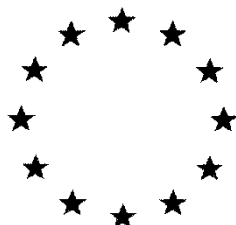


# European Commission



**Renewal Assessment Report**  
prepared according to Regulation (EC) N° 1107/2009

**Aluminium Silicate Calcined**  
**(Kaolin calcined)**

**SURROUND® WP CROP PROTECTANT**  
**Tessenderlo**  
**Volume 3 – B.6 (CP)**

Rapporteur Member State: GREECE  
Co-Rapporteur Member State: FRANCE

**May 2020**

**Version History**

<b>Date</b>	<b>Data points containing amendments or additions and brief description</b>
March 2008	Draft Assessment Report (DAR) – prepared by RMS Hungary in the context of the application for the first inclusion of the a.s. aluminium silicate in Annex I to Council Directive 91/414/EEC.
May 2011	Final Addendum to the DAR
May 2020	<p>Draft Renewal Assessment Report (RAR) – prepared by RMS EL in the context of the application for renewal of approval of the a.s. according to Reg (EU) No 1107/2009.</p> <p><i>NOTE: The RAR is a stand-alone document containing the evaluations already displayed in the initial DAR, as well as the new assessments. The revision of the initial DAR has been done in accordance with SANCO/10180/2013 rev.1 (March 2013), with changes in the original text – resulting from assessment of new studies (or reconsideration of old studies or studies that were not yet previously peer-reviewed) – being highlighted by means of yellow shading.</i></p>

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## B.6 TOXICOLOGY AND METABOLISM DATA AND ASSESSMENT OF RISKS FOR HUMANS

General comment	All the additions/corrections made by the RMS in the DAR are highlighted with yellow colour.
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### B.6.1 Acute toxicity of Plant Protection Product

The representative formulated product is SURROUND WP containing 950 g/kg [95% (w/w)]. As the product and the active substance are practically the same, the acute toxicity data package with the active, applies also to the preparation.

The detailed evaluation of all studies is included in Vol. 3\_CA\_B6.

A summary of the acute toxicity studies with aluminium silicate owned by Tessenderlo is presented below. It is of note that for the eye irritation endpoint apart from the study with the active substance, a study with SURROUND WP itself is also available (D. J. Merkel, 2000):

Parameter	Species	Result	Reference
Acute Oral LD50	Rat	> 5000mg/kg No classification	██████████ (1997a)
Acute Oral LD50	Rat	> 5000mg/kg No classification	██████████ (1997b)
Acute Dermal LD50	Rat	> 5000mg/kg No classification	██████████ (1997)
Acute Inhalation LC50	Rat	> 2.07 mg/l No classification	██████████ (1997a)
Acute Inhalation LC50	Rat	> 2.18 mg/l No classification	██████████ (1997b)
Acute Skin Irritation	Rabbit	Non irritant No classification	██████████ (1997)
Acute Eye Irritation	Rabbit	Non irritant No classification	██████████ (1997)
Acute Eye Irritation	Rabbit	Non irritant No classification	██████████ (2000)
Skin sensitisation	Guinea pig	non-sensitising No classification	██████████ (2017)

Overall, SURROUND WP is considered of low acute oral, dermal and inhalation toxicity, it not a skin and eye irritant and is not a skin sensitizer.

#### B.6.1.1 Oral

Please refer to Vol. 3 CA, Point B.6.2.1.

#### B.6.1.2 Dermal

Please refer to Vol. 3 CA, Point B.6.2.2.

#### B.6.1.3 Inhalation

Please refer to Vol. 3 CA, Point B.6.2.3.

#### B.6.1.4 Skin irritation

Please refer to Vol. 3 CA, Point B.6.2.4.

#### B.6.1.5 Eye irritation

Please refer to Vol. 3 CA, Point B.6.2.5.

**B.6.1.6 Skin sensitization**

Please refer to Vol. 3 CA, Point B.6.2.6.

