



assainir · valoriser les sols

spaque



S-Risk[®]

A quick user manual

Marie JAILLER (SPAQUE)

13.08.2026



Content

- Implementation of the Human Health Risk Assessment methodology in the S-RISK tool
- How to log to S-RISK - different versions of S-RISK
- Case study in application I : calculation of soil threshold values for a generic land-use
- Case study in application II : calculation of risks
- Case study in application III : calculation of remediation goals (clean-up levels)
- Application II : calculation in the different pathways from a soil (groundwater) concentration - Flowcharts for all chemicals except PFAS
- Application II : calculation in the different pathways from a soil (groundwater) concentration - Flowcharts for PFAS
- Explanations about the standard scenarios

S-Risk : a human health risk assessment tool

<<

<

1

2

3

>

>>

Page 1 / 27 (-9 - 0 of 267 results)

SIMULATION SUMMARY

New

Copy

Edit

Delete

Archive

Name

Calcul-VSH-Flandre

Label

calcul cumule vie entiere

Description

17 mai 2024

Application type

III: Site specific remediation objectives

Chemicals

Cadmium

150m³

0.80m

100m³

Generic soil layer

0.00m

3.00m

groundwater

Main results

Chemical	Lowest RI-based remediation value	Lowest ExCR-based remediation value	Lowest pRI-based remediation value	Lowest CI-based remediation value
	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm
Cadmium	5.515e+2			5.000e+2 (Critical concentration for outdoor air CI)

Conceptual site model

Scenario

Land use Heavy industry

Based on Heavy industry

Exposure routes

Oral	Inhalation	Dermal
☒ soil & settled dust	☒ via outdoor air	☒ via soil & settled dust
☐ vegetables	☒ via indoor air	☐ via water (bath & shower)
☐ via meat & milk	☐ during showering	
☐ via eggs		
☒ via water		

Soil profile & concentrations

Administrative information

Main results

Conceptual site model

Scenario

Soil profile & concentrations

Results per chemical

Cadmium

Risk-based remediation value

CI-based remediation value

List of modified parameters

 brussels
environment
.brussels

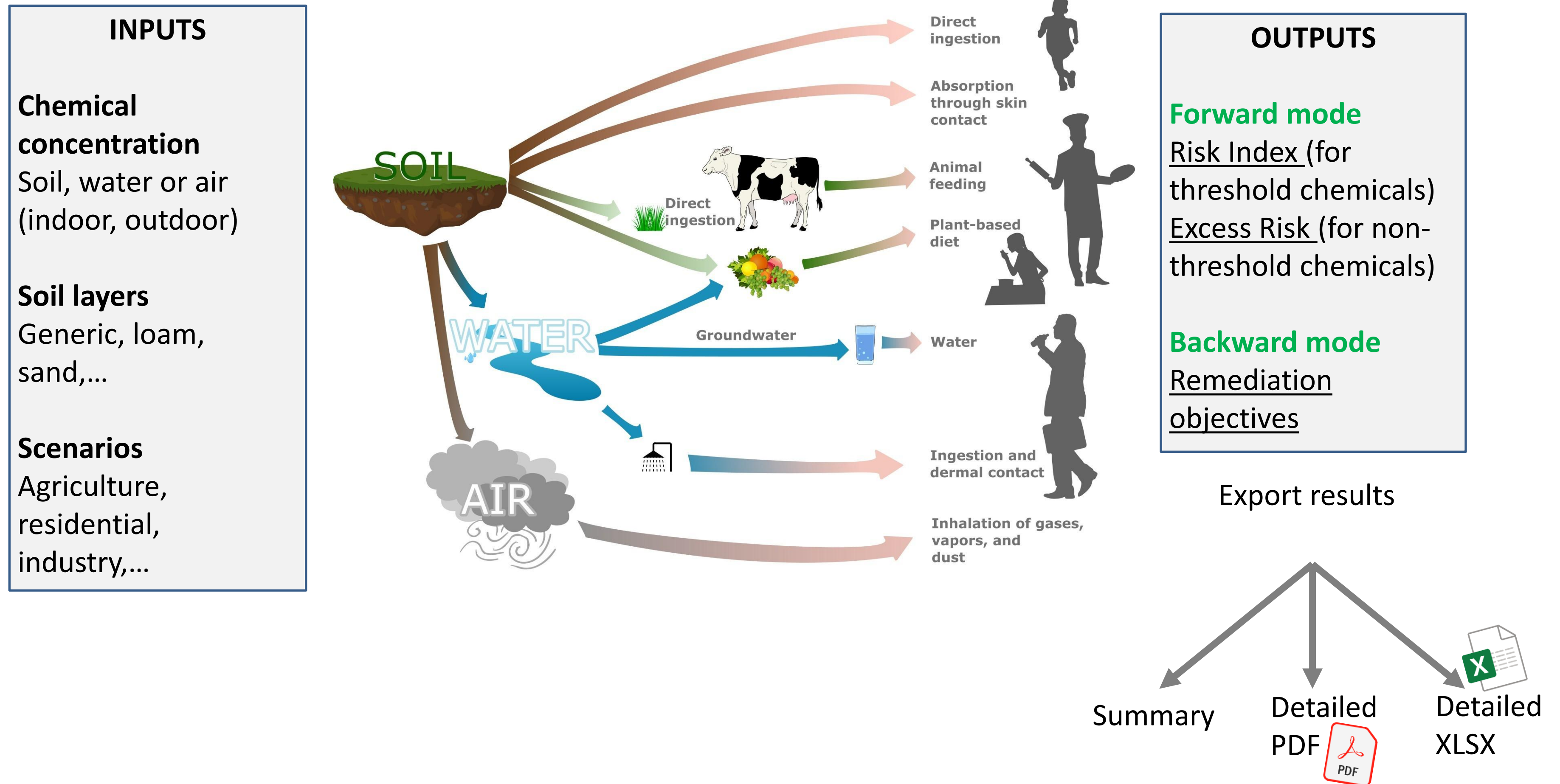
 Administration
de l'environnement
Grand-Duché de Luxembourg

SAMEN MAKEN WE
MORGEN MOOIER
OVAM

 Wallonie

 spaque

How does S-Risk[®] work ?



Calculation of clean-up levels in soil

- Step 1 : Data collection and Conceptual exposure model

➡ Backward mode : concentration in soil = Cleanup level

- Step 2 : Toxicity assessment

➡ Chemical-specific parameters, Toxicity values or Reference doses

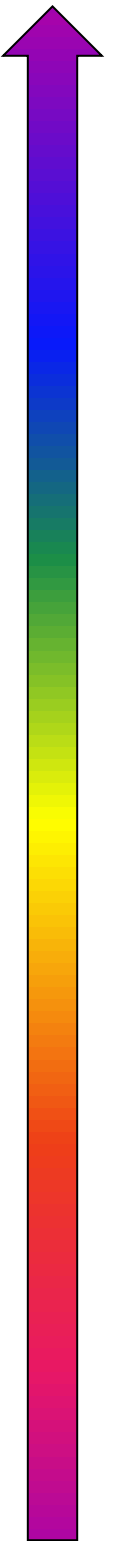
- Step 3 : Exposure assessment

➡ S-RISK model, generic soil, 5 generic land-uses

- Step 4 : Risk characterization

➡ Acceptable risk : Risk Index = 1 et Excess Cancer Risk = 10^{-5}

Trigger Value or Cleanup level



How does S-Risk[®] work ?

