WHO's Guidelines for Drinking-water Quality

Element/ substance	Symbol/ formula	Normally found in fresh water/surface water/ground water	Health based guideline by the WHO
Aluminium	Al		0,2 mg/l
Ammonia	NH_4	< 0,2 mg/l (up to 0,3 mg/l in anaerobic waters)	No guideline
Antimony	Sb	< 4 µg/l	0.005 mg/l
Arsenic	As		0,01 mg/l
Asbestos			No guideline
Barium	Ba		0,3 mg/l
Berillium	Be	< 1 µg/l	No guideline
Boron	B	< 1 mg/l	0,3 mg/l
Cadmium	Cd	< 1 µg/l	0,003 mg/l
Chloride	Cl		250 mg/l
Chromium	Cr^{+3}, Cr^{+6}	< 2 µg/l	0,05 mg/l
Colour			Not mentioned
Copper	Cu		2 mg/l
Cyanide	CN^-		0,07 mg/l
Dissolved oxygen	O_2		No guideline
Fluoride	F	< 1,5 mg/l (up to 10)	1,5 mg/l
Hardness	mg/l $CaCO_3$		No guideline
Hydrogen sulfide	H_2S		No guideline
Iron	Fe	0,5 - 50 mg/l	No guideline
Lead	Pb		0,01 mg/l
Manganese	Mn		0,5 mg/l
Mercury	Hg	< 0,5 µg/l	0,001 mg/l
Molybdenum	Mb	< 0,01 mg/l	0,07 mg/l
Nickel	Ni	< 0,02 mg/l	0,02 mg/l
Nitrate and nitrite	NO_3, NO_2		50 mg/l total nitrogen
Turbidity			Not mentioned
pH			No guideline
Selenium	Se	< < 0,01 mg/l	0,01 mg/l
Silver	Ag	5 – 50 µg/l	No guideline
Sodium	Na	< 20 mg/l	200 mg/l
Sulfate	SO_4		500 mg/l
Inorganic tin	Sn		No guideline
TDS			No guideline
Uranium	U		1,4 mg/l
Zinc	Zn		3 mg/l

Organic compounds

Group	Substance		Formula	Health based guideline by the WHO
Chlorinated alkanes	Carbon tetrachloride		$C Cl_4$	2 µg/l
	Dichloromethane		$C H_2 Cl_2$	20 µg/l
	1,1-Dichloroethane		$C_2 H_4 Cl_2$	No guideline
	1,2-Dichloroethane		$Cl CH_2 CH_2 Cl$	30 µg/l
	1,1,1-Trichloroethane		$CH_3 C Cl_3$	2000 µg/l
Chlorinated ethenes	1,1-Dichloroethene		$C_2 H_2 Cl_2$	30 µg/l
	1,2-Dichloroethene		$C_2 H_2 Cl_2$	50 µg/l
	Trichloroethene		$C_2 H Cl_3$	70 µg/l
	Tetrachloroethene		$C_2 Cl_4$	40 µg/l
Aromatic hydrocarbons	Benzene		$C_6 H_6$	10 µg/l
	Toluene		$C_7 H_8$	700 µg/l
	Xylenes		$C_8 H_{10}$	500 µg/l
	Ethylbenzene		$C_8 H_{10}$	300 µg/l
	Styrene		$C_8 H_8$	20 µg/l
	Polynuclear Aromatic Hydrocarbons (PAHs)		$C_2 H_3 N_1 O_5 P_{1\ 3}$	0.7 µg/l
Chlorinated benzenes	Monochlorobenzene (MCB)		$C_6 H_5 Cl$	300 µg/l
	Dichlorobenzenes (DCBs)	1,2-Dichlorobenzene (1,2-DCB)	$C_6 H_4 Cl_2$	1000 µg/l
		1,3-Dichlorobenzene (1,3-DCB)	$C_6 H_4 Cl_2$	No guideline
		1,4-Dichlorobenzene (1,4-DCB)	$C_6 H_4 Cl_2$	300 µg/l
	Trichlorobenzenes (TCBs)		$C_6 H_3 Cl_3$	20 µg/l
Miscellaneous organic constituents	Di(2-ethylhexyl)adipate (DEHA)		$C_{22} H_{42} O_4$	80 µg/l
	Di(2-ethylhexyl)phthalate (DEHP)		$C_{24} H_{38} O_4$	8 µg/l
	Acrylamide		$C_3 H_5 N O$	0.5 µg/l
	Epichlorohydrin (ECH)		$C_3 H_5 Cl O$	0.4 µg/l
	Hexachlorobutadiene (HCBD)		$C_4 Cl_6$	0.6 µg/l
	Ethylenediaminetetraacetic acid (EDTA)		$C_{10} H_{12} N_2 O_8$	200 µg/l
	Nitrilotriacetic acid (NTA)		$N(CH_2COOH)_3$	200 µg/l
	Organotins	Dialkyltins	$R_2 Sn X_2$	No guideline
		Tributil oxide	$C_{24} H_{54} O Sn_2$	2 µg/l

