FINAL REGISTRATION REPORT

Part B

Section 8

Environmental Fate

Detailed summary of the risk assessment

Product code: GLOB289H / SAP63H

Product name: Zeppos

Chemical active substance:

Iodosulfuron-methyl-sodium , 6 g/L

Mesosulfuron-methyl, 30 g/L

Safener: Mefenpyr-diethyl, 90 g/L

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

Applicant: Globachem N.V. / Ascenza Agro S.A.

Submission date: December 2019

MS Finalisation date: 07.2021; 01/2022

updated 02.2022 and 02.2023

Version history

When	What
December 2019	V0 - Original version from applicant for submission to zRMS POLAND in the frame of new PPP registration
July 2021	Evaluation of the draft report by expert
January 2022	RR Final Version
February 2022/ February 2023	Updated RR by zRMS

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8 Fate and behaviour in the environment (KCP 9)

This document reviews the predicted environmental concentrations for the product Iodosulfuron-methyl-sodium + Mesosulfuron-methyl + Mefenpyr-diethyl (0.6% + 3% + 9%) WG containing the active substances iodosulfuron-methyl-sodium and mesosulfuron-methyl and the safener mefenpyr-diethyl. The product is also referred to as GLOB289H, SAP63H, Iodosulfuron + Mesosulfuron (0.6% + 3%) WG and Zeppos in the dossier. An adjuvant can be added to the product in tank mix. Two different adjuvants were tested, a vegetal oil adjuvant (Actirob) and a non-ionic surfactant (Pottok).
A full risk assessment according to uniform principles is provided which demonstrates that the product is safe for the environment.

Where appropriate, this document refers to the conclusions of the EU reviews of the active substances. This will be where:

- The active substance data is relied upon in the risk assessment of the formulation; or
- The EU review concluded that additional data/information should be considered at national registration.

Note: This Part B document only reviews data (Annex II and/or Annex III) and additional information that has not previously been considered within the EU review process, as part of the Annex I inclusion decision.

The product Iodosulfuron-methyl-sodium + Mesosulfuron-methyl + Mefenpyr-diethyl (0.6% + 3% + 9%) WG was not the representative formulation during the Annex I inclusion of Iodosulfuron-methyl-sodium or Mesosulfuron-methyl and has thus not yet been evaluated.

Iodosulfuron-methyl-sodium
Iodosulfuron-methyl-sodium was included into Annex I of Directive 91/414/EEC in 2003 (Directive 2003/84/EC) and re-evaluated in accordance with Regulation (EC) No 1107/2009 and Commission Implementing Regulation (EU) No 844/2012, leading to the renewal of the approval of the active substance iodosulfuron-methyl-sodium (Commission Implementing Regulation (EU) 2017/407 of 8 March 2017, entry into force 1st of April 2017).

For the implementation of the Uniform Principles of Annex VI, the conclusions of the Renewal Report on iodosulfuron-methyl-sodium, as finalised in the Standing Committee on Plants, Animals, Food and Feed at its meeting on 7 December 2016 shall be taken into account.

In this overall assessment Member States should pay attention to:

- The protection of consumers,
- The protection of non-target terrestrial plants,
- The protection of aquatic plants

The Renewal Report (SANTE/2016/11167 Rev 3, 7/12/2016) for iodosulfuron-methyl-sodium provides a summary of the relevant scientific information from the EU review.

Mesosulfuron-methyl
Mesosulfuron-methyl was included in Annex I of Directive 91/414/EEC in 2003 (Directive 2003/119/EEC) and re-evaluated in accordance with Regulation (EC) No 1107/2009 and Commission Implementing Regulation (EU) No 844/2012, leading to the renewal of the approval of the active substance mesosulfuron-methyl (Commission Implementing Regulation (EU) 2017/755 of 28 April 2017, entry into force 1st of July 2017).

For the implementation of the Uniform Principles of Annex VI, the conclusions of the Renewal Report on mesosulfuron-methyl, as finalised in the Standing Committee on Plants, Animals, Food and Feed at is meeting on 23 March 2017 shall be taken into account.

In this overall assessment Member States should pay attention to:

- The protection of aquatic organisms and non-target terrestrial plants;
- The protection of groundwater

The Renewal Report (SANTE/11827/2016 Rev 2, 23/03/2017) for mesosulfuron-methyl provides a summary of the relevant scientific information from the EU review.

Safener mefenpyr-diethyl

Mefenpyr-diethyl is a safener used in combination with herbicides and was not reviewed under Directive 91/414/EEC or Regulation (EC) No 1107/2009. In order to facilitate the assessment of products containing mefenpyr-diethyl, France and Austria in a work-sharing project prepared an assessment report for this substance in the format of a DAR. France was responsible for the sections “Phys-Chem Properties” (B.1-B.5), Environmental Fate and Ecotoxicology (B.8-B.9) and Austria for sections Toxicology and Residue Data (B.6-B.7). A bilateral peer-review in the form of comments took place between the two rapporteurs; the respective reporting tables were made available to all MS. In September 2011 the assessment report was “peer-reviewed” (in an unscheduled procedure on voluntary basis) by all MS. The revised assessment report can be found on CIRCA (Archive individual substances – Mefenpyr-diethyl (safener)).
All exposure and risk assessments presented will be based on agreed endpoints, if not otherwise stated. Only brief summaries of the overall findings will be given for data already evaluated; only new studies not included in the above evaluation will be presented as full Tier 2 study summaries.

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. Corrections are presented in yellow.

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. (e)	**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 (f)	**Conclusions: Groundwater**
					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			
		Zonal uses (field or outdoor uses, certain types of protected crops)												
1	PL	Cereals (winter/spring soft wheat, winter/spring durum wheat, triticale, spelt and winter rye)	F	Annual grassy weeds and Annual dicotyledonous weeds: CAPBP	Downwards spraying	BBCH 21-32	a) 1 b) 1	/	a) 0.1 b) 0.1	a) 0.6 + 3 b) 0.6 + 3	100-400	NA	Mefenpyr (safener): 9 g/ha Applied with 0.2 L/ha oil/wetting agent	A
2	PL	Cereals (winter/spring soft wheat, winter/spring durum wheat, triticale, spelt and winter rye)	F	Annual grassy weeds and Annual dicotyledonous weeds: VERPE CAPBP MATCH	Downwards spraying	BBCH 21-32	a) 1 b) 1	/	a) 0.2 b) 0.2	a) 1.2 + 6 b) 1.2 + 6	100-400	NA	Mefenpyr (safener): 18 g/ha Applied with 0.4 L/ha oil/wetting agent	A
3	PL	Cereals (winter/spring soft wheat, winter/spring durum wheat, triticale, spelt and winter rye)	F	Annual grassy weeds and Annual dicotyledonous weeds: APESV GALAP MATIN STEME CABP POAAN	Downwards spraying	BBCH 21-32	a) 1 b) 1	/	a) 0.3 b) 0.3	a) 1.8 + 9 b) 1.8 + 9	100-400	NA	Mefenpyr (safener): 27 g/ha Applied with 0.6 L/ha oil/wetting agent	A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. (e)	**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 (f)	**Conclusions: Groundwater**
					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			
4	PL	Cereals (winter soft wheat, winter durum wheat, triticale, spelt and winter rye)	F	Annual grassy weeds and Annual dicotyledonous weeds: ALOMY AVEFA CHEAL PAPRH VIOAR	Downwards spraying	BBCH 21-32	a) 1 b) 1	/	a) 0.4 b) 0.4	a) 2.4 + 12 b) 2.4 + 12	100-400	NA	Mefenpyr (safener): 36 g/ha Applied with 0.8 L/ha oil/wetting agent	A
5	BE, NL, DE, CZ	Cereals (winter/spring soft wheat, winter/spring durum wheat, triticale, spelt and winter rye)	F	Annual grassy weeds and Annual dicotyledonous weeds: POAAN PAPRH LAMPU APESV CHEAL MATIN STEME	Downwards spraying	BBCH 21-32	a) 1 b) 1	/	a) 0.3 b) 0.3	a) 1.8 + 9 b) 1.8 + 9	100-400	NA	Mefenpyr (safener): 27 g/ha Optionally with 0.6 L/ha oil/wetting agent	A
6	BE, NL, DE, CZ	Cereals (winter soft wheat, winter durum wheat, triticale, spelt and winter rye)	F	Annual grassy weeds and Annual dicotyledonous weeds: MATCH MATIN STEME	Downwards spraying	BBCH 21-32	a) 1 b) 1	/	a) 0.4 b) 0.4	a) 2.4 + 12 b) 2.4 + 12	100-400	NA	Mefenpyr (safener): 36 g/ha Applied with 0.8 L/ha oil/wetting agent	A
7	BE, NL, DE, CZ	Cereals (winter soft	F	Annual grassy weeds and Annual dicotyle-	Downwards spraying	BBCH 21-32	a) 1 b) 1	/	a) 0.5 b) 0.5	a) 3 + 15 b) 3 + 15	100-400	NA	Mefenpyr (safener): 45 g/ha	A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Use-No. (e)	**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 (f)	**Conclusions: Groundwater**
					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			
		wheat, winter durum wheat, triticale, spelt and winter rye)		donous weeds: ALOMY STEME MATIN GALAP VIOAR									Applied with 1 L/ha oil/wetting agent	

* 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

*** LCTM: Low-crop application using vehicle-mounted or vehicle-trailed boom sprayers

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 iodosulfuron-methyl-sodium 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		
1	EU	Winter wheat (TRZAW, TRZDW)	F	Grassy weed species	Broadcast	BBCH 13-32 end of winter, spring use	1	-	0.1	0.010	150 - 400	n.a.	Mefenpyr-diethyl (safener): 0.030 kg/ha
2	EU	Winter barley (HORVW)	F	Grassy weed species	Broadcast	BBCH 20-32, end of winter, spring use	1	-	0.075	0.0075	150 - 400	n.a.	Mefenpyr-diethyl (safener): 0.0225 kg/ha

* 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

Table 8.1-3: Assessed (critical) uses during approval of mesosulfuron-methyl 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		
1	EU	Winter wheat (TRZAW, TRZDW)	F	Grass and dicot weed species	Broadcast	BBCH 20-32, end of winter, beginning of vegetation	1	-	1.5	0.015	100 - 400	n.a.	Mefenpyr-diethyl (safener): 0.045 kg/ha Iodosulfuron-methyl-sodium: 0.00285 kg/ha

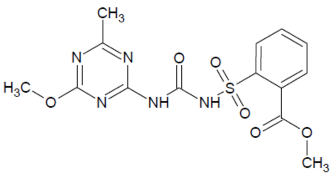
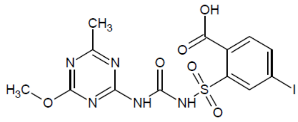
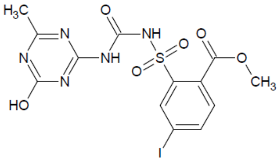
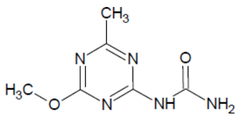
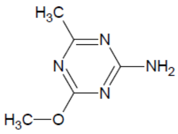
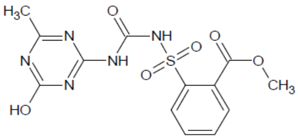
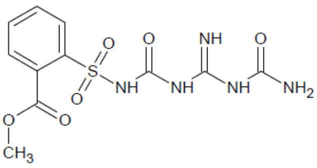
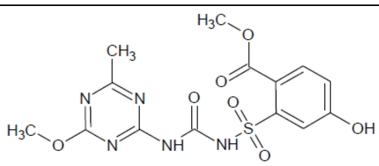
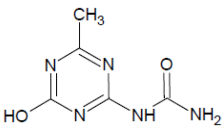
2	EU	Winter rye (SECCW)	F	Grass and dicot weed species	Broadcast	BBCH 20-32, end of winter, beginning of vegetation	1	-	0.6	0.006	100 - 400	n.a.	Mefenpyr-diethyl (safener): 0.018kg/ha Iodosulfuron-methyl-sodium: 0.00114 kg/ha

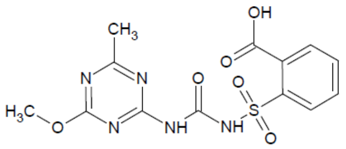
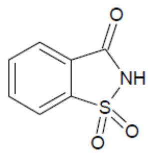
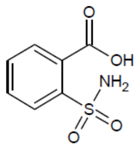
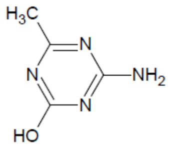
* Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0 should be given in column 1

** 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

8.2 Metabolites considered in the assessment

Table 8.2-1: Metabolites of iodosulfuron-methyl-sodium potentially relevant for exposure assessment (EFSA 2016; 14(4):4453)

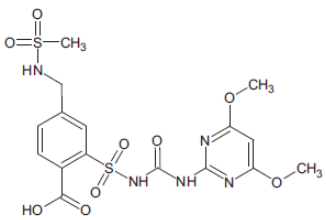
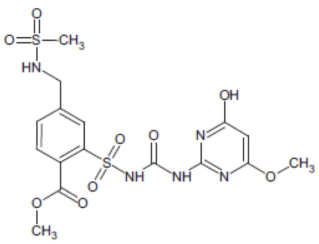
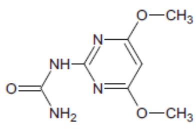
Metabolite	Molar mass	Chemical structure	Maximum observed oc-curence in compartements	Exposue assessment re-quired due to
Metsulfuron-methyl (AE F075736)	381.4 g/mol		Soil: max. 88.5 % of a.s. Water: max. 67.8 % of a.s. Water: 57.0% Sediment: 15.9% Water/sediment: 67.8%	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$
AE F145740	493.2 g/mol		Water: max. 12.6 % of a.s. Soil: max. 8.7 % of a.s.	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$
AE F145741	493.2 g/mol		Soil: > 5 % of as in 2 se-quential measurements, max. 6.9 % of a.s. Water: max. 8.7 % of a.s.	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$
AE 0000119	183.2 g/mol		Water: max.24.9 % of a.s. . Soil: 19.9% (aerobic) Water: 17.7% Sediment: 15.0% Water/sediment: 24.9%	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$
AE F059411 or IN-A4098 (triazine amine)	140.1 g/mol		Soil: max. 40.9 % of a.s. Water: max. 27.5 % of a.s. Water: 19.3% Sediment: 8.3	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$
AE F161778	367.3 g/mol		Soil: max. 14.5 % of a.s. Water: max. 2.6 % of a.s.	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$
BCS-CW81253	343.2 g/mol		Soil: max. 35.1 % of a.s. Water/sediment: 0.0001%	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$
AE 0002166	397,4 g/mol		Soil: max. 20.0 % of a.s. Water: max. 25.1 % of a.s. formed in the photolysis studies	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$
AE 0034855	169.1 g/mol		Water: max. 24.2 % of a.s. Water: 16.7% Sediment: 10.7%	$PEC_{sw/sed}$

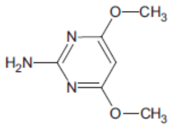
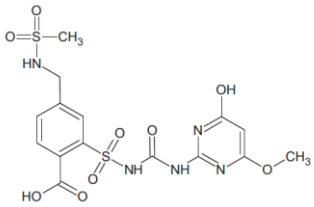
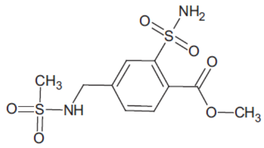
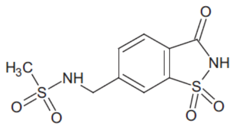
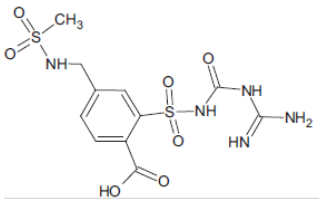
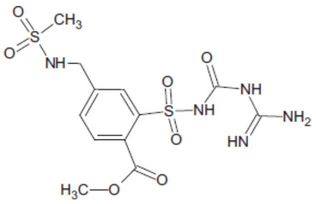
Metabolite	Molar mass	Chemical structure	Maximum observed occurence in compartements	Exposue assessment required due to
AE 0014966	367.3 g/mol		Water: max. 15.5 % of a.s Water: 11.8% Sediment: 5.9% .	$PEC_{sw/sed}$
AE F159737	183.2 g/mol		Water: > 5 % of as in 2 sequential measurements, max. 7.8 % of a.s. Water: 6.1% Sediment: 1.6%	$PEC_{sw/sed}$
AE 1234964	201.2 g/mol		Water: > 5 % of as in 2 sequential measurements, max. 7.4 % of a.s. Water: 6.8% Sediment: 0.6%	$PEC_{sw/sed}$
AE F154781	126.1 g/mol		Water: > 5 % of as in 2 sequential measurements, max. 8.7 % of a.s.	$PEC_{sw/sed}$

zRMS comments:

Metabolites of iodosulfuron-methyl-sodium are in line with EU agreed endpoints as reported in EFSA 2016; 14(4):4453.

Table 8.2-2: Metabolites of mesosulfuron-methyl potentially relevant for exposure assessment (EFSA 2016; 14(10): 4584)

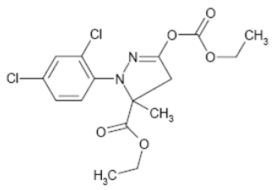
Metabolite	Molar mass	Chemical structure	Maximum observed occurence in compartements	Exposue assessment required due to
Mesosulfuron AE F154851	489.5 g/mol		Soil: max 10.9 . ~~16.2~~% of a.s. Water: max. 4.9% of a.s. Water/sediment: 4.9%	PECsoil PECgw PECsw/sed
AE F160459	489.5 g/mol		Soil: > 5 % of as in 2 sequential measurements Soil: 8.9% (aerobic), ~~Water: max. 21.6% of a.s.~~ Water/sediment: 21.6%	PECsoil PECgw PECsw/sed
AE F099095	198.2 g/mol		Soil: max. 29.2% of a.s. Water: max. 0.9% of a.s.	PECsoil PECgw PECsw/sed

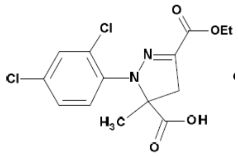
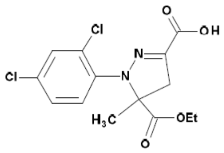
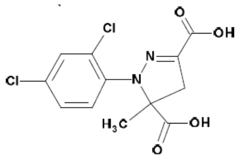
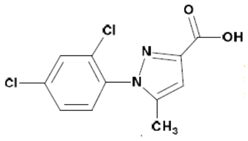
Metabolite	Molar mass	Chemical structure	Maximum observed occurence in compartements	Exposue assessment required due to
AE F092944	155.2 g/mol		Soil: max. 10.1% of a.s. Water: max. 3.2% of a.s. Water/sediment: 3.2%	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$
AE F160460	475.5 g/mol		Soil: > 5 % of as in 2 sequential measurements ~~Water: max. 8.4% of a.s~~. Water/sediment: 8.4%	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$
AE F140584	322.4 g/mol		Soil: > 5 % of as in 2 sequential measurements Water/sediment r: max. 1.9% of a.s.	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$
AE F147447	290.3 g/mol		Soil: > 5 % of as in 2 sequential measurements Water: max. 10.9% of a.s.	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$
BCS-CV14885	393.4 g/mol		Water: max. 22% of a.s. lysimeter studies at averaged yearly concentration in leachate > 0.1µg/L	PEC_{gw} $PEC_{sw/sed}$
BCS-CO60720	407.4 g/mol		Water: max. 13.1% of a.s.	$PEC_{sw/sed}$

zRMS comments:

Metabolites of mesosulfuron -methyl are in line with EU agreed endpoints as reported in EFSA 2016; 14(10): 4584.

Table 8.2-3: Metabolites of mefenpyr-diethyl potentially relevant for exposure assessment (DAR Mefenpyr-diethyl)

Metabolite	Molar mass	Chemical structure	Maximum observed occurence in compartements	Exposue assessment required due to
AE 2211046	391.26 g/mol		Soil: max. 11.5 % of a.s. formed in the photolysis studies	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$

Metabolite	Molar mass	Chemical structure	Maximum observed occurence in compartements	Exposue assessment required due to
AE F114952	345.18 g/mol		Water: max. 18.6 % of a.s.	$PEC_{sw/sed}$
AE F113225	345.2 g/mol		Soil: max. 44.1 % of a.s. Water: max. 82.8 % of a.s.	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$
AE F109453	317.13 g/mol		Water: max. 46.5 % of a.s.	$PEC_{sw/sed}$
AE F094270	271.1 g/mol		Soil: max. 72.2 % of a.s. Water: max. 62.4 % of a.s.	PEC_{soil} PEC_{gw} $PEC_{sw/sed}$

zRMS comments:

Metabolites of of mefenpyr-diethyl are in line with EU DAR.

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 Iodosulfuron-methyl-sodium and its metabolites

The rate of degradation in soil of Iodosulfuron-methyl-sodium was evaluated during the EU Review of the active substance. No additional studies have been performed.

The fate and behaviour of Iodosulfuron-methyl-sodium in soil is discussed in detail in the corresponding document of the EU review dossier where the study references can be found.

Table 8.3-1: Summary of aerobic degradation rates for iodosulfuron-methyl-sodium - laboratory studies

iodosulfuron-methyl-sodium, Laboratory studies, aerobic conditions										
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Sandy loam	6.0	20	40	1.7	7.3	1.6	4.4	FOMC α=3.086 β=6.586	Y, EFSA 2016; 14(4):4453
2	Loamy sand	5.6	20	40	1.5	5.1	1.0	5.3	SFO	Y, EFSA 2016; 14(4):4453
3	Sand	5.6	20	40	3.1	10.2	2.9	7.1	SFO	Y, EFSA 2016; 14(4):4453
4	Silt loam	5.4	20	40	0.8	2.6	0.6	1.1	SFO	Y, EFSA 2016; 14(4):4453
5	Silt loam	7.3	20	40	2.9	9.5	2.0	8.6	SFO	Y, EFSA 2016; 14(4):4453
6	Loamy sand	7.1	20	40	3.7	12.2	2.4	8.6	SFO	Y, EFSA 2016; 14(4):4453
7	Loamy sand	7.1	20	40	3.7 3.7	12.2 9.1	-- 2.1	5.1 11.3	FOMC: α=2.868 β=9.945 SFO	Y, EFSA 2016; 14(4):4453
8	Loam	7.0	20	40	4.3	26.7	5.8	2.9	FOMC: α=1.488 β=7.215	Y, EFSA 2016; 14(4):4453

iodosulfuron-methyl-sodium, Laboratory studies, aerobic conditions										
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
9	Loam	7.0	20	30	5.9	42.8	- [c]	3.9	FOMC: α=1.232 β=7.816	Y, EFSA 2016; 14(4):4453
10	Loam	7.0	20	40	13.8	105.0	- [c]	1.4	FOMC: α=1.169 β=17.02	Y, EFSA 2016; 14(4):4453
11	Clay	6.8	20	25	23.1	109.6	- [c]	6.5	DFOP: k1=0.5483 k2=0.0186 g=0.2306	Y, EFSA 2016; 14(4):4453
12	Clay loam	7.2	20	25	9.4	51.0	- [c]	1.7	FOMC: α=1.842 β=20.47	Y, EFSA 2016; 14(4):4453
13	Clay	6.8	20	50	2.2	24.4	7.2	3.6	FOMC: α=0.8618 β=1.812	Y, EFSA 2016; 14(4):4453
14	Clay loam	7.2	20	50	3.0	11.7	20.8	1.9	DFOP: k1=0.2490 k2=0.02819 g=0.9309	Y, EFSA 2016; 14(4):4453
15	Silt loam	6.2	20	40	1.4	8.0	1.9	9.8	FOMC: α=1.804 β=3.086	Y, EFSA 2016; 14(4):4453
Geometric mean (n=11)							**2.7**			
pH-dependency: y/n							No			

a) pH measured in $CaCl_2$ for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
c) Result not used to calculate mean

Table 8.3-2: Summary of aerobic degradation rates for AE F075736 - laboratory studies

AE F075736, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Sandy loam	6.0	20	40	28.5	94.8	1.0	20.6	2.3	FOMC-SFO	Y, EFSA 2016; 14(4):4453
2	Loamy sand	5.6	20	40	21.5	71.6	1.0	14.2	2.5	SFO-SFO	Y, EFSA 2016; 14(4):4453
3	Sand	5.6	20	40	71.6	238.0	0.99	66.7	2.4	SFO-SFO	Y, EFSA

AE F075736, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
											2016; 14(4):4453
4	Silt loam	5.4	20	40	69.0	229.2	0.97	51.0	1.3	SFO-SFO	Y, EFSA 2016; 14(4):4453
5	Silt loam	7.3	20	40	18.7	62.1	0.80	12.8	2.7	SFO-SFO	Y, EFSA 2016; 14(4):4453
6	Loamy sand	7.1	20	40	16.6	55.1	0.84	10.6	5.2	SFO-SFO	Y, EFSA 2016; 14(4):4453
7	Loamy sand	7.1	20	40	69.8	232.1	0.83	52.7	1.9	SFO-SFO	Y, EFSA 2016; 14(4):4453
8	Loam	7.0	20	40	33.3	110.6	0.76	24.1	3.3	FOMC-SFO	Y, EFSA 2016; 14(4):4453
9	Loam	7.0	20	30	55.4	184.2	- [c]	- [c]	3.7	FOMC-SFO	Y, EFSA 2016; 14(4):4453
10	Loam	7.0	20	40	83.4	276.9	- [c]	- [c]	3.1	FOMC-SFO	Y, EFSA 2016; 14(4):4453
11	Clay	6.8	20	25	78.0	259.1	- [c]	- [c]	1.6	DFOP-SFO	Y, EFSA 2016; 14(4):4453
12	Clay loam	7.2	20	25	52.0	172.8	- [c]	- [c]	4.1	FOMC-SFO	Y, EFSA 2016; 14(4):4453
13	Clay	6.8	20	50	43.5	144.6	0.75	42.4	6.0	FOMC-SFO	Y, EFSA 2016; 14(4):4453
14	Clay loam	7.2	20	50	27.8	92.2	0.83	23.4	3.8	DFOP-SFO	Y, EFSA 2016; 14(4):4453

AE F075736, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
15	Silt loam	6.2	20	40	19.7	65.5	0.72	15.3	9.8	FOMC-SFO	Y, EFSA 2016; 14(4):4453
16	Silt loam	5.2	20	75 % of 0 bar	9.0	48	- [d)]	6.4	5	SFO	Y, EFSA 2016; 14(4):4453
17	Loamy sand	6.1	20	50 % of 0 bar	26.7	88.8	- [d)]	26.7	6	SFO	Y, EFSA 2016; 14(4):4453
18	Silty clay loam	6.8	20	50 % of 0 bar	15.0	82.4	- [d)]	24.2	1	FOMC	Y, EFSA 2016; 14(4):4453
19	Clay loam	7.9	20	50 % of 0 bar	47.4	175.3	- [d)]	48.8	1	SFO	Y, EFSA 2016; 14(4):4453
20	Sandy loam	7.6	20	50 % of 0 bar	39.9	132.6	- [d)]	39.9	3	SFO	Y, EFSA 2016; 14(4):4453
21	Sandy loam	5.5	20	50 % of 0 bar	17.2	57.3	- [d)]	17.2	5	SFO	Y, EFSA 2016; 14(4):4453
22	Sandy loam	6.3	20	50 % of 0 bar	28.9	-	- [d)]	26.4	11.58	SFO	Y, EFSA 2016; 14(4):4453
23	Sandy loam	6.3	20	45	39.8	132.1	- [d)]	35.6	3.5	SFO	Y, EFSA 2016; 14(4):4453
Geometric mean (n=19)								**24.9**			
Arithmetic mean							**0.86**				
pH-dependency: y/n								No			

a) pH measured in $CaCl_2$ for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
c) Result not used to calculate mean
d) Metabolite – dosed study so no formation fraction determined

Table 8.3-3: Summary of aerobic degradation rates for AE F145740- laboratory studies

AE F145740, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand	7.1	20°C	40	57.9	192.4	0.03	37.2	17.5	SFO-SFO	Y, EFSA 2016; 14(4):4453
2	Loam	7.0	20°C	40	76.9	255.5	0.02	55.8	8.1	FOMC-SFO	Y, EFSA 2016; 14(4):4453
3	Clay loam	7.2	20°C	25	238.3	791.7	- [c]	- [c]	4.9	FOMC-SFO	Y, EFSA 2016; 14(4):4453
4	Clay loam	7.2	20°C	50	61.9	205.5	0.02	52.2	16.8	DFOP-SFO	Y, EFSA 2016; 14(4):4453
5	Silt loam	6.2	20°C	40	53.2	176.7	0.08	41.2	23.6	FOMC-SFO	Y, EFSA 2016; 14(4):4453
Geometric mean (n=4)								**46.0**			
Arithmetic mean							**0.04**				
pH-dependency: y/n								No			

a) pH measured in $CaCl_2$ for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
c) Result not used to calculate mean

