Appendix to:

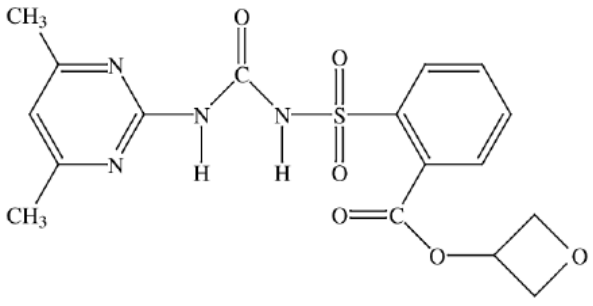
EFSA (European Food Safety Authority), 2017. Conclusion on the peer review of the pesticide risk assessment of the active substance oxasulfuron, EFSA Journal 2017;15(3):4722, doi:10.2903/j.efsa.2017.4722

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

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

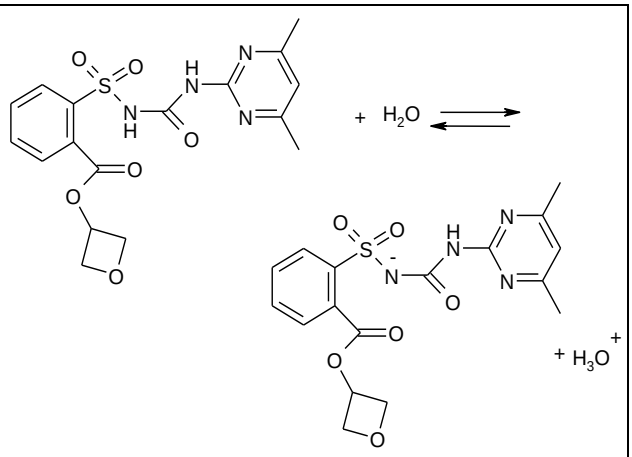
Active substance (ISO Common Name)	Oxasulfuron
Function (*e.g.* fungicide)	Herbicide
Rapporteur Member State	Italy
Co-rapporteur Member State	Austria

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

Chemical name (IUPAC)	oxetan-3-yl 2-[(4,6-dimethylpyrimidin-2-yl)carbamoylsulfamoyl]benzoate
Chemical name (CA)	3-oxetan 2-[[[[(4,6-dimethyl-2-pyrimidinyl)-amino]carbonyl]amino]sulfonyl]benzoate
CIPAC No	626
CAS No	144651-06-9
EC No (EINECS or ELINCS)	604-430-5
FAO Specification (including year of publication)	Not available
Minimum purity of the active substance as manufactured	985 g/kg
Identity of relevant impurities (of toxicological, ecotoxicological and/or environmental concern) in the active substance as manufactured	None
Molecular formula	$C_{17}H_{18}N_4O_6S$
Molar mass	406.4 g/mol
Structural formula	

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

Melting point (state purity)	158°C with thermal decomposition (99.5%)
Boiling point (state purity)	Not measurable because of decomposition
Temperature of decomposition (state purity)	≥ 158°C (Purity: ≤99.5%)
Appearance (state purity)	White fine powder, odourless (Purity: 99.5%)
Vapour pressure (state temperature, state purity)	< $2 \cdot 10^{-6}$ Pa at 25°C (Purity: 99.5%)
Henry's law constant (state temperature)	$2.5 \cdot 10^{-3}$ Pa m^3 mol^{-1} (calculated, 25°C)
Solubility in water (state temperature, state purity and pH)	Solubility in water (25°C, Purity: 99.5%): pH 5.1: 52 mg/l (pure water) pH 5.0: 63 mg/l (buffer solution) pH 6.8: 1700 mg/l (buffer solution) pH 7.8: 19 g/l (buffer solution)
	Solubility in water (20°C, Purity: 98.2%): pH 5: 65.5 mg/l (double distilled water) pH 4: 69.9 mg/l (buffer solution) pH 7: 1.78 g/l (buffer solution) pH 9: 7.91 g/l (buffer solution)
Solubility in organic solvents (state temperature, state purity)	Solubility in organic solvents (25°C, Purity: 99.5%) hexane: 0.002 g/L toluene: 0.32 g/L dichloromethane: 69 g/L methanol: 1.5 g/L octanol: 0.099 g/L acetone: 9.3 g/L ethylacetate: 2.3 g/L
Surface tension (state concentration and temperature, state purity)	Data gap
Partition coefficient (state temperature, pH and purity)	log P_{OW} at 25°C (Purity: 99.5%), uncorrected: 0.75 ± (0.008) at pH 5.0 -0.81 ± (0.006) at pH 7.0 -2.2 ± (0.016) at pH 8.9 log P_{OW} at 25°C (Purity: 99.5%), corrected: 1.021± (0.004) at pH 5.0 1.079± (0.016) at pH 7.0 1.625± (0.016) at pH 8.9
Dissociation constant (state purity)	Dissociation constant (Purity: 99.5%): $pK_{a,1}$ = 5.10 (acidic) $pK_{a,2}$ = < 1 (basic) The acidic dissociation constant describes the dissociation of the acidic proton of oxasulfuron in water according to the following equation

	
UV/VIS absorption (max.) incl. ε (state purity, pH)	UV/VIS of purified oxasulfuron (99.5%) in methanol: λ_{max} (nm) — ε (L mol^{-1} cm^{-1}) 232.7 — 23719 271.2 — 5951 ε at 290 nm: not determined No absorption between 300 nm and 900 nm was observed.
	UV/VIS of non-purified oxasulfuron (98.2%) in aqueous methanol solution: λ_{max} (nm) — ε (L mol^{-1} cm^{-1}) 231 — 25024 271 — 613 ε at 290 nm: 1002 $L \cdot M^{-1} \cdot cm^{-1}$ pH < 2 (0.1 mol/L aqueous HCl) λ_{max} (nm) — ε (L mol^{-1} cm^{-1}) 232 — 24661 271 — 5950 pH > 10 (0.1 mol/L aqueous NaOH) λ_{max} (nm) — ε (L mol^{-1} cm^{-1}) 242 — 27563 No absorption between 300 nm and 900 nm was observed.
Flammability (state purity)	Not highly flammable (Purity: 96.1%) auto-flammability: data gap
Explosive properties (state purity)	Not explosive (Purity: 96.1%)
Oxidising properties (state purity)	Not oxidizing (Purity: 96.1%)

Summary of representative uses evaluated, for which all risk assessments needed to be completed (*oxasulfuron*) (Regulation (EU) N° 284/2013, Annex Part A, points 3, 4)

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)		
Soya bean	S EU	Laguna 75 WG	F	Grass & Broad leaved weeds	WG	750 g/kg	spraying	between BBCH 10 and BBCH14 (from visible cotyledon to fourth trifoliate leaf unfolded)	1 (in full dose)	-	18.75 - 75	100 - 400	0.075	-	0.1 kg/ha (product dose rate)

(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 (*name of active substance or the respective variant*)
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)															

(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)

Oxasulfuron is a herbicide and target weeds are *Abutilon theophrasti*, *Amaranthus retroflexus*, *Chenopodium album*, *Echinochloa crus-galli*, *Sorghum halepense* and *Polygonum spp*. between the cotyledons and the 4 leaves stage (BBCH 10-14) in soybean.

After application of oxasulfuron, growth of susceptible plant species ceases, followed by yellow or red discoloration. Death of those species affected occurs within one to three weeks. The visible symptoms of affected plants are like those of other sulfonylurea herbicides.

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

The repeated use of this product or with herbicides with the same mode of action may lead to selection of resistant weeds.

In order to prevent or slow down developing of resistant weed biotypes it is recommended to rotate with products having a different mode of action. The main emphasis should be on cultural options – rotation, cultivation and preventing weed spread.

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

Oxasulfuron and other sulfonylurea herbicides are given a classification B under Herbicide Resistance Action Committee (HRAC).

On 10th August 2015, 156 weed species were reported to have developed resistance to 'Group B' herbicides, among them 63 are reported for Europe.

The decision, if a resistance risk is acceptable, is following the EPPO (2003) guidelines, depends on whether the benefit of a compound is greater than a possible resistance risk.

Sulfunylurea herbicides are known to pose a higher resistance risk than other modes of action.

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

Activity against target organism	M3	M5(CGA 171895)	MT6	oxetan-3-ol(CGA 297691)	Saccharin (CGA 27913)
	No information	No information	No information	Data gap	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 (220 nm)
Impurities in technical a.s. (analytical technique)	Karl Fischer titration
Plant protection product (analytical technique)	HPLC-UV (235 nm)

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		Oxasulfuron
Food of animal origin		None proposed
Soil		Oxasulfuron
Sediment		Oxasulfuron
Water	surface	Oxasulfuron M3, MT6
	drinking/ground	Oxasulfuron
Air		Oxasulfuron
Body fluids and tissues		Oxasulfuron

Monitoring/Enforcement methods

Food/feed of plant origin (analytical technique and LOQ for methods for monitoring purposes)	Substrates: soya beans Analysis: LC-MS/MS Determined analyte: oxsalufuron LOQ=0,01 mg/kg Method fully validated data gap: ILV
Food/feed of animal origin (analytical technique and LOQ for methods for monitoring purposes)	No method required.
Soil (analytical technique and LOQ)	Data gap
Water (analytical technique and LOQ)	Data gap
Air (analytical technique and LOQ)	Data gap
Body fluids and tissues (analytical technique and LOQ)	Data gap

Classification and labelling with regard to physical and chemical data (Regulation (EU) No. 283/2013, Annex Part A, point 10)

Substance	oxasulfuron (ISO) oxetan-3-yl 2-[(4,6-dimethylpyrimidin-2-yl)-carbamoylsulfamoyl]benzoate

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]:	No current harmonised classification with regard to physical and chemical data.
Peer review proposal [2] for harmonised classification according to Regulation (EC) No 1272/2008:	None

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	Rapidly and highly absorbed: >80% within 48 hours, based on urine excretion
Toxicokinetics	C_{max}: 20 ppm at a dose of 5 mg/kg bw and 200 ppm at 100 mg/kg bw T_{max}: 1h (rat) $T_{1/2}$: 6-8h (female), 11-14 h (male) in rat (blood)
Distribution	Widely distributed; highest levels in plasma, liver, kidneys and red blood cells
Potential for bioaccumulation	No evidence for accumulation
Rate and extent of excretion	Rapid (app. 84.4 to 97.2 % within 48 h), mainly via urine and faeces
Metabolism in animals	Up to 86% excreted as parent compound (CGA 277476). Metabolism included cleavage of the sulfonyl urea bridge, hydroxylation of the pyrimidinyl-methyl group, hydrolysis of the oxetanyl ester, and opening of the oxetane ring
In vitro metabolism	Data gap
Toxicologically relevant compounds (animals and plants)	Oxasulfuron (CGA 277476)
Toxicologically relevant compounds (environment)	oxetan-3-ol

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	> 2000 mg/kg bw
Rat LC_{50} inhalation	> 5082 mg/m³ (4h, nose-only exposure)
Skin irritation	Non-irritant
Eye irritation	Non-irritant
Skin sensitisation	Not- Sensitising (Buehler test, and Maximization

[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.

	test)	
Phototoxicity	not phototoxic, unlikely to be photoreactive	

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

Target organ / critical effect	**Rat:** liver (hepatocyte hypertrophy), spleen (hyperplasia of lymphatic follicles) urinary system (inflammation of urinary bladder, pelvis dilatation in the kidney)and testis (inflammation of epididymis) **Dog:** peripheral nerves (degeneration), muscles (weakness), brain (vacuolation), testes (decreased spermatogenic activity, accumulation of atypical cells in the lumen of the seminiferous tubules and oligospermia in the epididymides*)* **Mouse:** effect on the liver (increased serum 5' nucleotidase) and red blood cells	
Relevant oral NOAEL	Rat: 15.3 mg/kg bw per day (90-day) Dog: 1.3 mg/kg bw per day (90-day and 1-yr) Mouse: 672 mg/kg bw per day	
Relevant dermal NOAEL	Rat: >1000 mg/kg bw per day (28-day)	
Relevant inhalation NOAEL	No data - not required	

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

In vitro studies	Bacterial gene mutation assay: non mutagenic with and without metabolic activation in S. typhimurium and E. Coli Mammalian gene mutation assay: non mutagenic Mammalian cytogenetic assay: Equivocal Unscheduled DNA repair assay: no induction of unscheduled DNA repair	
In vivo studies	Micronucleus test: not clastogenic or aneugenic	
Photomutagenicity	No data - not required	
Potential for genotoxicity	Oxasulfuron 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)	**Mice**: peripheral nerves (axonal degeneration), liver (hypertrophy). **Rats**: peripheral nerves (axonal degeneration), kidney (nephritis), liver (bile duct hyperplasia/ fibrosis), spleen (lymphatic depletion, pigmentation), testes (degeneration), muscles (neurogenic atrophy).	
Relevant long-term NOAEL	Mouse: 1.5 mg/kg bw per day (18-month) Rat: 8.3 mg/kg bw per day (2-year)	
Carcinogenicity (target organ, tumour type)	**Mice**: no carcinogenic potential **Rats**: Schwannomas at MTD in males were considered related to specific toxicity to the nervous system and not carcinogenic effect relevant to humans.	STOT RE 2, H373

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

Reproduction toxicity

Reproduction target / critical effect	Parental: decreased body weight gain, effects in testis Offspring: decreased body weight gain Reproductive: reduced number of pregnancies, increased number of post-implantation losses	Repr. cat 2 H361f
Relevant parental NOAEL	14.75 mg/kg bw per day	
Relevant reproductive NOAEL	340.5 mg/kg bw per day	
Relevant offspring NOAEL	340.5 mg/kg bw per day	

Developmental toxicity

Developmental target / critical effect	Maternal: decreased body weight gain and food consumption (rats) Developmental: increased skeletal variations (rats)	
Relevant maternal NOAEL	Rat: 300 mg/kg bw per day Rabbit: 1000 mg/kg bw per day	
Relevant developmental NOAEL	Rat: 300 mg/kg bw per day Rabbit: 1000 mg/kg bw per day	

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

Acute neurotoxicity	NOAEL 10 mg/kg bw, based on decreased rectal body temperature in females	
Repeated neurotoxicity	Peripheral neurotoxicity was observed in rats, mice and dogs in standard short- and long-term studies. It was	STOT RE 2; H373

	characterised by axonal degeneration of peripheral (motor) nerves leading to neurogenic atrophy of skeletal muscle observed in several species at different dose level and by brain vacuolization observed at 10.7 mg/kg in dog.	
Additional studies (e.g. delayed neurotoxicity, developmental neurotoxicity)	Not required	

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

Supplementary studies on the active substance	*Not required*
Endocrine disrupting properties	Not conclusive (data gap)
Studies performed on metabolites or impurities	
oxetan-3-ol	
Acute oral	LD_{50} > 2000 mg/kg bw(rat)
Acute dermal	LD_{50} > 4000 mg/kg bw(rat)
Acute inhalation	LC_{50} >4.6 mg/L (nose only)
Skin irritation	Not irritating
Eye irritation	Not irritating
Skin sensitisation	Not a sensitiser (M&K)
28-day dog oral	NOAEL = 20 mg/kg bw per day based on minimal hepatocyte hypertrophy
90-day dog oral	NOAEL = 50 mg/kg bw per day based on changes in erythropoietic system, liver and testes
Genotoxicity	Negative in bacterial reverse gene mutation assay and cytogenic test in chinese hamster ovaries
by-product	
Genotoxicity	Positive in gene mutation assay with *E. coli* without metabolic activation. No mutagenic activity observed with *S. typhimurium.*

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

	No adverse health effects were found in routine medical surveillance of manufacturing plant personnel. No cases of poisoning have been reported.

