

# **Surround® WP Crop Protectant**

## **DOCUMENT M-CP, Section 9**

### **FATE AND BEHAVIOUR IN THE ENVIRONMENT**

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## Version history<sup>1</sup>

Date	Data points containing amendments or additions and brief description	Document identifier and version number
April 2020	Green highlights	M-CP-Section 9
February 2018	Introduction	M-CP-Section 9
May 2005	Original submission	IIIA-Section 5

<sup>1</sup> It is suggested that applicants adopt a similar approach to showing revisions and version history as outlined in SANCO/10180/2013 Chapter 4 How to revise an Assessment Report

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## **CP 9 FATE AND BEHAVIOUR IN THE ENVIRONMENT**

This dossier refers to the product SURROUND® WP CROP PROTECTANT (the representative chemical product), containing calcined kaolin which was registered in 2008 under the term "Aluminium silicate". The regulatory term used throughout this dossier is therefore aluminium silicate, although in geological and mineralogical terms, the substance described therein is known as calcined kaolin.

Aluminium silicate is extremely stable. The kaolin ores that are being mined today to produce aluminium silicate used in the product SURROUND® WP CROP PROTECTANT were formed 50 to 85 million years ago in what is now the state of Georgia, United States of America.

Aluminium silicate is insoluble, photolytically stable and inert even to mineral acids and bases, except under very harsh conditions. Aluminium silicate has a similar chemical composition to common clay that is found in most soils and aquatic sediments the world over. No increase in compaction, water penetration or aeration is anticipated since the existing clay particles exist in a much larger particle size distribution (already agglomerated) than the narrow fraction that will be added. Expectations are that by using kaolin instead of another pesticide having potentially toxic residues, the soil biodiversity will improve under Surround treated fields, since none of the organisms present would be exposed to additional potential toxins.

Since aluminium silicate is a non-degradable natural component of the environment a waiver is requested for all environmental fate studies.

### **CP 9.1 Fate and Behaviour in Soil**

Not applicable, aluminium silicate does not degrade in soil. See Point CP 9 for waiver request.

#### **CP 9.1.1 Rate of degradation in soil**

Not applicable, aluminium silicate does not degrade in soil. See Point CP 9 for waiver request.

##### **CP 9.1.1.1 Laboratory studies**

Not applicable, aluminium silicate does not degrade in soil. See Point CP 9 for waiver request.

##### **CP 9.1.1.2 Field studies**

Not applicable, aluminium silicate does not degrade in soil. See Point CP 9 for waiver request.

###### **CP 9.1.1.2.1 Soil dissipation studies**

###### **CP 9.1.1.2.2 Soil accumulation studies**

### **CP 9.1.2 Mobility in soil**

Not applicable.

Aluminium silicate is essentially purified natural clay and is therefore not subject to adsorption on or desorption from soil particles. When applied to soil, the aluminium silicate particles will readily mix with the other soil components. Some organic materials (for example fulvic acids) will adsorb

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onto the particle surfaces, similarly to the aluminium silicate already existing in the soil. No increase in compaction, water penetration or aeration is anticipated since the existing clay particles exist in a much larger particle size distribution (already agglomerated) than the narrow fraction that will be added.

Expectations are that by using kaolin instead of another pesticide having toxic residues, the soil biodiversity will improve under aluminium silicate treated fields, since none of the present organisms would be exposed to additional potential toxins.

**CP 9.1.2.1    Laboratory studies**

Not applicable. Please refer to point CP 9.1.2.

**CP 9.1.2.2    Lysimeter studies**

Not applicable. Please refer to point CP 9.1.2.

**CP 9.1.2.3    Field leaching studies**

Not applicable. Please refer to point CP 9.1.2.

### CP 9.1.3 Estimation of concentrations in soil

#### Predicted environmental concentrations in soil (PEC<sub>s</sub>)

Table CP 9.1.3-1: Application pattern

Crop	Application rate	Max number of Applications	Min Interval	Application period
Vine	30 kg/ha	4	7 days	Up to BBCH 65

The application of aluminium silicate is not expected to increase significantly the natural aluminium silicate content of the soil. However, the amount of aluminium silicate entering the soil from the use of Surround® WP Crop Protectant in agriculture was estimated using the following worst-case calculation (Surround® WP Crop Protectant contains 95% calcined aluminium silicate, however an aluminium silicate content of 100% is assumed for the calculations).

Aluminium silicate does not degrade in soil, therefore calculations are presented both for a single application and for a cumulative application without degradation.

$$\text{PEC}_{\text{SOIL}} (\text{mg/kg}) = \frac{\text{Application rate (g/ha)} \times [1 - \text{crop interception (decimal)}]}{(\text{Soil volume (cm}^3\text{)} \times \text{soil density (g/cm}^3\text{)}) \times 10 (\text{conversion factor})}$$

Table CP 9.1.3-2: Worst case PECs for aluminium silicate in soil – use in vines – late treatment

	Max single spray	Total season
Application rate (vines)	30 000 g/ha	120 000 g/ha*
Interception ( <del>early season orchard</del> vines, without leaves)	0.4	0.4
Spray deposit (g/m <sup>2</sup> )	1.8	7.2
Soil weight (1 m <sup>2</sup> x 5 cm depth x 1.5 g/cm <sup>3</sup> )	75 kg/m <sup>2</sup>	75 kg/m <sup>2</sup>
<b>PEC<sub>SOIL</sub> (mg/kg)</b>	<b>24.0 mg/kg</b>	<b>96.0 mg/kg</b>

\* based on a maximum application rate of 4 x 30 kg/ha

Agricultural soils normally contain between 5 and 50 % clay; therefore the quantity of kaolin added through the use of Surround® WP Crop Protectant will be insignificant, even after many years of use.

There are no metabolites of aluminium silicate in soil. Please refer to Point CP 9 above and Document M-CA Section 7, Point CA 7 for further details.

Following a request from the coRMS (France), the Notifier was requested to justify the potential impact of the additional aluminium added to soil from the use of calcined aluminium silicate compared to the amounts that occur naturally in soils/surface water.

Calcined aluminium silicate is also known as calcined kaolin or calcined kaolin clay and belongs to the phyllosilicate class of aluminosilicate minerals. Calcined aluminium silicate is thus a calcined clay. Calcined aluminium silicate has the theoretical molecular formula  $\text{Al}_4\text{Si}_4\text{O}_{14}$ , and a theoretical molecular weight of 444.28 g/mol, of which aluminium represents 24.29%. Therefore, for each gram of **calcined aluminium silicate** applied to soil, we will consider 24.29% of the mass applied is aluminium.

Clay in its natural state is hydrous and therefore we will consider soil clay as the natural hydrous form of aluminium silicate. Hydrous aluminium silicate has the theoretical molecular formula  $\text{Al}_4\text{Si}_4\text{O}_{10}(\text{OH})_8$  and a theoretical molecular weight of 516.28 g/mol, of which aluminium represents 21.28%. Therefore, each gram of clay in the soil can be considered to have an aluminium content of 21.28%.

According to the European Soil Data Centre (ESDAC<sup>1</sup>), clay is one of the major components of soil and a Europe-wide map of clay distribution in soil was produced and is presented in Figure 1 below.

As indicated in ESDAC databases, clay content in soil is variable and can represent as little as 6% of the topsoil to over 95% of the topsoil. As a worst-case (most conservative assumption), the aluminium added through agricultural applications of kaolin will be calculated based on a 6% clay content, or 60 g clay per kg soil background concentration. On this basis, for a kg of top soil containing 60 g of clay, the estimated aluminium content is  $[60 * 21.28 / 100] = 12.8 \text{ g/kg}$  (12800 mg/kg soil).

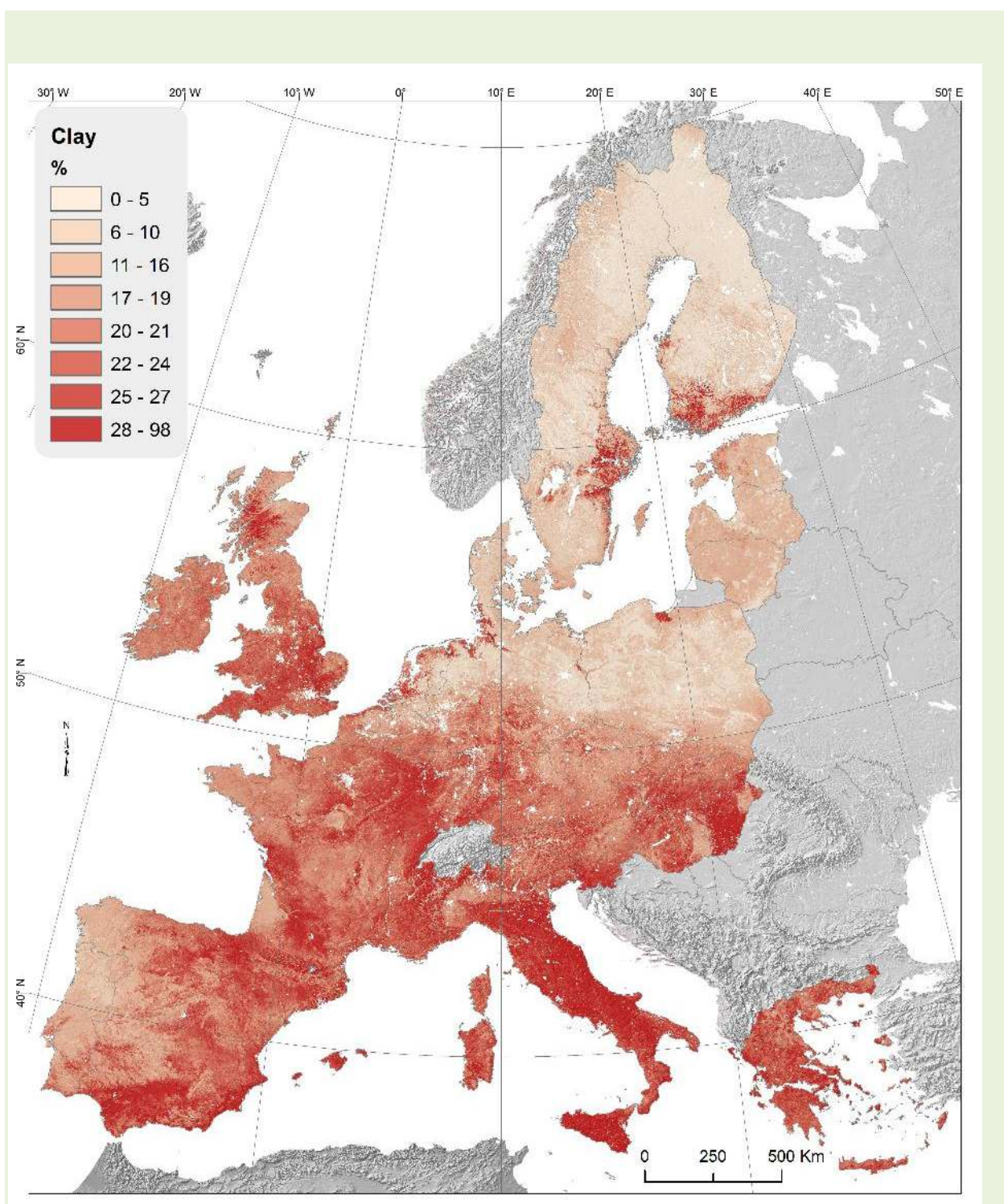
The  $\text{PEC}_{\text{soil}}$  for calcined aluminium silicate following the agricultural use of Surround at the maximum application rate is 96 mg/kg soil for four cumulative applications.

