Heavy Metal Guidelines in Soil

TECHNICAL DATASHEET

Assessment of Potentially Toxic Elements

Soil Guideline Values (SGV) & supporting technical guidance are intended to assist professionals in the assessment of long-term risk to health from human exposure to chemical contamination in soils.

There are different SGVs according to land-use (allotments, commercial, residential etc) as people use land differently & this effects who and how people may be exposed to contamination – if any.

SGVs are ‚trigger values' for screening-out low risk areas of land contamination. They give an indication of representative average levels of chemicals in soil below which the long-term health risks are likely to be minimal. Exceeding an SGV does not mean that remediation is always necessary, although in many cases some further investigation and evaluation of the risk will be carried out.

Parameter	Function of Land Use	CLEA Soil Guideline Value (SGV) mg/kg	EC Directive 86/278/EEC mg/kg
Arsenic (As)	Residential with home grown produce	37	-
	Residential without home grown produce	40	-
	Allotment	49	-
	Commercial	640	-
	Agricultural and after sewge sludge application	-	50
	POS1	79	-
	POS2	170	-
BaP	Residential with home grown produce	5.0	-
	Residential without home grown produce	5.3	-
	Allotment	5.7	-
	Commercial	77	-
	Agricultural and after sewge sludge application	-	-
	POS1	10	-
	POS2	21	-
Benzene	Residential with home grown produce	0.87	-
	Residential without home grown produce	3.3.	-
	Allotment	0.18	-
	Commercial	98	-
	Agricultural and after sewge sludge application	-	-
	POS1	140	-
	POS2	230	-
Cadmium (Cd)	Residential with home grown produce	22	-
	Residential without home grown produce	150	-
	Allotment	3.9	-
	Commercial	410	-
	Agricultural and after sewge sludge application	-	3
	POS1	220	-
	POS2	880	-
***Chromium (Cr)**	Residential with plant uptake	130	-
	Residential without plant uptake	200	-
	Commercial and Industrial	5000	-
	Agricultural and after sewage sludge application	-	400

Parameter	Function of Land Use	CLEA Soil Guideline Value (SGV) mg/kg	EC Directive 86/278/EEC mg/kg
Chromium VI	Residential with home grown produce Residential without home grown produce Allotment Commercial Agricultural and after sewge sludge application POS1 POS2	21 21 170 49 - 21 250	- - - - - - -
Mercury (Hg)	Residential Allotment Commercial Agricultural and after sewage sludge application	10 26 26 -	- - - 1
Nickel (Ni)	Residential Allotment Commercial Agricultural and after sewage sludge application Agricultural and after sewage sludge application Agricultural and after sewage sludge application Agricultural and after sewage sludge application	130 230 1800 - - - -	- - - At pH 5.0-5.4 = 50 At pH 5.5-5.9 = 60 At pH 6.0-7.0 = 75 At pH 7.1+ = 110
Selenium (Se)	Residential Allotment Commercial Agricultural and after sewage sludge application	350 120 1300 -	- - - 3
***Lead (Pb)**	Residential with home grown produce Residential without home grown produce Allotment Commercial Agricultural and after sewge sludge application POS1 POS2	200 310 80 2300 - 630 1300	- - - - 300 - -
Copper (Cu)	CLEA Agricultural and after sewage sludge application Agricultural and after sewage sludge application Agricultural and after sewage sludge application Agricultural and after sewage sludge application	Non available at present - - - -	- At pH 5.0-5.4 = 80 At pH 5.5-5.9 = 100 At pH 6.0-7.0 = 135 At pH 7.1 + = 200
Zinc (Zn)	CLEA Agricultural and after sewage sludge application Agricultural and after sewage sludge application Agricultural and after sewage sludge application Agricultural and after sewage sludge application	Non available at present - - - -	- At pH 5.0-5.4 = 200 At pH 5.5-5.9 = 250 At pH 6.0-7.0 = 300 At pH 7.1+ = 450

Please note:

CLEA 2009 Contaminated Land Exposure Assessment are updated technical documents issued by the Environment Agency. They replace CLEA 2002 and ICRCL in the assessment of the human health risks from land contamination.

EC Directive 86/278/EEC figures have been taken from the Code of Practise prepared to compliment the sludge (Use in Agriculture) Regulations 1989 which enforce the provisions of the EC Directive 86/278/EEC on the protection of the environment and in particular of the soil when sludge is applied to agricultural land.

** For lead (Pb) and Chromium (Cr) no updates were issued in 2009 so the guidelines shown are from CLEA 2002.*

The C4SLs above are mg/kg and should be read in conjunction with the supporting guidance.

ALS Environmental Ltd., Torrington Avenue, Coventry, CV4 9GU, U.K.
Tel: +44 (0)24 7642 1213 Fax: +44 (0)24 7685 6575 • Email: info.ukenviro@alsglobal.com
www.alsenvironmental.co.uk

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