Table 8.3-4: Summary of aerobic degradation rates for AE F145741 - laboratory studies

AE F145741, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Silt loam	7.3	20	40	10.3	34.1	0.05	7.0	16.3	SFO-SFO	Y, EFSA 2016; 14(4):4453
2	Loamy sand	7.1	20	40	8.0	26.5	0.05	5.1	25.2	SFO-SFO	Y, EFSA 2016; 14(4):4453
3	Loamy sand	7.1	20	40	2.9	9.5	0.06	2.2	31.0	SFO-	Y,

AE F145741, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
										SFO	EFSA 2016; 14(4):4453
4	Loam	7.0	20	40	57.5	191.0	0.07	41.7	12.2	FOMC-SFO	Y, EFSA 2016; 14(4):4453
5	Loam	7.0	20	30	76.8	255.2	- [c]	- [c]	10.1	FOMC-SFP	Y, EFSA 2016; 14(4):4453
6	Loam	7.0	10	40	148.5	493.3	- [c]	- [c]	9.0	FOMC-SFO	Y, EFSA 2016; 14(4):4453
7	Clay loam	7.2	20	50	17.8	59.0	0.03	17	23.6	DFOP-SFO	Y, EFSA 2016; 14(4):4453
Geometric mean (n=5)								**8.7**			
Arithmetic mean							**0.05**				
pH-dependency: y/n								No			

a) pH measured in $CaCl_2$ for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
c) Result not used to calculate mean

Table 8.3-5: Summary of aerobic degradation rates for AE F161778 - laboratory studies

AE F161778, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand	5.6	20	40	5.2	17.2	0.51	3.4	14.9	SFO-SFO	Y, EFSA 2016; 14(4):4453
2	Sand	5.6	20	40	13.2	43.7	0.27	12.3	27.2	SFO-SFO	Y, EFSA 2016; 14(4):4453
3	Silt loam	7.3	20	40	22.0	73.0	0.42	15.0	8.8	SFO-SFO	Y, EFSA 2016;

AE F161778, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
											14(4):4453
4	Loamy sand	7.1	20	40	10.5	35.0	0.64	7.9	16.7	SFO-SFO	Y, EFSA 2016; 14(4):4453
5	Loam	7.0	20	40	26.9	89.2	0.64	19.5	8.7	FOMC-SFO	Y, EFSA 2016; 14(4):4453
6	Loam	7.0	20	30	25.9	86.0	- [c]	- [c]	6.5	FOMC-SFO	Y, EFSA 2016; 14(4):4453
7	Loam	7.0	10	40	62.8	208.5	- [c]	- [c]	13.5	FOMC-SFO	Y, EFSA 2016; 14(4):4453
8	Clay	6.8	20	25	35.0	116.4	- [c]	- [c]	21.0	DFOP-SFO	Y, EFSA 2016; 14(4):4453
9	Clay loam	7.2	20	25	32.0	106.2	- [c]	- [c]	20.3	FOMC-SFO	Y, EFSA 2016; 14(4):4453
10	Clay	6.8	20	50	15.2	50.6	0.59	14.8	17.0	FOMC-SFO	Y, EFSA 2016; 14(4):4453
11	Clay loam	7.2	20	50	18.7	62.1	0.36	15.8	19.8	DFOP-SFO	Y, EFSA 2016; 14(4):4453
12	Silt loam	6.2	20	40	2.4	7.8	1.0	1.8	16.2	FOMC-SFO	Y, EFSA 2016; 14(4):4453
13	Sandy loam	6.4	20	45	30.4	100.8	- [e)]	30.4	6	SFO	Y, EFSA 2016; 14(4):4453
14	Loam	7.4	20	45	28.3	91.4	- [e)]	28.3	6	SFO	Y, EFSA 2016; 14(4):4453

AE F161778, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
15	Silt loam	6.9	20	45	28.6	95.0	- [e)]	28.6	4	SFO	Y, EFSA 2016; 14(4):4453
16	Loamy sand	5.7	20	45	2.44	-	- [e)]	2.44	3.66	SFO	Y, EFSA 2016; 14(4):4453
17	Sandy loam	7.3	20	45	12.8	-	- [e)]	12	7.92	SFO	Y, EFSA 2016; 14(4):4453
18	Clay	7.1	20	45	29.3	-	- [e)]	20.2	11.2	SFO	Y, EFSA 2016; 14(4):4453
Geometric mean (n=14)								**11.4**			
Arithmetic mean							**0.55**				
pH-dependency: y/n								No			

a) pH measured in $CaCl_2$ for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
c) Result not used to calculate mean
d) pH measured in H_2O
e) Metabolite – dosed study so no formation fraction determined.

Table 8.3-6: Summary of aerobic degradation rates for AE 0000119 - laboratory studies

AE 0000119, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Sandy loam	6.0	20	40	124.8	414.6	0.32	89.9	10.3	FOMC-SFO	Y, EFSA 2016; 14(4):4453
2	Loamy sand	5.6	20	40	11.9	39.4	0.34	7.8	9.7	SFO-SFO	Y, EFSA 2016; 14(4):4453
3	Loamy sand	7.1	20	40	4.0	13.2	0.26	2.5	15.2	SFO-SFO	Y, EFSA 2016; 14(4):4453
4	Clay	6.8	20	25	13.4	44.4	0.38	8.0	17.0	DFOP-SFO	Y, EFSA

AE 0000119, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
											2016; 14(4):4453
5	Sandy loam	4.35	20	40 of 0 Bar	9.8	33	- [d)]	9.0	11	SFO	Y, EFSA 2016; 14(4):4453
6	Silty clay	7.50	20	40 of 0 Bar	6.6	22	- [d)]	5.6	5	SFO	Y, EFSA 2016; 14(4):4453
7	Sandy loam	7.01	20	40 of 0 Bar	3.3	11	- [d)]	3.3	2	SFO	Y, EFSA 2016; 14(4):4453
8	Silt loam	5.13	20	40 of 0 Bar	16.1	204.1	- [d)]	71.6 (based on slow phase)	3	DFOP	Y, EFSA 2016; 14(4):4453
9	Sandy loam	5.04	20	40 of 0 Bar	24.8	542.8	- [d)]	**231** (based on slow phase)	2	DFOP	Y, EFSA 2016; 14(4):4453
Geometric mean (n=9)								**15**			
Arithmetic mean							**0.33**				
pH-dependency: y/n								No			

a) pH measured in $CaCl_2$ for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
c) Result not used to calculate mean
d) Metabolite – dosed study so no formation fraction determined.

Table 8.3-7: Summary of aerobic degradation rates for BCS-CW81253 - laboratory studies

BCS-CW81253, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand	5.6	20	40	55.6	184.6	1.0	36.6	22.2	SFO-SFO	Y, EFSA 2016; 14(4):4453
2	Silt loam	7.3	20	40	13.8	46.0	1.0	9.5	9.0	SFO-SFO	Y, EFSA 2016; 14(4):4453

BCS-CW81253, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
3	Loam	7.0	20	40	22.3	74.0	0.94	16.1	5.2	FOMC-SFO	Y, EFSA 2016; 14(4):4453
4	Loam	7.0	20	30	27.3	90.7		- [c]	12.1	FOMC-SFO	Y, EFSA 2016; 14(4):4453
5	Clay	6.8	20	50	54.2	179.9	0.58	52.7	9.1	FOMC-SFO	Y, EFSA 2016; 14(4):4453
6	Clay loam	7.2	20	50	11.4	37.8	0.48	9.6	18.3	DFOP-SFO	Y, EFSA 2016; 14(4):4453
7	Silt loam	6.2	20	40	149.4	496.4	0.30	**115.7**	14.4	FOMC-SFO	Y, EFSA 2016; 14(4):4453
8	Sandy loam	6.4	20	45	52.5	174.5	- [e)]	52.5	11	SFO	Y, EFSA 2016; 14(4):4453
9	Loam	7.4	20	45	16.3	54	- [e)]	24.7	5	SFO	Y, EFSA 2016; 14(4):4453
10	Silt loam	6.9	20	45	24.7	82.2	- [e)]	16.3	12	SFO	Y, EFSA 2016; 14(4):4453
Geometric mean (n=9)								**26.7**			
Arithmetic mean							**0.72**				
pH-dependency: y/n								No			

a) pH measured in $CaCl_2$ for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
c) Result not used to calculate mean
d) pH measured in H_2O
e) Metabolite – dosed study so no formation fraction determined

Table 8.3-8: Summary of aerobic degradation rates for AE F059411 - laboratory studies

AE F059411, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Silt loam	7.3	20	40	222.1	737.9	0.37	152.0	7.4	SFO-SFO	Y, EFSA 2016; 14(4):4453
2	Clay loam	7.2	20	25	367.1	1219.4	- [c]	- [c]	2.1	FOMC-SFO	Y, EFSA 2016; 14(4):4453
3	Clay	6.8	20	50	143.1	475.3	0.40	139.4	13.4	FOMC-SFO	Y, EFSA 2016; 14(4):4453
4	Clay loam	7.2	20	50	328.1	1089.9	0.50	**276.9**	4.3	DFOP-SFO	Y, EFSA 2016; 14(4):4453
5	Silt loam	6.7	20	40	260.1[d]	864[d] (k1 = 0.01772; k2= 0.00266; Tb= 25.9)	- [d]	201.6	3.0	HS[d]	Y, EFSA 2016; 14(4):4453
6	Silt loam	4.3	20	70 FC	208	691	- [e]	254	6.2	SFO	Y, EFSA 2016; 14(4):4453
7	Loam	6.9	20	pF2	102.2	340	- [e]	102.2	3.5	SFO	Y, EFSA 2016; 14(4):4453
8	Sandy clay loam	5.0	20	pF2	249.4	828	- [e]	249.4	3.2	SFO	Y, EFSA 2016; 14(4):4453
9	Silt loam	4.9	20	pF2	190.8	634	- [e]	190.8	3.7	SFO	Y, EFSA 2016; 14(4):4453
10	Loamy sand	5.7 (H_2O)	20	45	67.3	224	- [e]	67.3	5.68	SFO	Y, EFSA 2016; 14(4):4453
11	Sandy loam	7.3 (H_2O)	20	45	188.4	626	- [e]	175.7	5.64	SFO	Y, EFSA 2016;

AE F059411, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
											14(4):4453
12	Clay loam	7.1 (H_2O)	20	45	333.2	1107	- [e]	230.1	1.00	SFO	Y, EFSA 2016; 14(4):4453
13	Sandy loam	5.7	20	50	44.7	97[d)] (k1 = 0, fixed lag phase; k2= 0.03082; Tb= 22.25d	- [e]	22.5	14	HS (calculated from slow phase)	Y, EFSA 2016; 14(4):4453
14	Sand	5.5	20	pF2	112.5	374	- [e]	112.5	2.9	SFO	Y, EFSA 2016; 14(4):4453
15	Clay loam	8.6	20	pF2	175.2	582	- [e]	175.2	3.1	SFO	Y, EFSA 2016; 14(4):4453
16	Sandy loam	5.6	20	pF2	96.4	320.2	- [e]	96.4	6.2	SFO	Y, EFSA 2016; 14(4):4453
Geometric mean (n=15)								**144.0**			
Arithmetic mean							**0.42**				
pH-dependency: y/n								No			

a) pH measured in $CaCl_2$ for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
c) Result not used to calculate mean
d) Metabolite-dosed study (Moendel, 2001). The kinetic results for the study were taken from the EFSA Conclusion on the active Thifensulfuron-methyl. Note that DT50 as well as DT90 are calculated from the slow phase rate constant (k2).
e) Metabolite – dosed study so no formation fraction determined.

Table 8.3-9: Summary of aerobic degradation rates for AE 0002166 - laboratory studies

AE 0002166, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loam	6.1	20	55	10.1	33.6	-	10.1	4.1	SFO	Y, EFSA 2016; 14(4):4453

AE 0002166, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
2	Sandy loam	6.4	20	55	9.5	31.5	-	9.5	4.5	SFO	Y, EFSA 2016; 14(4):4453
3	Silt loam	6.3	20	55	7.2	24.0	-	7.2	5.9	SFO	Y, EFSA 2016; 14(4):4453
4	Clay loam	7.1	20	55	4.7	15.7	-	4.7	6.3	SFO	Y, EFSA 2016; 14(4):4453
Geometric mean (n=4)								**7.5**			
Arithmetic mean							-				
pH-dependency: y/n								No			

a) pH measured in $CaCl_2$ for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7

zRMS comments:

Soil degradation data for iodosulfuron - methyl - sodium and its metabolites are in line with EU agreed endpoints EFSA 2016; 14(4):4453.

8.3.1.2 Mesosulfuron-methyl and its metabolites

TRIGGER ENDPOINTS

Table 8.3-10: Summary of aerobic degradation rates for mesosulfuron-methyl - laboratory studies

Mesosulfuron-methyl, Laboratory studies, aerobic conditions										
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand (CHL)	5.2	20	31.0	58.2	> 1000	-	2.4	FOMC	Y, EFSA 2016; 14(10): 4584
2	Sandy loam (SLI	7.5	20	45.2	16.67	55.39	-	6.2	SFO	Y, EFSA 2016; 14(10): 4584
3	Loamy Sand (SLV)	6.25	20	30.8	59.9	628.5	-	3.2	FOMC	Y, EFSA 2016;

Mesosulfuron-methyl, Laboratory studies, aerobic conditions										
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
										14(10): 4584
4	Loam (CLF)	7.3	20	47.5	16.0	53.0	-	2.0	SFO	Y, EFSA 2016; 14(10): 4584
5	Loam (FF)	7.3	20	43.2	32.9	155.0	-	2.1	FOMC	Y, EFSA 2016; 14(10): 4584
6	Clay (SCL)	7.3	20	59.8	140.10	465.40	-	14.84	SFO	Y, EFSA 2016; 14(10): 4584
7	Silt loam (SLS)	7.1	20	54.9	7.6	25.3	-	18.5	SFO	Y, EFSA 2016; 14(10): 4584
8	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	32.14	595.42	-	2.93	FOMC	Y, EFSA 2016; 14(10): 4584
9	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	27.9	130.9	-	3.8	FOMC	Y, EFSA 2016; 14(10): 4584

a) measured in calcium chloride solution

Table 8.3-11: Summary of aerobic degradation rates for AE F160459- laboratory studies

AE F160459, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand (CHL)	5.2	20	31.0	- [f]	- [f]	- [f]	-	- [f]	- [f]	Y, EFSA 2016
2	Sandy loam (SLI)	7.5	20	45.2	128.64	427.34	0.124	-	10.2	SFO – SFO	Y, EFSA 2016; 14(10): 4584
3	Loamy Sand (SLV)	6.25	20	30.8	- [f]	- [f]	- [f]	-	- [f]	- [f]	Y, EFSA 2016; 14(10):

AE F160459, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
											4584
4	Loam (CLF)	7.3	20	47.5	38.6	128.23	0.119	-	14.3	SFO - SFO	Y, EFSA 2016; 14(10): 4584
5	Loam (FF)	7.3	20	43.2	76.0	252.47	0.092	-	9.9	SFO - SFO	Y, EFSA 2016; 14(10): 4584
6	Clay (SCL)	7.3	20	59.8	129.80	431.0	0.1424	-	21.68	SFO - SFO	Y, EFSA 2016; 14(10): 4584
7	Silt loam (SLS)	7.1	20	54.9	- [g]	- [g]	- [g]	-	- [g]	- [g]	Y, EFSA 2016; 14(10): 4584
8	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	- [g]	- [g]	- [g]	-	- [g]	- [g]	Y, EFSA 2016; 14(10): 4584
9	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	84.29	280.02	0.036	-	11.9	SFO - SFO	Y, EFSA 2016; 14(10): 4584

a) measured in calcium chloride solution
f) not observed in this soil in amounts that would allow kinetic evaluation
g) no reliable value could be determined

Table 8.3-12: Summary of aerobic degradation rates for mesosulfuron- laboratory studies

mesosulfuron, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand (CHL)	5.2	20	31.0	76.74	254.91	0.059	-	9.3	SFO - SFO	Y, EFSA 2016; 14(10): 4584
2	Sandy loam (SLI)	7.5	20	45.2	18.73	62.20	0.236	-	18.6	SFO - SFO	Y, EFSA 2016; 14(10): 4584

mesosulfuron, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
3	Loamy Sand (SLV)	6.25	20	30.8	39.70	131.89	0.1914	-	14.8	SFO - SFO	Y, EFSA 2016; 14(10): 4584
4	Loam (CLF)	7.3	20	47.5	46.35	153.97	0.262	-	13.4	SFO - SFO	Y, EFSA 2016; 14(10): 4584
5	Loam (FF)	7.3	20	43.2	73.93	245.59	0.244	-	14.6	SFO - SFO	Y, EFSA 2016; 14(10): 4584
6	Clay (SCL)	7.3	20	59.8	207.38	688.91	0.3133	-	19.3	SFO - SFO	Y, EFSA 2016; 14(10): 4584
7	Silt loam (SLS)	7.1	20	54.9	- [f]	- [f]	- [f)]	-	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
8	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	21.52	71.49	0.1678	-	26.1	SFO - SFO	Y, EFSA 2016; 14(10): 4584
9	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	32.95	109.46	0.197	-	11.2	SFO - SFO	Y, EFSA 2016; 14(10): 4584

a) measured in calcium chloride solution-
f) no reliable value could be determined

Table 8.3-13: Summary of aerobic degradation rates for AE F160460 - laboratory studies

AE F160460, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand (CHL)	5.2	20	31.0	- [f]	- [f]	- [f]	-	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
2	Sandy loam (SLI)	7.5	20	45.2	24.14	80.20	1/1	-	12.0	SFO - SFO	Y, EFSA 2016; 14(10):

AE F160460, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
											4584
3	Loamy Sand (SLV)	6.25	20	30.8	- [f]	- [f]	- [f]	-	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
4	Loam (CLF)	7.3	20	47.5	37.07	123.15	1 M459	-	13.5	SFO - SFO	Y, EFSA 2016; 14(10): 4584
5	Loam (FF)	7.3	20	43.2	36.23	120.3	1/1	-		SFO - SFO	Y, EFSA 2016; 14(10): 4584
6	Clay (SCL)	7.3	20	59.8	- [g]	- [g]	- [g]	-	- [g]	- [g]	Y, EFSA 2016; 14(10): 4584
7	Silt loam (SLS)	7.1	20	54.9	- [g]	- [g]	- [g]	-	- [g]	- [g]	Y, EFSA 2016; 14(10): 4584
8	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	44.22	196.9	-	-	29.9	- [h]	Y, EFSA 2016; 14(10): 4584
9	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	15.32	50.90	1/1	-	5.8	SFO - SFO	Y, EFSA 2016; 14(10): 4584

a) measured in calcium chloride solution-
f) not observed in this soil in amounts that would allow kinetic evaluation
g) no reliable value could be determined
h) decline fit

Table 8.3-14: Summary of aerobic degradation rates for AE F099095- laboratory studies

AE F099095, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C** pF2/10kPa[b]	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand (CHL)	5.2	20	31.0	185.52	616.28	0.022	-	4.5	SFO - SFO	Y, EFSA 2016; 14(10): 4584

AE F099095, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH**[a]	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C** pF2/10kPa[b]	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
2	Sandy loam (SLI)	7.5	20	45.2	105.21	349.49	0.021	-	13.8	SFO - SFO	Y, EFSA 2016; 14(10): 4584
3	Loamy Sand (SLV)	6.25	20	30.8	- [f]	- [f]	- [f)]	- [f]	- [f]	-	Y, EFSA 2016; 14(10): 4584
4	Loam (CLF)	7.3	20	47.5	80.16	266.29	0.033	-	18.4	SFO - SFO	Y, EFSA 2016; 14(10): 4584
5	Loam (FF)	7.3	20	43.2	94.19	312.89	0.043	-	9.7	SFO - SFO	Y, EFSA 2016; 14(10): 4584
6	Clay (SCL)	7.3	20	59.8	135.08	448.71	0.0264	-	25.9	SFO - SFO	Y, EFSA 2016; 14(10): 4584
7	Silt loam (SLS)	7.1	20	54.9	49.1	163.1	-	-	7.4	- [h]	Y, EFSA 2016; 14(10): 4584
8	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	27.90	92.68	0.095	-	16.28	SFO - SFO	Y, EFSA 2016; 14(10): 4584
9	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	- [g]	- [g]	- [g)]	-	- [g]	-	Y, EFSA 2016; 14(10): 4584
10	Sandy loam [i)]	5.3	20	pF2	58.82	195.4		-	2.73	Applied as parent SFO	Y, EFSA 2016; 14(10): 4584
11	Sandy clay loam [i)]	6.9	20	pF2	23.16	76.93		-	3.25	Applied as parent SFO	Y, EFSA 2016; 14(10): 4584
12	Clay [i)]	7.2	20	pF2	12.2	40.51		-	4.68	Applied as parent SFO	Y, EFSA 2016; 14(10): 4584

a) measured in calcium chloride solution-
f) not observed in this soil in amounts that would allow kinetic evaluation
g) no reliable value could be determined

h) decline fit
i) Sadgrove, L 2014 (accepted in the RARs for flazasulfuron; refer to the EFSA conclusion on the peer review of the active flazasulfuron, EFSA, 2016c)

Table 8.3-15: Summary of aerobic degradation rates for AE F140584 - laboratory studies

AE F140584, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Sandy loam	6.3	20	55	4.02	13.34	-	-	4.2	SFO	Y, EFSA 2016; 14(10): 4584
2	Sand	5.8	20	55	7.04	23.38	-	-	2.1	SFO	Y, EFSA 2016; 14(10): 4584
3	Silt loam	6.4	20	55	2.35	7.81	-	-	6.8	SFO	Y, EFSA 2016; 14(10): 4584
4	Loam	7.2	20	55	1.49	4.94	-	-	5.4	SFO	Y, EFSA 2016; 14(10): 4584
5	Loamy sand (CHL)	5.2	20	31.0	- [f]	- [f]	- [f]	- [f]	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
6	Sandy loam (SLI)	7.5	20	45.2	- [f]	- [f]	- [f]	- [f]	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
7	Loamy Sand (SLV)	6.25	20	30.8	- [f]	- [f]	- [f]	- [f]	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
8	Loam (CLF)	7.3	20	47.5	- [f]	- [f]	- [f]	- [f]	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
9	Loam (FF)	7.3	20	43.2	- [f]	- [f]	- [f]	- [f]	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
10	Clay (SCL)	7.3	20	59.8	- [f]	- [f]	- [f]	- [f]	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584

AE F140584, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
11	Silt loam (SLS)	7.1	20	54.9	- [f]	- [f]	- [f]	- [f]	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
12	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	- [f]	- [f]	- [f]	- [f]	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
13	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	13.45	44.66	0.212		39.7	SFO - SFO	Y, EFSA 2016; 14(10): 4584

a) measured in calcium chloride solution-
f) not traced at this radiolabel position

Table 8.3-16: Summary of aerobic degradation rates for AE F147447 - laboratory studies

AE F147447, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loam	6.1	20	55	54.83 (slow phase: 82.71) *	246.9	-	-	2.8	HS	Y, EFSA 2016; 14(10): 4584
2	Sandy loam	6.4	20	55	75.98 (slow phase: 111.38) **	334.6	-	-	2.3	HS	Y, EFSA 2016; 14(10): 4584
3	Silt loam	6.3	20	55	54.76 (slow phase: 202.97) ***	526.0	-	-	3.9	HS	Y, EFSA 2016; 14(10): 4584
4	Clay loam	7.1	20	55	31.12 (slow phase: 73.32) ****	201.2	-	-	3.0	DFOP	Y, EFSA 2016; 14(10): 4584
5	Loamy sand (CHL)	5.2	20	31.0	- [f]	- [f]	- [f]	-	- [f]	- [f]	Y, EFSA 2016; 14(10):

											4584
6	Sandy loam (SLI)	7.5	20	45.2	- [f]	- [f]	- [f]	-	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
7	Loamy Sand (SLV)	6.25	20	30.8	- [f]	- [f]	- [f]	-	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
8	Loam (CLF)	7.3	20	47.5	- [f]	- [f]	- [f]	-	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
9	Loam (FF)	7.3	20	43.2	- [f]	- [f]	- [f]	-	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
10	Clay (SCL)	7.3	20	59.8	- [f]	- [f]	- [f]	-	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
11	Silt loam (SLS)	7.1	20	54.9	- [f]	- [f]	- [f]	-	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
12	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	- [f]	- [f]	- [f]	-	- [f]	- [f]	Y, EFSA 2016; 14(10): 4584
13	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	157.14	522.0	0.088	-	11.9	SFO - SFO	Y, EFSA 2016; 14(10): 4584

a) measured in calcium chloride solution-
f) not observed in this soil in amounts that would allow kinetic evaluation
g) single value
* k1: 0.0159 ; k2: 8.38e-3 ; tb: 31.0
** k1: 0.0133 ; k2: 6.223e-3 ; tb: 31.0
*** k1: 0.0147 ; k2: 3.415e-3 ; tb: 45.0
**** k1: 0.2054 ; k2: 9.454e-3 ; g: 0.3297

Table 8.3-17: Summary of aerobic degradation rates for AE F092944 - laboratory studies

AE F092944, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand (CHL)	5.2	20	31.0	13.97	46.39	0.919	-	23.8	SFO - SFO	Y, EFSA 2016; 14(10):

AE F092944, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
											4584
2	Sandy loam (SLI)	7.5	20	45.2	- [i]	- [i]	- [i)]	-	- [i]	-	Y, EFSA 2016; 14(10): 4584
3	Loamy Sand (SLV)	6.25	20	30.8	-	-		-	-	-	Y, EFSA 2016; 14(10): 4584
4	Loam (CLF)	7.3	20	47.5	62.55	207.77	0.083	-	21.3	SFO-SFO	Y, EFSA 2016; 14(10): 4584
5	Loam (FF)	7.3	20	43.2	82.67	274.6	0.080	-	44.1	SFO-SFO	Y, EFSA 2016; 14(10): 4584
6	Clay (SCL)	7.3	20	59.8	- [f]	- [f]	- [f]	-	- [f]	-	Y, EFSA 2016; 14(10): 4584
7	Silt loam (SLS)	7.1	20	54.9	- [f]	- [f]	- [f]	-	- [f]	-	Y, EFSA 2016; 14(10): 4584
8	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	80.52	267.49	0.070	-	27.1	SFO-SFO	Y, EFSA 2016; 14(10): 4584
9	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	- [g]	- [g]	- [g)]	-	- [g]	-	Y, EFSA 2016; 14(10): 4584
10	Collombey [j]	7.6	20	44.2	2.9	9.6	-	-	6.3	SFO	Y, EFSA 2016; 14(10): 4584
11	Speyer 2.2 [j]	6.0	20	44.3	4.9	34.8	-	-	2.3	FOMC	Y, EFSA 2016; 14(10): 4584
12	Les Evouettes [j]	7.3	20	53.4	9.0	72.4	-	-	2.6	FOMC	Y, EFSA 2016; 14(10): 4584

AE F092944, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
13	Nambsheim, sandy loam [k]	8.0	20	50	8.9	116	-	-	6	FOMC	Y, EFSA 2016; 14(10): 4584
14	Pavia, loamy sand [k]	5.5	20	50	9.7	231.3	-	-	4	HS	Y, EFSA 2016; 14(10): 4584
15	Speyer 2.2. sandy loam [k]	6.7	20	50	2.5	12	-	-	4	FOMC	Y, EFSA 2016; 14(10): 4584
16	Vercelli, silt loam [k]	6.1	20	50	6.0	122.3	-	-	5	FOMC	Y, EFSA 2016; 14(10): 4584
17	Pappelacker, sandy loam [l]	7.3	20	40	6.4	30.3	-	-	5.1	FOMC	Y, EFSA 2016; 14(10): 4584
18	Uffholz, loam [l]	6.1	20	40	5.25	34.9	-	-	3.6	DFOP	Y, EFSA 2016; 14(10): 4584
19	Otzbert, silt loam [l]	7.4	20	40	5.9	19.6	-	-	5.7	SFO	Y, EFSA 2016; 14(10): 4584

a) measured in calcium chloride solution-
f) no reliable value could be determined
g) not traced at this radiolabel position
h) decline fit
i) not observed in this soil in amounts that would allow kinetic evaluation
j) Schmitt and Mikolasch, 2013 (metabolite dosed study, accepted in the RAR for foramsulfuron; refer to the EFSA conclusion on the peer review of the active substance foramsulfuron, EFSA, 2016b)
k) Shaw, D., 2002 (metabolite dosed study, accepted in the RAR for flupyrsulfuron-methyl; refer to the EFSA conclusion on the peer review of the active substance flupyrsulfuron-methyl, EFSA, 2014a)
l) Volkel, 2006 (metabolite dosed study, accepted in the RAR for sulfosulfuron; refer to the EFSA conclusion on the peer review of the active substance sulfosulfuron, EFSA, 2014c)

