FINAL REGISTRATION REPORT

Part B

Section 8

Environmental Fate

Detailed summary of the risk assessment

Product code: TOTO 75 SG

Product name(s): TOTO 75 SG/ TYTAN 75 SG/ HERKULES 75 SG

Chemical active substance(s):

Thifensulfuron-methyl, 682 g/kg
Metsulfuron-methyl, 68 g/kg

Central Zone

Zonal Rapporteur Member State: Poland

Renewal of authorization

(authorization)

Applicant: Innvigo Sp. z o.o.

Submission date: January 2020

June 2021

MS Finalisation date: June 2021; October 2022

Version history

When	What
January 2020	Submitted to assessment
March 2021	Assessment dRR by zRMS
June 2021	Assessment dRR of new calculations
June 2021	Finalisation of the assessment by zRMS
October 2022	Final Registration Report

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

8 Fate and behaviour in the environment (KCP 9)

8.1 Critical GAP and overall conclusions

Table 8.11: Critical use pattern of the formulated product

PPP (product name/code):	TOTO 75 SG	Formulation type:	75 SG [a, b]
Active substance 1:	Thifensulfuron-methyl	Conc. of as 1:	682g/kg [c]
Active substance.3:	Metsulfuron-methyl	Conc. of as ….:	68 g/kg [c]
Safener:	n/a	Conc. of safener:	conc. [c]
Synergist:	n/a	Conc. of synergist:	conc. [c]
Applicant:	Innvigp Sp. z o.o.	Professional use:	☒
Zone(s):	northern/central/southern/interzonal [d]	Non professional use:	☐
Verified by MS:	yes/no		

Field of use: herbicidec

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 G or I**	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:**
					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		e.g. g safener/synergist per ha
1													
2													
3													

4

Field uses

1	PL, SK	Winter wheat	F	weeds	spray medium	PL: BBCH 21-29 SK: BBCH 22-29	1	N/A	a) 0,07 b) 0,07	a) thifensulfuron methyl 47.7 g + metsulfuron methyl 4.8 g b) thifensulfuron methyl 47.7 g + metsulfuron methyl 4.8 g	200-300	N/A	PL: plus adiuvant ASYSTENT+90 EC in dose 0,1l/ha
2	PL, SK	Winter wheat	F	weeds	spray medium	PL: BBCH 30-31 SK: BBCH 30-31	1	N/A	c) 0,09 d) 0,09	a) thifensulfuron methyl 61,4 g + metsulfuron methyl 6,1 g b) thifensulfuron methyl 61,4 g + metsulfuron methyl 6,1 g	200-300	N/A	PL: plus adiuvant ASYSTENT+90 EC in dose 0,1l/ha
3	PL, SK	Winter triticale	F	Weeds	spray medium	BBCH 21 -29	1	N/A	a) 0,07 b) 0,07	a) thifensulfuron methyl 47.7 g + metsulfuron methyl 4.8 g b) thifensulfuron methyl 47.7 g + metsulfuron methyl 4.8 g			PL: plus adiuvant PARTNER+ in dose 0,5 l/ha SK – extention of registration is currently pending

4	PL, SK	Winter triticale	F	Weeds	spray medium	BBCH 30 -31	1	N/A	c) 0,09 d) 0,09	a) thifensulfuron methyl 61,4 g + metsulfuron methyl 6,1 g b) thifensulfuron methyl 61,4 g + metsulfuron methyl 6,1 g	PL: plus adiuvant PARTNER+ in dose 0,5 l/ha SK – extention of registration is currently pending
5	PL, SK	Winter rye	F	Weeds	spray medium	BBCH 21 -29	1	N/A	a) 0,07 b) 0,07	a) thifensulfuron methyl 47.7 g + metsulfuron methyl 4.8 g b) thifensulfuron methyl 47.7 g + metsulfuron methyl 4.8 g	PL: plus adiuvant PARTNER+ in dose 0,5 l/ha SK – extention of registration is currently pending
6	PL, SK	Winter rye	F	Weeds	spray medium	BBCH 30 -31	1	N/A	c) 0,09 d) 0,09	a) thifensulfuron methyl 61,4 g + metsulfuron methyl 6,1 g b) thifensulfuron methyl 61,4 g + metsulfuron methyl 6,1 g	PL: plus adiuvant PARTNER+ in dose 0,5 l/ha SK – extention of registration is currently pending
7	PL, SK	Winter rye	F	Weeds	spray medium	BBCH 21 -31	1	N/A	a) 0,07 b) 0,07	a) thifensulfuron methyl 47,7 g + metsulfuron methyl 4,8 g b) thifensulfuron methyl 47,7 g + metsulfuron methyl 4,8 g	SK – extention of registration is currently pending: Tank Mix with Galaper (fluroksypyr) 250 EC in dose 0,25 l of product /ha PL: Tank Mix with Galaper (fluroksypyr) 250 EC in dose 0,25 l of product /ha

													+ adiuvant Partner+ in dose 0,5 l/ha
8	PL, SK	Winter triticale	F	Weeds	spray medium	BBCH 21 -31	1	N/A	a) 0,07 b) 0,07	a) thifensulfuron methyl 47,7 g + metsulfuron methyl 4,8 g b) thifensulfuron methyl 47,7 g + metsulfuron methyl 4,8 g			SK – extention of registration is currently pending: Tank Mix with Galaper (fluroksypyr) 250 EC in dose 0,25 l of product /ha PL: Tank Mix with Galaper (fluroksypyr) 250 EC in dose 0,25 l of product /ha + adiuvant Partner+ in dose 0,5 l/ha
EU-wide uses (use on sowing seed, in greenhouses (or other closed places of plant production), as post-harvest treatment or for treatment of empty storage rooms)													
3	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-
Minor uses according to article 51													
5	-	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-	-

(a) For crops, the EU and Codex classifications (both) should be used; where relevant, the use situation should be described (*e.g.* fumigation of a structure)
(b) Outdoor or field use (F), glasshouse application (G) or indoor application (I)
(c) *e.g.* biting and suckling insects, soil born insects, foliar fungi, weeds
(d) *e.g.* wettable powder (WP), emulsifiable concentrate (EC), granule (GR)
(e) GCPF Codes - GIFAP Technical Monograph No 2, 1989
(f) All abbreviations used must be explained
(g) Method, *e.g.* high volume spraying, low volume spraying, spreading, dusting, drench
(h) Kind, *e.g.* overall, broadcast, aerial spraying, row, individual plant, between the plant - type of equipment used must be indicated
(i) g/kg or g/l
(j) Growth stage at last treatment (BBCH Monograph, Growth Stages of Plants, 1997, Blackwell, ISBN 3-8263-3152-4), including where relevant, information on season at time of application
(k) Indicate the minimum and maximum number of application possible under practical conditions of use
(l) PHI - minimum pre-harvest interval
(m) Remarks may include: Extent of use/economic importance/restrictions

Table 8.12: Assessed (critical) uses during approval of thifensulfuron-methyl concerning the Section Environmental Fate

Crop and/or situation (a)	Member State or Country	Product name	F, G or I (b)	Pests or Group of pests controlled (c)	Preparation		Application				Application rate per treatment (for explanation see the text in front of this section)			PHI (days) (m)	Remarks
					Type (d-f)	Conc. of as (i)	method kind (f-h)	growth stage & season (j)	number min/ max (k)	interval between applications (min)	g a.s./ hL min – max (l)	water L/ha min – max	g as/ha min – max (l)		
Winter Cereals (wheat)	EU countries (Annex I renewal)	Thifensulfuron methyl 50SG	F	Broadleaf weeds	SG	500 g/kg	Tractor mounted hydraulic /trailed boom sprayer, broadcast foliar application, ground directed spraying	BBCH 12-39	1	n.a.	-	200-400	30	n.a.	Fall application. Without surfactant.

Winter cereals (wheat, barley, triticale, rye, oat)	EU countries (Annex I renewal)	Thifensulfuron methyl 50SG	F	Broadleaf weeds	SG	500 g/kg	Tractor mounted hydraulic /trailed boom sprayer, broadcast foliar application, ground directed spraying	BBCH 12-39	1	n.a.	-	200-400	22.5-37.5	n.a.	Winter/Spring application. With non-ionic surfactant (i.e., Trend® 90, 0.1% v/v).
Spring cereals with and without underlay of grass +/- clover/ lucerne (wheat, barley, oat, rye)	EU countries (Annex I renewal)	Thifensulfuron methyl 50SG	F	Broadleaf weeds	SG	500 g/kg	Tractor mounted hydraulic /trailed boom sprayer, broadcast foliar application, ground directed spraying	BBCH 12-39	1	n.a.	-	100-400	6-30	Do not apply after BBCH 39. PHI in days n/a, except 60 (DK at maturity) 14 (DK for forage/ silage before maturity)	Spring application. With and without non-ionic surfactant (*i.e.*, Trend® 90, 0.05% v/v). Max 15 g a.s./ha if grass underlay. Max 7.5 g a.s./ha if clover /lucerne underlay.
Winter Cereals with and without underlay of grass +/- clover/ lucerne (wheat, barley, oat, rye, triticale)	EU countries (Annex I renewal)	Thifensulfuron methyl 50SG	F	Broadleaf weeds	SG	500 g/kg	Tractor mounted hydraulic /trailed boom sprayer, broadcast foliar application , ground directed spraying	BBCH 12-39	1	n.a.	-	100-400	6-37.5	Do not apply after BBCH 39 PHI in days n/a, except 60 (DK at maturity)	Spring application. With and without non-ionic surfactant (i.e., Trend® 90, 0.05-0.1% v/v). Max 15 g a.s./ha if grass underlay. Max 7.5 g a.s./ha if clover /lucerne underlay.

Winter wheat, Rye, Triticale	All	CHA 8730 / FH-009	F	Annual Broad leaved weeds	WG	*	Overall foliar spray	BBCH 13-39	1	-	0.013 - 0.051	100-400	0.051	NA	No PHI required
Spring wheat, winter barley, spring barley	All	CHA 8730 / FH-009	F	Annual Broad leaved weeds	WG	*	Overall foliar spray	BBCH 13-39	1	-	0.010-0.041	100-400	0.041	NA	No PHI required

* 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 8.13: Assessed (critical) uses during approval of Metsulfuron-methyl concerning the Section Environmental Fate

Crop and/or situation (a)	Member State or Country	Product Name	F, G or I (b)	Pests or Group of pests controlled (c)	Formulation		Application				Application rate per treatment			PHI (days) (l)	Remarks: (m)
					type (d-f)	conc. of as (i)	method kind (f-h)	growth stage & season (j)	number min-max (k)	interval between appl. (min)	g as/hL min-max	water L/ha min-max	g as/ha min-max		
Cereals spring	EU	Ally® 20 SG	F	Broadleaf weeds	SG	200 g/kg	Tractor mounted sprayer Broadcast, ground directed spraying	Post emergence: two leaves to flag leaf stage (BBCH 12-39)	1	Not applicable	1.5-12	50-400	6	Not applicabl e	Label recommendation surfactant (*i.e.* Trend® 90)
Cereals Winter	EU	Ally® 20 SG	F	Broadleaf weeds	SG	200 g/kg	Tractor mounted sprayer Broadcast, ground directed spraying	Post emergence: autumn (BBCH 12-20)	1*	Not applicable	1.5-12	50-400	3	Not applicabl e	Label recommendation surfactant (*i.e.* Trend® 90)
								Post emergence: spring (BBCH 21-39)					6		
Cereals	EU	MSM 200 g/kg WDG (CHA 1710)	F	Broadleaf weeds	WG	200 g/kg	Tractor mounted sprayer Broadcast, ground directed	Post emergence: two leaves to flag leaf	1	Not applicable	1.5 - 6	100-400	6	Not applicabl e	Applicant recommendation : Spring application only

Crop and/or situation (a)	**Member State or Country**	**Product Name**	**F, G or I (b)**	**Pests or Group of pests controlled (c)**	**Formulation**		**Application**				**Application rate per treatment**			**PHI (days) (l)**	**Remarks: (m)**
					type (d-f)	**conc. of as (i)**	**method kind (f-h)**	**growth stage & season (j)**	**number min-max (k)**	**interval between appl. (min)**	**g as/hL min-max**	**water L/ha min-max**	**g as/ha min-max**		
							spraying	stage (BBCH 12-39)							
Cereals winter and spring	EU	MSM 20 % WG	F	Broadleaf weeds	WG	200 g/kg	Tractor mounted sprayer Broadcast, ground directed spraying	Post emergence: two leaves to flag leaf stage (BBCH 12-39)	1	Not applicable	1.5 - 6	100-400	6	Not applicabl e	Applicant recommendation : Spring application only

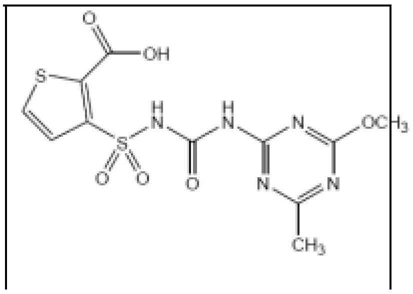
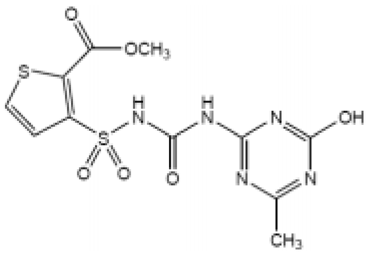
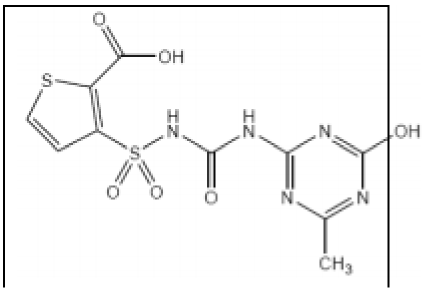
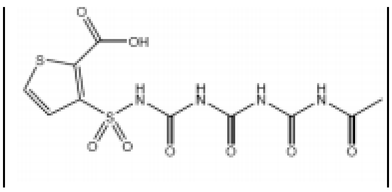
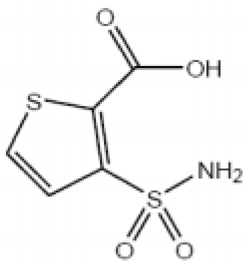
*Either autumn application at the lower rate or spring application at the higher rate

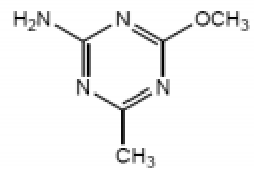
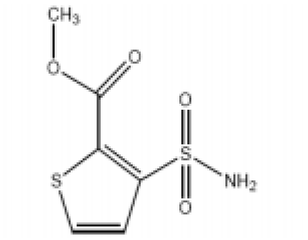
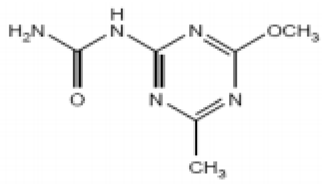
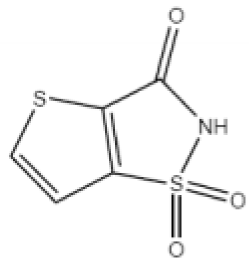
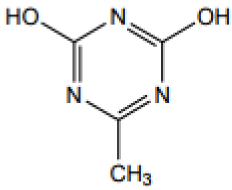
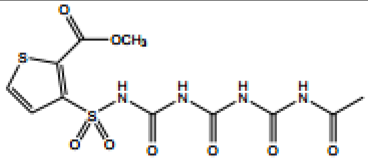
* Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0 should be given in column 1

** 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 8.21: Metabolites of thifensulfuron-methyl potentially relevant for exposure assessment

Metabolite	Molar mass	Chemical structure	Maximum observed occurence in compartements	Exposue assessment required due to
IN-L9225	373.4 g/mol		Soil (lab): 49.13- 93.52% at 14d; max 94%) Hydrolytic degradation: pH 9 70.05% AR (30°C) (30d); 79.8% AR (25ºC) (30d) Maximum occurrence in water/sediment (%AR):55/7 %	PECsoil PEC_{gw} PECsw
IN-L9226	373.4		Soil (Lab): max 18.5% Hydrolytic degradation: pH 4 13.6% AR (25ºC) (3d) Maximum occurrence in water/sediment (%AR):7.8/7.2 %	PECsoil PEC_{gw} PECsw
IN-JZ789	359.3		Soil: 0.5- 9.73% at 61d; max 10% Maximum occurrence in water/sediment (%AR):21/4 %	PECsoil PEC_{gw} PECsw
2-Acid-3-triuret	378.3		Soil: 3.13-16.95% at 61d; max 17%	PECsoil PEC_{gw}
IN-L9223	207.2		Soil: 0.15-19.3% at 29d; max 19% Maximum occurrence in water/sediment (%AR):39/8 %	PECsoil PEC_{gw} PECsw

IN-A4098	140.1		Soil: 2.47-17.97% at 29d; max 18% Soil photolysis: 32.3% at 30 d, triazine label Hydrolytic degradation: pH 4 26.1% AR (25ºC) (14d) pH 7 5.9% AR (25ºC) (30d). pH 9 12.4% AR (25ºC) (30d) Maximum occurrence in water/sediment (%AR):20/7%	PECsoil PEC_{gw} PECsw
IN-A5546	221.2		Soil: max 10.5% at 2d Soil photolysis: max 27.7% at 15d, thiophene label Hydrolytic degradation: pH 4 64.2% AR (25ºC) (30d) pH 7 7.6% AR (25ºC) (30d) Photolytic degradation water: 10.3% AR	PECsoil PEC_{gw} PECsw
IN-V7160	183.2		Soil: 0% - 9.6% at 15d, from photolysis study$; Max 9.6% Photolytic degradation water: 23.8 % AR Maximum occurrence in water/sediment (%AR):25/6%	PECsoil PEC_{gw} PECsw
IN-W8268	189.2		Soil: max 29.6% at 4d	PECsoil PEC_{gw}
IN-F5475	142		Hydrolytic degradation: pH 4 33.2% AR (25ºC) (30d)	PECsw
IN-RDF00	392.4		Hydrolytic degradation: pH 4 33.95% AR (25°C) (30d)	PECsw

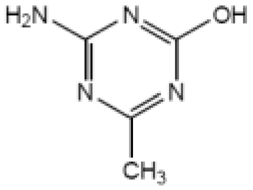
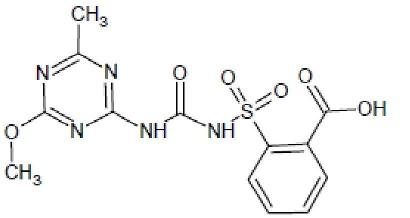
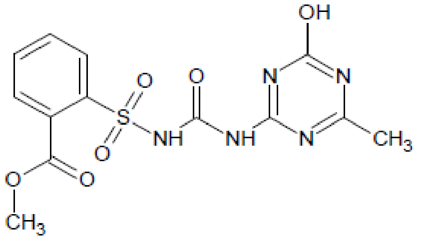
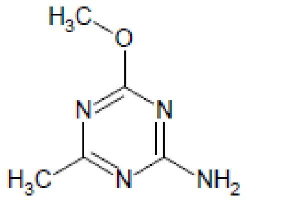
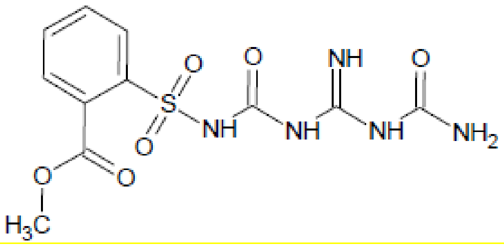
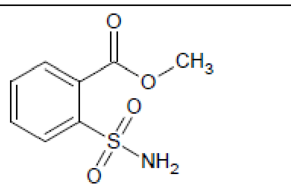
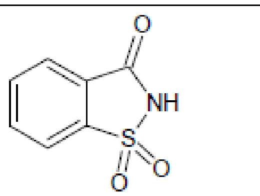
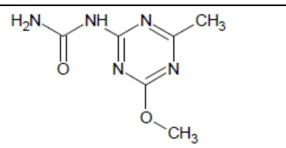
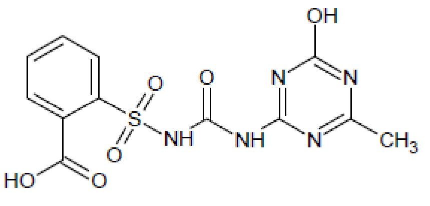
IN-B5528	126.1		Soil anaerobic: maximum of 8.1% at 121 d Hydrolytic degradation: pH 4 25.3% AR (20°C) (30d)	PECsoil PEC_{gw} PECsw

Table 8.22: Metabolites of Metsulfuron-methyl potentially relevant for exposure assessment

Metabolite	Molar mass	Chemical structure	Maximum observed occurence in compartements	Exposue assessment required due to
IN-F5438	367.34		Soil (lab): Phenyl label: max. observed: 15.6 % (30 d) Triazine label: max. observed: 14.6 % (30 d) Water/sediment: >10%	PECsoil PECgw PEC sw
IN-B5067	364.24		Soil (lab): Phenyl label: max. observed: 16.2 % (90 d) Triazine label: max. observed: 14.0 % (90 d) Water/sediment: 21.7 %;	PECsoil PECgw PEC sw
IN-A4098	140.1		Soil (lab): Triazine label: IN-A4098, max. observed: 42,3 % and arising (120 d) Water/sediment: 21.7 %;	PECsoil PECgw PEC sw
IN-NC148	343.32		Soil (lab): Phenyl label: max. observed: 23 % (90 d) Triazine label: max. observed: 20.7 % (90 d) Water/sediment: <0.1 %;	PECsoil PECgw PEC sw
IN-D5803	215.22		Phenyl label: max. observed: 48.7 % (28 d) Water/sediment: 39.9 %;	PECsoil PECgw PEC sw
IN-00581	183.07		Soil (lab): Phenyl label: max. observed: 8.7 % (21 d) Water/sediment: <0.1 %;	PECsoil PECgw PEC sw
IN-V7160	183.07		Soil (lab): max. observed: 12.8 % (30 d) Water/sediment: <0.1 %;	PECsoil PECgw PEC sw

IN-JX909	353.3		Soil: N/D Water/sediment: >10%	PEC sw

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)

Studies on aerobic degradation in soil with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substance. EU approved endpoints were evaluated during Annex I inclusion and renewal. All relevant data are presented in :

- **Thifensulfuron-methyl** – EFSA Journal 2015;13(7):4201
- **Metsulfuron-methyl -** EFSA Journal 2015;13(1):3936

8.3.1.1 Thifensulfuron-methyl and its metabolites

Table 8.31: Summary of aerobic degradation rates for Thifensulfuron-methyl - laboratory studies

Thifensulfuron-methyl	Aerobic conditions						
Study reference	**Soil type**	**pH**	**t. °C / % MWHC**	**DT50 /DT90 (d)**	**DT50 (d) 20°C pF2/10kPa[1]**	**chi2**	**Method of calculation**
Allen, 1987	Speyer 2.2; loamy sand	5.7	22 °C / 40 % MWHC	1.7 / 5.7	2.0	3	SFO
Allen, 1987	Speyer 2.3; loamy sand	7.0	22 °C / 40 % MWHC	2.6 / 8.6	3.1	4	SFO
Simmonds, 2012a	Longwood; sandy loam	7.5	20 °C / pF 2 -2.5	0.99 / 3.29	0.99	3.742	SFO
Simmonds, 2012a	Farditch; loam	6.5	20 °C / pF 2 -2.5	1.12 / 3.72	1.12	6.782	SFO
Simmonds, 2012a	Lockington; sandy clay	5.5	20 °C / pF 2 -2.5	1.23 / 4.09	1.23	10.02	SFO
Simmonds, 2012a	Kenslow; loam	5.5	20 °C / pF 2 -2.5	0.85/ 2.82	0.85	5.662	SFO
Geometric mean				-	1.39	-	-

[1] DT_{50} values only corrected for temperature since soil moisture estimated to be greater than pF2 based on measured MWHC from original study report and default values for pF2 from FOCUS groundwater report
[2] Worst-case figure from the 2 radiolabels

Table 8.32: Summary of aerobic degradation rates for IN-L9225- laboratory studies

IN-L9225	**Aerobic conditions**							
Study reference	**Soil type**	**pH**	**t. °C / % MWHC**	**Formation fraction[a]**	**DT_{50} /DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**chi²**	**Method of calculation**
Manjanutha, 2000	Drummer, silty clay loam	5.9	20 °C / 40 % MWHC	-	42.5 / 141.2	34.9	11	SFO
Manjanutha, 2000	Glenville, sandy loam	7.3	20 °C / 40 % MWHC	-	20.6 / 68.5	17.2	9	SFO
Manjanutha, 2000	Gross-Umstadt, silt loam	7.5	20 °C / 40 % MWHC	-	154.4 / 513	119.9	5	SFO
Simmonds, M., 2012a	Longwoods thiophene	7.3	20/ pF2	1.00	74.4 / 247.2	74.4	8.87	SFO
Simmonds, M., 2012a	Longwoods triazine	7.3	20/ pF2	0.95	85.1 / 282.7	85.1	8.22	SFO
Simmonds, M., 2012a	Farditch thiophene	5.9	20/ pF2	0.97	20.7 / 68.8	20.7	10.9	SFO
Simmonds, M., 2012a	Farditch triazine	5.9	20/ pF2	0.98	25.4 / 84.4	25.4	12.0	SFO
Simmonds, M., 2012a	Lockington thiophene	5.5	20/ pF2	1.00	17.5 / 58.1	17.5	11.2	SFO
Simmonds, M., 2012a	Lockington triazine	5.5	20/ pF2	0.94	20.3 / 67.4	20.3	10.0	SFO
Simmonds, M., 2012a	Kenslow thiophene	5.1	20/ pF2	0.93	14.4 / 47.8	14.4	13.5	SFO
Simmonds, M., 2012a	Kenslow triazine	5.1	20/ pF2	0.84	15.4 / 51.2	15.4	5.55	SFO
Geometric mean			-	**0.95** (arithmetic mean)	-	**32.3**	-	-

Simmonds, M., 2012a (parent route study)
Manjanutha, 2000 (metabolite dosed study)
[a] from parent thifensulfuron methyl

Table 8.33: Summary of aerobic degradation rates for IN-L9226 laboratory studies

IN-L9226	Aerobic conditions						
Study reference	**Soil type**	**pH**	**t. °C / % MWHC**	**DT_{50} / DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**chi²**	**Method of calculation**
Manjanutha, 2000 (DuPont)	Drummer, silty clay loam	5.9	20 °C / 40 % MWHC	2.0 / 6.6	1.6	5	SFO
Manjanutha, 2000 (DuPont)	Glenville, sandy loam	7.3	20 °C / 40 % MWHC	2.9 / 9.6	2.4	13	SFO
Manjanutha, 2000 (DuPont)	Gross-Umstadt, silt loam	7.5	20 °C / 40 % MWHC	0.9 / 3.0	0.7	3	SFO
Knoch, 2012c (Task Force)	LUFA 2.2; loamy sand	5.5 ($CaCl_2$)	20 °C / 45 % MWHC	0.6 / 2.0	0.6	18.5	SFO
Knoch, 2012c (Task Force)	LUFA 2.3; sandy loam	6.8 ($CaCl_2$)	20°C / 45 % MWHC	0.3 / 1.0	0.27	7.6	SFO
Knoch, 2012c (Task Force)	LUFA 6S; clay	7.1 ($CaCl_2$)	20 °C / 45 % MWHC	3.3 / 11.0	1.63	12.5	SFO
Geometric mean				1.2 / 4.0	**0.95**	-	-

