Appendix to:

EFSA (European Food Safety Authority), 2017. Conclusion on the peer review of the pesticide risk assessment of the active substance Tribenuron-methyl. EFSA Journal 2017;15(7):4912, 39 pp. doi:10.2903/j.efsa.2017.4912

Appendix A – List of end points for the active substance and the representative formulation

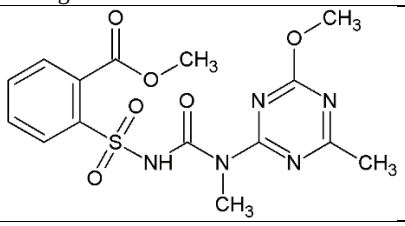
Section 1 Identity, Physical and Chemical Properties, Details of Uses, Further Information, Methods of Analysis

Identity, Physical and Chemical Properties, Details of Uses, Further Information (Regulation (EU) N° 283/2013, Annex Part A, points 1.3 and 3.2)

Active substance (ISO Common Name)	Tribenuron-methyl
Function (e.g. fungicide)	Herbicide

Rapporteur Member State	Sweden
Co-rapporteur Member State	Latvia

Identity (Regulation (EU) N° 283/2013, Annex Part A, point 1)

Chemical name (IUPAC)	methyl 2-[4-methoxy-6-methyl-1,3,5-triazin-2-yl(methyl)carbamoylsulfamoyl]benzoate
Chemical name (CA)	methyl 2-[[[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)methylamino]carbonyl]amino]sulfonyl]benzoate
CIPAC No	546.201
CAS No	101200-48-0
EC No (EINECS or ELINCS)	401-190-1
FAO Specification (including year of publication)	FAO Specification 546/TC (January 2011) Minimum purity: 950 g/kg
Minimum purity of the active substance as manufactured	960 g/kg
Identity of relevant impurities (of toxicological, ecotoxicological and/or environmental concern) in the active substance as manufactured	open
Molecular formula	$C_{15}H_{17}N_5O_6S$
Molar mass	395.4 g/mol
Structural formula	

Physical and chemical properties (Regulation (EU) N° 283/2013, Annex Part A, point 2)

Melting point	149.95°C (99.3%) 137.9°C (98%)
Boiling point	Decomposes prior to boiling, purities 99.3% and 98%
Temperature of decomposition	DUP: 182.55°C (99.3%), TTF: 138°C to 147°C (98%)
Appearance	Technical tribenuron-methyl is a white powder Purified tribenuron-methyl is a white/off white powder purities 99.3% and 98%
Vapour pressure (20 °C)	5.99 x 10^{-9} Pa (99.3%, 20 °C, extrapolated) 1.0 × 10^{-6} Pa (99.2%, 25 °C, extrapolated)
Henry's law constant (20 °C)	(99.3%, 20°C) pH 5: 9.5 x 10^{-10} Pa/m^3/mol pH 9: <1.33 x 10^{-10} Pa/m^3/mol 1.42 × 10^{-6} Pa.m^3/mol (99.2%, 20°C)
Solubility in water	99.3%, 20 °C: Unbuffered distilled: 0.019 ± 0.002 g/L pH 5, unstable pH 7, 2.483 ± 0.600 g/L pH 9, >17.85 g/L 99.2%, 20 °C: Unbuffered distilled: 0.028 g/L pH 7, 1660 mg/L pH 10, > 250 g/L Data for pH 4 not reported here since it may not be valid (i.e. due to hydrolysis)
Solubility in organic solvents	Solvent — Solubility (97.76 %) (mg/L) acetone — 3.91 × 10^4 mg/L acetonitrile — 4.64 × 10^4 mg/L 1-octanol — 3.83 × 10^2 mg/L *o*-xylene — 1.31 × 10^4 mg/L dimethylformamide — 9.82 × 10^4 mg/L ethyl acetate — 1.63 × 10^4 mg/L *n*-heptane — 2.08 × 10^1 mg/L methanol — 2.59 × 10^3 mg/L dichloromethane — > 250 g/kg
Surface tension	73.0 ± 0.0 mN/m (90 % saturated solution, 19.6 ± 0.1°C, 97.4%) 71.0 mN/m (90 % saturated solution, 20°C, 99.2%)
Partition coefficient	99.3%, 20 °C: Unbuffered distilled: 0.85 ± 0.03 pH acidic, unstable pH 7, log P_{OW} = 0.38 ± 0.01 pH 9, log P_{OW} = 0.93 ± 0.01 99.2%, 20 °C: pH 7, log P_{OW} = -0.46 pH 9, log P_{OW} = -2.22 Data for pH 4 not reported here since it may not be valid (i.e. due to hydrolysis)
Dissociation constant (state purity)	pKa = 4.65 ± 0.20 at 20°C (99.3%) pKa = 4.6 at 20°C (99.2%)

UV/VIS absorption (max.) incl. ε (state purity, pH)	Purity 97.76% pH: 1.66 ε = 4.172 × 10^4 (log ε = 4.62) at 200 nm. ε = 2.073 × 10^4 (log ε = 4.32) at 231 nm ε = 3.962 × 10^2 (log ε = 2.60) at 290 nm (methanol) pH: 7.00 ε = 3.732 × 10^4 (log ε = 4.57) at 201 nm. ε = 1.804 × 10^4 (log ε = 4.26) at 256 nm ε = 3.424 × 10^2 (log ε = 2.53) at 290 nm pH: 11.72 ε = 2.376 × 10^4 (log ε = 4.38) at 208 nm. ε = 1.720 × 10^4 (log ε = 4.24) at 256 nm ε = 3.344 × 10^2 (log ε = 2.52) at 290 nm Purity 98.1% pH: 1.50 ε = 19881.7 at 202 nm. ε = 16446.1 at 213 nm ε = 19938.0 at 225 nm pH: 5.88 ε = 32779.5 at 197 nm. ε = 17516.2 at 212 nm ε = 21824.8 at 220 nm pH: 12.32 ε = 2956.9 at 212 nm. ε = 12785.1 at 228 nm ε = 3942.6 at 251 nm
Flammability (state purity)	non-flammable (97.8%)
Explosive properties (state purity)	not explosive (97.8%)
Oxidising properties (state purity)	not oxidising (99.3%, and technical)

Summary of representative uses evaluated, for which all risk assessments needed to be completed (tribenuron-methyl) (Regulation (EU) N° 284/2013, Annex Part A, points 3, 4) – relevant to applicant DuPont de Nemours (Deutschland) GmbH

Crop and/or situation (a)	Member State or Country	Product name	F G or I (b)	Pests or Group of pests controlled (c)	Preparation		Application				Application rate per treatment			PHI (days) (m)	Remarks
					Type (d-f)	Conc. a.s. g/kg (i)	method kind (f-h)	Range of growth stages & season (j)	Number min-max (k)	Interval between application (min)	kg a.s /hL min-max (l)	Water L/ha min-max	g a.s./ha min-max (l)		
Spring Cereals without underlay [wheat, barley, oat, rye, triticale, durum]	EU	Tribenuron methyl 50SG (DPX-L5300)	F	Broadleaf weeds	SG	500	Broadcast foliar application	BBCH 30-39	1	n/a		100-400	22.5	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 0.05-0.1% v/v) Cereals harvested at maturity or before maturity for forage/ silage.
Winter Cereals without underlay [wheat, barley, rye, triticale, oat, durum, spelt]	EU	Tribenuron methyl 50SG (DPX-L5300)	F	Broadleaf weeds	SG	500	Broadcast foliar application	BBCH 30-39 Spring application	1	n/a		100-500	24	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 0.05-0.1% v/v) Cereals harvested at maturity or before maturity for forage/ silage.
Spring and winter cereals with underlay (grass for feed or seed)	EU	Tribenuron methyl 50SG (DPX-L5300)	F	Broadleaf weeds	SG	500	Broadcast foliar application	Cereals: BBCH 30-39 Grass: BBCH 12-13	1	n/a		100-400	7.5	Do not apply after BBCH 39. PHI n/a when harvest at maturity. 28 for	DUP With non-ionic surfactant (i.e. Trend® 90 0.05% v/v) Cereals

Crop and/or situation (a)	Member State or Country	Product name	F G or I (b)	Pests or Group of pests controlled (c)	Preparation		Application				Application rate per treatment			PHI (days) (m)	Remarks
					Type (d-f)	Conc. a.s. g/kg (i)	method kind (f-h)	Range of growth stages & season (j)	Number min-max (k)	Interval between application (min)	kg a.s /hL min-max (l)	Water L/ha min-max	g a.s./ha min-max (l)		
[wheat, barley, oat, rye, triticale, durum]								Spring application						harvest as forage/ silage before maturity.	harvested at maturity or before maturity for forage/ silage. Insown are harvested for feed in September-October year 1.
Spring and winter cereals with underlay (red clover for feed) [wheat, barley, oat, rye, triticale, durum]	EU	Tribenuron methyl 50SG (DPX-L5300)	F	Broadleaf weeds	SG	500	Broadcast foliar application	Cereals: BBCH 30-39 Red clover: BBCH 11 Spring application	1	n/a		100-400	5.5	Do not apply after BBCH 39. PHI n/a when harvest at maturity. 28 for harvest as forage/ silage before maturity.	DUP With non-ionic surfactant (i.e. Trend® 90 0.05% v/v) Cereals harvested at maturity or before maturity for forage/ silage. Insown are harvested for feed in September-October year 1
Pasture (Grass only)	EU	Tribenuron methyl 50SG (DPX-L5300)	F	Broadleaf weeds	SG	500	Broadcast foliar application	BBCH 59 Spring application	1	n/a		100-300	7.5	28	DUP With non-ionic surfactant (i.e. Trend® 90 0.05% v/v
Sunflower (Tribenuron methyl	EU	Tribenuron methyl 50SG	F	Broadleaf weeds	SG	500	Broadcast foliar application	BBCH 12-18	1	n/a		100-400	30	30	DUP With non-ionic

Crop and/or situation (a)	Member State or Country	Product name	F G or I (b)	Pests or Group of pests controlled (c)	Preparation		Application				Application rate per treatment			PHI (days) (m)	Remarks
					Type (d-f)	Conc. a.s. g/kg (i)	method kind (f-h)	Range of growth stages & season (j)	Number min-max (k)	Interval between application (min)	kg a.s /hL min-max (l)	Water L/ha min-max	g a.s./ha min-max (l)		
tolerant varieties)		(DPX-L5300)						Spring application							surfactant (i.e. Trend® 90 0.1% v/v)
Olive	EU	Tribenuron methyl 50SG (DPX-L5300)	F	Broadleaf weeds	SG	500	Broadcast foliar application	Early spring application	1	n/a		100-500	20	28	DUP Downward directed broadcast foliar application within the access rows.[1] With non-ionic surfactant (i.e. Trend® 90 0.1% v/v)

(a) For crops, the EU and Codex classifications (both) should be taken into account; where relevant, the use situation should be described (e.g. fumigation of a structure)
(b) Outdoor or field use (F), greenhouse application (G) or indoor application (I)
(c) e.g. biting and sucking insects, soil born insects, foliar fungi, weeds
(d) e.g. wettable powder (WP), emulsifiable concentrate (EC), granule (GR)
(e) CropLife International Technical Monograph no 2, 6th Edition. Revised May 2008. Catalogue of pesticide
(f) All abbreviations used must be explained
(g) Method, e.g. high volume spraying, low volume spraying, spreading, dusting, drench
(h) Kind, e.g. overall, broadcast, aerial spraying, row, individual plant, between the plant- type of equipment used must be indicated

(i) g/kg or g/L. Normally the rate should be given for the active substance (according to ISO) and not for the variant in order to compare the rate for same active substances used in different variants (e.g. fluoroxypyr). In certain cases, where only one variant is synthesised, it is more appropriate to give the rate for the variant (e.g. benthiavalicarb-isopropyl).
(j) Growth stage range from first to last treatment (BBCH Monograph, Growth Stages of Plants, 1997, Blackwell, ISBN 3-8263-3152-4), including where relevant, information on season at time of application
(k) Indicate the minimum and maximum number of applications possible under practical conditions of use
(l) The values should be given in g or kg whatever gives the more manageable number (e.g. 200 kg/ha instead of 200 000 g/ha or 12.5 g/ha instead of 0.0125 kg/ha
(m) PHI - minimum pre-harvest interval
[1] The downward broadcast foliar application is for treatment of the weeds under the trees within the access rows (i.e. not for treatment of the leaves of the olive trees)

Summary of representative uses evaluated, for which all risk assessments needed to be completed (tribenuron-methyl) (Regulation (EU) N° 284/2013, Annex Part A, points 3, 4) – relevant to applicant EU Tribenuron AIR 3 Task Force

Crop and/or situation (a)	Member State or Country	Product name	F G or I (b)	Pests or Group of pests controlled (c)	Preparation		Application				Application rate per treatment			PHI (days) (m)	Remarks
					Type (d-f)	Conc. a.s. (i)	method kind (f-h)	Range of growth stages & season (j)	Number min-max (k)	Interval between application (min)	kg a.s /hL min-max (l)	Water L/ha min-max	g a.s./ha min-max (l)		
Winter cereals	EU	Tribenuron-methyl 750 g/kg WG (CHA 6310)	F	Annual broad leaved weeds	WG	750	Foliar spray	BBCH 12-29	1	n/a		100-400	15	n.a.	TTF Autumn application
Winter cereals	EU	Tribenuron-methyl 750 g/kg WG (CHA 6310)	F	Annual broad leaved weeds	WG	750	Foliar spray	BBCH 12-39	1	n/a		100-400	30	n.a.	TTF Spring application
Spring cereals	EU	Tribenuron-methyl 750 g/kg WG (CHA 6310)	F	Annual broad leaved weeds	WG	750	Foliar spray	BBCH 12-39	1	n/a		100-400	30	n.a.	TTF Spring application

(a) For crops, the EU and Codex classifications (both) should be taken into account; where relevant, the use situation should be described (e.g. fumigation of a structure)
(b) Outdoor or field use (F), greenhouse application (G) or indoor application (I)
(c) e.g. biting and sucking insects, soil born insects, foliar fungi, weeds
(d) e.g. wettable powder (WP), emulsifiable concentrate (EC), granule (GR)
(e) CropLife International Technical Monograph no 2, 6th Edition. Revised May 2008. Catalogue of pesticide
(f) All abbreviations used must be explained
(g) Method, e.g. high volume spraying, low volume spraying, spreading, dusting, drench
(h) Kind, e.g. overall, broadcast, aerial spraying, row, individual plant, between the plant- type of equipment used must be indicated

(i) g/kg or g/L. Normally the rate should be given for the active substance (according to ISO) and not for the variant in order to compare the rate for same active substances used in different variants (e.g. fluoroxypyr). In certain cases, where only one variant is synthesised, it is more appropriate to give the rate for the variant (e.g. benthiavalicarb-isopropyl).
(j) Growth stage range from first to last treatment (BBCH Monograph, Growth Stages of Plants, 1997, Blackwell, ISBN 3-8263-3152-4), including where relevant, information on season at time of application
(k) Indicate the minimum and maximum number of applications possible under practical conditions of use
(l) The values should be given in g or kg whatever gives the more manageable number (e.g. 200 kg/ha instead of 200 000 g/ha or 12.5 g/ha instead of 0.0125 kg/ha
(m) PHI - minimum pre-harvest interval

Summary of additional intended uses for which MRL applications have been made, that in addition to the uses above, have also been considered in the consumer risk assessment (tribenuron-methyl)
Regulation (EC) N° 1107/2009 Article 8.1(g))

Important note: efficacy, environmental risk and risk to humans by exposure other than via their diet have not been assessed for these uses

Crop and/or situation (a)	Member State or Country	Product name	F G or I (b)	Pests or Group of pests controlled (c)	Preparation		Application				Application rate per treatment			PHI (days) (m)	Remarks
					Type (d-f)	Conc. a.s. (i)	method kind (f-h)	Range of growth stages & season (j)	Number min-max (k)	Interval between application (min)	kg a.s /hL min-max (l)	Water L/ha min-max	kg a.s./ha min-max (l)		
MRL Application (according to Article 8.1(g) of Regulation (EC) No 1107/2009)															
Additional intended uses were not considered															

(a) For crops, the EU and Codex classifications (both) should be taken into account; where relevant, the use situation should be described (e.g. fumigation of a structure)
(b) Outdoor or field use (F), greenhouse application (G) or indoor application (I)
(c) e.g. biting and sucking insects, soil born insects, foliar fungi, weeds
(d) e.g. wettable powder (WP), emulsifiable concentrate (EC), granule (GR)
(e) CropLife International Technical Monograph no 2, 6th Edition. Revised May 2008. Catalogue of pesticide
(f) All abbreviations used must be explained
(g) Method, e.g. high volume spraying, low volume spraying, spreading, dusting, drench
(h) Kind, e.g. overall, broadcast, aerial spraying, row, individual plant, between the plant- type of equipment used must be indicated

(i) g/kg or g/L. Normally the rate should be given for the active substance (according to ISO) and not for the variant in order to compare the rate for same active substances used in different variants (e.g. fluoroxypyr). In certain cases, where only one variant is synthesised, it is more appropriate to give the rate for the variant (e.g. benthiavalicarb-isopropyl).
(j) Growth stage range from first to last treatment (BBCH Monograph, Growth Stages of Plants, 1997, Blackwell, ISBN 3-8263-3152-4), including where relevant, information on season at time of application
(k) Indicate the minimum and maximum number of applications possible under practical conditions of use
(l) The values should be given in g or kg whatever gives the more manageable number (e.g. 200 kg/ha instead of 200 000 g/ha or 12.5 g/ha instead of 0.0125 kg/ha
(m) PHI - minimum pre-harvest interval

Further information, Efficacy

Effectiveness (Regulation (EU) N° 284/2013, Annex Part A, point 6.2)

No data provided – not required The representative formulations with their efficacy packages have been authorized in EU in compliance with Regulation (EC) No 1107/2009 and according to the Uniform Principles.

Adverse effects on field crops (Regulation (EU) N° 284/2013, Annex Part A, point 6.4)

No adverse effects on field crops reported

Observations on other undesirable or unintended side-effects (Regulation (EU) N° 284/2013, Annex Part A, point 6.5)

Two rotational crops field trials conducted on lettuce, radish and barley with a bare soil application of 30 g a.s/ha were also submitted. Considering the genotoxic potential of the metabolites IN-L5296 and IN-A4098, sufficient rotational crop field trials conducted on cereals, leafy vegetables and root vegetables and at a dose rate covering the plateau concentration in the soil for the relevant metabolites IN-L5296 and IN-A4098 are required (data gap)

Groundwater metabolites: Screening for biological activity (SANCO/221/2000-rev.10-final Step 3 a Stage 1)

	IN-A4098 (*N*-demethyl-triazine amine)	IN-R9805 (*O*-demethyl-triazine amine)	IN-00581 (saccharin)
Activity against target organism	no	no	no

Methods of Analysis

Analytical methods for the active substance (Regulation (EU) N° 283/2013, Annex Part A, point 4.1 and Regulation (EU) N° 284/2013, Annex Part A, point 5.2)

Technical a.s. (analytical technique)	HPLC-UV
Impurities in technical a.s. (analytical technique)	HPLC-UV
Plant protection product (analytical technique)	HPLC-UV

Analytical methods for residues (Regulation (EU) N° 283/2013, Annex Part A, point 4.2 & point 7.4.2)

Residue definitions for monitoring purposes

Food of plant origin	Tribenuron-methyl
Food of animal origin	Tribenuron-methyl
Soil	Tribenuron-methyl and IN-L5296
Sediment	Tribenuron-methyl
Water surface	Tribenuron-methyl
drinking/ground	Tribenuron-methyl
Air	Tribenuron-methyl
Body fluids and tissues	Tribenuron-methyl

Monitoring/Enforcement methods

Food/feed of plant origin (analytical technique and LOQ for methods for monitoring purposes)	DUP: KCA 4.2/09 (Henze, R.M., Stry, J.J., 2013), LC-MS/MS, 0.01 mg/kg DUP (not acidic crops): KCA 4.2/15 (Pentz, A.M., Bramble Jr., F.Q., 2005), KCA 4.2/02 (Devine, T., Nanita, S., 2007a), and KCA 4.2/03 (Devine, T., Nanita, S., 2007b), LC-MS/MS, 0.01 mg/kg TFF: KCA 4.2/01 (Knoch, E., 2006), LC-MS/MS, 0.01 mg/kg
Food/feed of animal origin (analytical technique and LOQ for methods for monitoring purposes)	Analysis of tribenuron-methyl: DUP: KCA 4.2/07 (Henze, R.M., Stry, J.J., 2007), LC-MS/MS, 0.01 mg/kg in milk DUP: KCA 4.2/08 (Henze, R.M., Stry, J.J., 2007), LC-MS/MS, 0.01 mg/kg in eggs DUP: KCA 4.2/16 (Pentz, A.M., Cabusas, M.E.Y., 2012), LC-MS/MS, 0.01 mg/kg in animal tissues
Soil (analytical technique and LOQ)	Analysis of tribenuron-methyl: DUP: KCA 4.2/13 (Hill, S.J., Stry, J J., 2001), LC-MS/MS, 0.05 µg/kg TFF: KCA 4.2/05 (Lakaschus, S., 2007), LC-MS/MS, 0.05 µg/kg Analysis of tribenuron-methyl and IN-L5296 (and several other metabolites): DUP: KCA 4.1.2/05 (Hill, S.J., Stry, J J., 2001), ILV (tribenuron-methyl and IN-L5296): KCA 4.1.2/08 (Pope C., 2001): LC-MS/MS, 1 µg/kg
Water (analytical technique and LOQ)	DUP: KCA 4.2/04 (Gagnon, M.R., Stry, J.J., 2001), LC-MS/MS, 0.05 µg/L TFF: KCA 4.2/06 (Weber, H., 2010), LC-MS/MS, 0.01 µg/L

Air (analytical technique and LOQ)	DUP: KCA 4.2 (Class T., Hausmann, S., 2000), HPLC-UV, 1.5 µg/m^3 TFF: KCA 4.2/08 (Airs, D. , 2015), LC-MS/MS, 21.0 µg/m^3 (required LOQ 15 µg/m^3) Data gap for additional validation data identified for formal reasons.
Body fluids and tissues (analytical technique and LOQ)	DUP: KCA 4.2/16 (Pentz, A.M., Cabusas, M.E.Y., 2012), LC-MS/MS, 0.01 mg/kg in body tissues DUP: KCA, 4.2/25 (Henze, R.M., Stry, J.J. 2016a), LC-MS/MS, 1 µg/kg (plasma), 3 µg/kg (urine)

Classification and labelling with regard to physical and chemical data (Regulation (EU) N° 283/2013, Annex Part A, point 10)

Substance	Tribenuron-methyl
Harmonised classification according to Regulation (EC) No 1272/2008 and its Adaptations to Technical Process [Table 3.1 of Annex VI of Regulation (EC) No 1272/2008 as amended][1]:	None
Peer review proposal [2] for harmonised classification according to Regulation (EC) No 1272/2008:	None

1 Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006. OJ L 353, 31.12.2008, 1-1355.

2 It should be noted that harmonised classification and labelling is formally proposed and decided in accordance with Regulation (EC) No 1272/2008. Proposals for classification made in the context of the evaluation procedure under Regulation (EC) No 1107/2009 are not formal proposals.

Section 2 Impact on Human and Animal Health

Absorption, distribution, metabolism and excretion (toxicokinetics) (Regulation (EU) N° 283/2013, Annex Part A, point 5.1)

Rate and extent of oral absorption/systemic bioavailability	Oral absorption is 67 % (based on urinary excretion)
Toxicokinetics	Half-live: 26-33h (low dose groups, based on cumulative excretion)
Distribution	Widely distributed. Highest levels were found in blood, kidney and liver
Potential for bioaccumulation	No evidence for accumulation
Rate and extent of excretion	Rapid and extensive (98.8 % after 96 h), mainly via urine
Metabolism in animals	Extensively metabolised (> 90 %); Main metabolites: saccharin (IN-00581), metsulfuron-methyl (IN-T6376)
In vitro metabolism	Data gap
Toxicologically relevant compounds (animals and plants)	Tribenuron-methyl
Toxicologically relevant compounds (environment)	Tribenuron-methyl

Acute toxicity (Regulation (EU) N° 283/2013, Annex Part A, point 5.2)

Rat LD_{50} oral	> 5000 mg/kg bw	
Rat LD_{50} dermal	> 5000 mg/kg bw	
Rat LC_{50} inhalation	> 6.0 mg/L air /4h (nose only)	
Skin irritation	Non-irritant	
Eye irritation	Non-irritant	
Skin sensitisation	Sensitising (Buehler; Magnusson and Kligman)	**Skin Sens 1, H317**
Phototoxicity	Not phototoxic	

Short-term toxicity (Regulation (EU) N° 283/2013, Annex Part A, point 5.3)

Target organ / critical effect	Rat: liver (hypertrophy), spleen (increased relative weight), mortality, depression of bodyweight Mouse: depression of bodyweight, liver (increased absolute and relative weights), spleen (increased relative weight) Dog: thyroid/parathyroid (increased absolute and relative weights), depression of bodyweight, haematotoxicity, kidney (clinical chemistry parameters)	
Relevant oral NOAEL	90-day, rat: 7 mg/kg bw per day 90-day, mouse: 70 mg/kg bw per day 90-day dog: 15 mg/kg bw per day 1-year dog: 8 mg/kg bw per day	
Relevant dermal NOAEL	28-day, rabbit: NOAEL not established, LOAEL	

	1000 mg/kg bw per day.	
Relevant inhalation NOAEL	No data - not required	

Genotoxicity (Regulation (EU) N° 283/2013, Annex Part A, point 5.4)

In vitro studies	Two Ames-test: negative Chromosome aberration test: negative Mamalian cell gene mutation test: negative Unscheduled DNA synthesis in primary rat hepatocytes (UDS): negative	
In vivo studies	Chromosome aberration study in rat bone marrow cells: negative Mouse bone marrow micronucleus assay: negative Open literature, Rat bone marrow cells: clastogenic/genotoxic potential was observed following repeat dose administration at 100 mg/kg bw	
Photomutagenicity	No data - not required	
Potential for genotoxicity	Tribenuron-methyl is unlikely to be genotoxic	

Long-term toxicity and carcinogenicity (Regulation (EU) N°283/2013, Annex Part A, point 5.5)

Long-term effects (target organ/critical effect)	Rat: reduced body weight gain, organ weight changes, histopathological findings (no specific target organ) Mouse: amyloidosis (testes) and oligospermia (epididymides)	
Relevant long-term NOAEL	2-year, rat: 1 mg/kg bw per day 18-month, mouse: 2.5 mg/kg bw per day	
Carcinogenicity (target organ, tumour type)	Rat: mammary gland tumours (adenocarcinoma) Mouse: no tumours Tribenuron-methyl is unlikely to be carcinogenic to humans	
Relevant NOAEL for carcinogenicity	2-year, rat: 10 mg/kg bw per day; 18-month, mouse: > 197 mg/kg bw per day	

Reproductive toxicity (Regulation (EU) N° 283/2013, Annex Part A, point 5.6)
Reproduction toxicity

Reproduction target / critical effect	Parental toxicity: reduced bodyweight (bw gain) Reproductive toxicity: no adverse effect observed in rat 2-generation study Offspring's toxicity: reduced growth (pup weight), organ weight changes (testes, spleen, liver, lung)	
Relevant parental NOAEL	2 mg/kg bw per day	
Relevant reproductive NOAEL	75 mg/kg bw per day (highest dose)	
Relevant offspring NOAEL	2 mg/kg bw per day	

Developmental toxicity

Developmental target / critical effect	<u>Rat:</u> Maternal toxicity: reduced body weight (gain), liver	

	(increased relative weight) Developmental toxicity: reduced body weight, increased skeletal alterations Rabbit: Maternal toxicity: mortality, abortions, bw loss Developmental toxicity: reduced body weight, reduced live foetuses, reduced nidations, increased malformations	**STOT-RE** **H 373**
Relevant maternal NOAEL	Rat: 20 mg/kg bw per day Rabbit: 20 mg/kg bw per day	
Relevant developmental NOAEL	Rat: 20 mg/kg bw per day Rabbit: 20 mg/kg bw per day	

Neurotoxicity (Regulation (EU) N° 283/2013, Annex Part A, point 5.7)

Acute neurotoxicity	Rat: NOAEL neurotoxicity: 300 mg/kg bw	
Repeated neurotoxicity	Rat: NOAEL neurotoxicity: 40.1 mg/kg bw/day	
Additional studies (e.g. delayed neurotoxicity, developmental neurotoxicity)	No data-not required	

Other toxicological studies (Regulation (EU) N° 283/2013, Annex Part A, point 5.8)

Supplementary studies on the active substance	**28-day immunotoxicity feeding study in rats:** Up to 44 mg/kg bw, the higest tested dose, tribenuron-methyl did not show any immunotoxic effect.
Endocrine disrupting properties	**90-day study on effect on oestrous cycle:** At 390 mg/kg bw≠ per day: body weights and body weight gains approximately 26% and 40% lower than control values. Increased mean relative uterine weight, uterine cell proliferation, mean relative ovarian weight, prolonged estrous, and two- to three-fold decrease uterus and mammary oestrogen receptor affinity, and two-fold increase in progesterone receptor number. Seven tribenuron-methyl metabolites can bind to the estrogen receptor (Tribenuron-methyl acid, N-Demethyl triazine amine, α-hydroxi triazine amine, N-Demethyl-6-hydroxymethyl triazine amine, Metsulfuron methyl, Sulfonamide urea, Hydroxylated saccharin. **Tribenuron-methyl, H295R steroidogenesis assay in rats:** Negative for induction and inhibition of testosterone and β-estradiol. **Tribenuron-methyl, estrogen receptor binding assay using rat uterine cytosol:** Tribenuron-methyl did not interact with the estrogen receptor **Tribenuron-methyl, estrogen receptor transcriptional activation, human cell line (HeLa-9903):** Tribenuron-methyl is not an agonist of human estrogen receptor alpha.
Studies performed on metabolites or impurities	For results from studies of impurities see Annex C
	IN-00581, saccharin: ADI 3.8 mg/kg bw per day (European Commission, 1997), no ARfD

IN-A4098, triazine amine: Acute oral rat study: LD_{50} 1000 mg/kg bw (females) 28-day oral rat study: LOAEL 3.6 mg/kg bw per day Three Ames tests (3): negative *In vitro* clastogenic activity in cultured human peripheral lymphocyte tests (2): negative *In vitro* mammalian cell gene mutation tests (hamster cells): one equivocal, one negative *In vitro* L5178Y gene mutation assay at the tk locus: negative *In vivo* chromosome studies on somatic cells of Chinese hamster: negative (no evidence of bone marrow exposure). **IN-A4098 H295R Steroidogenesis Assay:** Negative for induction and inhibition of testosterone and β-estradiol. **IN-A4098 Estrogen Receptor Binding Assay Using Rat Uterine Cytosol:** IN-A4098 did not interact with the estrogen receptor. **IN-A4098, estrogen receptor transcriptional activation, human cell line (HeLa-9903):** IN-A4098 is not an agonist of human estrogen receptor alpha.
IN-B5685, Sulfonamide urea: Acute oral rat toxicity study: LD_{50} > 11000 Limited ten-dose oral subchronic rat study: NOAEL ≥ 220
IN-L5296 - Acute oral rat toxicity study: LD_{50} 394 mg/kg bw (triggers H302, Harmful if swallowed) - Acute percutaneous rat toxicity study: LD_{50} ≥ 2000 mg/kg bw - Acute dermal irritation test: Negative - Sensitisation test (Magnusson – Kligman): Negative - *In vivo* mouse micronucleus test: Negative (no evidence of bone marrow exposure) - *In vitro* assessment of clastogenic activity in cultured human lymphocytes: Negative - Ames test: Negative - Four-week oral, rat toxicity test: NOAEL 8 mg/kg bw per day
IN-R9805 - Ames tests (2): negative - *In vitro* mammalian chromosome aberration tests in human peripheral blood lymphocytes (2): negative - *In vitro* mammalian cell gene mutation tests (CHO or V79/HPRT): negative

Medical data (Regulation (EU) N° 283/2013, Annex Part A, point 5.9)

No cases of adverse health effects observed in workers, no cases of poisoning reported. There is no specific antidote or therapeutic regimes. Treat symptomatically.

Summary (Regulation (EU) N°1107/2009, Annex II, point 3.1 and 3.6)

	Value (mg/kg bw (per day))	Study	Uncertainty factor
Acceptable Daily Intake (ADI)	0.01	rat, 2-year	100
Acute Reference Dose (ARfD)	0.2	rabbit, developmental	100
Acceptable Operator Exposure Level (AOEL) [1]	0.05	Rat, combined 90-day rat studies	100 + 67%*
Acute Acceptable Operator Exposure Level (AAOEL)	0.13	rabbit, developmental	100 + 67%*

*Correction factor of 67% for oral absorption

[1] AOEL of 0.07 mg/kg bw per day was established during first peer review (European Commission, 2005)

Dermal absorption (Regulation (EU) N° 284/2013, Annex Part A, point 7.3)

Representative formulation (indicate name, type e.g. EC and concentration of active substance)	Tribenuron methyl 50 SG Concentrate: 25% (default value) Spray dilution: 75% (default value) Tribenuron-methyl 750 g/kg WG Concentrate: 25% (default value) Spray dilution 75% (default value)

Exposure scenarios (Regulation (EU) N° 284/2013, Annex Part A, point 7.2)

Operators	**Tribenuron methyl 50 SG (DPX-L5300)** Use: sunflowers, tractor mounted equipment, application rate 0.03 kg as/ha, 0.06 kg product/ha Exposure estimates (model): % of AOEL UK POEM Without PPE: 386 PPE (gloves during mix/loading and application): 51 German model (geometric mean values) Without PPE: 35 PPE (gloves during mix/loading and application): 22 German model (75 percentile): Without PPE: 127 PPE (gloves during mix/loading and application): 87 PPE (gloves during mix/loading and application, sturdy footwear and coverall): 14 EFSA model Without PPE: 39 PPE (gloves, work wear - arms, body and legs covered): 18 **Tribenuron-methyl 750 g/kg WG (CHA 6310)** Use: cereals, tractor mounted equipment, application rate 0.03 kg as/ha, 0.04 kg product/ha Exposure estimates (model): % of AOEL UK POEM Without PPE: 386 PPE (gloves during mix/loading and application): 51 German model (geometric mean values) Without PPE: 35 PPE (gloves during mix/loading and application): 22 German model (75 percentile): Without PPE: 127 PPE (gloves during mix/loading and application): 87 PPE (gloves during mix/loading and application, sturdy footwear and coverall): 14 EFSA model Without PPE: 39 PPE (gloves, work wear - arms, body and legs covered): 18
Workers	Hoernicke *et al.* (1998) and Krebs *et al*. (2001): 11% of AOEL
Bystanders and residents	Approach following guidance of the German model from Martin S *et al*. (2008) Bystanders: 0.23% and 0.17% of AOEL for adult and child, respectively Residents: 0.02% and 0.02% of AOEL for adult and child, respectively

Classification with regard to toxicological data (Regulation (EU) N° 283/2013, Annex Part A, Section 10)

Substance :	Tribenuron Methyl

Harmonised classification according to Regulation (EC) No 1272/2008 and its Adaptations to Technical Process [Table 3.1 of Annex VI of Regulation (EC) No 1272/2008 as amended][3] :	Skin Sens 1, H 317
Peer review proposal [4] for harmonised classification according to Regulation (EC) No 1272/2008:	Skin Sens.1 H317 "May cause an allergic skin reaction" STOT RE Cat 2 H373 "May cause damage to organs through prolonged or repeated exposure"

3 Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006. OJ L 353, 31.12.2008, 1-1355.

4 It should be noted that harmonised classification and labelling is formally proposed and decided in accordance with Regulation (EC) No 1272/2008.

Section 3 Residues in or on treated products food and feed

Metabolism in plants (Regulation (EU) N° 283/2013, Annex Part A, points 6.2.1, 6.5.1, 6.6.1 and 6.7.1)

Primary crops (Plant groups covered) OECD Guideline 501	**Crop groups**	**Crop(s)**	**Application(s)**	**DAT (days)**
	Fruit crops	Olives	Ground application, 1x 40 g a.s./ha	0, 14, 28, 42
	Cereals/ grass crops	Winter Wheat	Foliar; 1 x 72-75 g a.s./ha	0, 4, 8, 14, 28, 63
		Spring Wheat	Foliar, 1x24-28 g a.s./ha	0, 3, 7, 21, 51
			Foliar, 1 x 30 g a.s./ha	7, 29, 98
	Pulses/ Oilseeds	Canola	Foliar, 1 x 25 g a.s./ha	0, 2, 35, 78
		Soyabean	Foliar, 1-2 x 53 &106 g a.s./ha BBCH GS (60-63)	0- 82 DALA 1st application & 7 DALA 2nd application
		Cotton	Foliar, 1 x 22 g a.s./ha	89, 119, 174
	Miscellaneous	--	--	--
	Applied radiolabelled [^{14}C tribenuron-methyl] phenyl and triazine. Tribenuron-methyl was extensively metabolised in wheat and canola, soyabean to numerous triazine amine and sulphonamide moiety metabolites: IN-R9805, IN-37739, IN-L5296, IN-A4098, IN-D5803, IN-G7462, IN-B5685 IN-D5119. In cotton and olives (foliar application within the tree rows) the total TRRs was very low (0.01 to 0.03 mg/kg). The metabolism study in olives covers only the specific GAP in olives and cannot be extrapolated to all fruit crop groups therefore, the residue definitions cover only cereals and pulses.			