Summary[3] (Regulation (EU) N°1107/2009, Annex II, point 3.1 and 3.6)	Value (mg/kg bw (per day))	Study	Uncertainty factor
oxasulfuron			
Acceptable Daily Intake (ADI)	0.013	1-year dog 90-day dog	100
Acute Reference Dose (ARfD)	Not allocated		
Acceptable Operator Exposure Level (AOEL)	0.013	dog, 90-day	100

Acute Acceptable Operator Exposure Level (AAOEL)	Not allocated		
oxetan-3-ol			
Acceptable Daily Intake (ADI)	0.05	16-week dog study	1000
saccharin (and OH saccharin)			
Acceptable Daily Intake (ADI)	3.8	SCF (EC, 1997)	

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

Representative formulation (Laguna 75 WG)	Human/rat *in vitro* studies and rat *in vivo* (triple pack) with the formulation Dynam 75 WG: not representative Default values: 25% for the concentrate and 75% for the dilution

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

Operators	Use: Soybean, tractor mounted equipment, application rate 75 g as/ha Exposure estimates (model): % of AOEL UK POEM Without PPE 3000% Gloves M/L and appl: 462% German model Without PPE: 336% Gloves M/L/Appl and coverall appl 20% EFSA guidance Without PPE 254% Gloves and work-wear M/L/Appl 2.36%
Workers	EFSA guidance: 61% of the AOEL without PPE
Bystanders and residents	EFSA guidance: Bystander: 2%-20% (adult), 3%-25% (child) Resident: 2%-25% (adult), 4%-41% (child) (considering distances of 10m and 1m)

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

Substance :	oxasulfuron (ISO) oxetan-3-yl 2-[(4,6-dimethylpyrimidin-2-yl)-carbamoylsulfamoyl]benzoate
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][4]:	STOT RE 2 - H373 May cause damage to organs through prolonged or repeated exposure
Peer review proposal [5] for harmonised classification according to Regulation (EC) No 1272/2008:	Repr. Cat 2 - H361f Suspected of damaging fertility

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			
	Root crops			
	Leafy crops			
	Cereals/grass crops			
	Pulses/Oilseeds	Soyabean	Field application: pre-emergence, 1x 87 -111 g a.s./ha; post-emergence, 1x 89-90 g a.s./ha	Field application pre-emergence, 35, 42, 72 (1st,2nd,3rd thinning) and 134 (maturity) post-emergence, 0, 7, 37 (1st ,2nd ,3rd thinning), 99 (maturity)
			Greenhouse application: pre-emergence, 1x 381-326 g a.s./ha post-emergence, 1x 88-92 g a.s./ha	Greenhouse application: pre-emergence, 19-23, 27-31 (1st ,2nd thinning), 100-132 (maturity) post-emergence, 7 (2nd thinning) and 76-112 (maturity)

[4] 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.

[5] 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.

			Greenhouse application (^{14}C oxetanyl label): pre-emergence, 1x 270 g a.s./ha post-emergence, 1x 97 g a.s./ha	
	Miscellaneous			
	In the greenhouse metabolism studies only glucose and glutamine conjugates of the HO-pyrimidine amine (CGA-340355) were found at levels >10% TRR in soya beans equivalent to max. 0.012 mg/kg. In the field metabolism studies the predominant metabolites in soya bean foliage were glycerol ester of Oxasulfuron (CGA-310785), saccharin (CGA-27913) and sulfamoylbenzoic acid (CGA-177288). The highest residue was equivalent to 0.021 mg/kg. Only saccharin (CGA-27913) occurred at a level >10% TRR in mature beans but the actual concentration was very low (0.002 mg/kg).			

Rotational crops (metabolic pattern) **OECD Guideline 502**	**Crop groups**	**Crop(s)**	**PBI** (days)	**Comments**
	Root/tuber crops	Turnip	35,120,383	Metabolism studies conducted with a bare soil application at 188 g/ha with ^{14}C-phenyl and 168 g/ha with ^{14}C-pyrimidinyl oxasulfuron.
	Leafy crops	Mustard	35, 120, 383	
	Cereal (small grain)	Wheat	35, 120, 383	
	Pulses and oilseed	-	-	
Rotational crop and primary crop metabolism similar?	Open Data gap: Since CGA 27913 and C 1801 were shown to be low to high persistent in soil (DT_{90} of 28.8-788 and 10.8-1560 days, respectively), the potential for residues of these compounds to be present in the rotational crops needs to be investigated. Furthermore and pending upon the outcome of the requested DT_{50}/DT_{90} values on the metabolites CGA 171895 (M5), M3, CGA 179710, CGA 297691 and MT6 (data gaps in section 4), further rotational crops studies addressing the nature and magnitude of residues in regards to these compounds might be needed.			

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?	Hydrolysis studies not triggered as oxasulfuron residues in soya beans <0.01 mg/kg (LOQ).

Plant residue definition for monitoring (RD-Mo) **OECD Guidance, series on pesticides No 31**	Oxasulfuron
Plant residue definition for risk assessment (RD-RA)	Oxasulfuron
Conversion factor (monitoring to risk assessment)	None

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	6.25	8	6250

Goat	3.27-3.54	4	3270-3910
Pig	-	-	Not triggered
The major pathways are the oxidation of one of the pyrimidinyl methyl groups to form HO-oxasulfuron (OH-CGA-277476), the hydrolysis of the oxetane ring to form the glycerol ester of HO-oxasulfuron (HO-CGA-310785), prior to sulfonylurea bridge cleavage and further transformation to saccharin (CGA 27913) and pyrimidine amine (C 1801). The metabolism pathways of oxasulfuron in rat and in ruminants are similar.			

Time needed to reach a plateau concentration in milk and eggs (days)	Not provided
Animal residue definition for monitoring (RD-Mo) **OECD Guidance, series on pesticides No 31**	Not required
Animal residue definition for risk assessment (RD-RA)	Not required
Conversion factor (monitoring to risk assessment)	None
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**	Data gap: Since CGA 27913 and C 1801 were shown to be low to high persistent in soil (DT_{90} of 28.8-788 and 10.8-1560 days, respectively), the potential for residues of these compounds to be present in the rotational crops needs to be investigated. Furthermore and pending upon the outcome of the requested DT_{50}/DT_{90} values on the metabolites CGA 171895 (M5), M3, CGA 179710, CGA 297691 and MT6 (data gaps in section 4), further rotational crops studies addressing the nature and magnitude of residues in regards to these compounds might be needed.
Field rotational crop study **OECD Guideline 504**	Open

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

Plant products (Category)	**Commodity**	**T** (°C)	**Stability** (Months)
			Oxasulfuron
High water content			
High oil content	Soya bean	-20	24
High protein content			
High starch content			

High acid content			
Other			

Storage stability of oxasulfuron (CGA-277476) was demonstrated for a period of 24 months at -20 °C in soybean seeds and processed fractions (meal, hulls, oil).

Animal	**Animal commodity**	**T** (°C)	**Stability** (Months)
			Oxasulfuron
Beef	Muscle	-20	11
	Liver	-20	7
	Kidney		
	Milk	-20	10
	Egg	-20	12

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/ Indoor (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 **Residue definition for monitoring:** Oxasulfuron						
Soyabean	SEU	7x <0.01	MRL_{OECD}: 0.01 mg/kg	0.01(*)	0.01	0.01
MRL application						
Not relevant						
Summary of the data on formulation equivalence OECD Guideline 509						
Crop	**Region**	**Residue data** (mg/kg)	**Recommendations/comments**			
No information provided - Not relevant						
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**			
No information provided Data gap: The determination of the residues in pollen and bee products for human consumption resulting from residues taken up by honeybees from crops at blossom with regards to oxasulfuron and relevant metabolites and considering also the outstanding data on rotational crops is requested.						

(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 **Mo**nitoring and **R**isk **A**ssessment.
(c): **HR**: Highest residue. When residue definition for monitoring and risk assessment differs, HR according to residue definition for monitoring reported in brackets (HR_{Mo}).
(d): **STMR:** Supervised Trials Median Residue. When residue definition for monitoring and risk assessment differs, STMR according to definition for monitoring reported in brackets ($STMR_{Mo}$).

Inputs for animal burden calculations

Feed commodity	Median dietary burden		Maximum dietary burden	
	(mg/kg)	Comment	(mg/kg)	Comment
Representative uses				
Soybean seed	0.01	STMR	0.01	STMR
Soybean meal	0.01	STMR	0.01	STMR
Soybean hulls	0.01	STMR	0.01	STMR
MRL application				
Not relevant				

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

MRL calculations	Ruminant				Pig/Swine		Poultry		Fish	
Highest expected intake (mg/kg bw/d)	Beef cattle	0.0001	Ram/Ewe	0.0001	Breeding	0.0001	Broiler	0.0005	Carp	-
	Dairy cattle	0.0001	Lamb	0.0002	Finishing	0.0002	Layer	0.0003	Trout	-
(mg/kg DM for fish)							Turkey	0.0005	Fish intake >0.1 mg/kg DM	
Intake >0.004 mg/kg bw	No		No		No		No		No	
Feeding study submitted	Not required		Not required		Not required		Not required		Not required	
Representative feeding level (mg/kg bw/d, mg/kg DM for fish) and **N rates**	Level	Beef: N Dairy: N	Level	Lamb: N Ewe: N	Level	N rate Breed/Finish	Level	B or T: N Layer: N	Level	N rate Carp/Trout
	Estimated HR[(a)] at 1N	**MRL** proposals	Estimated HR[(a)] at 1N	**MRL** proposals	Estimated HR[(a)] at 1N	**MRL** proposals	Estimated HR[(a)] at 1N	**MRL** proposals	Estimated HR[(a)] at 1N	**MRL** proposals
Muscle										
Fat										
Meat[(b)]										
Liver										
Kidney										
Milk[(a)]										
Eggs										
Method of calculation[(c)]										

[(a)]: Estimated HR calculated at 1N level (**estimated mean level for milk**).
[(b)]: HR in meat calculated for mammalian on the basis of 20% fat + 80% muscle and 10% fat + 90% muscle for poultry
[(c)]: The OECD guidance document on residues in livestock (series on pesticides 73) recommends three different approaches to derive MRLs for animal products; by applying a transfer factor (Tf), by intrapolation (It) or by linear regression (Ln). Fill in method(s) considered to derive the MRL proposals.

Conversion Factors (CF) for monitoring to risk assessment

Animal products

Not relevant (RD-Mo = RD-RA)

Plant products

Not relevant (RD-Mo = RD-RA)

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				
Processing residue trials are not triggered.				

[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

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).

ADI	0.013 mg/kg bw per day
TMDI according to EFSA PRIMo	Not relevant
NTMDI, according to (to be specified)	Not provided, not required
IEDI (% ADI), according to EFSA PRIMo	Not provided, not required
NEDI (% ADI), according to (to be specified)	Not provided, not required
Factors included in the calculations	None
ARfD	Not allocated
IESTI (% ARfD), according to EFSA PRIMo	-
NESTI (% ARfD), according to (to be specified)	-
Factors included in IESTI and NESTI	-

Consumer risk assessment limited to the representative uses[1]

TMDI (% ADI), according to EFSA PRIMo	Highest TMDI: <1% of the ADI (WHO cluster diet F)
NTMDI (% ADI), according to (to be specified)	Not provided, not required
IEDI (% ADI), according to EFSA PRIMo	Not provided, not required
NEDI (% ADI), according to (to be specified)	Not provided, not required
Factors included in the calculations	None
IESTI (% ARfD, according to EFSA PRIMo)	Not provided, not required
NESTI (% ARfD, according to (to be specified)	Not provided, not required
Factors included in IESTI and NESTI	None

Additional contribution to the consumer intakes through drinking water resulting from groundwater metabolite expected to be present above 0.75 µg/L[(1)]

Metabolite	CGA 297691
ADI (mg/kg bw per day)	0.05
Intake of groundwater metabolites (% ADI) WHO Guideline (WHO, 2011)	Adult (60 kg bw, 2 L): 0.2 % ADI Child (10 kg bw, 1 L): 0.6 % ADI Infant (5 kg bw, 0.75 L): 0.9 % ADI

(1): The overall consumer exposure assessment cannot be finalised in view of the identified data gap for the potential for residues of CGA 27913 and C 1801 to be present in the rotational crops, the outstanding data regarding the metabolism and magnitude of the relevant compounds in rotational crops (see section 4) and the consumer exposure assessment through drinking water with regards to MT6, CGA 171895 (M5) and M3.

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			
0401070	Soyabeans	0.01(*)	Current MRL Reg EU 289/2014

(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

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	0.1-57.4 % after 90-105 d, [^{14}C-phenyl]-label (n= 4) 1.3-21.3 % after 90-83 d, [^{14}C-pyrimidinyl]-label (n=3) 80.4 % after 120 d, [^{14}C-oxetan]-label (n=1)
Non-extractable residues after 100 days	1.7-27 % after 90-105 d, [^{14}C-phenyl]-label (n= 4) 25.5-53.9 % after 90-83 d, [^{14}C-pyrimidinyl]-label (n=3) 5.3 % after 120 d, [^{14}C-oxetan]-label (n=1)
Metabolites requiring further consideration - name and/or code, % of applied (range and maximum)	saccharin CGA (27913) – 9-98.5 % at 9-90 d (n=9) [^{14}C-phenyl]-label M3 – 4.8-25 % at 0-65 d (n=6) [^{14}C-phenyl] & [^{14}C-pyrimidinyl] and [^{14}C-oxetan]-label M5 – 5.4-10.2 % at 9-2 d (n=2) [^{14}C-phenyl]-label C1801 – 29.2-54.7 % at 5-14 d (n=4) [^{14}C-pyrimidinyl]-label CGA 179710 – 1.3-27.5 % at 7-14 d (n=2) [^{14}C-pyrimidinyl]-label CGA 297691 – about 21 % at 4 d (n=1) [^{14}C-oxetan]-label, field study only

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

Mineralisation after 100 days	0.2-0.3 % at 90-120 d, [^{14}C-phenyl]-label (n=2) 1.1-15.6 % at 90-127 d, [^{14}C-pyrimidinyl]-label (n=2) 6.6 % at 90 d, [^{14}C-oxetan]-label (n=1)
Non-extractable residues after 100 days	3-3.6 % at 90-120 d, [^{14}C-phenyl]-label (n=2) 19.3-50.1 % at 90-127 d, [^{14}C-pyrimidinyl]-label (n=2) 20.2 % at 90 d, [^{14}C-oxetan]-label (n=1)
Metabolites that may require further consideration for risk assessment - name and/or code, % of applied (range and maximum)	saccharin (CGA 27913) – 86.5-96.8 % at 120-59 d (n=2) [^{14}C-phenyl]-label M3 – 30.2 % at 40 d (n=1) [^{14}C-pyrimidinyl]-label C1801 – 22.7-69 % at 8-59 d (n=2) [^{14}C-pyrimidinyl]-label CGA 297691 – 87.8 % at 62 d (n=1) [^{14}C-oxetan]-label

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)	saccharin (CGA 27913) – 90.5 % at 30 d (n=1) [^{14}C-phenyl]-label CGA 297691 – 58.8 % at 30 d (n=1) [^{14}C-oxetan]-label C1801 – 51.5 % at 30 d (n=1) [^{14}C-pyrimidinyl]-label
Mineralisation at study end	0.2 % at 30 d, [^{14}C-phenyl]-label (n=1) 0.4 % at 30 d, [^{14}C-pyrimidinyl]-label (n=1) 16.3 % at 30 d, [^{14}C-oxetan]-label (n=1)
Non-extractable residues at study end	0.4 % at 30 d, [^{14}C-phenyl]-label (n=1) 5.5 % at 30 d, [^{14}C-pyrimidinyl]-label (n=1) 7.5 % at 30 d, [^{14}C-oxetan]-label (n=1)

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)

Oxasulfuron			**Dark aerobic conditions**					
Soil type	O.C. (%)	pH[a)]	t. °C / % MWHC	DT_{50} /DT_{90} (d) #	St. (χ^2)	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. (χ^2)	Method of calculation §
Gartenacker, Silt loam	2.3	7.2	20°C/40%	8.4/27.9 SFO	3	8.4	3	SFO
Speyer 2.2, Loamy sand	2.2	5.7	20°C/40%	29.3/97.3 SFO	6.9	29.3	6.9	SFO
Weide, Sandy loam	1.3	7.6	20°C/40%	11.6/51 FOMC	3.1	15.4	3.1	FOMC (DT_{90}/3.32)
Gartenacker, Silt loam	2.1	7.2	19.8°C/75% of field capacity	5.7/18.9 SFO	3.5	4.6	3.5	SFO
Collombey, Loamy sand	1.6	7.4	19.8°C/75% of field capacity	6.7/35.5 FOMC	2.5	8.6	2.5	FOMC (DT_{90}/3.32)
USA, Sandy loam a	1.1	6.8	25°C/75% of field capacity at 0.33 bar	4.2/14 SFO	6.1	5.5	6.1	SFO
USA, Sandy loam b	1.1	6.8	25°C/75% of field capacity at 0.33 bar	3.2/10.6 SFO	9.9	4.2	9.9	SFO
USA, Sandy loam c	1.5	7	25.5°C/75% of field capacity at 0.33 bar	3.7/20.1 FOMC	6.7	8.3	6.7	FOMC (DT_{90}/3.32)
USA, Sandy loam d	1	7.5	25°C/75% of field capacity at 0.33 bar	7.2/24 SFO	1.4	9.5	1.4	SFO
USA, Sandy loam e	1	7.5	25°C/75% of field capacity at 0.33 bar	8.3/27.5 SFO	3.7	10.9	3.7	SFO
USA, Sand	0.5	8.3	25°C/75% of field capacity at 0.33 bar	10/33.3 SFO	3.3	13.1	3.3	SFO
USA, Loam	1.4	6.7	25°C/75% of field capacity at 0.33 bar	9/29.9 SFO	3	11.8	3	SFO
USA, Clay	1.2	7.3	25°C/75% of field capacity at 0.33 bar	7.4/24.7 SFO	2.9	9.7	2.9	SFO
Geometric mean (if not pH dependent)						9.4		
pH dependence, No								