Three fields of application (= 3 possible Outputs) :

- **Application I** : Calculation of generic human health based soil remediation values (useful if legal values are proposed in the regulation)
- **Application II** : Calculation of site-specific human health risks within a detailed risk assessment (**forward mode = C_environment → calculation of Risk**)
- **Application III** : Calculation of site-specific remediation objectives (**backward mode = what is the soil/groundwater concentration to avoid risk ?**)

CONCLUSION : The definition of the screening values (Application I) are coherent with later on site specific risk assessment (Application II)
→ principle of transparency OK

SIMULATION SUMMARY

Cancel Save

Name

Label

Description

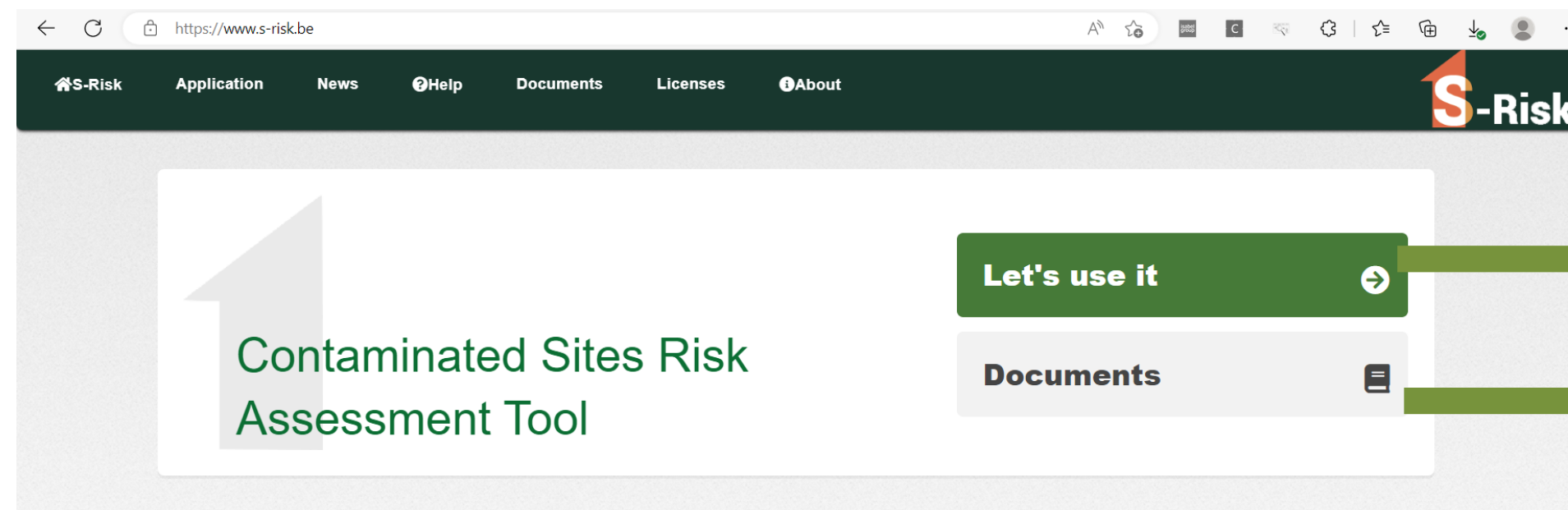
Default simulation

Application type

- I: Generic soil remediation value
- II: Site specific risk assessment**
- III: Site specific remediation objectives



A quick user manual : How to log in to S-Risk®?



Web platform : <https://www.s-risk.be>

Documents in English and in Dutch (transparency) *but can be developed in another language easily*

Latest news

S-Risk IT Maintenance on 25 April afternoon
25/04/2023

S-Risk IT Maintenance on Thursday 20 April -
between 12:00 AM and 1:00 PM
19/04/2023

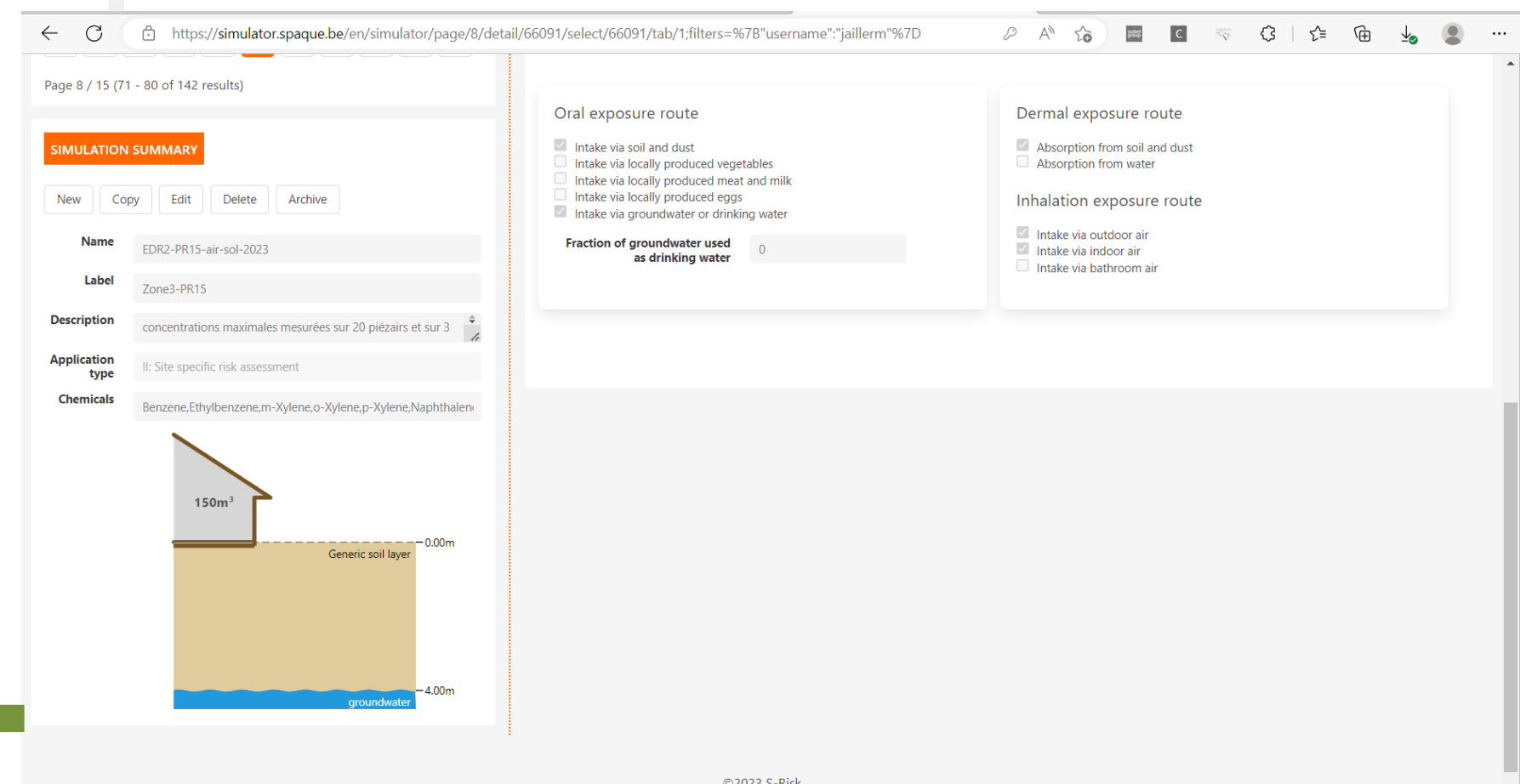
What is S-Risk?

S-Risk® is a state-of-the-art model that can help you assess exposure and human health risks at contaminated sites. Using steady-state conservation of mass principles, it calculates the fate and distribution of chemical pollutants in soil. S-Risk® is now hosted and maintained by SPAQuE sa.

Intuitive and user-friendly interface

Always up to date

Robust backup system (safe!)



