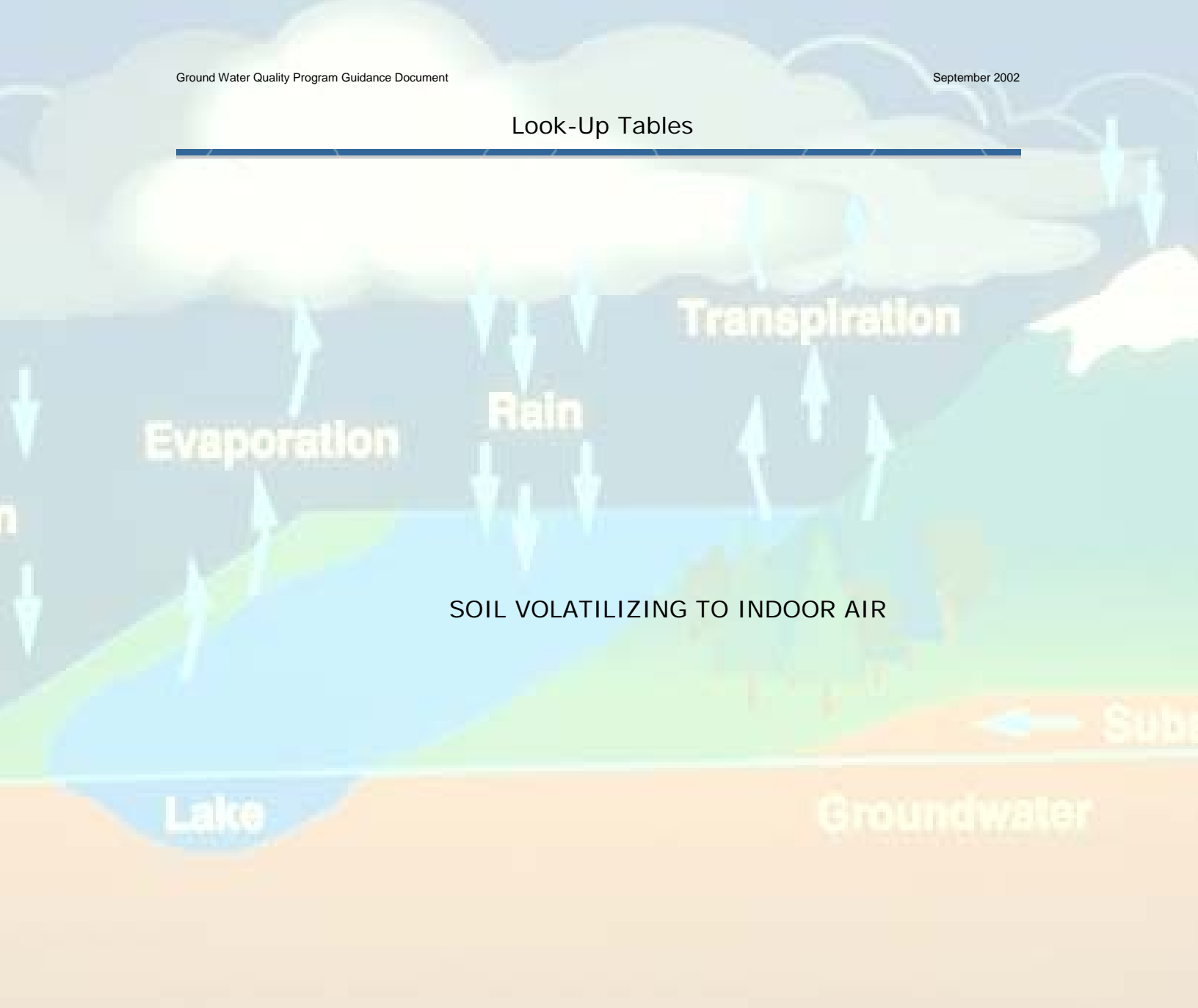


Look-Up Tables



SOIL VOLATILIZING TO INDOOR AIR

**South Dakota Department of Environment and Natural Resources
Ground Water Quality Program
Pierre, SD 57501**

Hydrologic Cycle

SOIL VOLATILIZING TO INDOOR AIR

*TABLE 1 - TOP OF SOIL CONTAMINATION LESS THAN FIVE FEET BELOW GROUND SURFACE

Residential Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.1	1.3	1.3
Toluene (mg/kg)	310	330	340
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	3,300	5,200	5,800
Residential Building > 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.4	1.6	1.7
Toluene (mg/kg)	390	410	420
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	4,000	6,500	7,100
Commercial Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	4.7	5.3	5.6
Toluene (mg/kg)	**>740	**>790	**>790
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	**>8,300	**>13,000	**>15,000
Commercial Building > 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	5.8	6.6	6.9
Toluene (mg/kg)	**>740	**>790	**>790
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	**>8,300	**>13,000	**>15,000

* Values in this table are NOT to be used if both contaminated soil and contaminated ground water are present under a building
 ***>" indicates risk-based target concentration greater than constituent residual saturation value; concentrations exceeding these levels are indicative of product-saturated soil and soil removal is required

SOIL VOLATILIZING TO INDOOR AIR

***TABLE 2 - TOP OF SOIL CONTAMINATION FIVE FEET TO LESS THAN TEN FEET BELOW GROUND SURFACE**

Residential Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.1	1.3	1.8
Toluene (mg/kg)	310	340	450
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	3,300	5,300	6,000
Residential Building > 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.4	1.6	2.1
Toluene (mg/kg)	390	420	530
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	4,000	6,600	7,400
Commercial Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	4.7	5.4	7.3
Toluene (mg/kg)	**>740	**>790	**>790
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	**>8,300	**>13,000	**>15,000
Commercial Building > 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	5.8	6.7	8.6
Toluene (mg/kg)	**>740	**>790	**>790
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	**>8,300	**>13,000	**>15,000

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SOIL VOLATILIZING TO INDOOR AIR

***TABLE 3 - TOP OF SOIL CONTAMINATION TEN FEET TO LESS THAN FIFTEEN FEET BELOW GROUND SURFACE**

Residential Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.1	1.3	2.2
Toluene (mg/kg)	310	350	570
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	3,300	5,400	6,300
Residential Building > 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.4	1.6	2.5
Toluene (mg/kg)	390	430	650
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	4,000	6,700	7,600
Commercial Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	4.7	5.6	9.2
Toluene (mg/kg)	**>740	**>790	**>790
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	**>8,300	**>13,000	**>15,000
Commercial Building > 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	5.8	6.8	10
Toluene (mg/kg)	**>740	**>790	**>790
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	**>8,300	**>13,000	**>15,000

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SOIL VOLATILIZING TO INDOOR AIR

*TABLE 4 - TOP OF SOIL CONTAMINATION FIFTEEN FEET BELOW GROUND SURFACE AND DEEPER

Residential Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.1	1.4	2.7
Toluene (mg/kg)	320	360	690
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	3,300	5,500	6,600
Residential Building > 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.4	1.7	3.0
Toluene (mg/kg)	390	430	770
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	4,100	6,800	7,900
Commercial Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	4.7	5.7	11
Toluene (mg/kg)	**>740	**>790	**>790
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	**>8,300	**>13,000	**>15,000
Commercial Building > 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	5.9	6.9	12
Toluene (mg/kg)	**>740	**>790	**>790
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	**>8,300	**>13,000	**>15,000

* Values in this table are NOT to be used if both contaminated soil and contaminated ground water are present under a building
 ***>" indicates risk-based target concentration greater than constituent residual saturation value; concentrations exceeding these levels are indicative of product-saturated soil and soil removal is required