**B.6.2 Dermal absorption**

Aluminium silicate is a natural inorganic mineral. It is inert, insoluble in aqueous and organic solvents. Due to its physicochemical properties, dermal penetration of aluminium silicate is negligible.

**B.6.3 Available toxicological data relating to co-formulants**

Please refer to Volume 4.

**B.6.4 Exposure data**

SURROUND WP is a wettable powder (WP) formulation containing 950 g/kg aluminium silicate. The representative use comprises outdoor application by broadcast spraying or manual spraying to grapes. Full details of the GAP can be found in Appendix 1.

SURROUND WP is foreseen to be applied up to four-times (4) per use with an interval of seven (7) days, at a maximum application rate of 28.5 kg a.s./ha with a water volume of at least 500 L/ha.

An AOEC value of 1.4 mg/m<sup>3</sup> (8hrs-TWA) has been set for aluminium silicate (calcined). This value corresponds to 14 mg /day considering an inhalation rate of 1.25 m<sup>3</sup>/h (HEEG Opinion No 17, Default human factor values for use in exposure assessments for biocidal products) and a work rate of 8 hrs.

In addition, a workplace exposure limit (WEL)-time weighted average (TWA) of 2 mg/m<sup>3</sup> has been established for aluminium silicate for occupational settings<sup>1</sup>. The TWA of 2 mg/m<sup>3</sup> for a working day of 8 hrs, is equivalent to 20 mg/day considering the inhalation rate of 1.25 m<sup>3</sup>/h.

For completeness, inhalation exposure estimates have been compared to both reference values.

**B.6.4.1 Operator exposure**

Operators are exposed to a plant protection product *via* the dermal and inhalation route. In case of SURROUND WP, where the absorption through the skin is considered negligible, only exposure *via* inhalation is relevant to the assessment.

Estimation of operator exposure towards aluminium silicate been calculated using the EFSA Guidance on the assessment of exposure of operators, workers, residents and bystanders in risk assessment for plant protection products, [EFSA Journal 2014;12(10):3874[55 pp.].

The calculated exposure levels in mg a.s./day, are presented below:

**Table B.6.4-1** Estimated operator exposure

Table B.10.1 - Estimated operator exposure				
		Aluminium silicate		
Model data	Level of PPE	Total inhalation exposure levels (mg a.s./day)	% of AOEC -TWA (14 mg a.s./day)	% of WEL -TWA (20 mg a.s./day)
Grapes – HCTM				
Application rate		28.5 kg a.s./ha		
EFSA calculator (AOEM; 75 <sup>th</sup> percentile)	Potential exposure	13.23	95	66
Grapes – HCHH (manual-hand held)				

<sup>1</sup> EH40/2005 Workplace exposure limits (Fourth Edition 2020), <https://www.hse.gov.uk/pubns/priced/eh40.pdf>

Application rate		28.5 kg a.s./ha		
EFSA calculator (AOEM; 75 <sup>th</sup> percentile)	Potential exposure	13.02	<b>93</b>	<b>65</b>
<b>Grapes – HCTM (manual knapsack)</b>				
Application rate		28.5 kg a.s./ha		
EFSA calculator (AOEM; 75 <sup>th</sup> percentile)	Potential exposure	1.78	<b>13</b>	<b>9</b>

Operator inhalation exposure levels are below the AOEC (8hrs-TWA) and the WEL (8hrs-TWA), without the use of any RPE.

#### B.6.4.1.1 Measurement of operator exposure

Not required.

#### B.6.4.2 Bystander and resident exposure

Bystander and residential exposure towards aluminium silicate has been calculated using the EFSA Guidance on the assessment of exposure of operators, workers, residents and bystanders in risk assessment for plant protection products [EFSA Journal 2014;12(10):3874[55 pp.].

Among the initial four pathways of exposure, only spray drift (at the time of application) and vapour (which may occur after the PPP has been applied) are considered. Exposure to surface deposits and entry into treated crops are not retained as dermal absorption is negligible. Likewise, hand/object-to-mouth exposure is not considered as a route of exposure for children, as aluminium silicate is not orally absorbed.