Manjanutha, 2000, (metabolite dosed study)
Knoch, 2012c (metabolite dosed study)

Table 8.34: Summary of aerobic degradation rates for IN-JZ789 laboratory studies

IN-JZ789	Aerobic conditions							
Study reference	**Soil type**	**pH**	**t. °C / % MWHC**	**Formation fraction[a]**	**DT_{50} /DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**chi^2**	**Method of calculation**
Simmonds, M., 2012a	Longwoods thiophene	7.3	20/ pF2	0.36	362 / 1203	362	49.8	SFO
Simmonds, M., 2012a	Longwoods triazine	7.3	20/ pF2	0.58	51.5 / 171	51.5	57.7	SFO
Simmonds, M., 2012a	Farditch thiophene	5.9	20/ pF2	0.17	128 / 425	128	37.0	SFO
Simmonds, M., 2012a	Farditch triazine	5.9	20/ pF2	0.14	1000 / 3322	1000	37.5	SFO
Simmonds, M., 2012a	Lockington thiophene	5.5	20/ pF2	0.19	39.5 / 131	39.5	47.3	SFO
Simmonds, M., 2012a	Lockington triazine	5.5	20/ pF2	0.41	8.06 / 26.8	8.06	73.8	SFO
Simmonds, M., 2012a	Kenslow thiophene	5.1	20/ pF2	0.11	1000 / 3322	1000	43.6	SFO
Simmonds, M., 2012a	Kenslow triazine	5.1	20/ pF2	0.09	1000 / 3322	1000	69.6	SFO
Geometric mean				**0.26** (arithmetic mean)		**60.0**		

Table 8.35: Summary of aerobic degradation rates for 2-Acid-3- triuret laboratory studies

2-Acid-3-triuret	Aerobic conditions							
Study reference	**Soil type**	**pH**	**t. °C / % MWHC**	**Formation fraction[a]**	**DT_{50} /DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**chi^2**	**Method of calculation**
Simmonds, M., 2012a	Longwoods thiophene	7.3	20/ pF2	0.53	122 / 405	122	61.1	SFO
Simmonds, M., 2012a	Longwoods triazine	7.3	20/ pF2	0.32	57.9 / 192	57.9	43.6	SFO
Simmonds, M., 2012a	Farditch thiophene	5.9	20/ pF2	0.25	46.1 / 153	46.1	34.3	SFO
Simmonds, M., 2012a	Farditch triazine	5.9	20/ pF2	0.19	74.4 / 247	74.4	39.4	SFO
Simmonds, M., 2012a	Lockington thiophene	5.5	20/ pF2	0.18	38.4 / 128	38.4	35.8	SFO
Simmonds, M., 2012a	Lockington triazine	5.5	20/ pF2	0.09	115 / 382	115	36.3	SFO
Simmonds, M., 2012a	Kenslow thiophene	5.1	20/ pF2	0.15	57.0 / 189	57.0	48.1	SFO
Simmonds, M., 2012a	Kenslow triazine	5.1	20/ pF2	0.07	132 / 439	132	53.0	SFO
Geometric mean			-	**0.22** (arithmetic mean)	-	**73.0**	-	-

Table 8.36: Summary of aerobic degradation rates for IN-L9223 laboratory studies

IN-L9223	**Aerobic conditions**							
Study reference	Soil type	pH	t. °C / % MWHC	**Formation fraction**[a]	DT_{50} (d)	DT_{50} (d) 20°C pF2/10kPa	chi^2	Method of calculation
Simmonds, M., 2012a	Longwoods thiophene (parent route study)	7.3	20/ pF2	0.34	>1000 / >3322	>1000	39.2	SFO
Simmonds, M., 2012a	Farditch thiophene (parent route study)	5.9	20/ pF2	0.29	107 / 355	107	27.7	SFO
Simmonds, M., 2012a	Lockington thiophene (parent route study)	5.5	20/ pF2	0.29	194 / 644	194	29.1	SFO
Simmonds, M., 2012a	Kenslow thiophene (parent route study)	5.1	20/ pF2	0.28	272 / 904	272	23.9	SFO
Geometric mean (excluding "<1000d" values)				**0.30** (arithmetic mean)	-	**178**	-	-

Table 8.37: Summary of aerobic degradation rates for IN-A4098 laboratory studies

IN-A4098 a.k.a. triazine amine a.k.a. 2-amino-4-methoxy-6-methyl-triazin a.k.a. 4-methoxy-6-methyl-1,3,5-triazin-2-amine a.k.a. CGA 150829 a.k.a. AE F059411 a.k.a. BCS-CN85650 Aerobic conditions								
Study reference	**Soil type**	**pH**	**t. °C / % MWHC**	**Formation fraction**	**DT_{50} /DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**chi²**	**Method of calculation**
Rhodes, 1987[a] (DuPont)	Keyport; silt loam	4.3	25°C / 70% FC	-	208 / 691	254	6.2	SFO
Möndel, 2001 (DuPont)	Honville, loamy silt	6.7 (H_2O)	20°C / 40% MWHC	-	260.1 / 864 (K_1 = 0.01772 K_2 = 0.00266 Tb = 25.9)	201.6	3.0	HS (DT_{50} calculated from slow phase)
Jungmann, Nicollier, 2006 (DuPont)	Gartenacker; Loam,	6.9 ($CaCl_2$)	20°C / pF2	-	102.2 / 340	102.2	3.5	SFO
Jungmann, Nicollier, 2006 (DuPont)	18 Acres; sandy clay loam,	5.0 ($CaCl_2$)	20°C / pF2	-	249.4 / 828	249.4	3.2	SFO
Jungmann, Nicollier, 2006 (DuPont)	Krone; silt loam,	4.9 ($CaCl_2$)	20°C / pF2	-	190.8 / 634	190.8	3.7	SFO
Morlock (2006a) Task Force	Soil 2.2; loamy sand	5.7 (H_2O)	20°C / 45% MWHC	-	67.3 / 224	67.3	5.68	SFO
Morlock (2006a) Task Force	Soil 3A; sandy loam	7.3 (H_2O)	20°C / 45% MWHC	-	188.4 / 626	175.7	5.64	SFO
Morlock (2006a) Task Force	Soil 6S; clay loam	7.1 (H_2O)	20°C / 45% MWHC	-	333.2 / 1107	230.1	1.00	SFO
Scott (2000)	Arrow; sandy loam	5.7	20°C / 50% MWHC	-	44.7 / 97 (K_1 = 0, fixed lag phase K_2 = 0.03082 Tb = 22.25 d)	22.5	14	HS (DT_{50} calculated from slow phase)
Wonders and Melkebeke (2002)	Speyer 2.1; sand	5.5	20°C / pF2	-	112.5 / 374	112.5	2.9	SFO
Wonders and Melkebeke (2002)[c]	Soil 115; clay loam	8.6	20°C / pF2	-	175.2 / 582	175.2	3.1	SFO
Wonders and Melkebeke (2002)[c]	Soil 243; sandy loam	5.6	20°C / pF2	-	96.4 / 320.2	96.4	6.2	SFO
Simmonds, M., 2012a	Longwoods triazine (parent route study)	7.3	20/ pF2	0.02[b] / 0.13[c]	1000 / 3322	1000	26.6	SFO
Simmonds, M., 2012a	Farditch triazine (parent route study)	5.9	20/ pF2	0.02[b] / 0.14[c]	118 / 392	118	27.2	SFO

IN-A4098 a.k.a. triazine amine a.k.a. 2-amino-4-methoxy-6-methyl-triazin a.k.a. 4-methoxy-6-methyl-1,3,5-triazin-2-amine a.k.a. CGA 150829 a.k.a. AE F059411 a.k.a. BCS-CN85650 Aerobic conditions								
Study reference	**Soil type**	**pH**	**t. °C / % MWHC**	**Formation fraction**	**DT_{50} /DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**chi^2**	**Method of calculation**
Simmonds, M., 2012a	Lockington triazine (parent route study)	5.5	20/ pF2	0.06[b] / 0.10[c]	562 / 1867	562	21.5	SFO
Simmonds, M., 2012a	Kenslow triazine (parent route study)	5.1	20/ pF2	0.08[b] / 0.17[c]	208 / 691	208	8.59	SFO
Geometric mean			-	**0.05[b] / 0.14[c]** (arithmetic mean)	180.8	**167.9**	-	-

[a]Kinetic fitting for the study of Rhodes (1987) was performed by the UK RMS using the FOCUS DEGKIN spreadsheet since this study was excluded by DuPont
Rhodes, 1987 (metabolite dosed study)
Mondel, 2001 (metabolite dosed study)
Jungmann, Nicollier, 2006 (metabolite dosed study)
Morlock, 2006a (metabolite dosed study)
Scott, 2000 (metabolite dosed study, accepted in the RARs for metsulfuron methyl, prosulfuron and triasulfuron)
Wonders and Melkebeke, 2002 (metabolite dosed study, accepted in the RAR for metsulfuron methyl)
[b]from thifensulfuron methyl; [c]from IN-L9225

Table 8.38: Summary of aerobic degradation rates for IN-A5546 laboratory studies

IN-A5546	**Aerobic conditions**						
Study reference	**Soil type**	**pH**	**t. °C / % MWHC**	**DT_{50} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**chi^2**	**Method of calculation**
Bell, S., 2011	Sassafras	5.3	20/ pF2	<3 d	-	-	-
Bell, S., 2011	Tama	6.1	20/pF2	<3 d	-	-	-
Bell, S., 2011	Lleida	7.9	20/ pF2	<3 d	-	-	-
Bell, S., 2011	Speyer 2.2	6.3	20/ pF2	<3 d	-	-	-
Bell, S., 2011	Nambshiem	7.7	20/pF2	<3 d	-	-	-
			-	**3.0***	-	-	-
Comments			*A DT_{50} figure of **3d** was used as a conservative figure for FOCUS modeling. This was because the first sample point after 0 was 3 days, and IN-A5546 was not observed at the 3d sampling time. DT_{90} < 10 d.				

Table 8.39: Summary of aerobic degradation rates for IN-V7160 laboratory studies

IN-V7160	Aerobic conditions						
Study reference	**Soil type**	**pH ($CaCl_2$)**	**t. °C / % MWHC**	**DT_{50} /DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa[a]**	**chi²**	**Method of calculation**
Tunink, 2009 (DuPont)	Mattapex, sandy loam	4.35	20°C / 40 of 0 Bar	9.8 / 33	9.0	11	SFO
Tunink, 2009 (DuPont)	Lleida, silty clay	7.50	20°C / 40 of 0 Bar	6.6 / 22	5.6	5	SFO
Tunink, 2009 (DuPont)	Nambsheim, sandy loam	7.01	20°C / 40 of 0 Bar	3.3 / 11	3.3	2	SFO
Tunink, 2009 (DuPont)	Goch, silt loam	5.13	20°C / 40 of 0 Bar	16.1/204.1 M0 = 95.3 K1 = 0.008 K2 = 0.175 g = 0.5	71.6 (based on slow phase rate constant)	3	DFOP
Tunink, 2009 (DuPont)	Suchozebry, sandy loam	5.04	20°C / 40 of 0 Bar	24.8/542.8 M0 = 94.2 K1 = 0.003 K2 = 0.097 g = 0.5	231 (based on slow phase rate constant)	2	DFOP
Geometric mean			-	-	**19.4**	-	-

[a]moisture correction was performed based on measured data for both study and reference conditions
Tunink, 2009 (metabolite dosed study)

Table 8.310: Summary of aerobic degradation rates for IN-W8268 laboratory studies

IN-W8268	**Aerobic conditions**						
Study reference	**Soil type**	**pH**	**t. °C / % MWHC**	**DT_{50} /DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**chi²**	**Method of calculation**
Fang, 2000 (DuPont)	Drummer, silty clay loam	7.7	20°C / 40-50% MWHC	59.0 / 196	59.0	2	SFO
Fang, 2000 (DuPont)	Glenville, sandy loam	5.7	20°C / 40-50% MWHC	64.2 / 213.3	61.1	4	SFO
Fang, 2000 (DuPont)	Gross-Umstadt, silt loam	7.8	20°C / 40-50% MWHC	48.1 / 159.8	43.5	4	SFO
Knoch, 2012d (Task Force)	LUFA 2.2; loamy sand	5.5 ($CaCl_2$)	20°C / 45% MWHC	2.6 / 8.6	2.6	14	SFO
Knoch, 2012d (Task Force)	LUFA 2.3; sandy loam	6.8 ($CaCl_2$)	20°C / 45% MWHC	9.7 / 32.2	8.6	7.8	SFO
Knoch, 2012d (Task Force)	LUFA 6S; clay	7.1 ($CaCl_2$)	20°C / 45% MWHC	24.5 /81.4	12.1	8.9	SFO
Geometric mean			-	22.0 / 73.1	**18.7**	-	-

8.3.1.2 Metsulfuron-methyl and its metabolites

Table 8.311: Summary of aerobic degradation rates for Metsulfuron-methyl - laboratory studies

Metsulfuron-methyl	Aerobic conditions					
Soil type	**pH**	**T (°C)**	**DT_{50} / DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**St (χ^2)**	**Method of calculation**
Matapeake silt loam, USA	5.2	20[c]	9.0 / 48	6.4	5	SFO
Speyer 2.2, loamy sand, Germany	6.1	20[c]	26.7 / 88.8	26.7	6	SFO
Tama, silty clay loam, USA	6.8	20[c]	15.0 / 82.4	24.2[a]	1	FOMC
Lleida, clay loam, Spain	7.9	20[c]	47.4 / 175.3	48.8	1	SFO
Nambsheim, sandy loam, France	7.6	20[c]	39.9 / 132.6	39.9	3	SFO
Sassafras, sandy loam, USA	5.5	20[c]	17.2 / 57.3	17.2	5	SFO
Speyer 3A, sandy loam, Germany	6.3	20[c]	28.9 / -	26.4	11.58	SFO
Speyer 2.3 sandy loam, Germany – high dose	6.3	20[c]	39.8 / 132.1	35.6	3.5	SFO
Geometric mean				**23.2**		

[a] DT_{50} back calculated as DT_{90}/3.32

Table 8.312: Summary of aerobic degradation rates for IN-00581 laboratory studies

IN-00581	Aerobic conditions						
Soil type	**pH**	**T (°C)**	**DT_{50} / DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**f.f.**	**St (χ^2)**	**Method of calculation**
Mattapex silt loam, USA	6.9	20	237.4 / 788.6	237.4	-[a]	4	SFO
Matapeake silt loam, USA	5.2	20	10.7 / 35.6	4.9	1.0	23	FOMC-SFO
Speyer 2.2 loamy sand, Germany	5.7	20	9.69 / 32.2	9.69	-[a]	4.76	SFO
Speyer 3A sandy loam, Germany	7.3	20	10.2 / 34	9.53	-[a]	5.32	SFO
Speyer 6S clay, Germany	7.1	20	29.9 / 99.2	20.6	-[a]	5.75	SFO
LUFA Speyer 2.2 loamy sand, Germany	5.7	20	14.8 / 49.2	14.80		-	SFO
LUFA Speyer 2.3 sandy loam, Germany	6.88	20	9.1 / 30.1	8.45		-	SFO
LUFA Speyer 6S clay, Germany	7.23	20	27.5 / 91.2	20.47		-	SFO
Geometric mean*				**16.1**			
Formation fraction for modelling					**1.0**		

[a] Metabolite dosed study so no formation fraction determined

* In case of two or more values for the same soil the geometric mean DT_{50} was first calculated. A single value was used for each soil to derive overall geomean

Table 8.313: Summary of aerobic degradation rates for IN-A4098 laboratory studies

IN-A4098	Aerobic conditions						
Soil type	**pH**	**T (°C)**	**DT_{50} / DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**f.f.**	**St (χ^2)**	**Method of calculation**
Arrow sandy loam, UK	6.4	20	43.2 / 143.5	34.2	- [a]	14	SFO
Honville loamy silt, France	6.7	20	260.1 / 863.5	158.4 [c]	- [a]	3	HS
Gatenacker sandy clay loam, Switzerland	7.3	20	102.2 / 339	102.2	- [a]	4	SFO
18 Acres loam, UK	5.5	20	249.43 / 828.0	249.4	- [a]	3	SFO
Krone silty loam, Switzerland	5.4	20	190.8 / 633.5	190.8	- [a]	4	SFO
Sassafras sandy loam, USA	5.5	20	52.3 / 173.8	52.3	- [b]	12	SFO-SFO
LUFA Speyer 2.2 loamy sand, Germany	6.1	20	101.3 / 336.5	101.3	- [b]	20	SFO-SFO
Tama silty clay loam, USA	6.8	20	119.7 / 397.7	81.1	- [b]	16	SFO-SFO
Matapeake silt loam, USA	5.2	20	324.7 / 1078.6	206.4	- [b]	23	SFO-SFO
LUFA Speyer 2.2 loamy sand, Germany	5.7	20	67.5 / 223.6	67.3	- [a]	5.68	SFO
LUFA Speyer 3A sandy loam, Germany	7.3	20	188.4 / 625.7	175	- [a]	5.64	SFO
LUFA Speyer 6S clay, Germany	7.1	20	333 / 1107.4	227	- [a]	1	SFO
LUFA Speyer 2.1 sand, Germany	5.5	20	112.5 / 373.8	112.5	- [a]	2.884	SFO
Cranfield 115 clay loam, UK	8.6	20	175.2 / 581.9	175.2	- [a]	3.131	SFO
Cranfield 243 sandy loam, UK	5.6	20	96.4 / 320.2	96.4	- [a]	6.203	SFO
Median				**135.5***			
Formation fraction for modeling Parent → IN-A4098					**0.21[d]**		
Formation fraction for modeling IN-V7160 → IN-A4098					**1.0**		

a Metabolite-dosed study so no formation fraction determined.

b Parent-dosed study but formation from parent was not included in pathway.

c DT_{50} calculated from slow phase HS

Table 8.314: Summary of aerobic degradation rates for IN-B5067 laboratory studies

IN-B5067	Aerobic conditions						
Soil type	**pH**	**T (°C)**	**DT_{50} / DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**f.f.**	**St (χ^2)**	**Method of calculation**
Arrow sandy loam, UK	6.4	20	30.4 / 100.8	30.4	- [a]	6	SFO
Gross-Umstadt loam, Germany	7.4	20	28.3 / 91.4	28.3	- [a]	6	SFO
Mattapex silt loam, USA	6.9	20	28.6 / 95.0	28.6	- [a]	4	SFO
Speyer 2.2 loamy sand, Germany, phenyl	6.1	20	6.5 / 21.5	6.5	0.35	25	SFO-SFO
Speyer 2.2 loamy sand, Germany, triazine	6.1	20	6.5 / 21.5	6.5	0.47	36	SFO-SFO
Tama silty clay loam, USA, phenyl	6.8	20	5.8 / 19.3	5.7	0.36	14	SFO-SFO
Tama silty clay loam, USA, triazine	6.8	20	6.5/21.6	6.4	0.41	13	SFO-SFO
Lleida, clay loam, Spain, phenyl	7.9	20	80.2 / 266.5	80.2	0.32	12	SFO-SFO
Lleida, clay loam, Spain, triazine	7.9	20	52 / 172.7	52.0	0.345	12	SFO-SFO
Nambsheim sandy loam, France, phenyl	7.6	20	24.0 / 79.6	24.0	0.35	18	SFO-SFO
Nambsheim sandy loam, France, triazine	7.6	20	21.2 / 70.3	21.2	0.31	27	SFO-SFO
Sassafras sandy loam, USA, phenyl	5.5	20	2.9 /9.7	2.9	0.54	26	SFO-SFO
Sassafras sandy loam, USA, triazine	5.5	20	3.7 / 12	3.7	0.39	36	SFO-SFO
LUFA Speyer 2.2 loamy sand	5.7	20	2.44 / -	2.44	- [a]		SFO
LUFA Speyer 3A sandy loam, Germany	7.3	20	12.8 / -	12	- [a]	3.66	SFO
LUFA Speyer 6S clay, Germany	7.1	20	29.3 / -	20.2	- [a]	7.92	SFO
Median				**21.4***			
Formation fractions for modelling triazine label, arithmetic mean (n=6)					**0.39** [b]		
Formation fractions for modelling phenyl label, arithmetic mean (n=6)					**0.41** [c]		

Table 8.315: Summary of aerobic degradation rates for IN-D5803 laboratory studies

IN-D5803	Aerobic conditions						
Soil type	**pH**	**T (°C)**	**DT_{50} / DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**f.f.**	**St (χ^2)**	**Method of calculation**
LUFA Speyer 2.2 loamy sand, Germany	6.3	20	1.9 / 6.1	1.9	- [b]	21	SFO
Tama silty clay loam, USA	6.1	20	5.1 / 17.1	4.1	- [b]	8	SFO
Lleida, clay loam, Spain	8.0	20	1.0 / 3.2	0.9	- [b]	3	SFO
Gross-Umstadt loam, Germany	7.3	20	1.3 / 4.5	1.2	- [b]	-	SFO
Sassafras sandy loam, USA	5.7	20	9.2 / 87.7	26.4[a]	- [b]	12	FOMC
Matapeake silt loam, USA	5.2	20	6.6 / 21.9	3.2	0.27	44	SFO-SFO
LUFA Speyer 2.2 loamy sand, Germany	5.7	20	11.7 / 38.8	11.7	- [b]	3.8	SFO
LUFA Speyer 3A sandy loam, Germany	7.3	20	1.92 / 6.4	1.79	- [b]	6.31	SFO
LUFA Speyer 6S clay, Germany	7.1	20	3.35 / 11.1	2.31	- [b]	3.6	SFO
Geometric mean				**3.0***			
Formation fraction for modelling Parent → IN-D5803					**0.41** [c]		
Formation fraction for modelling IN-B5685 → IN-D5803					**1.0**		

a DT_{50} back calculated as DT_{90}/3.32

Table 8.316: Summary of aerobic degradation rates for IN-NC148 laboratory studies

IN-NC148	Aerobic conditions						
Soil type	**pH**	**T (°C)**	**DT_{50} / DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**f.f.**	**St (χ^2)**	**Method of calculation**
Arrow sandy loam, UK	6.4	20	52.5 / 174.5	52.5	- [a]	11	SFO
Gross-Umstadt loam, Germany	7.4	20	16.3 / 54	24.7	- [a]	5	SFO
Mattapex silt loam, USA	6.9	20	24.7 / 82.2	16.3	- [a]	12	SFO
LUFA Speyer 2.2 loamy sand, Germany	6.1	20	115.2 /382.8	115.2	0.55	8	SFO-SFO
Tama silty clay loam, USA, phenyl	6.8	20	91.7 / 304.5	106.1	0.55	9	SFO-SFO
Tama silty clay loam, USA, triazine	6.8	20	236.3 / 785	163.7	0.61	2	SFO-SFO

Lleida, clay loam, Spain, phenyl	7.9	20	60.5 / 201.1	60.5	1.0	5	SFO-SFO
Lleida, clay loam, Spain, triazine	7.9	20	39.7 / 132.0	39.7	0.69	4	SFO-SFO
Nambsheim sandy loam, France, phenyl	7.6	20	27.3 / 90.5	27.3	1.0	10	SFO-SFO
Nambsheim sandy loam, France, triazine	7.6	20	42.0 / 139.5	42.0	0.72	9	SFO-SFO
Sassafras sandy loam, USA, phenyl	5.5	20	212.1 / 487	212.1	0.42	3	SFO-SFO
Sassafras sandy loam, USA, triazine	5.5	20	146.6 / 382.8	146.6	0.60	8	SFO-SFO
Matapeake silt loam, USA	5.2	20	153.8 / 510.8	101.4	0.83	24	SFO-SFO
Geometric mean				**59.6**			
Formation fraction for modelling IN-B5067→ IN-NC148 triazine label, arith mean (n=5)					**0.63**		
Formation fraction for modelling IN-B5067→ IN-NC148 phenyl label, arith mean (n=5)					**0.76**		

a Metabolite-dosed study so no formation fraction determined.

Table 8.317: Summary of aerobic degradation rates for IN-F5438 laboratory studies

IN-F5438	Aerobic conditions						
Soil type	**pH**	**T (°C)**	**DT_{50} / DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**f.f.**	**St (χ^2)**	**Method of calculation**
LUFA Speyer 2.2 loamy sand, Germany	6.1	20	34.9 / 116	34.9	- [a]	9	SFO
Tama, silty clay loam, USA	6.8	20	59.3 / 196.9	51.2	- [a]	6	SFO
Lleida, clay loam, Spain	8.0	20	24.1 79.9	21.0	- [a]	9	SFO
Gross-Umstadt loam, Germany	7.3	20	34.2 / 113.5	31.7	- [a]	11	SFO
Sassafras, sandy loam, USA	5.7	20	25.5 / 84.6	23.9	- [a]	11	SFO
Speyer 2.2 loamy sand, Germany, phenyl	6.1	20	45.7 / 151.7	45.7	0.24	30	SFO-SFO
Speyer 2.2 loamy sand, Germany, triazine	6.1	20	38.8 / 38.8	38.8	0.21	30	SFO-SFO
Tama silty clay loam, USA, phenyl	6.8	20	79.1 / 262.8	23.5	0.08	22	SFO-SFO
Nambsheim sandy loam, France, phenyl	7.6	20	49.1 / 163.1	49.1	0.15	19	SFO-SFO
Nambsheim sandy loam, France, triazine	7.6	20	18.3 / 60.9	18.3	0.22	24	SFO-SFO
Sassafras sandy loam, USA, triazine	5.5	20	23.0 / 76.3	23.0	0.31	18	SFO-SFO
Sassafras sandy loam, USA, triazine	5.5	20	19.3 / 64.2	19.3	0.32	18	SFO-SFO
Matapeake silt loam, USA, triazine	5.2	20	39.2 / 130.4	21.8	0.12	45	SFO-SFO

Matapeake silt loam, USA, triazine	5.2	20	40.3 / 133.9	25.7	0.09	42	SFO-SFO
LUFA Speyer 2.2 loamy sand, Germany	5.5	20	5.17 / 17.1	5.17	- [a]	12	SFO
LUFA Speyer 3A sandy loam, Germany	6.8	20	7.89 / 26.2	7	- [a]	17.7	SFO
LUFA Speyer 6S clay, Germany	7.1	20	77.8 / 258.5	38.4	- [a]	3.28	SFO
LUFA Speyer 2.2 loamy sand, Germany	5.5	20	36.7 / 122	36.7	- [a]	10.4	SFO
LUFA Speyer 2.3 sandy loam Germany	6.8	20	78.4 / 78.4	78.4	- [a]	4.7	SFO
LUFA Speyer 6S clay, Germany	7.1	20	52.5 / 174.3	52.5	- [a]	4.4	SFO
Median				**25.9***			
Formation fraction for modelling triazine label, arithmetic mean (n=5)					**0.21**		
Formation fraction for modelling phenyl label, arithmetic mean (n=5)					**0.18**		

a Metabolite-dosed study so no formation fraction determined.

