Appendix to:

EFSA (European Food Safety Authority), 2020. Conclusion on the peer review of the pesticide risk assessment of the active substance prosulfuron. EFSA Journal 2020;18(7):6181, 35 pp. doi:10.2903/j.efsa.2020.6181

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

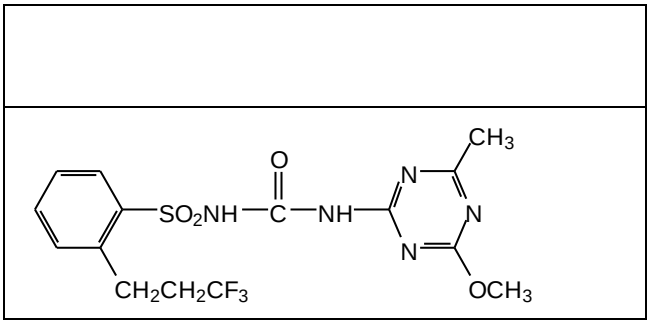
Identity, Physical and Chemical Properties, Details of Uses, Further Information

Active substance (ISO Common Name) ‡	Prosulfuron
Function (*e.g.* fungicide)	Herbicide
Rapporteur Member State	France
Co-rapporteur Member State	Slovakia

Identity (Annex IIA, point 1)

Chemical name (IUPAC) ‡	*N*-[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)carbamoyl]-2-(3,3,3-trifluoropropyl)benzenesulfonamide or 1-(4-methoxy-6-methyl-1,3,5-triazin-2-yl)-3-[2-(3,3,3-trifluoropropyl)phenylsulfonyl]urea
Chemical name (CA) ‡	*N*-[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)amino]carbonyl]-2-(3,3,3-trifluoropropyl)benzenesulfonamide
CIPAC No ‡	579
CAS No ‡	94125-34-5
EC No (EINECS or ELINCS) ‡	Not available
FAO Specification (including year of publication) ‡	/
Minimum purity of the active substance as manufactured ‡	950 g/kg
Identity of relevant impurities (of toxicological, ecotoxicological and/or environmental concern) in the active substance as manufactured	CGA 159902 2-(3,3,3-trifluoropropyl)benzenesulfonamide Maximum content 10 g/kg
Molecular formula ‡	$C_{15}H_{16}F_3N_5O_4S$
Molar mass ‡	419.4 g/mol

Structural formula ‡



Physical and chemical properties (Annex IIA, point 2)

Melting point (state purity) ‡	155°C with decomposition (99.5%)
Boiling point (state purity) ‡	Not measurable due to thermal decomposition
Temperature of decomposition (state purity)	Decomposition begins at about 150°C
Appearance (state purity) ‡	Light beige powder (technical a.i.: 95.1% purity) White powder (pure a.i. : 99.4% purity)
Vapour pressure (state temperature, state purity) ‡	< 3.5×10^{-6} Pa (25°C, 99.5 % purity)
Henry's law constant ‡	< 3×10^{-4} $Pa.m^3$ mol^{-1}
Solubility in water (state temperature, state purity and pH) ‡	pH 5 : 87 mg/L (25°C, 99.5 % purity) pH 6.8 : 4 g/L (25°C) pH 7.7 : 43 g/L (25°C)
Solubility in organic solvents ‡ (state temperature, state purity)	At 20°C, 99.5% purity: hexane : 6.4 mg/L - toluene : 6.1 g/L octanol : 1.4 g/L - ethanol : 8.4 g/L ethyl acetate : 56 g/L - acetone : 160 g/L dichloromethane : 180 g/L
Surface tension ‡ (state concentration and temperature, state purity)	63 mN/m (20°C, 10.0 g/L suspension in water, 99.5 % purity)
Partition co-efficient ‡ (state temperature, pH and purity)	pH 5 : 1.5 (25°C, 99.5 % purity) pH 6 : - 0,21 (25°C, 99.5 % purity) pH 9 : - 0,76 (25°C, 99.5 % purity)
Dissociation constant (state purity) ‡	pKa = 3.76 (20°C, 99.5 % purity)
UV/VIS absorption (max.) incl. ε ‡ (state purity, pH)	λ max = 227.5 nm (98.4 % purity) ε : 21645 $l.mol^{-1}.cm^{-1}$
Flammability ‡ (state purity)	Not highly flammable 99.5 % purity
Explosive properties ‡ (state purity)	Not explosive 99.5 % purity
Oxidising properties ‡ (state purity)	No oxidizing properties 99.5 % purity

Summary of representative uses evaluated for prosulfuron

Crop and/or situation (a)	Member State	Product Name	F G I (b)	Pests or group of pests controlled (c)	Formulation		Application				Application rate per treatment			PHI (days) (l)	Remarks (m)
					type (d-f)	Conc of a.i. g/kg (i)	method kind (f-h)	growth stage and season (j)	number min-max (k)	interval between applications (days)	g a.i./hl min-max	water l/ha; min-max	g a.i./ha min-max		
Maize and sweet corn	EU	PEAK ® 75 WG	F	Broad leaved weeds as cited on label	WG	750	Broadcast foliar application	BBCH 12-18 corresponding to 2-8 leaves	1	-	5-25	80-400	20	90 (grain) 60 (silage)	In combination with a nonionic surfactant at 0.1% to 0.25% of application volume
Maize and sweet corn	EU	PEAK ® 75 WG	F	Broad leaved weeds as cited on label	WG	750	Broadcast foliar application	BBCH 12-18 corresponding to 2-8 leaves	1	-	3.75-18.75	80-400	15	90 (grain) 60 (silage)	In combination with a nonionic surfactant at 0.1% to 0.25% of application volume
Maize and sweet corn	EU	PEAK ® 75 WG	F	Broad leaved weeds as cited on label	WG	750	Broadcast foliar application	BBCH 12-19 corresponding to 2-9 leaves	1 (or split application)*	-	3.75-18.75	80-400	15 (total)	90 (grain) 60 (silage)	In combination with a nonionic surfactant at 0.1% to 0.25% of application volume [split app. is 2 apps to a total of 15g within BBCH 19]

(a) For crops, the EU and Codex classification (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 suckling insects, soil born insects, foliar fungi, weeds
(d) *e.g.* wettable powder (WP), emulsifiable concentrate (EC), granule (GR)
(e) GCPF Codes – GIFAP Technical Monograph N° 2, 1989
(f) All abbreviations used must be explained
(g) Method, e.g. high volume spraying, low volume spraying, spreading, dusting, drench
(h) Kind, e.g. overall, broadcast, aerial spraying, row, individual plant, between the plant – type of equipment used must be indicated (i) Concentration in g ai/kg of g ai/L.
(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 synthesised, it is more appropriate to give the rate for the variant (e.g. benthiavalicarb-isopropyl).**
(j) Growth stage at last treatment (BBCH Monograph, Growth Stages of Plants, 1997, Blackwell, ISBN 3-8263-3152-4), including where relevant, information on season at time of application
(k) Indicate the minimum and maximum number of application possible under practical conditions of use
(l) PHI - minimum pre-harvest interval
(m) Remarks may include: extent of use / economic importance / restrictions

*split application is 2 applications to a total of 15 g/ha within BBCH 19

Methods of Analysis

Analytical methods for the active substance (Annex IIA, point 4.1)

Technical as (analytical technique)	HPLC-UV (230 nm)
Impurities in technical as (analytical technique)	HPLC-UV (230 nm) GC-FID Karl Fisher potentiometric titration
Plant protection product (analytical technique)	HPLC-UV (230 nm)

Analytical methods for residues (Annex IIA, point 4.2)

Residue definitions for monitoring purposes

Food of plant origin	Prosulfuron (Draft subject to the data gap on the genotoxicity of CGA150829)
Food of animal origin	Prosulfuron
Soil	Prosulfuron
Water surface	Prosulfuron
drinking/ground	At least prosulfuron, open regarding metabolites
Air	Prosulfuron

Monitoring/Enforcement methods

Food/feed of plant origin (analytical technique and LOQ for methods for monitoring purposes)	LC-MS/MS LOQ = 0.01 mg/kg in cereals and dry products, acidic matrices, fatty products and commodities with high water content. ILV and confirmatory data are available.
Food/feed of animal origin (analytical technique and LOQ for methods for monitoring purposes)	LC-MS/MS LOQ = 0.01 mg/kg in liver, fat, meat, kidney, milk and eggs. ILV and confirmatory data are available.
Soil (analytical technique and LOQ)	LC-MS/MS LOQ = 0.5 µg/kg in soil Confirmatory method is available
Water (analytical technique and LOQ)	LC-MS/MS LOQ for prosulfuron = 0.05 µg/L in ground water, drinking water and surface water Confirmatory data are available
Air (analytical technique and LOQ)	LC-MS/MS LOQ = 1 µg/m^3
Body fluids and tissues (analytical technique	Not required as the active substance is not toxic or

and LOQ)	very toxic

Classification and proposed labelling with regard to physical and chemical data (Annex IIA, point 10)

