

POLAND

The maximal concentration of chemical substances of soils and underground waters (PIOS 1995)

COMPOUND	Soil										Groundwater				
	area B					area C					region				
	[mg/kg. dry weight]										area A	area B	area C		
	depth [m ppt]														
	0-0,30		0,30-15		>15		0-2		2 - 15,					>15	
	a ground water-permeable														
area A		to	below	to	below	to	below					[µg/dm3]			
		1 x 10 ⁻⁷		1 x 10 ⁻⁷			1 x 10 ⁻⁷								
I. Metals															
1 Cr chromium	20	20	50	190	100	380	500	100	80	*	5	50	200		
2 Co cobalt	20	20	30	60	50	120	200	50	300	*	20	90	200		
3 Ni nickel	35	35	50	100	70	210	300	70	500	*	15	40	200		
4 Cu copper	36	36	50	90	60	190	300	60	500	*	20	35	200		
5 Zn zinc	140	140	150	360	200	720	1000	200	3000	*	150	300	800		
6 As arsenic	20	20	20	25	25	55	60	25	100	*	10	40	100		
7 Mo molybdenum	10	10	10	40	30	210	250	30	200	*	50	185	300		
8 Cd cadmium	0,8	0,8	3	6	5	12	15	8	20	*	1,5	6	20		
9 Sn tin	20	20	30	50	40	300	350	40	300	*	10	30	150		
10 Ba barium	200	200	250	320	300	650	1000	300	3000	*	50	100	500		
11 Hg mercury	0,3	0,3	3	5	4	10	30	4	50	*	0,05	0,3	2		
12 Pb lead	85	85	100	26	200	530	600	200	1000	*	1,5	50	200		
II. Non-organic															
13 NH ₄										*	1000	3000			
14 CN free	1	1	5	6	5	12	40	5	100	*	5	80	100		
15 CN	5	5	5	6	5	12	40	5	500	*	10	80	100		
16 S	2	2	8	2	10	200	250	10	200	*	10	100	300		
17 Br	20	20	30	50	30	300	350	30	200	*	100	500	2000		
18 PO ₄										*	15	200	700		
III. Aromatic hydrocarbons															
19 benzene	0,05	0,1	0,2	25	3	50	100	3	150	*	0,2	1	5		
20 ethylbenzene	0,05	0,1	1	75	10	150	200	10	250	*	0,2	20	60		
21 toluene	0,05	0,1	1	75	5	150	200	5	230	*	0,2	15	50		
22 xylene	0,05	0,1	1	35	5	75	100	5	150	*	0,2	20	60		
23 phenol	0,05	0,1	0,5	20	3	40	50	3	100	*	0,2	15	50		
24 Aromatic total	0,1	0,1	1	150	10	250	300	20	270	*	0,2	30	100		

	IV. PAH's													
25	naphthalene	0,1	0,1	5	20	10	40	50	10	40	*	0,2	7	30
26	phenanthrene	0,1	0,1	5	20	10	40	50	10	40	*	0,005	2	10
27	anthracene	0,1	0,1	5	20	10	40	50	10	40	*	0,005	2	10
28	fluoranthene	0,1	0,1	5	20	10	40	50	10	40	*	0,005	1	10
29	chrysene	0,1	0,1	5	20	10	40	50	10	40	*	0,005	0,005	2
30	benzo(a)anthracene	0,1	0,1	5	20	10	40	50	10	40	*	0,005	0,05	2
31	benzo(a)pyrene	0,01	0,01	5	10	5	40	50	5	40	*	0,005	0,02	1
32	benzo(a)fluoranthene	0,1	0,1	5	10	5	40	50	5	40	*	0,005	0,03	2
33	benzo(a)perylene	0,1	0,1	10	10	5	40	50	5	100	*	0,005	1	5
34	PAH' total	1	1	20	40	20	200	250	20	200	*	Border of detectability	10	40
	V. Chlorinated hydrocarbons													
35	aliphatic chlorinated single	0,1	0,1	1	5	3	50	60	3	50	*	0,01	10	50
36	aliphatic chlorinated total	0,1	0,1	1,5	7	3	70	80	3	70	*	Border of detectability	15	70
37	single chlorobenzene	0,1	0,1	0,2	1	0,5	10	15	0,5	10	*	0,01	0,5	2
38	total chlorobenzene	0,2	0,2	0,3	2	0,8	20	25	0,8	20	*	Border of detectability	1	5
39	single cglorophenols	0,1	0,1	0,1	0,5	0,2	5	8	0,2	5	*	0,01	0,3	1,5
40	total chlorophenols	0,1	0,1	0,1	1	0,5	10	15	0,5	10	*	Border of detectability	0,5	2
41	chlorine PCK	0,1	0,1	0,1	1	0,5	10	8	0,5	10	*	0,01	0,2	1
42	PCB	0,1	0,1	0,1	1	0,5	10	12	0,05	10	*	0,01	0,2	1
43	single chlorine organic compounds	0,01	0,01	0,1	0,5	0,2	5	8	0,2	5	*	0,01	0,2	1
44	total chlorine organic compounds	0,01	0,01	0,2	1	0,5	10	12	0,5	10	*	Border of detectability	0,5	2
45	single non-chlorine compounds	0,01	0,01	0,2	1	0,5	10	12	0,5	10	*	0,01	0,5	2
46	total non-chlorine compounds	0,05	0,05	0,3	2	1	20	25	1	20	*	Border of detectability	1	5
	VI. Other pollutants													
47	tetrahydrofurane	0,1	0,1	1	4	2	40	50	2	40	*	0,5	20	60
48	piridyne	0,1	0,1	0,5	2	1	20	30	1	20	*	0,5	10	30
49	tetrahydrotioftene	0,1	0,1	1	5	2	50	60	2	50	*	5	20	60
50	cyclohexane	0,1	0,1	1	6	5	60	80	5	60	*	0,5	15	50
51	styrene	0,1	0,1	1	5	2	50	60	2	50	*	0,5	20	60
52	phthalein	0,1	0,1	15	50	30	500	600	30	500	*	0,5	10	50
53	total PAH's oxidants	1	1	50	200	100	2000	1000	100	2000	*	0,2	100	400
54	mineral oil	30	50	200	1000	1000	5000	3000	1000	5000	*	50	200	600
55	total petrol	20	20	50	100	200	800	500	200	800	*	10	40	150

remarks:

To **area's A** included among others :

- legally protected terrains (e.g. national parks, reserves),

- mining areas of heal waters of (accord to of Instruction of Minister of Health and Social Cares),
- areas of power supply of usable reservoirs of underground waters as well as protective zones of sources and grasps of underground waters

To **area's B** included among others:

- agricultural entering of tillages terrains into nutritional chain (tillages of cereals, pastures, orchards)
- forest areas
- terrains of housing's building
- terrains of recreation, rest and places of public usefulness

To **area's C** included among others:

- institutions industrial,
- store-houses of smooth fuels and solid,
- communication rout - road, track-way,
- engine-houses,
- place of storing of wastes
- firing ground of military
- airports,
- terrain of tillages of industrial plants

* - in this zone, about possible undertaking of recultivation works decides quality of underground waters i.e. if value of contamination is in crossing degree of value of parameters for underground waters, definite in present schedule for area C