[a)] Measured in water
[b)] Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
Non-normalised for trigger evaluation
§ For modelling purposes

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)

Saccharin (CGA 27913)			**Dark aerobic conditions Oxasulfuron dosed from which the f.f. was derived was 0.6**						
Soil type	O.C. (%)	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d) #	f. f. k_f / k_{dp}	St. (χ^2)	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. (χ^2)	Method of calculation §
Gartenacker, Silt loam	2.3	7.2	20°C/40 %	12.5/111 DFOP (decline phase)	1*	12.9	48	23.7	FOMC (DT_{90}/3.32)
Speyer 2.2, Loamy sand	2.2	5.7	20°C/40 %	8.7/28.8 SFO+SFO	0.59	23.8	8.7	23.8	SFO+SFO
Weide, Sandy loam	1.3	7.6	20°C/40 %	4.6/26.1 FOMC (decline phase)	1*	2.6	7.9	2.6	FOMC (DT_{90}/3.32)
Sandy loam[$]	-	5.7	20°C/50 %	80.7/269	-	-	80.7	2	SFO
Silt loam-1[$]	-	7.7	20°C/50 %	34.8/116	-	-	34.8	10	SFO
Silt loam-2[$]	-	6.4	20°C/50 %	119/661	-	-	119	5	SFO
Mattapex, silt loam[$]	-	6.9	20°C	237.4/788.6	-	-	237.4	4	SFO
Speyer 2.2, loamy sand-1[$]	-	5.7	20°C	9.69/32.2	-	-	9.69	4.76	Modified HS
Speyer 3A, sandy loam-1[$]	-	7.3	20°C	10.2/34	-	-	9.53	5.32	Modified HS
Speyer 65, clay-1[$]	-	7.1	20°C	29.9/99.2	-	-	20.6	5.75	Modified HS
Speyer 2.2, loamy sand-2[$]	-	5.7	20°C	14.8/49.2	-	-	14.8	-	SFO
Speyer 3A, sandy loam-2[$]	-	6.88	20°C	9.1/30.1	-	-	8.45	-	SFO
Speyer 65, clay-2[$]	-	7.23	20°C	27.5/91.2	-	-	20.47	-	SFO
Geometric mean (if not pH dependent)							24.7		
Arithmetic mean					0.86				
pH dependence, No									

[c)] Measured in water
[d)] Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
Non-normalised for trigger evaluation
§ For modelling purposes
* A worst-case value of 1 has been selected because no acceptable fit could be derived by modelling parent and metabolite together, therefore a suitable estimation of the formation fraction could not be achieved.
$ These values were contained in the endpoints lists from the published finalised EFSA conclusions for the a.s. metsulfuron-methyl https://www.efsa.europa.eu/it/efsajournal/pub/3936 and ethametsulfuron-methyl https://www.efsa.europa.eu/it/efsajournal/pub/3508

M3			**Dark aerobic conditions Oxasulfuron dosed from which the f.f. was derived was 0.25**						
Soil type	O.C. (%)	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d) #	f. f. k_f / k_{dp}	St. (χ^2)	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. (χ^2)	Method of calculation §
Gartenacker, Silt loam	2.3	7.2	20°C/40%	122/406 SFO+SFO	0.25	20.7	122	53.2	SFO+SFO
Geometric mean (if not pH dependent)							122		
Arithmetic mean					0.25				
pH dependence, No									

[e)] Measured in water
[f)] Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
Non-normalised for trigger evaluation
§ For modelling purposes

M5 (CGA 171895)			**Dark aerobic conditions Oxasulfuron dosed from which the f.f. was derived was 1**						
Soil type	O.C. (%)	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d) #	f. f. k_f / k_{dp}	St. (χ^2)	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. (χ^2)	Method of calculation §
Speyer 2.2, Loamy sand	2.2	5.7	20°C/40%	12.7/321 HS (decline phase)	1*	18.3	154	18.3	HS-K2 after lag phase
Weide, Sandy loam	1.3	7.6	20°C/40%	7.4/59.1 FOMC (decline phase)	1*	19.1	17.8	19.1	FOMC (DT_{90}/3.32)
Geometric mean (if not pH dependent)							52.4		
Arithmetic mean					1				
pH dependence, No									

[g)] Measured in water
[h)] Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
Non-normalised for trigger evaluation
§ For modelling purposes
* A worst-case value of 1 has been selected because no acceptable fit could be derived by modelling parent and metabolite together, therefore a suitable estimation of the formation fraction could not be achieved.

C1801			**Dark aerobic conditions Oxasulfuron dosed from which the f.f. was derived was 0.6**						
Soil type	O.C. (%)	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d) #	f. f. k_f / k_{dp}	St. (χ^2)	DT_{50} (d) 20 °C pF2/10kPa [b)]	St. (χ^2)	Method of calculation §
Gartenacker, Silt loam	2.1	7.2	19.8°C/75% of field capacity	3.2/10.8 SFO+SFO	0.3	10.8	2.6	10.8	SFO+SFO
Collombey,	1.6	7.4	19.8°C/75%	14.8/49.2	0.8	10.	11.8	10.4	FOMC+SFO

Loamy sand			of field capacity	FOMC+SFO		4			
USA, Sandy loam b	1.1	6.8	25°C/75% of field capacity at 0.33 bar	468/1560 SFO+SFO	0.61	11.5	611.2	11.5	SFO+SFO
Geometric mean (if not pH dependent)							26.6		
Arithmetic mean					0.57				
pH dependence, No									

[i] Measured in water
[j] Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
Non-normalised for trigger evaluation
§ For modelling purposes

CGA 179710			**Dark aerobic conditions Oxasulfuron dosed from which the f.f. was derived was 0.3**						
Soil type	O.C. (%)	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d) #	f. f. k_f / k_{dp}	St. (χ^2)	DT_{50} (d) 20 °C pF2/10kPa[b)]	St. (χ^2)	Method of calculation §
USA, Sandy loam b	1.1	6.8	25°C/75% of field capacity at 0.33 bar	298/989 SFO+SFO	0.3	10.8	389.2	10.8	SFO+SFO
Geometric mean (if not pH dependent)							389.2		
Arithmetic mean					0.3				
pH dependence, No									

[k] Measured in water
[l] Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7
Non-normalised for trigger evaluation
§ For modelling purposes

MT6	Data gap

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)

Oxasulfuron	**Aerobic conditions**								
Soil type (indicate if bare or cropped soil was used).	Location (country or USA state).	O.M. (%)	pH[a)]	Depth (cm)	DT_{50} (d) actual	DT_{90} (d) actual	C.C. *	DT_{50} (d) Norm[b)].	Method of calculation
Dewey, bare soil	Illinois	3.4	6.1	7.5	3.2	n.c.	0.989	n.c.	Regression analysis
Loamy sand/sandy loam, cropped soil	North Carolina	< 1	5-6	15	5.9	n.c.	0.916	n.c.	Regression analysis
Geometric mean (if not pH dependent)					4.3				
pH dependence, No									

[a] Measured in unknown medium
[b] Normalised using a Q10 of 2.58 and Walker equation coefficient of 0.7, values are DegT50matrix
* Correlation coefficient
n.c. Not calculated

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)	Not relevant, since field data are not suitable for modelling purposes	
Rate of degradation in soil transformation products, normalised geometric mean (if not pH dependent)	Not relevant	
Kinetic formation fraction (f. f. k_f / k_{dp}) of transformation products, arithmetic mean	Not relevant	

* 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	Not relevant (Plateau concentration of 0.000 mg/kg reached after 0 years, based on calculation)

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)

Oxasulfuron	**Dark anaerobic conditions. Results not reported since anaerobic DT50 should not be used for the risk assessment**						
Soil type	O.C. (%)	pH[a)]	t. °C / % MWHC	DT_{50} / DT_{90} (d)	DT_{50} (d) 20 °C[b)]	St. (r^2)	Method of calculation
Gartenacker, Silt loam	2.3	7.2	20°C/40%	-	-	-	-
Gartenacker, Silt loam	2.1	7.2	19.8°C/75% of field capacity	-	-	-	-
USA, Sandy loam a	0.9	7.1	25°C/17.7% of field capacity at 0.33 bar	-	-	-	-
USA, Sandy loam b	0.9	7.1	25°C/17.7% of field capacity at 0.33 bar	-	-	-	-
USA, Sandy loam c	0.8	7.4	25°C/17.2% of field capacity at 0.33 bar	-	-	-	-
Geometric mean (if not pH dependent)							

[a)] Measured in water
[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)

C1801	**Dark anaerobic conditions. Results not reported since anaerobic DT50 should not be used for the risk assessment**

Soil type	O.C. (%)	pH[a)]	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f. k_f / k_{dp}	DT_{50} (d) 20°C[b)]	St. (χ^2)	Method of calculation
Gartenacker, Silt loam	2.1	7.2	19.8°C/75 % of field capacity	-	-	-	-	-
Geometric mean (if not pH dependent)								
Arithmetic mean								

a) Measured in water
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	O.M. (%)	pH[a)]	t. °C / % MWHC	DT_{50} / DT_{90} (d) calculated at ??ºN	C.C.*	Method of calculation
San Joaquin, Clay loam a	0.8	7.3	25°C/16.91% at 1/3 bar	3.7/n.c.	0.991	Regression analysis with EPISTAT
San Joaquin, Clay loam b	0.8	7.3	25°C/16.91% at 1/3 bar	3.3/n.c.	0.999	Regression analysis with EPISTAT
San Joaquin, Clay loam c	0.8	7.3	25°C/16.91% at 1/3 bar	4.5/n.c.	0.978	Regression analysis with EPISTAT

a) Measured in unknown medium
* Correlation coefficient

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)

Oxasulfuron							
Soil Type	OC %	Soil pH[a)]	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
Nassau, Silt loam	1.3	6.9	n.c.	n.c.	0.33	26	1.03
Niagara, Clay loam	1.9	6.8	n.c.	n.c.	0.33	17	0.86
Sequatchie, Sandy loam	0.9	7.7	n.c.	n.c.	0.16	17	1.36
Cajon, Loamy sand	0.4	6.4	n.c.	n.c.	0.12	30	0.91
Geometric mean (if not pH dependent)*							
Arithmetic mean (if not pH dependent)						22.5	1.04
pH dependence, Yes							

b) Measured in unknown medium
c) * 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)

saccharin (CGA 27913)							
Soil Type	OC %	Soil pH[a)]	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
Maryland, Clay	2.8	5.9	n.c.	n.c.	0.09	3	0.94
Maryland, Sand	0.5	6.5	n.c.	n.c.	0	0	-[b)]
Maryland, Sandy loam	1.1	7.5	n.c.	n.c.	0.03	3	1.05

California, Loam	0.5	6.7	n.c.	n.c.	0.03	6	0.53
Gross-Umstadt, Silt loam	1.2	7.7	-	-	-	20	0.94
Arrow, Sandy loam	2.3	5.7	-	-	-	14	0.88
Mattapex, Silt loam	2.6	6.4	-	-	-	12	0.94
Speyer 2.1, Sand	0.56	6	-	-	-	1.8	0.92
soil 115, Clay loam	1.7	7.4	-	-	-	2.2	0.71
soil 164, Silt loam	3	6.5	-	-	-	4.2	0.93
soil 243, Sandy loam	1.1	4.3	-	-	-	4	1.01
BBA 2.2, Loamy sand	2.5	6.1	-	-	-	5.2	0.95
Hofchen, Silt loam	2.7	7.8	-	-	-	4.6	0.94
Laacherhof, Silt loam	0.86	8.1	-	-	-	5.2	0.97
Ephrata, Loamy sand	0.37	6.8	-	-	-	6.7	0.95
Stilwell, Silty clay loam	1.6	6.7	-	-	-	15.5	0.92
Geometric mean (if not pH dependent)*							
Arithmetic mean (if not pH dependent)						6.7	0.91
pH dependence, No							

[a)] Measured in unknown medium
[b)] Taken into account as 1 for the arithmetic mean
* Only relevant after implementation of the published EFSA guidance.

C1801

Soil Type	OC %	Soil pH[a)]	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
824-3, Sandy loam	1.2	7.4	n.c.	n.c.	0.6	54	0.90
824-4, Loamy sand	0.3	6.2	n.c.	n.c.	6.2	2124	0.75
824-1, Silt loam	1.2	6.7	n.c.	n.c.	2.3	213	0.79
824-2, Clay	1.7	6.5	n.c.	n.c.	2.7	170	0.75
Geometric mean (if not pH dependent)*							
Arithmetic mean (if not pH dependent)						640	0.80
pH dependence, No							

[c)] Measured in unknown medium
* Only relevant after implementation of the published EFSA guidance.

CGA 179710

Soil Type	OC %	Soil pH[a)]	K_d (mL/g)	K_{doc} (mL/g)	K_F (mL/g)	K_{Foc} (mL/g)	1/n
824-3, Sandy loam	1.2	7.4	n.c.	n.c.	1.5	143	0.77
824-4, Loamy sand	0.3	6.2	n.c.	n.c.	1.7	601	0.78
824-1, Silt loam	1.2	6.7	n.c.	n.c.	2.0	185	0.82
824-2, Clay	1.7	6.5	n.c.	n.c.	2.3	147	0.76
Geometric mean (if not pH dependent)*							
Arithmetic mean (if not pH dependent)						269	0.78
pH dependence, No							

[d)] Measured in unknown medium
* Only relevant after implementation of the published EFSA guidance.