	RMS/peer review proposal
Active substance	/

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

	CGA150829	CGA159902	CGA300406	SYN542604	CGA349707	CGA325025	SYN547308
Activity against target organism	no	no	no	no	no	no	no

Impact on Human and Animal Health

Other toxicological studies (Annex IIA, point 5.8)

Studies performed on metabolites or impurities ‡	- CGA159902 (CA1118A): Acute oral LD_{50} > 2000 mg/kg bw Acute dermal LD_{50} > 2000 mg/kg bw Not a skin or eye irritant Sensitiser (M&K test) – H317 *In vitro* genotoxicity tests - Ames test: negative; mouse lymphoma assay: positive (small colonies); cytogenetic assay in human lymphocytes: positive *In vivo* genotoxicity tests – UDS assay: negative; mouse bone marrow micronucleus test: negative Unlikely to be genotoxic *in vivo*. - CGA150829 (triazine amine): Acute oral LD_{50} > 2000 mg/kg bw (M); =1000 mg/kg bw (F) – R22 Acute dermal LD_{50} > 2000 mg/kg bw Acute inhalation LC_{50} > 5.2 mg/L Not a skin or eye irritant Not a sensitiser (M&K test) Genotoxic potential cannot be concluded. - CGA325025: *In vitro* genotoxicity tests - Ames test, mouse lymphoma assay: negative; cytogenetic assay in human lymphocytes: equivocal. Genotoxic potential cannot be excluded. - CGA349707: *In vitro* genotoxicity tests - Ames test, mouse lymphoma assay and cytogenetic assay in human lymphocytes: negative. ADI of 0.001 mg/kg per day. - SYN547308: *In vitro* genotoxicity tests - Ames test, mouse lymphoma assay: negative; cytogenetic assay in human lymphocytes: positive. *In vivo* genotoxicity tests – mouse bone marrow micronucleus test: negative Genotoxic *in vitro*, not *in vivo*.

- SYN542604: *In vitro* genotoxicity tests - Ames test, mouse lymphoma assay and cytogenetic assay in human lymphocytes: negative. Unlikely to be genotoxic. - CGA300406: *In vitro* genotoxicity tests - Ames test, mouse lymphoma assay: negative; cytogenetic assay in human lymphocytes: positive. *In vivo* genotoxicity tests – mouse bone marrow micronucleus test: negative Genotoxic *in vitro*, not *in vivo*.

Metabolism in plants (Annex IIA, point 6.1 and 6.7, Annex IIIA, point 8.1 and 8.6)

Plant groups covered	Cereals (maize)
Rotational crops	Radish, spinach, wheat, lettuce
Metabolism in rotational crops similar to metabolism in primary crops?	Yes
Processed commodities	Not necessary
Residue pattern in processed commodities similar to residue pattern in raw commodities?	-
Plant residue definition for monitoring	Prosulfuron (Draft subject to the data gap on the genotoxicity of CGA150829)
Plant residue definition for risk assessment	Prosulfuron (Draft subject to the data gap on the genotoxicity of CGA150829)
Conversion factor (monitoring to risk assessment)	-

Metabolism in livestock (Annex IIA, point 6.2 and 6.7, Annex IIIA, point 8.1 and 8.6)

Animals covered	Goat, hen
Time needed to reach a plateau concentration in milk and eggs	Milk: n.a. Eggs : 2 days (egg white), 6 days (egg yolk)
Animal residue definition for monitoring	Prosulfuron
Animal residue definition for risk assessment	Prosulfuron
Conversion factor (monitoring to risk assessment)	-
Metabolism in rat and ruminant similar (yes/no)	Yes
Fat soluble residue: (yes/no)	No (log P_{ow} = -0.21 at pH 6)

Residues in succeeding crops (Annex IIA, point 6.6, Annex IIIA, point 8.5)

No accumulation in soil. No uptake of soil specific metabolites.

Stability of residues (Annex IIA, point 6 introduction, Annex IIIA, point 8 Introduction)

Residues of prosulfuron are stable under freezer storage for at least 25 months (maize grain and forage; beef muscle, beef liver, and milk), 12 months in maize oil and 16 months in eggs

Residues from livestock feeding studies (Annex IIA, point 6.4, Annex IIIA, point 8.3)

	Ruminant	Poultry	Pig
	Conditions of requirement of feeding studies		
Expected intakes by livestock ≥ 0.1 mg/kg diet (dry weight basis) (yes/no - If yes, specify the level)	No (but study available)	No (but study available)	No
Potential for accumulation (yes/no)	No	No	No
Metabolism studies indicate potential level of residues ≥ 0.01 mg/kg in edible tissues (yes/no)	No	No	No
	Feeding studies (feeding study on lactating cows 5, 15, 50 ppm in the feed; feeding study on laying hens 0.1, 0.3, 1 ppm in the feed). Residue levels in matrices : Mean (max) mg/kg		
Muscle	<0.05 mg/kg whatever the feeding dose	<0.05 mg/kg whatever the feeding dose	-
Liver	<0.05 mg/kg whatever the feeding dose	<0.05 mg/kg whatever the feeding dose	-
Kidney	<0.05 mg/kg whatever the feeding dose	<0.05 mg/kg whatever the feeding dose	-
Fat	<0.05 mg/kg whatever the feeding dose	<0.05 mg/kg whatever the feeding dose	-
Milk	<0.01 mg/kg whatever the feeding dose		
Eggs		<0.05 mg/kg whatever the feeding dose	

Summary of residues data according to the representative uses on raw agricultural commodities and feedingstuffs (Annex IIA, point 6.3, Annex IIIA, point 8.2)

Crop	Northern or Mediterranean Region, field or glasshouse, and any other useful information	Trials results relevant to the representative uses (a)	Recommendation/comments	MRL estimated from trials according to the representative use	HR (c)	STMR (b)
Maize	Northern EU	8×<0.01; 4×<0.02	EU intended GAP : foliar treatment, 20 g as/ha, PHI 90 days (grain)	0.02*	<0.02	<0.01
	Southern EU	4×<0.01; 3×<0.02			<0.02	<0.01
Sweet corn	Northern EU	11×<0.01	EU intended GAP : foliar treatment, 20 g as/ha, PHI 90 days (grain)	0.02*	<0.01	<0.01
	Southern EU	4×<0.01			<0.01	<0.01

(a) Numbers of trials in which particular residue levels were reported *e.g.* 3 × <0.01, 1 × 0.01, 6 × 0.02, 1 × 0.04, 1 × 0.08, 2 × 0.1, 2 × 0.15, 1 × 0.17
(b) Supervised Trials Median Residue *i.e.* the median residue level estimated on the basis of supervised trials relating to the representative use
(c) Highest residue
* The MRL is proposed at the LOQ.

Consumer risk assessment (Annex IIA, point 6.9, Annex IIIA, point 8.8)

ADI	0.02 mg/kg bw per day
TMDI (% ADI) according to WHO European diet	0.3 % (WHO cluster diet B)
TMDI (% ADI) according to French diets	0.01 % (FR toddler)
IEDI (WHO European Diet) % ADI)	Not performed as TMDI is bellow ADI
NEDI (specify diet) (% ADI)	N/A
Factors included in IEDI and NEDI	N/A
ARfD	0.1 mg/kg bw
IESTI (%ARfD)	0.7% (sweet corn) 0.1% (maize)
NESTI (% ARfD) according to national (to be specified) large portion consumption data	N/A
Factors included in IESTI and NESTI	N/A

Processing factors (Annex IIA, point 6.5, Annex IIIA, point 8.4)

Not necessary as residue level in RAC<0.1 mg/kg

Proposed MRLs (Annex IIA, point 6.7, Annex IIIA, point 8.6)

Maize grain	0.02* mg/kg
Sweet corn	0.02* mg/kg

When the MRL is proposed at the LOQ, this should be annotated by an asterisk after the figure.

