

Instructions for using the workbook

The information required for the exposure assessment needs to be entered in the worksheet "**Data entry**".

In the following worksheets formulas calculate the exposure values automatically

Worksheet "**Operator Outdoor Spray AOEM**" is to be for outdoor spray applications. PPE options can be selected in this worksheet

Worksheet "**Operator Granules**" is for granular applications. Currently the calculator does not allow operator exposure for indoor applications. PPE options can be selected in this worksheet

Worksheets "**Resident exposure**" and "**Bystander exposure**" are only relevant for outdoor applications

Worksheet "**Recreational Exposure**" is only applicable for golf course, turf, other sports lawns or amenity turf/grassland areas where members of the public are likely to have access

The combined results of the exposure assessment are presented in worksheet "**Summary**"

This calculator should be used in conjunction with the **Guidance on the Assessment of Exposure for Operators, Workers, Residents and Bystanders in Risk Assessment for Plant Protection Products**

Latest version: 23 Oct 2014 - Version produced to support guidance document published 23/10/2014

Note: Some drop-down menus depend on others. To avoid errors, please fill-in from top to bottom

Substance name	thiacloprid
Product name	CALYPSO
Reference value non acutely toxic active substance (RVNAS)	0,02 mg/kg bw/day
Reference value acutely toxic active substance (RVAAS)	0,02 mg/kg bw/day
Crop type	Ornamentals
Substance properties	
Formulation type	Soluble concentrates, emulsifiable concentrate, etc.
Minimum volume water for application (liquids)	150 L/ha
Maximum application rate of active substance	0,12 kg a.s. /ha
50% Dissipation Time DT50	30 days
Initial Dislodgeable Foliar Residue	3 µg/cm ² of foliage/kg a.s. applied/ha
Dermal absorption of product	1,00%
Dermal absorption of in-use dilution	10,00%
Oral absorption of active substance	95,00%
Inhalation absorption of active substance	100,00%
Vapour pressure of active substance	low volatile substances having a vapour pressure of <5*10 ⁻³ Pa
Scenario	
Indoor or Outdoor application	Outdoor
Application method	Downward spraying
Application equipment	Vehicle-mounted
Buffer strip	2-3 m
Number of applications	2
Interval between multiple applications	7 days
Season (upward spraying orchards only)	not relevant

Exposure assessment

Substance	thiacloprid	Formulation = Soluble concentrates, emulsifiable concentrate, etc.	Application rate-0,12 kg a.s. /ha	Spray dilution = 0,8 g a.s./l	Vapour pressure = low volatile substances having a vapour pressure of 5×10^{-3}Pa
Scenario	Ornamentals / Outdoor / Downward spraying / Vehicle-mounted			Buffer = 2-3	Number applications = 2, Application interval = 7 days
Percentage Absorption	Dermal for product = 1	Dermal for in use dilution = 10	Oral = 95	Inhalation = 100	
RVNAS	0,02 mg/kg bw/day		RVAAS	0,02 mg/kg bw/day	
DFR	3 µg a.s./cm ² per kg a.s./ha		DT50	30 days	

Operator Model	Mixing, loading and application AOEM			
Potential exposure	Longer term systemic exposure mg/kg bw/day	0,0095	% of RVNAS	47,47%
	Acute systemic exposure mg/kg bw/day	0,0314	% of RVAAS	156,98%
Mixing and Loading	Gloves = No	Clothing = Work wear - arms, body and legs covered	RPE = None	Soluble bags = No
Application	Gloves = No	Clothing = Work wear - arms, body and legs covered	RPE = None	Closed cabin = No
Exposure (including PPE options above)	Longer term systemic exposure mg/kg bw/day	0,0044	% of RVNAS	22,16%
	Acute systemic exposure mg/kg bw/day	0,0132	% of RVAAS	66,00%

Worker - Cutting, sorting, bundling, carrying	Potential exposure mg/kg bw/day	0,1244	% of RVNAS	621,82%
	Working clothing mg/kg bw/day	0,0444	% of RVNAS	222,08%
	Working clothing and gloves mg/kg bw/day	0,0124	% of RVNAS	62,18%

Resident - child	Spray drift (75th percentile) mg/kg bw/day	0,0022	% of RVNAS	10,81%
	Vapour (75th percentile) mg/kg bw/day	0,0011	% of RVNAS	5,35%
	Surface deposits (75th percentile) mg/kg bw/day	0,0005	% of RVNAS	2,47%
	Entry into treated crops (75th percentile) mg/kg bw/day	0,0037	% of RVNAS	18,74%
	All pathways (mean) mg/kg bw/day	0,0056	% of RVNAS	28,01%
Resident - adult	Spray drift (75th percentile) mg/kg bw/day	0,0005	% of RVNAS	2,58%
	Vapour (75th percentile) mg/kg bw/day	0,0002	% of RVNAS	1,15%
	Surface deposits (75th percentile) mg/kg bw/day	0,0002	% of RVNAS	0,76%
	Entry into treated crops (75th percentile) mg/kg bw/day	0,0021	% of RVNAS	10,41%
	All pathways (mean) mg/kg bw/day	0,0022	% of RVNAS	11,23%

Bystander - child	Spray drift (95th percentile) mg/kg bw/day	0,0049	% of RVAAS	24,72%
	Vapour (95th percentile) mg/kg bw/day	0,0011	% of RVAAS	5,35%
	Surface deposits (95th percentile) mg/kg bw/day	0,0014	% of RVAAS	7,15%

Exposure assessment

	Entry into treated crops (95th percentile) mg/kg bw/day	0,0037	% of RVAAS	18,74%
Bystander - adult	Spray drift (95th percentile) mg/kg bw/day	0,0013	% of RVAAS	6,65%
	Vapour (95th percentile) mg/kg bw/day	0,0002	% of RVAAS	1,15%
	Surface deposits (95th percentile) mg/kg bw/day	0,0005	% of RVAAS	2,28%
	Entry into treated crops (95th percentile) mg/kg bw/day	0,0021	% of RVAAS	10,41%
Recreational Exposure		Child % of RVNAS		Adult % of RVNAS

Latest version: 23 Oct 2014 - Version produced to support guidance document published 23/10/2014

Operator exposure for CALYPSO outdoor spray applications

Application rate of active substance	0,12 kg a.s./ha	<i>i_AppRate</i>
Assumed area treated	10 ha/day	<i>d_AreaTreated</i>
Amount of active substance applied	1,2 kg a.s./day	<i>i_AmountAS</i>
Dermal absorption of the product	1,00%	<i>i_AbsorpProduct</i>
Dermal absorption of in-use dilution	10,00%	<i>i_AbsorInuse</i>
Formulation type	Soluble concentrates, emulsifiable concentrate, etc.	
Indoor or Outdoor application	Outdoor	
Application method	Downward spraying	
Application equipment	Vehicle-mounted	
Season	not relevant	

	Exposure values	µg exposure/day mixed and loaded		Reference	Comment
		75 th centile	95 th centile		
Mixing and loading	Hands	5589	20511	AOEM	
	Body	4055	75942	AOEM	
	Head	62	6029	AOEM	
	Protected hands (gloves)	39	238	AOEM	
	Protected body (workwear or protective garment and sturdy footwear)	28	176	AOEM	
	Protected head (hood and face shield)	1	341	AOEM	
	Inhalation	4	29	AOEM	
	Protective Equipment	Select for inclusion		Penetration factor	Inhalation Protection factor
	Gloves	No			
	Clothing	Work wear - arms, body and legs covered		Incl. in AOEM model	
Head and respiratory PPE	None		1	1	
Water soluble bag	No		1		