* In case of two or more values for the same soil the geometric mean DT_{50} was first calculated. A single value was used for each soil to derive overall median

Table 8.318: Summary of aerobic degradation rates for IN-V7160 laboratory studies

IN-V7160	Aerobic conditions						
Soil type	**pH**	**T (°C)**	**DT_{50} / DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**f.f.**	**St (χ^2)**	**Method of calculation**
Mattapex, USA	5.0	20	9.8 / 32.5	9.0 [b]	- [a]	9	SFO
Lleida, Spain	7.6	20	6.6 / 21.8	5.6	- [a]	5	SFO
Nambsheim, France	7.6	20	3.3 / 10.9	3.3	- [a]	2	SFO
Goch, Germany	5.6	20	16.1 / 204.1	86.6 [b]	- [a]	3	DFOP
Suchozebry, Poland	5.4	20	24.8 / 542.8	231 [b]	- [a]	2	DFOP
Sassafras, USA	5.5	20	18.9 / 62.9	18.9	0.18	25	SFO-SFO
Tama, USA	6.8	20	30.5 / 101.2	27.1	0.23	21	SFO-SFO
Speyer 2.2, Germany	6.1	20	9.3 / 30.8	9.3	0.15	31	SFO-SFO
Nambsheim, France	7.6	20	7.9 / 26.4	7.9		54	SFO-SFO
Geometric mean				**18.8**			
Formation fraction for modelling Parent → IN-V7160 (n=3)					**0.19**		
Formation fraction for modelling IN-F5438→ IN-V7160					**1.0**		

a Metabolite-dosed study so no formation fraction determined.

b DT_{50} derived from DFOP k2.

Table 8.319: Summary of aerobic degradation rates for IN-B5685 laboratory studies

IN-B5685*	Aerobic conditions						
Soil type	**pH**	**T (°C)**	**DT_{50} / DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**f.f.**	**St (χ^2)**	**Method of calculation**
LUFA Speyer 2.2 loamy sand, Germany	6.1	20	7.8 / 25.8	7.8	- [a]	6	SFO
Tama, silty clay loam, USA	6.8	20	5.2 / 17.7	5.2	- [a]	6	SFO
Lleida, clay loam, Spain	7.9	20	41.9 / 139.1	41.9	- [a]	3	SFO
Nambsheim, sandy loam, France	7.6	20	16.6 / 55	16.6	- [a]	2	SFO
Sassafras, sandy loam, USA	5.5	20	6.6 / 22	6.6	- [a]	4	SFO
LUFA Speyer 2.2 loamy sand, Germany	5.7	20	11.2 / 37.1	11.2	- [a]	-	SFO
LUFA Speyer 3A sandy loam, Germany	7.3	20	5 / 16.6	4.68	- [a]	-	SFO
LUFA Speyer 6S clay, Germany	7.1	20	45 / 149.5	31.08	- [a]	-	SFO
LUFA Speyer 2.2 loamy sand, Germany	5.5	20	12.9 / 42.8	12.9	- [a]	7.4	SFO
LUFA Speyer 3A sandy loam, Germany	6.8	20	30.9 / 102.7	30.9	- [a]	16.8	SFO
LUFA Speyer 6S clay, Germany	7.1	20	23.2 / 77	23.2	- [a]	11.5	SFO
Geometric mean				**13.5 d****			
Formation fraction for modelling IN-B5067 → IN-B5685					**0.24 [b]**		

Table 8.320: Summary of aerobic degradation rates for IN-D5119 laboratory studies

IN-D5119*	Aerobic conditions						
Soil type	**pH**	**T (°C)**	**DT_{50} / DT_{90} (d)**	**DT_{50} (d) 20°C pF2/10kPa**	**f.f.**	**St (χ^2)**	**Method of calculation**
LUFA Speyer 2.2 loamy sand, Germany	6.3	20	7.2 / 23.8	7.2	- [a]	10	SFO
Tama, silty clay loam, USA	6.1	20	5.9 / 19.6	4.8	- [a]	8	SFO
Lleida, clay loam, Spain	7.9	20	7.4 / 24.5	6.6	- [a]	14	SFO
Nambsheim, sandy loam, France	7.7	20	9.6 / 31.9	9.0	- [a]	10	SFO
Sassafras, sandy loam, USA	5.3	20	15.6 / 51.8	15.6	- [a]	8	SFO
LUFA Speyer 2.2 loamy sand, Germany	5.7	20	10.1 / 33.7	10.1	- [a]	-	SFO

LUFA Speyer 3A sandy loam, Germany	7.3	20	12.6 / 41.9	11.8	- [a]	-	SFO
LUFA Speyer 6S clay, Germany	7.1	20	115.7 / 384.4	79.91	- [a]	-	SFO
LUFA Speyer 2.2 loamy sand, Germany	5.5	20	36.2 / 120.2	36.2	- [a]	5.7	SFO
LUFA Speyer 3A sandy loam, Germany	6.8	20	17.7 / 58.8	17.7	- [a]	7.6	SFO
LUFA Speyer 6S clay, Germany	7.1	20	31.1 / 103.4	31.1	- [a]	14.1	SFO
Geometric mean				**12.4****			
Formation fraction for modelling IN-F5438 → IN-D5119					**1.0**		
Formation fraction for modelling IN-NC148 → IN-D5119					**1.0**		

8.3.2 Anaerobic degradation in soil (KCP 9.1.1.1)

Studies on anerobic degradation in soil with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substance. EU approved endpoints were evaluated during Annex I inclusion. All relevant data are presented in :

- **Thifensulfuron-methyl** – EFSA Journal 2015;13(7):4201
- **Metsulfuron-methyl -** EFSA Journal 2015;13(1):3936
-

The degradation of metsulfuron-methyl was investigated in two soils under anaerobic conditions. In these experiments metsulfuron-methyl exhibited high to very high persistence in soil (>120 days).

8.3.2.1 Thifensulfuron-methyl and its metabolites

Table 8.321: Summary of anaerobic degradation rates for Thifensulfuronmethyl laboratory studies (not used in modelling only supporting information)

Study	**Thifensulfuron-methyl**	**Anaerobic conditions**					
Hawkins, Elsom & Kane., 1991	Soil type	X^{15}	pH	t. °C / % MWHC	DT_{50} /DT_{90} (d)	X^2	Method of calculation
Simmonds, R., 2011a	Keyport Silt loam		7.2	25/75% of MWCH	~5.0 / 16.6		
Simmonds, R., 2011a	Farditch thiophene (complete dataset)		6.0	20/flooded	0.6/4.5	1.5	Hockey-stick
Simmonds, R., 2011a	Farditch triazine (complete dataset)		6.0	20/flooded	0.7/8.8	3.9	Hockey-stick (slow phase)
Simmonds, R., 2011a	Farditch thiophene (anaerobic slow phase HS)		6.0	20/ flooded	15.4 / 51.2	-	Hockey-stick (slow phase)
Simmonds, R., 2011a	Farditch triazine (anaerobic slow phase HS)		6.0	20/ flooded	4.7 / 15.6	-	Hockey-stick (slow phase)

8.3.2.2 Metsulfuron-methyl and its metabolites

Anaerobic degradation ‡	
Mineralization after 100 days	Mattapex loam soil, USA: 0 - <2 %, 120 d LUFA Speyer 2.4 loam soil, Germany: <2 %, 120 d
Non-extractable residues after 100 days	Mattapex loam soil, USA: 3.4 %, 120 d LUFA Speyer 2.4 loam soil, Germany:13.9%, 120 d
Metabolites that may require further consideration for risk assessment - name and/or code, % of applied (range and maximum)	Mattapex loam soil, USA: IN-B5067, max 5,3 % (120 d); IN-A4098, 6.7 % and arising LUFA Speyer 2.4 loam soil: IN-B5067, 11.7 %; IN-F5438, 11.8 %; IN-A4098, 8 %; IN-00581, 6.5 %; IN-D5119, 5.9 %
Soil photolysis ‡	
Metabolites that may require further consideration for risk assessment - name and/or	Not important degradation mechanism

8.4 Field studies (KCP 9.1.1.2)

Studies on field studies in soil with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substance. EU approved endpoints were evaluated during Annex I inclusion. All relevant data are presented in :

- **Thifensulfuron-methyl** – EFSA Journal 2015;13(7):4201
- **Metsulfuron-methyl -** EFSA Journal 2015;13(1):3936

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

Studies on accumulation in soil with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substance. EU approved endpoints were evaluated during Annex I inclusion. All relevant data are presented in :

- **Thifensulfuron-methyl** – EFSA Journal 2015;13(7):4201
- **Metsulfuron-methyl -** EFSA Journal 2015;13(1):3936

8.4.1.1 Thifensulfuron-methyl and its metabolites

No field studies were relied upon for the regulatory assessment.

8.4.1.2 Metsulfuron-methyl and its metabolites

Table 8.41: Summary of aerobic degradation rates for Metsulfuron-methyl - field studies

Soil type (indicate if bare or cropped soil was used)	Location (country or USA state)	pH	DT_{50} / DT_{90} (d) (actual)	St (χ^2)	DT_{50} / DT_{90} (d) (norm., SFO)	Method of calculation (actual $DT_{50/90}$)
Silt loam	Northern France	6.1	42.7 / 141.7	19	11.4 / 38	SFO best fit
Loam	UK	6.2	39.3 / 378.7	13	37.1 / 123.4	SFO best fit
Sandy Clay loam	Northern Germany	7.0	20.3 / 67.6	9	10.1 / 33.5	SFO best fit
Loam	Italy	6.6	11.1 / 36.8	7	7.3 / 24.3	SFO best fit
Geometric mean					13.3	

8.4.2 Soil accumulation testing (KCP 9.1.1.2.2)

Studies on accumulation in soil with the formulation were not performed, since it is possible to extrapolate from data obtained with the active substance. EU approved endpoints were evaluated during Annex I inclusion. All relevant data are presented in :

- **Thifensulfuron-methyl** – EFSA Journal 2015;13(7):4201
- **Metsulfuron-methyl -** EFSA Journal 2015;13(1):3936

8.4.2.1 Thifensulfuron-methyl and its metabolites

No reliable information provided

8.4.2.2 Metsulfuron-methyl and its metabolites

No accumulation observed in the field studies (EFSA Journal 2015;13(1):3936).

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. EU approved endpoints were evaluated during Annex I inclusion. All relevant data are presented in :

- **Thifensulfuron-methyl** – EFSA Journal 2015;13(7):4201
- **Metsulfuron-methyl -** EFSA Journal 2015;13(1):3936.

8.5.1.1 Thifensulfuron-methyl and its metabolites

Table 8.51: Summary of aerobic degradation rates for thifensulfuron-methyl – laboratory studies

Thifensulfuron methyl						
Soil type	**OC %**	**pH (in $CaCl_2$)**	**K_F (ml/g)**	**K_{Foc} (ml/g)**	**1/n**	**r^2**
Sassafras	0.81	4.8	0.6660	82	0.9023	0.9959
Lleida	1.74	7.6	0.1551	9	0.9826	0.9687
Drummer	2.96	5.7	2.5468	86	0.8211	0.9942
Gross-Umstadt	1.39	6.6	0.2679	19	0.9599	0.9624
Nambsheim	2.03	7.3	0.2164	11	0.8389	0.9514
Long woods	1.3	7.3	0.08	6.0	0.967	0.999
Farditch	3.5	5.9	0.22	6.2	0.952	1.000
Kenslow	3.9	5.1	0.33	8.4	0.949	0.999
Lockington	2.8	5.5	0.09	3.1	1.012	0.998
Median	-	-	-	**9**	-	-
Arithmetic mean	-	-	-	-	**0.932**	-

Table 8.52: Summary of aerobic degradation rates for IN-A4098– laboratory studies

IN-A4098 a.k.a. triazine amine a.k.a. 2-amino-4-methoxy-6-methyl-triazin a.k.a. 4-methoxy-6-methyl-1,3,5-triazin-2-amine a.k.a. CGA 150829 a.k.a. AE F059411 a.k.a. BCS-CN85650					
Soil type	**OC%**	**Soil pH**	**Kf (ml/g)**	**Kfoc (ml/g)**	**1/n**
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	1.1	5.3	2.36	214.2	0.841
Sassafras	0.46	6.3	0.621	133.8	0.784
Drummer	3.02	5.7	6.80	225.5	0.841
Myaka	0.58	6.2	0.264	45.52	0.873
Honville (Chateadun)	0.91	6.7	1.57	172	0.8351
Agriculutural sand	0.35	7.9	0.2326	66.5	0.8702
Sandy loam	0.99	7.8	0.57	58.2	0.9024
Silt loam	1.74	6.5	0.9612	55.2	0.8474
Silty clay loam	0.70	6.9	1.201	171.6	0.8230
SLS	2.08	7.0	0.44	21.3	0.873
LS2.2	1.95	6.0	0.30	15.4	0.909
SLV	0.43	6.0	0.32	74.4	0.840
Laacher Hof Wurmwiese (Loam)	1.8	5.3	1.321	73.4	0.9183
Hoefchen Am Hohenseh 4a (Silt loam)	2.4	6.6	0.481	20.0	0.9755
Les Cayades (Clay loam)	0.9	7.6	0.561	62.3	0.917
Guadalupe (Sandy Loam)	0.7	6.7	0.675	96.5	0.9498
Springfield (Silt loam)	1.7	6.6	3.147	185.1	0.9021
2.2 (silty sand)	1.97	5.4	0.3728	18.92	0.640
3A (sandy loam)	2.42	7.3	0.4350	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	1.7	7.4	0.6255	37	0.89
Standard soil no. 164	3.0	6.5	0.645	22	0.92
Standard soil no. 243	1.1	4.3	0.337	31	0.91
Median				**45.5**	-
Arithmetic mean				-	**0.900**

Table 8.53: Summary of aerobic degradation rates for IN-L9223 – laboratory studies

IN-L9223					
Soil type	**OC%**	**Soil pH ($CaCl_2$)**	**Kf (ml/g)**	**Kfoc (ml/g)**	**1/n**
Drummer; silt loam	3.2	6.4	0.2595	8	0.9232
Longwood; sandy loam	1.3	7.9 (H_2O)	0.03	2.03	1.4090
Chelmorton; clay loam	3.3	7.3 (H_2O)	0.11	3.27	1.0931
Lockington; clay loam	2.5	6.5 (H_2O)	0.07	2.97	1.204
Arithmetic mean			-	**4.07**	**1.157**

Table 8.54: Summary of aerobic degradation rates for IN-L9225– laboratory studies

IN-L9225					
Soil type	**OC%**	**Soil pH (H_2O)**	**Kf (ml/g)**	**Kfoc (ml/g)**	**1/n**
Arrow; sandy loam	2.3	5.7	0.30	13.1	0.74
Gross-Umstadt; silt loam	1.2	7.7	0.083	6.9	0.62
Mattapex; silt loam	2.6	6.4	0.35	13.5	0.76
LUFA 2.2; loamy sand	1.87	5.5 ($CaCl_2$)	0.435	23 [b]	-
LUFA 2.3; sandy loam	0.94	6.8 ($CaCl_2$)	0.318	34 [b]	-
LUFA 6S; clay	1.64	7.1 ($CaCl_2$)	0.481	29 [b]	-
Arithmetic mean			-	**19.9**	**0.850[a]**

[a] in deriving an arithmetic mean, a default 1/n value of 1.0 was assumed for the three soils where no Freundlich isotherm was determined because a single concentration had been tested.
[b] As only one concentration was tested this value if a Koc not Kfoc

Table 8.55: Summary of aerobic degradation rates for IN-L9226– laboratory studies

IN-L9226					
Soil type	**OC%**	**Soil pH (H_2O)**	**Kf (ml/g)**	**Kfoc (ml/g)**	**1/n**
Arrow; sandy loam	2.3	5.7	0.8	34	0.80
Gross-Umstadt; silt loam	1.2	7.7	2.4	199	0.81
Mattapex; silt loam	2.6	6.4	2.6	99	0.79
LUFA 2.2; loamy sand	1.87	5.5 ($CaCl_2$)	1.605	86[b]	-
LUFA 2.3; sandy loam	0.94	6.8 ($CaCl_2$)	1.886	201 [b]	-
LUFA 6S; clay	1.64	7.1 ($CaCl_2$)	2.193	134 [b]	-
Arithmetic mean				**126**	**0.900[a]**

[a] in deriving an arithmetic mean, a default 1/n value of 1.0 was assumed for the three soils where no Freundlich isotherm was determined because a single concentration had been tested.
[b] As only one concentratin was tested this value if a Koc not Kfoc

Table 8.56: Summary of aerobic degradation rates for IN-V7160– laboratory studies

IN-V7160							
Soil	**OC%**	**pH**	**K_F**	**K_{Fom}**	**K_{Foc}**	**1/n**	**R^2**
Stark County (Tama)	3.1	6.3	5.97	113	194	0.9297	0.9991
Kent County (Sassafras #16)	1.4	6.3	0.969	40.4	69.4	0.9021	0.9993
Lleida	1.8	7.5	1.51	48.8	84.0	0.9364	0.9998
Nambsheim	1.6	7.0	0.908	33.6	57.9	0.9290	0.9998
Suchozebry	0.76	5.0	1.24	95.6	164	0.8686	0.9994
Arithmetic mean			-	-	**114**	**0.913**	0.999

Table 8.57: Summary of aerobic degradation rates for IN-W8268– laboratory studies

IN-W8268					
Soil type	**OC%**	**Soil pH (H_2O)**	**Kf (ml/g)**	**Kfoc (ml/g)**	**1/n**
Arrow; sandy loam	2.3	5.7	0.10	3.6	1.10
Gross-Umstadt; silt loam	1.2	7.7	0.05	4.0	1.68
Mattapex; silt loam	2.6	6.4	0.10	2.6	1.17
LUFA 2.2; loamy sand	1.87	5.5 ($CaCl_2$)	0.1652	9[b]	-
LUFA 2.3; sandy loam	0.94	6.8 ($CaCl_2$)	0.0947	10 [b]	-
LUFA 6S; clay	1.64	7.1 ($CaCl_2$)	0.2536	15 [b]	-
Arithmetic mean			-	**7.4**	**1.160[a]**

[a] in deriving an arithmetic mean, a default 1/n value of 1.0 was assumed for the three soils where no Freundlich isotherm was determined because a single concentration had been tested.
[b] As only one concentratin was tested this value if a Koc not Kfoc

Table 8.58: Summary of aerobic degradation rates for IN-JZ789– laboratory studies

IN-JZ789 a.k.a. O-Desmethyl thifensulfuron acid					
Soil type	**OC%**	**Soil pH ($CaCl_2$)**	**Kd (ml/g)**	**Koc (ml/g)**	**1/n**
Drummer; clay loam	3.3	5.9	0.89	26.95	-
Gross-Umstadt; loam	1.2	6.4	0.17	13.96	
Nambsheim; sandy loam	1.3	7.2	0.18	13.61	
Lleida; clay	2.0	7.8	0.47	23.27	-
Sassafra; sandy loam	1.6	4.7	0.24	15.18	-
LUFA 2.2; loamy sand	1.87	5.5	0.759	41	-
LUFA 2.3; sandy loam	0.94	6.8	0.546	58	-
LUFA 6S; clay	1.64	7.1	0.901	57	-
Arithmetic mean				**31.1**	**1.000***

* The UK RMS considered it appropriate since no attempt to measure the Freundlich isotherm was attempted, to use a default **1/n of 1.0**.

Table 8.59: Summary of aerobic degradation rates for 2-acid-3-triuret– laboratory studies

2-acid-3-triuret					
Soil type	OC %	pH ($CaCl_2$)	Adsorption (mL/g)		
			K_d	K_{dOC}	1/n
LUFA 2.2 (Loamy sand)	1.77	5.5	4.130	230	-
LUFA 2.3 (Sandy loam)	0.94	6.8	5.285	562	-
LUFA 2.4 (Loam)	2.26	7.2	17.620	780	-
Arithmetic mean				**524**	**1.000***

* The UK RMS considered it appropriate since no attempt to measure the Freundlich isotherm was attempted, to use a default **1/n of 1.0**.

Table 8.510: Summary of aerobic degradation rates for IN-A5546– laboratory studies (in modelling the worst case Koc=0 is used)

IN-A5546						
			Adsorption			
Soil	OC %	pH ($CaCl_2$)	K_F	1/n	r^2	K_{Foc}
Sassafras	0.81	4.8	0.2720	0.8767	0.9940	34
Drummer	2.96	5.7	2.5107	0.9004	0.9995	85
Gross-Umstadt	1.28	6.8	0.3643	0.9521	0.9961	28
Arithmetic mean			1.049	**0.9097**	0.997	**49**

8.5.1.2 Metsulfuron-methyl and its metabolites

Table 8.511: Summary of soil adsorption/desorption for Metsulfuron-methyl

Metsulfuron-methyl							
Soil type	**OC %**	**Soil pH**	**K_d (mL/g)**	**K_{oc} (mL/g)**	**K_f (mL/g)**	**K_{foc} (mL/g)**	**1/n**
Flanagan silt loam (USA)	2.3	6.5	-	-	1.40	60	0.97
Keyport silt loam (USA)	1.6	6.4	-	-	0.84	53	0.85
Cecil sand (USA)	0.2	6.1	-	-	0.36	207	1.14
Bow Island sandy loam (Canada)	11.0	5.4	-	-	4.9	45	1.05
Tangent clay loam (Canada)	1.3	7.1	-	-	0.05	4	0.97
Dauphin sandy clay loam (Canada)	2.6	5.3	-	-	0.3	12	0.95
Bradwell loam (Canada)	3.4	7.5	-	-	0.3	9	0.95
Hanley Res. loam (Canada)	2.1	7.6	-	-	0.15	7	1.1
Foam Lake sandy loam (Canada)	2.3	5.4	-	-	0.65	29	1.03
Fisher Branch clay loam (Canada)	3.0	7.7	-	-	0.35	12	1.06
Drummer silt loam (USA)	4.2	7.5	-	-	0.6	14	0.94
Lleida silty clay (Spain)	3.2	6.4	-	-	1.50	47	0.85
Gross-Umstadt loam (Germany)	1.8	7.9	-	-	0.13	6.9	0.95
Sassafras sand (USA)	1.3	7.2	-	-	0.10	7.8	0.95
Nambsheim sandy loam (France)	1.4	5.3	-	-	0.48	35	0.90
Flanagan silt loam (USA)	2.2	7.7	-	-	0.13	5.6	0.98
Median (n=15)						**12.0**	-
Average						-	**0.98**
pH dependence (yes/no) No							

Table 8.512: Summary of soil adsorption/desorption for metabolite IN-00581

IN-00581							
Soil type	**OC %**	**Soil pH**	**K_d (mL/g)**	**K_{oc} (mL/g)**	**K_f (mL/g)**	**K_{foc} (mL/g)**	**1/n**
Gross-Umstadt silt loam (Germany)	1.2	7.7	-	-	0.20	20.2	0.94
Arrow sandy loam (UK)	2.3	5.7	-	-	0.30	14.2	0.88
Mattapex silt loam (USA)	2.6	6.4	-	-	0.30	11.7	0.94
LUFA Speyer 2.2 loamy sand (Germany)	1.97	5.4	-	4.4	n.r.	n.r.	n.r.
LUFA Speyer 3A sandy loam (Germany)	2.42	7.3	-	1.5	n.r.	n.r.	n.r.
LUFA Speyer 6S clay (Germany)	1.84	6.9	-	3	n.r.	n.r.	n.r.
LUFA Speyer 2.1 sand (Germany)	0.56	6	-	-	0.01	1.8	0.92
Soil 115 clay loam (UK)	1.7	7.4	-	-	0.038	2.2	0.71
Soil 164 silt loam (UK)	3	6.5	-	-	0.125	4.2	0.93
Soil 243 sandy loam(UK)	1.1	4.3	-	-	0.0445	4	1.01
Average (n=7)						**5.8**	**0.90**
pH dependence (yes/no) No							

Table 8.513: Summary of soil adsorption/desorption for metabolite IN-A4098

IN-A4098*							
Soil type	**OC %**	**Soil pH**	**K_d (mL/g)**	**K_{oc} (mL/g)**	**K_f (mL/g)**	**K_{foc} (mL/g)**	**1/n**
Matapeake Silt loam (USA)	1.1	5.3			2.36	214	0.84
Sassafras sand (USA)	0.46	6.3	-	-	0.62	134	0.78
Drummer silty clay loam (USA)	3.0	5.7	-	-	6.80	226	0.84
Myaka sand (USA)	0.58	6.2	-	-	0.26	46	0.87
Laacher Hof Wurmwiese loam (Germany)	1.8	5.3	-	-	1.32	73.4	0.92
Hoefchen Am Hohenseh 4a silt loam (Germany)	2.4	6.6	-	-	0.48	20.0	0.98

Les Cayades clay loam (France)	0.9	7.6	-	-	0.56	62.3	0.92
Guadalupe sandy loam (USA)	0.7	6.7	-	-	0.68	96.5	0.95
Springfield silt loam (USA)	1.7	6.6	-	-	3.15	185.1	0.90
Honville loamy silt (France)	0.91	6.7	-	-	1.57	172	0.84
Gross-Umstadt silt loam (Germany)	1.2	7.7	-	-	0.23	18.8	1.05
Arrow sandy loam (UK)	2.3	5.7	-	-	0.68	29.7	0.94
Mattapex silt loam (USA)	2.6	6.4	-	-	0.43	16.7	0.96
Hattersheim silt loam (SL S) (Germany)	2.08	7.0	-	-	0.44	21.3	0.87
LUFA Speyer 2.2 loamy sand (Germany)	1.95	6.0	-	-	0.30	15.4	0.91
Frankfurt loamy sand (SL V) (Germany)	0.43	6.0	-	-	0.32	74.4	0.84
Agricultural Sand (Kentucky, USA)	0.35	7.9	-	-	0.23	66.7	0.87
Sandy loam (Kentucky, USA)	0.99	7.8	-	-	0.57	58.2	0.902
Silt loam (Kentucky, USA)	1.74	6.5	-	-	0.96	55.1	0.85
Silty clay loam (Kentucky, USA)	0.7	6.9	-	-	1.20	172	0.82
LUFA Speyer 2.2 loamy sand (Germany)	1.97	5.4	-	-	0.37	18.92	0.64
LUFA Speyer 3A loam (Germany)	2.42	7.3	-	-	0.43	17.97	0.795
LUFA Speyer 6S clay (Germany)	1.84	6.9	-	-	0.43	2.95	1.422
LUFA Speyer 2.1 sand (Germany)	0.56	6	-	-	0.2025	36	0.92
Soil 115 clay loam (UK)	1.7	7.4	-	-	0.6255	37	0.89
Soil 164 silt loam (UK)	3	6.5	-	-	0.645	22	0.92
Standard soil No 243	1.1	4.3	-	-	0.337	31	0.91
Median (n=27)						**46**	-
Average						-	**0.9**
pH dependence (yes/no) No							

*Results in this table reflect the corrected consolidated values agreed in different experts meetings and already published by EFSA in the prosulfuron conclusion where this metabolite is named prosulfuron triazine amine CGA 150829 (EFSA 2014b).

