	439	0.855	y/ EFSA, 2008 y/ DAR, 2006
Geomean (n=21)					**396.04**	**0.812****	
pH-dependency:					No		

[1] study presented in the DAR of quizalofop-P-tefuryl

[2] study presented in the DAR of quizalofop-P-ethyl
[3] study presented in the DAR of propaquizafop
* This value has been considered as an outlier and it has not been taken into account in the calculation of the mean values. The test soil was a pond sediment, not an agricultural soil.
** Arithmetic mean

Table 8.5-2: Summary of soil adsorption/desorption for Hydroxy-quizalofop

Hydroxy-quizalofop									
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kd (mL/g)**	**Koc (mL/g)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Speyer 2.2[1]	Sandy loam	2.3	5.6	2.8	122	-	-	1	y/ EFSA, 2008 y/ DAR, 2007
Mechthildshausen[1]	Loam	1.3	7.4	2.2	172	-	-	1	y/ EFSA, 2008 y/ DAR, 2007
Mussig[1]	Clay loam	4.7	7.5	8.6	184	-	-	1	y/ EFSA, 2008 y/ DAR, 2007
Beeley Moor[2]	Loamy sand	7.0	3.1	-	-	110	1567	0.8	y/ EFSA, 2008 y/ DAR, 2007
South Witham[2]	Clay loam	3.2	7.4	-	-	10	302	0.8	y/ EFSA, 2008 y/ DAR, 2007
Sinfin[2]	Clay	3.9	6.0	-	-	5	129	0.8	y/ EFSA, 2008 y/ DAR, 2007
Gartenacker[3]	Sandy Silt Loam	2.3	7.5	-	-	1.7	74.4	1.07	y/ EFSA, 2008 y/ DAR, 2006
Pappelacker[3]	Sandy loam	1.0	7.5	-	-	0.8	78.5	1.06	y/ EFSA, 2008 y/ DAR, 2006
Borstel[3]	Sandy loam	1.1	5.2	-	-	1.6	141.1	0.94	y/ EFSA, 2008 y/ DAR, 2006
						Geomean (n=9)	**179.58**	0.941**	
						pH-dependency:	No		

[1] study presented in the DAR of quizalofop-P-tefuryl
[2] study presented in the DAR of quizalofop-P-ethyl
[3] study presented in the DAR of Propaquizafop
** Arithmetic mean

Table 8.5-3: Summary of soil adsorption/desorption for dihydroxy-quinoxaline

dihydroxy-quinoxaline									
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kd (mL/g)**	**Koc (mL/g)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Speyer 2.2[1]	Sandy loam	2.3	5.6	11.0	480	-	-	1	y/ EFSA, 2008 y/ DAR, 2007
Mechthildshausen[1]	Loam	1.3	7.4	11.5	901	-	-	1	y/ EFSA, 2008 y/ DAR, 2007
Mussig[1]	Clay loam	4.7	7.5	68.6	1468	-	-	1	y/ EFSA, 2008 y/ DAR, 2007
Beeley Moor[2]	Loamy sand	7.0	3.1	-	-	3	48	0.8	y/ EFSA, 2008 y/ DAR, 2007
South Witham[2]	Clay loam	3.2	7.4	-	-	22	694	0.7	y/ EFSA, 2008 y/ DAR, 2007
Sinfin[2]	Clay	3.9	6.0	-	-	14	370	0.7	y/ EFSA, 2008 y/ DAR, 2007
Gartenacker[3]	Sandy Silt Loam	-	-	-	-	8.5	370.6	0.63	y/ EFSA, 2008 y/ DAR, 2006
Pappelacker[3]	Sandy loam	-	-	-	-	5.5	547.7	0.59	y/ EFSA, 2008 y/ DAR, 2006
Borstel[3]	Sandy loam	-	-	-	-	6.7	609.2	0.66	y/ EFSA, 2008 y/ DAR, 2006
						Geomean (n=9)	**462.46**	0.787**	
						pH-dependency:	No dependence in the environmentally relevant soil pH range		

[1] study presented in the DAR of quizalofop-P-tefuryl
[2] study presented in the DAR of quizalofop-P-ethyl
[3] study presented in the DAR of Propaquizafop
** Arithmetic mean

Table 8.5-4: Summary of soil adsorption/desorption for Quizalofop-phenol

Quizalofop-phenol (Hydroxy ether (CGA 129674) in the DAR)									
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kd (mL/g)**	**Koc (mL/g)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Gartenacker	Sandy Silt Loam	2.3	7.5	-	-	56.0	2433.1	1.02	y/ EFSA, 2008 y/ DAR, 2006
Pappelacker	Sandy loam	1.0	7.5	-	-	49.5	4945.2	0.83	y/ EFSA, 2008 y/ DAR, 2006
Borstel	Sandy loam	1.1	5.2	-	-	85.1	7740.8	1.12	y/ EFSA, 2008 y/ DAR, 2006
						Median (n=3)	**4945.2**	1.02	
						pH-dependency:	No		

Soil adsorption/desorption for Hydroxy-quinoxaline

Estimated value using the software programme PCKOCWIN (Version 1.66, EPA 2000), was 522.4 mL/g. (EFSA, 2008)

8.5.2 Column leaching (KCP 9.1.2.1)

Column leaching	Eluation (mm): 504 mm (soils n=4) Time period (d): 7 d (soils n=4) Eluation (mm): 200 mm (soils n=3) Time period (d): 2 d (soils n=3)
	Leachate: 0.034-4.07 % total residues/radioactivity in leachate Levels of radioactivity present in the leachates were too low to permit chromatographic investigations as to the nature of the material present 17 to 62 % total residues/radioactivity retained in top 10 cm.