Route of degradation (aerobic) in soil (Annex IIA, point 7.1.1.1.1)

Mineralization after 100 days ‡	up to 13.1 % (phenyl) and 21.5 % (triazine) after 120 days
Non-extractable residues after 100 days ‡	12-44 % (phenyl) after 90 days; max. 57% after 1 year 9-34.5 % (triazine) after 90 days
Metabolites requiring further consideration ‡ - name and/or code, % of applied (range and maximum)	prosulfuron phenyl sulfonamide (CGA159902): max. 47.4 % after 12 months prosulfuron triazine amine (CGA150829): max. 40.6 % after 62 days O-desmethyl-prosulfuron (CGA300406): max. 24.0 % after 30 days demethoxy amino-prosulfosulfuron (CGA 325025): max. 17.4 % after 274 days CGA349707: max. 22.6 % after 12 months SYN542604: max. 30.8 % after 62 days M17 (pending identification, 6.1% at study end) M18 (SYN547308, 9.9% at study end)

Route of degradation in soil - Supplemental studies (Annex IIA, point 7.1.1.1.2)

Anaerobic degradation ‡

Mineralization after 100 days	0.1-0.4 % after 90 days (both labels)
Non-extractable residues after 100 days	8-16 % after 90 days (both labels)
Metabolites that may require further consideration for risk assessment – name and/or code, % of applied (range and maximum)	No novel major metabolites compared to aerobic conditions. prosulfuron phenyl sulfonamide (CGA159902): max. 20.4 % after 92 days prosulfuron triazine amine (CGA150829): max. 8.3 % after 90 days O-desmethyl-prosulfuron (CGA300406): max. 8.2 % after 92 days CGA 325025: max. 16.3 % after 90 days

Soil photolysis ‡

Metabolites that may require further consideration for risk assessment – name and/or code, % of applied (range and maximum)	No novel major metabolites compared to aerobic conditions. prosulfuron phenyl sulfonamide (CGA159902), O-desmethyl-prosulfuron (CGA300406) and 3 unidentified metabolites (from triazine moiety) all <5%

Rate of degradation in soil (Annex IIA, point 7.1.1.2, Annex IIIA, point 9.1.1)

Laboratory studies ‡

Prosulfuron		Dark aerobic conditions.					
Study	Soil type	pH	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	DT_{50} (d) 20 °C pF2/10kPa[a)]	St. (χ^2)	Method of calculation
Fahrbach, 2011	18 Acres (phenyl) Sandy clay loam	5.84	20 / pF2	22.5 / 74.7	22.5	7.2	SFO
	18 Acres (triazine) Sandy clay loam	5.84	20 / pF2	18.9 / 62.8	18.9	9.8	SFO
Fahrbach, 2011a	18 Acres (triazine) Sandy clay loam	5.84	20 / pF2	21.0 / 69.9	21.0	8.3	SFO
	Vétroz (triazine) Loam	7.77	20 / pF2	41.3 / 137	41.3	2.4	SFO
	Krone (triazine) Silt loam	5.38	20 / pF2	15.4 / 51.1	15.4	9.3	SFO
	Nebraska (triazine) Silt loam	6.61	20 / pF2	61.1 / 203	61.1	6.9	SFO
Atkins, 1993a	Fayette (phenyl) Sandy loam	6.6	25 / 75% FC	88.9 / 295	106	8.4	SFO
Atkins, 1993b	Fayette (triazine) Sandy loam	6.6	25 / 75% FC	192 / 639	229	3.3	SFO
Atkins, 1994a[c)]	Madison (phenyl) Sandy loam	6.1	25 / 75% FC	143 / 476	142	4.6	SFO
Atkins, 1994b[d)]	Madison (triazine) Sandy loam	6.1	25 / 75% FC	124 / 410	122	4.0	SFO
Reischmann, 1994 [e)]	Neuhofen (phenyl) Loamy sand	6.6	20 / 40% MWHC	177 / 589	124	3.6	SFO
	Collombey (phenyl) Loamy sand / sand	7.2	20 / 40% MWHC	138 / 459	98.2	5.2	SFO
	Stein (phenyl) Sandy loam / loam	7.0	20 / 40% MWHC	198 / 657	132	3.2	SFO
	Les Evouettes (phenyl) Silt loam	7.3	20 / 40% MWHC	74.3 / 247	47.2	5.6	SFO
Reischmann, 1995[f)]	Les Evouettes (phenyl) Silt loam	7.0	20 / 60% FC	24.4 / 80.9	21.9	7.2	SFO
Geometric mean (n=10) Median (n=10)					62.1[b)] 79.7[b)]		

a) Normalised using a Q_{10} of 2.58 and Walker equation coefficient of 0.7

b) Geometric mean of replicate soils calculated first (18 Acres 20.8 days; Fayette 156 days; Madison 131 days; Les Evouettes 32.2 days)

c) In the original DAR Atkins 1994j

d) In the original DAR Atkins 1994a

e) In the original DAR Reischmann 1994a
f) In the original DAR Reischmann 1994b

TRIAZINE AMINE (CGA150829)		Dark aerobic conditions. Metabolite dosed or the precursor from which the f.f. was derived was parent prosulfuron.						
Study	Soil type	pH	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f.	DT_{50} (d) 20 °C pF2/10kPa[a)]	St. (χ^2)	Method of calculation
Fahrbach, 2011	18 Acres (triazine) Sandy clay loam	5.84	20 / pF2	295 / 979	0.36	295	10.4	SFO
Fahrbach, 2011a	18 Acres (triazine) Sandy clay loam	5.84	20 / pF2	228 / 757	0.28	228	2.9	SFO
	Vétroz (triazine) Loam	7.77	20 / pF2	61.9 / 205	0.11	61.9	16.8	SFO
	Krone (triazine) Silt loam	5.38	20 / pF2	>1000 / >1000	0.45	1000	7.3	SFO
	Nebraska (triazine) Silt loam	6.61	20 / pF2	>1000 / >1000	0.26	1000	22.4	SFO
Jungmann & Nicollier, 2006	18 Acres Sandy clay loam	5.0	20 / pF2	249 / 828	-	249	1	SFO
	Gartenacker Loam	6.9	20 / pF2	102.2 / 339	-	102.2	4	SFO
	Krone Silt loam	4.9	20 / pF2	191 / 634	-	191	4	SFO
Weber, 2011	Honville Loamy silt	6.7	20 / 40% MWHC	113.6 / 717.6	-	201.6[b)]	3	HS[e)]
	Arrow Sandy loam	5.7	20 / 50% MWHC	44.7 / 97.0	-	22.5[c)]	14	HS[f)]
Atkins, 1993b	Fayette Sandy loam	6.6	25 / 75% FC	>1000 / >1000	0.17	1000	17.1	SFO
Atkins, 1994b[g)]	Madison Sandy loam	6.1	25 / 75% FC	>1000 / >1000	0.38	1000	17.9	SFO
Rhodes, 1987*	Keyport; silt loam	4.3	25°C / 70% FC	208 / 691	-	254	6	SFO
Morlock (2006a)*	Soil 2.2; loamy sand	5.7 (H2O)	20°C / 45% MWHC	60.5 / 285	-	67.5	2 5.68	DFOP SFO
Morlock (2006a)*	Soil 3A; sandy loam	7.3 (H2O)	20°C / 45% MWHC	280.4 / >1000	-	385[c)]	2	HS[g)]
Morlock (2006a)*	Soil 6S; clay loam	7.1 (H2O)	20°C / 45% MWHC	333.2 / 1107	-	230.1	1	SFO

TRIAZINE AMINE (CGA150829)		Dark aerobic conditions. Metabolite dosed or the precursor from which the f.f. was derived was parent prosulfuron.						
Study	Soil type	pH	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f.	DT_{50} (d) 20 °C pF2/10kPa[a)]	St. (χ^2)	Method of calculation
Wonders and Melkebeke (2002)**	Speyer 2.1; sand	5.5	20°C / pF2	112.5 / 374	-	112.5	3	SFO
Wonders and Melkebeke (2002)**	Soil 115; clay loam	8.6	20°C / pF2	175.2 / 582	-	175.2	3	SFO
Wonders and Melkebeke (2002)**	Soil 243; sandy loam	5.6	20°C / pF2	96.4 / 320.2	-	96.4	6	SFO
Geomean (n=19)						215.7[d)]		
Arithmetic mean (n=6)					0.28[d)]			

a) Normalised using a Q_{10} of 2.58 and Walker equation coefficient of 0.7

b) Calculated from slow phase ($ln(2)/k_2$); normalised value (correction factor (18.76/27)^0.7).

c) Calculated from slow phase or second phase ($ln(2)/k_2$)

d) Geometric/arithmetic mean of replicate soils calculated first (18 Acres (pH 5.84) 259 days / ffM 0.32). The median soil DT_{50} used in the available exposure assessment was 196 days, which was derived from the 18 soil DT_{50} values available including the additional data accepted in the peer review of other sulfunyl urea active substances (i.e. thifensulfuron methyl and metsulfuron methyl).

e) k_1=0.01772, k_2=0.00266, t_b=25.93434

f) k_1=0 (fixed; lag phase), k_2=0.03082, t_b=22.25

g) k_1=0.013, k_2=0.002, t_b=20

*Metabolite dosed studies, accepted in the RAR for thifensulfuron-methyl: Rhodes (1987), Morlock (2006a), also incorporating an updated kinetic assessment for soil 3A presented in the RAR of tibenuron-methyl and agreed by the Peer review.

