

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

SI-SCREEN  
Version 3.1; 02/01

Reset to Defaults

ENTER ENTER  
Initial soil conc.,  $C_0$  (µg/lbg)

Chemical  
91203 Naphthalene

ENTER Depth below grade to bottom of enclosed space floor, $L_b$ (15 or 200 cm)	ENTER Depth below grade to top of contamination floor, $L_t$ (cm)	ENTER Average soil temperature, $T_s$ (°C)	ENTER Vadose zone soil type (used to estimate soil vapor permeability)	ENTER User-defined vadose zone soil vapor permeability, $k_v$ (cm <sup>2</sup> )
15	800	15	SC	

MORE ↓

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

ENTER Vadose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, $\rho_b^A$ (g/cm <sup>3</sup> )	ENTER Vadose zone soil total porosity, $n^V$ (unitless)	ENTER Vadose zone soil water-filled porosity, $\theta_w^V$ (unitless)	ENTER Vadose zone soil organic carbon fraction, $f_{oc}^V$ (unitless)	ENTER 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 Averaging time for carcinogens, noncarcinogens, ATc (hrs)	ENTER Averaging time for carcinogens, noncarcinogens, ATnc (hrs)	ENTER Exposure duration, ED (hrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TP (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-05	1

MORE ↓

used to calculate risk-based soil concentration.

END

RESULTS SHEET

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

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen ( $\mu\text{g}/\text{kg}$ )	Indoor exposure soil conc., noncarcinogen ( $\mu\text{g}/\text{kg}$ )	Risk-based indoor exposure soil conc., ( $\mu\text{g}/\text{kg}$ )	Soil saturation conc., $C_{\text{sat}}$ ( $\mu\text{g}/\text{kg}$ )	Final indoor exposure soil conc., ( $\mu\text{g}/\text{kg}$ )
NA	1.78E+04	1.78E+04	1.28E+05	1.18E+04

MESSAGE SUMMARY BELOW:  
 MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.

END

DATA ENTRY SHEET

SL-SCREEN  
Version 3.1; 02/04

Reset to Defaults

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
Chemical CAS No. (numbers only, no dashes)	Initial soil conc., $C_r$ ( $\mu\text{g}/\text{kg}$ )	Depth below grade to bottom of enclosed space floor, $L_f$ (15 or 200 cm)	Chemical
03329		250	Acenaphthene

MORE  $\downarrow$

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

MORE  $\downarrow$

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Vadose zone SCS soil type (Lookup Soil Parameters)	Vadose zone soil dry bulk density, $\rho_b^A$ ( $\text{g}/\text{cm}^3$ )	Vadose zone soil total porosity, $n_V$ (unitless)	Vadose zone soil water-filled porosity, $n_{wv}$ (unitless)	Vadose zone soil organic carbon fraction, $f_{oc}$ (unitless)	Average vapor flow rate into bldg. (Leave blank to calculate) $Q_{\text{soil}}$ ( $\text{L}/\text{m}$ )	
SC	1.63	0.385	0.197	0.002		5

MORE  $\downarrow$

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Averaging time for carcinogens, noncarcinogens, ATc (yrs)	Averaging time for carcinogens, 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	20	350	1.0E-05	1

Used to calculate risk-based soil concentration.

END

RESULTS SHEET

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

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen ( $\mu\text{g}/\text{kg}$ )	Indoor exposure soil conc., noncarcinogen ( $\mu\text{g}/\text{kg}$ )	Risk-based indoor exposure soil conc., ( $\mu\text{g}/\text{kg}$ )	soil saturation conc., $C_{\text{sat}}$ ( $\mu\text{g}/\text{kg}$ )	Final indoor exposure soil conc., ( $\mu\text{g}/\text{kg}$ )
NA	4.39E+06	4.39E+06	5.10E+04	NOC