S-Risk[®] contains specific and flexible database



Exposure scenarios



70-80 chemicals with physico-chemical parameters



Soil properties

EDR2-PR15-air-sol-2023

Label: Zone3-PR15
Description: concentrations maximales mesurées sur 20 piézairs et sur 3 campagnes
Application type: 2

Scenario Chemical Soil Water Outdoor air Indoor air Plants Animals Concentrations Exposure Risk Concentration limits

Discard unsaved changes Revert to defaults Save

Chemical

Select the chemical you want to add

Selected chemical

Benzene
Ethylbenzene
m-Xylene
o-Xylene
p-Xylene

Add Delete



Background concentrations (optional)



Toxicity Reference Values

The database contains region/country-specific data (very customizable)

Flanders/Brussels → Tool called « S-Risk VL/BR »

Wallonia → Tool called « S-Risk Wal »

And ... soon Grand-Duchy of Luxembourg



S-Risk[®] : the advantages of pre-encoded data



Exposure scenarios

Label: EU4Green
Description: 26 mai 2025
Application type: 2

Scenario Chemical Soil

Discard unsaved changes Revert to defaults Save

Scenario

Select the scenario you want to use

Selected scenario

General

☐ Customize

Agricultural

Agricultural
Residential with vegetable garden
Residential with garden
Residential without garden
Day recreation, outdoor sports
Day recreation, indoor sports
Light industry
Heavy industry

Select ↓



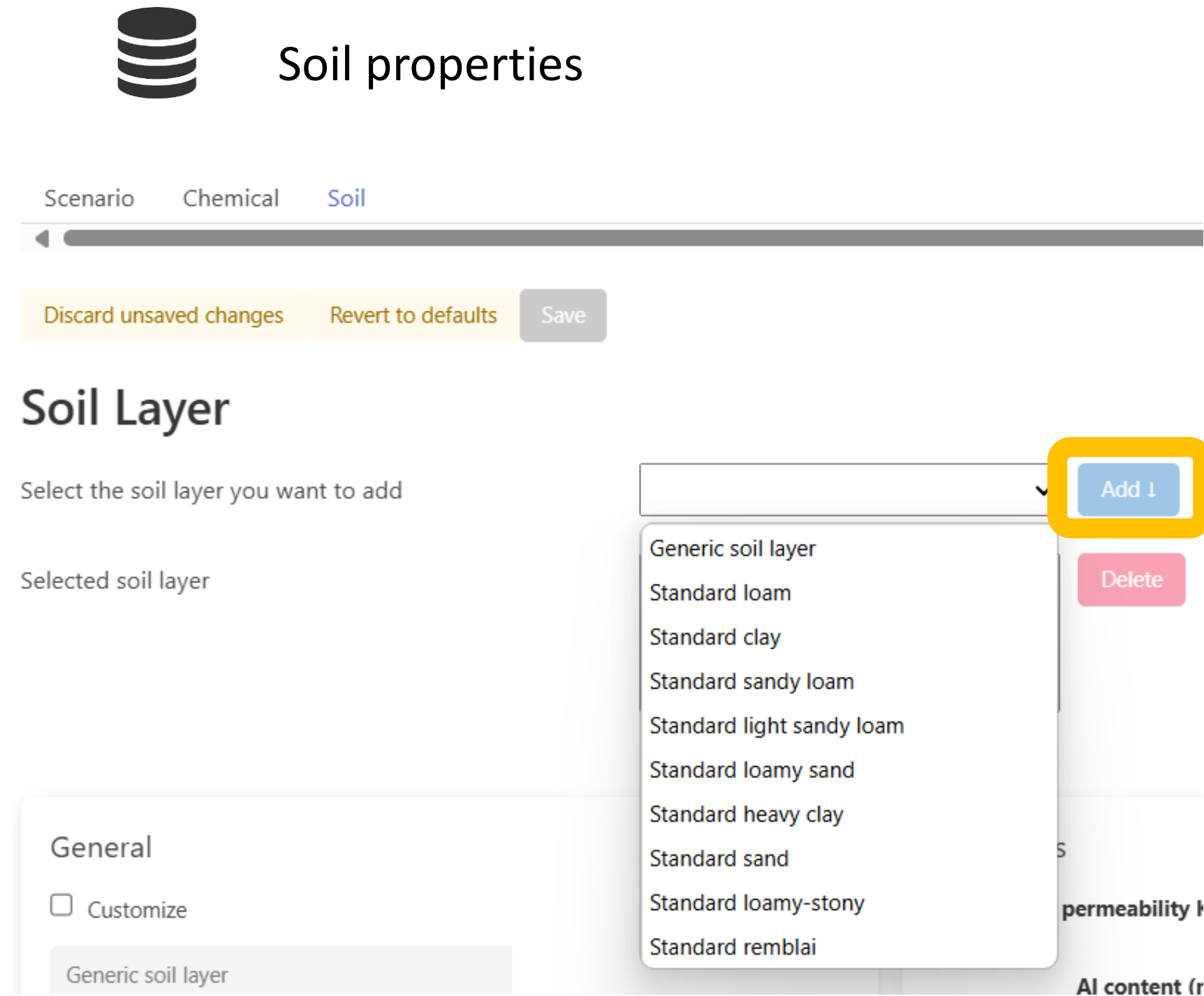
70-80 chemicals with
physico-chemical parameters

Acenaphthene
Acenaphtylene
Anthracene
Arsenic
Benzene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(ghi)perylene
Benzo(k)fluoranthene
c-1,2-Dichloroethene
Cadmium
Chromium (III)
Chromium (VI)
Chrysene
Copper
Cyanide (Free)
Dibenzo(a,h)anthracene
Dichloromethane
Ethylbenzene

Add ↓

Delete

S-Risk[®] : the advantages of pre-encoded data



Soil properties

Scenario Chemical **Soil**

Discard unsaved changes Revert to defaults Save

Soil Layer

Select the soil layer you want to add

Selected soil layer

Generic soil layer

Standard loam

Standard clay

Standard sandy loam

Standard light sandy loam

Standard loamy sand

Standard heavy clay

Standard sand

Standard loamy-stony

Standard remblai

Add

Delete

permeability

AI content (r

No need to enter a lot of data : pre-encoded data are available
→ just to «select »/« add » in the menu

Only soil or/and groundwater concentrations are needed to calculate risks !

S-Risk® : useful for a specific risk assessment

For example:

In case of discovery of a soil pollution in a residential or agricultural area, you analyse vegetable/milk/meat/egg samples

In case of discovery of a soil pollution due to volatile chemicals, you analyse indoor air samples in houses



You are also able to introduce in S-Risk:

- measured vegetable concentrations
- measured meat/liver/kidney/milk/butter/egg concentrations
- measured indoor air concentrations
- measured soil air concentrations



A helpful tool when assessing individual exposure living on a contaminated site, with the assumption that exposure comes from soil contamination (not from other sources such as actual emissions)

The presentation of S-Risk tool : 3 case studies

Login

Username

Password

Sign In

Drop-down menu → information to select in the menu

Data to enter in the tab (soil concentration, ...)

Result

Case study n°1 :

A regulator wants to calculate screening/threshold values in soils

Valeurs limites	VS _H (mg/kg _{m.s.})				
Type d'usage	I	II	III	IV	V
	Usage naturel	Usage agricole	Usage résidentiel	Usage récréatif ou commercial	Usage industriel
Métaux lourds et métalloïdes					
Arsenic	30,00	30,00	40,00	40,00	65,00
Cadmium	2052,00	10,85	32,52	1192,00	1192,00
Chrome	3204,00	178,30	290,70	3204,00	7043,00
Chrome VI	250,20	8,53	25,96	95,04	95,04
Cuivre	87880,0	1516,00	2504,00	87880,00	182000,00
Mercure	37,38	1,1	1,75	37,38	572,43
Nickel	3978,00	264,80	349,50	3803,00	3803,00
Plomb	120,00	200,00	200,00	390,00	1840,00
Zinc	186200	259,00	5222,00	186200	374000
Hydrocarbures aromatiques monocycliques non halogénés					
Benzène	143,60	0,10	0,10	0,7	0,7
Ethylbenzène	1930,00	0,32	0,35	3,21	3,21
Toluène	50050	9,16	9,75	125,00	126,10
Xylènes	125600	6,36	6,45	74,94	76,63
Styrène	127300	18,11	18,11	143,70	143,70
Phénol	18970,0	10,79	16,23	9927,00	9927,00
Hydrocarbures aromatiques polycycliques					
Naphtalène	278100	3,72	3,72	29,56	29,56
Acénaphthylène	91700	1154,00	4267,00	91700	176900
Acénaphène	27400,0	3323,00	4183,00	27400,00	176800
Fluorène	18270,0	2272,00	2922,00	18270,00	119400

