

# Guidelines for Drinking-water Quality

FOURTH EDITION



World Health  
Organization

**Table A3.2 (continued)**

<b>Chemical</b>	<b>Reason for not establishing a guideline value</b>
Spinosad	Not considered appropriate to set guideline values for pesticides used for vector control in drinking-water
Sulfate	Not of health concern at levels found in drinking-water <sup>c</sup>
Temephos	Not considered appropriate to set guideline values for pesticides used for vector control in drinking-water
Total dissolved solids	Not of health concern at levels found in drinking-water <sup>c</sup>
Trichloramine	Available data inadequate to permit derivation of health-based guideline value
Trichloroacetonitrile	Available data inadequate to permit derivation of health-based guideline value
Trichlorobenzenes (total)	Occur in drinking-water at concentrations well below those of health concern, and health-based value would exceed lowest reported odour threshold
1,1,1-Trichloroethane	Occurs in drinking-water at concentrations well below those of health concern
Zinc	Not of health concern at levels found in drinking-water <sup>c</sup>

<sup>a</sup> May affect acceptability of drinking-water (see chapter 10).

<sup>b</sup> Aminomethylphosphonic acid.

<sup>c</sup> An important operational water quality parameter.

**Table A3.3 Guideline values for chemicals that are of health significance in drinking-water**

<b>Chemical</b>	<b>Guideline value</b>		<b>Remarks</b>
	<b>mg/l</b>	<b>µg/l</b>	
Acrylamide	0.000 5 <sup>a</sup>	0.5 <sup>a</sup>	
Alachlor	0.02 <sup>a</sup>	20 <sup>a</sup>	
Aldicarb	0.01	10	Applies to aldicarb sulfoxide and aldicarb sulfone
Aldrin and dieldrin	0.000 03	0.03	For combined aldrin plus dieldrin
Antimony	0.02	20	
Arsenic	0.01 (A, T)	10 (A, T)	
Atrazine and its chloro- <i>s</i> -triazine metabolites	0.1	100	
Barium	0.7	700	
Benzene	0.01 <sup>a</sup>	10 <sup>a</sup>	
Benzo[ <i>a</i> ]pyrene	0.000 7 <sup>a</sup>	0.7 <sup>a</sup>	
Boron	2.4	2 400	
Bromate	0.01 <sup>a</sup> (A, T)	10 <sup>a</sup> (A, T)	
Bromodichloromethane	0.06 <sup>a</sup>	60 <sup>a</sup>	
Bromoform	0.1	100	
Cadmium	0.003	3	
Carbofuran	0.007	7	
Carbon tetrachloride	0.004	4	

## ANNEX 3. CHEMICAL SUMMARY TABLES

Table A3.3 (continued)

Chemical	Guideline value		Remarks
	mg/l	µg/l	
Chlorate	0.7 (D)	700 (D)	
Chlordane	0.000 2	0.2	
Chlorine	5 (C)	5 000 (C)	For effective disinfection, there should be a residual concentration of free chlorine of $\geq 0.5$ mg/l after at least 30 min contact time at pH < 8.0. A chlorine residual should be maintained throughout the distribution system. At the point of delivery, the minimum residual concentration of free chlorine should be 0.2 mg/l.
Chlorite	0.7 (D)	700 (D)	
Chloroform	0.3	300	
Chlorotoluron	0.03	30	
Chlorpyrifos	0.03	30	
Chromium	0.05 (P)	50 (P)	For total chromium
Copper	2	2 000	Staining of laundry and sanitary ware may occur below guideline value
Cyanazine	0.000 6	0.6	
2,4-DB <sup>b</sup>	0.03	30	Applies to free acid
2,4-DB <sup>c</sup>	0.09	90	
DDT <sup>d</sup> and metabolites	0.001	1	
Dibromoacetonitrile	0.07	70	
Dibromochloromethane	0.1	100	
1,2-Dibromo-3-chloropropane	0.001 <sup>a</sup>	1 <sup>a</sup>	
1,2-Dibromoethane	0.000 4 <sup>a</sup> (P)	0.4 <sup>a</sup> (P)	
Dichloroacetate	0.05 <sup>a</sup> (D)	50 <sup>a</sup> (D)	
Dichloroacetonitrile	0.02 (P)	20 (P)	
1,2-Dichlorobenzene	1 (C)	1 000 (C)	
1,4-Dichlorobenzene	0.3 (C)	300 (C)	
1,2-Dichloroethane	0.03 <sup>a</sup>	30 <sup>a</sup>	
1,2-Dichloroethene	0.05	50	
Dichloromethane	0.02	20	
1,2-Dichloropropane	0.04 (P)	40 (P)	
1,3-Dichloropropene	0.02 <sup>a</sup>	20 <sup>a</sup>	
Dichlorprop	0.1	100	
Di(2-ethylhexyl)phthalate	0.008	8	
Dimethoate	0.006	6	
1,4-Dioxane	0.05 <sup>a</sup>	50 <sup>a</sup>	Derived using tolerable daily intake approach as well as linearized multistage modelling