No AAOEC value has been set. Since, the assessment covers long-term exposure, bystanders are covered by residents for long-term effects.

The calculated exposure levels in mg a.s./day, are presented below:

**Table B.6.4-2** Estimated bystander/resident exposure

		Aluminium silicate		
Model data		Total exposure levels (mg a.s./day)	% of AOEC -TWA (14 mg a.s./day)	% of WEL -TWA (20 mg a.s./day)
Tractor mounted air assisted spray application outdoors Buffer zone: 5 m Drift reduction technology: No DT <sub>50</sub> : 30 days DFR: 3 µg/cm <sup>2</sup> /kg a.s./ha Interval between treatments: 7 days				
Number of applications and application rate		4 applications, 28.5 kg a.s./ha		
Resident child Body weight: 10 kg	Drift (75 <sup>th</sup> perc.)	0.0936783	0.67	0.47
	Vapour (75 <sup>th</sup> perc.)	0.0107000	0.08	0.05
	Deposits (75 <sup>th</sup> perc.)	-	-	-
	Re-entry (75 <sup>th</sup> perc.)	-	-	-
	Sum (mean)	<b>0.0865348</b>	<b>0.62</b>	<b>0.43</b>

Resident adult Body weight: 60 kg	Drift (75 <sup>th</sup> perc.)	0.1197000	0.85	0.60
	Vapour (75 <sup>th</sup> perc.)	0.0138000	0.10	0.07
	Deposits (75 <sup>th</sup> perc.)	-	-	-
	Re-entry (75 <sup>th</sup> perc.)	-	-	-
	<b>Sum (mean)</b>	<b>0.1107000</b>	<b>0.80</b>	<b>0.55</b>

It is concluded that bystander/resident exposure levels are below the AOEC (8hrs-TWA) and the WEL (8hrs-TWA).

#### **B.6.4.2.1 Measurement of bystander and resident exposure**

Not required.

#### **B.6.4.3 Worker exposure**

Following field applications, a worker is exposed to plant protection products *via* the dermal route through contact with the dried residues settled on the foliar of the crop. As dermal absorption of aluminium silicate is negligible, a worker exposure assessment is not relevant.

##### **B.6.4.3.1 Measurement of worker exposure**

Not required.

**B.6.5 Exposure and risk assessment**

SURROUND WP is a wettable powder (WP) formulation containing 950 g/kg aluminium silicate. The representative use comprises outdoor application by broadcast vehicle-mounted spraying or manual spraying to grapes.

Dermal and oral absorption of aluminum silicate is considered negligible. Thus, only exposure by the inhalation route was considered relevant in the context of the exposure assessment. Operator and bystander/resident can potentially be exposed to the plant protection product *via* inhalation. For workers no inhalatory exposure is foreseen following outdoor application of SURROUND WP.

Calculations were undertaken using the EFSA model and applying the EFSA Guidance on the assessment of exposure of operators, workers, residents and bystanders in risk assessment for plant protection products (2015). The results are summarized below:

**Table B.6.5-1** Estimated operator exposure

		Aluminium silicate		
Model data	Level of PPE	Total inhalation exposure levels (mg a.s./day)	% of AOEC -TWA (14 mg a.s./day)	% of WEL -TWA (20 mg a.s./day)
<b>Grapes – HCTM</b>				
Application rate		28.5 kg a.s./ha		
EFSA calculator (AOEM; 75 <sup>th</sup> percentile)	Potential exposure	13.23	<b>95</b>	<b>66</b>
<b>Grapes – HCHH (manual-hand held)</b>				
Application rate		28.5 kg a.s./ha		
EFSA calculator (AOEM; 75 <sup>th</sup> percentile)	Potential exposure	13.02	<b>93</b>	<b>65</b>
<b>Grapes – HCTM (manual knapsack)</b>				
Application rate		28.5 kg a.s./ha		
EFSA calculator (AOEM; 75 <sup>th</sup> percentile)	Potential exposure	1.78	<b>13</b>	<b>9</b>

Following application of SURROUND WP to grapes no risk is anticipated for operators even without the use of any RPE.