	Exposure values	µg exposure/day applied		Reference	Comment
		75 th centile	95 th centile		
Application	Hands	1944	4284	AOEM	This scenario assumes that small area equipment is used
	Body	2668	3380	AOEM	
	Head	16	187	AOEM	
	Protected hands (gloves)	24	22	AOEM	
	Protected body (workwear or protective garment and sturdy footwear)	33	39	AOEM	
	Inhalation	6	45	AOEM	
	Protective Equipment	Select for inclusion		Penetration factor	
	Gloves	No			
	Clothing	Work wear - arms, body and legs covered		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)		0,5696057	0,2658948
Total systemic exposure from mixing, loading and application per kg body weight (mg/kg bw/day)		0,0094934	0,0044316
% of RVNAS		47,47%	22,16%
Acute			
Total systemic exposure from mixing, loading and application (mg a.s./day)		1,8837100	0,7919429

Total systemic exposure from mixing, loading and application per kg body weight (mg/kg bw/day)	0,0313952	0,0131990	
% of RVAAS	156,98%	66,00%	

2. Longer term exposure

2.1 Mixing and loading

	Systemic exposure [$\mu\text{g a.s. /day}$]	Systemic exposure [$\mu\text{g a.s./kg bw/day}$]	Formula
Without RPE/PPE			
Hands	55,8876822	0,9314614	$D15^*i_AbsorpProduct$
Body	40,5498146	0,6758302	$D16^*i_AbsorpProduct$
Head	0,6226031	0,0103767	$D17^*i_AbsorpProduct$
Inhalation	3,9080880	0,0651348	$D21^*i_AbsorpInhalation$
Sum	100,9681879	1,6828031	
With RPE/PPE (as selected above)			
Hands	55,8876822	0,9314614	$D18^*i_AbsorpProduct$
Body	0,2793662	0,0046561	$D19^*i_AbsorpProduct$ or $D15^*i_AbsorpProduct^*F24$
Head	0,6226031	0,0103767	$D20^*i_AbsorpProduct$ or $D17^*i_AbsorpProduct^*F25$
Inhalation	3,9080880	0,0651348	$D21^*i_AbsorpInhalation^*G25$
Sum	60,6977395	1,0116290	
Water soluble bag	60,6977395	1,0116290	$C70^*F26$

2.2 Application

	Systemic exposure [$\mu\text{g a.s. /day}$]	Systemic exposure [$\mu\text{g a.s./kg bw/day}$]	Formula
Without RPE/PPE			
Hands	194,4392042	3,2406534	$D30^*i_Absorpnuse$
Body	266,7767137	4,4462786	$D31^*i_Absorpnuse$
Head	1,5972523	0,0266209	$D32^*i_Absorpnuse$
Inhalation	5,8243312	0,0970722	$D35^*i_AbsorpInhalation$
Sum	468,6375015	7,8106250	
With RPE/PPE (as selected above)			
Hands	194,4392042	3,2406534	$D33^*i_Absorpnuse$
Body	3,3362252	0,0556038	$D34^*i_Absorpnuse$ or $D31^*i_Absorpnuse^*F38$
Head	1,5972523	0,0266209	$D32^*i_Absorpnuse^*F39$
Inhalation	5,8243312	0,0970722	$D35^*i_Absorpnuse^*G39$
Sum	205,1970131	3,4199502	

3. Acute exposure

3.1 Mixing and loading

	Systemic exposure [$\mu\text{g a.s. /day}$]	Systemic exposure [$\mu\text{g a.s./kg bw/day}$]	Formula
Without RPE/PPE			
Hands	205,1072661	3,4184544	$E15^*i_AbsorpProduct$
Body	759,4223790	12,6570397	$E16^*i_AbsorpProduct$
Head	60,2880513	1,0048009	$E17^*i_AbsorpProduct$
Inhalation	28,8397125	0,4806619	$E21^*i_AbsorpInhalation$
Sum	1053,6574088	17,5609568	
With RPE/PPE (as selected above)			
Hands	205,1072661	3,4184544	$E18^*i_AbsorpProduct$
Body	1,7550167	0,0292503	$E19^*i_AbsorpProduct$ or $E16^*i_AbsorpProduct^*F24$
Head	60,2880513	1,0048009	$E20^*i_AbsorpProduct$ or $E17^*i_AbsorpProduct^*F25$
Inhalation	28,8397125	0,4806619	$E21^*i_AbsorpInhalation^*G25$
Sum	295,9900465	4,9331674	
Water soluble bag	295,9900465	4,9331674	$C104^*F26$

2.2 Application

	Systemic exposure [$\mu\text{g a.s. /day}$]	Systemic exposure [$\mu\text{g a.s./kg bw/day}$]	Formula
Without RPE/PPE			
Hands	428,3573763	7,1392896	$E30^*i_Absorpnuse$
Body	338,0423269	5,6340388	$E31^*i_Absorpnuse$
Head	18,7498965	0,3124983	$E32^*i_Absorpnuse$
Inhalation	44,9029752	0,7483829	$E35^*i_AbsorpInhalation$
Sum	830,0525749	13,8342096	
With RPE/PPE (as selected above)			
Hands	428,3573763	7,1392896	$E33^*i_Absorpnuse$
Body	3,9425798	0,0657097	$E34^*i_Absorpnuse$ or $E31^*i_Absorpnuse^*F38$

Head	18,7498965	0,3124983	<i>E32*i_Absorplnuse*F39</i>
Inhalation	44,9029752	0,7483829	<i>E35*i_Absorplnhalation*G39</i>
Sum	495,9528277	8,2658805	

Operator exposure for CALYPSO granular applications

Application rate of active substance	0,12 kg a.s./ha	<i>i_AppRate</i>
Assumed area treated	10 ha/day	<i>d_AreaTreated</i>
Amount of active substance applied	1,2 kg a.s./day	<i>i_AmountAS</i>
Dermal absorption of the product	1,00%	<i>i_AbsorpProduct</i>
Dermal absorption of in-use dilution	10,00%	<i>i_AbsorInuse</i>
Formulation type	Soluble concentrates, emulsifiable concentrate, etc.	
Indoor or Outdoor application	Outdoor This sheet is only to be used for granular applications	
Application method	Downward spraying	
Application equipment	Vehicle-mounted	

	Exposure values	mg exposure/kg a.s. mixed and loaded		Reference	Comment
		75 th centile	95 th centile		
Mixing and loading	Hands	#N/A	#N/A	#N/A	#N/A
	Body	#N/A	#N/A	#N/A	#N/A
	Inhalation	#N/A	#N/A	#N/A	#N/A
	Protective Equipment	Choose item		Penetration factor	
	Gloves	Chemical resistant gloves			Protection for granules exposure is based on measured values
	Body PPE	Certified protective coverall			
	RPE	None		1	