Table 8.3-18: Summary of aerobic degradation rates for BCS-CV14885 - laboratory studies

AE F092944, Laboratory studies, aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f.f.**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Sandy loam	6.5	20	55	131.3	602.1 (slow phase: 202.73)*	-	-	1.3	HS	Y, EFSA 2016; 14(10): 4584
2	Clay loam	7.3	20	55	55.34	347.4 (slow phase: 129.2)**	-	-	2.5	DFOP	Y, EFSA 2016; 14(10): 4584
3	Silt loam	6.4	20	55	102.5	403.3 (slow phase: 129.54)***	-	-	1.4	DFOP	Y, EFSA 2016; 14(10): 4584
4	Sandy loam	5.4	20	55	128.1	486.1 (slow phase: 154.19)****	-	-	1.4	DFOP	Y, EFSA 2016; 14(10): 4584

a) measured in calcium chloride solution
* k1: 0.0106 ; k2: 3.42e-3 ; tb: 33.8
** k1: 0.0514 ; k2: 0,0054 ; g: 0.355
*** k1: 0.1486 ; k2: 5.351e-3 ; g: 0.1346
**** k1: 0.1644 ; k2: 0.0045; g: 0.1107

MODELLING ENDPOINTS for the modelling of the parent active substance alone

Table 8.3-19: Summary of aerobic degradation rates for mesosulfuron-methyl - laboratory studies

Mesosulfuron-methyl, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**	
1	Loamy sand (CHL)	5.2	20	31.0	60.5/427 k2: 0.004*	1.0	173.29	2.8	DFOP	Y, EFSA 2016; 14(10): 4584	
2	Sandy loam (SLI	7.5	20	45.2	15.5/62.3 Back-DT50: 18.76	1.0	18.76	4.6	FOMC	Y, EFSA 2016; 14(10): 4584	
3	Loamy Sand (SLV)	6.25	20	30.8	61.7/295.0 k2: 0.007**	1.0	99.02	3.2	DFOP	Y, EFSA 2016; 14(10): 4584	
4	Loam (CLF)	7.3	20	47.5	15.98/53.1	0.966	15.44	2.0	SFO	Y, EFSA 2016;	

Mesosulfuron-methyl, Laboratory studies, dark aerobic conditions										
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
										14(10): 4584
5	Loam (FF)	7.3	20	43.2	31.9/144 k2: 0.01348***	0.903	46.43	2.1	DFOP	Y, EFSA 2016; 14(10): 4584
6	Clay (SCL)	7.3	20	59.8	67.7/822.4 k2: 0.00205****	0.718	242.77	5.7	DFOP	Y, EFSA 2016; 14(10): 4584
7	Silt loam (SLS)	7.1	20	54.9	7.8/25.9 Back-DT50: 7.80	1.0	7.80	19.3	FOMC	Y, EFSA 2016; 14(10): 4584
8	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	30.6/316.1 k2:0.00517*****	1.0	134.07	3.2	DFOP	Y, EFSA 2016; 14(10): 4584
9	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	31.70/105.1	1.0	31.70	5.6	SFO	Y, EFSA 2016; 14(10): 4584
Geometric mean (n=9)							**49.72**			
pH dependence							No			

a) measured in calcium chloride solution
* k1: 0.054; k2: 0.004; g: 0.369
** k1: 0.081; k2: 0.007; g: 0.238
*** k1: 0.059; k2:0.01348; g: 0.302
**** k1: 0.040; k2: 0.00205; g: 0.462
***** k1: 0.062; k2: 0.00517; g: 0.503

MODELLING ENDPOINTS for modelling of the parent active substance and metabolites

Table 8.3-20: Summary of aerobic degradation rates for mesosulfuron-methyl - laboratory studies

Mesosulfuron-methyl, Laboratory studies, dark aerobic conditions										
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand (CHL)	5.2	20	31.0	77.3/256.9	1	77.3	9.1	SFO	Y, EFSA 2016; 14(10): 4584

Mesosulfuron-methyl, Laboratory studies, dark aerobic conditions										
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
2	Sandy loam (SLI	7.5	20	45.2	16.67/55.39	1	16.67	6.2	SFO	Y, EFSA 2016; 14(10): 4584
3	Loamy Sand (SLV)	6.25	20	30.8	71.6/238.0	1	71.6	7.2	SFO	Y, EFSA 2016; 14(10): 4584
4	Loam (CLF)	7.3	20	47.5	16.0/53.0	0.966	15.46	2.0	SFO	Y, EFSA 2016; 14(10): 4584
5	Loam (FF)	7.3	20	43.2	37.56/124.7	0.903	33.86	4.3	SFO	Y, EFSA 2016; 14(10): 4584
6	Clay (SCL)	7.3	20	59.8	140.10/465.40	0.718	100.59	14.8	SFO	Y, EFSA 2016; 14(10): 4584
7	Silt loam (SLS)	7.1	20	54.9	7.6/25.3	1.0	53.56	11.1	SFO	Y, EFSA 2016; 14(10): 4584
8	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	53.56/177.91	1.0	53.56	11.1	SFO	Y, EFSA 2016; 14(10): 4584
9	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	31.44/104.44	1	31.44	5.6	SFO	Y, EFSA 2016; 14(10): 4584
Geometric mean (n=9)							**34.09**			
pH dependence							No			

a) measured in calcium chloride solution

Table 8.3-21: Summary of aerobic degradation rates for AE F160459 - laboratory studies

AE F160459, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand (CHL)	5.2	20	31.0	- f)	- f)	-	- f)	- f)	- f)	Y, EFSA 2016; 14(10): 4584
2	Sandy loam (SLI	7.5	20	45.2	128.64/427.34	0.124	1.0	128.64	10.2	SFO-SFO	Y, EFSA 2016; 14(10): 4584
3	Loamy Sand (SLV)	6.25	20	30.8	- f)	- f)	-	- f)	- f)	- f)	Y, EFSA 2016; 14(10): 4584
4	Loam (CLF)	7.3	20	47.5	38.60/128.23	0.119	0.966	32.29	14.3	SFO-SFO	Y, EFSA 2016; 14(10): 4584
5	Loam (FF)	7.3	20	43.2	76.0/252.47	0.092	0.903	68.63	9.9	SFO-SFP	Y, EFSA 2016; 14(10): 4584
6	Clay (SCL)	7.3	20	59.8	129.80/431.0	0.1424	0.718	93.20	21.68	SFO-SFO	Y, EFSA 2016; 14(10): 4584
7	Silt loam (SLS)	7.1	20	54.9	- g)	- g)	-	- g)	- g)	- g)	Y, EFSA 2016; 14(10): 4584
8	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	- g)	- g)	-	- g)	- g)	- g)	Y, EFSA 2016; 14(10): 4584
9	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	8429/280.02	0.036	1.0	84.29	11.9	SFO-SFO	Y, EFSA 2016; 14(10): 4584
Geometric mean (n=9)								**74.14**			
Arithmetic mean						**0.103**					
pH dependence								No			

a) measured in calcium chloride solution
f) not observed in this soil in amounts that would allow kinetic evaluation
g) no reliable value could be determined

Table 8.3-22: Summary of aerobic degradation rates for mesosulfuron - laboratory studies

mesosulfuron, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand (CHL)	5.2	20	31.0	76.74/254.91	0.059	1.0	76.74	9.3	SFO-SFO	Y, EFSA 2016; 14(10): 4584
2	Sandy loam (SLI	7.5	20	45.2	18.73/62.20	0.236	1.0	18.73	18.6	SFO-SFO	Y, EFSA 2016; 14(10): 4584
3	Loamy Sand (SLV)	6.25	20	30.8	38.52/127.95	0.198	1.0	38.52	15.7	SFO-SFO	Y, EFSA 2016; 14(10): 4584
4	Loam (CLF)	7.3	20	47.5	46.35/153.97	0.262	0.966	44.77	13.4	SFO-SFO	Y, EFSA 2016; 14(10): 4584
5	Loam (FF)	7.3	20	43.2	73.93/245.59	0.244	0.903	66.76	14.6	SFO-SFO	Y, EFSA 2016; 14(10): 4584
6	Clay (SCL)	7.3	20	59.8	207.38/688.91	0.3133	0.718	148.90	19.3	SFO-SFO	Y, EFSA 2016; 14(10): 4584
7	Silt loam (SLS)	7.1	20	54.9	- [f)]	- [f)]	1.0	- [f)]	- [f)]	- [f)]	Y, EFSA 2016; 14(10): 4584
8	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	21.52/71.49	0.1678	1.0	21.52	26.1	SFO-SFO	Y, EFSA 2016; 14(10): 4584
9	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	32.95/109.46	0.197	1.0	32.95	11.2	SFO-SFO	Y, EFSA 2016; 14(10): 4584
Geometric mean (n=9)								**45.22**			
Arithmetic mean						**0.210**					
pH dependence								No			

a) measured in calcium chloride solution
f) not observed in this soil in amounts that would allow kinetic evaluation
g) no reliable value could be determined

Table 8.3-23: Summary of aerobic degradation rates for AE F160460 - laboratory studies

AE F160460, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand (CHL)	5.2	20	31.0	- [f)]	- [f)]	1.0	-	- [f)]	- [f)]	Y, EFSA 2016; 14(10): 4584
2	Sandy loam (SLI	7.5	20	45.2	24.14/80.20	1/1	1.0	24.14	12.0	SFO-SFO	Y, EFSA 2016
3	Loamy Sand (SLV)	6.25	20	30.8	- [f)]	- [f)]	1.0	-	- [f)]	- [f)]	Y, EFSA 2016
4	Loam (CLF)	7.3	20	47.5	37.07/123.15	1 M459	0.966	35.81	30.3	SFO-SFO	Y, EFSA 2016
5	Loam (FF)	7.3	20	43.2	36.23/120.3	1/1	0.903	32.72	15.9	SFO-SFO	Y, EFSA 2016
6	Clay (SCL)	7.3	20	59.8	- [g)]	- [g)]	0.718	-	- [g)]	- [g)]	Y, EFSA 2016
7	Silt loam (SLS)	7.1	20	54.9	- [g)]	- [g)]	1.0	-	- [g)]	- [g)]	Y, EFSA 2016
8	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	44.22/196.9	-	1.0	**44.22**	29.9	Decline fit	Y, EFSA 2016
9	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	15.32/50.90	1/1	1.0	15.32	5.8	SFO-SFO	Y, EFSA 2016
Geometric mean (n=9)								**28.61**			
Arithmetic mean						**1/1**					
pH dependence								No			

a) measured in calcium chloride solution
f) not observed in this soil in amounts that would allow kinetic evaluation
g) no reliable value could be determined
h) decline fit

Table 8.3-24: Summary of aerobic degradation rates for AE F099095 - laboratory studies

AE F099095, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand (CHL)	5.2	20	31.0	185.2/616.28	0.022	1.0	185.52	4.5	SFO-SFO	Y, EFSA 2016; 14(10): 4584
2	Sandy loam (SLI	7.5	20	45.2	105.1/349.49	0.021	1.0	105.21	13.8	SFO-SFO	Y, EFSA 2016; 14(10): 4584
3	Loamy Sand (SLV)	6.25	20	30.8	- [f]	- [f]	-	-	- [f)]	-	Y, EFSA 2016; 14(10): 4584
4	Loam (CLF)	7.3	20	47.5	80.16/266.29	0.033	0.966	77.43	18.4	SFO-SFO	Y, EFSA 2016; 14(10): 4584
5	Loam (FF)	7.3	20	43.2	94.19/312.89	0.043	0.903	85.05	9.7	SFO-SFO	Y, EFSA 2016; 14(10): 4584
6	Clay (SCL)	7.3	20	59.8	135.08/448.71	0.0264	0.718	96.99	25.9	SFO-SFO	Y, EFSA 2016; 14(10): 4584
7	Silt loam (SLS)	7.1	20	54.9	49.1/163.1	-	1.0	49.10	7.4	Decline fit	Y, EFSA 2016; 14(10): 4584
8	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	27.90/92.68	0.095	1.0	27.90	16.28	SFO-SFO	Y, EFSA 2016; 14(10): 4584
9	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	- [g)]	- [g)]	1.0	-	- [g)]	-	Y, EFSA 2016; 14(10): 4584
10	Sandy loam [i)]	5.3	20	pF2	58.82/195.4	-	1.0	58.82	2.73	Applied as parent SFO	Y, EFSA 2016; 14(10): 4584
11	Sandy clay loam [i)]	6.9	20	pF2	23.16/76.93	-	1.0	23.16	3.25	Applied as parent SFO	Y, EFSA 2016; 14(10): 4584

AE F099095, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
12	Clay i)	7.2	20	pF2	12.2/40.51	-	1.0	12.2	4.68	Applied as parent SFO	Y, EFSA 2016; 14(10): 4584
Geometric mean (n=9)								**55.6**			
Arithmetic mean						**0.040**					
pH dependence								No			

a) measured in calcium chloride solution
f) not observed in this soil in amounts that would allow kinetic evaluation
g) no reliable value could be determined
h) decline fit

Table 8.3-25: Summary of aerobic degradation rates for AE F140584 - laboratory studies

AE F140584, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Sandy loam	6.3	20	55	4.02/13.34	-	1	4.02	4.2	SFO	Y, EFSA 2016; 14(10): 4584
2	Sand	5.8	20	55	7.04/23.38	-	1	7.04	2.1	SFO	Y, EFSA 2016; 14(10): 4584
3	Silt loam	6.4	20	55	2.35/7.81	-	1	2.35	6.8	SFO	Y, EFSA 2016; 14(10): 4584
4	Loam	7.2	20	55	1.49/4.940	-	1	1.49	5.4	SFO	Y, EFSA 2016; 14(10): 4584
5	Loamy sand (CHL)	5.2	20	31.0	- f)	- f)	-	- f)	- f)	- f)	Y, EFSA 2016; 14(10): 4584
6	Sandy loam (SLI)	7.5	20	45.2	- f)	- f)	-	- f)	- f)	- f)	Y, EFSA 2016; 14(10): 4584

AE F140584, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
7	Loamy sand (SLV)	6.25	20	30.8	- [f)]	- [f)]	-	- [f)]	- [f)]	- [f)]	Y, EFSA 2016; 14(10): 4584
8	Loam (CLF)	7.3	20	47.5	- [f)]	- [f)]	-	- [f)]	- [f)]	- [f)]	Y, EFSA 2016; 14(10): 4584
9	Loam (FF)	7.3	20	43.2	- [f)]	- [f)]	-	- [f)]	- [f)]	- [f)]	Y, EFSA 2016; 14(10): 4584
10	Clay (SCL)	7.3	20	59.8	- [f)]	- [f)]	-	- [f)]	- [f)]	- [f)]	Y, EFSA 2016; 14(10): 4584
11	Silt loam (SLS)	7.1	20	54.9	- [f)]	- [f)]	-	- [f)]	- [f)]	- [f)]	Y, EFSA 2016; 14(10): 4584
12	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	- [f)]	- [f)]	-	- [f)]	- [f)]	- [f)]	Y, EFSA 2016; 14(10): 4584
13	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	13.45/44.66	0.212	1.0	13.45	39.7	SFO-SFO	Y, EFSA 2016; 14(10): 4584
Geometric mean (n=9)								**4.22**			
Arithmetic mean						**0.212**					
pH dependence								No			

a) measured in calcium chloride solution
f) not observed in this soil in amounts that would allow kinetic evaluation

Table 8.3-26: Summary of aerobic degradation rates for AE F147447 - laboratory studies

AE F147447, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loam	6.1	20	55	60.6/201.3	-	1.0	60.6	4.9	SFO	Y, EFSA 2016;

AE F147447, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
											14(10): 4584
2	Sandy loam	6.4	20	55	78.5/260.7	-	1.0	78.5	4.5	SFO	Y, EFSA 2016; 14(10): 4584
3	Silt loam	6.3	20	55	54.76/526.00 (slow phase: 202.97) ***	-	1.0	202.97	3.9	HS	Y, EFSA 2016; 14(10): 4584
4	Clay loam	7.1	20	55	31.12/201.2 (slow phase: 73.32) ****	-	1.0	73.32	3.0	DFOP	Y, EFSA 2016; 14(10): 4584
5	Loamy sand (CHL)	5.2	20	31.0	- f)	- f)	-	- f)	- f)	- f)	Y, EFSA 2016; 14(10): 4584
6	Sandy loam (SLI)	7.5	20	45.2	- f)	- f)	-	- f)	- f)	- f)	Y, EFSA 2016; 14(10): 4584
7	Loamy sand (SLV)	6.25	20	30.8	- f)	- f)	-	- f)	- f)	- f)	Y, EFSA 2016; 14(10): 4584
8	Loam (CLF)	7.3	20	47.5	- f)	- f)	-	- f)	- f)	- f)	Y, EFSA 2016; 14(10): 4584
9	Loam (FF)	7.3	20	43.2	- f)	- f)	-	- f)	- f)	- f)	Y, EFSA 2016; 14(10): 4584
10	Clay (SCL)	7.3	20	59.8	- f)	- f)	-	- f)	- f)	- f)	Y, EFSA 2016; 14(10): 4584
11	Silt loam (SLS)	7.1	20	54.9	- f)	- f)	-	- f)	- f)	- f)	Y, EFSA 2016; 14(10): 4584
12	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	- f)	- f)	-	- f)	- f)	- f)	Y, EFSA 2016; 14(10): 4584

AE F147447, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
13	Loamy sand (LS 2.2,phenyl label)	6.8	20	38.2	157.14/522.0	0.088	1.0	157.14	11.9	SFO-SFO	Y, EFSA 2016; 14(10): 4584
Geometric mean (n=9)								**102.15**			
Aritthmetic mean						**0.088**					
pH dependence								No			

a) measured in calcium chloride solution
f) not observed in this soil in amounts that would allow kinetic evaluation
*** k1: 0.0147; k2: 3.415e-3; tb: 45.0
**** k1: 0.2054; k2: 9.45e-3; g:0.3297

Table 8.3-27: Summary of aerobic degradation rates for AE F092944 - laboratory studies

AE F092944, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Loamy sand (CHL)	5.2	20	31.0	13.97/46.39	0.919	1.0	13.97	23.8	SFO-SFO	Y, EFSA 2016; 14(10): 4584
2	Sandy loam (SLI)	7.5	20	45.2	- i)	- i)	-	-	- i)		Y, EFSA 2016; 14(10): 4584
3	Loamy sand (SLV)	6.25	20	30.8			-	-			Y, EFSA 2016; 14(10): 4584
4	Loam (CLF)	7.3	20	47.5	62.55/207.77	0.083	0.966	60.42	21.3	SFO-SFO	Y, EFSA 2016; 14(10): 4584
5	Loam (FF)	7.3	20	43.2	- g)	- g)	- g)	- g)	- g)	- g)	Y, EFSA 2016; 14(10): 4584
6	Clay (SCL)	7.3	20	59.8	- f)	- f)	-	-	- f)		Y, EFSA 2016; 14(10): 4584

AE F092944, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
7	Silt loam (SLS)	7.1	20	54.9	- [f)]	- [f)]	-	-	- [f)]		Y, EFSA 2016; 14(10): 4584
8	Loamy sand (LS 2.2, pyrimidyl label)	5.2	20	55.4	80.52/267.49	0.070	1.0	80.52	27.1	SFO-SFO	Y, EFSA 2016; 14(10): 4584
9	Loamy sand (LS 2.2, phenyl label)	6.8	20	38.2	- [g)]	- [g)]	-	-	- [g)]		Y, EFSA 2016; 14(10): 4584
10	Collombey [j)]	7.6	20	44.2	2.9/9.6	-	-	2.9	6.3	SFO	Y, EFSA 2016; 14(10): 4584
11	Speyer 2.2 [j)]	6	20	44.3	4.9/34.8	-	-	10.48	2.3	FOMC	Y, EFSA 2016; 14(10): 4584
12	Les Evouettes [j)]	7.3	20	53.4	9.0/72.4	-	-	19.6	2.6	FOMC	Y, EFSA 2016; 14(10): 4584
13	Nambsheim, sandy loam [k)]	8	20	50	8.9/116	-	-	30.8	6	FOMC	Y, EFSA 2016; 14(10): 4584
14	Pavia, loamy sand [k)]	5.5	20	50	9.7/231.3	-	-	173.3	4	HS	Y, EFSA 2016; 14(10): 4584
15	Speyer 2.2 sandy loam [k)]	6.7	20	50	2.5/12	-	-	3.6	4	FOMC	Y, EFSA 2016; 14(10): 4584
16	Vercelli, silt loam [k)]	6.1	20	50	6/122.3	-	-	30.6	5	FOMC	Y, EFSA 2016; 14(10): 4584
17	Sandy loam [l)]	7.3	20	40	6.4/30.3	-	-	8	5.1	FOMC	Y, EFSA 2016; 14(10): 4584

AE F092944, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
18	Uffholz, loam [l)]	6.1	20	40	5.25/34.97	-	-	11.2	3.6	DFOP	Y, EFSA 2016; 14(10): 4584
19	Otzberg, silt loam [l)]	7.4	20	40	5.9/19.6	-	-	4.4	5.7	SFO	Y, EFSA 2016; 14(10): 4584
					Geometric mean (n=9)			**16.93**			
					Arithmetic mean	**0.357**					
					pH dependence			No			

a) measured in calcium chloride solution
f) not observed in this soil in amounts that would allow kinetic evaluation
g) no reliable value could be determined
h) single value
i) maximum of the two values
j) Schmitt and Mikolasch, 2013 (metabolite dosed study, accepted in the RAR of foramsulfuron; refer to the EFSA conclusion on the peer review of the active substance foramsulfuron, EFSA, 2016b)
k) Shaw, D.; 2002 (metabolite dosed study, accepted in the RAR for flupyrsulfuron-methyl; refer to the EFSA conclusion on the peer review of the active substance flupyrsulfuron-methyl, EFSA, 2014a)
l) Volkel, 2006 (metabolite dosed study, accepted in the RAR for sulfosulfuron; refer to the EFSA conclusion on the peer review of the active substance sulfosulfuron, EFSA, 2014c)
*** k1: 0.0147; k2: 3.415e-3; tb: 45.0
**** k1: 0.2054; k2: 9.45e-3; g:0.3297

Table 8.3-28: Summary of aerobic degradation rates for BCS-CV14885 - laboratory studies

BCS-CV14885, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
1	Sandy loam	6.5	20	55	113.6/377.2	-	-	113.6	3.77	SFO	Y, EFSA 2016; 14(10): 4584
2	Clay loam	7.3	20	55	125.7/417.5	-	-	125.7	3.01	SFO	Y, EFSA 2016; 14(10): 4584
3	Silt loam	6.4	20	55	102.8/341.4	-	-	97.7	3.48	SFO	Y, EFSA 2016; 14(10): 4584
4	Sandy loam	5.4	20	55	65.06/216.1	-	-	65.06	5.23	SFO	Y, EFSA 2016; 14(10):

BCS-CV14885, Laboratory studies, dark aerobic conditions											
Trial no.	**Soil type**	**pH[a]**	**t.°C**	**MWHC %**	**DT50/DT90 (d)**	**f.f.**	**Moisture correction factor**	**DT50 (d) 20°C pF2/10kPa[b]**	**Chi2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
											4584
Geometric mean (n=9)								**97.6**			
Arithmetic mean						-					
pH dependence								No			

a) measured in calcium chloride solution

zRMS comments:

Soil degradation data for mesosulfuron- methyl its metabolites are in line with EU agreed endpoints EFSA 2016; 14(10): 4584.

8.3.1.3 Mefenpyr-diethyl and its metabolites

Laboratory studies on **route of degradation** in aerobic soil were performed in four European soils at 20°C after application of ^{14}C-radiolabelled mefenpyr-diethyl. Under standard conditions of the laboratory the route of degradation of mefenpyr-diethyl in aerobic soil was shown to proceed as follows:
The degradation of the diester parent molecule is initiated by hydrolysis at one ester group to form the monocarboxylic acid AE F113225 (max. 44 %, day 4) as a major metabolite. Hydrolysis may also occur at the alternative ester group of the parent molecule to form the isomeric monocarboxylic acid AE F114952[1] (max. 11.5 %, day 4) as an additional, but minor initial step in the total degradation pathway. Resulting from a multi-step transformation process, the pyrazole carboxylic acid AE F094270 (max. 72 %, day 64) is formed as another major soil metabolite later. Starting from one of the monocarboxylic acids AE F113225 or AE F114952, the multi-step conversion to AE F094270 includes hydrolysis of the corresponding remaining ester group followed by a combined decarboxylation /elimination of carbonic acid in the heterocycle. The metabolic pattern was basically identical in all soils tested finally resulting in the formation of nonextractable residues (maximum 32.2-61.7 % AR) and ^{14}C-carbon dioxide (maximum 0.9-8.0 % AR) as the terminal products of degradation. The biotic nature of transformation of mefenpyr-diethyl under aerobic conditions was confirmed by investigations in sterilised soil.

A **photodegradation** study showed that degradation of mefenpyr-diethyl is slightly enhanced under irradiated conditions compared to dark conditions. A major metabolite, specific to this route of degradation, was identified as AE 2211046 (11% after 1 day).

Table 8.3-29: Summary of DT_{50} values of mefenpyr-diethyl and metabolites in aerobic soil studies

Compound	**DT_{50} Range (Persistence values) at 20/25°C**
Mefenpyr-diethyl	1.1 – 2.9 days
AE F113225	3.5 – 6.8 days
(AE F114952)[1]	(≤ 1.3 days)
AE F094270	53.1 - 314 days
AE 2211046	35.5 days (photolytic)

[1] AE F114952 could be observed only in a single test soil, and is very quickly further degraded (DT_{50} < 1.3 days). It was concluded in the EU review that risk assessment of AE F114952 for soil and groundwater is conservatively covered by the one of its isomer AE F113225, which is characterized by markedly higher formation and longer soil half-life (cf. DAR Vol. 3 B.8, page 12).

Mefenpyr-diethyl, Laboratory studies, aerobic conditions									
Soil type	**pH ($CaCl_2$)**	**t. °C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**DT_{50} (d) 20 °C pF2/10kPa**	**Chi² (%)**	**Method of calcu-lation**	**Evaluated on EU level y/n/ Reference**
Sandy loam	5.0	25	40	2.90	9.64	4.1	11.0	SFO	Y DAR Mefenpyr-diethyl Vol.3-B8 Sept. 2011
Loamy sand	6.1	25	40	1.54	5.12	2.4	15.1	SFO	
Silt loam	6.1	20	40	2.32	7.69	1.7*	10.9	SFO	
Silt loam	6.1	20	60	1.06	3.52	1.1*	17.2	SFO	
Loamy sand	7.1	20	40	2.44	8.11	2.3	18.4	SFO	
Geometric mean/median (n=5)						2.4/2.3			
pH-dependency: y/n						No			

* Since there are two DT50 from the same soils, the geometric mean of both values was calculated first (1.4 day), and used as one single value in the calculation of the overall mean/median value.

AE F113225, Laboratory studies, aerobic conditions										
Soil type	**pH ($CaCl_2$)**	**t.°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**f.f.**	**DT_{50} (d) 20°C pF2/10kPa**	**Chi² (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Sandy loam	5.0	25	40	5.68	18.89	0.7313	7.9	20.4	SFO	Y DAR Mefenpyr-diethyl Vol.3-B8 Sept. 2011
Loamy sand	6.1	25	40	6.77	22.50	0.7677	10.6	11.7	SFO	
Silt loam	6.1	20	40	3.47	11.52	0.7281	2.61*	7.4	SFO	
Silt loam	6.1	20	60	4.56	15.17	0.7583	4.55*	2.5	SFO	
Loamy sand	7.1	20	40	4.89	16.24	0.8150	4.59	16.8	SFO	
Arithmetic mean						0.76				
Geometric mean/median (n=5)							6.1/6.2			
pH-dependency: y/n							No			

* Since there are two DT50 from the same soils, the geometric mean of both values was calculated first (3.5 days), and used as one single value in the calculation of the overall mean/median value.