Rotational crops (metabolic pattern) OECD Guideline 502	**Crop groups**	**Crop(s)**	**PBI (days)**	**Comments**
	Root/tuber crops	Radish	30, 120, 366	Max application rate of 35g a.s./ha on bare soil (1.2N, cf GAP on cereals, sunflower). Studies were conducted with both applied radiolabelled [^{14}C tribenuron-methyl] phenyl and triazine respectively.
		Red beets	30, 120	
	Leafy crops	Lettuce	30, 120, 366	
		Cabbage	30, 120	
	Cereal (small grain)	Barley	30, 120, 366	
		Wheat	30, 120	
		Sorghum	30, 120	
	Pulses/oilseeds	Soybean	30, 120	
Rotational crop and primary crop metabolism similar?	Tribenuron-methyl was not detected.The same metabolic pathway as for primary crops was identified; the main metabolite was IN-A4098 (0.019 mg/kg)			

Processed commodities (standard hydrolysis study) OECD Guideline 507	**Conditions**	
	20 min, 90°C, pH 4	
	60 min, 100°C, pH 5	
	20 min, 120°C, pH 6	
Residue pattern in processed commodities similar to residue pattern in raw commodities?	Residues <LOQ —in cereal grains, olives. Processing studies may be required, pending the confirmatory data on the residue levels on sunflower seed.	
Plant residue definition for monitoring (RD-Mo) OECD Guidance, series on pesticides No 31	Tribenuron-methyl	

Plant residue definition for risk assessment (RD-RA)	1) Tribenuron-methyl 2) (provisional) : tribenuron methyl , sulphonamide's (IN-D5803, IN-G7462, IN-B5685) and triazineamine's (IN-L5296, IN-37739, IN-R9805, IN-A4098) (the way the residue definition will be expressed is pending the outcome of their toxicological evaluation)
Conversion factor (monitoring to risk assessment)	Open

Metabolism in livestock (Regulation (EU) N° 283/2013, Annex Part A, points 6.2.2, 6.2.3, 6.2.4, 6.2.5 6.7.1)

OECD Guideline 503 and SANCO/11187/2013 rev. 3 (fish)	**Animal**	**Dose (mg/kg bw/d)**	**Duration (days)**	**N rate/comment**
Animals covered	Laying hen	0.814 and 0.846 (triazine and phenyl ^{14}C labels, respectively)	14	160-166 X
	Goat/Cow	0.691 and 0.742 (triazine and phenyl ^{14}C labels, respectively)	7	110-118 X
	Pig			
	Fish			
	The major metabolic pathways of tribenuron-methyl in lactating goats and laying hens by hydroxylation on the triazine ring methyl position, O-demethylation and N-demethylation, sulfonylurea bridge hydrolysis, hydroxylation on the triazine ring bridge N-methyl moiety, and carboxyl methyl ester hydrolysis. The further oxidation of methyl moiety on the triazine ring to the carboxylic acid only occurred in goats.			

Time needed to reach a plateau concentration in milk and eggs (days)	Milk: 5 days Eggs: 12 days
Animal residue definition for monitoring (RD-Mo) OECD Guidance, series on pesticides No 31	Tribenuron-methyl
Animal residue definition for risk assessment (RD-RA)	1) Ruminants: tribenuron-methyl and IN A4098 2) Poultry: tribenuron-methyl, IN-L5296, IN-A4098 and IN-D5803. The way the residue definitions will be expressed is pending the outcome of the
Conversion factor (monitoring to risk assessment)	Open
Metabolism in rat and ruminant similar (Yes/No)	Yes
Fat soluble residues (Yes/No) (FAO, 2009)	No

Residues in succeeding crops (Regulation (EU) N° 283/2013, Annex Part A, point 6.6.2)

Confined rotational crop study (Quantitative aspect) OECD Guideline 502	No tribenuron-methyl was detected, and residues of its degradation products were negligible in any of the crop parts relevant for human consumption. It should be noted however that the relevant metabolite IN-A4908 found in beet foliage (up to 0.019 mg/kg, 30 PBI). The genotoxic potential of IN-A4908 cannot be ruled out. Identified metabolites show a similar metabolic pathway compared with primary metabolism and rotational studies and no specific residue definition has to be derived.
Field rotational crop study OECD Guideline 504	Tribenuron-methyl 50SG (L5300 305) was applied to bare soil at a rate of 30 g tribenuron-methyl/ha at 2 test sites. Since for one study only limited investigation was conducted, (tribenuron-methyl, IN-L5296, IN-R9805, IN-D5803 or IN-B5528), while IN-A4908 found in the metabolism study up to (0.019mg/kg, 30 PBI) was not analysed for, the field rotational crop studies are considered insufficient (data gap)

Stability of residues (Regulation (EU) N° 283/2013, Annex Part A, point 6.1)
OECD Guideline 506

Plant products (Category)	**Commodity**	**T** (°C)	**Stability (Month/Year)**			
High water content	Wheat forage	~ - 18°C	24 months			
High oil content	Cotton seed	~ - 20°C	14 months			
	Sunflower seed	~ - 20°C	12 months			
High protein content	Dried bean	~ - 20°C	18 months			
High starch content	Wheat grain	~ - 20°C	37 months			
High acid content	Orange	~ - 20°C	18 months			
Others	Cotton gin trash,	~ - 20°C	18 months			
	Wheat hay	~ - 20°C	18 months			
	Wheat straw	~ - 20°C	37 months			

Animal	**Animal commodity**	**T** (°C)	**Stability (Month/Year)**			
No feeding study.	Muscle	--				
No feeding study.	Liver	--				
No feeding study.	Kidney	--				
No feeding study.	Milk Milk	--				
No feeding study.	Egg	--				
For the time being the livestock residue assessment cannot be finalised.						

Summary of residues data from the supervised residue trials (Regulation (EU) N° 283/2013, Annex Part A, point 6.3) OECD Guideline 509, OECD Guidance, series on pesticides No 66 and OECD MRL calculator

Crop	Region/ Outdoor (a)	Residue levels (mg/kg) observed in the supervised residue trials relevant to the supported GAPs (b)	Recommendations/comments (OECD calculations)	MRL proposals (mg/kg)	HR (mg/kg) (c)	STMR (mg/kg) (d)
Representative uses						
Cereals (grains)	NEU+SEU	1 application at BBCH 30-39 (spring or winter cereals without underlay), max 24 g a.s./ha, PHI not applicable Residues of tribenuron-methyl: 77x <0.01 (nd) Residues including metabolites, expressed as tribenuron-methyl equivalents: 52x<0.01 mg/kg, 0.004	The results were similar for winter and spring variants and for barley and wheat. The trials are therefore considered together irrespective of the crop variant. DUP submitted 77 trials that were in accordance with their proposed critical GAP (<±25%). 40 trials were in NEU and 37 in SEU. Surfactant was included in 50 trials. In 53 trials, metabolites were also analysed for. The results were similar irrespective of study and inclusion or not of surfactant (eg. little or no tribenuron-methyl residues found in the grains).	0.01*	0.01*	0.01*
Cereals (grains)	NEU+SEU	1 application at BBCH 12-39 (spring or winter cereals), max 30 g a.s./ha, PHI not applicable Residues of tribenuron-methyl: 16x<0.01 (nd), 4x<0.02 (nd)	The results were similar for winter and spring variants and for barley and wheat. The trials are therefore considered together irrespective of the crop variant. TTF submitted 20 trials that are within their cGAP (<±25%) for TTF. 12 trials were in NEU and 8 in SEU. The results were similar irrespective of study and inclusion or not of surfactant (eg. little or no tribenuron-methyl residues found in the grains).	0.01*	0.02* (Reflects a higher LOQ in a minority of the studies)	0.01*
Sunflower (seed)	NEU+SEU	1 application at BBCH 12-18, max 30 g as/ha, PHI 30 days None of the trials support a GAP with PHI 30 days	26 trials were performed on sunflower (DUP). 11 of the trials were performed in NEU and 15 of them in SEU. All trials included surfactant. With application at BBCH 18 and harvest at maturity (PHI 66-112 days), residues including metabolites, expressed as tribenuron-methyl equivalents: NEU: 11x <0.01 (nd)	-	-	-

Crop	Region/ Outdoor (a)	Residue levels (mg/kg) observed in the supervised residue trials relevant to the supported GAPs (b)	Recommendations/comments (OECD calculations)	MRL proposals (mg/kg)	HR (mg/kg) (c)	STMR (mg/kg) (d)
			SEU: 15x<0.01 (nd)			
Olives	SEU	1 application in early spring, max 20 g as/ha, PHI 28 days Residues of tribenuron-methyl: 84 x <0.01 (nd) Residues including metabolites, expressed as tribenuron-methyl equivalents: 84 x <0.01 (nd)	8 trials were performed on olives (DUP) in SEU.	0.01*	0.01*	0.01*
Cereals (straw)	NEU+SEU	1 application at BBCH 12-39 (spring or winter cereals), max 30 g a.s./ha, PHI not applicable Residues of tribenuron-methyl: 16x<0.02 (nd), 4x<0.05 (nd)	TTF submitted 20 trials that are within their cGAP (<±25%) for TTF. 12 trials were in NEU and 8 in SEU. Straw were harvested and analysed at BBCH 89 in these trials (at the same time as mature grains)	NR	NR	NR
Cereals (straw)	NEU+SEU	1 application at BBCH 30-39 (spring or winter cereals without underlay), max 24 g a.s./ha, PHI not applicable Residues of tribenuron-methyl: 53 x <0.01 (nd), 24 x <0.05 (nd) Residues including metabolites, expressed as tribenuron-methyl equivalents: 6x<0.01, 0.0068, 3x0.008, 3x0.01, 4x0.012, 2x0.014, 0.016, 2x0.018, 0.019, 0.02, 2x0.026, 0.027, 3x0.029, 0.032, 0.038, 0.039, 2x0.043, 0.046, 0.048, 0.049, 0.055, 0.065, 0.069, 2x0.10, 4x0.12, 0.13, 0.188, 0.20, 0.23, 0.26	DUP submitted 77 trials that were in accordance with their proposed critical GAP (<±25%). 40 trials were in NEU and 37in SEU. Surfactant was included in 50 trials. Straw were harvested and analysed at BBCH 89 in these trials (at the same time as mature grains)	NR	NR	NR
Cereals (hay)	NEU+SEU	1 application at BBCH 30-39 (spring or winter cereals without underlay), max 24 g as/ha, PHI 28 days for harvest as forage/silage before maturity Residues of tribenuron-methyl: 28 x <0.01 (nd) Residues including metabolites, expressed as tribenuron-methyl equivalents: 2x<0.01, 0.011, 0.026, 0.028, 0.038, 2x0.042, 0.043, 0.048, 0.052, 0.058, 0.062, 0.065, 0.066, 0.067, 0.068, 0.10, 0.12, 0.13, 2x0.18, 0.19, 0.22, 0.24, 0.27, 0.35, 0.38	DUP submitted 28 trials that investigated residues in hay at the proposed PHI of 28 days. 16 trials were in NEU and 12 in SEU. All these trials included surfactant.	NR	NR	NR
Cereals (forage)	NEU+SEU	1 application at BBCH 30-39 (spring or winter cereals without underlay), max 24 g as/ha, PHI 28 days for harvest as forage/silage before maturity Residues of tribenuron-methyl: 28x <0.01 (nd), 12x <0.05 (nd) Residues including metabolites, expressed as tribenuron-methyl equivalents: 3x<0.01, 2x0.014, 0.015, 0.016, 3x0.020, 0.024, 0.025, 0.028, 0.029, 0.033, 0.037, 0.038, 0.039, 0.04, 0.045, 0.058, 0.064, 0.067, 0.074, 0.11, 0.12, 0.16, 0.18	DUP submitted 40 trials that investigated residues in forage at the proposed PHI of 28 days. 18 of these were in SEU and 22 in NEU. In 28 of the trials, metabolites were also analysed, 16 in NEU and 12 in SEU. Surfactant was included in 37 of the trials.	NR	NR	NR
Grass underlay	NEU+SEU	1 application at BBCH 12-13 (spring or winter cereals without	DUP submitted 13 trials on grass underlay, of	NR	NR	NR

Crop	Region/ Outdoor (a)	Residue levels (mg/kg) observed in the supervised residue trials relevant to the supported GAPs (b)	Recommendations/comments (OECD calculations)	MRL proposals (mg/kg)	HR (mg/kg) (c)	STMR (mg/kg) (d)
		underlay), max 7.5 g as/ha, PHI 28 days Residues of tribenuron-methyl: Forage: 7x <0.01 (nd) Hay: 7x <0.01 (nd) Residues including metabolites, expressed as tribenuron-methyl equivalents: Forage: 7 <0.01 (nd) Hay: 1 <0.01 (nd), 2x0.011, 0.025, 0.038, 2x0.12	which 7 complied with the PHI of 28 days in the proposed GAP. The residues of tribenuron-methyl and tribenuron equivalent residues were measured at several PHI, but the values from PHI 21 were used in the assessment. 5 trials were in NEU and 42 trials in SEU.			
Clover underlay	NEU+SEU	1 application at BBCH 11 (spring or winter cereals without underlay), max 5.5 g as/ha, PHI 28 days Residues of tribenuron-methyl: Forage: 3x<0.01 (nd), 0.005, 0.008, 0.022 Hay: <0.01 (nd), 0.008, 0.014, 0.028, 0.04, 0.14 Residues including metabolites, expressed as tribenuron-methyl equivalents: Forage: 0.008, 0.02, 0.022, 0.026, 0.045, 0.11 Hay: 0.023, 0.089, 0.10, 0.17, 0.20, 0.46	DUP submitted 12 trials on red clover underlay, of which 6 complied with the PHI of 28 days in the proposed GAP. The residues of tribenuron-methyl and tribenuron equivalent residues were measured at at several PHI, but the values from PHI 21 were used in the assessment. 4 of the accepted trials were from NEU and 42 trials in SEU.	NR	NR	NR
Pasture (grass)	NEU+SEU	1 application at BBCH 59 (spring or winter cereals without underlay), max 7.5 g as/ha, PHI 28 days Residues of tribenuron-methyl: Forage: 9 x <0.01 (nd) Hay: 8 x <0.01 (nd), 0.025 Residues including metabolites, expressed as tribenuron-methyl equivalents: Forage: 0.0068, 5 x <0.010 (nd), 0.011, 0.015, 0.040 Hay: 0.0060, <0.010 (nd), 0.028, 0,029, 0.033, 0.056, 0.084, 0.12, 0.15	17 trials were performed on pasture grass (DUP). Of these 9 trials were analysed at the proposed PHI of 28 days. 5 trials were in NEU and 4 trials were in SEU.	NR	NR	NR
Summary of the data on formulation equivalence OECD Guideline 509						
Crop	**Region**	**Residue data** (mg/kg)	**Recommendations/comments**			
Summary of data on residues in pollen and bee products (Regulation (EU) No 283/2013, Annex Part A, point 6.10.1)						
Product(s)	**Region**	**Residue data (mg/kg)**	**Recommendations/comments**			
			Magnitude of tribenuron-methyl and its relevant metabolites for the risk assessment residue definition should be investigated in pollen and bee products (data gap).			

(a): NEU or SEU for northern or southern outdoor trials in EU member states (N+SEU if both zones), Indoor for glasshouse/protected crops, Country if non-EU location.

(b): Residue levels in trials conducted according to GAP reported in ascending order (e.g. 3x <0.01, 0.01, 6x 0.02, 0.04, 0.08, 3x 0.10, 2x 0.15, 0.17). When residue definition for monitoring and risk assessment differs, use Mo/RA to differentiate data expressed according to the residue definition for Monitoring and Risk Assessment.
(c): HR: Highest residue. When residue definition for monitoring and risk assessment differs, HR according to residue definition for monitoring reported in brackets (HRMo).
(d): STMR: Supervised Trials Median Residue. When residue definition for monitoring and risk assessment differs, STMR according to definition for monitoring reported in brackets (STMRMo). NR=not recommended

Inputs for animal burden calculations (OPEN)
NOTE: Livestock dietary burden cannot be finalised for the time being. Pending upon the outcome of the outstanding data on the magnitude of the pertinent compounds identified in primary and rotational crops and their toxicity, the livestock dietary burden calculation should be reconsidered.

Residues from livestock feeding studies (Regulation (EU) N° 283/2013, Annex Part A, points 6.4.1, 6.4.2, 6.4.3 and 6.4.4)
OECD Guideline 505 and OECD Guidance, series on pesticides No 73 (OPEN)
NOTE: Pending the final livestock dietary burden assessment, the potential transfer in animal matrices may need to be further investigated.

Conversion Factors (CF) for monitoring to risk assessment

Animal products (OPEN)

Processing factors (Regulation (EU) N° 283/2013, Annex Part A, points 6.5.2 and 6.5.3)
OECD Guideline 508 and OECD Guidance, series on testing and assessment No 96

Crop (RAC)/Edible part or Crop (RAC)/Processed product	**Number of studies[(a)]**	**Processing Factor (PF)**		**Conversion Factor (CF_P) for RA[(b)]**
		Individual values	Median PF	
Representative uses (row to be deleted if not relevant)				

(a): Studies with residues in the RAC at or close to the LOQ should be disregarded (unless concentration)
(b): When the residue definition for risk assessment differs from the residue definition for monitoring

There are no quantifiable residues in cereal grains, olives. However, residue trials according to the representative GAP on sunflower seed were not available. Pending the final decision on the residue definition for risk assessment processing studies may be needed.

Consumer risk assessment (Regulation (EU) N° 283/2013, Annex Part A, point 6.9)
Including all uses (representative uses and uses related to an MRL application)
Note: **The risk assessment was conducted for residues of tribenuron-methyl only**. **The risk assessment is not finalised, considering the provisional residue definition for risk assessment and further clarification with regard to the genotoxic potential of metabolites IN-A4098, IN-L5296 and IN-B5685 the consumer risk assessment is not finalised for the representative uses**

ADI	0.01 mg/kg bw per day
TMDI according to EFSA PRIMo	Highest TMDI: 1.0 % ADI (WHO cluster diet B)
NTMDI, according to (to be specified)	Not calculated
IEDI (% ADI), according to EFSA PRIMo	Not calculated
NEDI (% ADI), according to EFSA PRIMo	Highest NEDI: Not applicable
Factors included in the calculations	TMDI: Proposed MRLs
ARfD	0.2 mg/kg bw
IESTI (% ARfD), according to EFSA PRIMo	Highest IESTI: (0.1% (wheat)
NESTI (% ARfD), according to EFSA PRIMo	Not applicable
Factors included in IESTI and NESTI	IESTI: Proposed MRLs

Proposed MRLs (Regulation (EU) No 283/2013, Annex Part A, points 6.7.2 and 6.7.3)

Code[(a)]	**Commodity/Group**	**MRL/Import tolerance[(b)] (mg/kg) and Comments**	
Plant commodities			
Representative uses (row to be deleted if not relevant)			
0161030	Table olives	0.01*	MRL proposed at LOQ
0402010	Olives for oil production	0.01*	MRL proposed at LOQ
0500010	Barley	0.01*	MRL proposed at LOQ
0500050	Oat	0.01*	MRL proposed at LOQ
0500070	Rye	0.01*	MRL proposed at LOQ
0500090	Wheat	0.01*	MRL proposed at LOQ
Animal commodities –no MRLs are proposed			

(a): Commodity code number, as listed in Annex I of Regulation (EC) No 396/2005
(b): MRLs proposed at the LOQ, should be annotated by an asterisk (*) after the figure.

Section 4 Environmental fate and behaviour

Route of degradation (aerobic) in soil (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.1.1)

Mineralisation after 100 days	% after x d, [^{14}C-2-triazine] (n[5]= 9): 14.9 (270 d); 16.8 (365 d); 4.6, 4.2, 6.0 (60 d); 4.9, 2.2, 1.5, 4.6 (120 d) % after x d, [^{14}C -U-phenyl]-label (n= 4): 64.8 (270 d); 33.8, 35.5, 41.8 (60 d)
Non-extractable residues after 100 days	% after x d, [^{14}C-2-triazine] (n=11): 23.1 (270 d), 11.4, 16.7 (120 d); 8.1 (365 d); 22.4, 21.7, 26 (60 d); 7.9, 4.6, 5.1, 8.7 (120 d) % after x d, [^{14}C -U-phenyl]-label (n= 4): 27.9 (270 d); 34.4, 35.8, 32.4 (60 d)
Metabolites requiring further consideration - name and/or code, % of applied (range and maximum)	Both ^{14}C-labels (n=11): IN-00581: up to 33.9% IN-L5296: up to 85.7% (up to 81.7% under sterile conditions) IN-A4098: up to 12.6% (up to 7.3% under sterile conditions) IN-R9805: up to 7.6% (up to 17.2% under sterile conditions) M2: up to 16.2%

Route of degradation (anaerobic) in soil (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.1.2)

Mineralisation after 100 days	% after x d, [^{14}C-2-triazine] (n= 3): 0.3 (117 d); 2.6 (127 d); 1.0 (123 d) % after x d, [^{14}C -U-phenyl]-label (n= 3): 0.6 (117 d); 0.5 (127 d); 0.4 (123 d)
Non-extractable residues after 100 days	% after x d, [^{14}C-2-triazine] (n= 3): 11.4 (117 d); 3.2 (127 d); 8.4 (123 d) % after x d, [^{14}C -U-phenyl]-label (n= 3): 5.5 (117 d); 5.4 (127 d); 3.5 (123 d)
Metabolites that may require further consideration for risk assessment - name and/or code, % of applied (range and maximum)	Both ^{14}C-labels (n=3): IN-00581: up to 42.7%, IN-L5296: up to 25.4% IN-R9805: up to 20.8% IN-GK521: up to 32.1% IN-D5119: up to 6.1% IN-R9803: up to 9.1% IN-GN815: up to 6.8%

Route of degradation (photolysis) on soil (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.1.3)

Metabolites that may require further consideration for risk assessment - name and/or code, % of applied (range and maximum)	Both ^{14}C-labels (n=3): IN-00581: up to 58.8% IN-L5296: up to 92.9% IN-D5803: up to 46.6%
Mineralisation at study end	% after x d, [^{14}C-2-triazine] (n= 2): 0 (33 d); 0 (15 d) % after x d, [^{14}C -U-phenyl]-label (n= 3): 1.0 (33 d); 1.6 (10 d); 0 (22 d)
Non-extractable residues at study end	% after x d, [^{14}C-2-triazine] (n= 2): 0.9 (33 d); 9.7 (15 d) % after x d, [^{14}C -U-phenyl]-label (n= 3): 10.0 (33 d); 15.3 (15 d); 18.4 (22 d)

5 n corresponds to the number of soils.

Rate of degradation in soil (aerobic) laboratory studies active substance (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.1 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

Parent	Dark aerobic conditions						
Soil type	X[6]	pH[a)]	t. °C / % MWHC	DT_{50} /DT_{90} (d)	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. ($\chi 2$)	Method of calculation
Gross-Umstadt silt loam		7.5 (media not stated)	20°C / 42% MWHC (0 bar)	16.4/91.3	15.2	7	FOMC (pers.) SFO (model.)
Arrow sandy loam		5.9 (media not stated)	20°C / 60% MWHC	1.7 / 11.9	3.6	7	FOMC: α=1.27 β=2.35
Arrow sandy loam		5.9 (media not stated)	20°C / 40% MWHC	1.8 / 13.1	- [c)]	6	HS: k1=0.378 k2=0.070 tb=4.5
Arrow sandy loam		5.9 (media not stated)	10°C / 60% MWHC	12.2 / 61.5	- [c)]	9	HS: k1=0.155 k2=0.033 tb=4.5
Evesham clay loam		8.3 (media not stated)	20°C / 100% MWHC	11.9/39.4	11.9	10	SFO
Evesham clay loam		8.3 (media not stated)	10°C / 100% MWHC	47.5 / 158	- [c)]	9	SFO
Riverside sandy silt loam		6.8	20°C / 40% MWHC	11.6 / 38.6	10.9	23	SFO
Sion Hill silty loam		6.1	20°C / 40% MWHC	5.4 / 17.8	4.2	12	DFOP (pers.) SFO (model.)
Gardena silt loam		7.5 (media not stated	25°C / 70% FC (pF2)	5.1 / 58.9	23.1	23	HS (pers.) SFO (mod.)
Nambsheim sandy loam		7.4	20°C / 50% MWHC	16.7 / 55.3	16.7	5	SFO
Lleida clay loam		7.5	20°C / 50% MWHC	18.3 / 60.7	16.8	4	SFO
Speyer sand		5.8	20°C / 50% MWHC	1.6 / 18.5	9.0	14	HS (pers.) FOMC (model.) α=0.667 β=0.976
Speyer 5M sandy loam		7.2	20°C / FC (pF2)	18.5 / 61.5	18.5	6	SFO
Am Fishteich silt loam		6.2	20°C / FC (pF2)	2.9 / 9.7	2.9	14	SFO
Loehmingen loam		6.7	20°C / FC (pF2)	4.6 / 15.4	4.6	11	SFO
Speyer 2.2 loamy sand		5.5	20°C / FC (pF2)	7.1 / 23.7	7.1	11	SFO
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**		

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

6 X This column is reserved for any other property that is considered to have a particular impact on the degradation rate. Column and this footnote may be removed if not used.

Rate of degradation in soil (aerobic) laboratory studies transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

IN-L5296	Dark aerobic conditions. Parent dosed studies with precursor for the f.f.: parent. Also two studies metabolite (IN-L5296) dosed studies and one metabolite (IN-R9803) dosed study							
Soil type	X[7]	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f. k_f / k_{dp}	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. ($\chi 2$)	Method of calculation
Gross-Umstadt silt loam		7.5 (media not stated)	20°C /42% MWHC (0 bar)	281 / 934	0.77	185	11	FOMC-SFO (pers.) SFO-SFO (model.)
		7.4	20°C / 42% MWHC (0 bar)	204 / 678	- [c]	165	3	SFO
Speyer sand		5.8	20°C / 50% MWHC	151 / 502	0.66	293	3	HS-SFO (pers.) FOMC-SFO (model.)
Arrow sandy loam		5.9	20°C / 60% MWHC	337 / 1119	0.89	337	3	FOMC-SFO
			20°C / 40% MWHC	505 / 1678	0.87	- [e)]	4	FOMC-SFO
Mattapex silt loam		6.6	20°C / 47% MWHC (0 bar)	105 / 348	-[c]	96.5	6	SFO
Tama silty clay loam		5.8	20°C / 50% MWHC (0 bar)	234 / 778	0.66[d]	234	7	DFOP-SFO
Cajon loam		7.3	20°C / 50% MWHC (0 bar)	251 / 833	0.68[d]	243	7	DFOP-SFO
Geometric mean (if not pH dependent)						207.5		
Arithmetic mean					0.76			
pH dependence, Yes or No						No		

a) pH measured in $CaCl_2$ 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.

Rate of degradation in soil (aerobic) laboratory studies transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

IN-A4098	Dark aerobic conditions. Metabolite (IN-A4098) dosed studies. Also one metabolite (IN-L5296) dosed study.							
Soil type	X[7]	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f. k_f / k_{dp}	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. ($\chi 2$)	Method of calculation
Arrow sandy loam		5.7	20°C / 55% MWHC	44.7 / 97*	- [c]	22.5*	14	Slow phase k in HS DT_{50} 22.5*
Gartenecker loam		6.9	20°C / FC (pF2)	102.2/ 339*	- [c]	102.2*	4	SFO
18 Acres, Sandy clay loam		5.0	20°C / FC (pF2)	249 / 828*	-[c]	249*	1	SFO
Krone Silt loam		4.9	20°C / FC (pF2)	191 / 634*	-[c]	191*	4	SFO
Honville Silt loam		6.7 (H_2O)	20°C / 40% MWHC	260.1 / 864*	-[c]	201.6*	-*	Slow phase k in HS DT_{50} 26.1*

Speyer 2.2 Loamy sand		5.7	20°C / 45% MWHC	60.5 / 285	-[c]	67.5	2	DFOP (pers.) SFO (model.)
Speyer 3A Sandy loam		7.3	20°C / 45% MWHC	280.4 />1000	-[c]	385	2	HS: : k1=0.013 k2=0.002 tb=20
Speyer 6S Clay loam		7.1	20°C / 45% MWHC	333 / >1000	-[c]	230	1	SFO
Gross-Umstadt silt loam		7.4	20°C / 42% MWHC (0 bar)	68.9 / 228.9	1.0[d]	55.6	16	SFO-SFO
Mattapex silt loam		6.6	20°C / 47% MWHC (0 bar)	94.1 / 313	1.0[d]	86.7	12	SFO-SFO
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
Speyer 2.1 sand		5.5	20°C / pF2	112.5 / 374*	-[c]	112.5*	3	SFO
Soil 115 clay loam		8.6	20°C / pF2	175.2 / 582	-[c]	175.2*	3	SFO
Soil 243 sandy loam		5.6	20°C / pF2	96.4 / 320.2	-[c]	96.4*	6	SFO
Geometric mean (if not pH dependent)						127.7		
Median (n=14)						143.9		
Arithmetic mean					1.0[d]			
pH dependence, Yes or No						No		

a) pH measured in $CaCl_2$ 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)

Rate of degradation in soil (aerobic) laboratory studies transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

IN-00581	Dark aerobic conditions. Metabolite (IN-00581) dosed studies.							
Soil type	X[7]	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f. k_f / k_{dp}	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. (χ2)	Method of calculation
Mattapex Silt loam		6.4	20°C / 55% MWHC (0 bar)	237.4 / 788.6*	-[c]	237.4*	4	SFO
Speyer 2.2 Loamy sand		5.7	20°C / 45% MWHC	16.7/ 32.2*	-[c]	9.7*	5	Mod. HS* (DT 90/3.32)
Speyer 3A Sandy loam		7.3	20°C / 45% MWHC	16.9 / 34*	-[c]	9.5*	5	Mod. HS* (DT 90/3.32)
Speyer 6S Clay loam		7.1	20°C / 45% MWHC	49.3 / 99.2*	-[c]	20.6*	6	Mod. HS* (DT 90/3.32)
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
Speyer 2.2		5.7	20 / 45% MWHC	14.8 / 49.2*	-[c]	14.8*	13	SFO
Speyer 2.3		6.9	20 / 45% MWHC	9.1 / 30.1*	-[c]	8.45*	16	SFO
Speyer 6S		7.2	20 / 45% MWHC	27.5 / 91.2*	-[c]	20.47*	12	SFO
Geometric mean (if not pH dependent)						19.1		
Arithmetic mean					-[c]			
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.
* 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)

Rate of degradation in soil (aerobic) laboratory studies transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

IN-R9805	Dark aerobic conditions. Metabolite (IN-R9805) dosed studies. Also one metabolite (IN-GK521) dosed study.							
Soil type	X^7	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f. k_f / k_{dp}	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. (χ2)	Method of calculation
Nambsheim sandy loam		7.5	20°C / FC (pF2) 20°C / 50% MWHC	91.6/304.4	-[c]	91.6	5	SFO
		7.3		82.8/275.1	-[c]	82.8	3	SFO
Porterville loam		7.7	20°C / FC (pF2)	73.9 / 245	-[c]	73.9	8	SFO
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
Speyer loamy sand		5.5	20°C / 50% MWHC (0 bar)	97.6 / 324	-[c]	97.6*	2	SFO
		5.3		355 / 1178	0.76[d]	355*	7	SFO-SFO
Lleida silty clay		7.7	20°C / 50% MWHC (0 bar)	86.5 / 287	-[c]	79.2	3	SFO
Tama silty clay loam		5.4	20°C / 50% MWHC (0 bar)	91.5 / 304	-[c]	84.4*	3	SFO
		5.7		380 / 1262	0.77[d]	315*	3	DFOP-SFO
Sassafras sandy loam		5.6	20°C / 50% MWHC (0 bar)	90.8 / 302	-[c]	90.8	3	SFO
Speyer 2.2 loamy sand		5.5	20°C / ~37% MWHC	26.0 / 86.5	-[c]	26.0	5	SFO
Fisilis silty clay loam		7.2	20°C / ~47% MWHC	17.6 / 58.3	-[c]	14.1	6	SFO
LRA J3 clay loam		7.5	20°C / ~41% MWHC	42.7 / 142	-[c]	29.1	3	SFO
Geometric mean (if not pH dependent)						85.4*		
Median (n= 13)						84.4		
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 (f.f. = 1 used in FOCUS GW modelling).
d) Formation fraction from precursor IN-GK521 (anaerobic metabolite).
* 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.

Rate of degradation in soil (aerobic) laboratory studies transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

M2	Dark aerobic conditions. Metabolite (M2) dosed studies.

Soil type	X[7]	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f. k_f / k_{dp}	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. (χ2)	Method of calculation
Speyer 2.2. loamy sand		5.5	20°C / ~37% MWHC	11.0 / 36.5	-[c]	11.0	5	FOMC (pers.): α=2.16 β=25.3 SFO (model.)
Fisilis silty clay loam		7.2	20°C / ~46% MWHC	20.6 / 68.4	-[c]	16.5	5	HS (pers.): k1=0.044 k2=0.015 tb=18.9 SFO (model.)
LRA J3 clay loam		7.5	20°C / ~42% MWHC	23.3 / 77.2	-[c]	16.1	3	HS (pers.): k1=0.045 k2=0.012 tb=16.9 SFO (model.)
Arrow sandy loam		5.9	20°C/60% MWHC	73.2 / 244	0.04	73.2	17	FOMC-SFO
			10°C/60% MWHC	64.3 / 214	0.06	-[d]	18	HS-SFO
Geometric mean (if not pH dependent)						21.5		
Arithmetic mean					-[e] 0.05			
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) Result not used to calculate mean.

Rate of degradation in soil (aerobic) laboratory studies transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

IN-D5803	Dark aerobic conditions. Metabolite (IN-D5803) dosed studies.							
Soil type	X[7]	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f. k_f / k_{dp}	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. (χ2)	Method of calculation
Lleida clay loam		8.0	20°C / 50% MWHC (0 bar)	1.0 / 3.2*	-[c]	0.9*	3	SFO
Tama silty clay loam		6.1	20°C / 50% MWHC (0 bar)	5.1 / 17.1*	-[c]	4.1*	8	SFO
Speyer 2.2 loamy sand		6.3	20°C / 50% MWHC (0 bar)	1.9 / 6.1*	-[c]	1.9*	21	SFO
		5.7	20°C / 45% MWHC	11.7 / 38.8*	-[c]	11.7*	4	SFO
Gross-Umstadt loam		7.3	20°C / 50% MWHC (0 bar)	1.3 / 4.5*	-[c]	1.2*	9	SFO
Sassafras sandy loam		5.7	20°C / 50% MWHC (0 bar)	9.2 / 87.7*	-[c]	26.4*	-*	FOMC DT90/3.32
Speyer 3A Sandy loam		7.3	20°C / 45% MWHC	1.9 / 6.4*	-[c]	1.8*	6	SFO
Speyer 6S clay loam		7.1	20°C / 45% MWHC	3.4 / 11.1*	-[e]	2.3*	4	SFO
Geometric mean (if not pH dependent)						3.2		
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 (f.f. = 1 used in FOCUS GW modelling)..

* Peer-reviewed endpoints as presented in EFSA conclusion on metsulfuron-methyl (EFSA Journal 2015;13(1):3936)

Rate of degradation in soil (aerobic) laboratory studies transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

IN-R9803	Dark aerobic conditions. Metabolite (IN-R9803) dosed studies.							
Soil type	X[7]	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f. k_f / k_{dp}	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. (χ2)	Method of calculation
Speyer loamy sand		5.2	20°C / 50% MWHC (0 bar)	6.1 / 45.0	-[c]	17.6	7	FOMC: α=0.95 β=5.63
Lleida silty clay		7.5	20°C / 50% MWHC (0 bar)	3.2 / 22.0	-[c]	6.3	4	FOMC: α=1.3 β=4.49
Tama silty clay loam		5.8	20°C / 50% MWHC (0 bar)	3.3 / 43.3	-[c]	13.0	4	FOMC: α=0.77 β=2.29
Nambsheim sandy loam		7.3	20°C / 50% MWHC (0 bar)	5.2 / 54.2	-[c]	16.3	9	FOMC: α=0.89 β=4.41
Cajon loam		7.3	20°C / 45% MWHC	2.6 / 39.0	-[c]	17.7	4	DFOP: k1=0.647 k2=0.038 g=0.6
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 (f.f. = 1 used in FOCUS GW modelling).

Rate of degradation in soil (aerobic) laboratory studies transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

IN-GN815	Dark aerobic conditions. Metabolite (IN-GN815) dosed studies.							
Soil type	X[7]	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f. k_f / k_{dp}	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. (χ2)	Method of calculation
Speyer sandy loam		5.2	20°C / 50% MWHC (0 bar)	7.0 / 29.1	-[c]	7.9	3	DFOP (pers.): k1=0.965 k2=0.073 g=0.2 SFO (model.)
Lleida silty clay		7.5	20°C / 50% MWHC (0 bar)	6.3 / 32.9	-[c]	6.8	5	DFOP (pers.): k1=0.574 k2=0.06 g=0.3 SFO (model.)
Tama silty clay loam		5.6	20°C / 50% MWHC (0 bar)	5.0 / 27.5	-[c]	5.4	4	DFOP (pers.): k1=0.725 k2=0.077 g=0.3 SFO (model.)
Nambsheim sandy loam		7.5	20°C / 50% MWHC (0 bar)	9.2 / 40.9	-[c]	10.9	4	DFOP (pers.): k1=0.861 k2=0.051 g=0.2 SFO (model.)

Sassafras loamy sand		4.9	20°C / 50% MWHC (0 bar)	7.2 / 30.9	-[c]	8.2	4	SFO
Speyer 2.2 loamy sand		5.5	20°C / 37% MWHC	4.0 / 13.3	-[c]	4.0	11	SFO
Fisilis silty clay loam		6.1	20°C / 46% MWHC	5.6 / 18.6	-[c]	4.5	10	SFO
LRA J3 clay loam		7.5	20°C / 43% MWHC	23.5 / 78.0	-[c]	16.2	6	SFO
Geometric mean (if not pH dependent)						7.2		
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.

