

Threshold values groundwater / surface water

		BodSchV	BodSchV	BodSchV	LAWA	TVO	LAWA	OGewQZ VO	WRRL	AbwV
		GERMANY soil	GERMANY soil	GERMANY soil	GERMANY groundwater	drinking water	GERMANY surface water (hardest value) goal: quality 2	state Saxony- Anhalt surface water	EU surface water	GERMANY -waste- water allowed maximum- values measured direct at receiving water location (without volume limit)
	compound	dated 12.07.1999 test-/guide value industry for direct intake	dated 12.07.1999 test-/guide value in cases of neighboured agriculture	Stand 12.07.1999 test-/ guide values at interface saturated ground layer- unsaturated ground layer for migration path soil- ground water	dated 21.12.1988 borderline of insignificance	dated 05.12.1990 boundary limit	dated August 1998 boundary limit for goal quality	dated 19.03.2001 goal of quality	dated 20.11.2001 list of priority substances	law BGI dated 1/2001
		mg/kg dry weight	mg/kg dry weight	µg/l	µg/l	µg/l	µg/l (exceptions: look indications)	µg/l (exceptions: look indications)		µg/l (exceptions: look indications)
1	agricultural pesticides, total (inclusive their toxical main degradation products)			0,1 (p,p-dichloro- dichloroethan)	0,5	0,5				
2	agricultural pesticides, single substance				0,1	0,1				
3	(gamma-isomer, Lindane)									
4	Alachlor									
5	alpha-endosulfan									
6	Atrazine									
7	chlordan							0,003		
8	chlorfenvinphos									
9	chlorpyrifos									
10	coumaphos							0,07		
11	2,4- D							0,1		
12	demeton							0,1		
13	demeton-o							0,1		
14	demeton-s							0,1		
15	demeton-s-methyl							0,1		
16	demeton-s-methyl- sulphon							0,1		
17	dibutyltin-cation							0,01		
18	dibutyltin-cation							100 µg/kg (suspension load)		
19	dichlorprop							0,1		
20	dimethoat							0,1		
21	disulfoton							0,004		
22	Diuron									
23	Endosulfan									
24	Epichlorohydrine							10		
25	heptachlorine							0,1		
26	heptachloroperoxyde							0,1		
27	hexachlorobenzene (HCB)	200 (compare Chlorobenzenes)					0,01			
29	hexachlorocyclohexane	400 (compare pesticides)								
30	Isoproturon									
31	Linuron							0,1		
32	4- chloro-2-methyl-phenoxy -acetic-acid							0,1		
33	Mecoprop							0,1		
34	Metamidophos							0,1		
35	Mevinphos							0,0002		
36	Monolinuron							0,1		
37	Omethoat							0,1		
38	Oxydemeton-methyl							0,1		
39	Pentachlorophenol	250 (compare chlorophenols)								
40	Phoxim							0,008		
41	Propanil							0,1		
42	Pyrazon (Chloridazon)							0,1		
43	Simazin									
44	2,4,5- T							0,1		
45	tetrabutyltin							0,001	X	