Aged residues leaching	Aged for (d): 76 d (soil n=1) Time period (d): 2 d (soil n=1) Eluation (mm): 200 mm (soil n=1)
	Aged for (d): 30-31 d (soils n=2) Time period (d): 4-5 d (soils n=2) Eluation (mm): 508 mm (soils n=2)
	Analysis of soil residues post ageing (soil residues pre-leaching): 1.2-30 % propaquizafop, 31.1-52.9% quizalofop, 7.5-19.3 % hydroxy-Quizalofop, 0.5-5.5 % quizalofop-phenol
	Leachate: 0.1-0.4 % total residues/radioactivity in leachate Levels of radioactivity present in the leachates were too low to permit chromatographic investigations as to the nature of the material present >80 % total residues/radioactivity retained in top 12 cm

8.5.3 Lysimeter studies (KCP 9.1.2.2)

No data available. These studies were not performed because no evidence of leaching from laboratory experiments or computer modelling simulations was observed. (EFSA, 2008)

8.5.4 Field leaching studies (KCP 9.1.2.3)

No data available. These studies were not performed because no evidence of leaching from laboratory experiments or computer modelling simulations was observed. (EFSA, 2008).

zRMS comments:

Soil mobility data of propaquizafop and its metabolites are in general in line with EU agreed endpoints.

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 Propaquizafop and its metabolites

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

Propaquizafop Distribution: max. in water 75.7 % AR after 0 d. Max. sed. 20.3 % AR after 0 d										
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**
River	7.05/7.45	< 1	< 1	-	< 1	< 1	-	< 1	-	y/ EFSA, 2008 y/ DAR, 2006
Pond	6.77/6.95	< 1	< 1	-	< 1	< 1	-	< 1	-	y/ EFSA, 2008 y/ DAR, 2006
Geometric mean		-	-		-	-		-		

Table 8.6-2: Summary of degradation in water/sediment of Quizalofop

Quizalofop Distribution: max. in water 94 % AR after 1 d. Max. sed. 53 % AR after 14 d[1] **Quizalofop Distribution: max. in water 83 % AR after 7 d. Max. sed. 43 % AR after 28 d[2]** **Quizalofop Distribution: in water 90.2 % AR after 1 d. Max. sed. 45.4 % AR after 28 d[3]**										
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**
River	8.1/7.3	27	88	-	10	33	-	*	SFO	y/ EFSA, 2008
Pond	7.9/7.0	34	114	-	9.9	33	-	*	SFO	y/ EFSA, 2008
River	7.7/7.3	25	84	-	*	*	-	*	SFO	y/ EFSA, 2008
Pond	7.6/7.1	35	117	-	*	*	-	*	SFO	y/ EFSA, 2008
Mill Stream Pond	8.3/7.9	54**	83**	-	50**	62**	-	61**	One comp. model	y/ EFSA, 2008
Iron Hatch Stream	8.3/8.2	40**	66**	-	38**	53**	-	47**	One comp. model	y/ EFSA, 2008
Geometric mean (n=6)		35	-		-	-		-		

[1] study presented in the DAR of quizalofop-P-tefuryl
[2] study presented in the DAR of quizalofop-P-ethyl
[3] study presented in the DAR of propaquizafop

* not available
** at 20°C, not normalised in the DAR, dissipation in both experiments were biphasic (both phases individually 1st order) with the first phase being the slow phase and the calculated DT50 were before the inflection point (102 days in the 10 ºC study)

Table 8.6-3: Summary of observed metabolites

Quizalofop Water/sediment system	**Study from DAR of quizalofop-P-tefuryl:** max. in water 94 % AR after 1 d. Max. sed. 53 % AR after 14 d (water/sediment system, Phenylquinoxaline label) **Study from DAR of quizalofop-P-ethyl:** max. in water 83 % AR after 7 d. Max. sed. 43 % AR after 28 d (water/sediment system, Phenyl label) **Study from DAR of propaquizafop:** max. in water 90.2 % AR after 1 d (river system). Max. sed. 45.4 % AR after 28 d (pond system, Quinoxaline label)	y/ EFSA, 2008 y/ DAR, 2007 y/ DAR, 2006
Dihydroxyquinoxaline Water/sediment system	**Study from DAR of propaquizafop:** max. in water 1 % AR after 56 d. Max. sed. 10 % AR after 56 d (river system, Quinoxaline label)	y/ EFSA, 2008 y/ DAR, 2006
Hydroxy-quizalofop Water/sediment system	**Study from DAR of propaquizafop:** max. in water 4.1 % AR after 56 d. Max. sed. 11.2 % AR after 56 d (pond system, Quinoxaline label)	y/ EFSA, 2008 y/ DAR, 2006
Hydroxyquinoxaline Water/sediment system	**Study from DAR of propaquizafop:** max. in water 2.3 % AR after 14 d. Max. sed. 6.4 % AR after 56 d (pond system, Quinoxaline label)	y/ EFSA, 2008 y/ DAR, 2006

zRMS comments:

Information on degradation of propaquizafop and its metabolites in water/sediment systems are in line with EU agreed endpoints.

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

8.7.1 Justification for new endpoints

Not relevant as there is no deviation to the EU agreed endpoints.

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

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

Plant protection product	**Propaquizafop 10% EC**										
Use No.	**1, 2, 3, 41*, 42*, 43***	**4, 5, 6, 29*, 30*, 31***	**9, 10, 11**	**10, 11, 12**	**13, 14, 15, 32*, 33*, 34***	**16, 17, 18**	**19, 20, 21, 22, 23, 24, 35*, 36*, 37***	**25, 26, 27**	**28**	**38*, 39*, 40***	**44***
Crop	Sugar beet, fodder beet, beetroot	Winter and spring oilseed rape	Potato	Onion	Bean, Opium poppy; Common flax, Linen flax, Broccoli, Brussels sprouts, Broad beans, Faba bean, Field peas, White lupine, Yellow lupine, Narrow-leaved lupine	Pea	Cabbage, carrot, parsley, root celery, parnsnip, swede	Strawberry	Oilseed rape	Garlic, shallot	Jerusalem Artichokes; Horseradish; Black radish; Japanese radish (daikon); Radish; Salsify; White turnip; Black turnip
Application rate (kg as/ha)	0.15**								0.06	0.15**	0.06
Number of applications/ interval	1 / -										
Crop interception (%)	20	40	15	0	25	35	25	30	40	10	25
Depth of soil layer (relevant for plateau concentration)	20 cm (tillage)	20 cm (tillage)	5 cm (no tillage)	5 cm (no tillage)	20 cm (tillage)	20 cm (tillage)	5 cm (no tillage)	20 cm (tillage)	20 cm (tillage)	5 cm (no tillage)	20 cm (tillage)