AE F094270, Laboratory studies, aerobic conditions										
Soil type	**pH ($CaCl_2$)**	**t.°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**f.f. ****	**DT_{50} (d) 20°C pF2/10kPa**	**Chi² (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Sandy loam	5.0	25	40	270.8	900	1	379	6.7	SFO	Y DAR Mefenpyr-diethyl Vol.3-B8 Sept. 2011
Loamy sand	6.1	25	40	258.7	859	1	406	4.6	SFO	
Silt loam	6.1	20	40	91.2	303	1	68*	3.9	SFO	
Silt loam	6.1	20	60	53.1	176	1	53*	8.2	SFO	

AE F094270, Laboratory studies, aerobic conditions										
Soil type	**pH ($CaCl_2$)**	**t.°C**	**MWHC %**	**DT_{50} (d)**	**DT_{90} (d)**	**f.f. ** **	**DT_{50} (d) 20°C pF2/10kPa**	**Chi^2 (%)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Loamy sand	7.1	20	40	266.2	884	1	250	8.1	SFO	
Silt loam	6.8	20	50	126	418	-	126	4.0	SFO	
Sandy loam	6.2	20	45	314	>1000	-	314	1.6	SFO	
Clay loam	7.4	20	50	152	505	-	152	3.6	SFO	
Arithmetic mean						-				
Geometric mean/median (n=7)							202/250			
pH-dependency: y/n							No			

* Since there are two DT50 from the same soils, the geometric mean of both values was calculated first (60 days), and used as one single value in the calculation of the overall mean/median value.
** from AE F113225

For the full dataset, reference is made to the DAR of mefenpyr-diethyl, Vol. 3 B8.

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 for the active substance.
Degradation of iodosulfuron-methyl-sodium in anaerobic soil incubation was more slowly than under aerobic conditions.

Also the degradation of mesosulfuron-methyl in anaerobic soil incubations was more slowly than under aerobic conditions, with the degradation pathway being comparable to that under aerobic conditions.

The degradation of mefenpyr-diethyl under anaerobic laboratory conditions was investigated in a sandy loam soil to result in no significant deviation from the route of degradation under aerobic conditions. The generally reduced microbial activity under anaerobic conditions resulted in a slow-down for the rate of degradation.

8.4 Field studies (KCP 9.1.1.2)

Field studies with the formulation were not performed since it is possible to extrapolate from data obtained for the active substance.

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

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

8.4.1.1 Iodosulfuron-methyl-sodium and its metabolites

Studies on field dissipation in soil of iodosulfuron-methyl-sodium and metabolites have been reviewed during the EU Review of the active substance.
Field dissipation studies for the use of iodosulfuron-methyl-sodium were part of the EU review of

iodosulfuron and are summarized in the EFSA Scientific Report (2016); 14(4):4453. Results from the field dissipation studies on iodosulfuron-methyl-sodium are presented in Table 8.4-1.

Table 8.4-1: Summary of aerobic degradation rates for iodosulfuron-methyl-sodium - field studies

iodosulfuron, Field studies									
Soil type	**Location**	**pH (a)**	**Depth (cm)**	**DissT50 (d) Norm [b]**	**DT90 (d) actual**	**Kinetic parameters**	**St. (x^2)**	**Method of calculation**	**Evaluated on EU level y/n/ Reference**
Duerrn	S Germany	6.9	0-30	10.3	-	-	14.3	SFO	Y EFSA 2016; 14(4): 4453
Warpe	N Germany	6.4	0-30	0.8	-	-	13.6	SFO	
Togla	Spain	7.8	0-30	4.8	-	-	10.4	SFO	
S. Jean de Blaignac	S France	7.4	0-30	2.4	-	-	17.1	SFO	
Schleithal	N France	5.8	0-30	3.7	-	-	8.0	SFO	
Maximum (n=5)				**10.3**					
Geometric mean (n=5)				**3.2**					

a Medium for measurement of soil pH not stated
b Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7

Table 8.4-2: Summary of aerobic degradation rates for AE F075736 - field studies

AE F075736, Field studies										
Soil type	**Location**	**pH (a)**	**Depth (cm)**	**DissT50 (d) actual**	**DT90 (d) actual**	**DT_{50} (d) Norm b**	**f.f.**	**St. (x^2)**	**Method of calc.**	**Evaluated on EU level y/n/ Reference**
Duerm	S Germany	6.9	0.30			7.9	1.0	34.1	SFO-SFO	Y EFSA 2016; 14(4): 4453
Warpe	N Germany	6.4	0.30			19.0	0.43	38.0	SFO-SFO	
Rotgla	Spain	7.8	0.30			34.9	0.31	27.3	SFO-SFO	
S. Jean de Blaignac	S France	7.4	0.30			11.4	0.43	29.5	SFO-SFO	
Schleithal	N France	5.8	0.30	6.9	22.8	6.9	0.56	35.6	SFO-SFO	
Silt loam*	Northern France	6.1		42.7	141.7	11.4	- c	19	SFO best fit	
Loam*	UK	6.2		39.3	378.7	37.1	- c	13	SFO best fit	
Sandy clay loam*	Northern Germany	7.0		20.3	67.6	10.1	- c	9	SFO best fit	
Loam*	Italy	6.6		11.1	36.8	7.3	- c	7	SFO best fit	
Maximum (n=5)				**42.7**						
Arithmetic mean				No available EFSA 2016; 14(4): 4453						

Geometric mean (n=5)	**13.2**					

* Aitken, Doig & Just (2012) (metabolite dosed study, accepted in the RAR for metsulfuron-methyl; refer to the EFSA conclusion on the peer review of the active substance metsulfuron-methyl, EFSA (2015))
a) Medium for measurement of soil pH not stated
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
c) metabolite dosed study

8.4.1.2 Mesosulfuron-methyl and its metabolites

Studies on field dissipation in soil of mesosulfuron-methyl and metabolites have been reviewed during the EU Review of the active substance.
Field dissipation studies for the use of mesosulfuron-methyl were part of the EU review of mesosulfuron-methyl and are summarized in the EFSA Scientific Report (2016); 14(4):4453. Results from the field dissipation studies on mesosulfuron-methyl are presented in Table 8.4-3.

Table 8.4-3: Summary of aerobic degradation rates for mesosulfuron-methyl - field studies:

Field studies										
Soil type	**Location**	**pH (a)**	**Depth (cm)**	**DT50 (d) actual**	**DissT50 (d) Norm b**	**DT90 (d) actual**	**Kinetic parameters**	**St. (x^2)**	**Method of calculation**	**Evaluated on EU level y/n/ Reference**
Loamy silt	Germany (spring)	6.9	0-30	41.2	No reliable DT50	137.0		-	First order	Y, EFSA 2016; 14(10): 4584
Loamy silt	Germany (autumn)	6.9	0-30	77.0		256.0		-	First order	
Silty sand	Germany (spring)	5.8	0-30	62.0		206.0		-	First order	
Silty sand	Germany (autumn)	5.8	0-30	109.0		362.0		-	First order	
Silty sand	France (spring)	6.1	0-30	56.0		186.0		-	First order	
Silty sand	France (autumn)	6.1	0-30	97.0		322.0		-	First order	
Sandy silt	Great Britain (Spring)	4.7	0-30	29.3		97.0		-	First order	
Sandy silt	Grain Britain (autumn)	4.7	0-30	114.0		378.0		-	First order	
Sandy silt	Italy (spring)	7.5	0-30	72.9		242.0		-	First order	
Silty loam	Spain (spring)	7.4	0-30	72.0		239.0		-	First order	
Maximum (n=10)				114.0						

a Medium for measurement of soil pH not stated
b Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7

8.4.1.3 Mefenpyr-diethyl and its metabolites

The degradation of mefenpyr-diethyl under field conditions was investigated at four German sites at a nominal application rate of 90 g/ha in two studies.

Mefenpyr-diethyl was found to dissipate very rapidly at three out of the four sites investigated. After application, significant concentrations of the parent compound were found only at site "Stelle". The field dissipation data were kinetically evaluated. It was concluded that too few data points with significant concentrations exist to estimate reliable degradation parameters of mefenpyr-diethyl and of AE F113225. Hence, no reliable field DT_{50} values of mefenpyr-diethyl and of AE F113225 are available. For three sites a sufficient number of data points were available with significant AE F094270 concentrations. First order degradation rates were calculated for all sites based on non-normalized data in the original studies.

The optimised degradation rates and half-lives of the phenylpyrazole carboxylic acid AE F094270 for Bornheim, Gersthofen and Schwanheim test-sites are summarised in the table below. All fits followed simple first order kinetics with acceptable visual fits.

Table 8.4-4: Kinetic parameters and field DT_{50} for metabolite AE F094270

Location	Model	DT_{50} actual (days)	DT_{90} actual (days)	$\chi 2$ (%)	t-test	DT_{50} normalized (days)
Bornheim	SFO	44	147	5.8	< 0.001	13.4
Gersthofen	SFO	23	76	9.0	0.014	12.8
Schwanheim	SFO	79	263	9.0	0.0076	43.8
					Geometric mean	**19.6**

8.4.2 Soil accumulation testing (KCP 9.1.1.2.2)

As concluded from the various laboratory and field degradation experiments, there is no potential for an accumulation of residues of iodosulfuron-methyl-sodium, mesosulfuron-methyl and their major metabolites in soil following repeated application in subsequent years. Field accumulation studies have not been performed and are not required for iodosulfuron-methyl-sodium nor mesosulfuron-methyl.

There was no need for a testing of soil accumulation as the times for a 90% degradation of all mefenpyr-diethyl residues under conditions of the field were well below 1 year. There is no potential indicated for an accumulation of residues of the parent compound and/or its major metabolites in soil following repeated application in following years.

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 Iodosulfuron-methyl-sodium and its metabolites

Table 8.5-1: Summary of soil adsorption/desorption for Iodosulfuron-methyl-sodium

Iodosulfuron-methyl-sodium							
Soil name	**Soil type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
S2.1	sand	1.2	5.6	0.12	10	0.70	Y EFSA 2016; 14(4): 4453
LS 2.2	loamy sand	2.5	5.7	0.54	22	0.93	
SL V	sandy loam	1.1	6.0	0.13	12	1.03	
SL 2	silt loam	0.7	5.4	1.05	152	0.87	
CLM	clay loam	2.8	7.2	2.47	90	0.80	
SLJ	sandy loam	2.5	7.5	2.03	82	0.85	
FL	loam	3.0	7.3	0.694	22.8	0.89	
FB	clay loam	2.4	7.2	0.368	15.5	0.86	
Honville	loamy silt	0.9	5.9	0.451	49.5	0.92	
Geometric mean (n=9)				0.56	**33.4**		
Arithmetic mean (n=9)				0.87	50.6	0.87	
pH-dependency					no		

Table 8.5-2: Summary of soil adsorption/desorption for AE F075736

AE F075736							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
FL	loam	3.0	7.3	0.134	4.3	(0.94	Y EFSA 2016; 14(4): 4453
FB	clay loam	2.4	7.2	0.067	2.9	0.89	
SL S	silt loam	2.1	7.0	0.106	5.1	0.86	
LS 2.2	loamy sand	2.0	6.0	0.145	7.4	0.92	
SL V	sandy loam	0.4	6.0	0.065	15.1	0.90	
LUFA 2.2	loamy sand	2.2	5.8	0.530	24.2	0.91	
Honville	loamy silt	0.9	6.7	0.241	26.5	0.96	
Flanagan	silt loam	2.3	6.5	1.4	60	0.97	
Keyport (USA)	silt loam	1.6	6.4	0.84	53	0.85	
Cecil (USA)	sand	0.2	6.1	0.36	207	1.14	

AE F075736							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Bow Island (Canada)	sandy loam	1.3	7.1	0.05	4	0.97	
Tangent (Canada)	clay loam	2.6	5.3	0.3	12	0.95	
Dauphin (Canada)	sandy clay loam	3.4	7.5	0.3	9	0.95	
Bradwell (Canada)	loam	2.1	7.6	0.15	7	1.1	
Hanley Res (Canada)	loam	2.3	5.4	0.65	29	1.03	
Foam Lake (Canada)	sandy loam	3	7.7	0.35	12	1.06	
Fisher Branch (Canada)	clay loam	4.2	7.5	0.6	14	0.94	
Drummer (USA)	silt loam	3.2	6.4	1.5	47	0.85	
Lleida (Spain)	silty clay	1.8	7. 9	0.13	6.9	0.95	
Gross-Umstadt (Germany)	loam	1.3	7.2	0.1	7.8	0.95	
Sassafras (USA)	sand	1.4	5.3	0.48	35	0.9	
Nambsheim (France)	sandy loam	1.3	7.1	0.05	4	0.97	
Geometric mean (n= 22)				0.24	**14.0**		
Arithmetic mean (n=22)				0.39	**27.0**	1.0	
pH-dependency				No			

Table 8.5-3: Summary of soil adsorption/desorption for AE F059411

AE F059411							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
SL S	silt loam	2.1	7.0	0.443	21.3	0.87	Y EFSA 2016; 14(4): 4453
LS 2.2	loamy sand	2.0	6.0	0.298	15.3	0.91	
SL V	sandy loam	0.4	6.0	0.315	73.3	0.84	
Honville	loamy silt	0.9	6.7	1.57	172.0	0.84	
Laacher Hof Wurmwiese	loam	1.8	5.3	1.321	73.4	0.92	
Hoefchen Am Hohenseh 4a	silt loam	2.4	6.6	0.481	20.0	0.98	
Les Cayades	clay loam	0.9	7.6	0.561	62.3	0.92	

AE F059411							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Guadalupe	sandy loam	0.7	6.7	0.675	96.5	0.95	
Springfield	silt loam	1.7	6.6	3.147	185.1	0.90	
Gross-Umstadt	silt loam	1.2	7.7	0.2	18.8	1.05	
Arrow	sandy loam	2.3	5.7	0.7	29.7	0.94	
Mattapex	silt loam	2.6	6.4	0.4	16.7	0.96	
Matapeake	silt loam	1.1	5.3	2.36	214.2	0.841	
Sassafras	sand	0.46	6.3	0.621	133.8	0.784	
Drummer	silty clay loam	3.02	5.7	6.8	225.5	0.841	
Myaka	sand	0.58	6.2	0.264	45.52	0.873	
	Agriculutural sand	0.35	7.9	0.2326	66.5	0.87	
	Sandy loam	0.99	7.8	0.57	58.2	0.902	
	Silt loam	1.74	6.5	0.9612	55.2	0.847	
	Silty clay loam	0.7	6.9	1.201	171.6	0.823	
2.2	silty sand	1.97	5.4	0.3728	18.92	0.64	
3A	sandy loam	2.42	7.3	0.435	17.97	0.759	
6S	clay loam	1.84	6.9	0.0543	2.95	1.422	
Speyer 2.1		0.56	6.0	0.2025	36	0.92	
Standard soil no. 115 [g)]		1.7	7.4	0.6255	37	0.89	
Standard soil no. 164 [g)]		3	6.5	0.645	22	0.92	
Standard soil no. 243 [g)]		1.1	4.3	0.337	31	0.91	
Geometric mean				0.571	**45.6**		
Arithmetic mean (n=27)				0.955	71.1	0.90	
pH-dependency				No			

Table 8.5-4: Summary of soil adsorption/desorption for AE F161778

AE F161778							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Hattersheim	silty loam	1.9	6.4	0.754	39.7	0.96	Y EFSA 2016;
Baumber	loamy	2.2	7.3	0.753	34.2	0.98	

AE F161778							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
	sand						14(4): 4453
Empingham	sandy clayey loam	4.6	7.4	0.940	20.4	0.94	
Gross-Umstadt (Germany)	silt loam	1.2	7.7	0.4	34	1.08	
Arrow	sandy loam	2.3	5.7	0.6	24.2	0.92	
Mattapex	silt loam	2.6	6.4	0.8	30.4	0.84	
			Geometric mean	0.684	**29.7**		
			Arithmetic mean (n=6)		30.5	1.0	
			pH-dependency	No			

Table 8.5-5: Summary of soil adsorption/desorption for AE F145740

AE F145740							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Laacher Hof AXXa	sandy loam	2.0	6.5	0.27	13.5	0.91	Y EFSA 2016; 14(4): 4453
Dollendorf II	silty clay loam	4.9	7.4	0.61	12.5	0.91	
Höfchen am Hohenseh	silt loam	2.1	6.5	0.39	18.7	0.90	
Hanscheider Hof	sandy loam	2.9	5.4	0.95	32.6	0.95	
			Geometric mean	0.5	**17.9**		
			Arithmetic mean (n=4)	0.56	19.3	0.92	
			pH-dependency	No			

Table 8.5-6: Summary of soil adsorption/desorption for BCS-CW81253

BCS-CW81253							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Laacher Hof AXXa	sandy loam	1.6	6.4	0.73	45.4	0.91	Y EFSA 2016; 14(4): 4453
Dollendorf II	silty clay loam	5.0	7.2	0.99	19.9	0.89	

BCS-CW81253							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Höfchen am Hohenseh	silt loam	1.7	6.3	0.77	45.2	0.90	
Hanscheider Hof	sandy loam	2.9	5.4	1.06	36.5	0.89	
Gross-Umstad	silt loam	1.2	7.7	0.97 (Kd)	81	1.0	
Arrow	sandy loam	2.3	5.7	0.9	41	0.86	
Mattapex	silt loam	2.6	6.4	1.2	45	0.92	
Geometric mean				0.93	**41.8**		
Arithmetic mean (n=7)					44.9	0.91	
pH-dependency				No			

Table 8.5-7: Summary of soil adsorption/desorption for AE 0000119

AE 0000119							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Wurmwiese	Loam	1.8	5.3	1.103	61.3	0.93	Y EFSA 2016; 14(4): 4453
Höfchen am Hohenseh 4a	Silt loam	2.4	6.6	1.702	70.9	0.91	
Guadalupe	Sandy loam	0.7	6.7	1.772	253.2	0.92	
Springfield	Silt loam	1.7	6.6	5.985	352.0	0.89	
Tama (USA	Silty clay loam	3.1	6.3	5.97	194.0	0.9297	
Sassafras	Sand	1.4	6.3	0.969	69.4	0.9021	
Lleida	Silty clay	1.8	7.5	1.51	84.0	0.9364	
Nambsheim (France)	Sandy loam	1.6	7.0	0.908	57.9	0.9290	
Suchozebry (Poland)	Sandy loam	0.76	5.0	1.24	164.0	0.8686	
Geometric mean				1.8	**117.2**	-	
Arithmetic mean (n=9)				2.35	145.2	0.91	
pH-dependency				No			

zRMS comments:

Soil mobility data for iodosulfuron -methyl its metabolites are in line with EU agreed endpoints EFSA 2016 14(4) 4453.

8.5.2 Mesosulfuron-methyl and its metabolites

Table 8.5-8: Summary of soil adsorption/desorption for Mesosulfuron-methyl

Mesosulfuron-methyl							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Hamlet / EFS-8	Sand	0.49	5.0	1.69	345	0.85	Y, EFSA 2016; 14(10): 4584
EFS-15	Sandy clay loam	2.70	7.4	3.71	137	0.93	
EFS-17	Loamy sand	1.13	2.5	0.41	37	0.93	
EFS-18	Loamy sand	2.34	5.2	0.71	31	0.91	
EFS-19	Sandy loam	2.64	7.3	2.28	86	0.90	
EFS-20	Sandy loam	0.91	6.3	0.24	26	0.92	
EFS-28	Clay loam	1.68	7.5	0.60	36	0.93	
EFS29	Loam	1.43	7.5	1.22	85	0.90	
EFS-30	Silt loam	1.16	7.3	0.56	48	0.93	
Geometric mean				0.91	**64**	-	
Arithmetic mean (n=9)				-	92	0.91	
pH-dependency				No			

Table 8.5-9: Summary of soil adsorption/desorption for Mesosulfuron

Mesosulfuron							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
-	Clay loam	3.15	5.8	3.1	98	0.92	Y, EFSA 2016; 14(10): 4584
-	Silt loam	1.3	7.4	0.79	61	0.94	
-	Sandy loam	1.65	5.1	0.75	46	0.95	
Geometric mean				1.22	**65**	-	
Arithmetic mean (n=)				-	68	0.94	
pH-dependency				No			

Table 8.5-10: Summary of soil adsorption/desorption for AE F099095

AE F099095							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
-	Clay loam	3.15	5.8	42.8	1360	0.83	Y, EFSA 2016; 14(10): 4584
-	Silt loam	1.3	7.4	2.94	226	0.84	
-	Sandy loam	1.65	5.1	2.33	141	0.86	
-	Sandy loam	1.3	5.7	3.05	235	0.777	
-	Sandy loam	4.3	5.3	4.81	112	0.737	
-	Sandy clay loam	3.5	7.0	4.39	126	0.78	
-	Clay	3.8	7.1	4.94	130	0.79	
-	Sand	1.1	3.9	2.05	186	0.801	
-	Loamy sand	14.42	3.38	126	874	0.817	
-	Clay	0.89	7.55	33	3704	0.761	
-	Silt loam	2.13	5.16	11	516	0.802	
Geometric mean				8.0	**334**	-	
Arithmetic mean (n=11)				21.6	692	0.8	

Table 8.5-11: Summary of soil adsorption/desorption for AE F092944

AE F092944							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
-	Loamy sand	1.17	5.00	2.47	211	0.69	Y, EFSA 2016; 14(10): 4584
-	Loamy sand	2.91	5.00	2.59	89	0.86	
-	Sandy loam	1.32	4.70	8.25	625	0.65	
-	Loamy sand	0.16	8.00	1.05	663	0.52	
-	Sandy loam	0.26	7.95	1.82	696	0.63	
-	Sandy loam	1.04	6.10	4.11	395	0.78	
-	Silt loam	0.72	5.60	81.3	11289	0.58	
-	Silty clay	1.80	7.70	16.5	917	0.62	
-	Loamy sand	2.1	6.4	1.22	58.1	0.85	
-	Loamy sand	0.5	5.2	2.26	452	0.81	
-	Silt loam	3.1	5.5	45.3	1460	0.71	

AE F092944							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
-	Sandy loam	0.7	7.8	0.859	123	0.79	
-	Silt loam	1.2	5.8	2.35	196	0.82	
-	Loamy sand	2.29	7.0	1.17	50.9	0.84	
-	Loamy sand	1.17	7.7	0.71	60.4	0.82	
Sisseln	Sandy loam	1.557	7.8	0.83	52.8	0.92	
-	Silt loam	4.05	7.3	1.70	42.0	0.91	
-	Silt loam	1.78	6.9	11.54	648.3	0.72	
-	Sandy loam	0.58	8.0	1.92	331.0	0.68	
-	Loamy sand	1.15	6.8	2.59	225.2	0.79	
-	Silty clay loam	2.0	5.8	32.23	1611.5	0.56	
-	Sandy loam	1.1	4.9	13.77	1252.0	0.632	
-	Sandy loam	1.4	6.2	5.53	395.0	0.695	
-	Sand clay loam	3.3	7.6	3.7	112.0	0.754	
-	Slay loam	4.0	4.9	17.99	450.0	0.429	
Geometric mean				4.4	**293.9**	-	
Arithmetic mean (n=26)				-	**956.4**	0.74	

Table 8.5-12: Summary of soil adsorption/desorption for AE F160459

AE F160459							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
-	Loam	1.8	5.3	0.1978	11.2	0.9320	Y, EFSA 2016; 14(10): 4584
-	Silt loam	2.4	6.6	0.3797	15.7	0.9388	
-	Clay loam	7.42	7.3	0.7630	16.2	0.9267	
-	Sandy loam	0.7	6.7	0.1475	21.1	0.9760	
-	Silt loam	1.7	6.6	0.7590	44.6	0.9324	
Geometric mean				0.36	**19.3**	-	
Arithmetic mean (n=5)				-	21.8	0.941	

Table 8.5-13: Summary of soil adsorption/desorption for AE F160460

AE F160460							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
-	Loam	1.8	5.3	0.2069	11.5	0.9745	Y, EFSA 2016; 14(10): 4584
-	Silt loam	2.4	6.6	0.2258	9.4	0.8692	
-	Clay loam	7.42	7.3	0.3488	7.6	0.8387	
-	Sandy loam	0.7	6.7	0.0743	10.6	0.9524	
-	Silt loam	1.7	6.6	0.5329	31.3	0.8628	
Geometric mean				0.23	**12.2**	-	
Arithmetic mean (n=3)				-	14.1	0.900	

Table 8.5-14: Summary of soil adsorption/desorption for AE F140584

AE F140584							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Geometric mean				0	**0**	-	Y, EFSA 2016; 14(10): 4584
Arithmetic mean (n=0)				-	0	1	

Table 8.5-15: Summary of soil adsorption/desorption for AE F147447

AE F147447							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kdoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
-	Sandy loam	2.1	6.4	-	4.6	-	Y, EFSA 2016; 14(10): 4584
-	Silt loam	2.5	6.8	-	3.8	-	
-	Loam	1.3	6.8	-	6.6	-	
-	Silt loam	2.8	5.6	-	7.0	-	
-	Clay loam	4.4	7.3	-	4.1	-	
Geometric mean					**5.1**		
Arithmetic mean (n=5)					5.2		

Table 8.5-16: Summary of soil adsorption/desorption for BCS-CV14885

Mesosulfuron-methyl							
Soil Name	**Soil Type**	**OC (%)**	**pH (-)**	**Kf (mL/g)**	**Kfoc (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
-	Loamy sand	1.7	6.2	0.30	17.5	1.17	Y, EFSA 2016; 14(10): 4584
-	Loam	5.1	7.0	0.96	18.8	1.07	
-	Silt loam	2.0	6.1	0.27	13.6	1.18	
-	Loam	1.9	5.3	0.41	21.7	1.43	
Geometric mean				0.42	**17.7**	-	
Arithmetic mean (n=4)				-	17.8	1.21	

zRMS comments:

Soil mobility data for mesosulfuron -methyl and its metabolites are in line with EU agreed endpoints EFSA 2016; 14(10): 4584.

8.5.3 Mefenpyr-diethyl and its metabolites

Data on adsorption to soil were determined from batch equilibrium tests for the parent compound (seven soils) and for soil metabolites AE F113225 (three soils) and AE F094270 (five soils).

For the parent compound mefenpyr-diethyl values for the coefficients of adsorption according to Freundlich (K_F, ads) ranged from 3.16 mL/g to 23.96 mL/g with corresponding values referenced to organic carbon (Koc, ads) to range from 486 mL/g to 823 mL/g (arithmetic mean: 645 mL/g). Values for the Freundlich exponent of adsorption 1/n ranged from 0.96 to 1.23 (arithmetic mean: 1.11). Due to low recoveries in soil LS 2.2 the corresponding values were excluded from calculation of mean values to result in a revised arithmetic mean of 614 mL/g as input for sorption in environmental exposure assessments. For the same reason the Freundlich exponent 1/n was re-calculated to a value of 1.09.

The adsorption coefficients of the major metabolites are found summarised in the table below. For soil photodegradate AE 2211046 a Koc estimate via QSAR was proposed by the RMS for use in environmental simulation models.

