

DATA ENTRY SHEET

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES ☒ OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES ☐

ENTER
Initial
soil
conc.,
 C_0
($\mu\text{g/kg}$)

Chemical

Ethylbenzene

ENTER Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	ENTER Depth below grade to top of soil contamination temperature, T_s ($^{\circ}\text{C}$)	ENTER Vadose zone soil type used to estimate soil vapor permeability	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	250	15	SC

MORE
↓

ENTER
Average vapor
flow rate into bldg.
(leave blank to calculate)

Q_{ent}
(L/m)
5

ENTER Vadose zone soil type SCS Lookup Soil Parameters	ENTER Vadose zone soil dry bulk density, ρ_b (g/cm^3)	ENTER Vadose zone soil total porosity, n (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w (cm^3/cm^3)	ENTER Vadose zone soil organic carbon fraction, f_{oc} (unitless)
SC	1.63	0.385	0.197	0.002

MORE
↓

ENTER Averaging time for carcinogens, AT_c (yrs)	ENTER Averaging time for noncarcinogens, AT_{nc} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-05	1

MORE
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END

used to calculate risk-based
soil concentration.

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	soil saturation conc., C _{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)
NA	1.11E+04	1.11E+04	1.47E+05	1.11E+04

MESSAGE SUMMARY BELOW:
MESSAGE: The values of C_{source} and C_{building} on the INTERCALCS worksheet are based on unity and do not represent actual values.

END

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

DATA ENTRY SHEET

CALCULATE RISK-BASED SOIL CONCENTRATION ENTER "X" IN "YES" BOX

SL-SCREEN
Version 3.1; 02/01

Reset to
Defaults

YES ☒ OR ☐

YES ☐

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION ENTER "X" IN "YES" BOX AND INITIAL SOIL CONC. BELOW

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Chemical CAS No. numbers only, no dashes	Initial soil conc., C ₀ (μg/kg)	Chemical	Depth below grade to bottom of enclosed space floor, L _F (15 or 200 cm)	Depth below grade to top of contamination space floor, L _t (cm)	Average soil temperature, T _s (°C)	Vadose zone SCS soil type used to estimate soil vapor permeability	OR	User-defined vadose zone soil vapor permeability, k _v (cm ²)
100414		Ethylbenzene	15	400	15	SC		

MORE
↓

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Vadose zone SCS soil type	Vadose zone soil dry bulk density, P _b ^A (g/cm ³)	Vadose zone soil total porosity, n _v (unitless)	Vadose zone soil water-filled porosity, θ _w (unitless)	Vadose zone soil organic carbon fraction, f _{oc} (unitless)	Average vapor flow rate into bldg. (Leave blank to calculate)	Q _{soil} (L/m)			
SC	1.63	0.385	0.197	0.002					

MORE
↓

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Averaging time for carcinogens, ATC (yrs)	Averaging time for noncarcinogens, ATNC (yrs)	Exposure duration, ED (yrs)	Exposure frequency, EF (days/yr)	Target risk for carcinogens, TR (unitless)	Target hazard quotient for noncarcinogens, THQ (unitless)		
70	30	30	350	1.0E-05	1		

MORE
↓

END

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C _{sat} (µg/kg)	Final Indoor exposure soil conc., (µg/kg)
NA	1.76E+04	1.76E+04	1.47E+05	1.76E+04

MESSAGE SUMMARY BELOW:
MESSAGE: The values of C_{source} and C_{building} on the INTERCALCS worksheet are based on unity and do not represent actual values.

END

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	NA

SI-SCREEN
Version 3.1; 02/04

Reset to
Defaults

DATA ENTRY SHEET

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

YES ☒ X OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES ☐

ENTER	ENTER	ENTER	ENTER	ENTER
Chemical CAS No.	Initial soil conc., C_r ($\mu\text{g/g}$)	Chemical		
(numbers only, no dashes)				
100414		Ethylbenzene		

MORE
↓

ENTER	ENTER	ENTER	ENTER	ENTER
Depth below grade to bottom of enclosed space floor, L_f (15 or 200 cm)	Depth below grade to top of contamination space floor, L_c (cm)	Average soil temperature, T_s ($^{\circ}\text{C}$)	Vadose zone SCS soil type used to estimate soil vapor permeability	User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	800	15	SC	

MORE
↓

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Vadose zone SCS soil type Look-up Soil Parameters	Vadose zone soil dry bulk density, P_b^A (g/cm^3)	Vadose zone soil total porosity, n^v (unitless)	Vadose zone soil water-filled porosity, B_v (cm^3/cm^3)	Vadose zone soil organic carbon fraction, f_{oc}^v (unitless)	Average vapor flow rate into bldg. (leave blank to calculate) Q_{soil} (L/m)	
SC	1.63	0.385	0.197	0.002		5

MORE
↓

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Averaging time for carcinogens, ATC (Yrs)	Averaging time for noncarcinogens, ATNC (Yrs)	Exposure duration, ED (Yrs)	Exposure frequency, EF (days/Yr)	Target risk for carcinogens, TR (unitless)	Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-05	1

END

Used to calculate risk-based
soil concentration.

RESULTS SHEET

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure carcinogen conc., (µg/kg)	Indoor exposure soil conc., (µg/kg)	Risk-based Indoor exposure soil conc., (µg/kg)	Soil saturation conc., C _{sat} (µg/kg)	Final Indoor exposure soil conc., (µg/kg)	Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	3.48E+04	3.48E+04	1.47E+05	3.48E+04	NA	NA

MESSAGE SUMMARY BELOW:
MESSAGE: The values of C_{source} and C_{building} on the INTERCALCS worksheet are based on unity and do not represent actual values.

END

SL-SCREEN
Version 3.1; 02/06

Reset to Defaults

CALCULATE RISK-BASED SOIL CONCENTRATION ENTER "X" IN "YES" BOX

YES ☒ OR ☐

OK
CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER	ENTER
Initial	Initial
Chemical	soil
CAS No.	conc.
(numbers only, no dashes)	C _{it}
	(μg/kg)

Chemical

m-Xylene

ENTER

WATER

ENTER

Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(15 or 200 cm)

variance zone

User-defined

User-defined
vadose zone
soil vapor
permeability,
 k_v
(cm^2)

er-defi

MORE ↓

MORE

ENTER	soil type
vandose zone	Lookup Soil Parameters
SCS	

ENTER

ENTER

0002-0307/01/0000-0000\$05.00/0

use 7011

Vadose zone
soil organic
carbon fraction
 f_{oc}^V
(unitless)

Average vapor
flow rate into bldg.
(Leave blank to calculate)

115

5

MORE ↓

ENTER

Index

ETHICK

at 1122a

Target hazard
quotient for
noncarcinogens
THQ
(unitless)

...su...

END