**Table B.6.5-2** Estimated bystander/resident exposure

		Aluminium silicate		
Model data		Total exposure levels (mg a.s./day)	% of AOEC -TWA (14 mg a.s./day)	% of WEL -TWA (20 mg a.s./day)
Tractor mounted air assisted spray application outdoors Buffer zone: 5 m Drift reduction technology: No DT <sub>50</sub> : 30 days				



DFR: 3 µg/cm <sup>2</sup> /kg a.s./ha Interval between treatments: 7 days				
Number of applications and application rate		4 applications, 28.5 kg a.s./ha		
Resident child Body weight: 10 kg	Drift (75 <sup>th</sup> perc.)	0.0936783	0.67	0.47
	Vapour (75 <sup>th</sup> perc.)	0.0107000	0.08	0.05
	Deposits (75 <sup>th</sup> perc.)	-	-	-
	Re-entry (75 <sup>th</sup> perc.)	-	-	-
	<b>Sum (mean)</b>	<b>0.0865348</b>	<b>0.62</b>	<b>0.43</b>
Resident adult Body weight: 60 kg	Drift (75 <sup>th</sup> perc.)	0.1197000	0.85	0.60
	Vapour (75 <sup>th</sup> perc.)	0.0138000	0.10	0.07
	Deposits (75 <sup>th</sup> perc.)	-	-	-
	Re-entry (75 <sup>th</sup> perc.)	-	-	-
	<b>Sum (mean)</b>	<b>0.1107000</b>	<b>0.80</b>	<b>0.55</b>

Following application of SURROUND WP to grapes no risk is anticipated for bystanders/residents.

**B.6.6 References relied on**

<b>Data point</b>	<b>Author(s)</b>	<b>Year</b>	<b>Title Company Report No. Source (where different from company) GLP or GEP status Published or not</b>	<b>Vertebrate study Y / N</b>	<b>Data protection claimed Y/N</b>	<b>Justification if data protection is claimed</b>	<b>Owner</b>
KCA 5.2.1/01	[REDACTED]	1997 a	Satintone® 5HB, Lot #10146 “Calcined Kaolin” - Acute Oral Toxicity Limit Test. [REDACTED] [REDACTED] [REDACTED] Report number 4903 GLP Unpublished.	Y	N		Tessenderlo Group N.V.
KCA 5.2.1/02	[REDACTED]	1997 b	M-96-018, Lot #08145 - Acute Oral Toxicity Limit Test. [REDACTED] [REDACTED] [REDACTED] Report number 5003. GLP Unpublished	Y	N		Tessenderlo Group N.V.
KCA 5.2.2/01	[REDACTED]	1997	Satintone® 5HB, Lot #10146 - Acute Dermal Toxicity Limit Test. [REDACTED] [REDACTED] [REDACTED] Report number 4904. GLP Unpublished	Y	N		Tessenderlo Group N.V.
KCA 5.2.3/01	[REDACTED]	1997 a	M-97-009, Lot #09255 “Calcined Kaolin”- Acute Inhalation Toxicity Limit Test. [REDACTED] [REDACTED] [REDACTED] Report number: 5405. GLP Unpublished	Y	N		Tessenderlo Group N.V.
KCA 5.2.3/02	[REDACTED]	1997 b	M-96-018 - Acute Inhalation Toxicity Limit Test. [REDACTED]	Y	N		Tessenderlo Group N.V.