*** minor uses**
****The highest application rate has been chosen as worst case for these uses with 0 % interception as a worst case**

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

Compound	Molecular weight (g/mol)	Max. occurrence (%)	DT50 (days)	Value in accordance to EU endpoint y/n/ Reference
Propaquizafop	443.9	-	2.1 d (representative worst case from laboratory studies normalised to pF2 and to 20°C)*	y/ EFSA, 2008
Quizalofop	344.8	87.9	181.5 d (SFO, Maximum, laboratory study normalised to pF2 and to 20°C)**	y/ EFSA, 2008
Hydroxy-quizalofop	360.8	32.6	53.3 d (SFO, Maximum, laboratory study normalised to pF2 and to 20°C)	y/ EFSA, 2008
Dihydroxy quinoxaline	196.6	13.7	199.9 d (SFO, Maximum, laboratory study normalised to pF2 and to 20°C)	y/ EFSA, 2008
Hydroxy quinoxaline	180.6	8.8	65 d (SFO, Maximum, laboratory study normalised to pF2 and to 20°C)	y/ EFSA, 2008

* Normalisation of DT_{50} = 1.8 d (single DT_{50} value before averaging the values from the same soil with different radiolabeling position and/or application rate

** It was agreed during the expert meeting PRAPeR 52 that the longest lab soil DT50 for quizalofop of 182 days, from the amalgamated list of endpoints, should be used for PECsoil calculations. Concerning the longest lab soil DT50 for quizalofop (182days), is was agreed during the expert meeting that no accumulation calculation was necessary considering the results from the available field studies (longest DT50 around 40 days) and the large number of lab studies with shorter DT50.

8.7.2.1 Propaquizafop and its metabolites

Table 8.7-3: PEC_{soil} for Propaquizafop on all crops

PEC_{soil} (mg/kg)		All crops			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.200	-	-	
Short term	24h	0.144	0.170	-	-
	2d	0.103	0.146	-	-
	4d	0.053	0.111	-	-
Long term	7d	0.020	0.078	-	-
	14d	0.002	0.043	-	-
	21d	< 0.001	0.029	-	-
	28d	< 0.001	0.022	-	-
	50d	< 0.001	0.012	-	-
	100d	< 0.001	0.006	-	-
Plateau concentration (5 cm) after year		-	-	-	-
$PEC_{accumulation}$ (PEC_{act} + $PEC_{soil\ plateau}$)		-	-	-	-

PEC$_{soil}$ of metabolites

PEC$_{soil}$ values for the metabolites were determined as for the parent with an application rate corrected taking into account the molecular weights (MW) and the maximum occurrence of the metabolite in soil as following:

Application rate$_{metabolite}$ = (MW$_{metabolite}$/ MW$_{parent}$) x (% maximum occurrence/100) x application rate$_{parent}$

The corresponding application rates for each metabolite are summarized in the table below.

Table 8.7-4: Corrected application rates for the metabolites

Metabolite	Application rate of the parent (g/ha)	MW$_{parent}$	MW$_{metabolite}$	Maximum occurrence in soil (%)	Corrected application rate (g/ha)
Quizalofop	150 200	443.9	344.8	87.9	102.41
Hydroxy-quizalofop			360.8	32.6	39.75
Dihydroxy quinoxaline			196.6	13.7	9.10
Hydroxy quinoxaline			180.6	8.8	5.37

The results of PEC$_{soil}$ calculations are presented in the tables below.

Table 8.7-5: PEC$_{soil}$ for Quizalofop on all crops (at 1 x 150 g as/ha)

PEC$_{soil}$ (mg/kg)		All crops			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.137	-	-	
Short term	24h	0.136	0.136	-	-
	2d	0.136	0.136	-	-
	4d	0.134	0.136	-	-
Long term	7d	0.133	0.135	-	-
	14d	0.129	0.133	-	-
	21d	0.126	0.131	-	-
	28d	0.123	0.129	-	-
	50d	0.113	0.124	-	-
	100d	0.093	0.113	-	-
Plateau concentration (5 cm) after year 4		-	-	-	-
PEC$_{accumulation}$ (PEC$_{act}$ +PEC$_{soil\ plateau}$)		-	-	-	-

Table 8.7-6: PEC$_{soil}$ for Hydroxy-quizalofop on all crops (at 1 x 150 g as/ha)

PEC$_{soil}$ (mg/kg)	All crops	
	Single application	Multiple applications

		Actual	TWA	Actual	TWA
Initial		0.053	-	-	-
Short term	24h	0.052	0.053	-	-
	2d	0.052	0.052	-	-
	4d	0.050	0.052	-	-
Long term	7d	0.048	0.051	-	-
	14d	0.044	0.048	-	-
	21d	0.040	0.046	-	-
	28d	0.037	0.044	-	-
	50d	0.028	0.039	-	-
	100d	0.014	0.030	-	-
Plateau concentration (5 cm) after year		-	-	-	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		-	-	-	-