Table 8.514: Summary of soil adsorption/desorption for metabolite IN-B5067

IN-B5067							
Soil type	**OC %**	**Soil pH**	**K_d (mL/g)**	**K_{oc} (mL/g)**	**K_f (mL/g)**	**K_{foc} (mL/g)**	**1/n**
Gross-Umstadt silt loam (Germany)	1.2	7.7	-	-	0.4	34	1.08
Arrow sandy loam (UK)	2.3	5.7	-	-	0.6	24.2	0.92
Mattapex silt loam (USA)	2.6	6.4	-	-	0.8	30.4	0.84
LUFA Speyer 2.2 loamy sand (Germany)	1.97	5.4	-	1.5	0.37	n.r.	n.r.
LUFA Speyer 3A sandy loam (Germany)	2.42	7.3	-	2.3	0.43	n.r.	n.r.
LUFA Speyer 6S clay (Germany)	1.84	6.9	-	1.1	0.43	n.r.	n.r.
Average (n=6)						**29.5**	**0.95**
pH dependence (yes/no) No							

Table 8.515: Summary of soil adsorption/desorption for metabolite IN-B5685

IN-B5685*							
Soil type	**OC %**	**Soil pH**	**K_d (mL/g)**	**K_{oc} (mL/g)**	**K_f (mL/g)**	**K_{foc} (mL/g)**	**1/n**
Gross-Umstadt silt loam (Germany)	1.1	7	-	-	0.01	0.5	0.97
Drummer silt loam (USA)	3.1	6.2	-	-	0.28	8.8	0.81
Lleida silty clay (Spain)	1.2	7.9	-	-	0.01	0.7	0.85
Nambsheim sandy loam (France)	1.6	7.6	-	-	0.06	3.4	0.83
Sassafras sand (USA)	0.8	5.5	-	-	0.15	19.0	0.97
LUFA Speyer 2.2 loamy sand (Germany)	1.97	5.4	-	1.25	0.37	-	-
LUFA Speyer 2.2 loamy sand (Germany)	1.87	5.5	-	-	0.108	6	0.92
LUFA Speyer 2.3 sandy loam (Germany)	0.94	6.8	-	-	0.049	4	0.88
LUFA Speyer 6S clay (Germany)	1.64	7.1	-	-	0.053	3	0.87
Average (n=9)						**5.7**	**0.89**
pH dependence (yes/no)							

* Note: metabolite is included in the degradation pathway considered for PEC groundwater calculations but not included under residue requiring further assessment

Table 8.516: Summary of soil adsorption/desorption for metabolite IN-D5119

IN-D5119*							
Soil type	**OC %**	**Soil pH**	**K_d (mL/g)**	**K_{oc} (mL/g)**	**K_f (mL/g)**	**K_{foc} (mL/g)**	**1/n**
Drummer silt loam (USA)	2.9	6.4	-	-	0.19	6.55	0.96
Porterville loam (USA)	0.5	8.2	-	-	0.02	4	0.84
Nambsheim sandy loam (France)	1.4	7.7	-	-	0.04	2.86	1.00
Lleida silty clay (Spain)	1.8	7.6	-	-	0.04	2.22	0.83
Sassafras sand (USA)	1.2	5.7	-	-	0.09	7.5	0.99
LUFA Speyer 2.2 loamy sand (Germany)	1.97	5.4	-	3.55	5.4	-	n.r.
LUFA Speyer 2.2 loamy sand (Germany)	1.87	5.5	-	-	5.5	3	1.01
LUFA Speyer 2.3 sandy loam (Germany)	0.94	6.8	-	-	6.8	3	1.02
LUFA Speyer 6S clay (Germany)	1.64	7.1	-	-	7.1	2	0.96
Average (n=9)						**3.9**	**0.95**
pH dependence (yes/no)							

* Note: metabolite is included in the degradation pathway considered for PEC groundwater calculations but not included under residue requiring further assessment

Table 8.517: Summary of soil adsorption/desorption for metabolite IN-D5803

IN-D5803							
Soil type	**OC %**	**Soil pH**	**K_d (mL/g)**	**K_{oc} (mL/g)**	**K_f (mL/g)**	**K_{foc} (mL/g)**	**1/n**
Drummer silt loam (USA)	2.9	6.4	-	-	1.25	43.2	0.92
Porterville (USA)	0.5	8.2	-	-	0.05	11	0.86
Nambsheim sandy loam (France)	1.4	7.7	-	-	0.11	7.6	0.84
Lleida silty clay (Spain)	1.8	7.6	-	-	0.33	18.5	0.98
Sassafras sand (USA)	1.2	5.7	-	-	0.28	23.7	0.95
LUFA Speyer 2.2 loamy sand (Germany)	1.97	5.4	-	14.7	n.r	n.r	n.r
LUFA Speyer 3A sandy loam (Germany)	2.42	7.3	-	22.3	n.r	n.r	n.r
LUFA Speyer 6S clay (Germany)	1.84	6.9	-	37.8	n.r	n.r	n.r
LUFA Speyer 2.1 sand (Germany)	0.56	6	-	-	0.1375	25	0.86
Soil 115 clay loam (UK)	1.7	7.4	-	-	0.855	50	0.83
Soil 164 silt loam (UK)	3	6.5	-	-	0.979	33	0.86
Soil 243 sandy loam(UK)	1.1	4.3	-	-	0.2175	20	0.99
Average (n=9)						**25.8**	**0.90**
pH dependence (yes/no) No							

Table 8.518: Summary of soil adsorption/desorption for metabolite IN-F5438

IN-F5438							
Soil type	**OC %**	**Soil pH**	**K_d (mL/g)**	**K_{oc} (mL/g)**	**K_f (mL/g)**	**K_{foc} (mL/g)**	**1/n**
Drummer silt loam (USA)	3.2	6.4	-	-	0.54	17	0.77
Lleida silty clay (Spain)	1.8	7.9	-	-	0.06	3.5	0.66
Gross-Umstadt silt loam (Germany)	1.3	7.2	-	-	0.05	3.9	0.64
Sassafras sand (USA)	1.4	5.3	-	-	0.16	11	0.90
Nambsheim sandy loam (France)	2.2	7.7	-	-	0.06	2.6	0.72
L LUFA Speyer 2.2 loamy sand (Germany)	1.87	5.5	-	16	n.r.	n.r.	n.r.
LUFA Speyer 2.3 sandy loam (Germany)	0.94	6.8	-	18	n.r.	n.r.	n.r.
LUFA Speyer 6S clay (Germany)	1.64	7.1	-	14	n.r.	n.r.	n.r.
LUFA Speyer 2.2 loamy sand (Germany)	1.87	5.5	-	-	0.222	12	0.86
LUFA Speyer 2.3 sandy loam (Germany)	0.94	6.8	-	-	0.138	15	0.87
LUFA Speyer 6S clay (Germany)	1.64	7.1	-	-	0.208	13	0.81
Average (n=8)						**9.8**	**0.78**
pH dependence (yes/no) No							

Table 8.519: Summary of soil adsorption/desorption for metabolite IN-NC148

IN-NC148							
Soil type	**OC %**	**Soil pH**	**K_d (mL/g)**	**K_{oc} (mL/g)**	**K_f (mL/g)**	**K_{foc} (mL/g)**	**1/n**
Gross-Umstadt silt loam (Germany)	1.2	7.7	-	-	0.97 (kd)	81	1.0
Arrow sandy loam (UK)	2.3	5.7	-	-	0.9	41	0.86
Mattapex silt loam (USA)	2.6	6.4	-	-	1.2	45	0.92
LUFA Speyer 2.2 loamy sand (Germany)	1.97	5.4	-	9.22	0.182	-	1.398
LUFA Speyer 3A sandy loam (Germany)	2.42	7.3	-	6.05	0.146	-	0.747
LUFA Speyer 6S clay (Germany)	1.84	6.9	-	5.95	0.110	-	1.188
Average (n=3)						**55.7**	**0.93**
pH dependence (yes/no) No							

Table 8.520: Summary of soil adsorption/desorption for metabolite IN-V7160

IN-V7160							
Soil type	OC %	Soil pH	K_d (mL/g)	K_{oc} (mL/g)	K_f (mL/g)	K_{foc} (mL/g)	1/n
Tama, silty clay loam (USA)	3.1	6.7	-	-	5.97	194	0.93
Sassafras sand (USA)	1.4	6.3	-	-	0.97	69.4	0.90
Lleida silty clay (Spain)	1.8	7.6	-	-	1.51	84	0.94
Nambsheim sandy loam (France)	1.6	7.6	-	-	0.91	57.9	0.93
Suchozebry sandy loam (Poland)	0.8	5.4	-	-	1.24	164	0.87
Average (n=5)						**113.9**	**0.91**
pH dependence (yes/no) No							

8.5.2 Column leaching (KCP 9.1.2.1)

Studies on column leaching the formulation were not performed, since it is possible to extrapolate from data obtained with the active substance. EU approved endpoints were evaluated during Annex I inclusion. All relevant data are presented in :

- **Thifensulfuron-methyl** – EFSA Journal 2015;13(7):4201
- **Metsulfuron-methyl -** EFSA Journal 2015;13(1):3936

8.5.2.1 Thifensulfuron-methyl and its metabolites

No reliable information provided

8.5.2.2 Metsulfuron-methyl and its metabolites

Phenyl-14C - 4 soils, leachates (250 mm) > 87 %

8.5.3 Lysimeter studies (KCP 9.1.2.2)

Studies on lysimeter formulation were not performed, since it is possible to extrapolate from data obtained with the active substance. EU approved endpoints were evaluated during Annex I inclusion. All relevant data are presented in :

- **Thifensulfuron-methyl** – EFSA Journal 2015;13(7):4201
- **Metsulfuron-methyl -** EFSA Journal 2015;13(1):3936

8.5.3.1 Thifensulfuron-methyl and its metabolites

No reliable information provided

8.5.3.2 Metsulfuron-methyl and its metabolites

Loam soil at Kjettslinge, sandy soil and clay soil at Bulstofta (Sweden), 4 - 8 g as / ha (May).
Duration 7 m
- metsulfuron in drainage water < 22 ng/l (for high dose)

- no data for soil residues and metabolites

8.5.4 Field leaching studies (KCP 9.1.2.3)

8.5.4.1 Thifensulfuron-methyl and its metabolites

No reliable information provided.

8.5.4.2 Metsulfuron-methyl and its metabolites

See 8.5.3.

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.
EU approved endpoints were evaluated during Annex I inclusion. All relevant data are presented in :

- **Thifensulfuron-methyl** – EFSA Journal 2015;13(7):4201
- **Metsulfuron-methyl -** EFSA Journal 2015;13(1):3936

8.6.1.1 Thifensulfuron-methyl and its metabolites

Table 8.61: Summary of degradation in water/sediment of Thifensulfuron-methyl

Thifensulfuron methyl	**Distribution Max in water >99% at 0 d, Max sed 1.08% at 31d**									
Water / sediment system	pH water phase	pH sed	t. °C	DT_{50} whole sys.	St. Chi^2	DT_{50} water	St. Chi^2	DT_{50} sed	St.	Method of calculation
Town park pond	7.8	7.2	20	18.2d	3.9	18.2d	3.9	1000d	-	SFO
Red Oak stream	7.6	7.1	20	26.1d	3.2	26.1d	3.2	1000d	-	SFO
Swiss lake	7.4	6.0	20	32.3d	4.3	32.0d	4.3	1000d	-	SFO
Calwich Abbey Lake	8.3	7.4	20	17.6d	4.5	17.3d	4.6	1000d	-	SFO
Geometric mean				**22.8d**		-*		**1000d**		-

*For FOCUSsw modelling the whole system geomean DT50 (22.8 day) was used for the water phase and a default 1000 d DT50 was used for sediment.

Table 8.62: Summary of observed metabolites

Metabolite	DT50 whole system/ water / sediment	Maximum occurrence in water (%AR)	Maximum occurrence in sediment (%AR)
IN-L9226	1000d	7.8%	7.2%
IN-JZ789	1000d	21 % after 125 d	4%
IN-L9223 (2-acid-3-sulfonamide)	1000d	39 % after 182 d	8%
IN-V7160 (triazine urea)	1000d	25 % after 182 d	6%
IN-A4098 (triazine amine)	1000d	20.0%	7%
IN-L9225	1000d	55%	7.0%

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8.6.1.2 Metsulfuron-methyl and its metabolites

Table 8.63: Summary of degradation in water/sediment of Metsulfuron-methyl

Metsulfuron-methyl	Distribution: Max in water: 99.9 % (0 days) Max in sediment: 18.5 % (120 days)								
Water / sediment system	pH water phase/ sed	T °C	$DegT_{50}$ / $DegT_{90}$ whole system	St. (χ^2)	$DissT_{50}$ / $DissT_{90}$ water	St. (χ^2)	$DissT_{50}$/ $DissT_{90}$ sed	St. (χ^2)	Method of calc.
Birkenbach	8 / 7.2	20	272.5/ 905.1	1.4	231.3 / 857.5	1.6	>1000/ >1000	1.4	Water: DFOP Sediment: FOMC Total: SFO
Unter-Widdesheim	7.6 / 7.6	20	50.2/ 166	6.1	45.3/ 150.4[a]	5.1	41.1/ 136.4	10.6	Water: SFO Sediment: SFO Total: SFO
Pond	7.74/ 7.3	20	259[a]-352[a]/ 860[a]-1168[a]	1.49-1.73	156.8[a]-203.9[a]/ 520.9[a]-677.2[a]	-	>1000[a]	-	Water: SFO Sediment: SFO Total: SFO
Creek	8.26 / -	20	579[a]-632[ab]/ 1922[a]-2024[a]	1.06-1.50	370.7[a]-456[a]/ 1231[a]-1515[a]	-	>1000[a]	-	Water: SFO Sediment: SFO Total: SFO/DFOP
Geometric mean total:			224.3						

a Extrapolated beyond study period.
b - Calculated from slow phase of DFOP model (ln(2)/k2)

Table 8.64: Summary of obsereved in water/sediment of metabolites Metsulfuron-methyl

Hydrolytic degradation of the active substance and metabolites > 10 %	pH 4 Clark (2012): DT50 at 25ºC 4.7 d, SFO (R2 = 0.929) IN-D5803 37.3 %, IN-MU717 38.7 % (phenyl and triazine labelled) Hiller (2012b): DT50 at 25ºC 2.8-3.0 d, SFO (R2 = 0.998) IN-D5803 39.9 %; IN-MU717 47.6 % (phenyl labelled) IN-A4098 21.7 %; IN-B5067 13.3%; IN-MUI717 46.1%; IN-B5528 23.6% (triazine labelled) Perch (2012): DT50 at 20ºC 5.6 d, SFO IN-B5067 21.7 %; IN-D5803 30.1 %; unknown 57.6 % (triazine label)
	pH 7 Clark (2012): stable at 25ºC Hiller (2012b): stable at 25ºC
	pH 9 Clark (2012): stable at 25ºC Hiller (2012b): stable at 25ºC
Photolytic degradation of active substance and metabolites above 10 %	Habeeb (2011): Direct photolysis: DT50 (actual): 43.5 d, SFO (R2 = 0.912) DT50 (re-calculated): - Metabolites: IN-D5119 10 % (phenyl labelled); IN-S9H62 13.1 % (triazine labelled) Hiller (2012c): Direct photolysis: Negligible at Tier 1 Willems, Slangen & Hoitink (2004) & Willems (2006): Direct photolysis: DT50 at pH 7 (actual): 77.4 d, SFO (R2 = 0.978) DT50 (re-calculated): 192.5 d at 40ºN in summer Metabolites: MIII 15.88-19.49 % (triazine-labelled) Indirect photolysis: no data, not required

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

8.7.1 Justification for new endpoints

All endpoints used for PEC soil calculations are EU approved and were evaluated on EU level and presented in:

- **Thifensulfuron-methyl** – EFSA Journal 2015;13(7):4201
- Metsulfuron-methyl - EFSA Journal 2015;13(1):3936

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

Table 8.71: Input parameters related to application for PEC_{soil} calculations

Use No.	1		Risk Envelope
Crop	Winter cereals	Winter cereals	Winter cereals
Application rate (g as/ha)	Thifensulfuron-methyl: 47.7 Metsulfuron-methyl: 4.8	Thifensulfuron-methyl: 61.4 Metsulfuron-methyl: 6.1	Thifensulfuron-methyl: 61.4 Metsulfuron-methyl: 6.1
Number of applications/interval	1/-	1/-	1/-
Crop interception (%)	20	80	20
Depth of soil layer (relevant for plateau concentration) (cm)	5/20 cm (no tillage)	5/20 cm (no tillage)	5/20 cm (no tillage)

Table 8.72: Input parameter for active substance(s) and relevant metabolite(s) for PEC_{soil} calculation

Compound	Molecular weight (g/mol)	Max. occurrence (%)	DT50 (days)	Value in accordance to EU endpoint y/n/ Reference
Thifensulfuron-methyl	387.4	-	DT50: 3.1 d Kinetics: Longest DT 50 from lab studies	EFSA Journal 2015;13(7):4201
IN-A4098	140.1	32.3 %	DT50:1000 d Kinetics: SFO Field or Lab: representative worst case un-normalised values from lab studies	EFSA Journal 2015;13(7):4201
Metsulfuron-methyl	381.36	-	DT50 (d): 47.4 d Kinetics: SFO Field or Lab: WC lab	EFSA Journal 2015;13(1):3936
IN-F5438	367.34	15.6 %	DT50 (d):79.1 Kinetics: SFO Field or Lab: WC lab.	EFSA Journal 2015;13(1):3936
IN-B5067	364.24	16.2 %	DT50 (d):80.2 Kinetics: SFO Field or Lab: WClab	EFSA Journal 2015;13(1):3936
IN-A4098	140.1	42.3%	DT50 (d):333 Kinetics: SFO Field or Lab: WC lab	EFSA Journal 2015;13(1):3936
IN-NC148	343.32	23 %	DT50 (d):236.3	EFSA Journal

			Kinetics: SFO Field or Lab: WC lab	2015;13(1):3936
IN-D5803	215.22	48.7 %	DT50 (d):11.7 Kinetics: SFO Field or Lab: WC lab	EFSA Journal 2015;13(1):3936
IN-00581	183.2	8.7 %	DT50 (d):237.4 Kinetics: SFO Field or Lab: WC lab	EFSA Journal 2015;13(1):3936
IN-V7160	183.07	12.8 %	DT50 (d):30.5 Kinetics: SFO Field or Lab: WC lab	EFSA Journal 2015;13(1):3936

Calculations of PECs is used worst case scenario for GAP Table – 61.4 g thifensulfuron-methyl/ha and 6.1 g metsulfuronu-methyl/ha and 90 g product/ha at BBCH 21 with crop interception 20% which is the risk envelope for all intendend uses from GAP Table.

8.7.2.1 Thifensulfuron-methyl and its metabolites

Table 8.73: PEC$_{soil}$ for thifensulfuron-methyl on winter cereals

PEC$_{soil}$ (mg/kg)		winter cereals	
		Single application	
		Actual	TWA
Initial		0.0684	-
Short term	24h	0.0547	0.0615
	2d	0.0437	0.0554
	4d	0.0280	0.0454
Long term	7d	0.0143	0.0347
	14d	0.0030	0.0210
	21d	0.0006	0.0145
	28d	0.0001	0.0109
	50d	<0.0001	0.0061
	100d	<0.0001	0.0031
Plateau concentration (5 cm) after year 10		<0.0001	-
PEC$_{accumulation}$ (PEC$_{act}$ +PEC$_{soil\ plateau}$)		0.0684	-

PEC$_{soil}$ of metabolites

Table 8.74: PEC$_{soil}$ for IN-A4098 on winter cereals

PEC$_{soil}$	winter cereals

(mg/kg)		Single application	
		Actual	TWA
Initial		0.0078	-
Short term	24h	0.0078	0.0078
	2d	0.0078	0.0078
	4d	0.0078	0.0078
Long term	7d	0.0078	0.0078
	14d	0.0078	0.0078
	21d	0.0077	0.0078
	28d	0.0077	0.0078
	50d	0.0076	0.0077
	100d	0.0073	0.0076
Plateau concentration (5 cm) after year 10		0.0273	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		0.0352	-

8.7.2.2 Metsulfuron-methyl and its metabolites

Table 8.75: PEC_{soil} for Metsulfuron-methyl on winter cereals

PEC_{soil} (mg/kg)		winter cereals			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0065	-	-	-
Short term	24h	0.0064	0.0065	-	-
	2d	0.0063	0.0064	-	-
	4d	0.0061	0.0063	-	-
Long term	7d	0.0059	0.0062	-	-
	14d	0.0053	0.0059	-	-
	21d	0.0048	0.0056	-	-
	28d	0.0043	0.0053	-	-
	50d	0.0031	0.0046	-	-
	100d	0.0015	0.0034	-	-
Plateau concentration (5 cm) after year 10		<0.0001	-	-	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		0.0065			

PEC_{soil} of metabolites

Table 8.76: PEC_{soil} for IN-F5438 on winter cereals

PEC_{soil} (mg/kg)		winter cereals			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0005	-	-	-
Short term	24h	0.0005	0.0005	-	-
	2d	0.0005	0.0005	-	-
	4d	0.0005	0.0005	-	-
Long term	7d	0.0005	0.0005	-	-
	14d	0.0005	0.0005	-	-
	21d	0.0004	0.0005	-	-
	28d	0.0004	0.0005	-	-
	50d	0.00044	0.0005	-	-
	100d	0.0003	0.0004	-	-
Plateau concentration (5 cm) after year 10		<0.0001	-	-	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		0.0005			

Table 8.77: PEC_{soil} for IN-B5067 on winter cereals

PEC_{soil} (mg/kg)		winter cereals			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0005		-	-
Short term	24h	0.0005	0.0005	-	-
	2d	0.0005	0.0005	-	-
	4d	0.0005	0.0005	-	-
Long term	7d	0.0005	0.0005	-	-
	14d	0.0005	0.0005	-	-
	21d	0.0005	0.0005	-	-
	28d	0.0005	0.0005	-	-
	50d	0.0004	0.0005	-	-
	100d	0.0003	0.0004	-	-
Plateau concentration (5 cm) after year 10		<0.0001		-	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		0.0005			

Table 8.78: PEC$_{soil}$ for IN-A4098 on winter cereals

PEC$_{soil}$ (mg/kg)		winter cereals			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0007		-	-
Short term	24h	0.0007	0.0007	-	-
	2d	0.0007	0.0007	-	-
	4d	0.0007	0.0007	-	-
Long term	7d	0.0007	0.0007	-	-
	14d	0.0007	0.0007	-	-
	21d	0.0007	0.0007	-	-
	28d	0.0007	0.0007	-	-
	50d	0.0007	0.0007	-	-
	100d	0.0007	0.0007	-	-
Plateau concentration (5 cm) after year 10		0.0008		-	-
PEC$_{accumulation}$ (PEC$_{act}$ +PEC$_{soil\ plateau}$)		0.0015			

Table 8.79: PEC$_{soil}$ for IN-NC148 on winter cereals

PEC$_{soil}$ (mg/kg)		winter cereals			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0009		-	-
Short term	24h	0.0009	0.0009	-	-
	2d	0.0009	0.0009	-	-
	4d	0.0009	0.0009	-	-
Long term	7d	0.0009	0.0009	-	-
	14d	0.0009	0.0009	-	-
	21d	0.0009	0.0009	-	-
	28d	0.0009	0.0009	-	-
	50d	0.0009	0.0009	-	-
	100d	0.0008	0.0009	-	-
Plateau concentration (5 cm) after year 10		0.0006		-	-
PEC$_{accumulation}$ (PEC$_{act}$ +PEC$_{soil\ plateau}$)		0.0015			

Table 8.710: PEC$_{soil}$ for IN-D5803 on winter cereals

PEC$_{soil}$	winter cereals

(mg/kg)		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0003		-	-
Short term	24h	0.0003	0.0003	-	-
	2d	0.0003	0.0003	-	-
	4d	0.0003	0.0003	-	-
Long term	7d	0.0003	0.0003	-	-
	14d	0.0003	0.0003	-	-
	21d	0.0003	0.0003	-	-
	28d	0.0002	0.0003	-	-
	50d	0.0002	0.0003	-	-
	100d	0.0001	0.0002	-	-
Plateau concentration (5 cm) after year 10		<0.0001		-	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		0.0003			

Table 8.711: PEC_{soil} for IN-V7160 on winter cereals

PEC_{soil} (mg/kg)		winter cereals			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0001		-	-
Short term	24h	0.0001	0.0001	-	-
	2d	0.0001	0.0001	-	-
	4d	0.0001	0.0001	-	-
Long term	7d	0.0001	0.0001	-	-
	14d	0.0001	0.0001	-	-
	21d	0.0001	0.0001	-	-
	28d	0.0001	0.0001	-	-
	50d	<0.0001	0.0001	-	-
	100d	<0.0001	0.0001	-	-
Plateau concentration (5 cm) after year 10		<0.0001		-	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		0.0001			

Table 8.712: PEC_{soil} for IN-00581 on winter cereals

PEC_{soil} (mg/kg)	winter cereals			
	Single application		Multiple applications	
	Actual	TWA	Actual	TWA

Initial		0.0002		-	-
Short term	24h	0.0002	0.0002	-	-
	2d	0.0002	0.0002	-	-
	4d	0.0002	0.0002	-	-
Long term	7d	0.0002	0.0002	-	-
	14d	0.0002	0.0002	-	-
	21d	0.0002	0.0002	-	-
	28d	0.0002	0.0002	-	-
	50d	0.0002	0.0002	-	-
	100d	0.0002	0.0002	-	-
Plateau concentration (5 cm) after year 10		0.0001		-	-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		0.0003			

8.7.2.3 PEC_{soil} of TOTO 75 SG

Table 8.713: PEC_{soil} for TOTO 75 SG 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)
TOTO 75 SG	90 g/ha	0.096	-	5 cm	-	-

zRMS comments:

Thifensulfuron methyl
The calculations PEC s cover proposed using of Toto 75 SG in GAP.
Peer- reviewed endpoints for thifensulfuron-methyl and its metabolites have been presented in EFSA conclusion (EFSA Journal 2015;13(7) :4201). No calculation for metabolites were submitted by applicant except metabolite IN-A4098.
The PECs for metabolites listed in the table below were calculated by RMS:

Metabolite	Molecular weight (g/mol)	Molar correction factor	Max. occurrence (%)	**$PEC_{soil\ initial}$**
IN-L9225	373.4	0.964	94	**0.059**
IN-JZ789	359.3	0.927	10	**0.006**
2-acid-3-triuret	378.3	0.977	17	**0.011**
IN-L9223	207.2	0.535	19	**0.007**
IN-W8268	189.2	0.488	29.6	**0.009**
IN-A5546	221.2	0.571	27.7	**0.010**
IN-L9226	373.4	0.964	18.5	**0.012**
IN-A4098	140.1	0.362	32.3	**0.080**
IN-V7160	183.2	0.473	9.6	**0.030**

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

Metsulfuron - methyl
The calculations PEC cover proposed using of Toto 75 SG in GAP.
Peer- reviewed endpoints for metsulfuron-methyl and its metabolites have been presented in EFSA conclusion (EFSA Journal 2015;13(1):3936).
Interception has been appropriate to the proposed BBCH of crops (EFSA guidance was published, (2014;12(5):3662).
Results of the maximum initial and plateau PEC_s values for metsulfuron-methyl and all relevant soil metabolites are summarized in **Błąd! Nie można odnaleźć źródła odwołania.** through **Błąd! Nie można odnaleźć źródła odwołania.**

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

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

8.8.1 Justification for new endpoints

All endpoints used for PEC ground water calculations are EU approved and were evaluated on EU level and presented in:
- **Thifensulfuron-methyl** – EFSA Journal 2015;13(7):4201
- Metsulfuron-methyl - EFSA Journal 2015;13(1):3936

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

Table 8.81: Input parameters related to application for PEC_{gw} calculations

Use No.		