<b>Data point</b>	<b>Author(s)</b>	<b>Year</b>	<b>Title Company Report No. Source (where different from company) GLP or GEP status Published or not</b>	<b>Vertebrate study Y / N</b>	<b>Data protection claimed Y/N</b>	<b>Justification if data protection is claimed</b>	<b>Owner</b>
			[REDACTED] Report number 5424. GLP Unpublished				
KCA 5.2.4/01	[REDACTED]	1997	M-96-018, Lot #08145 - Primary Skin Irritation. [REDACTED] Report number 4906. GLP Unpublished	Y	N		Tessenderlo Group N.V.
KCA 5.2.5/01	[REDACTED]	1997	M-96-018, Lot #08145 - Primary Eye Irritation. [REDACTED] Report number 4905 GLP Unpublished	Y	N		Tessenderlo Group N.V.
KCA 5.2.5/02	[REDACTED]	2000	Surround® WP Crop Protectant - Primary Eye Irritation Study in Rabbits. [REDACTED] Report number 9914 GLP Unpublished	Y	N		Tessenderlo Group N.V.
KCA 5.2.6/01	[REDACTED]	2017	Assessment of sensitising properties on albino guinea pigs. Maximisation test according to Magnusson and Kligman. Report number SMK-PH-17/0024 R1 GLP Unpublished	Y	Y	New data not previously submitted	Tessenderlo Kerley Inc.

## Appendix 1 Intended uses supported in the EU for which data have been provided

PPP (product name/code):	SURROUND WP CROP PROTECTANT	Formulation type:	WP
Active substance 1:	Aluminium silicate	Conc. of as 1:	950 g/kg
Safener:	None	Conc. of safener:	None
Synergist:	None	Conc. of synergist:	None
Applicant:	Tessenderlo Group N.V.	Professional use:	<input checked="" type="checkbox"/>
Zone(s):	EU	Non professional use:	<input type="checkbox"/>
Verified by MS:	y/n		

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Use- No. <sup>(e)</sup>	Member state(s)	Crop and/ or situation  (crop destination / purpose of crop)	F, Fn, Fpn G, Gn, Gpn or I	Pests or Group of pests controlled  (additionally: developmental stages of the pest or pest group)	Application				Application rate			PHI (days)	Remarks:  e.g. g safener/synergist per ha (f)
					Method / Kind	Timing / Growth stage of crop & season	Max. number a) per use b) per crop/ season	Min. interval between applications (days)	kg or L product / ha a) max. rate per appl. b) max. total rate per crop/season	g or kg as/ha a) max. rate per appl. b) max. total rate per crop/season	Water L/ha a) max per use b) max per season		
Zonal uses (field or outdoor uses, certain types of protected crops)													
1	--	Grapevine	F	<i>Frankliniella occidentalis</i>	Broadcast spraying of entire plant	BBCH 51 - 65	a) 1-4 b) 1-4	7	a) 30 kg/ha b) 120 kg/ha	a) 28.5 kg/ha b) 114 kg/ha	a) 500 – 1000 L/ha b) 2000 – 4000 L/ha	N/A	Apply from BBCH 51 at the beginning of the presence of <i>F.</i> <i>occidentalis</i> . Re-apply each 7-14 days depending on rainfall and crop development.
Interzonal uses (use as seed treatment, in greenhouses (or other closed places of plant production), as post-harvest treatment or for treatment of empty storage rooms)													
3		None											
Minor uses according to Article 51 (zonal uses)													
4		None											
Minor uses according to Article 51 (interzonal uses)													
5		None											

(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)

(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**

<p>(c) <i>e.g.</i> biting and sucking insects, soil born insects, foliar fungi, weeds</p> <p>(d) <i>e.g.</i> wettable powder (WP), emulsifiable concentrate (EC), granule (GR)</p> <p>(e) CropLife International Technical Monograph no 2, 6th Edition. Revised May 2008. Catalogue of pesticide</p> <p>(f) All abbreviations used must be explained</p> <p>(g) Method, <i>e.g.</i> high volume spraying, low volume spraying, spreading, dusting, drench</p> <p>(h) Kind, <i>e.g.</i> overall, broadcast, aerial spraying, row, individual plant, between the plant- type of equipment used must be indicated</p>	<p><b>the rate for the variant (e.g. benthiavalicarb-isopropyl).</b></p> <p>(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</p> <p>(k) Indicate the minimum and maximum number of applications possible under practical conditions of use</p> <p>(l) The values should be given in g or kg whatever gives the more manageable number (<i>e.g.</i> 200 kg/ha instead of 200 000 g/ha or 12.5 g/ha instead of 0.0125 kg/ha)</p> <p>(m) PHI - minimum pre-harvest interval</p>
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## Appendix 2 Exposure calculations