When we consider that 24.29% of calcined aluminium silicate is aluminium, we obtain an extra aluminium load of 23.3 mg/kg soil  $[96 * 0.2429]$ , or 0.182% of the lowest estimated average aluminium content in soil.

Estimated aluminium content in soil based on ESDAC (lowest estimated concentration)	Estimated addition of aluminium from SURROUND (cumulative application)	% Added aluminium
12800 mg/kg soil	$96 * 24.29 / 100 = 23.3 \text{ mg/kg soil}$	$23.3/12800 * 100 = 0.182\%$

<sup>1</sup> European Soil Data Centre (ESDAC), European Commission Joint Research Centre, European Soil Database & Soil Properties, Topsoil physical properties for Europe (based on LUCAS topsoil data), available to download at: <https://esdac.jrc.ec.europa.eu/content/topsoil-physical-properties-europe-based-lucas-topsoil-data>





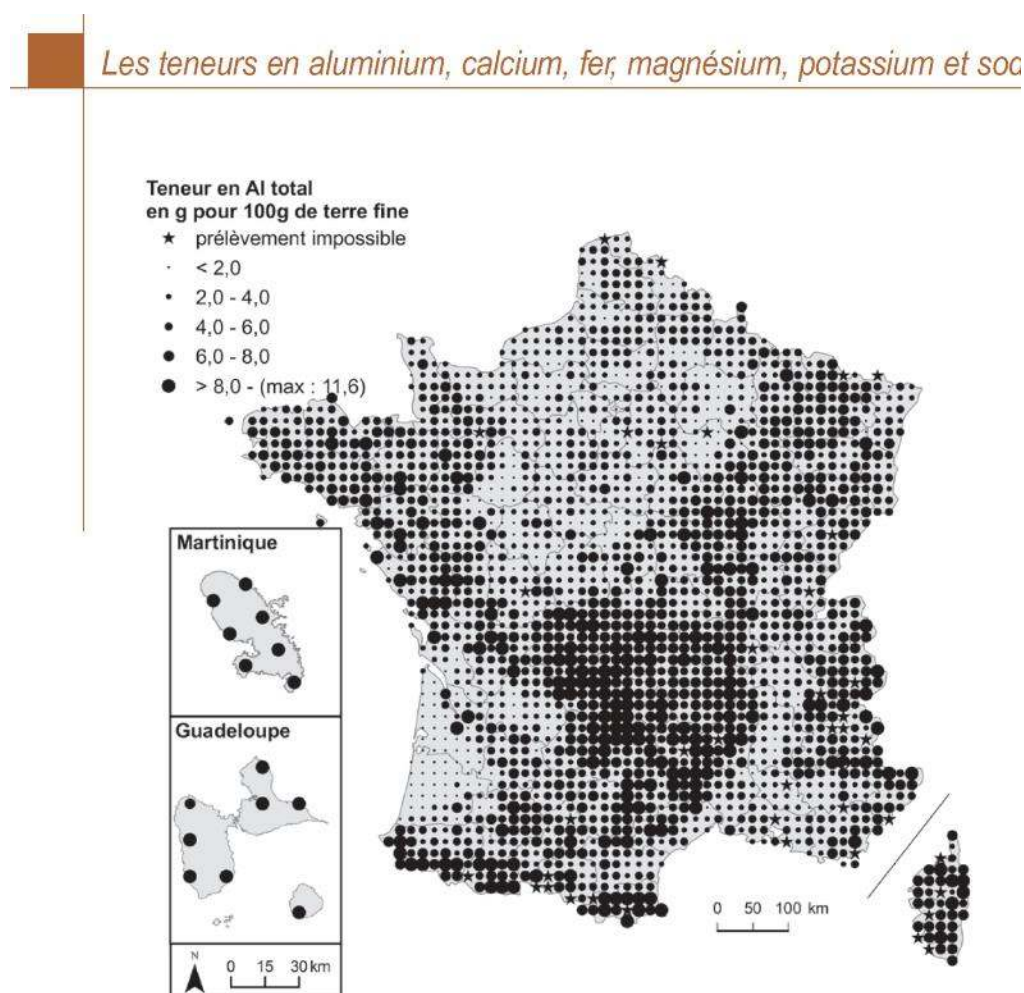
**Figure 1: LUCAS topsoil data – Clay (%)** [https://esdac.jrc.ec.europa.eu/public\\_path/clay.png](https://esdac.jrc.ec.europa.eu/public_path/clay.png)

Aluminium is not a heavy metal and although European soil aluminium concentrations are not monitored by ESDAC, interest has been expressed in evaluating the potential toxicity of and exposure to the **ionic form of aluminium**. The French initiative GisSol<sup>2</sup> did report a map of

<sup>2</sup> Groupement d'intérêt scientifique Sol (Gis Sol)



topsoil aluminium levels across mainland France, and the islands of Guadeloupe and Martinique. Aluminium levels in French soils are presented in Figure 2. The lowest quantified level of aluminium reported in French soil is 2 g/100 g or 20 g/kg, which is of a similar order of magnitude as the concentration described in the LUCAS Topsoil database.



**Figure 2: GisSol aluminium data in French topsoil (g per 100 g of fine soil) – p.67 of 192 - <https://www.gissol.fr/publications/rapport-sur-letat-des-sols-de-france-2-849>**

An important factor to note is that aluminium silicate (kaolin clay), either calcined or hydrous, is not soluble in any naturally occurring solvents, and it does not readily form ions in nature. In fact, it remains inert in the environment, for example in soils and clay deposits, for millions of years. These characteristics explain most of the properties of kaolin-type clays in the natural environment: kaolin clays are insoluble, stable and the aluminium in its crystal structure is not bioavailable. Kaolin clays are inert to biological mechanisms, which is a reason why they are routinely used as medical drug carrier agents. Kaolin clays are distinctive from zeolites, also known as sodium aluminium silicates, which have different properties than kaolin, and in particular are capable of ion exchange, which kaolin clay is not capable of.

In summary, the amount of aluminium added to soils by an application of Surround® at 30 kg/ha will add an insignificant amount of aluminium to the aluminium already naturally occurring in the soil, and furthermore the aluminium in kaolin clay is locked away in the crystal structure of the

clay mineral because it is not soluble in any naturally-occurring solvents and therefore is not bioavailable.

## **CP 9.2 Fate and Behaviour in Water and Sediment**

Not applicable.

Surround® WP Crop Protectant contains 95% calcined aluminium silicate. Aluminium silicate is extremely stable. Aluminium silicate is insoluble, photolytically stable and inert even to naturally-occurring mineral acids and bases. Aluminium silicate has similar chemical composition to common clay that is found in most soils and aquatic sediments the world over. Since aluminium silicate is a non-degradable natural component of the environment a waiver is requested for all environmental fate studies.

### **CP 9.2.1 Aerobic mineralisation in surface water**

Not applicable. Please refer to point CP 9.2.

### **CP 9.2.2 Water/sediment study**

Not applicable. Please refer to point CP 9.2.

### **CP 9.2.3 Irradiated water/sediment study**

Not applicable. Please refer to point CP 9.2.

### **CP 9.2.4 Estimation of concentrations in groundwater**

Not applicable. Based on the characteristics of aluminium silicate, standard FOCUS calculations are impossible and meaningless.

Surround® WP Crop Protectant contains 95% kaolin. Kaolin is not soluble in water, but forms suspended particles in water. Therefore, Surround® WP Crop Protectant can only reach groundwater via mechanical percolation through soil pores, and not through conventional dissolution in water and leaching through the soil column.

Clay, including kaolin, is present in some natural groundwater reservoirs. Percolation through soil pores or the presence of clay seams allow naturally present clays to form suspensions in these water bodies. It is possible (but highly unlikely) that kaolin from Surround® WP Crop Protectant may percolate through soil and reach groundwater, where it will not be possible to be distinguished by analytical means from natural clays.