Table 8.5-17: Soil adsorption properties of mefenpyr-diethyl and metabolites in soil

	Koc Mean (range) (mL/g)	**1/n Mean (range)**
Mefenpyr-diethyl	614 (range: 486 – 823)	1.09 (range: 0.96 – 1.23)
AE F113225	113 (range: 76 – 144)	0.92 (range: 0.90 – 0.93)
AE F094270	212 (range: 65 – 397)	0.93 (range: 0.80 – 1.02)
AE 2211046	1320 (QSAR)	1.00 (worst-case value)

Table 8.5-18a: Summary of soil adsorption/desorption for mefenpyr-diethyl

Mefenpyr-diethyl							
Soil name	**Soil type**	**OC (%)**	**pH ($CaCl_2$)**	**K_f (mL/g)**	**K_{foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
SLH	Silt loam	1.10	6.2	7.08	644	0.99	Y DAR Mefenpyr-diethyl Vol.3-B8 Sept. 2011
SLV	Loamy sand	1.13	5.8	6.71	593	1.20	
S 2.1	Silty sand	1.17	5.0	5.68	486	1.20	
SLN	Loamy sand	0.89	7.1	5.16	580	1.20	
EFS-8	Sand	0.49	4.98	3.16	648	0.96	
EFS-15	Sandy clay loam	2.70	7.9	19.9	738	0.96	
				Geometric mean (n=6)	**609.9**	-	
				Arithmetic mean (n=6)	614.8	**1.1**	
				pH-dependency y/n	No		

Table 8.5-17b: Summary of soil adsorption/desorption for metabolite AE F113225

AE F113225							
Soil Name	**Soil Type**	**OC (%)**	**pH ($CaCl_2$)**	**K_f (mL/g)**	**K_{foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Shelley field	Loam	1.9	7.1	2.73	144	0.90	Y DAR Mefenpyr-diethyl Vol.3-B8 Sept. 2011
Litte Shelford	Sandy loam	2.4	7.3	1.83	76	0.93	
Manningtree	Loam	3.0	5.2	3.60	120	0.93	
				Geometric mean (n=3)	**109.5**	-	
				Arithmetic mean (n=3)	113.3	**0.92**	
				pH-dependency y/n	No		

Table 8.5-17c: Summary of soil adsorption/desorption for metabolite AE F094270

AE F094270							
Soil Name	**Soil Type**	**OC (%)**	**pH ***	**K_f (mL/g)**	**K_{foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
LS 2.2	Loamy sand	2.91	5.0	7.49	257	0.96	Y DAR Mefenpyr-diethyl Vol.3-B8 Sept. 2011
L 2.3	Sandy loam	1.15	5.0	4.57	397	0.80	
SL H	Silt loam	1.33	6.8	1.57	118	1.02	
F 821	Sandy loam	2.28	7.1	1.49	65	1.00	
S 2.1	Loamy sand	1.17	5.0	2.58	221	0.86	
				Geometric mean (n=5)	**176.8**	-	
				Arithmetic mean (n=5)	211.6	**0.93**	

AE F094270							
Soil Name	**Soil Type**	**OC (%)**	**pH** *	**K_f (mL/g)**	**K_{foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
				pH-dependency y/n	No		

* Method of measurement not reported

8.5.4 Column leaching (KCP 9.1.2.1)

No column leaching studies are available nor requested.

8.5.5 Lysimeter studies (KCP 9.1.2.2)

For Iodosulfuron-methyl-sodium, two lysimeter studies were available but the results were only considered indicative due to methodological deficiencies. Additionally, the design was considered not fully descriptive of the representative uses applied for. For this reason, details of this study are not further discussed in this application.

In the first review of mesosulfuron-methyl, two lysimeter studies showed that mesosulfuron-methyl and its metabolites were not detected in leachates after application at 15 g/ha in spring or autumn to a silty sand soil. The annual mean concentration of the total radioactivity in leachates was in the range 0.347 – 0.46 µg/L a.s. equivalent (spring) and limit of detection (LOD) < -0.779 µg/L a.s. equivalent (autumn). This radioactivity mainly consisted of two unknown polar compounds. In the frame of the renewal, an additional lysimeter study was conducted with the aim of identifying the presence of any metabolite > 0.1 µg/L in the polar fraction. In the new study, only one significant polar peak was observed in the three tested soils and identified as metabolite BCS-CV14885.
For metabolite BCS-CV14885, the average annual concentration of radioactivity in leachates was 0.2 µg/L (spring applications) and in the range of 0.15–0.48 µg/L (autumn applications). Therefore, metabolite BCS-CV14885 is included in the exposure assessment.

For mefenpyr-diethyl, the results of a lysimeter study showed a rapid degradation of ^{14}C-labelled mefenpyr-diethyl and its residues with simultaneous formation of bound residues. There were no signs for a translocation of the parent substance or its residues into deeper layers of soil. Analysis of percolates showed that no individual component was observed above a mean annual concentration of 0.1 µg parent-equiv./L.

8.5.6 Field leaching studies (KCP 9.1.2.3)

~~Not required.~~
Field leaching studies for iodosulfuron-methyl-sodium were not required for EU registration as sufficient information can be derived from the existing studies; no additional studies are considered for this assessment.

Field leaching studies for mesosulfuron-methyl were not required for EU registration as sufficient information can be derived from the existing studies, no additional studies are considered for this assessment

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 Iodosulfuron-methyl-sodium and its metabolites

Table 8.6-1: Summary of degradation in water/sediment of iodosulfuron-methyl-sodium

Iodosulfuron-methyl-sodium Distribution (max. water/sediment 20.0 % after 7 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**
Nidda	8.3 / -	20.4	68.0	SFO (3.0)	19.0	63.3	SFO (2.9)	21.2	SFO	Y EFSA 2016; 14(4): 4453
Rhine	7.7 / -	11.3	37.6	SFO (6.8)	10.5	34.8	SFO (5.5)	2.2	SFO	Y EFSA 2016; 14(4): 4453
Pikeville	7.1 / 5.4	33.9	112.7	SFO (4.8)	28.4	94.4	SFO (4.5)	-	-	Y EFSA 2016; 14(4): 4453
Geometric mean (n=3)		**19.8**	66.05		17.83	59.24		6.83 (n=2)		

Table 8.6-2: Summary of observed metabolites

AE F075736 Water/sediment system	Max. in water/sediment 67.8 % after 43 d	Y, EFSA 2016; 14(4): 4453
AE 000119 Water/sediment system	Max. in water/sediment 24.9 % after 120 d	Y, EFSA 2016; 14(4): 4453
AE F059411 Water/sediment system	Max. in water/sediment 27.5 % after 182 d	Y, EFSA 2016; 14(4): 4453
AE 0014966 Water/sediment system	Max. in water/sediment 15.5 % after 91 d	Y, EFSA 2016; 14(4): 4453
AE F145740 Water/sediment system	Max. in water/sediment 12.6 % after 60-79 d	Y, EFSA 2016; 14(4): 4453
AE F145741 Water/sediment system	Max. in water/sediment 8.7 % after 46 d	Y, EFSA 2016; 14(4): 4453
AE 0034855 Water/sediment system	Max. in water/sediment 24.2 % after 182 d	Y, EFSA 2016; 14(4): 4453
AE F159737	Max. in water/sediment 7.8 % after 100 d (study end)	Y, EFSA 2016;

Water/sediment system		14(4): 4453
AE 1234964 Water/sediment system	Max. in water/sediment 7.4 % after 100 d (study end)	Y, EFSA 2016; 14(4): 4453

8.6.2 Mesosulfuron-methyl and its metabolites

Table 8.6-3: Summary of degradation in water/sediment of mesosulfuron-methyl

Mesosulfuron-methyl Distribution (max. sediment 20.0 % after 7 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**
Kies	7.2 / 7.2	81.15	269.6	SFO (2.6)	72.7	241.5	SFO (3.2)	No reliable DT_{50} derived	-	Y, EFSA 2016; 14(10): 4584
Kies	7.2 / 7.2	68.93	228.98	SFO (3.0)	61.65	204.8	SFO (2.5)	62.83	SFO (8.7)	Y, EFSA 2016; 14(10): 4584
Nidda	7.8 / 6.4	26.82	89.08	SFO (9.7)	12.79 (back-DT_{50}: 20.53)	68.19	FOMC (4.5)	79.32	SFO (22.1)	Y, EFSA 2016; 14(10): 4584
Nidda	7.8 / 6.4	22.81	75.78	SFO (8.1)	14.42	47.9	SFO (7.9)	44.45	SFO (23.2)	Y, EFSA 2016; 14(10): 4584
Geometric mean (n=3)		43.01	-		33.9	-		60.51		

Table 8.6-4: Summary of observed metabolites

AE F154851 Water/sediment system	Max. in water/sediment 4.9 % after 14 d	Y, EFSA 2016; 14(10): 4584
AE F160459 Water/sediment system	Max. in water/sediment 21.6 % after 112 d	Y, EFSA 2016; 14(10): 4584
AE F160460 Water/sediment system	Max. in water/sediment 8.4 % after 28 d	Y, EFSA 2016; 14(10): 4584
AE F147447 Water/sediment system	Max. in water/sediment 10.9 % after 141 d	Y, EFSA 2016; 14(10): 4584
AE F092944 Water/sediment system	Max. in water/sediment 3.2 % after 112 d	Y, EFSA 2016; 14(10): 4584
AE F099095 Water/sediment system	Max. in water/sediment 0.9 % after 141 d	Y, EFSA 2016; 14(10): 4584
BCS-CV14885 Water/sediment system	Max. in water/sediment 22.0 % after 309 d	Y, EFSA 2016; 14(10): 4584
BCS-CO60720	Max. in water/sediment 13.1 % after 365 d	Y, EFSA 2016;

Water/sediment system		14(10): 4584

8.6.3 Mefenpyr-diethyl and its metabolites

Abiotic hydrolysis of mefenpyr-diethyl in sterile aqueous buffer solution is strongly pH-dependent, *i.e.* fast in alkaline media and slowing down under neutral to slightly acidic conditions. The half-life at pH 7 is 40.9 days (25°C). At pH 9, DT50 is decreased to 0.4 days (25°C), whilst at pH 4 and pH 5 mefenpyr-diethyl is stable to hydrolysis. Abiotic hydrolytical degradation resulted in components AE F113225 and AE F109453.
Aqueous photolysis: Under conditions of sterile aqueous photolysis a normalised (52° northern latitude) mean half-life of 17 days has been determined for mefenpyr-diethyl. Mefenpyr-diethyl is mainly degraded in AE 2211046 (already identified in the photodegradation study in soil) which reaches a maximum of 41 % after 7 d of irradiation.
When considering the competing very fast biotic degradation of the parent substance in surface water (see below), abiotic hydrolytical or photolytically induced degradation processes are not considered to be significant routes of degradation under outdoor conditions. In particular direct photolysis is not regarded a relevant pathway for the elimination of mefenpyr-diethyl from the aquatic environment.
Water/sediment: The biotransformation of 14C-labelled mefenpyr-diethyl was studied in two differing water/sediment systems. Additionally, the behaviour of metabolites AE F113225 and AE F094270 was investigated in separate studies with direct dosing of radiolabelled metabolite into the test systems.
Mefenpyr-diethyl was found rapidly degraded in water/sediment, initially *via* partial hydrolysis of one of the two ester groups in the parent molecule to result in the corresponding two isomeric compounds AE F113225 (max. 75 % AR in water, day 7, 18 % AR in sediment, day 14) and AE F114952 (max. 17 % AR in water, day 7, minor in sediment). The partial hydrolysis was followed by complete hydrolysis, i.e. formation of the dicarboxylic acid AE F109453 (max. 42 % in water, day 101, minor in sediment). Finally, a multi-step conversion resulted in the formation of the pyrazole carboxylic acid metabolite AE F094270 (max. 29 % AR in water, day 101, 34 % AR in sediment, day 101). Terminal bioconversion led to the formation of NER (6.0 to 17.2% AR by day 101), and 14C-carbon dioxide formed at 1.6 to 2.1% AR at the same sampling interval.

Table 8.6-5: Summary of observed metabolites

AE F113225 **Water/sediment system**	Max. in water/sediment 82.8 %	DAR Mefenpyr-diethyl
AE F114952 **Water/sediment system**	Max. in water/sediment 18.6 %	DAR Mefenpyr-diethyl
AE F109453 **Water/sediment system**	Max. in water/sediment 46.5 %	DAR Mefenpyr-diethyl
AE F.94270 **Water/sediment system**	Max. in water/sediment 62.4 %	DAR Mefenpyr-diethyl

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

8.7.1 Justification for new endpoints

No deviation was made from 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

Use No.	7 (covering all other uses in winter cereals)	5 (covering all other uses in spring cereals)
Crop	Winter cereals	Spring cereals
Application rate (g as/ha)	Iodosulfuron: 3 Mesosulfuron: 15 Mefenpyr: 45	Iodosulfuron: 1.8 Mesosulfuron: 9 Mefenpyr: 27
Number of applications/interval	1	1
Crop interception (%)	20	20
Depth of soil layer (relevant for plateau concentration) (cm)	5	5
Soil bulk density	1.5 g/cm³ dry weight	1.5 g/cm³ dry weight

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 end-point y/n/ Reference
Iodosulfuron-methyl-sodium	529.3 g/mol	-	-[a] 20.8	Y EFSA 2016; 14(4):4453
Metsulfuron-methyl (AE F075736)	381.4 g/mol	88.5	-[a] 66.7	
AE F145740	493.2 g/mol	8.7	-[a] 55.8	
AE F145741	493.2 g/mol	6.9	-[a] 41.7	
AE 0000119	183.2 g/mol	19.9	231 (worst-case lab value from consolidated dataset - derived from the LoEP in EFSA conclusion for thifensulfuron-methyl)	
AE F059411	140.1 g/mol	40.9	276.9 (SFO, lab worst-case normalised to 20°C and pF 2)	
AE F161778	367.3 g/mol	14.5	-[a] 30.4	
BCS-CW81253	343.2 g/mol	35.1	115.8 (SFO, lab worst-case normalised to 20°C and pF 2)	
AE 0002166	397,4 g/mol	20	-[a] 10.1	
Mesosulfuron-methyl	503.5 g/mol	-	155 d (slow phase from DFOP model, SFO kinetics)	Y, EFSA 2016; 14(10): 4584

Compound	**Molecular weight (g/mol)**	**Max. occurrence (%)**	**DT50 (days)**	**Value in accordance to EU end-point y/n/ Reference**
Mesosulfuron	489.5 g/mol	16.2	207.4 d (SFO, lab worst-case)	
AE F160459	489.5 g/mol	8.9 %	144.8 d (SFO, lab worst-case)	
AE F092944	155.2 g/mol	10.1 %	82.7 d (SFO, lab worst-case)	
AE F160460	475.5 g/mol	8.6 %	44.2 d (SFO, lab worst-case normalised to 20°C and pF 2)	
AE F140584	322.4 g/mol	7.1 %	15.1 d (SFO, lab worst-case)	
AE F1447447	290.3 g/mol	6.5 %	833.1 d (SFO, lab worst case)	
Mefenpyr-diethyl	373.26 g/mol	-	4.6 (worst-case)	DAR Mefenpyr-diethyl
AE F113225	345.2 g/mol	44.1	10.6 (worst-case)	DAR Mefenpyr-diethyl
AE F094270	271.1 g/mol	72.2 / 100[b]	425 (worst-case)	DAR Mefenpyr-diethyl
AE 2211046	391.26 g/mol	11.5	35.5 (worst-case)	DAR Mefenpyr-diethyl

a) Not used for calculation of PECsoil, max
b) 100% for accumulation calculations

8.7.2.1 Iodosulfuron-methyl-sodium and its metabolites

Table 8.7-3: PEC_{soil} for iodosulfuron-methyl-sodium on winter cereals

PEC_{soil} (mg/kg)	Winter cereals	
	Single application	
	Actual	TWA
Initial	**0.0032**	-
Plateau concentration	Not required	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)	Not required	-

Table 8.7-4: PEC_{soil} for iodosulfuron-methyl-sodium on spring cereals

PEC_{soil} (mg/kg)	Spring cereals	
	Single application	
	Actual	TWA
Initial	**0.00192**	-
Plateau concentration	Not required	-

$PEC_{accumulation}$ (PEC_{act} + $PEC_{soil\ plateau}$)	Not required	-

PEC_{soil} of metabolites

Table 8.7-5: PEC_{soil} for iodosulfuron-methyl-sodium metabolites on winter cereals

PEC_{soil} (mg/kg)	Winter cereals		
	Single application		
	Actual - Initial	Plateau concentration (5 cm) after year 1	$PEC_{accumulation}$ (PEC_{act} + $PEC_{soil\ plateau}$)
AE F075736	0.00204	-	-
AE F161778	0.00032	-	-
AE F059411	0.00035	0.0002	0.0005
AE F145740	0.00026	-	-
AE F145741	0.00021	-	-
AE 0000119	0.00022	0.000	0.0002
BCS-CW81253	0.00073	0.0001	0.0008
AE 0002166	0.00048	-	-

Table 8.7-6: PEC_{soil} for iodosulfuron-methyl-sodium metabolites on spring cereals

PEC_{soil} (mg/kg)	Spring cereals		
	Single application		
	Actual - Initial	Plateau concentration (5 cm) after year 1	$PEC_{accumulation}$ (PEC_{act} + $PEC_{soil\ plateau}$)
AE F075736	0.00122	-	-
AE F161778	0.00019	-	-
AE F059411	0.00021	0.0001	0.0003
AE F145740	0.00016	-	-
AE F145741	0.00012	-	-
AE 0000119	0.00013	0.0001	0.0002
BCS-CW81253	0.00044	0.0001	0.0005
AE 0002166	0.00029	-	-

Evaluator comments:

The PECs calculations have been accepted.
The input parameters used in calculation was established in the EU review for iodosulfuron-methyl-sodium (EFSA Journal 2016;14(4):4453).
Interception has been appropriate to the proposed BBCH of crops (EFSA guidance was published, (2014;12(5):3662).

The calculations of PECs cover proposed uses in GAP.
The results of PECs calculation are presented in Table 8.7-7 - Table 8.7-8.

The results initial PEC soil of the active substances and tits metabolites in soil are appropriate to be used for the subsequent risk assessment.

8.7.2.2 Mesosulfuron-methyl and its metabolites

Table 8.7-9: PEC_{soil} for mesosulfuron-methyl on winter cereals

PEC_{soil} (mg/kg)	Winter cereals	
	Single application	
	Actual	TWA
Initial	0.016	-
Plateau concentration	0.0039	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)	0.0199	-

Table 8.7-10: PEC_{soil} for mesosulfuron-methyl on spring cereals

PEC_{soil} (mg/kg)	Spring cereals	
	Single application	
	Actual	TWA
Initial	0.00960	-
Plateau concentration	0.0023	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)	0.0119	-

PEC_{soil} of metabolites

Table 8.7-11: PEC_{soil} for mesosulfuron-methyl metabolites on winter cereals

PEC_{soil} (mg/kg)	Winter cereals		
	Single application		
	Actual - Initial	Plateau concentration (5 cm) after year 1	$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)
Mesosulfuron	0.00252	0.0011	0.0036
AE F160459	0.00138	0.0003	0.0017
AE F099095	0.00185	0.0011	0.0030
AE F092944	0.00050	-	-
AE F160460	0.00133	-	-

AE F140584	0.00073	-	-
AE F1447447	0.00060	0.0017	0.0023

Table 8.7-12: PEC$_{soil}$ for mesosulfuron-methyl metabolites on spring cereals

PEC$_{soil}$ (mg/kg)	Spring cereals		
	Single application		
	Actual - Initial	Plateau concentration (5 cm) after year 1	PEC$_{accumulation}$ (PEC$_{act}$ +PEC$_{soil\ plateau}$)
Mesosulfuron	0.00151	0.0006	0.0021
AE F160459	0.00083	0.0002	0.0010
AE F099095	0.00111	0.0007	0.0018
AE F092944	0.00030	-	-
AE F160460	0.00080	-	-
AE F140584	0.00044	-	-
AE F1447447	0.00036	0.0010	0.0014

Evaluator comments:

The PECs calculations have been accepted.
The input parameters used in calculation was established in the EU reviews: mesosulfuron-methyl (EFSA 2016; 14(10): 4584).
Interception has been appropriate to the proposed BBCH of crops (EFSA guidance was published, (2014;12(5):3662).

The calculations PECs cover proposed uses in GAP.
The results of PECs calculation are presented in Table 8.7-7 - Table 8.7-10.

The results initial PEC soil of the active substances and tits metabolites in soil are appropriate to be used for the subsequent risk assessment.

8.7.2.3 Mefenpyr-diethyl and its metabolites

Table 8.7-13: PEC$_{soil}$ for mefenpyr-diethyl on winter cereals

PEC$_{soil}$ (mg/kg)	Winter cereals	
	Single application	
	Actual	TWA
Initial	0.04800	-
Plateau concentration	Not required	-
PEC$_{accumulation}$ (PEC$_{act}$ +PEC$_{soil\ plateau}$)	Not required	-

Table 8.7-14: PEC_{soil} for mefenpyr-diethyl on spring cereals

PEC_{soil} (mg/kg)	Spring cereals	
	Single application	
	Actual	TWA
Initial	0.02880	-
Plateau concentration	Not required	-
$PEC_{accumulation}$ (PEC_{act} + $PEC_{soil\ plateau}$)	Not required	-

PEC_{soil} of metabolites

Table 8.7-15: PEC_{soil} for mefenpyr-diethyl metabolites on winter cereals

PEC_{soil} (mg/kg)	Winter cereals		
	Single application		
	Actual - Initial	Plateau concentration (5 cm) after year 1	$PEC_{accumulation}$ (PEC_{act} + $PEC_{soil\ plateau}$)
AE F113225	0.01958	-	-
AE F094270	0.02517	0.0429	0.0777
AE 2211046	0.00579	-	-

Table 8.7-16: PEC_{soil} for mefenpyr-diethyl metabolites on spring cereals

PEC_{soil} (mg/kg)	Spring cereals		
	Single application		
	Actual - Initial	Plateau concentration (5 cm) after year 1	$PEC_{accumulation}$ (PEC_{act} + $PEC_{soil\ plateau}$)
AE F113225	0.01175	-	-
AE F094270	0.01510	0.0257	0.0466
AE 2211046	0.00347	-	-

Evaluator comments:

The PECs calculations have been accepted.
The input parameters used for calculations were established in the DAR Mefenpyr-diethyl.
Interception has been appropriate to the proposed BBCH of crops (EFSA guidance was published, (2014;12(5):3662).

The calculations PECs cover proposed uses in GAP.
The results of PECs calculation are presented in Table 8.7-11 - Table 8.7-14.

The results initial PEC soil of the active substances and tits metabolites in soil are appropriate to be used for the subsequent risk assessment.

8.7.2.4 PEC_{soil} of GLOB289H

An initial PEC_{soil} value was calculated for the formulation based on the maximum individual application rate of 0.5-0.3 kg/ha assuming 20% crop interception (BBCH 21-32). Time-dependent PEC_{soil} values are not required to be calculated for the formulation since it is considered to be separated in to its individual components by transport and dissipation processes. A formulation PEC_{soil} value of respectively 0.5333 mg/kg and 0.3200 mg/kg was calculated for winter and spring cereals based on the maximum individual formulation application rate and the assumptions described above (soil depth of 5 cm, bulk density of 1.5 g/cm^3 and crop interception of 20%).

Table 8.7-17: PEC_{soil} for GLOB289H on winter cereals

Active substance/ reparation	Application rate (g/ha)	PEC_{act} (mg/kg)	PEC_{twa}21 d (mg/kg)	Tillage depth (cm)	$PEC_{soil,plateau}$ (mg/kg)	PEC_{accu} = PEC_{act} + $PEC_{soil,plateau}$ (mg/kg)
GLOB289H	500	0.5333	-	-	-	-

Table 8.7-18: PEC_{soil} for GLOB289H on spring cereals

Active substance/ reparation	Application rate (g/ha)	PEC_{act} (mg/kg)	PEC_{twa}21 d (mg/kg)	Tillage depth (cm)	$PEC_{soil,plateau}$ (mg/kg)	PEC_{accu} = PEC_{act} + $PEC_{soil,plateau}$ (mg/kg)
GLOB289H	300	0.3200	-	-	-	-

Evaluator comments:

The PECs calculations GLOB289H have been accepted.
The results of PEC soil for will be used for the ecotoxicological risk assessment.

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

8.8.1 Justification for new endpoints

Since the application for the approval of the active substance iodosulfuron-methyl-sodium, a new EFSA guidance was published, (2014;12(5):3662) in which the use of geomean DT_{50} and K_{foc} / K_{fom} is recommended over the arithmetic mean. Therefore, the geomean of the DT_{50} and K_{foc} values was calculated and used instead of the arithmetic mean from the LoEP.

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

For winter cereals, application dates from the LoEP were used. The application in winter cereals according to GAP is done at the end of winter, at the beginning of the vegetation period (*i.e.* when the temperature is high enough to expect crop and weed growth), onto well-developed crop. As no pre-defined event dates are implemented in the FOCUS models that would directly translate this cropping situation into discrete calendar dates for each groundwater scenario setting, the simulated treatment was reference relative to the tabulated crop emergence data of the earliest emerging spring crop (*i.e.* not necessarily cereals) that was defined by FOCUS for the respective scenario. An application 14 days before that date was then selected, which is considered an adequate representation for the start of the vegetation period in the respective scenario environment.

For spring cereals, no applications dates are available in the LoEP. The application in spring cereals according to GAP is done beginning at BBCH 21. Also here it is difficult to directly translate this cropping situation into discrete calendar dates for the different groundwater scenarios. Therefore, the following approach was used to define suitable scenario-adapted application dates: beginning of tillering or BBCH21 is usually reached 4 weeks after emergence. An application date 14 days before that date was selected, which comes down to 14 days after crop emergence. The emergence date for spring cereals in each groundwater scenario was taken from the FOCUS guidance document[2].

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

Use No.	7	5	5
Crop	Winter cereals	Winter cereals	Spring cereals
Application rate (g as/ha)	MSM: 15 ISMS: 3 MDE: 45	MSM: 9 ISMS: 1.8 MDE: 27	MSM: 9 ISMS: 1.8 MDE: 27
Number of applications/interval (d)	1	1	1
Application date Absolute / relative to	Absolute, based on EFSA LoEP	Absolute, based on EFSA LoEP	14 days after emergence
Crop interception (%)	20%	20%	20%
Frequency of application	Annual	Annual	Annual
Models used for calculation	FOCUS PEARL v4.4.4, FOCUS PELMO v5.5.3	FOCUS PEARL v4.4.4, FOCUS PELMO v5.5.3	FOCUS PEARL v4.4.4, FOCUS PELMO v5.5.3

MSM: Mesosulfuron-methyl – ISMS: Iodosulfuron-methyl-sodium – MDE: Mefenpyr-diethyl

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

Scenario	Application dates (absolute/relative)	
	Winter cereals	Spring cereals
Châteaudun	24/02 / -	24/03 / 14d
Hamburg	24/02 / -	15/04 / 14d
Jokioinen	4/05 / -	1/06 / 14d
Kremsmünster	24/02 / -	15/04 / 14d
Okehampton	1/03 / -	15/04 / 14d

[2] FOCUS - Generic guidance for Tier 1 FOCUS ground water assessments. version 2.2, may 2014.