**Metabolite dosed studies, accepted in the RAR for metsulfuron methyl: Wonders and Melkebeke (2002).

PROSULFURON PHENYL SULFONAMIDE (CGA159902)		Dark aerobic conditions. Metabolite dosed or the precursor from which the f.f. was derived was parent prosulfuron.						
Study	Soil type	pH	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f.	DT_{50} (d) 20 °C pF2/10kPa[a)]	St. (χ^2)	Method of calculation
Fahrbach, 2011	18 Acres (phenyl) Sandy clay loam	5.84	20 / pF2	90.6 / 301	0.36	90.6	16.4	SFO
Berdat & Nicollier, 2006	18 Acres Sandy clay loam	5.0	20 / pF2	7.5 / 373	-	173[b)]	5.3	DFOP[c)]
	Gartenacker Loam	6.9	20 / pF2	3.1 / 140	-	169[b)]	11.3	HS[d)]
	Krone Silt loam	4.9	20 / pF2	89.7 / 298	-	89.7	8.9	SFO
Atkins, 1993a	Fayette Sandy loam	6.6	25 / 75% FC	>1000 / >1000	0.49	1000	9.1	SFO

PROSULFURON PHENYL SULFONAMIDE (CGA159902)		Dark aerobic conditions. Metabolite dosed or the precursor from which the f.f. was derived was parent prosulfuron.						
Study	Soil type	pH	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f.	DT_{50} (d) 20 °C pF2/10kPa[a)]	St. (χ^2)	Method of calculation
Geometric mean (n=5)						188		
Arithmetic mean (n=2)					0.43			

a) Normalised using a Q_{10} of 2.58 and Walker equation coefficient of 0.7
b) Calculated from slow phase (ln(2)/k_2)
c) k_1=0.2796, k_2=0.0040, g=0.5553
d) k_1=0.2256, k_2=0.0041, t_b=7.8046

O-DESMETHYL-PROSULFURON (CGA300406)		Dark aerobic conditions. The precursor from which the f.f. was derived was parent prosulfuron.						
Study	Soil type	pH	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f.	DT_{50} (d) 20 °C pF2/10kPa[a)]	St. (χ^2)	Method of calculation
Fahrbach, 2011	18 Acres (phenyl) Sandy clay loam	5.84	20 / pF2	4.3 / 13.3	0.48	4.3	25.4	SFO
	18 Acres (triazine) Sandy clay loam	5.84	20 / pF2	4.0 / 14.4	0.40	4.0	20.9	SFO
Fahrbach, 2011a	18 Acres (triazine) Sandy clay loam	5.84	20 / pF2	4.1 / 13.7	0.51	4.1	10.5	SFO
	Vétroz (triazine) Loam	7.77	20 / pF2	25.4 / 84.4	0.56	25.4	10.0	SFO
	Krone (triazine) Silt loam	5.38	20 / pF2	2.6 / 8.8	0.29	2.6	29.6	SFO
Reischmann, 1994 [c)]	Les Evouettes (phenyl) Silt loam	7.3	20 / 40% MWHC	47.5 / 158	0.46	30.2	11.3	SFO
Reischmann, 1995 [d)]	Les Evouettes (phenyl) Silt loam	7.0	20 / 60% FC	23.3 / 77.5	0.68	21.0	14.0	SFO
Geometric mean (n= 4)						9.1[b)]		
Arithmetic mean (n= 4)					0.47[b)]			

a) Normalised using a Q_{10} of 2.58 and Walker equation coefficient of 0.7
b) Geometric/arithmetic mean of replicate soils calculated first (18 Acres 4.1 days / 0.46; Les Evouettes 25.2 days / 0.57)
c) In the original DAR Reischmann 1994a
d) In the original DAR Reischmann 1994b

CGA325025		Dark aerobic conditions. Metabolite dosed.						
Study	Soil type	pH	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f.	DT_{50} (d) 20 °C pF2/10kPa [a)]	St. (χ^2)	Method of calculation
Hurt, Mason & Hamlet, 2011	18 Acres Sandy clay loam	5.0	20 / pF2	50.1 / 167	-	50.1	5.7	SFO
	Gartenacker Loam	6.9	20 / pF2	102 / 340	-	102	7.0	SFO
	Krone Silt loam	4.9	20 / pF2	47.4 / 157	-	47.4	6.9	SFO
Geometric mean (n=3)						62.4		
Assumed ffM (from O-DESMETHYL-PROSULFURON (CGA300406))					0.12[b)]			

a) Normalised using a Q_{10} of 2.58 and Walker equation coefficient of 0.7

b) Assumed ffm from O-DESMETHYL-PROSULFURON (CGA300406), calculated by (1-ffM_SYN542604)

SYN542604		Dark aerobic conditions. Metabolite dosed or the precursor from which the f.f. was derived was metabolite O-DESMETHYL-PROSULFURON (CGA300406).						
Study	Soil type	pH	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f.	DT_{50} (d) 20 °C pF2/10kPa[a)]	St. (χ^2)	Method of calculation
Fahrbach, 2011	18 Acres (phenyl) Sandy clay loam	5.84	20 / pF2	150 / 499	1.00	150	2.6	SFO
	18 Acres (triazine) Sandy clay loam	5.84	20 / pF2	142 / 472	1.00	142	6.1	SFO
Fahrbach, 2011a	18 Acres (triazine) Sandy clay loam	5.84	20 / pF2	184 / 611	0.73	184	3.8	SFO
	Vétroz (triazine) Loam	7.77	20 / pF2	61.5 / 204	0.87	61.5	19.6	SFO
	Krone (triazine) Silt loam	5.38	20 / pF2	125 / 415	1.00	125	5.5	SFO
	Nebraska (triazine) Silt loam	6.61	20 / pF2	118 / 391	1.00	118	8.5	SFO
Reischmann, 1994 [c)]	Les Evouettes (phenyl) Silt loam	7.3	20 / 40% MWHC	81.9/ 272	0.66	52.0	17.5	SFO
Reischmann, 1995 [d)]	Les Evouettes (phenyl) Silt loam	7.0	20 / 60% FC	56.6 / 188	0.54	51.0	9.6	SFO
Hurt, Mason & Hamlet,	18 Acres Sandy clay loam	5.0	20 / pF2	102 / 340	-	102	6.0	SFO

SYN542604		Dark aerobic conditions. Metabolite dosed or the precursor from which the f.f. was derived was metabolite O-DESMETHYL-PROSULFURON (CGA300406).						
Study	Soil type	pH	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f.	DT_{50} (d) 20 °C pF2/10kPa[a)]	St. (χ^2)	Method of calculation
2011	Gartenacker Loam	6.9	20 / pF2	25.0 / 83.2	-	25.0	9.8	SFO
	Krone Silt loam	4.9	20 / pF2	140 / 464	-	140	6.1	SFO
Geometric mean (n=8)						84.6[b)]		
Arithmetic mean (n=5)					0.88[b)]			

a) Normalised using a Q_{10} of 2.58 and Walker equation coefficient of 0.7
b) Geometric/arithmetic mean of replicate soils calculated first (18 Acres (pH 5.84) 158 days / 0.91; Les Evouettes 51.5 days / 0.60)
c) In the original DAR Reischmann 1994a
d) In the original DAR Reischmann 1994b

CGA349707		Dark aerobic conditions. Metabolite dosed or the precursor from which the f.f. was derived was metabolite SYN542604.						
Study	Soil type	pH	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f.	DT_{50} (d) 20 °C pF2/10kPa[a)]	St. (χ^2)	Method of calculation
Kuet, 2006	18 Acres Sandy clay loam	5.0	20 / pF2	113 / 376	-	113	2.8	SFO
	Gartenacker Loam	6.9	20 / pF2	91.9 / 305	-	91.9	3.0	SFO
	Krone Silt loam	4.9	20 / pF2	140 / 466	-	140	2.2	SFO
Reischmann, 1994 [c)]	Les Evouettes (phenyl) Silt loam	7.3	20 / 40% MWHC	331 / >1000	1.00	210	10.6	SFO
Reischmann, 1995 [d)]	Les Evouettes (phenyl) Silt loam	7.0	20 / 60% FC	737 / >1000	0.72	663	7.8	SFO
Geometric mean (n=7)						153[b)]		
Arithmetic mean (n=2)					0.86			

a) Normalised using a Q_{10} of 2.58 and Walker equation coefficient of 0.7
b) Geometric mean of replicate soils calculated first (Les Evouettes 373 days)
c) In the original DAR Reischmann 1994a
d) In the original DAR Reischmann 1994b

SYN547308		Dark aerobic conditions. Metabolite dosed.						
Study	Soil type	pH	t. °C / % MWHC	DT_{50}/ DT_{90} (d)	f. f.	DT_{50} (d) 20 °C pF2/10kPa [a)]	St. (χ^2)	Method of calculation
Gilbert, 2014 Patel, 2014	Vétroz Loam	7.7	20 / pF2	174 / 654	-	207[b)]	1.18	DFOP
	18 Acres Sandy clay loam	5.8	20 / pF2	17.6 / 120	-	36.4[c)]	3.77	FOMC
	Krone Silt loam	5.0	20 / pF2	7.79 / 133	-	40.1[c)]	2.40	FOMC
Geometric mean (n=3)						67.1		
Arithmetic mean					-			

a) Normalised using a Q_{10} of 2.58 and Walker equation coefficient of 0.7
b) $Ln(2)/k_2$
c) $DT_{90}/3.32$