Pesticides

Substance		Formula	Health based guideline by the WHO
Alachlor		$C_{14}H_{20}ClNO_2$	20 µg/l
Aldicarb		$C_7H_{14}N_2O_4S$	10 µg/l
Aldrin and dieldrin		$C_{12}H_8Cl_6$/ $C_{12}H_8Cl_6O$	0.03 µg/l
Atrazine		$C_8H_{14}ClN_5$	2 µg/l
Bentazone		$C_{10}H_{12}N_2O_3S$	30 µg/l
Carbofuran		$C_{12}H_{15}NO_3$	5 µg/l
Chlordane		$C_{10}H_6Cl_8$	0.2 µg/l
Chlorotoluron		$C_{10}H_{13}ClN_2O$	30 µg/l
DDT		$C_{14}H_9Cl_5$	2 µg/l
1,2-Dibromo-3-chloropropane		$C_3H_5Br_2Cl$	1 µg/l
2,4-Dichlorophenoxyacetic acid (2,4-D)		$C_8H_6Cl_2O_3$	30 µg/l
1,2-Dichloropropane		$C_3H_6Cl_2$	No guideline
1,3-Dichloropropane		$C_3H_6Cl_2$	20 µg/l
1,3-Dichloropropene		$CH_3CHClCH_2Cl$	No guideline
Ethylene dibromide (EDB)		$BrCH_2CH_2Br$	No guideline
Heptachlor and heptachlor epoxide		$C_{10}H_5Cl_7$	0.03 µg/l
Hexachlorobenzene (HCB)		$C_{10}H_5Cl_7O$	1 µg/l
Isoproturon		$C_{12}H_{18}N_2O$	9 µg/l
Lindane		$C_6H_6Cl_6$	2 µg/l
MCPA		$C_9H_9ClO_3$	2 µg/l
Methoxychlor		$(C_6H_4OCH_3)_2CHCCl_3$	20 µg/l
Metolachlor		$C_{15}H_{22}ClNO_2$	10 µg/l
Molinate		$C_9H_{17}NOS$	6 µg/l
Pendimethalin		$C_{13}H_{19}O_4N_3$	20 µg/l
Pentachlorophenol (PCP)		C_6HCl_5O	9 µg/l
Permethrin		$C_{21}H_{20}Cl_2O_3$	20 µg/l
Propanil		$C_9H_9Cl_2NO$	20 µg/l
Pyridate		$C_{19}H_{23}ClN_2O_2S$	100 µg/l
Simazine		$C_7H_{12}ClN_5$	2 µg/l
Trifluralin		$C_{13}H_{16}F_3N_3O_4$	20 µg/l
Chlorophenoxy herbicides (excluding 2,4-D and MCPA)	2,4-DB	$C_{10}H_{10}Cl_2O_3$	90 µg/l
	Dichlorprop	$C_9H_8Cl_2O_3$	100 µg/l
	Fenoprop	$C_9H_7Cl_3O_3$	9 µg/l
	MCPB	$C_{11}H_{13}ClO_3$	No guideline
	Mecoprop	$C_{10}H_{11}ClO_3$	10 µg/l
	2,4,5-T	$C_8H_5Cl_3O_3$	9 µg/l

Disinfectants and disinfectant by-products

Group	Substance		Formula	Health based guideline by the WHO
Disinfectants	Chloramines		$NH_nCl^{(3-n)}$, where n = 0, 1 or 2	3 mg/l
	Chlorine		Cl_2	5 mg/l
	Chlorine dioxide		ClO_2	No guideline
	Iodine		I_2	No guideline
Disinfectant by-products	Bromate		$Br O_3^-$	25 µg/l
	Chlorate		$Cl O_3^-$	No guideline
	Chlorite		$Cl O_2^-$	200 µg/l
	Chlorophenols	2-Chlorophenol (2-CP)	$C_6 H_5 Cl O$	No guideline
		2,4-Dichlorophenol (2,4-DCP)	$C_6 H_4Cl_2O$	No guideline
		2,4,6-Trichlorophenol (2,4,6-TCP)	$C_6H_3Cl_3O$	200 µg/l
	Formaldehyde		HCHO	900 µg/l
	MX (3-Chloro-4-dichloromethyl-5-hydroxy-2(5H)-furanone)		$C_5H_3Cl_3O_3$	No guideline
	Trihalomethanes	Bromoform	$C H Br_3$	100 µg/l
		Dibromochloromethane	$CH Br_2 Cl$	100 µg/l
		Bromodichloromethane	$CHBr Cl_2$	60 µg/l
		Chloroform	$CH Cl_3$	200 µg/l
	Chlorinated acetic acids	Monochloroacetic acid	$C_2 H_3 Cl O_2$	No guideline
		Dichloroacetic acid	$C_2 H_2 Cl_2 O_2$	50 µg/l
		Trichloroacetic acid	$C_2 H Cl_3 O_2$	100 µg/l
	Chloral hydrate (trichloroacetaldehyde)		$C Cl_3 CH(OH)_2$	10 µg/l
	Chloroacetones		$C_3 H_5 O Cl$	No guideline
	Halogenated acetonitriles	Dichloroacetonitrile	$C_2 H Cl_2 N$	90 µg/l
		Dibromoacetonitrile	$C_2 H Br_2 N$	100 µg/l
		Bromochloroacetonitrile	$CH Cl_2 CN$	No guideline
		Trichloroacetonitrile	$C_2 Cl_3 N$	1 µg/l
	Cyanogen chloride		Cl CN	70 µg/l
	Chloropicrin		$C Cl_3 NO_2$	No guideline