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		mg/kg dry weight	mg/kg dry weight	µg/l	µg/l	µg/l	µg/l (exceptions: look indications)	µg/l (exceptions: look indications)		µg/l (exceptions: look indications)
46	tetrabutyltin							40 µg/kg (suspension load)	X	
47	trichlorfon							0,002		
48	Trifluralin									
49	PAH, total			0,2 (by EPA; without naphthalene, without methylnaphthalins)	0,2 (by EPA; without naphthalene, without methylnaphthalins)	0,2				
50	Anthracene							0,01		
51	Benzo(a)pyrene	12	1		0,01			0,01		
52	Benzo-b-fluoranthene							0,025		
53	Benzo-g,h,i-perylene							0,025		
54	Benzo-k-fluoranthene							0,025		
55	Indeno-[1.2.3-cd]-pyrene							0,025		
56	naphthalin			2	2 (naphthalins and methylnaphthalins)			1		
58	(p-Nonylphenols)									
59	aldrin			0,1						
60	aluminium					200				3000
61	2- amino-4-chlorphenol							10		
62	ammonium					500 (geological caused oversteps until 30000µg/l are allowed)	300 (ammoniumnitrate)			100000 (nitrogen from ammonium compounds)
63	antimon (Sb)			10	5	10				
64	AOX						25			
65	arsenic (As)	140	200	10	10	10		40 (mg/kg suspension load)		
66	baryum					1000				
67	bentazone							0,1		
68	Benzene			1	1			10		
69	benzidine							0,1		
70	Benzylchloride (alpha- Chlortoluol)							10		
71	Benzylidenchloride (alpha, alpha-Dichlortoluol)							10		
72	biochemical oxygen- demand (BOD)									15000
73	biphenyl							1		
74	boron					1000				
75	brominated diphenylethers									
76	BTEX- aromates, (benzene, ethylbenzene, toluol, xylene; for benzen: special cases)			20 (benzene, ethylbenzen e, toluol, xylene; styrol, Comol)	10 (BTX- one- nucleus hxdro carbons)					
77	C 10-13 chloralkanes									
78	cadmium (Cd) und cadmium- compounds	60		5	5 (by daily food full used)	5	1,2 (mg/kg suspension load)			
79	calcium					400000				
80	chemical oxygen demand (COD)									600000
81	1- chlor-2-nitrobenzene						1	10		
82	chloride					250000	100000			
83	chlorine compounds (organo-) total					10 (1,1,1- trichloroethan, trichloroethen, tetrachloroethen, dichloromethan)				
84	4- chlorine-2- nitroaniline							3		
85	chlorine-2.4- 1- dinitrobenzene							5		

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86	1- chlorine-2-nitrotoluol						20			
87	4- chlorine-2-nitrotoluol						1	10		
88	5- chlorine-2-nitrotoluol							1		
89	chlorine-3- 4- methethylphenol							10		
90	1- chlorine-3-nitrobenzene							1		
91	4- chlorine-3-nitrotoluol							1		
92	1- chlorine-4-nitrobenzene						1	10		
93	2- chlorine-4-nitrotoluol						1	1		
94	3- chlorine-4-nitrotoluol							1		
95	2- chlorine-6-nitrotoluol							1		
96	chlorine-alhydrat							10		
97	3- chlorin-o-toluidin							10		
98	2- chlorin-p-toluidin							10		
99	3- chlorin-p-toluidin							10		
100	chlornaphtaline (tecnical mixture)							0,01		
101	Chloro acetic acid							10		
102	2- chloroanilin						1	3		
103	3- chloroanilin						0,1	1		
104	4- chloroanilin						0,05	0,05		
105	chlorobenzene				1 Chlorobenzene, total (if a pesticide is given, the pesticide border matters)			1		
106	2- chloroethanol							10		
107	chloroethen (venylchloride)				0,5			2		
108	1- chloronaphtaline							1		
109	2- chlorophenol							10		
110	3- chlorophenol							10		
111	4- chlorophenol							10		
112	chlorophenols				1 Chlorophenols, total (if a pesticide is given, the pesticide border matters)					
113	Chloropren (2-Chlorbuta-1.3-dien)							10		
114	Chloropropren 3- (Allchloride)							10		
115	5- chlor-o-toluidin							10		
116	2- chlorotoluol							1		
117	3- chlorotoluol							10		
118	4- chlorotoluol							1		
119	chromat (chromium VI)			8	10					
120	chromium, total (Cr)	1000		50	50	50	100 (mg/kg suspension load)			
121	cobalt			50						
122	copper (Cu)			50	20	3000 (caused by pipelines)	60 (mg/kg suspension load)			
123	cyanide, free (CN)			10	5					
124	cyanide, total (CN)			50	50	50				
125	cyanurchloride (2.4.6-Trichlor-1.3.5- triazin)							0,1		
126	Di(2-ethylhexyl)phtalate (DEHP)									
127	1.2- dibromethane							2		
128	dibromethane							2		
129	1.2- dichlorethane						1			