Scenario	Application dates (absolute/relative)	
	Winter cereals	Spring cereals
Piacenza	6/03 / -	-
Porto	14/02 / -	24/03 / 14d
Sevilla	15/02 / -	-
Thiva	15/02 / -	-

8.8.2.1 Iodosulfuron-methyl-sodium and its metabolites

Table 8.8-3: Input parameters related to active substance Iodosulfuron-methyl-sodium and its metabolites for PEC_{gw} calculations

Compound	ISMS	AE F075736	AE F059411	Value in accordance with EU endpoint y/n/ Reference
Molecular weight (g/mol)	529.3	381.4	140.1	EFSA Journal 2016;14(4):4453
Water solubility (mg/L):	25000 pH 7, 20°C	2790 pH 7, 20°C	1000 pH 7, 20°C	EFSA Journal 2016;14(4):4453
Saturated vapour pressure (Pa):	2.6×10^{-9} Pa 20°C	1.0×10^{-10} Pa 20°C	1.0×10^{-10} Pa 20°C	EFSA Journal 2016;14(4):4453
DT_{50} in soil (d) lab	2.7 (geometric mean)	24.9 (geometric mean)	144.0 (geometric mean)	EFSA Journal 2016;14(4):4453
DT_{50} in soil (d) lab/field	-	-	-	Not used in modelling
Transformation rate	-	From parent: 0.2208	From AE F075736: 0.01169	EFSA Journal 2016;14(4):4453
K_{foc} (mL/g)/K_{fom}	33.4 / 19.4 (geometric mean)	14.0 / 8.12 (geometric mean)	45.6 / 26.45 (geometric mean)	EFSA Journal 2016;14(4):4453
1/n	0.87	1.0	0.90	EFSA Journal 2016;14(4):4453
Plant uptake factor	0	0	0	EFSA Journal 2016;14(4):4453
Formation fraction	-	From parent: 0.86	From AE F075736: 0.42	EFSA Journal 2016;14(4):4453

Compound	AE F161778	AE F145740	BCS-CW81253	Value in accordance with EU endpoint y/n/ Reference
Molecular weight (g/mol)	367.3	493.2	343.3	EFSA Journal 2016;14(4):4453
Water solubility (mg/L):	1000 pH 7, 20°C	1000 pH 7, 20°C	1000 pH 7, 20°C	EFSA Journal 2016;14(4):4453
Saturated vapour pressure (Pa):	1.0×10^{-10} Pa 20°C	1.0×10^{-10} Pa 20°C	1.0×10^{-10} Pa 20°C	EFSA Journal 2016;14(4):4453
DT_{50} in soil (d)	11,4 (geometric mean)	46.0 (geometric mean)	26.7 (geometric mean)	EFSA Journal 2016;14(4):4453
DT_{50} in soil (d) lab/field	-	-	-	Not used in

Compound	AE F161778	AE F145740	BCS-CW81253	Value in accordance with EU endpoint y/n/ Reference
				modelling
Transformation rate	From AE F075736: 0.01531	From parent: 0.01027	From AE F161778: 0.04378	EFSA Journal 2016;14(4):4453
K_{foc} (mL/g)/K_{fom}	29.7 / 17.2 (geometric mean)	17.9 / 10.4 (geometric mean)	41.8 / 24.3 (geometric mean)	EFSA Journal 2016;14(4):4453
1/n	1.0	0.92	0.91	EFSA Journal 2016;14(4):4453
Plant uptake factor	0	0	0	EFSA Journal 2016;14(4):4453
Formation fraction	From AE F075736: 0.55	From parent: 0.04	From AE F161778: 0.72	EFSA Journal 2016;14(4):4453

Compound	AE 0000119	AE F145741	AE 0002166	Value in accordance with EU endpoint y/n/ Reference*
Molecular weight (g/mol)	183.2	493.2	397.4	EFSA Journal 2016;14(4):4453
Water solubility (mg/L):	200 pH 7, 20°C	1000 pH 7, 20°C	1000 pH 7, 20°C	EFSA Journal 2016;14(4):4453
Saturated vapour pressure (Pa):	1.0 x 10^{-10} Pa 20°C	1.0 x 10^{-10} Pa 20°C	1.0 x 10^{-10} Pa 20°C	EFSA Journal 2016;14(4):4453
DT_{50} in soil (d)	15.0 (geometric mean)	8.7 (geometric mean)	7.5 (geometric mean)	EFSA Journal 2016;14(4):4453
DT_{50} in soil (d) lab/field	-	-	-	Not used in modelling
Transformation rate	From AE F075736: 0.009186 From AE F145740: 0.015101	From parent: 0.012836	Applied as parent in a separate calculation	EFSA Journal 2016;14(4):4453
K_{foc} (mL/g)/K_{fom}	117.2 / 67.98 (geometric mean)	0.0 / 0.0 (worst-case value)	0.0 / 0.0 (worst-case value)	EFSA Journal 2016;14(4):4453
1/n	0.91	1.0	1.0	EFSA Journal 2016;14(4):4453
Plant uptake factor	0	0	0	EFSA Journal 2016;14(4):4453
Formation fraction	From AE F075736: 0.33 From AE F145740: 1	From parent: 0.05	From parent: 0.2	EFSA Journal 2016;14(4):4453

Table 8.8-4: PEC$_{gw}$ for iodosulfuron-methyl-sodium and metabolites on winter cereals, 3g/ha (with FOCUS PEARL v4.4.4)

Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)								
	Iodosulfuron	AE F075736	AE F059411	AE F161778	AE F145740	BCS-CW81253	AE 0000119	AE F145741	AE 0002166
Châteaudun	< 0.001	0.018	0.020	0.006	0.001	0,006	<0.001	<0.001	<0.001
Hamburg	< 0.001	0.059	0.026	0.016	0.003	0,013	0.002	0.001	0.002
Jokioinen	< 0.001	0.060	0.021	0.014	0.003	0,009	0.001	0.002	0.002
Kremsmünster	< 0.001	0.038	0.022	0.012	0.003	0,013	0.001	0.001	0.001
Okehampton	< 0.001	0.051	0.022	0.016	0.003	0,015	0.001	0.001	0.002
Piacenza	< 0.001	0.023	0.020	0.007	0.002	0,010	0.001	<0.001	0.001
Porto	< 0.001	0.025	0.014	0.007	0.002	0,007	<0.001	0.001	0.002
Sevilla	< 0.001	0.001	0.001	<0.001	<0.001	0,000	<0.001	<0.001	<0.001
Thiva	< 0.001	0.007	0.019	0.002	0.001	0,002	<0.001	<0.001	<0.001
MACRO									
Châteaudun	< 0.001	< 0.001	0.01	-	< 0.001	-	-	-	< 0.001

Table 8.8-5: PEC$_{gw}$ for iodosulfuron-methyl-sodium and metabolites on winter cereals, 3g/ha (with FOCUS PELMO v5.5.3)

Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)								
	Iodosulfuron	AE F075736	AE F059411	AE F161778	AE F145740	BCS-CW81253	AE 0000119	AE F145741	AE 0002166
Châteaudun	< 0.001	0.017	0.021	0.005	0.001	0.006	< 0.001	< 0.001	< 0.001
Hamburg	< 0.001	0.055	0.028	0.016	0.004	0.013	0.001	0.001	0.004
Jokioinen	< 0.001	0.059	0.019	0.013	0.003	0.008	0.001	0.001	0.002
Kremsmünster	< 0.001	0.045	0.026	0.014	0.003	0.016	0.001	0.001	0.002
Okehampton	< 0.001	0.060	0.023	0.018	0.004	0.016	0.001	0.001	0.004
Piacenza	< 0.001	0.030	0.024	0.009	0.002	0.012	0.001	0.001	0.002
Porto	< 0.001	0.028	0.014	0.008	0.002	0.008	< 0.001	0.002	0.007
Sevilla	< 0.001	0.002	0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Thiva	< 0.001	0.004	0.011	0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001
MACRO									

Châteaudun	< 0.001	< 0.001	0.01	-	< 0.001	-	-	-	< 0.001

No exceedance of the relevant trigger of 0.1 µg/L iodosulfuron-methyl-sodium or its metabolites is expected for the high-dose use in winter cereals. This risk assessment also covers the lower doses of iodosulfuron-methyl-sodium in winter cereals.

Table 8.8-6: PEC$_{gw}$ for iodosulfuron-methyl-sodium and metabolites on spring cereals. 1.8g/ha (with FOCUS PEARL v4.4.4)

Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)								
	Iodosulfuron	AE F075736	AE F059411	AE F161778	AE F145740	BCS-CW81253	AE 0000119	AE F145741	AE 0002166
Châteaudun	< 0.001	0.009	0.009	0.003	0.001	0.002	< 0.001	< 0.001	< 0.001
Hamburg	< 0.001	0.046	0.017	0.012	0.002	0.009	0.001	0.001	0.001
Jokioinen	< 0.001	0.037	0.011	0.008	0.002	0.005	< 0.001	0.001	0.002
Kremsmünster	< 0.001	0.026	0.014	0.008	0.002	0.008	0.001	< 0.001	0.001
Okehampton	< 0.001	0.026	0.012	0.008	0.002	0.007	0.001	< 0.001	< 0.001
Porto	< 0.001	0.007	0.006	0.002	0.001	0.001	< 0.001	< 0.001	< 0.001

Table 8.8-7: PEC$_{gw}$ for iodosulfuron-methyl-sodium and metabolites on spring cereals. 1.8g/ha (with FOCUS PELMO v5.5.3)

Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)								
	Iodosulfuron	AE F075736	AE F059411	AE F161778	AE F145740	BCS-CW81253	AE 0000119	AE F145741	AE 0002166
Châteaudun	< 0.001	0.005	0.007	0.001	0.001	0.002	< 0.001	< 0.001	< 0.001
Hamburg	< 0.001	0.024	0.013	0.006	0.002	0.005	0.001	< 0.001	< 0.001
Jokioinen	< 0.001	0.036	0.009	0.007	0.002	0.004	< 0.001	0.001	0.002
Kremsmünster	< 0.001	0.026	0.012	0.008	0.002	0.008	0.001	< 0.001	< 0.001
Okehampton	< 0.001	0.025	0.012	0.008	0.002	0.007	0.001	< 0.001	< 0.001
Porto	< 0.001	0.009	0.007	0.003	0.001	0.002	< 0.001	< 0.001	0.001

No exceedance of the relevant trigger of 0.1 µg/L iodosulfuron-methyl-sodium or its metabolites is expected for the use in spring cereals.

zRMS comments:

Evaluator agrees with modelling carried out by applicant.

The input parameters for iodosulfuron-methyl-sodium used for groundwater calculation were established in the EU reviews (EFSA Journal 2016;14(4):4453).

Interception is appropriate to the proposed BBCH of crops (EFSA guidance was published, (2014;12(5):3662). In simulations PUF value of 0 was assumed for all compounds, in line with recommendations of the most recent version of the FOCUS Groundwater Guidance. The geomean of the DT_{50} and K_{foc} values were used in modelling.

The results of the leaching models PEARL 4.4.4 and PELMO 5.5.3 show that when used according to the intended use in cereals, iodosulfuron-methyl-sodium and its metabolites leach in acceptable amounts to groundwater in every European scenario, since all PEC_{GW} were found to be under the limit of 0.1 µg/L.

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

8.8.2.2 Mesosulfuron-methyl and its metabolites

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

Compound	Mesosulfuron-methyl	AE F154851 mesosulfuron	AE F160459	Value in accordance with EU endpoint y/n/ Reference
Molecular weight (g/mol)	503.5	489.5	489.5	Y. EFSA 2016; 14(10): 4584
Water solubility (mg/L):	483	20000*	10000*	Y. EFSA 2016; 14(10): 4584 * No EU endpoint; DRAR mesosulfuron-methyl. Volume 3 – B.8 (PPP)
Saturated vapour pressure (Pa):	3.5 x 10-12	1.70 x 10-8 *	6.80 x 10-8 *	Y. EFSA 2016; 14(10): 4584* No EU endpoint; DRAR mesosulfuron-methyl. Volume 3 – B.8 (PPP)
DT_{50} in soil (d) lab (normalisation to pF2, 20 °C with Q_{10} of 2.58) (d) geomean	49.72 parent 34.09 parent+met.	45.22	74.14	Y. EFSA 2016; 14(10): 4584
DT_{50} in soil (d) lab/field	-	-	-	Not used in the mod-elling
Transformation rate	-	From mesosulfuron-methyl: 0.0042699	From mesosulfuron-methyl: 0.002094285	Y. EFSA 2016; 14(10): 4584
K_{foc} (mL/g)/K_{fom} geomean,	64.0 / 37.1	65.0 / 37.7	19.3 / 11.19	Y. EFSA 2016; 14(10): 4584
1/n	0.91	0.94	0.94	Y. EFSA 2016; 14(10): 4584
Plant uptake factor	0	0	0	Y. EFSA 2016; 14(10): 4584

Compound	Mesosulfuron-methyl	AE F154851 mesosulfuron	AE F160459	Value in accordance with EU endpoint y/n/ Reference
Formation fraction	-	From mesosulfuron-methyl: 0.210	From mesosulfuron-methyl: 0.103	Y. EFSA 2016; 14(10): 4584

Compound	AE F099095	AE F092944	AE F160460	Value in accordance with EU endpoint y/n/ Reference*
Molecular weight (g/mol)	198.2	155.2	475.5	Y. EFSA 2016; 14(10): 4584
Water solubility (mg/L):	190 *	5200 *	100000 *	* No EU endpoint; DRAR mesosulfuron-methyl. Volume 3 – B.8 (PPP)
Saturated vapour pressure (Pa):	1.90 x 10-5 *	2.60 x 10-2 *	5.60 x 10-7 *	* No EU endpoint; DRAR mesosulfuron-methyl. Volume 3 – B.8 (PPP)
DT_{50} in soil (d) lab (normalisation to pF2, 20 °C with Q_{10} of 2.58) (d) geomean	55.6	16.93	28.61	Y. EFSA 2016; 14(10): 4584
DT_{50} in soil (d) lab/field	-	-	-	Not used in the modelling
Transformation rate	From mesosulfuron-methyl: 0.000813314	From mesosulfuron-methyl: 0.007258831	From mesosulfuron: 0.015328332 From AE F160495: 0.009349166	Y. EFSA 2016; 14(10): 4584
K_{foc} (mL/g)/K_{fom} geomean,	334 / 193.74	293.9 / 170.48	12.2 / 7.08	Y. EFSA 2016; 14(10): 4584
1/n	0.8	0.74	0.9	Y. EFSA 2016; 14(10): 4584
Plant uptake factor	0	0	0	Y. EFSA 2016; 14(10): 4584
Formation fraction	From mesosulfuron-methyl: 0.040	From mesosulfuron-methyl: 0.357	From mesosulf.: 1 From AE F160459: 1	Y. EFSA 2016; 14(10): 4584

Compound	AE F140584	AE F147447	BCS-CV14885	Value in accordance with EU endpoint y/n/ Reference*
Molecular weight (g/mol)	322.4	290.3	393.4	Y. EFSA 2016; 14(10): 4584

Compound	AE F140584	AE F147447	BCS-CV14885	Value in accordance with EU endpoint y/n/ Reference*
Water solubility (mg/L):	100 *	150000 *	2000 *	* No EU endpoint; DRAR mesosulfuron-methyl. Volume 3 – B.8 (PPP)
Saturated vapour pressure (Pa):	1.30 x 10-6 *	1.00 x 10-8 *	7.40 x 10-10 *	* No EU endpoint; DRAR mesosulfuron-methyl. Volume 3 – B.8 (PPP)
DT_{50} in soil (d) lab normalisation to pF2, 20 °C with Q_{10} of 2.58) (d) geomean	4.22	102.15	97.6	Y. EFSA 2016; 14(10): 4584
DT_{50} in soil (d) lab/field	-	-	-	Not used in the modelling
Transformation rate	From mesosulfuron-methyl: 0.004311	From mesosulfuron-methyl: 0.001789	From mesosulfuron-methyl: 0.001951955	Y. EFSA 2016; 14(10): 4584
K_{foc} (mL/g)/K_{fom} geomean	0.0	5.1 / 2.96	17.7 / 10.27	Y. EFSA 2016; 14(10): 4584
1/n (arithmetic mean)	1.0	1.0	1.21	Y. EFSA 2016; 14(10): 4584
Plant uptake factor	0	0	0	Y. EFSA 2016; 14(10): 4584
Formation fraction	From mesosulfuron-methyl: 0.212	From mesosulfuron-methyl: 0.088	From mesosulfuron-methyl: 0.096	Y. EFSA 2016; 14(10): 4584

Compound	Mesosulfuron-methyl	Mesosulfuron (AE F154851)	AE F160459	AE F099095	AE F092944	AE F160460	AE F140584	AE F147447	BCS-CV14885
Formation fraction	-	0.210 from parent	0.103 from parent	0.040 from parent	0.357 from parent	1.0 from mesosulfuron (AE F154851) 1.0 from AE F160459	0.212 from parent	0.088 from parent	0.096

Table 8.8-9: PEC$_{gw}$ for mesosulfuron-methyl and metabolites on winter cereals. 15g/ha (with FOCUS PEARL v4.4.4)

Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)								
	MSM	**AE F154851**	**AE F160459**	**AE F099095**	**AE F092944**	**AE F160460**	**AE F140584**	**AE F147447**	**BCS-CV14885**
Châteaudun	0.014	0.010	**0.137**	< 0.001	< 0.001	**0.120**	0.001	**0.174**	**0.261**
Hamburg	0.085	0.043	**0.239**	< 0.001	< 0.001	**0.240**	0.009	**0.214**	**0.323**
Jokioinen	0.032	0.020	**0.305**	< 0.001	< 0.001	**0.234**	0.017	**0.328**	**0.500**
Kremsmünster	0.059	0.031	**0.143**	< 0.001	< 0.001	**0.149**	0.002	**0.119**	**0.178**
Okehampton	0.095	0.044	**0.141**	< 0.001	< 0.001	**0.159**	0.004	**0.114**	**0.173**
Piacenza	0.041	0.021	0.099	< 0.001	< 0.001	**0.104**	0.001	**0.104**	**0.157**
Porto	0.039	0.020	**0.106**	< 0.001	< 0.001	0.099	0.003	**0.102**	**0.150**
Sevilla	0.000	0.000	0.046	< 0.001	< 0.001	0.028	< 0.001	0.071	**0.105**
Thiva	0.006	0.004	**0.123**	< 0.001	< 0.001	0.088	< 0.001	**0.161**	**0.232**

PEC$_{gw}$ values above the relevant trigger of 0.1 µg/L are shown in bold

Table 8.8-10: PEC$_{gw}$ for mesosulfuron-methyl and metabolites on winter cereals. 15g/ha (with FOCUS PELMO v5.5.3)

Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)								
	MSM	**AE F154851**	**AE F160459**	**AE F099095**	**AE F092944**	**AE F160460**	**AE F140584**	**AE F147447**	**BCS-CV14885**
Châteaudun	0.011	0.007	0.094	< 0.001	< 0.001	**0.112**	0.001	**0.151**	**0.225**
Hamburg	0.090	0.045	**0.178**	< 0.001	< 0.001	**0.260**	0.008	**0.182**	**0.279**
Jokioinen	0.039	0.024	**0.175**	< 0.001	< 0.001	**0.254**	0.025	**0.249**	**0.380**
Kremsmünster	0.067	0.035	**0.135**	< 0.001	< 0.001	**0.173**	0.003	**0.140**	**0.208**
Okehampton	**0.104**	0.048	**0.117**	< 0.001	< 0.001	**0.169**	0.006	**0.113**	**0.168**
Piacenza	0.049	0.025	0.098	< 0.001	< 0.001	**0.134**	0.003	**0.139**	**0.204**
Porto	0.056	0.026	0.080	< 0.001	< 0.001	**0.119**	0.006	0.098	**0.146**
Sevilla	< 0.001	< 0.001	0.033	< 0.001	< 0.001	0.037	< 0.001	0.066	0.098
Thiva	0.002	0.002	0.051	< 0.001	< 0.001	0.055	< 0.001	**0.109**	**0.157**

PEC$_{gw}$ values above the relevant trigger of 0.1 µg/L are shown in bold

The relevant trigger of 0.1 µg/L mesosulfuron-methyl is slightly exceeded (0.104 µg/L) in the Okehampton scenario if modelled with PELMO 5.5.3. No exceedance is observed in PEARL 4.4.4. Since the Okehampton scenario in Pelmo is not considered a relevant scenario for the target countries, this is not considered a problem.

As a refinement a lower dose of 14.4 g mesosulfuron-methyl was modelled (= 0.48kg GLOB289H/ha), which also covers for the lower doses on the label.

Respect to the metabolites AE F160459, AE F160460, AE F147447 and BCS-CV14885 , PECgw are greater than the regulatory threshold of 0.1 µg/L in some scenarios with a maximum of 0.5 µg/L. Nevertheless, these metabolites are considered non-relevant according to Sanco/221/2000 –rev.10- final. Besides, the relevance of these, has been evaluated under dRR B10 and the RAR of mesosulfuron-methyl. The risk to groundwater is therefore low.

Table 8.8-11: PEC_{gw} for mesosulfuron-methyl and metabolites on winter cereals. 14.4 g/ha (with FOCUS PEARL v4.4.4)

Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)								
	MSM	**AE F154851**	**AE F160459**	**AE F099095**	**AE F092944**	**AE F160460**	**AE F140584**	**AE F147447**	**BCS-CV14885**
Châteaudun	0.014	0.009	**0.132**	< 0.001	< 0.001	**0.114**	0.001	**0.167**	**0.251**
Hamburg	0.081	0.041	**0.229**	< 0.001	< 0.001	**0.229**	0.008	**0.206**	**0.310**
Jokioinen	0.030	0.019	**0.292**	< 0.001	< 0.001	**0.224**	0.016	**0.315**	**0.480**
Kremsmünster	0.056	0.029	**0.138**	< 0.001	< 0.001	**0.142**	0.002	**0.114**	**0.171**
Okehampton	0.090	0.042	**0.135**	< 0.001	< 0.001	**0.152**	0.004	**0.110**	**0.166**
Piacenza	0.039	0.020	0.095	< 0.001	< 0.001	**0.100**	0.001	0.100	**0.151**
Porto	0.037	0.019	**0.101**	< 0.001	< 0.001	0.095	0.003	0.098	**0.144**
Sevilla	0.000	< 0.001	0.044	< 0.001	< 0.001	0.027	< 0.001	0.068	**0.101**
Thiva	0.006	0.004	**0.118**	< 0.001	< 0.001	0.084	< 0.001	**0.154**	**0.223**

PEC_{gw} values above the relevant trigger of 0.1 µg/L are shown in bold

Table 8.8-12: PEC_{gw} for mesosulfuron-methyl and metabolites on winter cereals. 14.4 g/ha (with FOCUS PELMO v5.5.3)

Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)								
	MSM	**AE F154851**	**AE F160459**	**AE F099095**	**AE F092944**	**AE F160460**	**AE F140584**	**AE F147447**	**BCS-CV14885**
Châteaudun	0.010	0.007	0.090	< 0.001	< 0.001	**0.107**	0.001	**0.145**	**0.216**
Hamburg	0.085	0.043	**0.170**	< 0.001	< 0.001	**0.248**	0.008	**0.175**	**0.268**
Jokioinen	0.037	0.023	**0.167**	< 0.001	< 0.001	**0.243**	0.024	**0.239**	**0.366**

Kremsmünster	0.064	0.033	**0.129**	< 0.001	< 0.001	**0.165**	0.003	**0.135**	**0.200**
Okehampton	0.099	0.046	**0.112**	< 0.001	< 0.001	**0.161**	0.006	**0.108**	**0.162**
Piacenza	0.046	0.024	0.094	< 0.001	< 0.001	**0.128**	0.003	**0.133**	**0.196**
Porto	0.053	0.025	0.077	< 0.001	< 0.001	**0.114**	0.006	0.094	**0.140**
Sevilla	< 0.001	< 0.001	0.032	< 0.001	< 0.001	0.035	< 0.001	0.063	0.094
Thiva	0.002	0.002	0.049	< 0.001	< 0.001	0.053	< 0.001	**0.104**	**0.151**

PEC_{gw} values above the relevant trigger of 0.1 µg/L are shown in bold

No exceedance of the relevant trigger of 0.1 µg/L mesosulfuron-methyl is expected if the dose is lowered to 14.4 g a.s./ha. This risk assessment also covers the lower doses of mesosulfuron-methyl in winter cereals. As indicated above, some exceedances for the metabolites (< 0.75 µg/L) were observed. The relevance of these metabolites has been evaluated under dRR B10 and the RAR of mesosulfuron-methyl.

Table 8.8-13: PEC_{gw} for mesosulfuron-methyl and metabolites on spring cereals. 9g/ha (with FOCUS PEARL v4.4.4)

Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)								
	MSM	AE F154851	AE F160459	AE F099095	AE F092944	AE F160460	AE F140584	AE F147447	BCS-CV14885
Châteaudun	0.005	0.004	0.073	< 0.001	< 0.001	0.062	< 0.001	0.082	**0.121**
Hamburg	0.051	0.026	**0.182**	< 0.001	< 0.001	**0.174**	0.007	**0.165**	**0.251**
Jokioinen	0.017	0.012	**0.151**	< 0.001	< 0.001	**0.117**	0.012	**0.157**	**0.255**
Kremsmünster	0.036	0.019	0.093	< 0.001	< 0.001	0.094	0.002	0.078	**0.116**
Okehampton	0.042	0.022	0.084	< 0.001	< 0.001	0.093	0.002	0.068	**0.105**
Porto	0.015	0.009	0.057	< 0.001	< 0.001	0.061	0.002	0.056	0.086

PEC_{gw} values above the relevant trigger of 0.1 µg/L are shown in bold

Table 8.8-14: PEC_{gw} for mesosulfuron-methyl and metabolites on spring cereals. 9g/ha (with FOCUS PELMO v5.5.3)

Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)								
	MSM	AE F154851	AE F160459	AE F099095	AE F092944	AE F160460	AE F140584	AE F147447	BCS-CV14885
Châteaudun	0.003	0.003	0.043	< 0.001	< 0.001	0.050	0.000	0.070	**0.105**
Hamburg	0.043	0.022	0.098	< 0.001	< 0.001	**0.138**	0.005	**0.107**	**0.158**
Jokioinen	0.016	0.010	0.084	< 0.001	< 0.001	**0.114**	0.015	**0.133**	**0.217**
Kremsmünster	0.035	0.019	0.074	< 0.001	< 0.001	0.094	0.002	0.082	**0.124**

Okehampton	0.042	0.021	0.066	< 0.001	< 0.001	0.094	0.003	0.061	0.093
Porto	0.025	0.014	0.045	< 0.001	< 0.001	0.068	0.003	0.050	0.076

PEC_{gw} values above the relevant trigger of 0.1 µg/L are shown in bold

No exceedance of the relevant trigger of 0.1 µg/L mesosulfuron-methyl is expected for the use in spring cereals. For the metabolites, some exceedances were observed (< 0.75 µg/L). The relevance of these metabolites is discussed in dRR Part B10.

zRMS comments:

Evaluator agrees with modelling carried out by applicant.
The input parameters for mesosulfuron -methyl used for groundwater calculation were established in the EU reviews (EFSA 2016; 14(10): 4584.

Interception is appropriate to the proposed BBCH of crops (EFSA guidance was published, (2014;12(5):3662).
In simulations PUF value of 0 was assumed for all compounds, in line with recommendations of the most recent version of the FOCUS Groundwater Guidance. The geomean of the DT_{50} and K_{foc} values were used in modelling.

The results of the leaching models PEARL 4.4.4 and PELMO 5.5.3 show that when used according to the intended use in cereals, mesosulfuron -methyl leach in acceptable amounts to groundwater in every European scenario, since all PEC_{GW} were found to be under the limit of 0.1 µg/L. However in PELMO 5.5.3, a small exceedance of the limit is observed for the Okehampton scenario (0.104 µg/L).
For the metabolites AE F160459, AE F160460, AE F147447 and BCS-CV14885 , PEC_{gw} are greater than the regulatory threshold of 0.1 µg/L in some scenarios with maximum of 0.5 µg/L.

The assessment relevance of the metabolites in ground water according to SANCO/221/2000 –rev.10 document will be done and reported in the dRR Part B10.