M3	Data gap

CGA 171895 (M5)	Data gap

CGA 297691	Data gap

MT6	Data gap

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	Elution (mm): 300 mm Time period (d): < 1 d (lowest value of 28 tests)
	Leachate: 94.5 % total residues/radioactivity in leachate (highest value of 28 tests) 91.5 % active substance, 2.6 % C1801 0 % total residues/radioactivity retained in top 30 cm (lowest value of 28 tests)

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: North Carolina Study type (e.g. lysimeter, field): lysimeter Soil properties: texture loamy sand to sandy clay loam, pH 5.6-6.6, OC 0.1-0.8% , Field capacity = 10.37-17.81% Dates of application : June 23, 1993 Number of applications: 1 year, 1 applications per year Duration 367 days. Application rate: 117 g/ha/year Average annual rainfall (mm): 4 mm Average annual leachate volume (mm): 12.9 liters % radioactivity in leachate (maximum/year): 1.2% AR Individual annual maximum: 0.7 µg/L active substance Analyses for individual constituents in the leachates could not be performed. Amount of radioactivity in the soils at the end of the study = 8.4% AR; 0.62 % AR as parent, 7.78 % AR as C1801 Location: North Carolina Study type (e.g. lysimeter, field): field Soil properties: texture , pH=5-6, OC<0.6% , MWHC unknown Dates of application: June 23, 1993 Crop: soybean /Interception estimated: 0% (incorporation into soil)

Number of applications: 1 year, 1 application per year Duration: 365 d Application rate: 224 g/ha/year Average annual rainfall (mm): 741 mm % radioactivity in leachate (maximum/year): 0 % AR Individual annual maximum concentrations of all the substances were below the limit of detection (0.1 ppb), except for a single sample that was considered as contaminated. That sample was therefore not considered as valid. Amount of radioactivity in the soils at the end of the study was below the limit of detection Location: Wisconsin Study type (e.g. lysimeter, field): field Soil properties: texture , pH=5.7-6.8, OC<0.7% , MWHC unknown Dates of application: June 22, 1994 Crop: soybean /Interception estimated: 0% (incorporation into soil) Number of applications: 1 year, 1 application per year Duration: 763 d Application rate: 224 g/ha/year Average annual rainfall (mm): 1002 mm Oxasulfuron: no detections in any soil-pore water or groundwater samples through 736 DAA. CGA 177288: no detections in any soil-pore water samples through 736 DAA. A single detection in ground water (0.17 µg/l) C 1801: one single pore water detection (0.12 µg/l). No groundwater detections. saccharin (CGA 27913): sporadic low level detections (up to 0.4 µg/l) in soil-pore water at all depths through 490 DAA, as well as prior to the application (0.1 - 0.3 µg/l). Occasionally present in groundwater samples (up to 3 µg/l). 8 out of 12 samples taken before treatment contained residues of up to 1.5 µg/l. Amount of radioactivity in the soils at the end of the study was below the limit of detection

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 5: 6.3-17.2 d at 25-20 °C (pseudo-1st order, r^2=0.998, χ^2=2.6) CGA 27913: 95.3 % AR (30 d) C1801: 95.3 % AR (30d) CGA 297691: 93 % AR (30d)
	pH 7: 8.3-22.7 d at 25-20 °C (pseudo-1st order, r^2=0.999, χ^2=2.7) CGA 27913: 89.4 % AR (30 d) C1801: 90.8 % AR (30d) CGA 297691: 88 % AR (30d)
	pH 9: 8.2-22.0 d at 25-20 °C (pseudo-1st order, r^2=0.997, χ^2=2.4) CGA 27913: 87.2 % AR (30 d) C1801: 88.2 % AR (30d) CGA 297691: 88.6 % AR (30d)

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 %	DT_{50} : 3-4 d C1801: 51 % AR (7 d) saccharin (CGA 27913): 37 % AR (30 d) CGA 297691: 91 % AR (30 d) Estimated DT_{50} at 40°N 4.7 days in mid summertime Estimated DT_{50} at 40°N 8.8 days in mid springtime Estimated DT_{50} at 50°N 11.4 days in mid summertime Estimated DT_{50} at 50°N 16.5 days in mid springtime
Quantum yield of direct phototransformation in water at Σ > 290 nm	$7.57 \cdot 10^{-3}$ mol · Einstein^{-1} at pH 4 $5.33 \cdot 10^{-2}$ mol · Einstein^{-1} at pH 9

'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)

Oxasulfuron

System identifier (indicate fresh, estuarine or marine)	pH water phase	t °C[a)]	DT_{50} /DT_{90} Water (pelagic test)		St. (χ^2)	Method of calculation
			At study temp	Normalised to 20 °C[b)]		

Fresh, first label 9.4 µg/L appl	7.9	20	24/81	24/81	7.7	SFO
Fresh, first label 93.1 µg/L appl	7.9	20	22/103	22/103	5.8	DFOP
Fresh, second label 10.3 µg/L appl	7.9	20	18/139	18/139	6.9	FOMC
Fresh, second label 105.9 µg/L appl	7.9	20	18/114	18/114	8.8	FMOC

a) Temperature of incubation
b) Normalised using a Q10 of 2.58 to the temperature of the environmental media at the point of sampling. (note temp of x should be stated).

Mineralisation and non extractable residues (for parent dosed experiments)				
System identifier (indicate fresh, estuarine or marine)	pH water phase	Mineralisation x % after 30 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)
Fresh, first label 9.4 µg/L appl	7.9	3.2	Not reported	Not reported
Fresh, first label 93.1 µg/L appl	7.9	0.4	Not reported	Not reported
Fresh, second label 10.3 µg/L appl	7.9	0.8	Not reported	Not reported
Fresh, second label 105.9 µg/L appl	7.9	0.1	Not reported	Not reported

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)

Oxasulfuron	**Distribution (total radiocarbon max in water 101.0% after 0 d. Max. sed 56.4 % after 57 d)**									
Water / sediment system	pH water phase [a]	pH sed [b]	t °C [a]	DT_{50} /DT_{90} whole sys.	St. (χ^2)	DT_{50} /DT_{90} water	St. (χ^2)	DT_{50} /DT_{90} sed	St. (χ^2)	Method of calculation
Rhine river-a	8.3	7	19.4	20.4/83.1	3	n.c.	n.c.	n.c.	n.c.	FOMC
Rheinfelden pond	8.6	7.3	19.3	19.5/64.8	5.6	n.c.	n.c.	n.c.	n.c.	SFO
Rhine river-b	8.6	7.45	19.6	21.5/71.3	5.7	n.c.	n.c.	n.c.	n.c.	SFO
Geometric mean at 20°C[c]				21.9[d]						

a) During equilibration and incubation
b) Measured in KCl
c) Normalised using a Q10 of 2.58
d) For Rhine river-b a value of 25 d (DT90/3.32) has been considered for geomean calculation, since FOMC calculation has been used

Metabolite C1801	**Distribution unknown. Max in total system 66.7 % after 120 days, kinetic formation fraction (k_f/k_{dp}): 0.85 in pond experiment, 0.88 in river experiment from oxasulfuron. Whole system calculation.**									
Water / sediment system	pH water phase	pH sed [a]	t. °C	DT_{50} /DT_{90} whole sys.	St. (χ^2)	DT_{50} /DT_{90} water	St. (χ^2)	DT_{50} /DT_{90} sed	St. (χ^2)	Method of calculation
Rheinfelden pond	8.6	7.3	19.3	108/359	7.1	n.c.	n.c.	n.c.	n.c.	SFO+SFO
Rhine river-b	8.6	7.45	19.6	232/772	3.7	n.c.	n.c.	n.c.	n.c.	DFOP+SFO[c]
Geometric mean at 20°C[b]				158.3						

[a] Measured in [medium to be stated, usually calcium chloride solution or water]
[b] Normalised using a Q10 of 2.58
[c] Excluding latest time-step

Mineralisation and non extractable residues (from parent dosed experiments)					
Water / sediment system	pH water phase [a]	pH sed [b]	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)
Rhine river-a	8.3	7	72.8% after 182 d	24.6% after 56 d	20.9% after 182 d
Rheinfelden pond	8.6	7.3	33.25% after 180 d	24.6% after 180 d	24.6% after 180 d
Rhine river-b	8.6	7.45	53.86% after 180 d	19.65% after 180 d	19.65% after 180 d

[a] During equilibration and incubation
[b] Measured in KCl

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 3-15 hours derived by the Atkinson model (version unknown). OH (12 h) concentration assumed = 1.5 . 106 OH-radicals . cm-3
Volatilisation	from plant surfaces (BBA guideline): considered as not relevant, in agreement with the Henry's law constant of <3.2 . 10-5 Pa . m3 . mole-1 (20°C, calculated from vapour pressure and water solubility)
	from soil surfaces (BBA guideline): considered as not relevant, in agreement with the Henry's law constant of <3.2 . 10-5 Pa . m3 . mole-1 (20°C, calculated from vapour pressure and water solubility)
Metabolites	No metabolites expected

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: Oxasulfuron, saccharin (CGA 27913), C1801, M3, M5 (CGA 171895), CGA 179710, CGA 297691, MT6 Surface water: Oxasulfuron, saccharin (CGA 27913), C1801, M3, M5 (CGA 171895), CGA 179710, CGA 297691, guanidine, 3-guanidine-1-butene, MT6 Sediment: Oxasulfuron, saccharin (CGA 27913), C1801, M3, M5 (CGA 171895), CGA 179710, CGA 297691, MT6 Ground water: Oxasulfuron, saccharin (CGA 27913), C1801, M3, M5 (CGA 171895), CGA 179710, CGA 297691, MT6 Air: Oxasulfuron

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

Soil: Oxasulfuron (CGA-277476)
Water: Oxasulfuron (CGA-277476)
Groundwater: Oxasulfuron (CGA-277476), M3

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

Soil (indicate location and type of study)	None available from formal monitoring requests at EU or national level
Surface water (indicate location and type of study)	None available from formal monitoring requests at EU or national level
Ground water (indicate location and type of study)	None available from formal monitoring requests at EU or national level
Air (indicate location and type of study)	None available from formal monitoring requests at EU or national level

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

Oxasulfuron Method of calculation	DT_{50} (d): 29.3 days Kinetics: SFO Field or Lab: representative worst case from lab studies.

Application data	Crop: soybean Depth of soil layer: 5cm Soil bulk density: 1.5g/cm^3 % plant interception: 35% Number of applications: 1 Interval (d): - Application rate(s): 75 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	0.065	-	-	-
Short term 24h	0.063	0.064	-	-
2d	0.062	0.063	-	-
4d	0.059	0.062	-	-
Long term 7d	0.055	0.060	-	-
28d	0.034	0.048	-	-
50d	0.020	0.038	-	-
100d	0.006	0.025	-	-
Plateau concentration	0.000 mg/kg			

saccharin (CGA 27913) Method of calculation	Molecular weight relative to the parent: 183.0/406.4 g/mol DT_{50} (d): 237.4 days Kinetics: SFO Field or Lab: representative worst case from lab studies.
Application data	Application rate assumed: 33.27 g/ha (assumed CGA 27913 is formed at a maximum of 98.5 % of the applied dose)

$PEC_{(s)}$ (mg/kg)	**Single application Actual**	**Single application Time weighted average**	**Multiple application Actual**	**Multiple application Time weighted average**
Initial	0.029	-	-	-
Short term 24h	0.029	0.029	-	-
2d	0.029	0.029	-	-
4d	0.028	0.029	-	-
Long term 7d	0.028	0.029	-	-
28d	0.027	0.028	-	-
50d	0.025	0.027	-	-
100d	0.022	0.025	-	-
Plateau concentration	0.004 mg/kg			

C1801 Method of calculation	Molecular weight relative to the parent: 123.0/406.4 g/mol DT_{50} (d): 468 days Kinetics: SFO+SFO Field or Lab: lab
Application data	Application rate assumed: 12.48 g/ha (assumed C1801 is formed at a maximum of 55 % of the applied dose)

$PEC_{(s)}$ (mg/kg)	**Single application Actual**	**Single application Time weighted average**	**Multiple application Actual**	**Multiple application Time weighted average**
Initial	0.011	-	-	-
Short term 24h	0.011	0.011	-	-
2d	0.011	0.011	-	-
4d	0.011	0.011	-	-
Long term 7d	0.011	0.011	-	-
28d	0.010	0.011	-	-
50d	0.010	0.010	-	-
100d	0.010	0.010	-	-
Plateau concentration	0.004 mg/kg after 4 yr			

M3 Method of calculation	Molecular weight relative to the parent: 436/406.4 g/mol DT_{50} (d): 1000 days Kinetics: - Field or Lab: worst case assumption
Application data	Application rate assumed: 20.12 g/ha (assumed M3 is formed at a maximum of 25 % of the applied dose)

$PEC_{(s)}$ (mg/kg)	**Single application Actual**	**Single application Time weighted average**	**Multiple application Actual**	**Multiple application Time weighted average**
Initial	0.017	-	-	-
Short term 24h	0.017	0.017	-	-
2d	0.017	0.017	-	-
4d	0.017	0.017	-	-
Long term 7d	0.017	0.017	-	-
28d	0.017	0.017	-	-
50d	0.017	0.017	-	-
100d	0.016	0.017	-	-
Plateau	0.015 mg/kg after 6 yr			

concentration	

CGA 171895 (M5) Method of calculation	Molecular weight relative to the parent: 124/406.4 g/mol DT_{50} (d): 1000 days Kinetics: - Field or Lab: worst case assumption
Application data	Application rate assumed: 2.33 g/ha (assumed M5 is formed at a maximum of 10.2 % of the applied dose)

$PEC_{(s)}$ (mg/kg)	**Single application Actual**	**Single application Time weighted average**	**Multiple application Actual**	**Multiple application Time weighted average**
Initial	0.002	-	-	-
Short term 24h	0.002	0.002	-	-
2d	0.002	0.002	-	-
4d	0.002	0.002	-	-
Long term 7d	0.002	0.002	-	-
28d	0.002	0.002	-	-
50d	0.002	0.002	-	-
100d	0.002	0.002	-	-
Plateau concentration	0.002 mg/kg			

CGA 179710 Method of calculation	Molecular weight relative to the parent: 166/406.4 g/mol DT_{50} (d): 1000 days Kinetics: - Field or Lab: worst case assumption
Application data	Application rate assumed: 8.42 g/ha (assumed CGA 179710 is formed at a maximum of 27.5 % of the applied dose)

$PEC_{(s)}$ (mg/kg)	**Single application Actual**	**Single application Time weighted average**	**Multiple application Actual**	**Multiple application Time weighted average**
Initial	0.007	-	-	-
Short term 24h	0.007	0.007	-	-
2d	0.007	0.007	-	-
4d	0.007	0.007	-	-
Long term 7d	0.007	0.007	-	-
28d	0.007	0.007	-	-
50d	0.007	0.007	-	-
100d	0.007	0.007	-	-
Plateau concentration	0.006 mg/kg			

CGA 297691 Method of calculation	Molecular weight relative to the parent: 74.1/406.4 g/mol DT_{50} (d): 1000 days Kinetics: - Field or Lab: worst case assumption
Application data	Application rate assumed: 2.87 g/ha (assumed CGA 297691 is formed at a maximum of 21 % of the applied dose)

$PEC_{(s)}$ (mg/kg)	**Single application Actual**	**Single application Time weighted average**	**Multiple application Actual**	**Multiple application Time weighted average**
Initial	0.002	-	-	-
Short term 24h	0.002	0.002	-	-
2d	0.002	0.002	-	-
4d	0.002	0.002	-	-
Long term 7d	0.002	0.002	-	-
28d	0.002	0.002	-	-
50d	0.002	0.002	-	-
100d	0.002	0.002	-	-
Plateau concentration	0.002 mg/kg			

MT6	Data gap

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

Method of calculation and type of study (*e.g.* modelling, field leaching, lysimeter)	For FOCUS gw modelling, Modelling using FOCUS model(s), with appropriate FOCUSgw scenarios, according to FOCUS guidance. Model(s) used: FOCUS PEARL v. 4.4.4, FOCUS PELMO v. 5.5.3 Crop: soybeans Crop uptake factor: 0 Oxasulfuron Water solubility (mg/L): 1700 at pH 7 and 25°C Vapour pressure: 0 Pa at 25°C $DT_{50\ lab}$: 9.4 d (geometric mean, normalisation to pF2, 20 °C with Q10 of 2.58 and Walker equation coefficient 0.7). K_{OC}: 17 mL/g (worst case), $^1/_n$= 1.36 (arithmetic mean). Metabolites: saccharin (CGA 27913) $DT_{50\ lab}$: 24.7d (geometric mean, normalisation to pF2, 20 °C with Q10 of 2.58 and Walker equation

coefficient 0.7).

K_{OC}: 6.7mL/g (arithmetic mean), $^1/_n$= 0.91 (arithmetic mean).

Formation fraction: 0.86 from oxasulfuron

C1801

DT_{50}: 26.6 d (geometric mean).

K_{OC}: 640 mL/g (arithmetic mean), $^1/_n$= 0.8 (arithmetic mean).

Formation fraction: 1[a)] from oxasulfuron

CGA 179710

DT_{50}: 1000 d (worst-case default value).

K_{OC}: 269 mL/g (arithmetic mean), $^1/_n$= 0.78 (arithmetic mean).

Formation fraction: 1 from oxasulfuron

CGA 297691

DT_{50}: 1000 d (worst-case default value).

K_{OC}: 0 mL/g (worst case default value), $^1/_n$= 1.

Formation fraction: 1 from oxasulfuron

CGA 171895 (M5)

Data gap

M3

Data gap

MT6

Data gap

For field and lysimeter studies

Location: North Carolina

Study type (e.g. lysimeter, field): lysimeter

Soil properties: pH 5.6-6.6, OC 0.1-0.8% , Field capacity = 10.37-17.81%

Dates of application : June 23, 1993

Number of applications: 1 year, 1 application per year

Duration: 367 days.