Field studies ‡

Parent	Aerobic conditions – Persistence endpoints							
Soil type (indicate if bare or cropped soil was used).	Location (country or USA state).	pH	Depth (cm)	$DissT_{50}$ (d) actual	DT_{90}(d) actual	DT_{50} (d) Norm.	St. (χ^2)	Method of calculation
Sandy loam Bare soil	Altratjensdorf, Germany	6.1	30	38.9	129	-	10.2	SFO
Silt loam Bare soil	Wallesdorf, Germany	6.8	30	4.3	30.2	-	5.2	DFOP[a)]
Loamy sand Bare soil	Coesfeld, Germany	4.9	20	16.1	53.4	-	15.8	SFO
Silt loam Bare soil	Uhrsleben, Germany	6.2	20	18.5	61.4	-	16.9	SFO
Sandy loam Bare soil	Altratjensdorf, Germany	6.2	20	7.8	25.9	-	13.6	SFO
Sandy loam Bare soil	Herxheimweyher, Germany	6.8	20	10.0	33.1	-	4.4	SFO
Silt loam Maize	Vouvry, Switzerland	7.8	30	4.6	30.9	-	1.1	FOMC[b)]
Loamy sand Maize	Vouvry, Switzerland	7.8	30	4.6	15.2	-	5.7	SFO
Sandy loam Maize	Camisano, Vicentino, Italy	7.4	30	3.8	54.5	-	1.1	DFOP[c)]
Silt loam Maize	Estillac, France	7.0	30	15.6	51.9	-	14.5	SFO
Silt loam Bare soil	Estillac, France	7.0	30	6.1	20.4	-	14.9	SFO

Parent	Aerobic conditions – Persistence endpoints							
Soil type (indicate if bare or cropped soil was used).	Location (country or USA state).	pH	Depth (cm)	$DissT_{50}$ (d) actual	DT_{90}(d) actual	DT_{50} (d) Norm.	St. (χ^2)	Method of calculation
Sandy loam Bare soil	Bogense, Denmark	6.48	20	4.6	55.8	-	8.23	DFOP [d)]
Silt loam Bare soil	Castelsarrasin, France	6.06	10	11.4	38.0	-	12.4	SFO
Loam Bare soil	St. Cyprien, France	7.4	20	17.4	150	-	5.5	DFOP [e)]
Clay loam Bare soil	Breitenwisch, Germany	5.32	10	9.01	29.9	-	12.6	SFO
Clay Bare soil	Canals, Spain	7.6	20	20.5	98.1	-	6.83	DFOP [f)]
Loam Bare soil	Wilson, UK	7.07	10	12.5	41.6	-	17.8	SFO
Geometric mean Median						- -		

[a)] k_1=0.1952, k_2=0.0080, g=0.8758
[b)] α=1.3659, β=7.0222
[c)] k_1=0.3106, k_2=0.0207, g=0.6918
[d)] k_1=2.989, k_2=0.03143, g=0.4222
[e)] k_1=0.1201, k_2=0.01126, g=0.4615
[f)] k_1=0.4408, k_2=0.02076, g=0.2342

Parent	Aerobic conditions – modelling endpoints (normalisation with measured soil moisture data)					
Soil type (indicate if bare or cropped soil was used).	Location (country or USA state).	pH ($CaCl_2$)	Depth (cm)[a)]	DegT50 (d) 20°C, pF2	St. (χ^2)	Method of calculation
Sandy loam (bare soil)	Bogense, Denmark	6.48	20	18.6	7.49	DFOP DT_{90}/3.32
Silt loam (bare soil)	Castelsarrasin, France	6.06	10	15.5	12.6	SFO
Loam (bare soil)	St. Cyprien, France	7.4	20	27.8	14.9	SFO
Clay loam (bare soil)	Breitenwisch, Germany	5.32	10	9.96	11.4	SFO
Clay (bare soil)	Canals, Spain	7.6	20	43.5	10.9	SFO
Loam (bare soil)	Wilson, UK	7.07	10	12.2	18.5	SFO
Geometric mean (n=6)				**18.7**		

pH dependence ‡ (yes / no) (if yes type of dependence)	No. For metabolite O-DESMETHYL-PROSULFURON (CGA300406) dependency can be seen and this has been taken into account in PECgw calculations.

Laboratory studies ‡

Parent	Anaerobic conditions						
Soil type	Label	pH	t. °C / % MWHC	DT_{50}/DT_{90} (d)	DT_{50} (d) 20°C pF2/10kPa	St. (r^2)	Method of calculation
Sandy loam	Phenyl	6.6	25 / 75% FC	89 / -	-	-	-
Sandy loam	Triazine	6.6	25 / 75% FC	123 / -	-	-	-
Sandy loam	Triazine	6.1	25 / 75% FC	138 / -	-	-	-
Geometric mean/median				-	-		

Soil adsorption/desorption (Annex IIA, point 7.1.2)

Parent ‡							
Soil type	OC %	Soil pH[#]	Kd (mL/g)	Koc (mL/g)	Kf (mL/g)	Kfoc (mL/g)	1/n
Loamy sand	0.46	7.7	-	-	0.07	15.2	0.82
Sandy loam	1.97	7.8	-	-	0.27	13.7	0.85
Silt loam	1.74	6.5	-	-	0.29	16.7	0.86
Silty clay loam	0.67	6.9	-	-	0.25	37.3	0.86
Loamy sand	0.76	7.0	-	-	0.03	3.9	0.92
Sand	0.36	6.6	-	-	0.09	25.0*	1.21*
Silt loam	2.10	7.3	-	-	0.24	11.4	0.81
Silt loam	4.39	7.1	-	-	0.36	8.2	0.89
Humic silt loam	19.34	6.6	-	-	1.45	7.50	0.94
Arithmetic mean (n=8) Geometric mean (n=8)						14.2 11.7	0.869 -
pH dependence, Yes or No			No				

* The 1/n value of 1.21 was originally excluded from the dataset as considered outside the range of the expected value. However, in this case, it is considered that this omission adversely affects the results of the exposure assessment.
[#] No information on which media pH was measured

TRIAZINE AMINE (CGA150829) ‡							
Soil type	OC %	Soil pH	Kd (mL/g)	Koc (mL/g)	Kf (mL/g)	Kfoc (mL/g)	1/n
Sand	0.35	7.9[#]	-	-	0.23	66.7	0.8702

Sandy Loam	0.99	7.8[#]	-	-	0.57	58.2	0.9024
Silt Loam	1.74	6.5[#]	-	-	0.96	55.1	0.8474
Silty Clay Loam	0.70	6.9[#]	-	-	1.20	172	0.8230
Loam	1.8	5.3[$]	-	-	1.321	73.4	0.9183
Silt loam	2.4	6.6[$]	-	-	0.481	20.0	0.9755
Clay loam	0.9	7.6[$]	-	-	0.561	62.3	0.9170
Sandy loam	0.7	6.7[$]	-	-	0.675	96.5	0.9498
Silt loam	1.7	6.6[$]	-	-	3.147	185.1	0.9021
Sandy soil	0.58	6.2[#]	-	-	0.264	45.5	0.873
Sandy loam	0.46	6.3[#]	-	-	0.621	133.8	0.784
Silt loam	1.1	5.3[#]	-	-	2.36	214.2	0.841
Silty clay loam	3.0	5.7[#]	-	-	6.80	225.5	0.841
Silt loam	1.2	7.7[#]	-	-	0.225	18.8	1.05
Sandy loam	2.3	5.7[#]	-	-	0.682	29.7	0.94
Silt loam	2.6	6.4[#]	-	-	0.433	16.7	0.96
Loamy silt	0.91	6.7[#]	-	-	1.57	172	0.835
Silt loam	2.08	7.0[#]	-	-	0.44	21.3	0.873
Loamy sand	1.95	6.0[#]	-	-	0.30	15.4	0.909
Sandy loam	0.43	6.0[#]	-	-	0.32	74.4	0.840
Speyer 2.1*	0.56	6.0[#]	-	-	0.2025	36	0.92
Standard soil no. 115*	1.7	7.4[#]	-	-	0.6255	37	0.89
Standard soil no. 164*	3.0	6.5[#]	-	-	0.645	22	0.92
Standard soil no. 243*	1.1	4.3[#]	-	-	0.337	31	0.91
Sand, Germany**	1.97	5.4[#]	-	-	0.37	18.92	0.640
Loam, Germany**	2.42	7.3[#]	-	-	0.43	17.97	0.759
Clay, Germany**	1.84	6.9[#]	-	-	0.43	2.95	1.422
Arithmetic mean/median (n= 27) Geometric mean (n=27)						71.2/45.5[§] 45.6	0.90/nr -
pH dependence, Yes or No			No				

[#] No information on which media pH was measured
[$] $CaCl_2$
* Endpoints derived from the study Van Noorlos & Slagen (2001) accepted in the RAR for metsulfuron-methyl, Endpoints not used in the available exposure assessment.
** Endpoints derived from the study Morlock (2006) accepted in the RAR for metsulfuron-methyl, Endpoints not used in the available exposure assessment.