Table 8.7-7: PEC_{soil} for Dihydroxy quinoxaline on all crops

PEC_{soil} (mg/kg)		All crops			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.012	-	-	-
Short term	24h	0.012	0.012	-	-
	2d	0.012	0.012	-	-
	4d	0.012	0.012	-	-
Long term	7d	0.012	0.012	-	-
	14d	0.012	0.012	--	-
	21d	0.011	0.012	-	-
	28d	0.011	0.012	-	-
	50d	0.010	0.011	-	-
	100d	0.009	0.010	-	-
Plateau concentration (5 cm) after year 4		0.005	-	-	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		0.017	-	-	-

Table 8.7-8: PEC_{soil} for Hydroxy quinoxaline on all crops

PEC_{soil} (mg/kg)		All crops			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.007	-	-	-
Short term	24h	0.007	0.007	-	-

	2d	0.007	0.007	-	-
	4d	0.007	0.007	-	-
Long term	7d	0.007	0.007	-	-
	14d	0.006	0.007	-	-
	21d	0.006	0.006	-	-
	28d	0.005	0.006	-	-
	50d	0.004	0.006	-	-
	100d	0.002	0.004	-	-
Plateau concentration (5 cm) after year		-	-	-	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		-	-	-	-

8.7.2.2 PEC_{soil} of Propaquizafop 10% EC

Since Propaquizafop 10% EC is rapidly broken down into its constituent parts on contact with soil and/or crop material, it is appropriate to calculate the PEC_S following a single application only, using the following equation:

$$PEC_S\,(mg/kg) = \frac{\text{Application rate (g/ha)} \times (1 - F)}{100 \times \text{Soil depth (cm)} \times \text{Soil dry bulk density (g/cm}^3)}$$

Table 8.7-9: PEC_{soil} for Propaquizafop 10% EC on all crops

Preparation	**Application rate (g/ha)**	**Crop interception (%)**	**PEC_{act} (mg/kg)**
Propaquizafop / Propaquizafop 10% EC	1546.5*	0	2.06

*** Based on a density of 1.031 g/mL**

zRMS comments:

PEC_{soil} calculations has been accepted for the active substance propaquizafop and its metabolites.
Calculations of PEC_{soil} have been submitted by the Applicant for the proposed use in GAP have been carry out for highest application rate 150 g/ha with 0 % interception as a worst case.

PECs Propaquizafop = 0.200 mg/kg
PECs Quizalofop = 0.137 mg/kg
PECs Hydroxy-quizalofop = 0.053 mg/kg
PECs Dihydroxy quinoxaline = 0.012 mg/kg PEC_{acc} = 0.017 mg/kg
PECs Hydroxy quinoxaline = 0.007 mg/kg

The input parameters used in calculations were taken from the endpoints available in the EFSA conclusion on (2008) 204, 1-17.
The acceptable predicted environmental concentrations of propaquizafop 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

Not relevant as there is no deviation to the EU agreed endpoints.

8.8.2 Active substance(s) and relevant metabolite(s) (KCP 9.2.4.1)

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

Plant protection product	**Propaquizafop 10% EC**								
Use No.	**1, 2, 3, 41*, 42*, 43***	**4, 5, 6, 29*, 30*, 31***	**7, 8, 9**	**13, 14, 15, 19, 20, 21, 22, 23, 24, 32*, 33*, 34*, 35*, 36*, 37*,**	**16, 17, 18**	**25, 26, 27**	**28**	**38*, 39*, 40***	**44***
Crop	Sugar beet, beetroot	Oilseed rape (spring and winter)	Potato	Bean, cabbage, carrot, parsley, Opium poppy, Common flax, Linen flax, Broccoli, Brussels sprouts, Broad beans, Faba bean, Field peas, White lupine, Yellow lupine, Narrow-leaved lupine, Root celery, Parsnip, Swede	Pea	Strawberry	Oilseed rape	Garlic, shallot	Jerusalem Artichokes; Horseradish; Black radish; Japanese radish (daikon); Radish; Salsify; White turnip; Black turnip
Application rate (kg as/ha)	0.15**						0.06	0.15**	0.06
Number of applications/ interval	1 / -								
Crop interception (%)	20	40	15	25	35	30	40	10	25
Frequency of application	Anual								
Models used for calculation	FOCUS PEARL v4.4.4, FOCUS PELMO v5.5.3								

*** minor uses**
****The highest application rate has been chosen as worst case for these uses**

As risk envelope, the highest application rate of 0.15 kg as/ha for all uses without interception has been run in winter cereals in all seasons to cover all crops.

Winter cereals have been chosen as surrogate crop for an herbicide use since the application is to ground, and because the recommendation in the Generic Guidance for Tier 1 FOCUS Ground Water Assessments (FOCUS 2011) is to apply the interception manually, setting the application directly to the ground for groundwater calculations.

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

Crop	Scenario	Application dates (absolute)*			
		Autumn (pre-emergence)	Winter BBCH 11	Spring BBCH 41	Summer BBCH 77
Winter cereals	Châteaudun	14 days before emergence	28/10	02/05	26/06
	Hamburg		03/11	14/05	11/07
	Jokioinen		22/09	29/05	24/07
	Kremsmünster		07/11	09/05	12/07
	Okehampton		19/10	30/04	28/06
	Piacenza		03/12	07/04	08/06
	Porto		04/12	04/03	04/06
	Sevilla		03/12	21/04**	31/05****
	Thiva		03/12	02/04***	21/05

*** According to AppDate v3.06 (28 June 2019)**
**** BBCH 77**
***** BBCH 61**
****** BBCH 90**

8.8.2.1 Propaquizafop and its metabolites

Table 8.8-3: Input parameters related to active substance Propaquizafop and metabolite(s) for PEC_{gw} calculations

