FINAL REGISTRATION REPORT

Part B

Section 8

Environmental Fate

Detailed summary of the risk assessment

Product code: **T-75WG-OR2C**

Product name(s): **TOSCANA TOP 75 WG**

Chemical active substance(s):

Tribenuron methyl, 750 g/kg

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT/

(authorization)

Applicant: CIECH Sarzyna S.A.

Submission date: 12/2020

MS Finalisation date: 15/10/2021

Version history

When	What
December 2020	First submission of product authorization.
02/2021	Dossier sent for evaluation to Merit Mark (PL)
08/2021	zRMS finalised evaluation
10/2021	Evaluation after commenting period - RR

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Evaluator comments:
The text highlighted in grey was provided by the evaluator.

8 Fate and behaviour in the environment (KCP 9)

8.1 Critical GAP and overall conclusions

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

1	2	3	4	5	6	7	8	9	15	11	12	13	14	15
Use-No. (e)	**Member state(s)**	**Crop and/ or situation** **(crop destination / purpose of crop)**	**F, Fn, Fpn G, Gn, Gpn or I**	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/synergist per ha (f)	**zRMS Conclusion** ~~(efficacy)~~ **Groundwater**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product / ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
Zonal uses (field or outdoor uses, certain types of protected crops)														
1	PL	Winter soft wheat (TRZAW), Winter rye (SECCW), Winter triticale (TTLWI), Winter barley (HORVW)	F	Annual dicotyledonous weeds	Broadcast - foliar	Autumn BBCH 13 – 29	a) 1 b) 1	n.a.	a) 0,02 kg/ha; b) 0,02 kg/ha	a) 15 g as/ha b) 15 g as/ha	200 / 400	n.a.	-	for pH < 7 for pH > 7
2	PL	Winter soft wheat (TRZAW), Winter rye (SECCW), Winter triticale (TTLWI), Winter barley (HORVW)	F	Annual dicotyledonous weeds	Broadcast - foliar	Spring BBCH 13 – 39	a) 1 b) 1	n.a.	a) 0,025 kg/ha; b) 0,025 kg/ha	a) 18,75 g as/ha b) 18,75 g as/ha	200 / 400	n.a.	-	for pH < 7
3	PL	Spring soft wheat (TRZAS), Spring barley (HORVS)	F	Annual dicotyledonous weeds	Broadcast - foliar	Spring BBCH 13 – 39	a) 1 b) 1	n.a.	a) 0,02 kg/ha; b) 0,02 kg/ha	a) 15 g as/ha b) 15 g as/ha	200 / 400	n.a.	-	for pH < 7

1	2	3	4	5	6	7	8	9	15	11	12	13	14	15
Use-No. (e)	**Member state(s)**	**Crop and/ or situation** **(crop destination / purpose of crop)**	**F, Fn, Fpn G, Gn, Gpn or I**	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:**	**zRMS Conclusion** ~~(efficacy)~~ **Groundwater**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product / ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max		e.g. g safener/synergist per ha (f)	
4	DE	Winter soft wheat (TRZAW), Winter rye (SECCW), Winter triticale (TTLWI), Winter barley (HORVW)	F	Annual dicotyledonous weeds	Broadcast - foliar	Autumn BBCH 13 – 29	a) 1 b) 1	n.a.	a) 0,02 kg/ha; b) 0,02 kg/ha	a) 15 g as/ha b) 15 g as/ha	200 / 400	n.a.	To be submitted further via mutual recognition procedure	for pH < 7 for pH > 7
5	DE	Winter soft wheat (TRZAW) Winter rye (SECCW), Winter triticale (TTLWI) Winter barley (HORVW)	F	Annual dicotyledonous weeds	Broadcast - foliar	Spring BBCH 13 – 39	a) 1 b) 1	n.a.	a) 0,025 kg/ha; b) 0,025 kg/ha	a) 18,75 g as/ha b) 18,75 g as/ha	200 / 400	n.a.	To be submitted further via mutual recognition procedure	for pH < 7
6	DE	Spring barley (HORVS)	F	Annual dicotyledonous weeds	Broadcast - foliar	Spring BBCH 13 – 39	a) 1 b) 1	n.a.	a) 0,02 kg/ha; b) 0,02 kg/ha	a) 15 g as/ha b) 15 g as/ha	200 / 400	n.a.	To be submitted further via mutual recognition procedure	for pH < 7
7	HU	Winter soft wheat (TRZAW)	F	Annual dicotyledonous weeds	Broadcast - foliar	Spring BBCH 13 – 39	a) 1 b) 1	n.a.	a) 0,025 kg/ha; b) 0,025 kg/ha	a) 18,75 g as/ha b) 18,75 g as/ha	200 / 400	n.a.	To be submitted further via mutual recognition procedure	for pH < 7
8	HU	Spring barley (HORVS)	F	Annual dicotyledonous weeds	Broadcast - foliar	Spring BBCH 13 – 39	a) 1 b) 1	n.a.	a) 0,02 kg/ha; b) 0,02 kg/ha	a) 15 g as/ha b) 15 g as/ha	200 / 400	n.a.	To be submitted further via mutual recognition	for pH < 7

1	2	3	4	5	6	7	8	9	15	11	12	13	14	15
Use-No. (e)	**Member state(s)**	**Crop and/ or situation** **(crop destination / purpose of crop)**	**F, Fn, Fpn G, Gn, Gpn or I**	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/synergist per ha (f)	**zRMS Conclusion** ~~(efficacy)~~ **Groundwater**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product / ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
													procedure	
9	RO	Winter soft wheat (TRZAW)	F	Annual dicotyledonous weeds	Broadcast - foliar	Spring BBCH 13 – 39	a) 1 b) 1	n.a.	a) 0,025 kg/ha; b) 0,025 kg/ha	a) 18,75 g as/ha b) 18,75 g as/ha	200 / 400	n.a.	To be submitted further via mutual recognition procedure	for pH < 7
10	RO	Spring barley (HORVS)	F	Annual dicotyledonous weeds	Broadcast - foliar	Spring BBCH 13 – 39	a) 1 b) 1	n.a.	a) 0,02 kg/ha; b) 0,02 kg/ha	a) 15 g as/ha b) 15 g as/ha	200 / 400	n.a.	To be submitted further via mutual recognition procedure	for pH < 7
Minor uses according to Article 51 (zonal uses)														
11	PL	Durum wheat (TRZDU), Spelt wheat (TRZSP), einkorn wheat (TRZMO) emmer wheat (TRZDI)	F	Annual dicotyledonous weeds	Broadcast - foliar	Autumn BBCH 13 – 29	a) 1 b) 1	n.a.	a) 0,02 kg/ha; b) 0,02 kg/ha	a) 15 g as/ha b) 15 g as/ha	200 / 400	n.a.	-	for pH < 7 for pH > 7
12	PL	Durum wheat (TRZDU), Spelt wheat (TRZSP), einkorn wheat (TRZMO) emmer wheat (TRZDI)	F	Annual dicotyledonous weeds	Broadcast - foliar	Spring BBCH 13 – 39	a) 1 b) 1	n.a.	a) 0,025 kg/ha; b) 0,025 kg/ha	a) 18,75 g as/ha b) 18,75 g as/ha	200 / 400	n.a.	-	for pH < 7

1	2	3	4	5	6	7	8	9	15	11	12	13	14	15
Use-No. (e)	**Member state(s)**	**Crop and/ or situation** **(crop destination / purpose of crop)**	**F, Fn, Fpn G, Gn, Gpn or I**	**Pests or Group of pests controlled** (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			**PHI** (days)	**Remarks:** e.g. g safener/synergist per ha (f)	**zRMS Conclusion** ~~(efficacy)~~ **Groundwater**
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product / ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min / max			
13	PL	Spring rye (SECCS), Spring triticale (TTLWS), Durum wheat (TRZDU), Spelt wheat (TRZSP), einkorn wheat (TRZMO) emmer wheat (TRZDI)	F	Annual dicotyledonous weeds	Broadcast - foliar	Spring BBCH 13 – 39	a) 1 b) 1	n.a.	a) 0,02 kg/ha; b) 0,02 kg/ha	a) 15 g as/ha b) 15 g as/ha	200 / 400	n.a.	-	for pH < 7 for pH > 7
14	PL	Miscanthus sp. (MISSS)	F	Annual dicotyledonous weeds	Broadcast - foliar	Spring BBCH 12 -14	a) 1 b) 1	n.a.	a) 0,025 kg/ha; b) 0,025 kg/ha	a) 18,75 g as/ha b) 18,75 g as/ha	200 / 400	n.a.	-	for pH < 7
15	PL	Grasses grown for seeds	F	Annual dicotyledonous weeds	Broadcast - foliar	Spring BBCH 13 – 39	a) 1 b) 1	n.a.	a) 0,025 kg/ha; b) 0,025 kg/ha	a) 18,75 g as/ha b) 18,75 g as/ha	200 / 400	n.a.	-	for pH < 7

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

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

Explanation for column 15 "Conclusion"

A	Safe use
R	Further refinement and/or risk mitigation measures required
C	To be confirmed by cMS
N	No safe use

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

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use-No. *	Member state(s)	Crop and/or situation (crop destination / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I **	Pests or Group of pests controlled (additionally: developmental stages of the pest or pest group)	**Application**				**Application rate**			PHI (days)	Remarks: e.g. g safener/ synergist per ha
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product/ha a) max. rate per appl. b) max. total rate per crop/season	g as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha min/max		
	EU	Spring Cereals without underlay [wheat, barley, oat, rye, triticale, durum]	F	Broadleafweeds	Broadcast foliar application	BBCH 30-39	1	-		22.5	100 - 400	Do not apply after BBCH 39. PHI n/a when harvest at maturity. 28 for harvest as forage/ silage before maturity.	DUP With or without non-ionic surfactant (i.e. Trend® 90 0.050.1% v/v) Cereals harvested at maturity or before maturity for forage/ silage.
	EU	Winter Cereals without underlay [wheat, barley, rye, triticale, oat, durum, spelt]	F	Broadleafweeds	Broadcast foliar application	BBCH 30-39 Spring application	1	-		24	100 - 500	Do not apply after BBCH 39. PHI n/a when harvest at maturity. 28 for harvest as forage/ silage before maturity.	DUP With or without non-ionic surfactant (i.e. Trend® 90 0.050.1% v/v) Cereals harvested at maturity or before maturity for forage/ silage
	EU	Pasture	F	Broadleafweeds	Broadcast	BBCH 59	1	-			100 - 300	28	DUP

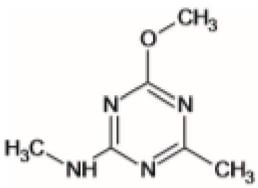
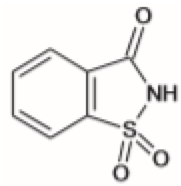
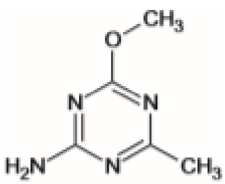
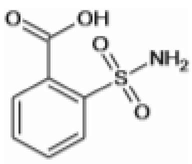
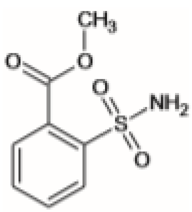
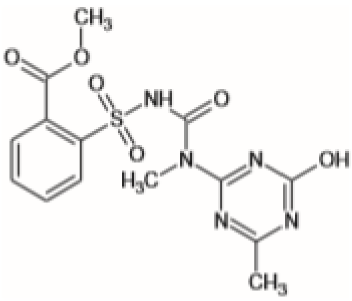
		(Grass only)			foliar application	Spring application				7.5			With non-ionic surfactant (i.e. Trend® 90 0.05% v/
	EU	Sunflower (Tribenuronmethyltolerant varieties)	F	Broadleafweeds	Broadcast foliar application	BBCH 12-18 Spring application	1	-		30	100 - 400	30	DUP With non-ionicsurfactant (i.e. Trend® 90 0.1% v/v)
	EU	Olive	F	Broadleafweeds	Broadcast foliar application	Early spring application	1	-		20	100 - 500	28	DUP Downward directed broadcast foliar application within the access rows.1 With non-ionic surfactant (i.e. Trend® 90 0.1% v/v)
	EU	Winter cereals	F	Annual broadleavedweeds	Foliar spray	BBCH 12-29	1	-		15	100 - 400		TTF Autumn application
	EU	Winter cereals	F	Annual broadleavedweeds	Foliar spray	BBCH 12-39	1	-		30	100 - 400		TTF Spring application
	EU	Spring cereals	F	Annual broadleavedweeds	Foliar spray	BBCH 12-39	1	-		30	100 - 400		TTF Spring application

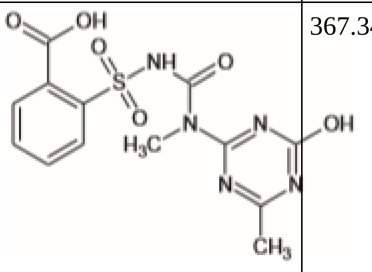
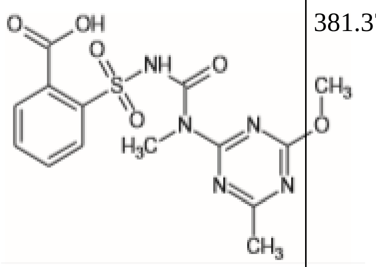
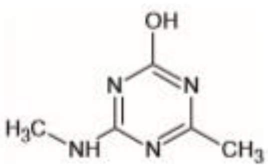
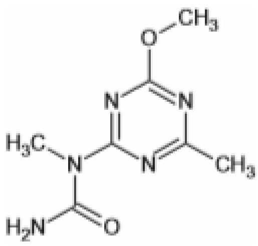
* Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0 should be given in column 1

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

8.2 Metabolites considered in the assessment

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

Metabolite	Chemical structure	Molar mass	Maximum observed occurence in compartements	Exposue assessment required due to
IN-L5296		154.17	Soil :85.7% Water/sediment: up to 88.9% (total system, 56 d), max 42% in water (14 d), max 86% in sediment (56 d)	Yes, required for all environmental compartments
IN-00581 saccharin		183.19	Soil :33.9% Water/sediment: up to 38.4% (total system, 14 d), max 32% in water (14 d), max 6.4% in sediment (14 d)	Yes, required for all environmental compartments
IN-A4098		10.14	Soil :12.6% Water/sediment: 0.0001% , 0.0001 % in water, 0.0001% in sediment	Yes, required for all environmental compartments
IN-D5119		201.20	Soil : 6.1% Water/sediment: up to 26.5% (total system, 56 d), max 19% in water (56 d), max 7.5% in sediment (56 d)	Yes , required for water and sediment compartments
IN-D5803		215.22	Soil :46.6% Water/sediment: 0.0001% , 0.0001 % in water, 0.0001% in sediment	Yes , required for water and sediment compartments
IN-GK521		381.37	Soil :32.1% Water/sediment: 0.0001% , 0.0001 % in water, 0.0001% in sediment	Yes , required for water and sediment compartments

Metabolite	Chemical structure	Molar mass	Maximum observed occurence in compartements	Exposue assessment required due to
IN-GN815		367.34	Soil : 6.8% Water/sediment: up to 13% (total system, 29 d), max 5.7% in water (42 d), max 9.2% in sediment (29 d)	Yes , required for water and sediment compartments
IN-R9803		381.37	Soil:9.1%	Requiring consideration for groundwater exposure
IN-R9805		140.15	Soil :7.6 % Water/sediment: up to 14.7% (total system, 71 d), max 9% in water (71 d), max 5.7% in sediment (71 d)	Yes, required for all environmental compartments
M2		197.19	Soil :16.2 % Water/sediment: 0.0001% , 0.0001 % in water, 0.0001% in sediment	Yes, required for all environmental compartments

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.

8.3.1.1 Tribenuron-methyl and its metabolites

Data on aerobic degradation in soil of the active substance and its metabolites are presented in the following tables.

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

Tribenuron-methyl, Laboratory studies, Dark aerobic conditions									
Soil name/ Soil type	**pH[a)]**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa[b)]**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Gross-Umstadt silt loam	7.5 (media not stated)	20°C	42% (0 bar)	16.4	91.3	15.2	7	FOMC (pers.) SFO (model.)	y/ EFSA Journal 2017;15(7):4912
Arrow sandy loam	5.9 (media not stated)	20°C	60%	1.7	11.9	3.6	7	FOMC: α=1.27 β=2.35	y/ EFSA Journal 2017;15(7):4912
Arrow sandy loam	5.9 (media not stated)	20°C	40%	1.8	13.1	- [c)]	6	HS: k1=0.378 k2=0.070 tb=4.5	y/ EFSA Journal 2017;15(7):4912
Arrow sandy loam	5.9 (media not stated)	10°C	60%	12.2	61.5	- [c)]	9	HS: k1=0.155 k2=0.033 tb=4.5	y/ EFSA Journal 2017;15(7):4912
Evesham clay loam	8.3 (media not stated)	20°C	100%	11.9	39.4	11.9	10	SFO	y/ EFSA Journal 2017;15(7):4912
Evesham clay loam	8.3 (media not stated)	10°C	100%	47.5	158	- [c)]	9	SFO	y/ EFSA Journal 2017;15(7):4912
Riverside sandy silt loam	6.8	20°C	40%	11.6	38.6	10.9	23	SFO	y/ EFSA Journal 2017;15(7):4912
Sion Hill silty loam	6.1	20°C	40%	5.4	17.8	4.2	12	DFOP (pers.) SFO (model.)	y/ EFSA Journal 2017;15(7):4912
Gardena silt loam	7.5 (media not stated	25°C	70% FC (pF2)	5.1	58.9	23.1	23	HS (pers.) SFO (mod.)	y/ EFSA Journal 2017;15(7):4912
Nambsheim sandy loam	7.4	20°C	50%	16.7	55.3	16.7	5	SFO	y/ EFSA Journal 2017;15(7):4912
Lleida clay loam	7.5	20°C	50%	18.3	60.7	16.8	4	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer sand	5.8	20°C	50%	1.6	18.5	9.0	14	HS (pers.) FOMC (model.) α=0.667 β=0.976	y/ EFSA Journal 2017;15(7):4912
Speyer 5M sandy loam	7.2	20°C	FC	18.5	61.5	18.5	6	SFO	y/ EFSA Journal

Tribenuron-methyl, Laboratory studies, Dark aerobic conditions									
Soil name/ Soil type	**pH[a)]**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**DT50 (d) 20°C pF2/10kPa[b)]**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
			(pF2)						2017;15(7):4912
Am Fishteich silt loam	6.2	20°C	FC (pF2)	2.9	9.7	2.9	14	SFO	y/ EFSA Journal 2017;15(7):4912
Loehmingen loam	6.7	20°C	FC (pF2)	4.6	15.4	4.6	11	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer 2.2 loamy sand	5.5	20°C	FC (pF2)	7.1	23.7	7.1	11	SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)						(9.1)			
pH dependence, Yes or No						Yes			
Geometric mean soils with pH<7 (n=7)						5.4			
Geometric mean soils with pH >7 (n= 6)						16.7			

Table 8.3-2: Summary of aerobic degradation rates for IN-L5296 - laboratory studies

IN-L5296, Laboratory studies, Dark aerobic conditions. Parent dosed studies with precursor for the f.f.: parent. Also, two metabolite (IN-L5296) dosed studies and one metabolite (IN-R9803) dosed study										
Soil name / type	**pH [a)]**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa [b)]**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Gross-Umstadt silt loam	7.5 (media not stated)	20°C	42% (0bar)	281	934	0.77	185	11	FOMC-SFO (pers.) SFO-SFO (model.)	y/ EFSA Journal 2017;15(7):4912
	7.4	20°C	42% (0bar)	204	678	-[c)]	165	3	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer sand	5.8	20°C	50%	151	502	0.66	293	3	HS-SFO (pers.) FOMC-SFO (model.)	y/ EFSA Journal 2017;15(7):4912
Arrow sandy loam	5.9	20°C	60%	337	1119	0.89	337	3	FOMC-SFO	y/ EFSA Journal 2017;15(7):4912
		20°C	40%	505	1678	0.87	-[c)]	4	FOMC-SFO	y/ EFSA Journal 2017;15(7):4912
Mattapex silt loam	6.6	20°C	47% (0bar)	105	348	-[c)]	96.5	6	SFO	y/ EFSA Journal 2017;15(7):4912
Tama silty clay loam	5.8	20°C	50% (0bar)	234	778	0.66[d]	234	7	DFOP-SFO	y/ EFSA Journal 2017;15(7):4912
Cajon loam	7.3	20°C	50% (0bar)	251	833	0.68[d]	243	7	DFOP-SFO	y/ EFSA Journal 2017;15(7):4912

IN-L5296, Laboratory studies, Dark aerobic conditions. Parent dosed studies with precursor for the f.f.: parent. Also, two metabolite (IN-L5296) dosed studies and one metabolite (IN-R9803) dosed study										
Soil name / type	**pH a)**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa b)**	**St. ($\chi2$)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Geometric mean (if not pH dependent)							207.5			
Arithmetic mean						0.76				
pH-dependency: y/n							No			

a) pH measured in CaCl2 for all soils except where stated otherwise.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7.
c) Metabolite-dosed study, hence no formation fraction determined.
d) Formation fraction from precursor IN-R9803 (anaerobic metabolite), not included in mean.
e) Result not used to calculate mean.

