

Soil Assessment Criteria for land under COMMERCIAL /INDUSTRIAL USE

Parameters	Soil Guideline Values ¹ (mg kg ⁻¹)	Suitable for Use Levels ² (mg kg ⁻¹)		
Antimony	-	7500 ³		
Arsenic (inorganic)	640	640		
Barium	-	22000 ³		
Beryllium	-	12		
Boron	-	240000		
Cadmium	230	190		
Chromium	5000	8600(³⁺) 33(⁶⁺)		
Copper	-	68000		
Lead	2300 ⁴	-		
Mercury (inorganic)	3600	1100		
Molybdenum	-	17000 ³		
Nickel	1800	980		
Selenium	13000	12000		
Zinc	-	730000		
Vanadium	-	9000		
Petroleum Hydrocarbons		1%SOM	2.5%SOM	6%SOM
TPH aliphatic >C5-C6		3200	5900	12000
TPH aliphatic >C6-C8		7800	17000	40000
TPH aliphatic >C8-C10		2000	4800	11000
TPH aliphatic >C10-C12		9700	23000	47000
TPH aliphatic >C12-C16		59000	82000	90000
TPH aliphatic >C16-C35		1600000	1700000	1800000
TPH aliphatic >C35-C44		1600000	1700000	1800000
TPH aromatic >C5-C7		26000	46000	86000
TPH aromatic >C7-C8		56000	110000	180000
TPH aromatic >C8-C10		3500	8100	17000
TPH aromatic >C10-12		16000	28000	34000
TPH aromatic >C12-C16		36000	37000	38000
TPH aromatic >C16-C21		28000	28000	28000
TPH aromatic >C21-C35		28000	28000	28000
TPH aromatic >C35-C44		28000	28000	28000
Polyaromatic Hydrocarbons				
Napthalene		190	460	1100
Acenaphthylene		83000	97000	100000
Acenaphthene		84000	97000	100000
Fluorene		63000	68000	71000
Phenanthrene		22000	22000	23000
Anthracene		520000	540000	540000
Fluoranthene		23000	23000	23000
Pyrene		54000	54000	54000
Benz[a]anthracene		170	170	180
Chrysene		350	350	350
Benzo[b]fluoranthene		44	44	45
Benzo[k]fluoranthene		1200	1200	1200
Benzo[a]pyrene		35	35	36
Dibenz[a,h]anthracene		3.5	3.6	3.6
Indeno[1,2,3c-d]pyrene		500	510	510
Benzo[g,h,i]perylene		3900	4000	4000

Parameters	Soil Guideline Values ¹ (mg kg ⁻¹)	Suitable for Use Levels ² (mg kg ⁻¹) Generic Assessment Criteria ³ (mg kg ⁻¹)		
		1% SOM	2.5% SOM	6% SOM
BTEX				
Benzene	95	27	47	90
Toluene	4400(6% SOM)	56000	110000	180000
Ethylbenzene	2800(6% SOM)	5700	13000	27000
m-xylene	3500	6200	14000	31000
p-xylene	3200	5900	14000	30000
o-xylene	2600	6600	15000	33000
Phenol and Chlorophenols				
Phenols	3200(6% SOM)	760	1500	3200
Chlorophenols (4 congeners)		3500	4000	4300
Pentachlorophenol		400	400	400
Volatile Organic Compounds				
1,2-Dichloroethane		0.67	0.97	1.7
1,1,1-Trichloroethane		660	1300	3000
1,1,2,2 Tetrachloroethane		270	550	1100
1,1,1,2 Tetrachloroethane		110	250	560
Tetrachloroethene		19	42	95
Tetrachloromethane (carbon tetrachloride)		2.9	6.3	14
Trichloroethene (TCE)		1.2	2.6	5.7
Trichloromethane (chloroform)		99	170	350
Chloroethene (vinyl chloride)		0.059	0.077	0.12
1,1,2, Trichloroethane		94	190	400
1,1-Dichloroethane		280	450	850
1,1-Dichloroethene		26	46	92
1,2,4-Trimethylbenzene		42	99	220
1,2-Dichloropropane		3.3	5.9	12
2,4-Dimethylphenol		16000	24000	30000
2,4-Dinitrotoluene		3700	3700	3800
2,6-Dinitrotoluene		1900	1900	1900
2-Chloronaphthalene		390	960	2200
Biphenyl		18000	33000	48000
Bis (2-ethylhexyl) phthalate		85000	86000	86000
Bromobenzene		97	220	520
Bromodichloromethane		2.1	3.7	7.6
Bromoform		760	1500	3100
Butyl benzyl phthalate		940000	940000	950000
Carbon Disulphide		11	22	47
Chlorobenzene		56	130	290
Chloroethane		960	1300	2100
Chloromethane		1.0	1.2	1.6
Cis 1,2 Dichloroethene		14	24	47
Dichloromethane		270	360	560
Diethyl Phthalate		150000	220000	290000
Di- <i>n</i> -butyl phthalate		15000	15000	15000
Di- <i>n</i> -octyl phthalate		89000	89000	89000
Hexachlorobutadiene		31	66	120
Hexachloroethane		22	53	120
Isopropylbenzene		1400	3300	7700
Methyl <i>tert</i> -butyl ether		7900	13000	24000
Propylbenzene		4100	9700	21000
Styrene		3300	6500	11000