Compound	Propaquizafop	Quizalofop	Hydroxy-quizalofop	Dihydroxy quinoxaline	Hydroxy quinoxaline	Value in accordance with EU endpoint y/n/ Reference*
Molecular weight (g/mol)	443.9	344.8	360.8	196.6	180.6	y/ EFSA, 2008
Water solubility (mg/L):	0.63 mg/L at 20°C (pH = 6.8)	7500 at 20°C (pH = 7)	36.3 (estimated using EPIWIN Version 3.1)	494 (estimated using EPIWIN Version 3.1)	1009 (estimated using EPIWIN Version 3.1)	y/ EFSA, 2008
Saturated vapour pressure (Pa):	4.395×10^{-10} at 25°C	5.7195×10^{-8}	5.37×10^{-10} (estimated using EPIWIN Version 3.1)	5.69×10^{-5} (estimated using EPIWIN Version 3.1)	3.89×10^{-3} (estimated using EPIWIN Version 3.1)	y/ EFSA, 2008
DT_{50} in soil (d)	3 (max worse	24.26	18.37	62.85	56 (geomean,	y/ EFSA, 2008

Compound	Propaquizafop	Quizalofop	Hydroxy-quizalofop	Dihydroxy quinoxaline	Hydroxy quinoxaline	Value in accordance with EU endpoint y/n/ Reference*
	case assumption of 1.8 d normalisation to pF2, 20 °C with Q10 of 2.2)	(geomean, Lab study, n=21, normalisation to 10 kPa/ pF2 and 20 °C with Q10 of 2.2)	(geomean, Lab study, n=14, normalisation to 10 kPa/ pF2 and 20 °C with Q10 of 2.2)	(geomean, Lab study, n=10, normalisation to 10 kPa/ pF2 and 20 °C)	Lab study, n=3, normalised to pF2)	
K_{foc} (mL/g)	2220 (estimated using Briggs equation from log Kow)	396.04 (geomean, n=21)	179.58 (geomean, n=9)	462.46 (geomean, n=9)	522.4 estimated using PCKOCWIN v 1.66	y/ EFSA, 2008
1/n	0.9 (default)	0.812 (arithmetic mean, n=21)	0.941 (arithmetic mean, n=9)	0.787 (arithmetic mean, n=9)	0.9 (default)	y/ EFSA, 2008
Plant uptake factor	0	0	0	0	0	Default
Formation fraction	-	Soil: 87.9% Effective application rate: 122.90 g/ha	Soil: 32.6% Effective application rate: 47.70 g/ha	Soil: 13.7% Effective application rate: 10.92 g/ha	Soil: 8.8% Effective application rate: 6.45 g/ha	-

Table 8.8-4: PEC_{gw} for Propaquizafop and metabolites on winter cereals, autumn application at 14 days pre-emergence (with FOCUS PEARL 4.4.4)

Crop	Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)				
		PEARL				
		Propaquizafop	Quizalofop	Hydroxy-quizalofop	Dihydroxy quinoxaline	Hydroxy-quinoxaline
Winter cereals (as worst-case)	Châteaudun	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Hamburg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Jokioinen	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Kremsmünster	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Okehampton	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Piacenza	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Porto	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Sevilla	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Thiva	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Table 8.8-5: PEC$_{gw}$ for Propaquizafop and metabolites on winter cereals, autumn application at 14 days pre-emergence (with FOCUS PELMO 5.5.3)

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)				
		PELMO				
		Propaquizafop	Quizalofop	Hydroxy-quizalofop	Dihydroxy quinoxaline	Hydroxy-quinoxaline
Winter cereals (as worst-case)	Châteaudun	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Hamburg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Jokioinen	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Kremsmünster	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Okehampton	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Piacenza	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Porto	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Sevilla	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Thiva	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Table 8.8-6: PEC$_{gw}$ for Propaquizafop and metabolites on winter cereals, winter application at BBCH 11 (with FOCUS PEARL 4.4.4)

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)				
		PEARL				
		Propaquizafop	Quizalofop	Hydroxy-quizalofop	Dihydroxy quinoxaline	Hydroxy-quinoxaline
Winter cereals (as worst-case)	Châteaudun	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Hamburg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Jokioinen	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Kremsmünster	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Okehampton	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Piacenza	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Porto	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Sevilla	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Thiva	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Table 8.8-7: PEC$_{gw}$ for Propaquizafop and metabolites on winter cereals, winter application at BBCH 11 (with FOCUS PELMO 5.5.3)

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)				
		PELMO				
		Propaquizafop	Quizalofop	Hydroxy-quizalofop	Dihydroxy quinoxaline	Hydroxy-quinoxaline
Winter cereals (as worst-case)	Châteaudun	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Hamburg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Jokioinen	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Kremsmünster	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Okehampton	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Piacenza	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Porto	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Sevilla	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Thiva	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Table 8.8-8: PEC$_{gw}$ for Propaquizafop and metabolites on winter cereals, spring application at BBCH 41 (with FOCUS PEARL 4.4.4)

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)				
		PEARL				
		Propaquizafop	Quizalofop	Hydroxy-quizalofop	Dihydroxy quinoxaline	Hydroxy-quinoxaline
Winter cereals (as worst-case)	Châteaudun	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Hamburg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Jokioinen	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Kremsmünster	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Okehampton	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Piacenza	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Porto	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Sevilla	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Thiva	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Table 8.8-9: PEC$_{gw}$ for Propaquizafop and metabolites on winter cereals, spring application at BBCH 41 (with FOCUS PELMO 5.5.3)

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)				
		PELMO				
		Propaquizafop	Quizalofop	Hydroxy-quizalofop	Dihydroxy quinoxaline	Hydroxy-quinoxaline
Winter cereals (as worst-case)	Châteaudun	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Hamburg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Jokioinen	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Kremsmünster	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Okehampton	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Piacenza	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Porto	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Sevilla	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Thiva	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Table 8.8-10: PEC$_{gw}$ for Propaquizafop and metabolites on winter cereals, summer application at BBCH 77 (with FOCUS PEARL 4.4.4)