PROSULFURON PHENYL SULFONAMIDE (CGA159902) ‡							
Soil type	OC %	Soil pH[#]	Kd	Koc	Kf	Kfoc	1/n

			(mL/g)	(mL/g)	(mL/g)	(mL/g)	
Loamy sand	0.46	7.7	-	-	0.40	87.0	0.93
Sandy loam	1.97	7.8	-	-	1.24	62.9	0.83
Silt loam	1.74	6.5	-	-	0.77	44.3	0.81
Silty clay loam	0.67	6.9	-	-	0.59	88.1	0.94
Arithmetic mean (n=4) Geometric mean (n=4)						70.6 68.0	0.88 -
pH dependence, Yes or No			No				

[#] No information on which media pH was measured

O-DESMETHYL-PROSULFURON (CGA300406) ‡							
Soil type	OC %	Soil pH[#]	Kd (mL/g)	Koc (mL/g)	Kf (mL/g)	Kfoc (mL/g)	1/n
Loamy sand	0.42	6.5	-	-	0.53	126*	1.24*
Sandy loam	1.0	6.8	-	-	0.49	49.0	0.87
Loam	1.11	6.7	-	-	0.47	42.3	0.89
Silty clay loam	2.59	6.4	-	-	1.28	49.4	0.93
Arithmetic mean (n=3) Geometric mean (n=3)						46.9 46.8	0.90 -
pH dependence, Yes or No			No				

* The 1/n value of 1.24 was originally excluded from the dataset as considered outside the range of the expected value. However, in this case, it is considered that this omission adversely affects the results of the exposure assessment.
[#] No information on which media pH was measured

demethoxy amino-prosulfosulfuron (CGA 325025)‡							
Soil type	OC %	Soil pH[#]	Kd (mL/g)	Koc (mL/g)	Kf (mL/g)	Kfoc (mL/g)	1/n
Sandy loam	1.0	6.8	-	-	0.242	24.2	1.042
Sand	0.42	6.5	-	-	0.135	32.2	0.853
Loam	1.15	6.7	-	-	0.336	29.2	0.939
Clay	1.67	6.8	-	-	0.346	20.7	1.057
Arithmetic mean (n=4) Geometric mean (n=4)						26.6 26.2	0.973 -
pH dependence, Yes or No			No				

[#] No information on which media pH was measured

SYN542604 ‡							
Soil type	OC %	Soil pH ($CaCl_2$)	Kd (mL/g)	Koc (mL/g)	Kf (mL/g)	Kfoc (mL/g)	1/n
Sandy clay loam	2.21	5.84	-	-	3.01	136	0.88

Loam	1.97	7.77	-	-	1.14	58	0.82
Silt loam	1.14	5.38	-	-	0.98	86	0.88
Silt loam	1.72	6.61	-	-	3.84	223	0.80
Sandy loam	0.51	7.20	-	-	0.57	112	0.86
Arithmetic mean (n=5) Geometric mean (n=5)						123 111	0.85 -
pH dependence, Yes or No			No				

CGA349707 ‡							
Soil type	OC %	Soil pH (H_2O)	Kd (mL/g)	Koc (mL/g)	Kf (mL/g)	Kfoc (mL/g)	1/n
Loamy sand	2.0	7.6	-	-	1.03	51.7	0.96
Silt loam	2.4	7.2	-	-	0.88	36.7	0.85
Silt loam	4.7	7.2	-	-	2.11	44.9	1.08
Arithmetic mean (n=3) Geometric mean (n=3)						44.4 44.0	0.96 -
pH dependence, Yes or No			No				

SYN547308 ‡							
Soil type	OC %	Soil pH (H_2O)	Kd (mL/g)	Koc (mL/g)	Kf (mL/g)	Kfoc (mL/g)	1/n
Loam	2.3	8.3	-	-	1.49	65	0.9318
Sandy clay loam	3.0	6.5	-	-	2.89	96	0.9527
Silt loam[1]	1.3	6.0	-	-	3.74	288[1]	0.9501[1]
Sandy loam	0.5	8.2	-	-	0.42	83	0.9193
Silt loam	1.8	6.7	-	-	2.23	124	0.9127
Arithmetic mean (n=4) (soils with pH ≥6.5) Geometric mean (n=4) (soils with pH ≥6.5)						- 89.5	0.929 -
pH dependence, Yes or No			Yes (conservative geometric mean was derived since pH dependence could not be excluded)				

[1] This soil was excluded from arithmetic/geometric mean due to potential pH dependence.

Mobility in soil (Annex IIA, point 7.1.3, Annex IIIA, point 9.1.2)

Column leaching ‡	4 soils (OC 0.4 - 2.6 %, pH 6.4 - 6.7), triazine label, 508 mm. RA in leachates : 54 - 95 % (prosulfuron) 4 soils (OC 0.4 - 4.4 %, pH 5.7 - 7.1), phenyl label, 200 mm. RA in leachates : 1 - 94 % depending on OC content (prosulfuron)
Aged residues leaching ‡	4 soils (OC 0.4 - 2.6 %, pH 6.4 - 7.0), 2 labels, 30 d

	incubation at 25°C, 508 mm Residue prosulfuron 70 - 84 %, metabolites < 12 % (CGA 300406) RA in leachates : 33 - 59 %, mainly prosulfuron, metabolites < 4 % each 2 soils (OC 1.7 - 2.1 %, pH 7.2 - 7.3), 2 labels, 180 d incubation at 20°C, 200 mm Residue : prosulfuron 18 - 31 %, metabolites <10 % each (CGA 159902, 150829, 300406, 349707, M5), CO_2 10 - 45 % RA in leachates : 0.8 - 12 % of applied to columns (prosulfuron)
Lysimeter/ field leaching studies ‡	USA, undisturbed 20 cm diameter soil columns, silt loam (1.94 % OC, pH 5.6) in Kentucky and sand soil (0.3 % OC, pH 4.9) in North Carolina, 2 labels, 44 g as/ha. Overflow occurred in Kentucky. Total residues in drainage water (LOD 0.4 µg/l) soil depth 0.90 m Silt loam: < 0.4 %, mean conc. 0.13 µg/l (phenyl); < 0.1 % (triazine) Sand: mean 0.98 µg/l max. 3 µg/l (phenyl); mean 0.08 µg/l max. 1 µg/l (triazine) Compounds in drainage water from sand soil, NC prosulfuron traces in initial preferential flow soil depth 0.90 m prosulfuron phenyl sulfonamide (CGA159902) max. 2.4 µg/l M5 (derivative of prosulfuron phenyl sulfonamide (CGA159902)) max. 1 µg/l CGA325028 max. 0.74 µg/l O-desmethyl-prosulfuron (CGA300406) max. 0.08 µg/l No realistic mean concentrations can be calculated for individual compounds. Triazine moiety less mobile than phenyl moiety. No prosulfuron triazine amine (CGA150829) in soil after 1 year. Swiss lysimeter, sandy soil (1.05 % OC, pH 6.1), phenyl label, 28 or 2 x 28 g as/ha (Spring) Total residues (LOD 0.05 µg/l) mean concentrations, soil depth 1.2 m 1 appl. 0.23 / 0.12 / 0.07 µg/l (year 1 / 2 / 3) 2 appl. 0.24 / 0.31 / 0.22 µg/l (year 1 / 2 / 3) max. concentrations 0.46 / 0.42 µg/l (1 / 2 appl.)

	Prosulfuron, prosulfuron phenyl sulfonamide (CGA159902), O-desmethyl-prosulfuron (CGA300406), CGA349707, SYN542604 (M5), demethoxy amino-prosulfosulfuron (CGA 325025) and unknowns < 0.1 µg/l each. Total extractable RA in soil < 2.5 µg/kg after 3 years.