Table 8.3-3: Summary of aerobic degradation rates for IN-A4098 - laboratory studies

IN-A4098, Laboratory studies, Dark aerobic conditions. Metabolite (IN-A4098) dosed studies. Also one metabolite (IN-L5296) dosed study.										
Soil name / type	**pH a)**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa b)**	**St. ($\chi2$)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Arrow sandy loam	5.7	20°C	55%	44.7	97*	-c)	22.5*	14	Slow phase k in HS DT50 22.5*	y/ EFSA Journal 2017;15(7):4912
Gartenecker loam	6.9	20°C	FC (pF2)	102.2	339*	-c)	102.2*	4	SFO	y/ EFSA Journal 2017;15(7):4912
18 Acres, Sandy clay loam	5.0	20°C	FC (pF2)	249	828*	-c)	249*	1	SFO	y/ EFSA Journal 2017;15(7):4912
Krone Silt loam	4.9	20°C	FC (pF2)	191	634*	-c)	191*	4	SFO	y/ EFSA Journal 2017;15(7):4912
Honville Silt loam	6.7 (H_2O)	20°C	40%	260.1	864*	-c)	201.6*	-*	Slow phase k in HS DT50 26.1*	y/ EFSA Journal 2017;15(7):4912
Speyer 2.2 Loamy sand	5.7	20°C	45%	60.5	285	-c)	67.5	2	DFOP (pers.) SFO (model.)	y/ EFSA Journal 2017;15(7):4912
Speyer 3A Sandy loam	7.3	20°C	45%	280.4	>1000	-c)	385	2	HS: : k1=0.013 k2=0.002 tb=20	y/ EFSA Journal 2017;15(7):4912
Speyer 6S Clay loam	7.1	20°C	45%	333	>1000	-c)	230	1	SFO	y/ EFSA Journal 2017;15(7):4912
Gross-Umstadt silt loam	7.4	20°C	42% (0bar)	68.9	228.9	1.0 d	55.6	16	SFO-SFO	y/ EFSA Journal 2017;15(7):4912
Mattapex silt loam	6.6	20°C	47%	94.1	313	1.0 d	86.7	12	SFO-	y/ EFSA Journal

IN-A4098, Laboratory studies, Dark aerobic conditions. Metabolite (IN-A4098) dosed studies. Also one metabolite (IN-L5296) dosed study.										
Soil name / type	**pH a)**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa b)**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
			(0bar)						SFO	2017;15(7):4912
Already peer-reviewed endpoints from studies in other sulfonyl urea dossiers (metabolite applied as parent)										
Keyport Silt loam	4.3	25°C	70% FC	208	691*	-c)	254*	6	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer 2.1 sand	5.5	20°C	pF2	112.5	374*	-c)	112.5*	3	SFO	y/ EFSA Journal 2017;15(7):4912
Soil 115 clay loam	8.6	20°C	pF2	175.2	582	-c)	175.2*	3	SFO	y/ EFSA Journal 2017;15(7):4912
Soil 243 sandy loam	5.6	20°C	pF2	96.4	320.2	-c)	69.4*	6	SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)							127.7			
Arithmetic mean						1.0d				
pH dependence, Yes or No							No			

a) pH measured in CaCl2 for all soils except where stated otherwise.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7.
c) Metabolite-dosed study, hence no formation fraction determined.
d) The f. f. for the formation from the precursor IN-L5296 was not optimised but set to 1.0 as a worst case.
* Peer-reviewed endpoint as presented in EFSA conclusion on thifensulfuron-methyl (EFSA, 2015c)
Values in brackets not used for calculation of overall mean (results will be subject to Expert's consultation)

Table 8.3-4: Summary of aerobic degradation rates for IN-00581- laboratory studies

IN-00581, Laboratory studies,Dark aerobic conditions. Metabolite (IN-00581) dosed studies.										
Soil name / type	**pH a)**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa b)**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Mattapex Silt loam	6.4	20°C	55% (0 bar)	237.4	788.6*	-c)	237.4*	4	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer 2.2 Loamy sand	5.7	20°C	45%	16.7	32.2*	-c)	9.7*	5	Mod. HS* (DT 90/3.32)	y/ EFSA Journal 2017;15(7):4912
Speyer 3A Sandy loam	7.3	20°C	45%	16.9	34*	-c)	9.5*	5	Mod. HS* (DT 90/3.32)	y/ EFSA Journal 2017;15(7):4912
Speyer 6S Clay loam	7.1	20°C	45%	49.3	99.2*	-c)	20.6*	6	Mod. HS* (DT 90/3.32)	y/ EFSA Journal 2017;15(7):4912
Already peer-reviewed endpoints from studies in other sulfonyl urea dossiers (metabolite applied as parent)										
Quincy loamy sand	6.4	20°C	8.2% moisture	22.7	75.4**	-c)	15.6**	7	SFO	y/ EFSA Journal 2017;15(7):4912

IN-00581, Laboratory studies,Dark aerobic conditions. Metabolite (IN-00581) dosed studies.										
Soil name / type	**pH a)**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa b)**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Speyer 2.2	5.7	20°C	45%	14.8	49.2*	-c)	14.8*	13	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer 2.3	6.9	20°C	45%	9.1	30.1*	-c)	8.45*	16	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer 6S	7.2	20°C	45%	27.5	91.2*	-c)	20.47*	12	SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)							19.1			
Arithmetic mean						1d)				
pH dependence, Yes or No							No			

a) Media in which pH was measured is not reported.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7.
c) Metabolite-dosed study, hence no formation fraction determined.
d) No f.f. values available so default value of 1 presented for use in modelling.
* Peer-reviewed endpoints as presented in EFSA conclusion on metsulfuron-methyl (EFSA Journal 2015;13(1):3936)
** Peer-reviewed endpoint as presented in EFSA conclusion on propoxycarbazone (EFSA Journal 2016;14(10):4612)

Table 8.3-5: Summary of aerobic degradation rates for IN-R9805- laboratory studies

IN-R9805, Laboratory studies, Dark aerobic conditions. Metabolite (IN-R9805) dosed studies. Also one metabolite (IN-GK521) dosed study										
Soil name /type	**pH a)**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa b)**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Nambsheim sandy loam	7.5	20°C	FC (pF2)	91.6	304.4	-c)	91.6	5	SFO	y/ EFSA Journal 2017;15(7):4912
	7.3	20°C	50%	82.8	275.1	-c)	82.8	3	SFO	y/ EFSA Journal 2017;15(7):4912
Porterville loam	7.7	20°C	FC (pF2)	73.9	245	-c)	73.9	8	SFO	y/ EFSA Journal 2017;15(7):4912
Gross-Umstadt loam	6.3	20°C	FC (pF2)	172.4	921	-c)	330	5	DFOP: k1=0.179 k2=0.002 g=0.3	y/ EFSA Journal 2017;15(7):4912
Speyer loamy sand	5.5	20°C	50% (0 bar)	97.6	324	-c)	97.6*	2	SFO	y/ EFSA Journal 2017;15(7):4912
	5.3			355	1178	0.76d	355*	7	SFO-SFO	y/ EFSA Journal 2017;15(7):4912
Lleida silty clay	7.7	20°C	50% (0 bar)	86.5	287	-c)	79.2	3	SFO	y/ EFSA Journal 2017;15(7):4912
Tama silty clay loam	5.4	20°C	50% (0 bar)	91.5	304	-c)	84.4*	3	SFO	y/ EFSA Journal 2017;15(7):4912
	5.7			380	1262	0.77d	315*	3	DFOP-SFO	y/ EFSA Journal 2017;15(7):4912

IN-R9805, Laboratory studies, Dark aerobic conditions. Metabolite (IN-R9805) dosed studies. Also one metabolite (IN-GK521) dosed study										
Soil name /type	**pH a)**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa b)**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Sassafras sandy loam	5.6	20°C	50% (0 bar)	90.8	302	- c)	90.8	3	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer 2.2 loamy sand	5.5	20°C	~37%	26.0	86.5	- c)	26.0	5	SFO	y/ EFSA Journal 2017;15(7):4912
Fisilis silty clay loam	7.2	20°C	~47%	17.6	58.3	- c)	14.1	6	SFO	y/ EFSA Journal 2017;15(7):4912
LRA J3 clay loam	7.5	20°C	~41%	42.7	142	- c)	29.1	3	SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)							85.4*			
Arithmetic mean						1 e)				
pH dependence, Yes or No						No				

a) pH measured in CaCl2 for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7.
c) Metabolite-dosed study, hence no formation fraction determined
d) Formation fraction from precursor IN-GK521 (anaerobic metabolite).
e) No f.f. available except from the precursor IN-GK521. As this is a metabolite only formed in anaerobic conditions not relevant for use of TOSCANA, a default value of 1 is presented.
* In case of two or more values for the same soil (and same type of study) the geometric mean DT50 was first calculated. A single value was used for each soil to derive overall geomean.

Table 8.3-6: Summary of aerobic degradation rates for M2- laboratory studies

M2, Dark aerobic conditions. Metabolite (M2) dosed studies.										
Soil name / type	**pH a)**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa b)**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Speyer 2.2. loamy sand	5.5	20°C	~37%	11.0	36.5	- c)	11.0	5	FOMC (pers.): α=2.16 β=25.3 SFO (model.)	y/ EFSA Journal 2017;15(7):4912
Fisilis silty clay loam	7.2	20°C	~46%	20.6	68.4	- c)	16.5	5	HS (pers.): k1=0.044 k2=0.015 tb=18.9 SFO (model.)	y/ EFSA Journal 2017;15(7):4912
LRA J3 clay loam	7.5	20°C	~42%	23.3	77.2	- c)	16.1	3	HS (pers.): k1=0.045 k2=0.012 tb=16.9 SFO (model.)	y/ EFSA Journal 2017;15(7):4912

M2, Dark aerobic conditions. Metabolite (M2) dosed studies.										
Soil name / type	**pH a)**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa b)**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Arrow sandy loam	5.9	20°C	60%	73.2	244	0.04	73.2	17	FOMC-SFO	y/ EFSA Journal 2017;15(7):4912
		10°C	60%	64.3	214	0.06	-d	18	HS-SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)							21.5			
Arithmetic mean						-ce 0.05				
pH dependence, Yes or No						No				

a) pH measured in CaCl2 for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7.
c) Metabolite-dosed study, hence no formation fraction determined.
d) Result not used to calculate mean.
e) According to EFSA Journal 2017;15(7):4912 the correct ff that should be used is 0.24

Table 8.3-7: Summary of aerobic degradation rates for IN-D5803 - laboratory studies

IN-D5803, Dark aerobic conditions. Metabolite (IN-D5803) dosed studies										
Soil name / type	**pH a)**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa b)**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Lleida clay loam	8.0	20°C	50% (0 bar)	1.0	3.2*	-c)	0.9*	3	SFO	y/ EFSA Journal 2017;15(7):4912
Tama silty clay loam	6.1	20°C	50% (0 bar)	5.1	17.1*	-c)	4.1*	8	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer 2.2 loamy sand	6.3	20°C	50% (0 bar)	1.9	6.1*	-c)	1.9*	21	SFO	y/ EFSA Journal 2017;15(7):4912
	5.7	20°C	45%	11.7	38.8*	-c)	11.7*	4	SFO	y/ EFSA Journal 2017;15(7):4912
Gross-Umstadt loam	7.3	20°C	50% (0 bar)	1.3	4.5*	-c)	1.2*	9	SFO	y/ EFSA Journal 2017;15(7):4912
Sassafras sandy loam	5.7	20°C	50% (0 bar)	9.2	87.7*	-c)	26.4*	-*	FOMC DT90/3.32	y/ EFSA Journal 2017;15(7):4912
Speyer 3A Sandy loam	7.3	20°C	45%	1.9	6.4*	-c)	1.8*	6	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer 6S clay loam	7.1	20°C	45%	3.4	11.1*	-c)	2.3*	4	SFO	y/ EFSA Journal 2017;15(7):4912

IN-D5803, Dark aerobic conditions. Metabolite (IN-D5803) dosed studies										
Soil name / type	**pH [a)]**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa [b)]**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Geometric mean (if not pH dependent)							3.2			
Arithmetic mean						-[c)]				
pH dependence, Yes or No						No				

a) pH measured in CaCl2 for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7.
c) Metabolite-dosed study, hence no formation fraction determined.(* Peer-reviewed endpoints as presented in EFSA conclusion on metsulfuron-methyl (EFSA Journal 2015;13(1):3936)

Table 8.3-7: Summary of aerobic degradation rates for IN-R9803- laboratory studies

IN-R9803, Dark aerobic conditions. Metabolite (IN-R9803) dosed studies.										
Soil name /type	**pH [a)]**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa [b)]**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Speyer loamy sand	5.2	20°C	50% (0 bar)	6.1	45.0	-[c)]	17.6	7	FOMC: α=0.95 β=5.63	y/ EFSA Journal 2017;15(7):4912
Lleida silty clay	7.5	20°C	50% (0 bar)	3.2	22.0	-[c)]	6.3	4	FOMC: α=1.3 β=4.49	y/ EFSA Journal 2017;15(7):4912
Tama silty clay loam	5.8	20°C	50% (0 bar)	3.3	43.3	-[c)]	13.0	4	FOMC: α=0.77 β=2.29	y/ EFSA Journal 2017;15(7):4912
Nambsheim sandy loam	7.3	20°C	50% (0 bar)	5.2	54.2	-[c)]	16.3	9	FOMC: α=0.89 β=4.41	y/ EFSA Journal 2017;15(7):4912
Cajon loam	7.3	20°C	45% (0 bar)	2.6	39.0	-[c)]	17.7	4	DFOP: k1=0.647 k2=0.038 g=0.6	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)							13.3			
Arithmetic mean						-[c)]				
pH dependence, Yes or No						No				

a) pH measured in $CaCl_2$ for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7.
c) Metabolite-dosed study, hence no formation fraction determined.

Table 8.3-8: Summary of aerobic degradation rates for IN-GN815- laboratory studies

IN-GN815, Dark aerobic conditions. Metabolite (IN-GN815) dosed studies										
Soil name /type	**pH [a)]**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa [b)]**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Speyer loamy sand	5.2	20°C	50% (0 bar)	7.0	29.1	-[c)]	7.9	3	DFOP (pers.): k1=0.965 k2=0.073 g=0.2 SFO (model.)	y/ EFSA Journal 2017;15(7):4912
Lleida silty clay	7.5	20°C	50% (0 bar)	6.3	32.9	-[c)]	6.8	5	DFOP (pers.): k1=0.574 k2=0.06 g=0.3 SFO (model.)	y/ EFSA Journal 2017;15(7):4912
Tama silty clay loam	5.6	20°C	50% (0 bar)	5.0	27.5	-[c)]	5.4	4	DFOP (pers.): k1=0.725 k2=0.077 g=0.3 SFO (model.)	y/ EFSA Journal 2017;15(7):4912
Nambsheim sandy loam	7.5	20°C	50% (0 bar)	9.2	40.9	-[c)]	10.9	4	DFOP (pers.): k1=0.861 k2=0.051 g=0.2 SFO (model.)	y/ EFSA Journal 2017;15(7):4912
Sassafras loamy sand	4.9	20°C	50% (0 bar)	7.2	30.9	-[c)]	8.2	4	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer 2.2 loamy sand	5.5	20°C	37% (0 bar)	4.0	13.3	-[c)]	4.0	11	SFO	y/ EFSA Journal 2017;15(7):4912
Fisilis silty clay loam	6.1	20°C	46% (0 bar)	5.6	18.6	-[c)]	4.5	10	SFO	y/ EFSA Journal 2017;15(7):4912
LRA J3 clay loam	7.5	20°C	43% (0 bar)	23.5	78.0	-[c)]	16.2	6	SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)							7.2			
Arithmetic mean						1[d)]				
pH dependence, Yes or No						No				

a) pH measured in $CaCl_2$ for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7.
c) Metabolite-dosed study, hence no formation fraction determined.
d) No f.f. values available so default value of 1 presented for use in modelling.

Table 8.3-9: Summary of aerobic degradation rates for IN-GK521 - laboratory studies.

IN-GK521, Dark aerobic conditions. Metabolite (IN-GK521) dosed studies.										
Soil name / type	**pH [a)]**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa [b)]**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Speyer loamy sand	5.3	20°C	50% (0 bar)	4.8	15.9	-[c)]	4.8	5	SFO	y/ EFSA Journal 2017;15(7):4912
Lleida silty clay	7.7	20°C	50% (0 bar)	38.8	128.8	-[c)]	32.6	9	SFO	y/ EFSA Journal 2017;15(7):4912
Tama silty clay loam	5.7	20°C	50% (0 bar)	5.0	25.7	-[c)]	4.2	4	DFOP (pers.): k1=0.725 k2=0.077 g=0.3 SFO (model.)	y/ EFSA Journal 2017;15(7):4912
Nambsheim sandy loam	7.5	20°C	50% (0 bar)	33.0	109.7	-[c)]	33.0	8	SFO	y/ EFSA Journal 2017;15(7):4912
Sassafras loamy sand	4.7	20°C	50% (0 bar)	7.9	31.5	-[c)]	8.8	3	DFOP (pers.): k1=1.97 k2=0.068 g=0.1 SFO (model.)	y/ EFSA Journal 2017;15(7):4912
Speyer 2.2 loamy sand	5.5	20°C	36%	9.4	31.3	-[c)]	9.4	11	SFO	y/ EFSA Journal 2017;15(7):4912
Fisilis silty clay loam	6.1	20°C	46%	9.5	31.5	-[c)]	7.7	10	SFO	y/ EFSA Journal 2017;15(7):4912
LRA J3 clay loam	7.5	20°C	40%	51.9	172	-[c)]	34.0	6	SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)							12.1			
Arithmetic mean						1[)]				
pH dependence, Yes or No						No				

a) pH measured in $CaCl_2$ for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7.
c) Metabolite-dosed study, hence no formation fraction determined.

Table 8.3-11: Summary of aerobic degradation rates for IN-D5119 - laboratory studies

IN-D5119, Dark aerobic conditions. Metabolite (IN-D5119) dosed studies										
Soil name / type	**pH [a)]**	**t.ºC**	**MWHC %**	**DT50 (d)**	**DT90 (d)**	**f. f. k_f / k_{dp}**	**DT50 (d) 20°C pF2/10kPa [b)]**	**St. (χ2)**	**Kinetic model**	**Evaluated on EU level y/n/ Reference**
Lleida silty clay	7.9	20°C	50% (0 bar)	7.4	24.5*	-[c)]	6.6*	14	SFO	y/ EFSA Journal 2017;15(7):4912
Sassafras loamy sand	5.3	20°C	50% (0 bar)	15.6	51.8	-[c)]	15.6	8	SFO	y/ EFSA Journal 2017;15(7):4912
Tama silty clay loam	6.1	20°C	50% (0 bar)	5.9	19.6*	-[c)]	4.8*	8	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer 2.2 loamy sand	6.3	20°C	50% (0 bar)	7.2	23.8*	-[c)]	7.2*	10	SFO	y/ EFSA Journal 2017;15(7):4912
Nambsheim sandy loam	7.4	20°C	50% (0 bar)	9.6	31.9*	-[c)]	9.0*	10	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer 2.2 loamy sand	5.7	20°C	45%	10.1	33.7*	-[c)]	10.1*	7	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer 3A sandy loam	7.3	20°C	45%	12.6	41.9*	-[c)]	11.8*	7	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer 6S clay loam	7.1	20°C	45%	115.7	384.4*	-[c)]	79.9*	3	SFO	y/ EFSA Journal 2017;15(7):4912
Already peer-reviewed endpoints from studies in other sulfonyl urea dossiers (metabolite applied as parent)										
LUFA Speyer 2.2 loamy sand	5.5	-	-	36.2	120.2*	-[c)]	36.2*	6	SFO	y/ EFSA Journal 2017;15(7):4912
LUFA Speyer 3A sandy loam	6.8	-	-	17.7	58.8*	-[c)]	17.7*	8	SFO	y/ EFSA Journal 2017;15(7):4912
LUFA Speyer 6S clay	7.1	-	-	31.1	103.4*	-[c)]	31.1*	14	SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)							14.5			
Arithmetic mean						1-[d)]				
pH dependence, Yes or No						No				

a) pH measured in $CaCl_2$ for all soils.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7.
c) Metabolite-dosed study, hence no formation fraction determined.
d) No f.f. values available so default value of 1 presented for use in modelling.
*Peer-reviewed endpoints as presented in EFSA conclusion on metsulfuron-methyl (EFSA Journal 2015;13(1):3936)

8.3.2 Anaerobic degradation in soil (KCP 9.1.1.1)

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

Table 8.3-10: Rate of degradation in soil (anaerobic) laboratory studies Tribenuron-methyl

Tribenuron-methyl, Dark anaerobic conditions							
Soil type / Location	**pH[a)]**	**t. °C / % MWHC**	**DT50 / DT90 (d)**	**DT50 (d) 20 °C[b)]**	**St. (χ^2)**	**Method of calculation**	**Evaluated on EU level y/n/ Reference**
Gross-Umstadt loam	6.1	20°C / flooded	72 / 239	-	4	SFO	y/ EFSA Journal 2017;15(7):4912
Bettlach Bh silt loam	7.3	20°C / flooded	45.6 / 151	-	6	SFO	y/ EFSA Journal 2017;15(7):4912
Speyer 3A loam	7.2	20°C / flooded	123 / 409	-	3	SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)				-			

a) pH measured in $CaCl_2$ for all soils.
b) Normalised using a Q10 of 2.58.

Table 8.3-11: Rate of degradation in soil (anaerobic) laboratory studies transformation products

IN-L5296 -Dark anaerobic conditions. Parent dosed studies with precursor for the f.f.: parent								
Soil type / Location	**pH[a)]**	**t. °C / % MWHC**	**DT50 / DT90 (d)**	**f.f.k_f / k_{dp}**	**DT50 (d) 20 °C[b)]**	**St. (χ^2)**	**Method of calculation**	**Evaluated on EU level y/n/ Reference**
Gross-Umstadt loam	6.1	20°C / flooded	216 / 719	0.39	-	8	SFO-SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)					-			
Arithmetic mean				0.39				

a) pH measured in $CaCl_2$.
b) Normalised using a Q10 of 2.58.

Table 8.3-14: Rate of degradation in soil (anaerobic) laboratory studies transformation products

IN-R9803 -Dark anaerobic conditions. Parent dosed studies with precursor for the f.f.: parent								
Soil type / Location	**pH[a)]**	**t. °C / % MWHC**	**DT50 / DT90 (d)**	**f.f.k_f / k_{dp}**	**DT50 (d) 20 °C[b)]**	**St. (χ^2)**	**Method of calculation**	**Evaluated on EU level y/n/ Reference**
Gross-Umstadt loam	6.1	20°C / flooded	87.0/ 289.1	0.18	-	10	SFO-SFO	y/ EFSA Journal 2017;15(7):4912

IN-R9803 -Dark anaerobic conditions. Parent dosed studies with precursor for the f.f.: parent								
Soil type / Location	**pH a)**	**t. °C / % MWHC**	**DT50 / DT90 (d)**	**f.f.k_f / k_{dp}**	**DT50 (d) 20 °C b)**	**St. (x^2)**	**Method of calculation**	**Evaluated on EU level y/n/ Reference**
Speyer 3A loam	7.2	20°C / flooded	73.4/ 244	0.35	-	10	SFO-SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)					-			
Arithmetic mean				0.27				

a) pH measured in $CaCl_2$.
b) Normalised using a Q10 of 2.58.

Table 8.3-15: Rate of degradation in soil (anaerobic) laboratory studies transformation products

IN-GK521-Dark anaerobic conditions. Parent dosed studies with precursor for the f.f.: parent								
Soil type / Location	**pH a)**	**t. °C / % MWHC**	**DT50 / DT90 (d)**	**f.f.k_f / k_{dp}**	**DT50 (d) 20 °C b)**	**St. (x^2)**	**Method of calculation**	**Evaluated on EU level y/n/ Reference**
Speyer 3A loam	7.2	20°C / flooded	67.1 / 223	0.23	-	10	SFO-SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)					-			
Arithmetic mean				0.23				

a) pH measured in $CaCl_2$.
b) Normalised using a Q10 of 2.58.

8.4 Field studies (KCP 9.1.1.2)

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

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

Data on soil dissipation of the active substance and its metabolites are presented in the following tables.

Table 8.4-1: Rate of degradation field soil dissipation studies

Tribenuron-methyl, Field studies Aerobic conditions									
Soil type (indicate if bare or cropped soil was used).	**Location (country or USA state).**	**pH a)**	**Depth (cm)**	**DT50 (d) actual**	**DT90 (d) actual**	**St. (x^2)**	**DT50 (d) Norm b**	**Method of calculation**	**Evaluated on EU level y/n/ Reference**
Clay loam (bare)	United Kingdom	7.6	0-30	34.7	115	6	10.4	SFO	y/ EFSA Journal

Tribenuron-methyl, Field studies Aerobic conditions									
Soil type (indicate if bare or cropped soil was used).	**Location (country or USA state).**	**pH a)**	**Depth (cm)**	**DT50 (d) actual**	**DT90 (d) actual**	**St. (x^2)**	**DT50 (d) Norm[b]**	**Method of calculation**	**Evaluated on EU level y/n/ Reference**
									2017;15(7):4912
Silt loam (bare)	N Germany	6.6	0-30	2.6	8.7	7	2.7	FOMC DT90/3.32	y/ EFSA Journal 2017;15(7):4912
Clay (bare	Spain	8.1	0-30	5.8	19.3	8	5.1	SFO	y/ EFSA Journal 2017;15(7):4912
Loam (bare)	Italy	6.1	0-30	0.5	5.8	4	1.7	FOMC DT90/3.32	y/ EFSA Journal 2017;15(7):4912
Silt loam (bare)	N France	6.5	0-30	1.7 (3.4[c])	11.2	3	5.2	DFOP (slow phase)	y/ EFSA Journal 2017;15(7):4912
Saint Genouph	N France	7.9	0-30	1.5	5.1	-[d]	-[d]	-[d]	y/ EFSA Journal 2017;15(7):4912
Frankenhardt	S Germany	7.2	0-30	5.6	19	-[d]	-[d]	-[d]	y/ EFSA Journal 2017;15(7):4912
Saint Loubert	S France	5.2	0-30	0.58 (4.5[c])	10.7	8.8	2.2	SFO	y/ EFSA Journal 2017;15(7):4912
Villena	Spain	8.2	0-30	2.5 (3.5[c])	11.7	4	3.0	SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)							3.6		y/ EFSA Journal 2017;15(7):4912
pH dependence, Yes or No				No					

a) Measured in water.
b) Values are DegT50matrix and normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7. c) Back-calculated DT50; DT50 = DT90/3.32 or slow phase DFOP.
d) Modelling endpoints cannot be calculated due to significant levels of residues of tribenuron-methyl in the deepest sampled soil layer

Table 8.4-2: Summary of aerobic degradation rates for IN-00581 - field studies

IN-00581, Field studies – Aerobic conditions. Parent dosed studies. Precursor for the f.f.: parent										
Soil type	**Location**	**pH a)**	**Depth (cm)**	**DT50 (d) actual**	**DT90 (d) actual**	**St. (x^2)**	**DT50 (d) Norm[b)]**	**f. f. k_f / k_{dp}**	**Method of calc.**	**Evaluated on EU level y/n/ Reference**
GochNierswalde	N Germany	6.6	0-30	4.5	15.0	9	4.5	0.61	FOMC-SFO	y/ EFSA Journal 2017;15(7):4912

Termens	Spain	8.1	0-30	10.6	35.1	8	10.6	0.39	SFO-SFO	y/ EFSA Journal 2017;15(7):4912
Graffignana	Italy	6.1	0-30	7.4	24.7	12	7.4	0.64	FOMC-SFO	y/ EFSA Journal 2017;15(7):4912
Douai	N France	6.5	0-30	6.5	21.6	17	6.5	0.55	FOMC-SFO	y/ EFSA Journal 2017;15(7):4912
Frankenhardt	Germany	6.7	0-30	26.4	87.7	-[c)]	-[c)]	-[c)]	SFO-SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)							6.9			y/ EFSA Journal 2017;15(7):4912
Arithmetic mean								0.55		y/ EFSA Journal 2017;15(7):4912
pH dependence, Yes or No					No					

a) Measured in water.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7.
c) Modelling endpoints cannot be calculated due to significant levels of residues of tribenuron-methyl in the deepest sampled soil layer

Table 8.4-3: Summary of aerobic degradation rates for IN-L5296- field studies

IN-L5296, Field studies – Aerobic conditions. Parent dosed studies. Precursor for the f.f.: parent										
Soil type	**Location**	**pH** [a)]	**Depth (cm)**	**DT50 (d) actual**	**DT90 (d) actual**	**St. (χ^2)**	**DT50 (d) Norm**[b)]	**f. f. k_f / k_{dp}**	**Method of calc.**	**Evaluated on EU level y/n/ Reference**
Graffignana	Italy	6.1	0-30	171	1312	-[d]	-[d]	-[d]	DFOP[c]	y/ EFSA Journal 2017;15(7):4912
Douai	N France	6.5	0-30	431	1433	-[d]	-[d]	-[d]	SFO[c]	y/ EFSA Journal 2017;15(7):4912
Frankenhardt,	Germany	6.7	0-30	93.8	312	-[e]	-[e]	-[e]	SFO-SFO	y/ EFSA Journal 2017;15(7):4912
Saint Loubert	S France	5.2	0-30	47.5	490	-[d]	-[d]	-[d]	HS[c]	y/ EFSA Journal 2017;15(7):4912
Villena	Spain	8.2	0-30	174	578	12	174	0.31	DFOP-SFO	y/ EFSA Journal 2017;15(7):4912
Geometric mean (if not pH dependent)							174			y/ EFSA Journal 2017;15(7):4912
Arithmetic mean								0.31		y/ EFSA Journal 2017;15(7):4912

pH dependence, Yes or No	No

a) Measured in water.
b) Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7.
c) Decline fit from peak level
d) No acceptable fit for monitoring
e) Modelling endpoints cannot be calculated due to significant levels of residues of tribenuron-methyl in the deepest sampled soil layer

8.4.2 Soil accumulation testing (KCP 9.1.1.2.2)

No study available, not requested. For calculated PEC,plateau see section on PECsoil (EFSA Journal 2017;15(7):4912)

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 and metabolites as presented in the following tables.

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

Tribenuron-methyl								
Soil name/ type	**OC (%)**	**Soil pH[a)]**	**K_d(mL/g)**	**K_{doc}(mL/g)**	**K_F (mL/g)**	**K_{Foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
LRA A0, Sandy loam	1.51	5.4			0.98	65.3	0.99	y/ EFSA Journal 2017;15(7):4912
LR AD, Silty clay	2.61	5.7			0.63	24.2	0.99	
Tama, Loam	1.91	5.4			1.12	58.9	1.11	
Lleida, Silty clay	1.1	7.7			0.05	4.55	0.92	
Nambsheim, Sandy loam	1.45	7.3			0.12	8	0.99	
Gross-Umstadt, Silt loam	1.2	7.7			0.1	9.8	0.99	
Arrow, Sandy loam	2.3	5.7			1.7	73.7	0.9	
Mattapex, Silt loam	2.6	6.4			0.3	11.3	0.99	
Matapeake, Loam	1.7	6.5			0.8	44.6	0.92	
Nambsheim, Sandy loam	0.7	8.2			0.1	15.1	1.08	
Geometric mean (if not pH dependent) **						(21.3)	-	
Arithmetic mean							0.99	
pH-dependency y/n						y		
Geometric mean for pH < 7 => $K_{F,OC}$ = 38.9 (36.7–41.0)* l/kg_{OC} (n = 6) Geometric mean for pH > 7 => $K_{F,OC}$ = 8.6 (6.4–10.8)* l/kg_{OC} (n = 4)								

a) All 10 soil pH-values were measured in calcium chloride 0.01 M with a soil:solution ratio 1:1 or 1:2.
* Ranges in paranthesis is the 95% confidence interval (from Excel Add In Analysis ToolPak)

Table 8.5-2: Summary of soil adsorption/desorption for M2

M2								
Soil name/ type	**OC (%)**	**Soil pH[a)]**	**K_d(mL/g)**	**K_{doc}(mL/g)**	**K_F (mL/g)**	**K_{Foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
LRA J3, Clay loam	1.8	7.5			1.74	96.5	0.85	y/ EFSA Journal 2017;15(7):4912
Fislis, Silty clay loam	2.2	6.1			2.18	98.9	0.88	
Speyer 2.2 *	1.6	5.5	-	-	0.637	39.5	0.84	
Geometric mean (if not pH dependent)						72.2	-	
Arithmetic mean (if not pH dependent)							0.86	
pH-dependency y/n						No (only two samples)		

a) Measured in 0.01 M calcium chloride solution, soil: solution ratio was not stated (for pH).
* will depend on outcome of Evaluation Table (Data Requirement 4.6 + Data Requirement 4.9) and the corresponding Reporting Table points 4(81) + 4(110).

Table 8.5-3: Summary of soil adsorption/desorption for IN-00581

Metabolite Saccharin (IN-00581)								
Soil name/ type	**OC (%)**	**Soil pH**	**K_d(mL/g)**	**K_{doc}(mL/g)**	**K_F (mL/g)**	**K_{Foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Gross- Umstadt, Silt loam	1.2	7.7 [f]			0.2	20.2	0.94	y/ EFSA Journal 2017;15(7):4912
Arrow, Sandy loam	2.3	5.7 [f]			0.3	14.2	0.88	
Mattapex, Silt loam	2.6	6.4 [f]			0.3	11.7	0.94	
2.2, Loamy sand	1.97	5.4 [a]	0.09 [c]	4.4 [c]	Na	Na	Na	
3A, Sandy loam	2.42	7.3 [a]	0.04 [c]	1.5 [c]	Na	Na	Na	
6S, Clay loam	1.84	6.9 [a]	0.06 [c]	3 [c]	Na	Na	Na	
BBA 2.2 loamy sand e	2.5	6.1 [b]			0.13 [d]	5.2 [d]	0.95 [d]	
Höfchen silt e	2.7	7.8 [b]			0.12 [d]	4.6 [d]	0.94 [d]	
Laacherhof silt loam e	0.86	8.1 [b]			0.044 [d]	5.2 [d]	0.97 [d]	
Ephrata loamy sand e	0.37	6.8 [b]			0.025 [d]	6.7 [d]	0.95 [d]	
Stilwell silty clay e	1.6	6.7 [b]			0.25 [d]	15.5 [d]	0.92 [d]	
Speyer 2.1 sand e	0.56	6 [f]			0.01	1.8	0.92	
Soil 115 clay loam e	1.7	7.4 [f]			0.038	2.2	0.71	
Soil 164 silt loam e	3	6.5 [f]			0.125	4.2	0.93	
Soil 243 sandy loam e	1.1	4.3 [f]			0.0445	4	1.01	
Maryland clay e	-	-			-	3	0.94	
Maryland sandy loam e	-	-			-	3	1.05	
California loam e	-	-			-	6	0.53	
Geometric mean (if not pH dependent)						5.6	-	
Arithmetic mean (if not pH dependent)							0.90	

Metabolite Saccharin (IN-00581)								
Soil name/ type	**OC (%)**	**Soil pH**	**K_d(mL/g)**	**K_{doc}(mL/g)**	**K_F (mL/g)**	**K_{Foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
pH-dependency y/n						No		

a) Measured in [medium to be stated, usually calcium chloride solution or water].
b) Measured in H_2O.
c) at 19–20 mg/l.
d) Results for all soils are considered uncertain/highly uncertain (low adsorption; product [Kd x (soil:solution ratio)] <0.3).
e) Results from other dossiers, refer to EFSA conclusions on the peer review of the active substance metsulfuronmethyl (EFSA, 2015), propoxycarbazone (EFSA, 2016) and oxasulfuron (EFSA, in progress).
f) Medium not stated.
Na: not analyzed for isotherm (only Tier 1 & 2).

Table 8.5-4: Summary of soil adsorption/desorption for IN-A4098

Metabolite IN-A4098 (a.k.a. AE F059411, CGA150829, triazine amine, 2-amino-4-methoxy-6-methyl-triazin, 4-methoxy-6methyl-1,3,5-triazin-2-amine, BCS-CN85650)								
Soil name/ type	**OC (%)**	**Soil pH**	**K_d(mL/g)**	**K_{doc}(mL/g)**	**K_F (mL/g)**	**K_{Foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Gross- Umstadt, Silt loam	1.2	7.7 [c]			0.225	18.8	1.05	y/ EFSA Journal 2017;15(7):4912
Arrow, Sandy loam	2.3	5.7 [c]			0.682	29.7	0.94	
Mattapex, Silt loam	2.6	6.4 [c]			0.433	16.7	0.96	
SL S, silt loam	2.1	7.0 [a]			0.433	21.3	0.87	
LS 2.2, loamy sand	2.0	6.0 [a]			0.298	15.3	0.91	
SL V , sandy loam	0.4	6.0 [a]			0.315	73.3	0.84	
3A, Silty Sand	2.42	7.3 [a]			0.435	17.97	0.76	
6S, Sandy Loam	1.84	6.9 [a]			0.0543	2.951	1.42	
2.2, Clay Loam	1.97	5.4 [a]			0.3728	18.92	0.64	
Myaka, sandy soil	0.58	6.2 [a]			0.264	46	0.87	
Sassafras, sandy loam	0.46	6.3 [a]			0.621	134	0.78	
Matapeake, silt loam	1.1	5.3 [a]			2.36	214	0.84	
Drummer, silty clay loam	3	5.7 [a]			6.8	226	0.84	
Laacher Hof Wurmwiese, loam	1.8	5.3 [b]			1.321	73.4	0.92	
Hoefchen Am Hohenseh 4a, silt loam	2.4	6.6 [b]			0.481	20.0	0.98	
Les Cayades, clay loam	0.9	7.6 [b]			0.561	62.3	0.92	
Guadalupe, sandy loam	0.7	6.7 [b]			0.675	96.5	0.95	
Springfield, silt loam	1.7	6.6 [b]			3.147	185.1	0.90	
Honville loamy silt d	0.9	6.7 [a]			1.57	172.0	0.84	
Speyer 2.1 d	0.56	6.0 [e]			0.2025	36	0.92	

Metabolite IN-A4098 (a.k.a. AE F059411, CGA150829, triazine amine, 2-amino-4-methoxy-6-methyl-triazin, 4-methoxy-6methyl-1,3,5-triazin-2-amine, BCS-CN85650)								
Soil name/ type	**OC (%)**	**Soil pH**	**K_d(mL/g)**	**K_{doc}(mL/g)**	**K_F (mL/g)**	**K_{Foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Standard soil no. 115 d	1.7	7.4 [e]			0.6255	37	0.89	
Standard soil no. 164 d	3	6.5 [e]			0.645	22	0.92	
Standard soil no. 243 d	1.1	4.3 [e]			0.337	31	0.91	
Agricultural sand §	0.35	7.9 [a]			0.2326	66.5	0.87	
Sandy Loam §	0.99	7.8 [a]			0.57	58.2	0.902	
Silt Loam §	1.7	6.5 [a]			0.9612	55.2	0.85	
Silty Clay Loam §	0.70	6.9 [a]			1.2010	171.6	0.82	
Geometric mean (if not pH dependent), N = 27						45.6	-	
Arithmetic mean (if not pH dependent), N = 27							0.90	
Median (since N > 9)						46	-	
pH-dependency y/n						No (no correlation of $K_{F,OC}$ versus pH, neither for log $K_{F,OC}$ versus pH)		

a) Solution in which pH was measured is not stated.
b) Measured in $CaCl_2$.
c) Reported as "pH in H_2O".
§ Kesterson (1990) study (values agreed in the EFSA Conclusion on iodosulfuron-methyl-sodium)

Table 8.5-5: Summary of soil adsorption/desorption for IN-D5119

Metabolite IN-D5119								
Soil name/ type	**OC (%)**	**Soil pH**	**K_d(mL/g)**	**K_{doc}(mL/g)**	**K_F (mL/g)**	**K_{Foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Drummer, Clay Loam	2.9	6.4 [a]			0.19	7	0.96	y/ EFSA Journal 2017;15(7):4912
Porterville, Loam	0.5	8.2 [a]			0.02	4	0.84	
Nambsheim, Sandy Loam	1.4	7.7 [a]			0.04	3	1.00	
Lleida, Silty Clay	1.8	7.6 [a]			0.09	2	0.83	
Sassafras #16, Sandy Loam	1.2	5.7[a]				8	0.99	
Soil 2.2, Loamy sand	1.97	5.4 [b]	0.056	3.6	-	-	-	
LUFA Speyer 2.2 loamy sand	1.87	5.5 [b]				3	1.01	
LUFA Speyer 2.3 sandy loam	0.94	6.8 [b]				3	1.02	
LUFA Speyer 6S clay	1.64	7.1 [b]				3	0.96	
Geometric mean (if not pH dependent)						3.5	-	
Arithmetic mean (if not pH dependent)							0.92	
pH-dependency y/n						No		

a) Measured in 0.01 M $CaCl_2$ and soil:solution ratio 1:2.
b) Solution composition is not stated.

Table 8.5-7: Summary of soil adsorption/desorption for IN-D5803

Metabolite IN-D5803								
Soil name/ type	**OC (%)**	**Soil pH a)**	**K_d(mL/g)**	**K_{doc}(mL/g)**	**K_F (mL/g)**	**K_{Foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Soil 2.2, Loamy sand	1.97	5.4 [a]	0.29 [c]	14.7 [c]	-	-	-	y/ EFSA Journal 2017;15(7):4912
Soil 3A, Sandy loam	2.42	7.3 [a]	0.54 [d]	22.3 [d]	-	-	--	
Soil 6S, Clay loam	1.84	6.9 [a]	0.70 [d]	37.8 [d]	-	-	-	
Drummer, Clay Loam	2.9	6.4 [b]			1.25	43.2	0.92	
Porterville, Loam	0.5	8.2 [b]			0.05	11.0	0.86	
Nambsheim, Sandy Loam	1.4	7.7 [b]			0.11	7.58	0.84	
Lleida, Silty Clay	1.8	7.6 [b]			0.33	18.5	0.98	
Sassafras #16, Sandy Loam	1.2	5.7 [b]			0.28	23.7	0.95	
Geometric mean (if not pH dependent)						17.7	-	
Arithmetic mean (if not pH dependent)							0.91	
pH-dependency y/n						No ($p > 0.05$ for correlations investigated)		

a) Solution composition not stated.
b) In 0.01 M $CaCl_2$.
c) at 15 mg/l. d) at 8 mg/l.

Table 8.5-8: Summary of soil adsorption/desorption for IN-GK521

Metabolite IN-GK521								
Soil name/ type	**OC (%)**	**Soil pH**	**K_d(mL/g)**	**K_{doc}(mL/g)**	**K_F (mL/g)**	**K_{Foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Gross-Umstadt, loam	1.04	7.4 [a]			0.277	27.7	1.02	y/ EFSA Journal 2017;15(7):4912
Lleida, Silty Clay	1.86	8 [a]			0.238	12.5	1.00	
Tama, Silty clay loam	1.97	6.2 [a]			0.98	14.9	1.01	
Nambsheim, Sandy loam	1.28	7.8 [a]			0.222	17.1	1.05	
Sassafras, Loamy sand	0.75	5 [a]			0.12	15.0	1.05	
LRA J3, Clay loam	1.8	7.5 [a]	0.24 [b]	14 [b]	-	-	-	
Geometric mean (if not pH dependent)						16.8	-	
Arithmetic mean (if not pH dependent)							1.03	
pH-dependency y/n						No (no linear correlation found; U-curve not further investigated)		

a) In 0.01 M calcium chloride and soil:solution ratio 1:1.
b) At 0.6–1 mg/l.

Table 8.5-9: Summary of soil adsorption/desorption for IN-GN815

Metabolite IN-GN815								
Soil name/ type	**OC (%)**	**Soil pH a)**	**K_d(mL/g)**	**K_{doc}(mL/g)**	**K_F (mL/g)**	**K_{Foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Gross-Umstadt, Loam	1.04	7.4			0.189	18.9	1.01	y/ EFSA Journal 2017;15(7):4912
Lleida, Clay	1.97	7.7			0.222	11.1	1.00	
Tama, Silty clay loam	2.49	6			0.332	13.3	1.00	
Nambsheim, Sandy loam	1.39	7.7			0.468	33.4	0.98	
Sassafras, Loamy sand	1.21	5.4			0.131	10.9	0.99	
Geometric mean (if not pH dependent)						15.9	-	
Arithmetic mean (if not pH dependent)							1.00	
pH-dependency y/n						No (p > 0.05 for correlations investigated)		

a) Measured in 0.01 calcium chloride solution, and soil:solution ratio 1:1.

Table 8.5-10: Summary of soil adsorption/desorption for IN-L5296

Metabolite IN-L5296								
Soil name/ type	**OC (%)**	**Soil pH a)**	**K_d(mL/g)**	**K_{doc}(mL/g)**	**K_F (mL/g)**	**K_{Foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Gross- Umstadt, Silt loam	1.2	7.7			0.929	77.4	0.72	y/ EFSA Journal 2017;15(7):4912
Arrow, Sandy loam	2.3	5.7			3.18	138	0.82	
Mattapex, Silt loam	2.6	6.4			1.37	52.7	0.89	
Geometric mean (if not pH dependent)						82.6	-	
Arithmetic mean (if not pH dependent)							0.80	
pH-dependency y/n						No		

a) reported as “pH water”.

Table 8.5-11: Summary of soil adsorption/desorption for IN-R9803

Metabolite IN-R9803								
Soil name/ type	**OC (%)**	**Soil pH a)**	**K_d(mL/g)**	**K_{doc}(mL/g)**	**K_F (mL/g)**	**K_{Foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Speyer 2.2, Sandy loam	1.6	5.4			0.315	19.7	1.04	y/ EFSA Journal 2017;15(7):4912
Lleida, Silty Clay	1.9	7.7			0.943	49.6	0.98	
Tama, Silty clay loam	2.3	6.2			0.724	31.5	1.00	
Nambsheim, Sandy loam	1.6	7.6			0.963	60.2	0.98	

Metabolite IN-R9803								
Soil name/ type	**OC (%)**	**Soil pH a)**	**K_d(mL/g)**	**K_{doc}(mL/g)**	**K_F (mL/g)**	**K_{Foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Cajon, loam	0.7	7.6			1.25	178.6	1.07	
Geometric mean (if not pH dependent)						50.6	-	
Arithmetic mean (if not pH dependent)							1.00	
pH-dependency y/n						No (p > 0.05)		

a) Measured in 0.01 M calcium chloride solution, and soil:solution ratio 1:1.

Table 8.5-12: Summary of soil adsorption/desorption for IN-R9805

Metabolite IN-R9805								
Soil name/ type	**OC (%)**	**Soil pH a)**	**K_d(mL/g)**	**K_{doc}(mL/g)**	**K_F (mL/g)**	**K_{Foc} (mL/g)**	**1/n (-)**	**Evaluated on EU level y/n/ Reference**
Nambsheim, Sandy loam	1.5	7.8			0.30	20	0.95	y/ EFSA Journal 2017;15(7):4912
Tama, Silty clay loam	1.1	6.2			16.6	1509	0.93	
Porterville, Loam	0.46	8.0			0.49	107	0.95	
Gross-Umstadt, Loam	1.2	6.6			0.45	37.5	0.91	
LRA-D, Sandy loam	3.0	5.6			0.49	16.3	0.96	
Geometric mean (if not pH dependent)						105	-	
Arithmetic mean (if not pH dependent)							0.93	
pH-dependency y/n						No (no linear correlations, but possibly an inverted-U relation; not further invetigasted)		

a) Measured in 0.01 M calcium chloride solution, and soil:solution ratio 1:1.

8.5.1 Column leaching (KCP 9.1.2.1)

Not available, not requested. (EFSA Journal 2017;15(7):4912)

8.5.2 Lysimeter studies (KCP 9.1.2.2)

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

According to EFSA Journal 2017;15(7):4912, the following Lysimeter/ field leaching study is available:

Location: Germany
Study type: lysimeter
Soil properties: clayey silt loam, pH = 6.5-6.9, OC= , ≤1.1%
Dates of application: 18 May 1999, end of study 8th November 2000
Crop: Non-cropped conditions

Number of applications: 1
Application rate: 37-40 g/as/ha
Average annual rainfall (mm): total 1170 mm, approx. 780 mm/year
Average annual leachate volume (mm): total 540 mm, approx. 360 mm/year
% radioactivity in leachate (maximum/year): max <0.003% AR (first leachate after two weeks)
Amount of radioactivity in the soils at the end of the study = 36%
Note that the lysimeter results are only considered as supportive information.
The results should not be used for risk assessment.

8.5.3 Field leaching studies (KCP 9.1.2.3)

See point 8.5.2

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 and metabolites as presented in the following tables.

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

Tribenuron-methyl Distribution; mainly distributed to water phase										
Water/sediment system	**pH water phase**	**pH sed[a)]**	**t. ºC**	**DT50/ DT90 whole syst. (d)**	**St. (χ2)**	**DT50 / DT90 water[b] (d)**	**St. (χ2)**	**DT50 /DT90 sed[c] (d)**	**St. (χ2)**	**Evaluated on EU level y/n/ Reference**
Brandywine river	6.8-8.3	6.5-7.5	20	26.2/ 86.9	7	22.5/ 74.8	7	18.8/87.6[c)]	4	y/ EFSA Journal 2017;15(7):4912
Lums pond	4.9-7.7	4.9-5.4	20	12.6/ 42.1	7-19[d)]	10.7/ 41.1	8-19[d)]	10.1/33.6	31-35 [d)]	
Geometric mean at 20°C[b)]				18.2		-		-		

a) Measured in water.
b) DisT50/DisT90 in water column
c) DisT50/DisT90 in sediment (decline from peak)
d) Range of χ2-error from the fitting of data derived with two different radiolabels.

Evaluator's Comments:	No information metabolite degradation in water/sediment system was submitted. In section 8.9 (PECsw assessment) the relevant data were checked.

Table 8.6-2: Summary of observed metabolites

IN-L5296 Water/sediment system	Distribution; up to 88.9% (total system, 56 d), max 42% in water (14 d), max 86% in sediment (56 d)	y/ EFSA Journal 2017;15(7):4912
IN-00581 Water/sediment system	Distribution; up to 38.4% (total system, 14 d), max 32% in water (14 d), max 6.4% in sediment (14 d)	y/ EFSA Journal 2017;15(7):4912

IN-D5119 Water/sediment system	Distribution; up to 26.5% (total system, 56 d), max 19% in water (56 d), max 7.5% in sediment (56 d)	y/ EFSA Journal 2017;15(7):4912
IN-GN815 Water/sediment system	Distribution; up to 13% (total system, 29 d), max 5.7% in water (42 d), max 9.2% in sediment (29 d)	y/ EFSA Journal 2017;15(7):4912
IN-R9805 Water/sediment system	Distribution; up to 14.7% (total system, 71 d), max 9% in water (71 d), max 5.7% in sediment (71 d)	y/ EFSA Journal 2017;15(7):4912

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

Evaluator's Comments:

The used endpoints for PECs assessment were agreed at the EU level.

The submitted PEC_S values for tribenuron-methyl applied at rate of 18.75 g a.s./ha and no interception were accepted.

The PECs values for metabolites were accepted.

The maximum PEC_S values for active substance and its metabolites are presented in following table:

Winter cereals in spring – application rate of 18.75 g a.s./ha

Compound	PECs mg/kg soil	PECs, accum mg/kg soil
Tribenuron-methyl	0.0250	nr
IN-L5296	0.0085	0.0116
IN-A4098	0.0011	0.0013
IN-00581	0.0039	0.0045
IN-D5803	0.0063	nr
IN-R9805	0.0007	0.009
M2	0.0020	nr
IN-GK521	0.0077	nr
IN-R9803	0.0008	nr

nr – not relevant

These PECs values covers the lower application rate of 15.0 g a.s./ha applied for spring cereals and winter cereals at autumn spraying and application in grasses at application rate of 18.75 g a.s./ha.

For formulation applied at 25 g formulation/ha, the max PECs = 0.0333 mg/kg soil.

These values will be used in further risk assessment.

8.7.1 Justification for new endpoints

No new endpoints are presented in the current submission. The endpoints used for the risk assessment of the product are those presented in EFSA Journal 2017;15(7):4912 for the active substance and its metabolites.

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

For determination of the predicted environmental concentrations of the active substance and relevant metabolites in soil the following guideline was used: “Soil persistence models and EU registration” (The final report of the work of the Soil Modelling Work group of FOCUS).

The PEC of tribenuron methyl and its relevant metabolites in soil have been assessed with the ESCAPE model (version 2.0), the focus groundwater interception values taken from FOCUS guidance (Generic Guidance for Tier 1 FOCUS Ground Water Assessments (version: 2.2, May 2014) and the maximum DT_{50} values established in the EU peer review for active substance.

Table 8.7-1 and 8.7-2 provide the input parameters used in the PEC_{soil} calculations.

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

Use No.	1-6		
Crop	Winter cereals	Spring cereals	Winter cereals
Application rate (g as/ha)	Tribenuron-methyl: 18.75	Tribenuron-methyl: 15	Tribenuron-methyl: 15
Application time	spring application		autumn spraying
Number of applications/interval	1/n.a.		
Crop interception (%)	0		
Depth of soil layer (relevant for plateau concentration) (cm)	20		

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

Compound	Molecular weight (g/mol)	Max. occurrence (%)	DT50 (days)	Value in accordance to EU endpoint y/n/ Reference
Tribenuron-methyl	395.4	-	DT50 (d): 34.7 days from field dissipation study	y/EFSA Journal 2017;15(7):4912
IN-L5296	154.2	85.7	505	y/EFSA Journal 2017;15(7):4912
IN-A4098	140.1	12.6	260.1	y/EFSA Journal 2017;15(7):4912
IN-00581	183.2	33.9	237.4	y/EFSA Journal 2017;15(7):4912
IN-R9805	140.2	7.6	380	y/EFSA Journal 2017;15(7):4912
M2	197.2	16.2	73.2	y/EFSA Journal 2017;15(7):4912
IN-D5803*	215.2	46.6	26.4	y/EFSA Journal 2017;15(7):4912
IN-R9803*	381.4	9.1	18.2	y/EFSA Journal 2017;15(7):4912

Compound	Molecular weight (g/mol)	Max. occurrence (%)	DT50 (days)	Value in accordance to EU endpoint y/n/ Reference
IN-GK521	381.4	32.1	51.9	y/EFSA Journal 2017;15(7):4912

According to experts' consultation (PPR TC 139, March 2017) it was agreed not to consider metabolite IN-R9803 and IN-D5803in the risk assessment.

8.7.2.1 Tribenuron metyl and its metabolites

Table 8.7-3: PEC$_{soil}$ for tribenuron metyl on winter cereals in spring – App. 18.75 (g as/ha)

PEC$_{soil}$ (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0250	-	-	-
Short term	24h	0.0245	0.0248	Not applicable	
	2d	0.0240	0.0245		
	4d	0.0231	0.0240		
Long term	7d	0.0217	0.0233		
	14d	0.0189	0.0218		
	21d	0.0164	0.0204		
	28d	0.0143	0.0191		
	42d	0.0108	0.0169		
	50d	0.0092	0.0158		
	100d	0.0034	0.0108		
Plateau concentration (/20 cm) after year 10		Not required	-		-
PEC$_{accumulation}$ (PEC$_{act}$ +PEC$_{soil\ plateau}$)		Not required			

Table 8.7-4: PEC$_{soil}$ for tribenuron metyl on spring cereals (spring spraying) and winter cereals (autumn spraying) – App. 15 (g as/ha)

PEC$_{soil}$ (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0200	-		-
Short term	24h	0.0196	0.0198	Not applicable	
	2d	0.0192	0.0196		
	4d	0.0185	0.0192		
Long term	7d	0.0174	0.0187		
	14d	0.0151	0.0174		

	21d	0.0131	0.0163		
	28d	0.0114	0.0153		
	42d	0.0086	0.0135		
	50d	0.0074	0.0126		
	100d	0.0027	0.0087		
Plateau concentration 20 cm after year 10		Not required	-		-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		Not required			

PEC_{soil} of metabolites

<u>Metabolites use in winter cereals with spring application</u>

<u>IN-L5296</u>

Table 8.7-5: PEC_{soil} for IN-L5296 on winter cereals in spring application

PEC_{soil} (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0084	-	-	-
Short term	24h	0.0083	0.0084	Not applicable	
	2d	0.0083	0.0083		
	4d	0.0083	0.0083		
Long term	7d	0.0083	0.0083		
	14d	0.0082	0.0083		
	21d	0.0081	0.0082		
	28d	0.0080	0.0082		
	42d	0.0079	0.0081		
	50d	0.0079	0.0081		
	100d	0.0073	0.0078		
Plateau concentration 20 cm after year 11		0.0032	-		-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		0.0116			

<u>IN-A4098</u>

Table 8.7-6: PEC_{soil} for IN-A4098 on winter cereals in spring application

PEC_{soil} (mg/kg)	Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
	Single application		Multiple applications	
	Actual	TWA	Actual	TWA

Initial		0.0011	-	-	-
Short term	24h	0.0011	0.0011	Not applicable	
	2d	0.0011	0.0011		
	4d	0.0011	0.0011		
Long term	7d	0.0011	0.0011		
	14d	0.0011	0.0011		
	21d	0.0011	0.0011		
	28d	0.0010	0.0011		
	42d	0.0010	0.0011		
	50d	0.0010	0.0010		
	100d	0.0009	0.0010		
Plateau concentration 20 cm after year 11		0.0002			-
$PEC_{accumulation}$ (PEC_{act} + $PEC_{soil\ plateau}$)		0.0013			

IN-00581

Table 8.7-7: PEC_{soil} for IN-00581 on winter cereals in spring application

PEC_{soil} (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0039		-	-
Short term	24h	0.0039	0.0039	Not applicable	
	2d	0.0039	0.0039		
	4d	0.0039	0.0039		
Long term	7d	0.0039	0.0039		
	14d	0.0038	0.0039		
	21d	0.0037	0.0038		
	28d	0.0036	0.0038		
	42d	0.0035	0.0037		
	50d	0.0034	0.0037		
	100d	0.0029	0.0034		
Plateau concentration 20 cm after year 10		0.0005			-
$PEC_{accumulation}$ (PEC_{act} + $PEC_{soil\ plateau}$)		0.0045			

IN-R9805

Table 8.7-8: PEC_{soil} for IN-R9805 on winter cereals in spring application

PEC_{soil} (mg/kg)	Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)	
	Single application	Multiple applications

		Actual	TWA	Actual	TWA
Initial		0.0007		-	-
Short term	24h	0.0007	0.0007	Not applicable	
	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	0.0006	0.0007		
	42d	0.0006	0.0007		
	50d	0.0006	0.0006		
	100d	0.0006	0.0006		
Plateau concentration 20 cm after year 11		0.0002			-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		0.0009			

M2

Table 8.7-9: PEC_{soil} for M2 on winter cereals in spring application

PEC_{soil} (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0020	-	-	-
Short term	24h	0.0020	0.0020	Not applicable	
	2d	0.0020	0.0020		
	4d	0.0019	0.0020		
Long term	7d	0.0019	0.0019		
	14d	0.0018	0.0019		
	21d	0.0017	0.0018		
	28d	0.0015	0.0018		
	42d	0.0014	0.0017		
	50d	0.0013	0.0016		
	100d	0.0008	0.0013		
Plateau concentration 20 cm after year 10		Not required			-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		Not required			

IN-D5803

Table 8.7-10: PEC_{soil} for IN-D5803 on winter cereals in spring application

PEC_{soil}	Winter cereals (winter wheat, winter rye, winter triticale and winter barley)

(mg/kg)		Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0063	-	-	-
Short term	24h	0.0062	0.0063	Not applicable	
	2d	0.0060	0.0062		
	4d	0.0057	0.0060		
Long term	7d	0.0053	0.0058		
	14d	0.0044	0.0053		
	21d	0.0037	0.0049		
	28d	0.0030	0.0045		
	42d	0.0021	0.0038		
	50d	0.0017	0.0035		
	100d	0.0005	0.0022		
Plateau concentration 20 cm after year 10		Not required			-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		Not required			

IN-R9803

Table 8.7-11: PEC_{soil} for IN-R9803 on winter cereals in spring application

PEC_{soil} (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0022	-	-	-
Short term	24h	0.0021	0.0022	Not applicable	
	2d	0.0020	0.0021		
	4d	0.0019	0.0020		
Long term	7d	0.0017	0.0019		
	14d	0.0013	0.0017		
	21d	0.0010	0.0015		
	28d	0.0008	0.0014		
	42d	0.0004	0.0011		
	50d	0.0003	0.0010		
	100d	<0.0001	0.0006		
Plateau concentration 20 cm after year 10		Not required			-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		Not required			

IN-GK521

Table 8.7-12: PEC$_{soil}$ for IN-GK521 on winter cereals in spring application

PEC$_{soil}$ (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0077	-	-	-
Short term	24h	0.0076	0.0077	Not applicable	
	2d	0.0075	0.0076		
	4d	0.0073	0.0075		
Long term	7d	0.0071	0.0074		
	14d	0.0064	0.0071		
	21d	0.0059	0.0068		
	28d	0.0053	0.0065		
	42d	0.0044	0.0059		
	50d	0.0040	0.0057		
	100d	0.0020	0.0043		
Plateau concentration 20 cm after year 10		Not required			-
PEC$_{accumulation}$ (PEC$_{act}$ +PEC$_{soil\ plateau}$)		Not required			

Metabolites use in spring cereals (with spring application) and winter cereals (with autumn application)

IN-L5296

Table 8.7-13: PEC$_{soil}$ for IN-L5296 on spring cereals (spring spraying) and winter cereals (autumn spraying) - App. 15 (g as/ha)

PEC$_{soil}$ (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0067	-	-	-
Short term	24h	0.0067	0.0067	Not applicable	
	2d	0.0067	0.0067		
	4d	0.0066	0.0067		
Long term	7d	0.0066	0.0066		
	14d	0.0066	0.0066		
	21d	0.0065	0.0066		
	28d	0.0064	0.0066		
	42d	0.0063	0.0065		
	50d	0.0062	0.0065		
	100d	0.0058	0.0062		
Plateau concentration 20 cm		0.0026			-

after year 11				
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)	0.0092			

IN-A4098

Table 8.7-14: PEC_{soil} for IN-A4098 on spring cereals (spring spraying) and winter cereals (autumn spraying)

PEC_{soil} (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0009	-	-	-
Short term	24h	0.0009	0.0009	Not applicable	
	2d	0.0009	0.0009		
	4d	0.0009	0.0009		
Long term	7d	0.0009	0.0009		
	14d	0.0009	0.0009		
	21d	0.0008	0.0009		
	28d	0.0008	0.0009		
	42d	0.0008	0.0008		
	50d	0.0008	0.0008		
	100d	0.0007	0.0008		
Plateau concentration 20 cm after year 11		0.0001			-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		0.0010			

IN-00581

Table 8.7-15: PEC_{soil} for IN-00581 on spring cereals (spring spraying) and winter cereals (autumn spraying)

PEC_{soil} (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0031	-	-	-
Short term	24h	0.0031	0.0031	Not applicable	
	2d	0.0031	0.0031		
	4d	0.0031	0.0031		
Long term	7d	0.0031	0.0031		
	14d	0.0030	0.0031		
	21d	0.0030	0.0031		
	28d	0.0029	0.0030		
	42d	0.0028	0.0030		
	50d	0.0027	0.0029		

	100d	0.0023	0.0027		
Plateau concentration 20 cm after year 10		0.0004			-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		0.0036			

IN-R9805

Table 8.7-16: PEC_{soil} for IN-R9805 on spring cereals (spring spraying) and winter cereals (autumn spraying)

PEC_{soil} (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0005	-	-	-
Short term	24h	0.0005	0.0005	Not applicable	
	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		
	42d	0.0005	0.0005		
	50d	0.0005	0.0005		
	100d	0.0004	0.0005		
Plateau concentration 20 cm after year 11		0.0001			-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		0.0007			

M2

Table 8.7-17: PEC_{soil} for M2 on spring cereals (spring spraying) and winter cereals (autumn spraying)

PEC_{soil} (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0016	-	-	-
Short term	24h	0.0016	0.0016	Not applicable	
	2d	0.0016	0.0016		
	4d	0.0016	0.0016		
Long term	7d	0.0015	0.0016		
	14d	0.0014	0.0015		
	21d	0.0013	0.0015		
	28d	0.0012	0.0014		

	42d	0.0011	0.0013		
	50d	0.0010	0.0013		
	100d	0.0006	0.0010		
Plateau concentration 20 cm after year 10		Not required			-
$PEC_{accumulation}$ (PEC_{act} + $PEC_{soil\ plateau}$)		Not required			

IN-D5803

Table 8.7-18: PEC_{soil} for IN-D5803 on spring cereals (spring spraying) and winter cereals (autumn spraying)

PEC_{soil} (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0051	-	-	-
Short term	24h	0.0049	0.0050	Not applicable	
	2d	0.0048	0.0049		
	4d	0.0046	0.0048		
Long term	7d	0.0042	0.0046		
	14d	0.0035	0.0042		
	21d	0.0029	0.0039		
	28d	0.0024	0.0036		
	42d	0.0017	0.0031		
	50d	0.0014	0.0028		
	100d	0.0004	0.0018		
Plateau concentration 20 cm after year 10		Not required			-
$PEC_{accumulation}$ (PEC_{act} + $PEC_{soil\ plateau}$)		Not required			

IN-R9803

Table 8.7-19: PEC_{soil} for IN-R9803 on spring cereals (spring spraying) and winter cereals (autumn spraying)

PEC_{soil} (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0018	-	-	-
Short term	24h	0.0017	0.0017	Not applicable	
	2d	0.0016	0.0017		
	4d	0.0015	0.0016		
Long term	7d	0.0013	0.0015		

	14d	0.0010	0.0014		
	21d	0.0008	0.0012		
	28d	0.0006	0.0011		
	42d	0.0004	0.0009		
	50d	0.0003	0.0008		
	100d	<0.0001	0.0005		
Plateau concentration 20 cm after year 10		Not required			-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		Not required			

IN-GK521

Table 8.7-20: PEC_{soil} for IN-GK521 on spring cereals (spring spraying) and winter cereals (autumn spraying)

PEC_{soil} (mg/kg)		Winter cereals (winter wheat, winter rye, winter triticale and winter barley) Spring cereals (spring wheat, spring barley)			
		Single application		Multiple applications	
		Actual	TWA	Actual	TWA
Initial		0.0062	-	-	-
Short term	24h	0.0061	0.0061	Not applicable	
	2d	0.0060	0.0061		
	4d	0.0059	0.0060		
Long term	7d	0.0056	0.0059		
	14d	0.0051	0.0056		
	21d	0.0047	0.0054		
	28d	0.0043	0.0052		
	42d	0.0035	0.0047		
	50d	0.0032	0.0045		
	100d	0.0016	0.0034		
Plateau concentration 20 cm after year 10		Not required			-
$PEC_{accumulation}$ (PEC_{act} +$PEC_{soil\ plateau}$)		Not required			

8.7.2.2 PEC_{soil} of TOSCANA TOP 75WG

Table 8.7-21: PEC_{soil} for TOSCANA TOP 75WG on winter and spring cereals

Active substance/ reparation	Max. 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)
Winter cereals	20	0.0267	0.0218	20	<0.0001	0.0267

Active substance/ reparation	Max. 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)
	25	0.0333	0.0272		<0.0001	0.0333
Spring cereals	20	0.0267	0.0218	20	<0.0001	0.0267

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

Evaluator's Comments:	Calculations of PEC_{GW} for active substances and their relevant metabolites were accepted. The recommended FOCUS models were used: FOCUS PELMO, FOCUS PEARL and FOCUS MACRO. All used endpoints were agreed at the EU level. For winter and spring cereals and grasses the relevant application rates were considered. The proposed application dates were accepted. For tribenuron-methyl the pH dependence approach was considered and accepted. The geometric mean of Kfoc was used. An interception of 0% and 60% for winters & spring cereals (represents the worst case) and grasses, respectively, were taken into consideration, so submitted calculations were accepted. The minor crop grass is to be authorised only in Poland, so only relevant scenarios for Poland were taken into consideration (Châteaudun, Hamburg and Kremsmünster). A tiered approach was taken into consideration: Tier 1 with DT_{50} = 5.4 d (lab) and Tier 2 with DT_{50} = 3.6 d (field) and was accepted. As the soil pH dependency (acidic and alkaline soils) was considered**; for alkaline soils the autumn application in winter cereals is acceptable if the formulation is used every third year.** **The relevant mitigation measures will be decided at the Member State level.** The Piacenza, Seville, Thiva scenarios are not relevant for Central Zone so there is no need to consider them. The maximum PEC_{GW} values for active substances were below the trigger value of 0.1 µg/L. The max PEC_{GW} values for all relevant metabolites are presented in Tables 8.8-3b to 8.8-20. The metabolite relevance (PEC_{GW} values above 0.1 µg/L) was considered in Section 10.

8.8.1 Justification for new endpoints

No new endpoints presented.

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

Details of the substance and use input parameters used in groundwater modelling are presented in the following tables.

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

Use No.	1-15			
Crop	Winter cereals	Spring cereals	Winter cereals	Grass
Application rate (kg as/ha)	Tribenuron-methyl: 0.01875	Tribenuron-methyl: 0.015	Tribenuron-methyl: 0.015	Tribenuron-methyl: 0.01875
Application time	spring application		autumn spraying	spring application
Number of applications/interval (d)	1/ Not applicable			
Relative application date	-	10 days after crop emergence		-
Crop interception (%)	0			60%
Frequency of application	annual application		triennial application	annual application
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,

Table 8.8-2: Application dates for growth stages estimated using AppDate 3.05

Individual crop	**Winter Cereals, autumn app.**		**Spring cereals, spring app.**	
Scenario	Emergence date		Emergence date	
	Date	Julian day	Date	Julian day
Châteaudun	26.10	299	10.03	69
Hamburg	01.11	305	01.04	91
Jokioinen	20.09	263	18.05	138
Kremsmünster	05.11	309	01.04	91
Okehampton	17.10	290	01.04	91
Piacenza	01.12	335	-	-
Porto	30.11	334	10.03	69
Sevilla	30.11	334	-	-
Thiva	30.11	334	-	-

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

Crop	**Scenario**	**Application dates (absolute)**
Winter cereals / spring spraying	Châteaudun	1st April (for all scenarios)
	Hamburg	
	Jokioinen	
	Kremsmünster	
	Okehampton	
	Piacenza	
	Porto	
	Sevilla	
	Thiva	

Crop	Scenario	Application dates (absolute)
Grass	Châteaudun	1st March (for all scenarios)
	Hamburg	
	Kremsmünster	

8.8.2.1 Tribenuron methyl and its metabolites

Table 8.8-4: Input parameters related to active substance tribenuron methyl and metabolite(s) for PEC_{gw} calculations

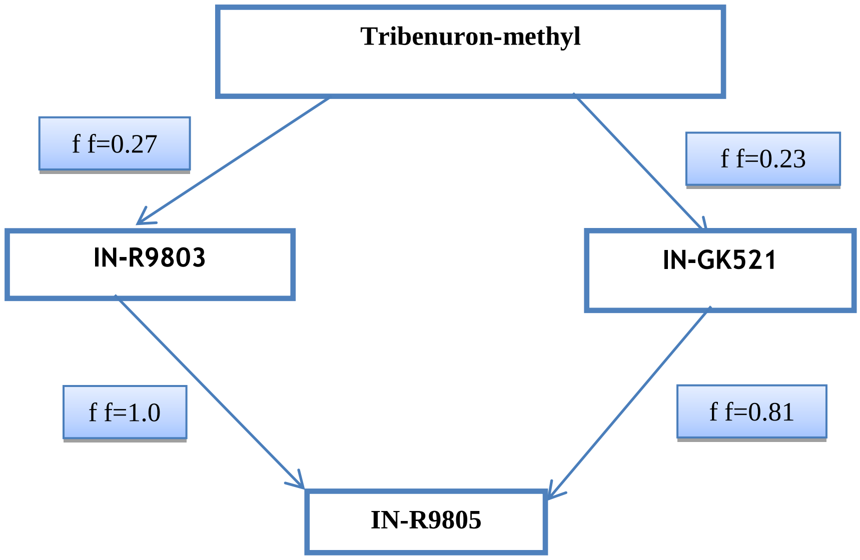
Compound	Tribenuron methyl	IN-L5296	IN-A4098	IN-00581	IN-R9805	M2	IN- GK 521	IN-R9803	Value in accordance with EU endpoint y/n/ Reference*
Molecular weight (g/mol)	395.4	154.2	140.1	183.2	140.2	197.2	381.4	381.4	y/ EFSA Journal 2017;15(7):4912
Water solubility (mg/l):	2483 at pH 7 and 20°C	2483 at pH 7 and 20°C	456 at pH 7 and 20°C	2483 at pH 7 and 20°C	2483 at pH 7 and 20°C	2483 at pH 7 and 20°C	2483 at pH 7 and 20°C	2483 at pH 7 and 20°C	
Saturated vapour pressure (Pa):	5.99×10^{-9} at 20°C	0	1.9×10^{-4} Pa at 25°C	0	0	0	0	0	
DT_{50} in soil (d)	Geometric mean lab DT50 (standard calc.): 5.4 days (pH <7), 16.7 days (pH >7), 3.6 days (field) *	Geometric mean lab DT50 : 207.5 d	Geometric mean lab DT50 : 127.7 d	Geometric mean lab DT50 : 19.1d	Geometric mean lab DT50 : 85.4 d	Geometric mean lab DT50 : 21.5 d	Geometric mean lab DT50 : 67.1d	Geometric mean lab DT50 : 13.3d	
K_{foc} (mL/g)/K_{fom}	Geometric mean Kf_{OC} (mL/g): 38.9 (pH <7), 8.6(pH >7)	Geometric mean K_{FOC} : 82.6 mL/g	Geometric mean K_{fOC} (mL/g): 45.6	Geometric mean K_{fOC} (mL/g): 5.6	~~Geometric~~ Arithmethic mean K_{fOC} (mL/g): 105	Geometric mean K_{fOC} (mL/g): 72.2	Geometric mean K_{fOC} (mL/g): 16.8	Geometric mean K_{fOC} (mL/g): 50.6	
Calculated from K_{foc} (K_{fom}= K_{foc}/1.724)	22.6 (pH <7), 5.0 (pH >7)	47.9	26.5	3.2	60.9	41.9	9.7	29.4	
1/n	0.98 (pH <7), 1.0 (pH >7)	0.80	0.90	0.90	0.93	0.86	1.00	1.00	
Plant uptake factor	0	0	0	0	0	0	0	0	
Formation fraction	-	0.76 from parent	1.0 from IN-L5296	1.0 from parent	ff=1.0 or ff = 0.5 for refinement from IN-	0.24 from parent	from: Tribenuron methyl; 0.23	from: Tribenuron methyl; 0.27	

Compound	**Tribenuron methyl**	**IN-L5296**	**IN-A4098**	**IN-00581**	**IN-R9805**	**M2**	**IN- GK 521**	**IN-R9803**	**Value in accordance with EU endpoint y/n/ Reference***
					L5296 ** from IN-GK521; 0.81 from IN-R9803; 1.0				

*PECgw modelling using the field DT_{50} for tribenuron-methyl was used as a refinement.
**PECgw modelling using an ff of 0.5 for metabolite IN-R9805 was used as a refinement.

Scheme no. 1: Soil metabolic pathway for tribenuron methyl considered in FOCUS groundwater modelling

The following anaerobic metabolic pathways was considered



Scheme no. 2: Soil metabolic pathway for tribenuron methyl considered in FOCUS groundwater modelling

Three different aerobic metabolic pathways were considered as follows:

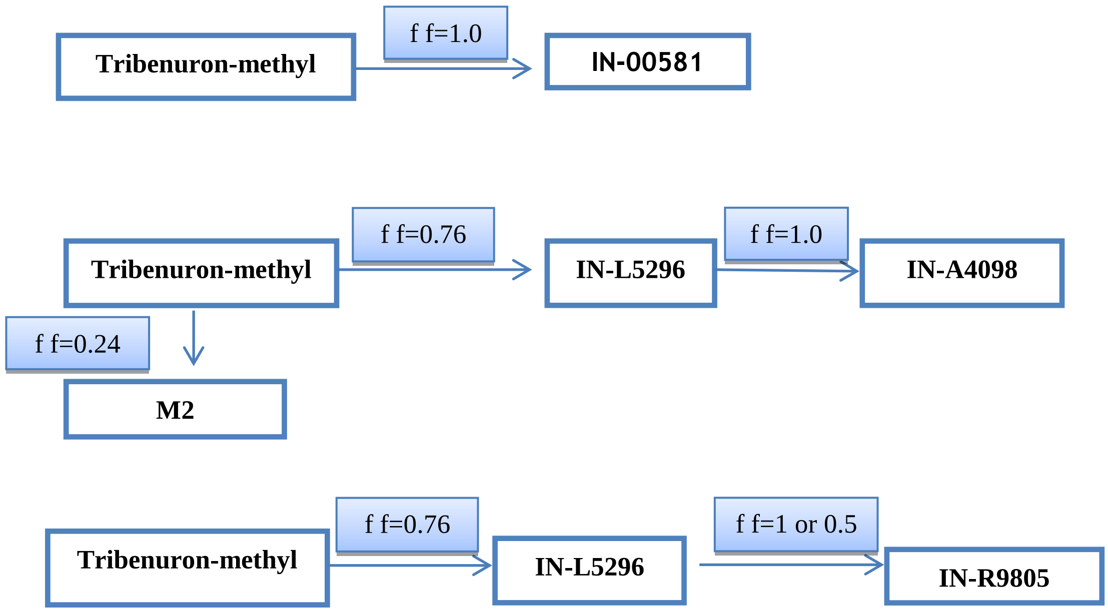


Table 8.8-5 PECgw (µg/l) values of tribenuron-methyl and its metabolites using PEARL and PELMO models after an autumn application to winter cereals (15 g a.s./ha) - (values that exceed 0.1 µg/L are highlighted in bold typeface)

Scheme no.1							
PEARL 4.4.4 / winter cereals (autumn application); 10 days after crop emergence							
Crop	**Scenario**	**Parent (µg/L)**		**IN-GK521**		**INR9805 Anaerobic conditions**	
		<pH7	>pH 7	<pH7	>pH 7	<pH7 ff=0.81	>pH 7 ff=0.81
PEARL 4.4. 4 winter cereals (autumn spraying)	Châteaudun	0.000063	**0.276187**	**0.455497**	**0.593209**	0.081073	**0.160383**
	Hamburg	0.003924	**1.290113**	**0.685940**	**0.825114**	**0.130019**	**0.201337**
	Jokioinen	0.001253	1.643466	0.961419	1.16579	0.078566	0.146578
	Kremsmünster	0.000625	**0.532252**	**0.435402**	**0.524355**	0.093041	**0.166272**
	Okehampton	0.004272	0.894895	0.479021	0.452751	0.107333	0.117871
	Piacenza	0.000561	0.317596	0.312633	0.414410	0.089069	0.143449
	Porto	0.006245	0.741796	0.340735	0.355751	0.064677	0.075832
	Sevilla	0.000000	0.000000	0.084063	0.106932	0.004466	0.009970
	Thiva	0.000012	0.067682	0.411852	0.574576	0.082587	0.150994

Scheme no.2									
PEARL 4.4.4 / winter cereals (autumn application); 10 days after crop emergence									
Crop	**Scenario**	**Parent (µg/L)**		**IN-L5296**		**IN-A4098**		**IN-00581**	
		<pH7	>pH 7	<pH7	>pH 7	<pH7	>pH 7	<pH7	>pH 7
PEARL 4.4.4 winter cereals (autumn spraying)	Châteaudun	0.000063	**0.276187**	0.031004	**0.278843**	**0.388316**	**0.555574**	**0.136428**	**0.300791**
	Hamburg	0.003924	**1.290113**	**0.156434**	**0.474893**	**0.536404**	**0.453915**	**0.493777**	**0.699940**
	Jokioinen	0.001253	1.643466	0.038953	0.294792	0.447505	0.460187	0.61398	1.147740
	Kremsmünster	0.000625	**0.532252**	0.092842	**0.379278**	**0.375414**	**0.366968**	**0.228844**	**0.423923**
	Okehampton	0.004272	0.894895	0.115233	0.271746	0.359524	0.268093	0.420290	0.480362
	Piacenza	0.000561	0.317596	0.091576	0.313944	0.334655	0.441404	0.143395	0.261404
	Porto	0.006245	0.741796	0.064652	0.140140	0.280062	0.273927	0.304963	0.297189
	Sevilla	0.000000	0.000000	0.000262	0.015777	0.038896	0.104532	0.000000	0.000096
	Thiva	0.000012	0.067682	0.026387	0.198760	0.481288	0.760784	0.037307	0.103157

PEARL 4.4.4 / winter cereals (autumn application); 10 days after crop emergence							
Crop	**Scenario**	**INR9805** Aerobic conditions				**M2**	
		<pH 7 ff=0.5	<pH 7 ff=1	>pH 7 ff=0.5	>pH 7 ff=1	<pH7	>pH 7

PEARL 4.4.4 winter cereals (autumn spraying)	Châteaudun	0.042942	0.092995	**0.105376**	**0.219822**	0.000013	0.013215
	Hamburg	0.097617	**0.204841**	**0.107981**	**0.224585**	0.001529	0.062394
	Jokioinen	0.052802	0.115134	0.086628	0.181336	0.000407	0.028716
	Kremsmünster	0.065884	**0.138478**	0.089593	**0.185261**	0.000230	0.029623
	Okehampton	0.073341	0.154170	0.068076	0.140803	0.001102	0.025924
	Piacenza	0.058584	0.123093	0.095389	0.197732	0.000707	0.026022
	Porto	0.050210	0.105253	0.053823	0.112688	0.000421	0.007920
	Sevilla	0.001280	0.002876	0.010060	0.021699	0.000000	0.000000
	Thiva	0.036785	0.080599	0.113392	0.239974	0.000001	0.001863

Scheme no.1

PELMO 5.5.3/ winter cereals (autumn application); 10 days after crop emergence

Crop	Scenario	Parent (µg/L)		IN-GK521		INR9805 Anaerobic conditions	
		<pH7	>pH 7	<pH7	>pH 7	<pH7 ff=0.81	>pH 7 ff=0.81
PELMO 5.5.3 winter cereals (autumn spraying)	Châteaudun	0.000	0.240	**0.449**	**0.589**	0.084	**0.163**
	Hamburg	0.013	**1.726**	**0.793**	**0.815**	**0.139**	**0.187**
	Jokioinen	0.004	1.870	0.858	0.924	0.083	0.123
	Kremsmünster	0.001	**0.624**	**0.533**	**0.665**	**0.110**	**0.197**
	Okehampton	0.009	1.119	0.508	0.456	0.112	0.119
	Piacenza	0.005	0.826	0.518	0.623	0.105	0.165
	Porto	0.026	1.104	0.389	0.330	0.066	0.063
	Sevilla	0.000	0.054	0.097	0.146	0.013	0.031
	Thiva	0.000	0.101	0.296	0.441	0.056	0.113

Scheme no.2

PELMO 5.5.3/ winter cereals (autumn application); 10 days after crop emergence

Crop	Scenario	Parent (µg/L)		IN-L5296		IN-A4098		IN-00581	
		<pH7	>pH 7	<pH7	>pH 7	<pH7	>pH 7	<pH7	>pH 7
PELMO 5.5.3 winter cereals (autumn spraying)	Châteaudun	0.000	0.240	0.022	**0.266**	**0.367**	**0.548**	**0.103**	**0.242**
	Hamburg	0.013	**1.726**	**0.171**	**0.449**	**0.577**	**0.405**	**0.635**	**0.813**
	Jokioinen	0.004	1.870	0.048	0.260	0.474	0.454	0.741	1.041
	Kremsmünster	0.001	**0.624**	**0.110**	**0.431**	**0.445**	**0.427**	**0.261**	**0.518**
	Okehampton	0.009	1.119	0.125	0.266	0.378	0.270	0.501	0.497
	Piacenza	0.005	0.826	0.110	0.347	0.451	0.511	0.270	0.324
	Porto	0.026	1.104	0.087	0.109	0.293	0.226	0.453	0.363
	Sevilla	0.000	0.054	0.001	0.030	0.099	0.188	0.015	0.026
	Thiva	0.000	0.101	0.012	0.157	0.338	0.546	0.054	0.129

PELMO 5.5.3/ winter cereals (autumn application); 10 days after crop emergence							
Crop	**Scenario**	**INR9805** Aerobic conditions				**M2**	
		<pH 7 ff=0.5	<pH 7 ff=1	>pH 7 ff=0.5	>pH 7 ff=1	<pH7	>pH 7
PELMO 5.5.3winter cereals (autumn spraying)	Châteaudun	0.036	0.077	**0.110**	**0.229**	0.000	0.008
	Hamburg	**0.106**	**0.224**	**0.101**	**0.209**	0.003	0.066
	Jokioinen	0.059	0.127	0.084	0.117	0.001	0.023
	Kremsmünster	0.075	**0.158**	**0.113**	**0.234**	0.001	0.033
	Okehampton	0.077	0.162	0.067	0.139	0.002	0.025
	Piacenza	0.071	0.151	0.110	0.228	0.002	0.031
	Porto	0.059	0.122	0.048	0.099	0.001	0.006
	Sevilla	0.002	0.005	0.021	0.045	0.000	0.000
	Thiva	0.025	0.053	0.089	0.187	0.000	0.002

Table 8.8-6 PECgw (µg/l) values of tribenuron-methyl and its metabolites using PEARL and PELMO models after an spring application to winter cereals (18.75 g a.s./ha) - (values that exceed 0.1 µg/L are highlighted in bold typeface)

PEARL 4.4.4 /winter cereals (spring application); absolute application date 1 April									
Crop	**Scenario**	**Parent (µg/L)**		**IN-L5296**		**IN-A4098**		**IN-00581**	
		<pH 7	>pH 7	<pH 7	>pH 7	<pH 7	>pH 7	< pH 7	> pH 7
PEARL 4.4.4 winter cereals (spring spraying)	Châteaudun	0.000001	0.067754	0.027965	**0.135289**	**0.453416**	**0.584504**	0.055263	**0.148218**
	Hamburg	0.000038	**0.364316**	**0.118556**	**0.266811**	**0.629488**	**0.266811**	**0.263742**	**0.512969**
	Jokioinen	0.000016	0.375545	0.022227	0.134720	0.516654	0.628513	0.213526	0.566032
	Kremsmünster	0.000052	**0.270315**	0.087143	**0.271831**	**0.454823**	**0.484977**	**0.169723**	**0.355750**
	Okehampton	0.000084	0.301507	0.113409	0.298017	0.453559	0.430975	0.201713	0.386976
	Piacenza	0.000047	0.171134	0.072908	0.219132	0.396038	0.559415	0.096802	0.214787
	Porto	0.000002	0.074287	0.048722	0.117066	0.328730	0.386829	0.051980	0.130120
	Sevilla	0.000000	0.002130	0.000038	0.000467	0.042404	0.057072	0.001808	0.007479
	Thiva	0.000000	0.006997	0.018871	0.047004	0.550889	0.653557	0.006169	0.022456

PEARL 4.4.4 /winter cereals (spring application); absolute application date 1 April							
Crop	**Scenario**	**INR9805** Aerobic conditions				**M2**	
		>pH 7 ff=0.5	>pH 7 ff=1	<pH 7 ff=0.5	<pH 7 ff=1	<pH 7	>pH 7
PEARL	Châteaudun	0.088575	**0.186891**	0.043503	**0.094595**	0.000000	0.002048

	Hamburg	**0.120400**	**0.252779**	0.099766	**0.210439**	0.000007	0.012797
	Jokioinen	0.087079	0.186637	0.048932	0.107529	0.000000	0.006071
	Kremsmünster	0.099994	**0.208413**	0.074068	**0.156256**	0.000014	0.013921
	Okehampton	0.101604	0.210857	0.084529	0.177292	0.453559	0.015357
	Piacenza	0.096299	0.201007	0.064714	0.136743	0.000057	0.009980
	Porto	0.070291	0.148020	0.051971	0.110312	0.000000	0.001250
	Sevilla	0.001888	0.004067	0.000731	0.001742	0.000000	0.000016
	Thiva	0.052205	0.114113	0.033547	0.074654	0.000000	0.000099

PELMO 5.5.3/winter cereals (spring application); absolute application date 1 April

Crop	Scenario	Parent (µg/L)		IN-L5296		IN-A4098		IN-00581	
		<pH 7	>pH 7	<pH 7	>pH 7	<pH 7	>pH 7	<pH 7	> pH 7
PELMO 5.5.3 winter cereals (spring spraying)	Châteaudun	0.000	0.055	0.017	**0.103**	**0.438**	**0.596**	0.038	**0.127**
	Hamburg	0.000	**0.279**	**0.129**	**0.287**	**0.696**	**0.725**	**0.169**	**0.427**
	Jokioinen	0.000	0.509	0.024	0.155	0.549	0.665	0.249	0.625
	Kremsmünster	0.000	**0.318**	0.098	**0.353**	**0.532**	**0.585**	**0.195**	**0.419**
	Okehampton	0.000	0.327	0.125	0.331	0.477	0.452	0.204	0.395
	Piacenza	0.000	0.176	0.081	0.271	0.517	0.625	0.075	0.254
	Porto	0.000	0.068	0.066	0.125	0.355	0.397	0.045	0.119
	Sevilla	0.000	0.003	0.000	0.000	0.107	0.124	0.002	0.009
	Thiva	0.000	0.002	0.004	0.007	0.350	0.391	0.002	0.008

PELMO 5.5.3/winter cereals (spring application); absolute application date 1 April

Crop	Scenario	INR9805				M2	
		Aerobic conditions					
		<pH 7 ff=0.5	<pH 7 ff=1	>pH 7 ff=1	>pH 7 ff=0.5	<pH 7	>pH 7
PELMO 5.5.3 winter cereals (spring spraying)	Châteaudun	0.036	0.080	**0.172**	0.080	0.000	0.001
	Hamburg	**0.112**	**0.237**	**0.297**	**0.141**	0.000	0.008
	Jokioinen	0.058	0.127	0.201	0.095	0.000	0.006
	Kremsmünster	0.084	**0.177**	**0.255**	**0.121**	0.000	0.017
	Okehampton	0.092	0.195	0.235	0.112	0.000	0.014
	Piacenza	0.074	0.159	0.245	0.115	0.000	0.012
	Porto	0.065	0.137	0.160	0.076	0.000	0.001
	Sevilla	0.001	0.002	0.004	0.002	0.000	0.000
	Thiva	0.017	0.038	0.051	0.023	0.000	0.000

Table 8.8-7 PECgw (µg/l) values of tribenuron-methyl and its metabolites using PEARL and PELMO models after an application to spring cereals (15 g a.s./ha) - (values that exceed 0.1 µg/L are highlighted in bold typeface)

PEARL 4.4.4 /spring cereals (spring application); 10 days after crop emergence									
Crop	**Scenario**	**Parent (µg/L)**		**IN-L5296**		**IN-A4098**		**IN-00581**	
		<pH 7	>pH 7	<pH 7	>pH 7	<pH 7	>pH 7	< pH 7	> pH 7
PEARL 4.4.4 spring cereals (spring spraying)	Châteaudun	0.000000	0.044438	0.014232	0.075893	**0.304863**	**0.405896**	0.034128	**0.102524**
	Hamburg	0.000044	**0.378300**	0.098168	**0.228924**	**0.618000**	**0.656129**	**0.267292**	**0.517567**
	Jokioinen	0.000013	0.335875	0.007114	0.088428	0.347113	0.401812	0.205037	0.428845
	Kremsmünster	0.000039	**0.228476**	0.063072	**0.217835**	0.063072	**0.420434**	**0.145642**	**0.298082**
	Okehampton	0.000041	0.209425	0.077739	0.214764	0.362412	0.358728	0.139569	0.283573
	Porto	0.000002	0.038842	0.030900	0.071851	0.244584	0.263579	0.023842	0.074891

PEARL 4.4.4 /spring cereals (spring application); 10 days after crop emergence							
Crop	**Scenario**	**INR9805**				**M2**	
		Aerobic conditions					
		>pH 7 ff=0.5	>pH 7 ff=1	<pH 7 ff=0.5	<pH 7 ff=1	<pH 7	>pH 7
PEARL 4.4.4 spring cereals (spring spraying)	Châteaudun	0.057405	**0.122309**	0.027967	0.060954	0.000000	0.001114
	Hamburg	**0.112900**	**0.238302**	0.086740	**0.184214**	0.000006	0.014092
	Jokioinen	0.060166	0.127763	0.032590	0.072160	0.000000	0.005247
	Kremsmünster	0.087036	**0.181485**	0.059915	**0.126727**	0.000009	0.011380
	Okehampton	0.084016	0.174752	0.066374	0.140163	0.000013	0.008960
	Porto	0.052670	0.110945	0.039708	0.085194	0.000000	0.000500

PELMO 5.5.3/spring cereals (spring application); 10 days after crop emergence									
Crop	**Scenario**	**Parent (µg/L)**		**IN-L5296**		**IN-A4098**		**IN-00581**	
		<pH 7	>pH 7	<pH 7	>pH 7	<pH 7	>pH 7	<pH 7	>pH 7
PELMO 5.5.3 spring cereals (spring spraying)	Châteaudun	0.000	0.033	0.007	0.052	**0.266**	0.069	0.022	0.069
	Hamburg	0.000	**0.153**	0.073	**0.155**	**0.502**	**0.270**	**0.114**	**0.270**
	Jokioinen	0.000	0.328	0.006	0.065	0.334	0.401	0.193	0.401
	Kremsmünster	0.000	**0.212**	0.057	**0.226**	**0.385**	**0.309**	**0.137**	**0.301**
	Okehampton	0.000	0.216	0.072	0.195	0.344	0.279	0.137	0.279
	Porto	0.000	0.061	0.041	0.090	0.253	0.104	0.038	0.104

PELMO 5.5.3/spring cereals (spring application); 10 days after crop emergence			
Crop	**Scenario**	**INR9805**	**M2**
		Aerobic conditions	

		<pH 7 ff=0.5	<pH 7 ff=1	>pH 7 ff=1	>pH 7 ff=0.5	<pH 7	>pH 7
PELMO 5.5.3 spring cereals (spring spraying)	Châteaudun	0.020	0.044	0.097	0.045	0.000	0.001
	Hamburg	0.075	**0.160**	**0.202**	0.096	0.000	0.004
	Jokioinen	0.029	0.064	0.109	0.051	0.000	0.004
	Kremsmünster	0.057	**0.121**	**0.182**	0.088	0.000	0.010
	Okehampton	0.063	0.134	0.170	0.082	0.000	0.008
	Porto	0.046	0.097	0.119	0.057	0.000	0.002

The risk assessment for GW has been performed for three PL scenarios; Châteaudun, Hamburg and Kremsmünster which are the most appropriate to reflect the soil and climatic conditions occurring in Poland (PL). The predicted environmental concentrations (PEC) of tribenuron-methyl and its metabolites (IN-L5296, IN-A4098, IN-GK521, IN-9805 and IN-00581) in groundwater have been determined for application of TOSCANA TOP 75WG in winter & spring cereals. Two recommended models were used, i.e. FOCUS PELMO (ver. 5.5.3) and FOCUS PEARL (ver. 4.4.4).

As shown above a number of scenarios result in PECgw for tribenuron-methyl and metabolites IN-L5296, IN-A4098, IN-GK521, IN-9805 and IN-00581 that exceed the regulatory trigger value of 0.1 µg/L. To refine the groundwater modeling, a refined soil DT_{50} for tribenuron-methyl of 3.6 days derived from field studies was used according to EFSA Journal 2017;15(7):4912.

In addition, according to the EFSA Journal 2017;15(7):4912 a refined exposure assessment was not provided for acidic conditions, as the field DT_{50} is lower than the acidic soils endpoint (DT_{50}= 5.4 days). In addition, the calculated PECgw for tribenuron-methyl were below the trigger of 0.1 µg/L in acidic soils, for all of the assessed scenarios.

The results of this modelling are presented in the following tables.

Table 8.8-8 PECgw (µg/l) values of tribenuron-methyl and its metabolites using PEARL and PELMO models after an autumn application to winter cereals (15 g a.s./ha) - field data

Scheme no. 1				
PEARL 4.4.4 /winter cereals (autumn application) ; 10 days after crop emergence				
Crop	**Scenario**	**Parent (µg/L)**	**IN-GK521**	**IN-R9805**
				Anaerobic conditions
		>pH 7	>pH 7	>pH 7 ff=0.81
PEARL 4.4.4 winter cereals (autumn spraying)	Châteaudun	0.003886	**0.477987**	0.093178
	Hamburg	**0.125357**	**0.794307**	**0.163007**
	Jokioinen	0.106469	1.087156	0.103536
	Kremsmünster	0.017442	**0.488990**	**0.129690**
	Okehampton	0.052922	0.492526	0.109289
	Piacenza	0.020884	0.341686	0.106735
	Porto	0.079358	0.336458	0.067217

	Sevilla	0.000000	0.081794	0.005349
	Thiva	0.000887	0.435751	0.092555

Scheme no. 2					
Crop	**Scenario**	**Parent (µg/L)**	**IN-L5296**	**IN-A4098**	**IN-00581**
		>pH 7	>pH 7	>pH 7	> pH 7
PEARL 4.4.4 winter cereals (autumn spraying)	Châteaudun	0.003886	0.046634	**0.401994**	**0.175488**
	Hamburg	**0.125357**	**0.259890**	**0.533913**	**0.718771**
	Jokioinen	0.106469	0.088302	0.459820	0.861804
	Kremsmünster	0.017442	**0.168207**	**0.384391**	**0.325984**
	Okehampton	0.052922	0.153362	0.354089	0.522593
	Piacenza	0.020884	0.151008	0.347998	0.198881
	Porto	0.079358	0.079087	0.280189	0.387255
	Sevilla	0.000000	0.002345	0.047326	0.000000
	Thiva	0.000887	0.034471	0.497419	0.050598

PEARL 4.4.4 /winter cereals (autumn application) ; 10 days after crop emergence			
Crop	**Scenario**	**IN-R9805**	**M2**
		Aerobic conditions	
		>pH 7 ff=0.5	>pH 7
PEARL 4.4.4 winter cereals (autumn spraying)	Châteaudun	0.049016	0.000396
	Hamburg	**0.103755**	0.022749
	Jokioinen	0.064069	0.006480
	Kremsmünster	0.077713	0.006795
	Okehampton	0.075686	0.005024
	Piacenza	0.066038	0.005634
	Porto	0.052692	0.002363
	Sevilla	0.002641	0.000000
	Thiva	0.041150	0.000063

Scheme no. 1				
PELMO 5.5.3/winter cereals (autumn application); 10 days after crop emergence				
Crop	**Scenario**	**Parent (µg/L)**	**IN-GK521**	**INR9805**
				Anaerobic conditions
		>pH 7	>pH 7	>pH 7 ff=0.81
PELMO	Châteaudun	0.005	**0.485**	0.094

	Hamburg	**0.268**	**0.857**	**0.167**
	Jokioinen	0.258	0.967	0.099
	Kremsmünster	0.043	**0.608**	**0.154**
	Okehampton	0.092	0.544	0.114
	Piacenza	0.104	0.564	0.127
	Porto	0.176	0.389	0.062
	Sevilla	0.011	0.114	0.019
	Thiva	0.007	0.338	0.066

Scheme no. 2

PELMO 5.5.3/winter cereals (autumn application); 10 days after crop emergence

Crop	Scenario	Parent (µg/L)	IN-L5296	IN-A4098	IN-00581
		>pH 7	>pH 7	>pH 7	> pH 7
PELMO 5.5.3 winter cereals (autumn spraying)	Châteaudun	0.005	0.037	**0.386**	**0.143**
	Hamburg	**0.268**	**0.264**	**0.554**	**0.834**
	Jokioinen	0.258	0.099	0.475	0.990
	Kremsmünster	0.043	**0.199**	**0.470**	**0.363**
	Okehampton	0.092	0.166	0.371	0.612
	Piacenza	0.104	0.177	0.450	0.370
	Porto	0.176	0.095	0.283	0.544
	Sevilla	0.011	0.003	0.109	0.023
	Thiva	0.007	0.025	0.364	0.066

PELMO 5.5.3/winter cereals (autumn application); 10 days after crop emergence

Crop	Scenario	INR9805	M2
		Aerobic conditions	
		>pH 7 ff=0.5	>pH 7
PELMO 5.5.3 winter cereals (autumn spraying)	Châteaudun	0.042	0.000
	Hamburg	**0.108**	0.020
	Jokioinen	0.064	0.008
	Kremsmünster	0.087	0.007
	Okehampton	0.079	0.007
	Piacenza	0.077	0.008
	Porto	0.057	0.003
	Sevilla	0.004	0.000
	Thiva	0.031	0.000

Table 8.8-9 PECgw (µg/l) values of tribenuron-methyl and its metabolites using PEARL and PELMO models after an autumn application to winter cereals (15 g a.s./ha - every third year) - field data

Scheme no. 1; Every 3rd year				
PEARL 4.4.4 /winter cereals (autumn application) ; 10 days after crop emergence				
Crop	**Scenario**	**Parent (µg/L)**	**IN-GK521**	**IN-R9805** **Anaerobic conditions**
		>pH 7	>pH 7	>pH 7 ff=0.81
PEARL 4.4.4 winter cereals (autumn spraying)	Châteaudun	0.001024	**0.167299**	0.032355
	Hamburg	0.050645	**0.242500**	0.049097
	Jokioinen	0.041353	0.326676	0.033336
	Kremsmünster	0.007536	**0.165690**	0.042356
	Okehampton	0.016328	0.156177	0.035992
	Piacenza	0.009279	0.132636	0.035436
	Porto	0.034145	0.119124	0.022060
	Sevilla	0.000046	0.063749	0.003992
	Thiva	0.000408	0.176427	0.028599

Scheme no. 2; Every 3rd year					
Crop	**Scenario**	**Parent (µg/L)**	**IN-L5296**	**IN-A4098**	**IN-00581**
		>pH 7	>pH 7	>pH 7	> pH 7
PEARL 4.4.4 winter cereals (autumn spraying)	Châteaudun	0.001024	0.008217	**0.114418**	0.061057
	Hamburg	0.050645	0.069694	**0.162702**	**0.263359**
	Jokioinen	0.041353	0.023586	0.130330	0.320909
	Kremsmünster	0.007536	0.051511	**0.129286**	**0.118709**
	Okehampton	0.016328	0.037429	0.110583	0.161769
	Piacenza	0.009279	0.039629	0.101028	0.073467
	Porto	0.034145	0.017783	0.086483	0.147748
	Sevilla	0.000046	0.000211	0.017198	0.001493
	Thiva	0.000408	0.002846	0.133574	0.014268

PEARL 4.4.4 /winter cereals (autumn application) ; 10 days after crop emergence			
Crop	**Scenario**	**IN-R9805** **Aerobic conditions**	**M2**
		>pH 7 ff=0.5	>pH 7
PEARL 4.4.4 winter	Châteaudun	0.012670	0.000119
	Hamburg	0.032191	0.007746

	Jokioinen	0.017101	0.001617
	Kremsmünster	0.025053	0.001912
	Okehampton	0.023320	0.001701
	Piacenza	0.021405	0.003111
	Porto	0.015382	0.000937
	Sevilla	0.000603	0.000008
	Thiva	0.008919	0.000026

Scheme no. 1; Every 3rd year

PELMO 5.5.3/winter cereals (autumn application); 10 days after crop emergence

Crop	Scenario	Parent (µg/L)	IN-GK521	IN-R9805 Anaerobic conditions
		>pH 7	>pH 7	>pH 7 ff=0.81
PELMO 5.5.3 winter cereals (autumn spraying)	Châteaudun	0.002	**0.157**	0.031
	Hamburg	0.077	**0.272**	0.052
	Jokioinen	0.066	0.312	0.033
	Kremsmünster	0.018	**0.203**	0.052
	Okehampton	0.029	0.169	0.037
	Piacenza	0.045	0.161	0.041
	Porto	0.094	0.124	0.021
	Sevilla	0.001	0.055	0.004
	Thiva	0.003	0.125	0.021

Scheme no. 2; Every 3rd year

PELMO 5.5.3/winter cereals (autumn application); 10 days after crop emergence

Crop	Scenario	Parent (µg/L)	IN-L5296	IN-A4098	IN-00581
		>pH 7	>pH 7	>pH 7	> pH 7
PELMO 5.5.3 winter cereals (autumn spraying)	Châteaudun	0.002	0.006	**0.113**	0.045
	Hamburg	0.077	0.065	**0.175**	**0.304**
	Jokioinen	0.066	0.025	0.141	0.340
	Kremsmünster	0.018	0.061	**0.148**	**0.141**
	Okehampton	0.029	0.041	0.116	0.188
	Piacenza	0.045	0.052	0.130	0.142
	Porto	0.094	0.022	0.092	0.195
	Sevilla	0.001	0.000	0.022	0.004
	Thiva	0.003	0.003	0.099	0.020

PELMO 5.5.3/winter cereals (autumn application); 10 days after crop emergence

Crop	Scenario	IN-R9805 Aerobic conditions	M2

		>pH 7 ff=0.5	>pH 7
PELMO 5.5.3 winter cereals (autumn spraying)	Châteaudun	0.011	0.000
	Hamburg	0.034	0.007
	Jokioinen	0.019	0.002
	Kremsmünster	0.029	0.002
	Okehampton	0.024	0.002
	Piacenza	0.026	0.003
	Porto	0.018	0.001
	Sevilla	0.001	0.000
	Thiva	0.007	0.000

Tier 2 assessment for groundwater for metabolite IN-GK521:

According to the Peer Review Report on Tribenuron-methyl (June, 2017, 815-816) it was agreed that soil DT_{50} derived from aerobic degradation studies (of 12.1 d instead of anaerobic 67.1 d.) can be used in PECgw calculation for the anaerobic metabolite IN-GK521.

This results from the fact that soils are mainly aerobic over time and should anaerobic conditions prevail for sufficient time so that the metabolite is formed. As noticed further in the Peer Review Report on Tribenuron-methyl (June, 2017) this approach was already taken for another active substance - lambda-cyhalothrin. In that case, it had been also decided for anaerobic metabolite, that it was acceptable to use the aerobic DT_{50} in the PEC groundwater calculations.

Additionally, due to absence of formation fraction for metabolite IN-GK521 under soil aerobic conditions it was further proposed in the Peer Review Report on Tribenuron-methyl (June, 2017 to model directly the metabolite applied as the parent with the a.s. application rate corrected in relation to the maximum occurrence of the metabolite in soil.

Taken all above into account Tier 2 assessment for metabolite IN-GK521 for T-75WG-OR2C/TOSCANA TOP 75 WG (autumn application) is proposed with the following input parameters:

$DT_{50\ soil}$ = 12.1 days

Dosage of metabolite IN-GK521 (kg/ha) =
Dosage of tribenuron-methyl · Molar mass IN-GK521/Molar mass tribenuron methyl · Max %AR soil

Dosage of metabolite IN-GK521 (kg/ha) = 0.015 kg/ha · 381.4/395.4 · 32.1% = **0.0046 kg/ha**

Please notice that the other input parameters for metabolite IN-GK521 and IN-R9805 remained the same as in Tier 1.

Table 8.8-10 Tier 2 PEC_{GW} for metabolite IN-GK521 and IN-R9805 (with PEARL 4.4.4 and PELMO 5.5.3)

PEARL 4.4.4 /winter cereals (autumn application)					
Crop	**Scenario**	**IN-GK521 (µg/L)**	**IN-R9805**	**IN-GK521 (µg/L)**	**IN-R9805**
		every year		every other year	
		>pH 7	>pH 7	>pH 7	>pH 7
PEARL 4.4.4 winter cereals, 1×15 g/ha* autumn spraying	Châteaudun	0.017542	0.037432	0.008823	0.019567
	Hamburg	**0.133803**	**0.104451**	0.083949	0.052099
	Jokioinen	0.136083	0.063328	0.085611	0.033111
	Kremsmünster	0.049682	0.069835	0.026398	0.034423
	Okehampton	0.111126	0.066234	0.060444	0.032888
	Piacenza	0.028278	0.057841	0.013674	0.030816
	Porto	0.102735	0.035611	0.058497	0.019074
	Sevilla	0.000000	0.000147	0.000030	0.001398
	Thiva	0.002826	0.018773	0.001187	0.010156

PELMO 5.5.3/ winter cereals (autumn application)					
Crop	**Scenario**	**IN-GK521 (µg/L)**	**IN-R9805**	**IN-GK521 (µg/L)**	**IN-R9805**
		every year		every other year	
		>pH 7	>pH 7	>pH 7	> pH 7
PELMO 5.5.3 winter cereals, 1×15 g/ha* autumn spraying	Châteaudun	0.016	0.033	0.007	0.016
	Hamburg	**0.215**	**0.108**	**0.115**	0.054
	Jokioinen	0.202	0.068	0.107	0.034
	Kremsmünster	0.056	0.083	0.032	0.040
	Okehampton	0.151	0.069	0.077	0.033
	Piacenza	0.094	0.071	0.039	0.037
	Porto	0.185	0.034	0.109	0.018
	Sevilla	0.004	0.003	0.001	0.002
	Thiva	0.008	0.016	0.004	0.009

PELMO 5.5.3/ winter cereals (autumn application)			
Crop	**Scenario**	**IN-GK521 (µg/L)**	**IN-R9805**
		every 3rd year	
		>pH 7	>pH 7
PELMO 5.5.3 winter cereals, 1×15 g/ha* autu	Châteaudun	0.005	0.010
	Hamburg	0.084	0.035
	Jokioinen	0.065	0.021

	Kremsmünster	0.023	0.029
	Okehampton	0.043	0.023
	Piacenza	0.035	0.024
	Porto	0.071	0.012
	Sevilla	0.001	0.001
	Thiva	0.003	0.006

* 15 g/ha refers to the active substance application rate; for the purpose of Tier 2 modelling for metabolite IN-GK521 4.64 g/ha was assumed according to the EFSA proposal as explained above.

Conclusion

Taking into consideration the relevant scenarios for Poland (Châteaudun, Hamburg and Kremsmünster) the results of modelling with FOCUS PELMO (v 5.5.3) & PEARL (v 4.4.4) show that the active substance tribenuron methyl and its metabolites (IN-L5296, IN-A4098, IN-00581, IN-R9805 and IN-GK 521) are exceed the concentrations of ≥ 0.1µg/L in the intended uses of TOSCANA TOP 75WG in winter cereals (autumn application) according to use max. application rate 15 g a.s./ ha, in every year.

However, when one application every three years was considered at the maximum rate to winter cereals (autumn application) the results showed that PECgw of tribenuron methyl in all FOCUS scenarios was < 0.1 µg/L. The metabolites IN-A4098 and IN-00581 were above trigger value of 0.1 µg/L but stayed below 0.75 µg/L.

This demonstrated that the one application every 3rd year use of tribenuron methyl at the rate of 15 g a.s./ha would not result in any risk to groundwater contamination. The results are summarised in above tablets.

Table 8.8-11 PECgw (µg/l) values of tribenuron-methyl and its metabolites using PEARL and PELMO models after an spring application to winter cereals (18.75 g a.s./ha) - field data

PEARL 4.4.4 /winter cereals (spring application); absolute application date 1 April					
Crop	**Scenario**	**Parent (µg/L)**	**IN-L5296**	**IN-A4098**	**IN-00581**
		>pH 7	>pH 7	>pH 7	> pH 7
PEARL 4.4.4 winter cereals (spring spraying)	Châteaudun	0.000003	0.034569	**0.468174**	0.053368
	Hamburg	0.000194	**0.139952**	**0.641472**	**0.256831**
	Jokioinen	0.000233	0.037687	0.541987	0.220082
	Kremsmünster	0.000346	**0.110603**	**0.461500**	**0.191060**
	Okehampton	0.000353	0.133487	0.457810	0.218398
	Piacenza	0.000258	0.095973	0.439461	0.120960
	Porto	0.000044	0.057227	0.335686	0.053107
	Sevilla	0.000000	0.000054	0.044813	0.001854
	Thiva	0.000000	0.021717	0.563314	0.005745

PEARL 4.4.4 /winter cereals (spring application); absolute application date 1 April			
Crop	**Scenario**	**INR9805**	**M2**
		Aerobic conditions	

		>pH 7 ff=0.5	>pH 7
PEARL 4.4.4 winter cereals (spring spraying)	Châteaudun	0.048524	0.000001
	Hamburg	**0.105953**	0.000174
	Jokioinen	0.056718	0.000093
	Kremsmünster	0.077659	0.000253
	Okehampton	0.089401	0.000399
	Piacenza	0.069277	0.000648
	Porto	0.054673	0.000022
	Sevilla	0.000870	0.000000
	Thiva	0.035901	0.000000

PELMO 5.5.3/winter cereals (spring application); absolute application date 1 April

Crop	Scenario	Parent (µg/L)	IN-L5296	IN-A4098	IN-00581
		>pH 7	>pH 7	>pH 7	> pH 7
PELMO 5.5.3 winter cereals (spring spraying)	Châteaudun	0.000	0.025	**0.470**	0.044
	Hamburg	0.000	**0.166**	**0.711**	**0.202**
	Jokioinen	0.005	0.057	0.590	0.311
	Kremsmünster	0.001	**0.147**	**0.550**	**0.221**
	Okehampton	0.001	0.163	0.477	0.232
	Piacenza	0.006	0.117	0.541	0.125
	Porto	0.000	0.075	0.361	0.051
	Sevilla	0.000	0.000	0.108	0.002
	Thiva	0.000	0.004	0.355	0.002

PELMO 5.5.3/winter cereals (spring application); absolute application date 1 April

Crop	Scenario	INR9805	M2
		Aerobic conditions	
		>pH 7 ff=0.5	>pH 7
PELMO 5.5.3 winter cereals (spring spraying)	Châteaudun	0.044	0.000
	Hamburg	**0.120**	0.001
	Jokioinen	0.070	0.001
	Kremsmünster	0.093	0.001
	Okehampton	0.101	0.001
	Piacenza	0.083	0.001
	Porto	0.067	0.000
	Sevilla	0.001	0.000
	Thiva	0.018	0.000

Conclusion

Taking into account the three scenarios (Châteaudun, Hamburg and Kremsmünster) for which calculation has been performed, it may be noted that results of the PEC_{GW} for tribenuron methyl were < 0.1 µg/L for all scenarios (Châteaudun, Hamburg and Kremsmünster) with all models (PELMO & PEARL). In addition, PEC_{GW} for the metabolite M2 were always < 0.1 µg/L.

PEC_{GW} for IN-L5296, IN-A4098, IN-00581 and IN-R9805 exceeded the trigger 0.1 µg/L but were < 0.75 µg/L. Therefore, a groundwater concentration for IN-L5296, IN-A4098, IN-00581 and IN-R9805 ≥ 0.1 µg/L cannot be excluded for the application in winter cereals (April applications) according to the results of the groundwater simulations. An assessment of the metabolite IN-L5296, IN-A4098, IN-00581 and IN-R9805 regarding the relevance for groundwater is necessary.

The information concerning the environmental metabolites IN-L5296, IN-A4098, IN-00581 and IN-R9805 assessment of their potential relevance with respect to the current SANCO guidance (SANCO/221/2000 rev.10, 25/02/2003) is provided in this dRR, Section 10 (Assessment of the relevance of metabolites in groundwater).

Table 8.8-12 PECgw (µg/l) values of tribenuron-methyl and its metabolites using PEARL and PELMO models after an application to spring cereals (15 g a.s./ha) - field data

PEARL 4.4.4 /spring cereals (spring application); 10 days after crop emergence					
Crop	**Scenario**	**Parent (µg/L)**	**IN-L5296**	**IN-A4098**	**IN-00581**
		>pH 7	>pH 7	>pH 7	> pH 7
PEARL 4.4.4 spring cereals (spring spraying)	Châteaudun	0.000001	0.019114	**0.320415**	0.036031
	Hamburg	0.000173	**0.108939**	**0.631222**	**0.263308**
	Jokioinen	0.000334	0.012918	0.355005	0.210371
	Kremsmünster	0.000153	0.081083	**0.402472**	**0.162448**
	Okehampton	0.000110	0.095094	0.368557	0.148224
	Porto	0.000139	0.038633	0.247600	0.028458

PEARL 4.4.4 /spring cereals (spring application); 10 days after crop emergence			
Crop	**Scenario**	**INR9805**	**M2**
		Aerobic conditions	
		>pH 7 ff=0.5	>pH 7
PEARL 4.4.4 spring cereals (spring spraying)	Châteaudun	0.031659	0.000000
	Hamburg	0.091026	0.000120
	Jokioinen	0.035829	0.000042
	Kremsmünster	0.063813	0.000215
	Okehampton	0.069485	0.000195
	Porto	0.041791	0.000038

PELMO 5.5.3/spring cereals (spring application); 10 days after crop emergence					
Crop	**Scenario**	**Parent (µg/L)**	**IN-L5296**	**IN-A4098**	**IN-00581**

		>pH 7	>pH 7	>pH 7	> pH 7
PELMO 5.5.3 spring cereals (spring spraying)	Châteaudun	0.000	0.011	**0.285**	0.024
	Hamburg	0.000	0.080	**0.512**	**0.111**
	Jokioinen	0.000	0.010	0.340	0.198
	Kremsmünster	0.000	0.076	**0.397**	**0.149**
	Okehampton	0.000	0.088	0.349	0.157
	Porto	0.001	0.052	0.253	0.045
PELMO 5.5.3/spring cereals (spring application); 10 days after crop emergence					

Crop	**Scenario**	**INR9805**	**M2**
		Aerobic conditions	
		>pH 7 ff=0.5	>pH 7
PELMO 5.5.3 spring cereals (spring spraying)	Châteaudun	0.024	0.000
	Hamburg	0.078	0.000
	Jokioinen	0.032	0.000
	Kremsmünster	0.063	0.000
	Okehampton	0.067	0.000
	Porto	0.048	0.000

Conclusion

Calculations of the predicted environmental concentrations (PEC_{gw}) for the active substance and metabolites were performed for Châteaudun, Hamburg and Kremsmünster scenarios in which this product will be used in Poland.

The PEC_{GW} for tribenuron methyl were < 0.1 µg/L for all scenarios (Châteaudun, Hamburg and Kremsmünster) with all models (PELMO & PEARL). In addition, PEC_{GW} for the metabolites M2 & IN-R9805 were always < 0.1 µg/L.

PEC_{GW} for IN-L5296, IN-A4098 and IN-00581 exceeded the trigger 0.1 µg/L but were < 0.75 µg/L. Therefore, a groundwater concentration for IN-L5296, IN-A4098 and IN-00581 ≥ 0.1 µg/L cannot be excluded for the application in spring cereals (spring applications) according to the results of the groundwater simulations. An assessment of the metabolite IN-L5296, IN-A4098 and IN-00581 regarding the relevance for groundwater is necessary.

The information concerning the environmental metabolites IN-L5296, IN-A4098 and IN-00581 assessment of their potential relevance with respect to the current SANCO guidance (SANCO/221/2000 rev.10, 25/02/2003) is provided in this dRR, Section 10 (Assessment of the relevance of metabolites in groundwater).

Table 8.8-13: The PEC_{GW} for tribenuron-methyl and required metabolites in winter and spring cereals (with MACRO 5.5.4 in FOCUS)

Crop	**Scenario**	**No. of Julian day**	**PEC_{GW} (µg/L)**						
			Tribenuron-methyl	**IN-L5296**	**IN-A4098**	**IN-00581**	**INR9805**	**M2**	**IN-GK521**

winter cereals	Châteaudun	91	2.66E-07	0.00313	0.00871	0.00405	0.000171	1.43E-08	0.000643
spring cereals		79	1.45E-06	0.00159	0.00624	0.00346	0.000122	1.71E-09	n/a

Results from MACRO in FOCUS v5.5.4

Calculation results were performed for Châteaudun FOCUS scenario depends on the selected crop. The results of the simulations in MACRO 5.5.4 in FOCUS indicate that PEC_{GW} of active substance tribenuron methyl and its metabolites stayed below 0.1 µg/L in Châteaudun scenario.

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<u>The table 8.8-14 & 8.8-15 present minor use (i.e.: grass) of the plant protection product TOSCANA TOP 75WG.</u>

Table 8.8-14 PECgw (µg/l) values of tribenuron-methyl and its metabolites using PEARL and PELMO models after an application to grass (18.75 g a.s./ha; with 60% interception). The calculations were made for minor use.

Scheme no. 2;

PEARL 4.4.4 / Grass (spring application); absolute application date 1 March

Crop	Scenario	Parent (µg/L)		IN-L5296		IN-A4098		IN-00581	
		<pH 7	>pH 7	<pH 7	>pH 7	<pH 7	>pH 7	< pH 7	> pH 7
Grass	Châteaudun	0.000003	0.066980	0.017033	0.079456	**0.186039**	**0.223640**	0.041895	**0.109514**
	Hamburg	0.000022	**0.152246**	0.031870	**0.105454**	**0.257583**	**0.282094**	**0.109944**	**0.237237**
	Kremsmünster	0.000008	0.076930	0.017766	0.090267	**0.165486**	**0.200847**	0.049921	**0.114744**

PEARL 4.4.4 / Grass (spring application); absolute application date 1 March

Crop	Scenario	INR9805				M2	
		Aerobic conditions					
		>pH 7 ff=0.5	>pH 7 ff=1	<pH 7 ff=0.5	<pH 7 ff=1	<pH 7	>pH 7
Grass	Châteaudun	0.044696	0.093446	0.025736	0.055091	0.000000	0.002091
	Hamburg	0.056126	**0.117928**	0.039241	0.083894	0.000011	0.005253
	Kremsmünster	0.040375	0.084497	0.023044	0.049256	0.000002	0.003559

PELMO 5.5.3/ Grass (spring application); absolute application date 1 March

Crop	Scenario	Parent (µg/L)		IN-L5296		IN-A4098		IN-00581	
		<pH 7	>pH 7	<pH 7	>pH 7	<pH 7	>pH 7	<pH 7	> pH 7
Grass	Châteaudun	0.000	0.036	0.011	**0.056**	**0.156**	**0.195**	0.025	0.071
	Hamburg	0.000	**0.121**	**0.021**	**0.084**	**0.205**	**0.225**	**0.057**	**0.143**
	Kremsmünster	0.000	0.080	0.016	**0.087**	**0.157**	**0.197**	**0.049**	**0.120**

PELMO 5.5.3/ Grass (spring application); absolute application date 1 March							
Crop	Scenario	INR9805				M2	
		Aerobic conditions					
		<pH 7 ff=0.5	<pH 7 ff=1	>pH 7 ff=1	>pH 7 ff=0.5	<pH 7	>pH 7
Grass	Châteaudun	0.020	0.052	0.077	0.036	0.000	0.001
	Hamburg	0.030	0.081	0.095	0.046	0.000	0.004
	Kremsmünster	0.021	0.057	0.084	0.040	0.000	0.003

Table 8.8-15 PECgw (µg/l) values of tribenuron-methyl and its metabolites using PEARL and PELMO models after an application to grass (18.75 g a.s./ha; with 60% interception) - field data. **The calculations were made for minor uses.**

Scheme no. 2;					
PEARL 4.4.4 / Grass (spring application); absolute application date 1 March					
Crop	**Scenario**	**Parent (µg/L)**	**IN-L5296**	**IN-A4098**	**IN-00581**
		>pH 7	>pH 7	>pH 7	> pH 7
Grass	Châteaudun	0.000025	0.021784	**0.189644**	0.048618
	Hamburg	0.000100	0.051758	**0.269128**	**0.116980**
	Kremsmünster	0.000134	0.026177	**0.169325**	0.054390

PEARL 4.4.4 / Grass (spring application); absolute application date 1 March			
Crop	**Scenario**	**INR9805**	**M2**
		Aerobic conditions	
		>pH 7 ff=0.5	>pH 7
Grass	Châteaudun	0.028381	0.000012
	Hamburg	0.045412	0.000672
	Kremsmünster	0.025655	0.000087

PELMO 5.5.3/ Grass (spring application); absolute application date 1 March					
Crop	**Scenario**	**Parent (µg/L)**	**IN-L5296**	**IN-A4098**	**IN-00581**
		>pH 7	>pH 7	>pH 7	> pH 7
Grass	Châteaudun	0.000	0.014	**0.162**	0.027
	Hamburg	0.001	0.037	**0.212**	0.075
	Kremsmünster	0.000	0.024	**0.168**	0.054

PELMO 5.5.3/ Grass (spring application); absolute application date 1 March			
Crop	Scenario	INR9805	M2
		Aerobic conditions	
		>pH 7 ff=0.5	>pH 7
Grass	Châteaudun	0.022	0.000
	Hamburg	0.035	0.001
	Kremsmünster	0.024	0.000

<u>*Conclusion*</u>

Calculations of the predicted environmental concentrations (PEC_{gw}) for the active substance and metabolites were performed for Châteaudun, Hamburg and Kremsmünster scenarios in which this product will be used in Poland.

The proposed range of minor use (i.e.: grass, winter & spring cereals and miscanthus) for proposed dosage compared to all major uses leads to a comparable environmental load. The risk assessment for GW has been conducted for major uses (winter & spring cereals) and it may be stated that also covers the risk for minor use (winter & spring cereals) except the use in grass where this crop not covers by major uses. Therefore, the calculation was carried out for the grass.

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

Modelling Comments:

The submitted calculations were accepted.
All used endpoints were agreed at the EU level.
PEC_{SW} and PEC_{SED} were assessed in accordance with FOCUS Surface Water guidance; Step 1 & 2 and Step 3 (SWASH model) were used.

The mitigation measures were proposed. At Step 4 of tribenuron methyl run-off mitigation via vegetated filter strip efficiency was calculated for 1 and 3 m buffer using the VFS model. Additionally, the run-off reduction was considered with a vegetative buffer strip of 10 m and 20 m.
RAC = 0.47

SWAN model

Crop	Application rate g a.s./ha	Tribenuron-methyl pH < 7	Tribenuron-methyl pH > 7
Winter cereals spring application	18.75	0.2661 (R4 stream) 10 m VBS* + 10 m NSS	0.4316 (R4 stream) 10 m VBS* + 10 m NSS
Winter cereals autumn application	15.00	0.4170 (R3 stream) 10 m VBS* + 10 m NSS	0.2774 (R3 stream) 20 m VBS* + 20 m NSS
Spring cereals	15.00	0.2158 (R4 stream) 10 m VBS* + 10 m NSS	0.3474 (R4 stream) 10 m VBS* + 10 m NSS

*vbs – vegetated buffer strip

Crop	Application rate g a.s./ha	Tribenuron-methyl pH < 7	Tribenuron-methyl pH > 7

Winter cereals spring application	18.75	0.1389 (R4 stream) 20 m VBS* + 20 m NSS	0.2253 (R4 stream) 20 m VBS* + 20 m NSS
Winter cereals autumn application	15.00	0.2178 (R3 stream) 20 m VBS* + 20 m NSS	0.2774 (R3 stream) 20 m VBS* + 20 m NSS
Spring cereals	15.00	0.1126 (R4 stream) 20 m VBS* + 20 m NSS	0.1814 (R4 stream) 20 m VBS* + 20 m NSS

*vbs – vegetated buffer strip

VFSmod

Crop	Application rate g a.s./ha	Tribenuron-methyl pH < 7	Tribenuron-methyl pH > 7
Winter cereals spring application	18.75	0.1451 (R4 stream) 1 m VFS + 1 m NSS	0.2769 (R4 stream) 1 m VFS + 1 m NSS
Winter cereals autumn application	15.00	0.3439 (R3 stream) 1 m VFS + 1 m NSS	0.3831 (R3 stream) 3 m VFS + 3 m NSS
Spring cereals	15.00	0.1165 (R4 stream) 1 m VFS + 1 m NSS	0.2212 (R4 stream) 1 m VFS + 1 m NSS

Crop	Application rate g a.s./ha	Tribenuron-methyl pH < 7	Tribenuron-methyl pH > 7
Winter cereals spring application	18.75	0. 04474 (R4 stream) 3 m VFS + 3 m NSS	0.04474 (R4 stream) 3 m VFS + 3 m NSS
Winter cereals autumn application	15.00	0.2590 (R3 stream) 3 m VFS + 3 m NSS	0.3831 (R3 stream) 3 m VFS + 3 m NSS
Spring cereals	15.00	0.03589 (R4 stream) 3 m VFS + 3 m NSS	0.03589 (R4 stream) 3 m VFS + 3 m NSS

National assessment, Poland.
In accordance with PL national requirements the relevant scenarios were taken into consideration D3, D4 and R1. The Step 3 results were sufficient; no mitigation measures were proposed.

Crop	Application rate g a.s./ha	Tribenuron-methyl pH < 7	Tribenuron-methyl pH > 7
Winter cereals spring application	18.75	0.1888 R1 stream	0.2928 R1 stream
Winter cereals autumn application	15.00	0.09475 D3 ditch	0.3806 D4 pond
Spring cereals	15.00	0.1888 R1 stream*	0.2928 R1 stream*
Grass	18.75	0.1888 R1 stream*	0.2928 R1 stream*

* a surrogate crop of winter cereals was used to cover R1 scenario

All relevant metabolites for all active substances were considered, PEC_{SW} and PEC_{SED} were assessed in Step 1 & 2.

Drift calculator for formulation PECsw assessment was used. PECsw value including the buffer zone are presented in tables below.

winter cereals 1 x 25 g product/ha; grass 1 x 25 g product/ha

FOCUS buffer zone (m)	Max. PEC_{sw} (µg formulation/L)
1	0.1606
5	0.0435
10	0.0231
20	0.0120

winter cereals/spring cereals 1 x 20 g product/ha

FOCUS buffer zone (m)	Max. PEC_{sw} (µg formulation/L)
1	0.1285
5	0.0348
10	0.0185
20	0.0096

The PEC_{SW} values for active substance and its metabolites and formulation will be used for further risk assessment.

8.9.1 Justification for new endpoints

There are no deviations from the EU agreed endpoints.

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

The calculation of the predicted environmental concentrations in surface waters and water sediments (PEC_{SW} and PEC_{SED}) of tribenuron methyl and its relevant metabolites and the formulation have been assessed with FOCUS models indicated in the Table 8.9-1. Calculations for metabolites of tribenuron methyl were carried out at Step 1 and Step 2 since all trigger values were achieved for aquatic organisms. Moreover, the PEC_{SW} and PEC_{SED} were calculated for active substance following the FOCUS SW scheme up to Step 4 using FOCUS models. Reference to study – KCP 9.2.5.

Table 8.9-1: Input parameters related to application for $PEC_{SW/SED}$ calculations for the application of TOSCANA TOP 75 WG

Plant protection product	TOSCANA TOP 75 WG			
Use no.	1-16			
Crop	Winter cereals	Spring cereals	Winter cereals	Grass
Application time (relevant for STEP 1 and 2 only)	March-May, spring spraying		October-February, autumn spraying	March-May, spring spraying

Application rate (kg as/ha)	Tribenuron-methyl	0.01875	0.015	0.015	0.01875
Number of applications/interval (d)		1/n.a.	1/n.a.	1/n.a.	1/n.a.
Interception (%)		Minimal crop cover – 0% (step 2)			Average crop cover – 60%
CAM (Chemical application method)		2 - appln foliar linear (in case of R scenario)			
Models used for calculation		Step 1 and 2: STEPS 1-2 in FOCUS v.3.2 Step 3: FOCUS SWASH v.5.3, FOCUS PRZM v4.3.1, FOCUS MACRO v5.5.4, FOCUS TOXSWA v5.5.3 Step 4: SWAN v.5.0.1			

Table 8.9-2: FOCUS Step 3 Scenario related input parameters for $PEC_{sw/sed}$ calculations for the application of TOSCANA TOP 75 WG

Crop Application pattern	Scenario	Application window used in modelling	
		date	Julian day
Winter cereals Spring application 18.75 g a.s/ha	D3 ditch	4 April – 4 May	94 – 124
	D4 pond, stream	30 May – 29 June	150 – 180
	D5 pond, stream	8 April – 8 May	98 – 128
	R1 pond, stream	26 April – 26 May	116 – 146
	R3 stream	4 April – 4 May	94 – 124
	R4 stream	29 April – 29 May	119 – 149
Spring cereals Spring application 15 g a.s/ha	D3 ditch	20 April – 20 May	110 – 140
	D4 pond, stream	30 May – 29 June	150 – 180
	D5 pond, stream	11 May – 10 June	131 – 161
	R4 stream	4 May – 3 June	124 – 154
Winter cereals Autumn application 15 g a.s/ha	D3 ditch	10 December – 9 January	344 – 9
	D4 pond, stream	02 October – 02 November	275 – 306
	D5 pond, stream	27 November – 27 December	331 – 361
	R1 pond, stream	27 November – 27 December	331 – 361
	R3 stream	20 December – 20 Jan	354 - 20
	R4 stream	10 December – 10 Jan	344 - 10
Grassland Spring application 18.75 g a.s/ha	D3 ditch	4 April – 4 May	94-124
	D4 pond, stream	10 Mar – 9 April	69-99

8.9.2.1 Tribenuron-methyl and its metabolites

Recommendations included in Generic guidance for FOCUS Surface Water Scenarios (Ver. 1.4, May 2015) were used to select the input data. The input parameters used for the modelling are summarized in Table 8.9-3.

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

Compound	tribenuron methyl		IN-L5296	IN-A4098	IN-00581	IN-R9805	Value in accordance to EU endpoint y/n Reference
	pH < 7	pH > 7					
Molecular weight (g/mol)	395.4		154.2	140.1	183.2	140.2	Yes / EFSA Journal 2017;15(17):4912
Water solubility (mg/L) at 20°C	2483		2483	456	2483	2483	Yes / EFSA Journal 2017;15(17):4912
Saturated vapour pressure [Pa] at 20°C	5.99×10^{-9}		not required for Step 1+2				Yes / EFSA Journal 2017;15(17):4912
Henry's Law Constant [Pa×m³/mol] at 25°C	1.42×10^{-6}		not required for Step 1+2				Yes / EFSA Journal 2017;15(17):4912
Diffusion coefficient in water (m²/d)	4.3×10^{-5}		not required for Step 1+2				FOCUS default value
Diffusion coefficient in air (m²/d)	0.43						FOCUS default value
$K_{oc,foc}$ (mL/g)	38.9	8.6	82.6 Geometric mean	45.6 Geometric mean	5.6 Geometric mean	105 Geometric mean	Yes / EFSA Journal 2017;15(17):4912
	Geometric mean						
K_{om} (mL/g)	22.56	4.99	not required for Step 1+2				Calculated from K_{foc} (K_{fom}= K_{foc}/1.724)
Freundlich Exponent 1/n	0.98	1.0	not required for Step 1+2				Yes / EFSA Journal 2017;15(17):4912
$DT_{50,soil}$ (d) geometric mean	5.4	16.7	207.5	127.7	19.1	85.5	Yes / EFSA Journal 2017;15(17):4912
$DT_{50,water}$ (d)	18.2		227.8	1000	10.8	1000	Yes / EFSA Journal 2017;15(17):4912
$DT_{50,sed}$ (d)	1000		1000	1000	1000	1000	Yes / EFSA Journal 2017;15(17):4912

Compound	**tribenuron methyl**		**IN-L5296**	**IN-A4098**	**IN-00581**	**IN-R9805**	**Value in accordance to EU endpoint y/n Reference**
	pH < 7	**pH > 7**					
$DT_{50,whole\ system}$ (d)	18.2		227.8	1000	10.8	1000	Yes / EFSA Journal 2017;15(17):4912
Crop uptake factor [-]	0		not required for Step 1+2				FOCUS default value
Maximum occurrence observed (%)	-		Soil: 85.7% Water/sed.: 88.9%	Soil: 12.6% Water/sed.: 0.0001%	Soil: 33.9% Water/sed.: 38.4%	Soil: 7.6% Water/sed.: 14.7%	Yes / EFSA Journal 2017;15(17):4912
Wash-Off factor from Crop (1/mm)	0.05 (MACRO) 0.50 (PRZM)		not required for Step 1+2				FOCUS default value

Table 8.9-4: Input parameters related to further metabolites for $PEC_{sw/sed}$ calculations STEP 1 and 2

Compound	**M2**	**IN-D5803**	**IN-5119**	**IN-GN815**	**IN-GK521**	**Value in accordance to EU endpoint y/n Reference**
Molecular weight (g/mol)	197.2	215.2	201.1	367.3	381.4	Yes / EFSA Journal 2017;15(17):4912
Water solubility (mg/L) at 20°C	2483	2483	2483	2483	2483	Yes / EFSA Journal 2017;15(17):4912
$K_{oc,foc}$ (mL/g)	72.2 Geometric mean	17.7 Geometric mean	3.5 Geometric mean	15.9 Geometric mean	16.8 Geometric mean	Yes / EFSA Journal 2017;15(17):4912
$DT_{50,soil}$ (d) geometric mean	21.5	3.2	14.4	7.2	12.1	Yes / EFSA Journal 2017;15(17):4912
$DT_{50,water}$ (d)	1000	1000	1000	47.6	1000	Yes / EFSA Journal 2017;15(17):4912
$DT_{50,sed}$ (d)	1000	1000	1000	1000	1000	Yes / EFSA Journal 2017;15(17):4912
$DT_{50,whole\ system}$ (d)	1000	1000	1000	47.6	1000	Yes / EFSA Journal 2017;15(17):4912
Maximum occurrence observed (%)	Soil: 16.2% Water/sed.: 0.0001%	Soil: 46.6% Water/sed.: 0.0001%	Soil: 6.1% Water/sed.: 26.5%	Soil: 6.8% Water/sed.: 13.0%	Soil: 32.1% Water/sed.: 0.0001%	Yes / EFSA Journal 2017;15(17):4912

PEC$_{sw/sed}$

Table 8.9-5: FOCUS Step 1, 2 and 3 PEC$_{sw}$ and PEC$_{sed}$ for tribenuron methyl (pH < 7) following single application of TOSCANA TOP 75 WG to winter cereals (spring and autumn application), spring cereals (spring application) and grass (spring application)

Scenario FOCUS	Waterbody	Max. PEC$_{sw}$ (µg/L)	Main routes of entry	Max. PEC$_{sed}$ (µg/kg sediment)
Winter cereals, Autumn application(15 g as/ha)				
Step 1	---	4.89	spray drift, runoff, drainage	1.85
Step 2	ditch	1.52		0.59
Northern Europe	Winter cereals – October-February, autumn spraying			
Spring cereals, Spring application (15 g as/ha)				
Step 1	---	4.89	spray drift, runoff, drainage	1.85
Step 2	ditch	0.68		0.26
Northern Europe	Spring cereals - March-May, spring spraying			
Winter cereals, spring application(18.75 g as/ha)				
Step 1	---	6.11	spray drift, runoff, drainage	2.31
Step 2	ditch	0.85		0.33
Northern Europe	Winter cereals – March-May, spring sprying			
Grass, spring application(18.75 g as/ha)				
Step 1	---	6.11	spray drift, runoff, drainage	2.31
Step 2	ditch	0.43		0.16
Northern Europe	Grass – March-May, spring sprying			
Step 3				
Spring cereals, Spring application (15 g as/ha)				
D3	ditch	0.0951	spray drift, runoff, drainage	0.01193
D4	pond	0.003287		0.001946
D4	stream	0.07778		0.002940
D5	pond	0.003297		0.002006
D5	stream	0.08299		0.003002
R4	stream	0.4781		0.06043
winter cereals, autumn application (15 g as/ha)				
D3	ditch	0.09475	spray drift, runoff, drainage	0.01025
D4	pond	0.02370		0.2513
D4	stream	0.08223		0.01224

Scenario FOCUS	Waterbody	Max. PEC_{sw} (µg/L)	Main routes of entry	Max. PEC_{sed} (µg/kg sediment)
D5	pond	0.03949		0.04281
D5	stream	0.08871		0.01835
R1	pond	0.003280		0.002419
R1	stream	0.09029		0.003773
R3	stream	0.9270		0.09907
R4	steram	0.2127		0.02438
winter cereals, spring application (18.75 g as/ha)				
D3	ditch	0.1187	spray drift, runoff, drainage	0.01417
D4	pond	0.004107		0.002442
D4	stream	0.09913		0.004448
D5	pond	0.004102		0.002802
D5	stream	0.09484		0.001964
R1	pond	0.004100		0.003333
R1	stream	0.1888		0.01914
R3	stream	0.1205		0.01943
R4	stream	0.5895		0.07441
Grass, spring application (18.75 g as/ha)				
D3	ditch	0.1190	spray drift, runoff, drainage	0.01623
D4	pond	0.004100		0.003049
D4	stream	0.09090		0.002150

Table 8.9-6: FOCUS Step 1, 2 and 3 PEC_{sw} and PEC_{sed} for tribenuron methyl (pH > 7) following single application of TOSCANA TOP 75 WG to winter cereals (spring and autumn application) and spring cereals (spring application)

Scenario FOCUS	Waterbody	Max. PEC_{sw} (µg/L)	Main routes of entry	Max. PEC_{sed} (µg/kg sediment)
Winter cereals, Autumn application(15 g as/ha)				
Step 1	---	5.08	spray drift, runoff, drainage	0.43
Step 2	ditch	2.21		0.19
Northern Europe	Winter cereals – October-February, autumn spraying			
Spring cereals (15 g as/ha)				
Step 1	---	5.08	spray drift, runoff, drainage	0.43
Step 2	ditch	0.96		0.08
Northern Europe	Spring cereals - March-May, spring spraying			

Scenario FOCUS	**Waterbody**	**Max. PEC_{sw} (µg/L)**	**Main routes of entry**	**Max. PEC_{sed} (µg/kg sediment)**
Winter cereals, Spring application(18.75 g as/ha)				
Step 1	---	6.35	spray drift, runoff, drainage	0.53
Step 2	ditch	1.19		0.10
Northern Europe	Winter cereals – March-May, spring sprying			
Grass, spring application(18.75 g as/ha)				
Step 1	---	6.35	spray drift, runoff, drainage	0.53
Step 2	ditch	0.57		0.05
Northern Europe	Grass – March-May, spring sprying			
Step 3				
spring cereals, spring application (15 g as/ha)				
D3	ditch	0.1145	spray drift, runoff, drainage	0.02290
D4	pond	0.02886		0.02245
D4	stream	0.08899		0.01407
D5	pond	0.005828		0.003650
D5	stream	0.08454		0.003619
R4	stream	0.7697		0.05952
winter cereals, autumn application (15 g as/ha)				
D3	ditch	0.1621	spray drift, runoff, drainage	0.06596
D4	pond	0.3806		0.2524
D4	stream	0.3119		0.1433
D5	pond	0.3940		0.2097
D5	stream	0.2668		0.09712
R1	pond	0.003280		0.001328
R1	stream	0.09197		0.002388
R3	stream	1.181		0.07803
R4	pond	0.1606		0.01132
winter cereals, spring application (18.75 g as/ha)				
D3	ditch	0.1374	spray drift, runoff, drainage	0.02299
D4	pond	0.03550		0.02698
D4	stream	0.1117		0.01777
D5	pond	0.007685		0.004377
D5	stream	0.09692		0.003251
R1	pond	0.004100		0.001795
R1	stream	0.2928		0.01825
R3	stream	0.1408		0.01371

Scenario FOCUS	Waterbody	Max. PECsw (µg/L)	Main routes of entry	Max. PECsed (µg/kg sediment)
R4	stream	0.9560		0.07394
Grass, spring application (18.75 g as/ha)				
D3	ditch	0.1347	spray drift, runoff, drainage	0.02184
D4	pond	0.006396		0.004127
D4	stream	0.09466		0.005210

FOCUS Step 4

At Step 4 run-off mitigation via vegetated filter strip efficiency was calculated for 1 m and 3 m buffer using the VFSmod model. Additionaly the run-off reduction was considered with a vegetative buffer of 10-12 m (by reducing mass of pesticide in aqueous phase by 60% and mass of eroded sediment by 85%) and 18-20 m (by reducing mass of pesticide in aqueous phase by 70% and mass of eroded sediment by 95%).

Table 8.9-4: Global maximum PECsw and PECsed values for Tribenuron-methyl following a single application of TOSCANA TOP 75 WG to cereals according to surface water Step 4 (VFS model, filter strip buffer width of 1 and 3m)

Nozzle reduction	**STEP 4 tribenuron methyl**		
	Scenario	PEC_{sw} (Global max.)	PEC_{sed}
		(µg/L)	(µg/kg)
	Vegetative strip	**1 m**	
	Buffer width	**1m**	
spring cereals, spring application, 15 g a.s./ha, pH >7			
None	R4 stream	0.2212	0.01731
spring cereals, spring application, 15 g a.s./ha, pH <7			
None	R4 stream	0.1165	0.01533
winter cereals, spring application, 18.75 g a.s./ha, pH >7			
None	R4 stream	0.2769	0.02175
winter cereals, spring application, 18.75 g a.s./ha, pH <7			
None	R4 stream	0.1451	0.01906
winter cereals, autumn application, 15 g a.s./ha, pH >7			
None	R3 stream	0.4886	0.03302
winter cereals, autumn application, 15 g a.s./ha, pH <7			
None	R3 stream	0.3439	0.3813

Nozzle reduction	Vegetative strip	**3 m**	
	Buffer width	**3 m**	
spring cereals, spring application, 15 g a.s./ha, pH >7			
None	R4 stream	0.03589	0.001869
spring cereals, spring application, 15 g a.s./ha, pH <7			
None	R4 stream	0.03589	0.002675
winter cereals, spring application, 18.75 g a.s./ha, pH >7			
None	R4 stream	0.04474	0.002348
winter cereals, spring application, 18.75 g a.s./ha, pH <7			
None	R4 stream	0.04474	0.003332
winter cereals, autumn application, 15 g a.s./ha, pH >7			
None	R3 stream	0.3831	0.02565
winter cereals, autumn application, 15 g a.s./ha, pH <7			
None	R3 stream	0.2590	0.02842

Table 8.9-6: Global maximum PEC_{sw} and PEC_{sed} values for tribenuron methyl following a single application of TOSCANA TOP 75 WG to cereals according to surface water Step 4 (vegetative buffer of 10-12)

Nozzle reduction	**STEP 4 tribenuron methyl**		
	Width of planted buffer strip (m)	**10-12 m**	
	Scenario	PEC_{SW} (Global max.)	PEC_{sed}
		(µg/L)	(µg/kg)
spring cereals, spring application, 15 g a.s./ha, pH >7			
None	R4 stream	0.3474	0.2684
spring cereals, spring application, 15 g a.s./ha, pH <7			
None	R4 stream	0.2158	0.02733
winter cereals, spring application, 18.75 g a.s./ha, pH>7			
None	R4 stream	0.4316	0.4316
winter cereals, spring application, 18.75 g a.s./ha, pH<7			
None	R4 stream	0.2661	0.03365
winter cereals, autumn application, 15 g a.s./ha, pH>7			
None	R3 stream	0.5312	0.03521
winter cereals, autumn application, 15 g a.s./ha, pH <7			
None	R3 stream	0.4170	0.04485

Table 8.9-7: Global maximum PEC_{sw} and PEC_{sed} values for tribenuron methyl following a single application of TOSCANA TOP 75 WG to cereals according to surface water Step 4 (vegetative buffer of 18-20)

Nozzle reduction	STEP 4 tribenuron methyl		
	Width of planted buffer strip (m)	**18-20 m**	
	Scenario	PEC_{sw} (Global max.)	PEC_{sed}
		(µg/L)	(µg/kg)
spring cereals, spring application, 15 g a.s./ha, pH >7			
None	R4 stream	0.1814	0.01403
spring cereals, spring application, 15 g a.s./ha, pH <7			
None	R4 stream	0.1126	0.01435
winter cereals, spring application, 18.75 g a.s./ha, pH>7			
None	R4 stream	0.2253	0.01743
winter cereals, spring application, 18.75 g a.s./ha, pH<7			
None	R4 stream	0.1389	0.01767
winter cereals, autumn application, 15 g a.s./ha, pH>7			
None	R3 stream	0.2774	0.01842
winter cereals, autumn application, 15 g a.s./ha, pH <7			
None	R3 stream	0.2178	0.02355

PEC_{sw} and PEC_{sed} of metabolites

During degradation studies of tribenuron methyl in soil few major metabolites were found. The PEC_{SW} and PEC_{SED} values are presented in the table below.

Table 8.9-8: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for metabolite IN-L5296 following single application of TOSCANA TOP 75 WG to winter and spring cereals

Metabolite IN-L5296	**Scenario FOCUS**	**Waterbody**	**Max. PECsw (µg/L)**	**Main routes of entry**	**Max. PECsed (µg/kg sediment)**
winter cereals 15 g a.s./ha					
IN-L5296 tribenuron methyl, pH < 7	Step 1	---	3.11	spray drift, runoff, drainage	2.53
	Step 2	ditch	1.25		1.03
	Northern Europe	October-February, autumn spraying			
spring cereals 15 g a.s./ha					
IN-L5296 tribenuron methyl, pH < 7	Step 1	---	3.11	spray drift, runoff, drainage	2.53
	Step 2	ditch	0.53		0.43
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-L5296	Step 1	---	3.89	spray drift, runoff,	3.17

tribenuron methyl, pH < 7	Step 2	ditch	0.66	drainage	0.54
	Northern Europe	March-May, spring spraying			
Grass, 18.75 g a.s./ha					
IN-L5296 tribenuron methyl, pH < 7	Step 1	---	3.89	spray drift, runoff, drainage	3.17
	Step 2	ditch	0.30		0.24
	Northern Europe	March-May, spring spraying			
winter cereals 15 g a.s./ha					
IN-L5296 tribenuron methyl, pH > 7	Step 1	---	3.11	spray drift, runoff, drainage	2.53
	Step 2	ditch	1.45		1.19
	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					
IN-L5296 tribenuron methyl, pH > 7	Step 1	---	3.11	spray drift, runoff, drainage	2.53
	Step 2	ditch	0.55		0.45
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-L5296 tribenuron methyl, pH > 7	Step 1	---	3.89	spray drift, runoff, drainage	3.17
	Step 2	ditch	0.76		0.62
	Northern Europe	March-May, spring spraying			
grass 18.75 g a.s./ha					
IN-L5296 tribenuron methyl, pH > 7	Step 1	---	3.89	spray drift, runoff, drainage	3.17
	Step 2	ditch	0.34		0.28
	Northern Europe	March-May, spring spraying			

Table 8.9-9: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for metabolite IN-A4098 following single application of TOSCANA TOP 75 WG to winter and spring cereals

Metabolite IN-A4098	**Scenario FOCUS**	**Waterbody**	**Max. PECsw (µg/L)**	**Main routes of entry**	**Max. PECsed (µg/kg sediment)**
winter cereals 15 g a.s./ha					
IN-A4098 tribenuron methyl, pH < 7	Step 1	---	0.21	spray drift, runoff, drainage	0.10
	Step 2	ditch	0.1		0.05
	Northern Europe	October-February, autumn spraying			
spring cereals 15 g a.s./ha					
IN-A4098 tribenuron methyl, pH < 7	Step 1	---	0.21	spray drift, runoff, drainage	0.10
	Step 2	ditch	0.04		0.02
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-A4098 tribenuron	Step 1	---	0.26	spray drift, runoff, drainage	0.12
	Step 2	ditch	0.05		0.02

methyl, pH < 7	Northern Europe	March-May, spring spraying			
grass 18.75 g a.s./ha					
IN-A4098 tribenuron methyl, pH < 7	Step 1	---	0.26	spray drift, runoff, drainage	0.12
	Step 2	ditch	0.02		0.01
	Northern Europe	March-May, spring spraying			
winter cereals 15 g a.s./ha					
IN-A4098 tribenuron methyl, pH > 7	Step 1	---	0.21	spray drift, runoff, drainage	0.10
	Step 2	ditch	0.1		0.05
	Northern Europe	October-February, autumn spraying			
spring cereals 15 g a.s./ha					
IN-A4098 tribenuron methyl, pH > 7	Step 1	---	0.21	spray drift, runoff, drainage	0.10
	Step 2	ditch	0.04		0.02
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-A4098 tribenuron methyl, pH > 7	Step 1	---	0.26	spray drift, runoff, drainage	0.12
	Step 2	ditch	0.05		0.02
	Northern Europe	March-May, spring spraying			
Grass 18.75 g a.s./ha					
IN-A4098 tribenuron methyl, pH > 7	Step 1	---	0.26	spray drift, runoff, drainage	0.12
	Step 2	ditch	0.02		0.01
	Northern Europe	March-May, spring spraying			

Table 8.9-10: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for metabolite IN-00581 following single application of TOSCANA TOP 75 WGto winter and spring cereals

Metabolite IN-00581	**Scenario FOCUS**	**Waterbody**	**Max. PECsw (µg/L)**	**Main routes of entry**	**Max. PECsed (µg/kg sediment)**
winter cereals 15 g a.s./ha					
IN-00581 tribenuron methyl, pH < 7	Step 1	---	1.69	spray drift, runoff, drainage	0.09
	Step 2	ditch	0.62		0.03
	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					
IN-00581 tribenuron methyl, pH < 7	Step 1	---	1.69	spray drift, runoff, drainage	0.09
	Step 2	ditch	0.26		0.01
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-00581 tribenuron methyl, pH < 7	Step 1	---	2.1	spray drift, runoff, drainage	0.12
	Step 2	ditch	0.32		0.02
	Northern Europe	March-May, spring spraying			

Grass, 18.75 g a.s./ha					
IN-00581 tribenuron methyl, pH < 7	Step 1	---	2.1088	spray drift, runoff, drainage	0.1164
	Step 2	ditch	0.1439		0.0080
	Northern Europe	March-May, spring spraying			
winter cereals 15 g a.s./ha					
IN-00581 tribenuron methyl, pH > 7	Step 1	---	1.69	spray drift, runoff, drainage	0.09
	Step 2	ditch	0.73		0.04
	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					
IN-00581 tribenuron methyl, pH > 7	Step 1	---	1.69	spray drift, runoff, drainage	0.09
	Step 2	ditch	0.30		0.02
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-00581 tribenuron methyl, pH > 7	Step 1	---	2.1	spray drift, runoff, drainage	0.12
	Step 2	ditch	0.38		0.02
	Northern Europe	March-May, spring spraying			
grass 18.75 g a.s./ha					
IN-00581 tribenuron methyl, pH > 7	Step 1	---	2.1	spray drift, runoff, drainage	0.12
	Step 2	ditch	0.17		0.01
	Northern Europe	March-May, spring spraying			

Table 8.9-11: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for metabolite IN-R9805 following single application of TOSCANA TOP 75 WG to winter and spring cereals

Metabolite IN-R9805	Scenario FOCUS	Waterbody	Max. PECsw (µg/L)	Main routes of entry	Max. PECsed (µg/kg sediment)
winter cereals, 15 g a.s./ha					
IN-R9805 tribenuron methyl, pH < 7	Step 1	---	0.35	spray drift, runoff, drainage	0.36
	Step 2	ditch	0.13		0.14
	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					
IN-R9805 tribenuron methyl, pH < 7	Step 1	---	0.35	spray drift, runoff, drainage	0.36
	Step 2	ditch	0.06		0.06
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-R9805 tribenuron methyl, pH < 7	Step 1	---	0.44	spray drift, runoff, drainage	0.46
	Step 2	ditch	0.07		0.07
	Northern Europe	March-May, spring spraying			

Grass, 18.75 g a.s./ha					
IN-R9805 tribenuron methyl, pH < 7	Step 1	---	0.4425	spray drift, runoff, drainage	0.4552
	Step 2	ditch	0.0333		0.0346
	Northern Europe	March-May, spring spraying			
winter cereals, 15 g a.s./ha					
IN-R9805 tribenuron methyl, pH > 7	Step 1	---	0.35	spray drift, runoff, drainage	0.36
	Step 2	ditch	0.16		0.17
	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					
IN-R9805 tribenuron methyl, pH > 7	Step 1	---	0.35	spray drift, runoff, drainage	0.36
	Step 2	ditch	0.07		0.07
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-R9805 tribenuron methyl, pH > 7	Step 1	---	0.44	spray drift, runoff, drainage	0.46
	Step 2	ditch	0.09		0.09
	Northern Europe	March-May, spring spraying			
Grass, 18.75 g a.s./ha					
IN-R9805 tribenuron methyl, pH > 7	Step 1	---	0.44	spray drift, runoff, drainage	0.46
	Step 2	ditch	0.04		0.04
	Northern Europe	March-May, spring spraying			

Table 8.9-12: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for metabolite M2 following single application of TOSCANA TOP 75 WG winter and spring cereals

Metabolite M2	Scenario FOCUS	Waterbody	Max. PECsw (µg/L)	Main routes of entry	Max. PECsed (µg/kg sediment)
winter cereals 15 g a.s./ha					
M2 tribenuron methyl, pH < 7	Step 1	---	0.37	spray drift, runoff, drainage	0.27
	Step 2	ditch	0.16		0.12
	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					
M2 tribenuron methyl, pH < 7	Step 1	---	0.37	spray drift, runoff, drainage	0.27
	Step 2	ditch	0.06		0.05
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
M2 tribenuron methyl, pH < 7	Step 1	---	0.46	spray drift, runoff, drainage	0.33
	Step 2	ditch	0.08		0.06
	Northern Europe	March-May, spring spraying			
Grass, 18.75 g a.s./ha					
M2	Step 1	---	0.4606	spray drift, runoff,	0.3326

tribenuron methyl, pH < 7	Step 2	ditch	0.0324	drainage	0.0234
	Northern Europe	March-May, spring spraying			
winter cereals, 15 g a.s./ha					
M2 tribenuron methyl, pH > 7	Step 1	---	0.37	spray drift, runoff, drainage	0.27
	Step 2	ditch	0.16		0.12
	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					
M2 tribenuron methyl, pH > 7	Step 1	---	0.37	spray drift, runoff, drainage	0.27
	Step 2	ditch	0.06		0.05
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
M2 tribenuron methyl, pH > 7	Step 1	---	0.46	spray drift, runoff, drainage	0.33
	Step 2	ditch	0.08		0.06
	Northern Europe	March-May, spring spraying			
Grass, 18.75 g a.s./ha					
M2 tribenuron methyl, pH > 7	Step 1	---	0.46	spray drift, runoff, drainage	0.33
	Step 2	ditch	0.03		0.02
	Northern Europe	March-May, spring spraying			

Table 8.9-13: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for metabolite IN-D5803 following single application of TOSCANA TOP 75 WGto winter and spring cereals

Metabolite IN-D5803	Scenario FOCUS	Waterbody	Max. PECsw (µg/L)	Main routes of entry	Max. PECsed (µg/kg sediment)
winter cereals, 15 g a.s./ha					
IN-D5803 tribenuron methyl, pH < 7	Step 1	---	1.24	spray drift, runoff, drainage	0.22
	Step 2	ditch	0.26		0.05
	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					
IN-D5803 tribenuron methyl, pH < 7	Step 1	---	1.24	spray drift, runoff, drainage	0.22
	Step 2	ditch	0.10		0.02
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-D5803 tribenuron methyl, pH < 7	Step 1	---	1.53	spray drift, runoff, drainage	0.27
	Step 2	ditch	0.13		0.02
	Northern Europe	March-May, spring spraying			
Grass, 18.75 g a.s./ha					
IN-D5803 tribenuron	Step 1	---	1.5486	spray drift, runoff, drainage	0.2741
	Step 2	ditch	0.0521		0.0092

methyl, pH < 7	Northern Europe	March-May, spring spraying			
winter cereals, 15 g a.s./ha					
IN-D5803 tribenuron methyl, pH > 7	Step 1	---	1.24	spray drift, runoff, drainage	0.22
	Step 2	ditch	0.26		0.05
	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					
IN-D5803 tribenuron methyl, pH > 7	Step 1	---	1.24	spray drift, runoff, drainage	0.22
	Step 2	ditch	0.10		0.02
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-D5803 tribenuron methyl, pH > 7	Step 1	---	1.53	spray drift, runoff, drainage	0.27
	Step 2	ditch	0.13		0.02
	Northern Europe	March-May, spring spraying			
Grass, 18.75 g a.s./ha					
IN-D5803 tribenuron methyl, pH > 7	Step 1	---	1.53	spray drift, runoff, drainage	0.27
	Step 2	ditch	0.05		0.01
	Northern Europe	March-May, spring spraying			

Table 8.9-14: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for metabolite IN-D5119 following single application of TOSCANA TOP 75 WG to winter and spring cereals

Metabolite IN-D5119	**Scenario FOCUS**	**Waterbody**	**Max. PECsw (µg/L)**	**Main routes of entry**	**Max. PECsed (µg/kg sediment)**
winter cereals, 15 g a.s./ha					
IN-D5119 tribenuron methyl, pH < 7	Step 1	---	0.84	spray drift, runoff, drainage	0.03
	Step 2	ditch	0.28		0.01
	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					
IN-D5119 tribenuron methyl, pH < 7	Step 1	---	0.84	spray drift, runoff, drainage	0.03
	Step 2	ditch	0.12		0.00
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-D5119 tribenuron methyl, pH < 7	Step 1	---	1.06	spray drift, runoff, drainage	0.04
	Step 2	ditch	0.15		0.00
	Northern Europe	March-May, spring spraying			
Grass, 18.75 g a.s./ha					
IN-D5119 tribenuron methyl, pH < 7	Step 1	---	1.0547	spray drift, runoff, drainage	0.0361
	Step 2	ditch	0.0760		0.0027
	Northern Europe	March-May, spring spraying			
winter cereals, 15 g a.s./ha					

IN-D5119 tribenuron methyl, pH > 7	Step 1	---	0.84	spray drift, runoff, drainage	0.03
	Step 2	ditch	0.37		0.01
	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					
IN-D5119 tribenuron methyl, pH > 7	Step 1	---	0.84	spray drift, runoff, drainage	0.03
	Step 2	ditch	0.16		0.01
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-D5119 tribenuron methyl, pH > 7	Step 1	---	1.06	spray drift, runoff, drainage	0.04
	Step 2	ditch	0.20		0.01
	Northern Europe	March-May, spring spraying			
Grass, 18.75 g a.s./ha					
IN-D5119 tribenuron methyl, pH > 7	Step 1	---	1.06	spray drift, runoff, drainage	0.04
	Step 2	ditch	0.20		0.01
	Northern Europe	March-May, spring spraying			

Table 8.9-15: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for metabolite IN-GN815 following single application of TOSCANA TOP 75 WG to winter and spring cereals

Metabolite IN-GN815	**Scenario FOCUS**	**Waterbody**	**Max. PECsw (µg/L)**	**Main routes of entry**	**Max. PECsed (µg/kg sediment)**
winter cereals, 15 g a.s./ha					
IN-GN815 tribenuron methyl, pH < 7	Step 1	---	0.92	spray drift, runoff, drainage	0.14
	Step 2	ditch	0.30		0.05
	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					
IN-GN815 tribenuron methyl, pH < 7	Step 1	---	0.92	spray drift, runoff, drainage	0.14
	Step 2	ditch	0.12		0.02
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-GN815 tribenuron methyl, pH < 7	Step 1	---	1.15	spray drift, runoff, drainage	0.18
	Step 2	ditch	0.16		0.03
	Northern Europe	March-May, spring spraying			
Grass, 18.75 g a.s./ha					
IN-GN815 tribenuron methyl, pH < 7	Step 1	---	1.15	spray drift, runoff, drainage	0.18
	Step 2	ditch	0.08		0.01
	Northern Europe	March-May, spring spraying			
winter cereals, 15 g a.s./ha					
IN-GN815 tribenuron	Step 1	---	0.92	spray drift, runoff, drainage	0.14
	Step 2	ditch	0.37		0.06

methyl, pH > 7	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					
IN-GN815 tribenuron methyl, pH > 7	Step 1	---	0.92	spray drift, runoff, drainage	0.14
	Step 2	ditch	0.16		0.03
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-GN815 tribenuron methyl, pH > 7	Step 1	---	1.15	spray drift, runoff, drainage	0.18
	Step 2	ditch	0.20		0.03
	Northern Europe	March-May, spring spraying			
Grass 18.75 g a.s./ha					
IN-GN815 tribenuron methyl, pH > 7	Step 1	---	1.15	spray drift, runoff, drainage	0.18
	Step 2	ditch	0.09		0.01
	Northern Europe	March-May, spring spraying			

Table 8.9-16: FOCUS Step 1 and 2 PEC_{sw} and PEC_{sed} for metabolite IN-GK521 following single application of TOSCANA TOP 75 WG to winter and spring cereals

Metabolite IN-GK521	**Scenario FOCUS**	**Waterbody**	**Max. PECsw (µg/L)**	**Main routes of entry**	**Max. PECsed (µg/kg sediment)**
winter cereals, 15 g a.s./ha					
IN-GK521 tribenuron methyl, pH < 7	Step 1	---	1.51	spray drift, runoff, drainage	0.25
	Step 2	ditch	0.60		0.10
	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					
IN-GK521 tribenuron methyl, pH < 7	Step 1	---	1.51	spray drift, runoff, drainage	0.25
	Step 2	ditch	0.24		0.04
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-GK521 tribenuron methyl, pH < 7	Step 1	---	1.89	spray drift, runoff, drainage	0.32
	Step 2	ditch	0.30		0.05
	Northern Europe	March-May, spring spraying			
Grass, 18.75 g a.s./ha					
IN-GK521 tribenuron methyl, pH < 7	Step 1	---	1.89	spray drift, runoff, drainage	0.32
	Step 2	ditch	0.12		0.02
	Northern Europe	March-May, spring spraying			
winter cereals, 15 g a.s./ha					
IN-GK521 tribenuron methyl, pH > 7	Step 1	---	1.51	spray drift, runoff, drainage	0.25
	Step 2	ditch	0.60		0.10
	Northern Europe	October-February, autumn spraying			
spring cereals, 15 g a.s./ha					

IN-GK521 tribenuron methyl, pH > 7	Step 1	---	1.51	spray drift, runoff, drainage	0.25
	Step 2	ditch	0.24		0.04
	Northern Europe	March-May, spring spraying			
winter cereals 18.75 g a.s./ha					
IN-GK521 tribenuron methyl, pH > 7	Step 1	---	1.89	spray drift, runoff, drainage	0.32
	Step 2	ditch	0.30		0.05
	Northern Europe	March-May, spring spraying			
Grass, 18.75 g a.s./ha					
IN-GK521 tribenuron methyl, pH > 7	Step 1	---	1.89	spray drift, runoff, drainage	0.32
	Step 2	ditch	0.12		0.02
	Northern Europe	March-May, spring spraying			

8.9.2.2 $PEC_{sw/sed}$ of TOSCANA TOP 75WG

The PEC values of the formulation TOSCANA TOP 75 WG in surface water have been assessed with the FOCUS SWASH model. The PEC_{SW} were calculated for single application and for the highest application rate recommended for use in winter cereals and spring cereals.

Table 8.9-17: The PEC_{SW} values for TOSCANA TOP 75 WG on cereals.

FOCUS buffer zone (m)	Waterbody	Drift values (%)	Max. PEC_{sw} (µg formulation/L)
winter cereals 1 x 25 g product/ha, spring spraying			
1	ditch – worst case	2.76	0.1606
5		0.57	0.0435
10		0.29	0.0231
20		0.15	0.0120
spring cereals 1 x 20 g product/ha, spring spraying **winter cereals** 1 x 20 g product/ha, autumn spraying			
1	ditch – worst case	2.76	0.1285
5		0.57	0.0348
10		0.29	0.0185
20		0.15	0.0096

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

The fate and behaviour in air of Tribenuron methyl were evaluated in the approval process of these substances at EU level. No additional studies have been performed.

Table 8.10-1 Summary of atmospheric degradation and behaviour of Tribenuron-methyl

Compound	Tribenuron-methyl
Direct photolysis in air	No data, not required due to low voltality
Quantum yield of direct phototransformation	No data, no direct phototransformation occurs
Photochemical oxidative degradation in air	DT50 (h): 43.4 derived by the Atkinson model

Volatilisation	Insignificant voltalisation expected, due to low vapour pressure.

The vapour pressure at 20 °C of the active substance Tribenuron-methyl is < 10^{-5} Pa (EFSA Journal 2017;15(7):4912) . Hence the active substance Tribenuron-methyl is regarded as non-volatile. Therefore exposure of adjacent surface waters and terrestrial ecosystems by the active substance Tribenuron-methyl due to volatilization with subsequent deposition should not be considered.

Based on data regarding atmospheric degradation and behaviour of Tribenuron-methyl, the risk of atmospheric pollution by active substance following the use of TOSCANA TOP 75WG is low.

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 9.2.4/1	Xxxxxx I.	2020	Calculation of the predicted environmental concentrations of tribenuron methyl and its metabolites in groundwater after application of TOSCANA TOP 75WG (FOCUS PEARL, FOCUS PELMO, MACRO in FOCUS) CIECH Sarzyna S.A., Poland RS/01/20 non GLP Unpublished	N	CIECH Sarzyna S.A
KCP 9.2.4/2	Xxxxxx I.	2020	Calculation of the predicted environmental concentrations of tribenuron methyl and its metabolites in groundwater after application of TOSCANA TOP 75WG (FOCUS PEARL and FOCUS PELMO) – minor uses CIECH Sarzyna S.A., Poland RS/14/20 non GLP Unpublished	N	CIECH Sarzyna S.A
KCP 9.2.5/1	Xxxxxx I.	2020	Calculation of the predicted environmental concentrations of tribenuron methyl and its relevant metabolites in surface waters and water sediments after application of TOSCANA TOP 75WG (STEPS 1-2 in FOCUS, SWASH, SWAN CIECH Sarzyna S.A., Poland RS/02/20 non GLP Unpublished	N	CIECH Sarzyna S.A
KCP 9.2.5/2	Xxxxxx I.	2020	Calculation of the predicted environmental concentrations of tribenuron methyl and its relevant metabolites in surface waters and water sediments after application of TOSCANA TOP 75WG (STEPS 1-2 in FOCUS, SWASH, SWAN)) - minor uses CIECH Sarzyna S.A., Poland RS/13/20 non GLP Unpublished	N	CIECH Sarzyna S.A

Appendix 2 Detailed evaluation of the new Annex II studies

No fate studies are provided.

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