

TRESHOLD VALUES OF DRINKING WATER**- Part 1 -**

A. ORGANOLEPTIC FACTORS					
No.	Parameter	Measuring unit	Standard	Value according to guideline of	
				EC	WHO
A1	Colour	Mg/1 Pt/Co	1	20	15
A2	Coefficient of spectral adsorption	m ⁻¹ (Hg 436 nm)	-	- (0.5)	-
A3a	Muddiness	Mg/1 SiO ₂	1	10	-
A3b	Muddiness	NTU = TE/F	-	- (1.5)	5
A4	Cloudiness	Secchi-disk, m	6	2	-
A5	Threshold value for smell	Factor of dilution	0	2 at 12°C 3 at 25°C	-
A6	Threshold value for taste	Factor of dilution	0	2 at 12°C 3 at 25°C	-
B. PHYSICO-CHEMICAL PARAMETERS (In connection with the natural composition of water)					
B1	Temperature	°C	12	25	n.g. ⁽¹⁾
B2	Concentration of hydrogenions	pH-Value	6.5-8.5	6.5 - 9.5 ⁽³⁾	6.5 - 8.5 (The water should not be aggressive)
B3	Conductivity	µS/cm (at 20°C)	400	max. 2000 at 25°C	
B4	Total Hardness	see F.			
B5	Residue of evaporation	mg/l (at 180°)	-	1500	100 0
B6	Saturation of oxygen	% of O ₂ -saturation	SSI > 75% (except ground water)		n.g. ⁽¹⁾
B7	Free carbon dioxide	mg/l CO ₂	The water should not be aggressive		
B8	Chlorine	mg/l Cl	25	max. 250	max. 250
B9	Sulphate	mg/l SO ₄	25	250	400
B10	Calcium	mg/l Ca	100	max. 400	-
B11	Magnesium	mg/l Mg	30	50	-
B12	Sodium	mg/l Na	20	150	n.h. ⁽²⁾
B13	Potassium	mg/l K	10	12	-
B14	Aluminium	mg/l Al	0.05	0.2	0.2
B15	Silicic acid. ⁽⁴⁾	mg/l SiO ₂	-	-	-

⁽¹⁾ No guideline value set

⁽²⁾ No health-related guideline set

⁽³⁾ In presence of metallic or cement containing materials and in the pH-range of 6.5 to 8.0, except if passivate steel is in use, the pH-value has to be no less than 0.2 pH-units below the point of saturation by CaCO₂. The same is valid for fibrous cement materials, however in a pH-range of 6.5 to 9.5.

⁽⁴⁾ See art. 8 of the convention.

TRESHOLD VALUES OF DRINKING WATER**- Part 2 -**

C. FOR UNDISERABLE SUBSTANCES (At too high concentrations)					
C1	Nitrate	mg/l NO ₃	25	50	44
C2	Nitrite	mg/l NO ₂	-	0.1	n.g. ⁽¹⁾
C3	Ammonium	mg/l NH ₄	0.05	0.5	-
C4	Hydrogensulphide	mg/l S	Not detectable by organoleptic methods		-
C5	Cyanide	mg/l CN	-	0.05	0.1

C6	Chromium	mg/l Cr	-	0.05	0.05
C7	Mercury	mg/l Hg	-	0.001	0.001
C8	Nickel	mg/l Ni	-	0.05	n.g. ⁽¹⁾
C9	Lead	mg/l Pb	-	0.05	0.05
C10	Antimony	mg/l Sb	-	0.01	-
C11	Selenium	mg/l Se	-	0.01	0.01
C12	Vanadium	mg/l V	-	-	-
C13	Boron	mg/l B	1	1	-
C14	Iron	mg/l Fe	0.05	0.2	0.3
C15	Manganese	mg/l Mn	0.02	0.05	0.1
C16	Copper	mg/l Cu	0.1 (3)	-	1.0
C17	Zinc	mg/l Zn	0.1 (5)	-	5.0
C18	Phosphor	mg/l P ₂ O ₅	0.4	5	-
C19	Fluoride	mg/l F at 8 - 12°C at 12 - 30°C	-	- (1.5) 1.5 0.7	1.5
C20	Cobalt	mg/l Co	-	-	-
C21	Barium	mg/l Ba	0.1	-	n.g. ⁽¹⁾
C22	Silver	mg/l Ag	-	0.01	n.g. ⁽¹⁾
C23	Insoluble substances		none	-	-
C24	Residual Chlorine ⁽⁵⁾	mg/l Cl	-	- ⁽⁶⁾	-
C25	Kjeldah-Oxygen (without NO ₃ and NO ₂)	mg/l N	-	1	-
C26	Oxygen capacity (KMnO ₄)	mg/l O ₂	2	5	-
C27	Organic bounded Carbon (TOC)	mg/l C	All possible reasons of an increasing of the normal concentration has to be analysed		
C28	Substances extracted by chloroform	Residue on evaporation mg/l	0.1	1	-
C29	Hydrocarbons; mineral oils (extracted by petroleum ether)	mg/l	-	0.01	-
C30	Phenols (Phenolindex)	mg/l Phenol	-	0.0005.-	-
C31	Surface active substances (Active on Methyleneblue)	mg/l Laurylsulfate	-	0.2	n.g. ⁽¹⁾
C32	Surface active substances (anionic and not ionic)	BBAS and BIAS in µg/l	-	200	n.g. ⁽¹⁾
C33	Organic compounds of Chloride (exclusive Parameter D12)	µg/l	1	(10) ⁽³⁾	- ⁽¹⁾