Route and rate of degradation in water (Annex IIA, point 7.2.1)

Hydrolytic degradation of the active substance and metabolites > 10 % ‡	pH 5 (25°C) DT_{50} 5 - 12 d prosulfuron phenyl sulfonamide (CGA159902) 58 % prosulfuron triazine amine (CGA150829) 43 % prosulfuron polyimide (CGA325030) 22-31 % G28533 16 % pH 7 (25°C) DT_{50} 424 - 651 d pH 9 (25°C) DT_{50} 682 - 1690 d (no major metabolite at pH 7 and 9)

PEC (ground water) (Annex IIIA, point 9.2.1)

Method of calculation and type of study (*e.g.* modelling, field leaching, lysimeter)	Models used: FOCUS-PELMO 5.5.3 and FOCUS-PEARL 4.4.4, FOCUS-MACRO 5.5.4 The following PECgw were calculated in a context of amendment of the approval conditions (to remove the restriction to application once every 3 years) and to respond to Data requirement by EFSA. Input parameters for prosulfuron: Molar mass = 419.4 g/mol Water solubility = 43000 mg/L (20°C), 86000 mg/L (30°C) Vapour pressure = 0 Pa (20°C), 0 Pa (30°C) Kfoc = 11.7 mL/g (geometric mean, n=8) 1/n = 0.869 DT_{50} = 19.6 days (normalised field geometric mean, pseudo-SFO, n=6). The correct value to be used for further calculations is 18.7 days. Plant uptake factor = 0.15 Input parameters for prosulfuron triazine amine (CGA150829):

Molar mass = 140.1 g/mol

Water solubility = 1000 mg/L (considered conservative)

Vapour pressure = 0 Pa

Kfoc = 45.6 mL/g (n=27)

1/n = 0.9 (n=27)

DT_{50} = 196 days (normalised laboratory, median, SFO, n= 18). The correct value to be used for further calculations is 216 days

ffM = 0.28 (from prosulfuron).

Plant uptake factor = 0

Input parameters for prosulfuron phenyl sulfonamide (CGA159902):

Molar mass = 253.2 g/mol

Water solubility = 1000 mg/L (considered conservative)

Vapour pressure = 0 Pa

Kfoc = 68.0 mL/g (geometric mean, n=4); Kfom = 39.4 mL/g

1/n = 0.88

DT_{50} = 188 days (normalised laboratory geometric mean, SFO, n=5)

ffM = 0.43 (from prosulfuron)

Plant uptake factor = 0

Input parameters for O-desmethyl-prosulfuron (CGA300406):

Molar mass = 405.4 g/mol

Water solubility = 1000 mg/L (considered conservative)

Vapour pressure = 0 Pa

Kfoc = 46.8 mL/g (geometric mean, n=3); Kfom = 27.1 mL/g

1/n = 0.90

DT_{50} = 30.2 days (maximum laboratory DT_{50} representing alkaline conditions, SFO); 2.6 days (minimum laboratory DT_{50} representing acidic conditions, SFO)

ffM = 0.47 (from prosulfuron).

Plant uptake factor = 0

Input parameters for demethoxy amino-prosulfosulfuron (CGA 325025):

Molar mass = 404.4 g/mol

Water solubility = 1000 mg/L (considered conservative)

Vapour pressure = 0 Pa

Kfoc = 26.2 mL/g (geometric mean, n=4); Kfom = 15.2 mL/g

1/n = 0.973

DT_{50} = 62.4 days (normalised laboratory geometric mean, SFO, n=3)

ffM = 0.12 (from O-desmethyl-prosulfuron (CGA300406))

Plant uptake factor = 0

Input parameters for SYN542604:

Molar mass = 381.3 g/mol

Water solubility = 1000 mg/L (considered conservative)

Vapour pressure = 0 Pa

Kfoc = 111 mL/g (geometric mean, n=5); Kfom = 64.4 mL/g

1/n = 0.85

DT_{50} = 84.6 days (normalised laboratory geometric mean, SFO, n=8).

ffM = 0.88 (from O-desmethyl-prosulfuron (CGA300406))

Plant uptake factor = 0

Input parameters for CGA349707:

Molar mass = 338.3 g/mol

Water solubility = 1000 mg/L (considered conservative)

Vapour pressure = 0 Pa

Kfoc = 44.0 mL/g (geometric mean, n=3); Kfom = 25.5 mL/g

1/n = 0.96

DT_{50} = 153 days (normalised laboratory geometric mean, SFO, n=4)

ffM = 0.86 (from SYN542604)

Plant uptake factor = 0

Input parameters for SYN547308:

Molar mass = 449.4 g/mol

Water solubility = 1000 mg/L (considered conservative)

Vapour pressure = 0 Pa

Kfoc = 89.5 mL/g; Kfom = 51.9 mL/g

1/n = 0.929

DT_{50} = 67.1 days (normalised laboratory geometric mean, SFO, n=4)

	ffM = 0.5 (from prosulfuron) Plant uptake factor = 0 **Data gap identified to address potential ground water contamination by soil metabolite M17**
Application rate	Number of applications: 1 in every year of simulation Rate of application: 15 and 20 g as/ha Application date: 3 days post-emergence Crop interception: 25% (maize BBCH 12-18)

PEC (gw) – FOCUS modelling result (80th percentile annual average concentration at 1m)

PECgw using a minimum DT_{50} of 2.6 days for CGA300406:

	Scenario	Parent (µg/L)	Metabolite (µg/L)						
			prosulfuron triazine amine CGA150829	prosulfuron phenyl sulfonamide CGA159902	O-desmethyl-prosulfuron CGA300406	SYN542604	CGA349707	demethoxy amino-prosulfosulfuron CGA325025	SYN547308
PEARL 4.4.4/maize 20 g/ha	Cha	0.052	0.176	0.297	0.001	0.025	0.715	0.073	0.140
	Ham	0.124	0.216	0.373	0.005	0.047	0.924	0.108	0.206
	Jok	-	-	-	-	-	-	-	-
	Kre	0.080	0.160	0.277	0.003	0.046	0.634	0.074	0.183
	Oke	0.125	0.151	0.299	0.004	0.058	0.548	0.068	0.223
	Pia	0.025	0.180	0.276	0.001	0.028	0.741	0.056	0.138
	Por	0.011	0.084	0.139	< 0.001	0.006	0.374	0.034	0.060
	Sev	< 0.001	0.071	0.058	< 0.001	< 0.001	0.353	0.016	0.009
	Thi	0.015	0.228	0.337	< 0.001	0.009	0.953	0.065	0.080

	Scenario	Parent (µg/L)	Metabolite (µg/L)						
			prosulfuron triazine amine CGA150829	prosulfuron phenyl sulfonamide CGA159902	O-desmethyl-prosulfuron CGA300406	SYN542604	CGA349707	demethoxy amino-prosulfosulfuron CGA325025	SYN547308
PELMO 5.5.3/maize 20 g/ha	Cha	0.027	0.163	0.260	0.001	0.015	0.680	0.061	0.098
	Ham	0.073	0.174	0.298	0.003	0.029	0.740	0.082	0.160
	Jok	-	-	-	-	-	-	-	-
	Kre	0.075	0.157	0.270	0.002	0.039	0.649	0.069	0.169
	Oke	0.110	0.145	0.285	0.003	0.045	0.502	0.065	0.203
	Pia	0.038	0.130	0.227	0.002	0.032	0.498	0.054	0.148
	Por	0.010	0.081	0.139	< 0.001	0.006	0.377	0.033	0.060

	Sev	0.001	0.060	0.042	< 0.001	< 0.001	0.326	0.016	0.004
	Thi	0.008	0.190	0.256	< 0.001	0.004	0.741	0.050	0.050

MACRO 5.5.4/maize 20 g/ha	Scenario	Parent (µg/L)	Metabolite (µg/L)						
			prosulfuron triazine amine CGA150829	prosulfuron phenyl sulfonamide CGA159902	O-desmethyl-prosulfuron CGA300406	SYN542604	CGA349707	demethoxy amino-prosulfosulfuron CGA325025	SYN547308
	Cha	0.022	0.132	0.202	<0.001	0.008	0.503	0.044	0.071

PEARL 4.4.4/maize 15 g/ha	Scenario	Parent (µg/L)	Metabolite (µg/L)						
			prosulfuron triazine amine CGA150829	prosulfuron phenyl sulfonamide CGA159902	O-desmethyl-prosulfuron CGA300406	SYN542604	CGA349707	demethoxy amino-prosulfosulfuron CGA325025	SYN547308
	Cha	0.036	0.129	0.211	0.001	0.016	0.531	0.054	0.100
	Ham	0.086	0.158	0.268	0.004	0.031	0.687	0.080	0.148
	Jok	-	-	-	-	-	-	-	-
	Kre	0.057	0.117	0.200	0.002	0.032	0.473	0.055	0.131
	Oke	0.089	0.112	0.217	0.003	0.039	0.410	0.051	0.162
	Pia	0.018	0.131	0.198	<0.001	0.019	0.549	0.042	0.100
	Por	0.007	0.062	0.100	<0.001	0.004	0.278	0.025	0.043
	Sev	<0.001	0.051	0.039	<0.001	<0.001	0.261	0.012	0.006
	Thi	0.010	0.166	0.237	<0.001	0.006	0.702	0.048	0.056

