**Section 742.APPENDIX B Tier 1 Illustrations and Tables**

**Section 742.TABLE I Tier 1 Soil Gas and Groundwater Remediation Objectives for the Indoor Inhalation Exposure Route – Diffusion Onlyj**

Qsoil equals 0.0 cm3/seca,b

|  |  | Soil Gas | Groundwater |
| --- | --- | --- | --- |
| CAS No. | Chemical Name | Residential(mg/m3) | Industrial/Commercial(mg/m3) | Residential(mg/L) | Industrial/Commercial(mg/L) |
| 67-64-1 | Acetone | 750,000g | 750,000g | 1,000,000h | 1,000,000h |
| 71-43-2 | Benzene | 41d | 300d | 0.41d | 2.6d |
| 111-44-4 | Bis(2-chloroethyl)ether | 1.9d | 14d | 6.6d | 48d |
| 75-27-4 | Bromodichloromethane | 450,000g | 450,000g | 6,700h | 6,700h |
| 75-25-2 | Bromoform | 1,800d | 13,000d | 170d | 1,300d |
| 71-36-3 | Butanol | 29,000g | 29,000g | 74,000h | 74,000h |
| 78-93-3 | 2-Butanone (MEK) | 380,000g | 380,000g | 220,000h | 220,000h |
| 75-15-0 | Carbon disulfide | 81,000c | 500,000c | 170c | 820c |
| 56-23-5 | Carbon tetrachloride | 24d | 180d | 0.052d | 0.31d |
| 108-90-7 | Chlorobenzene | 8,300c | 51,000c | 130c | 470h |
| 124-48-1 | Chlorodibromomethane | 57,000g | 57,000g | 2,600h | 2,600h |
| 67-66-3 | Chloroform | 12d | 87d | 0.17d | 1.1d |
| 95-57-8 | 2-Chlorophenol | 17,000g | 17,000g | 22,000h | 22,000h |
| 75-99-0 | Dalaponf | 1,500g | 1,500g | 900,000h | 900,000h |
| 96-12-8 | 1,2-Dibromo-3-chloropropanef | 0.17d | 1.3d | 0.029d | 0.21d |
| 106-93-4 | 1,2-Dibromoethane | 1.1d | 7.9d | 0.073d | 0.52d |
| 95-50-1 | 1,2-Dichlorobenzene | 11,000g | 11,000g | 160h | 160h |
| 106-46-7 | 1,4-Dichlorobenzene | 8,400g | 8,400g | 79h | 79h |
| 75-71-8 | Dichlorodifluoromethane | 32,000c | 200,000c | 6.8c | 33c |
| 75-34-3 | 1,1-Dichloroethane | 81,000c | 500,000c | 750c | 4,100c |
| 107-06-2 | 1,2-Dichloroethane | 10d | 76d | 0.50d | 3.5d |
| 75-35-4 | 1,1-Dichloroethylene | 27,000c | 160,000c | 61c | 300c |
| 156-59-2 | *cis*-1,2-Dichloroethylene | 1,100,000g | 1,100,000g | 3,500h | 3,500h |
| 156-60-5 | *trans*-1,2-Dichloroethylene | 10,000c | 63,000c | 58c | 310c |
| 78-87-5 | 1,2-Dichloropropane | 36d | 260d | 0.67d | 4.5d |
| 542-75-6 | 1,3-Dichloropropylene (*cis* + *trans*) | 110d | 830d | 0.42d | 2.6d |
| 123-91-1 | p-Dioxane | 15d | 110d | 140d | 1,000d |
| 100-41-4 | Ethylbenzene | 150d | 1,100d | 1.3d | 8.1d |
| 76-44-8 | Heptachlor | 0.97d | 7.1d | 0.058d | 0.18h |
| 118-74-1 | Hexachlorobenzene | 0.28g | 0.28g | 0.0062h | 0.0062h |
| 77-47-4 | Hexachlorocyclopentadiene | 86c | 530c | 0.29c | 1.5c |
| 67-72-1 | Hexachloroethane | 2,800g | 2,800g | 50h | 50h |
| 78-59-1 | Isophorone | 3,400g | 3,400g | 12,000h | 12,000h |
| 98-82-8 | Isopropylbenzene (Cumene) | 30,000g | 30,000g | 6.2c | 30c |
| 7439-97-6 | Mercuryi | 22g | 22g | 0.060h | 0.060h |
| 74-83-9 | Methyl bromide | 830c | 5,100c | 6.1c | 33c |
| 1634-04-4 | Methyl tertiary-butyl ether | 420,000c | 1,200,000g | 30,000c | 51,000h |
| 75-09-2 | Methylene chloride | 590d | 4,400d | 12d | 84d |
| 91-57-6 | 2-Methylnaphthalene | 530g | 530g | 25h | 25h |
| 95-48-7 | 2-Methylphenol (o-cresol) | 1,800g | 1,800g | 26,000h | 26,000h |
| 91-20-3 | Naphthalene | 14d | 100d | 1.8d | 13d |
| 98-95-3 | Nitrobenzene | 9.0d | 66d | 23d | 170d |
| 621-64-7 | n-Nitrosodi-n-propylamine | 0.18d | 1.3d | 3.3d | 24d |
| 108-95-2 | Phenol | 1,500g | 1,500g | 83,000h | 83,000h |
| 1336-36-3 | Polychlorinated biphenyls (PCBs) | ---e | ---e | ---e | ---e |
| 100-42-5 | Styrene | 34,000g | 34,000g | 310h | 310h |
| 127-18-4 | Tetrachloroethylene | 66d | 490d | 0.26d | 1.6d |
| 108-88-3 | Toluene | 140,000g | 140,000g | 530h | 530h |
| 120-82-1 | 1,2,4-Trichlorobenzene | 800c | 4,300g | 35h | 35h |
| 71-55-6 | 1,1,1-Trichloroethane | 770,000c | 870,000g | 1,300h | 1,300h |
| 79-00-5 | 1,1,2-Trichloroethane | 170,000g | 170,000g | 4,400h | 4,400h |
| 79-01-6 | Trichloroethylene | 180d | 1,300d | 1.1d | 6.7d |
| 75-69-4 | Trichlorofluoromethane | 97,000c | 600,000c | 62c | 300c |
| 108-05-4 | Vinyl acetate | 28,000c | 170,000c | 2,500c | 15,000c |
| 75-01-4 | Vinyl chloride | 30d | 440d | 0.065d | 0.75d |
| 108-38-3 | m-Xylene | 17,000d | 52,000c | 160c | 160h |
| 95-47-6 | o-Xylene | 14,000d | 41,000c | 170c | 180h |
| 106-42-3 | p-Xylene | 16,000d | 55,000c | 140c | 160h |
| 1330-20-7 | Xylenes (total)f | 17,000d | 49,000c | 96c | 110h |