Crop	Winter cereals	Winter cereals
Application rate (g as/ha)	Thifensulfuron-methyl: 47.7 Metsulfuron-methyl: 4.8	Thifensulfuron-methyl: 61.4 Metsulfuron-methyl: 6.1
Number of applications/interval (d)	1/-	1/-
Relative date	107 days before harvest	170 days after emergence
Crop interception (%)	20	80
Frequency of application	annual	annual
Models used for calculation	FOCUS PEARL v4.4.4, FOCUS PELMO v5.5.3, FOCUS MACRO v5.5.3	FOCUS PEARL v4.4.4, FOCUS PELMO v5.5.3, FOCUS MACRO v5.5.3

8.8.2.1 Thifensulfuron-methyl and its metabolites

Table 8.82: Input parameters related to active substance thifensulfuron-methyl and metabolite(s) for PEC_{gw} calculations

Compound	Thifensulfuron - methyl	IN-L9225	IN-JZ789	2-Acid-3-triuret	IN-L9223	IN-A4098	IN-V7160	IN-W8268	IN-A5546	Value in accordance with EU endpoint y/n/ Reference *
Molecular weight (g/mol)	387.4	373.4	359.3	378.3	207.2	140.1	183.2	189.2	221.2	EFSA Journal 2015;13(7):4201
Water solubility (mg/L):	2240	2240 from parent	2240 from parent	2240 from parent	2240 from parent	2240 from parent	2240 from parent	2240 from parent	2240 from parent	EFSA Journal 2015;13(7):4201
Saturated vapour pressure (Pa):	$5.2x10^{-9}$ (20°C)	$5.2x10^{-9}$ (20°C)	$5.2x10^{-9}$ (20°C)	$5.2x10^{-9}$ (20°C)	$5.2x10^{-9}$ (20°C)	$5.2x10^{-9}$ (20°C)	$5.2x10^{-9}$ (20°C)	$5.2x10^{-9}$ (20°C)	$5.2x10^{-9}$ (20°C)	EFSA Journal 2015;13(7):4201
DT_{50} in soil (d)	1.39 (geomean, normalised to 20°C, pF2, from 6 soils)	32.3 (geo mean normalised)	60.0 (geo mean normalised)	73.0 (geo mean normalised)	178 (geo mean normalised)	167.9 (geo mean normalised)	19.4(geo mean normalised)	18.7d (geo mean normalised)	7d From DAR 1996	EFSA Journal 2015;13(7):4201
Transformation rate	0.4737337 to IN-L9225 0.0249334 to CO2 0.0249334 to IN-A4098	0.006438 to IN-L9223 0.0055796 to IN-JZ789 0.0047212 to CO2	0.011552 to 2-Acid-3-triuret	0.009495 to CO2	0.003894 to CO2	0.004085 to CO2	0.035729 to O2	0.037067 to CO2	0.099021 to CO2	-

	0.498667 to IN-A5546	0.0030044 to IN-A4098								
K_{foc} (mL/g)/K_{fom}	9 (median of 9 values)	19.9 arithmetic mean	31.1 arithmetic mean	524 arithmetic mean	4.07 arithmetic mean	45.5 arithmetic mean	113.9 arithmetic mean	7.4 (worst case)	0 (worst case) Deafult	EFSA Journal 2015;13(7):4201
1/n	0.932	0.850	1.000	1.000	1.157	0.900	0.913	1.160	1.000 Deafult	EFSA Journal 2015;13(7):4201
Plant uptake factor	0	0	0	0	0	0	0	0	0	EFSA Journal 2015;13(7):4201
Formation fraction	-	0.95 (from Thifensulfuron-methyl)	0.26 (from IN-L9225)	0.22 (from IN-L9225) and 1.0 (from IN-JZ789)	0.3 (from IN-L9225)	0.05 (from Thifensulfuronmethyl) and 0.14 (from IN-L9225)	N/A – Simulated as stand alone parent assuming peak of 9.6%	Formation Formation fraction: – Simulated as stand alone parent assuming peak of 29.6%	Formation fraction: 1.0	EFSA Journal 2015;13(7):4201

Table 8.83: PEC$_{gw}$ for Thifensulfuron-methyl and metabolite(s) on winter cereals (with FOCUS PEARL 4.4.4) at BBCH 21

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (⌈g/L) Thiophene pathway				
		Thifensulfuron-methyl	**IN-L9225**	**IN-JZ789**	**2-acid-3-triuret**	**IN-L9223**
Winter cereals	Châteaudun	<0.0001	0.127	0.652	0.187	3.025
	Hamburg	<0.0001	0.584	1.211	0.308	2.637
	Jokioinen	<0.0001	0.344	1.197	0.174	4.149
	Kremsmünster	<0.0001	0.491	0.834	0.271	1.465
	Okehampton	<0.0001	0.642	0.787	0.0226	1.370
	Piacenza	<0.0001	0.324	0.586	0.228	1.790
	Porto	<0.0001	0.165	0.492	0.0839	1.360
	Sevilla	<0.0001	0.0003	0.160	0.01416	1.592

	Thiva	<0.0001	0.0122	0.415	0.143	3.256

Crop	**Scenario**	**80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L) Triazine pathway**				
		Thifensulfuron-methyl	**IN-L9225**	**IN-JZ789**	**2-acid-3-triuret**	**IN-A4098**
Winter cereals	Châteaudun	<0.0001	0.127	0.652	0.187	0.251
	Hamburg	<0.0001	0.584	1.211	0.308	0.336
	Jokioinen	<0.0001	0.344	1.198	0.174	0.298
	Kremsmünster	<0.0001	0.491	0.834	0.271	0.268
	Okehampton	<0.0001	0.642	0.787	0.226	0.246
	Piacenza	<0.0001	0.324	0.586	0.228	0.236
	Porto	<0.0001	0.165	0.492	0.0839	0.170
	Sevilla	<0.0001	0.0032	0.160	0.0142	0.0227
	Thiva	<0.0001	0.0122	0.416	0.143	0.263

Crop	**Scenario**	**80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L)**				
		Thifensulfuron-methyl	**IN-V7160**	**IN-W8268**	**IN-A5546**	
Winter cereals	Châteaudun	<0.0001	<0.0001	0.0166	0.0033	
	Hamburg	<0.0001	<0.0001	0.0877	01081	
	Jokioinen	<0.0001	<0.0001	0.146	0.1287	
	Kremsmünster	<0.0001	<0.0001	0.0575	0.0584	
	Okehampton	<0.0001	<0.0001	0.0585	0.0824	
	Piacenza	<0.0001	<0.0001	0.0315	0.0354	
	Porto	<0.0001	<0.0001	0.0258	0.0164	
	Sevilla	<0.0001	<0.0001	0.0007	<0.0001	
	Thiva	<0.0001	<0.0001	0.0018	<0.0001	

Table 8.84: PEC$_{gw}$ for Thifensulfuron-methyl and metabolite(s) on winter cereals (with FOCUS PELMO 5.5.3) at BBCH 21

Crop	**Scenario**	**80th Percentile PEC$_{gw}$ at 1 m Soil Depth (µg/L) Thiophene pathway**				
		Thifensulfuron-methyl	**IN-L9225**	**IN-JZ789**	**2-acid-3-triuret**	**IN-L9223**
Winter cereals	Châteaudun	<0.001	0.103	0.662	0.187	3.000
	Hamburg	<0.001	0.514	1.312	0.300	2.455
	Jokioinen	<0.001	0.471	1.248	0.179	3.631

	Kremsmünster	<0.001	0.612	1.005	0.297	1.881
	Okehampton	<0.001	0.693	0.860	0.227	1.424
	Piacenza	<0.001	0.385	0.794	0.249	2.227
	Porto	<0.001	0.291	0.567	0.084	1.408
	Sevilla	<0.001	0.004	0.195	0.031	1.364
	Thiva	<0.001	0.008	0.275	0.078	2.201
Crop	**Scenario**	**80th Percentile PEC_{gw} at 1 m Soil Depth (⌈g/L)** **Triazine pathway**				
		Thifensulfuron-methyl	**IN-L9225**	**IN-JZ789**	**2-acid-3-triuret**	**IN-A4098**
Winter cereals	Châteaudun	<0.001	0.031	0.477	0.135	0.081
	Hamburg	<0.001	0.244	0.984	0.235	0.121
	Jokioinen	<0.001	0.213	0.941	0.141	0.095
	Kremsmünster	<0.001	0.330	0.775	0.248	0.098
	Okehampton	<0.001	0.391	0.678	0.205	0.094
	Piacenza	<0.001	0.194	0.607	0.213	0.093
	Porto	<0.001	0.146	0.435	0.073	0.059
	Sevilla	<0.001	0.001	0.137	0.021	0.018
	Thiva	<0.001	0.002	0.191	0.053	0.055
Crop	**Scenario**	**80th Percentile PEC_{gw} at 1 m Soil Depth (⌈g/L)**				
		Thifensulfuron-methyl	**IN-V7160**	**IN-W8268**	**IN-A5546**	
Winter cereals	Châteaudun	<0.001	<0.001	0.014	0.004	
	Hamburg	<0.001	<0.001	0.053	0.116	
	Jokioinen	<0.001	<0.001	0.128	0.198	
	Kremsmünster	<0.001	<0.001	0.065	0.079	
	Okehampton	<0.001	<0.001	0.066	0.075	
	Piacenza	<0.001	<0.001	0.038	0.090	
	Porto	<0.001	<0.001	0.025	0.042	
	Sevilla	<0.001	<0.001	0.001	0.002	
	Thiva	<0.001	<0.001	0.001	0.002	

Table 8.85: PEC$_{gw}$ for Thifensulfuron-methyl and metabolite(s) on winter cereals (with FOCUS PEARL 4.4.4) at BBCH 30

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (⌠g/L) Thiophene pathway				
		Thifensulfuron -methyl	IN-L9225	IN-JZ789	2-acid-3-triuret	IN-L9223
Winter cereals	Châteaudun	<0.0001	0.0207	0.199	0.0560	0.974
	Hamburg	<0.0001	0.138	0.382	0.0948	0.856
	Jokioinen	<0.0001	0.0728	0.372	0.529	1.337
	Kremsmünster	<0.0001	0.110	0.260	0.0813	0.474
	Okehampton	<0.0001	0.152	0.248	0.0700	0.443
	Piacenza	<0.0001	0.0749	0.180	0.0668	0.570
	Porto	<0.0001	0.0411	0.154	0.0245	0.432
	Sevilla	<0.0001	<0.0001	0.0502	0.0043	0.514
	Thiva	<0.0001	0.0018	0.131	0.0441	1.049

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (⌠g/L) Triazine pathway				
		Thifensulfuron -methyl	IN-L9225	IN-JZ789	2-acid-3-triuret	IN-A4098
Winter cereals	Châteaudun	<0.0001	0.0207	0.199	0.0560	0.0682
	Hamburg	<0.0001	0.128	0.382	0.0948	0.0960
	Jokioinen	<0.0001	0.0728	0.373	0.0529	0.0795
	Kremsmünster	<0.0001	0.110	0.260	0.0813	0.0745
	Okehampton	<0.0001	0.152	0.248	0.0700	0.0735
	Piacenza	<0.0001	0.0749	0.180	0.0668	0.0662
	Porto	<0.0001	0.0411	0.154	0.0245	0.0474
	Sevilla	<0.0001	<0.0001	0.0502	0.0043	0.0051
	Thiva	<0.0001	0.0018	0.131	0.0442	0.0698

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (⌠g/L)				
		Thifensulfuron -methyl	IN-V7160	IN-W8268	IN-A5546	
Winter cereals	Châteaudun	<0.0001	<0.0001	0.0056	0.0011	
	Hamburg	<0.0001	<0.0001	0.0297	0.0358	
	Jokioinen	<0.0001	<0.0001	0.0499	0.0423	
	Kremsmünster	<0.0001	<0.0001	0.0194	0.0193	

	Okehampton	<0.0001	<0.0001	0.0192	0.0265	
	Piacenza	<0.0001	<0.0001	0.0108	0.0114	
	Porto	<0.0001	<0.0001	0.0071	0.0051	
	Sevilla	<0.0001	<0.0001	0.0002	<0.0001	
	Thiva	<0.0001	<0.0001	0.0005	<0.0001	

Table 8.86: PEC$_{gw}$ for Thifensulfuron-methyl and metabolite(s) on winter cereals (with FOCUS PELMO 5.5.3) at BBCH 30

Crop	Scenario	80th Percentile PEC$_{gw}$ at 1 m Soil Depth (⌈g/L) Thiophene pathway				
		Thifensulfuron -methyl	**IN-L9225**	**IN-JZ789**	**2-acid-3-triuret**	**IN-L9223**
Winter cereals	Châteaudun	<0.001	0.181	0.673	0.191	2.015
	Hamburg	0.001	0.655	1.025	0.268	1.637
	Jokioinen	0.002	0.343	0.598	0.093	1.302
	Kremsmünster	<0.001	0.513	0.836	0.255	1.200
	Okehampton	0.001	0.744	0.756	0.255	1.070
	Piacenza	0.014	0.628	0.621	0.295	1.103
	Porto	0.030	1.090	0.676	0.168	1.214
	Sevilla	<0.001	0.049	0.152	0.023	0.818
	Thiva	<0.001	0.096	0.434	0.124	1.622
Crop	**Scenario**	**80th Percentile PEC$_{gw}$ at 1 m Soil Depth (⌈g/L) Triazine pathway**				
		Thifensulfuron -methyl	**IN-L9225**	**IN-JZ789**	**2-acid-3-triuret**	**IN-A4098**
Winter cereals	Châteaudun	<0.001	0.069	0.496	0.144	0.067
	Hamburg	0.001	0.401	0.782	0.240	0.093
	Jokioinen	0.002	0.215	0.461	0.082	0.045
	Kremsmünster	<0.001	0.267	0.644	0.225	0.079
	Okehampton	0.001	0.468	0.607	0.222	0.078
	Piacenza	0.014	0.410	0.488	0.296	0.079
	Porto	0.030	0.835	0.533	0.179	0.069
	Sevilla	<0.001	0.022	0.117	0.017	0.009
	Thiva	<0.001	0.031	0.326	0.089	0.054
Crop	**Scenario**	**80th Percentile PEC$_{gw}$ at 1 m Soil Depth (⌈g/L)**				
		Thifensulfuron -methyl	**IN-V7160**	**IN-W8268**	**IN-A5546**	

Winter cereals	Châteaudun	<0.001	<0.001	0.009	0.001	
	Hamburg	<0.001	<0.001	0.039	0.020	
	Jokioinen	<0.001	<0.001	0.089	0.258	
	Kremsmünster	<0.001	<0.001	0.051	0.040	
	Okehampton	<0.001	<0.001	0.044	0.060	
	Piacenza	<0.001	<0.001	0.012	0.003	
	Porto	<0.001	<0.001	0.009	0.001	
	Sevilla	<0.001	<0.001	0.001	0.000	
	Thiva	<0.001	<0.001	0.001	0.000	

8.8.2.2 Metsulfuron-methyl and its metabolites

Table 8.87: Input parameters related to active substance Metsulfuron-methyl and metabolite(s) for PEC_{gw} calculations

Compound	**Metsulfuron-methyl**	**IN-A4098**	**IN-00581**	**IN-D5803**	**IN-NC148**	**IN-B5067**	**IN-F5438**	**IN-V7160**	**IN-B5685**	**IN-D5119**	**Value in accordance with EU endpoint y/n/ Reference ***
Molecular weight (g/mol)	381.36	140.1	183.19	215.22	343.32	367.34	367.34	183.20	258.25	201.2	EFSA Journal 2015;13(1):3936
Water solubility (g/mol):	2790	456	2790	2790	2790	2790	2790	2790	2790	2790	EFSA Journal 2015;13(1):3936
Saturated vapour pressure (Pa):	3.3 x 10-10	1E-8	1E-8	1E-8	1E-8	1E-8	1E-8	1E-8	1E-8	1E-8	EFSA Journal 2015;13(1):3936
DT_{50} in soil (d)	23.2	135.5	16.1	3.0	59.6	21.4 (median)	25.9 (median)	21.2	13.5	12.4	EFSA Journal 2015;13(1):3936
K_{foc} (mL/g)/$K_{f\,om}$	12.0 (median)	46	5.8	25.8	55.7	29.3	9.8	113.9	5.7	3.9	EFSA Journal 2015;13(1):3936
1/n	0.98	0.9	0.9	0.9	0.93	0.95	0.78	0.91	0.89	0.95	EFSA Journal 2015;13(1):3936
Plant uptake	0/0.5	0	0	0	0	0	0	0	0	0	worst case value/ EFSA

factor											Journal 2015;13(1):3936
Formation fraction **Triazine label**	-	1.00 from IN-V7160 0.21 from parent	-	-	0.63 from IN-B5067	0.39 from parent	0.21 from parent	0.19 from parent 1.00 from IN-F5438	-	-	EFSA Journal 2015;13(1):3936
Formation fraction **Phenyl label**	-	-	1.00 from IN-D5119	0.41 from parent 1.00 from IN-B5685	0.76 from IN-B5067	0.41 from parent	0.18 from parent	-	0.24 from IN-B5067	1.00 from IN-NC148 1.00 from IN-D5803	EFSA Journal 2015;13(1):3936

Table 8.88: PEC$_{gw}$ for Metsulfuron-methyl and metabolites on cereals spring and winter (with FOCUS PEARL) - TIER 1 (PUF = 0) at BBCH 21

Crop	**Scenario**	**80th Percentile PEC$_{GW}$ at 1 m Soil Depth (⌠g L^{-1})** **TRIAZINE LABEL PATHWAY**							
		Metsulfuron-methyl	**IN-F5438**	**IN-V7160**	**IN-A4098**	**IN-B5067**	**IN-NC148**		
Winter Cereals 4.8 g a.s/ha	Châteaudun	0.02327	0.004265	0.001559	0.07956	0.01518	0.03378		
	Hamburg	0.1221	0.01230	0.004557	0.09878	0.03946	0.05369		
	Jokioinen	0.1043	0.007723	0.002369	0.08697	0.03071	0.04267		
	Kremsmünster	0.08610	0.01392	0.005287	0.08456	0.03549	0.04716		
	Okehampton	0.1023	0.01587	0.004866	0.07896	0.04042	0.04736		
	Piacenza	0.05405	0.009047	0.0037	0.07844	0.02363	0.03742		
	Porto	0.03022	0.003163	0.00084	0.05063	0.01264	0.02341		
	Sevilla	0.00201	<0.0001	<0.0001	0.004225	0.000653	0.000441		
	Thiava	0.005557	0.000373	0.000245	0.06602	0.001863	0.01353		
Crop	**Scenario**	**80th Percentile PEC$_{GW}$ at 1 m Soil Depth (⌠g L^{-1})** **PHENYL LABEL PATHWAY**							
		Metsulfuron-methyl	**IN-F5438**	**IN-D5119**	**IN-00581**	**IN-B5067**	**IN-NC148**	**IN-B5685**	**IN-D5803**
Winter Cereals 4.8 g a.s/ha	Châteaudun	0.03218	0.003468	0.04230	0.02248	0.01587	0.04893	0.00381	0.000956
	Hamburg	0.1221	0.01020	0.1008	0.05142	0.04152	0.07534	0.009766	0.003876
	Jokioinen	0.1040	0.006306	0.1472	0.06355	0.03226	0.06381	0.009035	0.002012
	Kremsmünster	0.08591	0.01157	0.05888	0.03121	0.03728	0.06504	0.006551	0.002446
	Okehampton	0.1019	0.01314	0.06384	0.03179	0.04242	0.06358	0.007636	0.002827
	Piacenza	0.05399	0.007510	0.03687	0.01923	0.02486	0.05091	0.004413	0.001869
	Porto	0.03027	0.002535	0.04355	0.01842	0.01326	0.02486	0.003499	0.000479
	Sevilla	0.002016	<0.0001	0.008270	0.003872	0.000694	0.00097	0.000326	<0.0001
	Thiava	0.005586	0.000309	0.01612	0.008561	0.001993	0.02197	0.000761	0.00012

Table 8.89: PEC$_{gw}$ for Metsulfuron-methyl and metabolites on cereals spring and winter (with FOCUS PEARL) - TIER 2 (PUF = 0.5) at BBCH 21

Crop	**Scenario**	**80th Percentile PEC$_{GW}$ at 1 m Soil Depth (⌠g L^{-1})** **TRIAZINE LABEL PATHWAY**							
		Metsulfuron-methyl	**IN-F5438**	**IN-V7160**	**IN-A4098**	**IN-B5067**	**IN-NC148**		

Winter Cereals 4.8 g a.s/ha	Châteaudun	0.02367	0.002855	0.001040	0.06498	0.01089	0.02645		
	Hamburg	0.08602	0.008661	0.003266	0.08380	0.03084	0.04517		
	Jokioinen	0.07248	0.005390	0.001746	0.07602	0.02489	0.03637		
	Kremsmünster	0.06484	0.01087	0.004223	0.07287	0.02880	0.05115		
	Okehampton	0.06805	0.01100	0.003517	0.06515	0.03024	0.03851		
	Piacenza	0.03999	0.006540	0.002795	0.06308	0.01824	0.03053		
	Porto	0.02244	0.002231	0.000608	0.04259	0.009782	0.01932		
	Sevilla	0.001433	<0.0001	<0.0001	0.002730	0.000443	0.000321		
	Thiva	0.003806	0.000219	0.000156	0.05042	0.001300	0.009848		
Crop	**Scenario**	**80th Percentile PEC$_{GW}$ at 1 m Soil Depth (µg L^{-1}) PHENYL LABEL PATHWAY**							
		Metsulfuron-methyl	**IN-F5438**	**IN-D5119**	**IN-00581**	**IN-B5067**	**IN-NC148**	**IN-B5685**	**IN-D5803**
Winter Cereals 4.8 g a.s/ha	Châteaudun	0.02354	0.002316	0.03399	0.01815	0.01139	0.03892	0.002933	0.000692
	Hamburg	0.08608	0.007090	0.08753	0.04436	0.03247	0.06514	0.008101	0.002934
	Jokioinen	0.07240	0.004411	0.1270	0.05523	0.02616	0.05583	0.007555	0.001619
	Kremsmünster	0.06485	0.009016	0.04987	0.02738	0.03027	0.05629	0.005593	0.001898
	Okehampton	0.06799	0.009093	0.05267	0.026430	0.03176	0.05194	0.005999	0.001993
	Piacenza	0.03996	0.005421	0.02972	0.01593	0.01921	0.04143	0.003500	0.001363
	Porto	0.02249	0.001774	0.03523	0.01491	0.01027	0.02861	0.002725	0.000362
	Sevilla	0.00144	<0.0001	0.005973	0.002718	0.000471	0.000703	0.000218	<0.0001
	Thiva	0.003796	0.000182	0.01183	0.006227	0.001393	0.01628	0.000527	<0.0001

Table 8.810: PEC$_{gw}$ for Metsulfuron-methyl and metabolites on winter cereals (with FOCUS PELMO 5.5.3) – TIER 1 (PUF = 0) at BBCH 21

Crop	**Scenario**	**80th Percentile PEC$_{GW}$ at 1 m Soil Depth (µg L^{-1}) TRIAZINE LABEL PATHWAY**							
		Metsulfuron-methyl	**IN-F5438**	**IN-V7160**	**IN-A4098**	**IN-B5067**	**IN-NC148**		
Winter Cereals 4.8 g a.s/ha	Châteaudun	0.031	0.004	0.002	0.176	0.012	0.021		
	Hamburg	0.100	0.012	0.005	0.250	0.035	0.039		
	Jokioinen	0.126	0.009	0.003	0.184	0.036	0.026		
	Kremsmünster	0.119	0.019	0.008	0.223	0.046	0.042		
	Okehampton	0.116	0.018	0.006	0.205	0.048	0.037		
	Piacenza	0.069	0.014	0.007	0.239	0.035	0.041		
	Porto	0.045	0.007	0.002	0.140	0.021	0.020		
	Sevilla	0.003	<0.001	<0.001	0.019	0.001	0.001		
	Thivia	0.004	<0.001	<0.001	0.069	0.001	0.003		
Crop	**Scenario**	**80th Percentile PEC$_{GW}$ at 1 m Soil Depth (µg L^{-1}) PHENYL LABEL PATHWAY**							
		Metsulfuron-methyl	**IN-F5438**	**IN-D5119**	**IN-00581**	**IN-B5067**	**IN-NC148**	**IN-B5685**	**IN-D5803**
	Châteaudun	0.028	0.004	0.029	0.046	0.012	0.026	0.003	0.001
	Hamburg	0.092	0.011	0.083	0.104	0.035	0.049	0.009	0.003

Winter Cereals 4.8 g a.s/ha	Jokioinen	0.117	0.009	0.117	0.122	0.036	0.033	0.010	0.002
	Kremsmünster	0.111	0.018	0.060	0.081	0.047	0.052	0.009	0.003
	Okehampton	0.110	0.018	0.056	0.064	0.039	0.047	0.008	0.003
	Piacenza	0.065	0.013	0.046	0.062	0.036	0.051	0.007	0.002
	Porto	0.042	0.007	0.035	0.043	0.021	0.025	0.005	0.001
	Sevilla	0.003	<0.001	0.009	0.011	0.001	0.001	0.001	<0.001
	Thivia	0.003	<0.001	0.009	0.014	0.001	0.003	0.001	<0.001

Table 8.811: PEC$_{gw}$ for Metsulfuron-methyl and metabolites on winter cereals (with FOCUS PELMO 5.5.3) – TIER 2 (PUF = 0.5) at BBCH 21

Crop	Scenario	80th Percentile PEC$_{GW}$ at 1 m Soil Depth (⌠g L^{-1}) TRIAZINE LABEL PATHWAY							
		Metsulfuron-methyl	IN-F5438	IN-V7160	IN-A4098	IN-B5067	IN-NC148		
Winter Cereals 4.8 g a.s/ha	Châteaudun	0.019	0.002	0.001	0.117	0.008	0.014		
	Hamburg	0.052	0.007	0.003	0.166	0.022	0.026		
	Jokioinen	0.077	0.005	0.002	0.124	0.023	0.018		
	Kremsmünster	0.072	0.012	0.005	0.158	0.032	0.030		
	Okehampton	0.073	0.012	0.004	0.151	0.032	0.028		
	Piaceza	0.045	0.009	0.004	0.171	0.024	0.029		
	Porto	0.030	0.005	0.002	0.103	0.015	0.014		
	Sevilla	0.001	<0.001	<0.001	0.011	<0.001	0.001		
	Thivia	0.002	<0.001	<0.001	0.042	0.001	0.002		
Crop	**Scenario**	**80th Percentile PEC$_{GW}$ at 1 m Soil Depth (⌠g L^{-1}) PHENYL LABEL PATHWAY**							
		Metsulfuron-methyl	**IN-F5438**	**IN-D5119**	**IN-00581**	**IN-B5067**	**IN-NC148**	**IN-B5685**	**IN-D5803**
Winter Cereals 4.8 g a.s/ha	Châteaudun	0.017	0.002	0.020	0.032	0.008	0.017	0.002	0.001
	Hamburg	0.049	0.006	0.055	0.073	0.023	0.032	0.006	0.002
	Jokioinen	0.072	0.005	0.083	0.087	0.023	0.023	0.007	0.001
	Kremsmünster	0.068	0.012	0.043	0.061	0.032	0.037	0.006	0.002
	Okehampton	0.069	0.011	0.042	0.047	0.033	0.035	0.006	0.002
	Piacenza	0.042	0.009	0.034	0.044	0.024	0.036	0.005	0.002
	Porto	0.028	0.005	0.025	0.029	0.015	0.018	0.003	0.001
	Sevilla	0.001	<0.001	0.005	0.006	<0.001	0.001	<0.001	<0.001
	Thivia	0.002	<0.001	0.006	0.009	0.001	0.002	<0.001	<0.001

Table 8.812: PEC$_{gw}$ for Metsulfuron-methyl and metabolites on cereals spring and winter (with FOCUS PEARL) - TIER 1 (PUF = 0) at BBCH 30

Crop	Scenario	80th Percentile PEC$_{GW}$ at 1 m Soil Depth (⌠g L^{-1}) TRIAZINE LABEL PATHWAY							
		Metsulfuron-methyl	IN-F5438	IN-V7160	IN-A4098	IN-B5067	IN-NC148		