	Exposure values	mg exposure/kg a.s. applied		Reference	Comment
		75 th centile	95 th centile		
Application	Hands	#N/A	#N/A	#N/A	#N/A
	Body	#N/A	#N/A	#N/A	#N/A
	Inhalation	#N/A	#N/A	#N/A	#N/A
	Protective Equipment	Choose item		Penetration factor	
	Gloves	Chemical resistant gloves			Protection for granules exposure is based on measured values
	Body PPE	Certified protective coverall			
	RPE	FP1, P1 and similar		0,25	

1. Total

	Without RPE/PPE	With RPE/PPE
Longer term		
Total systemic exposure from mixing, loading and application (mg a.s./day)	#N/A	#N/A
Total systemic exposure from mixing, loading and application per kg body weight (mg/kg bw/day)	#N/A	#N/A
% of RVNAS	#N/A	#N/A
Acute		

Total systemic exposure from mixing, loading and application (mg a.s./day)	#N/A	#N/A	
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Total systemic exposure from mixing, loading and application per kg body weight (mg/kg bw/day)	#N/A	#N/A
% of RVAAS	#N/A	#N/A

2. Longer term exposure

2.1 Mixing and loading

	Systemic exposure [mg a.s. /day]	Systemic exposure [mg a.s./kg bw/day]	Formula
Without RPE/PPE			
Hands	#N/A	#N/A	$D14 * 100 * i_AmountAS * i_AbsorpProduct$
Body	#N/A	#N/A	$D15 * 100 * i_AmountAS * i_AbsorpProduct$
Inhalation	#N/A	#N/A	$D16 * i_AmountAS * i_AbsorpInhalation$
Sum	#N/A	#N/A	
With RPE/PPE (as selected above)			
Hands	#N/A	#N/A	$D14 * i_AmountAS * i_AbsorpProduct$
Body	#N/A	#N/A	$D15 * i_AmountAS * i_AbsorpProduct$
Inhalation	#N/A	#N/A	$D16 * i_AmountAS * i_AbsorpInhalation * F20$
Sum	#N/A	#N/A	

2.2 Application

	Systemic exposure [mg a.s. /day]	Systemic exposure [mg a.s./kg bw/day]	Formula
Without RPE/PPE			
Hands	#N/A	#N/A	$D25 * 100 * i_AmountAS * i_AbsorpInuse$
Body	#N/A	#N/A	$D26 * 100 * i_AmountAS * i_AbsorpInuse$
Inhalation	#N/A	#N/A	$D27 * i_AmountAS * i_AbsorpInhalation$
Sum	#N/A	#N/A	
With RPE/PPE (as selected above)			
Hands	#N/A	#N/A	$D25 * i_AmountAS * i_AbsorpInuse$
Body	#N/A	#N/A	$D26 * i_AmountAS * i_AbsorpInuse$
Inhalation	#N/A	#N/A	$D27 * i_AmountAS * i_AbsorpInhalation * F31$
Sum	#N/A	#N/A	

3. Acute exposure

3.1 Mixing and loading

	Systemic exposure [mg a.s. /day]	Systemic exposure [mg a.s./kg bw/day]	Formula
Without RPE/PPE			
Hands	#N/A	#N/A	$E14 * 100 * i_AmountAS * i_AbsorpProduct$
Body	#N/A	#N/A	$E15 * 100 * i_AmountAS * i_AbsorpProduct$
Inhalation	#N/A	#N/A	$E16 * i_AmountAS * i_AbsorpInhalation$
Sum	#N/A	#N/A	
With RPE/PPE (as selected above)			
Hands	#N/A	#N/A	$E14 * 100 * i_AmountAS * i_AbsorpProduct$
Body	#N/A	#N/A	$E15 * 100 * i_AmountAS * i_AbsorpProduct$
Inhalation	#N/A	#N/A	$E16 * i_AmountAS * i_AbsorpInhalation * F20$
Sum	#N/A	#N/A	

3.2 Application

	Systemic exposure [mg a.s. /day]	Systemic exposure [mg a.s./kg bw/day]	Formula
Without RPE/PPE			
Hands	#N/A	#N/A	$E25 * 100 * i_AmountAS * i_AbsorpInuse$
Body	#N/A	#N/A	$E25 * 100 * i_AmountAS * i_AbsorpInuse$
Inhalation	#N/A	#N/A	$E26 * i_AmountAS * i_AbsorpInhalation$

Sum	#N/A	#N/A	
With RPE/PPE (as selected above)			
Hands	#N/A	#N/A	$E25 * 100 * i_AmountAS * i_Absorpnuse$
Body	#N/A	#N/A	$E26 * 100 * i_AmountAS * i_Absorpnuse$
Inhalation	#N/A	#N/A	$E27 * i_AmountAS * i_Absorpnhalation * F31$
Sum	#N/A	#N/A	

Worker exposure from residues on foliage for CALYPSO

Crop type	Ornamentals	
Indoor or outdoor	Outdoor	
Application method	Downward spraying	
Application equipment	Vehicle-mounted	
Worker's task	Cutting, sorting, bundling, carrying	
Main body parts in contact with foliage	Hand and body	
Application rate of active substance	0,12 kg a.s./ha	<i>i_AppRate</i>
Number of applications	2	<i>i_AppNo</i>
Interval between multiple applications	7 days	<i>i_AppInt</i>
Half-life of active substance	30 days	<i>d_HalfifeAS</i>
Multiple application factor	1,9	<i>d_MAF</i>
Dermal absorption of the product	1,00%	<i>i_AbsorpProduct</i>
Dermal absorption of the in-use dilution	10,00%	<i>i_Absorplnuse</i>
Dislodgeable foliar residue (<i>i_AppRate</i> * <i>i_DFR</i>)	0,36 µg a.s./cm ²	<i>d_DFR</i>
Working hours	8 hr	<i>d_WorkHr</i>
Dermal transfer coefficient - Total potential exposure	14000 cm ² /hr	<i>d_DermTcUCV</i>
Dermal transfer coefficient - arms, body and legs covered	5000 cm ² /hr	<i>d_DermTcCV1</i>
Dermal transfer coefficient - hands, arms, body and legs covered	1400 cm ² /hr	<i>d_DermTcCV2</i>
Inhalation transfer coefficient for automated applications	NA ha/hr*10 ⁻³	<i>d_InhalTcAut</i>
Inhalation transfer coefficient for cutting ornamentals	NA ha/hr*10 ⁻³	<i>d_InhalTcCut</i>
Inhalation transfer coefficient for sorting / bundling ornamentals	NA ha/hr*10 ⁻³	<i>d_InhalTcSort</i>

1. Total

	Potential exposure	Work wear - arms, body and legs covered	Working wear and gloves	Comments
Total systemic exposure (mg a.s./day)	7,4618900	2,6649607	0,7461890	
Total systemic exposure per kg body weight (mg/kg bw/day)	0,1243648	0,0444160	0,0124365	
% of RVNAS	621,82%	222,08%	62,18%	

2. Details

	Systemic exposure		Formula	Comments
	[mg a.s. /day]	[mg a.s./kg bw/day]		
Dermal - Potential	7,4618900	0,1243648	$d_DermTcUCV * d_WorkHr * i_DFR * i_MAF / 1000 * i_Absorplnuse$	
Dermal - Work wear - arms, body and legs covered	2,6649607	0,0444160	$d_DermTcCV1 * d_WorkHr * d_DFR * d_MAF / 1000 * i_Absorplnuse$	
Dermal - Working wear and gloves	0,7461890	0,0124365	$d_DermTcCV2 * d_WorkHr * d_DFR * d_MAF / 1000 * i_Absorplnuse$	
Inhalation				Na for outdoor activities