Rate of degradation in soil (aerobic) laboratory studies transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

IN-GK521	Dark aerobic conditions. Metabolite (IN-GK521) dosed studies.							
Soil type	X[7]	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f. k_f / k_{dp}	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. (χ2)	Method of calculation
Speyer sandy loam		5.3	20°C / 50% MWHC (0 bar)	4.8 / 15.9	-[c]	4.8	5	SFO
Lleida silty clay		7.7	20°C / 50% MWHC (0 bar)	38.8 / 128.8	-[c]	32.6	9	SFO
Tama silty clay loam		5.7	20°C / 50% MWHC (0 bar)	5.0 / 25.7	-[c]	4.2	4	DFOP (pers.): k1=0.725 k2=0.077 g=0.3 SFO (model.)
Nambsheim sandy loam		7.5	20°C / 50% MWHC (0 bar)	33.0 / 109.7	-[c]	33.0	8	SFO
Sassafras loamy sand		4.7	20°C / 50% MWHC (0 bar)	7.9 / 31.5	-[c]	8.8	3	DFOP (pers.): k1=1.97 k2=0.068 g=0.1 SFO (model.)
Speyer 2.2 loamy sand		5.5	20°C / 36% MWHC	9.4 / 31.3	-[c]	9.4	11	SFO
Fisilis silty clay loam		6.1	20°C / 46% MWHC	9.5 / 31.5	-[c]	7.7	10	SFO
LRA J3 clay loam		7.5	20°C / 40% MWHC	51.9 / 172	-[c]	34.0	6	SFO
Geometric mean (if not pH dependent)						12.1		
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.

Rate of degradation in soil (aerobic) laboratory studies transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

IN-D5119	Dark aerobic conditions. Metabolite (IN-D5119) dosed studies.							
Soil type	X[7]	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f. k_f / k_{dp}	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. (χ2)	Method of calculation

Lleida silty clay		7.9	20°C / 50% MWHC (0 bar)	7.4 / 24.5*	-[c]	6.6*	14	SFO
Sassafras Sand		5.3	20°C / 50% MWHC (0 bar)	15.6 / 51.8	-[c]	15.6	8	SFO
Tama silty clay loam		6.1	20°C / 50% MWHC (0 bar)	5.9 / 19.6*	-[c]	4.8*	8	SFO
Speyer 2.2 loamy sand		6.3	20°C / 50% MWHC (0 bar)	7.2 / 23.8*	-[c]	7.2*	10	SFO
Nambsheim sandy loam		7.4	20°C / 50% MWHC (0 bar)	9.6 / 31.9*	-[c]	9.0*	10	SFO
Speyer 2.2 loamy sand		5.7	20°C / 45% MWHC	10.1 / 33.7*	-[c]	10.1*	7	SFO
Speyer 3A sandy loam		7.3	20°C / 45% MWHC	12.6 / 41.9*	-[c]	11.8*	7	SFO
Speyer 6S clay loam		7.1	20°C / 45% MWHC	115.7 / 384.4*	-[c]	79.9*	3	SFO
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
LUFA Speyer 3A sandy loam		6.8	-	17.7 / 58.8*	-[c]	17.7*	8	SFO
LUFA Speyer 6S clay		7.1	-	31.1 / 103.4*	-[c]	31.1*	14	SFO
Geometric mean (if not pH dependent)-(n=11)						14.5		
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.
*Peer-reviewed endpoints as presented in EFSA conclusion on metsulfuron-methyl (EFSA Journal 2015;13(1):3936)

Rate of degradation field soil dissipation studies (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.2.1 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.2.1)

Parent	Aerobic conditions								
Soil type (indicate if bare or cropped soil was used).	Location (country or USA state).	X	pH[a)]	Depth (cm)	DT_{50} (d) actual	DT_{90}(d) actual	St. (χ2)	DT_{50} (d) Norm[b)]	Method of calculation
Clay loam (bare)	United Kingdom		7.6	0-30	34.7	115	6	10.4	SFO
Silt loam (bare)	N Germany		6.6	0-30	2.6	8.7	7	2.7	FOMC DT90/3.32
Clay (bare)	Spain		8.1	0-30	5.8	19.3	8	5.1	SFO
Loam (bare)	Italy		6.1	0-30	0.5	5.8	4	1.7	FOMC DT90/3.32
Silt loam (bare)	N France		6.5	0-30	1.7 (3.4[c])	11.2	3	5.2	DFOP (slow phase)
Saint Genouph	N France		7.9	0-30	1.5	5.1	-[d]	-[d]	-[d]
Frankenhardt	S Germany		7.2	0-30	5.6	19	-[d]	-[d]	-[d]
Saint Loubert,	S France		5.2	0-30	0.58 (4.5c)	10.7	8.8	2.2	SFO
Villena	Spain		8.2	0-30	2.5 (3.5[c])	11.7	4	3.0	SFO
Geometric mean (if not pH dependent)								**3.6**	
pH dependence, Yes or No					No				

a) Measured in water.
b) Values are $DegT_{50matrix}$ and normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7.
c) Back-calculated DT_{50}; DT_{50} = DT_{90}/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

IN-00581		Aerobic conditions. Parent dosed studies. Precursor for the f.f.: parent								
Soil type	Location	X	pH[a)]	Depth (cm)	DT_{50} (d) actual	DT_{90} (d) actual	St. (χ2)	DT_{50} (d) Norm[b)]	f. f. k_f / k_{dp}	Method of calculation
Goch-Nierswalde	N Germany		6.6	0-30	4.5	15.0	9	4.5	0.61	FOMC-SFO
Termens	Spain		8.1	0-30	10.6	35.1	8	10.6	0.39	SFO-SFO
Graffignana	Italy		6.1	0-30	7.4	24.7	12	7.4	0.64	FOMC-SFO
Douai	N France		6.5	0-30	6.5	21.6	17	6.5	0.55	FOMC-SFO
Frankenhardt,	Germany		6.7	0-30	26.4	87.7	-[c]	-[c]	-[c]	SFO-SFO
Geometric mean (if not pH dependent)								**6.9**		
Arithmetic mean									**0.55**	
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

IN-L5296		Aerobic conditions. Parent dosed studies. Precursor for the f.f.: parent								
Soil type	Location	X	pH[a)]	Depth (cm)	DT_{50} (d) actual	DT_{90} (d) actual	St. (χ2)	DT_{50} (d) Norm[b)]	f. f. k_f / k_{dp}	Method of calculation
Graffignana	Italy		6.1	0-30	171	1312	-[d]	-[d]	-[d]	DFOP[c]
Douai	N France		6.5	0-30	431	1433	-[d]	-[d]	-[d]	SFO[c]
Frankenhardt,	Germany		6.7	0-30	93.8	312	-[e]	-[e]	-[e]	SFO-SFO
Saint Loubert	S France		5.2	0-30	47.5	490	-[d]	-[d]	-[d]	HS[c]
Villena	Spain		8.2	0-30	174	578	12	174	0.31	DFOP-SFO
Geometric mean (if not pH dependent)								**174**		
Arithmetic mean									**0.31**	
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

Combined laboratory and field kinetic endpoints for modelling (when not from different populations) *

Rate of degradation in soil active substance, normalised geometric mean (if not pH dependent)	--	
Rate of degradation in soil transformation products, normalised geometric mean (if not pH dependent)	--	--
Kinetic formation fraction (f. f. k_f / k_{dp}) of transformation products, arithmetic mean	--	--

* Only relevant after implementation of the published EFSA guidance describing how to amalgamate laboratory and field endpoints.

Soil accumulation (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.2.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.2.2)

Soil accumulation and plateau concentration	No study available, not requested. For calculated PEC,plateau see section on PECsoil.

Rate of degradation in soil (anaerobic) laboratory studies active substance (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.3 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

Parent	Dark anaerobic conditions						
Soil type	X[7]	pH[a)]	t. °C / % MWHC	DT_{50} / DT_{90} (d)	DT_{50} (d) 20 °C[b)]	St. (χ2)	Method of calculation
Gross-Umstadt loam		6.1	20°C / flooded	72 / 239	-	4	SFO
Bettlach Bh silt loam		7.3	20°C / flooded	45.6 / 151	-	6	SFO
Speyer 3A loam		7.2	20°C / flooded	123 / 409	-	3	SFO
Geometric mean (if not pH dependent)					-		

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

Rate of degradation in soil (anaerobic) laboratory studies transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.4 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

IN-L5296	Dark anaerobic conditions. Parent dosed studies with precursor for the f.f.: parent							
Soil type	X[10]	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f. k_f / k_{dp}	DT_{50} (d) 20°C[b)]	St. (χ2)	Method of calculation
Gross-Umstadt loam		6.1	20°C / flooded	216 / 719	0.39	-	8	SFO-SFO
Geometric mean (if not pH dependent)						-		
Arithmetic mean					0.39			

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

Rate of degradation in soil (anaerobic) laboratory studies transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.4 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

IN-R9803	Dark anaerobic conditions. Parent dosed studies with precursor for the f.f.: parent

7 X This column is reserved for any other property that is considered to have a particular impact on the degradation rate. Column and this footnote may be removed if not used.

Soil type	X[10]	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f. k_f / k_{dp}	DT_{50} (d) 20°C[b)]	St. ($\chi 2$)	Method of calculation
Gross-Umstadt loam		6.1	20°C / flooded	87.0 / 289.1	0.18	-	10	SFO-SFO
Speyer 3A loam		7.2	20°C / flooded	73.4 / 244	0.35	-	10	SFO-SFO
Geometric mean (if not pH dependent)						-		
Arithmetic mean					0.27			

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

Rate of degradation in soil (anaerobic) laboratory studies transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.2.1.4 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.1.1)

IN-GK521	Dark anaerobic conditions. Parent dosed studies with precursor for the f.f.: parent							
Soil type	X[10]	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f. k_f / k_{dp}	DT_{50} (d) 20°C[b)]	St. ($\chi 2$)	Method of calculation
Speyer 3A loam		7.2	20°C / flooded	67.1 / 223	0.23	-	10	SFO-SFO
Geometric mean (if not pH dependent)						-		
Arithmetic mean					0.23			

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

Rate of degradation on soil (photolysis) laboratory active substance (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.1.3

Parent	Soil photolysis					
Soil type	X[8]	pH[a)]	t. °C / % MWHC	DT_{50} / DT_{90} (d) calculated at 39ºN to 50ºN	St. ($\chi 2$)	Method of calculation
Gardena silt loam		7.5 (media not stated)	25°C / not stated	2.9 / -[b]	R^2 = 0.99	SFO
Nambsheim sandy loam		7.5 (water)	19-20°C / 75% MWHC (1/3 bar)	17.2 / 56.8	R^2 = 0.99	SFO
Fisilis silt loam		7.5 ($CaCl_2$)	20°C / 70% FC (pF2)	17.8 / -[b]	5	SFO

a) Measured in [medium to be stated, usually calcium chloride solution or water].
b) DT_{90} not reported.

8 X This column is reserved for any other property that is considered to have a particular impact on the degradation rate. Column and this footnote may be removed if not used.

Soil adsorption active substance (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.3.1.1 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.2.1)

Parent (tribenuron-methyl)							
Soil Type	OC %	Soil pH[a)]	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
LRA A0, Sandy loam	1.51	5.4			0.98	65.3	0.99
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 (if not pH dependent)					-	(31.6)	0.99
pH dependence, Yes or No			Yes				
Arithmetic mean for pH < 7 => $K_{F, OC}$ = 46.3 (20.7–72.0)** l/kg$_{OC}$, 1/n = 0.98 (0.91–1.06)** (n = 6) Geometric mean for pH < 7 => $K_{F, OC}$ = 38.9 (36.7–41.0)* l/kg$_{OC}$ (n = 6)							
Arithmetic mean for pH > 7 => $K_{F, OC}$ = 9.36 (2.36–16.4)** l/kg$_{OC}$, 1/n = 1.00 (0.89–1.10)** (n = 4) 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.
* Only relevant after implementation of the published EFSA guidance.
** Ranges in paranthesis is the 95% confidence interval (from Excel Add In Analysis ToolPak)

Soil adsorption transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.3.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.2.1)

Metabolite M2							
Soil Type	OC %	Soil pH[a)]	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
LRA J3, Clay loam	1.8	7.5			1.74	96.5	0.85
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)					-	78.3	0.86
pH dependence, Yes or No			No (only two samples)				

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

Soil adsorption transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.3.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.2.1)

Metabolite Saccharin (IN-00581)							
Soil Type	OC %	Soil pH[a)]	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
Gross- Umstadt, Silt loam	1.2	7.7 f			0.2	20.2	0.94
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)						7.2	0.90
pH dependence, Yes or No			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 metsulfuron-methyl (EFSA, 2015), propoxycarbazone (EFSA, 2016) and oxasulfuron (EFSA, in progress).
f) Medium not stated.
na not analysed for isotherm (only Tier 1 & 2).
* Only relevant after implementation of the published EFSA guidance.

Soil adsorption transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.3.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.2.1)

Metabolite IN-A4098 (a.k.a. AE F059411, CGA150829, triazine amine, 2-amino-4-methoxy-6-methyl-triazin, 4-methoxy-6-methyl-1,3,5-triazin-2-amine, BCS-CN85650)							
Soil Type	OC %	Soil pH	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
Gross- Umstadt, Silt loam	1.2	7.7 c			0.225	18.8	1.05
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			0.443	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
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					-	71.1	0.90
Median (since N > 9)						46	-
pH dependence, Yes or No			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 H2O".
* Only relevant after implementation of the published EFSA guidance.
§ Kesterson (1990) study (values agreed in the EFSA Conclusion on iodosulfuron-methyl-sodium)

Soil adsorption transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.3.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.2.1)

Metabolite IN-D5119							
Soil Type	OC %	Soil pH	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
Drummer, Clay Loam	2.9	6.4 a			0.19	7	0.96
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			0.04	2	0.83
Sassafras #16, Sandy Loam	1.2	5.7 a			0.09	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)						4.0	0.92
pH dependence, Yes or No			No				

a) Measured in 0.01 M CaCl and soil:solution ratio 1:2.
b) Solution composition is not stated.
* Only relevant after implementation of the published EFSA guidance.

Soil adsorption transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.3.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.2.1)

Metabolite IN-D5803							
Soil Type	OC %	Soil pH[a)]	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
Soil 2.2, Loamy sand	1.97	5.4 a	0.29 c	14.7 c	-	-	-
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)					-	21.0	0.91
pH dependence, Yes or No			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.
* Only relevant after implementation of the published EFSA guidance.

Soil adsorption transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.3.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.2.1)

Metabolite IN-GK521							
Soil Type	OC %	Soil pH	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
Gross-Umstadt, loam	1.04	7.4 a			0.277	27.7	1.02
Lleida, Silty Clay	1.86	8 a			0.238	12.5	1.00
Tama, Silty clay loam	1.97	6.2 a			0.298	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)					-	17.4	1.03
pH dependence, Yes or No			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.
* Only relevant after implementation of the published EFSA guidance.

Soil adsorption transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.3.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.2.1)

Metabolite IN-GN815							
Soil Type	OC %	Soil pH[a)]	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
Gross-Umstadt, Loam	1.04	7.4			0.189	18.9	1.01
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)					-	17.5	1.00
pH dependence, Yes or No			No (p > 0.05 for correlations investigated)				

a) Measured in 0.01 calcium chloride solution, and soil:solution ratio 1:1.
* Only relevant after implementation of the published EFSA guidance.

Soil adsorption transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.3.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.2.1)

Metabolite IN-L5296							
Soil Type	OC %	Soil pH[a)]	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
Gross- Umstadt, Silt loam	1.2	7.7			0.929	77.4	0.72
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)					-	89.4	0.80
pH dependence, Yes or No			No				

a) reported as “pH water”.
* Only relevant after implementation of the published EFSA guidance.

Soil adsorption transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.3.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.2.1)

Metabolite IN-R9803							
Soil Type	OC %	Soil pH[a)]	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
Speyer 2.2, Sandy loam	1.6	5.4			0.315	19.7	1.04
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
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)					-	67.9	1.00
pH dependence, Yes or No			No ($p > 0.05$)				

a) Measured in 0.01 M calcium chloride solution, and soil:solution ratio 1:1.
* Only relevant after implementation of the published EFSA guidance.

Soil adsorption transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.3.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.2.1)

Metabolite IN-R9805							
Soil Type	OC %	Soil pH[a)]	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
Nambsheim, Sandy loam	1.5	7.8			0.30	20	0.95
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) *					-	72.3	-
Arithmetic mean (if not pH dependent)					-	338	0.94
pH dependence, Yes or No			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.
* Only relevant after implementation of the published EFSA guidance.

Mobility in soil column leaching active substance (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.4.1.1 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.2.1)

Column leaching	Not available, not requested --

Mobility in soil column leaching transformation products (Regulation (EU) N° 283/2013, Annex Part A, point 7.1.4.1.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.1.2.1)

Column leaching	Not available, not requested --

Lysimeter / field leaching studies (Regulation (EU) N° 283/2013, Annex Part A, points 7.1.4.2 / 7.1.4.3 and Regulation (EU) N° 284/2013, Annex Part A, points 9.1.2.2 / 9.1.2.3)

Lysimeter/ field leaching studies	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.

Hydrolytic degradation (Regulation (EU) N° 283/2013, Annex Part A, point 7.2.1.1

Hydrolytic degradation of the active substance and metabolites > 10 %	pH 4: DT_{50} 0.41 days at 10°C (SFO) DT_{50} 0.19 days at 15°C (SFO) DT_{50} 0.10 days at 20°C (SFO) DT_{50} 0.04 days at 25°C (SFO) IN-00581: 94.6% (0.42 d, 20°C) IN-L5296: 90.5% (0.42 d, 20°C)
	pH 5: DT_{50} 0.002 days at 25°C (SFO)
	pH 7: DT_{50} 63.5 days at 15°C (SFO) DT_{50} 31.0 days at 20°C (SFO) DT_{50} 3.3-14.9 days at 25°C (SFO) IN-00581: 80.7% (21 d, 25°C) IN-L5296: 78.6% (21 d, 25°C); IN-D5803: 7.70% (2.00 d, 25°C)
	pH 9: DT_{50} 743 days at 20°C (SFO) DT_{50} 157-220 days at 25°C (SFO) DT_{50} 266 days at 30°C (SFO) DT_{50} 41.1 days at 40°C (SFO) IN-00581: 9.3% (30.0 d, 25°C) IN-L5296: 9.6% (30.0 d, 25°C)

Aqueous photochemical degradation (Regulation (EU) N° 283/2013, Annex Part A, points 7.2.1.2 / 7.2.1.3)

Photolytic degradation of active substance and metabolites above 10 %	At pH where hydrolysis is minimized DT_{50} : 120 days direct photolysis, continuous irradiation (25°C, pH 9) Estimated DT_{50} at 40°N approximately 240 days No metabolites >10% Natural light, 39°N; DT_{50} 167.4 days (25°C, pH 9)
Quantum yield of direct phototransformation in water at □ > 290 nm	not available, not requested

‘Ready biodegradability’ (Regulation (EU) N° 283/2013, Annex Part A, point 7.2.2.1)

Readily biodegradable (yes/no)	No

Aerobic mineralisation in surface water (Regulation (EU) N° 283/2013, Annex Part A, point 7.2.2.2 and Regulation (EU) N° 284/2013, Annex Part A, point 9.2.1)

Parent										
System identifier (indicate fresh, estuarine or marine)	pH water phase	pH sed [a)]	t. °C[b)]	DT_{50} /DT_{90} whole sys. (suspended sediment test)		St. (χ2)	DT_{50} /DT_{90} Water (pelagic test)		St. (χ2)	Method of calculation
				At study temp	Normalised to x °C		At study temp	Normalised to x °C		
pond water	8.0	-	20	-	-	-	86.2[c)]	-	3	SFO
river water	8.3	-[d)]	20-24	139	-	2	-[e)]	-	-	SFO

a) Measured in [medium to be stated, usually calcium chloride solution or water].
b) Temperature of incubation.
c) Based on degradation of parent into transformation products (not full mineralisation).
d) pH of sediment not reported.
e) Due to long lag phase and too few data points no degradation half-life could be calculated.

Mineralisation and non extractable residues (for parent dosed experiments)					
System identifier (indicate fresh, estuarine or marine)	pH water phase	pH sed	Mineralisation x % after n d. (end of the study).	Non-extractable residues. max x % after n d (suspended sediment test)	Non-extractable residues. max x % after n d (end of the study) (suspended sediment test)
Pond water	8.0	-	28% after 60 d	--	--
river water	8.3	-	2.2% after 110 days (pelagic) 3.8% after 110 days (susp. sed.)	2.7% after 14 days	1.6% after 110 days

Water / sediment study (Regulation (EU) N° 283/2013, Annex Part A, point 7.2.2.3 and Regulation (EU) N° 284/2013, Annex Part A, point 9.2.2)

Parent	Distribution; mainly distributed to water phase									
Water / sediment system	pH water phase	pH sed [a)]	t. °C	DT_{50} /DT_{90} whole sys.	St. (χ2)	DT_{50} /DT_{90} Water[b]	St. (χ2)	DT_{50} /DT_{90} sed[c]	St. (χ2)	Method of calculation
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[e)]	4	SFO (FOMC (sediment)
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)]	SFO
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.

Mineralisation and non extractable residues (from parent dosed experiments)					
Water / sediment system	pH water phase	pH sed[a)]	Mineralisation x % after n d. (end of the study).	Non-extractable residues in sed. max x % after n d	Non-extractable residues in sed. max x % after n d (end of the study)
Brandywine river	6.8-8.3	6.5-7.5	60% (135 d, phenyl(U)-^{14}C) 18% (135 d, triazine-2-^{14}C)	26% after 105 d (phenyl(U)-^{14}C) 16% after 71 d (triazine-2-^{14}C)	22% after 135 d (phenyl(U)-^{14}C) 14% after 135 d (triazine-2-^{14}C)
Lums pond	4.9-7.7	4.9-5.4	65% (135 d, phenyl(U)-^{14}C) 1.4% (105 d, triazine-2-^{14}C)	16% after 105 d (phenyl(U)-^{14}C) 9.3% after 105 d (triazine-2-^{14}C)	15% after 135 d (phenyl(U)-^{14}C) --

a) Measured in water.

IN-L5296	Distribution; up to 88.9% (total system, 56 d), max 42% in water (14 d), max 86% in sediment (56 d)									
Water / sediment system	pH water phase	pH sed [a)]	t. °C	DT_{50} /DT_{90} whole sys.	St. (χ2)	DT_{50} /DT_{90} water	St. (χ2)	DT_{50} /DT_{90} sed	St. (χ2)	Method of calculation
Brandywine river	6.8-8.3	6.5-7.5	20	168/558	10	not avail.	-	not avail.	-	SFO-SFO
Lums pond	4.9-7.7	4.9-5.4	20	309/1026	10	3.2/ 33.6[c)]	7	not avail.		SFO-SFO
Geometric mean at 20°C[b)]				**227.8**		-		-		-

a) Measured in water.
b) Normalised using a Q10 of 2.58.
c) Dissipation from water column in Lums pond; FOMC kinetic model.

IN-00581	Distribution; up to 38.4% (total system, 14 d), max 32% in water (14 d), max 6.4% in sediment (14 d)									
Water / sediment system	pH water phase	pH sed [a)]	t. °C	DT_{50} /DT_{90} whole sys.	St. (χ2)	DT_{50} /DT_{90} water	St. (χ2)	DT_{50} /DT_{90} sed	St. (χ2)	Method of calculation
Brandywine river	6.8-8.3	6.5-7.5	20	not avail.	-	not avail.	-	not avail.	-	
Lums pond	4.9-7.7	4.9-5.4	20	5/35.8[c)]	10	2.3/20.5[c)]	7	not avail.	-	FOMC
Geometric mean at 20°C[b)]				**10.8[d)]**		-		-		-

a) Measured in water.
b) Normalised using a Q10 of 2.58.
c) Decline fit; FOMC kinetic model.

d) Modelling input - FOMC DT_{90} / 3.32.

IN-D5119	Distribution; up to 26.5% (total system, 56 d), max 19% in water (56 d), max 7.5% in sediment (56 d)									
Water / sediment system	pH water phase	pH sed [a)]	t. °C	DT_{50} /DT_{90} whole sys.	St. (χ2)	DT_{50} /DT_{90} water	St. (χ2)	DT_{50} /DT_{90} sed	St. (χ2)	Method of calculation
Brandywine river	6.8-8.3	6.5-7.5	20	not avail.	-	not avail.	-	23.3/77.5[c)]	18	SFO
Lums pond	4.9-7.7	4.9-5.4	20	not avail.	-	not avail.	-	not avail.	-	-
Geometric mean at 20°C[b)]				**not avail.**		-		-		-

a) Measured in water.
b) Normalised using a Q10 of 2.58.
c) Dissipation from sediment in Brandywine river.

IN-GN815	Distribution; up to 13% (total system, 29 d), max 5.7% in water (42 d), max 9.2% in sediment (29 d)									
Water / sediment system	pH water phase	pH sed [a)]	t. °C	DT_{50} /DT_{90} whole sys.	St. (χ2)	DT_{50} /DT_{90} water	St. (χ2)	DT_{50} /DT_{90} sed	St. (χ2)	Method of calculation
Brandywine river	6.8-8.3	6.5-7.5	20	47.6/158[c)]	10	32.1/107[c)]	7	28.5/94.6[c)]	17	SFO
Lums pond	4.9-7.7	4.9-5.4	20	not avail.	-	not avail.	-	not avail.	-	-
Geometric mean at 20°C[b)]				**47.6**		-		-		-

a) Measured in water.
b) Normalised using a Q10 of 2.58.
c) Decline fit; SFO kinetic model.

IN-R9805	Distribution; up to 14.7% (total system, 71 d), max 9% in water (71 d), max 5.7% in sediment (71 d)									
Water / sediment system	pH water phase	pH sed [a)]	t. °C	DT_{50} /DT_{90} whole sys.	St. (χ2)	DT_{50} /DT_{90} water	St. (χ2)	DT_{50} /DT_{90} sed	St. (χ2)	Method of calculation
Brandywine river	6.8-8.3	6.5-7.5	20	not avail.	-	not avail.	-	not avail.	-	-
Lums pond	4.9-7.7	4.9-5.4	20	not avail.	-	not avail.	-	not avail.	-	-
Geometric mean at 20°C[b)]				**not avail.**		-		-		-

a) Measured in water.
b) Normalised using a Q10 of 2.58.

Fate and behaviour in air (Regulation (EU) N° 283/2013, Annex Part A, point 7.3.1)

Direct photolysis in air	Not studied - no data requested
Photochemical oxidative degradation in air	DT_{50} of 43.4 hours derived by the Atkinson model (AOPWIN-software version 1.92). OH (12 h) concentration assumed = 1.5 x 10^6 molecules/cm^3
Volatilisation	Not available - not requested
Metabolites	Not available - not requested

Residues requiring further assessment (Regulation (EU) N° 283/2013, Annex Part A, point 7.4.1)

Environmental occurring residues requiring further assessment by other disciplines (toxicology and ecotoxicology) and or requiring consideration for groundwater exposure	Soil: Tribenuron-methyl, IN-L5296, IN-00581, M2, IN-A4098, IN-R9805 and IN-GK521 Surface water: Tribenuron-methyl, IN-L5296, IN-00581, M2, IN-A4098, IN-R9805, IN-GK521, IN-GN815, and IN-D5119 Sediment: Tribenuron-methyl and IN-L5296 Ground water: Tribenuron-methyl, IN-L5296, IN-00581, M2, IN-A4098, IN-R9805, and IN-GK521 Air: Tribenuron-methyl

Definition of the residue for monitoring (Regulation (EU) N° 283/2013, Annex Part A, point 7.4.2)

	See section 5, Ecotoxicology

Monitoring data, if available (Regulation (EU) N° 283/2013, Annex Part A, point 7.5

Soil (indicate location and type of study)	Not available, not requested
Surface water (indicate location and type of study)	Not available, not requested
Ground water (indicate location and type of study)	Data from the French SOeS monitoring program (ADES database) indicate low probability for leaching of tribenuron-methyl to groundwater at levels reaching 0.1 µg/L (i.e. of 44650 analyses between the years 2003-2016 only 6 had quantifiable residues and those were <0.05 µg/L).
Air (indicate location and type of study)	Not available, not requested

PEC soil (Regulation (EU) N° 284/2013, Annex Part A, points 9.1.3 / 9.3.1)

Tribenuron-methyl in DPX-L5300 Method of calculation	DT_{50} (d): 37.4 days (from lab data no longer considered acceptable; correct value should be 34.7 days from field dissipation study however since a worst case value was used this is acceptable) Kinetics: SFO representative non-normalised from field studies
Application data	Crop: Sunflower Depth of soil layer: 5cm or 20cm Soil bulk density: 1.5g/cm^3 % plant interception: Post-emergence at BBCH 12-18 so no crop interception assumed. Number of applications: 1 Interval (d): not applicable Application rate(s): 30 g a.s./ha

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
Initial	0.040		Not applicable	
Plateau concentration	Not required			

Metabolites IN-L5296 IN-A4098 IN-00581 IN-D5803 IN-R9805 M2 Method of calculation	Molecular weight relative to the parent (=1): IN-L5296: 0.390 IN-A4098:0.354 IN-00581: 0.463 IN-D5803: 0.544 IN-R9805: 0.355 M2: 0.499 Maximum observed in laboratory soil degradation studies: IN-L5296: ~~91.1~~ 85.7% IN-A4098: 12.6% IN-00581: 33.9% IN-D5803: ~~6.1~~ 46.6% IN-R9805: 7.6% M2: 16.2% DT_{50} (d): IN-L5296: 505 days IN-A4098: 260.1 days IN-00581: 237.4 days IN-D5803: 26.4 days IN-R9805: 380 days M2: 23.3 days (correct value should be 73.2 days; however has no impact on the PECs calculated here as DT50 <90 days and only one application per year) Kinetics: SFO Lab: representative worst case from lab studies.
Application data	Application rate assumed: 30 g/ha x (maximum obs of metabolite(%/)100) x molecular weight ratio

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average

IN-L5296 Plateau concentration	0.014 0.0197 after 20 yr		Not applicable	

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
IN-A4098	0.0018		Not applicable	
Plateau concentration	0.0022 after 20 yr			

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
IN-00581	Not available		Not applicable	
Plateau concentration	0.0096 after 20 yr			

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
IN-D5803	Not available		Not applicable	
Plateau concentration	0.0101 after 20 yr			

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
IN-R9805	Not available		Not applicable	
Plateau concentration	0.0022 after 20 yr			

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
M2	Not available		Not applicable	
Plateau concentration	0.0032 after 20 yr			

Tribenuron-methyl in CHA 6310 Method of calculation	DT_{50} (d): 34.7 days Kinetics: SFO representative non-normalised from field studies
Application data	Crop: Cereals Depth of soil layer 20 cm Soil bulk density: 1.5g/cm^3 % plant interception: Post-emergence at BBCH 12-39 so 25 % crop interception assumed. Number of applications: 1 Interval (d): not applicable Application rate(s): 30 g a.s./ha

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
Initial	0.030		Not applicable	

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
Plateau concentration	Not required			

Metabolites IN-L5296 IN-A4098 IN-00581 IN-D5803 IN-R9805 M2 IN-GK521 IN-R9803	Molecular weight relative to the parent (=1): IN-L5296: 0.390 IN-A4098:0.355 IN-00581: 0.463 IN-D5803: 0.544 IN-R9805: 0.355 M2: 0.499 ~~IN-D5119: 0.509~~ IN-GK521: 0.965 ~~IN-GN815: 0.929~~ IN-R9803: 0.965
Method of calculation	Maximum observed in laboratory soil degradation studies: IN-L5296: 85.7% IN-A4098: 12.6% IN-00581: 33.9% IN-D5803: 46.6% IN-R9805: 7.6% M2: 16.2% IN-GK521: 32.1% IN-R9803: 9.1% DT_{50} (d): IN-L5296: 505 days IN-A4098: 333 days IN-00581: 237.4 days IN-D5803: 26.4 days IN-R9805: 380 days M2: 23.3 days (correct value should be 73.2 days; however has no impact on the PECs calculated here as DT50 <90 days and only one application per year) IN-GK521: 51.9 days IN-R9803: 18.2 days ﴿ Kinetics: SFO Lab: representative worst case from lab studies.
Application data	Application rate assumed: 30 g/ha x (maximum obs of metabolite(%/)100) x molecular weight ratio

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
IN-L5296	0.010		Not applicable	
Plateau concentration	0.0135 after 3 yr			

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
IN-A4098	0.001		Not applicable	
Plateau concentration	0.0013 after 2 yr			

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
IN-00581	0.0059		Not applicable	
Plateau concentration	0.0067 after 3 yr			

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
IN-D5803	0.008		Not applicable	
Plateau concentration	Not applicable			

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
IN-R9805	0.001		Not applicable	
Plateau concentration	0.001 after 1 yr			

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
M2	0.002		Not applicable	
Plateau concentration	Not applicable			

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
IN-GK521	0.0091		Not applicable	
Plateau concentration	Not applicable			

PEC(s) (mg/kg)	Single application Actual	Single application Time weighted average	Multiple application Actual	Multiple application Time weighted average
IN-R9803	0.003		Not applicable	
Plateau concentration	Not applicable			

PEC ground water (Regulation (EU) N° 284/2013, Annex Part A, point 9.2.4.1)

Method of calculation and type of study (Groundwater modelling) **Tribenuron-methyl in DPX-L5300** Metabolites: IN-L5296, IN-A4098, IN-00581, IN-R9805 and IN-D5803	FOCUS Models used: PEARL 4.4.4 and PELMO 5.5.3 Crop: Sunflowers, pastures, spring cereals, winter cereals and olives. Crop uptake factor: 0 for parent and 0 for all metabolites Standard calculations for parent and metabolites where $DegT_{50}$ and Kfoc pH dependency in soil for parent was taken into account. Higher tier calculations for parent and its aerobic soil metabolites in alkaline soil (using normalised field DT_{50} for parent). All DT_{50}s normalised with regard to temperature (Q10=2.58). Field DT_{50}s also normalised with regard to moisture (Walker exponent 0.7). <u>Tribenuron-methyl</u> Geometric mean lab DT_{50} (standard calc.): 5.4 days (pH <7), 16.7 days (pH >7), 3.6 days (field) Arithmetic mean Kf_{OC} (mL/g): 46.3 (pH <7), 9.36(pH >7) 1/n= 0.98 (pH <7), 1.0 (pH >7) Water solubility (mg/L): 2483 at pH 7 and 20°C Vapour pressure: 5.99 x 10^{-9} Pa at 25°C <u>IN-L5296</u> Geometric mean lab DT_{50} : 207.5 d Arithmetic mean Kf_{OC} (mL/g): 86.2* l/n= 0.80 parent → IN-L5296, ff= 0.80** Water solubility (mg/L): 2483 at pH 7 and 20°C Vapour pressure: 0 * the correct arithmetic mean K_{FOC} that should be used is 89.4 mL/g, however there is no impact on the PECs calculated **the correct ff that should be used is 0.76, however it is unlikely that this deficiency has an impact on the groundwater exposure assessment for this metabolite. <u>IN-A4098</u> Geometric mean lab DT_{50} : 127.7 d Arithmetic mean Kf_{OC} (mL/g): 71.2* 1/n= 0.91 IN-L5296 → IN-4098, ff= 1.0 Water solubility (mg/L): 456 at pH 7 and 20°C Vapour pressure: 1.9 x 10^{-4} Pa at 25°C *the correct arithmetic mean K_{FOC} that should be used is 71.1 mL/g, however there is no impact on the groundwater exposure assessment for this metabolite. <u>IN-00581</u> Geometric mean lab DT_{50} : 19.1d Arithmetic mean Kf_{OC} (mL/g): 7.2 1/n= 0.91 Parent → IN-00581, ff= 1.0 Water solubility (mg/L): 2483 at pH 7 and 20°C Vapour pressure: 0 <u>IN-R9805</u> Geometric mean lab DT_{50} : 85.5 d* Arithmetic mean Kf_{OC} (mL/g): 105* 1/n= 0.93* IN-L5296 → IN-R9805, ff=1.0 or ff = 0.5 for refinement Water solubility (mg/L): 2483 at pH 7 and 20°C Vapour pressure: 0 * the correct geometric mean lab DT_{50} that should be used is

	85.4d, however there is no impact on the groundwater exposure assessment for this metabolite. The correct geometric mean adsorption values that should be used are Kfoc (mL/g) 72.3 1/n=0.939. M2 Geometric mean lab DT_{50} : 14.3 d* Arithmetic mean Kf_{OC} (mL/g): 97.7** 1/n= 0.87 parent → M2, ff= 1.0 (or 1-0.72 from IN-L5296)*** Water solubility (mg/L): 2483 at pH 7 and 20°C Vapour pressure: 0 * the correct geometric mean lab DT_{50} that should be used is 21.5d; ** the correct arithmetic mean K_{FOC} that should be used is 78.3 mL/g, *** the correct ff that should be used is 0.24. Based on the PECgw values available, it is unlikely that these deficiencies will have an impact on final exposure groundwater assessment for metabolite M2 for the representative uses applied for tribenuron-methyl in DPX-L5300.
Application rate	Sunflowers Gross application rate: 30 g/ha. Crop growth stage: BBCH 12-18 Canopy interception 20%: Application rate net of interception: 24 g/ha. No. of applications:1 Time of application (relative application dates): 5 days post emergence for all scenarios. Pastures Gross application rate: 7.5 g/ha. Crop growth stage: Established grass Canopy interception 90%: Application rate net of interception: 0.75 g/ha. No. of applications:1 Time of application (absolute application dates): 1 March for all scenarios. Spring cereals Gross application rate: 22.5 g/ha. Crop growth stage: BBCH 30-39 Canopy interception 80%: Application rate net of interception: 4.5 g/ha. No. of applications: 1 Time of application (relative application dates): 45 days post emergence for all scenarios. Winter cereals Gross application rate: 24 g/ha. Crop growth stage: BBCH 30-39 Canopy interception 80%: Application rate net of interception: 4.8 g/ha. No. of applications: 1 Time of application (absolute application dates): 1 Apr for all scenarios except for Jokioinen where 1 May was used. Olives (apples as a surrogate crop) Gross application rate: 20 g/ha. Crop growth stage: early spring application Canopy interception 0%: Application rate net of interception: 20 g/ha. No. of applications: 1 Time of application (absolute application date): 1 March for all SEU scenarios (Piacenza, Porto, Sevilla and Thiva). No NEU scenarios were modelled.