Winter Cereals 6.1 g a.s/ha	Châteaudun	0.0103	0.0010	0.0004	0.0213	0.0041	0.0087		
	Hamburg	0.0449	0.0032	0.0014	0.0289	0.0125	0.0146		
	Jokioinen	0.0362	0.0020	0.0007	0.0223	0.0101	0.0103		
	Kremsmünster	0.0301	0.0041	0.0015	0.0244	0.0115	0.0130		
	Okehampton	0.0343	0.0041	0.0014	0.0229	0.0130	0.0125		
	Piacenza	0.0181	0.0026	0.0012	0.0233	0.0077	0.0111		
	Porto	0.0117	0.0011	0.0004	0.0149	0.0046	0.0047		
	Sevilla	0.0007	<0.0001	<0.0001	0.0010	0.0002	<0.0001		
	Thiva	0.0016	<0.0001	<0.0001	0.0170	0.0005	0.0033		
Crop	**Scenario**	**80th Percentile PEC$_{GW}$ at 1 m Soil Depth (⌠g L^{-1}) PHENYL LABEL PATHWAY**							
		Metsulfuron-methyl	**IN-F5438**	**IN-D5119**	**IN-00581**	**IN-B5067**	**IN-NC148**	**IN-B5685**	**IN-D5803**
Winter Cereals 6.1 g a.s/ha	Châteaudun	0.0103	0.0008	0.0103	0.0156	0.0043	0.0111	0.0010	0.0003
	Hamburg	0.0449	0.0027	0.0268	0.0337	0.0131	0.0189	0.0029	0.0014
	Jokioinen	0.0261	0.0016	0.0380	0.0418	0.0106	0.0133	0.0026	0.0007
	Kremsmünster	0.0300	0.0034	0.0153	0.0198	0.0120	0.0167	0.0020	0.0008
	Okehampton	0.0343	0.0034	0.0164	0.0191	0.0137	0.0161	0.00217	0.0009
	Piacenza	0.0180	0.0022	0.0099	0.0132	0.0081	0.0141	0.0014	0.0006
	Porto	0.0117	0.0009	0.0110	0.0131	0.0049	0.0089	0.0011	0.0002
	Sevilla	0.0007	<0.0001	0.0023	0.0033	0.0002	<0.0001	<0.0001	<0.0001
	Thiva	0.0016	<0.0001	0.0040	0.0067	0.0005	0.0042	0.0002	<0.0001

Table 8.813: PEC$_{gw}$ for Metsulfuron-methyl and metabolites on winter cereals (with FOCUS PELMO 5.5.3) – TIER 1 (PUF = 0) at BBCH 30

Crop	**Scenario**	**80th Percentile PEC$_{GW}$ at 1 m Soil Depth (⌠g L^{-1}) TRIAZINE LABEL PATHWAY**							
		Metsulfuron-methyl	**IN-F5438**	**IN-V7160**	**IN-A4098**	**IN-B5067**	**IN-NC148**		
Winter Cereals 6.1 g a.s/ha	Châteaudun	0.013	0.002	0.001	0.083	0.006	0.009		
	Hamburg	0.060	0.007	0.003	0.156	0.023	0.023		
	Jokioinen	0.089	0.006	0.002	0.087	0.019	0.013		
	Kremsmünster	0.092	0.015	0.005	0.166	0.037	0.032		
	Okehampton	0.075	0.013	0.005	0.171	0.032	0.032		
	Piacenza	0.024	0.004	0.002	0.125	0.011	0.016		
	Porto	0.021	0.002	0.000	0.075	0.008	0.009		
	Sevilla	0.001	<0.001	<0.001	0.004	0.000	0.000		
	Thivia	0.001	<0.001	<0.001	0.020	0.000	0.001		
Crop	**Scenario**	**80th Percentile PEC$_{GW}$ at 1 m Soil Depth (⌠g L^{-1}) PHENYL LABEL PATHWAY**							
		Metsulfuron-methyl	**IN-F5438**	**IN-D5119**	**IN-00581**	**IN-B5067**	**IN-NC148**	**IN-B5685**	**IN-D5803**
	Châteaudun	0.011	0.002	0.015	0.024	0.006	0.011	0.002	0.000
	Hamburg	0.056	0.006	0.053	0.068	0.023	0.029	0.006	0.002
	Jokioinen	0.083	0.005	0.057	0.056	0.019	0.017	0.006	0.001

Winter Cereals 6.1 g a.s/ha	Kremsmünster	0.086	0.014	0.043	0.055	0.037	0.040	0.006	0.002
	Okehampton	0.071	0.013	0.036	0.044	0.032	0.041	0.006	0.002
	Piacenza	0.022	0.004	0.025	0.036	0.011	0.021	0.003	0.001
	Porto	0.019	0.001	0.026	0.030	0.008	0.011	0.003	0.000
	Sevilla	0.001	<0.001	0.003	0.005	0.000	0.000	0.000	<0.001
	Thivia	0.001	<0.001	0.003	0.006	0.000	0.001	0.000	<0.001

zRMS comments:

Thifensulfuron-methyl
The PECgw calculations for thifensulfuron-methyl and its metabolites were accepted.
PECgw have been calculated for all crops according to the GAP using the models FOCUS PELMO 5.5.3., FOCUS PEARL 4.4.4.
Peer- reviewed endpoints for thifensulfuron-methyl and its metabolites have been presented in EFSA conclusion EFSA Journal 2015;13(7) :4201) were used in modelling.
Interception has been appropriate to the proposed BBCH of crops (EFSA guidance was published, (2014;12(5):3662).
EFSA Guidance (2014) recommends using geometric mean of Kfoc in modelling, however applicant was used arithmetic instead of geometric mean. However, there was no impact on the PECgw values.
PECgw values for thifensulfuron-methyl are below the trigger value of 0.1 µg/L(<0.0001 µg/L) for all degradation pathways for proposed GAP. PECgw values for IN-V716 0 metabolite are below the trigger value of 0.1 µg/L(<0.0001 µg/L) in PEARL and PELMO models.
The PECgw values for metabolites IN-L9225, IN-A4098, IN-JZ789, IN-L9223 and IN-W8268, IN-A5546, 2-acid-3-triuret are above the trigger value of 0.1 µg/L,and in some cases they exceed higher than the trigger value of 0.75 µg/L.
The assessment relevance of the metabolites in ground water according to SANCO/221/2000 –rev.10 document is reported in the dRR Part B10.

Metsulfuron-methyl
PECgw have been calculated for all crops according to the GAP using the models FOCUS PELMO 5.5.3., FOCUS PEARL 4.4.4.
In simulations PUF value of 0 was assumed for all compounds in TER 1 was in line with recommendations of the most recent version of the FOCUS Groundwater Guidance. Calculation in Tier 2 was PUF value 0.5 as was used in EFSA review.The input parameters used in calculations were taken from the endpoints available in the EFSA conclusion EFSA Journal o2015;13(1):3936. Interception is appropriate to the proposed BBCH of crops (guidance 2014).
The assessment relevance of the metabolites in ground water according to SANCO/221/2000 –rev.10 document is reported in the dRR Part B10.
Nevertheless, additional simulations may be required by the sMS that do not accept calculations performed using FOCUS models.

8.8.3 Predicted Environmental Concentrations in surface water (PECsw) (KCP 9.2.5)

8.8.4 Justification for new endpoints

All endpoints used for PEC surface water calculations are EU approved and were evaluated on EU level and presented in:

- **Thifensulfuron-methyl** – EFSA Journal 2015;13(7):4201
- Metsulfuron-methyl - EFSA Journal 2015;13(1):3936

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

Table 8.814: Input parameters related to application for $PEC_{SW/SED}$ calculations

Plant protection product	TOTO 75 SG	TOTO 75 SG
Use No.		
Crop	winter cereals	winter cereals
Application rate (kg as/ha)	Thifensulfuron-methyl: 0.0477 Metsulfuron-methyl: 0.0048	Thifensulfuron-methyl: 0.0614 Metsulfuron-methyl: 0.0061
Number of applications/interval (d)	1/-	1/-
Application window	March-May(relevant for STEP 1 and 2 only)	March-May(relevant for STEP 1 and 2 only)
Application method	boom sprayer	boom sprayer
CAM (Chemical application method)	-	-
Soil depth (cm)		
Models used for calculation	FOCUS SWASH v3.1, FOCUS PRZM v3.3.1, FOCUS MACRO v5.5.3, FOCUS TOXWA v3.3.1	FOCUS SWASH v3.1, FOCUS PRZM v3.3.1, FOCUS MACRO v5.5.3, FOCUS TOXWA v3.3.1

Table 8.815: FOCUS Step 3 Scenario related input parameters for $PEC_{sw/sed}$ calculations for the application of TOTO 75 SG

Crop	Scenario	Application window used in modelling
Winter cereals BBCH 21-29	D3	7 April – 7 May
	D4	9 March – 8 April
	D5	6 March – 5 April
	R1	15 April – 15 May
	R3	10 March – 9 April
	R4	1 January – 31 January
Winter cereals BBCH 30-31	D3	16 April – 16 May
	D4	18 March – 17 April
	D5	15 March – 14 April
	R1	24 April – 24 May
	R3	19 March – 18 April
	R4	24 January – 23 February

8.8.5.1 Thifensulfuron-methyl and its metabolites

Table 8.816: Input parameters related to active substance thifensulfuron-methyl and metabolite(s) for $PEC_{sw/sed}$ calculations STEP 1/2 and 3(/4) (if necessary)

Compound	Thifensulfuon-methyl	IN-L9223, IN-L9225, IN-L9226, IN-A5546, INV7160, IN-W8268, IN-A4098, IN-JZ789, INB5528, 2-acid-3-triuret and IN-D8858	**Value in accordance to EU endpoint y/n/ Reference**
Molecular weight (g/mol)	387.4	387.4* (parent value used as default)	EFSA Journal 2015;13(7):4201
Saturated vapour pressure (Pa)	5.2 E-9Pa	5.2 E-9Pa	EFSA Journal 2015;13(7):4201
Diffusion coefficient in water (m²/d)	4.3×10^{-5}	not required for Step 1+2	default
Diffusion coefficient in air (m²/d)	0.43	not required for Step 1+2	default
Water solubility (mg/L)	2240	1000	EFSA Journal 2015;13(7):4201
KOC	9	0 (worst case)	EFSA Journal 2015;13(7):4201
Plant Uptake	0	not required for Step 1+2	default
Wash-Off factor from Crop (1/mm)	0.05 (MACRO) 0.50 (PRZM)	not required for Step 1+2/	default
$DT_{50,soil}$ (d)	1.39 d	1000 d	EFSA Journal 2015;13(7):4201
$DT_{50,water}$ (d)	22.8 d	1000 d	EFSA Journal 2015;13(7):4201
$DT_{50,sed}$ (d)	1000 d	1000 d	
$DT_{50,whole\ system}$ (d)	22.8 (STEP 1-2)	1000 d	
Maximum occurrence observed (% molar basis with respect to the parent)		Maximum occurrence observed in soil: 100 % (worst case) Water:100% (worst case) Sediment:100% (worst case)	EFSA Journal 2015;13(7):4201

$PEC_{sw/sed}$

Table 8.817: FOCUS Step 1,2 and 3,4 PEC_{sw} and PEC_{sed} for thifensulfuron-methyl following single application of TOTO 75 SG to winter cereals at BBCH 21

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	21 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Step 1	---	16.15	drainage/run off	11.93	1.41
Step 2					
Northern Europe	March-May	0.81	drianage/run off	0.60	0.07
Step 3					
D3	ditch	0.3019	drainage	0.01364	0.02549
D4	pond	0.01048	drainage	0.00888	0.005644
D4	stream	0.2235	drainage	0.0004	0.003874
D5	pond	0.01048	drainage	0.008794	0.005440
D5	stream	0.2389	drainage	0.000398	0.003851
R1	pond	0.01048	run off	0.008856	0.006269
R1	stream	0.2270	run off	0.007659	0.01691
R3	stream	0.2984	run off	0.01165	0.02444
R4	stream	0.1973	run off	0.001355	0.007370
Step 4 – 20 meters vegetative buffer zone and 20 meters no-spray buffer zone					
D3	Ditch	0.02267	drainage	0.001024	0.002010
D4	pond	0.004291	drainage	0.003839	0.002363
D4	stream	0.02238	drainage	0.000041	0.00040
D5	pond	0.004292	drainage	0.0036	0.002277
D5	stream	0.02392	drainage	0.000040	0.000398
R1	pond	0.004292	run off	0.003560	0.002365
R1	stream	0.04720	run off	0.001509	0.003514
R3	stream	0.07032	run off	0.002243	0.005752
R4	stream	0.01976	run off	0.000136	0.000769
Step 4 – 20 meters vegetative buffer zone and 30 meters no-spray buffer zone using VFS mode					
D3	ditch	0.01544	drainage	0.000697	0.001380
D4	pond	0.003293	drainage	0.002790	0.001826
D4	stream	0.01529	drainage	0.000028	0.004968
D5	pond	0.003294	drainage	0.002763	0.001759
D5	stream	0.01634	drainage	0.000027	0.000274
R1	pond	0.003294	run off	0.002684	0.001632
R1	Stream	0.01362	run off	0.000120	0.000601

R3	stream	0.01914	run off	0.000255	0.001004
R4	stream	0.01349	run off	0.000093	0.000529

* single applications should be marked.
** twa-time as required by ecotox

Table 8.818: FOCUS Step 1,2 and 3, 4 PEC$_{sw}$ and PEC$_{sed}$ for thifensulfuron-methyl following single application of TOTO 75 SG to winter cereals at BBCH 30

Scenario FOCUS	Waterbody	Max PEC$_{sw}$ (µg/L)*	Dominant entry route	21 d- PEC$_{sw,twa}$ (µg/L)**	Max PEC$_{sed}$ (µg/kg)*
Step 1	---	20.79	drainage/run off	15.36	1.82
Step 2			drianage/run off		
Northern Europe	March-May	0.94	drainage/run off	0.69	0.08
Step 3					
D3	Ditch	0.3890	drainage	0.01924	0.03414
D4	pond	0.01347	drainage	0.01142	0.007212
D4	stream	0.2877	drainage	0.000521	0.004968
D5	pond	0.01347	drainage	0.01131	0.006988
D5	stream	0.3107	drainage	0.000553	0.005252
R1	pond	0.01347	run off	0.01139	0.008015
R1	stream	0.2926	run off	0.009864	0.02169
R3	stream	0.3602	run off	0.006815	0.01791
R4	stream	0.2575	run off	0.002572	0.01153
Step 4 – 20 meters vegetative buffer zone and 20 meters no-spray buffer zone					
D3	ditch	0.02893	drainage	0.001431	0.002666
D4	pond	0.005588	drainage	0.004736	0.003058
D4	stream	0.02893	drainage	0.000052	0.000516
D5	pond	0.005589	drainage	0.004714	0.002959
D5	stream	0.03125	drainage	0.000056	0.000545
R1	pond	0.005589	run off	0.004636	0.003057
R1	stream	0.06083	run off	0.001943	0.004507
R3	stream	0.03622	run off	0.001652	0.004175
R4	stream	0.02590	run off	0.000259	0.001209
Step 4 – 20 meters vegetative buffer zone and 30 meters no-spray buffer zone using VFS mode					
D3	Ditch	0.01973	drainage	0.000976	0.001832
D4	pond	0.004291	drainage	0.003636	0.002364
D4	stream	0.01965	drainage	0.000036	0.000352
D5	pond	0.004292	drainage	0.003619	0.002287

D5	stream	0.02122	drainage	0.000038	0.000372
R1	pond	0.004292	run off	0.003497	0.002113
R1	stream	0.01752	run off	0.000154	0.000769
R3	stream	0.02460	run off	0.000328	0.001285
R4	stream	0.01759	run off	0.000176	0.000827
Step 4 – 20 meters vegetative buffer zone and 35 meters no-spray buffer zone using VFS mode					
R3	Stream	0.02119	drainage	0.000283	0.001109

Metabolite(s) of thifensulfuron-methyl

Table 8.819: FOCUS Step 1, 2 PEC_{sw} and PEC_{sed} for IN-L9223, IN-L9225, IN-L9226, IN-A5546, IN-V7160, IN-W8268, IN-A4098, IN-JZ789, IN-B5528, IN-D8858 , 2-acid-3-tiiuret following single application(s) to winter cereals at BBCH 21

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominat entry route	21 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Step 1	---	32.24	drainage/run off	32.01	0.00
Step 2			drainage/run off		
Northern Europe	March-May	4.04	drainage/run off	4.01	0.00

* single applications should be marked.
** twa-time as required by ecotox

Table 8.820: FOCUS Step 1, 2 PEC_{sw} and PEC_{sed} for IN-L9223, IN-L9225, IN-L9226, IN-A5546, IN-V7160, IN-W8268, IN-A4098, IN-JZ789, IN-B5528, IN-D8858 , 2-acid-3-tiiuret following single application(s) to winter cereals at BBCH 30

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominat entry route	21 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Step 1	---	41.50	drainage/run off	41.20	0.00
Step 2			drainage/run off		
Northern Europe	March-May	4.27	drainage/run off	4.24	0.00

* single applications should be marked.
** twa-time as required by ecotox

8.8.5.2 Metsulfuron-methyl and its metabolites

Table 8.821: Input parameters related to active substance Metsulfuron-methyl and metabolite(s) for $PEC_{sw/sed}$ calculations STEP 1/2 and 3(/4) (if necessary)

Compound	Metsulfuron-methyl	IN-A4098	IN-00581	IN-D5803	IN-NC148	IN-B5067	IN-F5438	IN-V7160	IN-JX909	Value in accordance to EU endpoint y/n/ Reference
Molecular weight (g/mol)	381.36	140.1	183.19	215.22	343.32	367.34	367.34	183.20	353.3	EFSA Journal 2015;13(1):3936
Saturated vapour pressure (Pa)	3.3 x 10^{-10}	Not required for step 1-2	Not required for step 1-2	Not required for step 1-2	Not required for step 1-2	Not required for step 1-2	Not required for step 1-2	Not required for step 1-2	Not required for step 1-2	Default
Diffusion coefficient in water (m^2/d)	4.3 x 10^{-5}	not required for Step 1+2/	not required for Step 1+2	not required for Step 1+2	Not required for step 1-2	Not required for step 1-2	Not required for step 1-2	Not required for step 1-2	Not required for step 1-2	Default
Diffusion coefficient in air (m^2/d)	0.43	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	Not required for step 1-2	Not required for step 1-2	Not required for step 1-2	Not required for step 1-2	Not required for step 1-2	Default
Water solubility (mg/L)	2790	456	2790	2790	2790	2790	2790	2790	2790	EFSA Journal 2015;13(1):3936
K_{foc} (mL/g)	12	46	8.33	25.9	55.7	29.5	9.8	113.3	0	EFSA Journal 2015;13(1):3936
Plant Uptake	0.5	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	default
Wash-Off factor from Crop (1/mm)	0.05 (MACRO) 0.50 (PRZM)	not required for Step 1+2/	not required for Step 1+2/	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	not required for Step 1+2	default
$DT_{50,soil}$ (d)	23.2	116.49	16.56	3d	59.6	21.4	25.9	21.2	1000d	EFSA Journal 2015;13(1):3936
$DT_{50,water}$ (d)	167	167d	1000d	1000d	1000d	1000d	1000d	1000d	1000d	EFSA Journal 2015;13(1):3936
$DT_{50,sed}$ (d)	1000	1000 d	1000d	1000d	1000d	1000d	1000d	1000d	1000d	

$DT_{50,whole\ system}$ (d)	224	1000d	1000d	1000d	1000d	1000d	1000d	1000d	1000d	
Maximum occurrence observed (% molar basis with respect to the parent)	-	Maximum % in water/sediment: 74.6	Maximum occurrence observed Total Water and Sediment: -	Maximum % in water/sediment: 3.0	Maximum % in water/sediment: -	Maximum % in water/sediment: 7.0	Maximum % in water/sediment: 18.9	Maximum % in water/sediment: -	Maximum % in water/sediment: 10.9	EFSA Journal 2015;13(1):3936

$PEC_{sw/sed}$

Table 8.822: FOCUS Step 1,2 and 3, 4 PECsw and PECsed for active substance Metsulfuron-methyl following single of product to winter cereals at BBCH 21

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Step 1	---	1.62	runoff/drainage	1.57	0.19
Step 2			runoff/drainage		
Northern Europe	March-May	0.32	runoff/drainage	0.31	0.04
Step 3 Winter Cereals					
D3	Ditch	0.04096	drainage	0.01211	0.01251
D4	pond	0.02401	drainage	0.02381	0.02429
D4	stream	0.03146	drainage	0.01100	0.009681
D5	pond	0.005069	drainage	0.004929	0.004598
D5	stream	0.02549	drainage	0.001895	0.001815
R1	pond	0.001361	drainage	0.001239	0.00092
R1	stream	0.04461	runoff	0.001323	0.003161
R3	stream	0.04386	runoff	0.001538	0.003434
R4	stream	0.01976	runoff	0.000136	0.000719
Step 4 – 20 meters vegetative buffer zone and 20 meters no-spray buffer zone					
D3	Ditch	0.01303	drainage	0.01084	0.01250
D4	pond	0.02396	drainage	0.02376	0.02417
D4	stream	0.01252	drainage	0.01100	0.009681
D5	pond	0.004371	drainage	0.004288	0.004470
D5	stream	0.003896	drainage	0.001873	0.001476
R1	pond	0.000418	run off	0.000383	0.000293

R1	stream	0.009276	run off	0.000279	0.000650
R3	stream	0.01034	run off	0.000311	0.000802
R4	stream	0.001928	run off	0.000013	0.000071
Step 4 – 20 meters vegetative buffer zone and 30 meters no-spray buffer zone using VFS mode					
D3	Ditch	0.01237	drainage	0.01081	0.01250
D4	pond	0.02395	drainage	0.02375	0.02415
D4	stream	0.01252	drainage	0.01100	0.009680
D5	pond	0.004271	drainage	0.004196	0.004452
D5	stream	0.003313	drainage	0.001895	0.001467
R1	pond	0.000299	run off	0.000271	0.000177
R1	stream	0.001460	run off	0.000013	0.000006
R3	stream	0.002050	run off	0.000027	0.000102
R4	Stream	0.001446	Ru off	0.000010	0.000053

Table 8.823: FOCUS Step 1,2 PECsw and PECsed for active substance Metsulfuron-methyl following single of product to winter cereals at BBCH 30

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Step 1	---	2.06	runoff/drainage	1.99	0.25
Step 2			runoff/drainage		
Northern Europe	March-May	0.34	runoff/drainage	0.32	0.04
Step 3 Winter Cereals					
D3	Ditch	0.05363	drainage	0.01677	0.01754
D4	pond	0.03088	drainage	0.03062	0.03123
D4	stream	0.04048	drainage	0.01412	0.01246
D5	pond	0.006265	drainage	0.006054	0.006059
D5	stream	0.03278	drainage	0.002420	0.002365
R1	pond	0.001652	drainage	0.001505	0.001111
R1	stream	0.05670	runoff	0.001681	0.004013
R3	stream	0.03588	runoff	0.001520	0.003672
R4	Stream	0.02566	runoff	0.000370	0.001124
Step 4 – 20 meters vegetative buffer zone and 20 meters no-spray buffer zone					
D3	Ditch	0.01780	drainage	0.01499	0.01725
D4	pond	0.03083	drainage	0.03058	0.03111
D4	stream	0.01604	drainage	0.01412	0.01246

D5	pond	0.005566	drainage	0.005582	0.005911
D5	stream	0.005068	drainage	0.002420	0.001907
R1	pond	0.000603	run off	0.000559	0.000425
R1	stream	0.01179	run off	0.000355	0.000826
R3	stream	0.007958	run off	0.000369	0.000865
R4	stream	0.002688	run off	0.0000088	0.000230
Step 4 – 20 meters vegetative buffer zone and 30 meters no-spray buffer zone using VFS mode					
D3	Ditch	0.01681	drainage	0.01494	0.01725
D4	pond	0.03082	drainage	0.03056	0.03107
D4	stream	0.01604	drainage	0.01412	0.01246
D5	pond	0.005695	drainage	0.005562	0.002287
D5	stream	0.003889	drainage	0.002420	0.001888
R1	pond	0.000399	run off	0.000361	0.000236
R1	stream	0.001703	run off	0.000015	0.000071
R3	stream	0.002392	run off	0.000032	0.000118
R4	Stream	0.001710	Run off	0.000017	0.000076

Metabolite(s) of Metsulfuron-methyl

Table 8.824: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-A4098 following single application(s) to cereals at BBCH 21

Scenario **FOCUS**	**Waterbody**	**Max PEC_{sw} (µg/L)***	**Dominant entry route**	**7 d- $PEC_{sw,twa}$ (µg/L)****	**Max PEC_{sed} (µg/kg)***
Winter/Spring Cereals					
Step 1	---	0.66	runoff/drainage	0.65	0.30
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.13	runoff/drainage	0.12	0.06

Table 8.825: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-00581 following single application(s) to cereals at BBCH 21

Scenario **FOCUS**	**Waterbody**	**Max PEC_{sw} (µg/L)***	**Dominant entry route**	**7 d- $PEC_{sw,twa}$ (µg/L)****	**Max PEC_{sed} (µg/kg)***
Winter/Spring Cereals					
Step 1	---	0.07	runoff/drainage	0.07	0.01

Step 2	---		runoff/drainage		
Northern Europe	March-May	0.01	runoff/drainage	0.01	0.00

Table 8.826: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-D5803 following single application(s) to cereals at BBCH 21

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Winter/Spring Cereals					
Step 1	---	0.45	runoff/drainage	0.45	0.12
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.04	runoff/drainage	0.04	0.01

Table 8.827: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-NC148 following single application(s) to cereals at BBCH 21

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Winter/Spring Cereals					
Step 1	---	0.31	runoff/drainage	0.31	0.17
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.06	runoff/drainage	0.06	0.03

Table 8.828: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-B5067 following single application(s) to cereals at BBCH 21

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Winter/Spring Cereals					
Step 1	---	0.35	runoff/drainage	0.34	0.10
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.06	runoff/drainage	0.06	0.02

Table 8.829: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-F5438 following single application(s) to cereals at BBCH 21

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Winter/Spring Cereals					
Step 1	---	0.53	runoff/drainage	0.53	0.05
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.10	runoff/drainage	0.10	0.01

Table 8.830: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-V7160 following single application(s) to cereals at BBCH 21

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Winter/Spring Cereals					
Step 1	---	0.09	runoff/drainage	0.08	0.10
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.02	runoff/drainage	0.01	0.02

Table 8.831: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-JX909 following single application(s) to cereals at BBCH 21

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Winter/Spring Cereals					
Step 1	---	0.17	runoff/drainage	0.16	0.00
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.03	runoff/drainage	0.03	0.00

Table 8.832: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-A4098 following single application(s) to cereals at BBCH 30

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Winter/Spring Cereals					
Step 1	---	0.84	runoff/drainage	0.83	0.38
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.13	runoff/drainage	0.13	0.06

Table 8.833: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-00581 following single application(s) to cereals at BBCH 30

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Winter/Spring Cereals					
Step 1	---	0.08	runoff/drainage	0.08	0.01
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.01	runoff/drainage	0.01	0.00

Table 8.834: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-D5803 following single application(s) to cereals at BBCH 30

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Winter/Spring Cereals					
Step 1	---	0.57	runoff/drainage	0.57	0.15
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.04	runoff/drainage	0.04	0.01

Table 8.835: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-NC148 following single application(s) to cereals at BBCH 30

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Winter/Spring Cereals					
Step 1	---	0.39	runoff/drainage	0.39	0.22
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.06	runoff/drainage	0.06	0.03

Table 8.836: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-B5067 following single application(s) to cereals at BBCH 30

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Winter/Spring Cereals					
Step 1	---	0.44	runoff/drainage	0.44	0.13
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.07	runoff/drainage	0.07	0.02

Table 8.837: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-F5438 following single application(s) to cereals at BBCH 30