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)				
		PEARL				
		Propaquizafop	Quizalofop	Hydroxy-quizalofop	Dihydroxy quinoxaline	Hydroxy-quinoxaline
Winter cereals (as worst-case)	Châteaudun	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Hamburg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Jokioinen	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Kremsmünster	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Okehampton	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Piacenza	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Porto	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Sevilla	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Thiva	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Table 8.8-11: PEC_{gw} for Propaquizafop and metabolites on winter cereals, summer application at BBCH 77 (with FOCUS PELMO 5.5.3)

Crop	Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)				
		PELMO				
		Propaquizafop	Quizalofop	Hydroxy-quizalofop	Dihydroxy quinoxaline	Hydroxy-quinoxaline
Winter cereals (as worst-case)	Châteaudun	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Hamburg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Jokioinen	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Kremsmünster	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Okehampton	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Piacenza	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Porto	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Sevilla	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	Thiva	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

ZRMS comments:

The calculations of PECgw of propaquizafop and its metabolites have been accepted by the zRMS. The calculations have been performed for the highest application rate of 0.15 kg as/ha with 0% interception and for all seasons of uses. Calculations has been performed in winter cereals as surrogate for all crops in GAP.
The input parameters used in calculations were taken from the endpoints available in the EFSA conclusion on (2008) 204, 1-17.

The 80th percentile groundwater concentrations PECgw for propaquizafop and its metabolites are less than trigger value 0.1 µg/L.
No risk of groundwater contamination with propaquizafop and its metabolites are expected when the product is applied according to Good Agricultural Practice.

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

8.9.1 Justification for new endpoints

Not relevant as there is no deviation to the EU agreed endpoints.

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

Plant protection product	**Propaquizafop 10% EC**								
Use No.	**1, 2, 3, 41*, 42*, 43***	**4, 5, 6, 29*, 30*, 31***	**7, 8, 9**	**13, 14, 15, 19, 20, 21, 22, 23, 24, 32*, 33*, 34*, 35*, 36*, 37*,**	**16, 17, 18**	**25, 26, 27**	**28**	**38*, 39*, 40***	**44***
Crop	Sugar beet, beetroot	Oilseed rape (spring and winter)	Potato	Bean, cabbage, carrot, parsley, Opium poppy, Common flax, Linen flax, Broccoli, Brussels sprouts, Broad beans, Faba bean, Field peas, White lupine, Yellow lupine, Narrow-leaved lupine, Root celery, Parsnip, Swede	Pea	Strawberry	Oilseed rape	Garlic, shallot	Jerusalem Artichokes; Horseradish; Black radish; Japanese radish (daikon); Radish; Salsify; White turnip; Black turnip
Application rate (kg as/ha)	0.15**						0.06	0.15**	0.06
Number of applications/ interval	1 / -								
Application window	March-May / June-Sept / Oct-Feb (relevant for STEP 1 and 2 only)								
CAM (Chemical application method)	1								
Soil depth (cm)	4								
Models used for calculation	FOCUS STEP 1/2 v3.2, FOCUS SWASH v5.3, FOCUS PRZM v4.3.1, FOCUS MACRO v5.5.4, FOCUS TOXSWA v5.5								

***minor uses**
****The highest application rate has been chosen as worst case for these uses.**

Table 8.9-2: FOCUS Step 3 Scenario related input parameters for PECsw/sed calculations for the application of Propaquizafop 10% EC on crops

Scenario	Application window used in modelling
Crop	All crops (winter cereals as surrogate crop)
D1	14 days pre-emergence
D2	
D3	
D4	
D5	
D6	
R1	
R2	
R3	
R4	

8.9.2.1 Propaquizafop and its metabolites

Table 8.9-3: Input parameters related to active substance Propaquizafop and metabolites for $PEC_{sw/sed}$ calculations STEP 1/2 and 3(/4) (if necessary)

Compound	Propaquizafop	Quizalofop	Hydroxy-quizalofop	Dihydroxy quinoxaline	Hydroxy quinoxaline	Value in accordance to EU end-point y/n/ Reference
Molecular weight (g/mol)	443.9	344.8	360.8	196.6	180.6	y/ EFSA, 2008
Saturated vapour pressure (Pa)	4.395×10^{-10} at 25°C	5.7195×10^{-8}	5.37×10^{-10} (estimated using EPIWIN Version 3.1)	5.69×10^{-5} (estimated using EPIWIN Version 3.1)	3.89×10^{-3} (estimated using EPIWIN Version 3.1)	y/ EFSA, 2008
Water solubility (mg/L)	0.63 mg/L at 20°C (pH = 6.8)	7500 at 20°C (pH = 7)	36.3 (estimated using EPIWIN Version 3.1)	494 (estimated using EPIWIN Version 3.1)	1009 (estimated using EPIWIN Version 3.1)	y/ EFSA, 2008
Diffusion coefficient in water (m²/d)	not required for Step 1+2/ 4.3×10^{-5}	not required for Step 1+2/ 4.3×10^{-5}	not required for Step 1+2/ 4.3×10^{-5}	not required for Step 1+2/ 4.3×10^{-5}	not required for Step 1+2/ 4.3×10^{-5}	Default
Diffusion coefficient in air (m²/d)	not required for Step 1+2/0.43	not required for Step 1+2/0.43	not required for Step 1+2/0.43	not required for Step 1+2/0.43	not required for Step 1+2/0.43	Default
K_{foc} (mL/g)	2220	396.04	179.58	462.46	522.4	y/ EFSA,