### Operator exposure for SURROUND WP outdoor spray applications

Application rate of active substance	28,5 kg a.s./ha	<i>i_AppRate</i>
Assumed area treated	10 ha/day	<i>d_AreaTreated</i>
Amount of active substance applied	285 kg a.s./day	<i>i_AmountAS</i>
Dermal absorption of the product	0,00%	<i>i_AbsorpProduct</i>
Dermal absorption of in-use dilution	0,00%	<i>i_AbsorInuse</i>
Formulation type	Wettable powder, soluble powder	
Indoor or Outdoor application	Outdoor	
Application method	Upward spraying	
Application equipment	Vehicle-mounted	
Season	not relevant	

Mixing and loading	Exposure values	µg exposure/day mixed and loaded		Reference	Comment
		75 <sup>th</sup> centile	95 <sup>th</sup> centile		
	Hands	1874663	7217517	AOEM	
	Body	4402548	1476497	AOEM	
	Head	35548	56699	AOEM	
	Protected hands (gloves)	35705	574572	AOEM	
	Protected body (workwear or protective garment and sturdy footwear)	160439	567107	AOEM	
	Protected head (hood and face shield)	571	3210	AOEM	
	Inhalation	11676	5595	AOEM	
	<b>Protective Equipment</b>	Select for inclusion		Penetration factor	Inhalation Protection factor
	Gloves	No			
	Clothing	Potential exposure		Incl. in AOEM model	
	Head and respiratory PPE	None		1	1
	Water soluble bag	No		1	

Application	Exposure values	µg exposure/day applied		Reference	Comment
		75 <sup>th</sup> centile	95 <sup>th</sup> centile		
	Hands	379195	1777481	AOEM	No data available for a drift reduction scenario
	Body	2511336	14653618	AOEM	
	Head	330031	2025559	AOEM	
	Protected hands (gloves)	10028	262039	AOEM	
	Protected body (workwear or protective garment and sturdy footwear)	32765	64039	AOEM	
	Inhalation	1557	23562	AOEM	
	<b>Protective Equipment</b>	Select for inclusion		Penetration factor	Inhalation Protection factor
	Gloves	No			
	Clothing	Potential exposure		Incl. in AOEM model	
	Head and respiratory PPE	None		1	1
	Closed cab	No		vehicle mounted upward spraying only	

#### 1. Total

	Without RPE/PPE	With RPE/PPE
Longer term		
Total systemic exposure from mixing, loading and application (mg a.s./day)	13,2324087	13,2324087

**Operator exposure for SURROUND WP outdoor spray applications**

Application rate of active substance	28,5 kg a.s./ha	<i>i_AppRate</i>
Assumed area treated	4 ha/day	<i>d_AreaTreated</i>
Amount of active substance applied	114 kg a.s./day	<i>i_AmountAS</i>
Dermal absorption of the product	0,00%	<i>i_AbsorpProduct</i>
Dermal absorption of in-use dilution	0,00%	<i>i_AbsorInuse</i>
Formulation type	Wettable powder, soluble powder	
Indoor or Outdoor application	Outdoor	
Application method	Upward spraying	
Application equipment	Manual-Hand held	
Season	not relevant	

