

SL-ADV  
Version 3.1; 02/04Reset 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**  
Chemical  
CAS No.  
(numbers only,  
no dashes)

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

Chemical

75092

Methylene chloride

MORE  
↓

<b>ENTER</b> Average soil temperature, $T_s$ ( $^{\circ}\text{C}$ )	<b>ENTER</b> Depth below grade to bottom of enclosed space floor, $L_f$ (cm)	<b>ENTER</b> Depth below grade to top of contamination, $L_t$ (cm)	<b>ENTER</b> Depth below grade to bottom of contamination, (enter value of 0 if value is unknown) $L_b$ (cm)	<b>ENTER</b> Totals must add up to value of $L_t$ (cell G28) <b>ENTER</b> Thickness of soil stratum A, $h_A$ (cm) <b>ENTER</b> Thickness of soil stratum B, (Enter value or 0) $h_B$ (cm) <b>ENTER</b> Thickness of soil stratum C, (Enter value or 0) $h_C$ (cm)			<b>ENTER</b> Soil stratum A SCS soil type (used to estimate soil vapor permeability)  OR  <b>ENTER</b> User-defined stratum A soil vapor permeability, $k_v$ ( $\text{cm}^2$ )
10	1	1	60	1	0	0	1.00E-08

MORE  
↓

<b>ENTER</b> Stratum A SCS soil type  (Lookup Soil Parameters)	<b>ENTER</b> Stratum A soil dry bulk density, $\rho_b^A$ ( $\text{g/cm}^3$ )	<b>ENTER</b> Stratum A soil total porosity, $n^A$ (unitless)	<b>ENTER</b> Stratum A soil water-filled porosity, $\theta_w^A$ ( $\text{cm}^3/\text{cm}^3$ )	<b>ENTER</b> Stratum A soil organic carbon fraction, $f_{oc}^A$ (unitless)	<b>ENTER</b> Stratum B SCS soil type  (Lookup Soil Parameters)	<b>ENTER</b> Stratum B soil dry bulk density, $\rho_b^B$ ( $\text{g/cm}^3$ )	<b>ENTER</b> Stratum B soil total porosity, $n^B$ (unitless)	<b>ENTER</b> Stratum B soil water-filled porosity, $\theta_w^B$ ( $\text{cm}^3/\text{cm}^3$ )	<b>ENTER</b> Stratum B soil organic carbon fraction, $f_{oc}^B$ (unitless)	<b>ENTER</b> Stratum C SCS soil type  (Lookup Soil Parameters)	<b>ENTER</b> Stratum C soil dry bulk density, $\rho_b^C$ ( $\text{g/cm}^3$ )	<b>ENTER</b> Stratum C soil total porosity, $n^C$ (unitless)	<b>ENTER</b> Stratum C soil water-filled porosity, $\theta_w^C$ ( $\text{cm}^3/\text{cm}^3$ )	<b>ENTER</b> Stratum C soil organic carbon fraction, $f_{oc}^C$ (unitless)
	1.65	0.439	0.045	0.002										

MORE  
↓

<b>ENTER</b> Enclosed space floor thickness, $L_{crack}$ (cm)	<b>ENTER</b> Soil-bldg. pressure differential, $\Delta P$ ( $\text{g/cm} \cdot \text{s}^2$ )	<b>ENTER</b> Enclosed space floor length, $L_b$ (cm)	<b>ENTER</b> Enclosed space floor width, $W_b$ (cm)	<b>ENTER</b> Enclosed space height, $H_b$ (cm)	<b>ENTER</b> Floor-wall seam crack width, $w$ (cm)	<b>ENTER</b> Indoor air exchange rate, $ER$ (1/h)	<b>ENTER</b> Average vapor flow rate into bldg. OR Leave blank to calculate $Q_{gas}$ (L/m)
10	40	1000	1000	244	0.1	0.25	

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

END

Used to calculate risk-based  
soil concentration.

# CHEMICAL PROPERTIES SHEET

Diffusivity in air, $D_a$ ( $\text{cm}^2/\text{s}$ )	Diffusivity in water, $D_w$ ( $\text{cm}^2/\text{s}$ )	Henry's law constant at reference temperature, H ( $\text{atm}\cdot\text{m}^3/\text{mol}$ )	Henry's law constant reference temperature, $T_R$ ( $^{\circ}\text{C}$ )	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ ( $\text{cal}/\text{mol}$ )	Normal boiling point, $T_B$ ( $^{\circ}\text{K}$ )	Critical temperature, $T_C$ ( $^{\circ}\text{K}$ )	Organic carbon partition coefficient, $K_{oc}$ ( $\text{cm}^3/\text{g}$ )	Pure component water solubility, S ( $\text{mg}/\text{L}$ )	Unit risk factor, URF ( $\mu\text{g}/\text{m}^3$ ) <sup>-1</sup>	Reference conc., RfC ( $\text{mg}/\text{m}^3$ )	Physical state at soil temperature, (S,L,G)
1.01E-01	1.17E-05	2.18E-03	25	6,706	313.00	510.00	1.17E+01	1.30E+04	1.0E-08	6.0E-01	L