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Winter/Spring Cereals					
Step 1	---	0.68	runoff/drainage	0.68	0.07
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.11	runoff/drainage	0.11	0.01

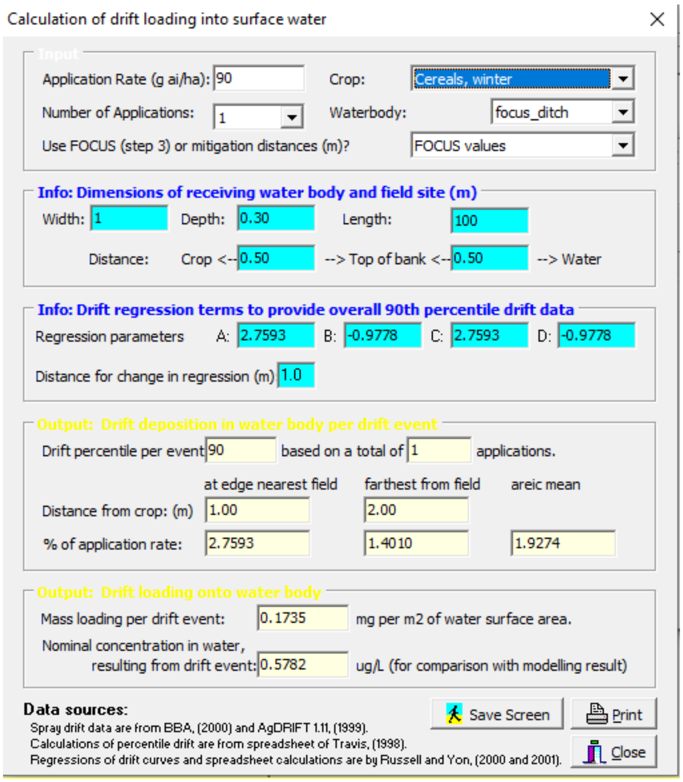
Table 8.838: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-V7160 following single application(s) to cereals at BBCH 30

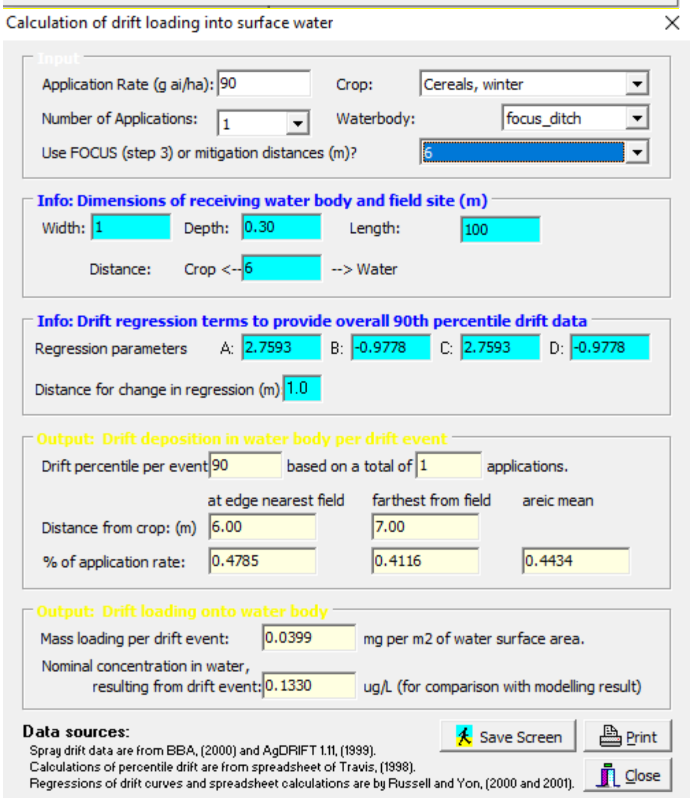
Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Winter/Spring Cereals					
Step 1	---	0.11	runoff/drainage	0.11	0.12
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.02	runoff/drainage	0.02	0.02

Table 8.839: FOCUS Step 1,2 PEC_{sw} and PEC_{sed} for IN-JX909 following single application(s) to cereals at BBCH 30

Scenario FOCUS	Waterbody	Max PEC_{sw} (µg/L)*	Dominant entry route	7 d- $PEC_{sw,twa}$ (µg/L)**	Max PEC_{sed} (µg/kg)*
Winter/Spring Cereals					
Step 1	---	0.21	runoff/drainage	0.21	0.00
Step 2	---		runoff/drainage		
Northern Europe	March-May	0.03	runoff/drainage	0.03	0.00

8.8.5.3 PEC$_{sw/sed}$ of TOTO 75 SG





zRMS comments:

Tifensulfuron-methyl
Evaluator agree with Applicant calculations of PECsw/sed.
Predicted environmental concentrations of active substance in surface water (PECsw) and sediment (PECsed) were calculated using the simulation models FOCUS.
Applicant used endpoints in accordance EFSA endpoints (Journal 2015; 13(7):4201) or Applicant has used specific worst-case parameters for calculations PECsw however, this will not have a significant impact on risk assessment. This modelling report presents an assessment to obtain predicted environmental concentrations in surface water (PECsw) and sediment (PECsed) of active substance thifensulfuron-methyl. The PECsw/sed calculated in Step 4 was accepted.

Metsulfuron -methyl
The PECsw/sed of metsulfuron-methyl and its metabolites IN-A4098, IN-00581, IN-D5803, IN-NC148, IN-B5067, IN-F5438, IN-V7160 and IN-JX909 in surface water (PEC_{SW} and PEC_{SED}) has been assessed with the FOCUS surface water models. All used endpoints were agreed at the EU level except endpoints for metsulfuron –methyl and its metabolites were used in accordance EFSA endpoints (Journal 2015; 13(7):4201. Maximum PECsw and PECsed values for metabolites IN-A4098, IN-00581, IN-D5803, IN-NC148, IN-B5067, IN-F5438, IN-V7160 and IN-JX909 at FOCUS Steps 1 and 2 for each crop group are shown in Tables 8.9-13 to 8.9-20.
The PECsw/sed calculations in Step 3 and 4 were accepted. For proposed pattern use in cereals PECsw/sed for mitigation measures can be proposed max vegetative buffer zone 20m.

All relevant metabolites were taken into consideration; PECsw/sed assessment was done in Step 1 & 2.
The PEC_{SW} values for active substances and its metabolites will be used for further risk assessment.

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

Table 8.91 Summary of atmospheric degradation and behaviour

Compound	Thifensulfuron-methyl
Direct photolysis in air	Not studied - no data requested
Quantum yield of direct phototransformation	Not studied - no data requested
Photochemical oxidative degradation in air	DT50 of 3.5 days derived by the Atkinson model (version 1.92). OH (12 h) concentration assumed = 1.5E6 OH/cm^3
Volatilisation	Not studied
Metabolites	None

The vapour pressure at 20 °C of the active substance thifensufluron-methyl is < 10^5 Pa. Hence the active substance thifensufluron-methyl is regarded as non-volatile. Therefore exposure of adjacent surface waters and terrestrial ecosystems by the active substance thifensufluron-methyl due to volatilization wasn't considered.

Table 8.92 Summary of atmospheric degradation and behaviour

Compound	Metsulfuron-methyl EFSA Journal 2015;13(1):3936
Direct photolysis in air	Not important degradation mechanism.
Quantum yield of direct phototransformation	No measurable photodegradation in water. Very slight absorption occurs at λ >290 nm. At 290 nm very slight absorption due to the large peak at 234 nm

Photochemical oxidative degradation in air	The half–life of Metsulfuron-methyl for reaction with average daily air concentrations of hydroxyl radicals (12-hr day; 1.5 × 106 OH radicals/cm3) is 49.793 hours.
Volatilisation	from plant surfaces (BBA guideline) from soil surfaces (BBA guideline)
Metabolites	None

The vapour pressure at 20 °C of the Metsulfuron-methyl is 3.3 E-10 Pa. Metsulfuron-methyl is regarded as low-volatile (volatilisation from soil and from plant surface Therefore exposure of adjacent surface waters and terrestrial ecosystems by the Metsulfuron-methyl due to volatilization with subsequent deposition is not considered.

ZRMS comments:

The submitted by Applicant data in dRR were accepted.

Appendix 1 Lists of data considered in support of the evaluation

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 9.1.3	K. Florynski	2021	TOTO 75 SG 114 OD Predicted environmental concentration of terbuthylazine and its metabolites in soil, ground water and surface water. PUH Chemirol Sp. z o.o. Study code: TERBU-B8 Non GLP Unpublished	N	Chemirol
KCP 9.2.4	K. Florynski	2021	TOTO 75 SG 114 OD Predicted environmental concentration of terbuthylazine and its metabolites in soil, ground water and surface water. PUH Chemirol Sp. z o.o. Study code: TERBU-B8 Non GLP Unpublished	N	Chemirol
KCP 9.2.5	K. Florynski	2021	TOTO 75 SG 114 OD Predicted environmental concentration of terbuthylazine and its metabolites in soil, ground water and surface water. PUH Chemirol Sp. z o.o. Study code: TERBU-B8 Non GLP Unpublished	N	Chemirol

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 9.1.1/01	Simmonds, M.	2012 a	[14C]-Thifensulfuron-Methyl: Route and Rate of Degradation in Four Soils at 20ºC Battelle UK Ltd. Report No.: WB/10/004 Cheminova A/S Report No.: 283 TIM GLP, Unpublished	N	Taskforce
KCP 9.1.1/02	Hawkins D.R., Elsom L.F., Kane T.J.	1991	Anaerobic Soil Metabolism of 14C-triazine-2-labelled-DPXM6316. DuPont report n° AMR 1349-88. Huntingdon Research Centre Ltd., Huntingdon, Cambridgeshire, U.K. GLP: No Published: No	N	DuPont
KCP 9.1.1/03	Simmonds, R	2011 a	[14C]-Thifensulfuron-methyl: Anaerobic degradation in soil Battelle UK Ltd. Report No.: WB/10/005 Cheminova A/S Report No.: 244 TIM GLP, Unpublished	N	TaskForce
KCP 9.1.1/04	Ferguson, E. M.	1986	Photodegradation of [Thiophene-2- 14C]DPX-M6316 and [Triazine-2- 14C]DPX-M6316 on Soil. DuPont report n° AMR 505-86 DuPont de Nemours, Agricultural Products Research Division Experimental Station Wilmington, Delaware, U.S.A. GLP: No Published: No	N	DuPont
KCP 9.1.1/05	McLaughlin , S.P	2011	Photodegradation of [14C]DPXM6316 on Soil Smithers Viscient DuPont-30224 GLP: Yes Published: No	N	DuPont
KCP 9.1.1/06	Simmonds, R.	2012	[14C]-Thifensulfuron-methyl: Soil Photolysis Battelle UK Ltd. Report No.: WB/10/006 Cheminova A/S Report No.: 245 TIM amendment 1 GLP, Unpublished	N	Taskforce
KCP 9.1.1/07	Allen, R.	1987	DPX-M6316 Aerobic Degradation in Soil DuPont report n° 5518-269/18 Hazleton, UK GLP: Yes Published: No	N	DuPont
KCP 9.1.1/08	Rhodes, B. C.	1986	Aerobic Soil Metabolism of [2 14C] 4 Methoxy-6-methyl-1,3,5-triazine- 2-amine. DuPont report n° AMR 408-85 Du Pont de Nemours, Agricultural Chemicals Department, Research Division Experimental Station Wilmington, Delaware, U.S.A. GLP: No Published: No	N	DuPont
KCP 9.1.1/09	Manjunath a, S.	2000	Rates of degradation of IN-L9225 and IN-L9226 (metabolites of Thifensulfuron-methyl) in three aerobic soils DuPont Report No.: DuPont-2326 GLP: Yes Published: No	N	DuPont
KCP 9.1.1/10	Fang, C.	2000	Rates of degradation of IN-W8268, a metabolite of Thifensulfuronmethyl, in three aerobic soils DuPont Report No.: DuPont-3039 GLP: Yes Published: No	N	DuPont

KCP 9.1.1/11	Jagtap, S.	2011	Soil degradation of Thifensulfuronmethyl - kinetic calculations following FOCUS kinetics guidelines Simulogic Environmental Consulting Pvt. Ltd. DuPont-18742 EU, Revision No. 1, Supplement No. 1 GLP: No Published: No	N	DuPont
KCP 9.1.1/12	Simmonds, M.	2012 a	[14C]-Thifensulfuron-Methyl: Route and Rate of Degradation in Four Soils at 20ºC Battelle UK Ltd. Report No.: WB/10/004 Cheminova A/S Report No.: 283 TIM GLP, Unpublished	N	TaskForce
KCP 9.1.1/13	Ford, S.	2012	Thifensulfuron-methyl: Calculation of Kinetic Endpoints for Modelling Purposes from a Study on Four Laboratory Soils JSC International Limited Report No.: RCH/02/02/KIN1 GLP No, Unpublished	N	TaskForce
KCP 9.1.1/14	Bell, S.	2011	Rate of degradation of [14C]-INA5546 in five aerobic soils Charles River Laboratories (UK) Dupont-29146 GLP: Yes Published: No	N	DuPont
KCP 9.1.1/15	Jungmann, V., Nicollier, G.	2006	Rate of degradation of [triazinyl-6- 14C]-labelled CGA 150829 (metabolite of CGA 152005) in various soils under aerobic laboratory conditions at 20 deg. C Syngenta Crop Protection SYN T001214-06 (Study No.12) GLP: Yes Published: No	N	DuPont
KCP 9.1.1/16	Möndel, M.	2001	Degradation and metabolism of AE F059411 in one soil under standard conditionsStaatliche Lehr - und Forschungsanstalt fur Landwirtschaft, Weinbau und Gartenbau (SLFA) Aventis AGR15 (M-202633-01-1) GLP: Yes Published: No	N	DuPont
KCP 9.1.1/17	Brice, A., Gilbert, J.	2011 b	Thifensulfonamide: Aerobic soil degradation. + Amendment 1 Covance Laboratories Ltd. Report No.: 8235715 Cheminova A/S Report No.: 199 TIM GLP, Unpublished	N	TaskForce
KCP 9.1.1/18	Tunink, A.	2009	14C-IN-V7160: Rate of degradation in five soils ABC Laboratories, Inc. (Missouri) DuPont-27641, Revision No. 1 GLP: Yes Published: No	N	DuPont
KCP 9.1.1/19	Knoch, E.	2012 c	Aerobic Soil Degradation of ODesmethyl Thifensulfuron-methyl SGS Institute Fresenius GmbH Report No.: IF-11-02083022 Cheminova A/S Report No.: 299 TIM GLP, Unpublished	N	TaskForce
KCP 9.1.1/20	Knoch, E.	2012 d	Aerobic Soil Degradation of Thiophene sulfonimide SGS Institute Fresenius GmbH Report No.: IF-11-02039256 Cheminova A/S Report No.: 297 TIM GLP, Unpublished	N	TaskForce
KCP 9.1.2/01	Morlock, G.	2006 a	Degradation of 2-amino-4- methoxy-6-methyl-1,3,5-triazine (MM-TA) in 3 different soils under aerobic conditions at 20°C in the dark GAB Biotechnologie GmbH & GAB Analytik GmbH Report No. 20051104/01-CABJ Cheminova A/S Report No.: 189 MEM GLP, Unpublished	N	TaskForce

KCP 9.1.2/02	Bell, S.	2011	Absorption/desorption of [14C]- DPX-M6316 (Thifensulfuronmethyl) via batch equilibrium method Charles River Laboratories (UK) DuPont-30563 GLP: Yes Published: No	N	DuPont
KCP 9.1.2/03	Simmonds, M., Burgess, M.	2012	[14C]-Thifensulfuron-methyl: Adsorption to and desorption from four soil Battelle UK Ltd. Report No.: WB/10/007 Cheminova A/S Report No.: 259 TIM GLP, Unpublished	N	TaskForce
KCP 9.1.2/04	Morlock, G.·	2006 b	Determination of the adsorption/desorption behaviour of 2-amino-4-methoxy-6-methyl-1,3,5-triazine (MM-TA) in three different soils GAB Biotechnologie GmbH & GAB Analytik GmbH Report No. 20051104/01-PCAD Cheminova A/S Report No.: 212 MEM GLP, Unpublished	N	TaskForce
KCP 9.1.2/05	Brice, A., Gilbert, J.	2011 c	2-Acid-3-sulfonamide: Adsorption/ desorption Study in three soils + Amendment 1 Covance Laboratories Ltd. Report No.: 8235718 Cheminova A/S Report No.: 202 TIM GLP, Unpublished	N	TaskForce
KCP 9.1.2/06	Cleland, H., Andrews, S.	2011	Adsorption/desorption of [14C]-INL9223 via batch equilibrium method Charles River Laboratories (UK) DuPont-30424 GLP: Yes Published: No	N	DuPont
KCP 9.1.2/07	Moseley, R.	2011	Thifensulfonamide: Estimation of soil adsorption coefficient (KOC) using high performance liquid chromatography (HPLC) Covance Laboratories Ltd. Report No.: 8235716 Cheminova A/S Report No.: 200 TIM GLP, Unpublished	N	TaskForce
KCP 9.1.2/08	Elliott, T	2009	14C-IN-V7160: Batch equilibrium (adsorption/desorption) in five soils ABC Laboratories, Inc. (Missouri) DuPont-27638 GLP: Yes Published: No	N	DuPont
KCP 9.1.2/09	Knoch, E.	2012 f	Adsorption of Thifensulfuron acid on Soils SGS Institute Fresenius GmbH Report No.: IF-12-02135828 Cheminova A/S Report No.: 305 TIM GLP, Unpublished	N	TaskForce
KCP 9.1.2/10	Hein, W.	2001	Adsorption/desorption of AE F059411-[2- 14C] on one soil Staatliche Lehr- und Forschungsanstalt fur Landwirtschaft, Weinbau und Gartenbau (SLFA) AgrEvo OE98/111 (M-182936-02- 1) GLP: Yes Published: No	N	TaskForce
KCP 9.1.2/11	Knoch, E.	2012 g	Adsorption of O-desmethyl thifensulfuron acid on Soils SGS Institute Fresenius GmbH Report No.: IF-12-02132069 Cheminova A/S Report No.: 302 TIM GLP, Unpublished	N	TaskForce
KCP 9.1.2/12	Kesterson, A.	1990	Soil adsorption/desorption of [14C]CGA-150829 by the batch equilibrium method PTRL Ciba 470 GLP: Yes Published: No	N	DuPont
KCP 9.1.2/13	Li,Y., McFetridge , R.D.	1996	Batch equilibrium (adsorption/desorption) study of a metabolite, triazine amine (INA4098), of DPX-T6376 on soil DuPont Experimental Station AMR 3656-95 GLP: Yes Published: No	N	DuPont

KCP 9.1.2/14	Knoch, E.	2012i	Adsorption of Thiophene sulfonimide on Soils SGS Institute Fresenius GmbH Report No.: IF-12-02132068 Cheminova A/S Report No.: 301 TIM GLP, Unpublished	N	DuPont
KCP 9.1.2/15	Knoch, E.	2012j	Adsorption of O-desmethyl Thifensulfuron-methyl on Soils SGS Institute Fresenius GmbH Report No.: IF-12-02132071 Cheminova A/S Report No.: 303 TIM GLP, Unpublished Study required as	N	TaskForce
KCP 9.1.2/16	Yeomans, P.	2000	IN-L9225: Adsorption/desorption in soil – final report (Study No. 550/60) DuPont-1812 GLP: Yes Published: No	N	DuPont
KCP 9.1.2/17	Yeomans, P.	2000	IN-L9226: Adsorption/desorption in soil – final report (Study No. 550/61) DuPont-1813 GLP: Yes Published: No	N	DuPont
KCP 9.1.2/18	Knoch, E.	2012 k	Adsorption of TIM 2-acid-3-triuret on Soils SGS Institute Fresenius GmbH Report No.: IF-12-02251377 Cheminova A/S Report No.: 316 TIM GLP, Unpublished	N	TaskForce
KCP 9.1.2/19	Suresh, G.	2012	Adsorption-desorption of IN-JZ789 via batch equilibrium in five soils International Institute of Biotechnology and Toxicology (IIBAT) DuPont-34350 GLP: Yes Published: No	N	DuPont
KCP 9.1.2/20	Yeomans, P., Swales, S.	2000	[14C]IN-A4098: Adsorption/desorption in soil Covance Laboratories Europe (CLE) DuPont-3832 GLP: Yes Published: No	N	DuPont
KCP 9.2/01	Wardrope, L.	2011	Hydrolysis of [14C]-DPX-M6316 (Thifensulfuron-methyl) as a function of pH Charles River Laboratories DuPont-30225 GLP: Yes Published: No	N	DuPont
KCP 9.2/02	Simmonds, M., Buntain, I.	2012	[14C]-Thifensulfuron-methyl: Hydrolysis in sterile buffer at pH 4, 7 and 9 Battelle UK Ltd. Report No.: WB/10/008 Cheminova A/S Report No.: 260 TIM GLP, Unpublished	N	TaskForce
KCP 9.2/03	Wardrope, L.	2014	Hydrolysis of [14C]-DPX-M6316 (thifensulfuron methyl) as a function of pH- identification of unknown polar metabolite Charles River Laboratories DuPont-30225, Supplement No. 1 GLP: Yes Published: No	N	DuPont
KCP 9.2/04	Ryan, D.L	1986	The Photodegradation of [Thiophene-2-14C] DPX-M6316 and [Triazine-2-14C] DPX-M6316 in Water. DuPont report n° AMR 511-86 DuPont de Nemours, Agricultural Products Research Division Experimental Station Wilmington, Delaware, U.S.A. GLP: No Published: No	N	DuPont
KCP 9.2/05	Lentz, N.R	2001	Photodegradation of Thifensulfuron-methyl in natural water by simulated sunlight Ricerca, LLC DuPont-6047GLP: Yes Published: No	N	DuPont

KCP 9.2/06	Oddy, A.	2012	[14C]-Thifensulfuron-methyl: Aqueous Photolysis and Quantum Yield Determination in Sterile Buffer Solution Battelle UK Ltd. Report No.: WB/10/009 Cheminova A/S Report No.: 284 TIM GLP, Unpublished	N	TaskForce
KCP 9.2/07	Sharma, A.K.	2014	Photodegradation of [14C]-DPXM6316 in buffer, confirmation of structure of degradate IN-D8858 DuPont Stine-Haskell Research Center DuPont-41912 GLP: No Published: No	N	DuPont
KCP 9.2/08	Spare, W.C.	2000	Degradability and fate of Thifensulfuron methyl in aerobic aquatic environment (water/sediment system) – Revision 1. DuPont-1206 GLP: Yes Published: No	N	DuPont
KCP 9.2/09	Simmonds, M.	2012 b	[14C]-Thifensulfuron-methyl: Degradation and retention in two water-sediment systems Battelle UK Ltd. Report No.: WB/10/010 Cheminova A/S Report No.: 285 TIM GLP, Unpublished	N	TaskForce
KCP 9.3/01	Schmuckle r, M.E.	1999	Photodegradation oxidative degradation of Thifensulfuronmethyl DuPont Experimental Station DuPont-3459 GLP: Not applicable Published: No	N	DuPont
KCP 9.1.1	Rhodes, B.C.	1987	Aerobic soil metabolism of [2-14C] 4-methoxy-6-methyl-1; 3; 5- triazin-2-amine AMR 408-85 DuPont Experimental Station GLP No Unpublished	N	DPF
KCP 9.1.1	Clark, R.J.	1985	Study of the decomposition of DPX-T6376 in soil 4685-269/8 Hazleton (UK) GLP Yes Unpublished	N	DPF
KCP 9.1.1	Friedman, P.L.	1982	Aerobic soil metabolism of 14C-phenyl-labelled-DPX-T6376 AMR 75-82 DuPont Experimental Station GLP No Unpublished	N	DPF
KCP 9.1.1	Chrzanowski, R.L.	1982	14C-DPX-T6376 aerobic soil dissipation study in the greenhouse AMR 89-82 DuPont Experimental Station	N	DPF

			GLP No Unpublished		
KCP 9.1.1	Gorman, M., Haney, P.E., Li, Y.	1997	Aerobic soil metabolism of 14C-DPX-T6376 AMR 3768-96 ABC Laboratories; DuPont Experimental Station GLP Yes Unpublished	N	DPF
KCP 9.1.1	Friedman, P.L.	1982	Photodegradation of 14C-phenyl-DPX-T6376 on soil AMR 77-82 DuPont Experimental Station GLP No Unpublished	N	DPF
KCP 9.1.1	Buchta, R.C.	1985	Photodegradation of [triazine-2-14C] metsulfuron methyl on soil AMR 450-85 DuPont Experimental Station GLP Yes Unpublished	N	DPF
KCP 9.1.1	Van, A.T.	1987	Aerobic soil metabolism of [phenyl(U)-14C]DPX-T6376 in seven Canadian soils AMR 1001-87 DuPont Experimental Station GLP No Unpublished	N	DPF
KCP 9.1.1	Harvey, J., Anderson, J.J.	1983	Field soil dissipation study of DPX-T6376 in Delaware, North Carolina, Florida, and Mississippi AMR 117-83 DuPont Experimental Station GLP No Unpublished	N	DPF
KCP 9.1.1	Rapisarda, C., Scott, M.T.	1987	Field dissipation of [phenyl(U)-14C] metsulfuron methyl on United States and Canadian soils AMR 476-86 DuPont Experimental Station	N	DPF

			GLP No Unpublished		
KCP 9.1.1	Yang, A.Y.S.	1987	Batch equilibrium adsorption study with DPX-T6376 in eight Canadian soils AMR 871-87 DuPont Experimental Station GLP No Unpublished	N	DPF
KCP 9.1.1	Friedman, P. L.	1981	Adsorption of 14C-DPX-T6376 on soil AMR 66-82 DuPont Experimental Station GLP No Unpublished	N	DPF
KCP 9.1.2	Kraut, G.M.	1993	Batch equilibrium (adsorption/desorption) study of [phenyl(U)-14C]sulfometuron methyl, IN-X993, IN-D5803, and saccharin AMR 2607-93 DuPont Experimental Station GLP No Unpublished	N	DPF
KCP 9.1.2	Li, Y., McFetridge, R.D.	1996	Batch equilibrium (absorption/desorption) study of a metabolite, triazine amine (IN-A4098) of DPX-T6376 on soil AMR 3656-95 DuPont Experimental Station GLP Yes Unpublished	N	DPF
KCP 9.1.2	Hugues, R.A., Rhodes, B.C.	1988	Comparative soil column leaching of 14C-metsulfuron methyl applied as the technical compound and the Ally herbicide (60 DF) formulation on a Canadian soil AMR 989-87 DuPont Experimental Station KCP 9.1.2GLP No Unpublished	N	DPF

KCP 9.1.2	Chrzanowski, R.L.	1982	Soil column leaching studies with [14C]-DPX-T6376 AMR 82-82 DuPont Experimental Station GLP No Unpublished	N	DPF
KCP 9.1.2	Bergstrom, L.	1989	Leaching of chlorsulfuron and metsulfuron methyl in three Swedish soils measured in field lysimeters 19:701-706 (1990) J. Environ.Qual. GLP No Published	N	DPF
KCP 9.1.2	Frevert, J.	1990	Determination of DPX-T6376 (metsulfuron methyl) in lysimeter leachates from two different locations in Sweden by ELISA. BF-I-11-89-28/5 Battelle Institute E.V. GLP Yes Unpublished	N	DPF
KCP 9.2	Friedman, P. L.	1982	Hydrolysis of 14C-phenyl-DPX-T6376 AMR 62-82 DuPont Experimental Station GLP No Unpublished	N	DPF
KCP 9.2	Clark, R.J.	1985	A study of the behaviour of DPX-T6376 in water 4416-269/10 Hazleton (UK) GLP No Unpublished	N	DPF
KCP 9.2	Friedman, P.L.	1984	Hydrolysis of 14C-4-methoxy-6-methyl-1,3,5-triazin-2-amine AMR 136-83 DuPont Experimental Station GLP No Unpublished	N	DPF