SIMULATION SUMMARY

Cancel

Save

Name

AquaConSoil-Case-study-1

Label

Calculation of threshold values

Description

Training session 16.06.2025

Default simulation

template Wallonia

Application type

II: Site specific risk assessment

I: Generic soil remediation value

II: Site specific risk assessment

III: Site specific remediation objectives

Case study n°1 :

A regulator wants to calculate screening/threshold values in soils

AquaConSoil-Case-study-1

Label: Calculation of threshold values
Description: Training session 16.06.2025

STEP 1

Scenario Chemical Soil

Discard unsaved changes Revert to defaults Save

Scenario

Select the scenario you want to use

Selected scenario

General

☐ Customize

Agricultural

Residential with vegetable garden

Agricultural

Residential with vegetable garden

Day recreation, outdoor sports

Day recreation, indoor sports

Light industry

Heavy industry

Select ↓

Selected scenario
= residential with vegetable
garden

Case study n°1 :

A regulator wants to calculate screening/threshold values in soils

detail/88622/select/88622/tab/2;filters=%7B"username"

AquaConSoil-Case

Label: Calculation of threshold values
Description: Training session 16.06.2025
Application type: 1

STEP 2

Scenario **Chemical** Soil Water Outdoor air

Discard unsaved changes Revert to defaults Save

Chemical

Select the chemical you want to add

Selected chemical

- Benzo(b)fluoranthene
- Cadmium
- Ethylbenzene
- Naphthalene
- PFOS-dec2023

Model equation

Concentration

Add 1

Delete

Selected chemicals
= cadmium, ethylbenzene,
naphthalene and PFOS

Case study n°1 :

A regulator wants to calculate screening/threshold values in soils

AquaConSoil-Case-study-1

Label: Calculation of threshold values
Description: Training session 16.06.2025
Application type: 1

Disable expert mode Close si

STEP 3

Chemical Soil Water Outdoor air Indoor air Plants Animals Concentrations Exposure Risk Concentration limits **Results**

Calculate Print Download PDF Download raw data (Excel)

Administrative information

Name	AquaConSoil-Case-study-1
Description	Training session 16.06.2025
Label	Calculation of threshold values
Application	I Generic soil remediation value
Region	Wallonie

Main results

Chemical	Lowest RI-based remediation value	Lowest ExCR-based remediation value	Lowest pRI-based remediation value	Lowest CI-based remediation value
----------	-----------------------------------	-------------------------------------	------------------------------------	-----------------------------------

Administrative informati
Main results
Conceptual site model
Scenario
Soil profile & conc
Results per chemical
Cadmium
Risk-based re
CI-based rem
Ethylbenzene
Risk-based re
CI-based rem
Naphthalene
Risk-based re
CI-based rem
PFOS-dec2023
Risk-based re
CI-based rem
List of modified paramet

« Print »



summary report in pdf

Case study n°1 :

A regulator wants to calculate screening/threshold values in soils

Lowest concentration based
on threshold effects

Lowest concentration based
on non-threshold effects

Lowest concentration based
on limit values in air/water
(regulation)

Main results

Chemical	Lowest RI-based remediation value	Lowest ExCR-based remediation value	Lowest pRI-based remediation value	Lowest CI-based remediation value
	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm
Cadmium	3.252e+1	5.769e+2		5.000e+2 (Critical concentration for outdoor air CI)
Ethylbenzene	1.493e+1	3.461e-1		(Critical concentration for indoor air CI)
Naphthalene		3.722e+0		(Critical concentration for indoor air CI)
PFOS- dec2023	2.152e-2	3.237e+0		(Critical concentration for indoor air CI)

Case study n°2 :

A Soil Expert (service provider) wants to assess the risk due to the soil or/and groundwater pollution on a site – Step 1



Usine Cockerill – Seraing (Belgium) - 1955



Cokerie Flémalle (Belgium) - 2006



Soil and groundwater sampling



Case study n°2 :

A Soil Expert (service provider) wants to assess the risk due to the soil or/and groundwater pollution on a site

Case study n°2

Future land-use = office/companies

Type of soil : generic soil

Depth of groundwater : 3 m

Chemical	C_soil (mg/kg)	C_groundwater (µg/L)
Benzene	10	100
Naphthalene	15	50
Tetrachloroethene	5	10
Free cyanide	7	50

SIMULATION SUMMARY

Cancel

Save

Name

AquaConSoil-Case-Study-2

Label

Polluted site

Description

Training session 16.06.2025

Default
simulation

template Wallonia

Application
type

II: Site specific risk assessment

I: Generic soil remediation value

II: Site specific risk assessment

III: Site specific remediation objectives

Case study n°2 :

A Soil Expert (service provider) wants to assess the risk due to the soil or/and groundwater pollution on a site

AquaConSoil-Case-Study-2

Label: Polluted site
Description: Training session 16.06.2025
Application type: 2

STEP 1

Scenario

Chemical Soil

Discard unsaved changes Revert to defaults Save

Select the scenario you want to use

Selected scenario

General

☐ Customize

Light industry

Light industry

Agricultural
Residential with vegetable garden
Residential with garden
Residential without garden
Day recreation, outdoor sports
Day recreation, indoor sports
Light industry
Heavy industry

Selected scenario
= Light industry
= industry but also
office

Case study n°2 :

A Soil Expert (service provider) wants to assess the risk due to the soil or/and groundwater pollution on a site

AquaConSoil-Case-Study-2

Label: Polluted site
Description: Training session 16.06.2025
Application type: 2

STEP 2

Scenario **Chemical** Soil Water Outdoor air Indoor air Plants Animals Concentrations

Discard unsaved changes Revert to defaults Save

Chemical

Select the chemical you want to add

Add

Selected chemical

Benzene
Naphthalene
Tetrachloroethene
Cyanide (Free)

Selected chemicals

Case study n°2 :

A Soil Expert (service provider) wants to assess the risk due to the soil or/and groundwater pollution on a site

AquaConSoil-Case-Study-2

Label: Polluted site
Description: Training exercise on 16.04.2025
Application type: 2

STEP 3

Scenario Chemical **Soil** Water Outdoor air Indoor air Plants Animals Concentrations

Discard unsaved changes Revert to defaults Save

Soil Layer

Select the soil layer you want to add

Selected soil layer

Generic soil layer
Standard loam
Standard clay
Standard sandy loam
Standard light sandy loam
Standard loamy sand
Standard heavy clay
Standard sand
Standard loamy-stony
Standard remblai

Add 1
Delete

General

☐ Customize

Generic soil layer

Top of selected layer (m) 0

Depth of freatic ground water (m) 3

Organic matter (%) 2,3

AI content
Fe content
Ptot content
Organi

Define the soil profile : one soil layer or several soil layers

Case study n°2 :

A Soil Expert (service provider) wants to assess the risk due to the soil or/and groundwater pollution on a site

AquaConSoil-Case-Study-2

Label: Polluted site
Description: Training session 16.06.2025
Application type: 2

Disable expert mode

STEP 4

Scenario Chemical Soil Water Outdoor air Indoor air Plants Animals **Concentrations** Exposure Risk Concentra

Discard unsaved changes Revert to defaults Save

Concentrations

Selected chemical

Benzene
Naphthalene
Tetrachloroethene
Cyanide (Free)

Selected soil layer

Generic soil layer

Soil concentrations

☐ Enable separate profile for indoor vapour intrusion

Concentration (mg/kg)

1e+1

Groundwater concentration

Concentration in groundwater (µg/l)