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

8.8.2.3 Mefenpyr-diethyl and its metabolites

Table 8.8-15: Input parameters related to safener mefenpyr-diethyl and its metabolites for PEC_{gw} calculations

Compound	Mefenpyr-diethyl	AE F113225	Value in accordance with EU endpoint y/n/ Reference
Molecular weight (g/mol)	373.26	345.2	DAR Mefenpyr-diethyl
Water solubility (mg/L):	20	5.8	DAR Mefenpyr-diethyl
Saturated vapour pressure (Pa):	6.3E-6	1E-10	DAR Mefenpyr-diethyl
DT_{50} in soil (d) lab	2.4 4 (lab. geometric mean, n=5)	6.1 (lab. geometric mean, n=5)	DAR Mefenpyr-diethyl
DT_{50} in soil (d) lab/field	-	-	DAR Mefenpyr-diethyl
Transformation rate	Parent → CO_2: 0.069315	Parent → AE F113225: 0.219497	DAR Mefenpyr-diethyl

Compound	Mefenpyr-diethyl	AE F113225	Value in accordance with EU endpoint y/n/ Reference
K_{foc} (mL/g)/K_{fom} geometric mean	609 / 353.77	109.5 / 63.52	DAR Mefenpyr-diethyl
1/n	1.09	0.92	DAR Mefenpyr-diethyl
Plant uptake factor	0	0	DAR Mefenpyr-diethyl
Formation fraction	-	0.76	DAR Mefenpyr-diethyl

Compound	AE F094270	AE 2211046	Value in accordance with EU endpoint y/n/ Reference
Molecular weight (g/mol)	271.1	391.26	DAR Mefenpyr-diethyl
Water solubility (mg/L):	50	1000	DAR Mefenpyr-diethyl
Saturated vapour pressure (Pa):	1E-10	1E-10	DAR Mefenpyr-diethyl
DT_{50} in soil (d) lab	19.6 (field geometric mean, n=3)	35.5	DAR Mefenpyr-diethyl
DT_{50} in soil (d) lab/field	-	-	DAR Mefenpyr-diethyl
Transformation rate	-	-	DAR Mefenpyr-diethyl
K_{foc} (mL/g)/K_{fom} geometric mean	176.8 / 102.55	1320 / 765.66 (QSAR)	DAR Mefenpyr-diethyl
1/n	0.93	1	DAR Mefenpyr-diethyl
Plant uptake factor	0	0	DAR Mefenpyr-diethyl
Formation fraction	1	Modelled as parent	DAR Mefenpyr-diethyl

Table 8.8-16: PEC$_{gw}$ for mefenpyr-diethyl and metabolites on winter cereals. 45 g/ha (with FOCUS PEARL v4.4.4)

Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)			
	MDE	AE F113225	AE F094270	AE 2211046
Châteaudun	< 0.001	< 0.001	< 0.001	< 0.001
Hamburg	< 0.001	< 0.001	< 0.001	< 0.001
Jokioinen	< 0.001	< 0.001	< 0.001	< 0.001

Kremsmünster	< 0.001	< 0.001	< 0.001	< 0.001
Okehampton	< 0.001	< 0.001	< 0.001	< 0.001
Piacenza	< 0.001	< 0.001	< 0.001	< 0.001
Porto	< 0.001	< 0.001	< 0.001	< 0.001
Sevilla	< 0.001	< 0.001	< 0.001	< 0.001
Thiva	< 0.001	< 0.001	< 0.001	< 0.001

Table 8.8-17: PEC_{gw} for mefenpyr-diethyl and metabolites on winter cereals. 45 g/ha (with FOCUS PELMO v5.5.3)

Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)			
	MDE	AE F113225	AE F094270	AE 2211046
Châteaudun	< 0.001	< 0.001	< 0.001	< 0.001
Hamburg	< 0.001	< 0.001	< 0.001	< 0.001
Jokioinen	< 0.001	< 0.001	< 0.001	< 0.001
Kremsmünster	< 0.001	< 0.001	< 0.001	< 0.001
Okehampton	< 0.001	< 0.001	< 0.001	< 0.001
Piacenza	< 0.001	< 0.001	< 0.001	< 0.001
Porto	< 0.001	< 0.001	< 0.001	< 0.001
Sevilla	< 0.001	< 0.001	< 0.001	< 0.001
Thiva	< 0.001	< 0.001	< 0.001	< 0.001

Table 8.8-18: PEC_{gw} for mefenpyr-diethyl and metabolites on spring cereals. 27 g/ha (with FOCUS PEARL v4.4.4)

Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)			
	MDE	AE F113225	AE F094270	AE 2211046
Châteaudun	< 0.001	< 0.001	< 0.001	< 0.001
Hamburg	< 0.001	< 0.001	< 0.001	< 0.001
Jokioinen	< 0.001	< 0.001	< 0.001	< 0.001
Kremsmünster	< 0.001	< 0.001	< 0.001	< 0.001

Okehampton	< 0.001	< 0.001	< 0.001	< 0.001
Porto	< 0.001	< 0.001	< 0.001	< 0.001

Table 8.8-19: PEC_{gw} for mefenpyr-diethyl and metabolites on spring cereals. 27 g/ha (with FOCUS PELMO v5.5.3)

Scenario	80th Percentile PEC_{gw} at 1 m Soil Depth (µg/L)			
	MDE	AE F113225	AE F094270	AE 2211046
Châteaudun	< 0.001	< 0.001	< 0.001	< 0.001
Hamburg	< 0.001	< 0.001	< 0.001	< 0.001
Jokioinen	< 0.001	< 0.001	< 0.001	< 0.001
Kremsmünster	< 0.001	< 0.001	< 0.001	< 0.001
Okehampton	< 0.001	< 0.001	< 0.001	< 0.001
Porto	< 0.001	< 0.001	< 0.001	< 0.001

No exceedance of the relevant trigger of 0.1 µg/L mefenpyr-diethyl or its metabolites is expected for the use in winter or spring cereals.

Evaluator comments:

Evaluator agrees with modelling carried out by applicant.
PECgw has been calculated according to the GAP using the models FOCUS PELMO 5.5.3., FOCUS PEARL 4.4.4. The results of the leaching models PEARL 4.4.4 and PELMO 5.5.3 show that when used according to the intended use in cereals, for mefenpyr and its metabolites leach in acceptable amounts to groundwater in European scenarios, since all PEC_{GW} were found to be under the limit of 0.1 µg/L.

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

8.9.1 Justification for new endpoints

Since the application for the approval of the active substance iodosulfuron-methyl-sodium, a new EFSA guidance was published, (2014;12(5):3662) in which the use of geomean DT_{50} and K_{foc} / K_{fom} is recommended over the arithmetic mean. Therefore, the geomean of the DT_{50} and K_{foc} values was calculated and used instead of the arithmetic mean from the LoEP.

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	GLOB289H		
Use No.	7	5	5
Crop	Winter cereals	Winter cereals	Spring cereals
Application rate (g as/ha)	MSM: 15 ISMS: 3 MDE:45	MSM: 9 ISMS: 1.8 MDE: 27	MSM: 9 ISMS: 1.8 MDE: 27
Number of applications/interval (d)	1	1	1
Application window	Oct-feb Mar-may	Oct-feb Mar-may	Mar-may Jun-sep
Application method	Downward spraying	Downward spraying	Downward spraying
CAM (Chemical application method)	2	2	2
Soil depth (cm)	0	0	0
Models used for calculation	FOCUS SWASH v5.3. FOCUS PRZM v4.3.1. FOCUS MACRO v5.5.4. FOCUS TOXWA 5.5.3. SWAN 5	FOCUS SWASH v5.3. FOCUS PRZM v4.3.1. FOCUS MACRO v5.5.4. FOCUS TOXWA 5.5.3. SWAN 5	FOCUS SWASH v5.3. FOCUS PRZM v4.3.1. FOCUS MACRO v5.5.4. FOCUS TOXWA 5.5.3. SWAN 5

Table 8.9-2: FOCUS Step 3 Scenario related input parameters for $PEC_{sw/sed}$ calculations for the application of GLOB289H

Crop	Scenario	Application window used in modelling
Winter cereals	D1	21 April – 21 May
	D2	1 March – 31 March
	D3	18 March – 17 April
	D4	1 April – 1 May
	D5	1 March – 31 March
	D6	12 February – 14 March
	R1	27 March – 26 April
	R3	12 February – 14 March
	R4	12 February – 14 March
Spring cereals	D1	5 May – 5 June
	D3	1 April – 1 May
	D4	26 April – 26 May
	D5	15 March – 15 April
	R4	15 March – 14 April

The spring application in winter cereals is done at the end of winter. at the beginning of the vegetation period (*i.e.* when the temperature is high enough to expect crop and wheat growth). onto well-developed crop. However. in the FOCUS model no pre-defined event dates are implemented for winter cereals that would directly translate to the above described cropping situation into discrete PAT windows for each surface water scenario setting. Therefore. the following approach was used to define scenario-adapted application dates: the simulated treatment was referenced relative to the tabulated crop emergence date of the earliest emerging spring crop that is defined by FOCUS for the respective scenario. Start of the PAT window was then set to 14 days before that FOCUS event date which is considered an adequate representation for the start of the vegetation period in the respective scenario environment. For technical reasons. this relative timing can only be implemented in the model in form of manually entered ‘absolute’ PAT start dates. since the used auxiliary for referencing (‘earliest emerging spring crop’) is not identical to the simulated crop winter cereals. and also may vary between scenarios.

For the spring cereals. start of the PAT was set at emergence of the spring cereals defined by FOCUS for the respective scenario.

8.9.2.1 Iodosulfuron-methyl-sodium and its metabolites (KCP)

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

Compound	ISMS	AE F075936	AE F059411	Value in accordance to EU endpoint y/n/ Reference
Molecular weight (g/mol)	529.3	381.4	140.1	EFSA Journal 2016;14(4):4453
Saturated vapour pressure (Pa)	2.6 x 10-9 Pa 20°C	1.0 x 10-10 Pa 20°C	1.0 x 10-10 Pa 20°C	EFSA Journal 2016;14(4):4453
Water solubility (mg/L)	25000 pH 7. 20°C	2790 pH 7. 20°C	1000 pH 7. 20°C	EFSA Journal 2016;14(4):4453
Diffusion coefficient in water (m²/d)	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 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	default
K_{foc} (mL/g)	33.4 / 19.4 (geometric mean. n=9)	14.0/8.1 (geometric mean. n=22)	45.6/26.5 (geometric mean. n=27)	EFSA Journal 2016;14(4):4453
Freundlich Exponent 1/n	0.87 (arithmetic mean. n=9)	1.0	0.90	EFSA Journal 2016;14(4):4453
Plant Uptake	0	0	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) 0.50 (PRZM)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)	default
$DT_{50.soil}$ (d)	2.7	24.9	144.0	EFSA Journal 2016;14(4):4453
$DT_{50.water}$ (d)	19.8	131	9.9	EFSA Journal 2016;14(4):4453
$DT_{50.sed}$ (d)	19.8 / 1000	131 / 1000	9.9	EFSA Journal 2016;14(4):4453
$DT_{50.whole\ system}$ (d)	19.8	131	9.9	EFSA Journal 2016;14(4):4453

Compound	**ISMS**	**AE F075936**	**AE F059411**	**Value in accordance to EU endpoint y/n/ Reference**
Maximum occurrence observed (% molar basis with respect to the parent)	-	Soil: 88.5 % Total system: 67.8%	Soil: 40.9 % Total system: 27.5%	EFSA Journal 2016;14(4):4453
Formation fraction in soil:	-	From ISMS: 0.86	From AE F075736: 0.42	EFSA Journal 2016;14(4):4453
Formation fraction in water/sediment:	-	0.70	-	RAR 2016

Compound	**AE F161778**	**AE F145740**	**BCS-CW81253**	**Value in accordance with EU endpoint y/n/ Reference**
Molecular weight (g/mol)	367.3	493.2	343.3	EFSA Journal 2016;14(4):4453
Saturated vapour pressure (Pa)	1.0 x 10-10 Pa 20°C	1.0 x 10-10 Pa 20°C	1.0 x 10-10 Pa 20°C	EFSA Journal 2016;14(4):4453
Water solubility (mg/L)	1000 pH 7. 20°C	1000 pH 7. 20°C	1000 pH 7. 20°C	EFSA Journal 2016;14(4):4453
Diffusion coefficient in water (m²/d)	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 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	default
K_{foc} (mL/g)	29.7/17.2 (geometric mean. n=6)	17.9 / 10.4 (geometric mean. n=4)	41.8/24.3 (geometric mean. n=7)	EFSA Journal 2016;14(4):4453
Freundlich Exponent 1/n	1.0	0.92	0.91	EFSA Journal 2016;14(4):4453
Plant Uptake	0	0	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) 0.50 (PRZM)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)	default
$DT_{50.soil}$ (d)	11.4	46	26.7	EFSA Journal 2016;14(4):4453
$DT_{50.water}$ (d)	1000	45.4	1000	EFSA Journal 2016;14(4):4453
$DT_{50.sed}$ (d)	1000	45.4	1000	EFSA Journal 2016;14(4):4453
$DT_{50.whole\ system}$ (d)	1000	45.4	1000	EFSA Journal 2016;14(4):4453
Maximum occurrence observed (% molar basis with respect to the	Soil: 14.5 % Total system: 2.6 %	Soil: 8.7 % Total system:	Soil: 35.1 % Total system:	EFSA Journal 2016;14(4):4453

Compound	AE F161778	AE F145740	BCS-CW81253	Value in accordance with EU endpoint y/n/ Reference
parent)		12.6 %	0.0001 %	
Formation fraction in soil:	From AE F075736: 0.55	From parent: 0.04	From AE F161778: 0.72	EFSA Journal 2016;14(4):4453

Compound	AE 0000119	AE F145741	AE 0002166	Value in accordance with EU endpoint y/n/ Reference
Molecular weight (g/mol)	183.2	493.2	397.4	EFSA Journal 2016;14(4):4453
Water solubility (mg/L)	200 pH 7. 20°C	1000 pH 7. 20°C	1000 pH 7. 20°C	EFSA Journal 2016;14(4):4453
Saturated vapour pressure (Pa)	1.0 x 10-10 Pa 20°C	1.0 x 10-10 Pa 20°C	1.0 x 10-10 Pa 20°C	EFSA Journal 2016;14(4):4453
Diffusion coefficient in water (m^2/d)	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 10-5	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	not required for Step 1+2/0.43	not required for Step 1+2/0.43	default
K_{foc} (mL/g)	117.2/67.98 (geometric mean. n=9)	0.0 / 0.0	0.0 / 0.0	EFSA Journal 2016;14(4):4453
Freundlich Exponent 1/n	0.91	1.0	1.0	EFSA Journal 2016;14(4):4453
Plant Uptake	0	0	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) 0.50 (PRZM)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)	default
$DT_{50.soil}$ (d)	15.0	8.7	7.5	EFSA Journal 2016;14(4):4453
$DT_{50.water}$ (d)	28.4	73.4	1000	EFSA Journal 2016;14(4):4453
$DT_{50.sed}$ (d)	28.4	73.4	1000	EFSA Journal 2016;14(4):4453
$DT_{50.whole\ system}$ (d)	28.4	73.4	1000	EFSA Journal 2016;14(4):4453
Maximum occurrence observed (% molar basis with respect to the parent)	Soil: 19.9 % Total system: 24.9 %	Soil: 6.9 % Total system: 8.7 %	Soil: 20 % Total system:25.1 %	EFSA Journal 2016;14(4):4453
Formation fraction in soil:	From AE F075736: 0.33 From AE F145740: 1	From parent: 0.05	From parent: 0.2	EFSA Journal 2016;14(4):4453

Compound	AE F0014966	AE 0034855	AE F159737	Value in accordance with EU endpoint y/n/ Reference
Molecular weight (g/mol)	367.3	169.1	183.2	EFSA Journal 2016;14(4):4453
Saturated vapour pressure (Pa)	-	-	-	EFSA Journal 2016;14(4):4453
Water solubility (mg/L)	1000	1000	1000	EFSA Journal 2016;14(4):4453
Diffusion coefficient in water (m²/d)	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 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	default
K_{foc} (mL/g)	0	0	0	EFSA Journal 2016;14(4):4453
Freundlich Exponent 1/n	-	-	-	EFSA Journal 2016;14(4):4453
Plant Uptake	0	0	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) 0.50 (PRZM)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)	default
$DT_{50.soil}$ (d)	0.0001	0.0001	0.0001	EFSA Journal 2016;14(4):4453
$DT_{50.water}$ (d)	43.9	1000	1000	EFSA Journal 2016;14(4):4453
$DT_{50.sed}$ (d)	43.9	1000	1000	EFSA Journal 2016;14(4):4453
$DT_{50.whole\ system}$ (d)	43.9	1000	1000	EFSA Journal 2016;14(4):4453
Maximum occurrence observed (% molar basis with respect to the parent)	Soil: 0.0001% Total system: 15.5%	Soil: 0.0001% Total system: 24.2%	Soil: 0.0001% Total system: 7.8%	EFSA Journal 2016;14(4):4453

Compound	AE F1234964	AE F154781	AE F0002166	Value in accordance with EU endpoint y/n/ Reference
Molecular weight (g/mol)	201.2	126.1	397.4	EFSA Journal 2016;14(4):4453
Saturated vapour pressure (Pa)	-	-	-	EFSA Journal 2016;14(4):4453
Water solubility (mg/L)	1000	1000	1000	EFSA Journal 2016;14(4):4453
Diffusion coefficient in water (m²/d)	not required for Step 1+2/	not required for Step 1+2/	not required for Step 1+2/	default

Compound	AE F1234964	AE F154781	AE F0002166	Value in accordance with EU endpoint y/n/ Reference
	4.3 x 10-5	4.3 x 10-5	4.3 x 10-5	
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	default
K_{foc} (mL/g)	0	0	0	EFSA Journal 2016;14(4):4453
Freundlich Exponent 1/n	-	-	-	EFSA Journal 2016;14(4):4453
Plant Uptake	0	0	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) 0.50 (PRZM)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)	default
$DT_{50.soil}$ (d)	0.0001	0.0001	7.5	EFSA Journal 2016;14(4):4453
$DT_{50.water}$ (d)	1000	1000	1000	EFSA Journal 2016;14(4):4453
$DT_{50.sed}$ (d)	1000	1000	1000	EFSA Journal 2016;14(4):4453
$DT_{50.whole\ system}$ (d)	1000	1000	1000	EFSA Journal 2016;14(4):4453
Maximum occurrence observed (% molar basis with respect to the parent)	Soil: 0.0001% Total system: 7.4%	Soil: 0.0001% Total system: 8.7%	Soil: 20% Total system: 25.1%	EFSA Journal 2016;14(4):4453

$PEC_{sw/sed}$

WINTER CEREALS – 3g a.s./ha

Table 8.9-4: FOCUS Step 1.2 and 3 PEC_{sw} and PEC_{sed} for iodosulfuron-methyl-sodium following single application of GLOB289H to winter cereals – 3 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.98	-	-	0.32
Step 2					
Northern Europe	Oct-Feb	0.13		-	0.04
	Mar-May	0.13	-	-	0.04
~~Southern Europe~~	~~Oct-Feb~~	~~0.08~~		-	~~0.03~~
	~~Mar-May~~	~~0.08~~	-	-	~~0.03~~
Step 3					
D1	ditch	0.01965	Drift	0.009248	0.01582

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
D1	stream	0.01665	Drift	0.000564	0.002897
D2	ditch	0.1541	Drainage	0.04492	0.05148
D2	stream	0.09634	Drainage	0.02339	0.02907
D3	ditch	0.01898	Drift	0.000824	0.003612
D4	pond	0.000656	Drift	0.000541	0.000913
D4	stream	0.01452	Drift	0.000032	0.000434
D5	pond	0.000656	Drift	0.00053	0.000914
D5	stream	0.01502	Drift	0.000025	0.000349
D6	ditch	0.01902	Drift	0.000645	0.0029
R1	pond	0.000656	Drift	0.000533	0.00114
R1	stream	0.01387	Run-off	0.000541	0.002341
R3	stream	0.04281	Run-off	0.00131	0.006816
R4	stream	0.02915	Run-off	0.001292	0.006276

* twa-time as required by ecotox (21d)

<u>WINTER CEREALS – 1.8g a.s./ha</u>

Table 8.9-5: FOCUS Step 1.2 and 3 PEC_{sw} and PEC_{sed} for iodosulfuron-methyl-sodium following single application of GLOB289H to winter cereals – 1.8 g a.s./ha

Scenario **FOCUS**	**Waterbody**	**Max PEC_{sw} (µg/L)**	**Dominant entry route**	**$PEC_{sw.twa}$ (µg/L)***	**Max PEC_{sed} (µg/kg)**
Step 1	---	0.59	-	-	0.19
Step 2					
Northern Europe	Oct-Feb	0.08	-	-	0.03
	Mar-May	0.06	-	-	0.02
Southern Europe	Oct-Feb	0.05	-	-	0.02
	Mar-May	0.10	-	-	0.03
Step 3					
D1	ditch	0.01176	Drift	0.005504	0.009662
D1	stream	0.009974	Drift	0.000301	0.001714
D2	ditch	0.08742	Drainage	0.02501	0.03036
D2	stream	0.05522	Drainage	0.01287	0.01707
D3	ditch	0.01139	Drift	0.000494	0.002231
D4	pond	0.000394	Drift	0.000324	0.000564
D4	stream	0.00871	Drift	0.000019	0.000264
D5	pond	0.000394	Drift	0.000317	0.000565
D5	stream	0.009011	Drift	0.000015	0.00021

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
D6	ditch	0.0114	Drift	0.000377	0.001773
R1	pond	0.000394	Drift	0.000319	0.000707
R1	stream	0.008108	Run-off	0.000322	0.001409
R3	stream	0.0256	Run-off	0.000784	0.004193
R4	stream	0.01761	Run-off	0.000782	0.003901

* twa-time as required by ecotox (21d)

<u>SPRING CEREALS – 1.8g a.s./ha</u>

Table 8.9-6: FOCUS Step 1.2 and 3 PEC_{sw} and PEC_{sed} for iodosulfuron-methyl-sodium following single application of GLOB289H to spring cereals – 1.8 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.59	-	-	0.19
Step 2					
Northern Europe	March-May	0.08	-	-	0.03
	June-Sept	0.08	-	-	0.03
~~Southern Europe~~	~~March-May~~	~~0.10~~	~~-~~	~~-~~	~~0.03~~
	~~June-Sept~~	~~0.05~~	~~-~~	~~-~~	~~0.02~~
Step 3					
D1	ditch	0.01153	Drift	0.00161	0.00400
D1	stream	0.00922	Drift	0.00008	0.00057
D3	ditch	0.01140	Drift	0.00053	0.00230
D4	pond	0.00039	Drift	0.00032	0.00054
D4	stream	0.00897	Drift	0.00003	0.00034
D5	pond	0.00039	Drift	0.00032	0.00055
D5	stream	0.00906	Drift	0.00002	0.00022
R4	stream	0.00751	Drift	0.00006	0.00066

* twa-time as required by ecotox (21d)

Metabolites of iodosulfuron-methyl-sodium

<u>WINTER CEREALS – 3g a.s./ha</u>

Table 8.9-7: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F075736 following single application(s) to winter cereals – 3 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	1.12	-	-	0.16
Step 2					
Northern Europe	Oct-Feb	0.31	-	-	0.04
	Mar-May	0.13	-	-	0.02
~~Southern Europe~~	~~Oct-Feb~~	~~0.25~~	-	-	~~0.03~~
	~~Mar-May~~	~~0.25~~	-	-	~~0.03~~
Step 3					
D1	ditch	0.03939	Drainage	0.03504	0.02360
D1	stream	0.03211	Drainage	0.01438	0.01100
D2	ditch	0.02822	Drainage	0.02534	0.01723
D2	stream	0.02292	Drainage	0.01029	0.00796
D3	ditch	0.12890	Drainage	0.08114	0.04560
D4	pond	0.11950	Drainage	0.05379	0.03070
D4	stream	0.00434	Drainage	0.00430	0.00492
D5	pond	0.01005	Drainage	0.00996	0.00992
D5	stream	0.00529	Drainage	0.00466	0.00400
D6	ditch	0.00196	Drainage	0.00192	0.00198
R1	pond	0.00104	Drainage	0.00089	0.00065
R1	stream	0.00164	Drainage	0.00128	0.00098
R3	stream	0.00`033	Run-off	0.00033	0.00028
R4	stream	0.00603	Run-off	0.00022	0.00041

* twa-time as required by ecotox (21d)

Table 8.9-8: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F145740 following single application(s) to winter cereals – 3 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.20	-	-	0.03

Table 8.9-9: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F145741 following single application(s) to winter cereals – 3 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.15	-	-	0.00

Table 8.9-10: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE 0000119 following single application(s) to winter cereals – 3 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.14	-	-	0.16

Table 8.9-11: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F161778 following single application(s) to winter cereals – 3 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.11	-	-	0.03

Table 8.9-12: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for BCS-CW811253 following single application(s) to winter cereals – 3 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.22	-	-	0.09

Table 8.9-13: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F059411 following single application(s) to winter cereals – 3 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.17	-	-	0.08

Table 8.9-14: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE 0014966 following single application(s) to winter cereals – 3 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.11	-	-	0.00

Table 8.9-15: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE 0043855 following single application(s) to winter cereals – 3 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.08	-	-	0.00

Table 8.9-16: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F159737 following single application(s) to winter cereals – 3 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.03	-	-	0.00

Table 8.9-17: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE 1234964 following single application(s) to winter cereals – 3 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.03	-	-	0.00

Table 8.9-18: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F154781 following single application(s) to winter cereals – 3 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.02	-	-	0.00

Table 8.9-19: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE 0002166 following single application(s) to winter cereals – 3 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.34	-	-	0.00

SPRING CEREALS – 1.8g a.s./ha

Table 8.9-20: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F075736 following single application(s) to spring cereals – 1.8 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.59	-	-	0.119
Step 2					
Northern Europe	Mar-May	0.08	-	-	0.03
	Jun-Sep	0.08	-	-	0.03
~~Southern Europe~~	~~Mar-May~~	~~0.10~~	~~-~~	~~-~~	~~0.03~~
	~~Jun-Sep~~	~~0.05~~	~~-~~	~~-~~	~~0.02~~
Step 3					
D1	ditch	0.02707	Drainage	0.02247	0.01364
D1	stream	0.01741	Drainage	0.01066	0.007485
D3	ditch	0.003271	Drainage	0.00324	0.003954
D4	pond	0.006464	Drainage	0.006401	0.006471
D4	stream	0.003266	Drainage	0.002876	0.002645
D5	pond	0.001225	Drainage	0.001192	0.001205
D5	stream	0.000627	Drainage	0.000504	0.000373
R4	stream	0.000436	Run-off	0.000015	0.000038

* twa-time as required by ecotox (21d)

Table 8.9-21: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F145740 following single application(s) to spring cereals – 1.8 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.12	-	-	0.02

Table 8.9-22: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F145741 following single application(s) to spring cereals – 1.8 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.09	-	-	0.00

Table 8.9-23: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE 0000119 following single application(s) to spring cereals – 1.8 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.08	-	-	0.09

+

Table 8.9-24: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F161778 following single application(s) to spring cereals – 1.8 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.07	-	-	0.02

Table 8.9-25: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for BCS-CW811253 following single application(s) to spring cereals – 1.8 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.13	-	-	0.05

Table 8.9-26: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F059411 following single application(s) to spring cereals – 1.8 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.10	-	-	0.05

Table 8.9-27: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE 0014966 following single application(s) to spring cereals – 1.8 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.07	-	-	0.00

Table 8.9-28: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE 0043855 following single application(s) to spring cereals – 1.8 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.05	-	-	0.00

Table 8.9-29: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F159737 following single application(s) to spring cereals – 1.8 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.02	-	-	0.00

Table 8.9-30: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE 1234964 following single application(s) to spring cereals – 1.8 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.02	-	-	0.00

Table 8.9-31: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F154781 following single application(s) to spring cereals – 1.8 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.01	-	-	0.00

Table 8.9-32: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE 0002166 following single application(s) to spring cereals – 1.8 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.21	-	-	0.00

zRMS comments:

Evaluator agrees with modelling carried out by applicant.
The input parameters for review for iodosulfuron-methyl-sodium used for surface water calculation were established in the EU reviews (EFSA Journal 2016;14(4):4453).

Interception is appropriate to the proposed BBCH of crops (EFSA guidance was published, (2014;12(5):3662).
In simulations PUF value of 0 was assumed for all compounds, in line with recommendations of the most recent version of the FOCUS Groundwater Guidance. The geomean of the DT_{50} and K_{foc} values were used in modelling.

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

PL: Calculations for spring cereals for R1 scenario can be cover by uses in winter cereals.