#### **CP 9.2.4.1 Calculation of concentrations in groundwater**

##### **Predicted environmental concentrations in groundwater (PEC<sub>GW</sub>)**

Not applicable. Please refer to point CP 9.2.4.

#### **CP 9.2.4.2 Additional field tests**

Not applicable. Please refer to point CP 9.2.4.

## CP 9.2.5 Estimation of concentrations in surface water and sediment

### Predicted environmental concentrations in surface water (PEC<sub>SW</sub>)

Table CP 9.1.5-1: Application pattern

Crop	Application rate	Max number of Applications	Min Interval	Application period
Vine	30 kg/ha	4	7 days	Up to BBCH 65

The application of aluminium silicate is not expected to increase significantly the natural kaolin content of natural water bodies.

Based on the characteristics of kaolin using standard FOCUS calculations are impossible and meaningless. However, the initial worst case PEC<sub>Surface Water</sub> for kaolin has been calculated for vines taking into consideration spray drift only, for one application at the maximum dose and also assuming total accumulation of kaolin between applications (Table CP 9.2.5-1). PEC<sub>SW</sub> are calculated as follows:

$$PEC_{SW} (mg/L) = \frac{\text{Application rate (g/ha)} \times \text{drift (decimal)}}{300 \text{ L/m}^2 \times 10 \text{ (conversion factor)}}$$

Table CP 9.2.5-2: Worst case PEC<sub>SW</sub> for kaolin in surface waters with 3 m buffer zone – use in vines – late treatment

	Max single spray	Total season
Application rate (vines)	30 000 g/ha	120 000 g/ha*
Spray drift** (%)	8.02	8.02
Spray deposit (mg/m <sup>2</sup> )	240.6	962.4
Water volume (L)	300	300
PEC <sub>SW</sub> (mg/L)	0.802	3.208

\* based on a maximum application rate of 4 x 30 kg/ha

\*\*Late season vines, 3 m from water body, SANCO/4145/2000

Aluminium silicate is not soluble in water. Therefore, aluminium silicate will either settle in a slow moving water body or be dispersed until settling can take place.

Following a request from the co-RMS, PEC<sub>SW</sub> calculations were conducted using the FOCUS STEPS 1-2 model as per co-RMS feedback.

The following input values were used:

All possible scenario combinations were modelled:

- North and South Europe
- Early application (minimal crop cover)
- Late application (full canopy)

- Treatment in October to February, March to May and June to September
- Single application rate: 30 000 g/ha
- 4 applications, 7-day interval
- 0,000001 mg/L water solubility (lowest value accepted by model for an insoluble substance)
- K<sub>oc</sub> = 1 000 000 L/g (highest value for a natural soil component)
- DT<sub>50</sub> = 1000 days in soil, surface water and sediment (default worst case)

Results are presented in Table CP 9.2.5-2 below, and model input/output sheets are presented in Appendix I.

**Table CP 9.2.5-2: PEC<sub>sw</sub> and PEC<sub>sed</sub> for SURROUND as calculated by FOCUS STEPS1-2**

STEP 1-2		Vine Early				
		PEC <sub>sw</sub> (µg/L)		PEC <sub>sed</sub> (µg/kg)		
STEP1		1.11E+03		30000		
			Mult App	Single App	Mult App	Single App
STEP2	North EU	Oct - Feb	250.8474	269.9	96400	24400
		Mar - May	250.8474	269.9	43000	11000
		Jun - Sep	250.8474	269.9	43000	11000
	South EU	Oct - Feb	250.8474	269.9	78600	19900
		Mar - May	250.8474	269.9	78600	19900
		Jun - Sep	250.8474	269.9	60800	15500
STEP 1-2		Vine Late				
		PEC <sub>sw</sub> (µg/L)		PEC <sub>sed</sub> (µg/kg)		
STEP1		3240		30000		
			Mult App	Single App	Mult App	Single App
STEP2	North EU	Oct - Feb	665.6138	<b>802.8*</b>	79000	20900
		Mar - May	665.6138	802.8	43400	12000
		Jun - Sep	665.6138	802.8	43400	12000
	South EU	Oct - Feb	665.6138	802.8	67100	17900
		Mar - May	665.6138	802.8	67100	17900
		Jun - Sep	665.6138	802.8	55300	15000

\*: Value used for aquatic ecotoxicology risk assessment

### Predicted environmental concentrations in sediment (PEC<sub>sed</sub>)

Aluminium silicate will naturally settle provided water currents are slow enough to permit deposition. Once settled, aluminium silicate will be completely undistinguishable from naturally-present clay particles and become part of the sediment. Since aluminium silicate is not soluble in water, we consider 100% of the product entering waterways will transfer to the sediment.

PEC<sub>sed</sub> are calculated as follows:

$$\text{PEC}_{\text{sed}} (\text{mg/kg}) = \text{Application rate (g/ha)} \times \text{drift (decimal)}$$

$$\text{Sed. volume (cm}^3\text{)} \times \text{sed. density (g/cm}^3\text{)} \times 10 \text{ (conversion factor)}$$

**Table CP 9.2.5-2: Worst case PEC<sub>SED</sub> for kaolin in surface waters with 3 m buffer zone – use in vines – late treatment**

	<b>Max single spray</b>	<b>Total season</b>
Application rate (vines)	30 000 g/ha	120 000 g/ha*
Spray Drift**	8.02	8.02
Spray deposit (mg/m <sup>2</sup> )	240.6	962.4
Sediment weight (1 m <sup>2</sup> x 5 cm depth x 1.3 g/cm <sup>3</sup> )	65 kg	65 kg
Transfer to sediment	100 %	100 %
<b>PEC<sub>SED</sub> (mg/kg)</b>	<b>3.70</b>	<b>14.81</b>

\* based on a maximum application rate of 4 x 30 kg/ha

\*\* Late season vines, 3 m from water body, SANCO/4145/2000

PEC<sub>SED</sub> have been calculated with the FOCUS STEPS1-2 tool and presented in Table CP 9.2.5-2 above.

## CP 9.3 Fate and Behaviour in Air

Not applicable.

Surround® WP Crop Protectant contains 95% calcined aluminium silicate. Aluminium silicate is extremely stable and has no vapour pressure. Therefore, evaporation of aluminium silicate from soil or plant surfaces is not possible.

Aluminium silicate can only be observed in air as particles in suspension, similar to natural dust suspended in air and cannot be distinguished from naturally present dust particles

A waiver is requested for all environmental fate studies in air.

### CP 9.3.1 Route and rate of degradation in air and transport via air

Not applicable. Please refer to point CP 9.3.

### Predicted environmental concentrations from airborne transport

Not applicable. Please refer to point CP 9.3.

## CP 9.4 Estimation of Concentrations for Other Routes of Exposure

Not applicable.

Aluminium silicate is a natural form of clay that is present the world over. Exposure to clay particles is ubiquitous in the form of dust, suspended particles in water, sediment or soil. Estimating exposure to one of the most common mineral substances on Earth is meaningless.



## Appendix I: PEC<sub>SW</sub> calculations

### STEP 1 Early Vines

### STEPS 1-2 in FOCUS

### FOCUS Surface water Tool for Exposure Predictions Step 1

*developed by Michael Klein*

Program version:  
Date of this simulation:

Version 3.2  
16/04/2020, 09:47:49

#### OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION

*Comments: STEP 1 Early Vines*

Active substance:	Aluminium silicate
Application rate (g/ha) of a.i.:	30000.00
Application/crop type:	vines, early applns
Number of applications per season:	4.00
Application interval (d):	7.00
Water solubility (mg/L):	1.00E-06
KOC compound(L/kg):	1000000.00
DT50 water/sediment (d):	1000.00

#### SCENARIO DATA USED IN THE CALCULATION

Distance to the water body (m):	3.00
Spraydrift (% of application):	2.6990
Runoff + drainage(% of application):	10.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

#### RESULTS OF THE CALCULATION

Equivalent app. rate for drift (g/ha):	30000.00
Equivalent app. rate for runoff/drainage(g/ha):	30000.00
Equivalent app. rate for runoff/drainage(g/ha) of parent:	0.00E+00
Loading to water body via drift (mg/m <sup>2</sup> ):	323.8800
Loading to water body via runoff/drainage(mg/m <sup>2</sup> ):	1.2E+04
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment phase:	0.9993

Table: Calculated Concentrations in the water body

Time (d)	PEC <sub>sw</sub> (µg/L)		PEC <sub>sed</sub> (µg/kg dry sediment)	
	Actual	TWA	Actual	TWA



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0	1.11E+03		3.E+05	
1	30.7653	570.1714	3.08E+05	3.04E+05
2	30.7440	300.4630	3.07E+05	3.06E+05
4	30.7014	165.5928	3.07E+05	3.06E+05
7	30.6376	107.7685	3.06E+05	3.07E+05
14	30.4893	69.1660	3.05E+05	3.06E+05
21	30.3417	56.2491	3.03E+05	3.05E+05
28	30.1949	49.7539	3.02E+05	3.05E+05
42	29.9033	43.1855	2.99E+05	3.03E+05
50	29.7379	41.0471	2.97E+05	3.03E+05
100	28.7249	35.1378	2.87E+05	2.97E+05

Maximum PEC<sub>sw</sub> values in water and sediment are calculated from sum of individual applications.

**Compare with ecotox endpoints. If TER values are less than regulatory triggers, then go to Step 2**

***\*\*CAUTION\*\* Initial PEC<sub>sw</sub> exceeds water solubility. Calculate exposure using Step 2***

**STEP 1 Late Vines****STEPS 1-2 in FOCUS****FOCUS Surface water Tool for Exposure Predictions Step 1***developed by Michael Klein*

Program version:  
Date of this simulation:

Version 3.2  
16/04/2020, 09:51:53

**OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION***Comments: STEP 1 Late Vines*

Active substance:	Aluminium silicate
Application rate (g/ha) of a.i.:	30000.00
Application/crop type:	vines, late applns
Number of applications per season:	4.00
Application interval (d):	7.00
Water solubility (mg/L):	1.00E-06
KOC compound(L/kg):	1000000.00
DT50 water/sediment (d):	1000.00

**SCENARIO DATA USED IN THE CALCULATION**

Distance to the water body (m):	3.00
Spraydrift (% of application):	8.0280
Runoff + drainage(% of application):	10.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

**RESULTS OF THE CALCULATION**

Equivalent app. rate for drift (g/ha):	30000.00
Equivalent app. rate for runoff/drainage(g/ha):	30000.00
Equivalent app. rate for runoff/drainage(g/ha) of parent:	0.00E+00
Loading to water body via drift (mg/m <sup>2</sup> ):	963.3600
Loading to water body via runoff/drainage(mg/m <sup>2</sup> ):	1.2E+04
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment phase:	0.9993

Table: Calculated Concentrations in the water body

Time (d)	PEC <sub>sw</sub> (µg/L)		PEC <sub>sed</sub> (µg/kg dry sediment)	
	Actual	TWA	Actual	TWA

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0	3.24E+03		3.E+05	
1	32.3617	1.64E+03	3.24E+05	3.12E+05
2	32.3392	834.5600	3.23E+05	3.18E+05
4	32.2944	433.4384	3.23E+05	3.2E+05
7	32.2274	261.5052	3.22E+05	3.21E+05
14	32.0714	146.8273	3.21E+05	3.21E+05
21	31.9161	108.5494	3.19E+05	3.21E+05
28	31.7617	89.3718	3.18E+05	3.2E+05
42	31.4549	70.1172	3.15E+05	3.19E+05
50	31.2810	63.9173	3.13E+05	3.18E+05
100	30.2154	47.3312	3.02E+05	3.13E+05

Maximum PEC<sub>sw</sub> values in water and sediment are calculated from sum of individual applications.

**Compare with ecotox endpoints. If TER values are less than regulatory triggers, then go to Step 2**

***\*\*CAUTION\*\* Initial PEC<sub>sw</sub> exceeds water solubility. Calculate exposure using Step 2***

**STEP 2 Early Vines NEU Oct-Feb****STEPS 1-2 in FOCUS****FOCUS Surface water Tool for Exposure Predictions Step 2***developed by Michael Klein*

Program version:  
Date of this simulation:

Version 3.2  
16/04/2020, 09:52:42

**OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION***Comments: Early Vines NEU Oct-Feb*

Active substance:	Aluminium silicate
Application rate (g/ha) of a.i.:	30000.00
Crop Interception:	minimal crop cover (40 %)
Application/crop type:	vines, early applns
Number of applications per season:	4
Application interval (d):	7.00
Region and season of application:	North Europe, Oct. - Feb.
Water solubility (mg/L):	1.00E-06
KOC assessed compound(L/kg):	1000000.00
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	1000.00

**SCENARIO DATA USED IN THE CALCULATION**

Distance to the water body (m):	3.00
Spraydrift for multiple applications (% of application):	2.4990
Spraydrift for single application (% of application):	2.6990
Runoff + drainage(% of application):	5.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

**RESULTS OF THE CALCULATION**

Number of application per season considered for this run:	4
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	18000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	74.9700



Loading to water body via runoff/drainage (mg/m <sup>2</sup> ):	3.56E+03
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	299.8800 ( 7.7610%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	2.6710 ( 0.0691%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	3.56E+03 ( 92.1699%)
Maximum PECSW (µg/L):	250.8474
Maximum PECSW occurring on day:	21
Maximum PECsed (µg/kg dry sediment):	9.64E+04
Maximum PECsed occurring on day:	25

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	Actual
	TWA		TWA	
0	250.8474	---	9.64E+04	---
1	84.2384	167.5429	9.64E+04	9.64E+04
2	28.7817	112.0265	9.63E+04	9.64E+04
4	13.0809	63.8266	9.62E+04	9.63E+04
7	9.6251	40.8471	9.6E+04	9.62E+04
14	9.5785	25.2244	9.55E+04	9.6E+04
21	9.5321	20.0014	9.51E+04	9.58E+04
28	9.4860	17.3783	9.46E+04	9.55E+04
42	9.3944	14.7322	9.37E+04	9.51E+04
50	9.3424	13.8740	9.32E+04	9.48E+04
100	9.0242	11.5282	9.E+04	9.32E+04

## RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	18000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	80.9700
Loading to water body via runoff(mg/m <sup>2</sup> ):	897.5081
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment phase:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	80.9700 ( 8.2751%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	0.6726 ( 0.0687%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	896.8355 ( 91.6562%)
Maximum PECSW (µg/L):	269.9000
Maximum PECSW occurring on day:	0
Maximum PECsed (µg/kg dry sediment):	2.44E+04
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

PECsw (µg/L)	PECsed(µg/kg dry sediment)
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Time after max. peak(d)		Actual	TWA	Actual
	TWA			
0	269.9000	---	2.44E+04	---
1	90.0391	179.9695	2.44E+04	2.44E+04
2	30.1717	120.0375	2.44E+04	2.44E+04
4	5.8537	67.0831	2.44E+04	2.44E+04
7	2.4387	39.6230	2.43E+04	2.44E+04
14	2.4269	21.0279	2.42E+04	2.43E+04
21	2.4152	14.8256	2.41E+04	2.42E+04
28	2.4035	11.7215	2.4E+04	2.42E+04
42	2.3803	8.6117	2.37E+04	2.41E+04
50	2.3671	7.6136	2.36E+04	2.4E+04
100	2.2865	4.9701	2.28E+04	2.36E+04

**\*\*CAUTION\*\*\*** Maximum PEC in surface water is higher for single application than for multiple application pattern.

**\*\*CAUTION\*\*\*** Initial PEC<sub>sw</sub> exceeds water solubility. Use a higher tier model

**STEP 2 Early Vines NEU Mar-May****STEPS 1-2 in FOCUS****FOCUS Surface water Tool for Exposure Predictions Step 2***developed by Michael Klein*

Program version:  
Date of this simulation:

Version 3.2  
16/04/2020, 09:58:44

**OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION***Comments: Early Vines NEU Mar-May*

Active substance:	Aluminium silicate
Application rate (g/ha) of a.i.:	30000.00
Crop Interception:	minimal crop cover (40 %)
Application/crop type:	vines, early applns
Number of applications per season:	4
Application interval (d):	7.00
Region and season of application:	North Europe, Mar. - May
Water solubility (mg/L):	1.00E-06
KOC assessed compound(L/kg):	1000000.00
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	1000.00

**SCENARIO DATA USED IN THE CALCULATION**

Distance to the water body (m):	3.00
Spraydrift for multiple applications (% of application):	2.4990
Spraydrift for single application (% of application):	2.6990
Runoff + drainage(% of application):	2.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

**RESULTS OF THE CALCULATION**

Number of application per season considered for this run:	4
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	18000.00
Loading to water body per drift event(mg/m²):	74.9700



Loading to water body via runoff/drainage (mg/m <sup>2</sup> ):	1.43E+03
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	299.8800 ( 17.3793%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	1.0684 ( 0.0619%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	1.42E+03 ( 82.5588%)
Maximum PECSW (µg/L):	250.8474
Maximum PECSW occurring on day:	21
Maximum PECsed (µg/kg dry sediment):	4.3E+04
Maximum PECsed occurring on day:	25

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	
	TWA		TWA	Actual
0	250.8474	--	4.3E+04	--
1	84.2384	167.5429	4.3E+04	4.3E+04
2	28.7817	112.0265	4.3E+04	4.3E+04
4	7.7388	63.1589	4.29E+04	4.3E+04
7	4.2941	38.1784	4.28E+04	4.29E+04
14	4.2733	21.2311	4.26E+04	4.28E+04
21	4.2526	15.5750	4.24E+04	4.27E+04
28	4.2320	12.7419	4.22E+04	4.26E+04
42	4.1912	9.8984	4.18E+04	4.24E+04
50	4.1680	8.9834	4.16E+04	4.23E+04
100	4.0260	6.5400	4.01E+04	4.16E+04

## RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	18000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	80.9700
Loading to water body via runoff(mg/m <sup>2</sup> ):	359.0033
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment phase:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	80.9700 ( 18.4034%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	0.2691 ( 0.0612%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	358.7342 ( 81.5355%)
Maximum PECSW (µg/L):	269.9000
Maximum PECSW occurring on day:	0
Maximum PECsed (µg/kg dry sediment):	1.1E+04
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

PECsw (µg/L)	PECsed(µg/kg dry sediment)
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Time after max. peak(d)		Actual	TWA	Actual
	TWA			
0	269.9000	---	1.1E+04	---
1	90.0391	179.9695	1.1E+04	1.1E+04
2	30.1717	120.0375	1.1E+04	1.1E+04
4	4.5085	66.9149	1.09E+04	1.1E+04
7	1.0963	38.9510	1.09E+04	1.1E+04
14	1.0910	20.0223	1.09E+04	1.09E+04
21	1.0857	13.7110	1.08E+04	1.09E+04
28	1.0804	10.5540	1.08E+04	1.09E+04
42	1.0700	7.3944	1.07E+04	1.08E+04
50	1.0641	6.3820	1.06E+04	1.08E+04
100	1.0278	3.7139	1.02E+04	1.06E+04

***\*\*CAUTION\*\* Maximum PEC in surface water is higher for single application than for multiple application pattern.***

***\*\*CAUTION\*\* Initial PEC<sub>sw</sub> exceeds water solubility. Use a higher tier model***

**STEP 2 Early Vines NEU Jun-Sep****STEPS 1-2 in FOCUS****FOCUS Surface water Tool for Exposure Predictions Step 2***developed by Michael Klein*

Program version:	Version 3.2
Date of this simulation:	16/04/2020, 09:59:52

**OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION***Comments: Early Vines NEU Jun-Sep*

Active substance:	Aluminium silicate
Application rate (g/ha) of a.i.:	30000.00
Crop Interception:	minimal crop cover (40 %)
Application/crop type:	vines, early applns
Number of applications per season:	4
Application interval (d):	7.00
Region and season of application:	North Europe, June - Sep.
Water solubility (mg/L):	1.00E-06
KOC assessed compound(L/kg):	1000000.00
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	1000.00

**SCENARIO DATA USED IN THE CALCULATION**

Distance to the water body (m):	3.00
Spraydrift for multiple applications (% of application):	2.4990
Spraydrift for single application (% of application):	2.6990
Runoff + drainage(% of application):	2.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

**RESULTS OF THE CALCULATION**

Number of application per season considered for this run:	4
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	18000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	74.9700



Loading to water body via runoff/drainage (mg/m <sup>2</sup> ):	1.43E+03
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	299.8800 ( 17.3793%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	1.0684 ( 0.0619%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	1.42E+03 ( 82.5588%)
Maximum PECSW (µg/L):	250.8474
Maximum PECSW occurring on day:	21
Maximum PECsed (µg/kg dry sediment):	4.3E+04
Maximum PECsed occurring on day:	25

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	Actual
	TWA		TWA	
0	250.8474	---	4.3E+04	---
1	84.2384	167.5429	4.3E+04	4.3E+04
2	28.7817	112.0265	4.3E+04	4.3E+04
4	7.7388	63.1589	4.29E+04	4.3E+04
7	4.2941	38.1784	4.28E+04	4.29E+04
14	4.2733	21.2311	4.26E+04	4.28E+04
21	4.2526	15.5750	4.24E+04	4.27E+04
28	4.2320	12.7419	4.22E+04	4.26E+04
42	4.1912	9.8984	4.18E+04	4.24E+04
50	4.1680	8.9834	4.16E+04	4.23E+04
100	4.0260	6.5400	4.01E+04	4.16E+04

## RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	18000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	80.9700
Loading to water body via runoff(mg/m <sup>2</sup> ):	359.0033
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment phase:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	80.9700 ( 18.4034%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	0.2691 ( 0.0612%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	358.7342 ( 81.5355%)
Maximum PECSW (µg/L):	269.9000
Maximum PECSW occurring on day:	0
Maximum PECsed (µg/kg dry sediment):	1.1E+04
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

PECsw (µg/L)	PECsed(µg/kg dry sediment)
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Time after max. peak(d)		Actual	TWA	Actual
	TWA			
0	269.9000	---	1.1E+04	---
1	90.0391	179.9695	1.1E+04	1.1E+04
2	30.1717	120.0375	1.1E+04	1.1E+04
4	4.5085	66.9149	1.09E+04	1.1E+04
7	1.0963	38.9510	1.09E+04	1.1E+04
14	1.0910	20.0223	1.09E+04	1.09E+04
21	1.0857	13.7110	1.08E+04	1.09E+04
28	1.0804	10.5540	1.08E+04	1.09E+04
42	1.0700	7.3944	1.07E+04	1.08E+04
50	1.0641	6.3820	1.06E+04	1.08E+04
100	1.0278	3.7139	1.02E+04	1.06E+04

**\*\*CAUTION\*\*** Maximum PEC in surface water is higher for single application than for multiple application pattern.

**\*\*CAUTION\*\*** Initial PEC<sub>sw</sub> exceeds water solubility. Use a higher tier model

**STEP 2 Early Vines SEU Oct-Feb*****STEPS 1-2 in FOCUS*****FOCUS Surface water Tool for Exposure Predictions Step 2***developed by Michael Klein*

Program version:  
Date of this simulation:

Version 3.2  
16/04/2020, 10:00:29

**OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION***Comments: Early Vines SEU Oct-Feb*

Active substance:	Aluminium silicate
Application rate (g/ha) of a.i.:	30000.00
Crop Interception:	minimal crop cover (40 %)
Application/crop type:	vines, early applns
Number of applications per season:	4
Application interval (d):	7.00
Region and season of application:	South Europe, Oct. - Feb.
Water solubility (mg/L):	1.00E-06
KOC assessed compound(L/kg):	1000000.00
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	1000.00

**SCENARIO DATA USED IN THE CALCULATION**

Distance to the water body (m):	3.00
Spraydrift for multiple applications (% of application):	2.4990
Spraydrift for single application (% of application):	2.6990
Runoff + drainage(% of application):	4.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

**RESULTS OF THE CALCULATION**

Number of application per season considered for this run:	4
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	18000.00
Loading to water body per drift event(mg/m²):	74.9700



Loading to water body via runoff/drainage (mg/m <sup>2</sup> ):	2.85E+03
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	299.8800 ( 9.5166%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	2.1368 ( 0.0678%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	2.85E+03 ( 90.4156%)
Maximum PECSW (µg/L):	250.8474
Maximum PECSW occurring on day:	21
Maximum PECsed (µg/kg dry sediment):	7.86E+04
Maximum PECsed occurring on day:	25

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	Actual
	TWA		TWA	
0	250.8474	---	7.86E+04	---
1	84.2384	167.5429	7.86E+04	7.86E+04
2	28.7817	112.0265	7.85E+04	7.86E+04
4	11.3002	63.6040	7.84E+04	7.85E+04
7	7.8481	39.9575	7.83E+04	7.85E+04
14	7.8101	23.8933	7.79E+04	7.83E+04
21	7.7723	18.5259	7.75E+04	7.81E+04
28	7.7347	15.8328	7.71E+04	7.79E+04
42	7.6600	13.1210	7.64E+04	7.75E+04
50	7.6176	12.2438	7.6E+04	7.73E+04
100	7.3581	9.8655	7.34E+04	7.6E+04

## RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	18000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	80.9700
Loading to water body via runoff(mg/m <sup>2</sup> ):	718.0065
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment phase:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	80.9700 ( 10.1342%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	0.5381 ( 0.0673%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	717.4684 ( 89.7984%)
Maximum PECSW (µg/L):	269.9000
Maximum PECSW occurring on day:	0
Maximum PECsed (µg/kg dry sediment):	1.99E+04
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

PECsw (µg/L)	PECsed(µg/kg dry sediment)
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Time after max. peak(d)		Actual	TWA	Actual
	TWA			
0	269.9000	---	1.99E+04	---
1	90.0391	179.9695	1.99E+04	1.99E+04
2	30.1717	120.0375	1.99E+04	1.99E+04
4	5.4053	67.0270	1.99E+04	1.99E+04
7	1.9912	39.3990	1.98E+04	1.99E+04
14	1.9816	20.6927	1.97E+04	1.98E+04
21	1.9720	14.4541	1.97E+04	1.98E+04
28	1.9625	11.3324	1.96E+04	1.97E+04
42	1.9435	8.2059	1.94E+04	1.97E+04
50	1.9328	7.2031	1.93E+04	1.96E+04
100	1.8669	4.5514	1.86E+04	1.93E+04

**\*\*CAUTION\*\*\*** Maximum PEC in surface water is higher for single application than for multiple application pattern.

**\*\*CAUTION\*\*\*** Initial PEC<sub>sw</sub> exceeds water solubility. Use a higher tier model

**STEP 2 Early Vines SEU Mar-May*****STEPS 1-2 in FOCUS*****FOCUS Surface water Tool for Exposure Predictions Step 2***developed by Michael Klein*

Program version:  
Date of this simulation:

Version 3.2  
16/04/2020, 10:01:26

**OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION***Comments: Early Vines SEU Mar-May*

Active substance:	Aluminium silicate
Application rate (g/ha) of a.i.:	30000.00
Crop Interception:	minimal crop cover (40 %)
Application/crop type:	vines, early applns
Number of applications per season:	4
Application interval (d):	7.00
Region and season of application:	South Europe, Mar. - May
Water solubility (mg/L):	1.00E-06
KOC assessed compound(L/kg):	1000000.00
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	1000.00

**SCENARIO DATA USED IN THE CALCULATION**

Distance to the water body (m):	3.00
Spraydrift for multiple applications (% of application):	2.4990
Spraydrift for single application (% of application):	2.6990
Runoff + drainage(% of application):	4.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

**RESULTS OF THE CALCULATION**

Number of application per season considered for this run:	4
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	18000.00
Loading to water body per drift event(mg/m²):	74.9700

Loading to water body via runoff/drainage (mg/m <sup>2</sup> ):	2.85E+03
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	299.8800 ( 9.5166%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	2.1368 ( 0.0678%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	2.85E+03 ( 90.4156%)
Maximum PECSW (µg/L):	250.8474
Maximum PECSW occurring on day:	21
Maximum PECsed (µg/kg dry sediment):	7.86E+04
Maximum PECsed occurring on day:	25

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	Actual
	TWA		TWA	
0	250.8474	--	7.86E+04	--
1	84.2384	167.5429	7.86E+04	7.86E+04
2	28.7817	112.0265	7.85E+04	7.86E+04
4	11.3002	63.6040	7.84E+04	7.85E+04
7	7.8481	39.9575	7.83E+04	7.85E+04
14	7.8101	23.8933	7.79E+04	7.83E+04
21	7.7723	18.5259	7.75E+04	7.81E+04
28	7.7347	15.8328	7.71E+04	7.79E+04
42	7.6600	13.1210	7.64E+04	7.75E+04
50	7.6176	12.2438	7.6E+04	7.73E+04
100	7.3581	9.8655	7.34E+04	7.6E+04

## RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	18000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	80.9700
Loading to water body via runoff(mg/m <sup>2</sup> ):	718.0065
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment phase:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	80.9700 ( 10.1342%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	0.5381 ( 0.0673%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	717.4684 ( 89.7984%)
Maximum PECSW (µg/L):	269.9000
Maximum PECSW occurring on day:	0
Maximum PECsed (µg/kg dry sediment):	1.99E+04
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

PECsw (µg/L)	PECsed(µg/kg dry sediment)
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Time after max. peak(d)		Actual	TWA	Actual
	TWA			
0	269.9000	---	1.99E+04	---
1	90.0391	179.9695	1.99E+04	1.99E+04
2	30.1717	120.0375	1.99E+04	1.99E+04
4	5.4053	67.0270	1.99E+04	1.99E+04
7	1.9912	39.3990	1.98E+04	1.99E+04
14	1.9816	20.6927	1.97E+04	1.98E+04
21	1.9720	14.4541	1.97E+04	1.98E+04
28	1.9625	11.3324	1.96E+04	1.97E+04
42	1.9435	8.2059	1.94E+04	1.97E+04
50	1.9328	7.2031	1.93E+04	1.96E+04
100	1.8669	4.5514	1.86E+04	1.93E+04

**\*\*CAUTION\*\*** Maximum PEC in surface water is higher for single application than for multiple application pattern.

**\*\*CAUTION\*\*** Initial PEC<sub>sw</sub> exceeds water solubility. Use a higher tier model



**STEP 2 Early Vines SEU Jun-Sep****STEPS 1-2 in FOCUS****FOCUS Surface water Tool for Exposure Predictions Step 2***developed by Michael Klein*

Program version:  
Date of this simulation:

Version 3.2  
16/04/2020, 10:02:17

**OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION***Comments: Early Vines SEU Jun-Sep*

Active substance:	Aluminium silicate
Application rate (g/ha) of a.i.:	30000.00
Crop Interception:	minimal crop cover (40 %)
Application/crop type:	vines, early applns
Number of applications per season:	4
Application interval (d):	7.00
Region and season of application:	South Europe, June - Sep.
Water solubility (mg/L):	1.00E-06
KOC assessed compound(L/kg):	1000000.00
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	1000.00

**SCENARIO DATA USED IN THE CALCULATION**

Distance to the water body (m):	3.00
Spraydrift for multiple applications (% of application):	2.4990
Spraydrift for single application (% of application):	2.6990
Runoff + drainage(% of application):	3.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

**RESULTS OF THE CALCULATION**

Number of application per season considered for this run:	4
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	18000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	74.9700

Loading to water body via runoff/drainage (mg/m <sup>2</sup> ):	2.14E+03
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	299.8800 ( 12.2987%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	1.6026 ( 0.0657%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	2.14E+03 ( 87.6356%)
Maximum PCSW (µg/L):	250.8474
Maximum PCSW occurring on day:	21
Maximum PECsed (µg/kg dry sediment):	6.08E+04
Maximum PECsed occurring on day:	25

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	
	TWA		TWA	Actual
0	250.8474	---	6.08E+04	---
1	84.2384	167.5429	6.08E+04	6.08E+04
2	28.7817	112.0265	6.08E+04	6.08E+04
4	9.5195	63.3814	6.07E+04	6.07E+04
7	6.0711	39.0680	6.05E+04	6.07E+04
14	6.0417	22.5622	6.02E+04	6.05E+04
21	6.0125	17.0505	6.E+04	6.04E+04
28	5.9834	14.2873	5.97E+04	6.03E+04
42	5.9256	11.5097	5.91E+04	6.E+04
50	5.8928	10.6136	5.88E+04	5.98E+04
100	5.6921	8.2027	5.68E+04	5.88E+04

## RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	18000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	80.9700
Loading to water body via runoff(mg/m <sup>2</sup> ):	538.5049
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment phase:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	80.9700 ( 13.0707%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	0.4036 ( 0.0651%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	538.1013 ( 86.8641%)
Maximum PCSW (µg/L):	269.9000
Maximum PCSW occurring on day:	0
Maximum PECsed (µg/kg dry sediment):	1.55E+04
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

PECsw (µg/L)	PECsed(µg/kg dry sediment)
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Time after max. peak(d)		Actual	TWA	Actual
	TWA			
0	269.9000	---	1.55E+04	---
1	90.0391	179.9695	1.54E+04	1.55E+04
2	30.1717	120.0375	1.54E+04	1.54E+04
4	4.9569	66.9710	1.54E+04	1.54E+04
7	1.5438	39.1750	1.54E+04	1.54E+04
14	1.5363	20.3575	1.53E+04	1.54E+04
21	1.5288	14.0825	1.52E+04	1.53E+04
28	1.5214	10.9432	1.52E+04	1.53E+04
42	1.5068	7.8001	1.5E+04	1.52E+04
50	1.4984	6.7925	1.49E+04	1.52E+04
100	1.4474	4.1326	1.44E+04	1.49E+04

**\*\*CAUTION\*\*** Maximum PEC in surface water is higher for single application than for multiple application pattern.

**\*\*CAUTION\*\*** Initial PEC<sub>sw</sub> exceeds water solubility. Use a higher tier model



**STEP 2 Late Vines NEU Oct-Feb****STEPS 1-2 in FOCUS****FOCUS Surface water Tool for Exposure Predictions Step 2***developed by Michael Klein*

Program version:	Version 3.2
Date of this simulation:	16/04/2020, 10:02:41

**OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION***Comments: Late Vines NEU Oct-Feb*

Active substance:	Aluminium silicate
Application rate (g/ha) of a.i.:	30000.00
Crop Interception:	full canopy (60 %)
Application/crop type:	vines, late applns
Number of applications per season:	4
Application interval (d):	7.00
Region and season of application:	North Europe, Oct. - Feb.
Water solubility (mg/L):	1.00E-06
KOC assessed compound(L/kg):	1000000.00
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	1000.00

**SCENARIO DATA USED IN THE CALCULATION**

Distance to the water body (m):	3.00
Spraydrift for multiple applications (% of application):	6.6310
Spraydrift for single application (% of application):	8.0280
Runoff + drainage(% of application):	5.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

**RESULTS OF THE CALCULATION**

Number of application per season considered for this run:	4
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	12000.00
Loading to water body per drift event(mg/m²):	198.9300

Loading to water body via runoff/drainage (mg/m <sup>2</sup> ):	2.38E+03
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	795.7200 ( 25.0877%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	1.7807 ( 0.0561%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	2.37E+03 ( 74.8562%)
Maximum PEC <sub>SW</sub> (µg/L):	665.6138
Maximum PEC <sub>SW</sub> occurring on day:	21
Maximum PEC <sub>sed</sub> (µg/kg dry sediment):	7.9E+04
Maximum PEC <sub>sed</sub> occurring on day:	26

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PEC <sub>sw</sub> (µg/L)	Actual	PEC <sub>sed</sub> (µg/kg dry sediment)	
	TWA		TWA	Actual
0	665.6138	--	7.9E+04	--
1	223.5234	444.5686	7.89E+04	7.9E+04
2	76.3711	297.2579	7.89E+04	7.89E+04
4	17.0203	167.1503	7.88E+04	7.89E+04
7	7.8872	99.5494	7.86E+04	7.88E+04
14	7.8490	53.7087	7.82E+04	7.86E+04
21	7.8110	38.4158	7.78E+04	7.84E+04
28	7.7732	30.7599	7.75E+04	7.82E+04
42	7.6981	23.0851	7.67E+04	7.78E+04
50	7.6556	20.6198	7.63E+04	7.76E+04
100	7.3948	14.0721	7.37E+04	7.63E+04

## RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	12000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	240.8400
Loading to water body via runoff(mg/m <sup>2</sup> ):	598.3388
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment phase:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	240.8400 ( 28.6995%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	0.4484 ( 0.0534%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	597.8903 ( 71.2471%)
Maximum PEC <sub>SW</sub> (µg/L):	802.8000
Maximum PEC <sub>SW</sub> occurring on day:	0
Maximum PEC <sub>sed</sub> (µg/kg dry sediment):	2.09E+04
Maximum PEC <sub>sed</sub> occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

PEC <sub>sw</sub> (µg/L)	PEC <sub>sed</sub> (µg/kg dry sediment)
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Time after max. peak(d)		Actual	TWA	Actual
	TWA			
0	802.8000	--	2.09E+04	--
1	267.8154	535.3077	2.09E+04	2.09E+04
2	89.7439	357.0437	2.09E+04	2.09E+04
4	12.2374	198.8875	2.09E+04	2.09E+04
7	2.0904	115.2713	2.08E+04	2.09E+04
14	2.0802	58.6783	2.07E+04	2.08E+04
21	2.0702	39.8106	2.06E+04	2.08E+04
28	2.0602	30.3742	2.05E+04	2.07E+04
42	2.0403	20.9329	2.03E+04	2.06E+04
50	2.0290	17.9092	2.02E+04	2.06E+04
100	1.9599	9.9517	1.95E+04	2.02E+04

**\*\*CAUTION\*\*\* Maximum PEC in surface water is higher for single application than for multiple application pattern.**

**\*\*CAUTION\*\*\* Initial PEC<sub>sw</sub> exceeds water solubility. Use a higher tier model**



**STEP 2 Late Vines NEU Mar-May****STEPS 1-2 in FOCUS****FOCUS Surface water Tool for Exposure Predictions Step 2***developed by Michael Klein*

Program version:  
Date of this simulation:

Version 3.2  
16/04/2020, 10:03:51

**OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION***Comments: Late Vines NEU Mar-May*

Active substance:	Aluminium silicate
Application rate (g/ha) of a.i.:	30000.00
Crop Interception:	full canopy (60 %)
Application/crop type:	vines, late applns
Number of applications per season:	4
Application interval (d):	7.00
Region and season of application:	North Europe, Mar. - May
Water solubility (mg/L):	1.00E-06
KOC assessed compound(L/kg):	1000000.00
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	1000.00

**SCENARIO DATA USED IN THE CALCULATION**

Distance to the water body (m):	3.00
Spraydrift for multiple applications (% of application):	6.6310
Spraydrift for single application (% of application):	8.0280
Runoff + drainage(% of application):	2.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

**RESULTS OF THE CALCULATION**

Number of application per season considered for this run:	4
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	12000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	198.9300

Loading to water body via runoff/drainage (mg/m <sup>2</sup> ):	950.4137
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	795.7200 ( 45.5704%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	0.7123 ( 0.0408%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	949.7014 ( 54.3888%)
Maximum PECSW (µg/L):	665.6138
Maximum PECSW occurring on day:	21
Maximum PECsed (µg/kg dry sediment):	4.34E+04
Maximum PECsed occurring on day:	26

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	
	TWA		TWA	Actual
0	665.6138	—	4.34E+04	—
1	223.5234	444.5686	4.34E+04	4.34E+04
2	76.3711	297.2579	4.33E+04	4.34E+04
4	13.4589	166.7051	4.33E+04	4.33E+04
7	4.3332	97.7703	4.32E+04	4.33E+04
14	4.3122	51.0465	4.3E+04	4.32E+04
21	4.2913	35.4649	4.28E+04	4.31E+04
28	4.2706	27.6689	4.26E+04	4.3E+04
42	4.2293	19.8626	4.21E+04	4.28E+04
50	4.2059	17.3594	4.19E+04	4.26E+04
100	4.0627	10.7466	4.05E+04	4.19E+04

## RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	12000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	240.8400
Loading to water body via runoff(mg/m <sup>2</sup> ):	239.3355
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment phase:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	240.8400 ( 50.1567%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	0.1794 ( 0.0374%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	239.1561 ( 49.8060%)
Maximum PECSW (µg/L):	802.8000
Maximum PECSW occurring on day:	0
Maximum PECsed (µg/kg dry sediment):	1.2E+04
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

PECsw (µg/L)	PECsed(µg/kg dry sediment)
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Time after max. peak(d)		Actual	TWA	Actual
	TWA			
0	802.8000	--	1.2E+04	--
1	267.8154	535.3077	1.2E+04	1.2E+04
2	89.7439	357.0437	1.2E+04	1.2E+04
4	11.3405	198.7754	1.19E+04	1.2E+04
7	1.1954	114.8232	1.19E+04	1.19E+04
14	1.1896	58.0079	1.19E+04	1.19E+04
21	1.1838	39.0675	1.18E+04	1.19E+04
28	1.1781	29.5959	1.17E+04	1.19E+04
42	1.1667	20.1214	1.16E+04	1.18E+04
50	1.1603	17.0881	1.16E+04	1.18E+04
100	1.1208	9.1143	1.12E+04	1.16E+04

**\*\*CAUTION\*\*\*** Maximum PEC in surface water is higher for single application than for multiple application pattern.

**\*\*CAUTION\*\*\*** Initial PEC<sub>sw</sub> exceeds water solubility. Use a higher tier model



**STEP 2 Late Vines NEU Jun-Sep****STEPS 1-2 in FOCUS****FOCUS Surface water Tool for Exposure Predictions Step 2***developed by Michael Klein*

Program version:  
Date of this simulation:

Version 3.2  
16/04/2020, 10:04:51

**OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION***Comments: Late Vines NEU Jun-Sep*

Active substance:	Aluminium silicate
Application rate (g/ha) of a.i.:	30000.00
Crop Interception:	full canopy (60 %)
Application/crop type:	vines, late applns
Number of applications per season:	4
Application interval (d):	7.00
Region and season of application:	North Europe, June - Sep.
Water solubility (mg/L):	1.00E-06
KOC assessed compound(L/kg):	1000000.00
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	1000.00

**SCENARIO DATA USED IN THE CALCULATION**

Distance to the water body (m):	3.00
Spraydrift for multiple applications (% of application):	6.6310
Spraydrift for single application (% of application):	8.0280
Runoff + drainage(% of application):	2.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

**RESULTS OF THE CALCULATION**

Number of application per season considered for this run:	4
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	12000.00
Loading to water body per drift event(mg/m³):	198.9300



Loading to water body via runoff/drainage (mg/m <sup>2</sup> ):	950.4137
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	795.7200 ( 45.5704%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	0.7123 ( 0.0408%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	949.7014 ( 54.3888%)
Maximum PECSW (µg/L):	665.6138
Maximum PECSW occurring on day:	21
Maximum PECsed (µg/kg dry sediment):	4.34E+04
Maximum PECsed occurring on day:	26

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	Actual
	TWA		TWA	
0	665.6138	---	4.34E+04	---
1	223.5234	444.5686	4.34E+04	4.34E+04
2	76.3711	297.2579	4.33E+04	4.34E+04
4	13.4589	166.7051	4.33E+04	4.33E+04
7	4.3332	97.7703	4.32E+04	4.33E+04
14	4.3122	51.0465	4.3E+04	4.32E+04
21	4.2913	35.4649	4.28E+04	4.31E+04
28	4.2706	27.6689	4.26E+04	4.3E+04
42	4.2293	19.8626	4.21E+04	4.28E+04
50	4.2059	17.3594	4.19E+04	4.26E+04
100	4.0627	10.7466	4.05E+04	4.19E+04

## RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	12000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	240.8400
Loading to water body via runoff(mg/m <sup>2</sup> ):	239.3355
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment phase:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	240.8400 ( 50.1567%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	0.1794 ( 0.0374%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	239.1561 ( 49.8060%)
Maximum PECSW (µg/L):	802.8000
Maximum PECSW occurring on day:	0
Maximum PECsed (µg/kg dry sediment):	1.2E+04
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

PECsw (µg/L)	PECsed(µg/kg dry sediment)
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Time after max. peak(d)		Actual	TWA	Actual
	TWA			
0	802.8000	--	1.2E+04	--
1	267.8154	535.3077	1.2E+04	1.2E+04
2	89.7439	357.0437	1.2E+04	1.2E+04
4	11.3405	198.7754	1.19E+04	1.2E+04
7	1.1954	114.8232	1.19E+04	1.19E+04
14	1.1896	58.0079	1.19E+04	1.19E+04
21	1.1838	39.0675	1.18E+04	1.19E+04
28	1.1781	29.5959	1.17E+04	1.19E+04
42	1.1667	20.1214	1.16E+04	1.18E+04
50	1.1603	17.0881	1.16E+04	1.18E+04
100	1.1208	9.1143	1.12E+04	1.16E+04

**\*\*CAUTION\*\*\*** Maximum PEC in surface water is higher for single application than for multiple application pattern.

**\*\*CAUTION\*\*\*** Initial PEC<sub>sw</sub> exceeds water solubility. Use a higher tier model

**STEP 2 Late Vines SEU Oct-Feb*****STEPS 1-2 in FOCUS*****FOCUS Surface water Tool for Exposure Predictions Step 2***developed by Michael Klein*

Program version:	Version 3.2
Date of this simulation:	16/04/2020, 10:05:20

**OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION***Comments: Late Vines SEU Oct-Feb*

Active substance:	Aluminium silicate
Application rate (g/ha) of a.i.:	30000.00
Crop Interception:	full canopy (60 %)
Application/crop type:	vines, late applns
Number of applications per season:	4
Application interval (d):	7.00
Region and season of application:	South Europe, Oct. - Feb.
Water solubility (mg/L):	1.00E-06
KOC assessed compound(L/kg):	1000000.00
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	1000.00

**SCENARIO DATA USED IN THE CALCULATION**

Distance to the water body (m):	3.00
Spraydrift for multiple applications (% of application):	6.6310
Spraydrift for single application (% of application):	8.0280
Runoff + drainage(% of application):	4.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

**RESULTS OF THE CALCULATION**

Number of application per season considered for this run:	4
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	12000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	198.9300



Loading to water body via runoff/drainage (mg/m <sup>2</sup> ):	1.9E+03
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	795.7200 ( 29.5088%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	1.4246 ( 0.0528%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	1.9E+03 ( 70.4383%)
Maximum PECSW (µg/L):	665.6138
Maximum PECSW occurring on day:	21
Maximum PECsed (µg/kg dry sediment):	6.71E+04
Maximum PECsed occurring on day:	26

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PECSw (µg/L)	Actual	PECsed(µg/kg dry sediment)	
	TWA		TWA	Actual
0	665.6138	---	6.71E+04	---
1	223.5234	444.5686	6.71E+04	6.71E+04
2	76.3711	297.2579	6.7E+04	6.71E+04
4	15.8332	167.0019	6.69E+04	6.7E+04
7	6.7025	98.9564	6.68E+04	6.7E+04
14	6.6701	52.8213	6.65E+04	6.68E+04
21	6.6378	37.4322	6.61E+04	6.66E+04
28	6.6057	29.7296	6.58E+04	6.65E+04
42	6.5419	22.0109	6.52E+04	6.62E+04
50	6.5057	19.5330	6.48E+04	6.6E+04
100	6.2841	12.9636	6.26E+04	6.48E+04

## RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	12000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	240.8400
Loading to water body via runoff(mg/m <sup>2</sup> ):	478.6710
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment phase:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	240.8400 ( 33.4727%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	0.3587 ( 0.0499%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	478.3123 ( 66.4774%)
Maximum PECSW (µg/L):	802.8000
Maximum PECSW occurring on day:	0
Maximum PECsed (µg/kg dry sediment):	1.79E+04
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

PECSw (µg/L)	PECsed(µg/kg dry sediment)
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Time after max. peak(d)		Actual	TWA	Actual
	TWA			
0	802.8000	---	1.79E+04	---
1	267.8154	535.3077	1.79E+04	1.79E+04
2	89.7439	357.0437	1.79E+04	1.79E+04
4	11.9384	198.8501	1.79E+04	1.79E+04
7	1.7920	115.1219	1.79E+04	1.79E+04
14	1.7834	58.4548	1.78E+04	1.79E+04
21	1.7747	39.5629	1.77E+04	1.78E+04
28	1.7661	30.1148	1.76E+04	1.78E+04
42	1.7491	20.6624	1.74E+04	1.77E+04
50	1.7394	17.6355	1.73E+04	1.76E+04
100	1.6802	9.6725	1.67E+04	1.73E+04

**\*\*CAUTION\*\*** Maximum PEC in surface water is higher for single application than for multiple application pattern.

**\*\*CAUTION\*\*** Initial PEC<sub>sw</sub> exceeds water solubility. Use a higher tier model



**STEP 2 Late Vines SEU Mar-May****STEPS 1-2 in FOCUS****FOCUS Surface water Tool for Exposure Predictions Step 2***developed by Michael Klein*

Program version:	Version 3.2
Date of this simulation:	16/04/2020, 10:06:01

**OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION***Comments: Late Vines SEU Mar-May*

Active substance:	Aluminium silicate
Application rate (g/ha) of a.i.:	30000.00
Crop Interception:	full canopy (60 %)
Application/crop type:	vines, late applns
Number of applications per season:	4
Application interval (d):	7.00
Region and season of application:	South Europe, Mar. - May
Water solubility (mg/L):	1.00E-06
KOC assessed compound(L/kg):	1000000.00
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	1000.00

**SCENARIO DATA USED IN THE CALCULATION**

Distance to the water body (m):	3.00
Spraydrift for multiple applications (% of application):	6.6310
Spraydrift for single application (% of application):	8.0280
Runoff + drainage(% of application):	4.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

**RESULTS OF THE CALCULATION**

Number of application per season considered for this run:	4
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	12000.00
Loading to water body per drift event(mg/m²):	198.9300

Loading to water body via runoff/drainage (mg/m <sup>2</sup> ):	1.9E+03
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	795.7200 ( 29.5088%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	1.4246 ( 0.0528%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	1.9E+03 ( 70.4383%)
Maximum PECSW (µg/L):	665.6138
Maximum PECSW occurring on day:	21
Maximum PECsed (µg/kg dry sediment):	6.71E+04
Maximum PECsed occurring on day:	26

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	Actual
	TWA		TWA	
0	665.6138	---	6.71E+04	---
1	223.5234	444.5686	6.71E+04	6.71E+04
2	76.3711	297.2579	6.7E+04	6.71E+04
4	15.8332	167.0019	6.69E+04	6.7E+04
7	6.7025	98.9564	6.68E+04	6.7E+04
14	6.6701	52.8213	6.65E+04	6.68E+04
21	6.6378	37.4322	6.61E+04	6.66E+04
28	6.6057	29.7296	6.58E+04	6.65E+04
42	6.5419	22.0109	6.52E+04	6.62E+04
50	6.5057	19.5330	6.48E+04	6.6E+04
100	6.2841	12.9636	6.26E+04	6.48E+04

## RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	12000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	240.8400
Loading to water body via runoff(mg/m <sup>2</sup> ):	478.6710
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment phase:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	240.8400 ( 33.4727%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	0.3587 ( 0.0499%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	478.3123 ( 66.4774%)
Maximum PECSW (µg/L):	802.8000
Maximum PECSW occurring on day:	0
Maximum PECsed (µg/kg dry sediment):	1.79E+04
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

PECsw (µg/L)	PECsed(µg/kg dry sediment)
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Time after max. peak(d)		Actual	TWA	Actual
	TWA			
0	802.8000	---	1.79E+04	---
1	267.8154	535.3077	1.79E+04	1.79E+04
2	89.7439	357.0437	1.79E+04	1.79E+04
4	11.9384	198.8501	1.79E+04	1.79E+04
7	1.7920	115.1219	1.79E+04	1.79E+04
14	1.7834	58.4548	1.78E+04	1.79E+04
21	1.7747	39.5629	1.77E+04	1.78E+04
28	1.7661	30.1148	1.76E+04	1.78E+04
42	1.7491	20.6624	1.74E+04	1.77E+04
50	1.7394	17.6355	1.73E+04	1.76E+04
100	1.6802	9.6725	1.67E+04	1.73E+04

**\*\*CAUTION\*\*** Maximum PEC in surface water is higher for single application than for multiple application pattern.

**\*\*CAUTION\*\*** Initial PEC<sub>sw</sub> exceeds water solubility. Use a higher tier model



**STEP 2 Late Vines SEU Jun-Sep****STEPS 1-2 in FOCUS****FOCUS Surface water Tool for Exposure Predictions Step 2***developed by Michael Klein*

Program version:	Version 3.2
Date of this simulation:	16/04/2020, 10:06:22

**OVERVIEW ON THE SUBSTANCE SPECIFIC INPUT DATA USED IN THE CALCULATION***Comments: Late Vines SEU Jun-Sep*

Active substance:	Aluminium silicate
Application rate (g/ha) of a.i.:	30000.00
Crop Interception:	full canopy (60 %)
Application/crop type:	vines, late applns
Number of applications per season:	4
Application interval (d):	7.00
Region and season of application:	South Europe, June - Sep.
Water solubility (mg/L):	1.00E-06
KOC assessed compound(L/kg):	1000000.00
KOC parent compound(L/kg):	0.00E+00
DT50 water(d):	1000.00
DT50 sediment (d):	1000.00
DT50 soil (d):	1000.00

**SCENARIO DATA USED IN THE CALCULATION**

Distance to the water body (m):	3.00
Spraydrift for multiple applications (% of application):	6.6310
Spraydrift for single application (% of application):	8.0280
Runoff + drainage(% of application):	3.00
Ratio of field to water body:	10.00
Water depth (cm):	30.00
Sediment depth (cm):	5.00
Effective sediment depth for sorption (cm):	1.00
Sediment OC (%):	5.00
Sed. bulk density (kg/L):	0.80

**RESULTS OF THE CALCULATION**

Number of application per season considered for this run:	4
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	12000.00
Loading to water body per drift event(mg/m²):	198.9300



Loading to water body via runoff/drainage (mg/m <sup>2</sup> ):	1.43E+03
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	795.7200 ( 35.8216%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	1.0684 ( 0.0481%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	1.42E+03 ( 64.1303%)
Maximum PCSW (µg/L):	665.6138
Maximum PCSW occurring on day:	21
Maximum PECsed (µg/kg dry sediment):	5.53E+04
Maximum PECsed occurring on day:	26

Table: Calculated Concentrations in the water body (multiple application)

Time after max. peak(d)	PECsw (µg/L)	Actual	PECsed(µg/kg dry sediment)	Actual
	TWA		TWA	
0	665.6138	---	5.53E+04	---
1	223.5234	444.5686	5.52E+04	5.52E+04
2	76.3711	297.2579	5.52E+04	5.52E+04
4	14.6461	166.8535	5.51E+04	5.52E+04
7	5.5179	98.3633	5.5E+04	5.51E+04
14	5.4911	51.9339	5.47E+04	5.5E+04
21	5.4646	36.4486	5.45E+04	5.49E+04
28	5.4381	28.6992	5.42E+04	5.47E+04
42	5.3856	20.9368	5.37E+04	5.45E+04
50	5.3558	18.4462	5.34E+04	5.43E+04
100	5.1734	11.8551	5.16E+04	5.34E+04

## RESULTS OF THE CALCULATION FOR THE RESPECTIVE SINGLE APPLICATION PATTERN

Number of application per season considered for this run:	1
Equivalent application rate for drift (g/ha):	30000.00
Equivalent application rate for runoff/drainage(g/ha):	12000.00
Loading to water body per drift event(mg/m <sup>2</sup> ):	240.8400
Loading to water body via runoff(mg/m <sup>2</sup> ):	359.0033
fraction of substance entering water body in water phase:	0.0007
fraction of substance entering water body in sediment phase:	0.9993
Total Loading to water body via drift (mg/m <sup>2</sup> ):	240.8400 ( 40.1505%)
Total Loading to water body via water phase(mg/m <sup>2</sup> ):	0.2691 ( 0.0449%)
Total Loading to water body via sediment phase (mg/m <sup>2</sup> ):	358.7342 ( 59.8047%)
Maximum PCSW (µg/L):	802.8000
Maximum PCSW occurring on day:	0
Maximum PECsed (µg/kg dry sediment):	1.5E+04
Maximum PECsed occurring on day:	5

Table: Calculated Concentrations in the water body (respective single application pattern)

PECsw (µg/L)	PECsed(µg/kg dry sediment)
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Time after max. peak(d)		Actual	TWA	Actual
	TWA			
0	802.8000	--	1.5E+04	--
1	267.8154	535.3077	1.49E+04	1.5E+04
2	89.7439	357.0437	1.49E+04	1.49E+04
4	11.6395	198.8127	1.49E+04	1.49E+04
7	1.4937	114.9726	1.49E+04	1.49E+04
14	1.4865	58.2313	1.48E+04	1.49E+04
21	1.4793	39.3152	1.47E+04	1.48E+04
28	1.4721	29.8553	1.47E+04	1.48E+04
42	1.4579	20.3919	1.45E+04	1.47E+04
50	1.4498	17.3618	1.44E+04	1.47E+04
100	1.4005	9.3934	1.4E+04	1.45E+04

**\*\*CAUTION\*\*** Maximum PEC in surface water is higher for single application than for multiple application pattern.

**\*\*CAUTION\*\*** Initial PEC<sub>sw</sub> exceeds water solubility. Use a higher tier model