1e+2



Soil and/or groundwater concentrations to enter

Case study n°2 :

A Soil Expert (service provider) wants to assess the risk due to the soil or/and groundwater pollution on a site

Calculate

Print

Download PDF

Download raw data (Excel)

STEP 5

Administrative information

Name AquaConSoil-Case-Study-2
Description Training session 16.06.2025
Label Polluted site
Application II Site specific risk assessment
Region Wallonie

Main results

Chemical	Highest RI (>1)	Highest ExCR (>10 ⁻⁵)	Highest pRI (>1)	Highest CI (>1)
Benzene	1.755e+1	2.558e-4		2.416e+1 (Water CI)
Naphthalene		9.358e-6		(Indoor air CI)
Tetrachloroethene	3.337e-1	6.398e-5		5.768e-1 (Water CI)
Cyanide (Free)	2.371e+1			(Indoor air CI)

Conceptual site model

Scenario

Land use Light industry
Based on Light industry

in black → risk < acceptable limit

in red → risk > acceptable limit

One step further :

*these chemicals are volatile →
to carry out soil gas measurements and
to encode them in S-Risk*

Case study n°2 :

A Soil Expert (service provider) wants to assess the risk due to the soil or/and groundwater pollution on a site

Extract of the summary report

List of modified parameters

In the table below the parameters are listed that are different from the default value in the system. If the format of the values shown is not immediately clear, refer to the extended report for more details.

Topic	Soil layer	Chemical	Parameter	Value	Comment
Soil	Generic soil layer	Benzene	Concentration in the soil (mg/kg)	10	
Soil	Generic soil layer	Tetrachloroethene	Concentration in the soil (mg/kg)	5	
Soil	Generic soil layer	Naphthalene	Concentration in the soil (mg/kg)	15	
Soil	Generic soil layer	Cyanide (Free)	Concentration in the soil (mg/kg)	7	
Water		Benzene	Concentration in groundwater (µg/l)	100	
Water		Tetrachloroethene	Concentration in groundwater (µg/l)	10	
Water		Naphthalene	Concentration in groundwater (µg/l)	50	
Water		Cyanide (Free)	Concentration in groundwater (µg/l)	50	
Water			Groundwater concentration calculated or user encoded (check boxes)	0	

Clearness principle



Only modified values are indicated in the summary report



→ easy check for the user and the regulator

Case study n°3 :

A Soil Expert (service provider) wants to calculate the remediation goal (= clean-up level) in the soil or/and in the groundwater

Case study n°3

Future land-use: residential area with houses only with slab-on-grade

Type of soil: backfill material layer = « remblai » (0-4 m)

Depth of groundwater : 4 m

Pollution discovered for cadmium, benzene, benzo(a)pyrene, trichloroethene in soil

No pollution observed in groundwater

What are the clean-up levels for these 4 chemicals ?

SIMULATION SUMMARY

Cancel

Save

Name

AquaConSoil-Case-Study-3

Label

Calculation of remediation goal

Description

Training session 16.06.2025

Default simulation

template Wallonia

Application type

III: Site specific remediation objectives

I: Generic soil remediation value

II: Site specific risk assessment

III: Site specific remediation objectives

Case study n°3 :

A Soil Expert (service provider) wants to calculate the remediation goal (= clean-up level) in the soil or/and in the groundwater

STEP 1

Scenario

Chemical

Soil

Discard unsaved changes

Revert to defaults

Save

Scenario

Select the scenario you want to use

Selected scenario

General

☐ Customize

Residential with vegetable garden

Residential with vegetable garden

Select ↓

Agricultural

Residential with vegetable garden

Residential with garden

Residential without garden

Day recreation, outdoor sports

Day recreation, indoor sports

Light industry

Heavy industry

Case study n°3 :

A Soil Expert (service provider) wants to calculate the remediation goal (= clean-up level) in the soil or/and in the groundwater

STEP 2

The screenshot shows the AquaConSoil-Case application interface. The 'Chemical' tab is selected in the top navigation bar. A dropdown menu is open, displaying a list of chemicals. The 'Phenanthrene' chemical is selected, and a list of other chemicals (Cadmium, Benzene, Benzo(a)pyrene, Trichloroethene) is visible below it. The 'Add' button is highlighted.

Scenario: Chemical

Discard unsaved changes | Revert to defaults | Save

Chemical

Select the chemical you want to add

Selected chemical

Phenanthrene

Add

Delete

Cadmium
Benzene
Benzo(a)pyrene
Trichloroethene

STEP 3

The screenshot shows the AquaConSoil-Case application interface. The 'Soil' tab is selected in the top navigation bar. The 'Soil Layer' section is active, showing a dropdown menu for selecting a soil layer. The 'Standard remblai' option is selected. The 'Add' button is highlighted. The 'General' section is visible, showing input fields for 'Top of selected layer (m)' and 'Depth of freatic ground water (m)'. The 'Depth of freatic ground water (m)' field is set to 4.

Scenario: Chemical | **Soil** | Water | Outdoor air | Indoor air | Plants | Animals | Concentrations

Discard unsaved changes | Revert to defaults | Save

Soil Layer

elect the soil layer you want to add

electd soil layer

Standard remblai

Add

Delete

Generic soil layer
Standard loam
Standard clay
Standard sandy loam
Standard light sandy loam
Standard loamy sand
Standard heavy clay
Standard sand
Standard loamy-stony
Standard remblai

General

☐ Customize

Standard remblai

Top of selected layer (m) 0

Depth of freatic ground water (m) 4

Organic matter (%)

permeability Kv (m²/s)

Al content (mg/kg)

Fe content (mg/kg)

Ptot content (mg/kg)

Case study n°3 :

A Soil Expert (service provider) wants to calculate the remediation goal (= clean-up level) in the soil or/and in the groundwater

STEP 4

Scenario

Chemical

Soil

Water

Outdoor air

Indoor air

Discard unsaved changes

Revert to defaults

Save

Building

Building type

slab-on-grade

Volume of the indoor space (m³)

150

State of floor

gaps and holes

Thickness of the floor (m)

0,1

Surface area of the floor (m²)

50

STEP 5

ical

Soil

Water

Outdoor air

Indoor air

Plants

Animals

Concentrations

Exposure

Risk

Concentration limits

Results

Calculate

Print

Download PDF

Download raw data (Excel)

Administrative information

Name

AquaConSoil-Case-Study-3

Description

Training session 16.06.2025

Label

Calculation of remediation goal

Application

III Site specific remediation objectives

Region

Wallonie

Main results

Chemical	Lowest RI-based remediation value	Lowest ExCR-based remediation value	Lowest pRI-based remediation value	Lowest CI-based remediation value
	mg/kg dm	mg/kg dm	mg/kg dm	mg/kg dm
Cadmium	6.313e+1	5.769e+2		5.000e+2 (Critical concentration for outdoor air CI)
Benzene	3.133e-1	2.717e-1		1.108e+0 (Critical concentration for water CI)
Benzo(a)pyrene		1.571e+1		9.999e+1 (Critical concentration for outdoor air CI)
Trichloroethene	2.350e-1	5.606e-1		7.390e+0 (Critical concentration for water CI)