Resident exposure for CALYPSO

Croptype	Ornamentals	
Application method	Downward spraying	
Application equipment	Vehicle-mounted	<i>i_AppEquip</i>
Formulation type	Soluble concentrates, emulsifiable concentrate, etc.	<i>i_FormVal</i>
Buffer strip	2-3 m	<i>i_Buffer</i>
Application rate of the product	0,12 kg a.s./ha	<i>i_AppRate</i>
Concentration of active substance (in-use dilution for liquid applications)	0,8 g a.s./l	<i>d_ConcAS</i>
Dermal absorption of product	1,00%	<i>i_AbsorpProduct</i>
Dermal absorption of in-use dilution	10,00%	<i>i_AbsorpInuse</i>
Oral absorption	100,00%	<i>i_AbsorpOrallnuse</i>
Dislodgeable foliar residue ($i_AppRate * i_DFR$)	0,36 $\mu\text{g a.s./cm}^2$	<i>d_DFR</i>
Vapour pressure of in-use dilution	low volatile substances having a vapour pressure of $<5 * 10^{-3} \text{Pa}$	<i>i_Volat</i>
Concentration in air	0,001 mg/m^3	<i>d_AirCon</i>
Resident dermal spray drift exposure 75th percentile - adult	0,47 ml spray dilution/person	
Resident dermal spray drift exposure 75th percentile - child	0,327 ml spray dilution/person	
Resident inhal. spray drift exposure 75th percentile - adult	0,00010 ml spray dilution/person	
Resident inhal. spray drift exposure 75th percentile - child	0,00022 ml spray dilution/person	
Resident dermal spray drift exposure mean - adult	0,22318 ml spray dilution/person	
Resident dermal spray drift exposure mean - child	0,18 ml spray dilution/person	
Resident inhal. spray drift exposure mean - adult	0,00009 ml spray dilution/person	
Resident inhal. spray drift exposure mean - child	0,00017 ml spray dilution/person	
Exposure duration dermal	2 hours	<i>d_ReExpDur</i>
Exposure duration inhalation	24 hours	<i>d_ReExpDurInhal</i>
Exposure duration entry into treated crops	0,25 hours	<i>d_ExpDurTreatCrop</i>
Light clothing adjustment factor	18,0%	<i>d_ClothAF</i>
Breathing rate adult	0,23 $\text{m}^3/\text{day}/\text{kg}$	<i>d_BreathRAD</i>
Breathing rate child (1-3 year old)	1,07 $\text{m}^3/\text{day}/\text{kg}$	<i>d_BreathRCh</i>
Drift percentage on surface (75th percentile)	5,60%	
Drift percentage on surface (mean)	4,10%	
Turf transferable residues percentage	5,00%	<i>d_Turf</i>
Transfer coeff. of surface deposits-adult	7300 cm^2/hour	<i>d_ReTCAd</i>
Transfer coeff. of surface deposits-child (1-3 year old)	2600 cm^2/hour	<i>d_ReTCCh</i>
Saliva extraction percentage	50,00%	<i>d_SalExt</i>
Surface area of hands mouthed	20 cm^2	<i>d_AreaHM</i>
Frequency of hand to mouth activity	9,5 events/hour	<i>d_ReFreqHM</i>
Ingestion rate for mouthing of grass per day	25 cm^2	<i>d_MouthGrass</i>
Dislodgeable residues percentage transferability for object to mouth	20,00%	<i>d_DRP</i>
Transfer coefficient for entry into treated crops (75th percentile) - adult	7500 cm^2/h	<i>d_TcEntryAd</i>
Transfer coefficient for entry into treated crops (75th percentile) - child	2250 cm^2/h	<i>d_TcEntryCh</i>
Transfer coefficient for entry into treated crops (mean) - adult	5980 cm^2/h	<i>d_TcEntryAd</i>
Transfer coefficient for entry into treated crops (mean) - child	1794 cm^2/h	<i>d_TcEntryCh</i>

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)	0,0216272	0,0107000	0,0049466	0,0374760	0,0560105
Total systemic exposure per kg body weight (mg/kg bw/day)	0,0021627	0,0010700	0,0004947	0,0037476	0,0056010
% of RVNAS	10,81%	5,35%	2,47%	18,74%	28,01%

1.2 Adult

	Spray drift	Vapour	Surface deposits	Entry into treated crops	All pathways (mean)
Total systemic exposure (mg a.s./day)	0,0309120	0,0138000	0,0090786	0,1249200	0,1347624
Total systemic exposure per kg body weight (mg/kg bw/day)	0,0005152	0,0002300	0,0001513	0,0020820	0,0022460
% of RVNAS	2,58%	1,15%	0,76%	10,41%	11,23%

2. Resident exposure 75th Percentile

	Systemic exposure [mg a.s. /day]	Systemic exposure [mg a.s./kg bw/day]	Formula	Comments
1-3 year old child				
Spray drift	0,0216272	0,0021627	$((C16 * i_AbsorpInuse * (1 - d_ClothAF)) + C18) * d_ConcAS$	
Vapour	0,0107000	0,0010700	$d_AirCon * d_BreathRCh * d_BwChild$	
Surface deposits				
Dermal	0,0032335	0,0003233	$(i_AppRate / 100) * C29 * d_Turf * d_ReTCCh * d_ReExpDur * MAX(i_AbsorpProduct, i_AbsorpInuse) * d_MAF * IF(i_AppEquip = "Vehicle-mounted-Drift Reduction", 0.5, 1)$	
Hand to mouth	0,0011224	0,0001122	$(i_AppRate / 100) * C29 * d_Turf * d_SalExt * d_AreaHM * d_ReFreqHM * d_ReExpDur * i_AbsorpOrallnuse * d_MAF$	
Object to mouth	0,0005907	0,0000591	$(i_AppRate / 100) * C29 * d_DRP * d_MouthGrass * i_AbsorpOrallnuse * d_MAF$	

Entry into treated crops				
Dermal	0,0374760	0,0037476	$(d_TcEntryCh*0.25*d_DFR*d_MAF)/1000*MAX(i_AbsorpProduct,i_Absorplnuse)$	
Hand to mouth			$(i_AppRate/100)*d_Turf*d_MAF*d_SalExt*d_AreaHM*d_ReFreqHM*d_ReExpDur*i_AbsorpOrallnuse$	Considered only for application on grassland and lawns and for application on golf course, turf or other sports lawns.
Object to mouth			$(i_AppRate/100)*d_DRP*d_MouthGrass*i_AbsorpOrallnuse*d_MAF$	Considered only for application on grassland and lawns and for application on golf course, turf or other sports lawns.
Adult				
Spray drift	0,0309120	0,0005152	$(C15*i_Absorplnuse*(1-d_ClothAF))+C17)*d_ConcAS$	
Vapour	0,0138000	0,0002300	$d_AirCon*d_BreathRAD*d_BwAdult$	
Surface deposits (dermal)	0,0090786	0,0001513	$(i_AppRate/100)*C30*d_Turf*d_ReTCAd*d_ReExpDur*i_Absorplnuse$	
Entry into treated crops (dermal)	0,1249200	0,0020820	$(d_TcEntryAd*0.25*d_DFR*d_MAF)/1000*MAX(i_AbsorpProduct,i_Absorplnuse)$	