Compound	**Propaquizafop**	**Quizalofop**	**Hydroxy-quizalofop**	**Dihydroxy quinoxaline**	**Hydroxy quinoxaline**	**Value in accordance to EU end-point y/n/ Reference**
	(estimated using Briggs equation from log Kow)	(geomean, n=21)	(geomean, n=9)	(geomean, n=9)	(estimated using PCKOCWIN v 1.66)	2008
Freundlich Exponent 1/n	0.9 (default)	0.812 (arithmetic mean, n=21)	0.941 (arithmetic mean, n=9)	0.787 (arithmetic mean, n=9)	0.9 (default)	y/ EFSA, 2008
Plant Uptake	not required for Step 1+2 / 0	not required for Step 1+2 / 0	not required for Step 1+2 / 0	not required for Step 1+2 / 0	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)	not required for Step 1+2/ 0.05 (MACRO)	not required for Step 1+2/ 0.05 (MACRO)	not required for Step 1+2/ 0.05 (MACRO)	not required for Step 1+2/ 0.05 (MACRO)	Default
$DT_{50,soil}$ (d)	3 (Lab worst case value)	24.26 (geomean, Lab study, n=21, normalisation to 10 kPa/ pF2 and 20 °C with Q10 of 2.2)	18.37 (geomean, Lab study, n=14, normalisation to 10 kPa/ pF2 and 20 °C with Q10 of 2.2)	62.85 (geomean, Lab study, n=10, normalisation to 10 kPa/ pF2 and 20 °C with Q10 of 2.2)	56 (geomean, Lab study, n=3, normalised to pF2)	y/ EFSA, 2008
$DT_{50,water}$ (d)	1 (worst-case from water/sediment study)	1000 (default)*	1000 (default)*	1000 (default)*	1000 (default)*	y/ EFSA, 2008
$DT_{50,sed}$ (d)	1 (worst-case from water/sediment study)	35 (default)*	1000 (default)*	1000 (default)*	1000 (default)*	y/ EFSA, 2008
$DT_{50,whole\ system}$ (d)	1 (worst-case from water/sediment study)	35 (geomean, n=6)	1000 (default)*	1000 (default)*	1000 (default)*	y/ EFSA, 2008
Maximum occurrence observed (% molar basis with respect to the parent)	Sediment: 20.3%	Soil: 87.9% Water: 90.2% Sediment:45.4% Total system: 105.6%**	Soil: 32.6% Water: 4.1% Sediment: 11.2% Total system: 15.3%	Soil: 13.7% Water: 1% Sediment: 10% Total system: 11%	Soil: 8.8% Water: 2.3% Sediment: 6.4% Total system: 8.7%	y/ EFSA, 2008 DAR 2006

* Degradation rates from the water/sediment study are available in the final addendum to the DAR but are not peer reviewed. Therefore, default values were used for calculations based on the low correlation coefficient of these DT_{50}.

** Maximum at day 2 in the river system

$PEC_{sw/sed}$

As a conservative and simple approach, calculations covering all intended uses are presented below.

FOCUS Steps 1/2 have been calculated using the highest application rate for forest cultures of 1 x 150 g as/ha without interception, for appln. hand (crop < 50 cm), in all seasons and for both European zones to cover all crops as worst case.

Since Propaquizafop is an herbicide and so, the application is to the ground, for FOCUS Step 3 calculations winter cereals at 14 days pre-emergence application has been chosen as worst case surrogate crop for all uses.

Table 8.9-4: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for Propaquizafop following single application of Propaquizafop 10% EC to appln. hand (crop < 50 cm) (1 x 150 g/ha)

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1	---	14.01	Runoff / drainage	0.93	280.30
Step 2					
Northern Europe	Oct-Feb	2.53	Runoff / drainage	0.18	56.05
	March-May	1.38		0.16	22.68
	June-Sept				
Southern Europe	Oct-Feb	2.03		0.14	44.92
	March-May				
	June-Sept	1.53		0.11	33.80
Step 3					
D1	ditch	0.959	Drainage	0.102	0.573
D1	stream	0.839	Drainage	0.029	0.327
D2	ditch	0.960	Drainage	0.103	0.602
D2	stream	0.854	Drainage	0.091	0.536
D3	ditch	0.945	Drainage	0.032	0.366
D4	pond	0.033	Drainage	0.004	0.021
D4	stream	0.819	Drainage	0.010	0.145
D5	pond	0.033	Drainage	0.005	0.028
D5	stream	0.884	Drainage	0.015	0.205
D6	ditch	0.956	Drainage	0.109	0.660
R1	pond	0.033	Runoff	0.007	0.035
R1	stream	0.623	Runoff	0.010	0.150
R3	stream	0.865	Runoff	0.036	18.220
R4	stream	0.627	Runoff	0.006	0.089

Metabolites of Propaquizafop

Table 8.9-5: FOCUS Step 1and 2 PEC$_{sw}$ and PEC$_{sed}$ for Quizalofop following single application of Propaquizafop 10% EC to appln. hand (crop < 50 cm) (1 x 150 g/ha)

Scenario FOCUS	Waterbody	Max PEC$_{sw}$ (µg/L)	Dominant entry route	21d- PEC$_{sw,twa}$ (µg/L)	Max PEC$_{sed}$ (µg/kg)
Step 1	---	48.83	Runoff / drainage	39.65	189.14
Step 2					
Northern Europe	Oct-Feb	15.79	Runoff / drainage	14.65	61.45
	March-May	6.78		6.25	25.97
	June-Sept				
Southern Europe	Oct-Feb	12.79		11.85	49.56
	March-May				
	June-Sept	9.78		9.05	37.68
Step 3					
D1	ditch	1.638	Drainage	1.186	5.897
D1	stream	1.033	Drainage	0.689	3.341
D2	ditch	2.921	Drainage	0.967	5.106
D2	stream	1.873	Drainage	0.528	2.826
D3	ditch	0.065	Drainage	0.004	0.091
D4	pond	0.062	Drainage	0.052	0.357
D4	stream	0.195	Drainage	0.022	0.174
D5	pond	0.040	Drainage	0.033	0.253
D5	stream	0.173	Drainage	0.006	0.070
D6	ditch	2.059	Drainage	0.185	1.263
R1	pond	0.086	Runoff	0.078	0.573
R1	stream	0.568	Runoff	0.031	0.451
R3	stream	0.803	Runoff	0.096	10.46
R4	stream	1.115	Runoff	0.045	0.573