Administrative informati

Main results

Conceptual site model

Scenario

Soil profile & cono

Results per chemical

Cadmium

Risk-based re

CI-based rem

Benzene

Risk-based re

CI-based rem

Benzo(a)pyrene

Risk-based re

CI-based rem

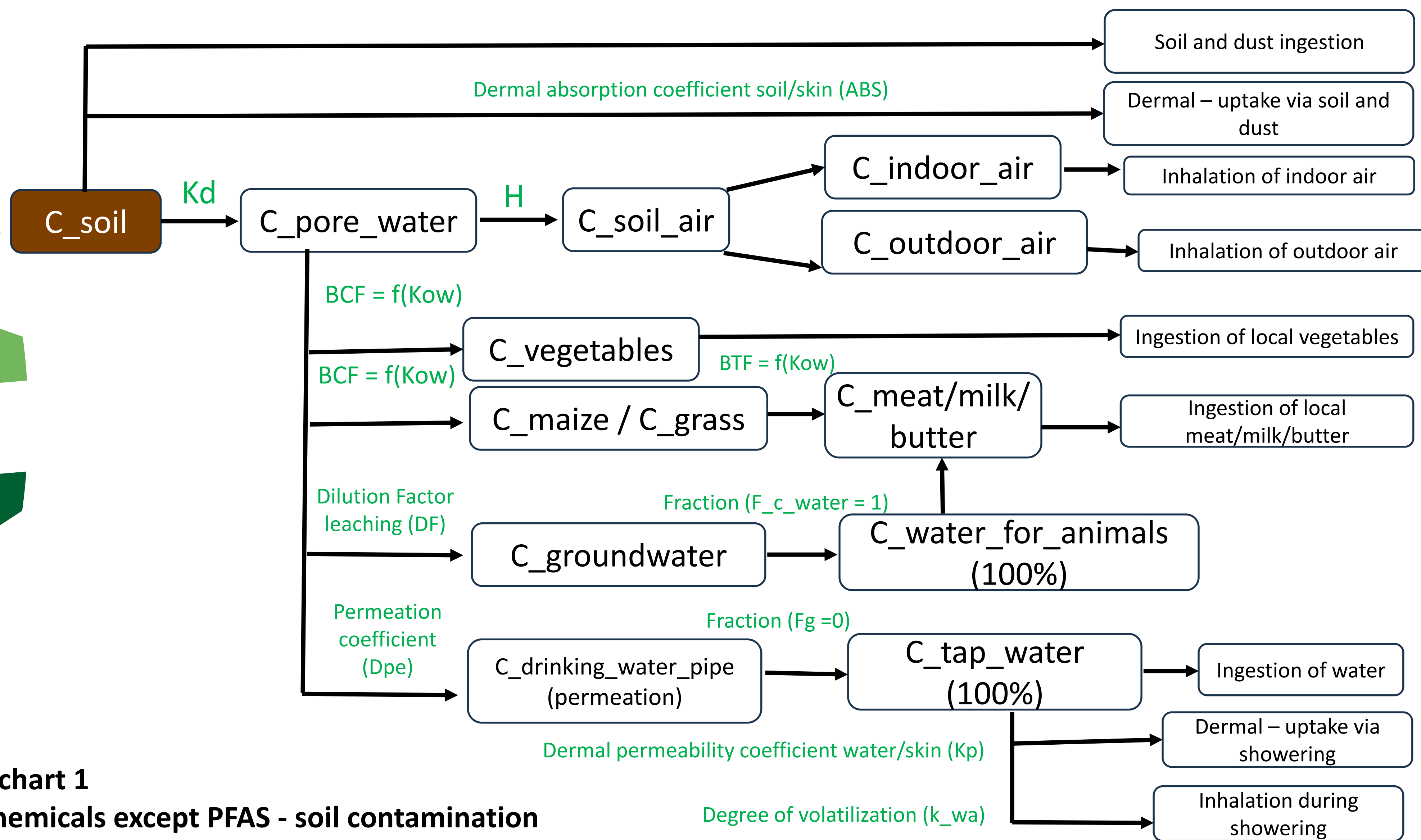
Trichloroethene

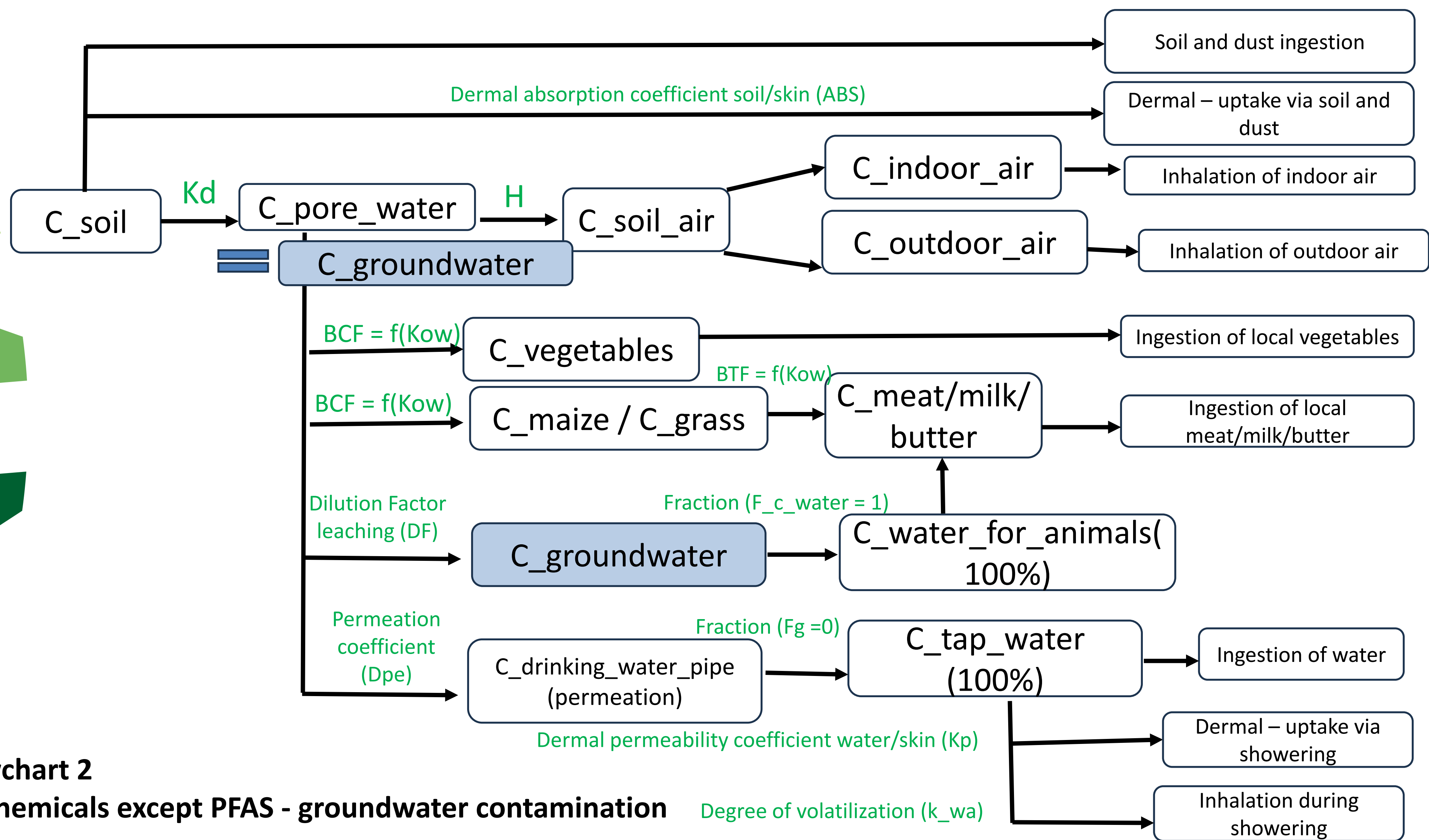
Risk-based re

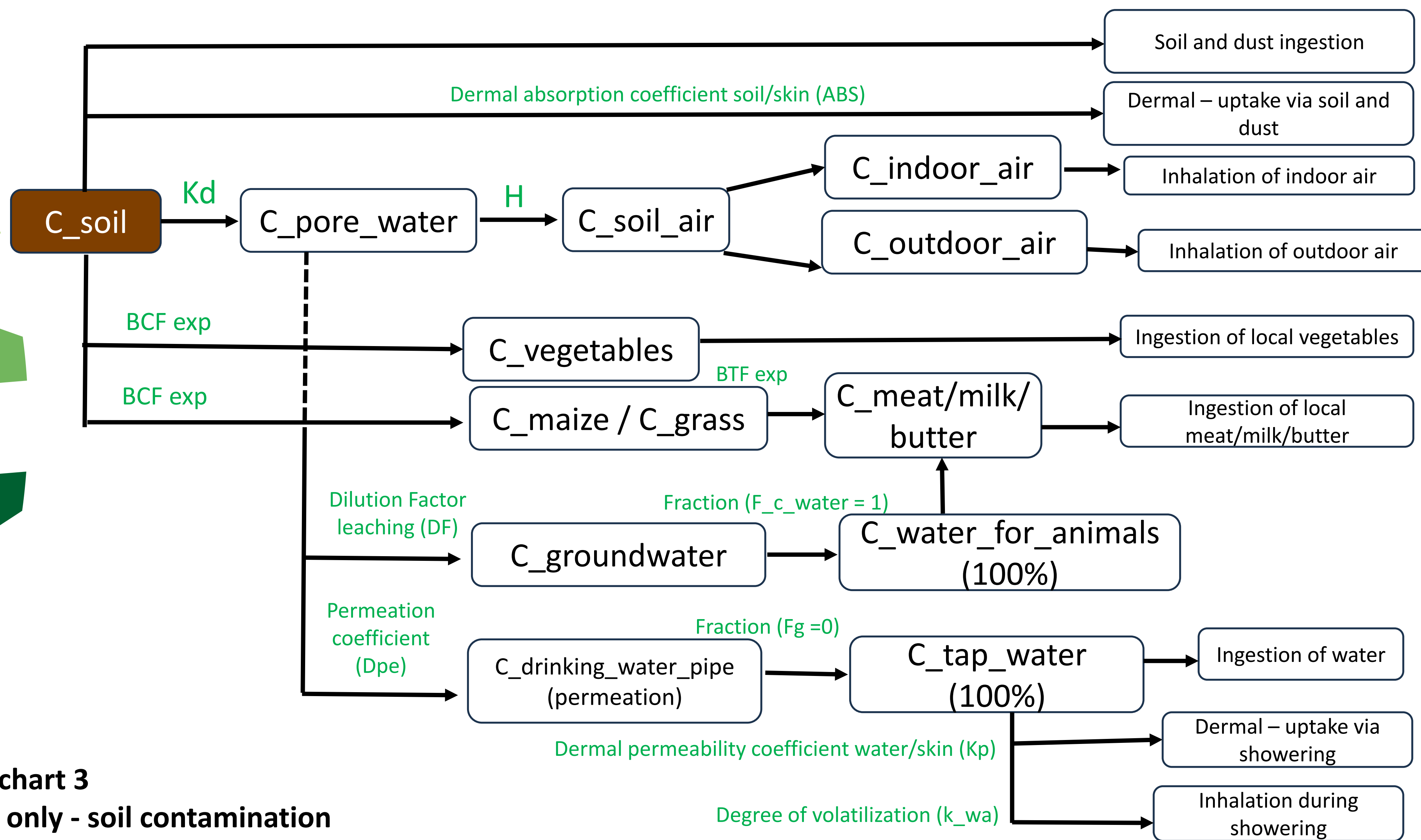
CI-based rem

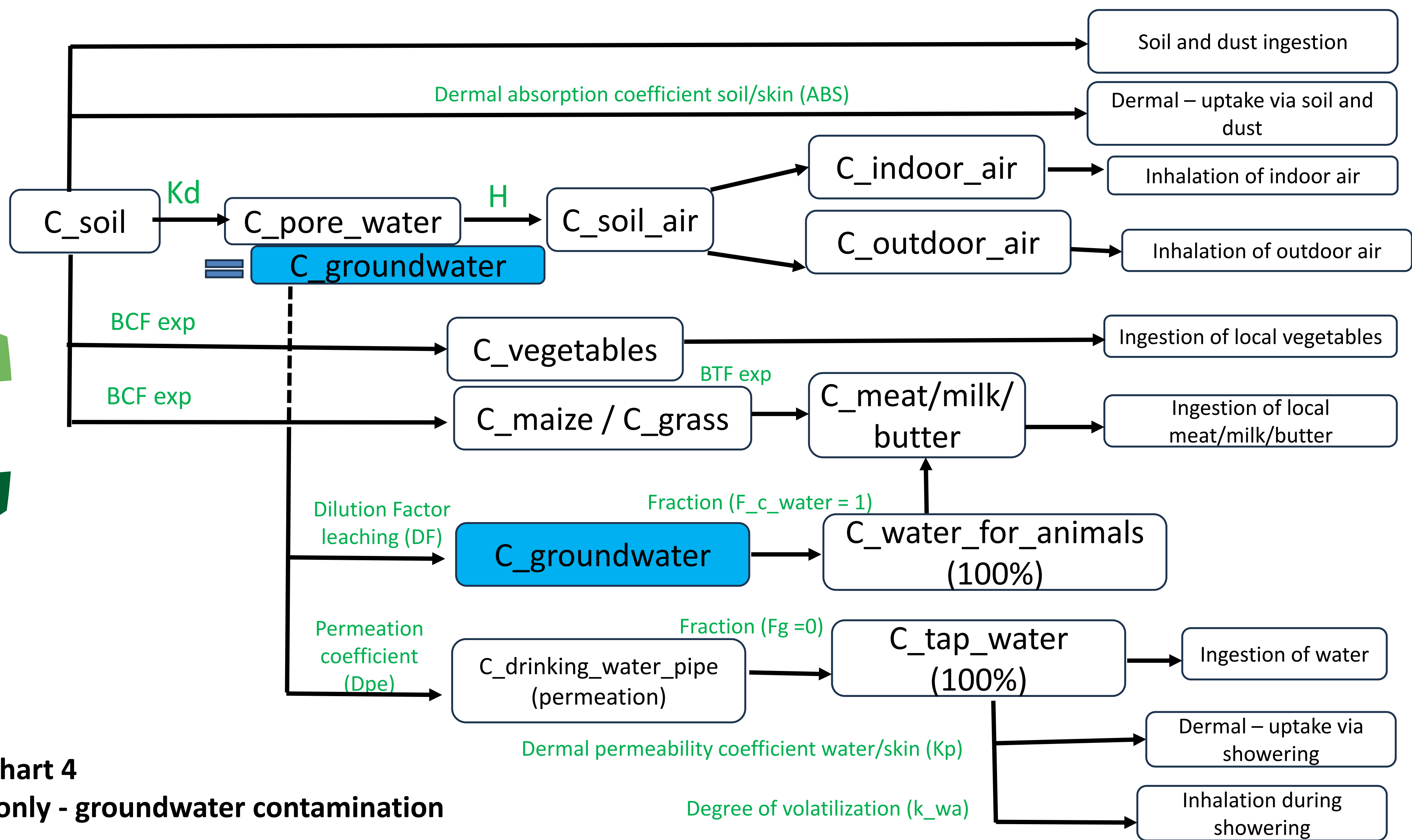
List of modified param

Safety measures : land-use, type of house, type of soil









The choice of the scenario

Scenario

Select the scenario you want to use

Selected scenario

General

☐ Edit

Residential with vegetable garden

Agricultural
Residential with vegetable garden
Residential with garden
Residential without garden
Day recreation, outdoor sports
Day recreation, indoor sports
Holiday resort, mainly indoor
Light industry
Heavy industry

Select !

Oral exposure route

- ☒ Intake via soil and dust
- ☒ Intake via locally produced vegetables
- ☐ Intake via locally produced meat and milk
- ☐ Intake via locally produced eggs
- ☒ Intake via groundwater or drinking water

Fraction of groundwater used as drinking water

0

Soil & dust ingestion rates

Dermal exposure route

- ☒ Absorption from soil and dust
- ☒ Absorption from water

Inhalation exposure route

- ☒ Intake via outdoor air
- ☒ Intake via indoor air
- ☒ Intake via bathroom air

Inhalation weight factors

Why different land-uses?