OutdoorWettable powder, soluble powderUpward sprayingManual-Hand held

Mixing and loading	Exposure values	µg exposure/day mixed and loaded		Reference	Comment
		75 <sup>th</sup> centile	95 <sup>th</sup> centile		
	Hands	925928	3536141	AOEM	
	Body	2311959	1131389	AOEM	
	Head	14219	22680	AOEM	
	Protected hands (gloves)	19666	229829	AOEM	
	Protected body (workwear or protective garment and sturdy footwear)	71218	226843	AOEM	
	Protected head (hood and face shield)	228	1284	AOEM	
	Inhalation	8889	5474	AOEM	
	<b>Protective Equipment</b>	Select for inclusion		Penetration factor	Inhalation Protection factor
	Gloves	No			
	Clothing	Potential exposure		Incl. in AOEM model	
	Head and respiratory PPE	None		1	1
	Water soluble bag	No		1	

Application	Exposure values	µg exposure/day applied		Reference	Comment
		75 <sup>th</sup> centile	95 <sup>th</sup> centile		
	Hands	142833	329650	AOEM	No data available for a drift reduction scenario
	Body	128990	186850	AOEM	
	Head	698	3875	AOEM	
	Protected hands (gloves)	2725	14152	AOEM	
	Protected body (workwear or protective garment and sturdy footwear)	1033	1938	AOEM	
	Inhalation	4126	3071	AOEM	
	<b>Protective Equipment</b>	Select for inclusion		Penetration factor	Inhalation Protection factor
	Gloves	No			
	Clothing	Potential exposure		Incl. in AOEM model	
	Head and respiratory PPE	None		1	1
	Closed cab	No		vehicle mounted upward spraying only	

**1. Total**

	Without RPE/PPE	With RPE/PPE
Longer term		
Total systemic exposure from mixing, loading and application (mg a.s./day)	13,0154059	13,0154059

**Operator exposure for SURROUND WP outdoor spray applications**

Application rate of active substance	28,5 kg a.s./ha	<i>i_AppRate</i>
Assumed area treated	1 ha/day	<i>d_AreaTreated</i>
Amount of active substance applied	28,5 kg a.s./day	<i>i_AmountAS</i>
Dermal absorption of the product	0,00%	<i>i_AbsorpProduct</i>
Dermal absorption of in-use dilution	0,00%	<i>i_AbsorInuse</i>
Formulation type	Wettable powder, soluble powder	
Indoor or Outdoor application	Outdoor	
Application method	Upward spraying	
Application equipment	Manual-Knapsack	
Season	not relevant	
	OutdoorWettable powder, soluble powderUpward sprayingManual-Knapsack	

Mixing and loading	Exposure values	µg exposure/day mixed and loaded		Reference	Comment
		75 <sup>th</sup> centile	95 <sup>th</sup> centile		
	Hands	180405	484158	AOEM	
	Body	15257	52953	AOEM	
	Head	95	209	AOEM	
	Protected hands (gloves)	342	3116	AOEM	
	Protected body (workwear or protective garment and sturdy footwear)	475	1957	AOEM	
	Protected head (hood and face shield)	95	209	AOEM	
	Inhalation	475	494	AOEM	
	<b>Protective Equipment</b>	Select for inclusion		Penetration factor	Inhalation Protection factor
	Gloves	No			
	Clothing	Potential exposure		Incl. in AOEM model	
	Head and respiratory PPE	None		1	1
	Water soluble bag	No		1	
Application	Exposure values	µg exposure/day applied		Reference	Comment
		75 <sup>th</sup> centile	95 <sup>th</sup> centile		
	Hands	44807	114147	AOEM	No data available for a drift reduction scenario
	Body	103830	184441	AOEM	
	Head	447	2461	AOEM	
	Protected hands (gloves)	681	3538	AOEM	
	Protected body (workwear or protective garment and sturdy footwear)	1033	1938	AOEM	
	Inhalation	1304	1344	AOEM	
	<b>Protective Equipment</b>	Select for inclusion		Penetration factor	Inhalation Protection factor
	Gloves	No			
	Clothing	Potential exposure		Incl. in AOEM model	
	Head and respiratory PPE	None		1	1
	Closed cab	No		vehicle mounted upward spraying only	

**1. Total**

	Without RPE/PPE	With RPE/PPE
Longer term		
Total systemic exposure from mixing, loading and application (mg a.s./day)	1,7792601	1,7792601



Resident exposure for SURROUND WP					
Croptype	Grapes				
Application method	Upward spraying				
Application equipment	Vehicle-mounted				
Formulation type	Wettable powder, soluble powder				
Buffer strip	5 m				
Application rate of the product	28,5 kg a.s./ha				
Concentration of active substance (in-use dilution for liquid applications)	57 g a.s./l				
Dermal absorption of product	0,00%				
Dermal absorption of in-use dilution	0,00%				
Oral absorption	0,00%				
Dislodgeable foliar residue (i_AppRate*i_DFR)	85,5 µg a.s./cm²				
Vapour pressure of in-use dilution	low volatile substances having a vapour pressure of <5*10-3Pa				
Concentration in air	0,001 mg/m³				
Resident dermal spray drift exposure 75th percentile - adult	5,63 ml spray dilution/person				
Resident dermal spray drift exposure 75th percentile - child	1,689 ml spray dilution/person				
Resident inhal. spray drift exposure 75th percentile - adult	0,00210 ml spray dilution/person				
Resident inhal. spray drift exposure 75th percentile - child	0,00164 ml spray dilution/person				
Resident dermal spray drift exposure mean - adult	3,68 ml spray dilution/person				
Resident dermal spray drift exposure mean - child	1,11 ml spray dilution/person				
Resident inhal. spray drift exposure mean - adult	0,00170 ml spray dilution/person				
Resident inhal. spray drift exposure mean - child	0,00133 ml spray dilution/person				
Exposure duration dermal	2 hours				
Exposure duration inhalation	24 hours				
Exposure duration entry into treated crops	0,25 hours				
Light clothing adjustment factor	18,0%				
Breathing rate adult	0,23 m³/day/kg				
Breathing rate child (1-3 year old)	1,07 m³/day/kg				
Drift percentage on surface (75th percentile)	3,07%				
Drift percentage on surface (mean)	2,32%				
Turf transferable residues percentage	5,00%				
Transfer coeff. of surface deposits-adult	7300 cm²/hour				
Transfer coeff. of surface deposits-child (1-3 year old)	2600 cm²/hour				
Saliva extraction percentage	50,00%				
Surface area of hands mouthed	20 cm²				
Frequency of hand to mouth activity	9,5 events/hour				
Ingestion rate for mouthing of grass per day	25 cm²				
Dislodgeable residues percentage transferability for object to mouth	20,00%				
Transfer coefficient for entry into treated crops (75th percentile) - ad	7500 cm²/h				
Transfer coefficient for entry into treated crops (75th percentile) - chi	2250 cm²/h				
Transfer coefficient for entry into treated crops (mean) - adult	5980 cm²/h				
Transfer coefficient for entry into treated crops (mean) - child	1794 cm²/h				
1. Total					
1.1 1-3 year old child					
Spray drift (75th percentile)		Vapour (75th percentile)	Surface deposits (75th percentile)	Entry into treated crops (75th percentile)	All pathways (mean)
Total systemic exposure (mg a.s./day)	0,0936783	0,0107000	0,0000000	0,0000000	0,0865348
Total systemic exposure per kg body weight (mg/kg bw/day)	0,0093678	0,0010700	0,0000000	0,0000000	0,0086535
% of RVNAS	#ΔIAIP/0!	#ΔIAIP/0!	#ΔIAIP/0!	#ΔIAIP/0!	#ΔIAIP/0!
1.2 Adult					
Spray drift		Vapour	Surface deposits	Entry into treated crops	All pathways (mean)
Total systemic exposure (mg a.s./day)	0,1197000	0,0138000	0,0000000	0,0000000	0,1107000
Total systemic exposure per kg body weight	0,0019950	0,0002300	0,0000000	0,0000000	0,0018450