

DEPARTMENT OF WATER AFFAIRS

GUIDELINES FOR THE EVALUATION OF DRINKING-WATER FOR HUMAN CONSUMPTION
WITH REGARD TO CHEMICAL, PHYSICAL AND BACTERIOLOGICAL QUALITY1. INTRODUCTION

- 1.1 Water supplied for human consumption must comply with the officially approved guidelines for drinking-water quality.
- 1.2 For practical reasons the approved guidelines have been divided into three basic groups of determinants, namely:

Determinants with aesthetic or physical implications, see TABLE 1 attached.

Inorganic determinants, see TABLE 2 attached.

Bacteriological determinants, see TABLE 3 attached.

2. CLASSIFICATION OF WATER

- 2.1 The concentration of and limits for the aesthetic, physical and inorganic determinants define the group into which water will be classified. See TABLE 1 and TABLE 2 for these limits.

Group A: Water with an excellent quality

Group B: Water with good quality

Group C: Water with low health risk

Group D: Water with a higher health risk, or water unsuitable for human consumption.

- 2.2 Water should ideally be of excellent quality (Group A) or good quality (Group B), however in practice many of the determinants may fall outside the limits for these groups.
- 2.3 If water is classified as having a low health risk (Group C), attention should be given to this problem, although the situation is not critical yet.
- 2.4 If water is classified as having a higher health risk (Group D), urgent and immediate attention should be given to this matter. Since the limits are defined on the basis of average lifelong consumption, short term exposure to determinants exceeding their limits is not necessarily critical, but in the case of extremely toxic substances such as cyanide, remedial procedures should immediately be taken.

2.5 The group in which the water is classified is determined by the determinant which complies the least with the guidelines for the quality of drinking-water.

2.6 The bacteriological quality of drinking-water is also divided into four groups, namely:

Group A: Water which is bacteriologically very safe

Group B: Water which is bacteriologically still suitable for human consumption

Group C: Water with a bacteriological risk for human consumption which requires immediate action for rectification

Group D: Water which is bacteriologically unsuitable for human consumption

3. FREQUENCY FOR BACTERIOLOGICAL ANALYSIS OF DRINKING-WATER SUPPLIES

The recommended frequency for bacteriological analysis of drinking-water supplies is given below in TABLE 4.

TABLE 4: FREQUENCY FOR BACTERIOLOGICAL ANALYSIS

POPULATION SERVED	MINIMUM FREQUENCY OF SAMPLING
More than 100 000	twice a week
50 000 - 100 000	once a week
10 000 - 50 000	once a month
Minimum analysis	once every three months

4. PROMULGATION

The Cabinet of the Transitional Government for National Unity has approved the guidelines for evaluating drinking-water for human consumption with respect to the chemical, physical and bacteriological qualities, by Cabinet's Approval 461/85 and reporting on the evaluation of drinking-water according to the new guidelines took effect as from 1 April 1988.


SECRETARY FOR WATER AFFAIRS

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TABLE 1: DETERMINANTS WITH AESTHETIC/PHYSICAL IMPLICATIONS

DETERMINANTS	UNITS	LIMITS FOR GROUPS			
		A	B	C	D*
Colour	mg/l Pt**	20	-	-	-
Conductivity	mS/m 25°C	150	300	400	400
Total hardness	mg/l CaCO ₃	300	650	1 300	1 300
Turbidity	N.T.U.***	1	5	10	10
Chloride	mg/l Cl	250	600	1 200	1 200
Chlorine (free)	mg/l Cl	0,1-5,0	0,1-5,0	0,1-5,0	5,0
Fluoride	mg/l F	1,5	2,0	3,0	3,0
Sulphate	mg/l SO ₃	200	600	1 200	1 200
Copper	µg/l Cu	500	1 000	2 000	2 000
Nitrate	mg/l N	10	20	40	40
Hydrogen Sulphide	µg/l H ₂ S	100	300	600	600
Iron	µg/l Fe	100	1 000	2 000	2 000
Manganese	µg/l Mn	50	1 000	2 000	2 000
Zinc	mg/l Zn	1	5	10	10
pH****	pH-unit	6,0-9,0	5,5-9,5	4,0-11,0	4,0-11,0

* All values greater than the figure indicated.

** Pt = Platinum Units.

*** Nephelometric Turbidity Units.

**** The pH limits of each group exclude the limits of the previous group.

TABLE 2: INORGANIC DETERMINANTS

DETERMINANTS	UNITS	LIMITS FOR GROUPS			
		A	B	C	D*
Aluminium	µg/l Al	150	500	1 000	1 000
Ammonia	mg/l N	1	2	4	4
Antimony	µg/l Sb	50	100	200	200
Arsenic	µg/l As	100	300	600	600
Barium	µg/l Ba	500	1 000	2 000	2 000
Beryllium	µg/l Be	2	5	10	10
Bismuth	µg/l Bi	250	500	1 000	1 000
Boron	µg/l B	500	2 000	4 000	4 000
Bromine	µg/l Br	1 000	3 000	6 000	6 000
Cadmium	µg/l Cd	10	20	40	40
Calcium	mg/l Ca	150	200	400	400
	mg/l CaCO ₃	375	500	1 000	1 000
Cerium	µg/l Ce	1 000	2 000	4 000	4 000
Chromium	µg/l Cr	100	200	400	400
Cobalt	µg/l Co	250	500	1 000	1 000
Cyanide(free)	µg/l CN	200	300	600	600
Gold	µg/l Au	2	5	10	10
Iodine	µg/l I	500	1 000	2 000	2 000
Lead	µg/l Pb	50	100	200	200
Lithium	µg/l Li	2 500	5 000	10 000	10 000
Magnesium	mg/l Mg	70	100	200	200
	mg/l CaCO ₃	290	420	840	840
Mercury	µg/l Hg	5	10	20	20
Molybdenum	µg/l Mo	50	100	200	200
Nickel	µg/l Ni	250	500	1 000	1 000
Potassium	mg/l K	200	400	800	800
Selenium	µg/l Se	20	50	100	100
Silver	µg/l Ag	20	50	100	100
Sodium	mg/l Na	100	400	800	800
Tellium	µg/l Te	2	5	10	10
Thallium	µg/l Tl	5	10	20	20
Tin	µg/l Sn	100	200	400	400
Titanium	µg/l Ti	100	500	1 000	1 000
Tungsten	µg/l W	100	500	1 000	1 000
Uranium	µg/l U	1 000	4 000	8 000	8 000
Vanadium	µg/l V	250	500	1 000	1 000

* All values greater than the figure indicated.

TABLE 3: BACTERIOLOGICAL DETERMINANTS

DETERMINANTS (COUNTS)	LIMITS FOR GROUPS			
	A **	B **	C	D*
Standard plate counts per 1 ml	100	1 000	10 000	10 000
Total coliform counts per 100 ml	0	10	100	100
Faecal coliform counts per 100 ml	0	5	50	50
E. coli counts per 100 ml	0	0	10	10

* All values greater than the figure indicated.

** In 95% of the samples.

NB If the guidelines in Group A are exceeded, a follow-up sample should be analysed as soon as possible.