Average annual rainfall (mm): 4 mm

Average annual leachate volume (mm): 12.9 liters

Location: North Carolina

Study type (e.g. lysimeter, field): field

Soil properties: pH=5-6, OC<0.6% , MWHC unknown

Dates of application: June 23, 1993

Crop: soybean /Interception estimated: 0% (incorporation into soil)

Number of applications: 1 year, 1 application per

	year Duration: 365 d Average annual rainfall (mm): 741 mm Location: Wisconsin Study type (e.g. lysimeter, field): field Soil properties: pH=5.7-6.8, OC<0.7% , MWHC unknown Dates of application: June 22, 1994 Crop: soybean /Interception estimated: 0% (incorporation into soil) Number of applications: 1 year, 1 application per year Duration: 763 d Average annual rainfall (mm): 1002 mm
Application rate	Gross application rate: 75 g/ha. Crop growth stage: BBCH 10-14 Canopy interception %: 35[b)] Application rate net of interception: 48.75 g/ha. No. of applications: 1 Time of application (absolute or relative application dates): 1, 10 and 20 days after emergence (relative applications)

[a)] a value of 0.57 should be used for future calculations

[b)] canopy interception was specified in calculations performed by the applicant, while was calculated by the model in PECgw calculations for M3 (one application every third year) and CGA 297691 performed by the RMS

PEC(gw) - FOCUS modelling results (80th percentile annual average concentration at 1m)

	Scenario (annual appl)	Oxasulfuron (µg/L)	Metabolites (µg/L)	
			CGA 27913	C1801
PELMO 5.5.3 /Soybeans	Piacenza, 1 day after emergence	0.007	0.449	0.000
	Piacenza, 10 days after emergence	0.005	0.472	0.000
	Piacenza, 20 days after emergence	0.006	0.471	0.000

	Scenario (appl every third year)	Oxasulfuron (µg/L)	Metabolites (µg/L)	
			CGA 27913	C1801
PELMO 5.5.3 /Soybeans	Piacenza, 1 day after emergence	n.c.	0.182	n.c.
	Piacenza, 10 days after emergence	n.c.	0.177	n.c.
	Piacenza, 20 days after emergence	n.c.	0.184	n.c.
	Scenario (annual appl)	**Oxasulfuron (µg/L)**	**Metabolites (µg/L)**	
			CGA 27913	**C1801**
PEARL 4.4.4 /Soybeans	Piacenza, 1 day after emergence	0.005	0.291	0.002
	Piacenza, 10 days after emergence	0.004	0.362	0.002
	Piacenza, 20 days after emergence	0.005	0.208	0.004
	Scenario (appl every third year)	**Oxasulfuron (µg/L)**	**Metabolites (µg/L)**	
			CGA 27913	**C1801**
PEARL 4.4.4 /Soybeans	Piacenza, 1 day after emergence	n.c.	0.075	n.c.
	Piacenza, 10 days after emergence	n.c.	0.099	n.c.
	Piacenza, 20 days after emergence	n.c.	0.132	n.c.

n.c. not calculated since an acceptable risk was found with annual applications

	Scenario (annual appl)	Metabolites (µg/L)	
		CGA 179710	CGA 297691
PELMO 5.5.3 /Soybeans	Piacenza, 1 day after emergence	0.042	2.436
	Piacenza, 10 days after emergence	0.038	2.437
	Piacenza, 20 days after emergence	0.050	2.448
	Scenario (appl every third year)	**Metabolites (µg/L)**	
		CGA 179710	**CGA 297691**
PELMO 5.5.3 /Soybeans	Piacenza, 1 day after emergence	n.c.	1.270
	Piacenza, 10 days after emergence	n.c.	1.251
	Piacenza, 20 days after emergence	n.c.	1.251

	Scenario (annual appl)	Metabolites (µg/L)	
		CGA 179710	CGA 297691
PEARL 4.4.4 /Soybeans	Piacenza, 1 day after emergence	0.039	2.982
	Piacenza, 10 days after emergence	0.039	2.989
	Piacenza, 20 days after emergence	0.048	3.004
	Scenario (appl every third year)	**Metabolites (µg/L)**	
		CGA 179710	**CGA 297691**
PEARL 4.4.4 /Soybeans	Piacenza, 1 day after emergence	n.c.	1.029
	Piacenza, 10 days after emergence	n.c.	1.033
	Piacenza, 20 days after emergence	n.c.	1.039

n.c. not calculated since an acceptable risk was found with annual applications

$PEC_{(gw)}$ From lysimeter / field studies

Oxasulfuron	1st year	2nd year	3rd year
Annual average (µg/L)	Not detected	Not detected	Not detected

CGA 27913	1st year	2nd year	3rd year
Annual average (µg/L)	< 0.1	n.p.	n.p.

n.p.: not performed, since study duration was too short

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

Oxasulfuron Parameters used in FOCUSsw step 1 and 2	Version control no. of FOCUS calculator: STEPS 1-2 in FOCUS v. 3.2 Molecular weight (g/mol): 406.4 K_{OC}/K_{OM} (mL/g): 17/9.86 (worst case to take into account the pH effects) DT_{50} soil (d): 9.4 (geometric mean from lab) DT_{50} water/sediment system (d): 21.9 (geometric mean from sediment water studies) DT_{50} water (d): 21.9 (whole system) DT_{50} sediment (d): 1000 (worst-case) Crop interception (%): 35 % (minimal crop cover)
Parameters used in FOCUSsw step 3 and 4	Version control no.'s of FOCUS software: SPIN v. 2.2, SWASH v. 5.3, Drift calculator v. 1.1, MACRO v. 5.5.4, PRZM v. 4.3.1, TOXSWA v. 4.4.3 Water solubility (mg/L): 1700

	Vapour pressure: 2×10^{-6} Pa at 25°C K_{OC}/K_{OM} (mL/g): 17/9.86 (worst case to take into account the pH effects) 1/n: 1.36 (worst case to take into account the pH effects) Q10=2.58, Walker equation coefficient 0.7 Crop uptake factor: 0
Application rate	Crop and growth stage: soybeans BBCH 10-14 Number of applications: 1 Interval (d): - Application rate(s): 75 g a.s./ha Application window: Step 1-2: Mar-May (worst-case). Step 3:

Scenario	Timing	
	Early	Late
R3	11 May-10 Jun	21 May-20 Jun
R4	11 Mar-11 Apr	21 Mar-20 Apr

FOCUS STEP 1 Scenario	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
		Actual	TWA	Actual	TWA
	0 h	25.1356	--	4.1558	---
	24 h	24.3377	24.7367	4.1374	4.1466
	2 d	23.5795	24.3467	4.0085	4.1096
	4 d	22.1331	23.5977	3.7626	3.9969
	7 d	20.1283	22.5336	3.4218	3.8223
	14 d	16.1282	20.2940	2.7418	3.4458
	21 d	12.9231	18.3515	2.1969	3.1170
	28 d	10.3549	16.6616	1.7603	2.8304
	42 d	6.6483	13.8961	1.1302	2.3609

Treatments during March to May

FOCUS STEP 2 Scenario	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
		Actual	TWA	Actual	TWA
Southern EU	0 h	6.4240	---	1.0906	---
	24 h	6.2199	6.3219	1.0574	1.0740
	2 d	6.0303	6.2235	1.0251	1.0576
	4 d	5.6683	6.0357	0.9636	1.0259
	7 d	5.1656	5.7690	0.8782	0.9806
	14 d	4.1593	5.2068	0.7071	0.8851
	21 d	3.3490	4.7178	0.5693	0.8020
	28 d	2.6966	4.2912	0.4584	0.7295

	42 d	1.7483	3.5903	0.2972	0.6103

Early application

FOCUS STEP 3 Scenario	Water body	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
			Actual	TWA	Actual	TWA
R3	stream	0 h	2.621	--	0.1506	--
		24 h	0.0027	1.511	0.064	0.117
		2 d	0.0005	0.758	0.046	0.090
		4 d	0.347	0.379	0.049	0.066
		7 d	0.000	0.239	0.028	0.054
		14 d	0.000	0.128	0.017	0.038
		21d	0.000	0.085	0.011	0.030
		28 d	0.000	0.064	0.008	0.025
		42 d	0.000	0.043	0.005	0.019
R4	stream	0 h	0.272	--	0.008	--
		24 h	0.000	0.049	0.002	0.004
		2 d	0.000	0.024	0.001	0.003
		4 d	0.000	0.012	0.001	0.002
		7 d	0.000	0.007	0.001	0.002
		14 d	< 1e-6	0.003	0.000	0.001
		21 d	< 1e-6	0.002	0.000	0.001
		28 d	< 1e-6	0.002	0.000	0.001
		42 d	< 1e-6	0.001	0.000	0.000

Late application

FOCUS STEP 3 -Scenario	Water body	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
			Actual	TWA	Actual	TWA
R3	stream	0 h	0.5222	--	0.0387	--
		24 h	0.0024	0.4397	0.0209	0.0332
		2 d	0.0002	0.2338	0.0151	0.0271
		4 d	0.0001	0.1170	0.0108	0.0205
		7 d	0.0000	0.0669	0.0081	0.0160
		14 d	0.0000	0.0372	0.0060	0.0120
		21d	0.0022	0.0292	0.0042	0.0097
		28 d	0.0000	0.0237	0.0030	0.0082
		42 d	0.0000	0.0159	0.0019	0.0065
R4	stream	0 h	0.2715	--	0.0078	--
		24 h	0.0000	0.0489	0.0021	0.0040
		2 d	0.0000	0.0245	0.0015	0.0029
		4 d	0.0000	0.0122	0.0010	0.0021
		7 d	< 1e-6	0.0070	0.0007	0.0016
		14 d	< 1e-6	0.0035	0.0005	0.0011
		21 d	< 1e-6	0.0023	0.0003	0.0008
		28 d	< 1e-6	0.0017	0.0002	0.0007
		42 d	< 1e-6	0.0012	0.0001	0.0005

Early application

FOCUS STEP 4 Scenario (20m vegetated filter strips)	Water body	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
			Actual	TWA	Actual	TWA
R3	stream	0 h	0.6203	--	0.0346	--
		24 h	0.0006	0.356	0.0146	0.0267
		2 d	0.0001	0.1788	0.0105	0.0021
		4 d	0.0770	0.08942	0.0110	0.0151
		7 d	0.0000	0.05589	0.0063	0.0122
		14 d	0.0000	0.02892	0.0038	0.0086
		21d	0.0000	0.01928	0.0026	0.0068
		28 d	0.0000	0.01446	0.0019	0.0057
		42 d	0.0000	0.009667	0.0012	0.0043
R4	stream	0 h	0.0316	--	0.0009	--
		24 h	0.0000	0.0057	0.0002	0.0005
		2 d	< 1e-6	0.0028	0.0002	0.0003
		4 d	< 1e-6	0.0014	0.0001	0.0002
		7 d	< 1e-6	0.0008	0.0001	0.0002
		14 d	< 1e-6	0.0004	0.0000	0.0001
		21 d	< 1e-6	0.0003	0.0000	0.0001
		28 d	< 1e-6	0.0002	0.0000	0.0001
		42 d	< 1e-6	0.0001	0.0000	0.0001

Late application

FOCUS STEP 4 Scenario (20m vegetated filter strips)	Water body	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
			Actual	TWA	Actual	TWA
R3	stream	0 h	0.1249	--	0.0088	--
		24 h	0.0278	0.1061	0.0048	0.0076
		2 d	0.0001	0.0564	0.0034	0.0062
		4 d	0.0000	0.0282	0.0024	0.0047
		7 d	0.0000	0.0161	0.0018	0.0036
		14 d	0.0000	0.0090	0.0013	0.0027
		21d	0.0000	0.0062	0.0009	0.0022
		28 d	0.0000	0.0051	0.0006	0.0018
		42 d	< 1e-6	0.0034	0.0004	0.0014
R4	stream	0 h	0.0316	--	0.0009	--
		24 h	0.0000	0.0057	0.0002	0.0005
		2 d	< 1e-6	0.0028	0.0002	0.0003
		4 d	< 1e-6	0.0014	0.0001	0.0002
		7 d	< 1e-6	0.0008	0.0001	0.0002

		14 d	< 1e-6	0.0004	0.0000	0.0001
		21 d	< 1e-6	0.0003	0.0000	0.0001
		28 d	< 1e-6	0.0002	0.0000	0.0001
		42 d	< 1e-6	0.0001	0.0000	0.0001

Metabolite saccharin (CGA 27913) Parameters used in FOCUSsw step 1 and 2	Molecular weight: 183.0 Soil or water metabolite: soil and water Koc/Kom (mL/g): 6.7/3.9 Water solubility (mg/L): 1700 DT_{50} soil (d): 24.7 (geometric mean from lab) DT_{50} water/sediment system (d): 1000 (worst case) DT_{50} water (d): 1000 (worst case) DT_{50} sediment (d): 1000 (worst case) Crop interception (%): 35% (minimal crop cover) Maximum occurrence observed (% molar basis with respect to the parent) Total Water and Sediment: 54% Soil: 98.5%
Application rate	Crop and growth stage: soybeans BBCH 10-14 Number of applications: 1 Interval (d): - Application rate(s): 75 g a.s./ha Application window: Mar-May ~~and Jun-Sep~~.

FOCUS STEP 1 Scenario	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
		Actual	TWA	Actual	TWA
	0 h	17.2176		1.1423	
	24 h	17.2042	17.2109	1.1527	1.1475
	2 d	17.1923	17.2046	1.1519	1.1499
	4 d	17.1685	17.1925	1.1503	1.1505
	7 d	17.1328	17.1745	1.1479	1.1499
	14 d	17.0499	17.1329	1.1423	1.1475
	21 d	16.9673	17.0915	1.1368	1.1449
	28 d	16.8852	17.0502	1.1313	1.1422
	42 d	16.7222	16.9680	1.1204	1.1367

Treatments during March to May

FOCUS STEP 2 Scenario	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
		Actual	TWA	Actual	TWA
Southern EU	0 h	4.7542	---	0.3183	---
	24 h	4.7504	4.7523	0.3181	0.3182
	2 d	4.7471	4.7505	0.3178	0.3181
	4 d	4.7406	4.7472	0.3174	0.3178

	7 d	4.7307	4.7422	0.3167	0.3175
	14 d	4.7078	4.7307	0.3152	0.3167
	21 d	4.6850	4.7193	0.3137	0.3160
	28 d	4.6623	4.7079	0.3122	0.3152
	42 d	4.6173	4.6852	0.3091	0.3137

Metabolite C1801 Parameters used in FOCUSsw step 1 and 2	Molecular weight: 123.0 Soil or water metabolite: soil and water Koc/Kom (mL/g): 640/371.2 Water solubility (mg/L): 1700 DT_{50} soil (d): 26.6 days (geometric mean from lab studies) DT_{50} water/sediment system (d): 158.3 (geometric mean from sediment water studies)[a)] DT_{50} water (d): 158.3 (whole system) DT_{50} sediment (d): 1000 (worst case) Crop interception (%): 35 (minimal crop cover) Maximum occurrence observed (% molar basis with respect to the parent): Total Water and Sediment: 67% Soil: 55%
Parameters used in FOCUSsw step 3	Vapour pressure: 0 Pa at 20°C Koc/Kom (mL/g): 640/371.2 1/n: 0.8 Q10=2.58, Walker equation coefficient 0.7 Crop uptake factor: 0 Metabolite kinetically generated in simulation (yes/no): yes Formation fraction in soil (k_f/k_{dp}): 1 Formation fraction in sediment water (k_f/k_{dp}): 1
Application rate	Crop and growth stage: soybeans BBCH 10-14 Number of applications: 1 Interval (d): - Application rate(s): 75 g a.s./ha Application window: Step 1-2: Mar-May. Step 3:

Scenario	Timing	
	Early	Late
R3	11 May-10 Jun	21 May-20 Jun
R4	11 Mar-11 Apr	21 Mar-20 Apr

Main routes of entry	Runoff

[a)] Simulation with DT50water=1000d and DT50sed=158.3d is not reported since it gave higher PECsed, but no risk assessment for the sediment compartment is needed for

metabolite C1801

FOCUS STEP 1 Scenario	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
		Actual	TWA	Actual	TWA
	0 h	5.0955		31.7202	
	24 h	5.0094	5.0525	32.0604	31.8903
	2 d	4.9875	5.0255	31.9203	31.9403
	4 d	4.9441	4.9956	31.6420	31.8606
	7 d	4.8795	4.9597	31.2291	31.6783
	14 d	4.7322	4.8826	30.2864	31.2168
	21 d	4.5894	4.8085	29.3722	30.7535
	28 d	4.4509	4.7364	28.4855	30.2968
	42 d	4.1862	4.5966	26.7918	29.4079

Treatments during March to May

FOCUS STEP 2 Scenario	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
		Actual	TWA	Actual	TWA
Northern EU	0 h	1.3802	---	8.7421	---
	24 h	1.3609	1.3706	8.7187	8.7304
	2 d	1.3573	1.3648	8.6953	8.7187
	4 d	1.3500	1.3592	8.6489	8.6954
	7 d	1.3392	1.3530	8.5796	8.6606
	14 d	1.3143	1.3399	8.4201	8.5801
	21 d	1.2899	1.3273	8.2636	8.5006
	28 d	1.2659	1.3149	8.1101	8.4221
	42 d	1.2193	1.2908	7.8114	8.2680