Values in italics are preliminary
Updated: May 2015

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		1% SOM	2.5% SOM	6% SOM
Total Cresols (2-,3-&4-methylphenol)		160000	180000	180000
<i>Trans</i> 1,2 Dichloroethene		22	40	81
Tributyl tin oxide		130	180	200
Chlorobenzenes				
Chlorobenzene		56	130	290
1,2-Dichlorobenzene		2000	4800	11000
1,3-Dichlorobenzene		30	73	170
1,4-Dichlorobenzene		4400	10000	25000
1,2,3-Trichlorobenzene		102	250	590
1,2,4-Trichlorobenzene		220	530	1300
1,3,5-Trichlorobenzene		23	55	130
1,2,3,4-Tetrachlorobenzene		1700	3080	4400
1,2,3,5-Tetrachlorobenzene		49	120	240
1,2,4,5-Tetrachlorobenzene		42	72	96
Pentachlorobenzene		640	770	830
Hexachlorobenzene		110	120	120
Polychlorinated Biphenyls	0.24			
Explosives				
2,4,6 Trinitrotoluene (TNT)		1000	1000	1000
RDX		210000	210000	210000
HMX		110000	110000	110000
Pesticides				
Aldrin		170	170	170
Dieldrin		170	170	170
Atrazine		9300	9400	9400
Dichlorvos		140	140	140
Alpha-Endosulfan		5600	7400	8400
Beta-Endosulfan		6300	7800	8700
Alpha-Hexachlorocyclohexane		170	180	180
Beta-Hexachlorocyclohexane		65	65	65
Gamma-Hexachlorocyclohexane (including Lindane)		67	69	70

References

- ¹ Environment Agency (2009) 'Soil Guideline Values for 'Arsenic', 'Cadmium', 'Mercury', 'Nickel', 'Selenium', 'Benzene', 'Ethylbenzene', 'Toluene', 'Xylenes', 'Phenol', 'Dioxins, Furans and Dioxin-like PCBs in soil'. Science Report SC050021. UK.
- ² Nathanail, C.P., McCaffrey, C., Gillett, A.G., Ogden, R.C. and Nathanail, J.F. 2015. The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham. Residential with home-grown produce land use.
- ³ EIC/AGS/CL:AIRE (2009) 'Soil Generic Assessment Criteria for Human Health Risk Assessment'. UK.

⁴ CL:AIRE (2014) SP1010-Development of Category 4 Screening Levels for assessment of Land Affected by Contamination. Final Project Report (Revision 2). Appendix H Provisional C4SL.