	DPX-L5300						
PEARL 4.4.4 /Pasture	**Scenario**	**Parent (µg/L)**			**IN-L5296 (µg/L)**		**IN-A4098 (µg/L)**	
		pH<7	pH>7	pH>7 Field DT_{50}	pH<7	pH>7	pH<7	pH>7
	Chateaudun	<0.001	0.006	<0.001	<0.001	0.004	0.007	0.013
	Hamburg	<0.001	0.014	<0.001	<0.001	0.005	0.010	0.016
	Jokioinen	<0.001	0.025	<0.001	<0.001	0.003	0.007	0.013
	Kremsmunster	<0.001	0.007	<0.001	<0.001	0.005	0.006	0.012
	Okehampton	<0.001	0.012	<0.001	<0.001	0.007	0.009	0.013
	Piacenza	<0.001	0.007	<0.001	<0.001	0.006	0.008	0.015
	Porto	<0.001	0.005	<0.001	<0.001	0.002	0.005	0.007
	Sevilla	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.006
	Thiva	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	0.008

	DPX-L5300							
PEARL 4.4.4 /Pasture	**Scenario**	**IN-R9805 (µg/L)**				**IN-00581 (µg/L)**		**M2 (µg/L)**	
		pH<7 (ff=1)	pH>7 (ff=1)	pH<7 (ff=0.5)	pH>7 (ff=0.5)	pH<7	pH>7	pH<7	pH>7
	Chateaudun	0.003	0.008	0.001	0.004	0.002	0.008	<0.001	<0.001
	Hamburg	0.005	0.009	0.002	0.004	0.005	0.016	<0.001	0.001
	Jokioinen	0.002	0.007	0.001	0.003	0.005	0.021	<0.001	<0.001
	Kremsmunster	0.003	0.007	0.001	0.004	0.003	0.009	<0.001	<0.001
	Okehampton	0.005	0.009	0.002	0.004	0.004	0.013	<0.001	0.001
	Piacenza	0.004	0.009	0.002	0.004	0.003	0.008	<0.001	0.001
	Porto	0.002	0.005	0.001	0.002	0.002	0.005	<0.001	<0.001
	Sevilla	0.001	0.003	<0.001	0.001	<0.001	0.001	<0.001	<0.001
	Thiva	0.002	0.003	0.001	0.002	<0.001	0.001	<0.001	<0.001

	DPX-L5300							
PELMO 5.5.3 /Pasture	**Scenario**	**Parent (µg/L)**			**IN-L5296 (µg/L)**		**IN-A4098 (µg/L)**	
		pH<7	pH>7	pH>7 Field DT_{50}	pH<7	pH>7	pH<7	pH>7
	Chateaudun	<0.001	0.003	<0.001	<0.001	0.003	0.006	0.011
	Hamburg	<0.001	0.011	<0.001	0.001	0.004	0.008	0.013
	Jokioinen	<0.001	0.025	0.001	<0.001	0.004	0.006	0.012
	Kremsmunster	<0.001	0.008	<0.001	0.001	0.005	0.006	0.012
	Okehampton	<0.001	0.014	<0.001	0.001	0.008	0.009	0.013
	Piacenza	<0.001	0.018	0.001	0.002	0.010	0.008	0.013
	Porto	<0.001	0.008	<0.001	0.001	0.004	0.006	0.007
	Sevilla	<0.001	<0.001	<0.001	<0.001	0.001	0.003	0.005
	Thiva	<0.001	<0.001	<0.001	<0.001	0.001	0.005	0.008

	DPX-L5300							
PELMO 5.5.3/Pasture	**Scenario**	**IN-R9805 (µg/L)**				**IN-00581 (µg/L)**		**M2 (µg/L)**	
		pH<7 (ff=1)	pH>7 (ff=1)	pH<7 (ff=0.5)	pH>7 (ff=0.5)	pH<7	pH>7	pH<7	pH>7
	Chateaudun	0.002	0.006	0.001	0.003	0.002	0.006	<0.001	<0.001
	Hamburg	0.004	0.007	0.002	0.004	0.004	0.011	<0.001	0.001
	Jokioinen	0.002	0.008	0.001	0.004	0.005	0.017	<0.001	0.001

	Kremsmunster	0.003	0.007	0.001	0.004	0.003	0.010	<0.001	0.001
	Okehampton	0.005	0.009	0.002	0.005	0.005	0.014	<0.001	0.002
	Piacenza	0.005	0.009	0.002	0.004	0.006	0.011	<0.001	0.003
	Porto	0.003	0.005	0.002	0.003	0.002	0.006	<0.001	0.001
	Sevilla	0.001	0.002	<0.001	0.001	<0.001	0.001	<0.001	<0.001
	Thiva	0.002	0.004	0.001	0.002	<0.001	0.001	<0.001	<0.001

PEARL 4.4.4 /spring cereals	DPX-L5300							
	Scenario	**Parent (µg/L)**			**IN-L5296 (µg/L)**		**IN-A4098 (µg/L)**	
		pH<7	pH>7	pH>7 Field DT_{50}	pH<7	pH>7	pH<7	pH>7
	Chateaudun	<0.001	0.016	<0.001	<0.001	0.011	0.037	0.063
	Hamburg	<0.001	0.142	<0.001	0.014	0.055	0.097	0.120
	Jokioinen	<0.001	0.132	<0.001	<0.001	0.021	0.043	0.065
	Kremsmunster	<0.001	0.070	<0.001	0.008	0.053	0.065	0.094
	Okehampton	<0.001	0.068	<0.001	0.012	0.047	0.070	0.083
	Porto	<0.001	0.012	<0.001	0.003	0.009	0.043	0.050

PEARL 4.4.4 /spring cereals	DPX-L5300							
	Scenario	**IN-R9805 (µg/L)**				**IN-00581 (µg/L)**		**M2 (µg/L)**	
		pH<7 (ff=1)	pH>7 (ff=1)	pH<7 (ff=0.5)	pH>7 (ff=0.5)	pH<7	pH>7	pH<7	pH>7
	Chateaudun	0.011	0.028	0.005	0.013	0.008	0.027	<0.001	<0.001
	Hamburg	0.048	0.067	0.022	0.032	0.064	0.143	<0.001	0.018
	Jokioinen	0.015	0.034	0.006	0.016	0.055	0.117	<0.001	0.005
	Kremsmunster	0.031	0.057	0.014	0.027	0.029	0.084	<0.001	0.008
	Okehampton	0.036	0.052	0.017	0.025	0.033	0.072	<0.001	0.007
	Porto	0.021	0.028	0.010	0.013	0.007	0.020	<0.001	<0.001

PELMO 5.5.3 /Spring cereals	DPX-L5300							
	Scenario	**Parent (µg/L)**			**IN-L5296 (µg/L)**		**IN-A4098 (µg/L)**	
		pH<7	pH>7	pH>7 Field DT_{50}	pH<7	pH>7	pH<7	pH>7
	Chateaudun	<0.001	0.009	<0.001	0.001	0.006	0.028	0.048
	Hamburg	<0.001	0.056	<0.001	0.010	0.032	0.084	0.099
	Jokioinen	<0.001	0.126	<0.001	0.001	0.014	0.039	0.057
	Kremsmunster	<0.001	0.067	<0.001	0.007	0.047	0.062	0.096
	Okehampton	<0.001	0.064	<0.001	0.011	0.040	0.067	0.078
	Porto	<0.001	0.016	<0.001	0.005	0.011	0.045	0.051

PELMO 5.5.3 /spring cereals	DPX-L5300							
	Scenario	**IN-R9805 (µg/L)**				**IN-00581 (µg/L)**		**M2 (µg/L)**	
		pH<7 (ff=1)	pH>7 (ff=1)	pH<7 (ff=0.5)	pH>7 (ff=0.5)	pH<7	pH>7	pH<7	pH>7
	Chateaudun	0.007	0.019	0.003	0.009	0.004	0.013	<0.001	0.001
	Hamburg	0.040	0.055	0.018	0.026	0.029	0.073	<0.001	0.005
	Jokioinen	0.013	0.028	0.006	0.013	0.052	0.103	<0.001	0.003
	Kremsmunster	0.028	0.056	0.013	0.027	0.031	0.087	<0.001	0.007
	Okehampton	0.035	0.049	0.016	0.023	0.032	0.067	<0.001	0.006

	Porto	0.024	0.029	0.011	0.014	0.009	0.027	<0.001	0.001

	DPX-L5300							
PEARL 4.4.4 /winter cereals	**Scenario**	**Parent (µg/L)**			**IN-L5296 (µg/L)**		**IN-A4098 (µg/L)**	
		pH<7	pH>7	pH>7 Field DT_{50}	pH<7	pH>7	pH<7	pH>7
	Chateaudun	<0.001	0.017	<0.001	<0.001	0.017	0.046	0.081
	Hamburg	<0.001	0.089	<0.001	0.013	0.048	0.091	0.108
	Jokioinen	<0.001	0.090	<0.001	<0.001	0.018	0.051	0.080
	Kremsmunster	<0.001	0.066	<0.001	0.010	0.055	0.065	0.085
	Okehampton	<0.001	0.074	<0.001	0.014	0.060	0.074	0.085
	Porto	<0.001	0.042	<0.001	0.008	0.039	0.057	0.086
	Sevilla	<0.001	0.018	<0.001	0.004	0.018	0.046	0.060
	Thiva	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002

	DPX-L5300							
PEARL 4.4.4 /winter cereals	**Scenario**	**IN-R9805 (µg/L)**				**IN-00581 (µg/L)**		**M2 (µg/L)**	
		pH<7 (ff=1)	pH>7 (ff=1)	pH<7 (ff=0.5)	pH>7 (ff=0.5)	pH<7	pH>7	pH<7	pH>7
	Chateaudun	0.014	0.038	0.006	0.018	0.009	0.030	<0.001	0.001
	Hamburg	0.045	0.061	0.021	0.029	0.047	0.104	<0.001	0.010
	Jokioinen	0.016	0.037	0.007	0.017	0.037	0.095	<0.001	0.004
	Kremsmunster	0.033	0.053	0.015	0.025	0.032	0.077	<0.001	0.009
	Okehampton	0.040	0.054	0.019	0.026	0.039	0.087	<0.001	0.010
	Piacenza	0.027	0.047	0.013	0.023	0.018	0.048	<0.001	0.007
	Porto	0.023	0.035	0.011	0.017	0.008	0.027	<0.001	<0.001
	Sevilla	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001
	Thiva	0.010	0.017	0.004	0.007	0.001	0.004	<0.001	<0.001

	DPX-L5300							
PELMO 5.5.3/winter cereals	**Scenario**	**Parent (µg/L)**			**IN-L5296 (µg/L)**		**IN-A4098 (µg/L)**	
		pH<7	pH>7	pH>7 Field DT_{50}	pH<7	pH>7	pH<7	pH>7
	Chateaudun	<0.001	0.013	<0.001	0.001	0.010	0.040	0.075
	Hamburg	<0.001	0.068	<0.001	0.014	0.049	0.100	0.124
	Jokioinen	<0.001	0.097	<0.001	0.001	0.017	0.056	0.082
	Kremsmunster	<0.001	0.077	<0.001	0.011	0.073	0.075	0.103
	Okehampton	<0.001	0.080	<0.001	0.016	0.063	0.080	0.093
	Piacenza	<0.001	0.043	0.001	0.009	0.049	0.069	0.107
	Porto	<0.001	0.016	<0.001	0.006	0.019	0.054	0.065
	Sevilla	<0.001	0.001	<0.001	<0.001	<0.001	0.002	0.003
	Thiva	<0.001	0.001	<0.001	<0.001	<0.001	0.024	0.029

	DPX-L5300							
PELMO 5.5.3 /winter cereals	**Scenario**	**IN-R9805 (µg/L)**				**IN-00581 (µg/L)**		**M2 (µg/L)**	
		pH<7 (ff=1)	pH>7 (ff=1)	pH<7 (ff=0.5)	pH>7 (ff=0.5)	pH<7	pH>7	pH<7	pH>7
	Chateaudun	0.011	0.032	0.005	0.015	0.006	0.026	<0.001	0.001
	Hamburg	0.049	0.072	0.023	0.034	0.028	0.089	<0.001	0.006

	Jokioinen	0.020	0.041	0.009	0.019	0.039	0.097	<0.001	0.004
	Kremsmunster	0.036	0.063	0.017	0.030	0.036	0.094	<0.001	0.010
	Okehampton	0.043	0.061	0.020	0.029	0.040	0.089	<0.001	0.009
	Piacenza	0.032	0.054	0.015	0.026	0.013	0.057	<0.001	0.007
	Porto	0.029	0.039	0.014	0.019	0.008	0.026	<0.001	0.001
	Sevilla	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001
	Thiva	0.005	0.006	0.002	0.003	<0.001	0.001	<0.001	<0.001

PEARL 4.4.4 /sunflowers	DPX-L5300							
	Scenario	**Parent (µg/L)**			**IN-L5296 (µg/L)**		**IN-A4098 (µg/L)**	
		pH<7	pH>7	pH>7 Field DT_{50}	pH<7	pH>7	pH<7	pH>7
	Piacenza	<0.001	0.129	<0.001	0.138	0.301	0.487	0.659
	Sevilla	<0.001	0.007	<0.001	0.004	0.019	0.137	0.211

PEARL 4.4.4 /sunflowers	DPX-L5300							
	Scenario	**IN-R9805 (µg/L)**				**IN-00581 (µg/L)**		**M2 (µg/L)**	
		pH<7 (ff=1)	pH>7 (ff=1)	pH<7 (ff=0.5)	pH>7 (ff=0.5)	pH<7	pH>7	pH<7	pH>7
	Piacenza	0.226	0.323	0.107	0.153	0.083	0.226	<0.001	0.027
	Sevilla	0.035	0.072	0.015	0.033	0.008	0.026	<0.001	<0.001

PELMO 5.5.3 /sunflowers	DPX-L5300							
	Scenario	**Parent (µg/L)**			**IN-L5296 (µg/L)**		**IN-A4098 (µg/L)**	
		pH<7	pH>7	pH>7 Field DT_{50}	pH<7	pH>7	pH<7	pH>7
	Piacenza	<0.001	0.248	0.001	0.148	0.330	0.414	0.507
	Sevilla	<0.001	0.015	<0.001	0.001	0.009	0.112	0.178

PELMO 5.5.3 /sunflowers	DPX-L5300							
	Scenario	**IN-R9805 (µg/L)**				**IN-00581 (µg/L)**		**M2 (µg/L)**	
		pH<7 (ff=1)	pH>7 (ff=1)	pH<7 (ff=0.5)	pH>7 (ff=0.5)	pH<7	pH>7	pH<7	pH>7
	Piacenza	0.212	0.287	0.101	0.137	0.145	0.311	<0.001	0.045
	Sevilla	0.022	0.049	0.009	0.022	0.013	0.043	<0.001	<0.001

PEARL 4.4.4 /olives	DPX-L5300							
	Scenario	**Parent (µg/L)**			**IN-L5296 (µg/L)**		**IN-A4098 (µg/L)**	
		pH<7	pH>7	pH>7 Field DT_{50}	pH<7	pH>7	pH<7	pH>7
	Piacenza	<0.001	0.168	<0.001	0.166	0.568	0.585	0.763
	Porto	<0.001	0.096	<0.001	0.063	0.152	0.238	0.272
	Sevilla	<0.001	0.142	<0.001	0.148	0.370	0.679	0.803
	Thiva	<0.001	0.071	<0.001	0.160	0.362	0.773	0.924

D	DPX-L5300

	Scenario	IN-R9805 (µg/L)				IN-00581 (µg/L)		M2 (µg/L)	
		pH<7 (ff=1)	pH>7 (ff=1)	pH<7 (ff=0.5)	pH>7 (ff=0.5)	pH<7	pH>7	pH<7	pH>7
	Piacenza	0.282	0.441	0.134	0.213	0.096	0.296	<0.001	0.048
	Porto	0.130	0.162	0.061	0.077	0.060	0.156	<0.001	0.010
	Sevilla	0.274	0.446	0.127	0.212	0.095	0.310	<0.001	0.019
	Thiva	0.337	0.465	0.158	0.221	0.052	0.178	<0.001	0.011

	DPX-L5300							
PELMO 5.5.3/olives	Scenario	Parent (µg/L)			IN-L5296 (µg/L)		IN-A4098 (µg/L)	
		pH<7	pH>7	pH>7 Field DT_{50}	pH<7	pH>7	pH<7	pH>7
	Piacenza	0.001	0.412	0.018	0.156	0.460	0.419	0.423
	Porto	<0.001	0.240	0.006	0.089	0.200	0.266	0.293
	Sevilla	<0.001	0.344	0.018	0.087	0.465	0.655	0.969
	Thiva	<0.001	0.109	<0.001	0.164	0.526	0.684	0.990

	DPX-L5300							
PELMO 5.5.3 /olives	Scenario	IN-R9805 (µg/L)				IN-00581 (µg/L)		M2 (µg/L)	
		pH<7 (ff=1)	pH>7 (ff=1)	pH<7 (ff=0.5)	pH>7 (ff=0.5)	pH<7	pH>7	pH<7	pH>7
	Piacenza	0.225	0.276	0.107	0.133	0.202	0.354	0.001	0.074
	Porto	0.144	0.180	0.068	0.086	0.115	0.266	<0.001	0.021
	Sevilla	0.250	0.501	0.115	0.239	0.113	0.322	<0.001	0.014
	Thiva	0.311	0.521	0.146	0.247	0.067	0.227	<0.001	0.015

Method of calculation and type of study (Groundwater modelling) **Tribenuron-methyl in CHA6310** Metabolites: IN-L5296, IN-A4098, IN-00581, IN-R9805, IN-D5803, M2, IN-D5119, IN-GK521, IN-GN815 and IN-D5803	FOCUS Models used: PEARL 4.4.4 and PELMO 5.5.3 Crop: winter and spring cereals Crop uptake factor: 0 for parent and 0 for all metabolites Standard calculations for parent and metabolites. pH dependency for $DegT_{50}$ and Kfoc in soil for parent has been taken into account in the modelling. All DT_{50}s normalised with regard to temperature (Q10=2.58) and to moisture (Walker exponent 0.7). <u>Tribenuron-methyl</u> Geometric mean lab DT_{50} (standard calc.): 5.3 days (pH <7), 16.7 days (pH >7), 3.6 days (field) Arithmetic mean Kf_{OC} (mL/g): 38.9 (pH <7), 8.6 (pH >7) 1/n= 0.98 (pH <7), 1.0 (pH >7) Water solubility (mg/L): 2483 at pH 7 and 20°C Vapour pressure: 5.99 x 10^{-9} Pa at 25°C <u>IN-L5296</u> Geometric mean lab DT_{50} : 207.5 d Arithmetic mean Kf_{OC} (mL/g): 82.6 * l/n= 0.80 parent → IN-L5296, ff= 0.8** Water solubility (mg/L): 2483 at pH 7 and 20°C Vapour pressure: 0 * the correct arithmetic mean K_{FOC} that should be used is 89.4 mL/g, however there is no impact on the PECs calculated **the correct ff that should be used is 0.76, however it is unlikely that this deficiency has an impact on the groundwater exposure assessment for this metabolite. <u>IN-A4098</u> Geometric mean lab DT_{50} : 127.7 d Arithmetic mean Kf_{OC} (mL/g): 41.6* 1/n= 0.91 IN-L5296 → IN-4098, ff= 1.0 Water solubility (mg/L): 456 at pH 7 and 20°C Vapour pressure: 1.9 x 10^{-4} Pa at 25°C * the correct arithmetic mean K_{FOC} that should be used is 71.1 mL/g, however there is no impact on the groundwater exposure assessment for this metabolite. <u>IN-00581</u> Geometric mean lab DT_{50} : 20,5 d* Arithmetic mean Kf_{OC} (mL/g): 5.6 ** 1/n= 0.9 IN-D5803 → IN-00581, ff= 1.0 Water solubility (mg/L): 2483 at pH 7 and 20°C Vapour pressure: 0 * the correct geometric mean lab DT_{50} that should be used is 19.1d; ** the correct arithmetic mean K_{FOC} that should be used is 7.2 mL/g, however there is no impact on the groundwater exposure assessment for this metabolite. <u>IN-R9805</u> Geometric mean lab DT_{50} : 85.5 d Arithmetic mean Kf_{OC} (mL/g): 105* 1/n= 0.93* IN-L5296 → IN-R9805, ff=1.0 IN-GK521 → IN-R9805, ff= 0.81 IN-R9803→ IN-R9805, ff=1.0 Water solubility (mg/L): 2483 at pH 7 and 20°C

	Vapour pressure: 0 *The correct geometric mean adsorption values that should be used are Kfoc (mL/g) 72.3 1/n=0.939. <u>M2</u> Geometric mean lab DT_{50} : 14.3 d* Arithmetic mean Kf_{OC} (mL/g): 97.7** 1/n= 0.87*** parent → M2, ff= 1.0 (or 1-0.8 from IN-L5296) **** Water solubility (mg/L): 2483 at pH 7 and 20°C Vapour pressure: 0 * the correct geometric mean lab DT_{50} that should be used is 21.5d; ** the correct arithmetic mean K_{FOC} that should be used is 78.3 mL/g, *** the correct 1/n that should be used is 0.86, **** the correct ff that should be used is 0.24. Based on the PECgw values available, it is difficult to predict if these deficiencies can have an impact on final exposure groundwater assessment for metabolite M2 for the representative use on winter cereals (autumn application) applied for tribenuron-methyl in CHA6310 as some of the available PECgw values are already approaching the trigger of 0.1 µg/L. Therefore, a **data gap** has been identified for FOCUS GW modelling for metabolite M2 for the representative use on winter cereals (autumn application). <u>IN-GK521 (anaerobic metabolite)</u> Geometric mean lab DT_{50} : 13.4 d* Arithmetic mean Kf_{OC} (mL/g): 16.8** 1/n= 1 parent→ IN-GK521, ff= 0.23 (anaerobic) Water solubility (mg/L): 2483 at pH 7 and 20°C Vapour pressure: 0 * the correct geometric mean lab DT_{50} (anaerobic) that should be used is 67.1d; ** the correct arithmetic mean K_{FOC} that should be used is 17.4 mL/g. Based on the PECgw values available, it is difficult to predict if these deficiencies can have an impact on final exposure groundwater assessment for metabolite IN-GK521 for the representative use on winter cereals (autumn application) applied for tribenuron-methyl in CHA6310 as some of the available PECgw values are already approaching the trigger of 0.1 µg/L. Therefore, a **data gap** has been identified for FOCUS GW modelling for metabolite IN-GK521 for the representative use on winter cereals (autumn application).
Application rate	<u>Winter cereals</u> Gross application rate: 15 g/ha. Crop growth stage: BBCH 12-29 (autumn application) Canopy interception 25%: Application rate net of interception: 11.25 g/ha. No. of applications:1 Time of application (relative application dates): 14 days post emergence for all scenarios. <u>Winter cereals</u> Gross application rate: 30 g/ha. Crop growth stage: BBCH 12-39 (spring application) Canopy interception 25%: Application rate net of interception: 22.5 g/ha. No. of applications:1 Time of application (absolute application dates): 7 days before spring point for all scenarios. <u>Spring cereals</u> Gross application rate: 30 g/ha. Crop growth stage: 12-39 Canopy interception 25%: Application rate net of interception: 22.5 g/ha. No. of applications:1

Time of application (relative application dates): 14 days post emergence for all scenarios.

PEARL 4.4.4 /winter cereals (autumn application)

Scenario	CHA6310								
	Parent (µg/L)			Metabolite (µg/L)					
				IN-L5296		IN-00581		IN-A4098	
	< pH 7	> pH 7	> pH 7 DT50 Field	< pH 7	> pH 7	< pH 7	> pH 7	< pH 7	> pH 7
Chateaudun	0.00	0.21	0.00	0.02	0.21	0.11	0.25	0.35	0.50
Hamburg	0.00	0.91	0.07	0.11	0.37	0.36	0.55	0.47	0.42
Jokioinen	0.00	1.30	0.08	0.03	0.23	0.41	0.88	0.41	0.42
Kremsmunster	0.00	0.41	0.01	0.06	0.28	0.18	0.34	0.33	0.32
Okehampton	0.00	0.68	0.04	0.08	0.21	0.31	0.37	0.31	0.23
Piacenza	0.00	0.24	0.02	0.07	0.24	0.11	0.21	0.30	0.39
Porto	0.00	0.53	0.06	0.04	0.11	0.21	0.23	0.25	0.26
Sevilla	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.05	0.11
Thiva	0.00	0.05	0.00	0.02	0.15	0.03	0.09	0.44	0.67

PEARL 4.4.4 /winter cereals (autumn application)

Scenario	CHA6310	
	Metabolite IN-D5803 (µg/L)	
	< pH 7	> pH 7 (DT50 18 d)
Chateaudun	0.00	0.02
Hamburg	0.00	0.07
Jokioinen	0.00	0.07
Kremsmunster	0.00	0.03
Okehampton	0.00	0.05
Piacenza	0.00	0.02
Porto	0.00	0.03
Sevilla	0.00	0.00
Thiva	0.00	0.00

PELMO 5.5.3/Winter cereals (autumn application)

Scenario	CHA6310								
	Parent (µg/L)			Metabolite (µg/L)					
				IN-L5296		IN-00581		IN-A4098	
	< pH 7	> pH 7	> pH 7 DT50 Field	< pH 7	> pH 7	< pH 7	> pH 7	< pH 7	> pH 7
Chateaudun	0.00	0.17	0.01	0.01	0.20	0.09	0.21	0.33	0.48
Hamburg	0.01	1.27	0.17	0.12	0.35	0.43	0.65	0.51	0.35
Jokioinen	0.00	1.45	0.22	0.03	0.20	0.51	0.85	0.43	0.40
Kremsmunster	0.00	0.48	0.04	0.08	0.33	0.20	0.42	0.40	0.37
Okehampton	0.01	0.82	0.07	0.09	0.21	0.38	0.38	0.33	0.23
Piacenza	0.00	0.58	0.09	0.08	0.27	0.19	0.26	0.41	0.45
Porto	0.02	0.80	0.17	0.06	0.09	0.32	0.24	0.26	0.21
Sevilla	0.00	0.04	0.01	0.00	0.02	0.01	0.02	0.11	0.18
Thiva	0.00	0.08	0.01	0.01	0.12	0.04	0.10	0.31	0.49

PELMO 5.5.3/Winter cereals

Scenario	CHA6310	
	Metabolite IN-D5803 (µg/L)	
	< pH 7	> pH 7 (DT50 18 d)

	Chateaudun	0.00	0.01
	Hamburg	0.00	0.07
	Jokioinen	0.01	0.06
	Kremsmunster	0.00	0.04
	Okehampton	0.00	0.05
	Piacenza	0.00	0.03
	Porto	0.01	0.03
	Sevilla	0.00	0.00
	Thiva	0.00	0.01

PEARL 4.4.4 /winter cereals (spring application)	CHA6310								
	Scenario	**Parent (µg/L)**			**Metabolite (µg/L)**				
					IN-L5296		**IN-00581**		**IN-A4098**	
		< pH 7	**> pH 7**	**> pH 7 DT50 Field**	**< pH 7**	**> pH 7**	**< pH 7**	**> pH 7**	**< pH 7**	**> pH 7**
	Chateaudun	0.00	0.09	0.00	0.04	0.18	0.10	0.21	0.70	0.86
	Hamburg	0.00	0.54	0.00	0.17	0.37	0.48	0.75	0.93	0.94
	Jokioinen	0.00	0.50	0.00	0.04	0.18	0.42	0.81	0.81	0.93
	Kremsmunster	0.00	0.34	0.00	0.12	0.37	0.27	0.48	0.67	0.67
	Okehampton	0.00	0.38	0.00	0.16	0.37	0.31	0.52	0.63	0.59
	Piacenza	0.00	0.18	0.00	0.10	0.32	0.15	0.27	0.61	0.82
	Porto	0.00	0.17	0.00	0.08	0.22	0.10	0.25	0.49	0.56
	Sevilla	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.09	0.12
	Thiva	0.00	0.01	0.00	0.03	0.09	0.01	0.05	0.88	1.07

PEARL 4.4.4 /winter cereals (spring application)	CHA6310								
	Scenario	**Metabolite (µg/L)**							
		IN-R9805				**M2**			**IN-GK521**	
		< pH 7 (ff=1)	**> pH 7 (ff=1)**	**< pH 7 (ff=0.5)**	**> pH 7 (ff=0.5)**	**< pH 7**	**> pH 7 (ff=1)**	**> pH 7 (ff=0.2)**	**< pH 7**	**> pH 7**
	Chateaudun	0.13	0.24	0.06	0.11	0.00	0.01	0.00	0.00	0.02
	Hamburg	0.27	0.32	0.13	0.15	0.00	0.06	0.01	0.03	0.09
	Jokioinen	0.15	0.24	0.07	0.11	0.00	0.02	0.00	0.02	0.08
	Kremsmunster	0.20	0.27	0.10	0.13	0.00	0.05	0.01	0.02	0.06
	Okehampton	0.23	0.26	0.11	0.13	0.00	0.06	0.01	0.02	0.07
	Piacenza	0.18	0.28	0.08	0.13	0.00	0.03	0.01	0.01	0.03
	Porto	0.15	0.21	0.07	0.10	0.00	0.01	0.00	0.01	0.03
	Sevilla	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Thiva	0.11	0.18	0.05	0.08	0.00	0.00	0.00	0.00	0.00

PEARL 4.4.4 /winter cereals (spring application)	CHA6310		
	Scenario	**IN-D5803 (µg/L)**	
		< pH 7	**> pH 7 (DT50 18 d)**
	Chateaudun	0.00	0.01
	Hamburg	0.00	0.05
	Jokioinen	0.00	0.03
	Kremsmunster	0.00	0.03
	Okehampton	0.00	0.04
	Piacenza	0.00	0.02
	Porto	0.00	0.01
	Sevilla	0.00	0.00
	Thiva	0.00	0.00

P E	CHA6310		
	Scenario	**Parent**	**Metabolite (µg/L)**

		(µg/L)			IN-L5296		IN-00581		IN-A4098	
		< pH 7	> pH 7	> pH 7 DT50 Field	< pH 7	> pH 7	< pH 7	> pH 7	< pH 7	> pH 7
	Chateaudun	0.00	0.06	0.00	0.03	0.13	0.06	0.17	0.68	0.87
	Hamburg	0.00	0.30	0.00	0.18	0.36	0.27	0.53	0.99	1.03
	Jokioinen	0.00	0.47	0.00	0.04	0.18	0.39	0.76	0.86	0.96
	Kremsmunster	0.00	0.40	0.00	0.14	0.44	0.29	0.54	0.77	0.81
	Okehampton	0.00	0.42	0.00	0.17	0.40	0.30	0.50	0.66	0.62
	Piacenza	0.00	0.29	0.00	0.13	0.44	0.08	0.37	0.80	0.91
	Porto	0.00	0.14	0.00	0.10	0.22	0.07	0.21	0.53	0.56
	Sevilla	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.23	0.26
	Thiva	0.00	0.01	0.00	0.01	0.02	0.00	0.02	0.57	0.67

PELMO 5.5.3/winter cereals (spring application)	CHA6310								
	Scenario	Metabolite (µg/L)							
		IN-R9805				M2			IN-GK521	
		< pH 7 (ff=1)	> pH 7 (ff=1)	< pH 7 (ff=0.5)	> pH 7 (ff=0.5)	< pH 7	> pH 7 (ff=1)	> pH 7 (ff=0.2)	< pH 7	> pH 7
	Chateaudun	0.11	0.22	0.05	0.10	0.00	0.00	0.00	0.00	0.02
	Hamburg	0.31	0.37	0.15	0.18	0.00	0.02	0.01	0.02	0.06
	Jokioinen	0.17	0.25	0.08	0.12	0.00	0.02	0.00	0.03	0.08
	Kremsmunster	0.23	0.31	0.11	0.15	0.00	0.05	0.01	0.02	0.07
	Okehampton	0.25	0.28	0.12	0.14	0.00	0.05	0.01	0.02	0.07
	Piacenza	0.22	0.33	0.10	0.16	0.00	0.04	0.01	0.01	0.04
	Porto	0.18	0.22	0.08	0.10	0.00	0.01	0.00	0.01	0.03
	Sevilla	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Thiva	0.06	0.09	0.03	0.04	0.00	0.00	0.00	0.00	0.00

PELMO 5.5.3/winter cereals (spring application	CHA6310		
	Scenario	IN-D5803 (µg/L)	
		< pH 7	> pH 7 (DT50 18 d)
	Chateaudun	0.00	0.01
	Hamburg	0.00	0.03
	Jokioinen	0.00	0.02
	Kremsmunster	0.00	0.04
	Okehampton	0.00	0.04
	Piacenza	0.00	0.01
	Porto	0.00	0.01
	Sevilla	0.00	0.00
	Thiva	0.00	0.00

PEARL 4.4.4 /Spring cereals	CHA6310								
	Scenario	Parent (µg/L)			Metabolite (µg/L)				
					IN-L5296		IN-00581		IN-A4098	
		< pH 7	> pH 7	> pH 7 DT50 Field	< pH 7	> pH 7	< pH 7	> pH 7	< pH 7	> pH 7
	Chateaudun	0.00	0.07	0.00	0.04	0.15	0.08	0.18	0.61	0.77
	Hamburg	0.00	0.59	0.00	0.20	0.41	0.54	0.89	1.18	1.20
	Jokioinen	0.00	0.55	0.00	0.03	0.18	0.43	0.80	0.72	0.81
	Kremsmunster	0.00	0.36	0.00	0.13	0.39	0.27	0.50	0.74	0.75
	Okehampton	0.00	0.32	0.00	0.15	0.38	0.26	0.46	0.66	0.62
	Porto	0.00	0.05	0.00	0.07	0.13	0.05	0.12	0.45	0.49

P	CHA6310	
	Scenario	Metabolite (µg/L)

		IN-R9805				M2			IN-GK521	
		< pH 7 (ff=1)	> pH 7 (ff=1)	< pH 7 (ff=0.5)	> pH 7 (ff=0.5)	< pH 7	> pH 7 (ff=1)	> pH 7 (ff=0.2)	< pH 7	> pH 7
	Chateaudun	0.11	0.21	0.05	0.10	0.00	0.00	0.00	0.00	0.02
	Hamburg	0.31	0.40	0.15	0.19	0.00	0.07	0.01	0.04	0.11
	Jokioinen	0.14	0.22	0.06	0.11	0.00	0.03	0.00	0.03	0.09
	Kremsmunster	0.22	0.30	0.10	0.14	0.00	0.04	0.01	0.02	0.06
	Okehampton	0.23	0.28	0.11	0.13	0.00	0.04	0.01	0.02	0.06
	Porto	0.15	0.18	0.07	0.09	0.00	0.00	0.00	0.00	0.01

	CHA6310		
	Scenario	IN-D5803 (µg/L)	
		< pH 7	> pH 7 (DT50 18 d)
PEARL 4.4.4 /Spring cereals	Chateaudun	0.00	0.01
	Hamburg	0.00	0.05
	Jokioinen	0.00	0.03
	Kremsmunster	0.00	0.04
	Okehampton	0.00	0.03
	Porto	0.00	0.00

	CHA6310								
	Scenario	Parent (µg/L)			Metabolite (µg/L)				
					IN-L5296		IN-00581		IN-A4098	
		< pH 7	> pH 7	> pH 7 DT50 Field	< pH 7	> pH 7	< pH 7	> pH 7	< pH 7	> pH 7
PELMO 5.5.3/Spring cereals	Chateaudun	0.00	0.05	0.00	0.02	0.11	0.05	0.12	0.55	0.70
	Hamburg	0.00	0.23	0.00	0.16	0.29	0.25	0.48	0.94	0.97
	Jokioinen	0.00	0.52	0.00	0.03	0.14	0.42	0.70	0.68	0.73
	Kremsmunster	0.00	0.33	0.00	0.12	0.40	0.28	0.53	0.73	0.77
	Okehampton	0.00	0.34	0.00	0.14	0.34	0.26	0.47	0.62	0.58
	Porto	0.00	0.09	0.00	0.09	0.16	0.08	0.16	0.46	0.49

	CHA6310								
	Scenario	Metabolite (µg/L)							
		IN-R9805				M2			IN-GK521	
		< pH 7 (ff=1)	> pH 7 (ff=1)	< pH 7 (ff=0.5)	> pH 7 (ff=0.5)	< pH 7	> pH 7 (ff=1)	> pH 7 (ff=0.2)	< pH 7	> pH 7
PELMO 5.5.3/Spring cereals	Chateaudun	0.09	0.17	0.04	0.08	0.00	0.00	0.00	0.00	0.01
	Hamburg	0.27	0.33	0.13	0.16	0.00	0.02	0.00	0.01	0.05
	Jokioinen	0.12	0.19	0.06	0.09	0.00	0.01	0.00	0.03	0.08
	Kremsmunster	0.21	0.30	0.10	0.14	0.00	0.04	0.01	0.02	0.06
	Okehampton	0.22	0.27	0.11	0.13	0.00	0.03	0.01	0.02	0.06
	Porto	0.16	0.19	0.08	0.09	0.00	0.00	0.00	0.00	0.02

	CHA6310		
	Scenario	IN-D5803 (µg/L)	
		< pH 7	> pH 7 (DT50 18 d)
PELMO 5.5.3/Spring cereals	Chateaudun	0.00	0.00
	Hamburg	0.00	0.02
	Jokioinen	0.00	0.03
	Kremsmunster	0.00	0.03
	Okehampton	0.00	0.03

	Porto	0.00	0.01

PEC(gw) From lysimeter / field studies

Parent	1st year	2nd year	3rd year
Annual average (µg/L)	Results not useful for risk assessment; see under Mobility above		

Metabolite X	1st year	2nd year	3rd year
Annual average (µg/L)	Results not useful for risk assessment; see under Mobility above		

PEC surface water and PEC sediment (Regulation (EU) N° 284/2013, Annex Part A, points 9.2.5 / 9.3.1)