3. Summing of exposure pathways mean

	Systemic exposure [mg a.s. /day]	Systemic exposure [mg a.s./kg bw/day]	Formula	Comments
1-3 year old child				
Spray drift	0,0118080	0,0011808	$((C20*i_Absorplnuse*(1-d_ClothAF))+C22)*d_ConcAS$	
Vapour	0,0107000	0,0010700	$d_AirCon*d_BreathRCh*d_BwChild$	
Surface deposits				
Dermal	0,0023674	0,0002367	$(i_AppRate/100)*C30*d_Turf*d_ReTCCh*d_ReExpDur*MAX(i_AbsorpProduct,i_Absorplnuse)*d_MAF*IF(i_AppEquip = "Vehicle-mounted-Drift Reduction",0.5,1)$	
Hand to mouth	0,0008218	0,0000822	$(i_AppRate/100)*C30*d_Turf*d_SalExt*d_AreaHM*d_ReFreqHM*d_ReExpDur*i_AbsorpOrallnuse*d_MAF$	
Object to mouth	0,0004325	0,0000433	$(i_AppRate/100)*C30*d_DRP*d_MouthGrass*i_AbsorpOrallnuse*d_MAF$	
Entry into treated crops				
Dermal	0,0298809	0,0029881	$(d_TcEntryMeanCh*0.25*d_DFR*d_MAF)/1000*MAX(i_AbsorpProduct,i_Absorplnuse)$	
Hand to mouth			$(i_AppRate/100)*1*d_Turf*d_MAF*d_SalExt*d_AreaHM*d_ReFreqHM*d_ReExpDur*i_AbsorpOrallnuse$	Considered only for application on grassland and lawns and for application on golf course, turf or other sports lawns.
Object to mouth			$(i_AppRate/100)*1*d_DRP*d_MouthGrass*i_AbsorpOrallnuse*d_MAF$	Considered only for application on grassland and lawns and for application on golf course, turf or other sports lawns.
Adult				
Spray drift	0,0147126	0,0002452	$"(C19*i_Absorplnuse*(1-d_ClothAF))+C21)*d_ConcAS"$	
Vapour	0,0138000	0,0002300	$d_AirCon*d_BreathRAD*d_BwAdult$	
Surface deposits (dermal)	0,0066469	0,0001108	$(i_AppRate/100)*C30*d_Turf*d_ReTCAd*d_ReExpDur*MAX(i_AbsorpProduct,i_Absorplnuse)*d_MAF*IF(i_AppEquip = "Vehicle-mounted-Drift Reduction",0.5,1)$	
Entry into treated crops (dermal)	0,0996029	0,0016600	$(d_TcEntryMeanAd*0.25*d_DFR*d_MAF)/1000*MAX(i_AbsorpProduct,i_Absorplnuse)$	

Bystander exposure for CALYPSO

Croptype	Ornamentals		
Application method	Downward spraying		
Application equipment	Vehicle-mounted		<i>i_AppEquip</i>
Formulation type	Soluble concentrates, emulsifiable concentrate, etc.		
Application rate of the product	0,12 kg a.s./ha		<i>i_AppRate</i>
Buffer strip	2-3 m		<i>i_Buffer</i>
Concentration of active substance (in-use dilution for liquid applications)	0,8 g a.s./l		<i>d_ConcAS</i>
Dermal absorption of product	1,00%		<i>i_AbsorpProduct</i>
Dermal absorption of in-use dilution	10,00%		<i>i_Absorpnuse</i>
Oral absorption	100,00%		<i>i_AbsorpOrallnuse</i>
Dislodgeable foliar residue ($i_AppRate * i_DFR$)	0,36 $\mu\text{g a.s./cm}^2$		<i>d_DFR</i>
Vapour pressure of in-use dilution	low volatile substances having a vapour pressure of $<5 * 10^{-3}$ Pa		<i>i_Volat</i>
Concentration in air	0,001 mg/m^3		<i>d_AirCon</i>
Bystander dermal spray drift exposure - adult	1,21 ml spray dilution/person		
Bystander dermal spray drift exposure - child	0,74 ml spray dilution/person		
Bystander inhal. spray drift exposure - adult	0,00050 ml spray dilution/person		
Bystander inhal. spray drift exposure - child	0,00112 ml spray dilution/person		
Exposure duration	2 hours		<i>d_ByExpDur</i>
Exposure duration entry into treated crops	0,25 hours		<i>d_ExpDurTreatCrop</i>
Light clothing adjustment factor	18,0%		<i>d_ClothAF</i>
Breathing rate adult	0,23 $\text{m}^3/\text{hours/kg}$		<i>d_BreathRAD</i>
Breathing rate child (1-3 year old)	1,07 $\text{m}^3/\text{hours/kg}$		<i>d_BreathRCh</i>
Drift percentage on surface (90th percentile)	8,50%		
Turf transferable residues percentage	5,00%		<i>d_Turf</i>
Transfer coeff. of surface deposits-adult	14500 cm^2/hour		<i>d_ByTCAd</i>
Transfer coeff. of surface deposits-child (1-3 year old)	5200 cm^2/hour		<i>d_ByTCCh</i>
Saliva extraction percentage	50,00%		<i>d_SalExt</i>
Surface area of hands mouthed	20 cm^2		<i>d_AreaHM</i>
Frequency of hand to mouth activity	20 events/hour		<i>d_ByFreqHM</i>
Ingestion rate for mouthing of grass per day	25 cm^2		<i>d_MouthGrass</i>
Dislodgeable residues percentage transferability for object to mouth	20,00%		<i>d_DRP</i>
Transfer coefficient for entry into treated crops - adult	7500 cm^2/h		<i>d_TcEntryAd</i>
Transfer coefficient for entry into treated crops - child	2250 cm^2/h		<i>d_TcEntryCh</i>

1. Total

1.1 1-3 year old child

	Spray drift	Vapour	Surface deposits	Entry into treated crops
Total systemic exposure (mg a.s./day)	0,0494400	0,0107000	0,0142992	0,0374760
Total systemic exposure per kg body weight (mg/kg bw/day)	0,0049440	0,0010700	0,0014299	0,0037476
% of RVAAS	24,72%	5,35%	7,15%	18,74%

1.2 Adult

	Spray drift	Vapour	Surface deposits	Entry into treated crops
Total systemic exposure (mg a.s./day)	0,0797760	0,0138000	0,0273714	0,1249200

Total systemic exposure per kg body weight (mg/kg bw/day)	0,0013296	0,0002300	0,0004562	0,0020820
% of RVAAS	6,65%	1,15%	2,28%	10,41%