⁽⁵⁾ The member-states make all necessary precaution to prevent, that for used products for the processing of water for human use, the product in the delivered water will be below the maximum tolerated concentration and that the public health will not be directly or indirectly threatened. (§ 8)

⁽⁶⁾ § 1 part 4 of the drinkingwater regulation prescribes, that residual concentration of free Chloride in the drinkingwater sanitized with Chloride, with Sodium-, Manganese- or Calciumhypochloride or with Calciumchloride will be below 0.1 mg/l. The residual concentration has to be lower than 0.05 mg/l ClO₂, when Dioxide of Chloride is used for disinfection.

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- Part 3 -

D. MICROBIOLOGICAL PARAMETERS FOR TOXIC SUBSTANCES					
D1	Arsenic	µg/l As	-	50	50
D2	Beryllium	µg/l Be	-	-	n.g. ⁽¹⁾
D3	Cadmium	µg/l Cd	-	5	5
D4	Cyanide	µg/l CN	-	50	100
D5	Chromium	µg/l Cr	-	50	50
D6	Mercury	µg/l Hg	-	1	1
D7	Nickel	µg/l Ni	-	50	n.g. ⁽¹⁾

D8	Lead	µg/l Pb	-	50	50
D9	Antimony	µg/l Sb	-	10	-
D10	Selenium	µg/l Se	-	10	10
D11	Vanadium	µg/l V	-	-	-
D12	Pesticides and similar ⁽⁷⁾ - each substance - altogether	mg/l	-	0.0001 0.0005	(8)
D13	Polycyclic aromates HC ⁽⁹⁾	mg/l HC	-	0.0002 ⁽⁹⁾	(10)

E. MICROBIOLOGICAL PARAMETERS

No.	Parameter	ml Testquantity and Temp of incubation	Standard	Allowable max concentration		WHO-Guideline
				MF ⁽¹¹⁾	MPN ⁽¹²⁾	
E1	Coliform bacteria ⁽¹³⁾	100 ml (36°C)	-	0 ⁽¹³⁾	<1	0 ^{(13), (14)}
E2	E. coli	100 ml (36°C)	-	0	<1	0
E3	Faecal-Streptococci	100 ml (36°C)	-	0	<1	-
E4	Clostridium	20 ml (36°C)	-	0	≤1	-
E5	Number of Colonies ⁽¹⁵⁾ of freshly delivered water	1 ml (36°C)	10	-	-	-
		1 ml (20°C)	100 ⁽¹⁶⁾	-	-	-
E6	Number of Colonies in closed recipients ⁽¹⁷⁾	1 ml (36°C)	5	20	-	-
		1 ml (20°C)	20	100	-	-

⁽⁷⁾ Pesticides and similar products are: insect extermination-products (organic Chloride or Phosphorous compounds, Carbaminates), weeds extermination-products, fungicidals, PCB and PCT.

⁽⁸⁾ The following substances are mentioned: (Measuring units are in µg/l) DDT 1, Aldrine and Dieldine 0.03, Clorodane 0.3, Hexachlorobezene 0.01, Heptachlorine and Heptachlorineepoxide 0.1, Lindane 3, Methoxychlorine 30, 2,4-D 100.

⁽⁹⁾ Reference compounds: Fluorantene, Benzo-(b)-Fluorantene, Benzo-(k)-Fluorantene, Benzo-(a)-Pyrene, Benzo-(ghi)-Peylene, Indeno-(1,2,3-cd)-Pyrene.

⁽¹⁰⁾ Only Benzo-(a)-Pyrene is listed with 0.01 µg/l.

⁽¹¹⁾ MF: Membrane-filter-method

⁽¹²⁾ MPN: Multiple-tubes-method; Most Probable Number

⁽¹³⁾ The threshold value of the EU-guidelines is observed, when 95% of at least 40 tests of coliform bacteria are negative. The WHO prescribes 98% negative tests throughout the year for untreated water entering the distribution network, respectively 95% for water within the distribution network.

⁽¹⁴⁾ Occasionally up to 3 germs may be detected in a single test of untreated water entering the distribution network, respectively in the water inside the distribution network, however never in two or more successive tests.

⁽¹⁵⁾ The corresponding values of disinfected water have to be distinctly lower for water leaving of the processing unit.

⁽¹⁶⁾ According to the EU-guidelines the number of germs should never exceed 20 per ml in a disinfected drinkingwater.

⁽¹⁷⁾ The value must be measured within 12 h after filling the recipient.. For this period of time the temperature must be kept at a constant value.

TRESHOLD VALUES OF DRINKING WATER

- Part 4 -

F. MINIMUM CONCENTRATION FOR WATER WHICH HAS BEEN SOFTENED AND IS DESTINATED TO HUMAN CONSUMPTION

No.	Parameter	Measuring unit	Minimum concentration	Remarks
F1	Total hardness	mg/l Ca	60	The water should not be aggressive
F2	Concentration of H ⁺			
F3	Alkalinity	mg/l HCO ₃	30	
F4	Dissolved Oxygen			