MESSAGE SUMMARY BELOW:  
 MESSAGE: The values of Csource and Cbuilding on the INTERCALCS worksheet are based on unity and do not represent actual values.  
 NOC = NOT OF CONCERN. The contaminant is a solid at the soil temperature and not of concern for this pathway.  
 MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

DATA ENTRY SHEET

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Version 3.1; 02/01

Reset to Defaults

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

YES  OR YES

ENTER Initial soil conc.,  $C_r$  (ug/kg) chemical  
 205992 Benzol(d)fluoranthene

ENTER Depth below grade to bottom of enclosed space floor, $L_b$ (15 or 200 cm)	ENTER Depth below grade to top of contamination floor, $L_t$ (cm)	ENTER Average soil temperature, $T_s$ (°C)	ENTER Vadose zone SCS soil type soil vapor permeability, (used to estimate soil vapor permeability)	ENTER User-defined vadose zone soil vapor permeability, $k_v$ (cm <sup>2</sup> )
15	250	15	SC	

MORE ↓

ENTER Vadose zone SCS soil type	ENTER Vadose zone soil dry bulk density, $\rho_b^A$ (g/cm <sup>3</sup> )	ENTER Vadose zone soil total porosity, $n^v$ (unitless)	ENTER Vadose zone soil water-filled porosity, $\theta_v$ (unitless)	ENTER Vadose zone soil organic carbon fraction, $f_{oc}$ (unitless)	ENTER Average vapor flow rate into bldg. (leave blank to calculate) $Q_{air}$ (L/m)
SC	1.65	0.385	0.197	0.002	5

MORE ↓

ENTER Averaging time for carcinogens, noncarcinogens, ATC (YRS)	ENTER Averaging time for carcinogens, noncarcinogens, ATnc (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

used to calculate risk-based soil concentration.

MORE ↓

END

RESULTS SHEET

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

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Indoor exposure soil conc., carcinogen ( $\mu\text{g}/\text{kg}$ )	Indoor exposure soil conc., noncarcinogen ( $\mu\text{g}/\text{kg}$ )	Risk-based indoor exposure soil conc., ( $\mu\text{g}/\text{kg}$ )	Soil saturation conc., $C_{\text{sat}}$ ( $\mu\text{g}/\text{kg}$ )	Final indoor exposure soil conc., ( $\mu\text{g}/\text{kg}$ )
1.51E+06	NA	1.51E+06	3.69E+03	NOC

MESSAGE SUMMARY BELOW:  
 MESSAGE: The values of C<sub>source</sub> and C<sub>building</sub> on the INTERCALCS worksheet are based on unity and do not represent actual values.  
 NOC = NOT OF CONCERN. The contaminant is a solid at the soil temperature and not of concern for this pathway.  
 MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

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YES  OR

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

YES

ENTER	ENTER	ENTER	ENTER
Chemical CAS No.	Initial soil conc., $C_p$ (µg/kg)	Chemical	
218019		Chrysene	

ENTER	ENTER	ENTER	ENTER	ENTER
Depth below grade to bottom of enclosed space floor, $L_f$ (15 of 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)	User-defined vadose zone soil vapor permeability, $k_v$ (cm <sup>2</sup> )
15	250	15	SC	

MORE ↓

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Vadose zone SCS soil type (Lookup Soil Parameters)	Vadose zone soil dry bulk density, $\rho_b^A$ (g/cm <sup>3</sup> )	Vadose zone soil total porosity, $n^T$ (unitless)	Vadose zone soil water-filled porosity, $\theta_w^V$ (unitless)	Vadose zone soil organic carbon fraction, $f_{oc}$ (unitless)	Average vapor flow rate into bldg. (leave blank to calculate) $C_{p,bl}$ (L/m)
SC	1.63	0.385	0.197	0.002	5

MORE ↓

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)
70	30	30	350	1.0E-05
				Target hazard quotient for THQ (unitless)
				Used to calculate risk-based soil concentration.

MORE ↓

END