2. Details

	Systemic exposure [mg a.s. /day]	Systemic exposure [mg a.s./kg bw/day]	Formula	Comments
1-3 year old child				
Spray drift	0,0494400	0,0049440	$((C16 * i_AbsorpInuse * (1 - d_ClothAF)) + C18) * d_ConcAS$	
Vapour	0,0107000	0,0010700	$d_AirCon * d_BreathRCh * d_BwChild$	
Surface deposits				
Dermal	0,0098159	0,0009816	$(i_AppRate / 100) * C24 * d_Turf * d_ByTCCh * d_ByExpDur * MAX(i_AbsorpProduct, i_AbsorpInuse) * d_MAF * IF(i_AppEquip = "Vehicle-mounted-Drift Reduction", 0.5, 1)$	
Hand to mouth	0,0035866	0,0003587	$(i_AppRate / 100) * C25 * d_Turf * d_SalExt * d_AreaHM * d_ByFreqHM * d_ByExpDur * i_AbsorpOralInuse * d_MAF$	
Object to mouth	0,0008966	0,0000897	$(i_AppRate / 100) * C25 * d_DRP * d_MouthGrass * i_AbsorpOralInuse * d_MAF$	

Entry into treated crops				
Dermal	0,0374760	0,0037476	$(d_TcEntryCh*0.25*d_DFR*d_MAF)/1000*MAX(i_AbsorpProduct,i_Absorplnuse)$	
Hand to mouth			$(i_AppRate/100)*d_MAF*d_Turf*d_SalExt*d_AreaHM*d_ByFreqHM*d_ByExpDur*i_AbsorpOrallnuse$	Considered only for application on grassland and lawns and for application on golf course, turf or other sports lawns.
Object to mouth			$(i_AppRate/100)*d_DRP*d_MouthGrass*i_AbsorpOrallnuse*d_MAF$	Considered only for application on grassland and lawns and for application on golf course, turf or other sports lawns.
Adult				
Spray drift	0,0797760	0,0013296	$((C15*i_Absorplnuse*(1-d_ClothAF)t)+C17)*d_ConcAS$	
Vapour	0,0138000	0,0002300	$d_AirCon*d_BreathRAd*d_BwAdult$	
Surface deposits (dermal)	0,0273714	0,0004562	$(i_AppRate/100)*C24*d_Turf*d_ByTCA*d_ByExpDur*MAX(i_AbsorpProduct,i_Absorplnuse)*d_MAF*IF(i_AppEquip="Vehicle-mounted-Drift Reduction",0.5,1)$	
Entry into treated crops (dermal)	0,1249200	0,0020820	$(d_TcEntryAd*0.25*d_DFR*d_MAF)/1000*MAX(i_AbsorpProduct,i_Absorplnuse)$	

Recreational exposure for CALYPSO

Golf course, turf or other sports lawns		This sheet is only to be used for treatment of grassland used for recreational purposes	
Croptype	Downward spraying		
Application method	Vehicle-mounted		
Application equipment	Soluble concentrates, emulsifiable concentrate, etc.		<i>i_AppEquip</i>
Formulation type			<i>i_FormVal</i>
Application rate of the product	0,12 kg a.s./ha		<i>i_AppRate</i>
Dermal absorption of product	1,00%		<i>i_AbsorpProduct</i>
Dermal absorption of in-use dilution	10,00%		<i>i_Absorplnuse</i>
Oral absorption	100,00%		<i>i_AbsorpOrallnuse</i>
Dislodgeable foliar residue ($i_AppRate \cdot i_DFR$)	0,36 µg a.s./cm ²		<i>d_DFR</i>
Exposure duration dermal	2 hours		<i>d_ReExpDur</i>
Light clothing adjustment factor Adult resident	18,0%		<i>d_ClothAF</i>
Drift percentage on surface	100,00%		
Turf transferable residues percentage	5,00%		<i>d_Turf</i>
Transfer coeff. of surface deposits-adult	7300 cm ² /hour		<i>d_ReTCAd</i>
Transfer coeff. of surface deposits-child (1-3 year old)	2600 cm ² /hour		<i>d_ReTCCh</i>
Saliva extraction percentage	50,00%		<i>d_SalExt</i>
Surface area of hands mouthed	20 cm ²		<i>d_AreaHM</i>
Frequency of hand to mouth activity	9,5 events/hour		<i>d_ReFreqHM</i>
Ingestion rate for mouthing of grass per day	25 cm ²		<i>d_MouthGrass</i>

2. Details

	Systemic exposure [mg a.s. /day]	Systemic exposure [mg a.s./kg bw/day]	Formula	Comments
1-3 year old child				
Surface deposits				
Dermal	0,0577408	0,0057741	$(i_AppRate/100) \cdot C13 \cdot d_Turf \cdot d_ReTCCh \cdot d_ReExpDur \cdot \text{MAX}(i_AbsorpProduct, i_Absorplnuse) \cdot d_MAF$	
Hand to mouth	0,0200427	0,0020043	$(i_AppRate/100) \cdot C13 \cdot d_Turf \cdot d_SalExt \cdot d_AreaHM \cdot d_ReFreqHM \cdot d_ReExpDur \cdot i_AbsorpOrallnuse \cdot d_MAF$	
Object to mouth	0,0105488	0,0010549	$(i_AppRate/100) \cdot C13 \cdot d_DRP \cdot d_MouthGrass \cdot i_AbsorpOrallnuse \cdot d_MAF$	
Total systemic exposure	0,0883323	0,0088332		
% of RVNAS				
Adult				
Surface deposits (dermal)	0,1621184	0,0027020	$(i_AppRate/100) \cdot C13 \cdot d_Turf \cdot d_ReTCAd \cdot d_ReExpDur \cdot \text{MAX}(i_AbsorpProduct, i_Absorplnuse) \cdot d_MAF$	
% of RVNAS				