Early application

FOCUS STEP 3 Scenario	Water body	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
			Actual	TWA	Actual	TWA
R3	stream	0 h	0.1351	--	0.0609	--
		24 h	0.0003	0.0781	0.0559	0.0593
		2 d	0.0002	0.0393	0.0513	0.0571
		4 d	0.0261	0.0197	0.0527	0.0534
		7 d	0.0001	0.0130	0.0434	0.0514
		14 d	0.0000	0.0066	0.0323	0.0446
		21d	0.0000	0.0044	0.0270	0.0397
		28 d	0.0000	0.0035	0.0345	0.0378
		42 d	0.0000	0.0025	0.0347	0.0371
R4	stream	0 h	0.0030	--	0.0086	--
		24 h	< 1e-6	0.0025	0.0084	0.0085

		2 d	< 1e-6	0.0021	0.0082	0.0084
		4 d	0.0026	0.0011	0.0078	0.0083
		7 d	0.0000	0.0008	0.0074	0.0081
		14 d	0.0000	0.0005	0.0067	0.0079
		21 d	0.0000	0.0004	0.0062	0.0076
		28 d	0.0000	0.0003	0.0059	0.0073
		42 d	< 1e-6	0.0002	0.0054	0.0068

Late application

FOCUS STEP 3 Scenario	Water body	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
			Actual	TWA	Actual	TWA
R3	stream	0 h	0.0563	--	0.1006	--
		24 h	0.0004	0.0475	0.0991	0.1002
		2 d	0.0001	0.0253	0.0976	0.0996
		4 d	0.0001	0.0127	0.0950	0.0983
		7 d	0.0001	0.0073	0.0920	0.0965
		14 d	0.0001	0.0055	0.0902	0.0943
		21d	0.0127	0.0037	0.0913	0.0935
		28 d	0.0000	0.0032	0.0902	0.0930
		42 d	0.0000	0.0024	0.0853	0.0924
R4	stream	0 h	0.0071	--	0.0179	--
		24 h	0.0000	0.0057	0.0173	0.0177
		2 d	0.0000	0.0049	0.0167	0.0174
		4 d	0.0058	0.0025	0.0158	0.0171
		7 d	0.0000	0.0020	0.0170	0.0169
		14 d	0.0000	0.0013	0.0146	0.0164
		21 d	0.0000	0.0008	0.0132	0.0156
		28 d	0.0000	0.0006	0.0123	0.0149
		42 d	0.0000	0.0004	0.0112	0.0138

Metabolite M3

Parameters used in FOCUSsw step 1 and 2

Molecular weight: 436
Soil or water metabolite: soil
Koc/Kom (mL/g): 0/0
Water solubility (mg/L): 1700
DT_{50} soil (d): 1000 (worst case)
DT_{50} water/sediment system (d): 1000 (worst case)
DT_{50} water (d): 1000 (worst case)
DT_{50} sediment (d): 1000 (worst case)
Crop interception (%): 35 (minimal crop cover)
Maximum occurrence observed (% molar basis with respect to the parent):
Total Water and Sediment: 0.001% (default as M3 was not listed in water/sediment studies but FOCUS Steps 1-2 will not accept 0 as input)

	Soil: 25%
Parameters used in FOCUSsw step 3 and 4	Vapour pressure: 0 Pa at 20°C Kom/Koc (mL/g): 0/0 1/n: 1 Q10=2.58, Walker equation coefficient 0.7 Crop uptake factor: 0 Metabolite kinetically generated in simulation (yes/no): yes Formation fraction in soil (k_f/k_{dp}): 1 Formation fraction in sediment water (k_f/k_{dp}): 0
Application rate	Crop and growth stage: soybeans BBCH 10-14 Number of applications: 1 Interval (d): - Application rate(s): 75 g a.s./ha Application window: Step 1-2: Mar-May ~~and Jun-Sep~~. Step 3-4:

Scenario	Timing	
	Early	Late
R3	11 May-10 Jun	21 May-20 Jun
R4	11 Mar-11 Apr	21 Mar-20 Apr

Main routes of entry	Runoff

FOCUS STEP 1 Scenario	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
		Actual	TWA	Actual	TWA
	0 h	6.7055	--	0.0000	--
	24 h	6.7008	6.7032	0.0000	0.0000
	2 d	6.6962	6.7008	0.0000	0.0000
	4 d	6.6869	6.6962	0.0000	0.0000
	7 d	6.6730	6.6893	0.0000	0.0000
	14 d	6.6407	6.6731	0.0000	0.0000
	21 d	6.6086	6.6569	0.0000	0.0000
	28 d	6.5766	6.6408	0.0000	0.0000
	42 d	6.5131	6.6088	0.0000	0.0000

Treatments during March to May

FOCUS STEP 2 Scenario	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
		Actual	TWA	Actual	TWA
Southern EU	0 h	2.1398	--	0.0000	--
	24 h	2.1383	2.1391	0.0000	0.0000
	2 d	2.1368	2.1383	0.0000	0.0000
	4 d	2.1339	2.1368	0.0000	0.0000

	7 d	2.1294	2.1346	0.0000	0.0000
	14 d	2.1191	2.1295	0.0000	0.0000
	21 d	2.1089	2.1243	0.0000	0.0000
	28 d	2.0987	2.1192	0.0000	0.0000
	42 d	2.0784	2.1090	0.0000	0.0000

Early application

FOCUS STEP 3 Scenario	Water body	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
			Actual	TWA	Actual	TWA
R3	stream	0 h	0.5241	--	0.02806	--
		24 h	0.0005	0.3024	0.0119	0.0218
		2 d	0.0001	0.1518	0.0086	0.0167
		4 d	0.1199	0.0759	0.0116	0.0123
		7 d	0.0000	0.0511	0.0057	0.0104
		14 d	0.0000	0.0255	0.0034	0.0075
		21d	0.0000	0.0170	0.0023	0.0059
		28 d	0.0000	0.0129	0.0017	0.0050
		42 d	0.0000	0.0086	0.0010	0.0038
R4	stream	0 h	0.000198	--	0.0000	--
		24 h	< 1e-6	0.000116	0.0000	0.0000
		2 d	< 1e-6	0.0001	0.0000	0.0000
		4 d	< 1e-6	0.0000	0.0000	0.0000
		7 d	< 1e-6	0.0000	0.0000	0.0000
		14 d	< 1e-6	0.0000	0.0000	0.0000
		21 d	< 1e-6	0.0000	< 1e-6	0.0000
		28 d	< 1e-6	0.0000	< 1e-6	0.0000
		42 d	< 1e-6	0.0000	< 1e-6	0.0000

Late application

FOCUS STEP 3 Scenario	Water body	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
			Actual	TWA	Actual	TWA
R3	stream	0 h	0.5408	--	0.0368	--
		24 h	0.002508	0.4558	0.0196	0.0315
		2 d	0.000185	0.2425	0.0138	0.0256
		4 d	0.000062	0.1213	0.0098	0.0207
		7 d	0.000026	0.0694	0.0072	0.0148
		14 d	0.000016	0.0400	0.0057	0.0112
		21d	0.002374	0.0267	0.0039	0.0091
		28 d	0.000004	0.0201	0.0027	0.0076
		42 d	0.000002	0.0134	0.0016	0.0058
R4	stream	0 h	0.0081	--	0.0005	--
		24 h	0.0000	0.0047	0.0002	0.0003

		2 d	< 1e-6	0.0024	0.0001	0.0003
		4 d	0.0000	0.0013	0.0001	0.0002
		7 d	< 1e-6	0.0007	0.0001	0.0001
		14 d	< 1e-6	0.0004	0.0000	0.0001
		21 d	< 1e-6	0.0002	0.0000	0.0001
		28 d	< 1e-6	0.0002	0.0000	0.0001
		42 d	< 1e-6	0.0001	0.0000	0.0000

Early application

FOCUS STEP 4 Scenario (20m vegetated filter strips)	Water body	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
			Actual	TWA	Actual	TWA
R3	stream	0 h	0.1241	--	0.0066	--
		24 h	0.000128	0.0713	0.0028	0.0051
		2 d	0.000021	0.0358	0.0020	0.0039
		4 d	0.02665	0.0179	0.0026	0.0029
		7 d	0.000005	0.0119	0.0013	0.0024
		14 d	0.000002	0.0059	0.0008	0.0017
		21d	< 1e-6	0.0040	0.0005	0.0014
		28 d	< 1e-6	0.0030	0.0004	0.0012
		42 d	< 1e-6	0.0020	0.0002	0.0009
R4	stream	0 h	0.00005	--	0.000003	--
		24 h	< 1e-6	0.00003	0.000001	0.000002
		2 d	< 1e-6	0.00001	< 1e-6	0.000001
		4 d	< 1e-6	0.00001	< 1e-6	0.000001
		7 d	< 1e-6	0.00000	< 1e-6	< 1e-6
		14 d	< 1e-6	0.00000	< 1e-6	< 1e-6
		21 d	< 1e-6	0.00000	< 1e-6	< 1e-6
		28 d	< 1e-6	0.00000	< 1e-6	< 1e-6
		42 d	< 1e-6	< 1e-6	< 1e-6	< 1e-6

Late application

FOCUS STEP 4 Scenario (20m vegetated filter strips)	Water body	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
			Actual	TWA	Actual	TWA
R3	stream	0 h	0.1294	--	0.0088	--
		24 h	0.0291	0.1100	0.0047	0.0076
		2 d	0.0001	0.0586	0.0033	0.0062
		4 d	0.0000	0.0293	0.0024	0.0046
		7 d	0.0000	0.0167	0.0017	0.0036

		14 d	0.0000	0.0096	0.0014	0.0027
		21d	0.0006	0.0064	0.0009	0.0022
		28 d	0.0000	0.0048	0.0006	0.0018
		42 d	< 1e-6	0.0032	0.0004	0.0014
R4	stream	0 h	0.001893	--	0.000113	--
		24 h	< 1e-6	0.0011	0.000043	0.00008
		2 d	< 1e-6	0.0005	0.000031	0.00006
		4 d	0.000004	0.0003	0.000025	0.00005
		7 d	< 1e-6	0.0002	0.000018	0.00004
		14 d	< 1e-6	0.0001	0.000011	0.00002
		21 d	< 1e-6	0.0001	0.000007	0.00002
		28 d	< 1e-6	0.0000	0.000005	0.00002
		42 d	< 1e-6	0.0000	0.000003	0.00001

Metabolite CGA 297691 Parameters used in FOCUSsw step 1 and 2	Molecular weight: 74.08 Soil or water metabolite: water Koc/Kom (mL/g): 0/0 Water solubility (mg/L): 1700 DT_{50} soil (d): 1000 (worst case) DT_{50} water/sediment system (d): 1000 (worst case) DT_{50} water (d): 1000 (worst case) DT_{50} sediment (d): 1000 (worst case) Crop interception (%): 35 (minimal crop cover) Maximum occurrence observed (% molar basis with respect to the parent): Total Water and Sediment: 93% Soil: 21%
Application rate	Crop and growth stage: soybeans BBCH 10-14 Number of applications: 1 Interval (d): - Application rate(s): 75 g a.s./ha Application window: Mar-May~~ and Jun-Sep~~.

FOCUS STEP 1 Scenario	**Day after overall maximum**	**PEC_{SW} (µg/L)**		**PEC_{SED} (µg/kg)**	
		Actual	**TWA**	**Actual**	**TWA**
	0 h	5.3134		0.0000	
	24 h	5.3098	5.3116	0.0000	0.0000
	2 d	5.3061	5.3098	0.0000	0.0000
	4 d	5.2987	5.3061	0.0000	0.0000
	7 d	5.2877	5.3006	0.0000	0.0000
	14 d	5.2621	5.2877	0.0000	0.0000
	21 d	5.2367	5.2750	0.0000	0.0000
	28 d	5.2113	5.2622	0.0000	0.0000
	42 d	5.1610	5.2368	0.0000	0.0000

Treatments during March to May

FOCUS STEP 2 Scenario	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
		Actual	TWA	Actual	TWA
Southern EU	0 h	1.4321	---	0.0000	---
	24 h	1.4312	1.4317	0.0000	0.0000
	2 d	1.4302	1.4312	0.0000	0.0000
	4 d	1.4282	1.4302	0.0000	0.0000
	7 d	1.4252	1.4287	0.0000	0.0000
	14 d	1.4183	1.4252	0.0000	0.0000
	21 d	1.4115	1.4218	0.0000	0.0000
	28 d	1.4046	1.4183	0.0000	0.0000
	42 d	1.3911	1.4115	0.0000	0.0000

Metabolite CGA 171895 (M5)	Data gap
Metabolite CGA 179710 Parameters used in FOCUSsw step 1 and 2	Molecular weight: 166.2 Soil or water metabolite: soil Koc/Kom (mL/g): 269/156 Water solubility (mg/L): 1700 DT_{50} soil (d): 1000 (worst case) DT_{50} water/sediment system (d): 1000 (worst case) DT_{50} water (d): 1000 (worst case) DT_{50} sediment (d): 1000 (worst case) Crop interception (%): 3 (minimal crop cover) Maximum occurrence observed (% molar basis with respect to the parent): Total Water and Sediment: 2.4% Soil: 27.5%
Application rate	Crop and growth stage: soybeans BBCH 10-14 Number of applications: 1 Interval (d): - Application rate(s): 75 g a.s./ha Application window: Mar-May.

FOCUS STEP 1 Scenario	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
		Actual	TWA	Actual	TWA
	0 h	2.2567		6.0524	
	24 h	2.2534	2.2551	6.0616	6.0570
	2 d	2.2518	2.2538	6.0574	6.0583
	4 d	2.2487	2.2520	6.0490	6.0557
	7 d	2.2440	2.2496	6.0364	6.0502
	14 d	2.2332	2.2441	6.0072	6.0360
	21 d	2.2224	2.2387	5.9782	6.0216

	28 d	2.2116	2.2332	5.9492	6.0071
	42 d	2.1902	2.2225	5.8918	5.9782

Treatments during March to May

FOCUS STEP 2 Scenario	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
		Actual	TWA	Actual	TWA
Southern EU	0 h	0.7088	---	1.9042	---
	24 h	0.7079	0.7084	1.9029	1.9035
	2 d	0.7074	0.7080	1.9015	1.9029
	4 d	0.7064	0.7074	1.8989	1.9015
	7 d	0.7049	0.7067	1.8950	1.8996
	14 d	0.7015	0.7050	1.8858	1.8950
	21 d	0.6981	0.7032	1.8767	1.8904
	28 d	0.6947	0.7015	1.8676	1.8858
	42 d	0.6880	0.6982	1.8495	1.8767

Early application

FOCUS STEP 3	Water body	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
			Actual	TWA	Actual	TWA
R3	stream	0 h	0.0541	--	0.0518	--
		24 h	0.0001	0.0391	0.0480	0.0508
		2 d	0.0001	0.0208	0.0480	0.0497
		4 d	0.0378	0.0105	0.0424	0.0480
		7 d	0.0001	0.0069	0.0375	0.0449
		14 d	0.0000	0.0058	0.0456	0.0438
		21d	0.0000	0.0039	0.0373	0.0432
		28 d	0.0001	0.0038	0.0391	0.0430
		42 d	0.0000	0.0033	0.0411	0.0427
R4	stream	0 h	0.0149	--	0.0172	--
		24 h	0.0000	0.0094	0.0153	0.0166
		2 d	0.0000	0.0087	0.0139	0.0159
		4 d	0.0097	0.0044	0.0118	0.0146
		7 d	0.0000	0.0037	0.0129	0.0140
		14 d	0.0000	0.0023	0.0095	0.0127
		21 d	0.0000	0.0015	0.0080	0.0115
		28 d	0.0000	0.0011	0.0072	0.0106
		42 d	0.0000	0.0008	0.0061	0.0093

Late application

FOCUS STEP 3	Water body	Day after overall maximum	PEC_{SW} (µg/L)		PEC_{SED} (µg/kg)	
			Actual	TWA	Actual	TWA
R3	stream	0 h	0.1507	..	0.1555	--
		24 h	0.0014	0.1267	0.1411	0.1518
		2 d	0.0006	0.0675	0.1402	0.1474
		4 d	0.0003	0.0340	0.1224	0.1412
		7 d	0.0001	0.0195	0.1083	0.1312
		14 d	0.0003	0.0190	0.1342	0.1279
		21d	0.0882	0.0127	0.1105	0.1266
		28 d	0.0001	0.0124	0.1152	0.1265
		42 d	0.0002	0.0106	0.1195	0.149
R4	stream	0 h	0.03477	--	0.0366	--
		24 h	0.0000	0.0203	0.0321	0.0351
		2 d	0.0000	0.0192	0.0286	0.0335
		4 d	0.0208	0.0098	0.0241	0.0307
		7 d	0.0000	0.0085	0.0261	0.0291
		14 d	0.0000	0.0051	0.0191	0.0261
		21 d	0.0000	0.0034	0.0163	0.0235
		28 d	0.0000	0.0025	0.0146	0.0216
		42 d	0.0000	0.0017	0.0126	0.0190