Table A3.3 (continued)

Chemical	Guideline value		Remarks
	mg/l	µg/l	
Edetic acid	0.6	600	Applies to the free acid
Endrin	0.000 6	0.6	
Epichlorohydrin	0.000 4 (P)	0.4 (P)	
Ethylbenzene	0.3 (C)	300 (C)	
Fenoprop	0.009	9	
Fluoride	1.5	1 500	Volume of water consumed and intake from other sources should be considered when setting national standards
Hexachlorobutadiene	0.000 6	0.6	
Hydroxyatrazine	0.2	200	Atrazine metabolite
Isoproturon	0.009	9	
Lead	0.01 (A,T)	10 (A,T)	
Lindane	0.002	2	
MCPA <sup>e</sup>	0.002	2	
Mecoprop	0.01	10	
Mercury	0.006	6	For inorganic mercury
Methoxychlor	0.02	20	
Metolachlor	0.01	10	
Microcystin-LR	0.001 (P)	1 (P)	For total microcystin-LR (free plus cell-bound)
Molinate	0.006	6	
Monochloramine	3	3 000	
Monochloroacetate	0.02	20	
Nickel	0.07	70	
Nitrate (as NO <sub>3</sub> <sup>-</sup> )	50	50 000	Short-term exposure
Nitrilotriacetic acid	0.2	200	
Nitrite (as NO <sub>2</sub> <sup>-</sup> )	3	3 000	Short-term exposure
N-Nitrosodimethylamine	0.000 1	0.1	
Pendimethalin	0.02	20	
Pentachlorophenol	0.009 <sup>a</sup> (P)	9 <sup>a</sup> (P)	
Selenium	0.04 (P)	40 (P)	
Simazine	0.002	2	
Sodium dichloroisocyanurate	50	50 000	As sodium dichloroisocyanurate
	40	40 000	As cyanuric acid
Styrene	0.02 (C)	20 (C)	
2,4,5-T <sup>f</sup>	0.009	9	
Terbutylazine	0.007	7	
Tetrachloroethene	0.04	40	

GUIDELINES FOR DRINKING-WATER QUALITY

Chemical	Guideline value		Remarks
	mg/l	µg/l	
Simazine	0.002	2	
Sodium dichloroisocyanurate	50	50 000	As sodium dichloroisocyanurate
	40	40 000	As cyanuric acid
Styrene	0.02 (C)	20 (C)	
2,4,5-T <sup>f</sup>	0.009	9	
Terbutylazine	0.007	7	
Tetrachloroethene	0.04	40	
Toluene	0.7 (C)	700 (C)	
Trichloroacetate	0.2	200	
Trichloroethene	0.02 (P)	20 (P)	
2,4,6-Trichlorophenol	0.2 <sup>a</sup> (C)	200 <sup>a</sup> (C)	
Trifluralin	0.02	20	
Trihalomethanes			The sum of the ratio of the concentration of each to its respective guideline value should not exceed 1
Uranium	0.03 (P)	30 (P)	Only chemical aspects of uranium addressed
Vinyl chloride	0.0003 <sup>a</sup>	0.3 <sup>a</sup>	
Xylenes	0.5 (C)	500 (C)	

A, provisional guideline value because calculated guideline value is below the achievable quantification level; C, concentrations of the substance at or below the health-based guideline value may affect the appearance, taste or odour of the water, leading to consumer complaints; D, provisional guideline value because disinfection is likely to result in the guideline value being exceeded; P, provisional guideline value because of uncertainties in the health database; T, provisional guideline value because calculated guideline value is below the level that can be achieved through practical treatment methods, source protection, etc.

<sup>a</sup> For substances that are considered to be carcinogenic, the guideline value is the concentration in drinking-water associated with an upper-bound excess lifetime cancer risk of  $10^{-5}$  (one additional case of cancer per 100 000 of the population ingesting drinking-water containing the substance at the guideline value for 70 years). Concentrations associated with upper-bound estimated excess lifetime cancer risks of  $10^{-4}$  and  $10^{-6}$  can be calculated by multiplying and dividing, respectively, the guideline value by 10.

<sup>b</sup> 2,4-Dichlorophenoxyacetic acid.

<sup>c</sup> 2,4-Dichlorophenoxybutyric acid.

<sup>d</sup> Dichlorodiphenyltrichlorethane.

<sup>e</sup> 4-(2-Methyl-4-chlorophenoxy)acetic acid.