<i>d_AirConVol</i>	Concentration in air of moderately volatile substances	0,015 mg/m ³
<i>d_AirConNonVol</i>	Concentration in air of low volatile substances	0,001 mg/m ³
<i>d_AreaHM</i>	Surface area of hands mouthed	20 cm ²
<i>d_AreaTreated</i>	Area treated (defined by crop type)	10 ha
<i>d_BreathRAd</i>	Breathing rate adult residents	0,23 m ³ /day/kg
<i>d_BreathRCh</i>	Breathing rate child (1-3 year old) residents	1,07 m ³ /day/kg
<i>d_BwAdult</i>	Adult body weight	60 kg
<i>d_BwChild</i>	Child body weight (1 to < 3 year olds)	10 kg
<i>d_ByBreathRAd</i>	Breathing rate adult bystander	0,04 m ³ /hours/kg
<i>d_ByBreathRCh</i>	Breathing rate child (1-3 year old) bystander	0,19 m ³ /hours/kg
<i>d_ByExpDur</i>	Exposure duration intense activity breathing rates	2 hours
<i>d_ByFreqHM</i>	Frequency of hand to mouth activity	20 events/hour
<i>d_ByTCAd</i>	Transfer coeff. of surface deposits-adult	14500 cm ² /hour
<i>d_ByTCCh</i>	Transfer coeff. of surface deposits-child (1-3 year old)	5200 cm ² /hour
<i>d_ClothAF</i>	Light clothing adjustment factor resident and bystanders	18,0%
<i>d_ConcAs</i>	Concentration of active substance (in-use dilution for liquid applications)	0,8 g a.s./l
<i>d_DFR</i>	Dislodgeable foliar residue (i_AppRate*i_DFR)	0,36 µg a.s./cm ²
<i>d_DRP</i>	Dislodgeable residues percentage transferability for object to mouth	20,0%
<i>d_HalfLifeAS</i>	Half-life of active substance (DT50)	30 days
<i>d_InhalTcAut</i>	Inhalation transfer coefficient for automated applications	NA ha/hr*10 ^{^(-3)}
<i>d_InhalTcCut</i>	Inhalation transfer coefficient for cutting ornamentals	NA ha/hr*10 ^{^(-3)}
<i>d_InhalTcSort</i>	Inhalation transfer coefficient for sorting / bundling ornamentals	NA ha/hr*10 ^{^(-3)}
<i>d_MAF</i>	Multiple application factor	1,85
<i>d_MouthGrass</i>	Ingestion rate for mouthing of grass per day	25 cm ² grass/day
<i>d_ReExpDur</i>	Exposure duration resident dermal	2 hours
<i>d_ReExpDurInhal</i>	Exposure duration resident inhalation	24 hours
<i>d_ExpDurTreatCrop</i>	Exposure duration for resident and bystander entry into treated crops	0,25 hours
<i>d_ReFreqHM</i>	Frequency of hand to mouth activity	9,5 events/hour
<i>d_ReTCAd</i>	Transfer coeff. of surface deposits-adult	7300 cm ² /hour
<i>d_ReTCCh</i>	Transfer coeff. of surface deposits-child (1-3 year old)	2600 cm ² /hour
<i>d_SalExt</i>	Saliva extraction percentage	50,0%
<i>d_TcEntryAd</i>	Transfer coefficient for entry into treated crops 75th percentile - adult	7500 cm ² /h
<i>d_TcEntryCh</i>	Transfer coefficient for entry into treated crops 75th percentile - child	2250 cm ² /h
<i>d_TcEntryMeanAd</i>	Transfer coefficient for entry into treated crops mean - adult	5980 cm ² /h
<i>d_TcEntryMeanCh</i>	Transfer coefficient for entry into treated crops mean - child	1794 cm ² /h
<i>d_Turf</i>	Turf transferable residues percentage	5,0%
<i>d_PctExtrapolation</i>	For exposure value 75 percentiles above this amount linear extrapolation is performed	1,5 kg
<i>d_head75ProtectionFactor</i>	Coefficient to estimate head protection factor 75 th Percentile	1,79422
<i>d_head95ProtectionFactor</i>	Coefficient to estimate head protection factor 95 Percentile	1,24705

sys_KeyOperator Variables for operator exposure lookup key
sys_OperatorModel Operator model

i_IndoorOutdoor&i_FormVal&i_AppMeth&i_AppEquip&

1

RPE reduction factor	
key_MixRPE, ay_MixRPE	
None	1
FP1, P1 and similar	0,25
FP2, P2 and similar	0,1

PPE reduction factor	
key_MixPPEBody, ay_MixPPEBody	
Potential exposure	1
Work wear - arms, body and legs covered	0,1
Certified protective coverall	0,05

PPE reduction factor	
key_MixPPEHead, ay_MixPPEHead	
None	1
Hood	0,5
Hood and visor	0,05
FP1, P1 and similar	0,8
FP2, P2 and similar	0,8

Application: Gloves PPE reduction factor (depending on formulation type)		
key_AppPPEHands, ay_AppPPEHands		
Wettable powder, soluble powder	Chemical resistant gloves	0,05
Granules, fine granules	Chemical resistant gloves	0,05
Wettable granules, soluble granules	Chemical resistant gloves	0,05
Soluble concentrates, emulsifiable concentrate, etc.	Chemical resistant gloves	0,1
Wettable powder, soluble powder	None	1
Granules, fine granules	None	1
Wettable granules, soluble granules	None	1
Soluble concentrates, emulsifiable concentrate, etc.	None	1

Crop dependent exposure parameters										
key_CropType, ay_CropType	Transfer coefficients	Transfer coefficients	1400	Transfer coefficients	Area Treated					
Crop type	Arm, body and legs covered	Total potential exposure	Activity	hours per day	Body parts involved	Hands, arm, body and legs covered	Type of crop for Resident Bystander	Vehicle Mounted Applications		
Bare soil	NA	NA	NA	NA	NA	NA	Field crops			50
Low berries and other small fruits		3000	5800 Reaching, picking		8 Hand and forearm		750 Field crops			50
Brassica vegetables		2500	5800 Reaching, picking		8 Hand and body		580 Field crops			50
Bulb vegetables		2500	5800 Reaching, picking		8 Hand and body		580 Field crops			50
Cane fruit		4500	22500 Searching, reaching, picking		8 Hand and body		2250 Field crops			10
Cereals		1400	12500 Inspection, irrigation		2 Hand and body	no TC available for this assessment	Field crops			50
Citrus fruit		4500	22500 Searching, reaching, picking		8 Hand and body		2250 Fruit crops			10
Fruiting vegetables		2500	5800 Reaching, picking		8 Hand and body		580 Field crops			50
Grapes		10100	30000 Hand harvesting		8 Hand and body	no TC available for this assessment	Grapes			10
Grassland and lawns		1400	12500 Inspection, irrigation		2 Hand and body	no TC available for this assessment	Field crops			50
Golf course, turf or other sports lawns		2500	5800 Maintenance		8 Hand and body		580 Field crops			50
Hops		1400	12500 Inspection, irrigation		2 Hand and body	no TC available for this assessment	Hops			10
Leaf vegetables and fresh herbs		2500	5800 Reaching, picking		8 Hand and body		580 Field crops			50
Legume vegetables		2500	5800 Reaching, picking		8 Hand and body		580 Field crops			50
Oilfruits		4500	22500 Searching, reaching, picking		8 Hand and body		2250 Fruit crops			10
Oilseeds		1400	12500 Inspection, irrigation		2 Hand and body	no TC available for this assessment	Field crops			50
Ornamentals		5000	14000 Cutting, sorting, bundling, carrying		8 Hand and body		1400 Field crops			10
Pome fruit		4500	22500 Searching, reaching, picking		8 Hand and body		2250 Fruit crops			10
Root and tuber vegetables		1400	12500 Inspection, irrigation		2 Hand and body	no TC available for this assessment	Field crops			50
Stone fruit		4500	22500 Searching, reaching, picking		8 Hand and body		2250 Fruit crops			10
Tree nuts		4500	22500 Searching, reaching, picking		8 Hand and body		2250 Fruit crops			10

Resident Spray Drift					
These values are the 75th Percentiles for Residents (assuming average breathing rates for inhalation exposures)					
key_ResidSpray, ay_ResidSpray	Adults Dermal	Children Dermal	Adults Inhalation	Children Inhalation	
Downward spraying2-3		0,47	0,327	0,0001	0,00022
Downward spraying5		0,24	0,22	0,00009	0,00017
Downward spraying10		0,20	0,18	0,00009	0,00013
Upward spraying2-3	NA	NA	NA	NA	NA
Upward spraying5		5,63	1,689	0,0021	0,00164
Upward spraying10		5,63	1,689	0,0021	0,00164

Bystander Spray Drift					
These values are the 95th Percentiles for Bystanders (assuming high breathing rates for inhalation exposures)					
key_BySpray, ay_BySpray	Adults Dermal	Children Dermal	Adults Inhalation	Children Inhalation	
Downward spraying2-3		1,21	0,74	0,0005	0,0011
Downward spraying5		0,57	0,48	0,00048	0,0008
Downward spraying10		0,48	0,39	0,00051	0,00076
Upward spraying2-3	NA	NA	NA	NA	NA
Upward spraying5		12,9	3,87	0,0044	0,0035
Upward spraying10		12,9	3,87	0,0044	0,0035

Mean Spray Drift					
These values are the mean values (assuming average breathing rates for inhalation exposures)					
key_AvgSpray, ay_AvgSpray	Adults Dermal	Children Dermal	Adults Inhalation	Children Inhalation	
Downward spraying2-3		0,22	0,18	0,0001	0,0002
Downward spraying5		0,12	0,12	0,0001	0,0001
Downward spraying10		0,11	0,1	0,0001	0,0001
Upward spraying2-3	NA	NA	NA	NA	NA
Upward spraying5		3,68	1,11	0,0017	0,0013
Upward spraying10		3,68	1,11	0,0017	0,0013

Resident and bystander Surface Deposits Drift percentage			
Ground sediments in % of the application rate calculated on the basis of percentile values (drift data acc. Rautmann)			
key_ByCropType, ay_ByCropType	Bystander surface deposit (90th Percentile)	Resident surface deposit (77th Percentile)	mean
Field cropsnot relevant2-3		0,085	0,056
Field cropsnot relevant5		0,035	0,023
Field cropsnot relevant10		0,019	0,013
Fruit cropsnot relevant2-3		0,292	0,240
Fruit cropsnot relevant5		0,199	0,158
Fruit cropsnot relevant10		0,118	0,090
Fruit cropsearly (without leaves)2-3		0,292	0,240
Fruit cropsearly (without leaves)5		0,199	0,158

Fruit cropsearly (without leaves)10	0,118	0,090	0,061
Fruit cropslate (dense foliage)2-3	0,157	0,110	0,070
Fruit cropslate (dense foliage)5	0,084	0,060	0,037
Fruit cropslate (dense foliage)10	0,036	0,027	0,016
Grapesnot relevant2-3	0,080	0,069	0,053
Grapesnot relevant5	0,036	0,031	0,023
Grapesnot relevant10	0,012	0,010	0,008
Hopsnot relevant2-3	0,193	0,159	0,100
Hopsnot relevant5	0,116	0,086	0,059
Hopsnot relevant10	0,058	0,037	0,029

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Match Method	Outdoor/Indoor	Formulation type	Application method	Application equipment	Type of exposure	Mixing & Loading 75th percentile	Mixing & Loading 95th percentile	Mixing & Loading Comments	Mixing & Loading Model	Application 75th percentile	Application 95th percentile	Application Comments	Application Model
IndoorGranules, fine granulesApplication of granulesManualBody	Indoor	Granules, fine granules	Application of granules	Manual	Body			Value for application is for combination of mixing&loading and application	PHED	68,8708	253,4438	Exposure value originally included use of PPE, calculated potential exposure is 100 times higher assuming a 'worst case' reduction factor of 1% for gloves/coverall	PHED
IndoorGranules, fine granulesApplication of granulesManualHands	Indoor	Granules, fine granules	Application of granules	Manual	Hands			Value for application is for combination of mixing&loading and application	PHED	26,5320	94,3636	Exposure value originally included use of PPE, calculated potential exposure is 100 times higher assuming a 'worst case' reduction factor of 1% for gloves/coverall	PHED
IndoorGranules, fine granulesApplication of granulesManualInhalation	Indoor	Granules, fine granules	Application of granules	Manual	Inhalation			Value for application is for combination of mixing&loading and application	PHED	0,4677	1,5251	Exposure value originally included use of PPE, calculated potential exposure is 100 times higher assuming a 'worst case' reduction factor of 1% for gloves/coverall	PHED
OutdoorGranules, fine granulesBroadcast application of granulesVehicle-mountedBody	Outdoor	Granules, fine granules	Broadcast application of granules	Vehicle-mounted	Body	0,0162	0,0427	Exposure value originally included use of PPE, calculated potential exposure is 100 times higher assuming a 'worst case' reduction factor of 1% for gloves/coverall	PHED	0,0047	0,0151	Exposure value originally included use of PPE, calculated potential exposure is 100 times higher assuming a 'worst case' reduction factor of 1% for gloves/coverall	PHED
OutdoorGranules, fine granulesBroadcast application of granulesVehicle-mountedHands	Outdoor	Granules, fine granules	Broadcast application of granules	Vehicle-mounted	Hands	0,0015	0,0069	Exposure value originally included use of PPE, calculated potential exposure is 100 times higher assuming a 'worst case' reduction factor of 1% for gloves/coverall	PHED	0,0004	0,0018	Exposure value originally included use of PPE, calculated potential exposure is 100 times higher assuming a 'worst case' reduction factor of 1% for gloves/coverall	PHED
OutdoorGranules, fine granulesBroadcast application of granulesVehicle-mountedInhalation	Outdoor	Granules, fine granules	Broadcast application of granules	Vehicle-mounted	Inhalation	0,0208	0,0784		PHED	0,0012	0,0045		PHED
OutdoorGranules, fine granulesIn furrow application of granulesVehicle-mountedBody	Outdoor	Granules, fine granules	In furrow application of granules	Vehicle-mounted	Body	0,0162	0,0427	Exposure value originally included use of PPE, calculated potential exposure is 100 times higher assuming a 'worst case' reduction factor of 1% for gloves/coverall	PHED	0,0047	0,0151	Exposure value originally included use of PPE, calculated potential exposure is 100 times higher assuming a 'worst case' reduction factor of 1% for gloves/coverall	PHED
OutdoorGranules, fine granulesIn furrow application of granulesVehicle-mountedHands	Outdoor	Granules, fine granules	In furrow application of granules	Vehicle-mounted	Hands	0,0015	0,0069	Exposure value originally included use of PPE, calculated potential exposure is 100 times higher assuming a 'worst case' reduction factor of 1% for gloves/coverall	PHED	0,0004	0,0018	Exposure value originally included use of PPE, calculated potential exposure is 100 times higher assuming a 'worst case' reduction factor of 1% for gloves/coverall	PHED
OutdoorGranules, fine granulesIn furrow application of granulesVehicle-mountedInhalation	Outdoor	Granules, fine granules	In furrow application of granules	Vehicle-mounted	Inhalation	0,0208	0,0784		PHED	0,0012	0,0045		PHED
OutdoorGranules, fine granulesManual application of granulesManualBody	Outdoor	Granules, fine granules	Manual application of granules	Manual	Body			Value for application is for combination of mixing&loading and application	PHED	68,8708	253,4438	Exposure value originally included use of PPE, calculated potential exposure is 100 times higher assuming a 'worst case' reduction factor of 1% for gloves/coverall	PHED
OutdoorGranules, fine granulesManual application of granulesManualHands	Outdoor	Granules, fine granules	Manual application of granules	Manual	Hands			Value for application is for combination of mixing&loading and application	PHED	26,5320	94,3636	Exposure value originally included use of PPE, calculated potential exposure is 100 times higher assuming a 'worst case' reduction factor of 1% for gloves/coverall	PHED
OutdoorGranules, fine granulesManual application of granulesManualInhalation	Outdoor	Granules, fine granules	Manual application of granules	Manual	Inhalation			Value for application is for combination of mixing&loading and application	PHED	0,4677	1,5251	Exposure value originally included use of PPE, calculated potential exposure is 100 times higher assuming a 'worst case' reduction factor of 1% for gloves/coverall	PHED