Tribenuron-methyl in DPX-L5300 Parameters used in FOCUSsw step 1 and 2	Version control no. of FOCUS calculator: 2.1 Molecular weight (g/mol): 395.4 Kf_{OC} (mL/g): 38.9 (pH<7) and 8.6 (pH>7)* Geometric lab DT_{50} soil (d): 5.3 (pH<7) and 16.7 (pH>7) DT_{50} water/sediment system (d):18.5** DT_{50} water (d): 18.5** DT_{50} sediment (d): 1000 Crop interception (%): Sunflowers: minimal crop interception (20%) Pasture: full canopy crop interception (75%) Winter and spring cereals: average crop interception (50%) Olives: no crop interception (0%) * The correct arithmetic means that should be used are: KF_{OC} (mL/g): 46.3 (pH<7) and 9.36 (pH>7), however no impact is expected on the aquatic risk assessment. ** the correct DT50 for whole system and water should have been 18.2 days, however no impact is expected on the aquatic risk assessment.
Parameters used in FOCUSsw step 3 (if performed)	Version control no.'s of FOCUS software: FOCUS SWASH 3.1, including: PRZM 3.1.1 FOCUS MACRO 5.5.3 FOCUS TOXSWA 3.3.1 SWAN 3.0.0 Water solubility (mg/L): 2483 Vapour pressure: 5.99 x 10^{-9} Pa at 20°C K_{OC}/K_{OM} (mL/g): 38.9 (pH<7) and 8.6 (pH>7) * 1/n: 0.98 (pF<7) and 1.0(pH>7) Geometric lab DT_{50} soil (d): 5.3 (pH<7) and 16.7(pH>7) DT_{50} water (d): 18.5 DT_{50} sediment (d): 1000 Q10=2.58, Walker equation coefficient 0.7 Crop uptake factor: 0 * The correct arithmetic means that should be used are: KF_{OC} (mL/g): 46.3 (pH<7) and 9.36 (pH>7), however no impact is expected on the aquatic risk assessment.
Application rate	<u>Steps 1-2:</u> Crop and growth stage: Sunflowers BBCH 12-18 Number of applications: 1 Interval (d): - Application rate(s): 30 g a.s./ha Application window: Mar-May Crop and growth stage: pasture BBCH 59 (established grass) Number of applications: 1 Interval (d): - Application rate(s):7.5 g a.s./ha Application window: Mar-May Crop and growth stage: winter cereals BBCH 30-39 Number of applications: 1 Interval (d): - Application rate(s):24 g a.s./ha Application window: Mar-May Crop and growth stage: spring cereals BBCH 30-39

Number of applications: 1
Interval (d): -
Application rate(s):22.5 g a.s./ha
Application window: Mar-May

Crop and growth stage:
Olives Early applications
Number of applications: 1
Interval (d): -
Application rate(s):20 g a.s./ha
Application window: Mar-May

Step 3
Crop and growth stage, number of applications, application rate(s) is the same as for Steps 1-2.
Application window:
Sunflowers

D5 (La Jailiere)	06 May – 05 June
R1 (Weiherbach)	06 May – 05 June
R3 (Bologna)	20 Apr – 20 May
R4 (Roujan)	04 Apr – 04 May

Pasture

D1 (Lanna)	01 Apr – 31 May
D2 (Brimstone)	01 Mar – 30 Apr
D3 (Vreedepel)	01 Mar–30 Apr
D4 (Skousbo)	01 Apr – 31 May
D5 (La Jailiere)	01 Mar – 30 Apr
R2 (Porto)	01 Mar – 30 Apr
R3 (Bologna)	01 Mar – 30 Apr

Winter cereals

D1 (Lanna)	01 May – 30 June
D2 (Brimstone)	01 Apr – 31 May
D3 (Vreedepel)	01 Apr – 31 May
D4 (Skousbo)	01 May – 30 June
D5 (La Jailiere)	01 Apr – 31 May
D6 (Thiva)	01 Apr – 31 May
R1 (Weiherbach)	01 Apr –31 May
R3 (Bologna)	01 Apr – 31 May
R4 (Roujan)	01 Apr – 31 May

Spring cereals

D1 (Lanna)	19-Jun – 19-Jul
D3 (Vreedepel)	16-May – 15-Jun
D4 (Skousbo)	10-Jun – 10-Jul
D5 (La Jailiere)	29-Apr – 29-May
R4 (Roujan)	29-Apr – 29-May

Olives (granular; drift adjusted)

D6 (Thiva)	01-Mar – 31-Mar
R4 (Roujan)	01-Mar – 31-Mar

FOCUS Steps 1 and 2 for tribenuron methyl

Crop	FOCUS step	Tribenuron-methyl pH>7		Tribenuron-methyl pH<7	
		PECsw (µg/l)	PECsed (µg/kg)	PECsw (µg/l)	PECsed (µg/kg)
Sunflower. 1 x 30 g	1	10.163	0.850	9.783	3.698
	2 NE Mar-May	1.576	0.135	1.132	0.439
	2 SE Mar-May	2.916	0.251	2.033	0.789
Grass. 1x 7.5 g	1	2.541	0.213	2.446	0.925
	2 NE Mar-May	0.164	0.014	0.128	0.049
	2 SE Mar-May	0.268	0.023	0.199	0.077

FOCUS Steps 1 and 2 for tribenuron methyl					
Crop	FOCUS step	Tribenuron-methyl pH>7		Tribenuron-methyl pH<7	
Winter Cereals. 1 x 24 g	1	8.13	0.680	7.826	2.959
	2 NE Mar-May	0.859	0.074	0.635	0.246
	2 SE Mar-May	1.529	0.131	1.086	0.421
Spring Cereals. 1 x 22.5 g	1	7.622	0.638	7.337	2.774
	2 NE Mar-May	0.805	0.069	0.595	0.230
	2 SE Mar-May	1.433	0.123	1.018	0.395
Olives. 1 x 20 g	1	7.639	0.632	7.386	2.748
	2 NE Oct-Feb	2.013	0.173	1.627	0.627
	2 SE Oct-Feb	3.130	0.269	2.378	0.919

Sunflowers; pH<7					
FOCUS STEP 3 Scenario Parent	Water body	Application date (PAT)	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D5	pond	11-may	Drift	0.006	0.004
D5	stream	11-may	Drift	0.134	0.003
R1	pond	09-may	Run-off	0.014	0.009
R1	stream	09-may	Run-off	0.277	0.025
R3	stream	22-apr	Drift	0.153	0.012
R4	stream	11-apr	Run-off	0.839	0.116

Sunflowers; pH>7					
FOCUS STEP 3 Scenario Parent	Water body	Application date (PAT)	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D5	pond	11-may	Drainage	0.015	0.010
D5	stream	11-may	Drift	0.139	0.007
R1	pond	09-may	Runoff	0.010	0.004
R1	stream	09-may	Runoff	0.281	0.014
R3	stream	22-apr	Drift	0.153	0.007
R4	stream	11-apr	Runoff	1.263	0.108

winter cereals (pH>7)					
FOCUS STEP 3 Scenario Parent	Water body	Application date	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D1	ditch	14-may	Drift	0.170	0.097
D1	stream	14-may	Drift	0.141	0.027
D2	ditch	01-apr	Drainage	5.306	1.148
D2	stream	01-apr	Drainage	3.374	0.666
D3	ditch	04-apr	Drift	0.152	0.018
D4	pond	30-may	Drift	0.005	0.003
D4	stream	30-may	Drift	0.127	0.006
D5	pond	08-apr	Drift	0.005	0.004
D5	stream	08-apr	Drift	0.121	0.003
D6	ditch	09-apr	Drift	0.153	0.031
R1	pond	26-apr	Runoff	0.006	0.005
R1	stream	26-apr	Runoff	0.161	0.017
R3	stream	04-apr	Runoff	0.257	0.041
R4	stream	04-may	Runoff	0.592	0.073

winter cereals (pH<7)					
FOCUS STEP 3 Scenario Parent	Water body	Application date	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D1	ditch	14-may	Drift	0.222	0.095
D1	stream	14-may	Drift	0.165	0.037

winter cereals (pH<7)					
FOCUS STEP 3 Scenario Parent	Water body	Application date	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D2	ditch	01-apr	Drainage	7.952	1.349
D2	stream	01-apr	Drainage	5.469	0.759
D3	ditch	04-apr	Drift	0.173	0.027
D4	pond	30-may	Drainage	0.045	0.034
D4	stream	30-may	Drift	0.143	0.022
D5	pond	08-apr	Drift	0.010	0.006
D5	stream	08-apr	Drift	0.124	0.004
D6	ditch	09-apr	Drift	0.154	0.020
R1	pond	26-apr	Drift	0.005	0.003
R1	stream	26-apr	Runoff	0.222	0.014
R3	stream	04-apr	Runoff	0.299	0.029
R4	stream	04-may	Runoff	0.708	0.054

Spring cereals (pH>7)					
FOCUS STEP 3 Scenario Parent	Water body	Application date	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D1	ditch	24-jun	Drift	0.152	0.093
D1	stream	24-jun	Drift	0.126	0.027
D3	ditch	15-may	Drift	0.143	0.018
D4	pond	04-jul	Drift	0.005	0.003
D4	stream	04-jul	Drift	0.123	0.008
D5	pond	11-may	Drift	0.005	0.003
D5	stream	11-may	Drift	0.125	0.004
R4	stream	04-may	Runoff	0.574	0.071

Spring cereals (pH<7)					
FOCUS STEP 3 Scenario Parent	Water body	Application date	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D1	ditch	24-jun	Drift	0.179	0.089
D1	stream	24-jun	Drift	0.126	0.045
D3	ditch	15-may	Drift	0.179	0.042
D4	pond	04-jul	Drainage	0.057	0.042
D4	stream	04-jul	Drift	0.125	0.025
D5	pond	11-may	Drift	0.008	0.004
D5	stream	11-may	Drift	0.126	0.005
R4	stream	04-may	Runoff	0.715	0.054

Olives						
Refinement	FOCUS STEP 3 Scenario Parent	Water body	Application date	Main entry route	Actual PECSW (µg/L)	Actual PECSED (µg/kg)
"pH<7 (Olive; granular application)"	D6	ditch	05-mar	Drainage	0.002	0.002
	R4	stream	05-mar	Runoff	<0.001	<0.001
"pH>7 (Olive; granular application)"	D6	ditch	05-mar	Drainage	0.006	0.003
	R4	stream	05-mar	Runoff	<0.001	<0.001
"pH<7 (Olive; granular application + arable crop drift from ground spray application)"	D6	ditch	05-mar	Drift	0.128	0.019
	R4	stream	05-mar	Drift	0.070	0.004
"pH>7	D6	ditch	05-mar	Drift	0.132	0.013

Olives						
(Olive; granular application + arable crop drift from ground spray application)"	R4	stream	05-mar	Drift	0.070	0.002

Table 8.5-31. PECsw and PECsed at FOCUS Step 4 for tribenuron methyl following application to

Sunflowers; pH<7					
Refinement	FOCUS STEP 4 Scenario Parent	Water body	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
pH<7 10m nsz+10m vfs	R4	stream	Run-off	0.382	0.053
pH<7 20m nsz+20m vfs	R4	stream	Run-off	0.200	0.028

Table 8.5-32. PECsw and PECsed at FOCUS Step 4 for tribenuron methyl following application to

Sunflowers; pH>7					
Refinement	FOCUS STEP 4 Scenario Parent	Water body	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
pH>7 10m nsz+10m vfs	R4	stream	Run-off	0.574	0.049
pH>7 20m nsz+20m vfs	R4	stream	Run-off	0.301	0.026

Table 8.5-33. PECsw and PECsed at FOCUS Step 4 for tribenuron methyl following application to

winter cereals					
Refinement	FOCUS STEP 4 Scenario Parent	Water body	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
pH<7 10m nsz+10m vfs	R4	stream	Run-off	0.268	0.033
"pH>7 10m nsz+10m vfs"	R4	stream	Run-off	0.320	0.024

Table 8.5-34. PECsw and PECsed at FOCUS Step 4 for tribenuron methyl following application to

Spring cereals					
Refinement	FOCUS STEP 4 Scenario Parent	Water body	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
pH<7 10m nsz+10m vfs	R4	stream	Run-off	0.260	0.032
"pH>7 10m nsz+10m vfs"	R4	stream	Run-off	0.324	0.025

Metabolites IN-L5296, IN-A4098, IN-00581, IN-R9805, IN-D5803, IN-D5119, IN-GN815 and IN-R9803

Parameters used in FOCUSsw step 1 and 2

IN-L5296
Molecular weight: 154.2
K_{OC}/K_{OM} (mL/g): 82.6*
DT_{50} soil (d): 207.5
DT_{50} water/sediment system (d): 227.8
DT_{50} water (d): 227.8
DT_{50} sediment (d): 1000

Maximum occurrence observed (% molar basis with respect to the parent)
Total Water and Sediment: 88.9
Soil: 85.7
*the correct arithmetic mean Kfoc value that should be used is 89.4 mL/g; however, no impact is expected on the aquatic risk assessment.

IN-A4098
Molecular weight: 140.1
K_{OC}/K_{OM} (mL/g): 41.6*
DT_{50} soil (d): 127.7
DT_{50} water/sediment system (d): 1000
DT_{50} water (d): 1000
DT_{50} sediment (d): 1000
Maximum occurrence observed (% molar basis with respect to the parent)
Total Water and Sediment: 0.0001
Soil: 12.6
*the correct arithmetic mean k_{Foc} c value that should be used is 71.1 mL/g; however, no impact is expected on the aquatic risk assessment.

IN-00581
Molecular weight: 183.2
K_{OC}/K_{OM} (mL/g): 5.6*
DT_{50} soil (d): 20.5**
DT_{50} water/sediment system (d): 10.8
DT_{50} water (d): 10.8
DT_{50} sediment (d): 1000
Maximum occurrence observed (% molar basis with respect to the parent)
Total Water and Sediment: 38.4
Soil: 33.9
*the correct arithmetic mean k_{Foc} value that should be used is 7.2 mL/g; however, no impact is expected on the aquatic risk assessment.
** the correct geomean soil DT50 that should be used is 19.1d; however, no impact is expected on the aquatic risk assessment.

IN-R9805
Molecular weight: 140.2
K_{OC}/K_{OM} (mL/g): 105*
DT_{50} soil (d): 85.5
DT_{50} water/sediment system (d): 1000
DT_{50} water (d): 1000
DT_{50} sediment (d): 1000
Maximum occurrence observed (% molar basis with respect to the parent)
Total Water and Sediment: 14.7
Soil: 7.6
*The correct geometric mean adsorption value that should be used is Kfoc (mL/g) 72.3.
M2
Molecular weight: 197.2
K_{OC}/K_{OM} (mL/g): 97.7*
DT_{50} soil (d): 14.3**
DT_{50} water/sediment system (d): 1000
DT_{50} water (d): 1000
DT_{50} sediment (d): 1000
Maximum occurrence observed (% molar basis with respect to the parent)
Total Water and Sediment: 0.0001
Soil: 16.2
*the correct arithmetic mean k_{Foc} value that should be used is 78.3 mL/g; however, no impact is expected on the aquatic risk

	assessment. ** the correct geomean soil DT50 that should be used is 21.5d; however, no impact is expected on the aquatic risk assessment. IN-D5803 Molecular weight: 215.2 K_{OC}/K_{OM} (mL/g): 18 DT_{50} soil (d): 3.0* DT_{50} water/sediment system (d): 1000 DT_{50} water (d): 1000 DT_{50} sediment (d): 1000 Maximum occurrence observed (% molar basis with respect to the parent) Total Water and Sediment: 0.0001 Soil: 46.6 * the correct geomean soil DT50 that should be used is 3.2d; however, no impact is expected on the aquatic risk assessment. IN-D5119 Molecular weight: 201.1 K_{OC} (mL/g): 3.5* DT_{50} soil (d): 12.4** DT_{50} water/sediment system (d): 1000 DT_{50} water (d): 1000 DT_{50} sediment (d): 1000 Maximum occurrence observed (% molar basis with respect to the parent) Total Water and Sediment: 26.5 Soil: 6.1 *the correct arithmetic mean k_{Foc} value that should be used is 3.9 mL/g; however, no impact is expected on the aquatic risk assessment. ** the correct geomean soil DT50 that should be used is 14.4d; however, no impact is expected on the aquatic risk assessment. IN-GN815 Molecular weight: 367.3 K_{OC} (mL/g): 15.9 DT_{50} soil (d): 7.4* DT_{50} water/sediment system (d): 47.6 DT_{50} water (d): 47.6 DT_{50} sediment (d): 1000 Maximum occurrence observed (% molar basis with respect to the parent) Total Water and Sediment: 13.0 Soil: 6.8 * the correct geomean soil DT50 that should be used is 7.2d; however, no impact is expected on the aquatic risk assessment. IN-GK521 Molecular weight: 381.4 K_{OC} (mL/g): 16.8 DT_{50} soil (d): 13.4* DT_{50} water/sediment system (d): 1000 DT_{50} water (d): 1000 DT_{50} sediment (d): 1000 Maximum occurrence observed (% molar basis with respect to the parent) Total Water and Sediment: 0.0001 Soil: 32.1 * the correct geomean soil DT50 that should be used is 12.1d; however, no impact is expected on the aquatic risk assessment.
Parameters used in FOCUSsw step 3 (if performed)	Not applicable

Application rate	Sunflowers BBCH 12-18 Number of applications: 1 Interval (d): - Application rate(s): 30 g a.s./ha Application window: Mar-May Crop and growth stage: pasture BBCH 59 (established grass) Number of applications: 1 Interval (d): - Application rate(s):7.5 g a.s./ha Application window: Mar-May Crop and growth stage: winter cereals BBCH 30-39 Number of applications: 1 Interval (d): - Application rate(s):24 g a.s./ha Application window: Mar-May Crop and growth stage: spring cereals BBCH 30-39 Number of applications: 1 Interval (d): - Application rate(s):22.5 g a.s./ha Application window: Mar-May Crop and growth stage: Olives Early applications Number of applications: 1 Interval (d): - Application rate(s):20 g a.s./ha Application window: Mar-May
Main routes of entry	

FOCUS STEP 1
Scenario
30 g a.s./ha to sunflowers at BBCH 12-19 (minimal crop cover; 25% crop interception) in Mar-May.

Compounds	Day after overall maximum	PECSW (µg/L)		PECSED (µg/kg)	
		Actual	TWA	Actual	TWA
IN-L5296	0 h	3.106		2.550	
IN-A4098	0 h	0.521		0.214	
IN-00581	0 h	1.600		0.087	
IN-R9805	0 h	0.245		0.256	
IN-D5803	0 h	2.627		0.472	
IN-D5119	0 h	0.336		0.012	
IN-GN815	0 h	0.633		0.099	
IN-R9803	0 h	1.088		0.542	
IN-GK521	0 h	3.295		0.552	
M2	0 h	0.852		0.817	

FOCUS STEP 1
Scenario
7.5 g a.s./ha to pasture (full canopy; 75% crop interception) in Mar-May.

Compounds	Day after overall maximum	PECSW (µg/L)		PECSED (µg/kg)	
		Actual	TWA	Actual	TWA
IN-L5296	0 h	0.777		0.638	
IN-A4098	0 h	0.13		0.054	
IN-00581	0 h	0.400		0.022	
IN-R9805	0 h	0.061		0.064	
IN-D5803	0 h	0.657		0.118	

FOCUS STEP 1 Scenario 7.5 g a.s./ha to pasture (full canopy; 75% crop interception) in Mar-May.					
Compounds	Day after overall maximum	PECSW (µg/L)		PECSED (µg/kg)	
		Actual	TWA	Actual	TWA
IN-D5119	0 h	0.084		0.003	
IN-GN815	0 h	0.158		0.025	
IN-R9803	0 h	0.272		0.136	
IN-GK521	0 h	0.824		0.138	
M2	0 h	0.213		0.204	

FOCUS STEP 1 Scenario 24 g a.s./ha to winter cereals (average crop cover; 50% crop interception) in Mar-May.					
Compounds	Day after overall maximum	PECSW (µg/L)		PECSED (µg/kg)	
		Actual	TWA	Actual	TWA
IN-L5296	0 h	2.485		2.040	
IN-A4098	0 h	0.417		0.172	
IN-00581	0 h	1.280		0.070	
IN-R9805	0 h	0.196		0.205	
IN-D5803	0 h	2.102		0.378	
IN-D5119	0 h	0.269		0.009	
IN-GN815	0 h	0.507		0.079	
IN-R9803	0 h	0.871		0.434	
IN-GK521	0 h	2.636		0.442	
M2	0 h	0.682		0.653	

FOCUS STEP 1 Scenario 22.5 g a.s./ha to spring cereals (average crop cover; 50% crop interception) in Mar-May.					
Compounds	Day after overall maximum	PECSW (µg/L)		PECSED (µg/kg)	
		Actual	TWA	Actual	TWA
IN-L5296	0 h	2.33		1.913	
IN-A4098	0 h	0.391		0.161	
IN-00581	0 h	1.200		0.066	
IN-R9805	0 h	0.184		0.192	
IN-D5803	0 h	1.970		0.354	
IN-D5119	0 h	0.252		0.009	
IN-GN815	0 h	0.475		0.074	
IN-R9803	0 h	0.816		0.406	
IN-GK521	0 h	2.471		0.414	
M2	0 h	0.639		0.613	

FOCUS STEP 1 Scenario 30 g a.s./ha to olives (0 % crop interception) in Mar-May.					
Compounds	Day after overall maximum	PECSW (µg/L)		PECSED (µg/kg)	
		Actual	TWA	Actual	TWA
IN-L5296	0 h	2.371		1.922	
IN-A4098	0 h	0.653		0.264	
IN-00581	0 h	1.195		0.063	
IN-R9805	0 h	0.191		0.196	
IN-D5803	0 h	2.222		0.397	
IN-D5119	0 h	0.307		0.011	
IN-GN815	0 h	0.468		0.073	
IN-R9803	0 h	1.559		0.756	
IN-GK521	0 h	1.322		0.505	
M2	0 h	0.558		0.917	

FOCUS STEP 2 Scenario **30 g a.s./ha to sunflowers at BBCH 12-19 (minimal crop cover; 25% crop interception) in Mar-May.**					
Compounds	Day after overall maximum	Actual PEC_{SW} (µg/L)		Actual PEC_{SED} (µg/kg)	
		Step 2 N EU	Step 2 S EU	Step 2 N EU	Step 2 S EU
IN-L5296	0 h	0,564	1,040	0,463	0,856
IN-A4098	0 h	0,160	0,227	0,066	0,094
IN-00581	0 h	0.259	0.476	0.015	0.027
IN-R9805	0 h	0.045	0.081	0.047	0.085
IN-D5803	0 h	0.305	0.462	0.055	0.083
IN-D5119	0 h	0.066	0.106	0.002	0.004
IN-GN815	0 h	0.082	0.151	0.013	0.024
IN-R9803	0 h	0.361	0.468	0.180	0.234
IN-GK521	0 h	0.656	1.050	0.110	0.176
M2	0 h	0.221	0.315	0.211	0.303

FOCUS STEP 2 Scenario **7.5 g a.s./ha to pasture (full canopy; 75% crop interception) in Mar-May.**					
Compounds	Day after overall maximum	Actual PEC_{SW} (µg/L)		Actual PEC_{SED} (µg/kg)	
		Step 2 N EU	Step 2 S EU	Step 2 N EU	Step 2 S EU
IN-L5296	0 h	0,059	0,097	0,048	0,079
IN-A4098	0 h	0,029	0,034	0,012	0,014
IN-00581	0 h	0.027	0.044	0.002	0.003
IN-R9805	0 h	0.005	0.008	0.005	0.008
IN-D5803	0 h	0.049	0.061	0.009	0.011
IN-D5119	0 h	0.010	0.013	<0.001	<0.001
IN-GN815	0 h	0.009	0.014	0.001	0.002
IN-R9803	0 h	0.072	0.080	0.036	0.040
IN-GK521	0 h	0.096	0.127	0.016	0.021
M2	0 h	0.039	0.046	0.037	0.044

FOCUS STEP 2 Scenario **24 g a.s./ha to winter cereals (average crop cover; 50% crop interception) in Mar-May.**					
Compounds	Day after overall maximum	Actual PEC_{SW} (µg/L)		Actual PEC_{SED} (µg/kg)	
		Step 2 N EU	Step 2 S EU	Step 2 N EU	Step 2 S EU
IN-L5296	0 h	0,309	0,546	0,253	0,449
IN-A4098	0 h	0,108	0,141	0,045	0,058
IN-00581	0 h	0.141	0.250	0.008	0.014
IN-R9805	0 h	0.025	0.043	0.026	0.045
IN-D5803	0 h	0.197	0.275	0.035	0.049
IN-D5119	0 h	0.041	0.061	0.001	0.002
IN-GN815	0 h	0.046	0.080	0.007	0.013
IN-R9803	0 h	0.257	0.310	0.128	0.155
IN-GK521	0 h	0.406	0.603	0.068	0.101
M2	0 h	0.148	0.195	0.141	0.187

FOCUS STEP 2 Scenario **22.5 g a.s./ha to spring cereals (average crop cover; 50% crop interception) in Mar-May.**					
Compounds	Day after overall maximum	Actual PEC_{SW} (µg/L)		Actual PEC_{SED} (µg/kg)	
		Step 2 N EU	Step 2 S EU	Step 2 N EU	Step 2 S EU
IN-L5296	0 h	0,289	0,512	0,237	0,421
IN-A4098	0 h	0,102	0,133	0,042	0,055
IN-00581	0 h	0.133	0.235	0.007	0.013
IN-R9805	0 h	0.023	0.040	0.024	0.042
IN-D5803	0 h	0.184	0.258	0.033	0.046
IN-D5119	0 h	0.038	0.057	0.001	0.002

FOCUS STEP 2 Scenario **22.5 g a.s./ha to spring cereals (average crop cover; 50% crop interception) in Mar-May.**					
Compounds	Day after overall maximum	Actual PEC_{SW} (µg/L)		Actual PEC_{SED} (µg/kg)	
		Step 2 N EU	Step 2 S EU	Step 2 N EU	Step 2 S EU
IN-GN815	0 h	0.043	0.075	0.007	0.012
IN-R9803	0 h	0.241	0.291	0.120	0.145
IN-GK521	0 h	0.381	0.566	0.064	0.095
M2	0 h	0.139	0.183	0.132	0.175

FOCUS STEP 2 Scenario **30 g a.s./ha to olives (0 % crop interception) in Mar-May.**					
Compounds	Day after overall maximum	Actual PEC_{SW} (µg/L)		Actual PEC_{SED} (µg/kg)	
		Step 2 N EU	Step 2 S EU	Step 2 N EU	Step 2 S EU
IN-L5296	0 h	0,734	1,130	0,596	0,923
IN-A4098	0 h	0,412	0,468	0,169	0,192
IN-00581	0 h	0.336	0.517	0.019	0.029
IN-R9805	0 h	0.061	0.092	0.063	0.095
IN-D5803	0 h	0.691	0.822	0.124	0.147
IN-D5119	0 h	0.134	0.167	0.005	0.006
IN-GN815	0 h	0.111	0.168	0.018	0.027
IN-R9803	0 h	1.054	1.143	0.523	0.568
IN-GK521	0 h	1.322	1.650	0.221	0.276
M2	0 h	0.558	0.637	0.527	0.604

Tribeunron-methyl in CHA 6310 Parameters used in FOCUSsw step 1 and 2	Version control no. of FOCUS calculator: 3.2 Molecular weight (g/mol): 395.4 Kf_{OC} (mL/g): 38.9 (pH<7); 8.6 (pH>7)* Geometric lab DT_{50} soil (d): 5.3 (pH<7); 16.7 (pH>7)DT_{50} water/sediment system (d):18.5** DT_{50} water (d): 18.5** DT_{50} sediment (d): 1000 Crop interception (%): Winter and spring cereals: minimal crop interception (25%) * The correct arithmetic means that should be used are: KF_{OC} (mL/g): 46.3 (pH<7) and 9.36 (pH>7), however no impact is expected on the aquatic risk assessment. ** the correct DT50 for whole system and water should have been 18.2 days, however no impact is expected on the aquatic risk assessment.
Parameters used in FOCUSsw step 3 (if performed)	Version control no.'s of FOCUS software: FOCUS SWASH 5.3, including: PRZM 4.3.1 FOCUS MACRO 5.5.4 FOCUS TOXSWA 4.4.3 SWAN 4.0.1 Water solubility (mg/L): 2083 Vapour pressure: 5.99 x 10^{-8} Pa at 25°C K_{OC} (mL/g): 38.9 (pH<7); 8.6 (pH>7)* 1/n: 0.98 (pH<7);1.0 (pH>7) Geometric lab DT_{50} soil (d): 5.3 (pH<7); 16.7 (pH>7)DT_{50} DT_{50} water (d): 18.5 DT_{50} sediment (d): 1000 Q10=2.58, Walker equation coefficient 0.7 Crop uptake factor: 0 * The correct arithmetic means that should be used are: KF_{OC} (mL/g): 46.3 (pH<7) and 9.36 (pH>7), however no impact is expected on the aquatic risk assessment.
Application rate	<u>Steps 1-2:</u> Crop and growth stage: winter cereals BBCH 12-29 Number of applications: 1 Interval (d): - Application rate(s):15 g a.s./ha Application window: Oct-Feb Crop and growth stage: winter cereals BBCH 12-39 Number of applications: 1 Interval (d): - Application rate(s):30 g a.s./ha Application window: Mar-May Crop and growth stage: spring cereals BBCH 12-39 Number of applications: 1 Interval (d): - Application rate(s):30 g a.s./ha Application window: Mar-May <u>Step 3</u> Crop and growth stage, number of applications, application rate(s) is the same as for Steps 1-2. Application window: Winter cereals (autumn): 14 days post emergence + 30 days Winter cereals (spring): 1 Apr +30 days for Northern European scenarios. 1 Mar + 30 days for Central and Southern scenarios (pH>7 only) and 1 may +30 days for Northern European scenarios. 1 april + 30 days for Central and Southern scenarios (pH>7 and pH>7).

Spring cereals (spring): 14 days post emergence + 30 days (pH>7 only) and 45 days after emergence + 30 days (pH>7 and pH <7)

FOCUS Steps 1 and 2 for tribenuron methyl and its metabolites following a single application to cereals (using DT50 soil = 16.7 days; pH>7)			
Crop	FOCUS step		
		PECsw (µg/l)	PECsed (µg/kg)
Winter/spring cereals (spring application)	1	10.16	0.85
	2 NE Mar-May	1.91	0.16
	2 SE Mar-May	3.59	0.31
Winter cereal (autumn application)	1	5.08	0.43
	2 NE Oct-Feb	2.21	0.19
	2 SE Oct-Feb	1.79	0.15

single autumn application to winter cereals (using DT50 soil = 16.7 days; pH>7)					
FOCUS STEP 3 Scenario Parent	Water body	Application date	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D1	ditch	23-Oct	Drainage	1.749	0.463
D1	stream	23-Oct	Drainage	1.125	0.319
D2	ditch	28-nov	Drainage	1.722	0.367
D2	stream	29-nov	Drainage	1.316	0.217
D3	ditch	10-dec	Drift	0.387	0.250
D4	pond	26-Oct	Drainage	0.490	0.315
D4	stream	26-Oct	Drainage	0.470	0.177
D5	pond	27-nov	Drainage	0.394	0.211
D5	stream	27-nov	Drainage	0.267	0.097
D6	ditch	30-dec	Drainage	0.446	0.054
R1	pond	27-nov	Drift	0.003	0.001
R1	stream	27-nov	Run-off	0.086	0.002
R3	stream	20-dec	Run-off	1.123	0.074
R4	stream	10-dec	Run-off	0.195	0.014

a single spring application to winter cereals (using DT50 soil = 16.7 days; pH>7); early application.					
FOCUS STEP 3 Scenario Parent	Water body	Application date	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D1	ditch	01-apr	Drainage	4.431	1.264
D1	stream	01-apr	Drainage	2.790	0.684
D2	ditch	12-mar	Drainage	3.819	0.727
D2	stream	12-mar	Drainage	2.413	0.437
D3	ditch	29-Feb	Drift	0.216	0.031
D4	pond	18-apr	Drainage	0.047	0.035
D4	stream	18-apr	Drift	0.171	0.023
D5	pond	07-mar	Drift	0.013	0.007
D5	stream	07-mar	Drift	0.154	0.005
D6	ditch	05-mar	Drift	0.209	0.025
R1	pond	17-mar	Run-off	0.016	0.007
R1	stream	17-mar	Run-off	0.500	0.034
R3	stream	01-mar	Run-off	1.218	0.088
R4	stream	05-mar	Drift	0.125	0.005

single spring application to winter cereals (using DT50 soil = 16.7 days; pH>7); late application					
FOCUS STEP 3 Scenario Parent	Water body	Application date	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D1	ditch	14-May	Drift	0.314	0.146
D1	stream	14-May	Drift	0.223	0.065
D2	ditch	01-apr	Drainage	4.103	0.807

single spring application to winter cereals (using DT50 soil = 16.7 days; pH>7); late application					
FOCUS STEP 3 Scenario Parent	Water body	Application date	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D2	stream	01-apr	Drainage	2.820	0.458
D3	ditch	04-apr	Drift	0.217	0.035
D4	pond	30-May	Drainage	0.051	0.038
D4	stream	30-May	Drift	0.174	0.023
D5	pond	08-apr	Drift	0.012	0.007
D5	stream	08-apr	Drift	0.155	0.005
D6	ditch	09-apr	Drift	0.193	0.024
R1	pond	26-apr	Drift	0.007	0.003
R1	stream	26-apr	Run-off	0.277	0.017
R3	stream	04-apr	Run-off	0.371	0.036
R4	stream	29-apr	Run-off	0.567	0.044

single spring application to winter cereals (using DT50 soil = 5.3 days and ph<7); late application.					
FOCUS STEP 3 Scenario Parent	Water body	Application date	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D1	ditch	14-May	Drift	0.213	0.192
D1	stream	14-May	Drift	0.177	0.026
D2	ditch	01-apr	Drainage	3.693	1.945
D2	stream	01-apr	Drainage	2.343	1.125
D3	ditch	04-apr	Drift	0.190	0.026
D4	pond	30-May	Drift	0.007	0.006
D4	stream	30-May	Drift	0.159	0.003
D5	pond	08-apr	Drift	0.007	0.006
D5	stream	08-apr	Drift	0.152	0.001
D6	ditch	09-apr	Drift	0.191	0.084
R1	pond	26-apr	Run-off	0.008	0.007
R1	stream	26-apr	Run-off	0.229	0.014
R3	stream	04-apr	Run-off	0.405	0.056
R4	stream	29-apr	Run-off	0.583	0.078

single application to spring cereals (using DT50 soil = 16.7 days and ph>7); early application.					
FOCUS STEP 3 Scenario Parent	Water body	Application date	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D1	ditch	17-jun	Drift	0.251	0.122
D1	stream	17-jun	Drift	0.169	0.054
D3	ditch	20-apr	Drift	0.228	0.045
D4	stream	30-May	Drainage	0.054	0.042
D4	ditch	30-May	Drift	0.175	0.026
D5	pond	11-May	Drainage	0.028	0.018
D5	stream	11-May	Drift	0.178	0.015
R4	pond	04-May	Drift	0.126	0.005

single application to spring cereals (using DT50 soil = 16.7 days and ph>7); late application.					
FOCUS STEP 3 Scenario Parent	Water body	Application date	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D1	ditch	24-jun	Drift	0.239	0.118
D1	stream	24-jun	Drift	0.168	0.060
D3	ditch	14-May	Drift	0.240	0.057
D4	stream	04-jul	Drainage	0.076	0.056
D4	ditch	04-jul	Drift	0.167	0.033
D5	pond	29-May	Drift	0.010	0.006
D5	stream	29-May	Drift	0.168	0.006
R4	pond	29-May	Run-off	0.936	0.073

single application to spring cereals (using DT50 soil = 5.3 days and ph<7); late application.					
FOCUS STEP 3 Scenario Parent	Water body	Application date	Main entry route	PECSW (µg/L) Actual	PECSED (µg/kg) Actual
D1	ditch	24-jun	Drift	0.202	0.124
D1	stream	24-jun	Drift	0.168	0.036
D3	ditch	14-May	Drift	0.190	0.025
D4	stream	04-jul	Drift	0.007	0.004
D4	ditch	04-jul	Drift	0.164	0.011
D5	pond	29-May	Drift	0.007	0.004
D5	stream	29-May	Drift	0.166	0.006
R4	pond	29-May	Run-off	0.850	0.107

single autumn application to winter cereals (using DT50 soil = 16.7 days; pH>7)					
FOCUS STEP 4 Scenario Parent	Water body	Application date	Main entry route	Actual PECSW (µg/L) Step 4: 20 m Buffer	Actual PECSED (µg/kg) Step 4: 20 m Buffer
D1	ditch	23-Oct	Drainage	1.748	0.463
D1	stream	23-Oct	Drainage	1.125	0.319
D2	ditch	28-nov	Drainage	1.722	0.367
D2	stream	29-nov	Drainage	1.316	0.217
D3	ditch	10-dec	Drift	0.300	0.250
D4	pond	26-Oct	Drainage	0.489	0.315
D4	stream	26-Oct	Drainage	0.470	0.177
D5	pond	27-nov	Drainage	0.394	0.211
D6	ditch	30-dec	Drainage	0.446	0.054
R3	stream	20-dec	Run-off	0.264	0.018

single spring application to winter cereals (using DT50 soil = 16.7 days; pH>7); early application.					
FOCUS STEP 4 Scenario Parent	Water body	Application date	Main entry route	Actual PECSW (µg/L) Step 4: 20 m Buffer	Actual PECSED (µg/kg) Step 4: 20 m Buffer
D1	ditch	23-Oct	Drainage	4.431	1.264
D1	stream	23-Oct	Drainage	2.790	0.684
D2	ditch	28-nov	Drainage	3.819	0.727
D2	stream	29-nov	Drainage	2.413	0.437
R1	stream	27-nov	Run-off	0.118	0.008
R3	stream	20-dec	Run-off	0.289	0.021

single spring application to winter cereals (using DT50 soil = 16.7 days; pH>7); late application.					
FOCUS STEP 4 Scenario Parent	Water body	Application date	Main entry route	Actual PECSW (µg/L) Step 4: 10 m Buffer	Actual PECSED (µg/kg) Step 4: 10 m Buffer
D1	ditch	23-Oct	Drainage	0.314	0.146
D1	stream	23-Oct	Drainage	0.223	0.065
D2	ditch	28-nov	Drainage	4.103	0.807
D2	stream	29-nov	Drainage	2.820	0.458
R3	stream	20-dec	Run-off	0.169	0.016
R4	stream	10-dec	Run-off	0.256	0.020

single spring application to winter cereals (using DT50 soil = 5.3 days and ph<7); late application.					
FOCUS STEP 4 Scenario Parent	Water body	Application date	Main entry route	Actual PECSW (µg/L) Step 4: 10 m Buffer	Actual PECSED (µg/kg) Step 4: 10 m Buffer
D2	ditch	28-nov	Drainage	3.693	1.945

single spring application to winter cereals (using DT50 soil = 5.3 days and ph<7); late application.					
FOCUS STEP 4 Scenario Parent	Water body	Application date	Main entry route	Actual PECSW (µg/L)	Actual PECSED (µg/kg)
				Step 4: 10 m Buffer	Step 4: 10 m Buffer
D2	stream	29-nov	Drainage	2.343	1.125
R3	stream	20-dec	Run-off	0.149	0.023
R4	stream	10-dec	Run-off	0.325	0.041

single application to spring cereals (using DT50 soil = 16.7 days and ph>7); late application.					
FOCUS STEP 4 Scenario Parent	Water body	Application date	Main entry route	Actual PECSW (µg/L)	Actual PECSED (µg/kg)
				Step 4: 20 m Buffer	Step 4: 20 m Buffer
R4	pond	29-May	Run-off	0.221	0.017

single application to spring cereals (using DT50 soil = 5.3 days and ph<7); late application.					
FOCUS STEP 4 Scenario Parent	Water body	Application date	Main entry route	Actual PECSW (µg/L)	Actual PECSED (µg/kg)
				Step 4: 20 m Buffer	Step 4: 20 m Buffer
R4	pond	29-May	Run-off	0.200	0.025

Metabolites IN-L5296, IN-A4098, IN-00581, IN-R9805, IN-D5803, M2, IN-GK521, IN-GN815 and IN-D5119

Parameters used in FOCUSsw step 1 and 2

IN-L5296
Molecular weight: 154.2
K_{OC}/K_{OM} (mL/g): 82.6*
DT_{50} soil (d): 207.5
DT_{50} water/sediment system (d): 227.8
DT_{50} water (d): 227.8
DT_{50} sediment (d): 1000
Maximum occurrence observed (% molar basis with respect to the parent)
Total Water and Sediment: 88.9
Soil: 85.7
*the correct arithmetic mean Kfoc value that should be used is 89.4 mL/g; however, no impact is expected on the aquatic risk assessment.

IN-A4098
Molecular weight: 140.1
K_{OC}/K_{OM} (mL/g): 41.6*
DT_{50} soil (d): 127.7
DT_{50} water/sediment system (d): 1000
DT_{50} water (d): 1000
DT_{50} sediment (d): 1000
Maximum occurrence observed (% molar basis with respect to the parent)
Total Water and Sediment: 0.0001
Soil: 12.6
*the correct arithmetic mean k_{Foc} c value that should be used is 71.1 mL/g; however, no impact is expected on the aquatic risk assessment.

IN-00581
Molecular weight: 183.2
K_{OC}/K_{OM} (mL/g): 5.6*
DT_{50} soil (d): 20.5**
DT_{50} water/sediment system (d): 10.8
DT_{50} water (d): 10.8
DT_{50} sediment (d): 1000
Maximum occurrence observed (% molar basis with respect to the parent)

Total Water and Sediment: 38.4
Soil: 33.9
*the correct arithmetic mean k_{Foc} value that should be used is 7.2 mL/g; however, no impact is expected on the aquatic risk assessment.
** the correct geomean soil DT50 that should be used is 19.1d; however, no impact is expected on the aquatic risk assessment.

IN-R9805
Molecular weight: 140.2
K_{OC}/K_{OM} (mL/g): 105
DT_{50} soil (d): 85.5
DT_{50} water/sediment system (d): 1000
DT_{50} water (d): 1000
DT_{50} sediment (d): 1000
Maximum occurrence observed (% molar basis with respect to the parent)
Total Water and Sediment: 14.7
Soil: 7.6

M2
Molecular weight: 197.2
K_{OC}/K_{OM} (mL/g): 97.7*
DT_{50} soil (d): 14.3**
DT_{50} water/sediment system (d): 1000
DT_{50} water (d): 1000
DT_{50} sediment (d): 1000
Maximum occurrence observed (% molar basis with respect to the parent)
Total Water and Sediment: 0.0001
Soil: 16.2
*the correct arithmetic mean k_{Foc} value that should be used is 78.3 mL/g; however, no impact is expected on the aquatic risk assessment.
** the correct geomean soil DT50 that should be used is 21.5d; however, no impact is expected on the aquatic risk assessment.

IN-D5803
Molecular weight: 215.2
K_{OC}/K_{OM} (mL/g): 18
DT_{50} soil (d): 3.0*
DT_{50} water/sediment system (d): 1000
DT_{50} water (d): 1000
DT_{50} sediment (d): 1000
Maximum occurrence observed (% molar basis with respect to the parent)
Total Water and Sediment: 0.0001
Soil: 46.6
* the correct geomean soil DT50 that should be used is 3.2d; however, no impact is expected on the aquatic risk assessment.

IN-D5119
Molecular weight: 201.1
K_{OC} (mL/g): 3.5*
DT_{50} soil (d): 12.4**
DT_{50} water/sediment system (d): 1000
DT_{50} water (d): 1000
DT_{50} sediment (d): 1000
Maximum occurrence observed (% molar basis with respect to the parent)
Total Water and Sediment: 26.5
Soil: 6.1
*the correct arithmetic mean k_{Foc} value that should be used is 3.9 mL/g; however, no impact is expected on the aquatic risk assessment.
** the correct geomean soil DT50 that should be used is 14.4d; however, no impact is expected on the aquatic risk assessment.

	IN-GN815 Molecular weight: 367.3 K_{OC} (mL/g): 15.9 DT_{50} soil (d): 7.4* DT_{50} water/sediment system (d): 47.6 DT_{50} water (d): 47.6 DT_{50} sediment (d): 1000 Maximum occurrence observed (% molar basis with respect to the parent) Total Water and Sediment: 13.0 Soil: 6.8 * the correct geomean soil DT50 that should be used is 7.2d; however, no impact is expected on the aquatic risk assessment. IN-GK521 Molecular weight: 381.4 K_{OC} (mL/g): 16.8 DT_{50} soil (d): 13.4* DT_{50} water/sediment system (d): 1000 DT_{50} water (d): 1000 DT_{50} sediment (d): 1000 Maximum occurrence observed (% molar basis with respect to the parent) Total Water and Sediment: 0.0001 Soil: 32.1 * the correct geomean soil DT50 that should be used is 12.1d; however, no impact is expected on the aquatic risk assessment.
Parameters used in FOCUSsw step 3 (if performed)	Not applicable
Application rate	Steps 1-2: Crop and growth stage: winter cereals BBCH 12-29 Number of applications: 1 Interval (d): - Application rate(s):15 g a.s./ha Application window: Oct-Feb Crop and growth stage: winter cereals BBCH 12-39 Number of applications: 1 Interval (d): - Application rate(s):30 g a.s./ha Application window: Mar-May Crop and growth stage: spring cereals BBCH 12-39 Number of applications: 1 Interval (d): - Application rate(s):30 g a.s./ha Application window: Mar-May

FOCUS STEP 1
Scenario
Winter cereals 1 x 15 g a.s./ha (autumn application)

Compounds	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
		Actual	TWA	Actual	TWA
IN-L5296	0 h	3.11		2.53	
IN-00581	0 h	1.69		0.09	
IN-A4098	0 h	0.21		0.09	
IN-R9805	0 h	0.35		0.37	
M2	0 h	0.36		0.35	
IN-D5119	0 h	0.84		0.03	
IN-GK521	0 h	1.51		0.25	

FOCUS STEP 1 Scenario **Winter cereals 1 x 15 g a.s./ha (autumn application)**					
Compounds	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
		Actual	TWA	Actual	TWA
IN-GN815	0 h	0.92		0.14	
IN-D5803	0 h	1.24		0.22	
IN-R9803		0.42		0.21	

FOCUS STEP 1 Scenario **Winter and spring cereals 1 x 30 g a.s./ha (spring application)**					
Compounds	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
		Actual	TWA	Actual	TWA
IN-L5296	0 h	6.23		5.07	
IN-00581	0 h	3.37		1.19	
IN-A4098	0 h	0.42		0.18	
IN-R9805	0 h	0.71		0.74	
M2	0 h	0.71		0.70	
IN-D5119	0 h	1.69		0.06	
IN-GK521	0 h	3.03		0.51	
IN-GN815	0 h	1.83		0.29	
IN-D5803	0 h	2.48		0.45	
IN-R9803		0.83		0.42	

FOCUS STEP 2 Scenario **Winter cereals 1 x 15 g a.s./ha (autumn application)**					
Compounds	Day after overall maximum	Actual PEC_{SW} (µg/L)		Actual PEC_{SED} (µg/kg)	
		Step 2 N EU	Step 2 S EU	Step 2 N EU	Step 2 S EU
IN-L5296	0 h	1.45	1.17	1.19	0.96
IN-00581	0 h	0.74	0.59	0.04	0.03
IN-A4098	0 h	0.10	0.08	0.04	0.03
IN-R9805	0 h	0.16	0.13	0.17	0.14
M2	0 h	0.15	0.12	0.14	0.12
IN-D5119	0 h	0.37	0.30	0.01	0.01
IN-GK521	0 h	0.62	0.49	0.10	0.08
IN-GN815	0 h	0.38	0.30	0.06	0.05
IN-D5803	0 h	0.25	0.20	0.04	0.04
IN-R9803	0 h	0.17	0.13	0.09	0.07

FOCUS STEP 2 Scenario **Winter and spring cereals 1 x 30 g a.s./ha (spring application)**					
Compounds	Day after overall maximum	Actual PEC_{SW} (µg/L)		Actual PEC_{SED} (µg/kg)	
		Step 2 N EU	Step 2 S EU	Step 2 N EU	Step 2 S EU
IN-L5296	0 h	1.21	0.08	1.00	0.03
IN-00581	0 h	0.62	1.19	0.03	0.07
IN-A4098	0 h	2.33	0.17	1.92	0.07
IN-R9805	0 h	0.14	0.26	0.14	0.27
M2	0 h	0.12	0.24	0.12	0.23
IN-D5119	0 h	0.32	0.60	0.01	0.02
IN-GK521	0 h	0.49	0.98	0.08	0.17
IN-GN815	0 h	0.32	0.61	0.05	0.10
IN-D5803	0 h	0.20	0.39	0.04	0.07
IN-R9803	0 h	0.13	0.27	0.07	0.14

Estimation of concentrations from other routes of exposure (Regulation (EU) N° 284/2013, Annex Part A, point 9.4)

Method of calculation	There are no other routes of exposure considered as significant.

PEC

Maximum concentration	Not calculated, not requested

Section 5 Ecotoxicology

Effects on birds and other terrestrial vertebrates (Regulation (EU) N° 283/2013, Annex Part A, point 8.1 and Regulation (EU) N° 284/2013, Annex Part A, point 10.1)

Species	Test substance	Time scale	End point	Toxicity (mg/kg bw per day)
Birds				
Bobwhite quail	Tribenuron-methyl	Acute oral	LD_{50}	**> 2250**
Bobwhite quail	Tribenuron-methyl	Reproduction, 23 weeks	NOEL	22 ♂ **21** ♀
Mallard duck	Tribenuron-methyl	Reproduction, 21 weeks	NOEL	**21** ♂ 23 ♀
Mammals				
Rat	Tribenuron-methyl	Acute oral	LD_{50}	**> 5000**
Rat	Tribenuron-methyl	Reproduction, 2-generation	NOAEL	**2**
Rat	Triazine amine (IN-L5296)	Acute oral	LD_{50}	394
Rat	Triazine amine (IN-L5296)	4-week, repeated dose gavage	NOAEL	8
Rat	Sulfonamide urea (IN-B5685)	Acute oral	LD_{50}	> 11000
Rat	Sulfonamide urea (IN-B5685)	10 days, repeated dose gavage	NOAEL	≥ 220 [a]
Rat	Sulfonamide (IN-D5803)	Acute oral	LD_{50}	> 7500 [b]
Endocrine disrupting properties (Annex Part A, points 8.1.5) With regard to the endocrine disruption potential, as discussed in Section 2, it is unlikely that tribenuron-methyl is an endocrine disruptor in mammals, however, no firm conclusion can be drawn regarding fish and birds.				
Additional higher tier studies (Annex Part A, points 10.1.1.2): No additional higher tier studies are available.				
Terrestrial vertebrate wildlife (birds, mammals, reptile and amphibians) (Annex Part A, points 8.1.4, 10.1.3): No additional higher tier studies are available.				

a The study was considered of limited reliability but supportive
b Data from EFSA Conclusions for metsulfuron-methyl (EFSA, 2015a) and ethmetsulfuron (EFSA, 2014a)

DUP: Toxicity/exposure ratios for terrestrial vertebrates (Regulation (EU) N° 284/2013, Part A, Annex point 10.1)

Sunflowers at 30 g a.s./ha x 1 (Tribenuron methyl 50SG, DPX-L5300 + DPX-KG691 surfactant)					
Growth stage	Indicator or focal species	Time scale	DDD (mg/kg bw per day)	TER	Trigger
Birds					
Tribenuron-methyl; Screening Step					
All	Small omnivorous bird	Acute	4.8	> 472	10
		Long-term	1.0	20	5
Worst case plant metabolite; Screening Step					
All	Small omnivorous bird	Acute	2.1	> 105	10
		Long-term	0.46	4.5	5
Worst case plant metabolite; Tier 1					
BBCH 00-19	Small omnivorous bird "lark"	Long-term	0.078	27	5
	Small insectivorous bird "wagtail"	Long-term	0.081	26	5
Mammals					
Tribenuron-methyl; Screening Step					
All	Small herbivorous mammal	Acute	3.6	> 1408	10
		Long-term	0.8	2.6	5
Tribenuron-methyl; Tier 1					
BBCH 10-19	Small insectivorous mammal "shrew"	Long-term	0.067	30	5
	Small omnivorous mammal "mouse"	Long-term	0.12	16	5
	Large herbivorous mammal "lagomorph"	Long-term	0.23	8.8	5
Worst case plant metabolite; Screening Step					

All	Small herbivorous mammal	Acute	0.92	427	10
		Long-term	0.13	2.0	5
Worst case plant metabolite; Tier 1					
BBCH 10-19	Small insectivorous mammal "shrew"	Long-term	0.011	18	5
	Small omnivorous mammal "mouse"	Long-term	0.021	9.5	5
	Large herbivorous mammal "lagomorph"	Long-term	0.039	5.2	5
Cereals at 24 g a.s./ha x 1 (Tribenuron methyl 50SG, DPX-L5300 + DPX-KG691 surfactant)					
Growth stage	Indicator or focal species	Time scale	DDD (mg/kg bw per day)	TER	Trigger
Birds					
Tribenuron-methyl; Screening Step					
All	Small omnivorous bird	Acute	3.8	> 590	10
		Long-term	0.8	25	5
Worst case plant metabolite; Screening Step					
All	Small omnivorous bird	Acute	1.7	> 131	10
		Long-term	0.37	5.7	5
Mammals					
Tribenuron-methyl; Screening Step					
All	Small herbivorous mammal	Acute	2.8	> 1760	10
		Long-term	0.6	3.3	5
Tribenuron-methyl; Tier 1					
BBCH 30-39	Small omnivorous mammal "mouse"	Long-term	0.050	40	5
Worst case plant metabolite; Screening Step					
All	Small herbivorous mammal	Acute	0.74	533	10
		Long-term	0.10	2.0	5
Worst case plant metabolite; Tier 1					
BBCH 30-39	Small omnivorous mammal "mouse"	Long-term	0.008	24	5
Olives at 20 g a.s./ha x 1 (Tribenuron methyl 50SG, DPX-L5300 + DPX-KG691 surfactant)					
Growth stage	Indicator or focal species	Time scale	DDD (mg/kg bw per day)	TER	Trigger
Birds					
Tribenuron-methyl; Screening Step					
All	Small insectivorous bird	Acute	0.9	> 2404	10
		Long-term	0.2	109	5
Worst case plant metabolite; Screening Step					
All	Small insectivorous bird	Acute	0.4	> 534	10
		Long-term	0.09	24.2	5
Mammals					
Tribenuron-methyl; Screening Step					
All	Small herbivorous mammal	Acute	2.7	> 1833	10
		Long-term	0.8	2.6	5
Tribenuron-methyl; Tier 1					
Application not crop directed	Small insectivorous mammal "shrew"	Long-term	0.020	99	5
	Small herbivorous mammal "vole"	Long-term	0.77	2.6	5
	Large herbivorous mammal "lagomorph"	Long-term	0.15	13	5
	Small omnivorous mammal "mouse"	Long-term	0.083	24	5
Worst case plant metabolite; Screening Step					
All	Small herbivorous mammal	Acute	0.71	555	10
		Long-term	0.13	2.0	5
Worst case plant metabolite; Tier 1					
Application not crop directed	Small insectivorous mammal "shrew"	Long-term	0.003	58	5
	Small herbivorous mammal "vole"	Long-term	0.13	1.5	5
	Large herbivorous mammal "lagomorph"	Long-term	0.026	7.8	5
	Small omnivorous mammal "mouse"	Long-term	0.014	14.2	5

Pasture at 7.5 g a.s./ha x 1 (Tribenuron methyl 50SG, DPX-L5300 + DPX-KG691 surfactant)					
Growth stage	Indicator or focal species	Time scale	DDD (mg/kg bw per day)	TER	Trigger
Birds					
Tribenuron-methyl; Screening Step					
All	Large herbivorous bird	Acute	0.2	> 9836	10
		Long-term	0.1	326	5
Worst case plant metabolite; Screening Step					
All	Small omnivorous bird	Acute	0.1	> 2186	10
		Long-term	0.03	72.5	5
Mammals					
Tribenuron-methyl; Screening Step					
All	Small herbivorous mammal	Acute	1.0	> 4888	10
		Long-term	0.3	7.0	5
Worst case plant metabolite; Screening Step					
All	Small herbivorous mammal	Acute	0.27	1481	10
		Long-term	0.05	4.0	5
Worst case plant metabolite; Tier 1					
All	Large herbivorous mammal “lagomorph”	Long-term	0.012	17	5
	Small herbivorous mammal “vole”	Long-term	0.049	4.1	5
Risk from bioaccumulation and food chain behaviour					
Not relevant (Log P_{OW} < 3)					
Risk from consumption of contaminated water					
Leaf scenario – not relevant					
Puddle scenario, Screening step Birds: Application rate (30 g a.s./ha)/NOAEL (21 mg a.s./kg bw per day) <50 (K_{OC}<500 L/kg), TER calculation not needed Mammals: Application rate (30 g a.s./ha)/NOAEL (2 mg a.s./kg bw per day) <50 (K_{OC}<500 L/kg), TER calculation not needed					

TTF: Toxicity/exposure ratios for terrestrial vertebrates (Regulation (EU) N° 284/2013, Part A, Annex point 10.1)

Cereals at 30 g a.s./ha x 1 (Tribenuron-Methyl 750 g/kg WG, CHA 6310)					
Growth stage	Indicator or focal species	Time scale	DDD (mg/kg bw per day)	TER	Trigger
Birds					
Tribenuron-methyl; Screening Step					
All	Small omnivorous bird	Acute	4.8	> 472	10
		Long-term	1.0	20	5
Worst case plant metabolite; Screening Step					
All	Small omnivorous bird	Acute	2.1	> 105	10
		Long-term	0.46	4.5	5
Worst case plant metabolite; Tier 1					
BBCH 10-29	Large herbivorous bird "goose"	Long-term	0.12	18	5
BBCH 10-29	Small omnivorous bird "lark"	Long-term	0.078	27	5
BBCH 30-39	Small omnivorous bird "lark"	Long-term	0.039	54	5
Mammals					
Tribenuron-methyl; Screening Step					
All	Small herbivorous mammal	Acute	3.6	> 1408	10
		Long-term	0.8	2.6	5
Tribenuron-methyl; Tier 1					
BBCH 10-29	Small omnivorous mammal “mouse”	Long-term	0.12	17	5
BBCH 30-39	Small omnivorous mammal “mouse”	Long-term	0.062	32	5
Worst case plant metabolite; Screening Step					
All	Small herbivorous mammal	Acute	0.9	427	10
		Long-term	0.13	1.5	5
Worst case plant metabolite; Tier 1					
BBCH 10-29	Small omnivorous mammal “mouse”	Long-term	0.021	9.5	5
BBCH 30-39	Small omnivorous mammal “mouse”	Long-term	0.011	18	5
Risk from bioaccumulation and food chain behaviour					
Not relevant (Log P_{OW} < 3)					
Risk from consumption of contaminated water					
Leaf scenario – not relevant					
Puddle scenario, Screening step Birds: Application rate (30 g a.s./ha)/NOAEL (21 mg a.s./kg bw per day) <50 (K_{OC}<500 L/kg), TER calculation not needed Mammals: Application rate (30 g a.s./ha)/NOAEL (2 mg a.s./kg bw per day) <50 (K_{OC}<500 L/kg), TER calculation not needed					

Toxicity data for all aquatic tested species (Regulation (EU) N° 283/2013, Annex Part A, points 8.2 and Regulation (EU) N° 284/2013 Annex Part A, point 10.2)

Test species	Test substance	Time-scale	Endpoint	Toxicity [a] mg/L	Remark
Fish					
Oncorhynchus mykiss Rainbow trout	Tribenuron-methyl	96h (static)	Sublethal effects, NOEC Mortality, **LC_{50}**	183 **738 (mm)**	
Oncorhynchus mykiss Rainbow trout	Tribenuron-methyl 50SG	96h (static)	Mortality NOEC LC_{50},	63 >63 (a.s. measured)	Limit test
Oncorhynchus mykiss Rainbow trout	Tribenuron-methyl 750 WG	96h (static) (static)	Mortality NOEC LC_{50},	75 >75 (a.s. nominal)	Limit test
Oncorhynchus mykiss Rainbow trout	IN-00581 = saccharin	96h (static)	Loss of equilibrium, NOEC Mortality, **LC_{50}**	69 **>124** (mm)	
Oncorhynchus mykiss Rainbow trout	IN-00581 = saccharin	This metabolite was also evaluated for metsulfuron-methyl and propoxycarbazone-sodium (EFSA, 2015a and EFSA, 2016b). The reported 96h LC_{50} is >124 mg/L (mm)			
Oncorhynchus mykiss Rainbow trout	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	96h (static)	Mortality, **LC_{50}**	**>200 (nom)**	Limit test.
Oncorhynchus mykiss Rainbow trout	IN-D5119 Acid sulfonamide	96h (static)	Mortality**, LC_{50}**	**>115 (mm)**	
Oncorhynchus mykiss Rainbow trout	IN-L5296 Methyl triazine amine	96h (static)	Mortality, NOEC LC_{50}	130 >180 (mm)	
Oncorhynchus mykiss Rainbow trout	IN-L5296 Methyl triazine amine	96h (static)	Sublethal effects, NOEC, Mortality**, LC_{50}**	116 **172 (mm)**	
Oncorhynchus mykiss Rainbow trout	Tribenuron-methyl	21d (flow-through)	Length, weight survival, NOEC	560 (mm)	NOEC = highest tested concentration
Cyprinodon variegatus Sheepshead minnow	Tribenuron-methyl	28d (flow-through) Early lifestage (ELS)	Larval length weight, survival, **NOEC**	**11.9 (mm)**	NOEC = highest tested concentration
Aquatic invertebrates					
Daphnia magna Water flea	Tribenuron-methyl	48h (static)	Immobility, NOEC **EC_{50}**	894 **>894 (mm)**	NOEC = highest concentration tested
Daphnia magna Water flea	Tribenuron-methyl 50SG (DuPont)	48h (static)	Immobility NOEC EC_{50}	31 >63 (a.s. measured)	
Daphnia magna Water flea	Tribenuron-methyl 50SG plus DUPX-KG691 surfactant	48h (static)	Lethargy, NOEC Immobility, **EC_{50}**	7.2 **33** (a.s. measured)	
Daphnia magna Water flea	Tribenuron-methyl 750 WG (Task Force)	48h (static)	Immobility, NOEC **EC_{50}**	7.1 **27.1 (a.s. nom)**	
Daphnia magna Water flea	IN-00581 = saccharin	48h (static)	Immobility, **EC_{50},**	**>118 (mm)**	Limit test

Test species	Test substance	Time-scale	Endpoint	Toxicity [a] mg/L	Remark
Daphnia magna Water flea	IN-00581 = saccharin	This metabolite was also evaluated for metsulfuron-methyl and propoxycarbazone-sodium (EFSA, 2015a and EFSA, 2016b). The reported 48h EC_{50} is >118 mg/L (mm)			
Daphnia magna Water flea	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	48h (static)	Sublethal effects (lethargic or floating at surface), NOEC, Immobility, **EC_{50}**	25 **>99 (mm)**	
Daphnia magna Water flea	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	48h (static)	Immobility, EC_{50}	>100 (nom)	Limit test
Daphnia magna Water flea	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	This metabolite was also evaluated for iodosulfuron-methyl-sodium, prosulfuron, triasulfuron, chlorsulfuron, thifensulfuron-methyl and metsulfuron-methyl. The lowest reported 48h ErC_{50} was 16 mg/L (nom) in the RAR for prosulfuron.			
Daphnia magna Water flea	IN-D5119 Acid sulfonamide	48h (static)	Immobility, **EC_{50}**	**>120 (nom)**	
Daphnia magna Water flea	IN-L5296 Methyl triazine amine	48h (static)	Immobility, EC_{50}	>115 (nom)	Limit test
Daphnia magna Water flea	IN-L5296 Methyl triazine amine	48h (static)	Sublethal effects (floating), NOEC, Immobility, **EC_{50},**	121 **>1020 (mm)**	
Daphnia magna Water flea	Tribenuron-methyl	21d (static-renewal)	Adult length, NOEC, Reproduction, **EC_{10},** EC_{20}, EC_{50}	120 **52** 109 340 (mm)	
Daphnia magna Water flea	Tribenuron-methyl	21d (static-renewal)	Adult length, NOEC	114 (mm)	
Daphnia magna Water flea	Tribenuron-methyl	21d (static-renewal)	Mortality, reproduction, NOEC	41 (nom)	
Daphnia magna Water flea	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	**21d (static)**	Growth rate, **NOEC**	**97 (mm)**	
Daphnia magna Water flea	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	This metabolite was also evaluated for prosulfuron, triasulfuron chlorsulfuron thifensulfuron-methyl and metsulfuron-methyl. The lowest reported 21d NOEC for reproduction was 32 mg/L (nom) in the RARs for thifensulfuron-methyl and metsulfuron-methyl.			
Daphnia magna Water flea	IN-L5296 Methyl triazine amine	**21d (static)**	Adult weight, **NOEC**	**49 (mm)**	
Algae					
Pseudokirchneriella subcapitata Green algae	Tribenuron-methyl	72h (static)	Growth rate NOEC ErC_{10} ErC_{20} **ErC_{50}** Biomass EbC_{50}[1]	 0.004 0.011 0.021 **0.068 (nom)** 0.021	Used for risk assessment of Task Force's applications

Test species	Test substance	Time-scale	Endpoint	Toxicity [a] mg/L	Remark
Pseudokirchneriella subcapitata Green algae	Tribenuron-methyl 50SG (DuPont)	72h (static)	Growth rate NOEC ErC_{10} ErC_{20} ErC_{50} Biomass EbC_{50}[1]	 0.0017 0.0053 0.0011 >0.032 (a.s. measured) 0.0162 (formulation; nom)	
Pseudokirchneriella subcapitata Green algae	Tribenuron-methyl 50SG plus DUPX-KG691 surfactant	72h (static)	Growth rate NOEC ErC_{10} ErC_{20} **ErC_{50}** Biomass EbC_{50}[1]	 0.0054 0.0059 0.0084 **0.0169 (a.s. measured)** 0.0076 (a.s. measured)	Used for risk assessment of DuPont's applications
Pseudokirchneriella subcapitata Green algae	Tribenuron-methyl 750 WG (Task Force)	72h (static)	Growth rate NOEC ErC_{10} ErC_{20} ErC_{50} Biomass EbC_{50}[1]	 0.0075 0.027 0.055 0.32 (a.s. nominal) 0.042 (a.s. nominal)	
Pseudokirchneriella subcapitata Green algae	IN-00581 = saccharin	72h (static)	Growth rate, **ErC_{50},** Biomass, EC_{50}[1]	**>10 (nom** >10	Limit test
Pseudokirchneriella subcapitata Green algae	IN-00581 = saccharin	This metabolite was also evaluated for metsulfuron-methyl and propoxycarbazone-sodium (EFSA 2015a). The lowest reported 72h ErC_{50} was >10 mg/L (nom) in the RAR metsulfuron-methyl~~.~~			
Pseudokirchneriella subcapitata Green algae	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	96h (static)	Growth rate, ErC_{50}, Biomass, EC_{50}[1]	>100 >100	
Pseudokirchneriella subcapitata Green algae	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	72h (static)	Growth rate, ErC_{50}, Biomass, EC_{50}[1]	>100 (nom) >100	
Scenedesmus subspicatus Green algae	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	72h (static)	Biomass**, Eb~~r~~C_{50}**	**>90 (nom)**	
Pseudokirchneriella subcapitata and *Scenedesmus subspicatus* Green algae	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	This metabolite was also evaluated for iodosulfuron-methyl-sodium, prosulfuron, triasulfuron, chlorsulfuron, thifensulfuron-methyl and metsulfuron-methyl (EFSA, 2008; 2014b; 2015a,b,c; 2016a,b). The lowest reported 72h ErC_{50} and EbC_{50} for *Pseudokirchneriella subcapitata* are >10 (nom) in the RARs for chlorsulfuron and thifensulfuron-methyl. The lowest reported 72h ErC_{50} and EbC_{50} for *Scenedesmus subspicatus* are >90 (nom) in the RARs for prosulfuron and thifensulfuron-methyl			
Pseudokirchneriella subcapitata Green algae	IN-R9803 Tribenuron acid	72h (static)	Growth rate, NOEC **ErC_{50}** Biomass EC_{50}[1]	 0.366 **8.48 (mm)** 3.12	Limit test
Pseudokirchneriella subcapitata Green algae	IN-R9805 O-demethyl triazine amine	72h (static)	Growth rate, ErC_{50} Biomass EC_{50}[1]	 >100 >100	Limit test

Test species	Test substance	Time-scale	Endpoint	Toxicity [a] mg/L	Remark
Pseudokirchneriella subcapitata Green algae	IN-R9805 O-demethyl triazine amine	72h (static)	Growth rate NOEC ErC_{10} ErC_{20} **ErC_{50}** Biomass EbC_{50}[1]	 22 42 64 **142 (nom)** 53	
Pseudokirchneriella subcapitata Green algae	IN-GN815	72h (static)	Growth rate, ErC_{50}, Biomass, EC_{50}[1]	**>120 (nom)** >120	
Pseudokirchneriella subcapitata Green algae	IN-GN815	72h (static)	Growth rate, ErC_{50}, Biomass, EC_{50}[1]	>100 (nom) >100	
Pseudokirchneriella subcapitata Green algae	IN-GK521	72h (static)	Growth rate, ErC_{50}, Biomass, EC_{50}[1]	>100 (nom) >100	
Pseudokirchneriella subcapitata Green algae	IN-GK521	72h (static)	Growth rate NOEC ErC_{10} ErC_{20} **ErC_{50}** Biomass EbC_{50}[1]	 0.95 1.60 3.27 **12.9 (nom)** 2.95	
Pseudokirchneriella subcapitata Green algae	IN-D5803 Sulfonamide, methylsaccharin	72h (static)	Growth rate NOEC ErC_{10} ErC_{20} **ErC_{50}** Biomass EbC_{50}[1]	Numerical NOEC-value cannot be assigned. **>19.7** (geometric mean of measured initial and measured at highest test concentration after 72h) >19.7	Measured concentrations at the end of the test were below LOD (0.006 mg/L) in all but the highest test concentration.
Pseudokirchneriella subcapitata Green algae	IN-D5803 Sulfonamide, methylsaccharin	This metabolite was also evaluated for metsulfuron-methyl. The lowest reported 72h ErC50 and EbC50 for *Pseudokirchneriella subcapitata* are >3.46 mg/L (nom). However, it is the same study as used in the present report, which was not regarded as valid due to deficiencies in recovery and analytics of the test substance. It is noted that the peer review of metsulfuron-methyl was performed before the publication of the technical report of the peer review expert meeting 133 which included guidance on endpoints derivations when the concentration of the active substance is not maintained.			
Pseudokirchneriella subcapitata Green algae	M2 Triazine urea	72h (static)	Growth rate, **ErC_{50},** Biomass, EC_{50}[1]	**>100 (nom)** >100	
Pseudokirchneriella subcapitata	IN-D5119 Acid sulfonamide	72h (static)	Growth rate, **ErC_{50},** Biomass, EC_{50}[1]	**>10 (mm)** >10	Limit test
Pseudokirchneriella subcapitata Green algae	IN-L5296 Methyl triazine amine	72h (static)	Growth rate, **ErC_{50},** Biomass, EC_{50}[1]	**>10 (nom)** >10	Limit test
Anabaena flos-aquae Cyanobacteria	Tribenuron-methyl	72h (static)	Growth rate, NOEC **ErC_{50}** Biomass EyC_{50}[1]	 10, **>100 (nom)** 62.5	
Higher plants					
Lemna gibba Duck weed	Tribenuron-methyl	7d (static)	Growth rate, NOErC ErC_{10}, ErC_{20}, **ErC_{50}**	 0.001 0.0024 0.0039 **0.0047** (nom)	

Test species	Test substance	Time-scale	Endpoint	Toxicity [a] mg/L	Remark
Lemna gibba Duck weed	Tribenuron-methyl	7d, 12h exposure (static)	Growth rate (frond count), NOECr ErC_{10} ErC_{20} ErC_{50} Yield (frond count) EyC_{50}[1]	 0.1 0.005 0.17 >0.625 0.460	Higher tier study which may be applicable if appropriate exposure scenarios are provided. It should be noted, though, that this kind of refinement would not be accepted for product authorisations within the Northern Zone.
		7d, 24h exposure (static)	Growth rate (frond count), NOECr ErC_{10} ErC_{20} ErC_{50} Yield (frond count) EyC_{50}[1]	 0.006 0.004 0.011 >0.250 0.047	
		7d, 48h exposure (static)	Growth rate (frond count), NOECr ErC_{10} ErC_{20} ErC_{50} Yield (frond count) EyC_{50}[1]	 0.006 0.003 0.007 >0.100 0.011	
		7d, 96h exposure (static)	Growth rate (frond count), NOECr ErC_{10} ErC_{20} ErC_{50} Yield (frond count) EyC_{50}[1]	 0.001 0.001 0.002 0.016 (mm) 0.0029	
Lemna gibba Duck weed	Tribenuron-methyl	16d low temperature (8°C), (static)	Growth rate days 9-19 (frond count), NOEC ErC_{10} ErC_{20} ErC_{50} Yield (frond count) EyC_{50}[1]	 0.036 0.080 0.327 >0.401 (mm) 0.349	Higher tier study simulating exposure during dormancy. Not accepted for refinement at the PPR 157 meeting for tribenuron-methyl.
Lemna gibba Duck weed	Tribenuron-methyl	16d low temperature (12°C), (static)	Growth rate days 0-9 (frond count), NOEC ErC_{10} ErC_{20} **ErC_{50}**	 0.0041 n.a. n.a. **0.0062 (mm)**	Higher tier study simulating exposure during dormancy. Not accepted for refinement at the PPR 157 meeting for tribenuron-methyl.
Myriophyllum spicatum	Tribenuron-methyl	14d (static), with sediment	Growth rate, NOEC Necrosis, NOEC ErC_{10} ErC_{20} ErC_{50} Apical bud damage, NOEC	94 0.87 3.5 9.7 >94 <0.0022 (mm)	

Test species	Test substance	Time-scale	Endpoint	Toxicity [a] mg/L	Remark
Myriophyllum spicatum	Tribenuron-methyl	14d (static), with sediment	Growth rate (fresh weight), NOEC ErC_{10} ErC_{20} ErC_{50}	 0.00095 0.00081 0.0017 0.0065 (nom)	
Elodea canadensis	Tribenuron-methyl	14d (static), with sediment	Chlorosis, NOEC Growth rate (biomass), NOEC Shoot dry weight, NOEC	1.0 (nom) 10 0.01	
Lemna gibba Duck weed	Tribenuron-methyl 50SG (DuPont)	7d (static)	Growth rate (frond count), NOEC ErC_{10} ErC_{20} **$ErCr_{50}$** Yield EyC_{50}[1]	 0.001 0.0011 0.0017 **0.0033** (a.s. nom) Not reported at 7 d	
Lemna gibba Duck weed	Tribenuron-methyl 50SG plus DPX-KG691 surfactant	7d (static)	Growth rate (frond count) NOEC ErC_{10} ErC_{20} **$ErCr_{50}$** Yield (frond count) EyC_{50}[1]	 0.00063 0.0008 0.00134 **0.0036** (a.s. ~~methyl~~ measured) 0.00199	
Lemna gibba Duck weed	Tribenuron-methyl 750 WG (Task Force)	7d (static)	Growth rate (frond count), NOEC ErC_{10} ErC_{20} **$ErCr_{50}$** Yield (frond count) EyC_{50}[1]	 0.00075 0.00067 0.0013 **0.0029** (a.s. nom) 1.63 (a.s. nom)	
Myriophyllum spicatum	Tribenuron-methyl 750 WG (Task Force)	14d (static) sediment	Growth rate (shoot fresh weight), NOEC ErC_{10} ErC_{20} **$ErCr_{50}$** Yield[1] (shoot length) NOEC, ErC_{10}, ErC_{20}, $ErCr_{50}$	 0.00072 0.00088 0.0019 **0.0077** 0.00095 0.00196 0.00267 0.0048 (a.s.nom)	
Lemna gibba Duck weed	IN-00581 = saccharin	7d (static)	Growth rate (frond count) NOEC ErC_{10} ErC_{20} **$ErCr_{50}$** Yield (frond count) EyC_{50}[1]	 0.7 1.18 4.02 **>11 (mm)** >11	

Test species	Test substance	Time-scale	Endpoint	Toxicity [a] mg/L	Remark
Lemna gibba Duck weed	IN-00581 = saccharin	This metabolite was also evaluated for metsulfuron-methyl, ethametsulfuron-methyl and propoxycarbazone-sodium (EFSA, 2015a; 2014a; 2016b). The lowest reported 14d EC_{50} for Inhibition of no. healthy fronds is 5.48 mg/L (nom) in the RARs for ethametsulfuron-methyl. However, since the result was based on frond count and not on inhibition of growth rate, the value reported in the current assessment was used in the risk assessment			
Lemna gibba Duck weed	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	7d (static)	Growth rate (frond count), NOEC ErC_{10} ErC_{20} **$ErCr_{50}$** Biomass EC_{50}[1]	 32 **>100 (nom)** >100	
Lemna gibba Duck weed	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	14d (static)	Growth rate (frond count), $ErCr_{50}$ Biomass EC_{50}[1]	>10 (nom) >10	Limit test
Lemna gibba Duck weed	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	7d (static)	Growth rate (frond count), $ErCr_{50}$ Biomass EC_{50}[1]	>100 (nom) >100	
Lemna gibba Duck weed	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	7d (static)	Growth rate (frond count) NOEC ErC_{10} ErC_{20} **$ErCr_{50}$** Biomass EC_{50}[1]	 31 70 >100 **>100 (nom)** >100	
Lemna gibba Duck weed	IN-A4098 = N-demethyl triazine amine (AE F059411, CG A150829)	This metabolite was also evaluated for iodosulfuron-methyl-sodium, prosulfuron, triasulfuron, chlorsulfuron, thifensulfuron-methyl and metsulfuron-methyl (EFSA, 2008; 2014b; 2015a,b,c; 2016a,b). The lowest reported 7d or 14d EbC_{50} and ErC_{50} are >10 (nom) in several of the RARs.			
Lemna gibba Duck weed	IN-D5119 Acid sulfonamide	7d (static)	Growth rate (frond count), NOEC ErC_{10} ErC_{20} **$ErCr_{50}$** Biomass EC_{50}[1]	 <0.7 1.17 11.19 **>11 (nom)** >11	
Lemna gibba Duck weed	IN-L5296 Methyl triazine amine	14d (static)	Growth rate (frond count), **$ErCr_{50}$** Biomass EC_{50}[1]	**>10 (nom)** >10	Limit test
Lemna gibba Duck weed	IN-R9803 Tribenuron acid	7d (static)	Growth rate (frond count) NOEC ErC_{10} ErC_{20} **$ErCr_{50}$** Yield (frond count) EC_{50}[1]	 3.2 5.64 7.60 **13.5 (mm)** 7.93	
Lemna gibba Duck weed	IN-R9805 O-demethyl triazine amine	14d (static)	Growth rate (frond count) $ErCr_{50}$ Biomass EC_{50}[1]	>100 (nom) >100	Limit test
Lemna gibba Duck weed	IN-R9805 O-demethyl triazine amine	7d (static)	Growth rate (frond count), **$ErCr_{50}$** Yield EC_{50}[1]	**>100 (nom)** >100	

Test species	Test substance	Time-scale	Endpoint	Toxicity [a] mg/L	Remark
Lemna gibba Duck weed	IN-GN815	7d (static)	Growth rate (frond count) NOEC ErC_{10} ErC_{20} **$ErCr_{50}$** Yield (dry weight) EC_{50}[1]	 1.2 6.4 38.4 **>120 (nom)** 26	
Lemna gibba Duck weed	IN-GN815	7d (static)	Growth rate (frond count) NOEC ErC_{10} ErC_{20} $ErCr_{50}$ Yield (dry weight) EC_{50}[1]	 10 27 >100 >100 (nom) 99	
Lemna gibba Duck weed	IN-GK521	7d (static)	Growth rate (frond count) NOEC ErC_{10} ErC_{20} $ErCr_{50}$ Yield (dry weight) EC_{50}[1]	 4.43 4.96 7.17 12.95 (mm) 7.71	
Lemna gibba Duck weed	IN-GK521	7d (static)	Growth rate (frond count), NOEC ErC_{10}, ErC_{20}, **$ErCr_{50}$** Yield (frond count) EC_{50}[1]	 0.03 0.07 0.11 **0.29 (nom)** 0.125	
Lemna gibba Duck weed	IN-D5803 Sulfonamide, methylsaccharin	7d (static)	Growth rate (frond count), NOEC ErC_{10} **ErC_{20}** ErC_{50}	 0.3 approx. 0.9 **10** (nominal degradation product saccharine) ErC_{50} calculation not possible	Results are based on measured concentrations of the metabolite saccharine since methylsaccharine hydrolyses rapidly to saccharin. Growth inhibition peaked at 20% at 10 mg/L. Therefore, an ErC_{50} cannot be determined. **ErC_{20} is hence selected for the risk assessment.**
Lemna gibba Duck weed	IN-D5803 Sulfonamide, methylsaccharin	This metabolite also evaluated for metsulfuron-methyl and ethametsulfuron-methyl (EFSA, 2014a, 2015a). The metsulfuron-methyl studies appear to be the same as evaluated in this RAR. The same problems with instability of the substance were encountered. However, it appears that this was not taken into account that the inhibition has a bell-shaped dose-response relation, meaning that EC_{50} values cannot be derived. The lowest EC_{50} (fronds and biomass) was >1.36 mg/L (mm) reported in the RAR for ethametsulfuron-methyl. However, since that value was not based on inhibition of growth rate, the value reported in the current assessment was used in the risk assessment				
Lemna gibba Duck weed	M2 Triazine urea	7d (static)	Growth rate (frond count) NOEC ErC_{10} ErC_{20} **$ErCr_{50}$** Yield EC_{50}[1]	 40 >100 >100 **>100 (nom)** >100	

[a)] (nom) nominal concentration; (mm) mean measured concentration
[1)] Endpoints based on biomass have been included in line with the agreements at the pesticide peer review meeting 133.

Bioconcentration in fish (Annex Part A, point 8.2.2.3)

The Log Pow for tribenuron-methyl and the metabolites relevant for the environment were below 3. Hence, bioconcentration is expected to be low.

Toxicity/exposure ratios for the most sensitive aquatic organisms (Regulation (EU) N° 284/2013, Annex Part A, point 10.2)

Acute and chronic toxicity of tribenuron-methyl to aquatic organisms for calculation of tier 1 RAC

Tribenuron-methyl	Standard test species	Duration	Endpoint	Value (mg a.s./L)	Calculation of RAC (mg a.s./L)		Acute RAC (µg a.s./L)	Chronic RAC (µg a.s./L)
Acute effect assessment	**Fish**						**270**	**0.47**
	Oncorhynchus mykiss	96h	LC_{50}	738	LC_{50}/100	7.38		
	Invertebrates							
	Daphnia magna	48h	EC_{50}	a.s.: >894 DUP: 33* TTF: 27*	EC_{50}/100	DUP: 0.33 TTF: 0.27		
Chronic effect assessment	**Fish**							
	Oncorhynchus mykiss	28d	NOEC larval growth	11.9	NOEC/10	1.19		
	Invertebrates							
	Daphnia magna	21d	EC_{10} reproduction	52	NOEC/10	5.2		
	Algae							
	Pseudokirchneriella subcapitata	72h	ErC_{50}	DUP: 0.017 * a.s.: 0.068	ECr_{50}/10	DUP: 0.0017 TTF: 0.0068		
	Macrophyta							
	Lemna gibba	7d	ErC_{50} frond count	a.s.: 0.0047 DUP: 0.0033* TTF: 0.0029*	ECr_{50}/10	**DUP: 0.00033** **TTF: 0.00029**		

* based on a study with the representative formulation, possibly including contribution from co-formulant(s).

Acute and chronic toxicity of IN-L5296 to aquatic organisms for calculation of tier 1 RAC

IN-L5296	Standard test species	Duration	Endpoint	Value (mg a.s./L)	Calculation of RAC (mg a.s./L)		Acute RAC (µg a.s./L)	Chronic RAC (µg a.s./L)
Acute effect assessment	**Fish**						**1720**	**1000**
	Oncorhynchus mykiss	96h	LC_{50}	172	LC_{50}/100	1.72		
	Invertebrates							
	Daphnia magna	48h	EC_{50}	>1020	EC_{50}/100	10.2		
Chronic effect assessment	**Fish**							
	Oncorhynchus mykiss	28d	NOEC larval growth	11.9*	NOEC/10	1.19		
	Invertebrates							
	Daphnia magna	21d	NOEC growth	49	NOEC/10	4.9		
	Algae							
	Pseudokirchneriella subcapitata	72h	ErC_{50}	>10	ECr_{50}/10	**1.0**		
	Macrophyta							
	Lemna gibba	14d	ErC_{50} frond count	>10	ECr_{50}/10	**1.0**		

* No test available. Endpoint was derived by assuming the toxicity of the metabolite equal to the active substance

Acute and chronic toxicity of IN-A4098 to aquatic organisms for calculation of tier 1 RAC

IN-A4098	Standard test species	Duration	Endpoint	Value (mg a.s./L)	Calculation of RAC (mg a.s./L)		Acute RAC (µg a.s./L)	Chronic RAC (µg a.s./L)
Acute effect assessment	**Fish**						**9.3**	**9000**
	Oncorhynchus mykiss	96h	LC_{50}	>200	LC_{50}/100	2		
	Oncorhynchus mykiss	96h	LC_{50}	>0.93[#]	LC_{50}/100	**0.0093**		
	Invertebrates							
	Daphnia magna	48h	EC_{50}	>99	EC_{50}/100	0.99		
Chronic effect assessment	**Fish**							
	Oncorhynchus mykiss	28d	NOEC larval growth	11.9*	NOEC/10	1.19		
	Invertebrates							
	Daphnia magna	21d	NOEC growth rate	97	NOEC/10	9.7		
	Algae							
	Pseudokirchneriella subcapitata	72h	ErC_{50}	>90	ECr_{50}/10	9		
	Macrophyta							
	Lemna gibba	7d	ErC_{50} frond count	>100	ECr_{50}/10	10		

[#] This metabolite was also evaluated for prosulfuron, triasulfu-ron, chlorsulfuron, thifensulfuron-methyl and metsulfuron-methyl (EFSA, 2014b, 2015a,b,c, 2008) . The lowest re-ported 96h LC_{50} >0.93 mg/L (mm).

* No test available. Endpoint was derived by assuming the toxicity of the metabolite equal to the active substance

Acute and chronic toxicity of IN-00581 to aquatic organisms for calculation of tier 1 RAC

IN-00581	Standard test species	Duration	Endpoint	Value (mg a.s./L)	Calculation of RAC (mg a.s./L)		Acute RAC (µg a.s./L)	Chronic RAC (µg a.s./L)
Acute effect assessment	**Fish**						**1180**	**1000**
	Oncorhynchus mykiss	96h	LC_{50}	>124	LC_{50}/100	1.24		
	Invertebrates							
	Daphnia magna	48h	EC_{50}	>118	EC_{50}/100	1.18		
Chronic effect assessment	**Fish**							
	Oncorhynchus mykiss	28d	NOEC larval growth	11.9*	NOEC/10	1.19		
	Invertebrates							
	Daphnia magna	21d	EC_{10} reproduction	52*	NOEC/10	5.2		
	Algae							
	Pseudokirchneriella subcapitata	72h	ErC_{50}	>10	ECr_{50}/10	**1**		
	Macrophyta							
	Lemna gibba	7d	ErC_{50} frond count	>11	ECr_{50}/10	1.1		

* No test available. Endpoint was derived by assuming the toxicity of the metabolite equal to the active substance

Acute and chronic toxicity of IN-GK521 to aquatic organisms for calculation of tier 1 RAC

IN-GK521	Standard test species	Duration	Endpoint	Value (mg a.s./L)	Calculation of RAC (mg a.s./L)		Acute RAC (µg a.s./L)	Chronic RAC (µg a.s./L)
Acute effect assessment	**Fish**						**230**	**29**
	Oncorhynchus mykiss	96h	LC_{50}	738*	LC_{50}/100	7.38		
	Invertebrates							
	Daphnia magna	48h	EC_{50}	23*	EC_{50}/100	0.23		
Chronic effect assessment	**Fish**							
	Oncorhynchus mykiss	28d	NOEC larval growth	11.9*	NOEC/10	1.19		
	Invertebrates							
	Daphnia magna	21d	EC_{10} reproduction	52*	NOEC/10	5.2		
	Algae							
	Pseudokirchneriella subcapitata	72h	ErC_{50}	12.9	ECr_{50}/10	1.29		
	Macrophyta							
	Lemna gibba	7d	ErC_{50} frond count	0.29	ECr_{50}/10	**0.029**		

* No test available. Endpoint was derived by assuming the toxicity of the metabolite equal to the active substance

Acute and chronic toxicity of IN-R9805 to aquatic organisms for calculation of tier 1 RAC

IN-R9805	Standard test species	Duration	Endpoint	Value (mg a.s./L)	Calculation of RAC (mg a.s./L)		Acute RAC (µg a.s./L)	Chronic RAC (µg a.s./L)
Acute effect assessment	**Fish**						**230**	**1190**
	Oncorhynchus mykiss	96h	LC_{50}	738*	LC_{50}/100	7.38		
	Invertebrates							
	Daphnia magna	48h	EC_{50}	23*	EC_{50}/100	**0.23**		
Chronic effect assessment	**Fish**							
	Oncorhynchus mykiss	28d	NOEC larval growth	11.9*	NOEC/10	1.19		
	Invertebrates							
	Daphnia magna	21d	EC_{10} reproduction	52*	NOEC/10	5.2		
	Algae							
	Pseudokirchneriella subcapitata	72h	ErC_{50}	142	ECr_{50}/10	14.2		
	Macrophyta							
	Lemna gibba	7d	ErC_{50} frond count	>100	ECr_{50}/10	10		

* No test available. Endpoint was derived by assuming the toxicity of the metabolite equal to the active substance

Acute and chronic toxicity of IN-D5119 to aquatic organisms for calculation of tier 1 RAC

IN-D5119	Standard test species	Duration	Endpoint	Value (mg a.s./L)	Calculation of RAC (mg a.s./L)		Acute RAC (µg a.s./L)	Chronic RAC (µg a.s./L)
Acute effect assessment	**Fish**						**1150**	**1000**
	Oncorhynchus mykiss	96h	LC_{50}	>115	LC_{50}/100	1.15		
	Invertebrates							
	Daphnia magna	48h	EC_{50}	>120	EC_{50}/100	1.2		
Chronic effect assessment	**Fish**							
	Oncorhynchus mykiss	28d	NOEC larval growth	11.9*	NOEC/10	1.19		
	Invertebrates							
	Daphnia magna	21d	EC_{10} reproduction	52*	NOEC/10	5.2		
	Algae							
	Pseudokirchneriella subcapitata	72h	ErC_{50}	>10	ECr_{50}/10	**1**		
	Macrophyta							
	Lemna gibba	7d	ErC_{50} frond count	>11	ECr_{50}/10	1.1		

Acute and chronic toxicity of IN-GN815 to aquatic organisms for calculation of tier 1 RAC

IN-GN815	Standard test species	Duration	Endpoint	Value (mg a.s./L)	Calculation of RAC (mg a.s./L)		Acute RAC (µg a.s./L)	Chronic RAC (µg a.s./L)
Acute effect assessment	**Fish**						**230**	**1190**
	Oncorhynchus mykiss	96h	LC_{50}	738*	LC_{50}/100	7.38		
	Invertebrates							
	Daphnia magna	48h	EC_{50}	23*	EC_{50}/100	**0.23**		
Chronic effect assessment	**Fish**							
	Oncorhynchus mykiss	28d	NOEC larval growth	11.9*	NOEC/10	1.19		
	Invertebrates							
	Daphnia magna	21d	EC_{10} reproduction	52*	NOEC/10	5.2		
	Algae							
	Pseudokirchneriella subcapitata	72h	ErC_{50}	>120	ECr_{50}/10	12		
	Macrophyta							
	Lemna gibba	7d	ErC_{50} frond count	>120	ECr_{50}/10	12		

* No test available. Endpoint was derived by assuming the toxicity of the metabolite equal to the active substance

Acute and chronic toxicity of M2 to aquatic organisms for calculation of tier 1 RAC

M2	Standard test species	Duration	Endpoint	Value (mg a.s./L)	Calculation of RAC (mg a.s./L)		Acute RAC (µg a.s./L)	Chronic RAC (µg a.s./L)
Acute effect assessment	**Fish**						**230**	**1190**
	Oncorhynchus mykiss	96h	LC_{50}	738*	LC_{50}/100	7.38		
	Invertebrates							
	Daphnia magna	48h	EC_{50}	23*	EC_{50}/100	**0.23**		
Chronic effect assessment	**Fish**							
	Oncorhynchus mykiss	28d	NOEC larval growth	11.9*	NOEC/10	1.19		
	Invertebrates							
	Daphnia magna	21d	EC_{10} reproduction	52*	NOEC/10	5.2		
	Algae							
	Pseudokirchneriella subcapitata	72h	ErC_{50}	>100	ECr_{50}/10	10		
	Macrophyta							
	Lemna gibba	7d	ErC_{50} frond count	>100	ECr_{50}/10	10		

* No test available. Endpoint was derived by assuming the toxicity of the metabolite equal to the active substance

FOCUSsw step 1-3 – PEC values for tribenuron-methyl and relevant metabolites – DuPont Sunflowers at 30g a.s./ha g a.s./ha x 1									
	Active substance	**IN-L5296**	**IN-A4098**	**IN-00581**	**IN-R9805**	**IN-D5119**	**IN-GN815**	**IN-GK521**	**M2**
Tier 1 chronic RAC (µgL)	**0.47 µg/L**	**1000 µg/L**	**9.3 µg/L**	**1000 µg/L**	**230 µg/L**	**1000 µg/L**	**230 µg/L**	**29 µg/L**	**230 µg/L**
Effect on most sensitive organism	*Lemna gibba* 7d ErC_{50} 0.0047 mg/L	*Lemna gibba* 14d ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} >0.93 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Lemna gibba* 7d ErC_{50} 0.29 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L
Higher tier RAC (µg L)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Scenario	**PEC global max (µg L)** pH >7/ pH <7	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**
FOCUS Step 1									
	10.163 / 9.783	3.106	0.521	1.608	0.251	0.346	0.652	3.295	0.852
FOCUS Step 2									
North Europe	1.576 / 1.132	0.564	0.160	0.267	0.050	0.077	0.101	0.656	0.221
South Europe	2.916 / 2.033	1.040	0.227	0.485	0.086	0.116	0.169	1.050	0.315
FOCUS Step 3									
D5 Pond	0.015 / 0.006	-	-	-	-	-	-	-	-
D5 Stream	0.139 / 0.134	-	-	-	-	-	-	-	-
R1 Pond	0.010 / 0.014	-	-	-	-	-	-	-	-
R1 Stream	0.281 / 0.277	-	-	-	-	-	-	-	-
R3 Stream	0.153 / 0.153	-	-	-	-	-	-	-	-
R4 Stream	1.263 / 0.839	-	-	-	-	-	-	-	-

FOCUSsw step 4 - PEC values for tribenuron-methyl – DuPont Sunflowers at 30g a.s./ha g a.s./ha x 1		
Tier 1 RAC (µg L)	**0.47**	
Higher tier RAC (µg L)	n.a.	
Scenario	**Mitigation options**	**PECsw (µg/L)**
FOCUS Step 4 [a)]		
R4 Stream pH<7	10 m spray drift buffer + vegetative filter strip	0.382
R4 Stream pH>7	10 m spray drift buffer + vegetative filter strip	0.574
R4 Stream pH<7	20 m spray drift buffer + vegetative filter strip	0.200
R4 Stream pH>7	20 m spray drift buffer + vegetative filter strip	0.301

All PECsw values presented in this table are based on input parameters agreed at the Pesticides Peer Review Meeting 157 (06-07 April 2017). Shaded cells indicate unacceptable risk (PEC>RAC)

FOCUSsw step 1-3 – PEC values for tribenuron-methyl and relevant metabolites – DuPont Pasture at 7.5g a.s./ha g a.s./ha x 1									
	Active substance	**IN-L5296**	**IN-A4098**	**IN-00581**	**IN-R9805**	**IN-D5119**	**IN-GN815**	**IN-GK521**	**M2**
Tier 1 chronic RAC (µgL)	**0.47 µg/L**	**1000 µg/L**	**9.3 µg/L**	**1000 µg/L**	**230 µg/L**	**1000 µg/L**	**230 µg/L**	**29 µg/L**	**230 µg/L**
Effect on most sensitive organism	*Lemna gibba* 7d ErC_{50} 0.0047 mg/L	*Lemna gibba* 14d ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} >0.93 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Lemna gibba* 7d ErC_{50} 0.29 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L
Higher tier RAC (µg L)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Scenario	**PEC global max (µg L)** pH >7/ pH <7	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**
FOCUS Step 1									
	2.541 / 2.446	0.777	0.13	0.402	0.063	0.087	0.163	0.824	0.213
FOCUS Step 2									
North Europe	0.164 / 0.128	0.059	0.029	0.029	0.006	0.012	0.014	0.096	0.039
South Europe	0.268 / 0.199	0.097	0.034	0.046	0.009	0.015	0.019	0.127	0.046

All PECsw values presented in this table are based on input parameters agreed at the Pesticides Peer Review Meeting 157 (06-07 April 2017). Shaded cells indicate unacceptable risk (PEC>RAC)

FOCUSsw step 1-3 – PEC values for tribenuron-methyl and relevant metabolites – DuPont Winter cereals at 24g a.s./ha g a.s./ha x 1									
	Active substance	**IN-L5296**	**IN-A4098**	**IN-00581**	**IN-R9805**	**IN-D5119**	**IN-GN815**	**IN-GK521**	**M2**
Tier 1 chronic RAC (µgL)	**0.47 µg/L**	**1000 µg/L**	**9.3 µg/L**	**1000 µg/L**	**230 µg/L**	**1000 µg/L**	**230 µg/L**	**29 µg/L**	**230 µg/L**
Effect on most sensitive organism	*Lemna gibba* 7d ErC_{50} 0.0033 mg/L	*Lemna gibba* 14d ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} >0.93 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Lemna gibba* 7d ErC_{50} 0.29 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L
Higher tier RAC (µg L)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Scenario	**PEC global max (µg L)** pH >7/ pH <7	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**
FOCUS Step 1									
	8.13 / 7.826	2.485	0.417	1.287	0.201	0.277	0.522	2.636	0.682
FOCUS Step 2									
North Europe	0.859 / 0.635	0.309	0.108	0.148	0.029	0.049	0.060	0.406	0.148
South Europe	1.529 / 1.086	0.546	0.141	0.257	0.047	0.069	0.094	0.603	0.195
FOCUS Step 3									
D1 Ditch	0.222 / 0.170	-	-	-	-	-	-	-	-
D1 Stream	0.165 / 0.141	-	-	-	-	-	-	-	-
D2 Ditch	7.952 / 5.306	-	-	-	-	-	-	-	-
D2 Stream	5.469 / 3.374	-	-	-	-	-	-	-	-
D3 Ditch	0.173 / 0.152	-	-	-	-	-	-	-	-
D4 Pond	0.045 / 0.005	-	-	-	-	-	-	-	-
D4 Stream	0.143 / 0.127	-	-	-	-	-	-	-	-
D5 Pond	0.010 / 0.005	-	-	-	-	-	-	-	-
D5 Stream	0.124 / 0.121	-	-	-	-	-	-	-	-
D6 Ditch	0.154 / 0.153	-	-	-	-	-	-	-	-
R1 Pond	0.005 / 0.006	-	-	-	-	-	-	-	-
R1 Stream	0.222 / 0.161	-	-	-	-	-	-	-	-

R3 Stream	0.299 / 0.257	-	-	-	-	-	-	-	-
R4 Stream	0.708 / 0.592	-	-	-	-	-	-	-	-

All PECsw values presented in this table are based on input parameters agreed at the Pesticides Peer Review Meeting 157 (06-07 April 2017). Shaded cells indicate unacceptable risk (PEC>RAC)

FOCUSsw step 4 - PEC values for tribenuron-methyl – DuPont Winter cereals at 24 g a.s./ha g a.s./ha x 1

Tier 1 RAC (µg L)	**0.47**
Higher tier RAC (µg L)	n.a.

Scenario	**Mitigation options**	**PECsw (µg/L)**
FOCUS Step 4 [a)]		
R4 Stream pH<7	10 m spray drift buffer + vegetative filter strip	0.268
R4 Stream pH>7	10 m spray drift buffer + vegetative filter strip	0.320

All PECsw values presented in this table are based on input parameters agreed at the Pesticides Peer Review Meeting 157 (06-07 April 2017). Shaded cells indicate unacceptable risk (PEC>RAC)

FOCUSsw step 1-3 – PEC values for tribenuron-methyl and relevant metabolites – DuPont Spring cereals at 22.5 g a.s./ha g a.s./ha x 1									
	Active substance	**IN-L5296**	**IN-A4098**	**IN-00581**	**IN-R9805**	**IN-D5119**	**IN-GN815**	**IN-GK521**	**M2**
Tier 1 chronic RAC (µgL)	**0.47 µg/L**	**1000 µg/L**	**9.3 µg/L**	**1000 µg/L**	**230 µg/L**	**1000 µg/L**	**230 µg/L**	**29 µg/L**	**230 µg/L**
Effect on most sensitive organism	*Lemna gibba* 7d ErC_{50} 0.0047 mg/L	*Lemna gibba* 14d ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} >0.93 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Lemna gibba* 7d ErC_{50} 0.29 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L
Higher tier RAC (µg L)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Scenario	**PEC global max (µg L)** pH >7/ pH <7	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**
FOCUS Step 1									
	7.622 / 7.337	2.33	0.391	1.206	0.188	0.26	0.489	2.471	0.639
FOCUS Step 2									
North Europe	0.805 / 0.595	0.289	0.102	0.139	0.027	0.046	0.057	0.381	0.139
South Europe	1.433 / 1.018	0.512	0.133	0.241	0.044	0.065	0.088	0.566	0.183
FOCUS Step 3									
D1 Ditch	0.179 / 0.152	-	-	-	-	-	-	-	-
D1 Stream	0.126 / 0.126	-	-	-	-	-	-	-	-
D3 Ditch	0.179 / 0.143	-	-	-	-	-	-	-	-
D4 Pond	0.057 / 0.005	-	-	-	-	-	-	-	-
D4 Stream	0.125 / 0.123	-	-	-	-	-	-	-	-
D5 Pond	0.008 / 0.005	-	-	-	-	-	-	-	-
D5 Stream	0.126 / 0.125	-	-	-	-	-	-	-	-
R4 Stream	0.715 / 0.574	-	-	-	-	-	-	-	-

All PECsw values presented in this table are based on input parameters agreed at the Pesticides Peer Review Meeting 157 (06-07 April 2017). Shaded cells indicate unacceptable risk (PEC>RAC)

FOCUSsw step 4 - PEC values for tribenuron-methyl – DuPont Spring cereals at 22.5 g a.s./ha g a.s./ha x 1		
Tier 1 RAC (µg L)	**0.47**	
Higher tier RAC (µg L)	n.a.	
Scenario	**Mitigation options**	**PECsw (µg/L)**
FOCUS Step 4 [a)]		
R4 Stream pH<7	10 m spray drift buffer + vegetative filter strip	0.260
R4 Stream pH>7	10 m spray drift buffer + vegetative filter strip	0.324

All PECsw values presented in this table are based on input parameters agreed at the Pesticides Peer Review Meeting 157 (06-07 April 2017). Shaded cells indicate unacceptable risk (PEC>RAC)

FOCUSsw step 1-3 – PEC values for tribenuron-methyl and relevant metabolites – DuPont Olives at 20 g a.s./ha g a.s./ha x 1									
	Active substance	**IN-L5296**	**IN-A4098**	**IN-00581**	**IN-R9805**	**IN-D5119**	**IN-GN815**	**IN-GK521**	**M2**
Tier 1 chronic RAC (µgL)	**0.47 µg/L**	**1000 µg/L**	**9.3 µg/L**	**1000 µg/L**	**230 µg/L**	**1000 µg/L**	**230 µg/L**	**29 µg/L**	**230 µg/L**
Effect on most sensitive organism	*Lemna gibba* 7d ErC_{50} 0.0047 mg/L	*Lemna gibba* 14d ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} >0.93 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Lemna gibba* 7d ErC_{50} 0.29 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L
Higher tier RAC (µg L)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Scenario	**PEC global max (µg L)** pH >7/ pH <7	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**
FOCUS Step 1									
	7.639 / 7.386	2.371	0.653	1.226	0.212	0.347	0.539	3.03	0.999
FOCUS Step 2									
North Europe	2.013 / 1.627	0.734	0.412	0.367	0.080	0.174	0.181	1.322	0.558
South Europe	3.130 / 2.378	1.130	0.468	0.548	0.111	0.206	0.238	1.650	0.637
FOCUS Step 3 granular application									
D6 Ditch	0.006 / 0.002								
R4 Stream	<0.001 / <0.001								
granular application + arable crop drift from ground spray application									
D6 Ditch	0.132 / 0.128								
R4 Stream	0.070 / 0.070								

All PECsw values presented in this table are based on input parameters agreed at the Pesticides Peer Review Meeting 157 (06-07 April 2017).

FOCUSsw step 1-3 – PEC values for tribenuron-methyl and relevant metabolites – Task Force Winter cereals (autumn application) at 15 g a.s./ha g a.s./ha x 1									
	Active substance	**IN-L5296**	**IN-A4098**	**IN-00581**	**IN-R9805**	**IN-D5119**	**IN-GN815**	**IN-GK521**	**M2**
Tier 1 chronic RAC (µgL)	**0. 47 µg/L**	**1000 µg/L**	**9.3 µg/L**	**1000 µg/L**	**230 µg/L**	**1000 µg/L**	**230 µg/L**	**29 µg/L**	**230 µg/L**
Effect on most sensitive organism	*Lemna gibba* 7d ErC_{50} 0.0047mg/L	*Lemna gibba* 14d ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} >0.93 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Lemna gibba* 7d ErC_{50} 0.29 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L
Higher tier RAC (µg L)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Scenario	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**
	5.08	3.11	0.21	1.69	0.35	0.84	0.92	1.51	0.35
North Europe (Oct-Feb)	2.21	1.45	0.10	0.74	0.16	0.37	0.38	0.62	0.15
South Europe (Oct-Feb)	1.79	1.17	0.08	0.59	0.13	0.30	0.30	0.20	0.12
D1 ditch	1.749								
D1 stream	1.125								
D2 ditch	1.722								
D2 stream	1.316								
D3 ditch	0.387								
D4 pond	0.490								
D4 stream	0.470								
D5 pond	0.394								
D5 stream	0.267								
D6 ditch	0.446								
R1 pond	0.003								
R1 stream	0.086								

R3 stream	1.123
R4 stream	0.195

All PECsw values presented in this table are based on input parameters agreed at the Pesticides Peer Review Meeting 157 (06-07 April 2017). Shaded cells indicate unacceptable risk (PEC>RAC)

FOCUSsw step 4 - PEC values for tribenuron-methyl – Task Force Winter cereals (autumn application) at 15 g a.s./ha g a.s./ha x 1

Tier 1 RAC (µg L)	**0.47**
Higher tier RAC (µg L)	n.a.

Scenario	Mitigation options	PECsw (µg/L)
FOCUS Step 4 with autumn application (alkaline soil DT50 = 16.7 d, Koc = 8.6)		
D1 ditch	20 m spray drift buffer + vegetative filter strip	1.748
D1 stream	20 m spray drift buffer + vegetative filter strip	1.125
D2 ditch	20 m spray drift buffer + vegetative filter strip	1.722
D2 stream	20 m spray drift buffer + vegetative filter strip	1.316
D3 ditch	20 m spray drift buffer + vegetative filter strip	0.300 --
D4 pond	20 m spray drift buffer + vegetative filter strip	0.489
D4 stream	20 m spray drift buffer + vegetative filter strip	0.470
D5 pond	20 m spray drift buffer + vegetative filter strip	0.394
D6 ditch	20 m spray drift buffer + vegetative filter strip	0.446
R3 stream	20 m spray drift buffer + vegetative filter strip	0.264

All PECsw values presented in this table are based on input parameters agreed at the Pesticides Peer Review Meeting 157 (06-07 April)
Shaded cells indicate unacceptable risk (PEC>RAC)

FOCUSsw step 1-3 – PEC values for tribenuron-methyl and relevant metabolites – Task Force Winter cereals (spring application) at 30 g a.s./ha g a.s./ha x 1

	Active substance	IN-L5296	IN-A4098	IN-00581	IN-R9805	IN-D5119	IN-GN815	IN-GK521	M2
Tier 1 chronic RAC	**0. 47 µg/L**	**1000 µg/L**	**9.3 µg/L**	**1000 µg/L**	**230 µg/L**	**1000 µg/L**	**230 µg/L**	**29 µg/L**	**230 µg/L**

(µgL)									
Effect on most sensitive organism	*Lemna gibba* 7d ErC_{50} 0.0047mg/L	*Lemna gibba* 14d ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} >0.93 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Lemna gibba* 7d ErC_{50} 0.29 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L
Higher tier RAC (µg L)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Scenario	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**
	10.16	6.23	0.42	3.37	0.71	1.69	1.83	3.03	0.71
North Europe (Mar-May)	1.91	1.21	0.08	0.62	0.14	0.32	0.32	0.49	0.12
South Europe Mar-May	3.59	2.33	0.17	1.19	0.26	0.060	0.61	0.98	0.24
D1 ditch	4.431								
D1 stream	2.790								
D2 ditch	3.819								
D2 stream	2.413								
D3 ditch	0.216								
D4 pond	0.047								
D4 stream	0.171								
D5 pond	0.013								
D5 stream	0.154								
D6 ditch	0.209								
R1 pond	0.016								
R1 stream	0.500								
R3 stream	1.218								
R4 stream	0.125								
D1 ditch	0.314								
D1 stream	0.223								

D2 ditch	4.103
D2 stream	2.820
D3 ditch	0.217
D4 pond	0.051
D4 stream	0.174
D5 pond	0.012
D5 stream	0.155
D6 ditch	0.193
R1 pond	0.007
R1 stream	0.277
R3 stream	0.371
R4 stream	0.567
D1 ditch	0.213
D1 stream	0.177
D2 ditch	3.693
D2 stream	2.343
D3 ditch	0.190
D4 pond	0.007
D4 stream	0.159
D5 pond	0.007
D5 stream	0.152
D6 ditch	0.191
R1 pond	0.008
R1 stream	0.229
R3 stream	0.405
R4 stream	0.583

FOCUSsw step 4 - PEC values for tribenuron-methyl – Task Force Winter cereals (spring application) at 30 g a.s./ha g a.s./ha x 1		
Tier 1 RAC (µg L)	**0.47**	
Higher tier RAC (µg L)	n.a.	
Scenario	**Mitigation options**	**PECsw (µg/L)**
FOCUS Step 4 with early application (alkaline soil DT50 = 16.7 d, Koc = 8.6)		
D1 ditch	20 m spray drift buffer + vegetative filter strip	4.431
D1 stream	20 m spray drift buffer + vegetative filter strip	2.790
D2 ditch	20 m spray drift buffer + vegetative filter strip	3.819
D2 stream	20 m spray drift buffer + vegetative filter strip	2.413
R1 stream	20 m spray drift buffer + vegetative filter strip	0.118
R3 stream	20 m spray drift buffer + vegetative filter strip	0.289
FOCUS Step 4 with late application (alkaline soil DT50 = 16.7 d, Koc = 8.6)		
D1 ditch	10 m spray drift buffer + vegetative filter strip	0.314
D2 ditch	10 m spray drift buffer + vegetative filter strip	4.103
D2 stream	10 m spray drift buffer + vegetative filter strip	2.820
R1 stream	10 m spray drift buffer + vegetative filter strip	0.169
R3 stream	10 m spray drift buffer + vegetative filter strip	0.256
FOCUS Step 4 with late application (acidic soil DT50 = 5.3 d, Koc = 38.9)		
D2 ditch	10 m spray drift buffer + vegetative filter strip	3.693
D2 stream	10 m spray drift buffer + vegetative filter strip	2.343
R3 stream	10 m spray drift buffer + vegetative filter strip	0.149
R4 stream	10 m spray drift buffer + vegetative filter strip	0.325

All PECsw values presented in this table are based on input parameters agreed at the Pesticides Peer Review Meeting 157 (06-07 April)
Shaded cells indicate unacceptable risk (PEC>RAC)

FOCUSsw step 1-3 – PEC values for tribenuron-methyl and relevant metabolites – Task Force Spring cereals at 30 g a.s./ha g a.s./ha x 1									
	Active substance	**IN-L5296**	**IN-A4098**	**IN-00581**	**IN-R9805**	**IN-D5119**	**IN-GN815**	**IN-GK521**	**M2**
Tier 1 chronic RAC (µgL)	**0.47µg/L**	**1000 µg/L**	**9.3 µg/L**	**1000 µg/L**	**230 µg/L**	**1000 µg/L**	**230 µg/L**	**29 µg/L**	**230 µg/L**
Effect on most sensitive organism	*Lemna gibba* 7d ErC_{50} 0.00~~29~~47 mg/L	*Lemna gibba* 14d ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} >0.93 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Pseudokirchneriella subcapitata* 72h ErC_{50} >10 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L	*Lemna gibba* 7d ErC_{50} 0.29 mg/L	*Daphnia magna* 48h EC_{50} 23 mg/L
Higher tier RAC (µg L)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Scenario	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**	**PEC global max (µg L)**
	10.16	6.23	0.42	3.37	0.71	1.69	1.83	3.03	0.71
North Europe (Mar-May)	1.91	1.21	0.08	0.62	0.14	0.32	0.32	0.49	0.12
South Europe Mar-May	3.59	2.33	0.17	1.19	0.26	0.060	0.61	0.98	0.24

D1 ditch	0.251
D1 stream	0.169
D3 ditch	0.228
D4 pond	0.054
D4 stream	0.175
D5 pond	0.028
D5 stream	0.178
R4 stream	0.126
D1 ditch	0.239
D1 stream	0.168
D3 ditch	0.240
D4 pond	0.076
D4 stream	0.167
D5 pond	0.010
D5 stream	0.168
R4 stream	0.936
D1 ditch	0.202
D1 stream	0.168
D3 ditch	0.190
D4 pond	0.007
D4 stream	0.164
D5 pond	0.007
D5 stream	0.166
R4 stream	0.850

FOCUSsw step 4 - PEC values for tribenuron-methyl – Task Force Spring cereals at 30 g a.s./ha g a.s./ha x 1		
Tier 1 RAC (µg L)	**0.47**	
Higher tier RAC (µg L)	n.a.	
Scenario	**Mitigation options**	**PECsw (µg/L)**
FOCUS Step 4 with late application (alkaline soil DT50 = 16.7 d, Koc = 8.6)		
R4 stream	20 m spray drift buffer + vegetative filter strip	0.221
FOCUS Step 4 with late application (acidic soil DT50 = 5.3 d, Koc = 38.9)		
R4 stream	20 m spray drift buffer + vegetative filter strip	0.200

All PECsw values presented in this table are based on input parameters agreed at the Pesticides Peer Review Meeting 157 (06-07 April)
Shaded cells indicate unacceptable risk (PEC>RAC)

Effects on bees (Regulation (EU) N° 283/2013, Annex Part A, point 8.3.1 and Regulation (EU) N° 284/2013 Annex Part A, point 10.3.1) *

* This section does reflect the new EFSA Guidance Document on bees which has not yet been noted by the Standing Committee on Plants, Animals, Food and Feed.

Species	Test substance	Time scale/type of endpoint	End point	toxicity
Apis mellifera L. (adult honey bee)	Tribenuron-methyl technical	48 h Acute	Oral LD_{50} Contact LD_{50}	> 9.1 µg a.s./bee > 98.4 µg a.s./bee
Apis mellifera L. (adult honey bee)	Tribenuron methyl 75WG	48 h Acute	Oral LD_{50} Contact LD_{50}	> 186 µg a.s./bee > 100 µg a.s./bee
Apis mellifera L. (adult honey bee)	Tribenuron methyl 50SG	48 h Acute	Oral LD_{50} Contact LD_{50}	> 77.1 µg a.s./bee > 100 µg a.s./bee
Apis mellifera L. (adult honey bee)	Tribenuron methyl 50SG + DPX-KG691 surfactant	48 h Acute	Oral LD_{50} Contact LD_{50}	33.7 µg a.s./bee > 200 µg a.s./bee
Apis mellifera L. (adult honey bee)	Tribenuron-Methyl 750 g/kg WG	48 h Acute	Oral LD_{50} Contact LD_{50}	> 108.8 µg a.s./bee > 100 µg a.s./bee
Apis mellifera carnica L. (adult honey bee)	Tribenuron-methyl technical	10 days Chronic	Oral LD_{50} [Oral $NOEL_{mortality}$]	> 74.3 µg a.s./bee/day [74.3 µg a.s./bee/day]
Apis mellifera L. (adult honey bee)	Tribenuron-methyl 75 WG	10 days Chronic	Oral LD_{50} Oral $NOEL_{hpg}$ [Oral $NOEL_{mortality}$]	> 147.5 µg a.s./bee/day 147.5 µg a.s./bee/day [124.7 µg a.s./bee/day
Apis mellifera carnica L. (honey bee larvae)	Tribenuron-methyl technical	72 h Single dose	Oral $NOEL_{larvae}$ [Oral $LD_{50\ larvae}$]	40.6 µg a.s./larva [> 40.6 µg a.s./larva]
Apis mellifera carnica L. (honey bee larvae)	Tribenuron methyl 50SG	72 h Single dose	Oral $NOEL_{larvae}$ [Oral $LD_{50\ larvae}$]	33.3 µg a.s./larva [> 100 µg a.s./larva]
Apis mellifera carnica L. (honey bee larvae)	Tribenuron-methyl 75 WG	120 h Repeated dose	Oral $NOEL_{larvae}$ [Oral $LD_{10\ larvae}$ Oral $LD_{20\ larvae}$ Oral $LD_{50\ larvae}$]	208.0 µg a.s./larva/day [213.07 µg a.s./larva/day 220.96 µg a.s./larva/day 243.4 µg a.s./larva/day]

Potential for accumulative toxicity: Information not available
Semi-field test (Cage and tunnel test) Not available
Field tests Not available

Risk assessment for spray application at 30 g a.s./ha x 1

Species	Test substance	Risk quotient	HQ/ETR	Trigger
Contact and oral screening assessment for spray application				
Honeybee *Apis mellifera*	Tribenuron.methyl technical Tribenuron methyl 50SG Tribenuron-methyl 750 g/kg WG	HQcontact	< 0.3 < 0.15 < 0.3	42
	Tribenuron.methyl technical Tribenuron methyl 50SG Tribenuron-methyl 750 g/kg WG	ETRacute adult oral	< 0.025 0.0068 < 0.002	0.2
	Tribenuron.methyl technical Tribenuron-methyl 750 g/kg WG	ETRchronic adult oral	< 0.003 < 0.0015	0.03
	Tribenuron-methyl 750 g/kg WG	ETRhpg	0.0015	1
Assessment of risk from exposure to contaminated water				
Guttation water				

Honeybee *Apis mellifera*	Tribenuron.methyl technical Tribenuron methyl 50SG Tribenuron-methyl 750 g/kg WG	ETRacute adult oral	**< 3.1** **0.84** **< 0.26**	0.2
	Tribenuron.methyl technical Tribenuron-methyl 750 g/kg WG	ETRchronic adult oral	**< 0.2** **< 0.1**	0.03
	Tribenuron-methyl 750 g/kg WG	ETRhpg	0.1	1
Surface water				
Honeybee *Apis mellifera*	Tribenuron.methyl technical Tribenuron methyl 50SG Tribenuron-methyl 750 g/kg WG	ETRacute adult oral	$< 1.6 \times 10^{-6}$ 0.43×10^{-6} $< 0.13 \times 10^{-6}$	0.2
	Tribenuron.methyl technical Tribenuron-methyl 750 g/kg WG	ETRchronic adult oral	$< 0.2 \times 10^{-6}$ $< 0.096 \times 10^{-6}$	0.03
Puddle water				
Data gap				

Effects on other arthropod species (Regulation (EU) N° 283/2013, Annex Part A, point 8.3.2 and Regulation (EU) N° 284/2013 Annex Part A, point 10.3.2)

Laboratory tests with standard sensitive species

Species	Test Substance	End point	Toxicity
Aphidius rhopalosiphi (parasitic wasp)	Tribenuron methyl 75WG	48-h LR_{50} [and ER_{50} (fecundity)]	> 30
	Tribenuron methyl 50SG	48-h LR_{50} [and ER_{50} (fecundity)] [a]	> 300
	Tribenuron methyl 50SG + DPX-KG691 surfactant	48-h LR_{50}	**> 29.6** [b]
	Tribenuron-Methyl 750 g/kg WG	48-h LR_{50} [ER_{50} (fecundity)] [a] [NOEL] [a]	**> 150** [c] [> 150] [150]
Typhlodromus pyri (predatory mite)	Tribenuron methyl 75WG	7-d LR_{50} [and ER_{50} (fecundity)]	> 30
	Tribenuron methyl 50SG	7-d LR_{50} [and ER_{50} (fecundity)]	> 300
	Tribenuron methyl 50SG + DPX-KG691 surfactant	7-d LR_{50} [and ER_{50} (fecundity)]	**> 29.6** [b]
	Tribenuron-Methyl 750 g/kg WG	7-d LR_{50} [ER_{50} (fecundity)] [NOEL]	**> 150** [c] [> 150] [150]
Additional species			
Chrysoperla carnea (green lacewing)	Tribenuron methyl 75WG	12-d LR_{50} [and ER_{50} (fecundity)]	> 30
	Tribenuron methyl 50SG	14-d LR_{50} [and ER_{50} (fecundity)]	> 300
Poecilus cupreus (ground beetle)	Tribenuron methyl 75WG	14-d LR_{50} [and ER_{50} (fecundity)]	> 30
Orius laevigatus (flower bug)	Tribenuron methyl 50SG	9-d LR_{50} [and ER_{50} (fecundity)]	> 300

a Due to the high variance in reproduction at all treatment levels, this value (ER50 or NOEL) should be treated with caution.
b Value selected for risk assessment for the representative formulation Tribenuron methyl 50SG + DPX-KG691 surfactant (DUP).
c Value selected for risk assessment for the representative formulation Tribenuron-Methyl 750 g/kg WG (TTF).

DUP: First tier risk assessment for sunflowers at 30 g a.s./ha x 1 (Tribenuron methyl 50SG, DPX-L5300 + DPX-KG691 surfactant)

Test substance	Species	Effect (LR50 g/ha)	HQ in-field	HQ off-field [a)]	Trigger
Tribenuron methyl 50SG + DPX-KG691 surfactant	*Typhlodromus pyri*	> 29.6	< 1.01	< 0.028	2
	Aphidius rhopalosiphi	> 29.6	< 1.01	< 0.028	2

a) Drift rate: 2.77% estimated at 1 m distance from field according to Rautmann et al., 2001.

TTF: First tier risk assessment for cereals at 30 g a.s./ha x 1 (Tribenuron-Methyl 750 g/kg WG, CHA 6310)

Test substance	Species	Effect (LR50 g/ha)	HQ in-field	HQ off-field [a)]	Trigger
Tribenuron-Methyl 750 g/kg WG	*Typhlodromus pyri*	> 150	< 0.2	< 0.006	2
	Aphidius rhopalosiphi	> 150	< 0.2	< 0.006	2

a) Drift rate: 2.77% estimated at 1 m distance from field according to Rautmann et al., 2001.

Extended laboratory tests, aged residue tests

Not available

Risk assessment based on extended lab test or aged residue tests

Not required

Semi-field tests: Not available
Field studies: Not available
Additional specific test: Not available

Effects on non-target soil meso- and macro fauna; effects on soil nitrogen transformation (Regulation (EU) N° 283/2013, Annex Part A, points 8.4, 8.5, and Regulation (EU) N° 284/2013 Annex Part A, points 10.4, 10.5)

Test organism	Test substance	Application method of test a.s./ OM	Time scale	End point	Toxicity
Earthworms					
Eisenia fetida	Tribenuron-methyl technical	Test item incorporated into the soil / 5% peat	Chronic, 56 days	NOEC [a]	**3.2 mg a.s./kg dry soil**
Eisenia fetida	Tribenuron methyl 50SG + DPX-KG691 surfactant	Test item incorporated into the soil / 5% peat	Chronic, 56 days	NOEC $EC_{10\ repro}$	**61.75 mg a.s./kg dry soil** 70.5 mg a.s./kg dry soil
Eisenia fetida	IN-00581 (saccharin)	Test item incorporated into the soil / 10% peat	Chronic, 56 days	NOEC [a]	0.05 mg/kg dry soil
Eisenia fetida	IN-00581 (saccharin)	Test item incorporated into the soil / 5% peat	Chronic, 56 days	NOEC [a]	**100 mg/kg dry soil**
Eisenia fetida	IN-00581 (saccharin)	This metabolite was also evaluated for metsulfuron-methyl, ethametsulfuron-methyl and propoxycarbazone-sodium (EFSA, 2014a, 2015a, 2016b). The lowest reported NOECs were lower than 100 mg/kg dry soil, it is noted that this endpoints were set at the highest concentration tested. There was only a NOEC = 0.04 mg/kg dry soil not set at the highest concentration tested, however, concerns were raised during the peer review on this endpoint and it was not used in the risk assessment.			
Eisenia fetida	IN-A4098 (N-demethyl-triazine amine)	Test item incorporated into the soil / 10% peat	Chronic, 56 days	NOEC [a]	0.2 mg/kg dry soil
Eisenia fetida	IN-A4098 (N-demethyl-triazine amine)	Test item incorporated into the soil / 10% peat	Chronic, 56 days	NOEC [a]	**8.0 mg/kg dry soil**
Eisenia fetida	IN-A4098 (N-demethyl-triazine amine)	This metabolite was also evaluated for chlorsulfuron, iodosulfuron-methyl-sodium, thifensulfuron-methyl, metsulfuron-methyl, prosulfuron and triasulfuron (EFSA, 2008; 2014b; 2015a,b,c; 2016a). The lowest reported NOECs were 0.2 and 0.202 mg/lg dry soil The use of these endpoints in the risk assessment would not change the outcome, therefore, the risk assessment was not updated.			
Eisenia fetida	IN-D5119 (acid sulfonamide)	Test item incorporated into the soil / 10% peat	Chronic, 56 days	NOEC [a]	1000 mg/kg dry soil
Eisenia fetida	IN-D5119 (acid sulfonamide)	This metabolite was also evaluated for ethametsulfuron-methyl (EFSA, 2014a). The reported NOEC was 1000 mg/kg dry soil.			
Eisenia fetida	IN-D5803 (sulfonamide)	Test item incorporated into the soil / 5% peat	Chronic, 56 days	NOEC [a]	**100 mg/kg dry soil**
Eisenia fetida	IN-D5803 (sulfonamide)	This metabolite was also evaluated for metsulfuron-methyl and ethametsulfuron-methyl (EFSA, 2014a, 2015a). The lowest reported NOEC was 100 mg/kg dry soil.			
Eisenia fetida	IN-GK521 (O-demethyl-tribenuron methyl)	Test item incorporated into the soil / 10% peat	Chronic, 56 days	NOEC [a]	**100 mg/kg dry soil**
Eisenia fetida	IN-GK521 (O-demethyl-tribenuron methyl)	Test item incorporated into the soil / 5% peat	Chronic, 56 days	NOEC [a]	1.52 mg/kg dry soil
Eisenia fetida	IN-GN815 (O-demethyl-tribenuron free acid)	Test item incorporated into the soil / 10% peat	Chronic, 56 days	NOEC [a]	100 mg/kg dry soil
Eisenia fetida	IN-GN815 (O-demethyl-tribenuron free	Test item incorporated into the soil / 5% peat	Chronic, 56 days	NOEC [a]	3.2 mg/kg dry soil

Test organism	Test substance	Application method of test a.s./ OM	Time scale	End point	Toxicity
	acid)				
Eisenia fetida	IN-L5296 (triazine amine)	Test item incorporated into the soil / 10% peat	Chronic, 56 days	NOEC [a]	**0.2 mg/kg dry soil**
Eisenia fetida	IN-R9803 (tribenuron free acid)	Test item incorporated into the soil / 10% peat	Chronic, 56 days	NOEC	**6.0 mg/kg dry soil**
Eisenia fetida	IN-R9805 (O-demethyl-triazine amine)	Test item incorporated into the soil / 5% peat	Chronic, 56 days	NOEC [a]	100 mg/kg dry soil
Eisenia fetida	IN-R9805 (O-demethyl-triazine amine)	Test item incorporated into the soil / 10% peat	Chronic, 56 days	NOEC [a]	**1000 mg/kg dry soil**
Eisenia fetida	M2 (triazine urea)	Test item incorporated into the soil / 5% peat	Chronic, 56 days	NOEC	**5.0 mg/kg dry soil**
Eisenia fetida	Tribenuron-methyl technical	Not evaluated	Acute, 14 days	LC50	> 1000 mg a.s./kg dry soil
Eisenia fetida	Tribenuron methyl 75WG	Not evaluated	Acute, 14 days	LC50	> 1000 mg prod./kg dry soil
Eisenia fetida	Tribenuron methyl 50SG	Not evaluated	Acute, 14 days	LC50	> 1000 mg prod./kg dry soil
Eisenia fetida	IN-00581 (saccharin)	Not evaluated	Acute, 14 days	LC50	> 1 mg/kg dry soil
Eisenia fetida	IN-A4098 (N-demethyl-triazine amine)	Not evaluated	Acute, 14 days	LC50	> 1000 mg/kg dry soil
Eisenia fetida	IN-A4098 (N-demethyl-triazine amine)	Not evaluated	Acute, 14 days	LC50	> 1000 mg/kg dry soil
Eisenia fetida	IN-A4098 (N-demethyl-triazine amine)	Not evaluated	Acute, 14 days	LC50	> 1000 mg/kg dry soil
Eisenia fetida	IN-L5296 (triazine amine)	Not evaluated	Acute, 14 days	LC50	> 10 mg/kg dry soil
Other soil macroorganisms					
Folsomia candida	Tribenuron methyl 50SG + DPX-KG691 surfactant	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC [EC_{10} EC_{20}]	62.5 mg prod./kg dry soil = **30.8 mg a.s./kg dry soil** [53.2 mg a.s./kg dry soil 113.6 mg a.s./kg dry soil]
Folsomia candida	IN-00581 (saccharin)	Test item incorporated into the soil / 10% peat	Chronic, 28 days	NOEC [a]	**100 mg/kg dry soil**
Folsomia candida	IN-00581 (saccharin)	Test item incorporated into the soil / 10% peat	Chronic, 28 days	NOEC [a]	**100 mg/kg dry soil**
Folsomia candida	IN-00581 (saccharin)	Test item incorporated into the soil / 10% peat	Chronic, 28 days	NOEC [a]	**100 mg/kg dry soil**
Folsomia candida	IN-00581 (saccharin)	This metabolite was also evaluated for metsulfuron-methyl, ethametsulfuron-methyl and propoxycarbazone-sodium (EFSA, 2014a, 2015a, 2016b). The reported NOEC values were 9.0 and 100 mg/kg dry soil. The NOEC of 9.0 mg/kg dry soil was based on absence of statistically significant effects up to and including the highest tested concentration of 9.0 mg/kg soil. Hence, it is not considered as adverse data.			
Folsomia candida	IN-A4098 (N-demethyl-triazine amine)	Test item incorporated into the soil / 10% peat	Chronic, 28 days	NOEC [a]	0.225 mg/kg dry soil
Folsomia candida	IN-A4098 (N-demethyl-triazine amine)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC [a]	**37.1 mg/kg dry soil**
Folsomia candida	IN-A4098 (N-demethyl-triazine amine)	This metabolite was also evaluated for chlorsulfuron, iodosulfuron-methyl-sodium, thifensulfuron-methyl, metsulfuron-methyl, prosulfuron and triasulfuron (EFSA, 2008, 2014b, 2015a,b,c, 2016a). The lowest reported NOEC was 0.045 mg/kg dry soil from the RAR for thifensulfuron-methyl. Based on the information provided by EFSA it was not possible to conclude if this NOEC should be considered as adverse data, since possible effects at higher concentrations were not reported.			

Test organism	Test substance	Application method of test a.s./ OM	Time scale	End point	Toxicity
Folsomia candida	IN-D5119 (acid sulfonamide)	Test item incorporated into the soil / 10% peat	Chronic, 28 days	NOEC [a]	100 mg/kg dry soil
Folsomia candida	IN-D5119 (acid sulfonamide)	This metabolite was also evaluated for ethametsulfuron-methyl (EFSA, 2014a). The reported NOEC was 100 mg/kg dry soil.			
Folsomia candida	IN-D5803 (sulfonamide)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC [a]	**100 mg/kg dry soil**
Folsomia candida	IN-D5803 (sulfonamide)	This metabolite was also evaluated for ethametsulfuron-methyl (EFSA, 2014a). The reported NOEC was 100 mg/kg dry soil.			
Folsomia candida	IN-GK521 (O-demethyl-tribenuron methyl)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC [a]	**100 mg/kg dry soil**
Folsomia candida	IN-GN815 (O-demethyl-tribenuron free acid)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC [a]	100 mg/kg dry soil
Folsomia candida	IN-L5296 (triazine amine)	Test item incorporated into the soil / 10% peat	Chronic, 28 days	NOEC [EC_{10} EC_{20}]	**0.116 mg/kg dry soil** **[0.47 mg/kg dry soil** **1.01 mg/kg dry soil]**
Folsomia candida	IN-R9803 (tribenuron free acid)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC [a]	**100 mg/kg dry soil**
Folsomia candida	IN-R9805 (O-demethyl-triazine amine)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC [a]	**100 mg/kg dry soil**
Folsomia candida	M2 (triazine urea)	No data available. Estimated as 10 times more toxic than the active substance		NOEC	**3 mg/kg dry soil**
Hypoaspis aculeifer	Tribenuron methyl 50SG + DPX-KG691 surfactant	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC	**493 mg a.s./kg dry soil** [*]
Hypoaspis aculeifer	IN-00581 (saccharin)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC [a]	**100 mg/kg dry soil**
Hypoaspis aculeifer	IN-00581 (saccharin)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC	**1000 mg/kg dry soil****
Hypoaspis aculeifer	IN-00581 (saccharin)	This metabolite was also evaluated for metsulfuron-methyl, ethametsulfuron-methyl and propoxycarbazone-sodium (EFSA, 2014a, 2015a, 2016b). The reported NOEC values were 10 and 100 mg/kg dry soil. The NOEC of 10 mg/kg dry soil was based on absence of statistically significant effects up to and including the highest tested concentration of 10 mg/kg soil. Hence, it is not considered as adverse data.			
Hypoaspis aculeifer	IN-A4098 (N-demethyl-triazine amine)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC [a]	**100 mg/kg dry soil**
Hypoaspis aculeifer	IN-A4098 (N-demethyl-triazine amine)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC EC_{10} EC_{20}	**100 mg/kg dry soil** 111 mg/kg dry soil 248 mg/kg dry soil
Hypoaspis aculeifer	IN-A4098 (N-demethyl-triazine amine)	This metabolite was also evaluated for iodosulfuron-methyl-sodium, thifensulfuron-methyl, metsulfuron-methyl, prosulfuron and triasulfuron (EFSA, 2014b, 2015a,b,c, 2016a). NOEC values of 98.7 and 100 mg/kg dry soil were reported.			
Hypoaspis aculeifer	IN-D5119 (acid sulfonamide)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC [a]	100 mg/kg dry soil
Hypoaspis aculeifer	IN-D5803 (sulfonamide)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC [a]	**100 mg/kg dry soil**
Hypoaspis aculeifer	IN-GK521 (O-demethyl-tribenuron methyl)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC	**25 mg/kg dry soil**
Hypoaspis aculeifer	IN-GN815 (O-demethyl-tribenuron free acid)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC [a]	100 mg/kg dry soil
Hypoaspis aculeifer	IN-L5296 (triazine amine)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC [a]	100 mg/kg dry soil
Hypoaspis aculeifer	IN-L5296 (triazine amine)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC EC_{10} EC_{20}	562 mg/kg dry soil **403 mg/kg dry soil** 667 mg/kg dry soil

Test organism	Test substance	Application method of test a.s./ OM	Time scale	End point	Toxicity
Hypoaspis aculeifer	IN-R9803 (tribenuron free acid)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC [a]	**100 mg/kg dry soil**
Hypoaspis aculeifer	IN-R9805 (O-demethyl-triazine amine)	Test item incorporated into the soil / 5% peat	Chronic, 28 days	NOEC	**50 mg/kg dry soil**
Hypoaspis aculeifer	M2 (triazine urea)	-	-	-	No data available

* In the study from Schöbinger 2013, a 26% increase in reproduction was observed. It is uncertain whether such effect could be considered as adverse at population level. In addition it is noted that the standard deviation in the control was 18.2% and a higher mortality in the control than in the treatment was observed (13% against 0%). This adds uncertainties on the biological significance of this finding. In light of the above the endpoint was set at 493 mg a.s./kg soil.
** An increase in the reproduction was observed at this concentration. It is uncertain whether such effect could be considered as adverse at population level

Higher tier testing (e.g. modelling or field studies)
Not available

Measurement parameter	Test substance	Time scale	No effects (< 25 % difference to control) up to [a]
Nitrogen transformation	Tribenuron methyl 75WG	28 days	0.275 mg prod./kg dry soil = 0.21 mg a.s./kg dry soil
	Tribenuron methyl 50SG	28 days	0.800 mg prod./kg dry soil = 0.41 mg a.s./kg dry soil
	Tribenuron methyl 50SG + DPX-KG691 surfactant	28 days	0.800 mg prod./kg dry soil = 0.39 mg a.s./kg dry soil
	Tribenuron-methyl 750 g/kg WG	56 days	0.533 mg prod./kg dry soil = 0.40 mg a.s./kg dry soil
	IN-00581 (saccharine)	28 days	0.20 mg/kg dry soil
	IN-00581 (saccharine)	28 days	0.0511 mg/kg dry soil
	IN-00581 (saccharine)	42 days	0.204 mg/kg dry soil
	IN-00581 (saccharin)	This metabolite was also evaluated for metsulfuron-methyl, ethametsulfuron-methyl and propoxycarbazone-sodium (EFSA, 2014a, 2015a, 2016b). No adverse data were identified.	
	IN-A4098 (N-demethyl-triazine amine)	28 days	0.0397 mg/kg dry soil
	IN-A4098 (N-demethyl-triazine amine)	This metabolite was also evaluated for chlorsulfuron, iodosulfuron-methyl-sodium, thifensulfuron-methyl, metsulfuron-methyl, prosulfuron and triasulfuron (EFSA, 2008, 2014b, 2015a,b,c, 2016a). No adverse data were identified.	
	IN-D5119 (acid sulfonamide)	28 days	0.0533 mg/kg dry soil
	IN-D5119 (acid sulfonamide)	This metabolite was also evaluated for ethametsulfuron-methyl (EFSA, 2014a). No adverse data were identified.	
	IN-D5803 (sulfonamide)	42 days	0.0597 mg/kg dry soil
	IN-D5803 (sulfonamide)	This metabolite was also evaluated for metsulfuron-methyl and ethametsulfuron-methyl (EFSA, 2014a, 2015a). No adverse data were identified.	
	IN-GK521 (O-demethyl tribenuron methyl)	28 days	1.62 mg/kg dry soil
	IN-GK521 (O-demethyl Tribenuron-methyl)	28 days	0.2 mg/kg dry soil
	IN-GN815 (O-demethyl-tribenuron free acid)	28 days	1.41 mg/kg dry soil
	IN-GN815 (O-demethyl-tribenuron free acid)	28 days	0.2 mg/kg dry soil
	IN-L5296 (triazine amine)	No data	0.02 mg/kg dry soil, estimated as 10 times more toxic than the active substance
	IN-R9803 (tribenuron free acid)	28 days	1.17 mg/kg dry soil
	IN-R9803 (tribenuron free acid)	28 days	0.4 mg/kg dry soil

	IN-R9805 (O-demethyl-triazine amine)	28 days	200 mg/kg dry soil
	M2 (triazine urea)	28 days	0.2 mg/kg dry soil

a All values = the highest tested concentrations.

DUP: Toxicity/exposure ratios for soil organisms for sunflowers at 30 g a.s./ha x 1 (Tribenuron methyl 50SG, DPX-L5300 + DPX-KG691 surfactant)

Test organism	Test substance	NOEC (mg/kg dry soil)	$PEC_{soil, plateau}$ (mg/kg dry soil)	TER	Trigger
Earthworms					
Eisenia fetida	Tribenuron-methyl technical	3.2	0.040	80	5
	Tribenuron methyl 50SG + DPX-KG691 surfactant	61.75 [a]	0.040 [a]	1544	5
	IN-00581	100	0.0096	10417	5
	IN-A4098	8.0	0.0029	2759	5
	IN-GK521	100	0.04 [b]	2500	5
	IN-L5296	0.2	0.0263	8	5
	IN-R9805	1000	0.0022	454545	5
	M2	5.0	0.0032	1563	5
Other soil macroorganisms					
Folsomia candida	Tribenuron methyl 50SG + DPX-KG691 surfactant	30.8 [a]	0.040 [a]	770	5
	IN-00581	1000	0.0096	104170	5
	IN-A4098	37.1	0.0029	12793	5
	IN-GK521	100	0.04 [b]	2500	5
	IN-L5296	0.116	0.0263 (Tier 1)	4	5
			0.0166 (Tier 2) [c]	7	5
	IN-R9805	100	0.0022	45455	5
	M2	3	0.0032	938	5
Hypoaspis aculeifer	Tribenuron methyl 50SG + DPX-KG691 surfactant	493	0.040	12325	5
	IN-00581	100	0.0096	10417	5
	IN-A4098	100	0.0029	34483	5
	IN-GK521	25	0.04 [b]	625	5
	IN-L5296	403 (EC_{10})	0.0263	15323	5
	IN-R9805	50	0.0022	22727	5
	M2	No data available	0.0032	No data	5

a Expressed as mg tribenuron-methyl / kg dry soil
b Since no PECsoil calculations were provided, worst case PECsoil for parent was used in the risk assessment.
c Tillage considered

TTF: Toxicity/exposure ratios for soil organisms for cereals at 30 g a.s./ha x 1 (Tribenuron-Methyl 750 g/kg WG, CHA 6310)

Test organism	Test substance	NOEC (mg/kg dry soil)	$PEC_{soil, max}$ (mg/kg dry soil)	$PEC_{soil, plateau}$ (mg/kg dry soil)	TER	Trigger
Earthworms						
Eisenia fetida	Tribenuron-methyl technical	3.2	**0.030**	n.a.	107	5
	IN-00581	100	0.005	**0.006**	16667	5
	IN-A4098	8.0	0.001	**0.001**	8000	5
	IN-D5803	100	**0.008**	n.a.	12500	5
	IN-GK521	100	**0.009**	n.a.	11111	5
	IN-L5296	0.2	0.010	**0.013**	15	5
	IN-R9803	6.0	**0.003**	n.a.	2000	5
	IN-R9805	1000	0.001	**0.001**	1000000	5
	M2	5.0	**0.002**	n.a.	2500	5
Other soil macroorganisms						

Test organism	Test substance	NOEC (mg/kg dry soil)	$PEC_{soil, max}$ (mg/kg dry soil)	$PEC_{soil, plateau}$ (mg/kg dry soil)	TER	Trigger
Folsomia candida	Tribenuron methyl 50SG + DPX-KG691 surfactant	30.8 [a]	**0.030** [a]	n.a.	1027	5
	IN-00581	100	0.005	**0.006**	16667	5
	IN-A4098	37.1	0.001	**0.001**	37100	5
	IN-D5803	100	**0.008**	n.a.	12500	5
	IN-GK521	100	**0.009**	n.a.	11111	5
	IN-L5296	0.116	0.010	**0.013**	9	5
	IN-R9803	100	**0.003**	n.a.	33333	5
	IN-R9805	100	0.001	**0.001**	100000	5
	M2	3	**0.002**	n.a.	1500	5
Hypoaspis aculeifer	Tribenuron-methyl	No reliable data available	**0.030**	n.a.	No reliable data available	5
	IN-00581	100	0.005	**0.006**	16667	5
	IN-A4098	100	0.001	**0.001**	100000	5
	IN-D5803	100	**0.008**	n.a.	12500	5
	IN-GK521	25	**0.009**	n.a.	2778	5
	IN-L5296	403 (EC_{10})	0.010	**0.013**	31000	5
	IN-R9803	100	**0.003**	n.a.	33333	5
	IN-R9805	50	0.001	**0.001**	50000	5
	M2	No data available	**0.002**	n.a.	No data available	5

a Expressed as mg tribenuron-methyl / kg dry soil
n.a. Not applicable, since DT50 < 3 months.

Effects on terrestrial non target higher plants (Regulation (EU) N° 283/2013, Annex Part A, point 8.6 and Regulation (EU) N° 284/2013 Annex Part A, point 10.6)

Screening data

Not required for herbicides or plant growth regulators as ER50 tests should be provided

Laboratory dose response tests

Deterministic risk assessment covering applications up to 30 g a.s./ha						
Species	Test substance	ER_{50} (g a.s./ha) vegetative vigour	ER_{50} (g a.s./ha) emergence	Exposure (g a.s./ha) [a)]	TER	Trigger
Beta vulgaris (sugar beet)	Tribenuron-methyl technical + 0.25% X-77 surfactant	0.155	5.5	0.0218 g a.s./ha based on total drift reduction of 97.4%* (considering 75% reduction by nozzles + 10 m buffer zone)		
Brassica napus (oilseed rape)		0.532	14.7			
Lycopersicon esculentum (tomato)		0.910	> 17.5			
Cucumis sativus (cucumber)		0.455	> 17.5			
Pisum sativum (pea)		> 17.5	> 17.5			
Glycine max (soybean)		1.19	> 17.5			
Sorghum bicolor (sorghum)		> 17.5	> 17.5			
Triticum aestivum (wheat)		> 17.5	> 17.5			
Zea mays (corn)		5.95	> 17.5			
Allium cepa (onion)		3.50	> 17.5			
Allium cepa (onion)	Tribenuron methyl 50SG	12.2	n.a.			
Beta vulgaris (sugar beet)		0.267	n.a.			
Zea mays (corn)	Tribenuron methyl 50SG	> 17.5	> 17.5			
Avena sativa (oat)		5.81	> 17.5			

Deterministic risk assessment covering applications up to 30 g a.s./ha						
Species	Test substance	ER_{50} (g a.s./ha) vegetative vigour	ER_{50} (g a.s./ha) emergence	Exposure (g a.s./ha) [a)]	TER	Trigger
Allium cepa (onion)	+ DPX-KG691 surfactant	2.62	7.78		**5.9**	**5**
Lolium perenne (ryegrass)		-	11.9			
Sorghum bicolor (sorghum)		8.45	> 17.5			
Cucumis sativus (cucumber)		0.154	> 17.5			
Brassica napus (oilseed rape)		0.549	5.97			
Pisum sativum (pea)		2.05	> 17.5			
Glycine max (soy bean)		1.08	> 17.5			
Beta vulgaris (sugar beet)		**0.128** [b]	2.09			
Lycopersicon esculentum (tomato)		0.280	14.2			
Zea mays (corn)	Tribenuron methyl 50SG	> 17.5	n.a.			
Avena saliva (oat)		> 17.5	n.a.			
Allium cepa (onion)		> 17.5	n.a.			
Sorghum bicolor (sorghum)		> 17.5	n.a.			
Cucumis sativus (cucumber)		0.449	n.a.			
Brassica napus (oilseed rape)		2.30	n.a.			
Pisum sativum (pea)		> 17.5	n.a.			
Glycine max (soy bean)		12.0	n.a.			
Beta vulgaris (sugar beet)		0.856	n.a.			
Lycopersicon esculentum (tomato)		2.56	n.a.			
Avena sativa (winter oat)	Tribenuron methyl 75WG	> 30.0	n.a.			
Beta vulgaris (sugar beet)		1.43	n.a.			
Brassica napus (oilseed rape)	Tribenuron-Methyl 750 g/kg WG	1.66	>9.44			
Beta vulgaris (sugar beet)		0.10	3.44			
Pisum sativum (pea)		> 30.60	>30.60			
Solanum lycopersicon (tomato)		1.67	>9.44			
Allium cepa (onion)		> 30.60	1.32			
Lolium multiflorum (ryegrass)		> 30.60	22.47			

Probabilistic risk assessment covering applications up to 30 g a.s./ha						
Species	Test substance	ER_{50} (g a.s./ha) vegetative vigour	HR_5 (g a.s./ha)	Exposure (g a.s./ha) [a)]	TER	Trigger
Zea mays (corn)	Tribenuron methyl 50SG + DPX-KG691 surfactant	> 17.5	**0.072** [c]	0.0435 g a.s./ha based on total drift reduction of 94.8% (considering 50% reduction by nozzles + 10 m buffer zone)	**1.7**	**1**
Avena sativa (oat)		5.81				
Allium cepa (onion)		2.62				
Sorghum bicolor (sorghum)		8.45				
Cucumis sativus (cucumber)		0.154				
Brassica napus (oilseed rape)		0.549				
Pisum sativum (pea)		2.05				
Glycine max (soy bean)		1.08				
Beta vulgaris (sugar beet)		0.128				
Lycopersicon esculentum (tomato)		0.280				

a) Exposure is calculated based on the highest proposed application rate and with drift data according to Rautmann et al., 2001.

b) Agreed endpoint for the deterministic risk assessment of both representative formulations, based on shoot dry weight for sugar beet (discussed at PPR 157)
c) Agreed endpoint for the probabilistic assessment of both representative formulations (discussed at PPR 157)
n.a. Not available
* Above the 95% limit applicable for the risk mitigation measures.

Effects on biological methods for sewage treatment (Regulation (EU) N° 283/2013, Annex Part A, point 8.8)

Test type/organism	End point
Activated sludge	3-h EC_{50} >2040 mg a.s./L

Monitoring data (Regulation (EU) N° 283/2013, Annex Part A, point 8.9 and Regulation (EU) N° 284/2013, Annex Part A, point 10.8)

No monitoring data are available concerning adverse effect of the a.s. or of the PPP.

Definition of the residue for monitoring (Regulation (EU) N° 283/2013, Annex Part A, point 7.4.2)
Ecotoxicologically relevant compounds [a)]

Compartment	
soil	Tribenuron-methyl, IN-L5296 (triazine-amine)
water	Tribenuron-methyl
sediment	Tribenuron-methyl
groundwater	Tribenuron-methyl

a) metabolites are considered relevant when, based on the risk assessment, they pose a risk comparable or higher than the parent

Classification and labelling with regard to ecotoxicological data (Regulation (EU) N° 283/2013, Annex Part A, Section 10)

Substance	name
Harmonised classification according to Regulation (EC) No 1272/2008 and its Adaptations to Technical Process [Table 3.1 of Annex VI of Regulation (EC) No 1272/2008 as amended][9]:	Acute 1, H400 Chronic 1, H410
Peer review proposal[10] for harmonised classification according to Regulation (EC) No 1272/2008:	Acute 1, H400; M=100 Chronic 1, H410; M=100

9 Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006. OJ L 353, 31.12.2008, 1-1355.
10 It should be noted that harmonised classification and labelling is formally proposed and decided in accordance with Regulation (EC) No 1272/2008.