KCP 9.2	Friedman, P.L.	1983	Aqueous photolysis of 14C-DPX-T6376 AMR 102-82 DuPont Experimental Station GLP No Unpublished	N	DPF
KCP 9.2	Cadwgan, G.E., McFetridge, R.D.	1985	Photodegradation of [triazine-2-14C] metsulfuron methyl in water AMR 451-85 DuPont Experimental Station GLP No Unpublished	N	DPF
KCP 9.2	Muttzall, P.I., Vonk, J.W.	1991	Water/sediment biodegradation of 14C-metsulfuron methyl TNO-R91/067a TNO Environmental & Energy Research GLP Yes Unpublished	N	DPF
KCP 9.2	Allan, J.	2010	Rate of degradation and aged desorption of 14C-metsulfuron methyl (DPX-T6373) in five soils DuPont-29155 ABC Laboratories, Inc. GLP No Unpublished	N	DPR
KCP 9.2	DiFrancesco, D.	2001	Anaerobic soil metabolism of [14C]DPX-T6316 DuPont-4618, Amended Report No. 1 Ricerca L.L.C. GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Allan, J.	2010	Rate of degradation and aged desorption of 14C-metsulfuron methyl (DPX-T6373) in five soils DuPont-29155, Revision No. 1 ABC Laboratories, Inc. GLP No Unpublished	N	DPR

KCP 9.1.1 KCP 9.1.2	Allan, J.G.	2011	14C-IN-D5803: Rate of degradation in five aerobic soils DuPont-29295 ABC Laboratories, Inc. GLP No Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Allan, J.	2011	14C-IN-B5685: Rate of degradation in five soils DuPont-29156, Revision No. 1 ABC Laboratories, Inc. GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Allan, J.G.	2011	14C-IN-F5438: Rate of degradation in five aerobic soils DuPont-30222 ABC Laboratories, Inc. GLP No Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Clark, B.	2011	14C-IN-D5119: Rate of degradation in five aerobic soils DuPont-29296, Revision No. 1 ABC Laboratories, Inc. GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Clark, B.	2011	14C-IN-MU717: Rate of degradation in five aerobic soils DuPont-30223, Revision No. 1 ABC Laboratories, Inc. GLP No Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Jungmann, V., Nicollier, G.	2006	Rate of degradation of [triazinyl-6-14C]-labelled CGA 150829 (metabolite of CGA 152005) in various soils under aerobic laboratory conditions at 20 deg. C SYN T001214-06 (Study No. 12) Syngenta Crop Protection GLP Yes Unpublished	N	DPR

KCP 9.1.1 KCP 9.1.2	Lewis, C.J.	2000	IN-B5067: Soil degradation at 20°C DuPont-1811 Covance Laboratories (UK) GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Lewis, C.J.	2000	IN-NC148: Soil degradation at 20°C DuPont-1815 Covance Laboratories (UK) GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Möndel, M.	2001	Degradation and metabolism of AE F059411 in one soil under standard conditions Aventis AGR15 (M-202633-01-1) Staatliche Lehr- und Forschungsanstalt fur Landwirtschaft, Weinbau und Gartenbau (SLFA) GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Scott, M.T.	2000	Rates of degradation of [14C]IN-A4098, a metabolite of metsulfuron methyl, chlorsulfuron, and thifensulfuron methyl, in three aerobic soils DuPont-1802 DuPont Experimental Station GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Scott, M.T.	2000	Rates of degradation of [14C]saccharin, a metabolite of metsulfuron methyl and tribenuron methyl, in three aerobic soils DuPont-1803 DuPont Experimental Station GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Tunink, A.	2009	14C-IN-B5528: Rate of degradation in five soils DuPont-27604 ABC Laboratories, Inc. GLP No Unpublished	N	DPR

KCP 9.1.1 KCP 9.1.2	Tunink, A.	2009	14C-IN-V7160: Rate of degradation in five soils DuPont-27641, Revision No. 1 ABC Laboratories, Inc. GLP No Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Jagtap, S.	2012	A kinetic assessment of metsulfuron methyl field soil dissipation studies in Europe DuPont-31157 EU, Revision No. 1 Not applicable - position paper GLP No Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Aitken, A. , Doig, A., Just, G.	2011	Terrestrial field bare ground study of metsulfuron methyl (DPX-T6376) in France following a single application to bare ground - France 2009 DuPont-29178, Revision No. 1 Charles River Laboratories (UK) GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Aitken, A., Doig, A., Just, G.	2012	Terrestrial field bare ground dissipation study of metsulfuron methyl (DPX-T6376) in northern Germany following a single application to bare ground - Schleswig-Holstein region 2010 DuPont-29759 Charles River Laboratories (UK) GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Aitken, A. , Just, G.	2012	Terrestrial field bare ground dissipation study of metsulfuron methyl (DPX-T6376) in United Kingdom following a single application to bare ground - England 2010 DuPont-29758 Charles River Laboratories (UK) GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Aitken, A., Just, G., Doig, A.		Terrestrial field bare ground dissipation study of metsulfuron methyl (DPX-T6376) in Italy following a single application to bare ground – 2010 DuPont-29760 Charles River Laboratories (UK)	N	DPR

			GLP Yes Unpublished		
KCP 9.1.1 KCP 9.1.2	Allan, J.	2010	Rate of degradation and aged desorption of 14C-metsulfuron methyl (DPX-T6373) in five soils DuPont-29155, Revision No. 1 ABC Laboratories, Inc. GLP No Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Allan, J.	2011	14C-Metsulfuron methyl (DPX-T6376): Batch equilibrium (adsorption/desorption) in five soils DuPont-30102, Revision No. 1 ABC Laboratories, Inc. GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Allan, J.	2010	14C-IN-B5685: Batch equilibrium (adsorption/desorption) in five soils DuPont-29159 ABC Laboratories, Inc. GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Allan, J.	2011	14C-IN-F5438: Batch equilibrium (adsorption/desorption) in five soils DuPont-30358, Revision No. 1 ABC Laboratories, Inc. GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Clark, B.	2011	14C-IN-MU717: Batch equilibrium (adsorption/desorption) in five soils DuPont-30359 ABC Laboratories, Inc. GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Elliott, T.	2009	14C-IN-V7160: Batch equilibrium (adsorption/desorption) in five soils DuPont-27638 ABC Laboratories, Inc. GLP Yes	N	DPR

			Unpublished		
KCP 9.1.1 KCP 9.1.2	Elliott, T.	2009	14C-IN-B5528: Batch equilibrium (adsorption/desorption) in five soils DuPont-27605 ABC Laboratories, Inc. GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Hein, W.	2001	Adsorption/desorption of AE F059411-[2-14C] on one soil AgrEvo OE98/111 (M-182936-02-1) Staatliche Lehr- und Forschungsanstalt fur Landwirtschaft, Weinbau und Gartenbau (SLFA) GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Kesterson, A.	1990	Soil adsorption/desorption of [14C]CGA-150829 by the batch equilibrium method Ciba 470 PTRL GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Manjunatha, S.	2010	14C-IN-D5119: Batch equilibrium (adsorption/desorption) in five soils DuPont-28363 Advinus Therapeutics Private Limited GLP Yes Unpublished	N	DPR
KCP 9.2	Schmidt, E.	1998	Determination of the adsorption/desorption behaviour in the system soil/water in three soil types according to OECD guideline #106 AgrEvo CP98/014 (M-182945-01-1) Hoechst Schering AgrEvo GmbH GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Stroech, K.	2010	[Triazine-2-14C]BCS-CN85650 (AEF059411): Adsorption/desorption on five soils Bayer M1311857-6 (M-367103-01-1) Bayer CropScience GLP Yes	N	DPR

			Unpublished		
KCP 9.1.1 KCP 9.1.2	Yeomans, P.	1999	[14C]IN-00581: Absorption desorption in soil DuPont-1806 Covance Laboratories Europe (CLE) GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Yeomans, P.	1999	IN-B5067: Absorption desorption in soil DuPont-1810 Covance Laboratories Europe (CLE) GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Yeomans, P.	1999	IN-NC148: absorption desorption in soil DuPont-1814 Covance Laboratories Europe (CLE) GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Yeomans, P., Swales, S.	2000	[14C]IN-A4098: Absorption desorption in soil DuPont-3832 Covance Laboratories Europe (CLE) GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Yogeesha, S., Manjunatha, S.	2010	14C-IN-D5803: Batch equilibrium (adsorption/desorption) in five soils DuPont-28364 Advinus Therapeutics Private Limited GLP Yes Unpublished	N	DPR
KCP 9.2	Clark, B.	2012	Hydrolysis of 14C-metsulfuron methyl (DPX-T6376) in buffer solutions of pH 4, 7, and 9 DuPont-29158, Revision No. 1 ABC Laboratories, Inc. GLP Yes Unpublished	N	DPR

KCP 9.2	Caselli, M.	2005	Light-induced degradation of metsulfuron-methyl in water 59 (8), 1137-1143 Chemosphere GLP No Published	N	DPR
KCP 9.2	Habeeb, S.B.	2011	Photodegradation of 14C-metsulfuron methyl (DPX-T6376) in sterile pH 7 buffer by simulated sunlight DuPont-29157, Revision No. 1 ABC Laboratories, Inc. (Missouri) GLP Yes Unpublished	N	DPR
KCP 9.2	Piriyadarsini, J.R.	2012	Metsulfuron methyl (DPX-T6376): Laboratory study of ready biodegradability: CO2 evolution test DuPont-32514, Revision No. 1 International Institute of Biotechnology and Toxicology (IIBAT) GLP Yes Unpublished	N	DPR
KCP 9.2	Beulke, S., van Beinum, W.	2006	Calculation of degradation endpoints from water sediment studies for metsulfuron methyl (DPX-T6376) and its metabolites DuPont-18746 EU Not applicable - position paper GLP No Unpublished	N	DPR
KCP 9.2	Knoch, E., Dust, M.	1999	Degradatility and fate of metsulfuron methyl in the aquatic environment (water/sediment system) DuPont-1780 Institut Fresenius, Chemische und Biologische Laboratorien GmgH GLP Yes Unpublished	N	DPR
KCP 9.1.1 KCP	Huang, M.X.	2012	The degradation pathways and endpoints of metsulfuron methyl in aerobic soils - summary of kinetic calculation DuPont-34872 EU	N	DPR

9.1.2			Not applicable - position paper GLP No Unpublished		
KCP 9.1.1 KCP 9.1.2	Jagtap, S.	2012	Soil degradation of metsulfuron methyl - kinetic calculations following FOCUS kinetics guidelines DuPont-18743, Supplement No. 2 Not applicable - postion paper GLP No Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Jagtap, S., Pant, R.	2012	Soil degradation of metsulfuron methyl - kinetic calculations following FOCUS kinetics guidelines DuPont-18743, Supplement No. 1 Not applicable - postion paper GLP No Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Snyder, N.J.	2006	Soil degradation of metsulfuron methyl - kinetic calculations following FOCUS kinetics guidelines DuPont-18743 Not applicable - postion paper GLP No Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Weber, D.	2011	Aminotriazin: Calculation of endpoints from aerobic soil degradation studies for use in fate modelling Kinetic analysis according to the FOCUS guidance SYN D09681 (M-411174-01-1) Not applicable - postion paper GLP No Unpublished	N	DPR
KCP 9.1.1 KCP 9.1.2	Jagtap, S.	2012	A kinetic assessment of metsulfuron methyl field soil dissipation studies in Europe DuPont-31157 EU, Revision No. 1 Not applicable - postion paper GLP No Unpublished	N	DPR

KCP 9.1.1 KCP 9.1.2	Morlock, G.	2006	Degradation and metabolism of metsulfuron methyl (14C phenyl label) in one soil under aerobic conditions at 20°C in the dark Cheminova A/S Study No: 20051044/01-CABJ Cheminova A/S Report No.: 190 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP 9.1.2	Morlock, G.	2006	Degradation and metabolism of metsulfuron methyl (14C triazine label) in one soil under aerobic conditions at 20°C in the dark Analytik GmbH Cheminova A/S Study No: 20051045/01-CABJ Cheminova A/S Report No.: 191 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP 9.1.2	Hiler, T.	2012	Anaerobic Soil Metabolism of [14C]-Metsulfuron-methyl Cheminova A/S Study No: 2033W Cheminova A/S Report No.: 292 MEM PTRL West Inc. GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP 9.1.2	Mohajeri, S.	2012	Photodegradation of [14C]-Metsulfuron-methyl on Soil by Artificial Sunlight Cheminova A/S Study No: 2034W Cheminova A/S Report No.: 293 MEM PTRL West Inc. GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP 9.1.2	Morlock, G.	2006	Degradation and metabolism of metsulfuron methyl (14C phenyl label) in one soil under aerobic conditions at 20°C in the dark Cheminova A/S Study No: 20051044/01-CABJ Cheminova A/S Report No.: 190 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP	Morlock, G.	2006	Degradation and metabolism of metsulfuron methyl (14C triazine label) in one soil under	N	CHE

9.1.1 KCP 9.1.2			aerobic conditions at 20°C in the dark Cheminova A/S Study No: 20051045/01-CABJ Cheminova A/S Report No.: 191 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished		
KCP 9.1.1 KCP 9.1.2	Morlock, G.	2005	Degradation of methylsaccharin (M-AS-BA) in 3 different soils under aerobic conditions at 20°C in the dark Cheminova A/S Study No: 20051102/01-CABJ Cheminova A/S Report No.: 185 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP 9.1.2	Morlock, G.	2006	Degradation of 2-amino-4-methoxy-6-methyl-1,3,5-triazine (MM-TA) in 3 different soils under aerobic conditions at 20°C in the dark Cheminova A/S Study No: 20051104/01-CABJ Cheminova A/S Report No.: 189 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP 9.1.2	Morlock, G.	2005	Degradation of hydroxy-MM (BDM-MM) in 3 different soils under aerobic conditions at 20°C in the dark Cheminova A/S Study No: 20051101/01-CABJ Cheminova A/S Report No.: 178 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP 9.1.2	Morlock, G.	2005	Degradation of the carbamoyl guanidine metabolite of metsulfuron methyl (M-AS-BA-CG) in 3 different soils under aerobic conditions at 20°C in the dark Cheminova A/S Study No: 20051110/01-CABJ Cheminova A/S Report No.: 188 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP	Morlock, G.	2006	Degradation of saccharin in 3 different soils under aerobic conditions at 20°C in the dark Cheminova A/S Study No: 20051103/01-CABJ Cheminova A/S Report No.: 192 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH	N	CHE

9.1.2			GLP Yes Unpublished		
KCP 9.1.1 KCP 9.1.2	Morlock, G.	2005	Degradation of the Acid Sulfonamide Metabolite of Metsulfuron Methyl (AS-BA) in 3 different soils under aerobic conditions at 20°C in the dark Cheminova A/S Study No: 20051109/01-CABJ Cheminova A/S Report No.: 184 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP 9.1.2	Morlock, G.	2006	Degradation of the Phenyl Urea Metabolite of Metsulfuron Methyl (AC-AS-BA) in 3 different soils under aerobic conditions at 20°C in the dark Cheminova A/S Study No: 20051111/01-CABJ Cheminova A/S Report No.: 187 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP 9.1.2	Knock, E.	2012	Soil Degradation of Metsulfuron Acid Cheminova A/S Study No: IF-11/02082995 Cheminova A/S Report No.: 307 MEM SGS INSTITUT FRESENIUS GmbH GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP 9.1.2	Morlock, G.	2006	Determination of the adsorption/desorption behaviour of methylsaccharin (M-AS-BA) in three different soils Cheminova A/S Study No: 20051102/01-PCAD Cheminova A/S Report No.: 209 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP 9.1.2	Morlock, G.	2006	Determination of the adsorption/desorption behaviour of 2-amino-4-methoxy-6-methyl-1,3,5-triazine (MM-TA) in three different soils Cheminova A/S Study No: 20051104/01-PCAD Cheminova A/S Report No.: 212 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE

KCP 9.1.1 KCP 9.1.2	Morlock, G.	2006	Determination of the adsorption/desorption behaviour of Hydroxy-MM (BDM-MM) in three different soils Cheminova A/S Study No: 20051101/01-PCAD Cheminova A/S Report No.: 211 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.3	Morlock, G.	2006	Determination of the adsorption/desorption behaviour of the carbamoyl guanidine metabolite of metsulfuron methyl (M-AS-BA-CG) in three different soils Cheminova A/S Study No: 20051110/01-PCAD Cheminova A/S Report No.: 213 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP 9.1.2	Morlock, G.	2006	Determination of the adsorption/desorption behaviour of saccharin in three different soils Cheminova A/S Study No: 20051103/01-PCAD Cheminova A/S Report No.: 215 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP 9.1.2	Morlock, G.	2006	Determination of the adsorption/desorption behaviour of the Phenyl Urea Metabolite of Metsulfuron Methyl (AC-AS-BA) in three different soils Cheminova A/S Study No: 20051111/01-PCAD Cheminova A/S Report No.: 210 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP 9.1.2	Morlock, G.	2006	Determination of the adsorption/desorption behaviour of the Acid Sulfonamide Metabolite of Metsulfuron Methyl (AS-BA) in three different soils Cheminova A/S Study No: 20051109/01-PCAD Cheminova A/S Report No.: 214 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.1.1 KCP	Knock, E.	2012	Adsorption of Metsulfuron Acid on soils Cheminova A/S Study No: IF-12/02132070 Cheminova A/S Report No.: 308 MEM SGS INSTITUT FRESENIUS GmbH	N	CHE

9.1.2			GLP Yes Unpublished		
KCP 9.2	Hiler, T.	2012	Hydrolysis of [14C] Metsulfuron methyl at pH 4, 7 and 9 Cheminova A/S Study No: 2035W Cheminova A/S Report No.: 294 MEM PTRL West Inc. GLP Yes Unpublished	N	CHE
KCP 9.2	Hiler, T.	2012	Photodegradation of [14C]Metsulfuron-methyl in Water by Artificial Sunlight Cheminova A/S Study No: 2036W Cheminova A/S Report No.: 295 MEM PTRL West Inc. GLP Yes Unpublished	N	CHE
KCP 9.2	Dengler, D.	2005	Assessment of the ready biodegradability of metsulfuron-methyl technical with the closed bottle test Cheminova A/S Study No: 20051320/01-AACB Cheminova A/S Report No.: 173 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.2	Morlock, G.	2006	Degradation and metabolism of metsulfuron methyl (14C-phenyl label and 14C-triazine label) in one water/sediment system (pond) under aerobic conditions-laboratory test Cheminova A/S, Study No: 20051044/01-CUWS Cheminova A/S Report No.: 186 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE
KCP 9.2	Morlock, G.	2006	Degradation and metabolism of metsulfuron methyl (14C-phenyl label and 14C-triazine label) in one water/sediment system (creek) under aerobic conditions-laboratory test Cheminova A/S, Study No: 20051044/02-CUWS Cheminova A/S Report No.: 199 MEM GAB Biotechnologie GmbH & GAB Analytik GmbH GLP Yes Unpublished	N	CHE

KCP 9.1.1	Melkebeke T. & Wonders J.H.A.M.	2002	Degradation route of [Phenyl-U-14C] metsulfuron-methyl in soil under aerobic conditions Project No. 309061 NOTOX B.V. GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.1.2	Melkebeke T. & Wonders J.H.A.M.	2002	Degradation route of [Triazine-2-14C]metsulfuron-methyl in soil under aerobic conditions Project No. 309072 NOTOX B.V. GLP Yes Unpublished	N	AgriChem B.V. and Nufarm
KCP 9.1.1	Willems H., Slangen P.J. & Hoitink M.	2003	Degradation route of [Phenyl-U-14C] metsulfuron-methyl in soil under aerobic conditions (+report amendment) Project No. 365502 NOTOX B.V. GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.1.1 KCP 9.1.2	Willems H.	2005	Confirmation of the presence of 2-carbamoylbenzenesulphonic acid in soil extracts of NOTOX project 365502 Project No. 365513 NOTOX B.V. GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.1.1 KCP 9.1.2	Callow, B & Mamouni A.	2012	Determination of rates of decline for metsulfuron methyl and its metabolites in soil according to the guidance within the FOCUS Kinetics Guidance Document. Report Number: 1104342.UK0/EWC0006 Exponent International Ltd GLP No Unpublished	N	EU MSM AIR2 TF
KCP 9.1.1 KCP 9.1.2	Wonders J.H.A.M. & Melkebeke T.	2002	Degradation rate of 14C-labelled Triazine Amine in three soils under aerobic conditions + 1 report amendment Project No. 309296 NOTOX B.V.	N	EU MSM AIR2 TF

			GLP Yes Unpublished		
KCP 9.1.1 KCP 9.1.2	Callow, B & Mamouni A.	2012	Determination of rates of decline for metsulfuron methyl and its metabolites in soil according to the guidance within the FOCUS Kinetics Guidance Document. Report Number: 1104342.UK0/EWC0006 Exponent International Ltd GLP No Unpublished	N	EU MSM AIR2 TF
KCP 9.1.1 KCP 9.1.2	Wonders J.H.A.M. & Melkebeke T.	2002	Degradation rate of [Benzene ring-U-14C] saccharin in three soils under aerobic conditions + 1 report amendment Project No. 309285 NOTOX B.V. GLP Yes Unpublished	N	AgriChem B.V. and Nufarm
KCP 9.1.1 KCP 9.1.2	Callow, B & Mamouni A.	2012	Determination of rates of decline for metsulfuron methyl and its metabolites in soil according to the guidance within the FOCUS Kinetics Guidance Document. Report Number: 1104342.UK0/EWC0006 Exponent International Ltd GLP No Unpublished	N	EU MSM AIR2 TF
KCP 9.1.1 KCP 9.1.2	Flörchinger M.	2009	Degradation of saccharine in three different soils under aerobic conditions at 20°C in the dark report No. S08-03006 Eurofins-GAB GmbH GLP Yes Unpublished	N	EU MSM AIR2 TFRotam
KCP 9.1.1 KCP 9.1.2	Callow, B & Mamouni A.	2012	Determination of rates of decline for metsulfuron methyl and its metabolites in soil according to the guidance within the FOCUS Kinetics Guidance Document Report Number: 1104342.UK0/EWC0006 Exponent International Ltd GLP No Unpublished	N	EU MSM AIR2 TF

KCP 9.1.1 KCP 9.1.2	Wonders J.H.A.M. & Melkebeke T.	2002	Degradation rate of 14C-labelled Ester Sulfonamide in three soils under aerobic conditions + 1 report amendment Project No. 309329 NOTOX B.V. GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.1.1 KCP 9.1.2	Callow, B & Mamouni A.	2012	Determination of rates of decline for metsulfuron methyl and its metabolites in soil according to the guidance within the FOCUS Kinetics Guidance Document. Report Number: 1104342.UK0/EWC0006 Exponent International Ltd GLP No Unpublished	N	EU MSM AIR2 TF
KCP 9.1.1 KCP 9.1.2	Piskorski R	2012	Methyl 2-(N-Carbamoylsulfamoyl)-[phenyl-U-14C]-benzoate ([14C]-IN-B5685; [14C]-Phenyl Urea) – Degradation and Metabolism in Three Soils Incubated under Aerobic Conditions Report number: 20110141 Innovative Environmental Services GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.1.1 KCP 9.1.2	Piskorski R	2012	2-Sulfamoyl [Phenyl-U-14C]-Benzoic Acid ([14C]-IN-D5119; [14C]-Acid Sulphonamide) – Degradation and Metabolism in Three Soils Incubated under Aerobic Conditions Report number: 20110142 Innovative Environmental Services GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.1.1 KCP 9.1.2	Adam D	2012	2-((((4-Methoxy-6-methyl-1,3,5-triazin-2-yl)amino)carbonyl) amino)sulfonyl)benzoic acid (Metsulfuron acid, IN-F5438) – Degradation and Metabolism in Three Soils Incubated under Aerobic Conditions Report number: 20110140 Innovative Environmental Services GLP Yes Unpublished	N	EU MSM AIR2 TF

KCP 9.1.1 KCP 9.1.2	van Noorloos B. & Slangen P.J.	2001	Adsorption/desorption of Triazine Amine on soil Project No. 309241 NOTOX B.V. GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.1.1 KCP 9.1.2	van Noorloos B. & Slangen P.J.	2001	Adsorption/desorption of Saccharin on soil Project No. 309239 NOTOX B.V. GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.1.1 KCP 9.1.2	van Noorloos B. & Slangen P.J.	2002	Adsorption/desorption of Ester Sulfonamide on soil Project No. 309274 NOTOX B.V. GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.1.1 KCP 9.1.2	Adam D	2012	2-((((4-Methoxy-6-methyl-1,3,5-triazin-2-yl)amino)carbonyl) amino)sulfonyl)benzoic acid (Metsulfuron acid, IN-F5438) – Adsorption/Desorption in Three So Report number: 20110143 Innovative Environmental Services GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.1.1 KCP 9.1.2	Piskorski R	2012	Methyl 2-(N-Carbamoylsulfamoyl)-[phenyl-U-14C]-benzoate ([14C]-IN-B5685; [14C]-Phenyl Urea) – Adsorption/Desorption in Three Soils Report number: 20110144 Innovative Environmental Services GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.1.1 KCP 9.1.2	Piskorski R	2012	2-Sulfamoyl [Phenyl-U-14C]-Benzoic Acid ([14C]-IN-D5119; [14C]-Acid Sulphonamide) – Adsorption/Desorption in Three Soils Report number: 20110145 Innovative Environmental Services GLP Yes	N	EU MSM AIR2 TF

			Unpublished		
KCP 9.2	Wasser	2003	Determination of physical and chemical properties of metsulfuron-methyl technical grade – hydrolysis rate Anadiag report No. R A1147 10 GLP Yes Unpublished	N	Rotam
KCP 9.2	Persch A	2012	Abiotic Degradation of [14C]Metsulfuron-methyl -Hydrolysis at pH 4 Report No: S11-03388 Eurofins Agroscience Services GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.2	Willems H., Slangen P.J. & Hoitink M	2004	Photodegradation of [Triazine-2-14C] metsulfuron-methyl in water at pH 5 and pH 7 Project No. 375288 NOTOX B.V. GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.2	Willems H.	2006	Identification of metsulfuron-methyl metabolites MIII and MVII observed in Notox project 375288 “Photodegradation of [triazine-2-14C]metsulfuron -methyl in water at pH 5 and pH 7 Project No. 435173 NOTOX B.V. GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.2	Wonders J.H.A.M. & Slangen P.J.	2002	Photodegradation of [Triazine-2-14C] metsulfuron-methyl in water + 1 report amendment Project No. 309083 NOTOX B.V. GLP Yes Unpublished	N	EU MSM AIR2 TF
KCP 9.2	Wasser C.	2003	Determination of physical and chemical properties of metsulfuron-methyl technical : Direct phototransformation Anadiag report No. R A1147 18 GLP Yes	N	Rotam

			Unpublished		
KCP 9.2	Feil, N	2011	Ready biodegradability of metsulfuron-methyl technical grade in a manometric respirometry test Project No. 68291163 IBACON GmbH GLP Yes Unpublished	N	EU MSM AIR2 TF

The following tables are to be completed by MS

List of data submitted by the applicant and not relied on

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

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

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

Appendix 2 Detailed evaluation of the new Annex II studies

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