Metabolite MT6	Data gap
Metabolites guanidine and 3-guanidine-1-butene PEC_{SW} and PEC_{SED} calculation assumptions	PECsw were calculated for water phase metabolites guanidine and 3-guanidine-1-butene based on their maximum observed formation in water, the maximum Step 2 PEC_{sw} and PEC_{SED} for oxasulfuron (6.4 µg/L and 1.1 µg/kg) and assuming the same molecular weight as oxasulfuron in the absence of specific data for 3-guanidine-1-butene.
Results	

	Max occ %	Molecular weight	PECsw µg/L	PECsed µg/kg
Oxasulfuron	-	406.4	6.4	1.1
guanidine	33	59.07	0.31	0.05
3-guanidine-1-butene	24	406.4	1.54	0.26

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

Method of calculation	PEC calculation from other routes of exposure is not necessary

PEC

Maximum concentration	PEC calculation from other routes of exposure is not necessary

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	a.s.	Acute	LD_{50}	>2250
Mallard duck	a.s.	Acute	LD_{50}	>2250
Bobwhite quail	a.s.	Short-term	LD_{50}	>1613
Mallard duck	a.s.	Short-term	LD_{50}	>1831
Bobwhite quail	a.s.	Long-term	NOEL	6.91
Mallard duck	a.s.	Long-term	NOEL	12.67
Mammals				
Rat	a.s.	Acute	LD_{50}	>5000
Rat	a.s.	Long-term	NOAEL	8.3
Endocrine disrupting properties (Annex Part A, points 8.1.5) No indication for potential endocrine disrupting properties from the data available in the section of ecotoxicology				
Additional higher tier studies (Annex Part A, points 10.1.1.2): No higher tier studies submitted				
Terrestrial vertebrate wildlife (birds, mammals, reptile and amphibians) (Annex Part A, points 8.1.4, 10.1.3): No available data				

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

Soybean (BBCH 10-14): 0.1 kg formulated product/ha corresponding to 75 g oxasulfuron/ha

Growth stage	Indicator or focal species	Time scale	DDD (mg/kg bw per day)	TER	Trigger
Screening Step (Birds)					
BBCH 10-14	Small omnivorous bird	Acute	11.91	>189	10
BBCH 10-14	Small omnivorous bird	Long-term	2.58	**2.68**	5
Tier 1 (Birds)					
BBCH 10-14	Small granivorous bird (finch)	Long-term	0.453	15.25	5
BBCH 10-14	Small omnivorous bird (lark)	Long-term	0.433	15.96	5
BBCH 10-14	Medium herbivorous/granivorous bird (pigeon)	Long-term	0.902	7.66	5
BBCH 10-14	Small insectivorous bird (wagtail)	Long-term	0.449	15.40	5
Screening Step (Mammals)					
BBCH 10-	Small herbivorous mammal	Acute	10.23	>489	10

14					
BBCH 10-14	Small herbivorous mammal	Long-term	2.87	**2.9**	5
Tier 1 (Mammals)					
BBCH 10-14	Large herbivorous mammal"lagomorph"	Long-term	0.57	14.6	5
BBCH 10-14	Small omnivore mammal"mouse"	Long-term	0.31	26.8	5
BBCH 10-14	Small insectivore mammal "shrew"	Long-term	0.17	49.7	5

Risk from bioaccumulation and food chain behaviour – not necessary (log K_{ow} < 3 for active substance and metabolites)

Risk from consumption of contaminated water

Puddle scenario, Screening step

Application rate (g a.s./ha)/relevant endpoint ≤ 50 (koc<500 L/kg), TER calculation not needed

Bold values do not meet the trigger

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)*

* This section does not yet reflect the new EFSA Guidance Document on aquatic organisms which has been noted in the meeting of the Standing Committee on Plants, Animals, Food and Feed on 11 July 2014.

[1] ($_{nom}$) nominal concentration; ($_{im}$) initial measured concentration; ($_{mm}$) mean measured concentration; prep.: preparation; a.s.: active substance

Group	Test substance	Time-scale (Test type)	End point	Toxicity[1]
Laboratory tests				
Fish				
Lepomis macrochirus	a.s.	96 hr (flow-through)	Mortality, LC_{50}	**> 111 (mm)**
Oncorhynchus mykiss	a.s.	96 hr (flow-through)	Mortality, LC_{50}	> 116 (mm)
Cyprinodon variegatus	a.s.	96 hr (flow-through)	Mortality, LC_{50}	> 113 (mm)
Pimephales promelas	a.s.	35 d (flow-through)	Survival and Growth NOEC	**114 (mm)**
Oncorhynchus mykiss	CGA 297691 (CA2013A)	96 hr (flow-through)	Mortality, LC_{50}	**> 100 (nom)**
Oncorhynchus mykiss	C1801 (CA2006A)	96 hr (static)	Mortality, ~~E~~LC_{50}	**> 100 (nom)**
Aquatic invertebrates				
Daphnia magna	a.s.	48 h (flow-through)	Immobility, EC_{50}	>89.4 (mm)
Crassostea virginica	a.s.	96 h (flow-through)	Shell deposition, EC_{50}	>132 (mm)
Mysidopsis bahia	a.s.	48 h (flow-through) 96 h (flow-through)	Mortality, LC_{50} Mortality, LC_{50}	**>**109 (mm) **82.6 (mm)**
Daphnia magna	a.s.*	48 h (flow-through)	Immobility, EC_{50}	>136 (mm)
Daphnia magna	a.s.	21 d (flow-through)	Reproduction, NOEC Reproduction, EC_{10}	**14 (mm)** 14.3 (mm) 28.85 (mm)

Group	Test substance	Time-scale (Test type)	End point	Toxicity[1]
			Reproduction, EC_{20}	
Daphnia magna	CGA 297691 (CA2013A)	48 h (static)	Immobility, EC_{50}	**>100 (nom)**
Daphnia magna	C1801 (CA2006A)	48 h (static)	Immobility, EC_{50}	**>100 (nom)**
Algae^^				
Navicula pelliculosa	a.s.	72 h (static)	72h E_yC_{50} 72h E_rC_{50}	>100 (nom) >100 (nom)
Pseudokirchneriella subcapitata	a.s.	72 h (static)	72h E_yC_{50} 72h E_rC_{50}	0.256 (mm) **1.30 (mm)**
Pseudokirchneriella subcapitata	Laguna 75 WG	72 h (static)	E_rC_{50} 72 h E_yC_{50}	2.25 (a.s., mm) 0.225 (a.s., mm)
Pseudokirchneriella subcapitata	CGA 297691 (CA2013A)*	120h (static)	72h E_bC_{50} 120h E_bC_{50} 72h E_rC_{50} 120h E_rC_{50}	**>0.097 (mm)** **>0.097 (mm)** **>0.097 (mm)** **>0.097 (mm)**
Selenastrum capricornutum	CGA 297691 (CA2013A)	72 h (static)	72h E_bC_{50} 72h E_rC_{50}	>96.8 (mm) >96.8 (mm)
Higher plant				
Lemna gibba	a.s.*	14 d (static)	7d , frond count E_bC_{50} 7d , frond count E_rC_{50} 14d, frond count NOEC	0.0015 (mm) **0.00324 (mm)** **0.00020 (mm)**
Lemna gibba	Laguna 75 WG	7 d (semi-static)	Biomass: E_yC_{50} Growth rate: E_rC_{50}	2.23 (mm) 5.59 (mm)
Lemna gibba	CGA 297691 (CA2013A)*	14 d (static)	Frond count, dry weight, EC_{50}	**>0.08 (mm)**
Further testing on aquatic organisms No further tests submitted				
Potential endocrine disrupting properties (Annex Part A, point 8.2.3) No indication for potential endocrine disrupting properties from the data available in the section of ecotoxicology				

[1] ($_{nom}$) nominal concentration; ($_{mm}$) mean measured concentration; ($_{im}$) initial measured concentration; prep.: preparation; a.s.: active substance

* radiolabelled active substance.

Endpoint marked in bold used in the risk assessment

Bioconcentration in fish (Annex Part A, point 8.2.2.3)

	Active substance	C1801 (CA2006A)	CGA 297691 (CA2013A)	CGA 171895	CGA 179710	CGA 297691
$logP_{O/W}$	-0.81	0.97*	0.45*	1.30*	0.835*	-1.09*
Steady-state bioconcentration factor (BCF) (total wet weight/normalised to 5% lipid content)	Not required	Not required	Not required	Not required	Not required	Not required
Uptake/depuration kinetics BCF	Not performed	Not performed	Not performed	Not performed	Not performed	Not performed

(total wet weight/normalised to 5% lipid content)						
Annex VI Trigger for the bioconcentration factor						
Clearance time (days) (CT_{50})	Not performed	Not performed	Not performed	Not performed	Not performed	Not performed
(CT_{90})	Not performed	Not performed	Not performed	Not performed	Not performed	Not performed
Level and nature of residues (%) in organisms after the 14 day depuration phase						
Higher tier study No higher tier studies submitted						

*Values estimated by the WSKOWWIN V1.67 program contained in the US EPA's EPISUITE package of predictive models

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

Maximum PECsw values and TER values for oxasulfuron for FOCUS Step 1 Scenario – application to Soybean (BBCH 10-14): 0.1 Ł kg formulated product/ha corresponding to 75 g oxasulfuron/ha

Scenario	PEC Step 1 (µg/L)	Fish acute	Fish prolonged	Invertebrate acute	Invertebrate prolonged	Algae	Aquatic plants
		L. macrochirus	***P. promelas***	***Mysidopsis bahia***	***D. magna***	***P. subcapitata***	***L. gibba***
		LC_{50}	NOEC	EC_{50}	NOEC	E_rC_{50}	E_rC_{50}
		>111000 µg/L	114000 µg/L	82600 µg/L	14000 µg/L	1300µg/L	3.24µg/L
oxasulfuron	25.1	>4422	4542	3290	558	51.8	**0.13**
		O. mykiss	***n.a.***	***D. magna***	***n.a.***	***P. subcapitata***	***L. gibba***
		LC_{50}		EC_{50}		E_rC_{50}	E_rC_{50}
		>100000 µg/L		>100000 µg/L		1300 [b] µg/L	3.24[b] µg/L
C1801 (CA2006A)	5.1~~2~~	>19607		>19607		254	**0.63**
		O. mykiss	***n.a.***	***D. magna***	***n.a.***	***P. subcapitata***	***L. gibba***
		LC_{50}		EC_{50}		E_rC_{50}	EC_{50}
		>100000 µg/L		>100000 µg/L		>97 µg/L	>80 µg/L
CGA 297691 (CA2013A)	5.31	>18832		>18832		>18.27	>15.1
		P. promelas	***n.a.***	***D. magna***	***n.a.***	***P. subcapitata***	***L. gibba***
		LC_{50}		EC_{50}		E_rC_{50}	E_rC_{50}
		17300 µg/L		86200[b] µg/L		1300 [b] µg/L	3.24[b] µg/L
CGA 27913	17.22	1004		5000		75	**0.19**
		L. macrochirus	***n.a.***	***Mysidopsis bahia***	***n.a.***	***P. subcapitata***	***L. gibba***
		LC_{50}		EC_{50}		E_rC_{50}	E_rC_{50}
		>111000[b] µg/L		82600 [b] µg/L		1300 [b] µg/L	3.24[b] µg/L
CGA 179710	2.26	>49115		36415		575	**1.43**
		L. macrochirus	***n.a.***	***Mysidopsis bahia***	***n.a.***	***P. subcapitata***	***L. gibba***
		LC_{50}		EC_{50}		E_rC_{50}	E_rC_{50}
		>11100 [a] µg/L		8260 [a] µg/L		130 [a] µg/L	0.324 [a] µg/L
M3	6.71	>1654		1230		19.37	**0.05**
Annex VI Trigger		100	10	100	10	10	10

[a] Surrogate value, conservatively assuming acute toxicity to be ×10 higher than that of the parent active substance.
[b] Surrogate value, conservatively assuming toxicity to be equal to that of the parent active substance.
Bold values do not meet the trigger

Maximum PECsw values and TER values for oxasulfuron for FOCUS Step 2 Scenario – application to Soybean (BBCH 10-14): 0.1 kg formulated producta corresponding to 75 g oxasulfuron/ha

Scenario	PEC Step 2 (SEU) (µg/L)	Fish acute	Fish prolonged	Invertebrate acute	Invertebrate prolonged	Algae	Aquatic plants
		L. macrochirus	***P. promelas***	***Mysidopsis bahia***	***D. magna***	***P. subcapitata***	***L. gibba***
		LC_{50}	NOEC	EC_{50}	NOEC	E_rC_{50}	E_rC_{50}
		>111000 µg/L	114000 µg/L	82600 µg/L	14000 µg/L	1300µg/L	3.24µg/L
oxasulfuron	6.42	>17290	17757	12866	2181	202	**0.50**
		O. mykiss	***n.a.***	***D. magna***	***n.a.***	***P. subcapitata***	***L. gibba***
		LC_{50}		EC_{50}		E_rC_{50}	E_rC_{50}
		>100000 µg/L		>100000 µg/L		1300 [b] µg/L	3.24[b] µg/L
C1801 (CA2006A)	1.38	>72464		>72464		942	**2.35**
		O. mykiss	***n.a.***	***D. magna***	***n.a.***	***P. subcapitata***	***L. gibba***
		LC_{50}		EC_{50}		E_rC_{50}	EC_{50}
		>100000 µg/L		>100000 µg/L		>97 µg/L	>80 µg/L
CGA 297691 (CA2013A)	1.43	>69930		>69930		>68	>56
		P. promelas	***n.a.***	***D. magna***	***n.a.***	***P. subcapitata***	***L. gibba***
		LC_{50}		EC_{50}		E_rC_{50}	E_rC_{50}
		17300 µg/L		86200[b] µg/L		1300 [b] µg/L	3.24[b] µg/L
CGA 27913 (saccharin)	4.75	3642		18147		273	**0.68**
		L. macrochirus	***n.a.***	***Mysidopsis bahia***	***n.a.***	***P. subcapitata***	***L. gibba***
		LC_{50}		EC_{50}		E_rC_{50}	E_rC_{50}
		>111000[b] µg/L		82600 [b] µg/L		1300 [b] µg/L	3.24[b] µg/L
CGA 179710	0.71	>156338		116338		1831	**4.56**
		L. macrochirus	***n.a.***	***Mysidopsis bahia***	***n.a.***	***P. subcapitata***	***L. gibba***
		LC_{50}		EC_{50}		E_rC_{50}	E_rC_{50}
		>11100 [a] µg/L		8260 [a] µg/L		130 [a] µg/L	0.324 [a] µg/L

M3	2.14	>5187		3859		61	**0.15**
Annex VI Trigger		**100**	**10**	**100**	**10**	**10**	**10**

[a] Surrogate value, conservatively assuming acute toxicity to be ×10 higher than that of the parent active substance.

[b] Surrogate value, conservatively assuming toxicity to be equal to that of the parent active substance.

TER calculation for FOCUS Step 3-4 (20m VFS) Scenario for oxasulfuron– application to Soybean (BBCH 10-14): 0.1 Ł kg formulated product/ha corresponding to 75 g oxasulfuron/ha (worst case between early and late application)

Scenario	PEC (µg/L)	Fish acute	Fish prolonged	Invertebrate acute	Invertebrate prolonged	Algae	Aquatic plants
		L. macrochirus	***P. promelas***	***Mysidopsis bahia***	***D. magna***	***P. subcapitata***	***L. gibba***
		LC_{50}	NOEC	EC_{50}	NOEC	E_rC_{50}	E_rC_{50}
		>111000 µg/L	114000 µg/L	82600 µg/L	14000 µg/L	1300µg/L	3.24µg/L
Step 3							
R3	2.621	42350	43495	31515	5341	496	**1.24**
R4	0.272	408088	419118	303676	51471	4779	11.91
Step 4 (20m VFS)							
R3	0.620	179032	183871	133226	22581	2097	**5.23**
R4	0.033	3468750	3562500	2581250	437500	40625	101

Bold values do not meet the trigger

TER calculation for FOCUS Step 3 Scenario for C1801 (CA2006A)– application to Soybean (BBCH 10-14): 0.1 Ł kg formulated product/ha corresponding to 75 g oxasulfuron/ha (worst case between early and late application)

Scenario	PEC (µg/L)	Fish acute	Fish prolonged	Invertebrate acute	Invertebrate prolonged	Algae	Aquatic plants
		O. mykiss	***n.a.***	***D. magna***	***n.a.***	***P. subcapitata***	***L. gibba***
		LC_{50}		EC_{50}		E_rC_{50}	E_rC_{50}
		>100000 µg/L		>100000 µg/L		1300 [b] µg/L	3.24[b] µg/L
Step 3							
R3	0.135	740741		740741		9630	24
R4	0.007	14285714		14285714		185714	463

[b] Surrogate value, conservatively assuming toxicity to be equal to that of the parent active substance.