Chemical Name and Remediation Objective Notations

a Compliance is determined by meeting both the soil gas remediation objectives and the groundwater remediation objectives. See Sections 742.505 and 742.515.

b Remediation objectives relying on this table require use of institutional controls in accordance with Subpart J.

c Calculated values correspond to a target hazard quotient of 1.

d Calculated values correspond to a cancer risk level of 1 in 1,000,000.

e PCBs are a mixture of different congeners. The appropriate values to use for the physical/chemical and toxicity parameters depend on the congeners present at the site. Persons remediating sites should consult with BOL if calculation of Tier 2 or 3 remediation objectives is desired

f Groundwater remediation objective calculated at 25°C. For Dalapon and 1,2-Dibromo-3-chloropropane, the critical temperature (Tc) and enthalpy of vaporization at the normal boiling point (Hv,b) are not available. For Xylenes (total), the enthalpy of vaporization at the normal boiling point (Hv,b) is not available.

g The value shown is the Cvsat value of the chemical in soil gas.  The Cvsat of the chemical becomes the remediation objective if the calculated value exceeds the Cvsat value or if there are no toxicity criteria available for the inhalation route of exposure.

h The value shown is the solubility of the chemical in water. The solubility of the chemical becomes the remediation objective if the calculated value exceeds the solubility or if there are no toxicity criteria available for the inhalation route of exposure.

i Value for the inhalation exposure route is based on Reference Concentration for elemental Mercury (CAS No. 7439-97-6).  Inhalation remediation objectives only apply at sites where elemental Mercury is a contaminant of concern.

j Calculated values for the remediation objectives in this table are based on the assumption that the existing or potential building has a full concrete slab-on-grade, though the remediation objectives in this table are also considered protective of occupants of buildings with full concrete basement floors and walls. This table applies only when the existing or potential building has a full concrete slab-on-grade or a full concrete basement floor and walls. Institutional controls under Subpart J are required to use remediation objectives in this table. This table does not apply when the existing or potential building has neither a full concrete slab-on-grade nor a full concrete basement floor and walls, such as a building with an earthen crawl space, an earthen floor, a stone foundation, a partial concrete floor, or a sump. In such cases, site evaluators have the option of excluding the indoor inhalation exposure route under Section 742.312, meeting the building control technology requirements under Subpart L, or proposing an alternative approach under Tier 3.

(Source: Added at 37 Ill. Reg. 7506, effective May 15, 2013)