PELMO 5.5.3/maize 15 g/ha	Scenario	Parent (µg/L)	Metabolite (µg/L)						
			prosulfuron triazine amine CGA150829	prosulfuron phenyl sulfonamide CGA159902	O-desmethyl-prosulfuron CGA300406	SYN542604	CGA349707	demethoxy amino-prosulfosulfuron CGA325025	SYN547308
	Cha	0.019	0.119	0.186	0.001	0.010	0.505	0.045	0.070
	Ham	0.054	0.127	0.214	0.002	0.020	0.551	0.061	0.115
	Jok	-	-	-	-	-	-	-	-
	Kre	0.053	0.115	0.196	0.002	0.027	0.482	0.051	0.122
	Oke	0.080	0.107	0.206	0.002	0.031	0.375	0.049	0.147
	Pia	0.027	0.095	0.164	0.001	0.022	0.371	0.040	0.108
	Por	0.007	0.060	0.100	<0.001	0.004	0.281	0.025	0.043
	Sev	0.001	0.043	0.028	<0.001	<0.001	0.240	0.012	0.003
	Thi	0.005	0.138	0.178	<0.001	0.003	0.549	0.037	0.035

M	Scenari	Paren	Metabolite (µg/L)

	o	t (µg/L)	prosulfuron triazine amine CGA150829	prosulfuron phenyl sulfonamide CGA159902	O-desmethyl-prosulfuron CGA300406	SYN542604	CGA349707	demethoxy amino-prosulfosulfuron CGA325025	SYN547308
	Cha	0.015	0.096	0.144	<0.001	0.006	0.374	0.033	0.051

PECgw using a maximum DT_{50} of 30.2 days for CGA300406:

PEARL 4.4.4/maize 20 g/ha	Scenario	Parent (µg/L)	Metabolite (µg/L)						
			prosulfuron triazine amine CGA150829	prosulfuron phenyl sulfonamide CGA159902	O-desmethyl-prosulfuron CGA300406	SYN542604	CGA349707	demethoxy amino-prosulfosulfuron CGA325025	SYN547308
	Cha	0.052	0.177	0.298	0.041	0.058	0.754	0.084	0.140
	Ham	0.125	0.216	0.373	0.080	0.083	0.959	0.124	0.207
	Jok	-	-	-	-	-	-	-	-
	Kre	0.081	0.160	0.277	0.072	0.078	0.642	0.084	0.183
	Oke	0.127	0.151	0.300	0.088	0.092	0.539	0.075	0.223
	Pia	0.025	0.181	0.277	0.040	0.052	0.811	0.071	0.138
	Por	0.011	0.084	0.139	0.013	0.017	0.393	0.044	0.060
	Sev	< 0.001	0.071	0.059	< 0.001	< 0.001	0.393	0.024	0.009
	Thi	0.015	0.228	0.339	0.018	0.033	1.07	0.081	0.081

PELMO 5.5.3/maize 20 g/ha	Scenario	Parent (µg/L)	Metabolite (µg/L)						
			prosulfuron triazine amine CGA150829	prosulfuron phenyl sulfonamide CGA159902	O-desmethyl-prosulfuron CGA300406	SYN542604	CGA349707	demethoxy amino-prosulfosulfuron CGA325025	SYN547308
	Cha	0.027	0.163	0.260	0.027	0.039	0.728	0.074	0.098
	Ham	0.073	0.174	0.298	0.045	0.055	0.764	0.095	0.160
	Jok	-	-	-	-	-	-	-	-
	Kre	0.075	0.157	0.270	0.065	0.069	0.662	0.077	0.169
	Oke	0.110	0.145	0.285	0.077	0.079	0.497	0.070	0.203
	Pia	0.038	0.130	0.227	0.048	0.055	0.522	0.062	0.148
	Por	0.010	0.081	0.139	0.015	0.017	0.398	0.042	0.060
	Sev	0.001	0.060	0.042	0.001	0.001	0.358	0.023	0.004
	Thi	0.008	0.190	0.256	0.009	0.017	0.808	0.064	0.050

M	Scenari	Paren	Metabolite (µg/L)

	o	t (µg/L)	prosulfuron triazine amine CGA150829	prosulfuron phenyl sulfonamide CGA159902	O-desmethyl-prosulfuron CGA300406	SYN542604	CGA349707	demethoxy amino-prosulfosulfuron CGA325025	SYN547308
	Cha	0.022	0.132	0.202	0.017	0.008	0.503	0.044	0.071

PEARL 4.4.4/maize 15 g/ha	Scenario	Parent (µg/L)	Metabolite (µg/L)						
			prosulfuron triazine amine CGA150829	prosulfuron phenyl sulfonamide CGA159902	O-desmethyl-prosulfuron CGA300406	SYN542604	CGA349707	demethoxy amino-prosulfosulfuron CGA325025	SYN547308
	Cha	0.036	0.129	0.211	0.029	0.039	0.561	0.062	0.100
	Ham	0.086	0.158	0.268	0.056	0.058	0.715	0.092	0.148
	Jok	-	-	-	-	-	-	-	-
	Kre	0.057	0.118	0.200	0.051	0.053	0.480	0.062	0.131
	Oke	0.090	0.112	0.218	0.063	0.064	0.405	0.056	0.162
	Pia	0.018	0.132	0.198	0.029	0.035	0.601	0.053	0.100
	Por	0.007	0.062	0.100	0.009	0.011	0.292	0.033	0.043
	Sev	<0.001	0.051	0.039	<0.001	<0.001	0.290	0.018	0.006
	Thi	0.010	0.166	0.237	0.012	0.022	0.788	0.060	0.057

PELMO 5.5.3/maize 15 g/ha	Scenario	Parent (µg/L)	Metabolite (µg/L)						
			prosulfuron triazine amine CGA150829	prosulfuron phenyl sulfonamide CGA159902	O-desmethyl-prosulfuron CGA300406	SYN542604	CGA349707	demethoxy amino-prosulfosulfuron CGA325025	SYN547308
	Cha	0.019	0.119	0.186	0.019	0.026	0.539	0.055	0.070
	Ham	0.054	0.127	0.214	0.032	0.038	0.571	0.071	0.115
	Jok	-	-	-	-	-	-	-	-
	Kre	0.053	0.115	0.196	0.045	0.048	0.496	0.057	0.122
	Oke	0.080	0.107	0.206	0.055	0.054	0.372	0.052	0.147
	Pia	0.027	0.095	0.164	0.035	0.038	0.389	0.046	0.108
	Por	0.007	0.060	0.100	0.010	0.011	0.297	0.031	0.043
	Sev	0.001	0.043	0.028	<0.001	<0.001	0.263	0.017	0.003
	Thi	0.005	0.138	0.178	0.006	0.011	0.601	0.048	0.035

MACRO 5.5.4/maize 15 g/ha	Scenario	Parent (µg/L)	Metabolite (µg/L)						
			prosulfuron triazine amine CGA150829	prosulfuron phenyl sulfonamide CGA159902	O-desmethyl-prosulfuron CGA300406	SYN542604	CGA349707	demethoxy amino-prosulfosulfuron CGA325025	SYN547308

	Cha	0.015	0.096	0.144	0.012	0.006	0.374	0.033	0.051

Data gap identified to address potential ground water contamination by soil metabolite M17

PEC (gw) from lysimeter / field studies

Parent	1st year	2nd year	3rd year
Annual average (µg/L)	Not available for separate compounds		

Metabolite X	1st year	2nd year	3rd year
Annual average (µg/L)	Not available for separate compounds		

Residues requiring further assessment

Environmental occurring residues requiring further assessment by other disciplines (toxicology and ecotoxicology) and / or requiring consideration for groundwater exposure.	Soil: prosulfuron, triazine amine (CGA150829), prosulfuron phenyl sulfonamide (CGA159902), O-desmethyl-prosulfuron (CGA300406), demethoxy amino-prosulfuron (CGA325025), SYN542604, CGA349707, Ground water: prosulfuron, triazine amine (CGA150829), prosulfuron phenyl sulfonamide (CGA159902), O-desmethyl-prosulfuron (CGA300406), demethoxy amino-prosulfuron (CGA325025), SYN542604, CGA349707, M17 (pending identification), M18 ((SYN547308). Surface water/ prosulfuron, triazine amine (CGA150829), prosulfuron phenyl sulfonamide (CGA159902), O-desmethyl-prosulfuron (CGA300406), demethoxy amino-prosulfuron (CGA325025), SYN542604, CGA349707 Sediment: Prosulfuron, prosulfuron phenyl sulfonamide (CGA159902), O-desmethyl-prosulfuron (CGA300406) Air: Prosulfuron

Monitoring data, if available (Annex IIA, point 7.4)

Soil (indicate location and type of study)	Not available
Surface water (indicate location and type of study)	Not available
Ground water (indicate location and type of study)	Not available

Air (indicate location and type of study)	Not available

Ecotoxicologically relevant compounds (consider parent and all relevant metabolites requiring further assessment from the fate section)

Compartment	
soil	prosulfuron
water	prosulfuron
sediment	prosulfuron