You don't clean with a same degree:



The operating theatre



The kitchen



The garage

The « Agricultural » standard scenario



Adults and children living in a farm (building)
Consumption of home products = local source



Vegetables : 100 % local except potatoes 50%



Sheep meat : 100 % local

Liver (foie)
: 100 % local



Milk : 100 % local



Butter : 100 % local



Beef meat : 100 % local



Kidney (rognons)
: 100 % local



The « Agricultural » standard scenario



Time spent inside (in the building) :
20 h/day

Time spent outside (in the garden) :
1,5 h/day

7 days/week – 52 weeks/year

Adults and children

Building with a basement

Dermal contact with soil

Discard unsaved changes Revert to defaults Save

Information
Note that with this scenario (Agricultural or Residential with vegetable garden), the ingestion of locally-produced eggs is not checked.

Scenario

Select the scenario you want to use

Agricultural ▼ **Select ↓**

Selected scenario

Agricultural ▼

General

☐ Edit

Agricultural

Oral exposure route

- ☒ Intake via soil and dust
- ☒ Intake via locally produced vegetables
- ☒ Intake via locally produced meat and milk
- ☐ Intake via locally produced eggs
- ☒ Intake via groundwater or drinking water

Fraction of groundwater used as drinking water 0

Soil & dust ingestion rates

Dermal exposure route

- ☒ Absorption from soil and dust
- ☒ Absorption from water

Inhalation exposure route

- ☒ Intake via outdoor air
- ☒ Intake via indoor air
- ☒ Intake via bathroom air

Inhalation weight factors

The « Residential with vegetable garden » standard scenario



Source : Espace Environnement



Vegetables : from 10% to 52%
homegrown



Adults and children living in a house (building)
Consumption of home (=local) products

The « Residential with vegetable garden » standard scenario



Discard unsaved changes Revert to defaults

Information

Note that with this scenario (Agricultural or Residential with vegetable garden), the ingestion of locally-produced eggs is not checked.

Scenario

Select the scenario you want to use

Residential with vegetable garden Select ↓

Selected scenario

Residential with vegetable garden

General

☐ Edit

Residential with vegetable garden

Oral exposure route

- ☒ Intake via soil and dust
- ☒ Intake via locally produced vegetables
- ☐ Intake via locally produced meat and milk
- ☐ Intake via locally produced eggs
- ☒ Intake via groundwater or drinking water

Fraction of groundwater used as drinking water

Soil & dust ingestion rates

Dermal exposure route

- ☒ Absorption from soil and dust
- ☒ Absorption from water

Inhalation exposure route

- ☒ Intake via outdoor air
- ☒ Intake via indoor air
- ☒ Intake via bathroom air

Inhalation weight factors

Time spent inside (in the building) :
20 h/day

Time spent outside (in the garden) :
1,5 h/day

7 days/week – 52 weeks/year

Adults and children

Building with a basement

Dermal contact with soil

The « Day recreation outdoor sport » standard scenario



Source : David Shankbone

The « Day recreation outdoor sport » standard scenario



Discard unsaved changes Revert to defaults Save

Scenario

Select the scenario you want to use

Day recreation, outdoor sports Select ↓

Selected scenario

Day recreation, outdoor sports

General

☐ Edit

Day recreation, outdoor sports

Oral exposure route

☒ Intake via soil and dust
☐ Intake via locally produced vegetables
☐ Intake via locally produced meat and milk
☐ Intake via locally produced eggs
☐ Intake via groundwater or drinking water

Fraction of groundwater used as drinking water 0

Soil & dust ingestion rates

Dermal exposure route

☒ Absorption from soil and dust
☐ Absorption from water

Inhalation exposure route

☒ Intake via outdoor air
☐ Intake via indoor air
☐ Intake via bathroom air

Inhalation weight factors

Time spent inside (the building) :
/

Time spent outside (on the site) :
Children = 8 h/day - 5 days/week – 8 weeks/year
Adults = 2 h/day - 2 days/week – 44 weeks/year

Adults and children

No building

Dermal contact with soil

The « Day recreation indoor sport » standard scenario



Source : David Shankbone

The « Day recreation indoor sport » standard scenario



Scenario

Select the scenario you want to use

Day recreation, indoor sports ▼ Select ↓

Selected scenario

Day recreation, indoor sports ▼

General

☐ Edit

Day recreation, indoor sports

Oral exposure route

☒ Intake via soil and dust
☐ Intake via locally produced vegetables
☐ Intake via locally produced meat and milk
☐ Intake via locally produced eggs
☐ Intake via groundwater or drinking water

Fraction of groundwater used as drinking water 0

Soil & dust ingestion rates

Dermal exposure route

☒ Absorption from soil and dust
☐ Absorption from water

Inhalation exposure route

☐ Intake via outdoor air
☒ Intake via indoor air
☐ Intake via bathroom air

Inhalation weight factors

Time spent inside (the building) :
2 h/day – 2 days/week – 44 weeks/year

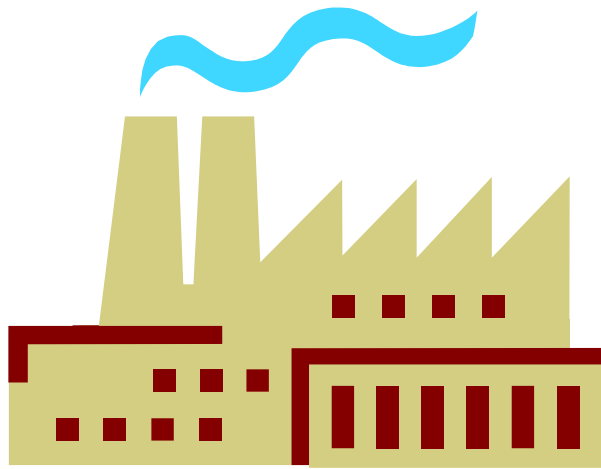
Time spent outside :
/

Adults and children

Building with a basement

Dermal contact with soil

The « Light industry » standard scenario



The « Light industry » standard scenario



Scenario

Select the scenario you want to use

Light industry ▼

Select 1

Selected scenario

Light industry ▼

General

☐ Edit

Light industry

Oral exposure route

- ☒ Intake via soil and dust
- ☐ Intake via locally produced vegetables
- ☐ Intake via locally produced meat and milk
- ☐ Intake via locally produced eggs
- ☒ Intake via groundwater or drinking water

Fraction of groundwater used as drinking water

0

Soil & dust ingestion rates

Dermal exposure route

- ☒ Absorption from soil and dust
- ☐ Absorption from water

Inhalation exposure route

- ☒ Intake via outdoor air
- ☒ Intake via indoor air
- ☐ Intake via bathroom air

Inhalation weight factors

Time spent inside (in the building) :
7 h/day

Time spent outside (car park):
1 h/day

5 days/week – 47 weeks/year

Adults only

Building with a basement

Dermal contact with soil

The « Heavy industry » standard scenario



www.spaque.be

Construction workers in general



www.spaque.be

The « Heavy industry » standard scenario



Scenario

Select the scenario you want to use

Heavy industry

Select ↓

Selected scenario

Heavy industry

General

☐ Edit

Heavy industry

Oral exposure route

- ☒ Intake via soil and dust
- ☐ Intake via locally produced vegetables
- ☐ Intake via locally produced meat and milk
- ☐ Intake via locally produced eggs
- ☒ Intake via groundwater or drinking water

Fraction of groundwater used as drinking water

0

Soil & dust ingestion rates

Dermal exposure route

- ☒ Absorption from soil and dust
- ☐ Absorption from water

Inhalation exposure route

- ☒ Intake via outdoor air
- ☒ Intake via indoor air
- ☐ Intake via bathroom air

Inhalation weight factors

Time spent inside (in the building) :
1 h/day

Time spent outside (on the site):
7 h/day

5 days/week – 47 weeks/year

Adults only

Building with a basement

Dermal contact with soil

Thanks for your attention

For any question :
s-risk@spaqua.be