8.9.2.2 Mesosulfuron-methyl and its metabolites

Table 8.9-33: Input parameters related to active substance mesosulfuron-methyl and its metabolites for $PEC_{sw/sed}$ calculations STEP 1/2 and 3/4

Compound	Mesosulfuron-methyl	AE F154851 mesosulfuron	AE F160459	Value in accordance with EU endpoint y/n/ Reference
Molecular weight (g/mol)	503.5	489.5	489.5	Y. EFSA 2016; 14(10): 4584
Saturated vapour pressure (Pa)	3.5 x 10-12	1.70 x 10-8 *	6.80 x 10-8 *	Y. EFSA 2016; 14(10): 4584* No EU endpoint; DRAR mesosulfuron-methyl. Volume 3 – B.8 (PPP)
Water solubility (mg/L)	483	20000*	10000*	Y. EFSA 2016; 14(10): 4584* No EU endpoint; DRAR mesosulfuron-methyl. Volume 3 – B.8 (PPP)
Diffusion coefficient in water (m^2/d)	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 10-5	default
Diffusion coefficient in	not required for Step	not required for Step	not required for Step	default

air (m²/d)	1+2/0.43	1+2/0.43	1+2/0.43	
K_{foc} (mL/g)	64.0 / 37.1 (geometric mean)	65.0 / 37.7 (geometric mean)	19.3	Y. EFSA 2016; 14(10): 4584* worst-case default
Freundlich Exponent 1/n	0.91	0.94	0.94	Y. EFSA 2016; 14(10): 4584* worst-case default
Plant Uptake	0	0	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) 0.50 (PRZM)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)	default
$DT_{50.soil}$ (d)	49.72 parent 34.09 parent + met.	45.22	74.14	Y. EFSA 2016; 14(10): 4584
$DT_{50.water}$ (d)	43.0	54.7	87.8	Y. EFSA 2016; 14(10): 4584
$DT_{50.sed}$ (d) Step 1-2 / Step 3-4	43.0 / 1000	54.7	87.8	Y. EFSA 2016; 14(10): 4584
$DT_{50.whole\ system}$ (d)	43.0	54.7	87.8	Y. EFSA 2016; 14(10): 4584
Maximum occurrence observed (% molar basis with respect to the parent)	-	Soil: 16.2 % Total system: 4.9%	Soil: 8.9 % Total system: 21.6%	Y. EFSA 2016; 14(10): 4584
Formation fraction in soil:	-	From mesosulfuron-methyl: 0.210	From mesosulfuron-methyl: 0.103	Y. EFSA 2016; 14(10): 4584

Compound	**AE F099095**	**AE F092944**	**AE F160460**	**Value in accordance with EU endpoint y/n/ Reference***
Molecular weight (g/mol)	198.2	155.2	475.5	Y. EFSA 2016; 14(10): 4584
Saturated vapour pressure (Pa)	1.90 x 10-5 *	2.60 x 10-2 *	5.60 x 10-7 *	Y. EFSA 2016; 14(10): 4584* No EU endpoint; DRAR mesosulfuron-methyl. Volume 3 – B.8 (PPP)
Water solubility (mg/L)	190 *	5200 *	100000 *	Y. EFSA 2016; 14(10): 4584* No EU endpoint; DRAR mesosulfuron-methyl. Volume 3 – B.8 (PPP)
Diffusion coefficient in water (m²/d)	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 10-5	default

Compound	AE F099095	AE F092944	AE F160460	Value in accordance with EU endpoint y/n/ Reference*
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	default
K_{foc} (mL/g)	334 / 193.7	293.9 / 170.5	12.2 / 7.08	Y. EFSA 2016; 14(10): 4584
Freundlich Exponent 1/n	0.8	0.74	0.9	Y. EFSA 2016; 14(10): 4584
Plant Uptake	0	0	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) 0.50 (PRZM)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)	default
$DT_{50.soil}$ (d)	55.6	16.93	28.61	Y. EFSA 2016; 14(10): 4584
$DT_{50.water}$ (d)	1000	1000	325.9	Y. EFSA 2016; 14(10): 4584
$DT_{50.sed}$ (d)	1000	1000	325.9	Y. EFSA 2016; 14(10): 4584
$DT_{50.whole\ system}$ (d)	1000	1000	325.9	Y. EFSA 2016; 14(10): 4584
Maximum occurrence observed (% molar basis with respect to the parent)	Soil: 29.2 % Total system: 0.9%	Soil: 10.1 % Total system: 3.2%	Soil: 8.6 % Total system: 8.4%	Y. EFSA 2016; 14(10): 4584
Formation fraction in soil:	From mesosulfuron-methyl: 0.040	From mesosulfuron-methyl: 0.357	From mesosulfuron: 1 From AE F160459: 1	Y. EFSA 2016; 14(10): 4584

Compound	AE F140584	AE F147447	BCS-CV14885	Value in accordance with EU endpoint y/n/ Reference*
Molecular weight (g/mol)	322.4	290.3	393.4	Y. EFSA 2016; 14(10): 4584
Saturated vapour pressure (Pa)	1.30 x 10-6 *	1.00 x 10-8 *	7.40 x 10-10 *	Y. EFSA 2016; 14(10): 4584* No EU endpoint; DRAR mesosulfuron-methyl. Volume 3 – B.8 (PPP)
Water solubility (mg/L)	100 *	150000 *	2000 *	Y. EFSA 2016; 14(10): 4584* No EU endpoint; DRAR mesosulfuron-methyl. Volume 3 – B.8 (PPP)

Compound	AE F140584	AE F147447	BCS-CV14885	Value in accordance with EU endpoint y/n/ Reference*
Diffusion coefficient in water (m²/d)	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 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	default
K_{foc} (mL/g)	0.0	5.1 / 2.96	17.7 / 10.27	Y. EFSA 2016; 14(10): 4584
Freundlich Exponent 1/n	1.0	1.0	1.21	Y. EFSA 2016; 14(10): 4584
Plant Uptake	0	0	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) 0.50 (PRZM)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)	default
$DT_{50.soil}$ (d)	4.22	102.15	97.6	Y. EFSA 2016; 14(10): 4584
$DT_{50.water}$ (d)	1000	1000	1000	Y. EFSA 2016; 14(10): 4584
$DT_{50.sed}$ (d)	1000	1000	1000	Y. EFSA 2016; 14(10): 4584
$DT_{50.whole\ system}$ (d)	1000	1000	1000	Y. EFSA 2016; 14(10): 4584
Maximum occurrence observed (% molar basis with respect to the parent)	Soil: 7.1 % Total system: 1.9 %	Soil: 6.5 % Total system: 10.9 %	Soil: 5.0 % Total system: 22.0%	Y. EFSA 2016; 14(10): 4584
Formation fraction in soil:	From mesosulfuron-methyl: 0.212	From mesosulfuron-methyl: 0.088	From mesosulfuron-methyl: 0.096	Y. EFSA 2016; 14(10): 4584

Compound	BCS-CO607720	Value in accordance with EU endpoint y/n/ Reference*
Molecular weight (g/mol)	407.4	Y. EFSA 2016; 14(10): 4584
Saturated vapour pressure (Pa)	-	
Water solubility (mg/L)	1000	DRAR mesosulfuron-methyl. Volume 3 – B.8 (PPP)
Diffusion coefficient in water (m²/d)	not required for Step 1+2/ 4.3 x 10-5	default

Compound	BCS-CO607720	Value in accordance with EU endpoint y/n/ Reference*
Diffusion coefficient in air (m²/d)	not required for Step 1+2/0.43	default
K_{foc} (mL/g)	0.0	Y. EFSA 2016; 14(10): 4584
Freundlich Exponent 1/n	1.0	Y. EFSA 2016; 14(10): 4584
Plant Uptake	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)	0.001	Y. EFSA 2016; 14(10): 4584
$DT_{50.water}$ (d)	1000	Y. EFSA 2016; 14(10): 4584
$DT_{50.sed}$ (d)	1000	Y. EFSA 2016; 14(10): 4584
$DT_{50.whole\ system}$ (d)	1000	Y. EFSA 2016; 14(10): 4584
Maximum occurrence observed (% molar basis with respect to the parent)	Soil: 0.001 % Total system: 13.1 %	Y. EFSA 2016; 14(10): 4584

$PEC_{sw/sed}$

WINTER CEREALS – 15g a.s./ha

Table 8.9-34: FOCUS Step 1.2 and 3 PEC_{sw} and PEC_{sed} for mesosulfuron-methyl following single application of GLOB289H to winter cereals – 15 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	4.74	-	-	2.98
Step 2					
Northern Europe	Oct-Feb	1.17	-	-	0.73
	Mar-May	1.17	-	-	0.73
Southern Europe	Oct-Feb	1.17	-	-	0.73
	Mar-May	1.52	-	-	0.95
Step 3					
D1	ditch	0.21880	Drainage	0.15040	0.40120

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
D1	stream	0.14110	Drainage	0.09958	0.23500
D2	ditch	1.60200	Drainage	0.76880	1.09300
D2	stream	1.02200	Drainage	0.43620	0.62950
D3	ditch	0.09817	Drift	0.00739	0.02760
D4	pond	0.04115	Drainage	0.03993	0.10430
D4	stream	0.07713	Drift	0.02600	0.04161
D5	pond	0.01975	Drift	0.01863	0.05102
D5	stream	0.08282	Drift	0.00924	0.02411
D6	ditch	0.10580	Drift	0.01410	0.03884
R1	pond	0.00627	Run-off	0.00546	0.01045
R1	stream	0.10080	Run-off	0.00548	0.01793
R3	stream	0.30990	Run-off	0.00879	0.04938
R4	stream	0.26460	Run-off	0.01131	0.05654

* twa-time as required by ecotox (21d)

FOCUS Step 4

Table 8.9-35: Global maximum PEC_{sw} values for mesosulfuron-methyl. following single application of GLOB289H to winter-cereals according to the central EU zone GAP according to surface water Step 4 – 15 g a.s./ha

Nozzle reduction	No spray buffer / Vegetative strip	Scenario	Max PECsw (µg/L)	Dominant entry route	21d, PECsw, twa (µg/L)	Max PECsed (µg/kg)
0%	10m / 10m	R3 stream	0.1370	Run-off	0.00346	0.02191
0%	10m / 10m	R4 stream	0.1203	Run-off	0.00497	0.02629
0%	20m / 20m	R3 stream	0.071	Run-off	0.00260	0.01414

WINTER CEREALS – 14.4 g a.s./ha

Table 8.9-36: FOCUS Step 1.2 and 3 PEC_{sw} and PEC_{sed} for mesosulfuron-methyl following single application of GLOB289H to winter cereals – 14.4 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	4.56	-	-	2.86
Step 2					
Northern Europe	Oct-Feb	0.79	-	-	0.49
	Mar-May	0.79	-	-	0.49
Southern	Oct-Feb	0.79	-	-	0.49

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Europe	Mar-May	0.79	-	-	0.49
Step 3					
D1	ditch	0.21050	Drainage	0.14460	0.38540
D1	stream	0.13570	Drainage	0.09570	0.22580
D2	ditch	1.52900	Drainage	0.73830	1.05000
D2	stream	0.97550	Drainage	0.41880	0.60520
D3	ditch	0.09419	Drift	0.00704	0.02638
D4	pond	0.03932	Drainage	0.03816	0.09976
D4	stream	0.07399	Drift	0.02486	0.03979
D5	pond	0.01892	Drift	0.01785	0.04896
D5	stream	0.07949	Drift	0.00885	0.02314
D6	ditch	0.10150	Drift	0.01350	0.03728
R1	pond	0.00603	Run-off	0.00525	0.01006
R1	stream	0.09665	Run-off	0.00526	0.01727
R3	stream	0.29750	Run-off	0.00844	0.04747
R4	stream	0.25430	Run-off	0.01088	0.05442

* twa-time as required by ecotox (21d)

FOCUS Step 4

Table 8.9-37: Global maximum PEC_{sw} values for mesosulfuron-methyl. following single application of GLOB289H to winter-cereals according to the central EU zone GAP according to surface water Step 4 – 14.4 g a.s./ha

Nozzle reduction	No spray buffer / Vegetative strip	Scenario	Max PECsw (µg/L)	Dominant entry route	21d, PECsw, twa (µg/L)	Max PECsed (µg/kg)
0%	10m / 10m	R3 stream	0.1315	Run-off	0.00332	0.02106
0%	10m / 10m	R4 stream	0.1157	Run-off	0.00478	0.02532
0%	20m / 20m	R3 stream	0.0681	Run-off	0.00171	0.01115

<u>WINTER CEREALS – 9g a.s./ha</u>

Table 8.9-38: FOCUS Step 1.2 and 3 PEC_{sw} and PEC_{sed} for mesosulfuron-methyl following single application of GLOB289H to winter cereals – 9 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	2.85	-	-	1.79

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 2					
Northern Europe	Oct-Feb	0.49	-	-	0.31
	Mar-May	0.49	-	-	0.31
Southern Europe	Oct-Feb	0.91	-	-	0.57
	Mar-May	0.70	-	-	0.44
Step 3					
D1	ditch	0.13430	Drainage	0.09125	0.24300
D1	stream	0.02347	Drainage	0.02201	0.14230
D2	ditch	0.88230	Drainage	0.46370	0.66650
D2	stream	0.57090	Drainage	0.26220	0.38440
D3	ditch	0.05848	Drift	0.00401	0.01573
D4	pond	0.02335	Drainage	0.02265	0.05977
D4	stream	0.04590	Drift	0.01482	0.02377
D5	pond	0.01154	Drift	0.01088	0.03057
D5	stream	0.04956	Drift	0.00537	0.01438
D6	ditch	0.06322	Drift	0.00820	0.02319
R1	pond	0.00384	Run-off	0.00335	0.00653
R1	stream	0.05937	Run-off	0.00332	0.01125
R3	stream	0.18530	Run-off	0.00526	0.03009
R4	stream	0.16010	Run-off	0.00687	0.03489

* twa-time as required by ecotox (21d)

SPRING CEREALS – 9g a.s./ha

Table 8.9-39: FOCUS Step 1.2 and 3 PEC_{sw} and PEC_{sed} for mesosulfuron-methyl following single application of GLOB289H to spring cereals – 9 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	2.85	-	-	1.79
Step 2					
Northern Europe	Mar-May	0.91	-	-	0.57
	Jun-Sep	0.70	-	-	0.44
Southern Europe	Mar-May	0.49	-	-	0.31
	Jun-Sep	0.49	-	-	0.31
Step 3					
D1	ditch	0.18840	Drainage	0.15690	0.30170
D1	stream	0.15640	Drainage	0.09685	0.16700

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
D3	ditch	0.05898	Drift	0.00463	0.01797
D4	pond	0.02699	Drainage	0.02623	0.07185
D4	stream	0.04795	Drift	0.01672	0.03158
D5	pond	0.01074	Drainage	0.01020	0.03343
D5	stream	0.04889	Drift	0.00475	0.01352
R4	stream	0.03753	Drift	0.00064	0.00364

* twa-time as required by ecotox (21d)

Metabolites of mesosulfuron-methyl

<u>WINTER CEREALS – 15g a.s./ha</u>

Table 8.9-40: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for BCS-CV14885 following single application(s) to winter cereals – 15 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	1.05	-	-	0.19
Step 2					
Northern Europe	Oct-Feb	0.18	-	-	0.03
	Mar-May	0.18	-	-	0.03
Southern Europe	Oct-Feb	0.34	-	-	0.06
	Mar-May	0.26	-	-	0.05
Step 3					
D1	ditch	0.05326	Drainage	0.05248	0.02977
D1	stream	0.03888	Drainage	0.03652	0.02030
D2	ditch	0.07109	Drainage	0.07021	0.04179
D2	stream	0.31560	Drainage	0.14430	0.06412
D3	ditch	0.06320	Drainage	0.06317	0.04516
D4	pond	0.12280	Drainage	0.12250	0.08558
D4	stream	0.05257	Drainage	0.04927	0.02999
D5	pond	0.08982	Drainage	0.08930	0.06456
D5	stream	0.03462	Drainage	0.03087	0.01624
D6	ditch	0.01906	Drainage	0.01680	0.00920
R1	pond	0.00187	Run-off	0.00186	0.00104
R1	stream	0.00278	Run-off	0.00014	0.00014
R3	stream	0.02030	Run-off	0.00050	0.00105
R4	stream	0.00922	Run-off	0.00038	0.00064

* twa-time as required by ecotox (21d)

Table 8.9-41: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for mesosulfuron following single application(s) to winter cereals – 15 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.95	-	-	0.61

Table 8.9-42: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F160459 following single application(s) to winter cereals – 15 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	1.47	-	-	0.28

Table 8.9-43: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F099095 following single application(s) to winter cereals – 15 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.41	-	-	1.37

Table 8.9-44: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F092944 following single application(s) to winter cereals – 15 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.15	-	-	0.44

Table 8.9-45: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F160460 following single application(s) to winter cereals – 15 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.80	-	-	0.10

Table 8.9-46: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F147447 following single application(s) to winter cereals – 15 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.51	-	-	0.03

Table 8.9-47: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F140584 following single application(s) to winter cereals – 15 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.29	-	-	0.00

Table 8.9-48: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for BCS-CO60720 following single application(s) to winter cereals – 15 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.54	-	-	0.00

<u>SPRING CEREALS – 9g a.s./ha</u>

Table 8.9-49: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for BCS-CV14885 following single application(s) to spring cereals – 9 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	---	0.63	-	-	0.11
Step 2					
Northern Europe	Mar-May	0.16	-	-	0.03
	Jun-Sep	0.20	-	-	0.04
Southern Europe	Mar-May	0.20	-	-	0.04
	Jun-Sep	0.11	-	-	0.02

* twa-time as required by ecotox (21d)

Table 8.9-50: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for mesosulfuron following single application(s) to spring cereals – 9 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.57	-	-	0.37

Table 8.9-51: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F160459 following single application(s) to spring cereals – 9 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.88	-	-	0.17

Table 8.9-52: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F099095 following single application(s) to spring cereals – 9 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.25	-	-	0.82

Table 8.9-53: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F092944 following single application(s) to spring cereals – 9 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.09	-	-	0.26

Table 8.9-54: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F160460 following single application(s) to spring cereals – 9 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.48	-	-	0.06

Table 8.9-55: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F140584 following single application(s) to spring cereals – 9 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.17	-	-	0.00

Table 8.9-56: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F147447 following single application(s) to spring cereals – 9 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.29	-	-	0.02

Table 8.9-57: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for BCS-CO60720 following single application(s) to spring cereals – 9 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.33	-	-	0.00

zRMS comments:

Evaluator agrees with modelling carried out by applicant.
The input parameters for mesosulfuron -methyl used for groundwater calculation were established in the EU reviews (EFSA 2016; 14(10): 4584.

Interception is appropriate to the proposed BBCH of crops (EFSA guidance was published, (2014;12(5):3662).
In simulations PUF value of 0 was assumed for all compounds, in line with recommendations of the most recent version of the FOCUS Groundwater Guidance. The geomean of the DT_{50} and K_{foc} values were used in modelling.

Nevertheless, additional simulations may be required by the sMS that do not accept calculations performed using

PL: Calculations for spring cereals for R1 scenario can be cover by uses in winter cereals.

8.9.2.3 Mefenpyr-diethyl and its metabolites

Table 8.9-58: Input parameters related to safener mefenpyr-diethyl and its metabolites for $PEC_{sw/sed}$ calculations STEP 1/2

Compound	Mefenpyr-diethyl	AE F113225	AE F094270	Value in accordance with EU endpoint y/n/ Reference
Molecular weight	373.26	345.2	271.1	Mefenpyr-diethyl

Compound	Mefenpyr-diethyl	AE F113225	AE F094270	Value in accordance with EU endpoint y/n/ Reference
(g/mol)				DAR
Saturated vapour pressure (Pa)	6.3E-6	1E-10	1E-10	Mefenpyr-diethyl DAR
Water solubility (mg/L)	20	5.8	50	Mefenpyr-diethyl DAR
Diffusion coefficient in water (m²/d)	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 10-5	Mefenpyr-diethyl DAR
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	Mefenpyr-diethyl DAR
K_{foc} (mL/g)	609.9	109.5	176.8	Mefenpyr-diethyl DAR
Freundlich Exponent 1/n	1.09	0.92	0.93	Mefenpyr-diethyl DAR
Plant Uptake	0	0	0	Mefenpyr-diethyl DAR
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) 0.50 (PRZM)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)	Mefenpyr-diethyl DAR
$DT_{50.soil}$ (d)	2.4	6.1	19.6	Mefenpyr-diethyl DAR
$DT_{50.water}$ (d)	1000	1000	1000	Mefenpyr-diethyl DAR
$DT_{50.sed}$ (d)	1.1	42.5	109	Mefenpyr-diethyl DAR
$DT_{50.whole\ system}$ (d)	1.1	42.5	109	Mefenpyr-diethyl DAR
Maximum occurrence observed (% molar basis with respect to the parent)	-	Soil: 44.1 % Water/sed: 82.8 %	Soil: 72.2 % Water/sed: 62.4 %	Mefenpyr-diethyl DAR
Formation fraction in soil:	-	0.76	1	Mefenpyr-diethyl DAR

Compound	AE F0109453	AE F114952	AE 2211046	Value in accordance with EU endpoint y/n/ Reference*
Molecular weight (g/mol)	317.13	345.18	391.26	Mefenpyr-diethyl DAR
Saturated vapour pressure (Pa)	1E-10	1E-10	1000 (default)	Mefenpyr-diethyl DAR
Water solubility (mg/L)	1173	563	1000	Mefenpyr-diethyl

Compound	AE F0109453	AE F114952	AE 2211046	Value in accordance with EU endpoint y/n/ Reference*
			(default)	DAR
Diffusion coefficient in water (m²/d)	not required for Step 1+2/ 4.3 x 10-5	not required for Step 1+2/ 4.3 x 10-5	35.5	Mefenpyr-diethyl DAR
Diffusion coefficient in air (m²/d)	not required for Step 1+2/0.43	not required for Step 1+2/0.43	1000	Mefenpyr-diethyl DAR
K_{foc} (mL/g)	0	0	1320 (QSAR)	Mefenpyr-diethyl DAR
Freundlich Exponent 1/n	1	1	1000 (default)	Mefenpyr-diethyl DAR
Plant Uptake	0	0	-	Mefenpyr-diethyl DAR
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) 0.50 (PRZM)	not required for Step 1+2/ 0.05 (MACRO) 0.50 (PRZM)	Mefenpyr-diethyl DAR
$DT_{50.soil}$ (d)	1000*	1000*	1000	* worst-case as-sumtion
$DT_{50.water}$ (d)	1000	1000	1000	Mefenpyr-diethyl DAR
$DT_{50.sed}$ (d)	23	20	1000	Mefenpyr-diethyl DAR
$DT_{50.whole\ system}$ (d)	23	20	1000 (default)	Mefenpyr-diethyl DAR
Maximum occurrence observed (% molar basis with respect to the parent)	Water/sed: 46.5 %	Water/sed: 18.6 %	Soil: 11	Mefenpyr-diethyl DAR
Formation fraction in soil:	1*	-	-	* worst-case assumption

$PEC_{sw/sed}$

<u>WINTER CEREALS – 45g a.s./ha</u>

Table 8.9-59: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for mefenpyr-diethyl following single application(s) to winter cereals – 45 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	8.69	-	-	50.45

SPRING CEREALS – 27g a.s./ha

Table 8.9-60: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for mefenpyr-diethyl following single application(s) to spring cereals – 27 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	5.21	-	-	30.27

Metabolites of mefenpyr-diethyl

WINTER CEREALS – 45g a.s./ha

Table 8.9-61: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F113225 following single application(s) to winter cereals – 45 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	15.68	-	-	16.85

Table 8.9-62: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F094270 following single application(s) to winter cereals – 45 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	12.05	-	-	21.11

Table 8.9-63: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F109453 following single application(s) to winter cereals – 45 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	18.83	-	-	0.00

Table 8.9-64: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F114952 following single application(s) to winter cereals – 45 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	16.52	-	-	0.00

Table 8.9-65a: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE 2211046 following single application(s) to winter cereals – 45 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.70	-	-	0.00

SPRING CEREALS – 27g a.s./ha

Table 8.9-66: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F113225 following single application(s) to spring cereals – 27 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	9.41	-	-	10.11

Table 8.9-67: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F094270 following single application(s) to spring cereals – 27 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	7.23	-	-	12.67

Table 8.9-68: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F109453 following single application(s) to spring cereals – 27 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	11.30	-	-	0.00

Table 8.9-69: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE F114952 following single application(s) to spring cereals – 27 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	9.91	-	-	0.00

Table 8.9-8a: FOCUS Step 1. 2 and 3 PEC_{sw} and PEC_{sed} for AE 2211046 following single application(s) to winter cereals – 27 g a.s./ha

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)	Dominant entry route	$PEC_{sw.twa}$ (µg/L)*	Max PEC_{sed} (µg/kg)
Step 1	-	0.46	-	-	0.00

8.9.2.4 $PEC_{sw/sed}$ of GLOB289H

The PEC_{sw} of GLOB289H was calculated in the standard FOCUS SW water bodies (ditch. pond and stream) further to drift events using the SWASH drift calculator. This approach underlies the assumption that runoff and drain flow will not move the intact formulation into the aquatic environment due to varying adsorption and degradation properties of the formulation's constituents. In these events. attention should be given to the individual active ingredients and eventually metabolites as source of risk. Spray drift is the only realistic source of contamination of the aquatic environment by the intact formulation.
The application rate of GLOB289H is 0.5kg/ha for winter cereals or 0.3kg/ha for winter cereals or spring cereals. The PEC_{SW} were calculated for the ditch. pond and stream scenarios. On top, to allow for the 20% spray drift contribution from the upstream catchment in the case of streams. the drift values of the calculator have been multiplied by a factor 1.2 for the stream scenario. The ditch scenario remains the worst-case in any case. Therefore, only the results of the Ditch scenario are presented in the tables below.

Table 8.9-70: PEC_{sw} initial values (µg/L) for the formulation GLOB289H – 1m buffer zone

Cropping scenario	FOCUS scenario	FOCUS values	
		% drift	Max. PECsw resulting from drift event (µg/L)
Winter cereals. 500g/ha	Ditch	1.9274	3.2123
Winter cereals. 300g/ha	Ditch	1.9274	1.9274
Spring cereals. 300g/ha	Ditch	1.9274	1.9274

*taking into account the 20% contribution from the upstream catchment

Table 8.9-71: PEC_{sw} initial values (µg/L) for the formulation GLOB289H – 10m buffer zone

Cropping scenario	FOCUS scenario	FOCUS values	
		% drift	Max. PECsw resulting from drift event (µg/L)
Winter cereals. 500g/ha	Ditch	0.2771	0.4618
Winter cereals. 300g/ha	Ditch	0.2771	0.2771
Spring cereals. 300g/ha	Ditch	0.2771	0.2771

*taking into account the 20% contribution from the upstream catchment

Table 8.9-72: PEC_{sw} initial values (µg/L) for the formulation GLOB289H – 20m buffer zone

Cropping scenario	FOCUS scenario	FOCUS values	
		% drift	Max. PECsw resulting from drift event (µg/L)
Winter cereals. 500g/ha	Ditch	0.1440	0.2399
Winter cereals. 300g/ha	Ditch	0.1440	0.1440
Spring cereals. 300g/ha	Ditch	0.1440	0.1440

*taking into account the 20% contribution from the upstream catchment

Evaluator comments:

Evaluator agrees with modelling carried out by applicant.
The input parameters for mefenpyr—diethyl used for surface water calculation were established in the DAR.
Interception is appropriate to the proposed BBCH of crops (EFSA guidance was published, (2014;12(5):3662).
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.
Nevertheless, additional simulations may be required by the sMS that do not accept calculations performed using Focus models.

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

8.10.1 Iodosulfuron-methyl-sodium

Table 8.10-1 Summary of atmospheric degradation and behaviour of iodosulfuron-methyl-sodium (EFSA 2016; 14(4):4453)

Compound	Iodosulfuron-methyl sodium
Direct photolysis in air	Not studied – no data requested
Quantum yield of direct phototransformation	Not available – no data requested
Photochemical oxidative degradation in air	DT50 (h): 152 h (6.3d) derived by the Atkinson model OH (24h) concentration assumed = 0.5 x 10^6 OH/cm³
Volatilisation	Not available – no data requested
Metabolites	Not available – no data requested

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

8.10.2 Mesosulfuron-methyl

Table 8.10-2 Summary of atmospheric degradation and behaviour of mesosulfuron-methyl (EFSA 2016; 14(10): 4584)

Compound	Mesosulfuron-methyl
Direct photolysis in air	Not available – no data required
Quantum yield of direct phototransformation	Not available – no data required
Photochemical oxidative degradation in air	Mesosulfuron-metyl KCA 7.3.1/01 Additional study: DT50: 0.05 days derived by the Atkinson model (version 1.92) OH (12h) concentration assumed = 1.5 x 10^6 OH/cm³ AE F099095 KCA 7.3.1/02 Additional study: DT50: 0.053 days derived by the Atkinson model (version 1.92). OH (12h) concentration assumed = 1.5 x 10^6 OH/cm³ AE F092944 KCA 7.3.1/03 Additional study: DT50: 0.053 days derived by the Atkinson model (version 1.92). OH (12h) concentration assumed = 1.5 x 10^6 OH/cm³
Volatilisation	Not available – no data required
Metabolites	-

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

8.10.3 Mefenpyr-diethyl (DAR Mefenpyr-diethyl)

Mefenpyr-diethyl has negligible volatility as concluded from its low vapour pressure of 6.3 x 10^{-6} Pa at 20°C. This was confirmed in an experimental test showing low volatility on soil and plant surfaces. Calculation of the photo-oxidative degradation in air according Atkinson methodology (AOPWIN) resulted in a DT_{50} value of 1.96 d for standard OH radical concentration of 1.5 × 10^6 radicals/cm^3 and a daytime frame of 12 hours.
Vapour pressure does not exceed FOCUS Air trigger values for volatilisation potential (i.e. Vp ≥ 10^{-4} Pa at 20°C for volatilisation from soil. and Vp ≥ 10^{-5} Pa at 20°C for volatilisation from plants). and atmospheric half-life does not exceed FOCUS Air trigger for possibility of long range transport (i.e. DT_{50} > 2 days). Concluded from both contributing factors. there is no risk of atmospheric long-range transport of mefenpyr-diethyl; PEC calculations are therefore not required.

zRMS comments
Accepted.

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	Baré B.	2019	GLOB289H/SAP63H Report PEC_{GW} calculations Globachem GMP Unpublished	N	Ascenza Agro S.A. Globachem N.V
KCP 9.2.5	Baré B.	2019	GLOB289H/SAP63H Report PEC_{SW} and PEC_{SED} calculations Globachem GMP Unpublished	N	Ascenza Agro S.A. Globachem N.V

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	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
			Source GLP/non GLP/GEP/non GEP 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