TER calculation for FOCUS Step 3 Scenario for CGA 179710 – application to Soybean (BBCH 10-14): 0.1 Ł kg formulated product./ha corresponding to 75 g oxasulfuron/ha (worst case between early and late application)

Scenario	PEC (µg/L)	Fish acute	Fish prolonged	Invertebrate acute	Invertebrate prolonged	Algae	Aquatic plants
		L. macrochirus	***n.a.***	***Mysidopsis bahia***	***n.a.***	***P. subcapitata***	***L. gibba***
		LC_{50}		EC_{50}		E_rC_{50}	E_rC_{50}
		>111000[b] µg/L		82600 [b] µg/L		1300 [b] µg/L	3.24[b] µg/L
Step 3							
R3	0.151	735099		547020		8609	21
R4	0.035	3171429		2360000		37143	93

[b] Surrogate value, conservatively assuming toxicity to be equal to that of the parent active substance.

TER calculation for FOCUS Step 3-4 (20m VFS) Scenario for M3– application to Soybean (BBCH 10-14): 0.1 kg formulated product/ha corresponding to 75 g oxasulfuron/ha (worst case between early and late application)

Scenario	PEC (µg/L)	Fish acute	Fish prolonged	Invertebrate acute	Invertebrate prolonged	Algae	Aquatic plants
		L. macrochirus	***n.a.***	***Mysidopsis bahia***	***n.a.***	***P. subcapitata***	***L. gibba***
		LC_{50}		EC_{50}		E_rC_{50}	E_rC_{50}
		>11100 [a] µg/L		8260 [a] µg/L		130 [a] µg/L	0.324 [a] µg/L
Step 3							
R3	0.54	20518		15268		240	**0.60**
R4	0.008	1387500		1032500		16250	41
Step 4 (20m VFS)							
R3	0.129	86047		64031		1008	**2.51**
R4	0.002	5550000		4130000		65000	162

[a] Surrogate value, conservatively assuming acute toxicity to be ×10 higher than that of the parent active substance.

Bold values do not meet the trigger

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	a.s.	Acute	Oral toxicity (LD_{50})	>100 µg/bee
Apis mellifera	a.s.	Acute	Larval toxicity (single exposure)* (LD50)	>20 µg/bee
Apis mellifera	Laguna 75 WG	Chronic	LC_{50} NOEC LDD_{50} NOED	>6.847 g product/kg food (5.136 g a.s./kg food) ≥6.847 g product/kg food (5.136 g a.s./kg food) >191.4 µg product/bee/day (>143.5 µg a.s./bee/day) ≥191.4 µg product/bee/day (143.5 µ µg a.s./bee/day
Semi-field test (Cage and tunnel test) No further tests submitted				
Field tests No further tests submitted				

*The study was not used in the risk assessment, since it is not considered suitable

Risk assessment for bees from contact and oral dietary exposure - application to Soybean (BBCH 10-14): 0.1 kg formulated product./ha corresponding to 75 g oxasulfuron/ha

Species	Test substance	Scenario	Risk quotient	HQ/ETR	Trigger
Consumption of pollen and nectar - Screening level assessment					
Apis mellifera	a.s.	Not relevant	$ETR_{acute\ adult\ oral}$	< 0.0057	0.2
Apis mellifera	a.s.	Not relevant	$ETR_{chronic\ adult\ oral}$	<0.004	0.03
Consumption of guttation water - Screening level assessment					
Apis mellifera	a.s.	Not relevant	$ETR_{acute\ adult\ oral}$	< 0.006	0.2
Apis mellifera	a.s.	Not relevant	$ETR_{chronic\ adult\ oral}$	<0.002	0.03
Consumption of surface water* - Screening level assessment					
Apis mellifera	a.s.	Not relevant	$ETR_{acute\ adult\ oral}$	< 0.000003	0.2
Apis mellifera	a.s.	Not relevant	$ETR_{chronic\ adult\ oral}$	< 0.000002	0.03

*PEC_{SW} calculated at Step1

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
Typhlodromus pyri	Laguna 75 WG	Mortality, LR_{50} Reproduction, reduction %	3.23 g a.s./ha <50% at the highest tested rate with sufficient survivors for reproduction assessment (7.8% at 3.19 g a.s./ha)
Aphidius rhopalosiphi	Laguna 75 WG	Mortality LR_{50} Reproduction, reduction %	>75 g a.s./ha <50% (25.9% at 37.5 g a.s./ha)
Additional species			
None submitted			

First tier risk assessment for –Soybean (BBCH 10-14): 0.1 kg formulated product/ha corresponding to 75 g oxasulfuron/ha

Test substance	Species	Effect (LR_{50} g/ha)	HQ in-field	HQ off-field (1 m)	Trigger
Laguna 75 WG	*Typhlodromus pyri*	3.23 g a.s./ha	**23.2**	0.6	2
Laguna 75 WG	*Aphidius rhopalosiphi*	>75 g a.s./ha	<1	<0.03	2

Extended laboratory tests, aged residue tests

Species	Life stage	Test substance, substrate	Time scale	Dose (g product/ha)	End point	% effect*
Typhlodromus pyri	Protonymphs and adults	Laguna 75 WG, leaf bean discs	14 d of exposure	4.688 9.375 18.75 37.5 75	reproduction	8 8.2 0.5 3.8 1.3
Poecilus cupreus	Adults	Laguna 75 WG, sandy soil	14 d of exposure	4.688 9.375 18.75 37.5 75	Food consumption	25.9 12.9 2.9 15.1 12.2
Semi-field tests						
No studies submitted						
Field studies						
No studies submitted						
Additional specific test						
No studies submitted						

*(positive values = adverse effects)

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[1]	Time scale	End point	Toxicity (mg/kg d.w. soil)
Earthworms					
Eisenia foetida	a.s.	Incorporated into soil / 10% OM	Acute (14d)	Mortality	LC_{50} >1000
Eisenia foetida	Laguna 75 WG	Incorporated into soil / 10% OM	Chronic (56d)	Reproduction	NOEC= 2
Eisenia foetida	CGA 27913*	Incorporated into soil / 10% OM	Chronic (56d)	Reproduction	NOEC=0.04
Other soil macroorganisms					
No studies submitted					

*endpoint (metabolite IN-00581) from the EFSA conclusion on metsulfuron-methyl (EFSA, 2015)

Higher tier testing (e.g. modelling or field studies)
No studies submitted

Nitrogen transformation	Laguna 75 WG*	Maximum tested rate of 0.5 kg product/ha (0.67 mg test item/kg soil dry weight), corresponding to 375 g a.s./ha (0.50 mg a.s./kg soil dry weight); Sandy loam soil.	11.5% effect at day 70 at 0.50 mg a.s./kg soil dry weight (=375 g a.s./ha)

*Considering the length of the study, the DT50 in soil and the % of formation of the metabolites reached the maximum in the degradation studies in soil (both aerobic and anaerobic) in short times, metabolites are covered in the study.

Toxicity/exposure ratios for soil organisms

Soybean (BBCH 10-14): 0.1 kg formulated product/ha corresponding to 75 g oxasulfuron/ha

Test organism	Test substance	Time scale	Soil PEC (actual)	TER	Trigger
Earthworms					
	a.s.	Acute	0.065	15384.62	10
	a.s.	Chronic	0.065	30.77	5

	CGA 27913	Chronic	0.029	**1.38**[b]	5
	C 1801 (CA2006A)	Chronic	0.011	18.18 [a]	5
	CGA171895	Chronic	0.002	100 [a]	5
	CGA 179710	Chronic	0.007	28.6 [a]	5
	CGA 297691 (CA2013A)	Chronic	0.0025	80 [a]	5
	M3	Chronic	0.017	11.76 [a]	5
Other soil macroorganisms					

[a] assuming toxicity to be ×10 higher than that of the parent active substance
[b] based on worst case toxicity endpoint from EFSA conclusion for metsulfuron-methyl (EFSA Journal 2015;13(1):3936), acceptable risk demonstrated by higher tier risk assessment.

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 ER_{50} tests should be provided

Laboratory dose response tests*

Test substance	Species	ER_{50} (g a.s./ha) vegetative vigour	ER_{50**} (g a.s./ha) emergence
Laguna 75 WG	Oat	-	122
	Corn		152
	Ryegrass		24
	Onion		149
	Radish		129
	Cabbage		225
	Lettuce		>75
	Tomato		>75
	Cucumber		>375
	Pea		>215.6

*Risk assessment for non-target terrestrial plants could not be finalised due to the lack of data on vegetative vigour.
**ER50s are based on shoot height. Please note, that for all the tested species, except the most sensitive one (ryegrass) the endpoint based of fresh weight is lower

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-hour $EC5_0$ > 1000 mg a.s./L
Activated sludge	3-hour $EC5_0$ > 1000 mg CA 2006A/L
Pseudomonas sp	No data were available

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)

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

Definition of the residue for monitoring (Regulation (EU) N° 283/2013, Annex Part A, point 7.4.2) Ecotoxicologically relevant compounds[1]

Compartment	
soil	Oxasulfuron (CGA-277476), CGA 27913 (saccharin)
water	Oxasulfuron (CGA-277476), M3 (pending), MT6 (pending), CGA 171895 (Pending)
sediment	-
groundwater	-

[1] 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	oxasulfuron (ISO) oxetan-3-yl 2-[(4,6-dimethylpyrimidin-2-yl)-carbamoylsulfamoyl]benzoate
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][6]:	Aquatic Acute 1 – H400 Aquatic Chronic 1 - H410
Peer review proposal[7] for harmonised classification according to Regulation (EC) No 1272/2008:	Aquatic Acute 1 – H400 (M=100) Aquatic Chronic 1 - H410 (M=100) *Proposal is based upon the endpoint for aquatic plants*

[6] 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.

[7] 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.

Abbreviations

1/*n*	slope of Freundlich isotherm
λ	wavelength
ε	decadic molar extinction coefficient
a.s.	active substance
AChE	acetylcholinesterase
ADE	actual dermal exposure
ADI	acceptable daily intake
AF	assessment factor
AAOEL	acute acceptable operator exposure level
AOEL	acceptable operator exposure level
AP	alkaline phosphatase
AR	applied radioactivity
ARfD	acute reference dose
AST	aspartate aminotransferase (SGOT)
AUC	area under the blood concentration/time curve
AV	avoidance factor
BCF	bioconcentration factor
BUN	blood urea nitrogen
bw	body weight
CAS	Chemical Abstracts Service
CFU	colony-forming units
ChE	cholinesterase
CI	confidence interval
CIPAC	Collaborative International Pesticides Analytical Council Limited
CL	confidence limits
Cmax	concentration achieved at peak blood level
DAA	days after application
DAT	days after treatment
DDD	daily dietary dose
DM	dry matter
DT_{50}	period required for 50% dissipation (define method of estimation)
DT_{90}	period required for 90% dissipation (define method of estimation)
dw	dry weight
EbC_{50}	effective concentration (biomass)
EC_{50}	effective concentration
ECHA	European Chemicals Agency

EEC	European Economic Community
EMDI	estimated maximum daily intake
ER_{50}	emergence rate/effective rate, median
ErC_{50}	effective concentration (growth rate)
ETR	exposure toxicity ratio
ETR_{acute}	exposure toxicity ratio for acute exposure
ETR_{larvae}	exposure toxicity ratio for chronic exposure
ETR_{larvae}	exposure toxicity ratio for larvae
ETR_{HPG}	exposure toxicity ratio for effects on honeybee hypopharygeal glands
EU	European Union
EUROPOEM	European Predictive Operator Exposure Model
f(twa)	Time-weighted average factor
FAO	Food and Agriculture Organization of the United Nations
FID	flame ionisation detector
FIR	food intake rate
FOB	functional observation battery
FOCUS	Forum for the Co-ordination of Pesticide Fate Models and their Use
GAP	Good Agricultural Practice
GC	gas chromatography
GCPF	Global Crop Protection Federation (formerly known as International Group of National Associations of Manufacturers of Agrochemical Products; GIFAP)
GGT	gamma glutamyl transferase
GM	geometric mean
GS	growth stage
GSH	glutathione
Hb	haemoglobin
Hct	haematocrit
HPLC	high-pressure liquid chromatography or high-performance liquid chromatography
HPLC-MS	high-pressure liquid chromatography–mass spectrometry
HPG	hypopharygeal glands
HQ	hazard quotient
$HQ_{contact}$	hazard quotient for contact exposure
HR	hazard rate
IEDI	international estimated daily intake
IESTI	international estimated short-term intake
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
iv	intravenous

JMPR	Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Expert Group on Pesticide Residues (Joint Meeting on Pesticide Residues)
K_{doc}	organic carbon linear adsorption coefficient
K_{Foc}	Freundlich organic carbon adsorption coefficient
LC	liquid chromatography
LC_{50}	lethal concentration, median
LC-MS	liquid chromatography–mass spectrometry
LC-MS-MS	liquid chromatography with tandem mass spectrometry
LD_{50}	lethal dose, median; dosis letalis media
LDD_{50}	lethal dietary dose; median
LDH	lactate dehydrogenase
LOAEL	lowest observable adverse effect level
LOD	limit of detection
LOQ	limit of quantification
M/L	mixing and loading
MAF	multiple application factor
MCH	mean corpuscular haemoglobin
MCHC	mean corpuscular haemoglobin concentration
MCV	mean corpuscular volume
mm	millimetre (also used for mean measured concentrations)
mN	milli-newton
MRL	maximum residue level
MS	mass spectrometry
MSDS	material safety data sheet
MTD	maximum tolerated dose
MWHC	maximum water-holding capacity
NESTI	national estimated short-term intake
NOAEC	no observed adverse effect concentration
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
NPD	nitrogen–phosphorus detector
OECD	Organisation for Economic Co-operation and Development
OM	organic matter content
Pa	pascal
PD	proportion of different food types
PEC	predicted environmental concentration
PEC_{air}	predicted environmental concentration in air

PEC_{gw}	predicted environmental concentration in groundwater
PEC_{sed}	predicted environmental concentration in sediment
PEC_{soil}	predicted environmental concentration in soil
PEC_{sw}	predicted environmental concentration in surface water
PHED	pesticide handler's exposure data
PHI	pre-harvest interval
PIE	potential inhalation exposure
pK_a	negative logarithm (to the base 10) of the dissociation constant
P_{ow}	partition coefficient between *n*-octanol and water
PPE	personal protective equipment
ppm	parts per million (10^{-6})
PT	proportion of diet obtained in the treated area
PTT	partial thromboplastin time
QSAR	quantitative structure–activity relationship
r^2	coefficient of determination
RPE	respiratory protective equipment
RUD	residue per unit dose
SC	suspension concentrate
SD	standard deviation
SFO	single first-order
SMILES	simplified molecular-input line-entry system
SPG	specific protection goal
SSD	species sensitivity distribution
STMR	supervised trials median residue
$t_{1/2}$	half-life (define method of estimation)
TER	toxicity exposure ratio
TER_A	toxicity exposure ratio for acute exposure
TER_{LT}	toxicity exposure ratio following chronic exposure
TER_{ST}	toxicity exposure ratio following repeated exposure
TK	technical concentrate
TLV	threshold limit value
Tmax	time until peak blood levels achieved
TMDI	theoretical maximum daily intake
TRR	total radioactive residue
TSH	thyroid-stimulating hormone (thyrotropin)
TWA	time-weighted average
UDS	unscheduled DNA synthesis
UF	uncertainty factor

UV	ultraviolet
W/S	water/sediment
w/v	weight per unit volume
w/w	weight per unit weight
WBC	white blood cell
WG	water-dispersible granule
WHO	World Health Organization