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		mg/kg dry weight	mg/kg dry weight	µg/l	µg/l	µg/l	µg/l (exceptions: look indications)	µg/l (exceptions: look indications)		µg/l (exceptions: look indications)
130	dichlorethylene							10		
131	1.1- (Venylidenchloride)									
132	1.4- dichloro-2-nitrobenzene						1	10		
133	1.2- dichloro-3-nitrobenzene						1	10		
134	1.2- dichloro-4-nitrobenzene						1	10		
135	1.3- dichloro-4-nitrobenzene							10		
136	2.3- dichloroaniline							1		
137	2.4-&2.5- dichloroaniline							2		
138	2.4- dichloroaniline							1		
139	2.5- dichloroaniline							1		
140	2.6- dichloroaniline							1		
141	3.4- dichloroaniline						0,1	0,5		
142	3.5- dichloroaniline							1		
143	1.2- dichlorobenzene							10		
144	1.3- dichlorobenzene							10		
145	1.4- dichlorobenzene						0,02	10		
146	dichlorobenzidins							10		
147	dichlorodiisopropylether							10		
148	1.1- dichloroethane							10		
149	1.2- dichloroethylene							10		
150	dichloromethane					contained in organic chloro compounds	1	10		
151	2.4- dichlorophenole							10		
152	1.3- dichloropropan-2-ol							10		
153	1.2- dichloropropanes							10		
154	1.3- dichloropropene							10		
155	2.3- dichloropropene							10		
156	diethylamine							10		
157	dimethylamine							10		
158	1.2- dimethylbenzene							10		
159	1.3- dimethylbenzene							10		
160	1.4- dimethylbenzene							10		
161	ethylbenzene							10		
162	Fluoranthene							0,025		
163	fluoride (F)			750	750	1500				50000
164	hexachlorobutadiene						0,5			
165	hexachloroethane							10		
166	hydrocarbons (IR-spektroskopy allowed)			200 (n-alkanes, cycloalkanes and aromatic hydrocarbons)	200 (sample must be organolectically cryptic)	10 (dissolved or emulsioned hydrocarbons, mineraloils)				10000
167	iron					200				3000
168	Isopropylbenzene							10		
169	Kjedal nitrogen					1000				
170	Lead (Pb) and lead- compounds	2000	0,1	25	10 (max. 25 until year 2013)	40	100 (mg/kg suspension load)			
171	magnesium					50000 (geological caused oversteps until 120000µg/l allowed)				
172	manganese					50				
173	mercury (Hg) and 1st compounds	80	5	1	1	1	0,8 (mg/kg suspension load)			
174	molybdic (Mo)			50	25					
175	naphtaline (total) plus methylnaphtalins			2 (naphtalin)	2					
176	nickel (Ni) and nickel compounds	900		50	20	50	50 (mg/kg suspension load)			
177	nitrate					50000	2500			5000 (nitrogen from nitrite)
178	nitrite					100	100			