Table 8.9-6: FOCUS Step 1and 2 PEC$_{sw}$ and PEC$_{sed}$ for Hydroxy-quizalofop following single application of Propaquizafop 10% EC to appln. hand (crop < 50 cm) (1 x 150 g/ha)

Scenario FOCUS	Waterbody	Max PEC$_{sw}$ (µg/L)	Dominant entry route	21d- PEC$_{sw,twa}$ (µg/L)	Max PEC$_{sed}$ (µg/kg)
Step 1	---	15.88	Runoff / drainage	15.73	28.43
Step 2					
Northern Europe	Oct-Feb	5.74	Runoff / drainage	5.69	10.28
	March-May	2.38		2.36	4.26

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
	June-Sept				
Southern Europe	Oct-Feb	4.62		4.58	8.27
	March-May				
	June-Sept	3.50		3.47	6.27

Table 8.9-7: FOCUS Step 1and 2 PEC_{sw} and PEC_{sed} for Dihydroxy quinoxaline following single application of Propaquizafop 10% EC to appln. hand (crop < 50 cm) (1 x 150 g/ha)

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1	---	3.45	Runoff / drainage	3.40	15.83
Step 2					
Northern Europe	Oct-Feb	1.24	Runoff / drainage	1.23	5.72
	March-May	0.53		0.52	2.40
	June-Sept				
Southern Europe	Oct-Feb	1.00		0.99	4.62
	March-May				
	June-Sept	0.77		0.75	3.51

Table 8.9-8: FOCUS Step 1and 2 PEC_{sw} and PEC_{sed} for Hydroxy quinoxaline following single application of Propaquizafop 10% EC to appln. hand (crop < 50 cm) (1 x 150 g/ha)

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	21d- $PEC_{sw,twa}$ (µg/L)	Max PEC_{sed} (µg/kg)
Step 1	---	2.15	Runoff / drainage	2.11	11.10
Step 2					
Northern Europe	Oct-Feb	0.74	Runoff / drainage	0.73	3.85
	March-May	0.32		0.31	1.63
	June-Sept				
Southern Europe	Oct-Feb	0.60		0.59	3.11
	March-May				
	June-Sept	0.46		0.45	2.37

8.9.2.2 $PEC_{sw/sed}$ of Propaquizafop 10% EC

The PEC_{SW} for Propaquizafop 10% EC was calculated using the following equation:

$$PEC_{SW}\,(\mu g/L) = \frac{\%Drift_{90th\,\%ile} \times Application\,rate\,(g/ha)}{Water\,depth\,(cm) \times 10}$$

The application of Propaquizafop 10% EC is 1.5 L/ha, corresponding to 1546.5 g/ha (taking into account a density of 1.031 g/cm^3 or g/L) for all crops. The depth of the static water body was assumed to be 30 cm. The resulting maximum instantaneous PEC_{SW} value is presented in the Table 8.9-9.

Table 8.9-9: PEC$_{sw}$ for Propaquizafop 10% EC following single application to all crops

Crop	Distance (m)	Drift (%)	Max PEC$_{SW}$ (µg/L)
All crops	1	2.77	14.279

The PEC_{sed} for Propaquizafop 10% EC was calculated using the following equation:

$$PEC_{sed}\,(\mu g/kg\,dw) = \frac{\%Drift_{90th\,\%ile} \times Application\,rate\,(g/ha) \times \%Active\,substance\,in\,sediment}{1000 \times sediment\,density\,(g/cm^3) \times sediment\,height\,(cm)}$$

The application of Propaquizafop 10% EC is 1.5 L/ha, corresponding to 1546.5 g/ha (taking into account a density of 1.031 g/cm^3) for all crops. The maximum percentage of Propaquizafop in the sediment is 20.3%. The height of the sediment was assumed to be 5 cm and the sediment density was assumed to be 1.3 g/cm^3. The resulting maximum instantaneous PEC_{sed} value is presented in the Table 8.9-10.

Table 8.9-10: PEC$_{sed}$ for Propaquizafop 10% EC following single application to all crops

Crop	Distance (m)	Drift (%)	% of Propaquizafop in sediment	Max PEC$_{sed}$ (µg/kg) (based on maximum occurrence)
All crops	1	2.77	20.3	13.379

ZRMS comments:

PECsw/sed calculations have been accepted for Step 1- 2 and 3 for active substance propaquizafop and its metabolites. Input parameters for STEP 1-2 and STEP 3 provided by Applicant are considered acceptable.
PECsw/sed for formulation are acceptable.
The geometric mean of the DT50 and Koc were considered for metabolites of propaquizafop in the assessment in accordance with the latest EFSA guideline (EFSA 2014).

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	Propaquizafop
Direct photolysis in air	Not studied – no data requested
Quantum yield of direct phototransformation	Propaquizafop: 1.11 x 10^{-5} Quizalofop (CGA 287422): 1.15 x 10^{-5}
Photochemical oxidative degradation in air	Propaquizafop: DT50 of 0.6 d derived by the Atkinson model (v 1.82) OH (12h or 24h) concentration assumed = 5 x 10^5 cm^{-3}

Volatilisation	from plant surfaces (BBA guideline): insignificant losses within hours from soil surfaces (BBA guideline): <0.1% of the applied dose Vapour pressure (Pa): 4.4 x 10^{-10} Henry's Law Constant (Pa.m^3/mol): 9.2 x 10^{-8}
Metabolites	Quizalofop (CGA 287422): 0.7 d derived by the Atkinson model (v 1.82)

The vapour pressure at 20 °C of the active substance Propaquizafop is < 10^{-5} Pa. Hence the active substance Propaquizafop is regarded as non-volatile. Therefore, exposure of adjacent surface waters and terrestrial ecosystems by the active substance Propaquizafop due to volatilization with subsequent deposition should not be considered.

zRMS comments:

Agree.

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

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	Y/N	Owner

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
			Published/Unpublished		

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

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