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, $\tau$ (sec)	Source-building separation, $L_T$ (cm)	Stratum A soil air-filled porosity, $\theta_a^A$ (cm <sup>3</sup> /cm <sup>3</sup> )	Stratum B soil air-filled porosity, $\theta_a^B$ (cm <sup>3</sup> /cm <sup>3</sup> )	Stratum C soil air-filled porosity, $\theta_a^C$ (cm <sup>3</sup> /cm <sup>3</sup> )	Stratum A effective total fluid saturation, $S_{se}$ (cm <sup>3</sup> /cm <sup>3</sup> )	Stratum A soil intrinsic permeability, $k_i$ (cm <sup>2</sup> )	Stratum A soil relative air permeability, $k_{rg}$ (cm <sup>2</sup> )	Stratum A soil effective vapor permeability, $k_v$ (cm <sup>2</sup> )	Floor-wall seam perimeter, $X_{crack}$ (cm)	Initial soil concentration used, $C_R$ (µg/kg)	Bldg. ventilation rate, $Q_{building}$ (cm <sup>3</sup> /s)
9.46E+08	1	0.394	ERROR	ERROR	#N/A	#N/A	#N/A	1.00E-08	4,000	1.00E+00	1.69E+04

Area of enclosed space below grade, $A_B$ (cm <sup>2</sup> )	Crack-to-total area ratio, $\eta$ (unitless)	Crack depth below grade, $Z_{crack}$ (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, $H_{TS}$ (atm-m <sup>3</sup> /mol)	Henry's law constant at ave. soil temperature, $H'_{TS}$ (unitless)	Vapor viscosity at ave. soil temperature, $\mu_{TS}$ (g/cm-s)	Stratum A effective diffusion coefficient, $D_A^{eff}$ (cm <sup>2</sup> /s)	Stratum B effective diffusion coefficient, $D_B^{eff}$ (cm <sup>2</sup> /s)	Stratum C effective diffusion coefficient, $D_C^{eff}$ (cm <sup>2</sup> /s)	Total overall effective diffusion coefficient, $D_T^{eff}$ (cm <sup>2</sup> /s)	Diffusion path length, $L_d$ (cm)	Convection path length, $L_p$ (cm)
1.00E+06	4.00E-04	1	7,034	1.16E-03	5.01E-02	1.75E-04	2.36E-02	0.00E+00	0.00E+00	2.36E-02	1	1

Soil-water partition coefficient, $K_d$ (cm <sup>3</sup> /g)	Source vapor conc., $C_{source}$ (µg/m <sup>3</sup> )	Crack radius, $r_{crack}$ (cm)	Average vapor flow rate into bldg., $Q_{soil}$ (cm <sup>3</sup> /s)	Crack effective diffusion coefficient, $D^{crack}$ (cm <sup>2</sup> /s)	Area of crack, $A_{crack}$ (cm <sup>2</sup> )	Exponent of equivalent Peclet number, $\exp(Pe^1)$ (unitless)	Infinite source indoor attenuation coefficient, $\alpha$ (unitless)	Infinite source bldg. conc., $C_{building}$ (µg/m <sup>3</sup> )	Finite source $\beta$ term (unitless)	Finite source $\psi$ term (sec) <sup>-1</sup>	Time for source depletion, $\tau_D$ (sec)	Exposure duration > time for source depletion (YES/NO)
2.34E-02	8.00E+02	0.10	1.91E+01	2.36E-02	4.00E+02	6.48E+08	NA	NA	1.23E+03	1.14E-02	6.52E+06	YES

Finite source indoor attenuation coefficient, < $\alpha$ > (unitless)	Mass limit bldg. conc., $C_{building}$ (µg/m <sup>3</sup> )	Finite source bldg. conc., $C_{building}$ (µg/m <sup>3</sup> )	Final finite source bldg. conc., $C_{building}$ (µg/m <sup>3</sup> )	Unit risk factor, URF (µg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RfC (mg/m <sup>3</sup> )
NA	6.07E-03	NA	6.07E-03	1.0E-08	6.0E-01

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 <sub>sat</sub> (µg/kg)	Final indoor exposure soil conc., (µg/kg)
4.01E+05	1.03E+05	1.03E+05	8.16E+05	1.03E+05

## 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

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

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.

SCROLL  
DOWN  
TO "END"

END

## VLOOKUP TABLES

Soil Properties Lookup Table								Bulk Density		
SCS Soil Type	K <sub>s</sub> (cm/h)	α <sub>1</sub> (1/cm)	N (unitless)	M (unitless)	n (cm <sup>3</sup> /cm <sup>3</sup> )	θ <sub>i</sub> (cm <sup>3</sup> /cm <sup>3</sup> )	Mean Grain Diameter (cm)	g/cm <sup>3</sup>	θ <sub>s</sub> (cm <sup>3</sup> /cm <sup>3</sup> )	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098		0.0092	1.43	0.215 Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079		0.016	1.48	0.168 Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061		0.020	1.59	0.148 Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049		0.040	1.62	0.076 Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053		0.044	1.66	0.054 Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117		0.025	1.63	0.197 Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063		0.029	1.63	0.146 Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050		0.0046	1.35	0.167 Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111		0.0039	1.38	0.216 Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090		0.0056	1.37	0.198 Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065		0.011	1.49	0.180 Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039		0.030	1.62	0.103 Sandy Loam

Chemical Properties Lookup Table															URF extrapolated (X)	RfC extrapolated (X)
CAS No.	Chemical	Organic carbon partition coefficient, K <sub>oc</sub> (cm <sup>2</sup> /g)	Diffusivity in air, D <sub>a</sub> (cm <sup>2</sup> /s)	Diffusivity in water, D <sub>w</sub> (cm <sup>2</sup> /s)	Pure component water solubility, S (mg/L)	Henry's law constant, H' (unitless)	Henry's law constant at reference temperature, H (atm-m <sup>3</sup> /mol)	Henry's law constant reference temperature, T <sub>R</sub> (°C)	Normal boiling point, T <sub>b</sub> (°K)	Critical temperature, T <sub>C</sub> (°K)	Enthalpy of vaporization at the normal boiling point, ΔH <sub>v,b</sub> (cal/mol)	Unit risk factor, URF (μg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RfC (mg/m <sup>3</sup> )	Physical state at soil temperature, (S,L,G)		
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00		3.03E-02	25	349.90	556.60	7,127	6.0E-06	1.0E-01	L	
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03		4.85E-05	25	624.24	885.73	14,000	1.0E-04	7.0E-04	S	
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04		1.40E-05	25	596.55	839.36	15,000	3.7E-04	1.1E-03	S	X
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00		3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	L	X
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04		1.51E-05	25	613.32	842.25	17,000	4.6E-03	1.8E-04	S	X
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03		3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.1E+01	L	X
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01		3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	L	
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01		3.88E-03	25	458.00	695.00	9,510	1.1E-05	3.0E-02	S	X
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01		5.54E-03	25	353.24	562.16	7,342	7.8E-06	3.0E-02	L	
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01		1.72E-02	25	347.24	545.00	7,136	0.0E+00	5.0E+00	L	
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04		1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	S	
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04		2.09E-05	25	636.44	860.38	15,000	9.7E-05	0.0E+00	S	X
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01		6.22E-03	25	276.71	467.00	5,714	0.0E+00	5.0E-03	G	
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01		8.80E-03	25	249.00	416.25	5,115	1.8E-06	9.0E-02	L	
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03		1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	L	
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02		8.59E-04	25	370.00	583.00	7,868	0.0E+00	4.0E-04	L	X
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01		8.80E-03	25	285.30	460.40	5,879	0.0E+00	1.0E+01	L	X
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00		2.69E-02	25	259.25	432.00	5,250	4.4E-06	1.0E-01	G	
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03		3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	L	
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03		7.87E-05	25	293.10	466.00	6,157	2.2E-06	9.0E-03	L	
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02		2.18E-03	25	313.00	510.00	6,706	1.0E-08	6.0E-01	L	
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00		3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	L	
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02		5.54E-04	25	283.60	469.00	6,104	1.0E-04	0.0E+00	L	
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02		5.88E-04	25	422.35	696.00	9,479	1.1E-06	0.0E+00	L	X
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02		1.60E-03	25	363.15	585.85	7,800	3.7E-05	0.0E+00	L	X
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01		1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	L	
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01		5.61E-03	25	330.55	523.00	6,895	1.6E-06	0.0E+00	L	
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00		2.60E-02	25	304.75	576.05	6,247	0.0E+00	2.0E-01	L	
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00		2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	L	
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00		9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	L	
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01		3.42E-01	25	243.20	384.95	9,421	0.0E+00	1.0E-01	L	
76131	1,1,2-Trichloro-1,2,2-trifluoroethane	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01		4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	L	
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01		1.48E+00	25	603.69	846.31	13,000	1.3E-03	1.8E-03	S	X
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00		2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	L	
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04		1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	L	X
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01		2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	L	X
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03		5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	L	
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02		9.11E-04	25	386.15	602.00	8,322	1.6E-05	2.0E-04	L	X
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01		1.03E-02	25	360.36	544.20	7,505	4.1E-06	3.0E-03	L	X
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03		1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	L	X
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02		3.44E-04	25	419.60	661.15	8,996	5.8E-05	0.0E+00	L	X
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03		1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	L	
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02		3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	L	
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03		1.55E-04	25	550.54	803.15	12,155	0.0E+00	0.0E+00	S	X
86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03		6.34E-05	25	570.44	870.00	12,666	0.0E+00	0.0E+00	S	X
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01		8.13E-03	25	486.15	738.00	10,206	2.2E-05	0.0E+00	L	X
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04		1.25E-05	25	495.00	720.00	12,239	0.0E+00	0.0E+00	L	X
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02		4.82E-04	25	491.14	748.40	10,373	3.4E-05	3.0E-03	S	
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02		5.17E-04	25	514.26	761.00	12,600	0.0E+00	3.0E-03	S	X
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	4.15E+00	1.23E-02		2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	S	X
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01		5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	L	
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02		1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	L	
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02		1.18E+05	25	447.53	675.00	9,572	0.0E+00	2.0E-01	L	X
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01		6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	L	
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02		4.08E-04	25	430.00	652.00	9,171	0.0E+00	3.0E-04	L	X

Surrogate toxicity values (red numbers) used with the surrogate chemical presented below.

Naphthalene

## VLOOKUP TABLES

96333 Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	L		X
97632 Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	L		X
98066 <b>tert-Butylbenzene</b>	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	<b>3.0E-02</b>	L	X	Benzene
98828 Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.46E-02	25	425.56	631.10	10,335	0.0E+00	4.0E-01	L		
98862 Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	S,L	X	
98953 Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+00	9.82E-04	2.39E-05	25	483.95	719.00	10,566	4.0E-05	9.0E-03	L		
100414 Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	2.5E-06	1.0E+00	L		
100425 Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	1.0E+00	L		
100447 Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	4.9E-05	0.0E+00	L	X	
100527 Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	L	X	Benzene
103651 n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.0E+00	L	X	
104518 <b>n-Butylbenzene</b>	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	<b>3.0E-02</b>	L	X	
106423 p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	L		
106467 1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	1.1E-05	8.0E-01	S		
106934 1,2-Dibromoethane (ethylene dibr)	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	6.0E-04	9.0E-03	L		
106990 1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-02	2.0E-03	L		
107028 Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	L		
107062 1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.6E-05	7.0E-03	L		
107131 Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	6.8E-05	2.0E-03	L		
108054 Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	2.0E-01	L		
108101 Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	3.0E+00	L		
108383 m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	L		
108678 <b>1,3,5-Trimethylbenzene</b>	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	<b>7.0E-03</b>	L		1,2,4-Trimethylbenzene
108872 Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	L		
108883 Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	5.0E+00	L		
108907 Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	5.0E-02	L		
109693 1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	L	X	
110009 Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	L	X	
110543 Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	2.0E-01	L		
111444 Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	3.3E-04	0.0E+00	L		
115297 Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	S	X	
118741 Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	4.6E-04	0.0E+00	S	X	
120821 1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-03	L		
123739 Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	L	X	
124481 Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	2.7E-05	0.0E+00	L	X	X
126987 Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	L		
126998 2-Chloro-1,3-butadiene (chloropr	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	L		
127184 Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	6.0E-04	L		
129000 Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14,370	0.0E+00	0.0E+00	S	X	
132649 Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66,400	0.0E+00	0.0E+00	S	X	
135988 <b>sec-Butylbenzene</b>	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88,730	0.0E+00	<b>3.0E-02</b>	L	X	Benzene
141796 Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	76,336	0.0E+00	3.2E+00	L	X	
156592 <b>cis-1,2-Dichloroethylene</b>	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7,192	0.0E+00	<b>6.0E-02</b>	L	X	trans-1,2-Dichloroethylene
156605 trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6,717	0.0E+00	6.0E-02	L	X	
541731 <b>1,3-Dichlorobenzene</b>	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	92,301.8	0.0E+00	<b>2.0E-01</b>	L	X	1,2-Dichlorobenzene
309002 Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15,000	4.9E-03	1.1E-04	S	X	
319846 alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15,000	1.8E-03	0.0E+00	S		
542756 1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7,900	4.0E-06	2.0E-02	L		
630206 1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	97,682,825	7.4E-06	0.0E+00	L	X	
1634044 MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6,677.66	0.0E+00	3.0E+00	L		
7439976 Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14,127	0.0E+00	3.0E-04	L		
591786 2-Hexanone	1.50E+01	7.00E-02	8.40E-06	1.70E+04	3.80E-03	9.30E-05	25	400.8	587	8,554	0.0E+00	3.0E-02	L		

Highlighted chemicals do not have inhalation toxicity values or a surrogate.



## VLOOKUP TABLES