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		mg/kg dry weight	mg/kg dry weight	µg/l	µg/l	µg/l	µg/l (exceptions: look indications)	µg/l (exceptions: look indications)		µg/l (exceptions: look indications)
178	nitro-benzene						0,1			
179	nitrogen						3000 (nitrogen, total)			18000 (nitrogen, total)
180	2- nitro-toluene						10			
181	3- nitro-toluene						10			
182	4- nitro-toluene						10			
183	nonyl-phenols									
184	octylphenols									
185	ortho-phosphate-P						100			
186	oxygen content (10-perzentil as a substitut for minimum)						6000			
187	para-tert-octylphenols									
188	PCB, single substance				0,01	contained in pesticides, total				
189	PCB, total				0,05 (6 Congeners by Ballschmitter, values multiplied with 5)	contained in pesticides				
190	PCB-101					contained in pesticides		20 µg/kg		
191	PCB-118					contained in pesticides		20 µg/kg		
192	PCB-138					contained in pesticides		20 µg/kg		
193	PCB-153					contained in pesticides		20 µg/kg		
194	PCB-180					contained in pesticides		20 µg/kg		
195	PCB-28					contained in pesticides		20 µg/kg		
196	PCB-52					contained in pesticides		20 µg/kg		
197	Pentachlorobenzene									
198	phenols,			20	20 water-vapour volatiles, (sample must be organically cryptic)	0,5 (phenols as C6H5OH, expection: at natural phenols: not odour- causing values allowed)				
199	phosphorus					6700 (as phosphate: value is adequat to 5000 µg/l P2O5)	150			2000 (phosphore, total)
200	polychlorinated Biphenyls PCB (6)	40 (measured summary of 6 Congenères: Measure result is to divide by 5)		0,05 (measured summary of 6 Congenères: Measure result is to divide by 5)		contained in pesticides				
201	potassium					1000 geological caused oversteps until 50000 µg/l allowed)				
202	selenium (Se)			10	10	10				
203	silver					10 (if silver is necessary for water conditioning, other limit values are relevant)				
204	sodium					150000				
205	sulfate					240000 (geological oversteps until 500000 µg/l are allowed)	100000			
206	surface active substances -methylenblueactive -Bismut-active					200				
207	1.2.4.5- tetrachlorobenzen							1		
208	1.1.2.2- tetrachloroethan							10		
209	tetrachloroethen						1			
210	tetrachloromethan					3	3			

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211	thallium (Tl)		0,1		1					
212	tin (Sn)			40						
213	TOC						5000			
214	toluolen							10		
215	toxicity to fish									6 (as dilution factor GF)
216	Triazophos							0,03		
217	tributylphosphat (phosphorus-acid-tributyl- ester)							0,1		
218	tributyltin compounds									
219	tributyltin-cations									
220	trichlormethan						0,8			
221	1.1.3- trichlorobenzene						1			
222	1.2.3- trichlorobenzene						1			
223	1.2.4- trichlorobenzene						1			
224	1.3.5- trichlorobenzene						0,1			
225	trichlorobenzene									
226	1.1.1- trichloroethan						1	10		
227	1.1.2- trichloroethan							10		
228	trichloroethene						1			
229	1.1.2- trichlorotrifluorinethan							10		
230	2.3.4- trichlorphenole							1		
231	2.3.5- trichlorphenole							1		
232	2.3.6- trichlorphenole							1		
233	2.4.5- trichlorphenole							1		
234	2.4.6- trichlorphenole							1		
235	3.4.5- trichlorphenole							1		
236	Vanadium (V)				20					
237	volatile halogenous hydrocarbons, <i>carcinogen</i>				3 (tetrachloromethan, chloroethene, 1,2-dichloroethan)					
238	volatile halogenous hydrocarbons, total			10	10					
239	with cloroform extractible substances as evaporation residue					1000 (special case; oxydability)				
240	zinc (Zn)			500	300	5000 (caused by pipelines)	200 (mg/kg suspension load)			

The required values were compared at:

- A) values from soil protection law -> deficit positions marked with:
- B) values from LAW-water and drinking water law -> deficit positions marked with:.....
- C) values at surface water: -> deficit positions marked with:
- > C(A) goal from LAWA für surface water
- > C(B) quality goal for surface water by state law Saxony-Anhalt.....
- > C(A) allowed waste-water maximum- values by German law direct at receiving water location.....
- D) priority substances by EU-WRRL.....
--> deficit positions marked with.....

remark: PAH are marked with:

and pesticides are marked with: